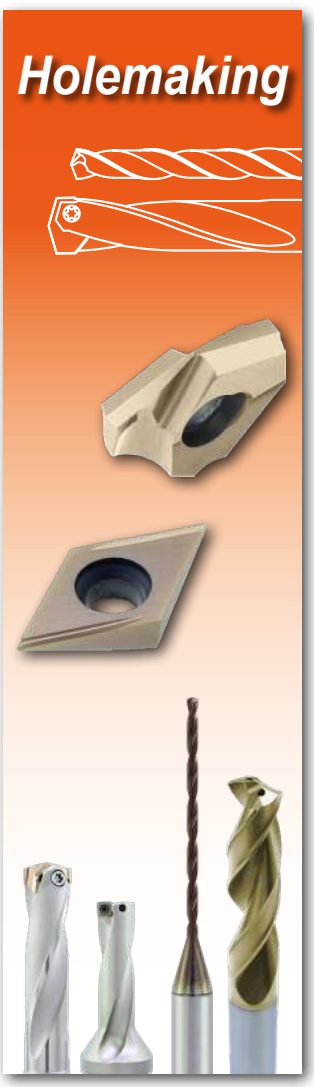
GCL INTERNATIONAL UKAS MANAGEMENT SYSTEMS ISO 9001 5965

WINSTAR

Cutting Tools Catalogue 2021



WINSTAR CUTTING TECHNOLOGIES CORP.

Vol.21

Chasing the dream and passion in developing the high quality cutting tools, Winstar Cutting Technologies Corp. was established in 2008.

Winstar has worked out the research department. We are developing the innovative technologies such as sintering, grinding, coating and polishing. All the tooling design, production and inspection process are completed in Winstar plant.

Winstar has been always dedicating to create the excellent quality tools in the industries of die & mold, automotive, aircraft, and machinery...etc. Our products have been distributed in the Europe, America, Oceania, Asia and all around the world.

We believe in providing the exceptional products and building long terms relationship with our valuable customers are the keys to success. Hand in hand we will be growing together in a family.

Welcome Joining the Winstar Family!

Patent & Certification

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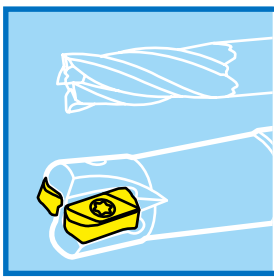

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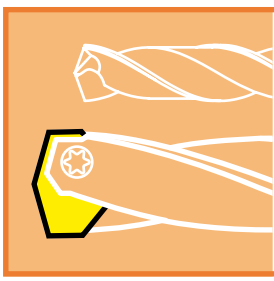

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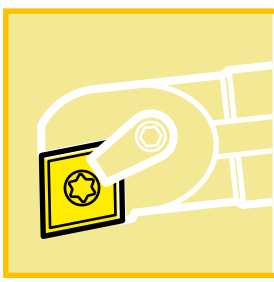

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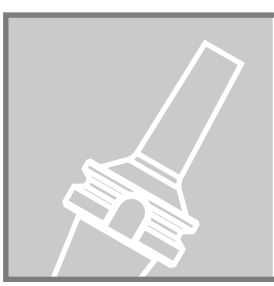

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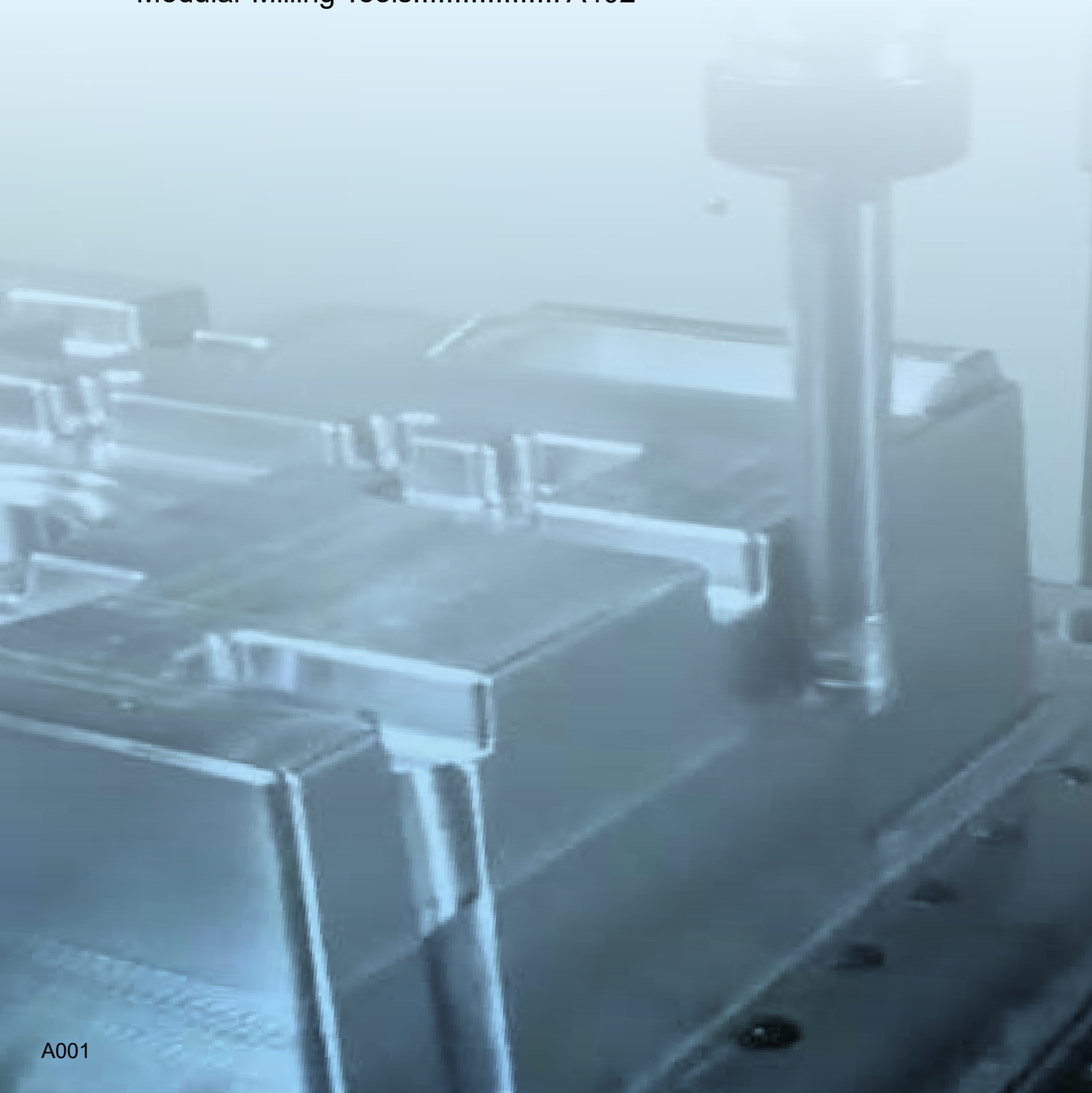

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H700 Series *for high feed milling (Hardened steel HRC 40~68)*

Appearance	Series	Code No.	Ø Range	Num. of Teeth	Helix Angle	Coating	Working Materials P	M	K	N	S	H	Page
	High Helix · Square · 6F	EHSSS	Ø6~Ø14	6	45°	SICO	●	○	●		○	●	A011
	High Helix · Square · 8F	EHSSS	Ø16~Ø20	8	45°	SICO	●	○	●		○	●	A011
	High Helix · Short Flute · Square · 4F	EHSUS	Ø1~Ø5	4	45°	SICO	●	○	●		○	●	A012
	High Helix · Short Flute · Square · 6F	EHSUS	Ø6~Ø12	6	45°	SICO	●	○	●		○	●	A012
	High Helix · Short Flute · Square · 8F	EHSUS	Ø16~Ø20	8	45°	SICO	●	○	●		○	●	A012
	Low Helix · Short Flute · Ball Nose · 2F	EHBUS	0.5R~8R	2	15°	SICO	●	○	●		○	●	A013
	High Feed · Short Flute · Corner Radius · 4F	EHCUK	Ø2~Ø12	4	0°	SICO	●	○	●		○	●	A014
	High Feed · Corner Radius · 4F	EHCUS	Ø1~Ø12	4	0°	SICO	●	○	●		○	●	A015

H680 Series *for high precision milling (Hardened steel HRC 40~68)*

	High Precision · Square · 4F	EHSSF	Ø1~Ø12	4	45°	SICO-TH	●	○	●		○	●	A017
	High Precision · Long Shank · Square · 4F	EHSLF	Ø4~Ø16	4	45°	SICO-TH	●	○	●		○	●	A018
	High Precision · Ball Nose · 2F	EHBSF	0.5R~6R	2	30°	SICO-TH	●	○	●		○	●	A019
	High Precision · Long Shank · Ball Nose · 2F	EHBLF	2R~6R	2	30°	SICO-TH	●	○	●		○	●	A020
	High Precision · Short with Neck · Ball Nose · 2F	EHBUF	0.5R~6R	2	30°	SICO Pro	●	○	●		○	●	A021
	High Precision · Corner Radius · 4F	EHCSF	Ø1~Ø12	4	30°	SICO-TH	●	○	●		○	●	A022
	High Precision · Long Shank · Corner Radius · 4F	EHCLF	Ø4~Ø12	4	30°	SICO-TH	●	○	●		○	●	A023

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H650 Series *for high speed general milling (Hardened steel HRC 40~68)*

Appearance	Series	Code No.	Ø Range	Num. of Teeth	Helix Angle	Coating	Working Materials P	M	K	N	S	H	Page
	High Helix · Square · 2F / 4F	EHSSH	Ø0.2~Ø20	4	45°	ARCO	●	○	●		○	●	A025
	High Helix · Long Shank · Square · 4F	EHSLH	Ø3~Ø20	4	45°	ARCO	●	○	●		○	●	A026
	Ball Nose · 2F	EHBSH	0.1R~8R	2	30°	ARCO	●	○	●		○	●	A027
	Long Shank · Ball Nose · 2F	EHBLH	1R~10R	2	30°	ARCO	●	○	●		○	●	A028
	Short Flute · Ball Nose · 2F	EHBUH	1R~8R	2	27°	SICO	●	○	●		○	●	A029
	Taper Neck · Ball Nose · 2F	EHBRT	0.5R~6R	2	30°	ARCO	●	○	●		○	●	A030
	Corner Radius · 4F	EHCSH	Ø1~Ø12	4	30°	ARCO	●	○	●		○	●	A031
	Long Shank · Corner Radius · 4F	EHCLH	Ø4~Ø12	4	30°	ARCO	●	○	●		○	●	A032
	Short Flute · Corner Radius · 4F	EHCUH	Ø3~Ø12	4	30°	SICO	●	○	●		○	●	A033
	Double Corner High Feed EndMill · 4F / 6F	EHWSA	Ø3.175~16	6	38°	SICO	●	○	●		○	●	A034
	Long Neck · Square · 2F	EHSRC	Ø0.2~Ø12	2	30°	ARCO	●	○	●		○	●	A035
	Long Neck · Square · 4F	EHSRC	Ø1~Ø12	4	30°	ARCO	●	○	●		○	●	A041
	Long Neck · Ball Nose · 2F	EHBRC	0.15R~6R	2	30°	ARCO	●	○	●		○	●	A044
	Long Neck · Corner Radius · 2F	EHCRC	Ø1~Ø12	2	30°	ARCO	●	○	●		○	●	A049
	Long Neck · Corner Radius · 4F	EHCRC	Ø2~Ø12	4	30°	ARCO	●	○	●		○	●	A056

H600 Series *for general milling (Hardened steel HRC 40~68)*

	Square · 2F	EHSSC	Ø1~Ø20	2	30°	SICO	●	○	●		○	●	A062
	Square · 4F	EHSSC	Ø3~Ø25	4	30°	SICO	●	○	●		○	●	A063
	High Helix · Square · 4F	EHSSD	Ø1~Ø16	4	45°	SICO	●	○	●		○	●	A064
	Short Flute · Square · 4F	EHSHC	Ø1~Ø6	4	30°	SICO	●	○	●		○	●	A065
	Long Shank · Square · 4F	EHSLC	Ø4~Ø16	4	30°	SICO	●	○	●		○	●	A066
	Long Flute · Square · 4F	EHSCC	Ø3~Ø20	4	35°	SICO	●	○	●		○	●	A067
	Extra Long Flute · Square · 4F	EHSCH	Ø6~Ø12	4	45°	SICO	●	○	●		○	●	A068
	Ball Nose · 2F	EHBSC	1.5R~10R	2	30°	SICO	●	○	●		○	●	A069
	Long Shank · Ball Nose · 2F	EHBLC	2R~10R	2	30°	SICO	●	○	●		○	●	A070
	Spherical Ball Nose · 2F	EHRRC	1R~3R	2	15°	SICO	●	○	●		○	●	A071
	Corner Radius · 4F	EHCSC	Ø1~Ø16	4	30°	SICO	●	○	●		○	●	A072
	Long Shank · Corner Radius · 4F	EHCLC	Ø4~Ø16	4	30°	SICO	●	○	●		○	●	A073

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G550 Series *for general milling (Hardened steel & Steel HRC 25~55)*

Appearance	Series	Code No.	Ø Range	Num. of Teeth	Helix Angle	Coating	Working Materials P	M	K	N	S	H	Page
	Square · 2F	EPSSC	Ø0.2~Ø25	2	30°	UNICO	●	●	●			○	A075
	Square · 3F	EPSSC	Ø1~Ø25	3	30°	UNICO	●	●	●			○	A076
	Square · 4F	EPSSC	Ø1~Ø25	4	30°	UNICO	●	●	●			○	A077
	High Helix · Square · 4F	EPSSH	Ø1~Ø16	4	45°	UNICO	●	●	●			○	A078
	Long Flute · Square · 4F	EPSCC	Ø3~Ø25	4	35°	UNICO	●	●	●			○	A079
	High Helix · Square · 6F	EPSSH	Ø6~Ø12	6	45°	UNICO	●	●	●			○	A080
	High Helix · Long Flute · Square · 6F	EPSCH	Ø6~Ø16	6	45°	UNICO	●	●	●			○	A081
	Long Shank · Square · 2F	EPSLC	Ø4~Ø20	2	30°	UNICO	●	●	●			○	A082
	Long Shank · Square · 4F	EPSLC	Ø3~Ø20	4	30°	UNICO	●	●	●			○	A083
	Roughing · Square · 4F	EPSRR	Ø6~Ø20	4	30°	UNICO	●	●	●			○	A084
	Stub Length · Square · 2F	EPSHC	Ø0.2~Ø6	2	30°	UNICO	●	●	●		○	○	A085
	Stub Length · Square · 4F	EPSHC	Ø1~Ø6	4	30°	UNICO	●	●	●		○	○	A086
	Taper · Square · 2F	EPSST	Ø0.15~10	2	35°	UNICO	●	●	●			○	A087
	Ball Nose · 2F	EPBSC	0.1R~10R	2	30°	UNICO	●	●	●			○	A090
	Ball Nose · 4F	EPBSC	1R~10R	4	30°	UNICO	●	●	●			○	A091
	Long Shank · Ball Nose · 2F	EPBLC	1.5R~10R	2	30°	UNICO	●	●	●			○	A092
	Long Shank · Ball Nose · 4F	EPBLC	2R~8R	4	30°	UNICO	●	●	●			○	A093
	Stub Length · Ball Nose · 2F	EPBHC	0.1R~3R	2	30°	UNICO	●	●	●		○	○	A094
	Taper · Ball Nose · 2F	EPBST	1R~3R	2	30°	UNICO	●	●	●			○	A095
	Taper Neck · Ball Nose · 2F	EPBRT	0.5R~2R	2	30°	UNICO	●	●	●			○	A096
	Corner Radius · 2F	EPCSC	Ø1~Ø12	2	30°	UNICO	●	●	●			○	A097
	Corner Radius · 4F	EPCSC	Ø1~Ø16	4	30°	UNICO	●	●	●			○	A098
	High Helix · Corner Radius · 4F	EPCSH	Ø3~Ø12	4	45°	UNICO	●	●	●			○	A099
	Long Shank · Corner Radius · 4F	EPCLC	Ø4~Ø16	4	30°	UNICO	●	●	●			○	A100
	Stub Length · Corner Radius · 2F	EPCHC	Ø1~Ø6	2	30°	UNICO	●	●	●		○	○	A101
	Stub Length · Corner Radius · 4F	EPCHC	Ø2~Ø6	4	30°	UNICO	●	●	●		○	○	A102
	Taper Neck · Corner Radius · 2F	EPCRT	Ø1~Ø6	2	30°	UNICO	●	●	●			○	A103
	Inner Radius · 2F / 4F	EPISA	Ø2.9~Ø3.9	2	0°	UNICO	●	●	●			○	A105

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Appearance	Series	Code No.	Ø Range	Num. of Teeth	Helix Angle	Coating	Working Materials P	M	K	N	S	H	Page
G550 Series	***for general milling (Hardened steel & Steel HRC 25~55)***												
	Chamfering Type Endmill · 4F / 5F /6F	EPFSA	Ø4~Ø12	4	0°	UNICO	●	●	●	○	●	●	A106
	Drill Mills · 2F	EPFSC	Ø3~Ø12	2	30°	UNICO	●	●	●	○			A107
	Long Neck · Square · 2F	EPSRC	Ø0.2~Ø12	2	30°	UNICO	●	●	●			○	A108
	Long Neck · Square · 4F	EPSRC	Ø1~Ø12	4	30°	UNICO	●	●	●			○	A114
	Long Neck · Ball Nose · 2F	EPBRC	0.15R~6R	2	30°	UNICO	●	●	●			○	A117
	Long Neck · Corner Radius · 2F	EPCRC	Ø1~Ø12	2	30°	UNICO	●	●	●			○	A122
	Long Neck · Corner Radius · 4F	EPCRC	Ø2~Ø12	4	30°	UNICO	●	●	●			○	A129
V470 Series	***for high performance milling (Hardened steel & Steel HRC 25~55)***												
	Variable Spacing · Square · 4F	EPSSV	Ø3~Ø16	4	38°	UNICO	●	○	●				A135
	Variable Spacing · Square · Inch · 4F	EPS_V, EPC_V, EPF_V	Ø1/8"~1"	4	38°	UNICO	●	○	●				A136
G450 Series	***for semi-finishing (Hardened steel & Steel HRC 25~55)***												
	Square · 2F	EPSSA	Ø1~Ø25	2	35°	UNICO	●	●	●				A140
	Square · 4F	EPSSA	Ø1~Ø25	4	35°	UNICO	●	●	●				A141
V530 Series	***for Stainless Steel & High Temperature Alloy***												
	Variable Helix 30° ~ 32° · Square · 4F	ESSSVA	Ø6~Ø16	4	30~32°	SICO-TH	●	●	●		●	○	A144
	Variable Helix 35° ~ 38° · Square · 4F	ESSSVB	Ø4~Ø20	4	35~38°	SICO-TH	●	●	●		●	○	A145
	Variable Helix 38° ~ 41° · Square · 4F	ESSSVC	Ø4~Ø12	4	38~41°	SICO-TH	●	●	●		●	○	A146
	Variable Helix 38° ~ 42° · Square · 5F	ESSSVC	Ø4~Ø16	5	38~42°	SICO-TH	●	●	●		●	○	A147
	Variable Helix 43° ~ 46° · Square · 4F	ESSSVD	Ø4~Ø12	4	43~46°	SICO-TH	●	●	●		●	○	A148

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V520 Series for Stainless Steel & High Temperature Alloy

Appearance	Series	Code No.	Ø Range	Num. of Teeth	Helix Angle	Coating	Working Materials P	M	K	N	S	H	Page
	Variable Spacing · Square · 4F	EMSSV	Ø4~Ø16	4	38°	SICO	●	●	●		○	○	A150
	Variable Spacing · High Helix · Square · 4F	EMSHV	Ø8~Ø16	4	52°	SICO	●	●	●		●	○	A151
	Variable Spacing · Roughing & Finishing · Square · 4F	EMSRV	Ø6~Ø16	4	38°	SICO	●	●	●		○	○	A152
	Variable Spacing · Square · 5F	EMSSV	Ø6~Ø16	5	38°	SICO	●	●	●		●	●	A153
	Variable Spacing · Long Flute · Square · 5F	EMSCV	Ø6~Ø16	5	43°	SICO	●	●	●		●	●	A154
	Variable Spacing · Square · 7F	EMSSV	Ø10~Ø16	7	43°	SICO	●	●	●		●	●	A155
	Variable Spacing · Long Flute · Square · 7F	EMSCV	Ø10~Ø16	7	43°	SICO	●	●	●		●	●	A156
	Variable Spacing · Square · Inch · 4F	EMS_V, EMC_V, EMF_V	Ø1/8"~1"	4	38°	SICO	●	●	●		○	○	A157
	Variable Spacing · Square · Inch · 5F	EMC_V	Ø1/4"~5/8"	5	38°	SICO	●	●	●		●	●	A159
	Variable Spacing · Square · Inch · 7F	EMC_V	Ø1/4"~5/8"	7	43°	SICO	●	●	●		●	●	A160
	Variable Spacing · Ball Nose · Inch · 4F	EMB_V	Ø1/4"~5/8"	4	38°	SICO	●	●	●		●	●	A161

M500 Series for general milling (Stainless Steel & High Temperature Alloy)

	Square · 2F	ESSSA	Ø3~Ø16	2	35°	ARCO	●	●	●		●	○	A163
	Square · 4F	ESSSA	Ø1~Ø16	4	35°	ARCO	●	●	●		●	○	A164
	High Helix · U-Flute · Square · 4F	ESSSB	Ø1~Ø16	4	45°	ARCO	●	●	●		●	○	A165
	Wave Edge · Square · 3F	ESSSW	Ø6~Ø20	3	30°	ARCO	●	●	●		●	○	A166
	Wave Edge · Square · 4F	ESSSW	Ø6~Ø20	4	30°	ARCO	●	●	●		●	○	A167
	High Feed · Square · 4F	ESSSU	Ø3~Ø16	4	30°	ARCO	●	●	●		●	○	A168
	Toric · Square · 4F	ESCSU	Ø3~Ø16	4	40°	ARCO	●	●	●		●	○	A169
	Ball Nose · 2F	ESBSA	0.25R~8R	2	30°	ARCO	●	●	●		●	○	A170
	Ball Nose · 4F (For High Temperature Alloy)	ESBHS	3R~8R	4	30°	SICO	●	●	●		●	○	A171
	Corner Radius · 4F	ESCSA	Ø3~Ø12	4	30°	ARCO	●	●	●		●	○	A172

Hypex Series for 5-axis machining (Stainless Steel & High Temperature Alloy)

	5-Axis Solid Endmills · 3F	ERTSA	Ø8~Ø10	3	20~30°	SICO	●	●			●	○	A174
	5-Axis Solid Endmills · 2F	ERTSA	Ø10	2	20~30°	SICO	●	●			●	○	A174
	5-Axis Solid Endmills · 3F	ERTSB	Ø4~Ø12	3	45°	SICO	●	●			●	○	A175
	5-Axis Solid Endmills · 3 / 4F	ERTSC	Ø0.2~Ø12	3	30°	SICO	●	●			●	○	A176

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A300 Series for CFRP/GFRP milling (Non-Ferrous Metals)

Appearance	Series	Code No.	Ø Range	Num. of Teeth	Helix Angle	Coating	Working Materials P	M	K	N	S	H	Page
	CFRP/GFRP · Finishing · 6F / 8F	ECSSF	Ø6~Ø12	6	8°	NDLC				●			A178
	CFRP/GFRP · Roughing · 8~17F	ECSSR	Ø4~Ø12	8	±25°	NDLC				●			A179

A200 Series for Graphite milling (Non-Ferrous Metals)

	Square · 4F	EGSSC	Ø3~Ø12	4	30°	NDLC				●			A181
	Ball Nose · 2F	EGBSC	0.1R~6R	2	30°	NDLC				●			A182
	Corner Radius · 4F	EGCSC	Ø3~Ø12	4	30°	NDLC				●			A183
	Long Neck Square · 2F	EGSRC	Ø0.5~Ø6	2	30°	NDLC				●			A184
	Long Neck Ball Nose · 2F	EGBRC	0.25R~3R	2	30°	NDLC				●			A185
	Long Neck Corner Radius · 2F	EGCRC	Ø1~Ø6	2	30°	NDLC				●			A186

A100 Series for Aluminum alloy milling (Non-Ferrous Metals)

	Square · 1F	ENSSC	Ø1~Ø12	1	30°					●			A188
	High Helix · Square · 1F	ENSSP	Ø4~Ø12	1	45°					●			A189
	Square · 2F	ENSSS	Ø1~Ø20	2	45°					●			A190
	Square · 3F	ENSSS	Ø2~Ø20	3	45°					●			A191
	Long Flute · Square · 3F	ENSCS	Ø3~Ø20	3	45°					●			A192
	High Helix · Square · 3F	ENSSH	Ø4~Ø16	3	55°					●			A193
	High Performance · Square · 3F (for side milling)	ENSSB	Ø3~Ø20	3	45°					●			A194
	AL Finishing · Square · 3F	ENSSF	Ø1~Ø12	3	45°					●			A195
	AL-U Finishing · Square · 3F	ENSSP	Ø6~Ø16	3	45°					●			A196
	Variable Spacing · Square · 3F	ENSSV	Ø3~Ø16	3	40°					●			A197
	Roughing · Square · 3F	ENSSR	Ø6~Ø20	3	30°					●			A198
	Roughing · Square · 4F	ENSSR	Ø6~Ø20	4	30°					●			A199
	Wave Edge · Square · 3F	ENSSW	Ø6~Ø12	3	30°					●			A200
	Ball Nose · 2F	ENBSA	0.5R~3R	2	35°					●			A201
	Corner Radius · 3F	ENCSS	Ø6~Ø16	3	45°					●			A202
	Square · 4F (for CU & AL)	ENCSS	Ø5~Ø12	4	30°	NDLC				●			A203
	Long Neck Square · 2F (for CU & AL)	ENSRC	Ø0.5~Ø4	2	38°	NDLC				●			A204
	Long Neck Ball Nose · 2F (for CU & AL)	ENBRC	0.25R~2R	2	30°	NDLC				●			A205
	Long Neck Corner Radius · 2F (for CU & AL)	ENCRC	Ø0.5~Ø4	2	38°	NDLC				●			A206

ICONS Guide

Micro Grain	MG
Ultra Micro Grain	UMG
Ultra Micro Grain 0.4μm	UMG 0.4μm
Helix Angle	30°
Material Hardness	HRC 35
Unequal	Unequal
Variable Helix	Varix
UNICO Coated	UNICO
ARCO Coated	ARCO

SICO Coated	SICO
SICO-TH Coated	SICO-TH
DIA Coated	DIA
NDLC Coated	NDLC
Sharp Corner Type	
Flatland Type	
Chamfer Type	C
Corner Radius	R
Square Type 2F	2

Square Type 3F	3
Square Type 4F	4
Square Type 6F	6
Square Type 8F	8
Ball Nose 2F	2
Ball Nose 4F	4
Corner Radius 2F	2
Corner Radius 4F	4

H700 Series for high feed milling (Hardened steel HRC 40~68)

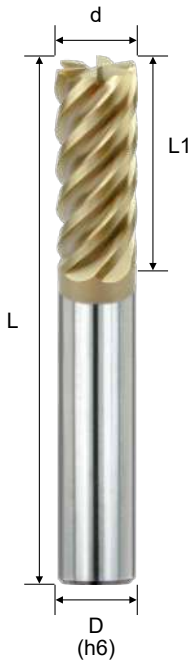
- Ultra grain carbide rods with better abrasion resistance.
- SICO coating with anti-high temperature & anti-oxidation.
- The tools with large core diameter has good rigidity.
- Negative rake angle design is suitable for machining hardened material.
- The special design of multiple flutes provide excellent surface finishing.
- We also provide NACO coating.

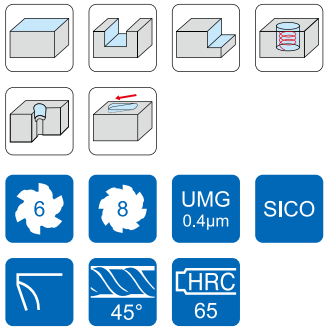
H700 - High Helix · Square · 6F / 8F

- SICO Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 Hardened Steel, maximum up to HRC 65.
- Horsepower consumption will be decreased with greater shearing action.
- High Helix and 6 Flutes design gives a good finishing surface.
- The coating can change to Naco Blue is optional.

EHSSS

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EHSSS606000S	6	15	50	6	6
EHSSS608000S	8	20	60	8	6
EHSSS610000S	10	25	75	10	6
EHSSS612000S	12	30	75	12	6
EHSSS614000S	14	30	75	14	6
EHSSS816000S	16	40	100	16	8
EHSSS818000S	18	40	100	18	8
EHSSS820000S	20	45	100	20	8
EHSSS825000S	25	45	100	25	8

Cutting conditions : Table 001

* S is SICO Coating

N is Naco Blue Coating

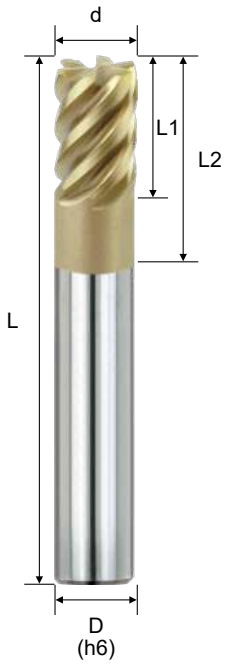
WINSTAR

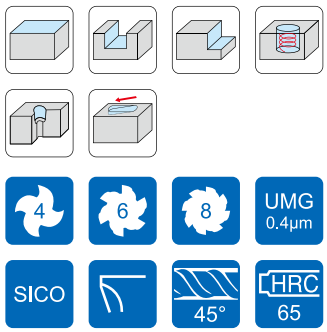
H700 - High Helix · Short Flute · Square · 4F / 6F / 8F

- SICO Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 Hardened Steel, maximum up to HRC 65.
- Greater shearing action results in increased speeds and feeds and faster stock removal.
- Prevents clogging of the flutes.
- The coating can change to Naco Blue is optional.

EHSUS

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHSUS441000S	1	1.5	2.5	50	4	4
* EHSUS442000S	2	3.0	5.0	50	4	4
EHSUS403000S	3	4.5	7.5	50	6	4
EHSUS404000S	4	6.0	10.0	50	6	4
EHSUS405000S	5	7.5	12.5	50	6	4
EHSUS606000S	6	9.0	15.0	50	6	6
EHSUS608000S	8	12.0	20.0	60	8	6
EHSUS610000S	10	15.0	25.0	75	10	6
EHSUS612000S	12	18.0	30.0	75	12	6
EHSUS816000S	16	24.0	40.0	100	16	8
EHSUS820000S	20	30.0	50.0	100	20	8
* EHSSH441000N	1	3	-	50	4	4
* EHSSH441500N	1.5	4	-	50	4	4
* EHSSH442000N	2	5	-	50	4	4
* EHSSH442500N	2.5	6	-	50	4	4
* EHSSH443000N	3	8	-	50	4	4
* EHSSH444000N	4	10	-	50	4	4

Cutting conditions：Table 002

* S is SICO Coating

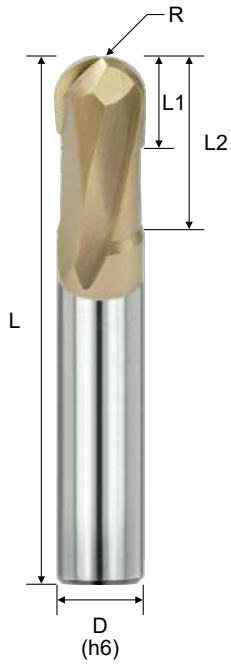
N is Naco Blue Coating

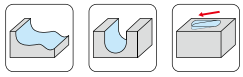
H700 - Low Helix · Short Flute · Ball Nose · 2F

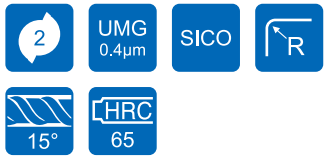
- SICO Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 Hardened Steel, maximum up to HRC 65.
- Due to short cutting length it provides an excellent surface roughness of the work pieces.
- Low helix design is suitable for hardened steel cutting.
- The coating can change to Naco Blue is optional.

EHBUS

P	M	K	N	S	H
●	○	●		○	●







R Tolerance	
R ≤ 3	±0.010
R > 3	±0.015

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHBUS241000S	0.50R	1.0	1.0	2	50	4	2
EHBUS241500S	0.75R	1.5	1.5	3	50	4	2
EHBUS202000S	1.00R	2.0	2.0	4	50	6	2
EHBUS203000S	1.50R	3.0	3.0	6	50	6	2
EHBUS204000S	2.00R	4.0	4.0	8	50	6	2
EHBUS205000S	2.50R	5.0	5.0	10	50	6	2
EHBUS206000S	3.00R	6.0	6.0	12	50	6	2
EHBUS208000S	4.00R	8.0	8.0	16	60	8	2
EHBUS210000S	5.00R	10.0	10.0	20	75	10	2
EHBUS212000S	6.00R	12.0	12.0	24	75	12	2
EHBUS216000S	8.00R	16.0	16.0	32	100	16	2

Cutting conditions：Table 003

* S is SICO Coating

N is Naco Blue Coating

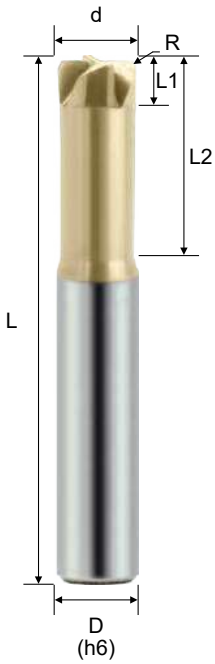
WINSTAR

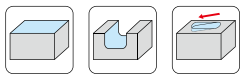
H700 - High Feed · Short Flute · Corner Radius · 4F

- SICO Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 Hardened Steel, maximum up to HRC 65.
- Cutting edges are very strong and wear resistant.
- For High speed and high feed cutting.

EHCUK

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	RADIUS (R)	Flute Length (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHCUK40200506S	2	0.5R	1.0	6	50	6	4
EHCUK40300508S	3	0.5R	1.5	8	50	6	4
EHCUK40400512S	4	0.5R	2.0	12	60	6	4
EHCUK40400516S	4	0.5R	2.0	16	60	6	4
EHCUK40401012S	4	1.0R	2.0	12	60	6	4
EHCUK40401016S	4	1.0R	2.0	16	60	6	4
EHCUK40600512S	6	0.5R	3.0	12	60	6	4
EHCUK40600515S	6	0.5R	3.0	15	60	6	4
EHCUK40601015S	6	1.0R	3.0	15	60	6	4
EHCUK40601515S	6	1.5R	3.0	15	60	6	4
EHCUK40800520S	8	0.5R	4.0	20	60	8	4
EHCUK40801020S	8	1.0R	4.0	20	60	8	4
EHCUK41000525S	10	0.5R	5.0	25	75	10	4
EHCUK41001025S	10	1.0R	5.0	25	75	10	4
EHCUK41201030S	12	1.0R	6.0	30	75	12	4
EHCUK41202030S	12	2.0R	6.0	30	75	12	4

Cutting conditions：Table 004

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

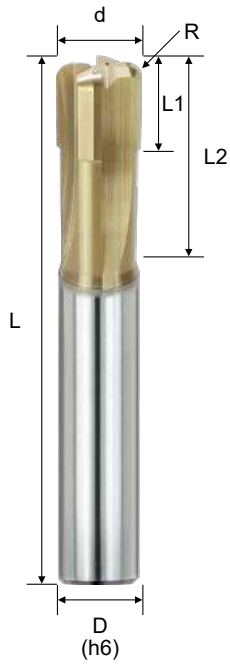
R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

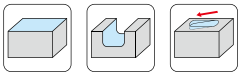
H700 - High Feed · Corner Radius · 4F

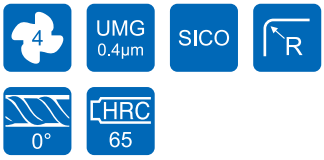
- SICO Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 Hardened Steel, maximum up to HRC 65.
- Non-Helix Design.
- Cutting edges are very strong and wear resistant.
- The coating can change to Naco Blue is optional.

EHCUS

P	M	K	N	S	H
●	○	●		○	●







Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHCUS441002S	1	0.20R	1	2.5	50	4	4
EHCUS442002S	2	0.25R	2	6.5	50	4	4
EHCUS403005S	3	0.50R	3	7.5	50	6	4
EHCUS404005S	4	0.50R	4	10.0	50	6	4
EHCUS404010S	4	1.00R	4	10.0	50	6	4
EHCUS405010S	5	1.00R	5	12.5	50	6	4
EHCUS406010S	6	1.00R	6	15.0	50	6	4
EHCUS406015S	6	1.50R	6	15.0	50	6	4
EHCUS408010S	8	1.00R	8	20.0	60	8	4
EHCUS408015S	8	1.50R	8	20.0	60	8	4
EHCUS408020S	8	2.00R	8	20.0	60	8	4
EHCUS410010S	10	1.00R	10	25.0	75	10	4
EHCUS410020S	10	2.00R	10	25.0	75	10	4
EHCUS412010S	12	1.00R	12	30.0	75	12	4
EHCUS412020S	12	2.00R	12	30.0	75	12	4
EHCUS412030S	12	3.00R	12	30.0	75	12	4

Cutting conditions：Table 005

* S is SICO Coating

N is Naco Blue Coating

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

H680 Series for high precision milling (Hardened steel HRC 40~68)

- Ultra grain carbide rods with better abrasion resistance.
- Use SICO-TH coating with anti-high temperature & anti-oxidation.
- Special geometry design, suitable for high hardened working materials.
- Comparable to Europe, America, Japan's tolerance with high precision and high performance on Finishing working situation.
- Long Tool life tools reduce tool costs and working cost effectively.

Features

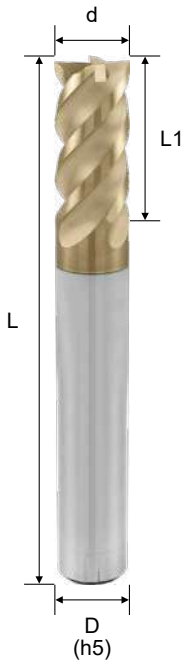
- **High Precision**
- **High Speed**
- **High Hardness**

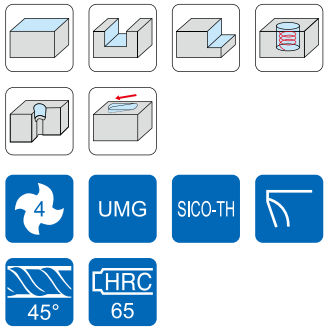
H680 - High Precision · Square · 4F

- SICO-TH Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Ultra grain carbide rods with better abrasion resistance.
- Special geometry design, suitable for high hardened working materials.

EHSSF

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 6	0 ~ -0.01
d > 6	0 ~ -0.02

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHSSF441000S	1.0	3	50	4	4
* EHSSF441500S	1.5	4	50	4	4
* EHSSF442000S	2.0	5	50	4	4
* EHSSF442500S	2.5	6	50	4	4
EHSSF403000S	3.0	8	50	6	4
EHSSF404000S	4.0	10	50	6	4
EHSSF405000S	5.0	13	50	6	4
EHSSF406000S	6.0	15	50	6	4
EHSSF408000S	8.0	20	60	8	4
EHSSF410000S	10.0	25	75	10	4
EHSSF412000S	12.0	30	75	12	4

Cutting conditions：Table 006

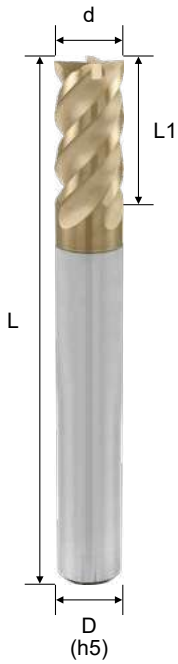
WINSTAR

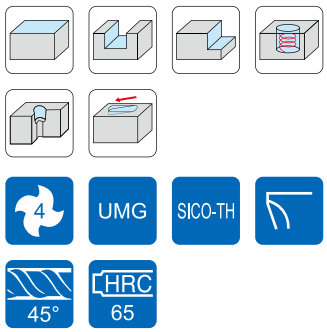
H680 - High Precision · Long Shank · Square · 4F

- SICO-TH Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Ultra grain carbide rods with better abrasion resistance.
- Special geometry design, suitable for high hardened working materials.

EHSLF

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 6	0 ~ -0.02
d > 6	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
Helix angle : 45°					
* EHSLF404007S	4	10	75	6	4
* EHSLF406007S	6	15	75	6	4
* EHSLF406010S	6	15	100	6	4
* EHSLF408007S	8	20	75	8	4
* EHSLF408010S	8	20	100	8	4
* EHSLF410010S	10	25	100	10	4
* EHSLF412010S	12	30	100	12	4
Helix angle : 50°					
EHSMF606000S	6	15	50	6	6
EHSMF608000S	8	20	60	8	6
EHSMF610000S	10	25	75	10	6
EHSMF612000S	12	30	75	12	6
EHSMF816000S	16	40	100	16	8

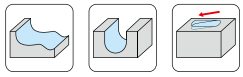
Cutting conditions : Table 006

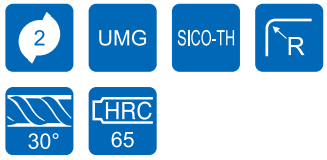
H680 - High Precision · Ball Nose · 2F

- SICO-TH Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Ultra grain carbide rods with better abrasion resistance.
- R tolerance ±5μm with high precision and high performance on Finishing working situation.
- Special geometry design, suitable for high hardened working materials.

EHBSF

P	M	K	N	S	H
●	○	●		○	●





R Tolerance	
R ≤ 3	±0.005
R > 3	±0.007

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHBSF241000S	0.5R	1	2	50	4	2
* EHBSF242000S	1.0R	2	4	50	4	2
* EHBSF244000S	2.0R	4	8	50	4	2
EHBSF203000S	1.5R	3	6	50	6	2
EHBSF204000S	2.0R	4	8	50	6	2
EHBSF206000S	3.0R	6	12	50	6	2
EHBSF208000S	4.0R	8	16	60	8	2
EHBSF210000S	5.0R	10	20	75	10	2
EHBSF212000S	6.0R	12	24	75	12	2

Cutting conditions：Table 007

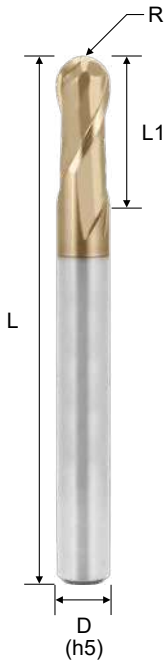
WINSTAR

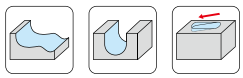
H680 - High Precision · Long Shank · Ball Nose · 2F

- SICO-TH Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Ultra grain carbide rods with better abrasion resistance.
- R tolerance ±5μm with high precision and high performance on Finishing working situation.
- Special geometry design, suitable for high hardened working materials.

EHBLF

P	M	K	N	S	H
●	○	●		○	●





R Tolerance	
R ≤ 3	±0.007
R > 3	±0.010

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHBLF204007S	2R	4	8	75	6	2
* EHBLF206007S	3R	6	12	75	6	2
* EHBLF206010S	3R	6	12	100	6	2
* EHBLF208007S	4R	8	16	75	8	2
* EHBLF208010S	4R	8	16	100	8	2
* EHBLF210010S	5R	10	20	100	10	2
* EHBLF212010S	6R	12	24	100	12	2

Cutting conditions：Table 007

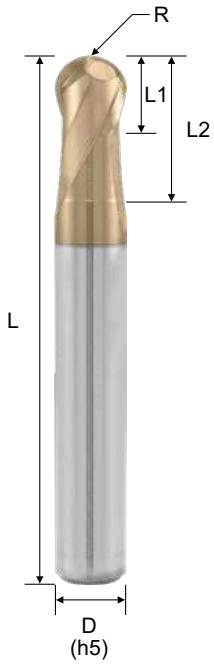
H680 Pro - High Precision · Short with Neck · Ball Nose · 2F

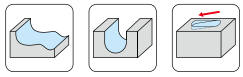
- SICO Pro coating improve heat and oxidation resistance.
- Special SR geometry design with wear resistance, good chip discharge and high rigidity.
- For hardened materials milling from HRC 40 to HRC 60.
- High-efficiency for roughing and high feed finishing.
- SICO Pro coating includes Al, Ti, Si, N elements.

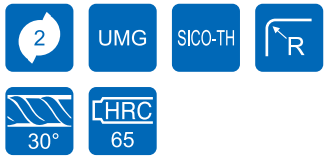
H680 Pro

EHBUF

P	M	K	N	S	H
●	○	●		○	●







R Tolerance	
R ≤ 3	±0.005
R > 3	±0.007

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHBUF241000PS	0.50R	1.0	1.0	2	50	4	2
EHBUF241500PS	0.75R	1.5	1.5	3	50	4	2
EHBUF242000PS	1.00R	2.0	2.0	4	50	4	2
EHBUF243000PS	1.50R	3.0	3.0	6	50	4	2
EHBUF244000PS	2.00R	4.0	4.0	8	50	4	2
EHBUF206000PS	3.00R	6.0	6.0	12	50	6	2
EHBUF208000PS	4.00R	8.0	8.0	16	60	8	2
EHBUF210000PS	5.00R	10.0	10.0	20	75	10	2
EHBUF212000PS	6.00R	12.0	12.0	24	75	12	2

Cutting conditions：Table 007

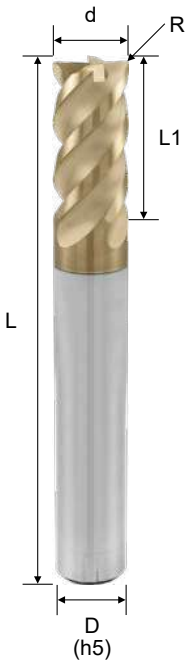
WINSTAR

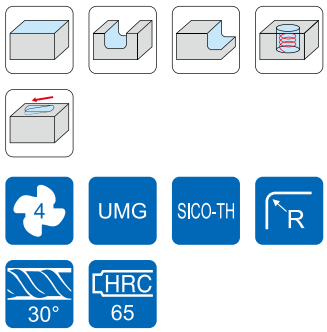
H680 - High Precision · Corner Radius · 4F

- SICO-TH Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Ultra grain carbide rods with better abrasion resistance.
- Special geometry design, suitable for high hardened working materials.

EHCSF

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHCSF441001S	1.0	0.1R	2	50	4	4
* EHCSF441002S	1.0	0.2R	2	50	4	4
* EHCSF441501S	1.5	0.1R	3	50	4	4
* EHCSF441502S	1.5	0.2R	3	50	4	4
* EHCSF442001S	2.0	0.1R	4	50	4	4
* EHCSF442002S	2.0	0.2R	4	50	4	4
* EHCSF442005S	2.0	0.5R	4	50	4	4
* EHCSF443002S	3.0	0.2R	6	50	4	4
* EHCSF443005S	3.0	0.5R	6	50	4	4
EHCSF403005S	3.0	0.5R	6	50	6	4
* EHCSF444002S	4.0	0.2R	8	50	4	4
* EHCSF444005S	4.0	0.5R	8	50	4	4
EHCSF404005S	4.0	0.5R	8	50	6	4
EHCSF404010S	4.0	1.0R	8	50	6	4
EHCSF406005S	6.0	0.5R	12	50	6	4
EHCSF406010S	6.0	1.0R	12	50	6	4
EHCSF406002S	6.0	0.2R	12	50	6	4
EHCSF406003S	6.0	0.3R	12	50	6	4
EHCSF408005S	8.0	0.5R	16	60	8	4
EHCSF408010S	8.0	1.0R	16	60	8	4
EHCSF410005S	10.0	0.5R	20	75	10	4
EHCSF410010S	10.0	1.0R	20	75	10	4
EHCSF412005S	12.0	0.5R	24	75	12	4
EHCSF412010S	12.0	1.0R	24	75	12	4

Cutting conditions：Table 006

d Tolerance	
d ≤ 6	0 ~ -0.01
d > 6	0 ~ -0.02

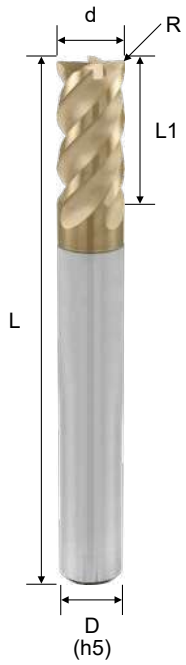
R Tolerance	
R < 2	±0.010
R ≥ 2	±0.015

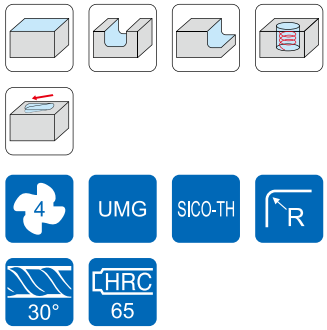
H680 - High Precision · Long Shank · Corner Radius · 4F

- SICO-TH Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Ultra grain carbide rods with better abrasion resistance.
- Special geometry design, suitable for high hardened working materials.

EHCLF

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHCLF40400507S	4	0.5R	8	75	6	4
* EHCLF40600507S	6	0.5R	12	75	6	4
* EHCLF40600510S	6	0.5R	12	100	6	4
* EHCLF40800507S	8	0.5R	16	75	8	4
* EHCLF40800510S	8	0.5R	16	100	8	4
* EHCLF41000510S	10	0.5R	20	100	10	4
* EHCLF41200510S	12	0.5R	24	100	12	4

Cutting conditions：Table 006

d Tolerance	
d ≤ 6	0 ~ -0.02
d > 6	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

H650 Series for high speed general milling (Hardened steel HRC 40~68)

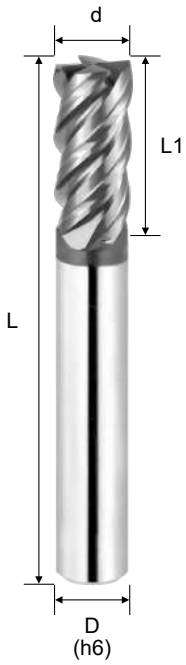
- Ultra grain carbide rods with better abrasion resistance.
- SICO coating with anti-high temperature & anti-oxidation.
- ARCO coating shows good performance in coolant machining.
- Large core diameter promote its rigidity of the tool.
- Negative rake angle design is suitable for machining hardened material.
- Long tool-life and good performance in hardened steel material.

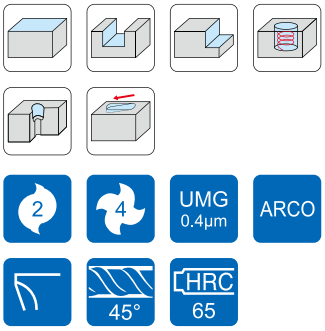
H650 - High Helix · Square · 2F / 4F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- UMG Carbide with Incredible toughness and wear resistance at hi speeds.
- Good surface and long tool life.
- The coating can change to SICO.

EHSSH

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHSSH240200A	0.2	0.4	50	4	2
* EHSSH240300A	0.3	0.6	50	4	2
* EHSSH240400A	0.4	0.8	50	4	2
* EHSSH240500A	0.5	1.0	50	4	2
* EHSSH240600A	0.6	1.5	50	4	2
* EHSSH240700A	0.7	2.0	50	4	2
* EHSSH240800A	0.8	2.0	50	4	2
* EHSSH240900A	0.9	2.0	50	4	2
* EHSSH441000A	1.0	3	50	4	4
* EHSSH441500A	1.5	4	50	4	4
* EHSSH442000A	2.0	5	50	4	4
* EHSSH442500A	2.5	6	50	4	4
* EHSSH433000A	3.0	8	50	3	4
* EHSSH443000A	3.0	8	50	4	4
* EHSSH444000A	4.0	10	50	4	4
EHSSH404000A	4.0	10	50	6	4
EHSSH405000A	5.0	13	50	6	4
EHSSH406000A	6.0	15	50	6	4
EHSSH408000A	8.0	20	60	8	4
EHSSH410000A	10.0	25	75	10	4
EHSSH412000A	12.0	30	75	12	4
EHSSH416000A	16.0	35	100	16	4
EHSSH420000A	20.0	45	100	20	4

Cutting conditions：Table 008

* A is ARCO Coating
S is SICO Coating

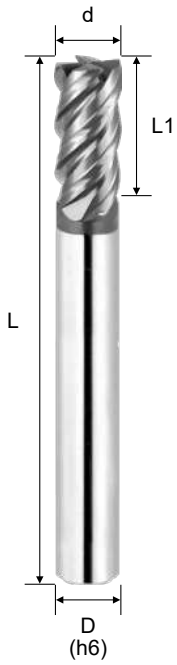
WINSTAR

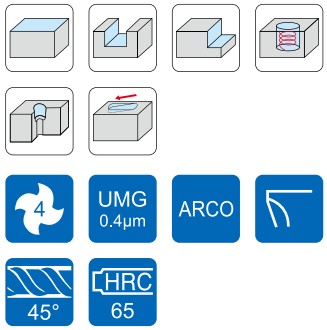
H650 - High Helix · Long Shank · Square · 4F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- UMG Carbide with Incredible toughness and wear resistance at hi speeds.
- Good surface and long tool life.
- The coating can change to SICO.

EHSLH

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHSLH443007A	3.0	8	75	4	4
* EHSLH443010A	3.0	8	100	4	4
* EHSLH444006A	4.0	10	60	4	4
* EHSLH444007A	4.0	10	75	4	4
* EHSLH444010A	4.0	10	100	4	4
* EHSLH406006A	6.0	15	60	6	4
* EHSLH406007A	6.0	15	75	6	4
* EHSLH406010A	6.0	15	100	6	4
* EHSLH408007A	8.0	20	75	8	4
* EHSLH408010A	8.0	20	100	8	4
* EHSLH408015A	8.0	20	150	8	4
* EHSLH410010A	10.0	25	100	10	4
* EHSLH410015A	10.0	25	150	10	4
* EHSLH412010A	12.0	30	100	12	4
* EHSLH412015A	12.0	30	150	12	4
* EHSLH416015A	16.0	35	150	16	4
* EHSLH420015A	20.0	45	150	20	4

Cutting conditions：Table 009

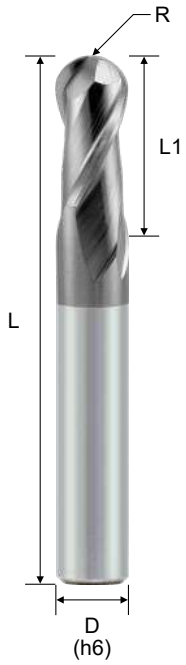
* A is ARCO Coating
S is SICO Coating

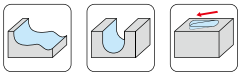
H650 - Ball Nose · 2F

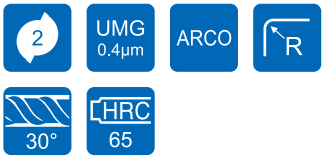
- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Due to short cutting length provides an excellent face milling surface roughness of the work pieces.
- New tool geometry increases wear resistance and cutting force is decreased.
- The coating can change to SICO.

EHBSH

P	M	K	N	S	H
●	○	●		○	●







R Tolerance	
R ≤ 3	±0.010
R > 3	±0.015

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHBSH240200A	0.10R	0.2	0.4	50	4	2
* EHBSH240300A	0.15R	0.3	0.6	50	4	2
* EHBSH240400A	0.20R	0.4	0.8	50	4	2
* EHBSH240500A	0.25R	0.5	1	50	4	2
* EHBSH240600A	0.30R	0.6	1.2	50	4	2
* EHBSH240700A	0.35R	0.7	1.4	50	4	2
* EHBSH240800A	0.40R	0.8	1.6	50	4	2
* EHBSH240900A	0.45R	0.9	1.8	50	4	2
* EHBSH241000A	0.50R	1.0	2	50	4	2
* EHBSH241500A	0.75R	1.5	3	50	4	2
* EHBSH242000A	1.00R	2.0	4	50	4	2
* EHBSH233000A	1.50R	3.0	6	50	3	2
* EHBSH243000A	1.50R	3.0	6	50	4	2
* EHBSH244000A	2.00R	4.0	8	50	4	2
EHBSH205000A	2.50R	5.0	10	50	6	2
EHBSH206000A	3.00R	6.0	12	50	6	2
EHBSH208000A	4.00R	8.0	16	60	8	2
EHBSH210000A	5.00R	10.0	20	75	10	2
EHBSH212000A	6.00R	12.0	24	75	12	2
EHBSH216000A	8.00R	16.0	32	100	16	2

Cutting conditions：Table 010

* A is ARCO Coating
S is SICO Coating

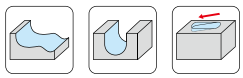
WINSTAR

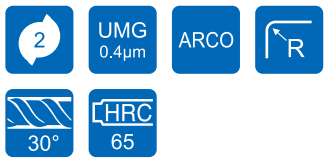
H650 - Long Shank · Ball Nose · 2F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Due to short cutting length provides an excellent face milling surface roughness of the work pieces.
- New tool geometry increases wear resistance and cutting force is decreased.
- The coating can change to SICO.

EHBLH

P	M	K	N	S	H
●	○	●		○	●





R Tolerance	
R ≤ 3	±0.010
R > 3	±0.015

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHBLH242007A	1.0R	2	4	75	4	2
* EHBLH243007A	1.5R	3	6	75	4	2
* EHBLH243010A	1.5R	3	6	100	4	2
* EHBLH244006A	2.0R	4	8	60	4	2
* EHBLH244007A	2.0R	4	8	75	4	2
* EHBLH244010A	2.0R	4	8	100	4	2
* EHBLH206006A	3.0R	6	12	60	6	2
* EHBLH206007A	3.0R	6	12	75	6	2
* EHBLH206010A	3.0R	6	12	100	6	2
* EHBLH208007A	4.0R	8	16	75	8	2
* EHBLH208010A	4.0R	8	16	100	8	2
* EHBLH208015A	4.0R	8	16	150	8	2
* EHBLH210010A	5.0R	10	20	100	10	2
* EHBLH210015A	5.0R	10	20	150	10	2
* EHBLH212010A	6.0R	12	24	100	12	2
* EHBLH212015A	6.0R	12	24	150	12	2
* EHBLH216015A	8.0R	16	32	150	16	2
* EHBLH220015A	10.0R	20	40	150	20	2

Cutting conditions：Table 011

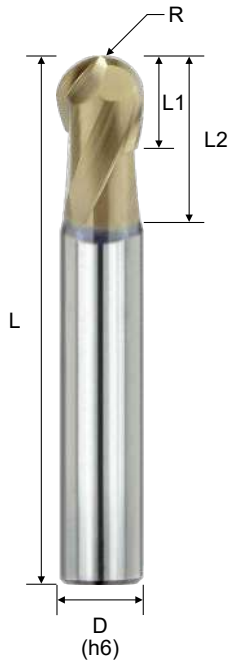
* A is ARCO Coating
S is SICO Coating

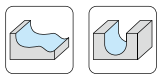
H650 - Short Flute · Ball Nose · 2F

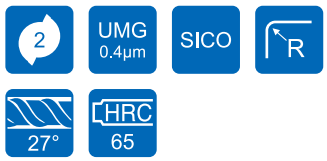
- SICO Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Due to short cutting length provides an excellent face milling surface roughness of the work pieces.
- Short cutting length provides hi resistance for hi speed cutting.
- The coating can change to TOP ARCO.

EHBUH

P	M	K	N	S	H
●	○	●		○	●







R Tolerance	
R ≤ 3	±0.010
R > 3	±0.015

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHBUH202000S	1.0R	2	2	4	50	6	2
EHBUH203000S	1.5R	3	3	6	50	6	2
EHBUH204000S	2.0R	4	4	8	50	6	2
EHBUH205000S	2.5R	5	5	10	50	6	2
EHBUH206000S	3.0R	6	6	12	50	6	2
EHBUH208000S	4.0R	8	8	16	60	8	2
EHBUH210000S	5.0R	10	10	20	75	10	2
EHBUH212000S	6.0R	12	12	24	75	12	2
EHBUH216000S	8.0R	16	16	32	100	16	2

Cutting conditions：Table 012

* A is ARCO Coating
S is SICO Coating

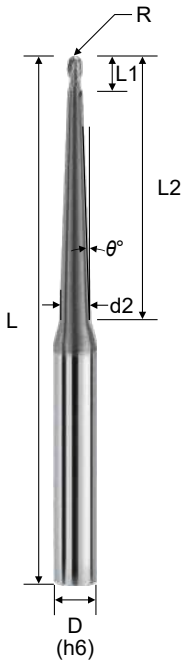
WINSTAR

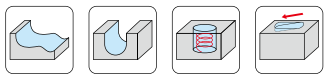
H650 - Taper Neck · Ball Nose · 2F

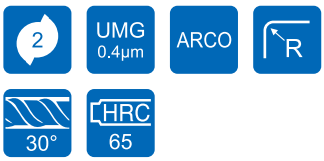
- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- High strength of taper neck, can cut deep grooves without breaking.
- Suitable for cutting groves at hi speed.
- The coating can change to SICO.

EHBRT

P	M	K	N	S	H
●	○	●		○	●







R Tolerance	
R ≤ 3	±0.010
R > 3	±0.015

Order No.	Radius (R)	Dia. (d)	θ°	CL (L1)	EFF-L (L2)	NL (d2)	OAL (L)	Shank (D)	Flutes (F)
EHBRT201023AA	0.5R	1	1.5°	2	23	2.20	60	6	2
EHBRT202023AA	1.0R	2	1.5°	4	23	3.00	60	6	2
EHBRT2020423A	1.0R	2	3.0°	4	42	5.98	100	8	2
EHBRT203052AA	1.5R	3	1.5°	6	52	5.40	100	6	2
EHBRT2030473A	1.5R	3	3.0°	6	47	7.29	100	8	2
EHBRT204046AA	2.0R	4	1.5°	8	46	6.00	100	6	2
EHBRT2040383A	2.0R	4	3.0°	8	38	7.14	100	8	2
EHBRT2050283A	2.5R	5	3.0°	10	28	6.88	100	8	2
EHBRT2060383A	3.0R	6	3.0°	12	38	8.72	100	10	2
EHBRT2080383A	4.0R	8	3.0°	16	38	10.30	100	12	2
EHBRT2100573A	5.0R	10	3.0°	20	57	13.88	100	16	2
EHBRT2120383A	6.0R	12	3.0°	24	38	13.47	100	16	2

Cutting conditions：Table 013

* A is ARCO Coating
S is SICO Coating

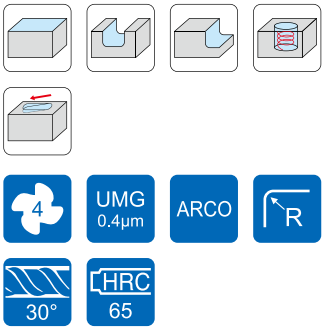
WINSTAR

H650 - Corner Radius · 4F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Long tool life and wear resistant due to its negative angle with corner radius design.
- The coating can change to SICO.

EHCSH

P	M	K	N	S	H
●	○	●		○	●



d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHCSH441002A	1	0.2R	2	50	4	4
* EHCSH441003A	1	0.3R	2	50	4	4
* EHCSH441502A	1.5	0.2R	3	50	4	4
* EHCSH441503A	1.5	0.3R	3	50	4	4
* EHCSH442002A	2	0.2R	4	50	4	4
* EHCSH442003A	2	0.3R	4	50	4	4
* EHCSH442005A	2	0.5R	4	50	4	4
* EHCSH433002A	3	0.2R	6	50	3	4
* EHCSH443002A	3	0.2R	6	50	4	4
* EHCSH433003A	3	0.3R	6	50	3	4
* EHCSH443003A	3	0.3R	6	50	4	4
* EHCSH433005A	3	0.5R	6	50	3	4
* EHCSH443005A	3	0.5R	6	50	4	4
* EHCSH433010A	3	1.0R	6	50	3	4
* EHCSH443010A	3	1.0R	6	50	4	4
* EHCSH444002A	4	0.2R	8	50	4	4
* EHCSH444003A	4	0.3R	8	50	4	4
* EHCSH444005A	4	0.5R	8	50	4	4
* EHCSH444010A	4	1.0R	8	50	4	4
EHCSH404003A	4	0.3R	8	50	6	4
EHCSH404005A	4	0.5R	8	50	6	4
EHCSH404010A	4	1.0R	8	50	6	4
EHCSH405005A	5	0.5R	10	50	6	4
EHCSH405010A	5	1.0R	10	50	6	4
EHCSH406003A	6	0.3R	12	50	6	4
EHCSH406005A	6	0.5R	12	50	6	4
EHCSH406010A	6	1.0R	12	50	6	4
EHCSH408005A	8	0.5R	16	60	8	4
EHCSH408010A	8	1.0R	16	60	8	4
EHCSH408015A	8	1.5R	16	60	8	4
EHCSH410005A	10	0.5R	20	75	10	4
EHCSH410010A	10	1.0R	20	75	10	4
EHCSH410015A	10	1.5R	20	75	10	4
EHCSH410020A	10	2.0R	20	75	10	4
EHCSH412005A	12	0.5R	24	75	12	4
EHCSH412010A	12	1.0R	24	75	12	4
EHCSH412015A	12	1.5R	24	75	12	4
EHCSH412020A	12	2.0R	24	75	12	4

Cutting conditions : Table 014

* A is ARCO Coating

S is SICO Coating

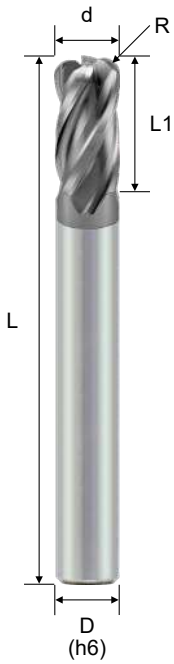
WINSTAR

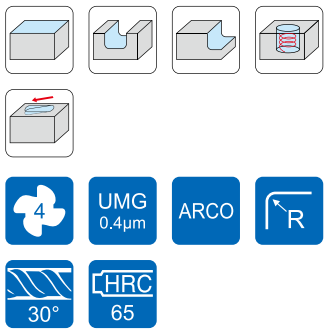
H650 - Long Shank · Corner Radius · 4F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Long tool life and wear resistant due to its negative angle with corner radius design.
- The coating can change to SICO.

EHCLH

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHCLH44400507A	4	0.5R	8	75	4	4
* EHCLH44401007A	4	1.0R	8	75	4	4
* EHCLH44400510A	4	0.5R	8	100	4	4
* EHCLH44401010A	4	1.0R	8	100	4	4
* EHCLH40600507A	6	0.5R	12	75	6	4
* EHCLH40601007A	6	1.0R	12	75	6	4
* EHCLH40600510A	6	0.5R	12	100	6	4
* EHCLH40601010A	6	1.0R	12	100	6	4
* EHCLH40800507A	8	0.5R	16	75	8	4
* EHCLH40801007A	8	1.0R	16	75	8	4
* EHCLH40800510A	8	0.5R	16	100	8	4
* EHCLH40801010A	8	1.0R	16	100	8	4
* EHCLH41000510A	10	0.5R	20	100	10	4
* EHCLH41001010A	10	1.0R	20	100	10	4
* EHCLH41000515A	10	0.5R	20	150	10	4
* EHCLH41001015A	10	1.0R	20	150	10	4
* EHCLH41200510A	12	0.5R	24	100	12	4
* EHCLH41201010A	12	1.0R	24	100	12	4
* EHCLH41200515A	12	0.5R	24	150	12	4
* EHCLH41201015A	12	1.0R	24	150	12	4

Cutting conditions：Table 015

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

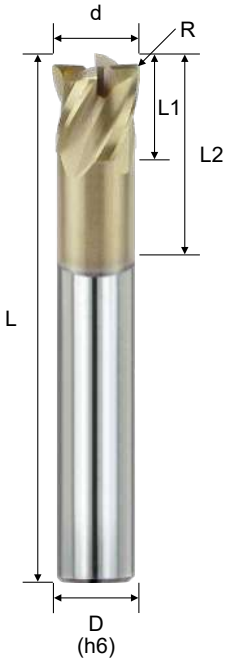
* A is ARCO Coating
S is SICO Coating

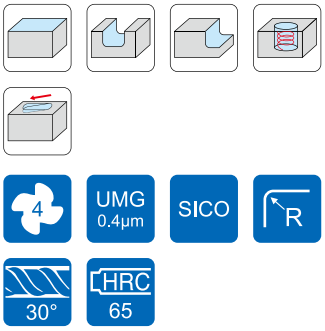
H650 - Short Flute · Corner Radius · 4F

- SICO Nano coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Short cutting length with high rigidity is suitable for high speed cutting.
- The coating can change to TOP ARCO.

EHCUH

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHCUH403001S	3	0.1R	3	7.5	50	6	4
EHCUH403005S	3	0.5R	3	7.5	50	6	4
EHCUH404002S	4	0.2R	4	10.0	50	6	4
EHCUH404005S	4	0.5R	4	10.0	50	6	4
EHCUH405002S	5	0.2R	5	12.5	50	6	4
EHCUH405005S	5	0.5R	5	12.5	50	6	4
EHCUH406002S	6	0.2R	6	15.0	50	6	4
EHCUH406005S	6	0.5R	6	15.0	50	6	4
EHCUH406010S	6	1.0R	6	15.0	50	6	4
EHCUH408003S	8	0.3R	8	20.0	60	8	4
EHCUH408005S	8	0.5R	8	20.0	60	8	4
EHCUH408010S	8	1.0R	8	20.0	60	8	4
EHCUH408015S	8	1.5R	8	20.0	60	8	4
EHCUH410003S	10	0.3R	10	25.0	75	10	4
EHCUH410005S	10	0.5R	10	25.0	75	10	4
EHCUH410010S	10	1.0R	10	25.0	75	10	4
EHCUH410015S	10	1.5R	10	25.0	75	10	4
EHCUH410020S	10	2.0R	10	25.0	75	10	4
EHCUH412003S	12	0.3R	12	30.0	75	12	4
EHCUH412005S	12	0.5R	12	30.0	75	12	4
EHCUH412010S	12	1.0R	12	30.0	75	12	4
EHCUH412015S	12	1.5R	12	30.0	75	12	4
EHCUH412020S	12	2.0R	12	30.0	75	12	4

Cutting conditions：Table 016

* A is ARCO Coating
S is SICO Coating

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

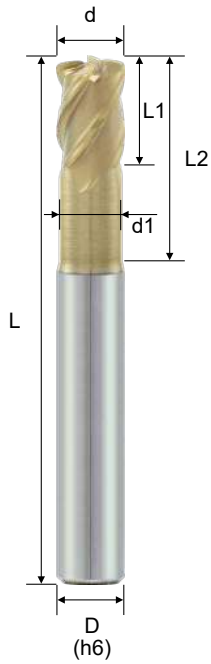
WINSTAR

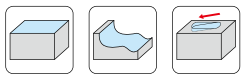
H650 - Double Corner High Feed EndMill · 4F / 6F

- SICO Nano coating provides a superior wear and heat resistance.
- Duotec design and multi-flute geometry design.
- High feed and high metal removal rate in surface milling.
- UMG Carbide substrate possess high TRS and good wear resistance.

EHWSA

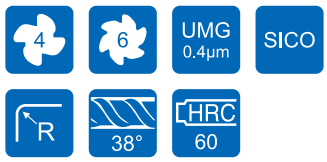
P	M	K	N	S	H
●	○	●		○	●





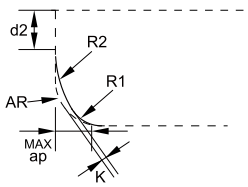
Order No.	Dia. (d)	ND (d1)	(d2)	(ap)	(R1)	(R2)	Approx Radius (AR)	(K)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHWSA403101S	3.175(1/8")	-	0.4	0.18	0.3	2.0	0.64	0.08	3.175	-	63.5	6.35	4
EHWSA404701S	4.763(3/16")	-	0.6	0.30	0.5	3.0	0.815	0.17	4.763	-	63.5	6.35	4
EHWSA406001S	6	-	0.75	0.35	0.6	3.5	0.92	0.21	6	-	60	6	4
EHWSA406301S	6.35(1/4")	-	0.79	0.35	0.6	3.5	0.92	0.21	6.35	-	63.5	6.35	4
EHWSA408001S	8	-	1.6	0.40	0.8	4.5	1.16	0.22	8	-	75	8	4
EHWSA409501S	9.525(3/8")	-	1.9	0.55	1.0	5.5	1.47	0.28	9.525	-	76.2	9.52	4
EHWSA410001S	10	-	2.0	0.55	1.0	5.5	1.47	0.28	10	-	75	10	4
EHWSA412001S	12	-	2.4	0.70	1.2	6.5	1.77	0.34	12	-	75	12	4
EHWSA412701S	12.7(1/2")	-	2.5	0.70	1.2	6.5	1.77	0.34	12.7	-	76.2	12.7	4
EHWSA616001S	16	-	3.2	0.90	1.6	8.5	2.35	0.43	16	-	100	16	6
EHWSA406000S	6	5.6	0.75	0.35	0.6	3.5	0.92	0.21	9	18	60	6	4
EHWSA608000S	8	7.6	1.6	0.40	0.8	4.5	1.16	0.22	12	24	75	8	6
EHWSA610000S	10	9.4	2.0	0.55	1.0	5.5	1.47	0.28	15	30	75	10	6
EHWSA612000S	12	11.4	2.4	0.70	1.2	6.5	1.77	0.34	18	36	75	12	6

Cutting conditions：Table 017



d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020



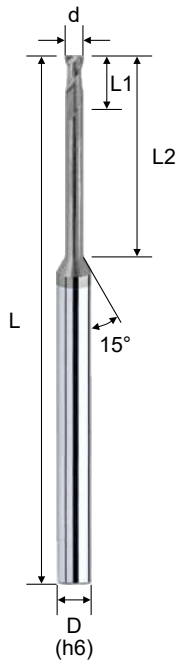
WINSTAR

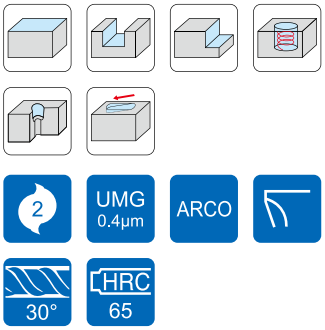
H650 - Long Neck · Square · 2F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Long neck design is suitable for Rib cutting.
- The coating can change to SICO, the prices will differ.

EHSRC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHSRC240201A	0.2	0.3	1	50	4	2
* EHSRC240202A	0.2	0.3	2	50	4	2
* EHSRC240301A	0.3	0.4	1	50	4	2
* EHSRC240302A	0.3	0.4	2	50	4	2
* EHSRC240303A	0.3	0.4	3	50	4	2
* EHSRC240304A	0.3	0.4	4	50	4	2
* EHSRC240305A	0.3	0.4	5	50	4	2
* EHSRC240401A	0.4	0.5	1	50	4	2
* EHSRC240402A	0.4	0.5	2	50	4	2
* EHSRC240403A	0.4	0.5	3	50	4	2
* EHSRC240404A	0.4	0.5	4	50	4	2
* EHSRC240405A	0.4	0.5	5	50	4	2
* EHSRC240406A	0.4	0.5	6	50	4	2
* EHSRC240408A	0.4	0.5	8	50	4	2
* EHSRC240410A	0.4	0.5	10	50	4	2
* EHSRC240502A	0.5	0.6	2	50	4	2
* EHSRC240503A	0.5	0.6	3	50	4	2
* EHSRC240504A	0.5	0.6	4	50	4	2
* EHSRC240505A	0.5	0.6	5	50	4	2
* EHSRC240506A	0.5	0.6	6	50	4	2
* EHSRC240508A	0.5	0.6	8	50	4	2
* EHSRC240510A	0.5	0.6	10	50	4	2
* EHSRC240512A	0.5	0.6	12	50	4	2
* EHSRC240514A	0.5	0.6	14	50	4	2

Cutting conditions：Table 018 ~ 020

* A is ARCO Coating
S is SICO Coating

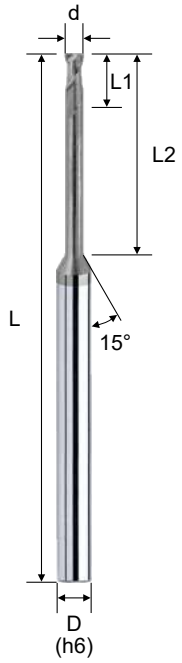
WINSTAR

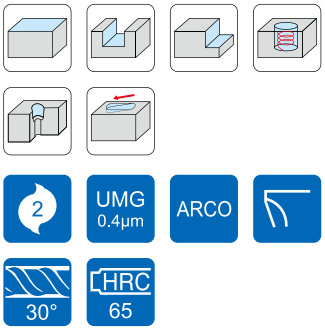
H650 - Long Neck · Square · 2F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Long neck design is suitable for Rib cutting.
- The coating can change to SICO, the prices will differ.

EHSBC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHSRC240602A	0.6	0.7	2	50	4	2
* EHSRC240603A	0.6	0.7	3	50	4	2
* EHSRC240604A	0.6	0.7	4	50	4	2
* EHSRC240605A	0.6	0.7	5	50	4	2
* EHSRC240606A	0.6	0.7	6	50	4	2
* EHSRC240608A	0.6	0.7	8	50	4	2
* EHSRC240610A	0.6	0.7	10	50	4	2
* EHSRC240612A	0.6	0.7	12	50	4	2
* EHSRC240614A	0.6	0.7	14	50	4	2
* EHSRC240616A	0.6	0.7	16	50	4	2
* EHSRC240702A	0.7	0.8	2	50	4	2
* EHSRC240704A	0.7	0.8	4	50	4	2
* EHSRC240706A	0.7	0.8	6	50	4	2
* EHSRC240708A	0.7	0.8	8	50	4	2
* EHSRC240710A	0.7	0.8	10	50	4	2
* EHSRC240712A	0.7	0.8	12	50	4	2
* EHSRC240802A	0.8	1.0	2	50	4	2
* EHSRC240804A	0.8	1.0	4	50	4	2
* EHSRC240806A	0.8	1.0	6	50	4	2
* EHSRC240808A	0.8	1.0	8	50	4	2
* EHSRC240810A	0.8	1.0	10	50	4	2
* EHSRC240812A	0.8	1.0	12	50	4	2
* EHSRC240814A	0.8	1.0	14	50	4	2
* EHSRC240906A	0.9	1.1	6	50	4	2
* EHSRC240908A	0.9	1.1	8	50	4	2
* EHSRC240910A	0.9	1.1	10	50	4	2

Cutting conditions : Table 018 ~ 020

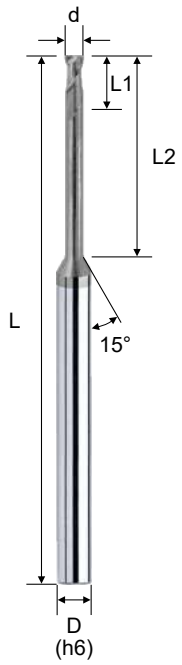
* A is ARCO Coating
S is SICO Coating

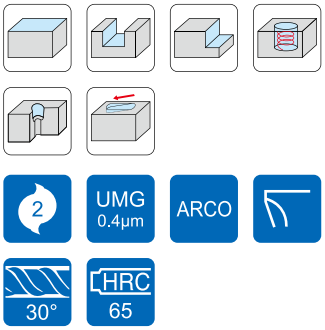
H650 - Long Neck · Square · 2F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Long neck design is suitable for Rib cutting.
- The coating can change to SICO, the prices will differ.

EHSRC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHSRC241002A	1.0	1.2	2	50	4	2
* EHSRC241003A	1.0	1.2	3	50	4	2
* EHSRC241004A	1.0	1.2	4	50	4	2
* EHSRC241005A	1.0	1.2	5	50	4	2
* EHSRC241006A	1.0	1.2	6	50	4	2
* EHSRC241008A	1.0	1.2	8	50	4	2
* EHSRC241010A	1.0	1.2	10	50	4	2
* EHSRC241012A	1.0	1.2	12	50	4	2
* EHSRC241014A	1.0	1.2	14	50	4	2
* EHSRC241016A	1.0	1.2	16	50	4	2
* EHSRC241018A	1.0	1.2	18	50	4	2
* EHSRC241020A	1.0	1.2	20	50	4	2
* EHSRC241204A	1.2	1.5	4	50	4	2
* EHSRC241206A	1.2	1.5	6	50	4	2
* EHSRC241208A	1.2	1.5	8	50	4	2
* EHSRC241210A	1.2	1.5	10	50	4	2
* EHSRC241212A	1.2	1.5	12	50	4	2
* EHSRC241216A	1.2	1.5	16	50	4	2
* EHSRC241220A	1.2	1.5	20	50	4	2
* EHSRC241406A	1.4	1.8	6	50	4	2
* EHSRC241408A	1.4	1.8	8	50	4	2
* EHSRC241410A	1.4	1.8	10	50	4	2
* EHSRC241414A	1.4	1.8	14	50	4	2
* EHSRC241416A	1.4	1.8	16	50	4	2
* EHSRC241420A	1.4	1.8	20	50	4	2

Cutting conditions：Table 018 ~ 020

* A is ARCO Coating
S is SICO Coating

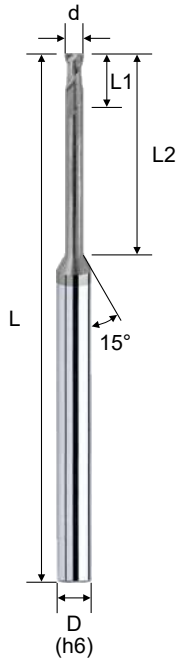
WINSTAR

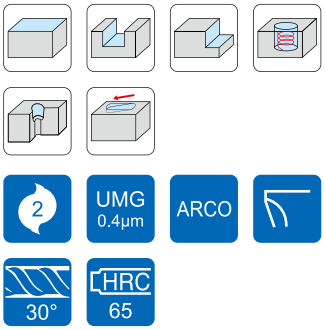
H650 - Long Neck · Square · 2F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Long neck design is suitable for Rib cutting.
- The coating can change to SICO, the prices will differ.

EHSRC

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHSRC241504A	1.5	1.8	4	50	4	2
* EHSRC241506A	1.5	1.8	6	50	4	2
* EHSRC241508A	1.5	1.8	8	50	4	2
* EHSRC241510A	1.5	1.8	10	50	4	2
* EHSRC241512A	1.5	1.8	12	50	4	2
* EHSRC241514A	1.5	1.8	14	50	4	2
* EHSRC241516A	1.5	1.8	16	50	4	2
* EHSRC241518A	1.5	1.8	18	50	4	2
* EHSRC241520A	1.5	1.8	20	50	4	2
* EHSRC241610A	1.6	1.9	10	50	4	2
* EHSRC241614A	1.6	1.9	14	50	4	2
* EHSRC241618A	1.6	1.9	18	50	4	2
* EHSRC241810A	1.8	2.0	10	50	4	2
* EHSRC241814A	1.8	2.0	14	50	4	2
* EHSRC241818A	1.8	2.0	18	50	4	2
* EHSRC242004A	2.0	2.5	4	50	4	2
* EHSRC242006A	2.0	2.5	6	50	4	2
* EHSRC242008A	2.0	2.5	8	50	4	2
* EHSRC242010A	2.0	2.5	10	50	4	2
* EHSRC242012A	2.0	2.5	12	50	4	2
* EHSRC242014A	2.0	2.5	14	50	4	2
* EHSRC242016A	2.0	2.5	16	50	4	2
* EHSRC242018A	2.0	2.5	18	50	4	2
* EHSRC242020A	2.0	2.5	20	50	4	2
* EHSRC242022A	2.0	2.5	22	60	4	2
* EHSRC242025A	2.0	2.5	25	60	4	2
* EHSRC242030A	2.0	2.5	30	75	4	2
* EHSRC242035A	2.0	2.5	35	75	4	2

Cutting conditions : Table 018 ~ 020

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

* A is ARCO Coating
S is SICO Coating

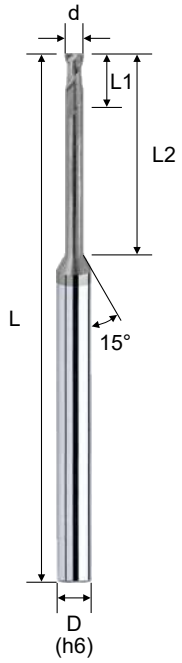
WINSTAR

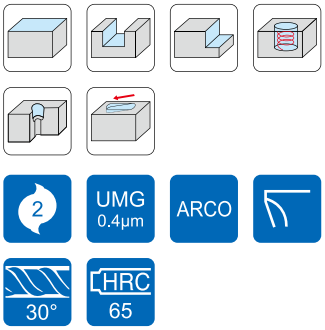
H650 - Long Neck · Square · 2F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Long neck design is suitable for Rib cutting.
- The coating can change to SICO, the prices will differ.

EHSRC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHSRC242508A	2.5	3.0	8	50	4	2
* EHSRC242510A	2.5	3.0	10	50	4	2
* EHSRC242512A	2.5	3.0	12	50	4	2
* EHSRC242516A	2.5	3.0	16	50	4	2
* EHSRC242520A	2.5	3.0	20	50	4	2
* EHSRC242525A	2.5	3.0	25	60	4	2
* EHSRC242530A	2.5	3.0	30	75	4	2
* EHSRC242535A	2.5	3.0	35	75	4	2
EHSRC203006A	3.0	3.5	6	50	6	2
EHSRC203010A	3.0	3.5	10	50	6	2
EHSRC203012A	3.0	3.5	12	50	6	2
EHSRC203016A	3.0	3.5	16	50	6	2
EHSRC203020A	3.0	3.5	20	60	6	2
EHSRC203025A	3.0	3.5	25	60	6	2
EHSRC203030A	3.0	3.5	30	75	6	2
EHSRC203035A	3.0	3.5	35	75	6	2
EHSRC204008A	4.0	4.5	8	50	6	2
EHSRC204010A	4.0	4.5	10	50	6	2
EHSRC204012A	4.0	4.5	12	50	6	2
EHSRC204016A	4.0	4.5	16	50	6	2
EHSRC204020A	4.0	4.5	20	60	6	2
EHSRC204025A	4.0	4.5	25	60	6	2
EHSRC204030A	4.0	4.5	30	75	6	2
EHSRC204035A	4.0	4.5	35	75	6	2
EHSRC205016A	5.0	7.0	16	50	6	2
EHSRC205020A	5.0	7.0	20	60	6	2
EHSRC205025A	5.0	7.0	25	60	6	2
EHSRC205030A	5.0	7.0	30	75	6	2
EHSRC205035A	5.0	7.0	35	75	6	2

Cutting conditions : Table 018 ~ 020

* A is ARCO Coating
S is SICO Coating

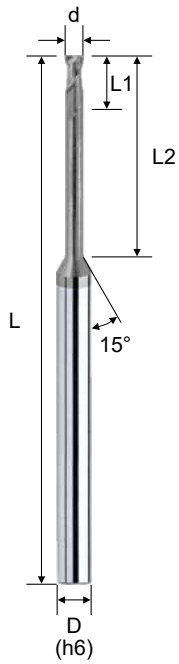
WINSTAR

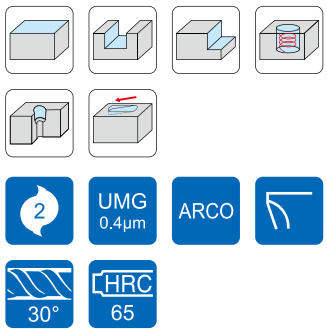
H650 - Long Neck · Square · 2F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Long neck design is suitable for Rib cutting.
- The coating can change to SICO, the prices will differ.

EHSRC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHSRC206020A	6.0	10.0	20	60	6	2
EHSRC206030A	6.0	10.0	30	75	6	2
EHSRC208020A	8.0	15.0	20	60	8	2
EHSRC208030A	8.0	15.0	30	75	8	2
EHSRC208040A	8.0	15.0	40	100	8	2
EHSRC210025A	10.0	20.0	25	75	10	2
EHSRC210035A	10.0	20.0	35	75	10	2
EHSRC210045A	10.0	20.0	45	100	10	2
EHSRC212030A	12.0	25.0	30	75	12	2
EHSRC212040A	12.0	25.0	40	100	12	2
EHSRC212050A	12.0	25.0	50	100	12	2

Cutting conditions : Table 018 ~ 020

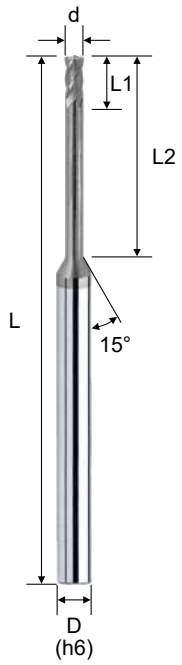
* A is ARCO Coating
S is SICO Coating

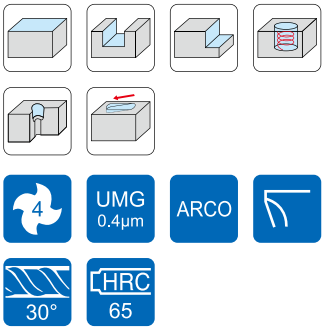
H650 - Long Neck · Square · 4F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Long neck design is suitable for Rib cutting.
- The coating can change to SICO, the prices will differ.

EHSRC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHSRC441003A	1.0	1.0	3	50	4	4
* EHSRC441004A	1.0	1.0	4	50	4	4
* EHSRC441006A	1.0	1.0	6	50	4	4
* EHSRC441008A	1.0	1.0	8	50	4	4
* EHSRC441010A	1.0	1.0	10	50	4	4
* EHSRC441012A	1.0	1.0	12	50	4	4
* EHSRC441016A	1.0	1.0	16	50	4	4
* EHSRC441020A	1.0	1.0	20	50	4	4
* EHSRC441025A	1.0	1.0	25	60	4	4
EHSRC401004A	1.0	1.0	4	50	6	4
EHSRC401006A	1.0	1.0	6	50	6	4
EHSRC401008A	1.0	1.0	8	50	6	4
EHSRC401010A	1.0	1.0	10	50	6	4
EHSRC401012A	1.0	1.0	12	50	6	4
* EHSRC441506A	1.5	1.5	6	50	4	4
* EHSRC441508A	1.5	1.5	8	50	4	4
* EHSRC441510A	1.5	1.5	10	50	4	4
* EHSRC441512A	1.5	1.5	12	50	4	4
* EHSRC441516A	1.5	1.5	16	50	4	4
* EHSRC441520A	1.5	1.5	20	50	4	4
* EHSRC441525A	1.5	1.5	25	60	4	4
EHSRC401506A	1.5	1.5	6	50	6	4
EHSRC401508A	1.5	1.5	8	50	6	4
EHSRC401510A	1.5	1.5	10	50	6	4
EHSRC401512A	1.5	1.5	12	50	6	4

Cutting conditions：Table 021

* A is ARCO Coating
S is SICO Coating

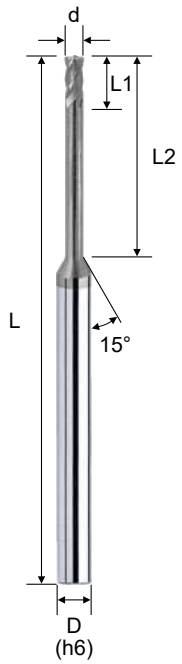
WINSTAR

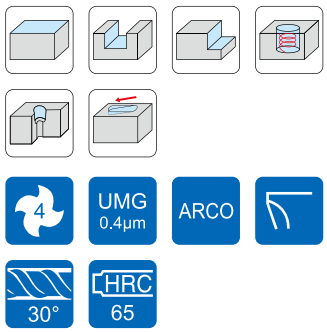
H650 - Long Neck · Square · 4F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Long neck design is suitable for Rib cutting.
- The coating can change to SICO, the prices will differ.

EHSRC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHSRC442006A	2.0	2.0	6	50	4	4
* EHSRC442008A	2.0	2.0	8	50	4	4
* EHSRC442010A	2.0	2.0	10	50	4	4
* EHSRC442012A	2.0	2.0	12	50	4	4
* EHSRC442016A	2.0	2.0	16	50	4	4
* EHSRC442020A	2.0	2.0	20	50	4	4
* EHSRC442025A	2.0	2.0	25	60	4	4
* EHSRC442030A	2.0	2.0	30	75	4	4
EHSRC402006A	2.0	2.0	6	50	6	4
EHSRC402008A	2.0	2.0	8	50	6	4
EHSRC402010A	2.0	2.0	10	50	6	4
EHSRC402016A	2.0	2.0	16	50	6	4
* EHSRC442510A	2.5	2.5	10	50	4	4
* EHSRC442512A	2.5	2.5	12	50	4	4
* EHSRC442516A	2.5	2.5	16	50	4	4
* EHSRC442520A	2.5	2.5	20	50	4	4
* EHSRC442525A	2.5	2.5	25	60	4	4
* EHSRC442530A	2.5	2.5	30	75	4	4
EHSRC402506A	2.5	2.5	6	50	6	4
EHSRC402510A	2.5	2.5	10	50	6	4
EHSRC403010A	3.0	3.0	10	50	6	4
EHSRC403012A	3.0	3.0	12	50	6	4
EHSRC403016A	3.0	3.0	16	50	6	4
EHSRC403020A	3.0	3.0	20	60	6	4
EHSRC403025A	3.0	3.0	25	60	6	4
EHSRC403030A	3.0	3.0	30	75	6	4
EHSRC403035A	3.0	3.0	35	75	6	4

Cutting conditions：Table 021

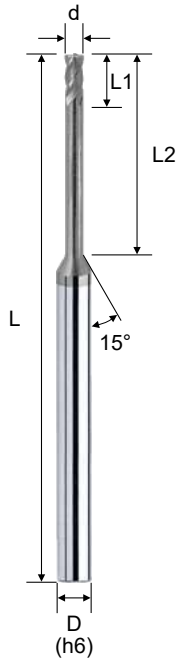
* A is ARCO Coating
S is SICO Coating

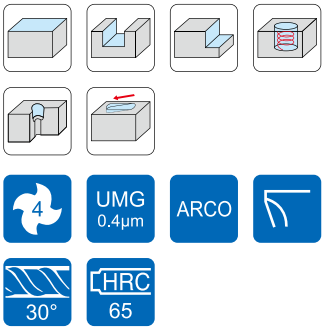
H650 - Long Neck · Square · 4F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Long neck design is suitable for Rib cutting.
- The coating can change to SICO, the prices will differ.

EHSRC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHSRC404010A	4.0	4.0	10	50	6	4
EHSRC404012A	4.0	4.0	12	50	6	4
EHSRC404016A	4.0	4.0	16	50	6	4
EHSRC404020A	4.0	4.0	20	60	6	4
EHSRC404025A	4.0	4.0	25	60	6	4
EHSRC404030A	4.0	4.0	30	75	6	4
EHSRC405016A	5.0	5.0	16	50	6	4
EHSRC405020A	5.0	5.0	20	60	6	4
EHSRC405025A	5.0	5.0	25	60	6	4
EHSRC405030A	5.0	5.0	30	75	6	4
EHSRC406020A	6.0	6.0	20	60	6	4
EHSRC406030A	6.0	6.0	30	75	6	4
EHSRC408020A	8.0	15.0	20	60	8	4
EHSRC408030A	8.0	15.0	30	75	8	4
EHSRC408040A	8.0	15.0	40	100	8	4
EHSRC410025A	10.0	20.0	25	75	10	4
EHSRC410035A	10.0	20.0	35	100	10	4
EHSRC410045A	10.0	20.0	45	100	10	4
EHSRC412030A	12.0	25.0	30	75	12	4
EHSRC412040A	12.0	25.0	40	100	12	4
EHSRC412050A	12.0	25.0	50	100	12	4

Cutting conditions：Table 021

* A is ARCO Coating
S is SICO Coating

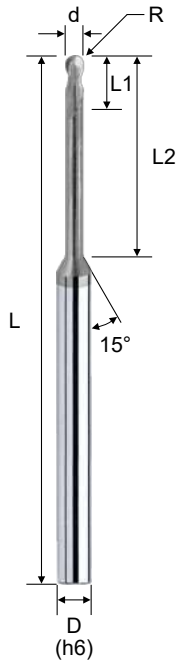
WINSTAR

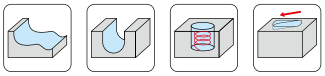
H650 - Long Neck · Ball Nose · 2F

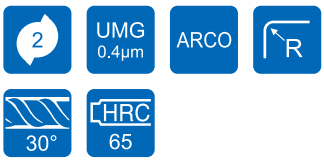
- ARCO coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Suitable for deep cutting due to the long neck design.
- Polish cutting edge provides stronger tip.
- The coating can change to SICO, the prices will differ.

EHBRC

P	M	K	N	S	H
●	○	●		○	●







R Tolerance	
R ≤ 3	±0.010
R > 3	±0.015

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHBRC240301A	0.15R	0.3	0.3	1	50	4	2
* EHBRC240302A	0.15R	0.3	0.3	2	50	4	2
* EHBRC240303A	0.15R	0.3	0.3	3	50	4	2
* EHBRC240401A	0.20R	0.4	0.4	1	50	4	2
* EHBRC240402A	0.20R	0.4	0.4	2	50	4	2
* EHBRC240403A	0.20R	0.4	0.4	3	50	4	2
* EHBRC240404A	0.20R	0.4	0.4	4	50	4	2
* EHBRC240405A	0.20R	0.4	0.4	5	50	4	2
* EHBRC240406A	0.20R	0.4	0.4	6	50	4	2
* EHBRC240408A	0.20R	0.4	0.4	8	50	4	2
* EHBRC240501A	0.25R	0.5	0.5	1	50	4	2
* EHBRC240502A	0.25R	0.5	0.5	2	50	4	2
* EHBRC240503A	0.25R	0.5	0.5	3	50	4	2
* EHBRC240504A	0.25R	0.5	0.5	4	50	4	2
* EHBRC240505A	0.25R	0.5	0.5	5	50	4	2
* EHBRC240506A	0.25R	0.5	0.5	6	50	4	2
* EHBRC240508A	0.25R	0.5	0.5	8	50	4	2
* EHBRC240510A	0.25R	0.5	0.5	10	50	4	2
* EHBRC240601A	0.30R	0.6	0.6	1	50	4	2
* EHBRC240602A	0.30R	0.6	0.6	2	50	4	2
* EHBRC240603A	0.30R	0.6	0.6	3	50	4	2
* EHBRC240604A	0.30R	0.6	0.6	4	50	4	2
* EHBRC240605A	0.30R	0.6	0.6	5	50	4	2
* EHBRC240606A	0.30R	0.6	0.6	6	50	4	2
* EHBRC240608A	0.30R	0.6	0.6	8	50	4	2
* EHBRC240610A	0.30R	0.6	0.6	10	50	4	2
* EHBRC240612A	0.30R	0.6	0.6	12	50	4	2

Cutting conditions：Table 022

* A is ARCO Coating
S is SICO Coating

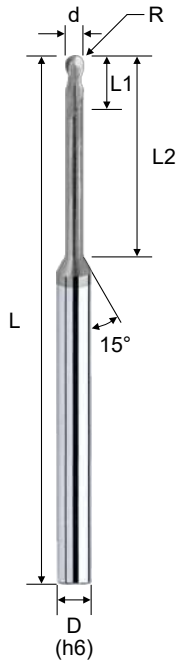
WINSTAR

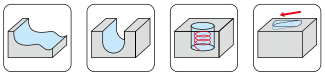
H650 - Long Neck · Ball Nose · 2F

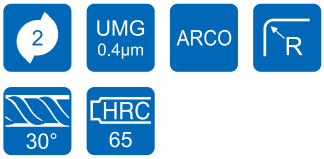
- ARCO coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Suitable for deep cutting due to the long neck design.
- Polish cutting edge provides stronger tip.
- The coating can change to SICO, the prices will differ.

EHBRC

P	M	K	N	S	H
●	○	●		○	●







R Tolerance	
R ≤ 3	±0.010
R > 3	±0.015

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHBRC240702A	0.35R	0.7	0.7	2	50	4	2
* EHBRC240704A	0.35R	0.7	0.7	4	50	4	2
* EHBRC240708A	0.35R	0.7	0.7	8	50	4	2
* EHBRC240710A	0.35R	0.7	0.7	10	50	4	2
* EHBRC240712A	0.35R	0.7	0.7	12	50	4	2
* EHBRC240802A	0.40R	0.8	0.8	2	50	4	2
* EHBRC240804A	0.40R	0.8	0.8	4	50	4	2
* EHBRC240806A	0.40R	0.8	0.8	6	50	4	2
* EHBRC240808A	0.40R	0.8	0.8	8	50	4	2
* EHBRC240810A	0.40R	0.8	0.8	10	50	4	2
* EHBRC240812A	0.40R	0.8	0.8	12	50	4	2
* EHBRC240904A	0.45R	0.9	0.9	4	50	4	2
* EHBRC241002A	0.50R	1.0	1.0	2	50	4	2
* EHBRC241003A	0.50R	1.0	1.0	3	50	4	2
* EHBRC241004A	0.50R	1.0	1.0	4	50	4	2
* EHBRC241005A	0.50R	1.0	1.0	5	50	4	2
* EHBRC241006A	0.50R	1.0	1.0	6	50	4	2
* EHBRC241008A	0.50R	1.0	1.0	8	50	4	2
* EHBRC241010A	0.50R	1.0	1.0	10	50	4	2
* EHBRC241012A	0.50R	1.0	1.0	12	50	4	2
* EHBRC241014A	0.50R	1.0	1.0	14	50	4	2
* EHBRC241016A	0.50R	1.0	1.0	16	50	4	2
* EHBRC241018A	0.50R	1.0	1.0	18	50	4	2
* EHBRC241020A	0.50R	1.0	1.0	20	50	4	2
* EHBRC241022A	0.50R	1.0	1.0	22	60	4	2
EHBRC201004A	0.50R	1.0	1.0	4	50	6	2
EHBRC201006A	0.50R	1.0	1.0	6	50	6	2
EHBRC201008A	0.50R	1.0	1.0	8	50	6	2
EHBRC201010A	0.50R	1.0	1.0	10	50	6	2
EHBRC201012A	0.50R	1.0	1.0	12	50	6	2

Cutting conditions：Table 022

* A is ARCO Coating
S is SICO Coating

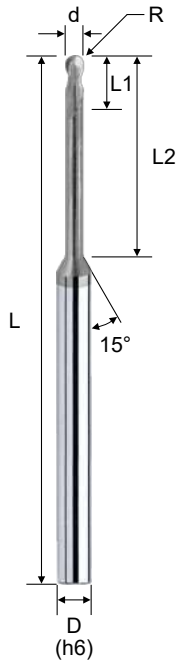
WINSTAR

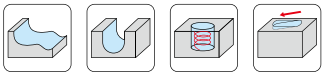
H650 - Long Neck · Ball Nose · 2F

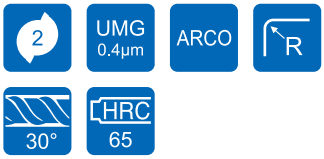
- ARCO coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Suitable for deep cutting due to the long neck design.
- Polish cutting edge provides stronger tip.
- The coating can change to SICO, the prices will differ.

EHBRC

P	M	K	N	S	H
●	○	●		○	●







R Tolerance	
R ≤ 3	±0.010
R > 3	±0.015

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHBRC241204A	0.60R	1.2	1.2	4	50	4	2
* EHBRC241206A	0.60R	1.2	1.2	6	50	4	2
* EHBRC241208A	0.60R	1.2	1.2	8	50	4	2
* EHBRC241210A	0.60R	1.2	1.2	10	50	4	2
* EHBRC241212A	0.60R	1.2	1.2	12	50	4	2
* EHBRC241216A	0.60R	1.2	1.2	16	50	4	2
* EHBRC241220A	0.60R	1.2	1.2	20	50	4	2
* EHBRC241224A	0.60R	1.2	1.2	24	60	4	2
* EHBRC241406A	0.70R	1.4	1.4	6	50	4	2
* EHBRC241408A	0.70R	1.4	1.4	8	50	4	2
* EHBRC241412A	0.70R	1.4	1.4	12	50	4	2
* EHBRC241416A	0.70R	1.4	1.4	16	50	4	2
* EHBRC241503A	0.75R	1.5	1.5	3	50	4	2
* EHBRC241504A	0.75R	1.5	1.5	4	50	4	2
* EHBRC241506A	0.75R	1.5	1.5	6	50	4	2
* EHBRC241508A	0.75R	1.5	1.5	8	50	4	2
* EHBRC241510A	0.75R	1.5	1.5	10	50	4	2
* EHBRC241512A	0.75R	1.5	1.5	12	50	4	2
* EHBRC241514A	0.75R	1.5	1.5	14	50	4	2
* EHBRC241516A	0.75R	1.5	1.5	16	50	4	2
* EHBRC241518A	0.75R	1.5	1.5	18	50	4	2
* EHBRC241520A	0.75R	1.5	1.5	20	50	4	2
* EHBRC241522A	0.75R	1.5	1.5	22	60	4	2
* EHBRC241525A	0.75R	1.5	1.5	25	60	4	2
* EHBRC241530A	0.75R	1.5	1.5	30	75	4	2
EHBRC201506A	0.75R	1.5	1.5	6	50	6	2
EHBRC201508A	0.75R	1.5	1.5	8	50	6	2
EHBRC201510A	0.75R	1.5	1.5	10	50	6	2
EHBRC201512A	0.75R	1.5	1.5	12	50	6	2

Cutting conditions：Table 022

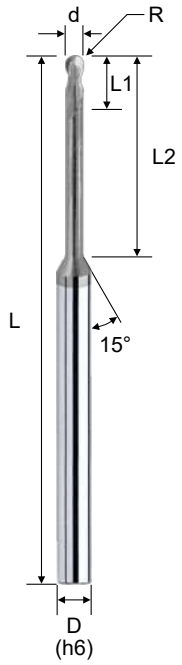
* A is ARCO Coating
S is SICO Coating

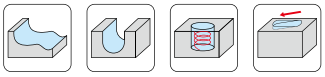
H650 - Long Neck · Ball Nose · 2F

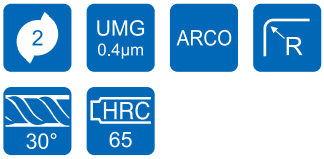
- ARCO coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Suitable for deep cutting due to the long neck design.
- Polish cutting edge provides stronger tip.
- The coating can change to SICO, the prices will differ.

EHBRC

P	M	K	N	S	H
●	○	●		○	●







R Tolerance	
R ≤ 3	±0.010
R > 3	±0.015

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHBRC241606A	0.80R	1.6	1.6	6	50	4	2
* EHBRC241608A	0.80R	1.6	1.6	8	50	4	2
* EHBRC241612A	0.80R	1.6	1.6	12	50	4	2
* EHBRC241616A	0.80R	1.6	1.6	16	50	4	2
* EHBRC241620A	0.80R	1.6	1.6	20	50	4	2
* EHBRC241806A	0.90R	1.8	1.8	6	50	4	2
* EHBRC241808A	0.90R	1.8	1.8	8	50	4	2
* EHBRC241812A	0.90R	1.8	1.8	12	50	4	2
* EHBRC241816A	0.90R	1.8	1.8	16	50	4	2
* EHBRC241820A	0.90R	1.8	1.8	20	50	4	2
* EHBRC242004A	1.00R	2.0	2.0	4	50	4	2
* EHBRC242006A	1.00R	2.0	2.0	6	50	4	2
* EHBRC242008A	1.00R	2.0	2.0	8	50	4	2
* EHBRC242010A	1.00R	2.0	2.0	10	50	4	2
* EHBRC242012A	1.00R	2.0	2.0	12	50	4	2
* EHBRC242014A	1.00R	2.0	2.0	14	50	4	2
* EHBRC242016A	1.00R	2.0	2.0	16	50	4	2
* EHBRC242018A	1.00R	2.0	2.0	18	50	4	2
* EHBRC242020A	1.00R	2.0	2.0	20	50	4	2
* EHBRC242022A	1.00R	2.0	2.0	22	60	4	2
* EHBRC242025A	1.00R	2.0	2.0	25	60	4	2
EHBRC202006A	1.00R	2.0	2.0	6	50	6	2
EHBRC202008A	1.00R	2.0	2.0	8	50	6	2
EHBRC202010A	1.00R	2.0	2.0	10	50	6	2
EHBRC202016A	1.00R	2.0	2.0	16	50	6	2

Cutting conditions：Table 022

* A is ARCO Coating
S is SICO Coating

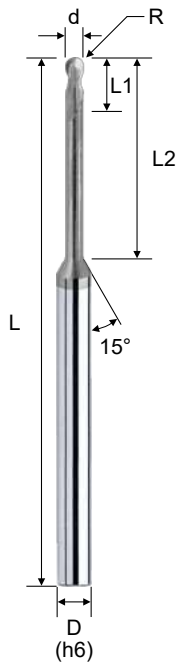
WINSTAR

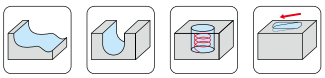
H650 - Long Neck · Ball Nose · 2F

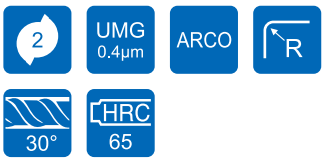
- ARCO coating provides a superior wear and heat resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Suitable for deep cutting due to the long neck design.
- Polish cutting edge provides stronger tip.
- The coating can change to SICO, the prices will differ.

EHBRC

P	M	K	N	S	H
●	○	●		○	●







R Tolerance	
R ≤ 3	±0.010
R > 3	±0.015

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHBRC242508A	1.25R	2.5	2.5	8	50	4	2
* EHBRC242510A	1.25R	2.5	2.5	10	50	4	2
* EHBRC242516A	1.25R	2.5	2.5	16	50	4	2
* EHBRC242520A	1.25R	2.5	2.5	20	60	4	2
* EHBRC242525A	1.25R	2.5	2.5	25	60	4	2
* EHBRC242530A	1.25R	2.5	2.5	30	75	4	2
EHBRC202506A	1.25R	2.5	2.5	6	50	6	2
EHBRC202510A	1.25R	2.5	2.5	10	50	6	2
EHBRC203006A	1.50R	3.0	3.0	6	50	6	2
EHBRC203008A	1.50R	3.0	3.0	8	50	6	2
EHBRC203010A	1.50R	3.0	3.0	10	50	6	2
EHBRC203012A	1.50R	3.0	3.0	12	50	6	2
EHBRC203016A	1.50R	3.0	3.0	16	60	6	2
EHBRC203020A	1.50R	3.0	3.0	20	60	6	2
EHBRC203025A	1.50R	3.0	3.0	25	60	6	2
EHBRC203030A	1.50R	3.0	3.0	30	75	6	2
EHBRC203035A	1.50R	3.0	3.0	35	75	6	2
EHBRC204008A	2.00R	4.0	4.0	8	50	6	2
EHBRC204010A	2.00R	4.0	4.0	10	50	6	2
EHBRC204012A	2.00R	4.0	4.0	12	50	6	2
EHBRC204016A	2.00R	4.0	4.0	16	60	6	2
EHBRC204020A	2.00R	4.0	4.0	20	60	6	2
EHBRC204025A	2.00R	4.0	4.0	25	60	6	2
EHBRC204030A	2.00R	4.0	4.0	30	75	6	2
EHBRC204035A	2.00R	4.0	4.0	35	75	6	2
EHBRC205015A	2.50R	5.0	5.0	15	60	6	2
EHBRC205020A	2.50R	5.0	5.0	20	60	6	2
EHBRC205025A	2.50R	5.0	5.0	25	60	6	2
EHBRC205030A	2.50R	5.0	5.0	30	75	6	2
EHBRC206015A	3.00R	6.0	10.0	15	50	6	2
EHBRC208025A	4.00R	8.0	12.0	25	60	8	2
EHBRC210030A	5.00R	10.0	16.0	30	75	10	2
EHBRC212030A	6.00R	12.0	18.0	30	75	12	2

Cutting conditions : Table 022

* A is ARCO Coating
S is SICO Coating

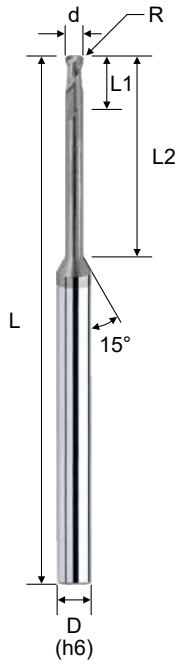
WINSTAR

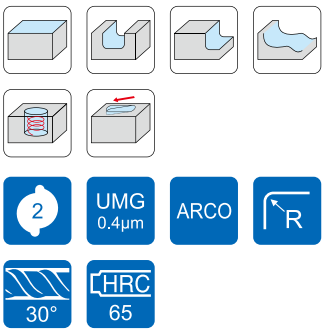
H650 - Long Neck · Corner Radius · 2F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Available in various effective cutting lengths.
- It is suitable for deep cutting.
- The coating can change to SICO, the prices will differ.

EHCRC

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHCRC24100104A	1.0	0.1R	1.0	4	50	4	2
* EHCRC24100106A	1.0	0.1R	1.0	6	50	4	2
* EHCRC24100108A	1.0	0.1R	1.0	8	50	4	2
* EHCRC24100110A	1.0	0.1R	1.0	10	50	4	2
* EHCRC24100112A	1.0	0.1R	1.0	12	50	4	2
* EHCRC24100204A	1.0	0.2R	1.0	4	50	4	2
* EHCRC24100206A	1.0	0.2R	1.0	6	50	4	2
* EHCRC24100208A	1.0	0.2R	1.0	8	50	4	2
* EHCRC24100210A	1.0	0.2R	1.0	10	50	4	2
* EHCRC24100212A	1.0	0.2R	1.0	12	50	4	2
* EHCRC24100304A	1.0	0.3R	1.0	4	50	4	2
* EHCRC24100306A	1.0	0.3R	1.0	6	50	4	2
* EHCRC24100308A	1.0	0.3R	1.0	8	50	4	2
* EHCRC24100310A	1.0	0.3R	1.0	10	50	4	2
* EHCRC24100312A	1.0	0.3R	1.0	12	50	4	2
* EHCRC24120104A	1.2	0.1R	1.2	4	50	4	2
* EHCRC24120106A	1.2	0.1R	1.2	6	50	4	2
* EHCRC24120108A	1.2	0.1R	1.2	8	50	4	2
* EHCRC24120110A	1.2	0.1R	1.2	10	50	4	2
* EHCRC24120112A	1.2	0.1R	1.2	12	50	4	2
* EHCRC24120204A	1.2	0.2R	1.2	4	50	4	2
* EHCRC24120206A	1.2	0.2R	1.2	6	50	4	2
* EHCRC24120208A	1.2	0.2R	1.2	8	50	4	2
* EHCRC24120210A	1.2	0.2R	1.2	10	50	4	2
* EHCRC24120212A	1.2	0.2R	1.2	12	50	4	2
* EHCRC24120304A	1.2	0.3R	1.2	4	50	4	2
* EHCRC24120306A	1.2	0.3R	1.2	6	50	4	2
* EHCRC24120308A	1.2	0.3R	1.2	8	50	4	2
* EHCRC24120310A	1.2	0.3R	1.2	10	50	4	2
* EHCRC24120312A	1.2	0.3R	1.2	12	50	4	2

Cutting conditions：Table 023

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

* A is ARCO Coating
S is SICO Coating

WINSTAR

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- It is suitable for deep cutting.
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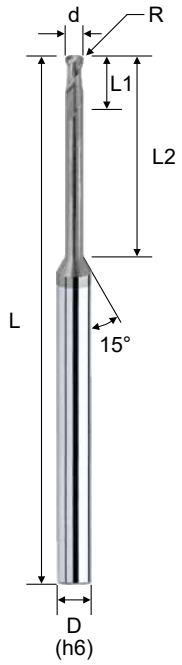
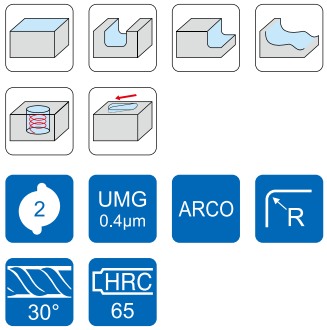
EHCRC

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
*EHCRC24150106A	1.5	0.1R	1.5	6	50	4	2
*EHCRC24150108A	1.5	0.1R	1.5	8	50	4	2
*EHCRC24150110A	1.5	0.1R	1.5	10	50	4	2
*EHCRC24150112A	1.5	0.1R	1.5	12	50	4	2
*EHCRC24150116A	1.5	0.1R	1.5	16	50	4	2
*EHCRC24150206A	1.5	0.2R	1.5	6	50	4	2
*EHCRC24150208A	1.5	0.2R	1.5	8	50	4	2
*EHCRC24150210A	1.5	0.2R	1.5	10	50	4	2
*EHCRC24150212A	1.5	0.2R	1.5	12	50	4	2
*EHCRC24150216A	1.5	0.2R	1.5	16	50	4	2
*EHCRC24150306A	1.5	0.3R	1.5	6	50	4	2
*EHCRC24150308A	1.5	0.3R	1.5	8	50	4	2
*EHCRC24150310A	1.5	0.3R	1.5	10	50	4	2
*EHCRC24150312A	1.5	0.3R	1.5	12	50	4	2
*EHCRC24150316A	1.5	0.3R	1.5	16	50	4	2
*EHCRC24150506A	1.5	0.5R	1.5	6	50	4	2
*EHCRC24150508A	1.5	0.5R	1.5	8	50	4	2
*EHCRC24150510A	1.5	0.5R	1.5	10	50	4	2
*EHCRC24150512A	1.5	0.5R	1.5	12	50	4	2
*EHCRC24150516A	1.5	0.5R	1.5	16	50	4	2

Cutting conditions : Table 023

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

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R ≥ 2	±0.020

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EHCRC

P	M	K	N	S	H
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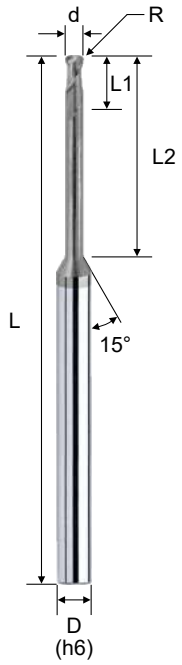

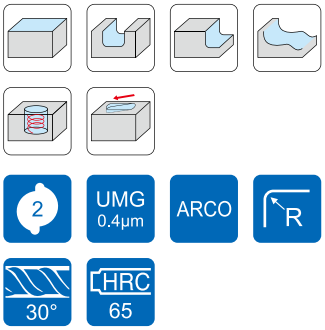

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHCRC24200106A	2.0	0.1R	2.0	6	50	4	2
* EHCRC24200108A	2.0	0.1R	2.0	8	50	4	2
* EHCRC24200110A	2.0	0.1R	2.0	10	50	4	2
* EHCRC24200112A	2.0	0.1R	2.0	12	50	4	2
* EHCRC24200116A	2.0	0.1R	2.0	16	50	4	2
* EHCRC24200120A	2.0	0.1R	2.0	20	50	4	2
* EHCRC24200125A	2.0	0.1R	2.0	25	60	4	2
* EHCRC24200206A	2.0	0.2R	2.0	6	50	4	2
* EHCRC24200208A	2.0	0.2R	2.0	8	50	4	2
* EHCRC24200210A	2.0	0.2R	2.0	10	50	4	2
* EHCRC24200212A	2.0	0.2R	2.0	12	50	4	2
* EHCRC24200216A	2.0	0.2R	2.0	16	50	4	2
* EHCRC24200220A	2.0	0.2R	2.0	20	50	4	2
* EHCRC24200225A	2.0	0.2R	2.0	25	60	4	2
* EHCRC24200306A	2.0	0.3R	2.0	6	50	4	2
* EHCRC24200308A	2.0	0.3R	2.0	8	50	4	2
* EHCRC24200310A	2.0	0.3R	2.0	10	50	4	2
* EHCRC24200312A	2.0	0.3R	2.0	12	50	4	2
* EHCRC24200316A	2.0	0.3R	2.0	16	50	4	2
* EHCRC24200320A	2.0	0.3R	2.0	20	50	4	2
* EHCRC24200325A	2.0	0.3R	2.0	25	60	4	2
* EHCRC24200506A	2.0	0.5R	2.0	6	50	4	2
* EHCRC24200508A	2.0	0.5R	2.0	8	50	4	2
* EHCRC24200510A	2.0	0.5R	2.0	10	50	4	2
* EHCRC24200512A	2.0	0.5R	2.0	12	50	4	2
* EHCRC24200516A	2.0	0.5R	2.0	16	50	4	2
* EHCRC24200520A	2.0	0.5R	2.0	20	50	4	2
* EHCRC24200525A	2.0	0.5R	2.0	25	60	4	2
EHCRC20200510A	2.0	0.5R	2.0	10	50	6	2
EHCRC20200515A	2.0	0.5R	2.0	15	50	6	2

Cutting conditions : Table 023

* A is ARCO Coating
S is SICO Coating

d Tolerance	
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d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

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EHCRC

P	M	K	N	S	H
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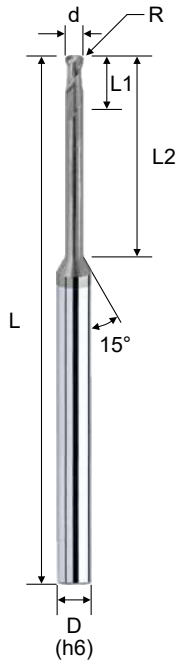

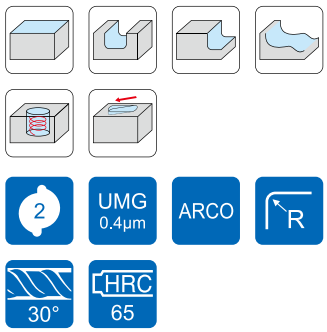

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHCRC24250110A	2.5	0.1R	2.5	10	50	4	2
* EHCRC24250116A	2.5	0.1R	2.5	16	50	4	2
* EHCRC24250120A	2.5	0.1R	2.5	20	50	4	2
* EHCRC24250125A	2.5	0.1R	2.5	25	60	4	2
* EHCRC24250210A	2.5	0.2R	2.5	10	50	4	2
* EHCRC24250216A	2.5	0.2R	2.5	16	50	4	2
* EHCRC24250220A	2.5	0.2R	2.5	20	50	4	2
* EHCRC24250225A	2.5	0.2R	2.5	25	60	4	2
* EHCRC24250310A	2.5	0.3R	2.5	10	50	4	2
* EHCRC24250316A	2.5	0.3R	2.5	16	50	4	2
* EHCRC24250320A	2.5	0.3R	2.5	20	50	4	2
* EHCRC24250325A	2.5	0.3R	2.5	25	60	4	2
* EHCRC24250510A	2.5	0.5R	2.5	10	50	4	2
* EHCRC24250516A	2.5	0.5R	2.5	16	50	4	2
* EHCRC24250520A	2.5	0.5R	2.5	20	50	4	2
* EHCRC24250525A	2.5	0.5R	2.5	25	60	4	2

Cutting conditions : Table 023

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

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EHCRC

P	M	K	N	S	H
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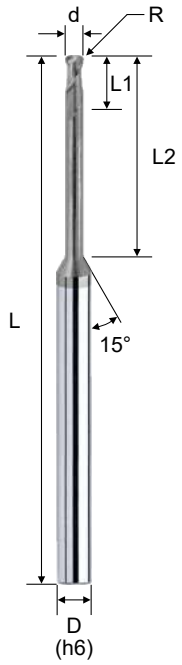

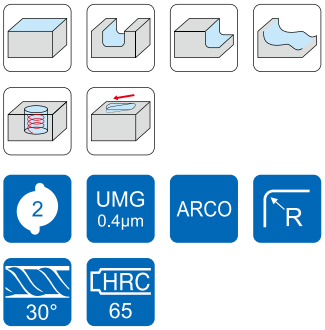

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHCRC20300110A	3.0	0.1R	3.0	10	50	6	2
EHCRC20300116A	3.0	0.1R	3.0	16	60	6	2
EHCRC20300120A	3.0	0.1R	3.0	20	60	6	2
EHCRC20300125A	3.0	0.1R	3.0	25	60	6	2
EHCRC20300130A	3.0	0.1R	3.0	30	75	6	2
EHCRC20300135A	3.0	0.1R	3.0	35	75	6	2
EHCRC20300210A	3.0	0.2R	3.0	10	50	6	2
EHCRC20300216A	3.0	0.2R	3.0	16	60	6	2
EHCRC20300220A	3.0	0.2R	3.0	20	60	6	2
EHCRC20300225A	3.0	0.2R	3.0	25	60	6	2
EHCRC20300230A	3.0	0.2R	3.0	30	75	6	2
EHCRC20300235A	3.0	0.2R	3.0	35	75	6	2
EHCRC20300310A	3.0	0.3R	3.0	10	50	6	2
EHCRC20300316A	3.0	0.3R	3.0	16	60	6	2
EHCRC20300320A	3.0	0.3R	3.0	20	60	6	2
EHCRC20300325A	3.0	0.3R	3.0	25	60	6	2
EHCRC20300330A	3.0	0.3R	3.0	30	75	6	2
EHCRC20300335A	3.0	0.3R	3.0	35	75	6	2
EHCRC20300510A	3.0	0.5R	3.0	10	50	6	2
EHCRC20300516A	3.0	0.5R	3.0	16	60	6	2
EHCRC20300520A	3.0	0.5R	3.0	20	60	6	2
EHCRC20300525A	3.0	0.5R	3.0	25	60	6	2
EHCRC20300530A	3.0	0.5R	3.0	30	75	6	2
EHCRC20300535A	3.0	0.5R	3.0	35	75	6	2
EHCRC20301010A	3.0	1.0R	3.0	10	50	6	2
EHCRC20301016A	3.0	1.0R	3.0	16	60	6	2
EHCRC20301020A	3.0	1.0R	3.0	20	60	6	2
EHCRC20301025A	3.0	1.0R	3.0	25	60	6	2
EHCRC20301030A	3.0	1.0R	3.0	30	75	6	2
EHCRC20301035A	3.0	1.0R	3.0	35	75	6	2

Cutting conditions：Table 023

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WINSTAR

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EHCRC

P	M	K	N	S	H
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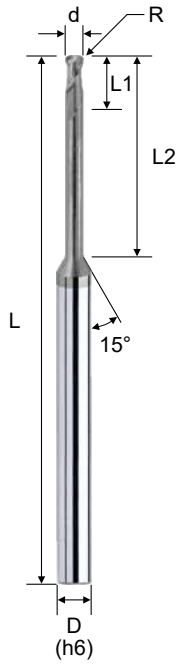

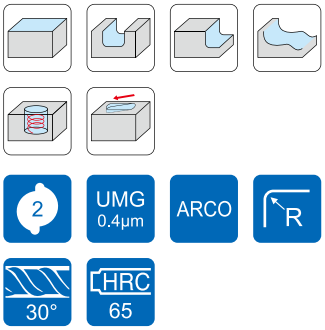

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHCRC20400113A	4.0	0.1R	4.0	13	50	6	2
EHCRC20400116A	4.0	0.1R	4.0	16	60	6	2
EHCRC20400120A	4.0	0.1R	4.0	20	60	6	2
EHCRC20400125A	4.0	0.1R	4.0	25	60	6	2
EHCRC20400130A	4.0	0.1R	4.0	30	75	6	2
EHCRC20400135A	4.0	0.1R	4.0	35	75	6	2
EHCRC20400213A	4.0	0.2R	4.0	13	50	6	2
EHCRC20400216A	4.0	0.2R	4.0	16	60	6	2
EHCRC20400220A	4.0	0.2R	4.0	20	60	6	2
EHCRC20400225A	4.0	0.2R	4.0	25	60	6	2
EHCRC20400230A	4.0	0.2R	4.0	30	75	6	2
EHCRC20400235A	4.0	0.2R	4.0	35	75	6	2
EHCRC20400313A	4.0	0.3R	4.0	13	50	6	2
EHCRC20400316A	4.0	0.3R	4.0	16	60	6	2
EHCRC20400320A	4.0	0.3R	4.0	20	60	6	2
EHCRC20400325A	4.0	0.3R	4.0	25	60	6	2
EHCRC20400330A	4.0	0.3R	4.0	30	75	6	2
EHCRC20400335A	4.0	0.3R	4.0	35	75	6	2
EHCRC20400513A	4.0	0.5R	4.0	13	50	6	2
EHCRC20400516A	4.0	0.5R	4.0	16	60	6	2
EHCRC20400520A	4.0	0.5R	4.0	20	60	6	2
EHCRC20400525A	4.0	0.5R	4.0	25	60	6	2
EHCRC20400530A	4.0	0.5R	4.0	30	75	6	2
EHCRC20400535A	4.0	0.5R	4.0	35	75	6	2
EHCRC20401013A	4.0	1.0R	4.0	13	50	6	2
EHCRC20401016A	4.0	1.0R	4.0	16	60	6	2
EHCRC20401020A	4.0	1.0R	4.0	20	60	6	2
EHCRC20401025A	4.0	1.0R	4.0	25	60	6	2
EHCRC20401030A	4.0	1.0R	4.0	30	75	6	2
EHCRC20401035A	4.0	1.0R	4.0	35	75	6	2

Cutting conditions：Table 023

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

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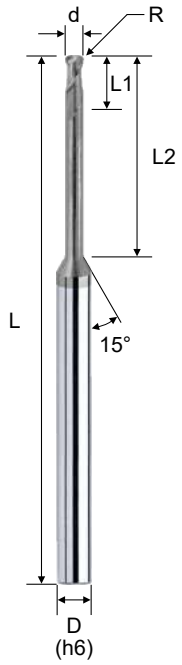
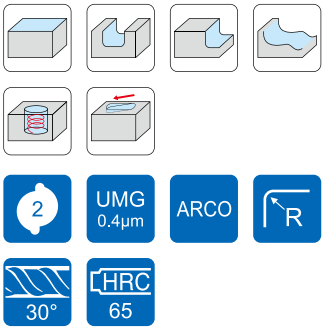
P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHCRC20500116A	5.0	0.1R	5.0	16	60	6	2
EHCRC20500130A	5.0	0.1R	5.0	30	75	6	2
EHCRC20500216A	5.0	0.2R	5.0	16	60	6	2
EHCRC20500230A	5.0	0.2R	5.0	30	75	6	2
EHCRC20500316A	5.0	0.3R	5.0	16	60	6	2
EHCRC20500330A	5.0	0.3R	5.0	30	75	6	2
EHCRC20500516A	5.0	0.5R	5.0	16	60	6	2
EHCRC20500530A	5.0	0.5R	5.0	30	75	6	2
EHCRC20501016A	5.0	1.0R	5.0	16	60	6	2
EHCRC20501030A	5.0	1.0R	5.0	30	75	6	2
EHCRC20600120A	6.0	0.1R	7.0	20	60	6	2
EHCRC20600130A	6.0	0.1R	7.0	30	75	6	2
EHCRC20600220A	6.0	0.2R	7.0	20	60	6	2
EHCRC20600230A	6.0	0.2R	7.0	30	75	6	2
EHCRC20600320A	6.0	0.3R	7.0	20	60	6	2
EHCRC20600330A	6.0	0.3R	7.0	30	75	6	2
EHCRC20600520A	6.0	0.5R	7.0	20	60	6	2
EHCRC20600530A	6.0	0.5R	7.0	30	75	6	2
EHCRC20601020A	6.0	1.0R	7.0	20	60	6	2
EHCRC20601030A	6.0	1.0R	7.0	30	75	6	2
EHCRC20601520A	6.0	1.5R	7.0	20	60	6	2
EHCRC20601530A	6.0	1.5R	7.0	30	75	6	2
EHCRC20800522A	8.0	0.5R	9.0	22	60	8	2
EHCRC20801022A	8.0	1.0R	9.0	22	60	8	2
EHCRC20801522A	8.0	1.5R	9.0	22	60	8	2
EHCRC20802022A	8.0	2.0R	9.0	22	60	8	2
EHCRC21000524A	10.0	0.5R	11.0	24	75	10	2
EHCRC21001024A	10.0	1.0R	11.0	24	75	10	2
EHCRC21001524A	10.0	1.5R	11.0	24	75	10	2
EHCRC21002024A	10.0	2.0R	11.0	24	75	10	2
EHCRC21200526A	12.0	0.5R	13.0	26	75	12	2
EHCRC21201026A	12.0	1.0R	13.0	26	75	12	2
EHCRC21201526A	12.0	1.5R	13.0	26	75	12	2
EHCRC21202026A	12.0	2.0R	13.0	26	75	12	2

Cutting conditions：Table 023

* A is ARCO Coating
S is SICO Coating

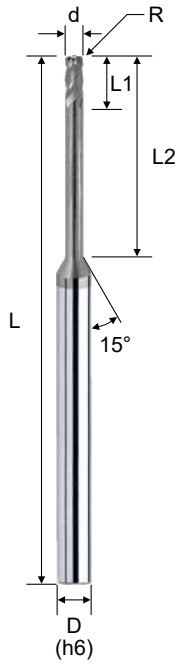
WINSTAR

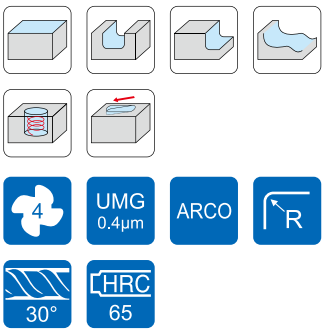
H650 - Long Neck · Corner Radius · 4F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Available in various effective cutting lengths.
- It is suitable for deep cutting.
- The coating can change to SICO, the prices will differ.

EHCRC

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
*EHCRC44200106A	2.0	0.1R	2.0	6	50	4	4
*EHCRC44200108A	2.0	0.1R	2.0	8	50	4	4
*EHCRC44200110A	2.0	0.1R	2.0	10	50	4	4
*EHCRC44200112A	2.0	0.1R	2.0	12	50	4	4
*EHCRC44200116A	2.0	0.1R	2.0	16	50	4	4
*EHCRC44200120A	2.0	0.1R	2.0	20	50	4	4
*EHCRC44200125A	2.0	0.1R	2.0	25	60	4	4
*EHCRC44200206A	2.0	0.2R	2.0	6	50	4	4
*EHCRC44200208A	2.0	0.2R	2.0	8	50	4	4
*EHCRC44200210A	2.0	0.2R	2.0	10	50	4	4
*EHCRC44200212A	2.0	0.2R	2.0	12	50	4	4
*EHCRC44200216A	2.0	0.2R	2.0	16	50	4	4
*EHCRC44200220A	2.0	0.2R	2.0	20	50	4	4
*EHCRC44200225A	2.0	0.2R	2.0	25	60	4	4
*EHCRC44200306A	2.0	0.3R	2.0	6	50	4	4
*EHCRC44200308A	2.0	0.3R	2.0	8	50	4	4
*EHCRC44200310A	2.0	0.3R	2.0	10	50	4	4
*EHCRC44200312A	2.0	0.3R	2.0	12	50	4	4
*EHCRC44200316A	2.0	0.3R	2.0	16	50	4	4
*EHCRC44200320A	2.0	0.3R	2.0	20	50	4	4
*EHCRC44200325A	2.0	0.3R	2.0	25	60	4	4
*EHCRC44200506A	2.0	0.5R	2.0	6	50	4	4
*EHCRC44200508A	2.0	0.5R	2.0	8	50	4	4
*EHCRC44200510A	2.0	0.5R	2.0	10	50	4	4
*EHCRC44200512A	2.0	0.5R	2.0	12	50	4	4
*EHCRC44200516A	2.0	0.5R	2.0	16	50	4	4
*EHCRC44200520A	2.0	0.5R	2.0	20	50	4	4
*EHCRC44200525A	2.0	0.5R	2.0	25	60	4	4
EHCRC40200510A	2.0	0.5R	2.0	10	50	6	4
EHCRC40200515A	2.0	0.5R	2.0	15	50	6	4

Cutting conditions：Table 024

* A is ARCO Coating
S is SICO Coating

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

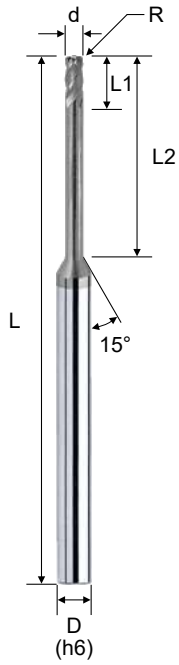
R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

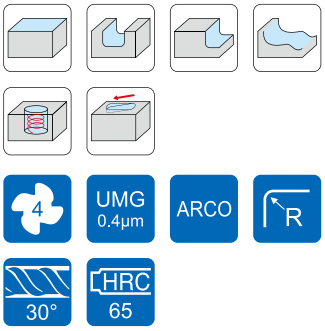
H650 - Long Neck · Corner Radius · 4F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Available in various effective cutting lengths.
- It is suitable for deep cutting.
- The coating can change to SICO, the prices will differ.

EHCRC

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EHCRC44250110A	2.5	0.1R	2.5	10	50	4	4
* EHCRC44250116A	2.5	0.1R	2.5	16	50	4	4
* EHCRC44250120A	2.5	0.1R	2.5	20	50	4	4
* EHCRC44250125A	2.5	0.1R	2.5	25	60	4	4
* EHCRC44250210A	2.5	0.2R	2.5	10	50	4	4
* EHCRC44250216A	2.5	0.2R	2.5	16	50	4	4
* EHCRC44250220A	2.5	0.2R	2.5	20	50	4	4
* EHCRC44250225A	2.5	0.2R	2.5	25	60	4	4
* EHCRC44250310A	2.5	0.3R	2.5	10	50	4	4
* EHCRC44250316A	2.5	0.3R	2.5	16	50	4	4
* EHCRC44250320A	2.5	0.3R	2.5	20	50	4	4
* EHCRC44250325A	2.5	0.3R	2.5	25	60	4	4
* EHCRC44250510A	2.5	0.5R	2.5	10	50	4	4
* EHCRC44250516A	2.5	0.5R	2.5	16	50	4	4
* EHCRC44250520A	2.5	0.5R	2.5	20	50	4	4
* EHCRC44250525A	2.5	0.5R	2.5	25	60	4	4

Cutting conditions：Table 024

* A is ARCO Coating
S is SICO Coating

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

WINSTAR

H650 - Long Neck · Corner Radius · 4F

- ARCO coating provides a superior wear resistance.
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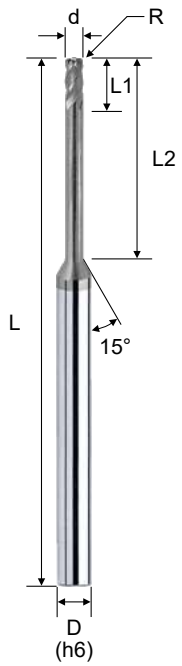
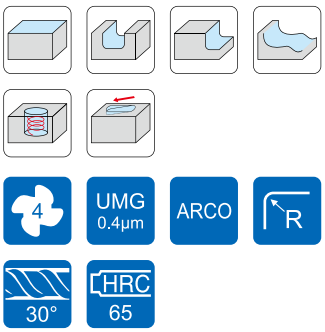
- Available in various effective cutting lengths.
- It is suitable for deep cutting.
- The coating can change to SICO, the prices will differ.

EHCRC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHCRC40300110A	3.0	0.1R	3.0	10	50	6	4
EHCRC40300116A	3.0	0.1R	3.0	16	60	6	4
EHCRC40300120A	3.0	0.1R	3.0	20	60	6	4
EHCRC40300125A	3.0	0.1R	3.0	25	60	6	4
EHCRC40300130A	3.0	0.1R	3.0	30	75	6	4
EHCRC40300135A	3.0	0.1R	3.0	35	75	6	4
EHCRC40300210A	3.0	0.2R	3.0	10	50	6	4
EHCRC40300216A	3.0	0.2R	3.0	16	60	6	4
EHCRC40300220A	3.0	0.2R	3.0	20	60	6	4
EHCRC40300225A	3.0	0.2R	3.0	25	60	6	4
EHCRC40300230A	3.0	0.2R	3.0	30	75	6	4
EHCRC40300235A	3.0	0.2R	3.0	35	75	6	4
EHCRC40300310A	3.0	0.3R	3.0	10	50	6	4
EHCRC40300316A	3.0	0.3R	3.0	16	60	6	4
EHCRC40300320A	3.0	0.3R	3.0	20	60	6	4
EHCRC40300325A	3.0	0.3R	3.0	25	60	6	4
EHCRC40300330A	3.0	0.3R	3.0	30	75	6	4
EHCRC40300335A	3.0	0.3R	3.0	35	75	6	4
EHCRC40300510A	3.0	0.5R	3.0	10	50	6	4
EHCRC40300516A	3.0	0.5R	3.0	16	60	6	4
EHCRC40300520A	3.0	0.5R	3.0	20	60	6	4
EHCRC40300525A	3.0	0.5R	3.0	25	60	6	4
EHCRC40300530A	3.0	0.5R	3.0	30	75	6	4
EHCRC40300535A	3.0	0.5R	3.0	35	75	6	4
EHCRC40301010A	3.0	1.0R	3.0	10	50	6	4
EHCRC40301016A	3.0	1.0R	3.0	16	60	6	4
EHCRC40301020A	3.0	1.0R	3.0	20	60	6	4
EHCRC40301025A	3.0	1.0R	3.0	25	60	6	4
EHCRC40301030A	3.0	1.0R	3.0	30	75	6	4
EHCRC40301035A	3.0	1.0R	3.0	35	75	6	4

Cutting conditions：Table 024

* A is ARCO Coating
S is SICO Coating

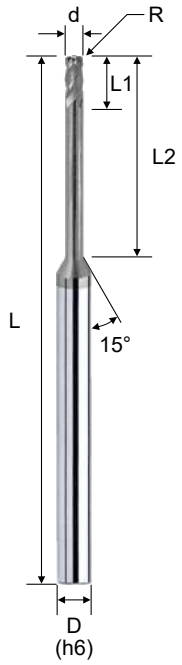
WINSTAR

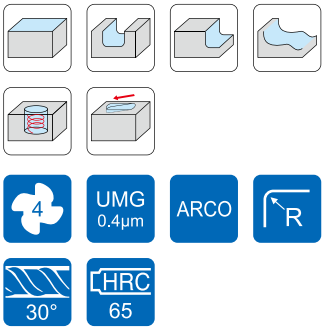
H650 - Long Neck · Corner Radius · 4F

- ARCO coating provides a superior wear resistance.
- Suitable for HRC 50 and over HRC 50 Hardened Steel, also maximum up to HRC 65.
- Available in various effective cutting lengths.
- It is suitable for deep cutting.
- The coating can change to SICO, the prices will differ.

EHCRC

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHCRC40400113A	4.0	0.1R	4.0	13	50	6	4
EHCRC40400116A	4.0	0.1R	4.0	16	60	6	4
EHCRC40400120A	4.0	0.1R	4.0	20	60	6	4
EHCRC40400125A	4.0	0.1R	4.0	25	60	6	4
EHCRC40400130A	4.0	0.1R	4.0	30	75	6	4
EHCRC40400135A	4.0	0.1R	4.0	35	75	6	4
EHCRC40400213A	4.0	0.2R	4.0	13	50	6	4
EHCRC40400216A	4.0	0.2R	4.0	16	60	6	4
EHCRC40400220A	4.0	0.2R	4.0	20	60	6	4
EHCRC40400225A	4.0	0.2R	4.0	25	60	6	4
EHCRC40400230A	4.0	0.2R	4.0	30	75	6	4
EHCRC40400235A	4.0	0.2R	4.0	35	75	6	4
EHCRC40400313A	4.0	0.3R	4.0	13	50	6	4
EHCRC40400316A	4.0	0.3R	4.0	16	60	6	4
EHCRC40400320A	4.0	0.3R	4.0	20	60	6	4
EHCRC40400325A	4.0	0.3R	4.0	25	60	6	4
EHCRC40400330A	4.0	0.3R	4.0	30	75	6	4
EHCRC40400335A	4.0	0.3R	4.0	35	75	6	4
EHCRC40400513A	4.0	0.5R	4.0	13	50	6	4
EHCRC40400516A	4.0	0.5R	4.0	16	60	6	4
EHCRC40400520A	4.0	0.5R	4.0	20	60	6	4
EHCRC40400525A	4.0	0.5R	4.0	25	60	6	4
EHCRC40400530A	4.0	0.5R	4.0	30	75	6	4
EHCRC40400535A	4.0	0.5R	4.0	35	75	6	4
EHCRC40401013A	4.0	1.0R	4.0	13	50	6	4
EHCRC40401016A	4.0	1.0R	4.0	16	60	6	4
EHCRC40401020A	4.0	1.0R	4.0	20	60	6	4
EHCRC40401025A	4.0	1.0R	4.0	25	60	6	4
EHCRC40401030A	4.0	1.0R	4.0	30	75	6	4
EHCRC40401035A	4.0	1.0R	4.0	35	75	6	4

Cutting conditions：Table 024

* A is ARCO Coating
S is SICO Coating

d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

WINSTAR

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- Available in various effective cutting lengths.
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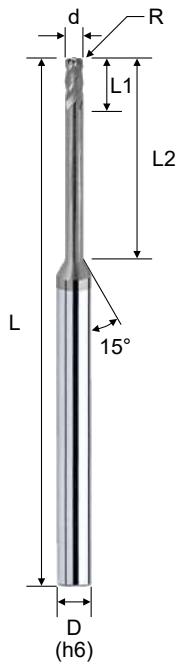
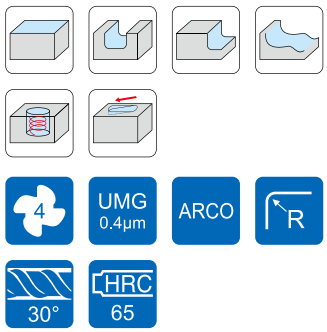
EHCRC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 12	0 ~ -0.02
d > 12	0 ~ -0.03

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHCRC40500116A	5.0	0.1R	5.0	16	60	6	4
EHCRC40500130A	5.0	0.1R	5.0	30	75	6	4
EHCRC40500216A	5.0	0.2R	5.0	16	60	6	4
EHCRC40500230A	5.0	0.2R	5.0	30	75	6	4
EHCRC40500316A	5.0	0.3R	5.0	16	60	6	4
EHCRC40500330A	5.0	0.3R	5.0	30	75	6	4
EHCRC40500516A	5.0	0.5R	5.0	16	60	6	4
EHCRC40500530A	5.0	0.5R	5.0	30	75	6	4
EHCRC40501016A	5.0	1.0R	5.0	16	60	6	4
EHCRC40501030A	5.0	1.0R	5.0	30	75	6	4
EHCRC40600120A	6.0	0.1R	7.0	20	60	6	4
EHCRC40600130A	6.0	0.1R	7.0	30	75	6	4
EHCRC40600220A	6.0	0.2R	7.0	20	60	6	4
EHCRC40600230A	6.0	0.2R	7.0	30	75	6	4
EHCRC40600320A	6.0	0.3R	7.0	20	60	6	4
EHCRC40600330A	6.0	0.3R	7.0	30	75	6	4
EHCRC40600520A	6.0	0.5R	7.0	20	60	6	4
EHCRC40600530A	6.0	0.5R	7.0	30	75	6	4
EHCRC40601020A	6.0	1.0R	7.0	20	60	6	4
EHCRC40601030A	6.0	1.0R	7.0	30	75	6	4
EHCRC40601520A	6.0	1.5R	7.0	20	60	6	4
EHCRC40601530A	6.0	1.5R	7.0	30	75	6	4
EHCRC40800522A	8.0	0.5R	9.0	22	60	8	4
EHCRC40801022A	8.0	1.0R	9.0	22	60	8	4
EHCRC40801522A	8.0	1.5R	9.0	22	60	8	4
EHCRC40802022A	8.0	2.0R	9.0	22	60	8	4
EHCRC41000524A	10.0	0.5R	11.0	24	75	10	4
EHCRC41001024A	10.0	1.0R	11.0	24	75	10	4
EHCRC41001524A	10.0	1.5R	11.0	24	75	10	4
EHCRC41002024A	10.0	2.0R	11.0	24	75	10	4
EHCRC41200526A	12.0	0.5R	13.0	26	75	12	4
EHCRC41201026A	12.0	1.0R	13.0	26	75	12	4
EHCRC41201526A	12.0	1.5R	13.0	26	75	12	4
EHCRC41202026A	12.0	2.0R	13.0	26	75	12	4

Cutting conditions：Table 024

* A is ARCO Coating
S is SICO Coating

H600 Series for general milling (Hardened steel HRC 40~68)

- For wide range material and more economical cutting.
- For general cutting in hardened steel HRC 40 ~ 60.
- For high speed cutting in alloy steel HRC 30 ~ 40.

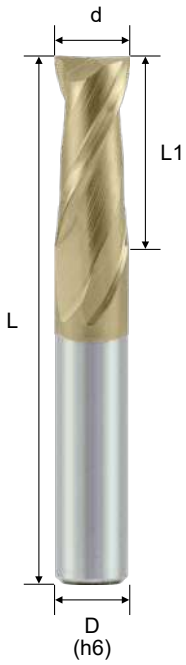
WINSTAR

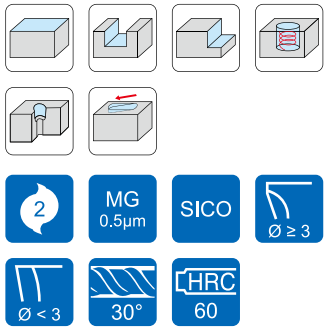
H600 - Square · 2F

- SICO coating with anti-high temperature & anti-oxidation.
- Suitable for HRC 30 to HRC 60 Alloy Steel, Cast Iron, Prehardened steel, Hardened Steel, etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- Universal geometry design is suitable for most materials.

EHSSC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHSSC241000S	1	3	50	4	2
* EHSSC242000S	2	5	50	4	2
* EHSSC243000S	3	8	50	4	2
* EHSSC203000S	3	8	50	6	2
* EHSSC244000S	4	10	50	4	2
EHSSC204000S	4	10	50	6	2
EHSSC205000S	5	13	50	6	2
EHSSC206000S	6	15	50	6	2
EHSSC208000S	8	20	60	8	2
EHSSC210000S	10	25	75	10	2
EHSSC212000S	12	30	75	12	2
EHSSC216000S	16	35	100	16	2
EHSSC220000S	20	45	100	20	2

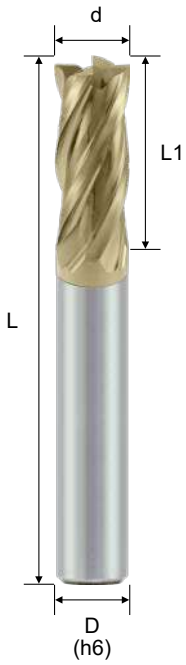
Cutting conditions：Table 025

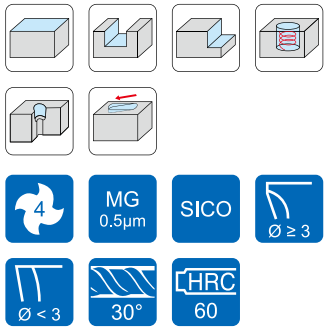
H600 - Square · 4F

- SICO coating with anti-high temperature & anti-oxidation.
- Suitable for HRC 30 to HRC 60 Alloy Steel, Cast Iron, Prehardened steel, Hardened Steel, etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- Universal geometry design is suitable for most materials.

EHSSC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHSSC441000S	1.0	3	50	4	4
* EHSSC441500S	1.5	4	50	4	4
* EHSSC442000S	2.0	5	50	4	4
* EHSSC442500S	2.5	6	50	4	4
* EHSSC433000S	3.0	8	50	3	4
* EHSSC443000S	3.0	8	50	4	4
* EHSSC444000S	4.0	10	50	4	4
EHSSC405000S	5.0	13	50	6	4
EHSSC406000S	6.0	15	50	6	4
EHSSC408000S	8.0	20	60	8	4
EHSSC410000S	10.0	25	75	10	4
EHSSC412000S	12.0	30	75	12	4
EHSSC414000S	14.0	30	75	14	4
EHSSC416000S	16.0	40	100	16	4
EHSSC420000S	20.0	45	100	20	4
EHSSC425000S	25.0	45	100	25	4

Cutting conditions：Table 026

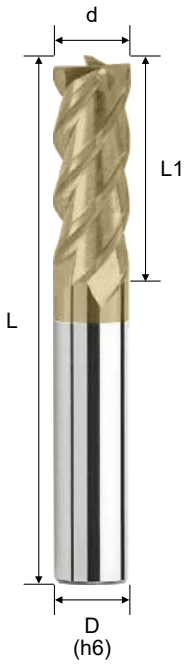
WINSTAR

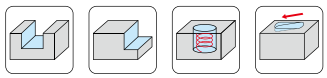
H600 - High Helix · Square · 4F

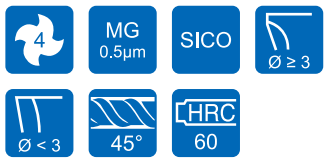
- SICO coating with anti-high temperature & anti-oxidation.
- Suitable for HRC 30 to HRC 60 Alloy Steel, Cast Iron, Prehardened steel, Hardened Steel, etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- Universal geometry design is suitable for most materials.

EHSSD

P	M	K	N	S	H
●	○	●		○	●







d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHSSD441000S	1	3	50	4	4
* EHSSD441500S	1.5	4	50	4	4
* EHSSD442000S	2	5	50	4	4
* EHSSD442500S	2.5	6	50	4	4
* EHSSD443000S	3	8	50	4	4
* EHSSD444000S	4	10	50	4	4
EHSSD406000S	6	15	50	6	4
EHSSD408000S	8	20	60	8	4
EHSSD410000S	10	25	75	10	4
EHSSD412000S	12	30	75	12	4
EHSSD414000S	14	30	75	14	4
EHSSD416000S	16	35	100	16	4

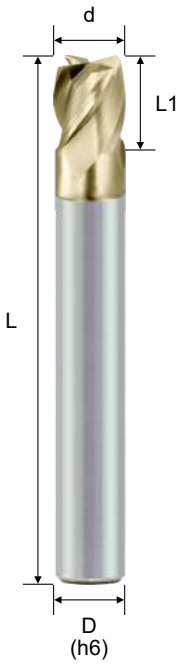
Cutting conditions：Table 027

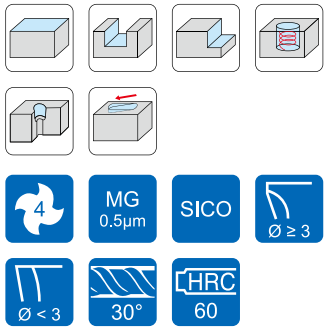
H600 - Short Flute · Square · 4F

- SICO coating with anti-high temperature & anti-oxidation.
- Suitable for HRC 30 to HRC 60 Alloy Steel, Cast Iron, Prehardened steel, Hardened Steel, etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- Universal geometry design is suitable for most materials.

EHSHC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EHSHC441000S	1	1	50	4	4
EHSHC441500S	1.5	1.5	50	4	4
EHSHC442000S	2	2	50	4	4
EHSHC442500S	2.5	2.5	50	4	4
EHSHC403000S	3	3	50	6	4
EHSHC404000S	4	4	50	6	4
EHSHC405000S	5	5	50	6	4
EHSHC406000S	6	6	60	6	4

Cutting conditions：Table 026

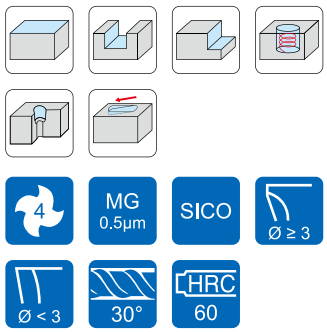
WINSTAR

H600 - Long Shank · Square · 4F

- SICO coating with anti-high temperature & anti-oxidation.
- Suitable for HRC 30 to HRC 60 Alloy Steel, Cast Iron, Prehardened steel, Hardened Steel, etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- Universal geometry design is suitable for most materials.

EHSLC

P	M	K	N	S	H
●	○	●		○	●



d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHSLC444006S	4	10	60	4	4
* EHSLC444007S	4	10	75	4	4
* EHSLC444010S	4	10	100	4	4
* EHSLC406006S	6	15	60	6	4
* EHSLC406007S	6	15	75	6	4
* EHSLC406010S	6	15	100	6	4
* EHSLC408007S	8	20	75	8	4
* EHSLC408010S	8	20	100	8	4
* EHSLC410010S	10	25	100	10	4
* EHSLC412010S	12	30	100	12	4
* EHSLC416015S	16	40	150	16	4

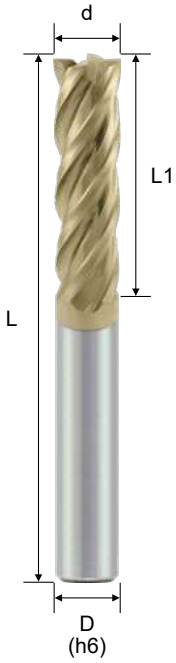
Cutting conditions：Table 031

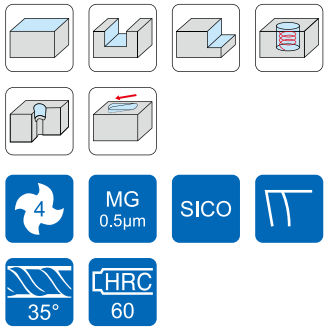
H600 - Long Flute · Square · 4F

- SICO coating with anti-high temperature & anti-oxidation.
- Suitable for HRC 30 to HRC 60 Alloy Steel, Cast Iron, Prehardened steel, Hardened Steel, etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- Universal geometry design is suitable for most materials.

EHSCC

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EHSCC403000S	3	15	60	6	4
EHSCC404000S	4	20	60	6	4
EHSCC406000S	6	30	75	6	4
EHSCC408000S	8	35	100	8	4
EHSCC410000S	10	45	100	10	4
EHSCC410015S	10	50	150	10	4
EHSCC412000S	12	45	100	12	4
EHSCC412015S	12	50	150	12	4
EHSCC414000S	14	70	150	14	4
EHSCC416000S	16	70	150	16	4
EHSCC420000S	20	75	150	20	4

Cutting conditions：Table 028

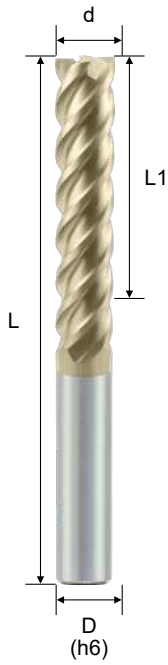
WINSTAR

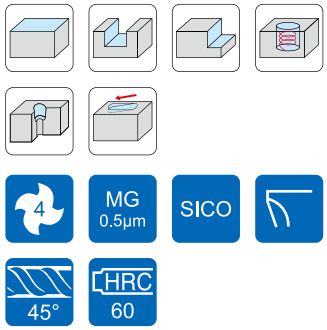
H600 - Extra Long Flute · Square · 4F

- SICO coating with anti-high temperature & anti-oxidation.
- Suitable for HRC 30 to HRC 60 Alloy Steel, Cast Iron, Prehardened steel, Hardened Steel, etc.
- Suitable for deep side milling and finishing.
- Special geometry design, outstanding anti-vibrations and high surface finish quality.

EHSCH

P	M	K	N	S	H
●	○	●		○	●





d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EHSCH406035S	6	35	100	6	4
EHSCH408040S	8	40	100	8	4
EHSCH410035S	10	35	75	10	4
EHSCH410050S	10	50	100	10	4
EHSCH412035S	12	35	75	12	4
EHSCH412055S	12	55	100	12	4

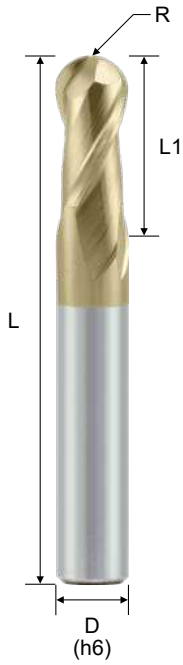
Cutting conditions：Table 028

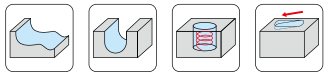
H600 - Ball Nose · 2F

- SICO coating with anti-high temperature & anti-oxidation.
- Suitable for HRC 30 to HRC 60 Alloy Steel, Cast Iron, Prehardened steel, Hardened Steel, etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- Universal geometry design is suitable for most materials.

EHBSC

P	M	K	N	S	H
●	○	●		○	●





R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHBSC241000S	0.5R	1	2	50	4	2
* EHBSC241500S	0.75R	1.5	3	50	4	2
* EHBSC242000S	1.0R	2	4	50	4	2
* EHBSC233000S	1.5R	3	6	50	3	2
* EHBSC243000S	1.5R	3	6	50	4	2
* EHBSC244000S	2.0R	4	8	50	4	2
EHBSC204000S	2.0R	4	8	50	6	2
EHBSC206000S	3.0R	6	12	50	6	2
EHBSC208000S	4.0R	8	16	60	8	2
EHBSC210000S	5.0R	10	20	75	10	2
EHBSC212000S	6.0R	12	24	75	12	2
EHBSC216000S	8.0R	16	32	100	16	2
EHBSC220000S	10.0R	20	40	100	20	2

Cutting conditions：Table 035

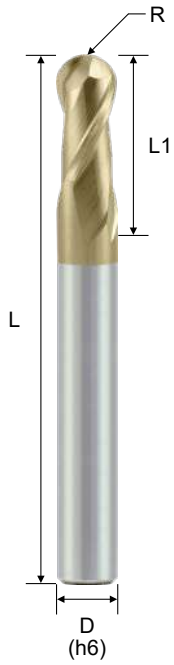
WINSTAR

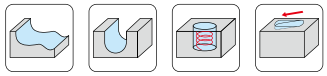
H600 - Long Shank · Ball Nose · 2F

- SICO coating with anti-high temperature & anti-oxidation.
- Suitable for HRC 30 to HRC 60 Alloy Steel, Cast Iron, Prehardened steel, Hardened Steel, etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- Universal geometry design is suitable for most materials.

EHBLC

P	M	K	N	S	H
●	○	●		○	●





R Tolerance	
R ≤ 3	±0.020
R > 3	±0.025

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHBLC244006S	2R	4	8	60	4	2
* EHBLC244007S	2R	4	8	75	4	2
* EHBLC244010S	2R	4	8	100	4	2
* EHBLC206006S	3R	6	12	60	6	2
* EHBLC206007S	3R	6	12	75	6	2
* EHBLC206010S	3R	6	12	100	6	2
* EHBLC208007S	4R	8	16	75	8	2
* EHBLC208010S	4R	8	16	100	8	2
* EHBLC210010S	5R	10	20	100	10	2
* EHBLC212010S	6R	12	24	100	12	2
* EHBLC216015S	8R	16	32	150	16	2
* EHBLC220015S	10R	20	40	150	20	2

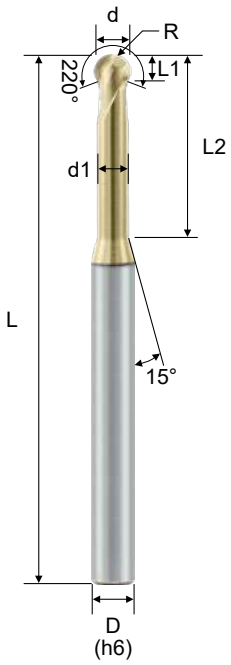
Cutting conditions：Table 037

H600 - Spherical Ball Nose · 2F

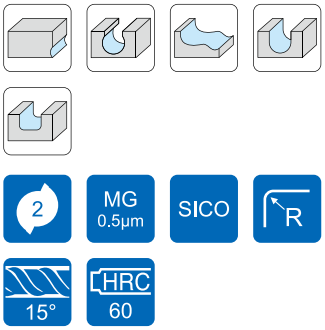
- Designed for undercutting & deburring applications.
- It provides an excellent surface finishing of vertical machining.
- SICO Nano coating provides a superior wear and heat resistance.
- Suitable for Steel, Alloy steel, Stainless steel, Cast iron, & Hardened steel.

EHRRC

P	M	K	N	S	H
●	○	●		○	●



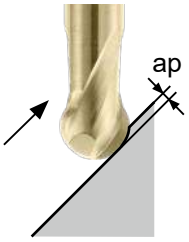
Order No.	Radius (R)	Dia. (d)	ND (d1)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EHRRC2020221S	1.0R	2	1.7	1.4	5	60	6	2
EHRRC2020222S	1.0R	2	1.7	1.4	10	60	6	2
EHRRC2030221S	1.5R	3	2.6	2.0	8	75	6	2
EHRRC2030222S	1.5R	3	2.6	2.0	15	75	6	2
EHRRC2040221S	2.0R	4	3.4	2.7	10	75	6	2
EHRRC2040222S	2.0R	4	3.4	2.7	20	75	6	2
EHRRC2050221S	2.5R	5	4.3	3.4	12	75	6	2
EHRRC2050222S	2.5R	5	4.3	3.4	25	75	6	2
EHRRC2060221S	3.0R	6	5.1	4.3	15	75	6	2
EHRRC2060222S	3.0R	6	5.1	4.3	30	75	6	2



R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Recommended Cutting Conditions

Material	Carbon Steel / Alloy Steel / Cast iron			Alloy Steel / Tool Steel / Pre-Hardened Steel (SCM, SKT, SKD)			Stainless Steel (SUS304, SUS316)			Hardened Steel		
Hardness	HRC < 30			HRC 30 ~ 45			-			HRC 45 ~ 60		
VC	220 ~ 300 m/min			150 ~ 220 m/min			70 ~ 150 m/min			130 ~ 150 m/min		
R (mm)	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)
1.0R	40,000	1,600	0.04	30,000	1,200	0.04	24,000	960	0.04	24,000	960	0.04
1.5R	32,000	1,920	0.06	23,000	1,380	0.06	16,000	960	0.06	16,000	960	0.06
2.0R	24,000	1,920	0.08	17,000	1,360	0.08	12,000	960	0.08	12,000	960	0.08
2.5R	19,200	1,920	0.10	14,000	1,400	0.10	9,600	960	0.10	9,600	960	0.10
3.0R	16,000	1,920	0.12	12,000	1,440	0.12	8,000	960	0.12	8,000	960	0.12



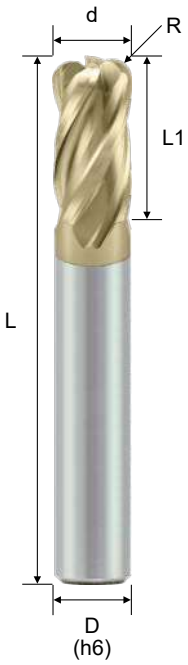
WINSTAR

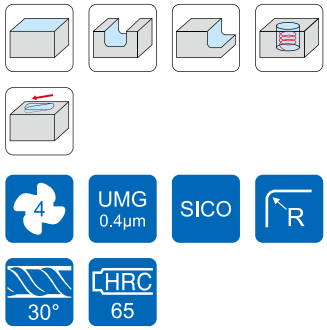
H600 - Corner Radius · 4F

- SICO coating with anti-high temperature & anti-oxidation.
- Suitable for HRC 30 to HRC 60 Alloy Steel, Cast Iron, Prehardened steel, Hardened Steel, etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- Universal geometry design is suitable for most materials.

EHCSC

P	M	K	N	S	H
●	○	●		○	●





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHCSC441002S	1	0.2R	2	50	4	4
* EHCSC441003S	1	0.3R	2	50	4	4
* EHCSC441502S	1.5	0.2R	3	50	4	4
* EHCSC441503S	1.5	0.3R	3	50	4	4
* EHCSC441505S	1.5	0.5R	3	50	4	4
* EHCSC442002S	2	0.2R	4	50	4	4
* EHCSC442003S	2	0.3R	4	50	4	4
* EHCSC442005S	2	0.5R	4	50	4	4
* EHCSC443002S	3	0.2R	6	50	4	4
* EHCSC443003S	3	0.3R	6	50	4	4
* EHCSC443005S	3	0.5R	6	50	4	4
* EHCSC443010S	3	1.0R	6	50	4	4
* EHCSC444002S	4	0.2R	8	50	4	4
* EHCSC444003S	4	0.3R	8	50	4	4
* EHCSC444005S	4	0.5R	8	50	4	4
* EHCSC444010S	4	1.0R	8	50	4	4
EHCSC406002S	6	0.2R	12	50	6	4
EHCSC406003S	6	0.3R	12	50	6	4
EHCSC406005S	6	0.5R	12	50	6	4
EHCSC406010S	6	1.0R	12	50	6	4
EHCSC408005S	8	0.5R	16	60	8	4
EHCSC408010S	8	1.0R	16	60	8	4
EHCSC410005S	10	0.5R	20	75	10	4
EHCSC410010S	10	1.0R	20	75	10	4
EHCSC410015S	10	1.5R	20	75	10	4
EHCSC412005S	12	0.5R	24	75	12	4
EHCSC412010S	12	1.0R	24	75	12	4
EHCSC412015S	12	1.5R	24	75	12	4
EHCSC416010S	16	1.0R	32	100	16	4

Cutting conditions：Table 042

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

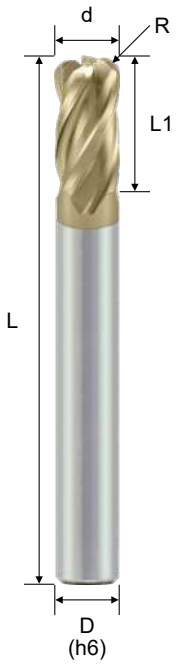
R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

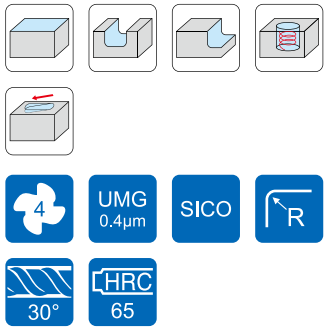
H600 - Long Shank · Corner Radius · 4F

- SICO coating with anti-high temperature & anti-oxidation.
- Suitable for HRC 30 to HRC 60 Alloy Steel, Cast Iron, Prehardened steel, Hardened Steel, etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- Universal geometry design is suitable for most materials.

EHCLC

P	M	K	N	S	H
●	○	●		○	●





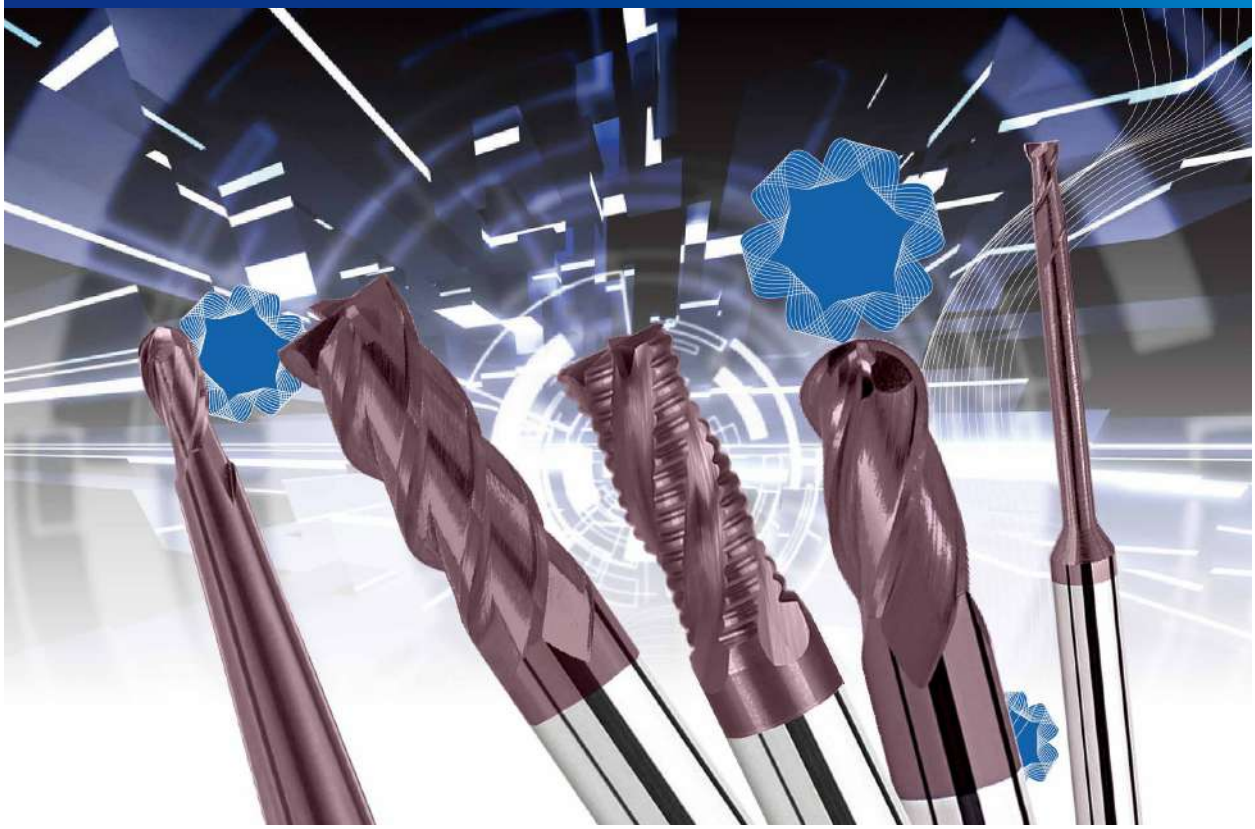
Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EHCLC40400507S	4	0.5R	8	75	4	4
* EHCLC40400510S	4	0.5R	8	100	4	4
* EHCLC40600507S	6	0.5R	12	75	6	4
* EHCLC40601007S	6	1.0R	12	75	6	4
* EHCLC40600510S	6	0.5R	12	100	6	4
* EHCLC40800507S	8	0.5R	16	75	8	4
* EHCLC40800510S	8	0.5R	16	100	8	4
* EHCLC40801010S	8	1.0R	16	100	8	4
* EHCLC41000510S	10	0.5R	20	100	10	4
* EHCLC41001010S	10	1.0R	20	100	10	4
* EHCLC41200510S	12	0.5R	24	100	12	4
* EHCLC41201010S	12	1.0R	24	100	12	4
* EHCLC41601015S	16	1.0R	32	150	16	4

Cutting conditions：Table 044

d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

R Tolerance	
R < 2	±0.020
R ≥ 2	±0.025

G550 Series for general milling (Hardened steel & Steel HRC 25~55)



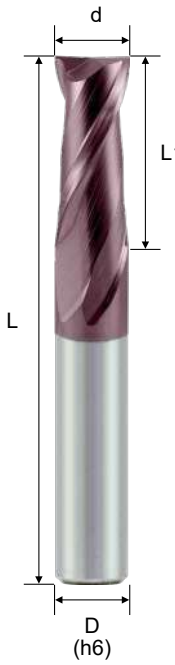
- Micro grain carbide rod is suitable for general machining.
- UNICO coating provides superior wear resistance and reduces the coefficient of friction.
- Stabilization of the cutting edge by edge flatland design and prevent chipping at corners.
- Universal geometry design is suitable for most materials.

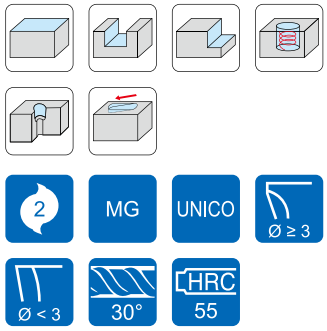
G550 - Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel,etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- High precision cutting for side milling.

EPSSC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPSSC240200U	0.2	0.4	50	4	2
* EPSSC240300U	0.3	0.6	50	4	2
* EPSSC240400U	0.4	0.8	50	4	2
* EPSSC240500U	0.5	1.0	50	4	2
* EPSSC240600U	0.6	1.5	50	4	2
* EPSSC240700U	0.7	2.0	50	4	2
* EPSSC240800U	0.8	2.0	50	4	2
* EPSSC240900U	0.9	2.0	50	4	2
* EPSSC241000U	1.0	3.0	50	4	2
EPSSC201000U	1.0	3.0	50	6	2
* EPSSC241500U	1.5	4.0	50	4	2
* EPSSC242000U	2.0	5.0	50	4	2
EPSSC202000U	2.0	5.0	50	6	2
* EPSSC242500U	2.5	6.0	50	4	2
EPSSC233000U	3.0	8.0	50	3	2
* EPSSC243000U	3.0	8.0	50	4	2
EPSSC203000U	3.0	8.0	50	6	2
* EPSSC243500U	3.5	9.0	50	4	2
EPSSC203500U	3.5	9.0	50	6	2
* EPSSC244000U	4.0	10.0	50	4	2
EPSSC204000U	4.0	10.0	50	6	2
EPSSC204500U	4.5	11.0	50	6	2
EPSSC205000U	5.0	13.0	50	6	2
EPSSC205500U	5.5	14.0	50	6	2
EPSSC206000U	6.0	15.0	50	6	2
EPSSC206500U	6.5	16.0	60	8	2
EPSSC207000U	7.0	18.0	60	8	2
EPSSC208000U	8.0	20.0	60	8	2
EPSSC209000U	9.0	22.0	75	10	2
EPSSC210000U	10.0	25.0	75	10	2
EPSSC211000U	11.0	25.0	75	12	2
EPSSC212000U	12.0	30.0	75	12	2
EPSSC214000U	14.0	30.0	75	14	2
EPSSC216000U	16.0	40.0	100	16	2
EPSSC218000U	18.0	40.0	100	20	2
EPSSC220000U	20.0	45.0	100	20	2
EPSSC225000U	25.0	45.0	100	25	2

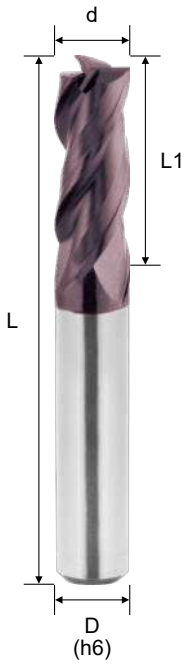
Cutting conditions：Table 025

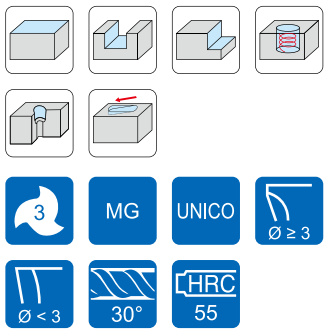
G550 - Square · 3F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel,etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- High precision cutting for side milling.

EPSSC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPSSC331000U	1.0	3	50	3	3
* EPSSC331500U	1.5	4	50	3	3
* EPSSC332000U	2.0	5	50	3	3
* EPSSC333000U	3.0	8	50	3	3
* EPSSC341000U	1.0	3	50	4	3
* EPSSC341500U	1.5	4	50	4	3
* EPSSC342000U	2.0	5	50	4	3
* EPSSC342500U	2.5	6	50	4	3
* EPSSC343000U	3.0	8	50	4	3
* EPSSC343500U	3.5	9	50	4	3
* EPSSC344000U	4.0	10	50	4	3
EPSSC303000U	3.0	8	50	6	3
EPSSC303500U	3.5	9	50	6	3
EPSSC304000U	4.0	10	50	6	3
EPSSC304500U	4.5	11	50	6	3
EPSSC305000U	5.0	13	50	6	3
EPSSC305500U	5.5	14	50	6	3
EPSSC306000U	6.0	15	50	6	3
EPSSC306500U	6.5	16	60	8	3
EPSSC307000U	7.0	18	60	8	3
EPSSC308000U	8.0	20	60	8	3
EPSSC309000U	9.0	22	75	10	3
EPSSC310000U	10.0	25	75	10	3
EPSSC311000U	11.0	25	75	12	3
EPSSC312000U	12.0	30	75	12	3
EPSSC314000U	14.0	30	75	14	3
EPSSC316000U	16.0	40	100	16	3
EPSSC318000U	18.0	40	100	20	3
EPSSC320000U	20.0	45	100	20	3
EPSSC325000U	25.0	45	100	25	3

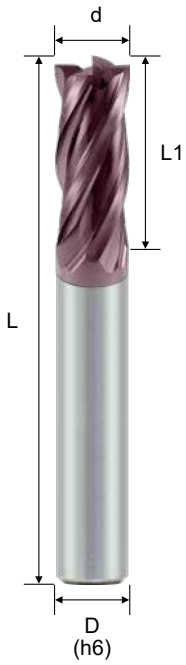
Cutting conditions：Table 026

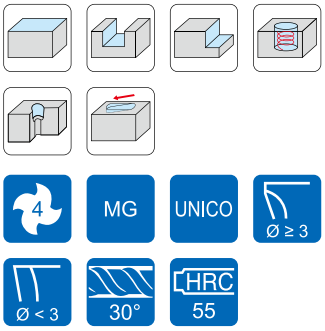
G550 - Square · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, Copper, FRP, etc.
- Strong geometry design has excellent cutting ability of cutting edges.
- High precision cutting for side milling.

EPSSC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPSSC431000U	1.0	3	50	3	4
* EPSSC431500U	1.5	4	50	3	4
* EPSSC432000U	2.0	5	50	3	4
* EPSSC433000U	3.0	8	50	3	4
* EPSSC441000U	1.0	3	50	4	4
* EPSSC441500U	1.5	4	50	4	4
* EPSSC442000U	2.0	5	50	4	4
* EPSSC442500U	2.5	6	50	4	4
* EPSSC443000U	3.0	8	50	4	4
* EPSSC443500U	3.5	9	50	4	4
* EPSSC444000U	4.0	10	50	4	4
EPSSC403000U	3.0	8	50	6	4
EPSSC403500U	3.5	9	50	6	4
EPSSC404000U	4.0	10	50	6	4
EPSSC404500U	4.5	11	50	6	4
EPSSC405000U	5.0	13	50	6	4
EPSSC405500U	5.5	14	50	6	4
EPSSC406000U	6.0	15	50	6	4
EPSSC406500U	6.5	16	60	8	4
EPSSC407000U	7.0	18	60	8	4
EPSSC408000U	8.0	20	60	8	4
EPSSC409000U	9.0	22	75	10	4
EPSSC410000U	10.0	25	75	10	4
EPSSC411000U	11.0	25	75	12	4
EPSSC412000U	12.0	30	75	12	4
EPSSC414000U	14.0	30	75	14	4
EPSSC416000U	16.0	40	100	16	4
EPSSC418000U	18.0	40	100	20	4
EPSSC420000U	20.0	45	100	20	4
EPSSC425000U	25.0	45	100	25	4

Cutting conditions：Table 026

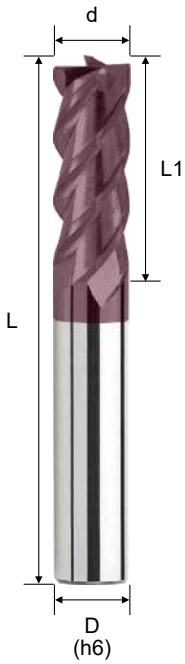
WINSTAR

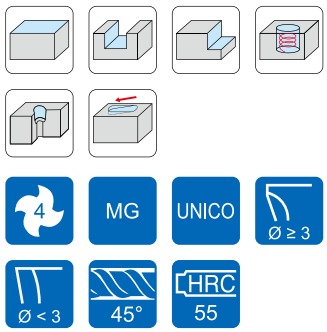
G550 - High Helix · Square · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, FRP, etc.
- Greater shearing action results in increased speeds and feeds and faster stock removal.
- Strong helix design provides hi speed milling capabilities.

EPSSH

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPSSH441000U	1.0	3	50	4	4
* EPSSH442000U	2.0	5	50	4	4
* EPSSH443000U	3.0	8	50	4	4
* EPSSH444000U	4.0	10	50	4	4
EPSSH405000U	5.0	13	50	6	4
EPSSH406000U	6.0	15	50	6	4
EPSSH407000U	7.0	18	60	8	4
EPSSH408000U	8.0	20	60	8	4
EPSSH409000U	9.0	22	75	10	4
EPSSH410000U	10.0	25	75	10	4
EPSSH411000U	11.0	25	75	12	4
EPSSH412000U	12.0	30	75	12	4
EPSSH414000U	14.0	30	75	14	4
EPSSH416000U	16.0	35	100	16	4

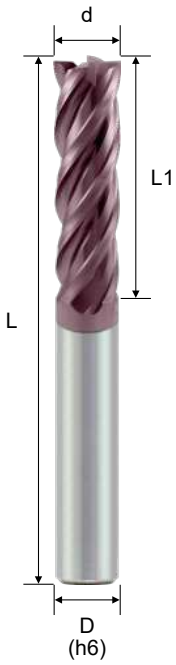
Cutting conditions：Table 027

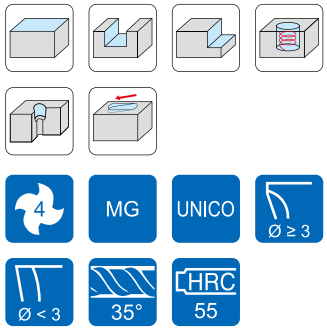
G550 - Long Flute · Square · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Available in various length of cut and overall length end mills.
- Long cutting length is suitable for deep side milling.

EPSCC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EPSCC403000U	3	15	60	6	4
EPSCC404000U	4	20	60	6	4
EPSCC405000U	5	25	75	6	4
EPSCC406000U	6	30	75	6	4
EPSCC408000U	8	35	100	8	4
EPSCC410000U	10	45	100	10	4
EPSCC412000U	12	45	100	12	4
EPSCC414000U	14	70	150	14	4
EPSCC416000U	16	70	150	16	4
EPSCC420000U	20	75	150	20	4
EPSCC425000U	25	75	150	25	4

Cutting conditions：Table 028

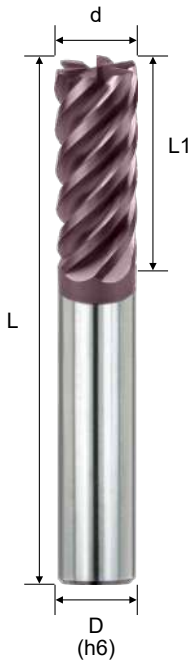
WINSTAR

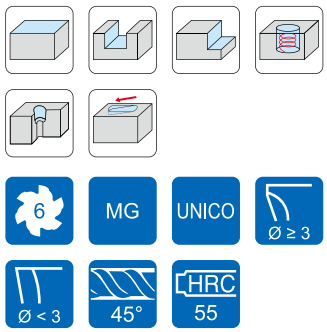
G550 - High Helix · Square · 6F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, FRP, etc.
- Greater shearing action results in increased speeds and feeds and faster stock removal.
- Strong helix design provides hi speed milling capabilities.
- Six flute for good surface milling.

EPSSH

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EPSSH606000U	6	15	50	6	6
EPSSH608000U	8	20	60	8	6
EPSSH610000U	10	25	75	10	6
EPSSH612000U	12	30	75	12	6

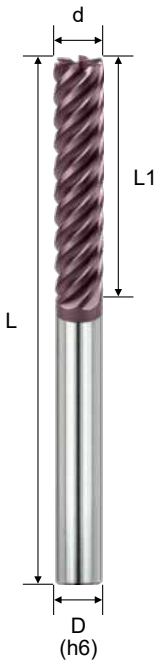
Cutting conditions：Table 027

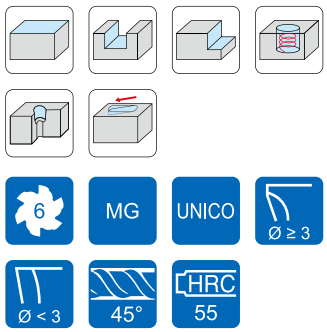
G550 - High Helix · Long Flute · Square · 6F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, FRP, etc.
- Greater shearing action results in increased speeds and feeds and faster stock removal.
- Strong helix design provides hi speed milling capabilities.
- Six flute for good surface milling.

EPSCH

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EPSCH606000U	6	30	75	6	6
EPSCH608000U	8	35	100	8	6
EPSCH610000U	10	45	100	10	6
EPSCH612000U	12	45	100	12	6
EPSCH616000U	16	70	150	16	6

Cutting conditions：Table 029

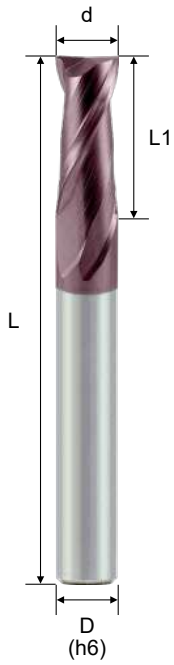
WINSTAR

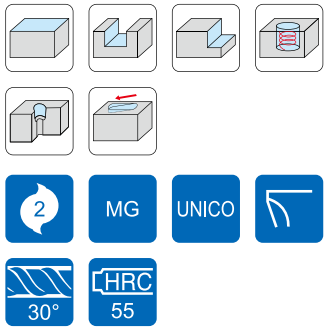
G550 - Long Shank · Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Available in various length of cut and overall length end mills.
- Flat design to avoid chipping of the cutting tip.

EPSLC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPSLC244006U	4	10	60	4	2
* EPSLC244007U	4	10	75	4	2
* EPSLC244010U	4	10	100	4	2
* EPSLC204006U	4	10	60	6	2
* EPSLC204007U	4	10	75	6	2
* EPSLC204010U	4	10	100	6	2
* EPSLC206006U	6	15	60	6	2
* EPSLC206007U	6	15	75	6	2
* EPSLC206010U	6	15	100	6	2
* EPSLC208007U	8	20	75	8	2
* EPSLC208010U	8	20	100	8	2
* EPSLC208015U	8	20	150	8	2
* EPSLC210010U	10	25	100	10	2
* EPSLC210015U	10	25	150	10	2
* EPSLC212010U	12	30	100	12	2
* EPSLC212015U	12	30	150	12	2
* EPSLC216015U	16	40	150	16	2
* EPSLC220015U	20	40	150	20	2

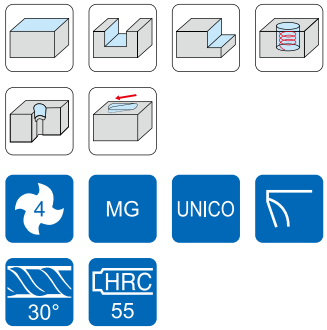
Cutting conditions：Table 030

G550 - Long Shank · Square · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Available in various length of cut and overall length end mills.
- Flat design to avoid chipping of the cutting tip.

EPSLC

P	M	K	N	S	H
●	●	●			○



d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPSLC443007U	3	8	75	4	4
* EPSLC443010U	3	8	100	4	4
* EPSLC444006U	4	10	60	4	4
* EPSLC444007U	4	10	75	4	4
* EPSLC444010U	4	10	100	4	4
* EPSLC404006U	4	10	60	6	4
* EPSLC404007U	4	10	75	6	4
* EPSLC404010U	4	10	100	6	4
* EPSLC406006U	6	15	60	6	4
* EPSLC406007U	6	15	75	6	4
* EPSLC406010U	6	15	100	6	4
* EPSLC408007U	8	20	75	8	4
* EPSLC408010U	8	20	100	8	4
* EPSLC408015U	8	20	150	8	4
* EPSLC410010U	10	25	100	10	4
* EPSLC410015U	10	25	150	10	4
* EPSLC412010U	12	30	100	12	4
* EPSLC412015U	12	30	150	12	4
* EPSLC416015U	16	40	150	16	4
* EPSLC420015U	20	40	150	20	4

Cutting conditions：Table 031

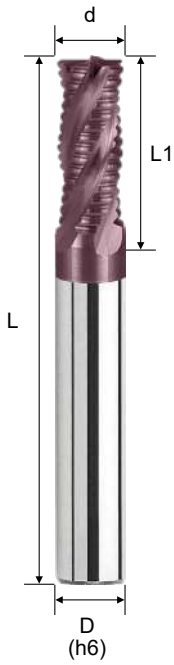
WINSTAR

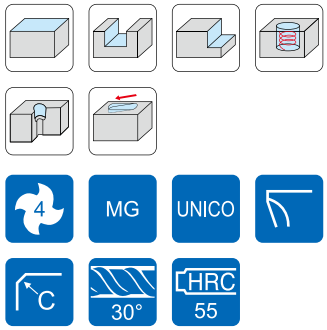
G550 - Roughing · Square · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Suitable for rough and high remove rate cutting environment.
- Chamfering design provides a stronger cutting edge.
- Middle coarse pitch provides hi performance and avoids tip fracture.

EPSRR

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EPSRR406000U	6	15	50	6	4
EPSRR408000U	8	20	60	8	4
EPSRR410000U	10	25	75	10	4
EPSRR412000U	12	30	75	12	4
EPSRR416000U	16	40	100	16	4
EPSRR420000U	20	45	100	20	4

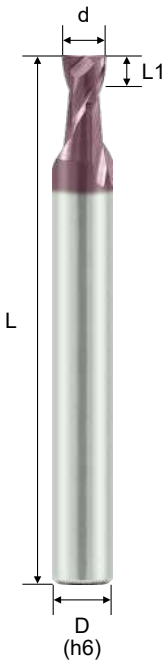
Cutting conditions：Table 032

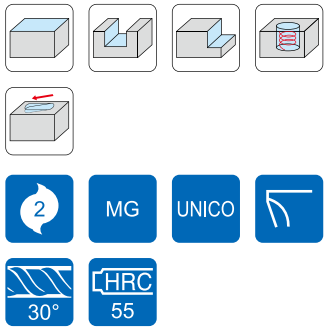
G550 - Stub Length · Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- The cutting length of approximately 1×D.
- Short cutting length with high rigidity is suitable for high feed milling.
- For die, mold, mechanical and electronic parts made of steel.
- Good for surface milling.

EPSHC

P	M	K	N	S	H
●	●	●		○	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EPSHC240200U	0.2	0.3	50	4	2
EPSHC240300U	0.3	0.4	50	4	2
EPSHC240400U	0.4	0.5	50	4	2
EPSHC240500U	0.5	0.6	50	4	2
EPSHC240600U	0.6	0.7	50	4	2
EPSHC240700U	0.7	0.8	50	4	2
EPSHC240800U	0.8	1.0	50	4	2
EPSHC240900U	0.9	1.1	50	4	2
EPSHC241000U	1.0	1.2	50	4	2
EPSHC241200U	1.2	1.5	50	4	2
EPSHC241400U	1.4	1.8	50	4	2
EPSHC241500U	1.5	1.8	50	4	2
EPSHC241600U	1.6	1.9	50	4	2
EPSHC241800U	1.8	2.0	50	4	2
EPSHC242000U	2.0	2.5	50	4	2
EPSHC242500U	2.5	3.0	50	4	2
EPSHC203000U	3.0	3.5	50	6	2
EPSHC204000U	4.0	4.5	50	6	2
EPSHC205000U	5.0	7.0	50	6	2
EPSHC206000U	6.0	9.0	50	6	2

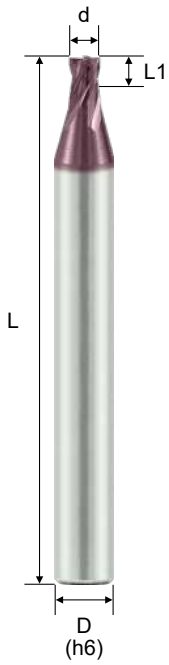
Cutting conditions：Table 033

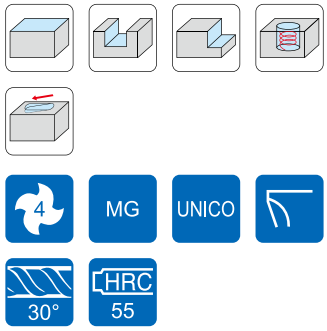
G550 - Stub Length · Square · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- The cutting length of approximately 1×D.
- Short cutting length with high rigidity is suitable for high feed milling.
- For die, mold, mechanical and electronic parts made of steel.
- Good for surface milling.

EPSHC

P	M	K	N	S	H
●	●	●		○	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EPSHC441000U	1.0	1.0	50	4	4
EPSHC441500U	1.5	1.5	50	4	4
EPSHC442000U	2.0	2.0	50	4	4
EPSHC442500U	2.5	2.5	50	4	4
EPSHC403000U	3.0	3.0	50	6	4
EPSHC404000U	4.0	4.0	50	6	4
EPSHC405000U	5.0	5.0	50	6	4
EPSHC406000U	6.0	6.0	50	6	4

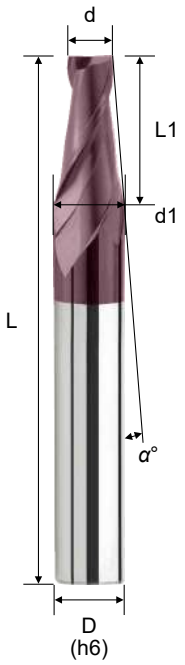
Cutting conditions：Table 033

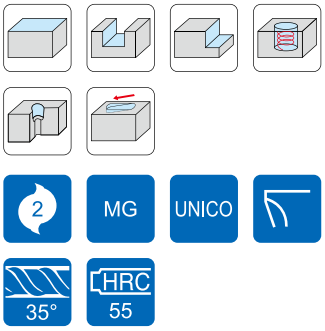
G550 - Taper · Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- High strength of taper cutting length, can cut deep grooves without breaking.
- Convenient for Tap cutting in 3 axis machine.

EPSST

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	α°	CL (L1)	NL (d1)	OAL (L)	Shank (D)	Flutes (F)
* EPSST24015CU	0.15	20°	5.29	-	42	4	2
* EPSST24030CU	0.30	20°	5.08	-	42	4	2
* EPSST24030DU	0.30	25°	3.96	-	42	4	2
* EPSST24060BU	0.60	15°	4.50	-	42	4	2
* EPSST24060CU	0.60	20°	4.67	-	42	4	2
* EPSST24120CU	1.20	20°	3.84	-	42	4	2
* EPSST241005U	1.0	0.5°	4.0	1.07	50	4	2
* EPSST241010U	1.0	1.0°	4.0	1.14	50	4	2
* EPSST241015U	1.0	1.5°	4.0	1.21	50	4	2
* EPSST241020U	1.0	2.0°	4.0	1.28	50	4	2
* EPSST241025U	1.0	2.5°	4.0	1.35	50	4	2
* EPSST241030U	1.0	3.0°	4.0	1.42	50	4	2
* EPSST241050U	1.0	5.0°	4.0	1.70	50	4	2
* EPSST241070U	1.0	7.0°	4.0	1.98	50	4	2
* EPSST2410A0U	1.0	10.0°	4.0	2.41	50	4	2
* EPSST2410A5U	1.0	15.0°	4.0	3.14	50	4	2
* EPSST241505U	1.5	0.5°	5.0	1.59	50	4	2
* EPSST241510U	1.5	1.0°	5.0	1.68	50	4	2
* EPSST241515U	1.5	1.5°	5.0	1.76	50	4	2
* EPSST241520U	1.5	2.0°	5.0	1.85	50	4	2
* EPSST241525U	1.5	2.5°	5.0	1.93	50	4	2
* EPSST241530U	1.5	3.0°	5.0	2.02	50	4	2
* EPSST241550U	1.5	5.0°	5.0	2.37	50	4	2
* EPSST242005U	2.0	0.5°	6.0	2.10	50	4	2
* EPSST242010U	2.0	1.0°	6.0	2.21	50	4	2
* EPSST242015U	2.0	1.5°	6.0	2.31	50	4	2
* EPSST242020U	2.0	2.0°	6.0	2.41	50	4	2
* EPSST242025U	2.0	2.5°	6.0	2.52	50	4	2
* EPSST242030U	2.0	3.0°	6.0	2.62	50	4	2
* EPSST242050U	2.0	5.0°	6.0	3.05	50	4	2
* EPSST242070U	2.0	7.0°	6.0	3.47	50	4	2
EPSST2020A0U	2.0	10.0°	6.0	4.11	50	6	2
EPSST2020A5U	2.0	15.0°	6.0	5.22	50	6	2

Cutting conditions : Table 034

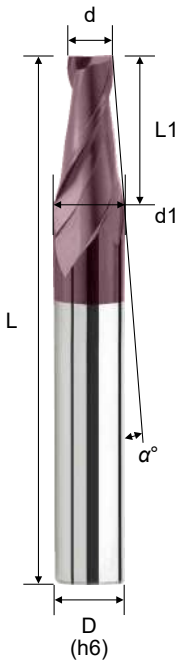
WINSTAR

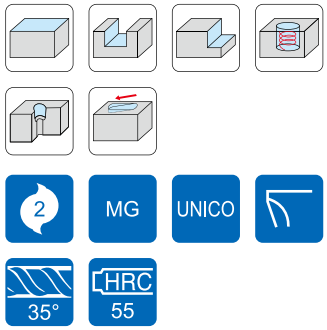
G550 - Taper · Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- High strength of taper cutting length, can cut deep grooves without breaking.
- Convenient for Tap cutting in 3 axis machine.

EPSST

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	α°	CL (L1)	NL (d1)	OAL (L)	Shank (D)	Flutes (F)
* EPSST242505U	2.5	0.5°	8.0	2.64	50	4	2
* EPSST242510U	2.5	1.0°	8.0	2.78	50	4	2
* EPSST242515U	2.5	1.5°	8.0	2.91	50	4	2
* EPSST242520U	2.5	2.0°	8.0	3.05	50	4	2
* EPSST242525U	2.5	2.5°	8.0	3.20	50	4	2
* EPSST242530U	2.5	3.0°	8.0	3.33	50	4	2
* EPSST242550U	2.5	5.0°	8.0	3.90	50	4	2
EPSST203005U	3.0	0.5°	10.0	3.17	50	6	2
EPSST203010U	3.0	1.0°	10.0	3.35	50	6	2
EPSST203015U	3.0	1.5°	10.0	3.52	50	6	2
EPSST203020U	3.0	2.0°	10.0	3.69	50	6	2
EPSST203025U	3.0	2.5°	10.0	3.87	50	6	2
EPSST203030U	3.0	3.0°	10.0	4.05	50	6	2
EPSST203050U	3.0	5.0°	10.0	4.75	50	6	2
EPSST203070U	3.0	7.0°	12.0	6.00	50	6	2
EPSST2030A0U	3.0	10.0°	12.0	7.22	60	8	2
EPSST2030A5U	3.0	15.0°	12.0	9.40	75	10	2
EPSST204005U	4.0	0.5°	15.0	4.26	50	6	2
EPSST204010U	4.0	1.0°	15.0	4.52	50	6	2
EPSST204015U	4.0	1.5°	15.0	4.79	50	6	2
EPSST204020U	4.0	2.0°	15.0	5.04	50	6	2
EPSST204025U	4.0	2.5°	15.0	5.31	50	6	2
EPSST204030U	4.0	3.0°	15.0	5.57	50	6	2
EPSST204050U	4.0	5.0°	15.0	6.62	60	8	2
EPSST204070U	4.0	7.0°	16.0	8.00	60	8	2
EPSST2040A0U	4.0	10.0°	17.0	10.00	75	10	2
EPSST2040A5U	4.0	15.0°	14.9	12.00	75	12	2

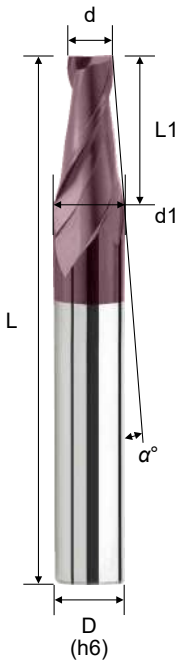
Cutting conditions：Table 034

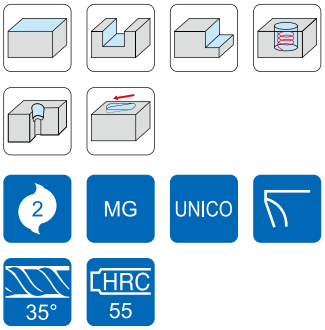
G550 - Taper · Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- High strength of taper cutting length, can cut deep grooves without breaking.
- Convenient for Tap cutting in 3 axis machine.

EPSST

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	α°	CL (L1)	NL (d1)	OAL (L)	Shank (D)	Flutes (F)
EPSST205005U	5.0	0.5°	20.0	5.34	60	6	2
EPSST205010U	5.0	1.0°	20.0	5.70	60	6	2
EPSST205015U	5.0	1.5°	19.6	6.00	60	6	2
EPSST205020U	5.0	2.0°	20.0	6.39	60	8	2
EPSST205025U	5.0	2.5°	20.0	6.74	60	8	2
EPSST205030U	5.0	3.0°	20.0	7.10	60	8	2
EPSST205050U	5.0	5.0°	20.0	8.50	75	10	2
EPSST205070U	5.0	7.0°	20.0	10.00	75	10	2
EPSST2050A0U	5.0	10.0°	20.0	12.00	75	12	2
EPSST206005U	6.0	0.5°	20.0	6.35	60	8	2
EPSST206010U	6.0	1.0°	20.0	6.70	60	8	2
EPSST206015U	6.0	1.5°	20.0	7.05	60	8	2
EPSST206020U	6.0	2.0°	20.0	7.40	60	8	2
EPSST206025U	6.0	2.5°	20.0	7.75	60	8	2
EPSST206030U	6.0	3.0°	20.0	8.10	75	10	2
EPSST206050U	6.0	5.0°	20.0	9.50	75	10	2
EPSST206070U	6.0	7.0°	24.0	12.00	75	12	2
EPSST2060A0U	6.0	10.0°	22.0	14.00	75	14	2
EPSST208005U	8.0	0.5°	25.0	8.44	75	10	2
EPSST208010U	8.0	1.0°	25.0	8.87	75	10	2
EPSST208015U	8.0	1.5°	25.0	9.31	75	10	2
EPSST208020U	8.0	2.0°	25.0	9.75	75	10	2
EPSST208030U	8.0	3.0°	25.0	10.62	75	12	2
EPSST208050U	8.0	5.0°	25.0	12.37	75	14	2
EPSST208070U	8.0	7.0°	32.0	16.00	100	16	2
EPSST2080A0U	8.0	10.0°	28.0	18.00	100	18	2
EPSST210005U	10.0	0.5°	35.0	10.61	75	12	2
EPSST210010U	10.0	1.0°	35.0	11.22	75	12	2
EPSST210015U	10.0	1.5°	35.0	11.83	75	12	2
EPSST210020U	10.0	2.0°	35.0	12.44	75	14	2
EPSST210030U	10.0	3.0°	35.0	13.67	75	14	2
EPSST210050U	10.0	5.0°	34.2	16.00	100	16	2

Cutting conditions：Table 034

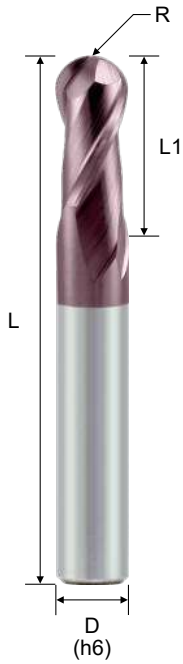
WINSTAR

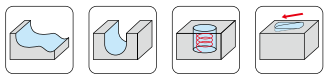
G550 - Ball Nose · 2F

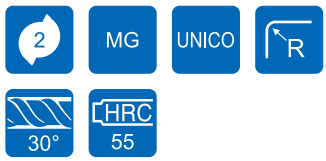
- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- It provides an excellent surface due to better surface grindings.
- New tool geometry increases wear resistance and cutting force is decreased.
- Suitable for high speed profile surface milling.

EPBSC

P	M	K	N	S	H
●	●	●			○







R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPBSC240200U	0.10R	0.2	0.4	50	4	2
* EPBSC240300U	0.15R	0.3	0.6	50	4	2
* EPBSC240400U	0.20R	0.4	0.8	50	4	2
* EPBSC240500U	0.25R	0.5	1.0	50	4	2
* EPBSC240600U	0.30R	0.6	1.2	50	4	2
* EPBSC240700U	0.35R	0.7	1.4	50	4	2
* EPBSC240800U	0.40R	0.8	1.6	50	4	2
* EPBSC240900U	0.45R	0.9	1.8	50	4	2
* EPBSC241000U	0.50R	1.0	2.0	50	4	2
* EPBSC241500U	0.75R	1.5	3.0	50	4	2
* EPBSC242000U	1.00R	2.0	4.0	50	4	2
EPBSC233000U	1.50R	3.0	6.0	50	3	2
* EPBSC243000U	1.50R	3.0	6.0	50	4	2
* EPBSC244000U	2.00R	4.0	8.0	50	4	2
EPBSC203000U	1.50R	3.0	6.0	50	6	2
EPBSC204000U	2.00R	4.0	8.0	50	6	2
EPBSC205000U	2.50R	5.0	10.0	50	6	2
EPBSC206000U	3.00R	6.0	12.0	50	6	2
EPBSC207000U	3.50R	7.0	14.0	60	8	2
EPBSC208000U	4.00R	8.0	16.0	60	8	2
EPBSC210000U	5.00R	10.0	20.0	75	10	2
EPBSC212000U	6.00R	12.0	24.0	75	12	2
EPBSC216000U	8.00R	16.0	32.0	100	16	2
EPBSC220000U	10.00R	20.0	40.0	100	20	2

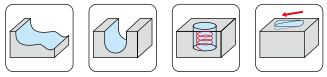
Cutting conditions：Table 035

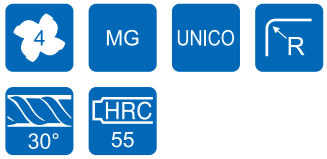
G550 - Ball Nose · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, Copper, FRP, etc.
- It provides an excellent surface due to better surface grindings.
- New tool geometry increases wear resistance and cutting force is decreased.
- Multiple flutes design improves the cutting surface.

EPBSC

P	M	K	N	S	H
●	●	●			○





R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPBSC442000U	1.0R	2	4	50	4	4
* EPBSC443000U	1.5R	3	6	50	4	4
* EPBSC444000U	2.0R	4	8	50	4	4
EPBSC404000U	2.0R	4	8	50	6	4
EPBSC405000U	2.5R	5	10	50	6	4
EPBSC406000U	3.0R	6	12	50	6	4
EPBSC408000U	4.0R	8	16	60	8	4
EPBSC410000U	5.0R	10	20	75	10	4
EPBSC412000U	6.0R	12	24	75	12	4
EPBSC416000U	8.0R	16	32	100	16	4
EPBSC420000U	10.0R	20	40	100	20	4

Cutting conditions：Table 036

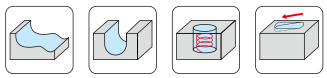
WINSTAR

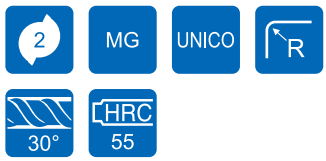
G550 - Long Shank · Ball Nose · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- It provides an excellent surface due to better surface grindings.
- New tool geometry increases wear resistance and cutting force is decreased.
- Suitable for high speed profile surface milling.

EPBLC

P	M	K	N	S	H
●	●	●			○





R Tolerance	
R ≤ 3	±0.020
R > 3	±0.025

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPBLC243007U	1.5R	3	6	75	4	2
* EPBLC243010U	1.5R	3	6	100	4	2
* EPBLC244006U	2.0R	4	8	60	4	2
* EPBLC244007U	2.0R	4	8	75	4	2
* EPBLC244010U	2.0R	4	8	100	4	2
* EPBLC204006U	2.0R	4	8	60	6	2
* EPBLC204007U	2.0R	4	8	75	6	2
* EPBLC204010U	2.0R	4	8	100	6	2
* EPBLC206006U	3.0R	6	12	60	6	2
* EPBLC206007U	3.0R	6	12	75	6	2
* EPBLC206010U	3.0R	6	12	100	6	2
* EPBLC208007U	4.0R	8	16	75	8	2
* EPBLC208010U	4.0R	8	16	100	8	2
* EPBLC208015U	4.0R	8	16	150	8	2
* EPBLC210010U	5.0R	10	20	100	10	2
* EPBLC210015U	5.0R	10	20	150	10	2
* EPBLC212010U	6.0R	12	24	100	12	2
* EPBLC212015U	6.0R	12	24	150	12	2
* EPBLC216015U	8.0R	16	32	150	16	2
* EPBLC220015U	10.0R	20	40	150	20	2

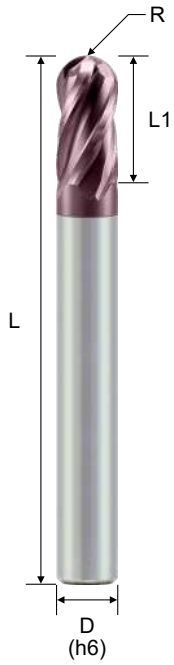
Cutting conditions：Table 037

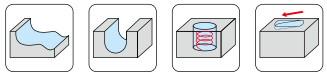
G550 - Long Shank · Ball Nose · 4F

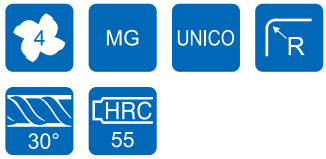
- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- It provides an excellent surface due to better surface grindings.
- New tool geometry increases wear resistance and cutting force is decreased.
- Multiple flutes design and long shank design makes possible deep surface cutting.

EPBLC

P	M	K	N	S	H
●	●	●			○







R Tolerance	
R ≤ 3	±0.020
R > 3	±0.025

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPBLC444007U	2R	4	8	75	4	4
* EPBLC444010U	2R	4	8	100	4	4
* EPBLC404007U	2R	4	8	75	6	4
* EPBLC404010U	2R	4	8	100	6	4
* EPBLC406007U	3R	6	12	75	6	4
* EPBLC406010U	3R	6	12	100	6	4
* EPBLC408007U	4R	8	16	75	8	4
* EPBLC408010U	4R	8	16	100	8	4
* EPBLC408015U	4R	8	16	150	8	4
* EPBLC410010U	5R	10	20	100	10	4
* EPBLC410015U	5R	10	20	150	10	4
* EPBLC412010U	6R	12	24	100	12	4
* EPBLC412015U	6R	12	24	150	12	4
* EPBLC416015U	8R	16	32	150	16	4

Cutting conditions：Table 038

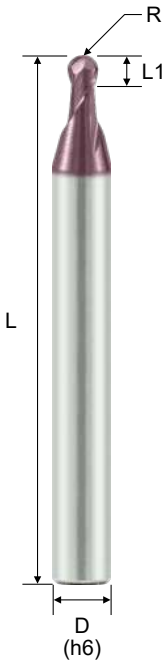
WINSTAR

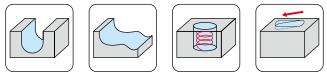
G550 - Stub Length · Ball Nose · 2F

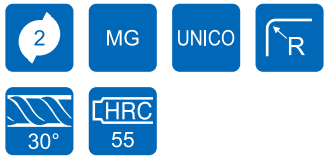
- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- The cutting length of approximately 1×D.
- Short cutting length with high rigidity is suitable for high feed milling.
- For die, mold, mechanical and electronic parts made of steel.
- Good for surface milling.

EPBHC

P	M	K	N	S	H
●	●	●		○	○







R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EPBHC240200U	0.10R	0.2	0.2	50	4	2
EPBHC240300U	0.15R	0.3	0.3	50	4	2
EPBHC240400U	0.20R	0.4	0.4	50	4	2
EPBHC240500U	0.25R	0.5	0.5	50	4	2
EPBHC240600U	0.30R	0.6	0.6	50	4	2
EPBHC240700U	0.35R	0.7	0.7	50	4	2
EPBHC240800U	0.40R	0.8	0.8	50	4	2
EPBHC240900U	0.45R	0.9	0.9	50	4	2
EPBHC241000U	0.50R	1.0	1.0	50	4	2
EPBHC241200U	0.60R	1.2	1.2	50	4	2
EPBHC241400U	0.70R	1.4	1.4	50	4	2
EPBHC241500U	0.75R	1.5	1.5	50	4	2
EPBHC241600U	0.80R	1.6	1.6	50	4	2
EPBHC241800U	0.90R	1.8	1.8	50	4	2
EPBHC242000U	1.00R	2.0	2.0	50	4	2
EPBHC242500U	1.25R	2.5	2.5	50	4	2
EPBHC203000U	1.50R	3.0	3.0	50	6	2
EPBHC204000U	2.00R	4.0	4.0	50	6	2
EPBHC205000U	2.50R	5.0	5.0	50	6	2
EPBHC206000U	3.00R	6.0	9.0	50	6	2

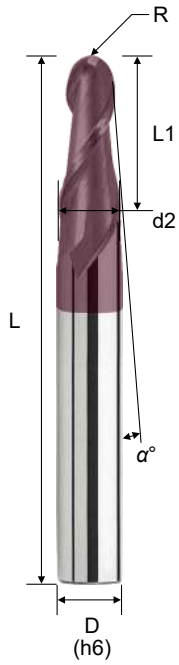
Cutting conditions：Table 039

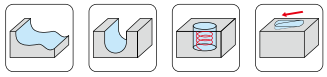
G550 - Taper · Ball Nose · 2F

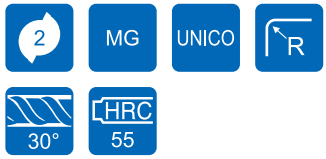
- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Tape cutting length is convenient for high performance 3D milling.
- Stronger geometry design gives good wear resistance.

EPBST

P	M	K	N	S	H
●	●	●			○







R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	α°	CL (L1)	NL (d2)	OAL (L)	Shank (D)	Flutes (F)
* EPBST242010U	1.00R	1°	8	2.24	50	4	2
* EPBST242030U	1.00R	3°	8	2.74	50	4	2
* EPBST242050U	1.00R	5°	8	3.23	50	4	2
* EPBST242510U	1.25R	1°	10	2.81	50	4	2
* EPBST242530U	1.25R	3°	10	3.42	50	4	2
EPBST202550U	1.25R	5°	10	4.04	50	6	2
* EPBST243010U	1.50R	1°	12	3.37	50	4	2
EPBST203030U	1.50R	3°	12	4.10	50	6	2
EPBST203050U	1.50R	5°	12	4.85	50	6	2
EPBST204010U	2.00R	1°	16	4.49	60	6	2
EPBST204030U	2.00R	3°	16	5.47	60	6	2
EPBST204050U	2.00R	5°	16	6.46	60	8	2
EPBST206010U	3.00R	1°	24	6.73	75	8	2
EPBST206030U	3.00R	3°	24	8.20	75	10	2
EPBST206050U	3.00R	5°	24	9.67	75	10	2

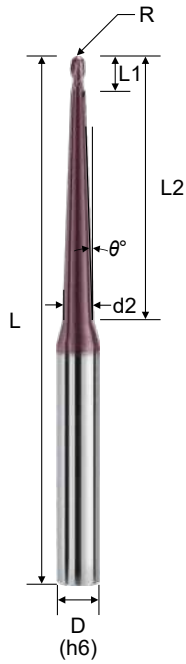
Cutting conditions：Table 040

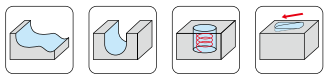
G550 - Taper Neck · Ball Nose · 2F

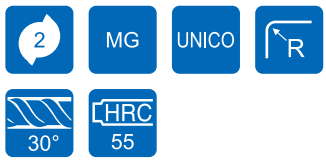
- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Suitable for high performance profile milling.
- High strength of taper neck, can cut deep grooves without breaking.

EPBRT

P	M	K	N	S	H
●	●	●			○







R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	θ°	CL (L1)	EFF-L (L2)	NL (d2)	OAL (L)	Shank (D)	Flutes (F)
EPBRT201023AU	0.5R	1	1.5°	2	23	2.10	60	6	2
EPBRT2010235U	0.5R	1	5.0°	2	23	4.67	60	6	2
EPBRT2010423U	0.5R	1	3.0°	2	42	5.19	75	6	2
EPBRT202035HU	1.0R	2	0.5°	4	35	2.54	75	6	2
EPBRT2020351U	1.0R	2	1.0°	4	35	3.08	75	6	2
EPBRT202023AU	1.0R	2	1.5°	4	23	3.00	60	6	2
EPBRT202035AU	1.0R	2	1.5°	4	35	3.62	75	6	2
EPBRT2020235U	1.0R	2	5.0°	4	23	5.32	60	6	2
EPBRT2020413U	1.0R	2	3.0°	4	41	5.88	75	6	2
EPBRT203052AU	1.5R	3	1.5°	6	52	5.40	100	6	2
EPBRT2030323U	1.5R	3	3.0°	6	32	5.73	75	6	2
EPBRT204046AU	2.0R	4	1.5°	8	46	6.00	100	6	2
EPBRT2040273U	2.0R	4	3.0°	8	27	6.00	75	6	2

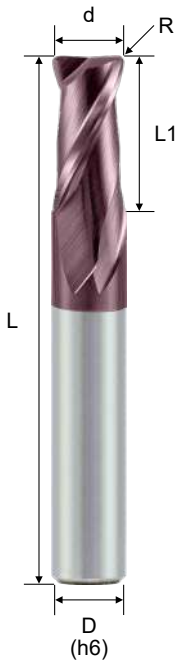
Cutting conditions：Table 040

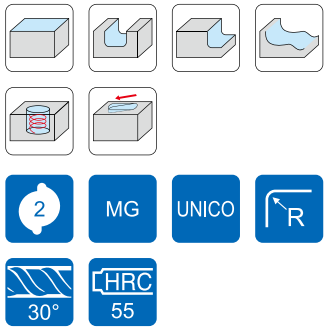
G550 - Corner Radius · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Corner radius design is suitable for high speed surface milling and profiling.

EPCSC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPCSC241001U	1.0	0.1R	2	50	4	2
* EPCSC241002U	1.0	0.2R	2	50	4	2
* EPCSC241003U	1.0	0.3R	2	50	4	2
* EPCSC241502U	1.5	0.2R	3	50	4	2
* EPCSC241503U	1.5	0.3R	3	50	4	2
* EPCSC241505U	1.5	0.5R	3	50	4	2
* EPCSC242002U	2.0	0.2R	4	50	4	2
* EPCSC242003U	2.0	0.3R	4	50	4	2
* EPCSC242005U	2.0	0.5R	4	50	4	2
* EPCSC243002U	3.0	0.2R	6	50	4	2
* EPCSC243003U	3.0	0.3R	6	50	4	2
* EPCSC243005U	3.0	0.5R	6	50	4	2
* EPCSC244002U	4.0	0.2R	8	50	4	2
* EPCSC244003U	4.0	0.3R	8	50	4	2
* EPCSC244005U	4.0	0.5R	8	50	4	2
* EPCSC244010U	4.0	1R	8	50	4	2
EPCSC204003U	4.0	0.3R	8	50	6	2
EPCSC204005U	4.0	0.5R	8	50	6	2
EPCSC204010U	4.0	1.0R	8	50	6	2
EPCSC205005U	5.0	0.5R	10	50	6	2
EPCSC205010U	5.0	1.0R	10	50	6	2
EPCSC206003U	6.0	0.3R	12	50	6	2
EPCSC206005U	6.0	0.5R	12	50	6	2
EPCSC206010U	6.0	1.0R	12	50	6	2
EPCSC208005U	8.0	0.5R	16	60	8	2
EPCSC208010U	8.0	1.0R	16	60	8	2
EPCSC208015U	8.0	1.5R	16	60	8	2
EPCSC210005U	10.0	0.5R	20	75	10	2
EPCSC210010U	10.0	1.0R	20	75	10	2
EPCSC210015U	10.0	1.5R	20	75	10	2
EPCSC212020U	10.0	2.0R	20	75	10	2
EPCSC212005U	12.0	0.5R	20	75	12	2
EPCSC212010U	12.0	1.0R	20	75	12	2
EPCSC212015U	12.0	1.5R	20	75	12	2
EPCSC212020U	12.0	2.0R	20	75	12	2

Cutting conditions：Table 041

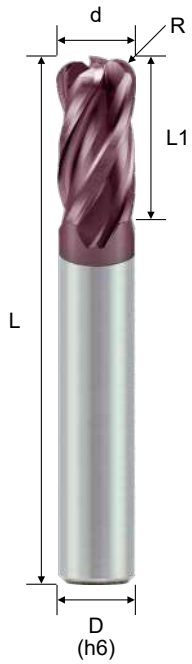
WINSTAR

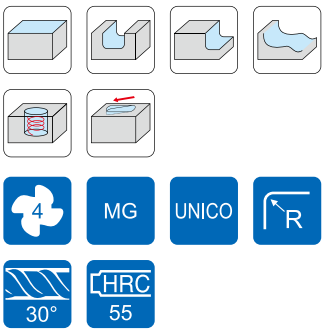
G550 - Corner Radius · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Corner radius with multiple design increases the finish milling surface.

EPCSC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPCSC441002U	1.0	0.2R	2	50	4	4
* EPCSC441003U	1.0	0.3R	2	50	4	4
* EPCSC441502U	1.5	0.2R	3	50	4	4
* EPCSC441503U	1.5	0.3R	3	50	4	4
* EPCSC441505U	1.5	0.5R	3	50	4	4
* EPCSC442002U	2.0	0.2R	4	50	4	4
* EPCSC442003U	2.0	0.3R	4	50	4	4
* EPCSC442005U	2.0	0.5R	4	50	4	4
* EPCSC443002U	3.0	0.2R	6	50	4	4
* EPCSC443003U	3.0	0.3R	6	50	4	4
* EPCSC433005U	3.0	0.5R	6	50	3	4
* EPCSC443005U	3.0	0.5R	6	50	4	4
* EPCSC443010U	3.0	1.0R	6	50	4	4
EPCSC403003U	3.0	0.3R	6	50	6	4
EPCSC403005U	3.0	0.5R	6	50	6	4
EPCSC403010U	3.0	1.0R	6	50	6	4
* EPCSC444001U	4.0	0.1R	8	50	4	4
* EPCSC444002U	4.0	0.2R	8	50	4	4
* EPCSC444003U	4.0	0.3R	8	50	4	4
* EPCSC444005U	4.0	0.5R	8	50	4	4
* EPCSC444010U	4.0	1.0R	8	50	4	4
EPCSC404003U	4.0	0.3R	8	50	6	4
EPCSC404005U	4.0	0.5R	8	50	6	4
EPCSC404010U	4.0	1.0R	8	50	6	4
EPCSC405005U	5.0	0.5R	10	50	6	4
EPCSC405010U	5.0	1.0R	10	50	6	4
EPCSC406003U	6.0	0.3R	12	50	6	4
EPCSC406005U	6.0	0.5R	12	50	6	4
EPCSC406010U	6.0	1.0R	12	50	6	4
EPCSC408005U	8.0	0.5R	16	60	8	4
EPCSC408010U	8.0	1.0R	16	60	8	4
EPCSC408015U	8.0	1.5R	16	60	8	4
EPCSC410005U	10.0	0.5R	20	75	10	4
EPCSC410010U	10.0	1.0R	20	75	10	4
EPCSC410015U	10.0	1.5R	20	75	10	4
EPCSC410020U	10.0	2.0R	20	75	10	4
EPCSC412005U	12.0	0.5R	24	75	12	4
EPCSC412010U	12.0	1.0R	24	75	12	4
EPCSC412015U	12.0	1.5R	24	75	12	4
EPCSC412020U	12.0	2.0R	24	75	12	4
EPCSC412030U	12.0	3.0R	24	75	12	4
EPCSC416010U	16.0	1.0R	32	100	16	4
EPCSC416020U	16.0	2.0R	32	100	16	4
EPCSC416030U	16.0	3.0R	32	100	16	4

Cutting conditions : Table 042

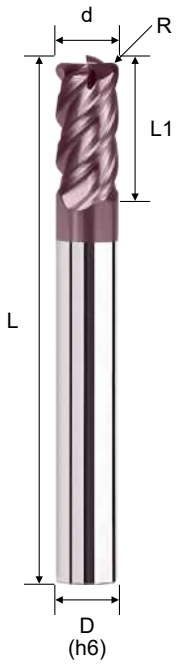
WINSTAR

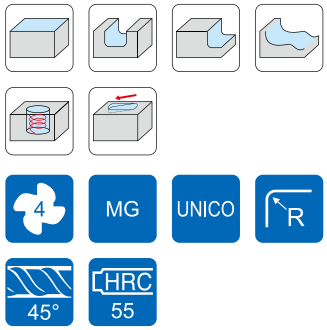
G550 - High Helix · Corner Radius · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Corner radius with high helix angle improves the side milling quality.

EPCSH

P	M	K	N	S	H
●	●	●			○





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPCSH443005U	3.0	0.5R	6	50	4	4
* EPCSH444005U	4.0	0.5R	8	50	4	4
EPCSH405005U	5.0	0.5R	10	50	6	4
EPCSH405010U	5.0	1.0R	10	50	6	4
EPCSH406005U	6.0	0.5R	12	50	6	4
EPCSH406010U	6.0	1.0R	12	50	6	4
EPCSH408005U	8.0	0.5R	16	60	8	4
EPCSH408010U	8.0	1.0R	16	60	8	4
EPCSH410005U	10.0	0.5R	20	75	10	4
EPCSH410010U	10.0	1.0R	20	75	10	4
EPCSH410015U	10.0	1.5R	20	75	10	4
EPCSH410020U	10.0	2.0R	20	75	10	4
EPCSH412010U	12.0	1.0R	24	75	12	4
EPCSH412020U	12.0	2.0R	24	75	12	4
EPCSH412030U	12.0	3.0R	24	75	12	4

Cutting conditions：Table 043

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

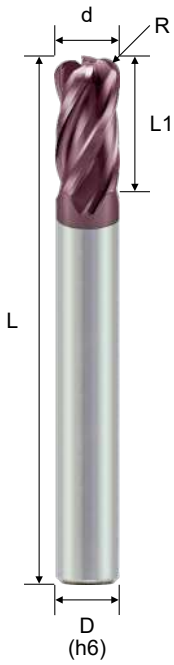
WINSTAR

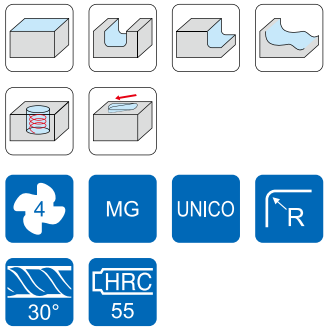
G550 - Long Shank · Corner Radius · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Corner radius with multiple flutes is suitable for general cutting and 3D milling.

EPCLC

P	M	K	N	S	H
●	●	●			○





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPCLC44400507U	4	0.5R	8	75	4	4
* EPCLC44400510U	4	0.5R	8	100	4	4
* EPCLC40300507U	3	0.5R	6	75	6	4
* EPCLC40301007U	3	1.0R	6	75	6	4
* EPCLC40400507U	4	0.5R	8	75	6	4
* EPCLC40401007U	4	1.0R	8	75	6	4
* EPCLC40500507U	5	0.5R	10	75	6	4
* EPCLC40501007U	5	1.0R	10	75	6	4
* EPCLC40600507U	6	0.5R	12	75	6	4
* EPCLC40601007U	6	1.0R	12	75	6	4
* EPCLC40600510U	6	0.5R	12	100	6	4
* EPCLC40800507U	8	0.5R	16	75	8	4
* EPCLC40800510U	8	0.5R	16	100	8	4
* EPCLC40801010U	8	1.0R	16	100	8	4
* EPCLC40801510U	8	1.5R	16	100	8	4
* EPCLC41000510U	10	0.5R	20	100	10	4
* EPCLC41001010U	10	1.0R	20	100	10	4
* EPCLC41001510U	10	1.5R	20	100	10	4
* EPCLC41002010U	10	2.0R	20	100	10	4
* EPCLC41000515U	10	0.5R	20	150	10	4
* EPCLC41200510U	12	0.5R	24	100	12	4
* EPCLC41201010U	12	1.0R	24	100	12	4
* EPCLC41201510U	12	1.5R	24	100	12	4
* EPCLC41202010U	12	2.0R	24	100	12	4
* EPCLC41200515U	12	0.5R	24	150	12	4
* EPCLC41601015U	16	1.0R	32	150	16	4
* EPCLC41602015U	16	2.0R	32	150	16	4
* EPCLC41603015U	16	3.0R	32	150	16	4

Cutting conditions：Table 044

d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

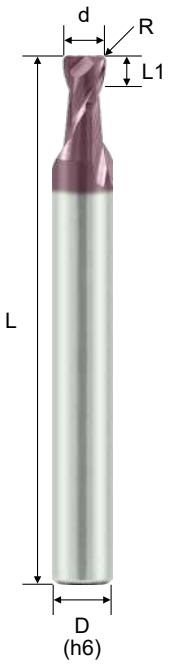
R Tolerance	
R < 2	±0.020
R ≥ 2	±0.025

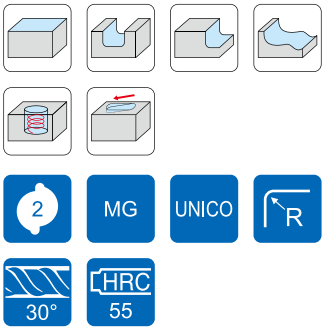
G550 - Stub Length · Corner Radius · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- The cutting length of approximately 1×D.
- Short cutting length with high rigidity is suitable for high feed milling.
- For die, mold, mechanical and electronic parts made of steel.
- Good for surface milling.

EPCHC

P	M	K	N	S	H
●	●	●		○	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EPCHC241001U	1.0	0.1R	1.0	50	4	2
EPCHC241002U	1.0	0.2R	1.0	50	4	2
EPCHC241003U	1.0	0.3R	1.0	50	4	2
EPCHC241201U	1.2	0.1R	1.2	50	4	2
EPCHC241202U	1.2	0.2R	1.2	50	4	2
EPCHC241203U	1.2	0.3R	1.2	50	4	2
EPCHC241501U	1.5	0.1R	1.5	50	4	2
EPCHC241502U	1.5	0.2R	1.5	50	4	2
EPCHC241503U	1.5	0.3R	1.5	50	4	2
EPCHC241505U	1.5	0.5R	1.5	50	4	2
EPCHC242001U	2.0	0.1R	2.0	50	4	2
EPCHC242002U	2.0	0.2R	2.0	50	4	2
EPCHC242003U	2.0	0.3R	2.0	50	4	2
EPCHC242005U	2.0	0.5R	2.0	50	4	2
EPCHC242501U	2.5	0.1R	2.5	50	4	2
EPCHC242502U	2.5	0.2R	2.5	50	4	2
EPCHC242503U	2.5	0.3R	2.5	50	4	2
EPCHC242505U	2.5	0.5R	2.5	50	4	2
EPCHC203001U	3.0	0.1R	3.0	50	6	2
EPCHC203002U	3.0	0.2R	3.0	50	6	2
EPCHC203003U	3.0	0.3R	3.0	50	6	2
EPCHC203005U	3.0	0.5R	3.0	50	6	2
EPCHC203010U	3.0	1.0R	3.0	50	6	2
EPCHC204001U	4.0	0.1R	4.0	50	6	2
EPCHC204002U	4.0	0.2R	4.0	50	6	2
EPCHC204003U	4.0	0.3R	4.0	50	6	2
EPCHC204005U	4.0	0.5R	4.0	50	6	2
EPCHC204010U	4.0	1.0R	4.0	50	6	2
EPCHC205001U	5.0	0.1R	5.0	50	6	2
EPCHC205002U	5.0	0.2R	5.0	50	6	2
EPCHC205003U	5.0	0.3R	5.0	50	6	2
EPCHC205005U	5.0	0.5R	5.0	50	6	2
EPCHC205010U	5.0	1.0R	5.0	50	6	2
EPCHC206001U	6.0	0.1R	7.0	50	6	2
EPCHC206002U	6.0	0.2R	7.0	50	6	2
EPCHC206003U	6.0	0.3R	7.0	50	6	2
EPCHC206005U	6.0	0.5R	7.0	50	6	2
EPCHC206010U	6.0	1.0R	7.0	50	6	2
EPCHC206015U	6.0	1.5R	7.0	50	6	2

Cutting conditions：Table 045

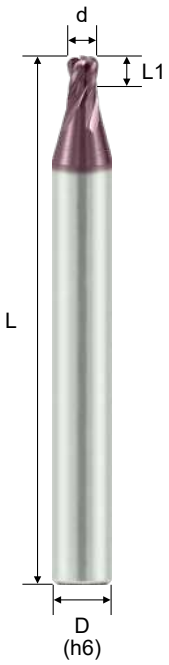
WINSTAR

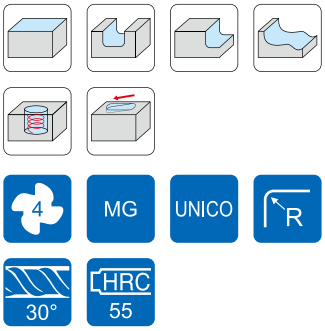
G550 - Stub Length · Corner Radius · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- The cutting length of approximately 1×D.
- Short cutting length with high rigidity is suitable for high feed milling.
- For die, mold, mechanical and electronic parts made of steel.
- Good for surface milling.

EPCHC

P	M	K	N	S	H
●	●	●		○	○





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EPCHC442001U	2.0	0.1R	2.0	50	4	4
EPCHC442002U	2.0	0.2R	2.0	50	4	4
EPCHC442003U	2.0	0.3R	2.0	50	4	4
EPCHC442005U	2.0	0.5R	2.0	50	4	4
EPCHC442501U	2.5	0.1R	2.5	50	4	4
EPCHC442502U	2.5	0.2R	2.5	50	4	4
EPCHC442503U	2.5	0.3R	2.5	50	4	4
EPCHC442505U	2.5	0.5R	2.5	50	4	4
EPCHC403001U	3.0	0.1R	3.0	50	6	4
EPCHC403002U	3.0	0.2R	3.0	50	6	4
EPCHC403003U	3.0	0.3R	3.0	50	6	4
EPCHC403005U	3.0	0.5R	3.0	50	6	4
EPCHC403010U	3.0	1.0R	3.0	50	6	4
EPCHC404001U	4.0	0.1R	4.0	50	6	4
EPCHC404002U	4.0	0.2R	4.0	50	6	4
EPCHC404003U	4.0	0.3R	4.0	50	6	4
EPCHC404005U	4.0	0.5R	4.0	50	6	4
EPCHC404010U	4.0	1.0R	4.0	50	6	4
EPCHC405001U	5.0	0.1R	5.0	50	6	4
EPCHC405002U	5.0	0.2R	5.0	50	6	4
EPCHC405003U	5.0	0.3R	5.0	50	6	4
EPCHC405005U	5.0	0.5R	5.0	50	6	4
EPCHC405010U	5.0	1.0R	5.0	50	6	4
EPCHC406001U	6.0	0.1R	7.0	50	6	4
EPCHC406002U	6.0	0.2R	7.0	50	6	4
EPCHC406003U	6.0	0.3R	7.0	50	6	4
EPCHC406005U	6.0	0.5R	7.0	50	6	4
EPCHC406010U	6.0	1.0R	7.0	50	6	4
EPCHC406015U	6.0	1.5R	7.0	50	6	4

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

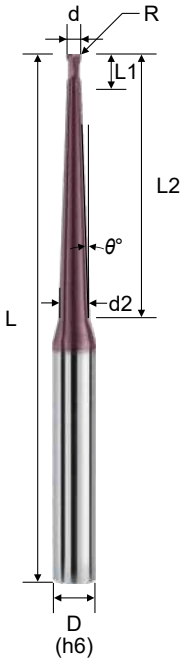
Cutting conditions：Table 045

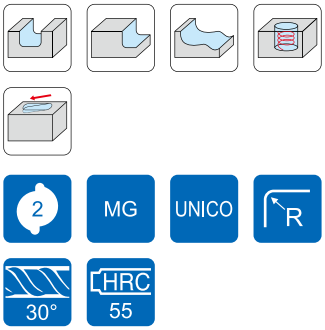
G550 - Taper Neck · Corner Radius · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Various tape angle makes it suitable for different applications.
- Small corner radius applied protect chipping of cutting edges.
  High strength of taper neck, can cut deep grooves without breaking.

EPCRT

P	M	K	N	S	H
●	●	●			○





Order No.	Dia. (d)	Corner Radius (R)	θ°	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EPCRT20100120HU	1.0	0.10R	0.5°	2.0	20	60	6	2
EPCRT201001201U	1.0	0.10R	1.0°	2.0	20	60	6	2
EPCRT20100120AU	1.0	0.10R	1.5°	2.0	20	60	6	2
EPCRT201201230HU2C	1.2	0.12R	0.5°	2.0	30	75	6	2
EPCRT2012012301U2C	1.2	0.12R	1.0°	2.0	30	75	6	2
EPCRT201201230AU2C	1.2	0.12R	1.5°	2.0	30	75	6	2
EPCRT201501530HU2C	1.5	0.15R	0.5°	2.0	30	75	6	2
EPCRT2015015301U2C	1.5	0.15R	1.0°	2.0	30	75	6	2
EPCRT201501530AU2C	1.5	0.15R	1.5°	2.0	30	75	6	2
EPCRT201801830HU2C	1.8	0.18R	0.5°	2.0	30	75	6	2
EPCRT2018018301U2C	1.8	0.18R	1.0°	2.0	30	75	6	2
EPCRT201801830AU2C	1.8	0.18R	1.5°	2.0	30	75	6	2
EPCRT20200225AU	2.0	0.20R	1.5°	3.0	25	75	6	2
EPCRT20200239AU	2.0	0.20R	1.5°	3.0	39	75	6	2
EPCRT20200525AU	2.0	0.50R	1.5°	3.0	25	75	6	2
EPCRT20200539AU	2.0	0.50R	1.5°	3.0	39	75	6	2
EPCRT20200550AU	2.0	0.50R	1.5°	3.0	50	100	6	2
EPCRT20200535HU4C	2.0	0.50R	0.5°	4.0	35	75	6	2
EPCRT202005351U4C	2.0	0.50R	1.0°	4.0	35	75	6	2
EPCRT20200535AU4C	2.0	0.50R	1.5°	4.0	35	75	6	2
EPCRT20250535HU5C	2.5	0.50R	0.5°	5.0	35	75	6	2
EPCRT202505351U5C	2.5	0.50R	1.0°	5.0	35	75	6	2
EPCRT20250535AU5C	2.5	0.50R	1.5°	5.0	35	75	6	2
EPCRT20251035HU5C	2.5	1.00R	0.5°	5.0	35	75	6	2
EPCRT202510351U5C	2.5	1.00R	1.0°	5.0	35	75	6	2
EPCRT20251035AU5C	2.5	1.00R	1.5°	5.0	35	75	6	2

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

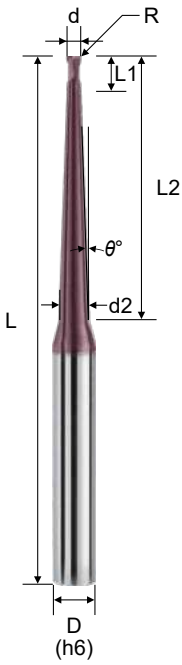
WINSTAR

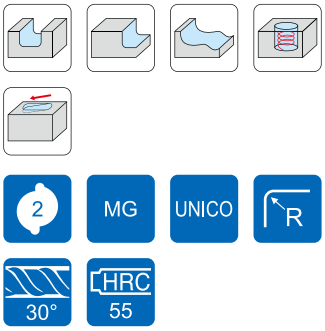
G550 - Taper Neck · Corner Radius · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Various tape angle makes it suitable for different applications.
- Small corner radius applied protect chipping of cutting edges.
  High strength of taper neck, can cut deep grooves without breaking.

EPCRT

P	M	K	N	S	H
●	●	●			○





Order No.	Dia. (d)	Corner Radius (R)	θ°	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EPCRT20300525AU	3.0	0.50R	1.5°	4.5	25	75	6	2
EPCRT20301025AU	3.0	1.00R	1.5°	4.5	25	75	6	2
EPCRT20301039AU	3.0	1.00R	1.5°	4.5	39	75	6	2
EPCRT20301050AU	3.0	1.00R	1.5°	4.5	50	100	6	2
EPCRT20300535HU5C	3.0	0.50R	0.5°	5.0	35	75	6	2
EPCRT203005351U5C	3.0	0.50R	1.0°	5.0	35	75	6	2
EPCRT20300535AU5C	3.0	0.50R	1.5°	5.0	35	75	6	2
EPCRT20301035HU5C	3.0	1.00R	0.5°	5.0	35	75	6	2
EPCRT203010351U5C	3.0	1.00R	1.0°	5.0	35	75	6	2
EPCRT20301035AU5C	3.0	1.00R	1.5°	5.0	35	75	6	2
EPCRT20350535HU	3.5	0.50R	0.5°	5.0	35	75	6	2
EPCRT203505351U	3.5	0.50R	1.0°	5.0	35	75	6	2
EPCRT20350535AU	3.5	0.50R	1.5°	5.0	35	75	6	2
EPCRT20351035HU	3.5	1.00R	0.5°	5.0	35	75	6	2
EPCRT203510351U	3.5	1.00R	1.0°	5.0	35	75	6	2
EPCRT20351035AU	3.5	1.00R	1.5°	5.0	35	75	6	2
EPCRT20400545HU	4.0	0.50R	0.5°	6.0	45	100	6	2
EPCRT204005451U	4.0	0.50R	1.0°	6.0	45	100	6	2
EPCRT20400525AU	4.0	0.50R	1.5°	6.0	25	75	6	2
EPCRT20400545AU	4.0	0.50R	1.5°	6.0	45	100	6	2
EPCRT20401045HU	4.0	1.00R	0.5°	6.0	45	100	6	2
EPCRT204010451U	4.0	1.00R	1.0°	6.0	45	100	6	2
EPCRT20401025AU	4.0	1.00R	1.5°	6.0	25	75	6	2
EPCRT20401045AU	4.0	1.00R	1.5°	6.0	45	100	6	2
EPCRT20501025AU	5.0	1.00R	1.5°	7.5	25	75	6	2
EPCRT20501050AU	5.0	1.00R	1.5°	7.5	50	100	8	2
EPCRT20601035AU	6.0	1.00R	1.5°	9.0	35	75	8	2
EPCRT20601050AU	6.0	1.00R	1.5°	9.0	50	100	10	2

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

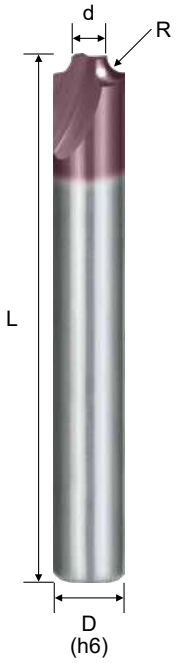
R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

G550 - Inner Radius · 2F / 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Inner radius tools are suitable for chamfering with round corner application.

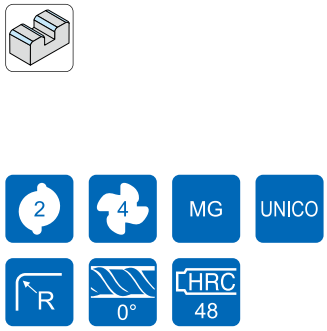
EPISA

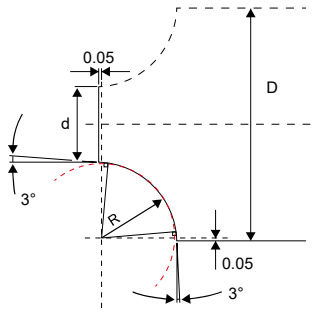
P	M	K	N	S	H
●	●	●			○



Order No.	Corner Radius (R)	Dia. (d)	OAL (L)	Shank (D)	Flutes (F)
* EPISA242905U	0.5R	2.9	50	4	2
EPISA204905U	0.5R	4.9	50	6	2
* EPISA241910U	1.0R	1.9	50	4	2
EPISA203910U	1.0R	3.9	50	6	2
EPISA205910U	1.0R	5.9	60	8	2
EPISA204915U	1.5R	4.9	60	8	2
EPISA205920U	2.0R	5.9	75	10	2
EPISA204925U	2.5R	4.9	75	10	2
EPISA205930U	3.0R	5.9	75	12	2
EPISA203940U	4.0R	3.9	75	12	2
EPISA205950U	5.0R	5.9	75	16	2
EPISA203960U	6.0R	3.9	75	16	2
* EPISA442905U	0.5R	2.9	50	4	4
EPISA404905U	0.5R	4.9	50	6	4
* EPISA441910U	1.0R	1.9	50	4	4
EPISA403910U	1.0R	3.9	50	6	4
EPISA405910U	1.0R	5.9	60	8	4
EPISA404915U	1.5R	4.9	60	8	4
EPISA405920U	2.0R	5.9	75	10	4
EPISA404925U	2.5R	4.9	75	10	4
EPISA405930U	3.0R	5.9	75	12	4
EPISA403940U	4.0R	3.9	75	12	4
EPISA405950U	5.0R	5.9	75	16	4
EPISA403960U	6.0R	3.9	75	16	4

Cutting conditions : Table 046





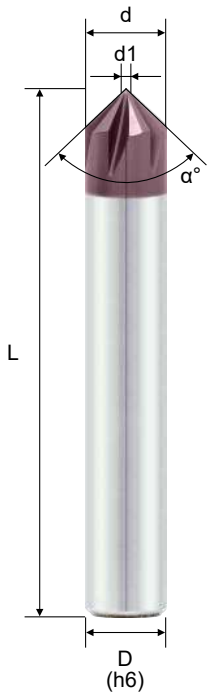
WINSTAR

G550 - Chamfering Type Endmill · 4F / 5F /6F

- Designed for chamfer milling.
- Chamfering angle can be divided into 30° or 45°.
- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for Steel, Alloy steel, Stainless steel, Cast iron, & Hardened steel.

EPFSA

P	M	K	N	S	H
●	●	●	○	●	●



Order No.	Dia. (d)	(d1)	OAL (L)	Shank (D)	α°	Flutes (F)
* EPFSA444060U	4	0.5	50	4	60°	4
EPFSA406060U	6	1.0	60	6	60°	4
EPFSA508060U	8	1.5	60	8	60°	5
EPFSA610060U	10	1.5	75	10	60°	6
EPFSA612060U	12	2.0	75	12	60°	6
* EPFSA444090U	4	0.5	50	4	90°	4
EPFSA406090U	6	1.0	60	6	90°	4
EPFSA508090U	8	1.5	60	8	90°	5
EPFSA610090U	10	1.5	75	10	90°	6
EPFSA612090U	12	2.0	75	12	90°	6

4 5 6 MG

UNICO HRC 55

※ Use uncoating tools for N material machining.

Cutting conditions : Table 047

G550 - Drill Mills · 2F

- Designed for chamfer milling.
- Chamfering angle can be divided into 30° or 45°.
- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for Steel, Alloy steel, Stainless steel, Cast iron, & Hardened steel.

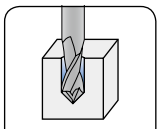
EPFSC

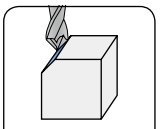
P	M	K	N	S	H
●	●	●	○		

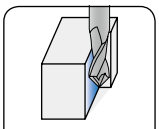
Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	α°	Flutes (F)
EPFSC203060U	3	6	50	6	60°	2
EPFSC204060U	4	8	50	6	60°	2
EPFSC205060U	5	10	50	6	60°	2
EPFSC206060U	6	12	50	6	60°	2
EPFSC208060U	8	16	60	8	60°	2
EPFSC210060U	10	20	75	10	60°	2
EPFSC212060U	12	24	75	12	60°	2
EPFSC203090U	3	6	50	6	90°	2
EPFSC204090U	4	8	50	6	90°	2
EPFSC205090U	5	10	50	6	90°	2
EPFSC206090U	6	12	50	6	90°	2
EPFSC208090U	8	16	60	8	90°	2
EPFSC210090U	10	20	75	10	90°	2
EPFSC212090U	12	24	75	12	90°	2
EPFSC203012U	3	6	50	6	120°	2
EPFSC204012U	4	8	50	6	120°	2
EPFSC205012U	5	10	50	6	120°	2
EPFSC206012U	6	12	50	6	120°	2
EPFSC208012U	8	16	60	8	120°	2
EPFSC210012U	10	20	75	10	120°	2
EPFSC212012U	12	24	75	12	120°	2

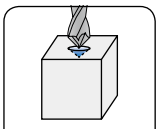
Cutting conditions：Table 048

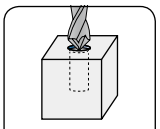
2 | MG | UNICO | 30° | HRC 45


Drilling


Chamfering


Side Milling


Spotting


Countersinking

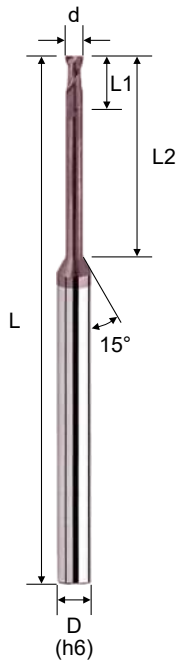
Tolerance	
Ød ≤ 6	0 ~ -0.02
6 < Ød ≤ 12	0 ~ -0.03
Ød > 12	0 ~ -0.04

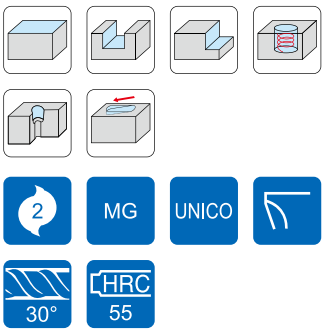
G550 - Long Neck · Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Toughness and reduction of vibration.
- Available in various cut lengths.
- Suitable for deep cutting application.

EPSRC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPSRC240201U	0.2	0.3	1	50	4	2
* EPSRC240202U	0.2	0.3	2	50	4	2
* EPSRC240301U	0.3	0.4	1	50	4	2
* EPSRC240302U	0.3	0.4	2	50	4	2
* EPSRC240303U	0.3	0.4	3	50	4	2
* EPSRC240304U	0.3	0.4	4	50	4	2
* EPSRC240305U	0.3	0.4	5	50	4	2
* EPSRC240401U	0.4	0.5	1	50	4	2
* EPSRC240402U	0.4	0.5	2	50	4	2
* EPSRC240403U	0.4	0.5	3	50	4	2
* EPSRC240404U	0.4	0.5	4	50	4	2
* EPSRC240405U	0.4	0.5	5	50	4	2
* EPSRC240406U	0.4	0.5	6	50	4	2
* EPSRC240408U	0.4	0.5	8	50	4	2
* EPSRC240410U	0.4	0.5	10	50	4	2
* EPSRC240502U	0.5	0.6	2	50	4	2
* EPSRC240503U	0.5	0.6	3	50	4	2
* EPSRC240504U	0.5	0.6	4	50	4	2
* EPSRC240505U	0.5	0.6	5	50	4	2
* EPSRC240506U	0.5	0.6	6	50	4	2
* EPSRC240508U	0.5	0.6	8	50	4	2
* EPSRC240510U	0.5	0.6	10	50	4	2
* EPSRC240512U	0.5	0.6	12	50	4	2
* EPSRC240514U	0.5	0.6	14	50	4	2

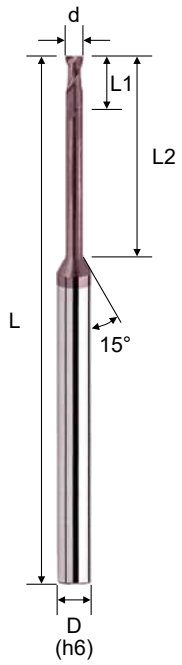
Cutting conditions : Table 049 ~ 051

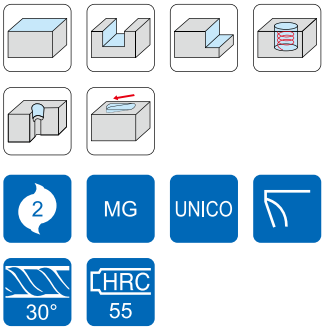
G550 - Long Neck · Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Toughness and reduction of vibration.
- Available in various cut lengths.
- Suitable for deep cutting application.

EPSRC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPSRC240602U	0.6	0.7	2	50	4	2
* EPSRC240603U	0.6	0.7	3	50	4	2
* EPSRC240604U	0.6	0.7	4	50	4	2
* EPSRC240605U	0.6	0.7	5	50	4	2
* EPSRC240606U	0.6	0.7	6	50	4	2
* EPSRC240608U	0.6	0.7	8	50	4	2
* EPSRC240610U	0.6	0.7	10	50	4	2
* EPSRC240612U	0.6	0.7	12	50	4	2
* EPSRC240614U	0.6	0.7	14	50	4	2
* EPSRC240616U	0.6	0.7	16	50	4	2
* EPSRC240702U	0.7	0.8	2	50	4	2
* EPSRC240704U	0.7	0.8	4	50	4	2
* EPSRC240706U	0.7	0.8	6	50	4	2
* EPSRC240708U	0.7	0.8	8	50	4	2
* EPSRC240710U	0.7	0.8	10	50	4	2
* EPSRC240712U	0.7	0.8	12	50	4	2
* EPSRC240802U	0.8	1.0	2	50	4	2
* EPSRC240804U	0.8	1.0	4	50	4	2
* EPSRC240806U	0.8	1.0	6	50	4	2
* EPSRC240808U	0.8	1.0	8	50	4	2
* EPSRC240810U	0.8	1.0	10	50	4	2
* EPSRC240812U	0.8	1.0	12	50	4	2
* EPSRC240814U	0.8	1.0	14	50	4	2
* EPSRC240906U	0.9	1.1	6	50	4	2
* EPSRC240908U	0.9	1.1	8	50	4	2
* EPSRC240910U	0.9	1.1	10	50	4	2

Cutting conditions：Table 049 ~ 051

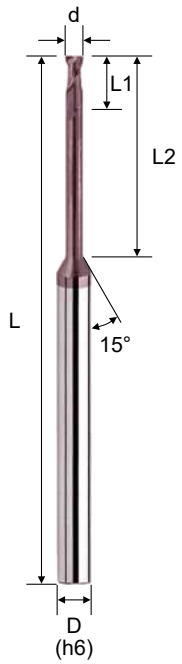
WINSTAR

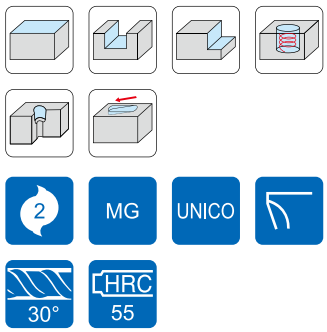
G550 - Long Neck · Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Toughness and reduction of vibration.
- Available in various cut lengths.
- Suitable for deep cutting application.

EPSRC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPSRC241002U	1.0	1.2	2	50	4	2
* EPSRC241003U	1.0	1.2	3	50	4	2
* EPSRC241004U	1.0	1.2	4	50	4	2
* EPSRC241005U	1.0	1.2	5	50	4	2
* EPSRC241006U	1.0	1.2	6	50	4	2
* EPSRC241008U	1.0	1.2	8	50	4	2
* EPSRC241010U	1.0	1.2	10	50	4	2
* EPSRC241012U	1.0	1.2	12	50	4	2
* EPSRC241014U	1.0	1.2	14	50	4	2
* EPSRC241016U	1.0	1.2	16	50	4	2
* EPSRC241018U	1.0	1.2	18	50	4	2
* EPSRC241020U	1.0	1.2	20	50	4	2
* EPSRC241204U	1.2	1.5	4	50	4	2
* EPSRC241206U	1.2	1.5	6	50	4	2
* EPSRC241208U	1.2	1.5	8	50	4	2
* EPSRC241210U	1.2	1.5	10	50	4	2
* EPSRC241212U	1.2	1.5	12	50	4	2
* EPSRC241216U	1.2	1.5	16	50	4	2
* EPSRC241220U	1.2	1.5	20	50	4	2
* EPSRC241406U	1.4	1.8	6	50	4	2
* EPSRC241408U	1.4	1.8	8	50	4	2
* EPSRC241410U	1.4	1.8	10	50	4	2
* EPSRC241414U	1.4	1.8	14	50	4	2
* EPSRC241416U	1.4	1.8	16	50	4	2
* EPSRC241420U	1.4	1.8	20	50	4	2

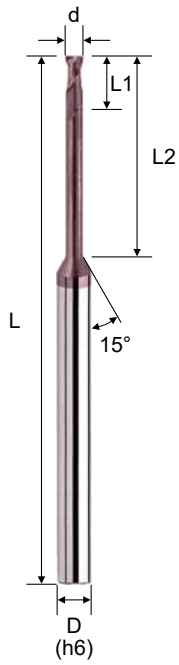
Cutting conditions : Table 049 ~ 051

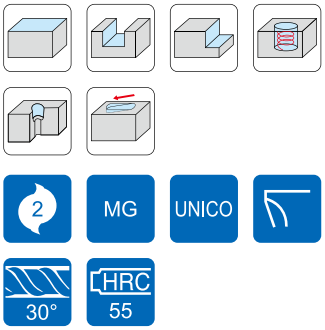
G550 - Long Neck · Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Toughness and reduction of vibration.
- Available in various cut lengths.
- Suitable for deep cutting application.

EPSRC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPSRC241504U	1.5	1.8	4	50	4	2
* EPSRC241506U	1.5	1.8	6	50	4	2
* EPSRC241508U	1.5	1.8	8	50	4	2
* EPSRC241510U	1.5	1.8	10	50	4	2
* EPSRC241512U	1.5	1.8	12	50	4	2
* EPSRC241514U	1.5	1.8	14	50	4	2
* EPSRC241516U	1.5	1.8	16	50	4	2
* EPSRC241518U	1.5	1.8	18	50	4	2
* EPSRC241520U	1.5	1.8	20	50	4	2
* EPSRC241610U	1.6	1.9	10	50	4	2
* EPSRC241614U	1.6	1.9	14	50	4	2
* EPSRC241618U	1.6	1.9	18	50	4	2
* EPSRC241810U	1.8	2.0	10	50	4	2
* EPSRC241814U	1.8	2.0	14	50	4	2
* EPSRC241818U	1.8	2.0	18	50	4	2
* EPSRC242004U	2.0	2.5	4	50	4	2
* EPSRC242006U	2.0	2.5	6	50	4	2
* EPSRC242008U	2.0	2.5	8	50	4	2
* EPSRC242010U	2.0	2.5	10	50	4	2
* EPSRC242012U	2.0	2.5	12	50	4	2
* EPSRC242014U	2.0	2.5	14	50	4	2
* EPSRC242016U	2.0	2.5	16	50	4	2
* EPSRC242018U	2.0	2.5	18	50	4	2
* EPSRC242020U	2.0	2.5	20	50	4	2
* EPSRC242022U	2.0	2.5	22	60	4	2
* EPSRC242025U	2.0	2.5	25	60	4	2
* EPSRC242030U	2.0	2.5	30	75	4	2
* EPSRC242035U	2.0	2.5	35	75	4	2

Cutting conditions：Table 049 ~ 051

WINSTAR

G550 - Long Neck · Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Toughness and reduction of vibration.
- Available in various cut lengths.
- Suitable for deep cutting application.

EPSRC

P	M	K	N	S	H
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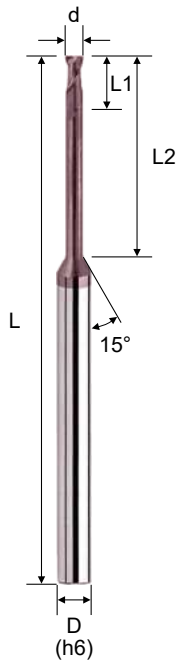

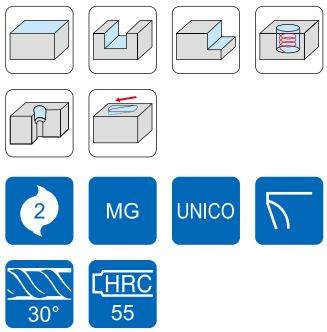

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPSRC242508U	2.5	3.0	8	50	4	2
* EPSRC242510U	2.5	3.0	10	50	4	2
* EPSRC242512U	2.5	3.0	12	50	4	2
* EPSRC242516U	2.5	3.0	16	50	4	2
* EPSRC242520U	2.5	3.0	20	50	4	2
* EPSRC242525U	2.5	3.0	25	60	4	2
* EPSRC242530U	2.5	3.0	30	75	4	2
* EPSRC242535U	2.5	3.0	35	75	4	2
EPSRC203006U	3.0	3.5	6	50	6	2
EPSRC203010U	3.0	3.5	10	50	6	2
EPSRC203012U	3.0	3.5	12	50	6	2
EPSRC203016U	3.0	3.5	16	50	6	2
EPSRC203020U	3.0	3.5	20	60	6	2
EPSRC203025U	3.0	3.5	25	60	6	2
EPSRC203030U	3.0	3.5	30	75	6	2
EPSRC203035U	3.0	3.5	35	75	6	2
EPSRC204008U	4.0	4.5	8	50	6	2
EPSRC204010U	4.0	4.5	10	50	6	2
EPSRC204012U	4.0	4.5	12	50	6	2
EPSRC204016U	4.0	4.5	16	50	6	2
EPSRC204020U	4.0	4.5	20	60	6	2
EPSRC204025U	4.0	4.5	25	60	6	2
EPSRC204030U	4.0	4.5	30	75	6	2
EPSRC204035U	4.0	4.5	35	75	6	2

Cutting conditions : Table 049 ~ 051

G550 - Long Neck · Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Toughness and reduction of vibration.
- Available in various cut lengths.
- Suitable for deep cutting application.

EPSRC

P	M	K	N	S	H
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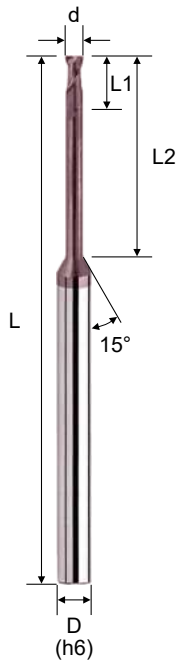
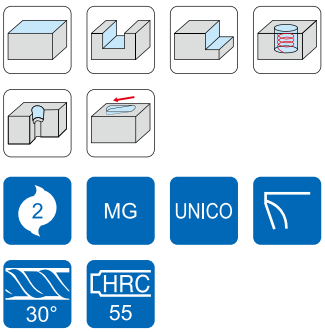




d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EPSRC205016U	5.0	7.0	16	50	6	2
EPSRC205020U	5.0	7.0	20	60	6	2
EPSRC205025U	5.0	7.0	25	60	6	2
EPSRC205030U	5.0	7.0	30	75	6	2
EPSRC205035U	5.0	7.0	35	75	6	2
EPSRC206020U	6.0	10.0	20	60	6	2
EPSRC206030U	6.0	10.0	30	75	6	2
EPSRC208020U	8.0	15.0	20	60	8	2
EPSRC208030U	8.0	15.0	30	75	8	2
EPSRC208040U	8.0	15.0	40	100	8	2
EPSRC210025U	10.0	20.0	25	75	10	2
EPSRC210035U	10.0	20.0	35	75	10	2
EPSRC210045U	10.0	20.0	45	100	10	2
EPSRC212030U	12.0	25.0	30	75	12	2
EPSRC212040U	12.0	25.0	40	100	12	2
EPSRC212050U	12.0	25.0	50	100	12	2

Cutting conditions：Table 049 ~ 051

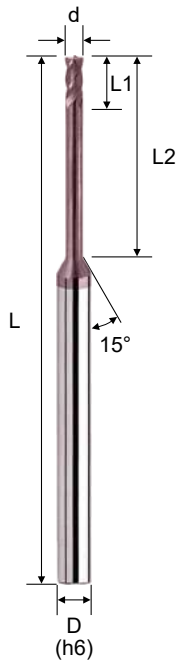
WINSTAR

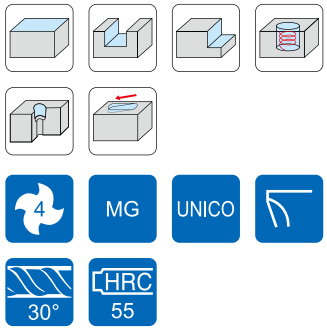
G550 - Long Neck · Square · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, Copper, FRP, etc.
- Toughness and reduction of vibration.
- Available in various cut lengths.
- Suitable for deep cutting application.

EPSRC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPSRC441003U	1.0	1.0	3	50	4	4
* EPSRC441004U	1.0	1.0	4	50	4	4
* EPSRC441006U	1.0	1.0	6	50	4	4
* EPSRC441008U	1.0	1.0	8	50	4	4
* EPSRC441010U	1.0	1.0	10	50	4	4
* EPSRC441012U	1.0	1.0	12	50	4	4
* EPSRC441016U	1.0	1.0	16	50	4	4
* EPSRC441020U	1.0	1.0	20	50	4	4
* EPSRC441025U	1.0	1.0	25	60	4	4
EPSRC401004U	1.0	1.0	4	50	6	4
EPSRC401006U	1.0	1.0	6	50	6	4
EPSRC401008U	1.0	1.0	8	50	6	4
EPSRC401010U	1.0	1.0	10	50	6	4
EPSRC401012U	1.0	1.0	12	50	6	4
EPSRC441506U	1.5	1.5	6	50	4	4
EPSRC441508U	1.5	1.5	8	50	4	4
EPSRC441510U	1.5	1.5	10	50	4	4
EPSRC441512U	1.5	1.5	12	50	4	4
EPSRC441516U	1.5	1.5	16	50	4	4
EPSRC441520U	1.5	1.5	20	50	4	4
EPSRC441525U	1.5	1.5	25	60	4	4
EPSRC401506U	1.5	1.5	6	50	6	4
EPSRC401508U	1.5	1.5	8	50	6	4
EPSRC401510U	1.5	1.5	10	50	6	4
EPSRC401512U	1.5	1.5	12	50	6	4

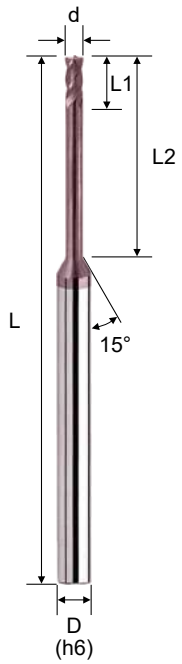
Cutting conditions : Table 052 ~ 053

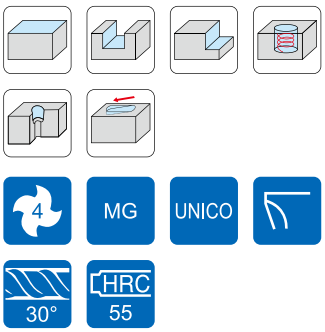
G550 - Long Neck · Square · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, Copper, FRP, etc.
- Toughness and reduction of vibration.
- Available in various cut lengths.
- Suitable for deep cutting application.

EPSRC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPSRC442006U	2.0	2.0	6	50	4	4
* EPSRC442008U	2.0	2.0	8	50	4	4
* EPSRC442010U	2.0	2.0	10	50	4	4
* EPSRC442012U	2.0	2.0	12	50	4	4
* EPSRC442016U	2.0	2.0	16	50	4	4
* EPSRC442020U	2.0	2.0	20	50	4	4
* EPSRC442025U	2.0	2.0	25	60	4	4
* EPSRC442030U	2.0	2.0	30	75	4	4
EPSRC402006U	2.0	2.0	6	50	6	4
EPSRC402008U	2.0	2.0	8	50	6	4
EPSRC402010U	2.0	2.0	10	50	6	4
EPSRC402016U	2.0	2.0	16	50	6	4
* EPSRC442510U	2.5	2.5	10	50	4	4
* EPSRC442512U	2.5	2.5	12	50	4	4
* EPSRC442516U	2.5	2.5	16	50	4	4
* EPSRC442520U	2.5	2.5	20	50	4	4
* EPSRC442525U	2.5	2.5	25	60	4	4
* EPSRC442530U	2.5	2.5	30	75	4	4
EPSRC402506U	2.5	2.5	6	50	6	4
EPSRC402510U	2.5	2.5	10	50	6	4
EPSRC403010U	3.0	3.0	10	50	6	4
EPSRC403012U	3.0	3.0	12	50	6	4
EPSRC403016U	3.0	3.0	16	50	6	4
EPSRC403020U	3.0	3.0	20	60	6	4
EPSRC403025U	3.0	3.0	25	60	6	4
EPSRC403030U	3.0	3.0	30	75	6	4
EPSRC403035U	3.0	3.0	35	75	6	4

Cutting conditions：Table 052 ~ 053

WINSTAR

G550 - Long Neck · Square · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, Copper, FRP, etc.
- Toughness and reduction of vibration.
- Available in various cut lengths.
- Suitable for deep cutting application.

EPSRC

P	M	K	N	S	H
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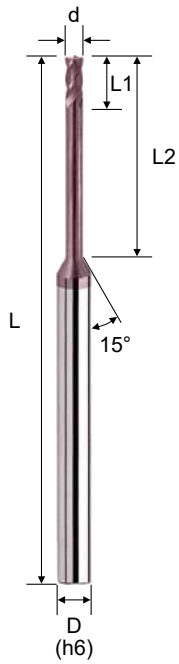
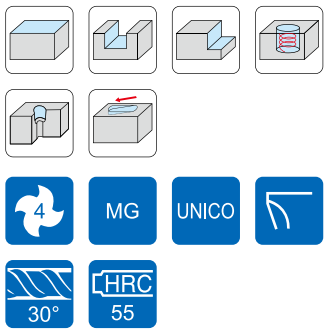




d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EPSRC404010U	4.0	4.0	10	50	6	4
EPSRC404012U	4.0	4.0	12	50	6	4
EPSRC404016U	4.0	4.0	16	50	6	4
EPSRC404020U	4.0	4.0	20	60	6	4
EPSRC404025U	4.0	4.0	25	60	6	4
EPSRC404030U	4.0	4.0	30	75	6	4
EPSRC405016U	5.0	5.0	16	50	6	4
EPSRC405020U	5.0	5.0	20	60	6	4
EPSRC405025U	5.0	5.0	25	60	6	4
EPSRC405030U	5.0	5.0	30	75	6	4
EPSRC406020U	6.0	6.0	20	60	6	4
EPSRC406030U	6.0	6.0	30	75	6	4
EPSRC408020U	8.0	15.0	20	60	8	4
EPSRC408030U	8.0	15.0	30	75	8	4
EPSRC408040U	8.0	15.0	40	100	8	4
EPSRC410025U	10.0	20.0	25	75	10	4
EPSRC410035U	10.0	20.0	35	100	10	4
EPSRC410045U	10.0	20.0	45	100	10	4
EPSRC412030U	12.0	25.0	30	75	12	4
EPSRC412040U	12.0	25.0	40	100	12	4
EPSRC412050U	12.0	25.0	50	100	12	4

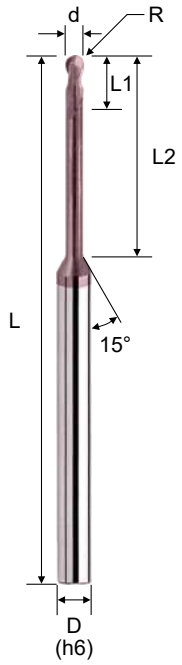
Cutting conditions：Table 052 ~ 053

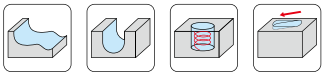
G550 - Long Neck · Ball Nose · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, Copper, FRP, etc.
- Reduce vibration and more toughness.
- It provides an excellent surface due to better surface grindings.
- Long neck design is suitable for rid cutting.

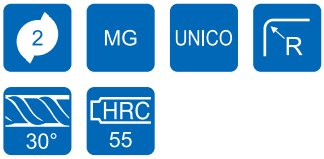
EPBRC

P	M	K	N	S	H
●	●	●			○





Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPBRC240301U	0.15R	0.3	0.3	1	50	4	2
* EPBRC240302U	0.15R	0.3	0.3	2	50	4	2
* EPBRC240303U	0.15R	0.3	0.3	3	50	4	2
* EPBRC240401U	0.20R	0.4	0.4	1	50	4	2
* EPBRC240402U	0.20R	0.4	0.4	2	50	4	2
* EPBRC240403U	0.20R	0.4	0.4	3	50	4	2
* EPBRC240404U	0.20R	0.4	0.4	4	50	4	2
* EPBRC240405U	0.20R	0.4	0.4	5	50	4	2
* EPBRC240406U	0.20R	0.4	0.4	6	50	4	2
* EPBRC240408U	0.20R	0.4	0.4	8	50	4	2
* EPBRC240501U	0.25R	0.5	0.5	1	50	4	2
* EPBRC240502U	0.25R	0.5	0.5	2	50	4	2
* EPBRC240503U	0.25R	0.5	0.5	3	50	4	2
* EPBRC240504U	0.25R	0.5	0.5	4	50	4	2
* EPBRC240505U	0.25R	0.5	0.5	5	50	4	2
* EPBRC240506U	0.25R	0.5	0.5	6	50	4	2
* EPBRC240508U	0.25R	0.5	0.5	8	50	4	2
* EPBRC240510U	0.25R	0.5	0.5	10	50	4	2
* EPBRC240601U	0.30R	0.6	0.6	1	50	4	2
* EPBRC240602U	0.30R	0.6	0.6	2	50	4	2
* EPBRC240603U	0.30R	0.6	0.6	3	50	4	2
* EPBRC240604U	0.30R	0.6	0.6	4	50	4	2
* EPBRC240605U	0.30R	0.6	0.6	5	50	4	2
* EPBRC240606U	0.30R	0.6	0.6	6	50	4	2
* EPBRC240608U	0.30R	0.6	0.6	8	50	4	2
* EPBRC240610U	0.30R	0.6	0.6	10	50	4	2
* EPBRC240612U	0.30R	0.6	0.6	12	50	4	2



R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Cutting conditions：Table 054 ~ 056

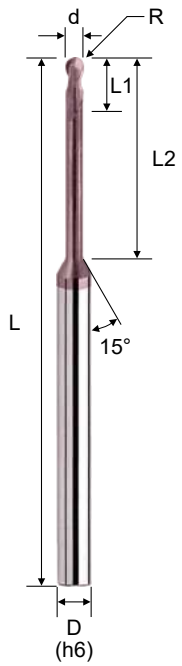
WINSTAR

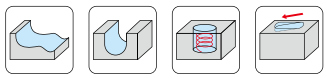
G550 - Long Neck · Ball Nose · 2F

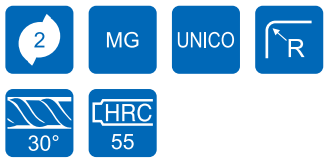
- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, Copper, FRP, etc.
- Reduce vibration and more toughness.
- It provides an excellent surface due to better surface grindings.
- Long neck design is suitable for rid cutting.

EPBRC

P	M	K	N	S	H
●	●	●			○







R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPBRC240702U	0.35R	0.7	0.7	2	50	4	2
* EPBRC240704U	0.35R	0.7	0.7	4	50	4	2
* EPBRC240708U	0.35R	0.7	0.7	8	50	4	2
* EPBRC240710U	0.35R	0.7	0.7	10	50	4	2
* EPBRC240712U	0.35R	0.7	0.7	12	50	4	2
* EPBRC240802U	0.40R	0.8	0.8	2	50	4	2
* EPBRC240804U	0.40R	0.8	0.8	4	50	4	2
* EPBRC240806U	0.40R	0.8	0.8	6	50	4	2
* EPBRC240808U	0.40R	0.8	0.8	8	50	4	2
* EPBRC240810U	0.40R	0.8	0.8	10	50	4	2
* EPBRC240812U	0.40R	0.8	0.8	12	50	4	2
* EPBRC240904U	0.45R	0.9	0.9	4	50	4	2
* EPBRC241002U	0.50R	1.0	1.0	2	50	4	2
* EPBRC241003U	0.50R	1.0	1.0	3	50	4	2
* EPBRC241004U	0.50R	1.0	1.0	4	50	4	2
* EPBRC241005U	0.50R	1.0	1.0	5	50	4	2
* EPBRC241006U	0.50R	1.0	1.0	6	50	4	2
* EPBRC241008U	0.50R	1.0	1.0	8	50	4	2
* EPBRC241010U	0.50R	1.0	1.0	10	50	4	2
* EPBRC241012U	0.50R	1.0	1.0	12	50	4	2
* EPBRC241014U	0.50R	1.0	1.0	14	50	4	2
* EPBRC241016U	0.50R	1.0	1.0	16	50	4	2
* EPBRC241018U	0.50R	1.0	1.0	18	50	4	2
* EPBRC241020U	0.50R	1.0	1.0	20	50	4	2
* EPBRC241022U	0.50R	1.0	1.0	22	60	4	2
EPBRC201004U	0.50R	1.0	1.0	4	50	6	2
EPBRC201006U	0.50R	1.0	1.0	6	50	6	2
EPBRC201008U	0.50R	1.0	1.0	8	50	6	2
EPBRC201010U	0.50R	1.0	1.0	10	50	6	2
EPBRC201012U	0.50R	1.0	1.0	12	50	6	2

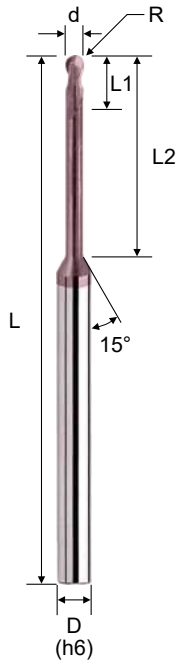
Cutting conditions : Table 054 ~ 056

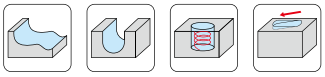
G550 - Long Neck · Ball Nose · 2F

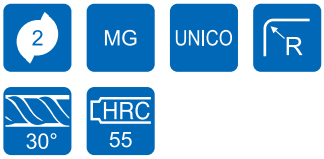
- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, Copper, FRP, etc.
- Reduce vibration and more toughness.
- It provides an excellent surface due to better surface grindings.
- Long neck design is suitable for rid cutting.

EPBRC

P	M	K	N	S	H
●	●	●			○







R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPBRC241204U	0.60R	1.2	1.2	4	50	4	2
* EPBRC241206U	0.60R	1.2	1.2	6	50	4	2
* EPBRC241208U	0.60R	1.2	1.2	8	50	4	2
* EPBRC241210U	0.60R	1.2	1.2	10	50	4	2
* EPBRC241212U	0.60R	1.2	1.2	12	50	4	2
* EPBRC241216U	0.60R	1.2	1.2	16	50	4	2
* EPBRC241220U	0.60R	1.2	1.2	20	50	4	2
* EPBRC241224U	0.60R	1.2	1.2	24	60	4	2
* EPBRC241406U	0.70R	1.4	1.4	6	50	4	2
* EPBRC241408U	0.70R	1.4	1.4	8	50	4	2
* EPBRC241412U	0.70R	1.4	1.4	12	50	4	2
* EPBRC241416U	0.70R	1.4	1.4	16	50	4	2
* EPBRC241503U	0.75R	1.5	1.5	3	50	4	2
* EPBRC241504U	0.75R	1.5	1.5	4	50	4	2
* EPBRC241506U	0.75R	1.5	1.5	6	50	4	2
* EPBRC241508U	0.75R	1.5	1.5	8	50	4	2
* EPBRC241510U	0.75R	1.5	1.5	10	50	4	2
* EPBRC241512U	0.75R	1.5	1.5	12	50	4	2
* EPBRC241514U	0.75R	1.5	1.5	14	50	4	2
* EPBRC241516U	0.75R	1.5	1.5	16	50	4	2
* EPBRC241518U	0.75R	1.5	1.5	18	50	4	2
* EPBRC241520U	0.75R	1.5	1.5	20	50	4	2
* EPBRC241522U	0.75R	1.5	1.5	22	60	4	2
* EPBRC241525U	0.75R	1.5	1.5	25	60	4	2
* EPBRC241530U	0.75R	1.5	1.5	30	75	4	2
EPBRC201506U	0.75R	1.5	1.5	6	50	6	2
EPBRC201508U	0.75R	1.5	1.5	8	50	6	2
EPBRC201510U	0.75R	1.5	1.5	10	50	6	2
EPBRC201512U	0.75R	1.5	1.5	12	50	6	2

Cutting conditions：Table 054 ~ 056

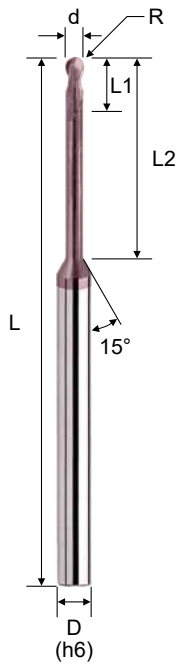
WINSTAR

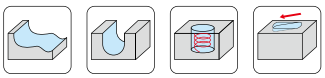
G550 - Long Neck · Ball Nose · 2F

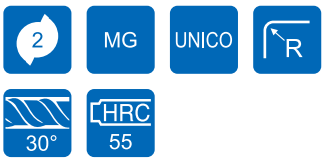
- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, Copper, FRP, etc.
- Reduce vibration and more toughness.
- It provides an excellent surface due to better surface grindings.
- Long neck design is suitable for rid cutting.

EPBRC

P	M	K	N	S	H
●	●	●			○







R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPBRC241606U	0.80R	1.6	1.6	6	50	4	2
* EPBRC241608U	0.80R	1.6	1.6	8	50	4	2
* EPBRC241612U	0.80R	1.6	1.6	12	50	4	2
* EPBRC241616U	0.80R	1.6	1.6	16	50	4	2
* EPBRC241620U	0.80R	1.6	1.6	20	50	4	2
* EPBRC241806U	0.90R	1.8	1.8	6	50	4	2
* EPBRC241808U	0.90R	1.8	1.8	8	50	4	2
* EPBRC241812U	0.90R	1.8	1.8	12	50	4	2
* EPBRC241816U	0.90R	1.8	1.8	16	50	4	2
* EPBRC241820U	0.90R	1.8	1.8	20	50	4	2
* EPBRC242004U	1.00R	2.0	2.0	4	50	4	2
* EPBRC242006U	1.00R	2.0	2.0	6	50	4	2
* EPBRC242008U	1.00R	2.0	2.0	8	50	4	2
* EPBRC242010U	1.00R	2.0	2.0	10	50	4	2
* EPBRC242012U	1.00R	2.0	2.0	12	50	4	2
* EPBRC242014U	1.00R	2.0	2.0	14	50	4	2
* EPBRC242016U	1.00R	2.0	2.0	16	50	4	2
* EPBRC242018U	1.00R	2.0	2.0	18	50	4	2
* EPBRC242020U	1.00R	2.0	2.0	20	50	4	2
* EPBRC242022U	1.00R	2.0	2.0	22	60	4	2
* EPBRC242025U	1.00R	2.0	2.0	25	60	4	2
EPBRC202006U	1.00R	2.0	2.0	6	50	6	2
EPBRC202008U	1.00R	2.0	2.0	8	50	6	2
EPBRC202010U	1.00R	2.0	2.0	10	50	6	2
EPBRC202016U	1.00R	2.0	2.0	16	50	6	2

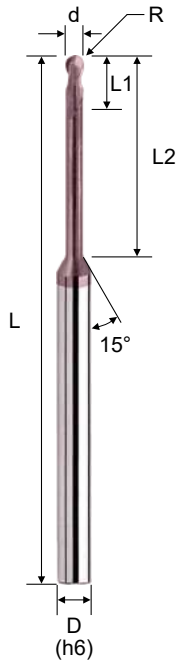
Cutting conditions：Table 054 ~ 056

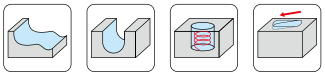
G550 - Long Neck · Ball Nose · 2F

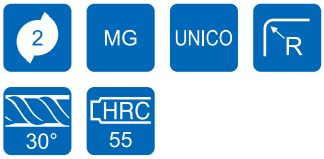
- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, Copper, FRP, etc.
- Reduce vibration and more toughness.
- It provides an excellent surface due to better surface grindings.
- Long neck design is suitable for rid cutting.

EPBRC

P	M	K	N	S	H
●	●	●			○







R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPBRC242508U	1.25R	2.5	2.5	8	50	4	2
* EPBRC242510U	1.25R	2.5	2.5	10	50	4	2
* EPBRC242516U	1.25R	2.5	2.5	16	50	4	2
* EPBRC242520U	1.25R	2.5	2.5	20	60	4	2
* EPBRC242525U	1.25R	2.5	2.5	25	60	4	2
* EPBRC242530U	1.25R	2.5	2.5	30	75	4	2
EPBRC202506U	1.25R	2.5	2.5	6	50	6	2
EPBRC202510U	1.25R	2.5	2.5	10	50	6	2
EPBRC203006U	1.50R	3.0	3.0	6	50	6	2
EPBRC203008U	1.50R	3.0	3.0	8	50	6	2
EPBRC203012U	1.50R	3.0	3.0	12	50	6	2
EPBRC203016U	1.50R	3.0	3.0	16	60	6	2
EPBRC203020U	1.50R	3.0	3.0	20	60	6	2
EPBRC203025U	1.50R	3.0	3.0	25	60	6	2
EPBRC203030U	1.50R	3.0	3.0	30	75	6	2
EPBRC203035U	1.50R	3.0	3.0	35	75	6	2
EPBRC204008U	2.00R	4.0	4.0	8	50	6	2
EPBRC204010U	2.00R	4.0	4.0	10	50	6	2
EPBRC204012U	2.00R	4.0	4.0	12	50	6	2
EPBRC204016U	2.00R	4.0	4.0	16	60	6	2
EPBRC204020U	2.00R	4.0	4.0	20	60	6	2
EPBRC204025U	2.00R	4.0	4.0	25	60	6	2
EPBRC204030U	2.00R	4.0	4.0	30	75	6	2
EPBRC204035U	2.00R	4.0	4.0	35	75	6	2
EPBRC205015U	2.50R	5.0	5.0	15	60	6	2
EPBRC205020U	2.50R	5.0	5.0	20	60	6	2
EPBRC205025U	2.50R	5.0	5.0	25	60	6	2
EPBRC205030U	2.50R	5.0	5.0	30	75	6	2
EPBRC206015U	3.00R	6.0	10.0	15	50	6	2
EPBRC208025U	4.00R	8.0	12.0	25	60	8	2
EPBRC210030U	5.00R	10.0	16.0	30	75	10	2
EPBRC212030U	6.00R	12.0	18.0	30	75	12	2

Cutting conditions：Table 054 ~ 056

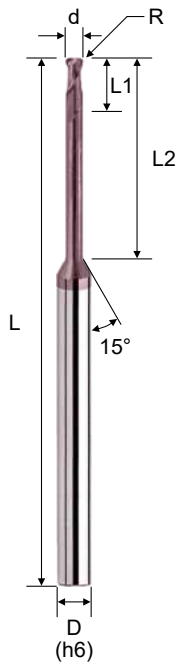
WINSTAR

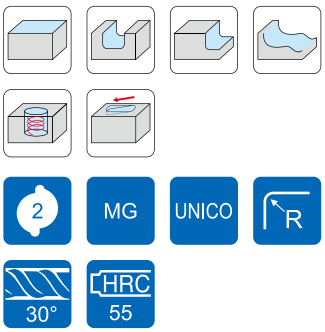
G550 - Long Neck · Corner Radius · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Available in various cut lengths.
- Corner radius with long neck are suitable for deep general cutting and 3D milling.

EPCRC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPCRC24100104U	1.0	0.1R	1.0	4	50	4	2
* EPCRC24100106U	1.0	0.1R	1.0	6	50	4	2
* EPCRC24100108U	1.0	0.1R	1.0	8	50	4	2
* EPCRC24100110U	1.0	0.1R	1.0	10	50	4	2
* EPCRC24100112U	1.0	0.1R	1.0	12	50	4	2
* EPCRC24100204U	1.0	0.2R	1.0	4	50	4	2
* EPCRC24100206U	1.0	0.2R	1.0	6	50	4	2
* EPCRC24100208U	1.0	0.2R	1.0	8	50	4	2
* EPCRC24100210U	1.0	0.2R	1.0	10	50	4	2
* EPCRC24100212U	1.0	0.2R	1.0	12	50	4	2
* EPCRC24100304U	1.0	0.3R	1.0	4	50	4	2
* EPCRC24100306U	1.0	0.3R	1.0	6	50	4	2
* EPCRC24100308U	1.0	0.3R	1.0	8	50	4	2
* EPCRC24100310U	1.0	0.3R	1.0	10	50	4	2
* EPCRC24100312U	1.0	0.3R	1.0	12	50	4	2
* EPCRC24120104U	1.2	0.1R	1.2	4	50	4	2
* EPCRC24120106U	1.2	0.1R	1.2	6	50	4	2
* EPCRC24120108U	1.2	0.1R	1.2	8	50	4	2
* EPCRC24120110U	1.2	0.1R	1.2	10	50	4	2
* EPCRC24120112U	1.2	0.1R	1.2	12	50	4	2
* EPCRC24120204U	1.2	0.2R	1.2	4	50	4	2
* EPCRC24120206U	1.2	0.2R	1.2	6	50	4	2
* EPCRC24120208U	1.2	0.2R	1.2	8	50	4	2
* EPCRC24120210U	1.2	0.2R	1.2	10	50	4	2
* EPCRC24120212U	1.2	0.2R	1.2	12	50	4	2
* EPCRC24120304U	1.2	0.3R	1.2	4	50	4	2
* EPCRC24120306U	1.2	0.3R	1.2	6	50	4	2
* EPCRC24120308U	1.2	0.3R	1.2	8	50	4	2
* EPCRC24120310U	1.2	0.3R	1.2	10	50	4	2
* EPCRC24120312U	1.2	0.3R	1.2	12	50	4	2

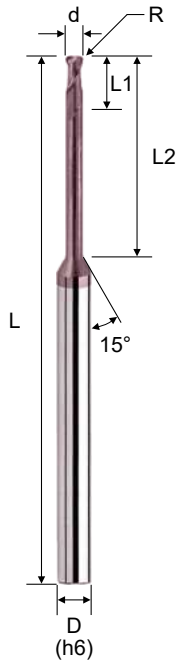
Cutting conditions：Table 057

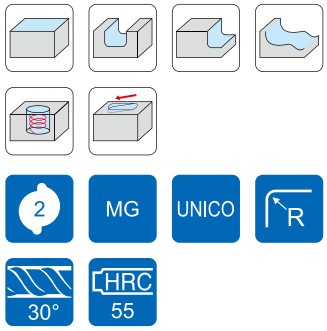
G550 - Long Neck · Corner Radius · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Available in various cut lengths.
- Corner radius with long neck are suitable for deep general cutting and 3D milling.

EPCRC

P	M	K	N	S	H
●	●	●			○





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPCRC24150106U	1.5	0.1R	1.5	6	50	4	2
* EPCRC24150108U	1.5	0.1R	1.5	8	50	4	2
* EPCRC24150110U	1.5	0.1R	1.5	10	50	4	2
* EPCRC24150112U	1.5	0.1R	1.5	12	50	4	2
* EPCRC24150116U	1.5	0.1R	1.5	16	50	4	2
* EPCRC24150206U	1.5	0.2R	1.5	6	50	4	2
* EPCRC24150208U	1.5	0.2R	1.5	8	50	4	2
* EPCRC24150210U	1.5	0.2R	1.5	10	50	4	2
* EPCRC24150212U	1.5	0.2R	1.5	12	50	4	2
* EPCRC24150216U	1.5	0.2R	1.5	16	50	4	2
* EPCRC24150306U	1.5	0.3R	1.5	6	50	4	2
* EPCRC24150308U	1.5	0.3R	1.5	8	50	4	2
* EPCRC24150310U	1.5	0.3R	1.5	10	50	4	2
* EPCRC24150312U	1.5	0.3R	1.5	12	50	4	2
* EPCRC24150316U	1.5	0.3R	1.5	16	50	4	2
* EPCRC24150506U	1.5	0.5R	1.5	6	50	4	2
* EPCRC24150508U	1.5	0.5R	1.5	8	50	4	2
* EPCRC24150510U	1.5	0.5R	1.5	10	50	4	2
* EPCRC24150512U	1.5	0.5R	1.5	12	50	4	2
* EPCRC24150516U	1.5	0.5R	1.5	16	50	4	2

Cutting conditions：Table 057

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
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R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

WINSTAR

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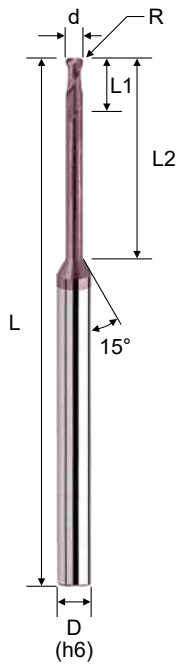
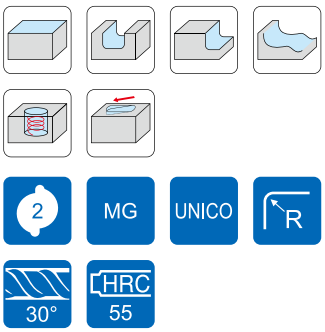
EPCRC

P	M	K	N	S	H
●	●	●			○





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPCRC24200106U	2.0	0.1R	2.0	6	50	4	2
* EPCRC24200108U	2.0	0.1R	2.0	8	50	4	2
* EPCRC24200110U	2.0	0.1R	2.0	10	50	4	2
* EPCRC24200112U	2.0	0.1R	2.0	12	50	4	2
* EPCRC24200116U	2.0	0.1R	2.0	16	50	4	2
* EPCRC24200120U	2.0	0.1R	2.0	20	50	4	2
* EPCRC24200125U	2.0	0.1R	2.0	25	60	4	2
* EPCRC24200206U	2.0	0.2R	2.0	6	50	4	2
* EPCRC24200208U	2.0	0.2R	2.0	8	50	4	2
* EPCRC24200210U	2.0	0.2R	2.0	10	50	4	2
* EPCRC24200212U	2.0	0.2R	2.0	12	50	4	2
* EPCRC24200216U	2.0	0.2R	2.0	16	50	4	2
* EPCRC24200220U	2.0	0.2R	2.0	20	50	4	2
* EPCRC24200225U	2.0	0.2R	2.0	25	60	4	2
* EPCRC24200306U	2.0	0.3R	2.0	6	50	4	2
* EPCRC24200308U	2.0	0.3R	2.0	8	50	4	2
* EPCRC24200310U	2.0	0.3R	2.0	10	50	4	2
* EPCRC24200312U	2.0	0.3R	2.0	12	50	4	2
* EPCRC24200316U	2.0	0.3R	2.0	16	50	4	2
* EPCRC24200320U	2.0	0.3R	2.0	20	50	4	2
* EPCRC24200325U	2.0	0.3R	2.0	25	60	4	2
* EPCRC24200506U	2.0	0.5R	2.0	6	50	4	2
* EPCRC24200508U	2.0	0.5R	2.0	8	50	4	2
* EPCRC24200510U	2.0	0.5R	2.0	10	50	4	2
* EPCRC24200512U	2.0	0.5R	2.0	12	50	4	2
* EPCRC24200516U	2.0	0.5R	2.0	16	50	4	2
* EPCRC24200520U	2.0	0.5R	2.0	20	50	4	2
* EPCRC24200525U	2.0	0.5R	2.0	25	60	4	2
EPCRC20200510U	2.0	0.5R	2.0	10	50	6	2
EPCRC20200515U	2.0	0.5R	2.0	15	50	6	2

Cutting conditions：Table 057

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

G550 - Long Neck · Corner Radius · 2F

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EPCRC

P	M	K	N	S	H
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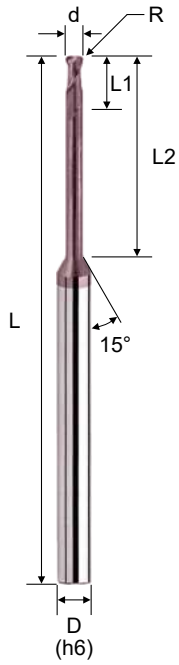

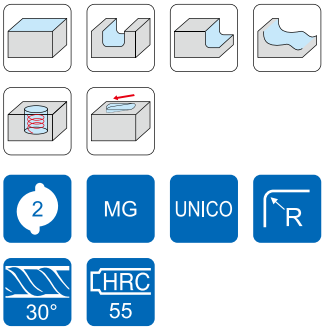

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPCRC24250110U	2.5	0.1R	2.5	10	50	4	2
* EPCRC24250116U	2.5	0.1R	2.5	16	50	4	2
* EPCRC24250120U	2.5	0.1R	2.5	20	50	4	2
* EPCRC24250125U	2.5	0.1R	2.5	25	60	4	2
* EPCRC24250210U	2.5	0.2R	2.5	10	50	4	2
* EPCRC24250216U	2.5	0.2R	2.5	16	50	4	2
* EPCRC24250220U	2.5	0.2R	2.5	20	50	4	2
* EPCRC24250225U	2.5	0.2R	2.5	25	60	4	2
* EPCRC24250310U	2.5	0.3R	2.5	10	50	4	2
* EPCRC24250316U	2.5	0.3R	2.5	16	50	4	2
* EPCRC24250320U	2.5	0.3R	2.5	20	50	4	2
* EPCRC24250325U	2.5	0.3R	2.5	25	60	4	2
* EPCRC24250510U	2.5	0.5R	2.5	10	50	4	2
* EPCRC24250516U	2.5	0.5R	2.5	16	50	4	2
* EPCRC24250520U	2.5	0.5R	2.5	20	50	4	2
* EPCRC24250525U	2.5	0.5R	2.5	25	60	4	2

Cutting conditions：Table 057

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
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R ≥ 2	±0.020

WINSTAR

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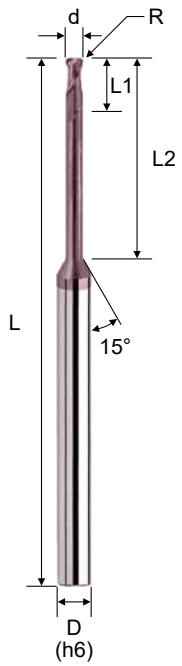
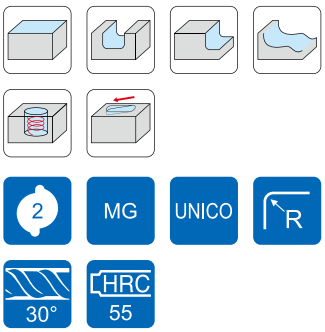
EPCRC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EPCRC20300110U	3.0	0.1R	3.0	10	50	6	2
EPCRC20300116U	3.0	0.1R	3.0	16	60	6	2
EPCRC20300120U	3.0	0.1R	3.0	20	60	6	2
EPCRC20300125U	3.0	0.1R	3.0	25	60	6	2
EPCRC20300130U	3.0	0.1R	3.0	30	75	6	2
EPCRC20300135U	3.0	0.1R	3.0	35	75	6	2
EPCRC20300210U	3.0	0.2R	3.0	10	50	6	2
EPCRC20300216U	3.0	0.2R	3.0	16	60	6	2
EPCRC20300220U	3.0	0.2R	3.0	20	60	6	2
EPCRC20300225U	3.0	0.2R	3.0	25	60	6	2
EPCRC20300230U	3.0	0.2R	3.0	30	75	6	2
EPCRC20300235U	3.0	0.2R	3.0	35	75	6	2
EPCRC20300310U	3.0	0.3R	3.0	10	50	6	2
EPCRC20300316U	3.0	0.3R	3.0	16	60	6	2
EPCRC20300320U	3.0	0.3R	3.0	20	60	6	2
EPCRC20300325U	3.0	0.3R	3.0	25	60	6	2
EPCRC20300330U	3.0	0.3R	3.0	30	75	6	2
EPCRC20300335U	3.0	0.3R	3.0	35	75	6	2
EPCRC20300510U	3.0	0.5R	3.0	10	50	6	2
EPCRC20300516U	3.0	0.5R	3.0	16	60	6	2
EPCRC20300520U	3.0	0.5R	3.0	20	60	6	2
EPCRC20300525U	3.0	0.5R	3.0	25	60	6	2
EPCRC20300530U	3.0	0.5R	3.0	30	75	6	2
EPCRC20300535U	3.0	0.5R	3.0	35	75	6	2
EPCRC20301010U	3.0	1.0R	3.0	10	50	6	2
EPCRC20301016U	3.0	1.0R	3.0	16	60	6	2
EPCRC20301020U	3.0	1.0R	3.0	20	60	6	2
EPCRC20301025U	3.0	1.0R	3.0	25	60	6	2
EPCRC20301030U	3.0	1.0R	3.0	30	75	6	2
EPCRC20301035U	3.0	1.0R	3.0	35	75	6	2

Cutting conditions：Table 057

G550 - Long Neck · Corner Radius · 2F

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EPCRC

P	M	K	N	S	H
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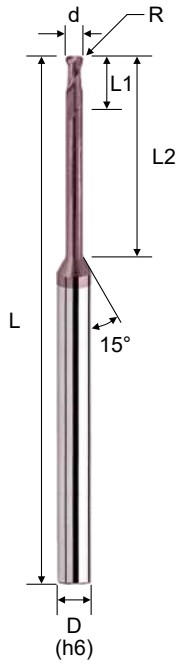

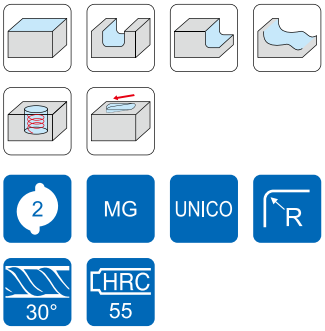

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EPCRC20400113U	4.0	0.1R	4.0	13	50	6	2
EPCRC20400116U	4.0	0.1R	4.0	16	60	6	2
EPCRC20400120U	4.0	0.1R	4.0	20	60	6	2
EPCRC20400125U	4.0	0.1R	4.0	25	60	6	2
EPCRC20400130U	4.0	0.1R	4.0	30	75	6	2
EPCRC20400135U	4.0	0.1R	4.0	35	75	6	2
EPCRC20400213U	4.0	0.2R	4.0	13	50	6	2
EPCRC20400216U	4.0	0.2R	4.0	16	60	6	2
EPCRC20400220U	4.0	0.2R	4.0	20	60	6	2
EPCRC20400225U	4.0	0.2R	4.0	25	60	6	2
EPCRC20400230U	4.0	0.2R	4.0	30	75	6	2
EPCRC20400235U	4.0	0.2R	4.0	35	75	6	2
EPCRC20400313U	4.0	0.3R	4.0	13	50	6	2
EPCRC20400316U	4.0	0.3R	4.0	16	60	6	2
EPCRC20400320U	4.0	0.3R	4.0	20	60	6	2
EPCRC20400325U	4.0	0.3R	4.0	25	60	6	2
EPCRC20400330U	4.0	0.3R	4.0	30	75	6	2
EPCRC20400335U	4.0	0.3R	4.0	35	75	6	2
EPCRC20400513U	4.0	0.5R	4.0	13	50	6	2
EPCRC20400516U	4.0	0.5R	4.0	16	60	6	2
EPCRC20400520U	4.0	0.5R	4.0	20	60	6	2
EPCRC20400525U	4.0	0.5R	4.0	25	60	6	2
EPCRC20400530U	4.0	0.5R	4.0	30	75	6	2
EPCRC20400535U	4.0	0.5R	4.0	35	75	6	2
EPCRC20401013U	4.0	1.0R	4.0	13	50	6	2
EPCRC20401016U	4.0	1.0R	4.0	16	60	6	2
EPCRC20401020U	4.0	1.0R	4.0	20	60	6	2
EPCRC20401025U	4.0	1.0R	4.0	25	60	6	2
EPCRC20401030U	4.0	1.0R	4.0	30	75	6	2
EPCRC20401035U	4.0	1.0R	4.0	35	75	6	2

Cutting conditions：Table 057

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
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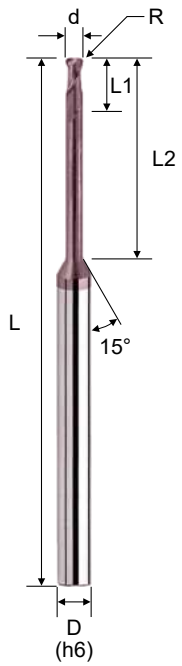
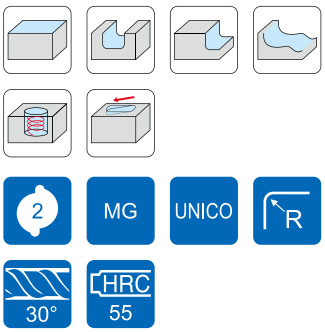
P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EPCRC20500116U	5.0	0.1R	5.0	16	60	6	2
EPCRC20500130U	5.0	0.1R	5.0	30	75	6	2
EPCRC20500216U	5.0	0.2R	5.0	16	60	6	2
EPCRC20500230U	5.0	0.2R	5.0	30	75	6	2
EPCRC20500316U	5.0	0.3R	5.0	16	60	6	2
EPCRC20500330U	5.0	0.3R	5.0	30	75	6	2
EPCRC20500516U	5.0	0.5R	5.0	16	60	6	2
EPCRC20500530U	5.0	0.5R	5.0	30	75	6	2
EPCRC20501016U	5.0	1.0R	5.0	16	60	6	2
EPCRC20501030U	5.0	1.0R	5.0	30	75	6	2
EPCRC20600120U	6.0	0.1R	7.0	20	60	6	2
EPCRC20600130U	6.0	0.1R	7.0	30	75	6	2
EPCRC20600220U	6.0	0.2R	7.0	20	60	6	2
EPCRC20600230U	6.0	0.2R	7.0	30	75	6	2
EPCRC20600320U	6.0	0.3R	7.0	20	60	6	2
EPCRC20600330U	6.0	0.3R	7.0	30	75	6	2
EPCRC20600520U	6.0	0.5R	7.0	20	60	6	2
EPCRC20600530U	6.0	0.5R	7.0	30	75	6	2
EPCRC20601020U	6.0	1.0R	7.0	20	60	6	2
EPCRC20601030U	6.0	1.0R	7.0	30	75	6	2
EPCRC20601520U	6.0	1.5R	7.0	20	60	6	2
EPCRC20601530U	6.0	1.5R	7.0	30	75	6	2
EPCRC20800522U	8.0	0.5R	9.0	22	60	8	2
EPCRC20801022U	8.0	1.0R	9.0	22	60	8	2
EPCRC20801522U	8.0	1.5R	9.0	22	60	8	2
EPCRC20802022U	8.0	2.0R	9.0	22	60	8	2
EPCRC21000524U	10.0	0.5R	11.0	24	75	10	2
EPCRC21001024U	10.0	1.0R	11.0	24	75	10	2
EPCRC21001524U	10.0	1.5R	11.0	24	75	10	2
EPCRC21002024U	10.0	2.0R	11.0	24	75	10	2
EPCRC21200526U	12.0	0.5R	13.0	26	75	12	2
EPCRC21201026U	12.0	1.0R	13.0	26	75	12	2
EPCRC21201526U	12.0	1.5R	13.0	26	75	12	2
EPCRC21202026U	12.0	2.0R	13.0	26	75	12	2

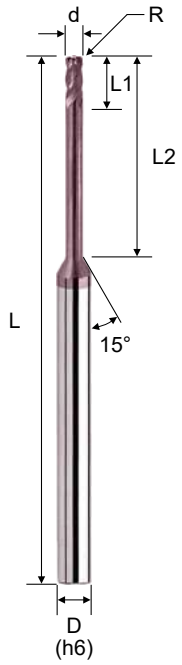
Cutting conditions：Table 057

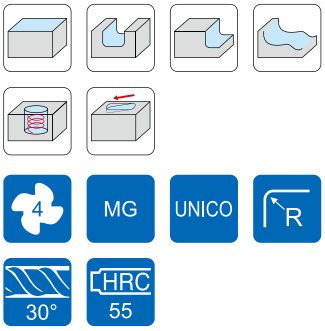
G550 - Long Neck · Corner Radius · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Multiple flutes and ling neck design provides better surface in deep cutting.
- Available in various cut lengths.

EPCRC

P	M	K	N	S	H
●	●	●			○





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPCRC44200106U	2.0	0.1R	2.0	6	50	4	4
* EPCRC44200108U	2.0	0.1R	2.0	8	50	4	4
* EPCRC44200110U	2.0	0.1R	2.0	10	50	4	4
* EPCRC44200112U	2.0	0.1R	2.0	12	50	4	4
* EPCRC44200116U	2.0	0.1R	2.0	16	50	4	4
* EPCRC44200120U	2.0	0.1R	2.0	20	50	4	4
* EPCRC44200125U	2.0	0.1R	2.0	25	60	4	4
* EPCRC44200206U	2.0	0.2R	2.0	6	50	4	4
* EPCRC44200208U	2.0	0.2R	2.0	8	50	4	4
* EPCRC44200210U	2.0	0.2R	2.0	10	50	4	4
* EPCRC44200212U	2.0	0.2R	2.0	12	50	4	4
* EPCRC44200216U	2.0	0.2R	2.0	16	50	4	4
* EPCRC44200220U	2.0	0.2R	2.0	20	50	4	4
* EPCRC44200225U	2.0	0.2R	2.0	25	60	4	4
* EPCRC44200306U	2.0	0.3R	2.0	6	50	4	4
* EPCRC44200308U	2.0	0.3R	2.0	8	50	4	4
* EPCRC44200310U	2.0	0.3R	2.0	10	50	4	4
* EPCRC44200312U	2.0	0.3R	2.0	12	50	4	4
* EPCRC44200316U	2.0	0.3R	2.0	16	50	4	4
* EPCRC44200320U	2.0	0.3R	2.0	20	50	4	4
* EPCRC44200325U	2.0	0.3R	2.0	25	60	4	4
* EPCRC44200506U	2.0	0.5R	2.0	6	50	4	4
* EPCRC44200508U	2.0	0.5R	2.0	8	50	4	4
* EPCRC44200510U	2.0	0.5R	2.0	10	50	4	4
* EPCRC44200512U	2.0	0.5R	2.0	12	50	4	4
* EPCRC44200516U	2.0	0.5R	2.0	16	50	4	4
* EPCRC44200520U	2.0	0.5R	2.0	20	50	4	4
* EPCRC44200525U	2.0	0.5R	2.0	25	60	4	4
EPCRC40200510U	2.0	0.5R	2.0	10	50	6	4
EPCRC40200515U	2.0	0.5R	2.0	15	50	6	4

Cutting conditions：Table 058

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

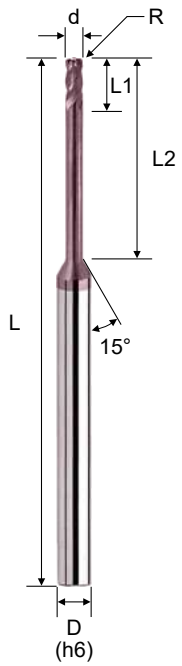
WINSTAR

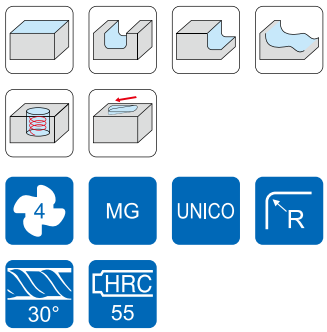
G550 - Long Neck · Corner Radius · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Multiple flutes and ling neck design provides better surface in deep cutting.
- Available in various cut lengths.

EPCRC

P	M	K	N	S	H
●	●	●			○





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EPCRC44250110U	2.5	0.1R	2.5	10	50	4	4
* EPCRC44250116U	2.5	0.1R	2.5	16	50	4	4
* EPCRC44250120U	2.5	0.1R	2.5	20	50	4	4
* EPCRC44250125U	2.5	0.1R	2.5	25	60	4	4
* EPCRC44250210U	2.5	0.2R	2.5	10	50	4	4
* EPCRC44250216U	2.5	0.2R	2.5	16	50	4	4
* EPCRC44250220U	2.5	0.2R	2.5	20	50	4	4
* EPCRC44250225U	2.5	0.2R	2.5	25	60	4	4
* EPCRC44250310U	2.5	0.3R	2.5	10	50	4	4
* EPCRC44250316U	2.5	0.3R	2.5	16	50	4	4
* EPCRC44250320U	2.5	0.3R	2.5	20	50	4	4
* EPCRC44250325U	2.5	0.3R	2.5	25	60	4	4
* EPCRC44250510U	2.5	0.5R	2.5	10	50	4	4
* EPCRC44250516U	2.5	0.5R	2.5	16	50	4	4
* EPCRC44250520U	2.5	0.5R	2.5	20	50	4	4
* EPCRC44250525U	2.5	0.5R	2.5	25	60	4	4

Cutting conditions：Table 058

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

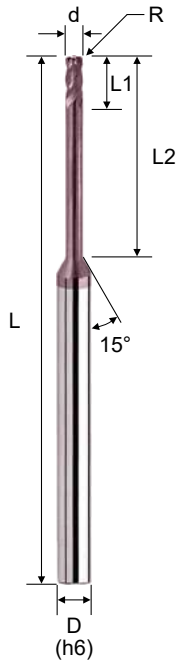
R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

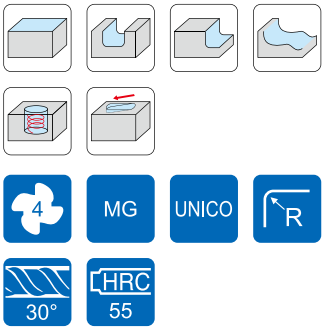
G550 - Long Neck · Corner Radius · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Multiple flutes and ling neck design provides better surface in deep cutting.
- Available in various cut lengths.

EPCRC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EPCRC40300110U	3.0	0.1R	3.0	10	50	6	4
EPCRC40300116U	3.0	0.1R	3.0	16	60	6	4
EPCRC40300120U	3.0	0.1R	3.0	20	60	6	4
EPCRC40300125U	3.0	0.1R	3.0	25	60	6	4
EPCRC40300130U	3.0	0.1R	3.0	30	75	6	4
EPCRC40300135U	3.0	0.1R	3.0	35	75	6	4
EPCRC40300210U	3.0	0.2R	3.0	10	50	6	4
EPCRC40300216U	3.0	0.2R	3.0	16	60	6	4
EPCRC40300220U	3.0	0.2R	3.0	20	60	6	4
EPCRC40300225U	3.0	0.2R	3.0	25	60	6	4
EPCRC40300230U	3.0	0.2R	3.0	30	75	6	4
EPCRC40300235U	3.0	0.2R	3.0	35	75	6	4
EPCRC40300310U	3.0	0.3R	3.0	10	50	6	4
EPCRC40300316U	3.0	0.3R	3.0	16	60	6	4
EPCRC40300320U	3.0	0.3R	3.0	20	60	6	4
EPCRC40300325U	3.0	0.3R	3.0	25	60	6	4
EPCRC40300330U	3.0	0.3R	3.0	30	75	6	4
EPCRC40300335U	3.0	0.3R	3.0	35	75	6	4
EPCRC40300510U	3.0	0.5R	3.0	10	50	6	4
EPCRC40300516U	3.0	0.5R	3.0	16	60	6	4
EPCRC40300520U	3.0	0.5R	3.0	20	60	6	4
EPCRC40300525U	3.0	0.5R	3.0	25	60	6	4
EPCRC40300530U	3.0	0.5R	3.0	30	75	6	4
EPCRC40300535U	3.0	0.5R	3.0	35	75	6	4
EPCRC40301010U	3.0	1.0R	3.0	10	50	6	4
EPCRC40301016U	3.0	1.0R	3.0	16	60	6	4
EPCRC40301020U	3.0	1.0R	3.0	20	60	6	4
EPCRC40301025U	3.0	1.0R	3.0	25	60	6	4
EPCRC40301030U	3.0	1.0R	3.0	30	75	6	4
EPCRC40301035U	3.0	1.0R	3.0	35	75	6	4

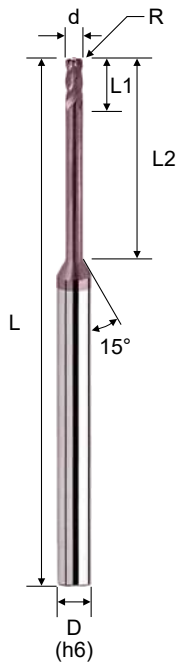
Cutting conditions：Table 058

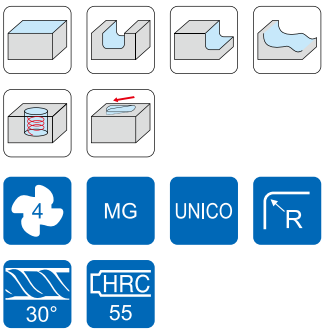
G550 - Long Neck · Corner Radius · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Multiple flutes and ling neck design provides better surface in deep cutting.
- Available in various cut lengths.

EPCRC

P	M	K	N	S	H
●	●	●			○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EPCRC40400113U	4.0	0.1R	4.0	13	50	6	4
EPCRC40400116U	4.0	0.1R	4.0	16	60	6	4
EPCRC40400120U	4.0	0.1R	4.0	20	60	6	4
EPCRC40400125U	4.0	0.1R	4.0	25	60	6	4
EPCRC40400130U	4.0	0.1R	4.0	30	75	6	4
EPCRC40400135U	4.0	0.1R	4.0	35	75	6	4
EPCRC40400213U	4.0	0.2R	4.0	13	50	6	4
EPCRC40400216U	4.0	0.2R	4.0	16	60	6	4
EPCRC40400220U	4.0	0.2R	4.0	20	60	6	4
EPCRC40400225U	4.0	0.2R	4.0	25	60	6	4
EPCRC40400230U	4.0	0.2R	4.0	30	75	6	4
EPCRC40400235U	4.0	0.2R	4.0	35	75	6	4
EPCRC40400313U	4.0	0.3R	4.0	13	50	6	4
EPCRC40400316U	4.0	0.3R	4.0	16	60	6	4
EPCRC40400320U	4.0	0.3R	4.0	20	60	6	4
EPCRC40400325U	4.0	0.3R	4.0	25	60	6	4
EPCRC40400330U	4.0	0.3R	4.0	30	75	6	4
EPCRC40400335U	4.0	0.3R	4.0	35	75	6	4
EPCRC40400513U	4.0	0.5R	4.0	13	50	6	4
EPCRC40400516U	4.0	0.5R	4.0	16	60	6	4
EPCRC40400520U	4.0	0.5R	4.0	20	60	6	4
EPCRC40400525U	4.0	0.5R	4.0	25	60	6	4
EPCRC40400530U	4.0	0.5R	4.0	30	75	6	4
EPCRC40400535U	4.0	0.5R	4.0	35	75	6	4
EPCRC40401013U	4.0	1.0R	4.0	13	50	6	4
EPCRC40401016U	4.0	1.0R	4.0	16	60	6	4
EPCRC40401020U	4.0	1.0R	4.0	20	60	6	4
EPCRC40401025U	4.0	1.0R	4.0	25	60	6	4
EPCRC40401030U	4.0	1.0R	4.0	30	75	6	4
EPCRC40401035U	4.0	1.0R	4.0	35	75	6	4

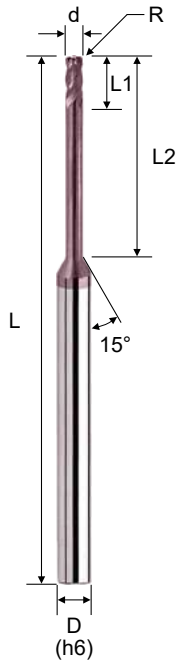
Cutting conditions：Table 058

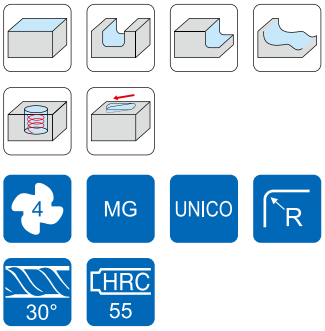
G550 - Long Neck · Corner Radius · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 30 to HRC 55 Ordinary Steel, Alloy Steel, Cast Iron, Heat-Resistant Steel, etc.
- Multiple flutes and ling neck design provides better surface in deep cutting.
- Available in various cut lengths.

EPCRC

P	M	K	N	S	H
●	●	●			○





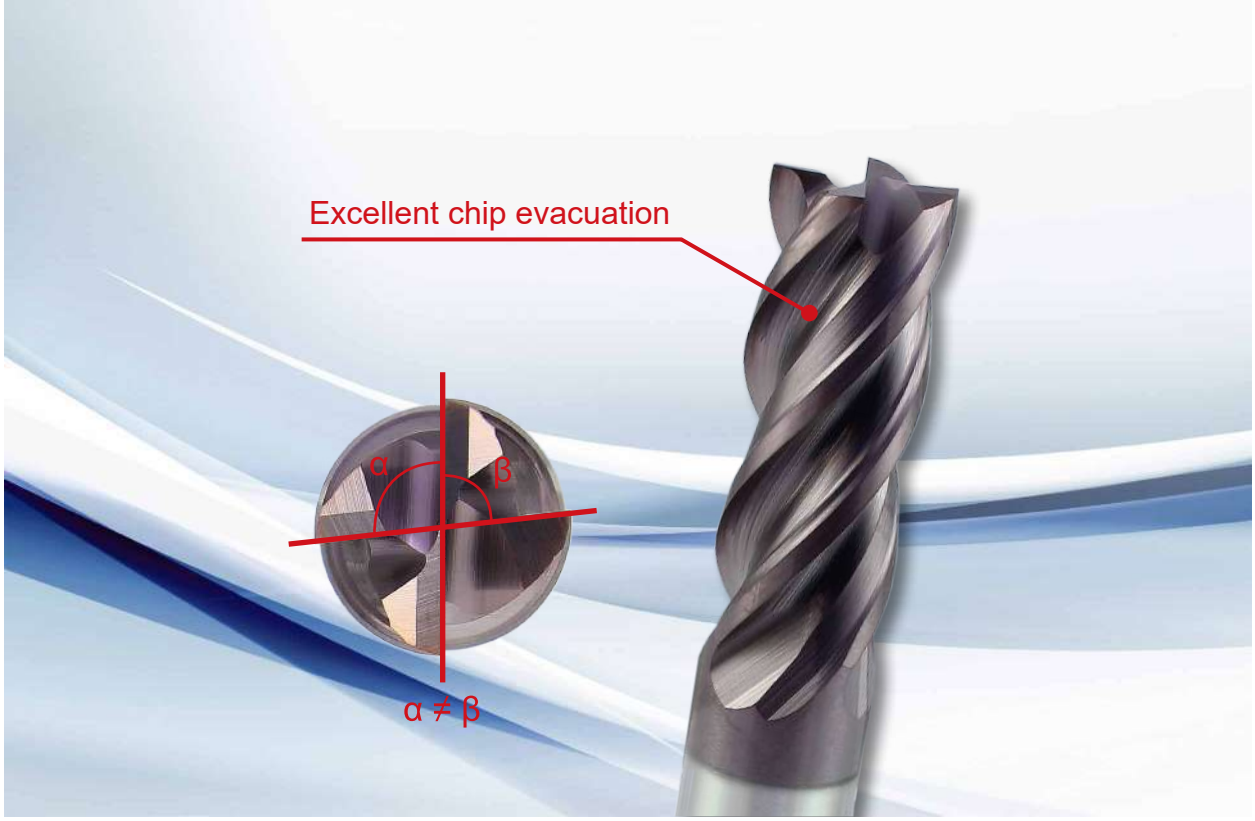
d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
EPCRC40500116U	5.0	0.1R	5.0	16	60	6	4
EPCRC40500130U	5.0	0.1R	5.0	30	75	6	4
EPCRC40500216U	5.0	0.2R	5.0	16	60	6	4
EPCRC40500230U	5.0	0.2R	5.0	30	75	6	4
EPCRC40500316U	5.0	0.3R	5.0	16	60	6	4
EPCRC40500330U	5.0	0.3R	5.0	30	75	6	4
EPCRC40500516U	5.0	0.5R	5.0	16	60	6	4
EPCRC40500530U	5.0	0.5R	5.0	30	75	6	4
EPCRC40501016U	5.0	1.0R	5.0	16	60	6	4
EPCRC40501030U	5.0	1.0R	5.0	30	75	6	4
EPCRC40600120U	6.0	0.1R	7.0	20	60	6	4
EPCRC40600130U	6.0	0.1R	7.0	30	75	6	4
EPCRC40600220U	6.0	0.2R	7.0	20	60	6	4
EPCRC40600230U	6.0	0.2R	7.0	30	75	6	4
EPCRC40600320U	6.0	0.3R	7.0	20	60	6	4
EPCRC40600330U	6.0	0.3R	7.0	30	75	6	4
EPCRC40600520U	6.0	0.5R	7.0	20	60	6	4
EPCRC40600530U	6.0	0.5R	7.0	30	75	6	4
EPCRC40601020U	6.0	1.0R	7.0	20	60	6	4
EPCRC40601030U	6.0	1.0R	7.0	30	75	6	4
EPCRC40601520U	6.0	1.5R	7.0	20	60	6	4
EPCRC40601530U	6.0	1.5R	7.0	30	75	6	4
EPCRC40800522U	8.0	0.5R	9.0	22	60	8	4
EPCRC40801022U	8.0	1.0R	9.0	22	60	8	4
EPCRC40801522U	8.0	1.5R	9.0	22	60	8	4
EPCRC40802022U	8.0	2.0R	9.0	22	60	8	4
EPCRC41000524U	10.0	0.5R	11.0	24	75	10	4
EPCRC41001024U	10.0	1.0R	11.0	24	75	10	4
EPCRC41001524U	10.0	1.5R	11.0	24	75	10	4
EPCRC41002024U	10.0	2.0R	11.0	24	75	10	4
EPCRC41200526U	12.0	0.5R	13.0	26	75	12	4
EPCRC41201026U	12.0	1.0R	13.0	26	75	12	4
EPCRC41201526U	12.0	1.5R	13.0	26	75	12	4
EPCRC41202026U	12.0	2.0R	13.0	26	75	12	4

Cutting conditions：Table 058

V470 Series for high performance milling (Hardened steel & Steel HRC 25~55)



V470 Variable Spacing Series

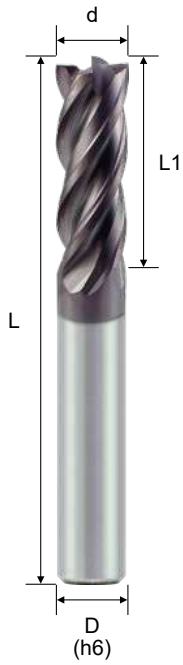
- Unequal flute spacing for anti-vibration.
- Suitable for hardened steel & steel machining.
- High removal rate for steel and stainless steel machining.
- Low cutting force and burr prevention.

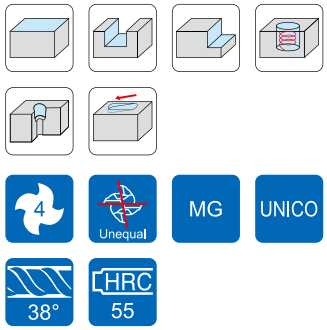
V470 - Variable Spacing · Square · 4F

- Unequal flute spacing for anti-vibration.
- High removal rate for steel and alloy steel machining.
- Low cutting force and burr prevention.
- UNICO coating includes Al, Ti, Cr, N elements.

EPSSV

P	M	K	N	S	H
●	○	●			





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EPSSV403000U	3	8	50	6	4
EPSSV444000U	4	10	50	4	4
EPSSV404000U	4	10	50	6	4
EPSSV406000U	6	15	50	6	4
EPSSV408000U	8	20	60	8	4
EPSSV410000U	10	25	75	10	4
EPSSV412000U	12	30	75	12	4
EPSSV416000U	16	35	100	16	4

Cutting conditions：Table 059

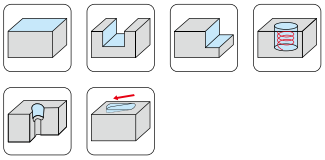
WINSTAR

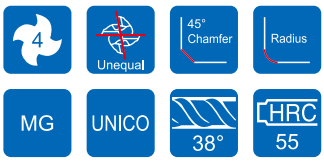
V470 - Variable Spacing · Square · Inch · 4F

- Unequal flute spacing for anti-vibration.
- High removal rate for steel and alloy steel machining.
- Low cutting force and burr prevention.
- UNICO coating includes Al, Ti, Cr, N elements.

EPS_V
EPC_V
EPF_V

P	M	K	N	S	H
●	○	●			





d Tolerance	
d	.000 ~ -.002"

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Chamfer / Radius	Flutes (F)
INCH SIZE						
EPF2V40120210U	1/8	1/4	1 1/2	1/8	.010C	4
EPS2V40120200U	1/8	1/4	1 1/2	1/8	-	4
EPC2V40120215U	1/8	1/4	2 1/2	1/8	.015R	4
EPC4V40120515U	1/8	1/2	2	1/8	.015R	4
EPS4V40120500U	1/8	1/2	2	1/8	-	4
EPF4V40120510U	1/8	1/2	2	1/8	.010C	4
EPS9V40120500U	1/8	1/2	2 1/2	1/8	-	4
EPF2V40180310U	3/16	5/16	2 1/2	3/16	.010C	4
EPC2V40180315U	3/16	5/16	2 1/2	3/16	.015R	4
EPS7V40180300U	3/16	5/16	2 1/2	3/16	-	4
EPF3V40180610U	3/16	5/8	2 1/2	3/16	.010C	4
EPC8V40180615U	3/16	5/8	2 1/2	3/16	.015R	4
EPC8V40180630U	3/16	5/8	2 1/2	3/16	.030R	4
EPS8V40180600U	3/16	5/8	2 1/2	3/16	-	4
EPC2V40250330U	1/4	3/8	2	1/4	.030R	4
EPS2V40250300U	1/4	3/8	2	1/4	-	4
EPF2V40250315U	1/4	3/8	2	1/4	.015C	4
EPC3V40250715U	1/4	3/4	2 1/2	1/4	.015R	4
EPC3V40250730U	1/4	3/4	2 1/2	1/4	.030R	4
EPC3V40250760U	1/4	3/4	2 1/2	1/4	.060R	4
EPF3V40250715U	1/4	3/4	2 1/2	1/4	.015C	4
EPS3V40250700U	1/4	3/4	2 1/2	1/4	-	4
EPC4V40251015U	1/4	1	3	1/4	.015R	4
EPS4V40251000U	1/4	1	3	1/4	-	4
EPC5V40251215U	1/4	1 1/4	3	1/4	.015R	4
EPC5V40251230U	1/4	1 1/4	3	1/4	.030R	4
EPS5V40251200U	1/4	1 1/4	3	1/4	-	4

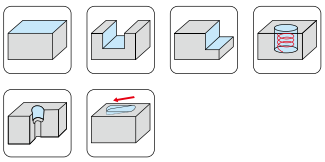
Cutting conditions：Table 060

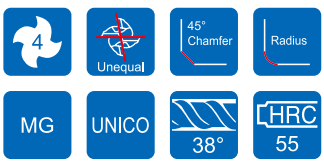
V470 - Variable Spacing · Square · Inch · 4F

- Unequal flute spacing for anti-vibration.
- High removal rate for steel and alloy steel machining.
- Low cutting force and burr prevention.
- UNICO coating includes Al, Ti, Cr, N elements.

EPS_V
EPC_V
EPF_V

P	M	K	N	S	H
●	○	●			





d Tolerance	
d	.000 ~ -.002"

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Chamfer / Radius	Flutes (F)
INCH SIZE						
EPC2V40310530U	5/16	1/2	2 1/2	5/16	.030R	4
EPF2V40310515U	5/16	1/2	2 1/2	5/16	.015C	4
EPS2V40310500U	5/16	1/2	2 1/2	5/16	-	4
EPC2V40310715U	5/16	3/4	2 1/2	5/16	.015R	4
EPC2V40310730U	5/16	3/4	2 1/2	5/16	.030R	4
EPC2V40310760U	5/16	3/4	2 1/2	5/16	.060R	4
EPF2V40310715U	5/16	3/4	2 1/2	5/16	.015C	4
EPS2V40310700U	5/16	3/4	2 1/2	5/16	-	4
EPC4V40311230U	5/16	1 1/4	3	5/16	.030R	4
EPS4V40311200U	5/16	1 1/4	3	5/16	-	4
EPC2V40370815U	3/8	7/8	2 1/2	3/8	.015R	4
EPC2V40370830U	3/8	7/8	2 1/2	3/8	.030R	4
EPC2V40370860U	3/8	7/8	2 1/2	3/8	.060R	4
EPC2V40370890U	3/8	7/8	2 1/2	3/8	.090R	4
EPF2V40370820U	3/8	7/8	2 1/2	3/8	.020C	4
EPS2V40370800U	3/8	7/8	2 1/2	3/8	-	4
EPC3V40371015U	3/8	1	3	3/8	.015R	4
EPC3V40371030U	3/8	1	3	3/8	.030R	4
EPC3V40371060U	3/8	1	3	3/8	.060R	4
EPS3V40371000U	3/8	1	3	3/8	-	4
EPC4V40371530U	3/8	1 1/2	4	3/8	.030R	4
EPC4V40371560U	3/8	1 1/2	4	3/8	.060R	4
EPS4V40371500U	3/8	1 1/2	4	3/8	-	4
EPC7V40372530U	3/8	2 1/2	4	3/8	.030R	4
EPC7V40372560U	3/8	2 1/2	4	3/8	.060R	4
EPF1V40430620U	7/16	5/8	2 3/4	7/16	.020C	4
EPS1V40430600U	7/16	5/8	2 3/4	7/16	-	4
EPF2V40430820U	7/16	7/8	2 3/4	7/16	.020C	4
EPS2V40430800U	7/16	7/8	2 3/4	7/16	-	4

Cutting conditions：Table 060

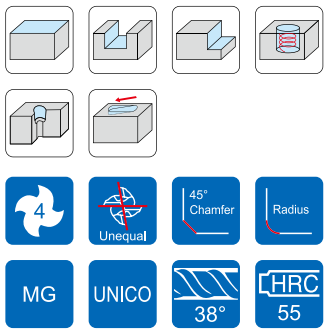
WINSTAR

V470 - Variable Spacing · Square · Inch · 4F

- Unequal flute spacing for anti-vibration.
- High removal rate for steel and alloy steel machining.
- Low cutting force and burr prevention.
- UNICO coating includes Al, Ti, Cr, N elements.

EPS_V
EPC_V
EPF_V

P	M	K	N	S	H
●	○	●			



d Tolerance	
d	.000 ~ -.002"

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Chamfer / Radius	Flutes (F)
INCH SIZE						
EPC2V40501030U	1/2	1	3	1/2	.030R	4
EPC2V40501060U	1/2	1	3	1/2	.060R	4
EPS2V40501000U	1/2	1	3	1/2	-	4
EPF2V40501020U	1/2	1	3	1/2	.020C	4
EPC3V40501215U	1/2	1 1/4	3	1/2	.015R	4
EPC3V40501230U	1/2	1 1/4	3	1/2	.030R	4
EPC3V40501260U	1/2	1 1/4	3	1/2	.060R	4
EPC3V40501290U	1/2	1 1/4	3	1/2	.090R	4
EPC3V405012C0U	1/2	1 1/4	3	1/2	.120R	4
EPF3V40501220U	1/2	1 1/4	3	1/2	.020C	4
EPS3V40501200U	1/2	1 1/4	3	1/2	-	4
EPC3V40501530U	1/2	1 1/2	4	1/2	.030R	4
EPC3V40501560U	1/2	1 1/2	4	1/2	.060R	4
EPF3V40501520U	1/2	1 1/2	4	1/2	.020C	4
EPS3V40501500U	1/2	1 1/2	4	1/2	-	4
EPC4V40502030U	1/2	2	4	1/2	.030R	4
EPC4V40502060U	1/2	2	4	1/2	.060R	4
EPS4V40502000U	1/2	2	4	1/2	-	4
EPC2V40621230U	5/8	1 1/4	3 1/2	5/8	.030R	4
EPC2V40621260U	5/8	1 1/4	3 1/2	5/8	.060R	4
EPC2V40621290U	5/8	1 1/4	3 1/2	5/8	.090R	4
EPC2V406212C0U	5/8	1 1/4	3 1/2	5/8	.120R	4
EPS2V40621200U	5/8	1 1/4	3 1/2	5/8	-	4
EPF2V40621220U	5/8	1 1/4	3 1/2	5/8	.020C	4
EPC2V40751530U	3/4	1 1/2	4	3/4	.030R	4
EPC2V40751560U	3/4	1 1/2	4	3/4	.060R	4
EPC2V40751590U	3/4	1 1/2	4	3/4	.090R	4
EPF2V40751520U	3/4	1 1/2	4	3/4	.020C	4
EPS2V40751500U	3/4	1 1/2	4	3/4	-	4
EPF2V41002020U	1	2	5	1	.020C	4
EPS2V41002000U	1	2	5	1	-	4
EPC2V41002230U	1	2 1/4	5	1	.030R	4
EPC2V41002260U	1	2 1/4	5	1	.060R	4
EPS2V41002200U	1	2 1/4	5	1	-	4
EPF2V41002220U	1	2 1/4	5	1	.020C	4

Cutting conditions：Table 060

G450 Series for semi-finishing (Hardened steel & Steel HRC 25~55)

- Micro grain carbide rod is suitable for general machining.
- UNICO coating provides superior wear resistance and reduces the coefficient of friction.
- Positive geometry is suitable for better shearing.
- Excellent cutting ability of cutting edges.

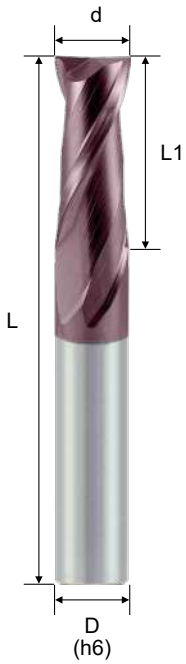
WINSTAR

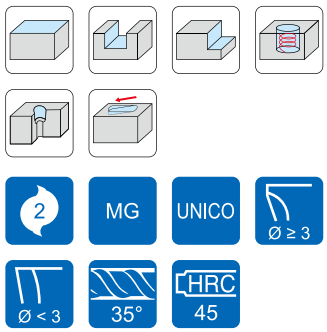
G450 - Square · 2F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 20 to HRC 45 Steel, Alloy Steel, Cast Iron, Aluminum Alloy (Si >15%).
- Excellent cutting ability of cutting edges.
- High precision cutting.
- Positive Geometry design is suitable for better shearing.

EPSSA

P	M	K	N	S	H
●	●	●			





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPSSA241000U	1.0	3	50	4	2
* EPSSA241500U	1.5	4	50	4	2
* EPSSA242000U	2.0	5	50	4	2
* EPSSA242500U	2.5	6	50	4	2
* EPSSA243000U	3.0	8	50	4	2
EPSSA203000U	3.0	8	50	6	2
EPSSA203500U	3.5	9	50	6	2
* EPSSA244000U	4.0	10	50	4	2
EPSSA204000U	4.0	10	50	6	2
EPSSA204500U	4.5	11	50	6	2
EPSSA205000U	5.0	13	50	6	2
EPSSA205500U	5.5	14	50	6	2
EPSSA206000U	6.0	15	50	6	2
EPSSA206500U	6.5	16	60	8	2
EPSSA207000U	7.0	18	60	8	2
EPSSA208000U	8.0	20	60	8	2
EPSSA209000U	9.0	22	75	10	2
EPSSA210000U	10.0	25	75	10	2
EPSSA212000U	12.0	30	75	12	2
EPSSA214000U	14.0	30	75	14	2
EPSSA216000U	16.0	40	100	16	2
EPSSA218000U	18.0	40	100	20	2
EPSSA220000U	20.0	45	100	20	2
EPSSA225000U	25.0	45	100	25	2

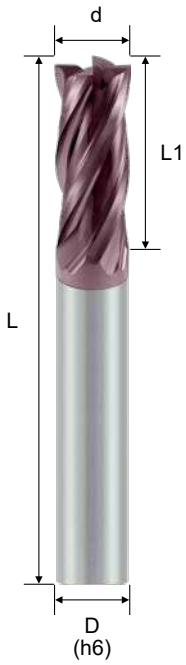
Cutting conditions：Table 025

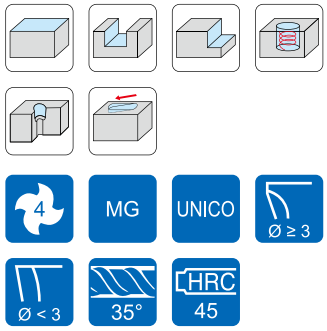
G450 - Square · 4F

- UNICO Coating provides superior wear resistance and reduces the coefficient of friction.
- Suitable for HRC 20 to HRC 45 Steel, Alloy Steel, Cast Iron, Aluminum Alloy (Si >15%).
- Excellent cutting ability of cutting edges.
- High precision cutting.
- Positive Geometry design is suitable for better shearing.

EPSSA

P	M	K	N	S	H
●	●	●			



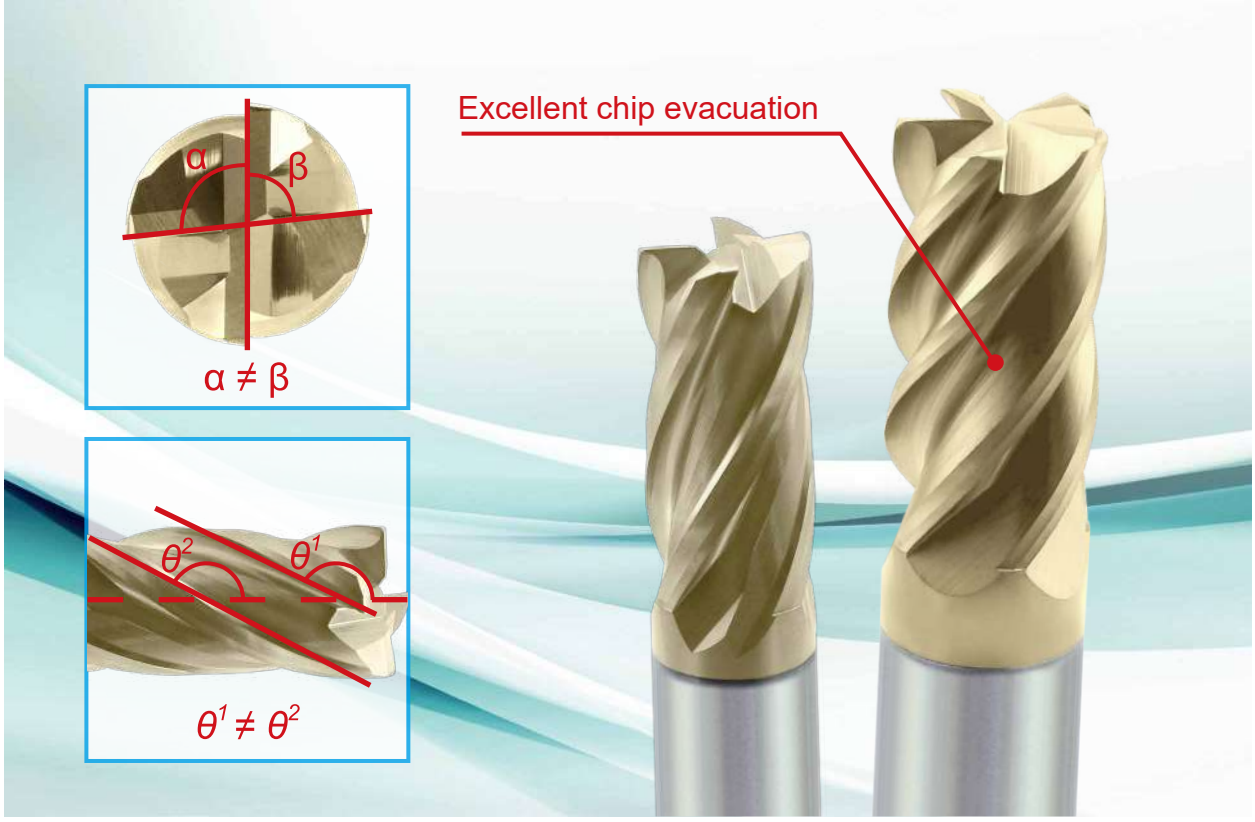


d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EPSSA441000U	1.0	3	50	4	4
* EPSSA441500U	1.5	4	50	4	4
* EPSSA442000U	2.0	5	50	4	4
* EPSSA442500U	2.5	6	50	4	4
* EPSSA443000U	3.0	8	50	4	4
EPSSA403000U	3.0	8	50	6	4
* EPSSA444000U	4.0	10	50	4	4
EPSSA404000U	4.0	10	50	6	4
EPSSA405000U	5.0	13	50	6	4
EPSSA406000U	6.0	15	50	6	4
EPSSA408000U	8.0	20	60	8	4
EPSSA410000U	10.0	25	75	10	4
EPSSA412000U	12.0	30	75	12	4
EPSSA414000U	14.0	30	75	14	4
EPSSA416000U	16.0	40	100	16	4
EPSSA420000U	20.0	45	100	20	4
EPSSA425000U	25.0	45	100	25	4

Cutting conditions：Table 026

V530 Series for Stainless Steel & High Temperature Alloy



V530 Variable Helix Series

- Unequal Flute Spacing and variable lead design.
- High removal rate for Difficult-to-cut materials and Stainless steel.
- Outstanding Anti-vibrations design.
- Low cutting force and burr prevention.

V530 - Variable Helix

Select V530 tools recommended

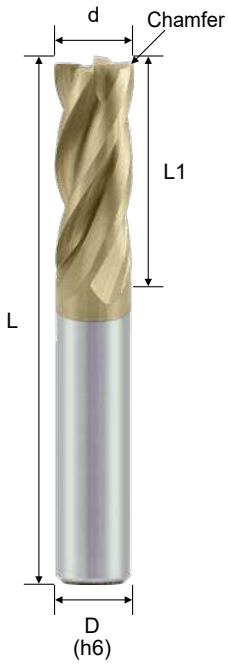
V530 Series		Cutting Recommendation			
		Slot milling	Side roughing	Side finishing	Trochoidal
ESSSVA (30° ~ 32°)	4	●	●	○	○
ESSSVB (35° ~ 38°)	4	●	●	○	○
ESSSVC (38° ~ 41°)	4	○	●	●	○
ESSSVC (38° ~ 42°)	5		○	●	●
ESSSVD (43° ~ 46°)	4	○	○	●	●

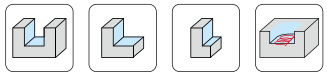
V530 - Variable Helix 30° ~ 32° · Square · 4F

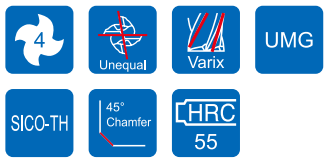
- Unequal Flute Spacing and variable lead design.
- High removal rate for Difficult-to-cut materials and Stainless steel.
- Outstanding Anti-vibrations design.
- Low cutting force and burr prevention.

ESSSVA

P	M	K	N	S	H
●	●	●		●	○







d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Chamfer	Flutes (F)
Helix angle : 30° ~ 32°						
ESSSVA4060011S	6	15	50	6	0.10C	4
ESSSVA4080011S	8	20	60	8	0.15C	4
ESSSVA4100021S	10	25	75	10	0.20C	4
ESSSVA4120021S	12	30	75	12	0.20C	4
ESSSVA4160031S	16	35	100	16	0.32C	4

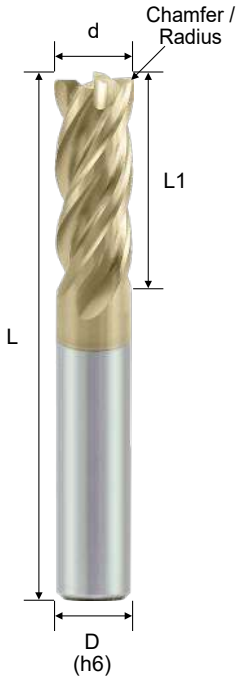
Cutting conditions：Table 061

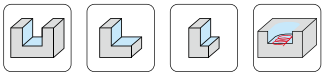
V530 - Variable Helix 35° ~ 38° · Square · 4F

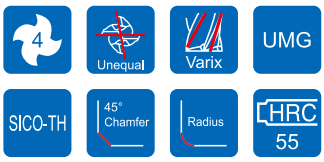
- Unequal Flute Spacing and variable lead design.
- High removal rate for Difficult-to-cut materials and Stainless steel.
- Outstanding Anti-vibrations design.
- Low cutting force and burr prevention.

ESSSVB

P	M	K	N	S	H
●	●	●		●	○







d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Chamfer/ Radius	Flutes (F)
Helix angle : 35° ~ 38°						
ESSSVB4040000S	4	10	50	6	-	4
ESSSVB4040011S	4	10	50	6	0.10C	4
ESSSVB4040022S	4	8	50	6	0.20R	4
ESSSVB4040032S	4	8	50	6	0.30R	4
ESSSVB4040052S	4	8	50	6	0.50R	4
ESSSVB4060000S	6	13	50	6	-	4
ESSSVB4060011S	6	13	50	6	0.15C	4
ESSSVB4060022S	6	12	50	6	0.20R	4
ESSSVB4060052S	6	12	50	6	0.50R	4
ESSSVB4080000S	8	20	60	8	-	4
ESSSVB4080011S	8	20	60	8	0.15C	4
ESSSVB4080022S	8	16	60	8	0.20R	4
ESSSVB4080052S	8	16	60	8	0.50R	4
ESSSVB4100000S	10	25	75	10	-	4
ESSSVB4100021S	10	25	75	10	0.20C	4
ESSSVB4100032S	10	20	75	10	0.30R	4
ESSSVB4100052S	10	20	75	10	0.50R	4
ESSSVB4120000S	12	30	75	12	-	4
ESSSVB4120021S	12	30	75	12	0.20C	4
ESSSVB4120032S	12	24	75	12	0.30R	4
ESSSVB4120052S	12	24	75	12	0.50R	4
ESSSVB4120102S	12	24	75	12	1.00R	4
ESSSVB4120302S	12	24	75	12	3.00R	4
ESSSVB4160000S	16	35	100	16	-	4
ESSSVB4160031S	16	35	100	16	0.32C	4
ESSSVB4160102S	16	32	100	16	1.00R	4
ESSSVB4160302S	16	32	100	16	3.00R	4
ESSSVB4200000S	20	45	100	20	-	4

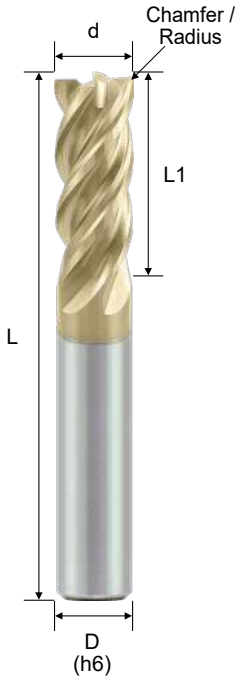
Cutting conditions：Table 061

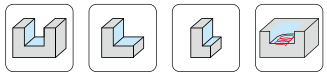
V530 - Variable Helix 38° ~ 41° · Square · 4F

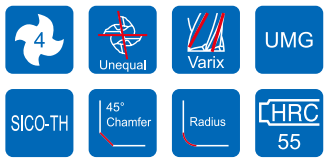
- Unequal Flute Spacing and variable lead design.
- High removal rate for Difficult-to-cut materials and Stainless steel.
- Outstanding Anti-vibrations design.
- Low cutting force and burr prevention.

ESSSVC

P	M	K	N	S	H
●	●	●		●	○







d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Chamfer/ Radius	Flutes (F)
Helix angle : 38° ~ 41°						
ESSSVC4040011S	4	10	50	6	0.10C	4
ESSSVC4040012S	4	10	50	6	0.10R	4
ESSSVC4060011S	6	15	50	6	0.15C	4
ESSSVC4060012S	6	15	50	6	0.15R	4
ESSSVC4080011S	8	20	60	8	0.15C	4
ESSSVC4080012S	8	20	60	8	0.15R	4
ESSSVC4100021S	10	25	75	10	0.20C	4
ESSSVC4100022S	10	25	75	10	0.20R	4
ESSSVC4120021S	12	30	75	12	0.20C	4
ESSSVC4120022S	12	30	75	12	0.20R	4
ESSSVC4120052S	12	30	75	12	0.50R	4

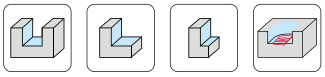
Cutting conditions：Table 061

V530 - Variable Helix 38° ~ 42° · Square · 5F

- Unequal Flute Spacing and variable lead design.
- High removal rate for Difficult-to-cut materials and Stainless steel.
- Outstanding Anti-vibrations design.
- Low cutting force and burr prevention.

ESSSVC

P	M	K	N	S	H
●	●	●		●	○



d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Radius	Flutes (F)
Helix angle : 38° ~ 42°						
ESSSVC5040022S	4	8	50	6	0.25R	5
ESSSVC5060000S	6	15	50	6	-	5
ESSSVC5060042S	6	12	50	6	0.40R	5
ESSSVC5080000S	8	20	60	8	-	5
ESSSVC5080012S	8	16	60	8	0.15R	5
ESSSVC5080052S	8	16	60	8	0.50R	5
ESSSVC5100000S	10	25	75	10	-	5
ESSSVC5100052S	10	20	75	10	0.50R	5
ESSSVC5100102S	10	20	75	10	1.00R	5
ESSSVC5120000S	12	30	75	12	-	5
ESSSVC5120052S	12	24	75	12	0.50R	5
ESSSVC5120072S	12	24	75	12	0.75R	5
ESSSVC5120102S	12	24	75	12	1.00R	5
ESSSVC5120202S	12	24	75	12	2.00R	5
ESSSVC5160072S	16	32	100	16	0.75R	5
ESSSVC5160102S	16	32	100	16	1.00R	5
ESSSVC5160202S	16	32	100	16	2.00R	5
ESSSVC5160302S	16	32	100	16	3.00R	5
ESSSVC5160402S	16	32	100	16	4.00R	5

Cutting conditions：Table 061

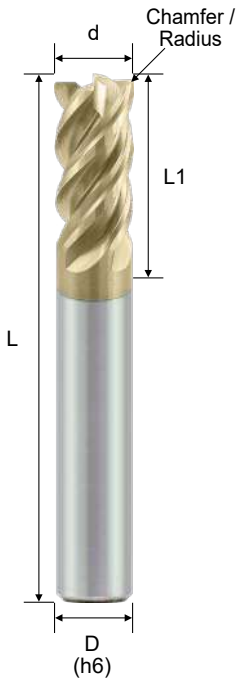
WINSTAR

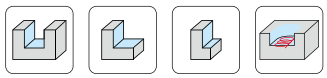
V530 - Variable Helix 43° ~ 46° · Square · 4F

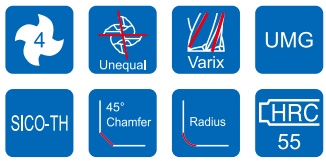
- Unequal Flute Spacing and variable lead design.
- High removal rate for Difficult-to-cut materials and Stainless steel.
- Outstanding Anti-vibrations design.
- Low cutting force and burr prevention.

ESSSVD

P	M	K	N	S	H
●	●	●		●	○





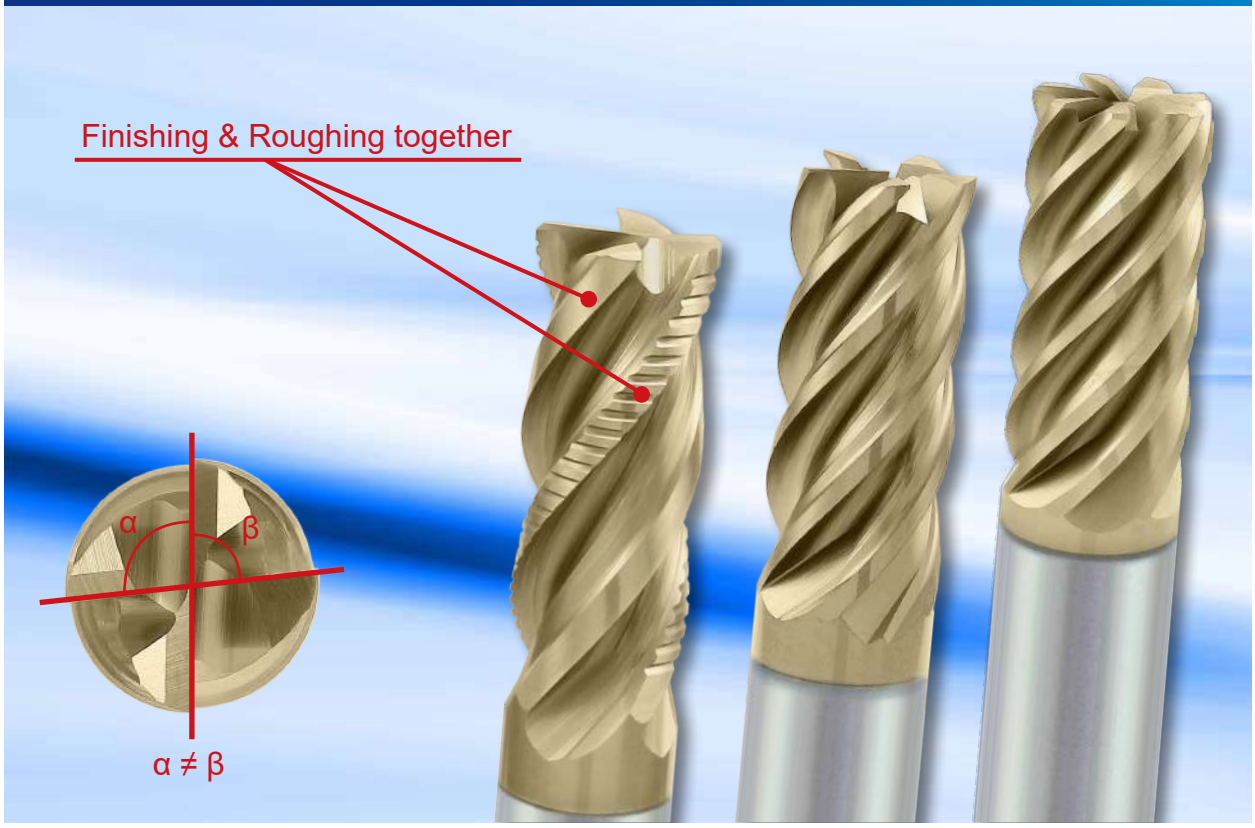


d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Chamfer/ Radius	Flutes (F)
Helix angle : 43° ~ 46°						
ESSSVD4040000S	4	8	50	6	-	4
ESSSVD4040011S	4	8	50	6	0.10C	4
ESSSVD4040032S	4	8	50	6	0.30R	4
ESSSVD4060000S	6	12	50	6	-	4
ESSSVD4060011S	6	12	50	6	0.15C	4
ESSSVD4060052S	6	12	50	6	0.50R	4
ESSSVD4080000S	8	16	60	8	-	4
ESSSVD4080011S	8	16	60	8	0.15C	4
ESSSVD4080052S	8	16	60	8	0.50R	4
ESSSVD4100000S	10	20	75	10	-	4
ESSSVD4100021S	10	20	75	10	0.20C	4
ESSSVD4100052S	10	20	75	10	0.50R	4
ESSSVD4120000S	12	24	75	12	-	4
ESSSVD4120021S	12	24	75	12	0.20C	4
ESSSVD4120052S	12	24	75	12	0.50R	4

Cutting conditions：Table 061

V520 Series for Stainless Steel & High Temperature Alloy



V520 Variable Spacing Series

- Unequal flute spacing for anti-vibration.
- Suitable for stainless steel & high temperature alloy machining.
- High removal rate for steel and stainless steel machining.
- Low cutting force and burr prevention.

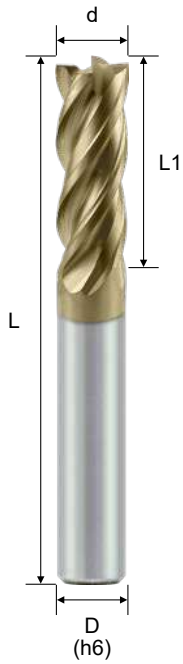
WINSTAR

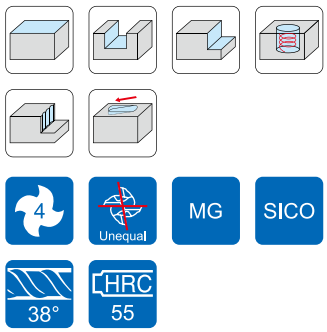
V520 - Variable Spacing · Square · 4F

- Unequal flute spacing for anti-vibration.
- High removal rate for steel and alloy steel machining.
- Low cutting force and burr prevention.
- SICO coating includes Al, Ti, Si, N elements.

EMSSV

P	M	K	N	S	H
●	●	●		○	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EMSSV403000S	3	8	50	6	4
EMSSV444000S	4	10	50	4	4
EMSSV404000S	4	10	50	6	4
EMSSV406000S	6	15	50	6	4
EMSSV408000S	8	20	60	8	4
EMSSV410000S	10	25	75	10	4
EMSSV412000S	12	30	75	12	4
EMSSV416000S	16	35	100	16	4

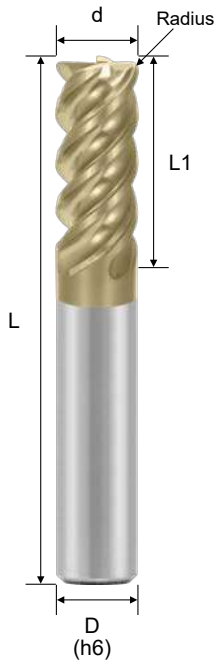
Cutting conditions：Table 062

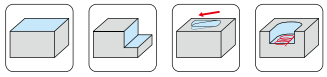
V520 - Variable Spacing · High Helix · Square · 4F

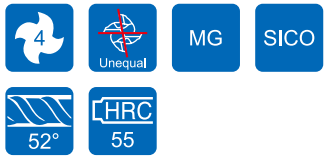
- Unequal flute spacing for anti-vibration.
- High removal rate for steel and alloy steel side milling.
- Low cutting force and burr prevention for trochoidal milling.
- SICO coating includes Al, Ti, Si, N elements.

EMSHV

P	M	K	N	S	H
●	●	●		●	○







d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Radius	Flutes (F)
EMSHV408005S	8	16	60	8	0.5R	4
EMSHV410010S	10	20	75	10	1.0R	4
EMSHV412010S	12	24	75	12	1.0R	4
EMSHV416015S	16	32	100	16	1.5R	4

Cutting conditions：Table 062

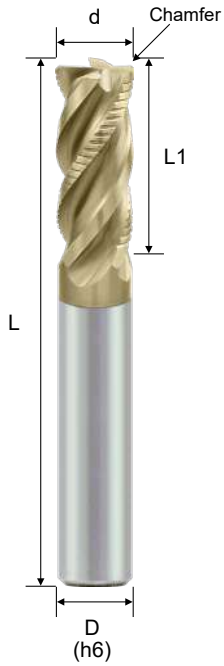
WINSTAR

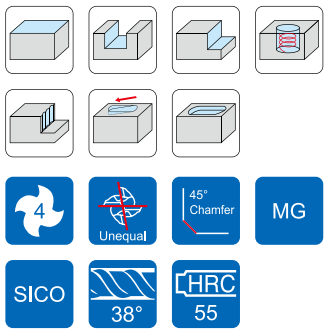
V520 - Variable Spacing · Roughing & Finishing · Square · 4F

- Unequal flute spacing for reducing vibrations at high load applications.
- High removal rate for steel and alloy steel side roughing.
- Provides finish surface at rough machining parameters.
- SICO coating includes Al, Ti, Si, N elements.

EMSRV

P	M	K	N	S	H
●	●	●		○	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Chamfer	Flutes (F)
EMSRV406000S	6	15	50	6	0.25C	4
EMSRV408000S	8	20	60	8	0.30C	4
EMSRV410000S	10	25	75	10	0.40C	4
EMSRV412000S	12	30	75	12	0.50C	4
EMSRV416000S	16	35	100	16	0.60C	4

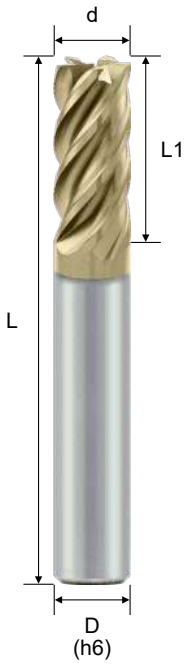
Cutting conditions：Table 062

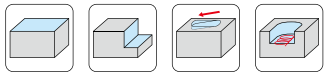
V520 - Variable Spacing · Square · 5F

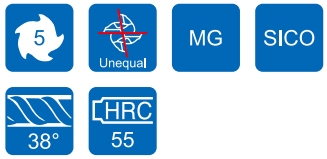
- Unequal flute spacing for anti-vibration.
- Suitable for high temperature alloy and stainless steel machining.
- Low cutting force and outstanding finishing for mold & die.
- SICO coating includes Al, Ti, Si, N elements.

EMSSV

P	M	K	N	S	H
●	●	●		●	●







d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
EMSSV506000S	6	15	50	6	5
EMSSV508000S	8	20	60	8	5
EMSSV510000S	10	25	75	10	5
EMSSV512000S	12	30	75	12	5
EMSSV516000S	16	35	100	16	5

Cutting conditions：Table 062

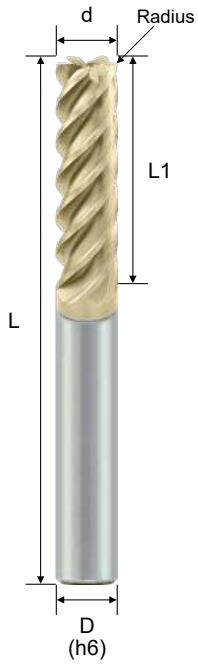
WINSTAR

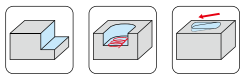
V520 - Variable Spacing · Long Flute · Square · 5F

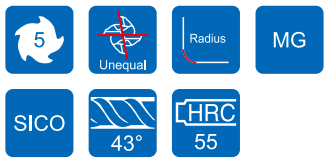
- Unequal flute spacing for anti-vibration.
- Suitable for high temperature alloy and stainless steel machining.
- Low cutting force and outstanding finishing for mold & die.
- SICO coating includes Al, Ti, Si, N elements.

EMSCV

P	M	K	N	S	H
●	●	●		●	●







d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Radius	Flutes (F)
EMSCV506000S	6	24	75	6	-	5
EMSCV506052S	6	24	75	6	0.5R	5
EMSCV506102S	6	24	75	6	1.0R	5
EMSCV508000S	8	32	75	8	-	5
EMSCV508052S	8	32	75	8	0.5R	5
EMSCV508102S	8	32	75	8	1.0R	5
EMSCV510000S	10	40	100	10	-	5
EMSCV510052S	10	40	100	10	0.5R	5
EMSCV510202S	10	40	100	10	2.0R	5
EMSCV512000S	12	48	100	12	-	5
EMSCV512102S	12	48	100	12	1.0R	5
EMSCV512202S	12	48	100	12	2.0R	5
* EMSCV516000S	16	55	105	16	-	5

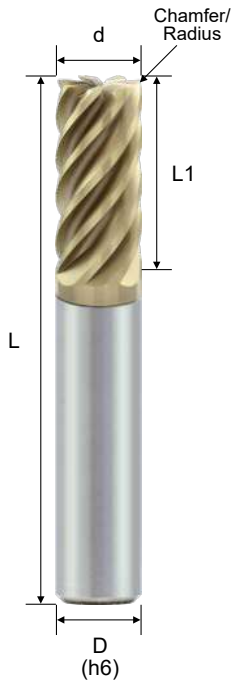
Cutting conditions：Table 062

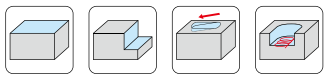
V520 - Variable Spacing · Square · 7F

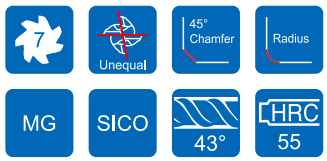
- Unequal flute spacing for anti-vibration.
- Suitable for high temperature alloy and stainless steel side milling.
- Low cutting force and outstanding finishing for mold & die.
- SICO coating includes Al, Ti, Si, N elements.

EMSSV

P	M	K	N	S	H
●	●	●		●	●







d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Chamfer/ Radius	Flutes (F)
EMSSV710000S	10	25	75	10	-	7
EMSSV710051S	10	25	75	10	0.5C	7
EMSSV710052S	10	25	75	10	0.5R	7
EMSSV712000S	12	30	75	12	-	7
EMSSV712051S	12	30	75	12	0.5C	7
EMSSV716000S	16	35	100	16	-	7

Cutting conditions：Table 062

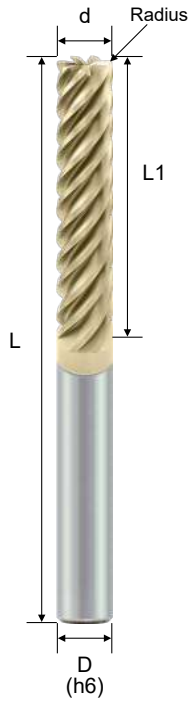
WINSTAR

V520 - Variable Spacing · Long Flute · Square · 7F

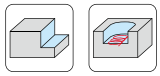
- Unequal flute spacing for anti-vibration.
- Suitable for high temperature alloy and stainless steel side milling.
- Low cutting force and outstanding finishing for mold & die.
- SICO coating includes Al, Ti, Si, N elements.

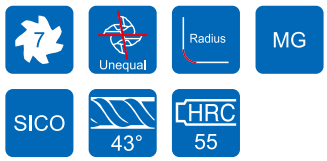
EMSCV

P	M	K	N	S	H
●	●	●		●	●



Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Radius	Flutes (F)
EMSCV710000S	10	50	100	10	-	7
EMSCV710052S	10	50	100	10	0.5R	7
EMSCV712000S	12	60	110	12	-	7
EMSCV712052S	12	60	110	12	0.5R	7
EMSCV716000S	16	80	150	16	-	7
EMSCV716052S	16	80	150	16	0.5R	7





d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

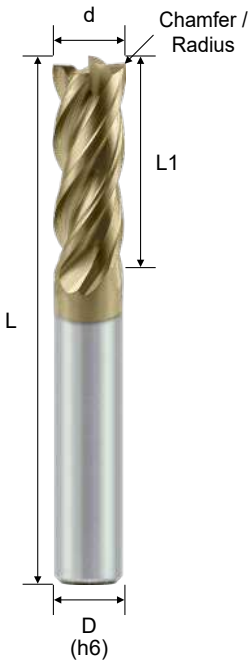
Cutting conditions：Table 062

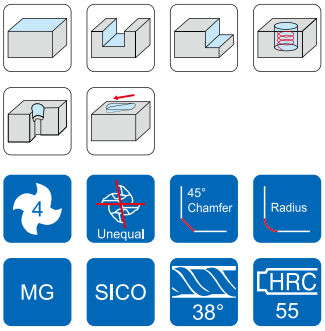
V520 - Variable Spacing · Square · Inch · 4F

- Unequal flute spacing for anti-vibration.
- High removal rate for steel and alloy steel machining.
- Low cutting force and burr prevention.
- SICO coating includes Al, Ti, Si, N elements.

EMS_V
EMC_V
EMF_V

P	M	K	N	S	H
●	●	●		○	○





d Tolerance	
d	.000 ~ -.002"

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Chamfer / Radius	Flutes (F)
INCH SIZE						
EMF2V40120210S	1/8	1/4	1 1/2	1/8	.010C	4
EMS2V40120200S	1/8	1/4	1 1/2	1/8	-	4
EMC2V40120215S	1/8	1/4	2 1/2	1/8	.015R	4
EMF2V40180310S	3/16	5/16	2 1/2	3/16	.010C	4
EMC2V40180315S	3/16	5/16	2 1/2	3/16	.015R	4
EMF3V40180610S	3/16	5/8	2 1/2	3/16	.010C	4
EMC2V40250330S	1/4	3/8	2	1/4	.030R	4
EMS2V40250300S	1/4	3/8	2	1/4	-	4
EMF2V40250315S	1/4	3/8	2	1/4	.015C	4
EMC3V40250715S	1/4	3/4	2 1/2	1/4	.015R	4
EMC3V40250730S	1/4	3/4	2 1/2	1/4	.030R	4
EMC3V40250760S	1/4	3/4	2 1/2	1/4	.060R	4
EMF3V40250715S	1/4	3/4	2 1/2	1/4	.015C	4
EMS3V40250700S	1/4	3/4	2 1/2	1/4	-	4
EMC2V40310530S	5/16	1/2	2 1/2	5/16	.030R	4
EMF2V40310515S	5/16	1/2	2 1/2	5/16	.015C	4
EMS2V40310500S	5/16	1/2	2 1/2	5/16	-	4
EMC2V40310715S	5/16	3/4	2 1/2	5/16	.015R	4
EMC2V40310730S	5/16	3/4	2 1/2	5/16	.030R	4
EMC2V40310760S	5/16	3/4	2 1/2	5/16	.060R	4
EMF2V40310715S	5/16	3/4	2 1/2	5/16	.015C	4
EMS2V40310700S	5/16	3/4	2 1/2	5/16	-	4
EMC2V40370815S	3/8	7/8	2 1/2	3/8	.015R	4
EMC2V40370830S	3/8	7/8	2 1/2	3/8	.030R	4
EMC2V40370860S	3/8	7/8	2 1/2	3/8	.060R	4
EMC2V40370890S	3/8	7/8	2 1/2	3/8	.090R	4
EMF2V40370820S	3/8	7/8	2 1/2	3/8	.020C	4
EMS2V40370800S	3/8	7/8	2 1/2	3/8	-	4
EMC3V40371015S	3/8	1	3	3/8	.015R	4
EMC3V40371030S	3/8	1	3	3/8	.030R	4
EMC3V40371060S	3/8	1	3	3/8	.060R	4
EMS3V40371000S	3/8	1	3	3/8	-	4

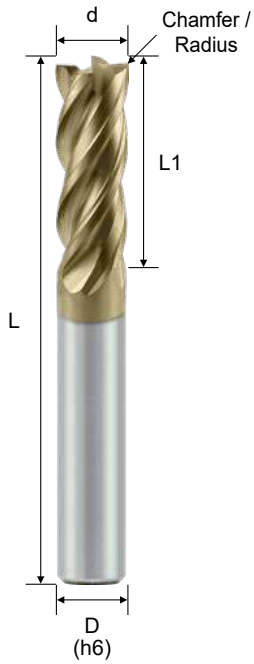
Cutting conditions：Table 063

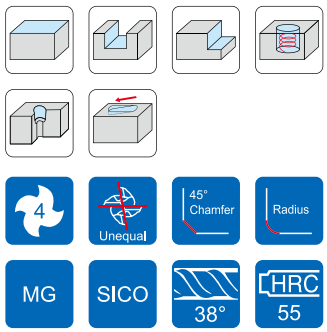
V520 - Variable Spacing · Square · Inch · 4F

- Unequal flute spacing for anti-vibration.
- High removal rate for steel and alloy steel machining.
- Low cutting force and burr prevention.
- SICO coating includes Al, Ti, Si, N elements.

EMS_V
EMC_V
EMF_V

P	M	K	N	S	H
●	●	●		○	○





d Tolerance	
d	.000 ~ -.002"

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Chamfer / Radius	Flutes (F)
INCH SIZE						
EMC2V40501030S	1/2	1	3	1/2	.030R	4
EMC2V40501060S	1/2	1	3	1/2	.060R	4
EMS2V40501000S	1/2	1	3	1/2	-	4
EMF2V40501020S	1/2	1	3	1/2	.020C	4
EMC3V40501215S	1/2	1 1/4	3	1/2	.015R	4
EMC3V40501230S	1/2	1 1/4	3	1/2	.030R	4
EMC3V40501260S	1/2	1 1/4	3	1/2	.060R	4
EMC3V40501290S	1/2	1 1/4	3	1/2	.090R	4
EMC3V405012C0S	1/2	1 1/4	3	1/2	.120R	4
EMF3V40501220S	1/2	1 1/4	3	1/2	.020C	4
EMS3V40501200S	1/2	1 1/4	3	1/2	-	4
EMC2V40621230S	5/8	1 1/4	3 1/2	5/8	.030R	4
EMC2V40621260S	5/8	1 1/4	3 1/2	5/8	.060R	4
EMC2V40621290S	5/8	1 1/4	3 1/2	5/8	.090R	4
EMC2V406212C0S	5/8	1 1/4	3 1/2	5/8	.120R	4
EMS2V40621200S	5/8	1 1/4	3 1/2	5/8	-	4
EMF2V40621220S	5/8	1 1/4	3 1/2	5/8	.020C	4
EMC2V40751530S	3/4	1 1/2	4	3/4	.030R	4
EMC2V40751560S	3/4	1 1/2	4	3/4	.060R	4
EMC2V40751590S	3/4	1 1/2	4	3/4	.090R	4
EMF2V40751520S	3/4	1 1/2	4	3/4	.020C	4
EMS2V40751500S	3/4	1 1/2	4	3/4	-	4
EMF2V41002020S	1	2	5	1	.020C	4
EMS2V41002000S	1	2	5	1	-	4

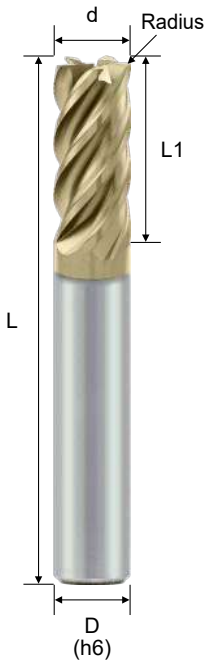
Cutting conditions：Table 063

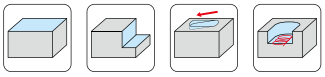
V520 - Variable Spacing · Square · Inch · 5F

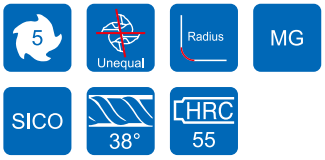
- Unequal flute spacing for anti-vibration.
- Suitable for high temperature alloy and stainless steel machining.
- Low cutting force and outstanding finishing for mold & die.
- SICO coating includes Al, Ti, Si, N elements.

EMC_V

P	M	K	N	S	H
●	●	●		●	●







d Tolerance	
d	.000 ~ -.002"

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Radius	Flutes (F)
INCH SIZE						
EMC3V50250715S	1/4	3/4	2 1/2	1/4	.015R	5
EMC3V50250730S	1/4	3/4	2 1/2	1/4	.030R	5
EMC3V50250760S	1/4	3/4	2 1/2	1/4	.060R	5
EMC2V50310715S	5/16	3/4	2 1/2	5/16	.015R	5
EMC2V50310730S	5/16	3/4	2 1/2	5/16	.030R	5
EMC2V50310760S	5/16	3/4	2 1/2	5/16	.060R	5
EMC3V50371015S	3/8	1	3	3/8	.015R	5
EMC3V50371030S	3/8	1	3	3/8	.030R	5
EMC3V50371060S	3/8	1	3	3/8	.060R	5
EMC3V50371090S	3/8	1	3	3/8	.090R	5
EMC3V50501215S	1/2	1 1/4	3	1/2	.015R	5
EMC3V50501230S	1/2	1 1/4	3	1/2	.030R	5
EMC3V50501260S	1/2	1 1/4	3	1/2	.060R	5
EMC3V50501290S	1/2	1 1/4	3	1/2	.090R	5
EMC3V505012C0S	1/2	1 1/4	3	1/2	.120R	5
EMC3V50621630S	5/8	1 5/8	3 1/2	5/8	.030R	5
EMC3V50621660S	5/8	1 5/8	3 1/2	5/8	.060R	5
EMC3V50621690S	5/8	1 5/8	3 1/2	5/8	.090R	5
EMC3V506216C0S	5/8	1 5/8	3 1/2	5/8	.120R	5

Cutting conditions：Table 063

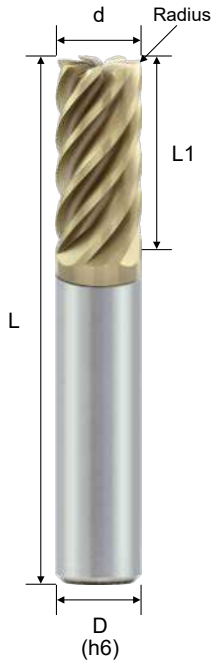
WINSTAR

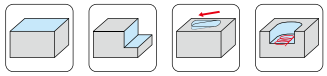
V520 - Variable Spacing · Square · Inch · 7F

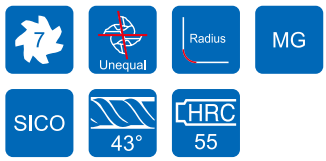
- Unequal flute spacing for anti-vibration.
- Suitable for high temperature alloy and stainless steel machining.
- Low cutting force and outstanding finishing for mold & die.
- SICO coating includes Al, Ti, Si, N elements.

EMC_V

P	M	K	N	S	H
●	●	●		●	●







d Tolerance	
d	.000 ~ -.002"

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Radius	Flutes (F)
INCH SIZE						
EMC3V70250715S	1/4	3/4	2 1/2	1/4	.015R	7
EMC3V70250730S	1/4	3/4	2 1/2	1/4	.030R	7
EMC2V70310715S	5/16	3/4	2 1/2	5/16	.015R	7
EMC2V70310730S	5/16	3/4	2 1/2	5/16	.030R	7
EMC3V70371015S	3/8	1	3	3/8	.015R	7
EMC3V70371030S	3/8	1	3	3/8	.030R	7
EMC3V70371060S	3/8	1	3	3/8	.060R	7
EMC3V70501215S	1/2	1 1/4	3	1/2	.015R	7
EMC3V70501230S	1/2	1 1/4	3	1/2	.030R	7
EMC3V70501260S	1/2	1 1/4	3	1/2	.060R	7
EMC3V70501290S	1/2	1 1/4	3	1/2	.090R	7
EMC3V705012C0S	1/2	1 1/4	3	1/2	.120R	7
EMC3V70621630S	5/8	1 5/8	3 1/2	5/8	.030R	7
EMC3V70621660S	5/8	1 5/8	3 1/2	5/8	.060R	7
EMC3V70621690S	5/8	1 5/8	3 1/2	5/8	.090R	7
EMC3V706216C0S	5/8	1 5/8	3 1/2	5/8	.120R	7

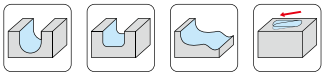
Cutting conditions：Table 063

V520 - Variable Spacing · Ball Nose · Inch · 4F

- Unequal flute spacing for anti-vibration.
- High removal rate for steel and alloy steel machining.
- Low cutting force and burr prevention.
- SICO coating includes Al, Ti, Si, N elements.

EMB_V

P	M	K	N	S	H
●	●	●		●	●



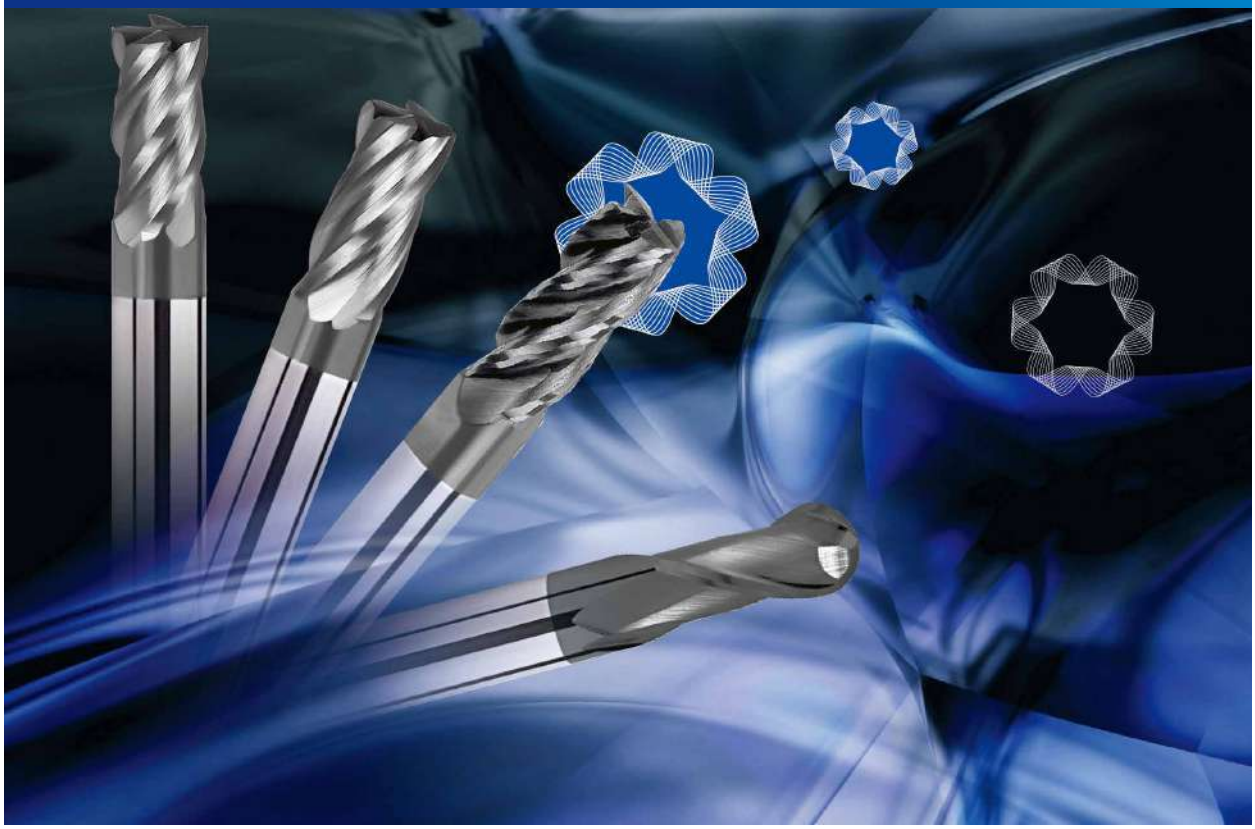
d Tolerance	
d	.000 ~ -.002"

R Tolerance	
R	.000 ~ -.001"

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Radius (R)	Flutes (F)
INCH SIZE						
EMB4V40120500S	1/8	1/2	2	1/8	1/16	4
EMB3V40180600S	3/16	5/8	2 1/4	3/16	3/32	4
EMB3V40250700S	1/4	3/4	2 1/2	1/4	1/8	4
EMB2V40310700S	5/16	3/4	2 1/2	5/16	5/32	4
EMB2V40370800S	3/8	7/8	2 1/2	3/8	3/16	4
EMB2V40430800S	7/16	7/8	2 1/2	7/16	7/32	4
EMB2V40501000S	1/2	1	3	1/2	1/4	4
EMB2V40621200S	5/8	1 1/4	3 1/2	5/8	5/16	4

Cutting conditions：Table 064

M500 Series for general milling (Stainless Steel & High Temperature Alloy)



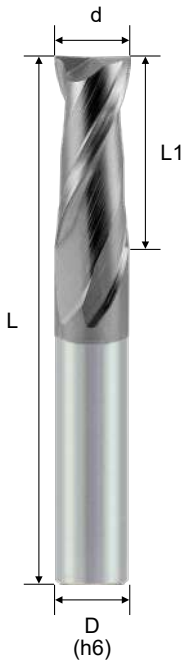
- Ultra grain carbide rods with better abrasion resistance.
- ARCO coating shows good performance in coolant machining.
- For Stainless Steel, Pre-Hardened steel, Alloy Steel & Mold Steel... etc.

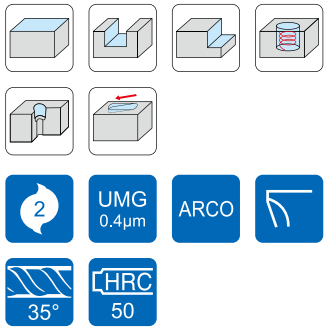
M500 - Square · 2F

- ARCO coating provides a superior wear resistance.
- For Stainless Steel, Pre-Hardened steel, Alloy Steel & Mold Steel... etc.
- Incredible toughness and vibration reduction at high speeds.
- UMG carbide grade is suitable for cutting difficult materials.

ESSSA

P	M	K	N	S	H
●	●	●		●	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* ESSSA243000A	3	8	50	4	2
* ESSSA244000A	4	10	50	4	2
ESSSA204000A	4	10	50	6	2
ESSSA205000A	5	13	50	6	2
ESSSA206000A	6	15	50	6	2
ESSSA208000A	8	20	60	8	2
ESSSA210000A	10	25	75	10	2
ESSSA212000A	12	30	75	12	2
ESSSA214000A	14	30	75	14	2
ESSSA216000A	16	35	100	16	2

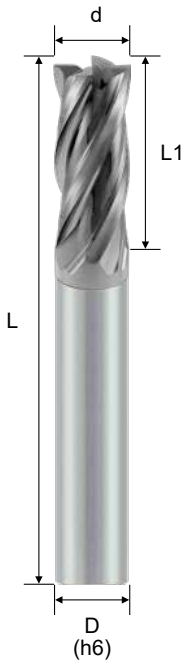
Cutting conditions：Table 065

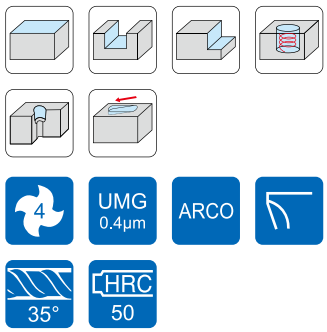
M500 - Square · 4F

- ARCO coating provides a superior wear resistance.
- For Stainless Steel, Pre-Hardened steel, Alloy Steel & Mold Steel... etc.
- Incredible toughness and vibration reduction at high speeds.
- High precise tolerance EndMills.
- UMG carbide grade is suitable for cutting difficult materials.

ESSSA

P	M	K	N	S	H
●	●	●		●	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* ESSSA441000A	1	3	50	4	4
* ESSSA441500A	1.5	4	50	4	4
* ESSSA442000A	2	5	50	4	4
* ESSSA442500A	2.5	6	50	4	4
* ESSSA443000A	3	8	50	4	4
* ESSSA443500A	3.5	9	50	4	4
* ESSSA444000A	4	10	50	4	4
ESSSA404000A	4	10	50	6	4
ESSSA405000A	5	13	50	6	4
ESSSA406000A	6	15	50	6	4
ESSSA408000A	8	20	60	8	4
ESSSA410000A	10	25	75	10	4
ESSSA412000A	12	30	75	12	4
ESSSA414000A	14	30	75	14	4
ESSSA416000A	16	35	100	16	4

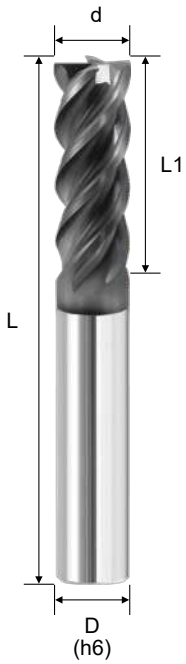
Cutting conditions：Table 066

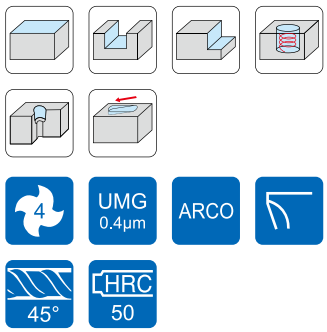
M500 - High Helix · U-Flute · Square · 4F

- U-flute design with high chips volume space and easy to remove chips.
- For Stainless Steel, Pre-Hardened steel, Alloy Steel & Mold Steel... etc.
- ARCO coating provides a superior wear resistance.
- UMG carbide grade is suitable for cutting difficult materials.

ESSSB

P	M	K	N	S	H
●	●	●		●	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* ESSSB441000A	1	3	50	4	4
* ESSSB442000A	2	5	50	4	4
* ESSSB443000A	3	8	50	4	4
* ESSSB444000A	4	10	50	4	4
ESSSB404000A	4	10	50	6	4
ESSSB405000A	5	13	50	6	4
ESSSB406000A	6	15	50	6	4
ESSSB408000A	8	20	60	8	4
ESSSB410000A	10	25	75	10	4
ESSSB412000A	12	30	75	12	4
ESSSB416000A	16	35	100	16	4

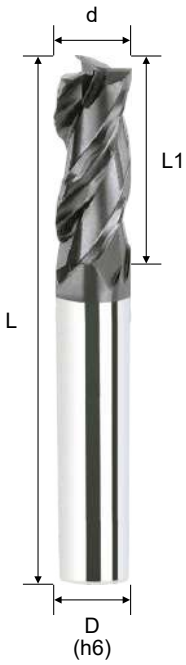
Cutting conditions：Table 067

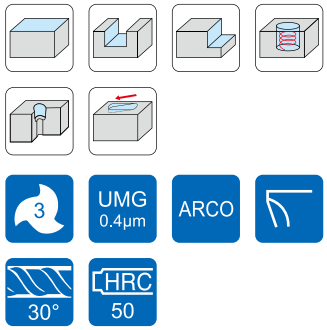
M500 - Wave Edge · Square · 3F

- ARCO coating provides a superior wear resistance.
- For Stainless Steel, Pre-Hardened steel, Alloy Steel & Mold Steel... etc.
- Incredible toughness and vibration reduction at high speeds.
- UMG carbide grade is suitable for cutting difficult materials.
- Wave type increases the performance.

ESSSW

P	M	K	N	S	H
●	●	●		●	○





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ESSSW306000A	6	15	50	6	3
ESSSW308000A	8	20	60	8	3
ESSSW310000A	10	25	75	10	3
ESSSW312000A	12	30	75	12	3
ESSSW316000A	16	40	100	16	3
ESSSW320000A	20	45	100	20	3

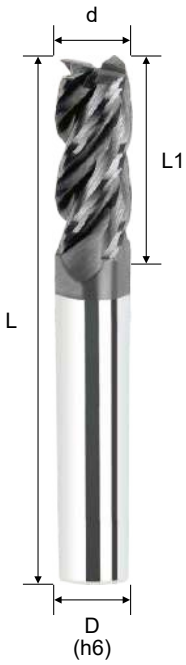
Cutting conditions：Table 068

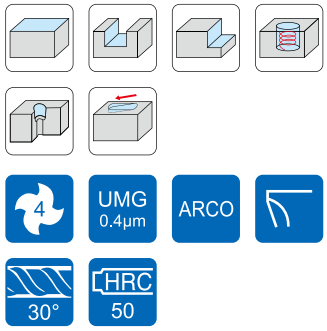
M500 - Wave Edge · Square · 4F

- ARCO coating provides a superior wear resistance.
- For Stainless Steel, Pre-Hardened steel, Alloy Steel & Mold Steel... etc.
- Incredible toughness and vibration reduction at high speeds.
- UMG carbide grade is suitable for cutting difficult materials.
- Wave type increases the performance.

ESSSW

P	M	K	N	S	H
●	●	●		●	○





Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ESSSW406000A	6	15	50	6	4
ESSSW408000A	8	20	60	8	4
ESSSW410000A	10	25	75	10	4
ESSSW412000A	12	30	75	12	4
ESSSW416000A	16	40	100	16	4
ESSSW420000A	20	45	100	20	4

Cutting conditions：Table 068

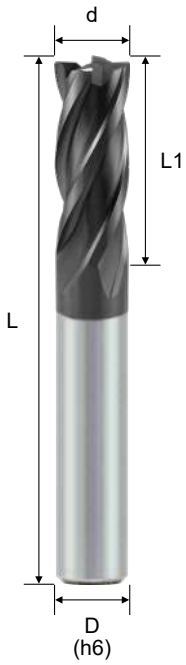
d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

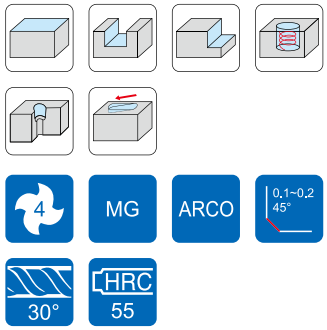
M500 - High Feed · Square · 4F

- ARCO coating provides a superior wear resistance.
- Honing & chamfering at the cutting edge geometries for high feed milling.
- Outstanding results for HRC 30 to HRC 55 steel, such as Alloy steel,cast Iron ...etc.
- Achieve long tool life, perfect surfaces and considerable reduction of machining time.

ESSSU

P	M	K	N	S	H
●	●	●		●	○



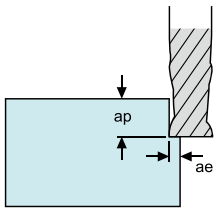


d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	45°	Flutes (F)
ESSSU403000A	3	8	50	6	0.10	4
ESSSU404000A	4	10	50	6	0.10	4
ESSSU405000A	5	13	50	6	0.15	4
ESSSU406000A	6	15	50	6	0.15	4
ESSSU408000A	8	20	60	8	0.15	4
ESSSU410000A	10	25	75	10	0.20	4
ESSSU412000A	12	30	75	12	0.20	4
ESSSU416000A	16	35	100	16	0.20	4

Feed recommend table

Dia (mm)	Fz (mm)
4	0.006 ~ 0.1
6	0.009 ~ 0.15
10	0.15 ~ 0.25



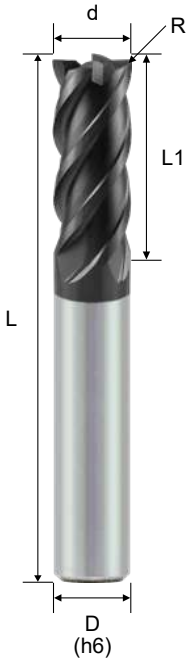
ap = 1.5D ae = 0.1D

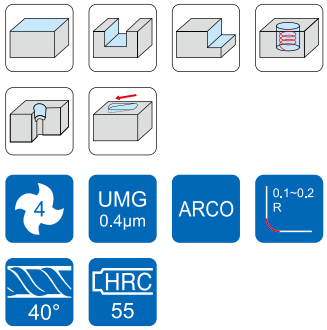
M500 - Toric · Square · 4F

- ARCO coating provides a superior wear resistance.
- With "Small positive" rake angle and small corner radius geometries for high feed cutting.
- Outstanding results and tool life for 2-D and 3-D machining of HRC 30 to HRC 55 steel, such as Alloy steel,cast Iron...etc.
- Achieve long tool life, perfect surfaces and considerable reduction of machining time.

ESCSU

P	M	K	N	S	H
●	●	●		●	○



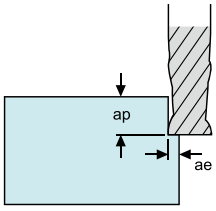


d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	R	Flutes (F)
ESCSU403000A	3	8	50	6	0.10	4
ESCSU404000A	4	10	50	6	0.10	4
ESCSU405000A	5	13	50	6	0.15	4
ESCSU406000A	6	15	50	6	0.15	4
ESCSU408000A	8	20	60	8	0.15	4
ESCSU410000A	10	25	75	10	0.20	4
ESCSU412000A	12	30	75	12	0.20	4
ESCSU416000A	16	35	100	16	0.20	4

Feed recommend table

Dia (mm)	Fz (mm)
4	0.006 ~ 0.1
6	0.009 ~ 0.15
10	0.15 ~ 0.25



ap = 1.5D ae = 0.1D

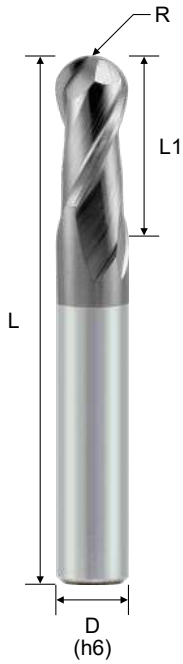
WINSTAR

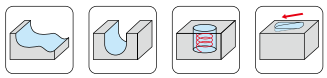
M500 - Ball Nose · 2F

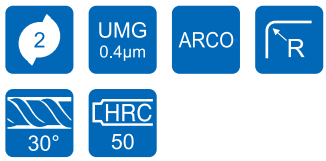
- ARCO coating provides a superior wear resistance.
- For Stainless Steel, Pre-Hardened steel, Alloy Steel & Mold Steel... etc.
- Incredible toughness and vibration reduction at hi speeds, suitable for high performance profile milling.
- New tool geometry increases wear resistance and cutting force is decreased
- UMG carbide grade is suitable for cutting difficult materials.

ESBSA

P	M	K	N	S	H
●	●	●		●	○







R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* ESBSA240500A	0.25R	0.5	1	50	4	2
* ESBSA241000A	0.5R	1	2	50	4	2
* ESBSA242000A	1.0R	2	4	50	4	2
* ESBSA243000A	1.5R	3	6	50	4	2
* ESBSA244000A	2.0R	4	8	50	4	2
ESBSA204000A	2.0R	4	8	50	6	2
ESBSA205000A	2.5R	5	10	50	6	2
ESBSA206000A	3.0R	6	12	50	6	2
ESBSA208000A	4.0R	8	16	60	8	2
ESBSA210000A	5.0R	10	20	75	10	2
ESBSA212000A	6.0R	12	24	75	12	2
ESBSA214000A	7.0R	14	28	75	14	2
ESBSA216000A	8.0R	16	32	100	16	2

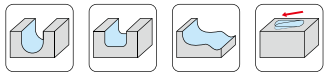
Cutting conditions：Table 069

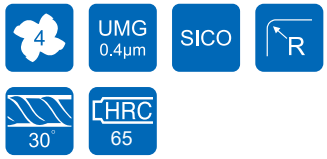
M500 - Ball Nose · 4F (For High Temperature Alloy)

- For high temperature alloy machining.
- For high hardened steel finish milling.
- All flutes near to center design, significantly improves the tool life in 5-axis machining.
- SICO coating provides superior wear and heat resistance.

ESBHS

P	M	K	N	S	H
●	●	●		●	○





R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ESBHS406000S	3.0R	6	6	50	6	4
ESBHS408000S	4.0R	8	8	60	8	4
ESBHS410000S	5.0R	10	10	75	10	4
ESBHS412000S	6.0R	12	12	75	12	4
ESBHS416000S	8.0R	16	16	100	16	4

Cutting conditions：Table 070

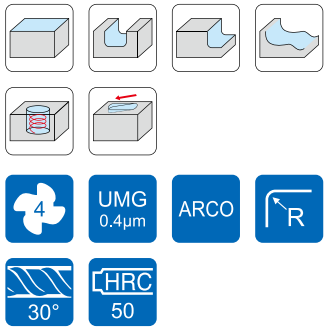
WINSTAR

M500 - Corner Radius · 4F

- ARCO coating provides a superior wear resistance.
- For Stainless Steel, Pre-Hardened steel, Alloy Steel & Mold Steel... etc.
- Incredible toughness and vibration reduction at high speeds.
- Corner geometry and stronger design makes it suitable for cutting difficult material.

ESCSA

P	M	K	N	S	H
●	●	●		●	○



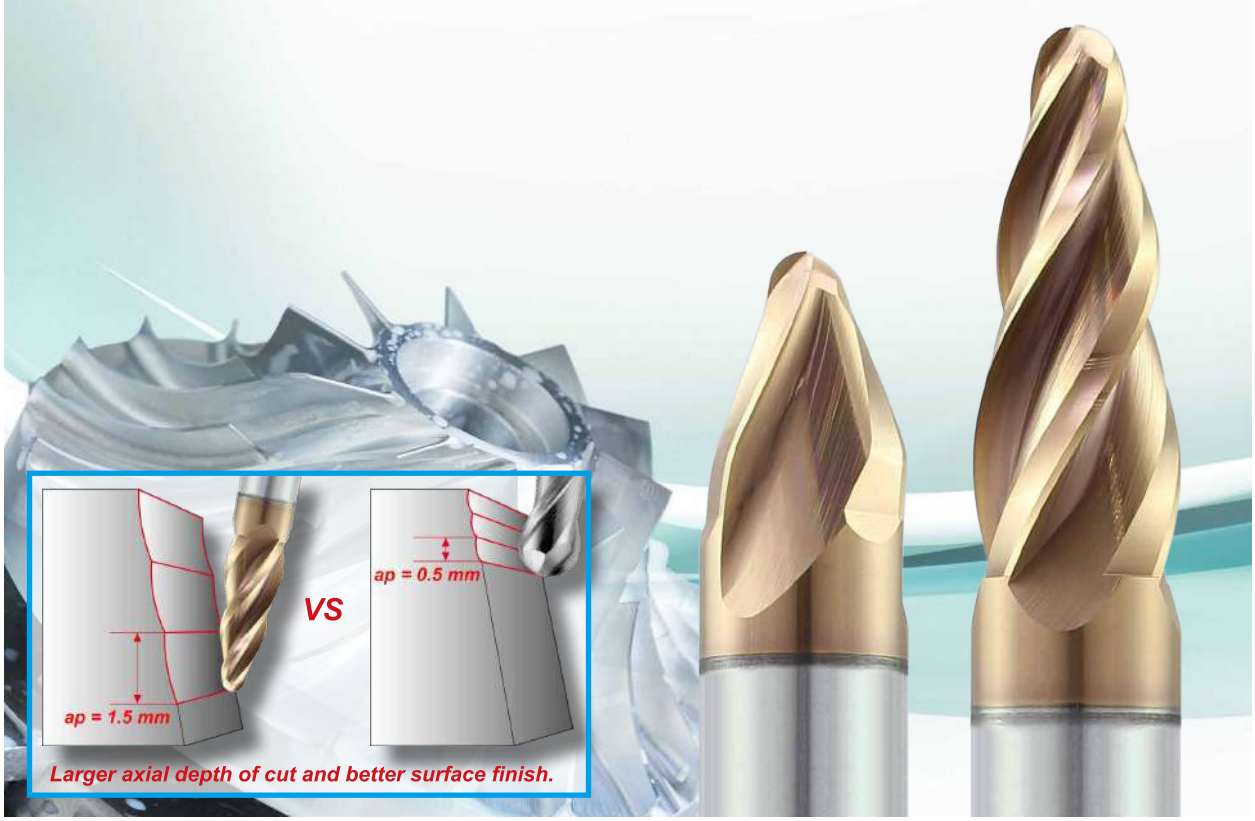
Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ESCSA403003A	3	0.3R	6	50	6	4
ESCSA403005A	3	0.5R	6	50	6	4
ESCSA403010A	3	1.0R	6	50	6	4
ESCSA404003A	4	0.3R	8	50	6	4
ESCSA404005A	4	0.5R	8	50	6	4
ESCSA404010A	4	1.0R	8	50	6	4
ESCSA405003A	5	0.3R	10	50	6	4
ESCSA405005A	5	0.5R	10	50	6	4
ESCSA406003A	6	0.3R	12	50	6	4
ESCSA406005A	6	0.5R	12	50	6	4
ESCSA406010A	6	1.0R	12	50	6	4
ESCSA408005A	8	0.5R	16	60	8	4
ESCSA408010A	8	1.0R	16	60	8	4
ESCSA408015A	8	1.5R	16	60	8	4
ESCSA410005A	10	0.5R	20	75	10	4
ESCSA410010A	10	1.0R	20	75	10	4
ESCSA410015A	10	1.5R	20	75	10	4
ESCSA410020A	10	2.0R	20	75	10	4
ESCSA412005A	12	0.5R	24	75	12	4
ESCSA412010A	12	1.0R	24	75	12	4
ESCSA412015A	12	1.5R	24	75	12	4
ESCSA412020A	12	2.0R	24	75	12	4
ESCSA412030A	12	3.0R	24	75	12	4

Cutting conditions：Table 071

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

Hypex Series for 5-axis machining (Stainless Steel & High Temperature Alloy)



Hypex 5-Axis Solid Carbide Endmills

- Designed for 5-axis machine.
- Provide larger axial depth of cut, improve machining efficiency.
- Optimal surface finish and tool life.
- Suitable for mould & die, aerospace, turbine blades and impellers 5-axis machining.

ERTSA Series

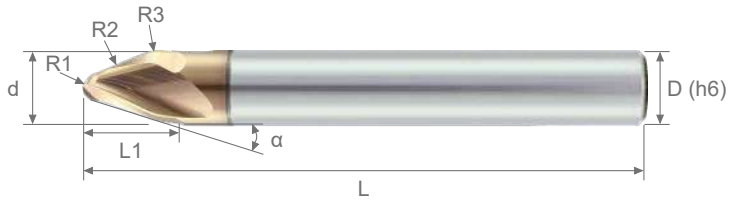
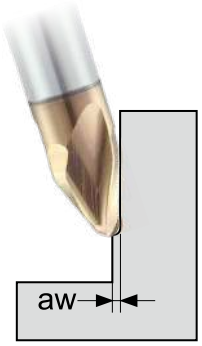
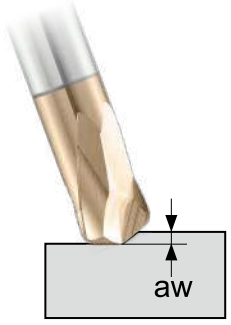


Fig 1

Fig 2

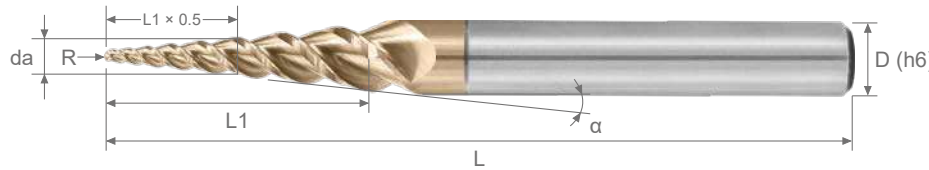
Order No.	α	d	R1	R2	R3	L1	L	D	Flute	Fig
ERTSA30815025S	20°	8	1.5R	250R	4.0R	10.5	75	8	3	1
ERTSA31020025S	20°	10	2.0R	250R	5.0R	12.5	75	10	3	
ERTSA21010020S	60°	10	1.0R	200R	1.5R	6.0	75	10	2	2

Recommended Cutting Conditions

Working Material	Cutting Application	aw (mm)	Vc (m/min)	fz (mm/z)	
				8 mm	10 mm
Carbon Steel (S45C)		0.05 ~ 0.1 mm	210 ~ 420	0.032 ~ 0.056	0.04 ~ 0.07
		0.1 ~ 0.2 mm	210 ~ 420	0.024 ~ 0.040	0.03 ~ 0.05
Carbon Steel (S50C)		0.05 ~ 0.1 mm	158 ~ 315	0.024 ~ 0.040	0.03 ~ 0.05
		0.1 ~ 0.2 mm	158 ~ 315	0.016 ~ 0.024	0.02 ~ 0.03
Tool Steel (SKD)		0.05 ~ 0.1 mm	135 ~ 270	0.024 ~ 0.032	0.03 ~ 0.04
		0.1 ~ 0.2 mm	135 ~ 270	0.016 ~ 0.024	0.02 ~ 0.03
Stainless Steel (SUS304, SUS316)		0.05 ~ 0.1 mm	100 ~ 150	0.024 ~ 0.032	0.03 ~ 0.04
		0.1 ~ 0.2 mm	100 ~ 150	0.016 ~ 0.024	0.02 ~ 0.03
Superalloy, Inconel		0.05 ~ 0.1 mm	30 ~ 60	0.016 ~ 0.024	0.02 ~ 0.03
		0.1 ~ 0.2 mm	30 ~ 60	0.008 ~ 0.016	0.01 ~ 0.02
Titanium		0.05 ~ 0.1 mm	60 ~ 80	0.024 ~ 0.032	0.03 ~ 0.04
		0.1 ~ 0.2 mm	60 ~ 80	0.016 ~ 0.024	0.02 ~ 0.03
Hardened Steel (HRC < 55)		0.05 ~ 0.1 mm	100 ~ 130	0.032 ~ 0.040	0.04 ~ 0.05
		0.1 ~ 0.2 mm	100 ~ 130	0.024 ~ 0.032	0.03 ~ 0.04

Hypex 5-Axis Solid Endmills

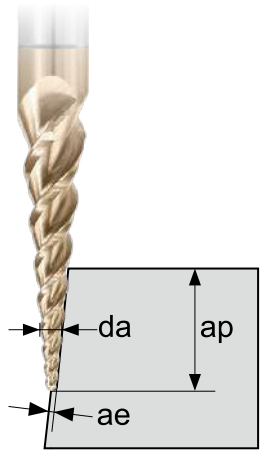
■ *ERTSB Series*



Order No.	R	α	L1	L	da	D	Flute
ERTSB30100620S	0.5R	6°	20	60	3.00	6	3
ERTSB30200619S	1.0R	6°	19	60	3.80	6	3
ERTSB30100818S	0.5R	8°	18	60	3.40	6	3
ERTSB30200815S	1.0R	8°	15	60	3.85	6	3

※ The da value is average diameter at 0.5*L1

■ *Recommended Cutting Conditions*

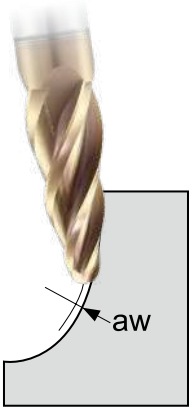
Working Material	Cutting Application	ae (mm)	ap (mm)	Vc (m/min)	fz (mm/z)
Carbon Steel (S45C)	 da ≒ 1.8R + ap × tan(α) (※da : average diameter at 0.5*ap) RPM = $\frac{Vc \times 1000}{da \times \pi}$	0.1 ~ 0.2 mm	0.5 ~ 1.0 × L1	100 ~ 120	0.01 × R
Carbon Steel (S50C)		0.1 ~ 0.2 mm	0.5 ~ 1.0 × L1	70 ~ 90	0.008 × R
Tool Steel (SKD)		0.1 ~ 0.2 mm	0.5 ~ 1.0 × L1	50 ~ 60	0.006 × R
Stainless Steel (SUS304, SUS316)		0.1 ~ 0.2 mm	0.5 ~ 1.0 × L1	50 ~ 60	0.006 × R
Superalloy, Inconel		0.1 ~ 0.2 mm	0.5 ~ 1.0 × L1	15 ~ 20	0.004 × R
Titanium		0.1 ~ 0.2 mm	0.5 ~ 1.0 × L1	30 ~ 50	0.006 × R

Hypex 5-Axis Solid Endmills

ERTSC Series

Order No.	d	R1	R2	L1	L	D	Flute
ERTSC30810090S	8	1R	90R	25	75	8	3
ERTSC41020085S	10	2R	85R	26	75	10	4

Recommended Cutting Conditions

Working Material	Cutting Application	aw (mm)	Vc (m/min)	fz (mm/z)	
				8 mm	10 mm
Carbon Steel (S45C)		0.05 ~ 0.1 mm	210 ~ 420	0.032 ~ 0.064	0.04 ~ 0.08
		0.1 ~ 0.2 mm	210 ~ 420	0.024 ~ 0.056	0.03 ~ 0.07
		0.2 ~ 0.3 mm	210 ~ 420	0.024 ~ 0.048	0.03 ~ 0.06
Carbon Steel (S50C)		0.05 ~ 0.1 mm	158 ~ 315	0.024 ~ 0.048	0.03 ~ 0.06
		0.1 ~ 0.2 mm	158 ~ 315	0.024 ~ 0.040	0.03 ~ 0.05
		0.2 ~ 0.3 mm	158 ~ 315	0.016 ~ 0.032	0.02 ~ 0.04
Tool Steel (SKD)		0.05 ~ 0.1 mm	135 ~ 270	0.024 ~ 0.040	0.03 ~ 0.05
		0.1 ~ 0.2 mm	135 ~ 270	0.016 ~ 0.032	0.02 ~ 0.04
		0.2 ~ 0.3 mm	135 ~ 270	0.016 ~ 0.024	0.02 ~ 0.03
Stainless Steel (SUS304, SUS316)		0.05 ~ 0.1 mm	100 ~ 150	0.032 ~ 0.040	0.04 ~ 0.05
		0.1 ~ 0.2 mm	100 ~ 150	0.024 ~ 0.032	0.03 ~ 0.04
		0.2 ~ 0.3 mm	100 ~ 150	0.016 ~ 0.024	0.02 ~ 0.03
Superalloy, Inconel		0.05 ~ 0.1 mm	30 ~ 60	0.024 ~ 0.032	0.03 ~ 0.04
		0.1 ~ 0.2 mm	30 ~ 60	0.016 ~ 0.024	0.02 ~ 0.03
		0.2 ~ 0.3 mm	30 ~ 60	0.008 ~ 0.016	0.01 ~ 0.02
Titanium		0.05 ~ 0.1 mm	60 ~ 80	0.032 ~ 0.040	0.04 ~ 0.05
		0.1 ~ 0.2 mm	60 ~ 80	0.024 ~ 0.032	0.03 ~ 0.04
		0.2 ~ 0.3 mm	60 ~ 80	0.016 ~ 0.024	0.02 ~ 0.03
Hardened Steel (HRC < 55)		0.05 ~ 0.1 mm	100 ~ 130	0.032 ~ 0.040	0.04 ~ 0.05
		0.1 ~ 0.2 mm	100 ~ 130	0.024 ~ 0.032	0.03 ~ 0.04
		0.2 ~ 0.3 mm	100 ~ 130	0.016 ~ 0.024	0.02 ~ 0.03

A300 Series for CFRP/GFRP milling (Non-Ferrous Metals)

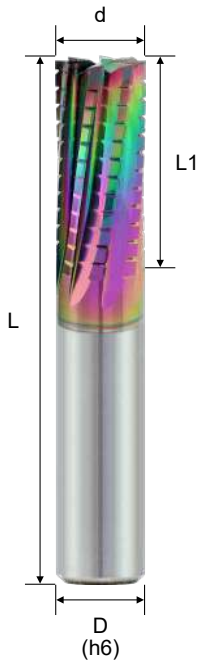
- For CFRP / GFRP machining.
- DIA - Diamond coating provides exceptional wear resistance.
- ECSSF Series - Finishing design for reducing flaking and burrs.
- ECSSR Series - Roughing design for machining and routing.

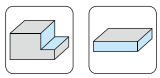
A300 - CFRP/GFRP · Finishing · 6F / 8F

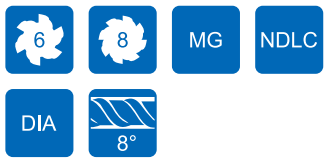
- For CFRP/GFRP multi-purpose finish milling.
- Multi flutes and fine nick geometry design.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.
- DIA - Diamond coating provides exceptional wear resistance and good tool life.

ECSSF

P	M	K	N	S	H
			●		







d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
NDLC Nano DLC coating					
ECSSF606000L	6	15	60	6	6
ECSSF608000L	8	20	75	8	6
ECSSF810000L	10	25	75	10	8
ECSSF812000L	12	30	100	12	8
DIA Diamond Coating					
ECSSF606000D	6	15	60	6	6
ECSSF608000D	8	20	75	8	6
ECSSF810000D	10	25	75	10	8
ECSSF812000D	12	30	100	12	8

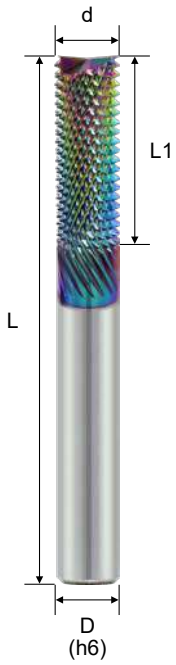
Cutting conditions : Table 072

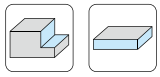
A300 - CFRP/GFRP · Roughing · 8~17F

- For CFRP/GFRP rough milling.
- Right helix and left helix design.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.
- DIA - Diamond coating provides exceptional wear resistance and good tool life.

ECSSR

P	M	K	N	S	H
			●		





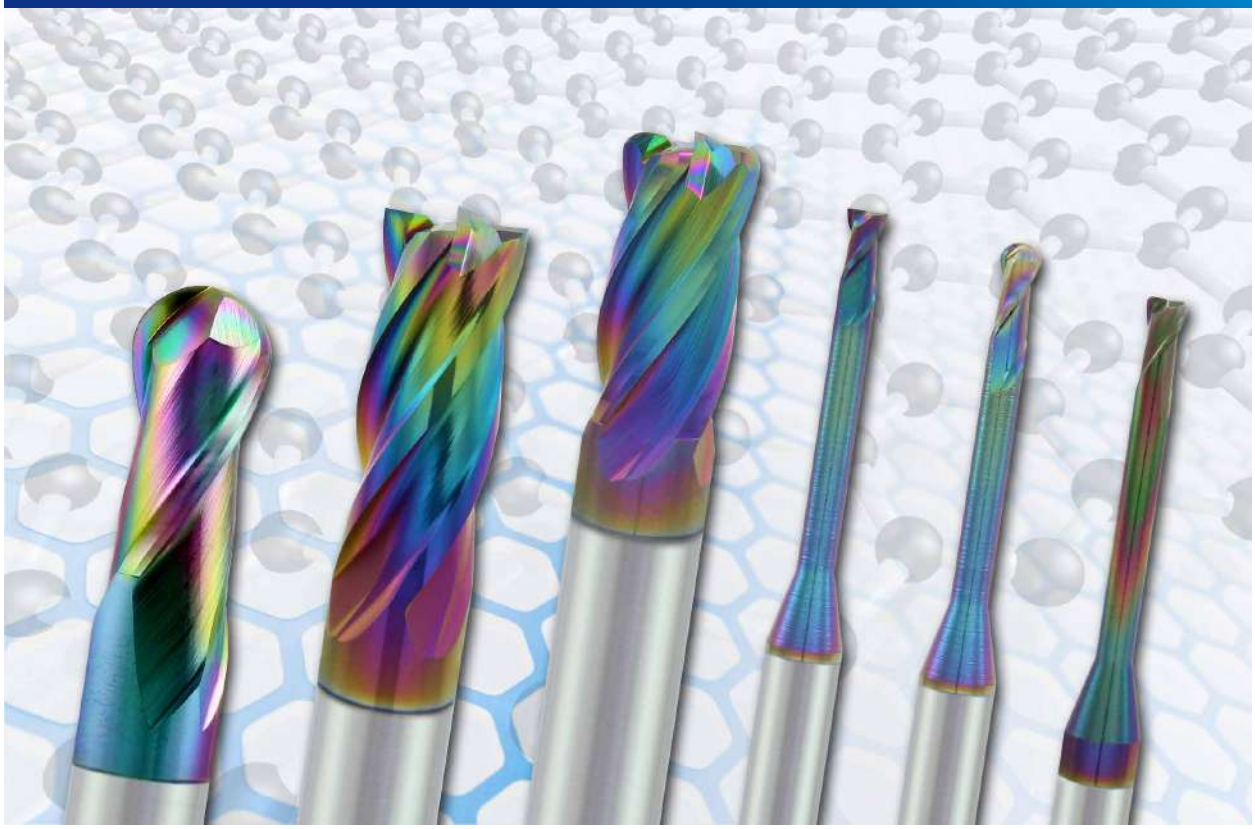
MG NDLC DIA ±25°

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
NDLC Nano DLC coating					
ECSSR804000L	4	12	60	6	8
ECSSR106000L	6	18	60	6	11
ECSSR408000L	8	24	60	8	14
ECSSR610000L	10	30	75	10	16
ECSSR712000L	12	36	100	12	17
DIA Diamond Coating					
ECSSR804000D	4	12	60	6	8
ECSSR106000D	6	18	60	6	11
ECSSR408000D	8	24	60	8	14
ECSSR610000D	10	30	75	10	16
ECSSR712000D	12	36	100	12	17

Cutting conditions：Table 073

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

A200 Series for Graphite milling (Non-Ferrous Metals)



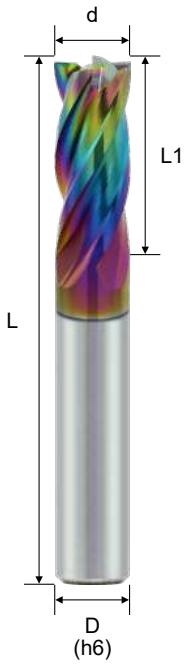
- Suitable for Graphite.
- Available in various effective length.
- Suitable carbide rod brings good tightness of Diamond coating.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.
- DIA - Diamond coating provides exceptional wear resistance and good tool life.

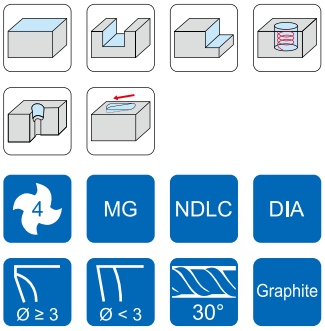
A200 - Graphite · Square · 4F

- Suitable for Graphite.
- Strong geometry design has excellent cutting ability of cutting edges.
- High precision cutting for side milling.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.
- DIA - Diamond coating provides exceptional wear resistance and good tool life.

EGSSC

P	M	K	N	S	H
			●		





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EGSSC443000L	3	8	50	4	4
* EGSSC444000L	4	10	50	4	4
EGSSC404000L	4	10	50	6	4
EGSSC405000L	5	13	50	6	4
EGSSC406000L	6	15	50	6	4
EGSSC408000L	8	20	60	8	4
EGSSC410000L	10	25	75	10	4
EGSSC412000L	12	30	75	12	4

* L NDLC Nano DLC coating D DIA Diamond Coating

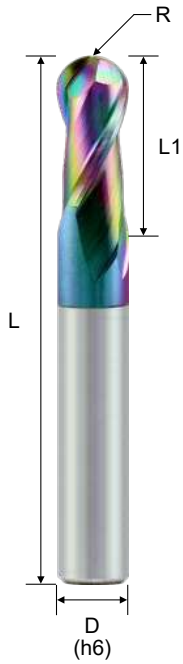
WINSTAR

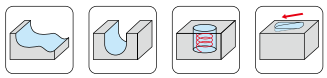
A200 - Graphite · Ball Nose · 2F

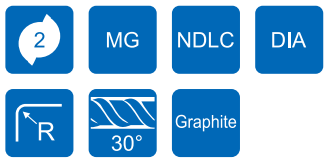
- Suitable for Graphite.
- New tool geometry increases wear resistance and cutting force is decreased.
- Suitable for high speed profile surface milling.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.
- DIA - Diamond coating provides exceptional wear resistance and good tool life.

EGBSC

P	M	K	N	S	H
			●		







R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EGBSC240200L	0.10R	0.2	0.4	50	4	2
* EGBSC240300L	0.15R	0.3	0.6	50	4	2
* EGBSC240400L	0.20R	0.4	0.8	50	4	2
* EGBSC240500L	0.25R	0.5	1.0	50	4	2
* EGBSC240600L	0.30R	0.6	1.2	50	4	2
* EGBSC240700L	0.35R	0.7	1.4	50	4	2
* EGBSC240800L	0.40R	0.8	1.6	50	4	2
* EGBSC240900L	0.45R	0.9	1.8	50	4	2
* EGBSC241000L	0.50R	1.0	2.0	50	4	2
* EGBSC241500L	0.75R	1.5	3.0	50	4	2
* EGBSC242000L	1.00R	2.0	4.0	50	4	2
* EGBSC243000L	1.50R	3.0	6.0	50	4	2
* EGBSC244000L	2.00R	4.0	8.0	50	4	2
EGBSC204000L	2.00R	4.0	8.0	50	6	2
EGBSC205000L	2.50R	5.0	10.0	50	6	2
EGBSC206000L	3.00R	6.0	12.0	50	6	2
EGBSC208000L	4.00R	8.0	16.0	60	8	2
EGBSC210000L	5.00R	10.0	20.0	75	10	2
EGBSC212000L	6.00R	12.0	24.0	75	12	2

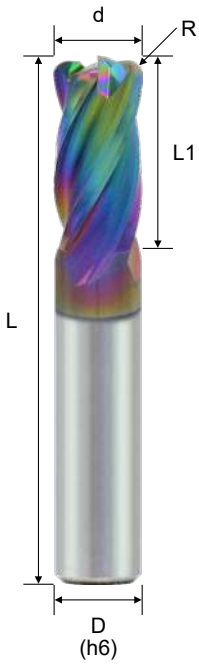
* L NDLC Nano DLC coating D DIA Diamond Coating

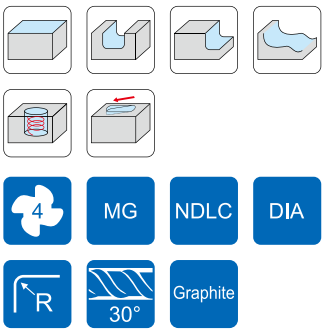
A200 - Graphite · Corner Radius · 4F

- Suitable for Graphite.
- Corner radius with multiple design increases the finish milling surface.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.
- DIA - Diamond coating provides exceptional wear resistance and good tool life.

EGCSC

P	M	K	N	S	H
			●		





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* EGCSC443003L	3	0.3R	6	50	4	4
* EGCSC443005L	3	0.5R	6	50	4	4
* EGCSC443010L	3	1.0R	6	50	4	4
EGCSC403003L	3	0.3R	6	50	6	4
EGCSC403005L	3	0.5R	6	50	6	4
EGCSC403010L	3	1.0R	6	50	6	4
* EGCSC444003L	4	0.3R	8	50	4	4
* EGCSC444005L	4	0.5R	8	50	4	4
* EGCSC444010L	4	1.0R	8	50	4	4
EGCSC404003L	4	0.3R	8	50	6	4
EGCSC404005L	4	0.5R	8	50	6	4
EGCSC404010L	4	1.0R	8	50	6	4
EGCSC405005L	5	0.5R	10	50	6	4
EGCSC405010L	5	1.0R	10	50	6	4
EGCSC406003L	6	0.3R	12	50	6	4
EGCSC406005L	6	0.5R	12	50	6	4
EGCSC406010L	6	1.0R	12	50	6	4
EGCSC408005L	8	0.5R	16	60	8	4
EGCSC408010L	8	1.0R	16	60	8	4
EGCSC408015L	8	1.5R	16	60	8	4
EGCSC410005L	10	0.5R	20	75	10	4
EGCSC410010L	10	1.0R	20	75	10	4
EGCSC410015L	10	1.5R	20	75	10	4
EGCSC410020L	10	2.0R	20	75	10	4
EGCSC412005L	12	0.5R	24	75	12	4
EGCSC412010L	12	1.0R	24	75	12	4
EGCSC412015L	12	1.5R	24	75	12	4
EGCSC412020L	12	2.0R	24	75	12	4
EGCSC412030L	12	3.0R	24	75	12	4

* L NDLC Nano DLC coating D DIA Diamond Coating

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

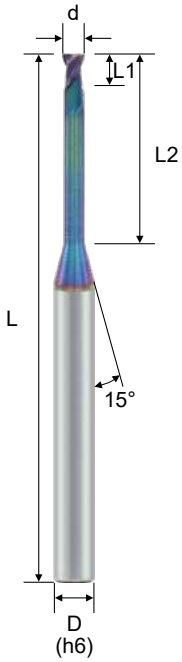
WINSTAR

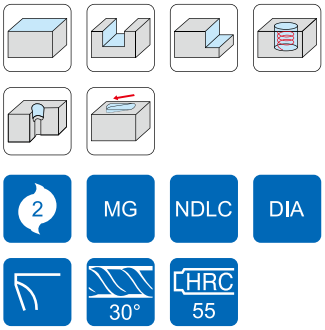
A200 - Graphite · Long Neck · Square · 2F

- Suitable for Graphite.
- Available in various effective length.
- Suitable for deep cutting application.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.
- DIA - Diamond coating provides exceptional wear resistance and good tool life.

EGSRC

P	M	K	N	S	H
			●		





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EGSRC240504L	0.5	0.6	4	50	4	2
* EGSRC240506L	0.5	0.6	6	50	4	2
* EGSRC240508L	0.5	0.6	8	50	4	2
* EGSRC241006L	1.0	1.2	6	50	4	2
* EGSRC241008L	1.0	1.2	8	50	4	2
* EGSRC241012L	1.0	1.2	12	50	4	2
* EGSRC241016L	1.0	1.2	16	50	4	2
* EGSRC241020L	1.0	1.2	20	50	4	2
* EGSRC241508L	1.5	1.8	8	50	4	2
* EGSRC241512L	1.5	1.8	12	50	4	2
* EGSRC241516L	1.5	1.8	16	50	4	2
* EGSRC241520L	1.5	1.8	20	50	4	2
* EGSRC242010L	2.0	2.5	10	50	4	2
* EGSRC242016L	2.0	2.5	16	50	4	2
* EGSRC242020L	2.0	2.5	20	50	4	2
* EGSRC242025L	2.0	2.5	25	60	4	2
EGSRC203012L	3.0	3.5	12	50	6	2
EGSRC203020L	3.0	3.5	20	60	6	2
EGSRC203025L	3.0	3.5	25	60	6	2
EGSRC203030L	3.0	3.5	30	75	6	2
EGSRC204016L	4.0	4.5	16	50	6	2
EGSRC204020L	4.0	4.5	20	60	6	2
EGSRC204025L	4.0	4.5	25	60	6	2
EGSRC204030L	4.0	4.5	30	75	6	2
EGSRC204035L	4.0	4.5	35	75	6	2
EGSRC205020L	5.0	7.0	20	60	6	2
EGSRC205025L	5.0	7.0	25	60	6	2
EGSRC205030L	5.0	7.0	30	75	6	2
EGSRC205035L	5.0	7.0	35	75	6	2
EGSRC206020L	6.0	10.0	20	60	6	2
EGSRC206030L	6.0	10.0	30	75	6	2

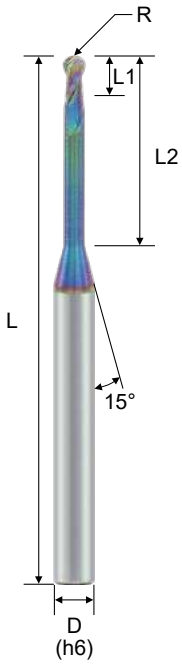
* L NDLC Nano DLC coating D DIA Diamond Coating

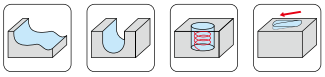
A200 - Graphite · Long Neck · Ball Nose · 2F

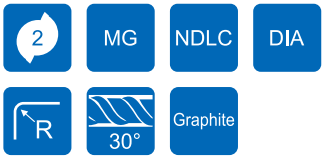
- Suitable for Graphite.
- Reduce vibration and more toughness.
- It provides an excellent surface due to better surface grindings.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.
- DIA - Diamond coating provides exceptional wear resistance and good tool life.

EGBRC

P	M	K	N	S	H
			●		







R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EGBRC240504L	0.25R	0.5	0.5	4	50	4	2
* EGBRC240506L	0.25R	0.5	0.5	6	50	4	2
* EGBRC240508L	0.25R	0.5	0.5	8	50	4	2
* EGBRC241006L	0.50R	1.0	1.0	6	50	4	2
* EGBRC241008L	0.50R	1.0	1.0	8	50	4	2
* EGBRC241012L	0.50R	1.0	1.0	12	50	4	2
* EGBRC241016L	0.50R	1.0	1.0	16	50	4	2
* EGBRC241020L	0.50R	1.0	1.0	20	50	4	2
* EGBRC241508L	0.75R	1.5	1.5	8	50	4	2
* EGBRC241512L	0.75R	1.5	1.5	12	50	4	2
* EGBRC241516L	0.75R	1.5	1.5	16	50	4	2
* EGBRC241520L	0.75R	1.5	1.5	20	50	4	2
* EGBRC242010L	1.00R	2.0	2.0	10	50	4	2
* EGBRC242016L	1.00R	2.0	2.0	16	50	4	2
* EGBRC242020L	1.00R	2.0	2.0	20	50	4	2
* EGBRC242025L	1.00R	2.0	2.0	25	60	4	2
EGBRC203012L	1.50R	3.0	3.0	12	50	6	2
EGBRC203016L	1.50R	3.0	3.0	16	60	6	2
EGBRC203020L	1.50R	3.0	3.0	20	60	6	2
EGBRC203025L	1.50R	3.0	3.0	25	60	6	2
EGBRC203030L	1.50R	3.0	3.0	30	75	6	2
EGBRC204016L	2.00R	4.0	4.0	16	60	6	2
EGBRC204020L	2.00R	4.0	4.0	20	60	6	2
EGBRC204025L	2.00R	4.0	4.0	25	60	6	2
EGBRC204030L	2.00R	4.0	4.0	30	75	6	2
EGBRC205020L	2.50R	5.0	5.0	20	60	6	2
EGBRC205025L	2.50R	5.0	5.0	25	60	6	2
EGBRC205030L	2.50R	5.0	5.0	30	75	6	2
EGBRC206020L	3.00R	6.0	10.0	20	60	6	2
EGBRC206030L	3.00R	6.0	10.0	30	75	6	2

* L NDLC Nano DLC coating D DIA Diamond Coating

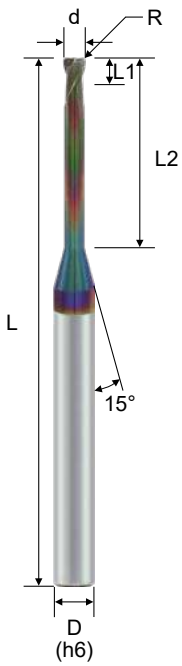
WINSTAR

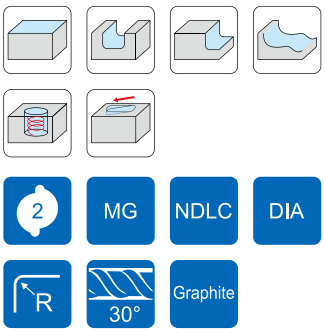
A200 - Graphite · Long Neck · Corner Radius · 2F

- Suitable for Graphite.
- Available in various cut lengths.
- Corner radius with long neck are suitable for deep general cutting and 3D milling.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.
- DIA - Diamond coating provides exceptional wear resistance and good tool life.

EGCRC

P	M	K	N	S	H
			●		





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
* EGCRC24100106L	1	0.1R	1	6	50	4	2
* EGCRC24100108L	1	0.1R	1	8	50	4	2
* EGCRC24100110L	1	0.1R	1	10	50	4	2
* EGCRC24100112L	1	0.1R	1	12	50	4	2
* EGCRC24200210L	2	0.2R	2	10	50	4	2
* EGCRC24200216L	2	0.2R	2	16	50	4	2
* EGCRC24200220L	2	0.2R	2	20	50	4	2
* EGCRC24200225L	2	0.2R	2	25	60	4	2
* EGCRC24200510L	2	0.5R	2	10	50	4	2
* EGCRC24200516L	2	0.5R	2	16	50	4	2
* EGCRC24200520L	2	0.5R	2	20	50	4	2
* EGCRC24200525L	2	0.5R	2	25	60	4	2
EGCRC20300210L	3	0.2R	3	10	50	6	2
EGCRC20300220L	3	0.2R	3	20	60	6	2
EGCRC20300230L	3	0.2R	3	30	75	6	2
EGCRC20300510L	3	0.5R	3	10	50	6	2
EGCRC20300520L	3	0.5R	3	20	60	6	2
EGCRC20300530L	3	0.5R	3	30	75	6	2
EGCRC20400516L	4	0.5R	4	16	60	6	2
EGCRC20400525L	4	0.5R	4	25	60	6	2
EGCRC20400535L	4	0.5R	4	35	75	6	2
EGCRC20401016L	4	1.0R	4	16	60	6	2
EGCRC20401025L	4	1.0R	4	25	60	6	2
EGCRC20401035L	4	1.0R	4	35	75	6	2
EGCRC20500520L	5	0.5R	5	20	60	6	2
EGCRC20500530L	5	0.5R	5	30	75	6	2
EGCRC20600520L	6	0.5R	7	20	60	6	2
EGCRC20600530L	6	0.5R	7	30	75	6	2
EGCRC20601020L	6	1.0R	7	20	60	6	2
EGCRC20601030L	6	1.0R	7	30	75	6	2

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

* L NDLC Nano DLC coating D DIA Diamond Coating

A100 Series for Aluminum alloy milling (Non-Ferrous Metals)

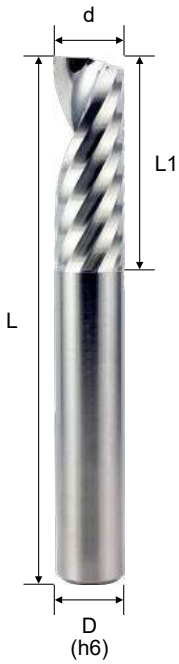
- Micro grain carbide rod is suitable for general machining.
- High efficient processing can be achieved by great chip evacuation.
- High helix angle offers stable and excellent finished surface in high speed.
- Radial flute design is good for chip evacuation and easy of machining.

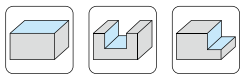
A100 - Square · 1F

- 30° helix design for general milling.
- Single flute endmill has large chip evacuation.
- Sharp and polishing cutting edge produces an excellent surface finish.
- Suitable for aluminum, copper and plastic material.

ENSSC

P	M	K	N	S	H
			●		





Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENSSC141000	1	3	50	4	1
ENSSC142000	2	6	50	4	1
ENSSC143000	3	9	50	4	1
ENSSC144000	4	12	50	4	1
ENSSC104000	4	12	50	6	1
ENSSC105000	5	13	50	6	1
ENSSC106000	6	15	50	6	1
ENSSC108000	8	20	60	8	1
ENSSC110000	10	30	75	10	1
ENSSC112000	12	30	75	12	1

Cutting conditions：Table 074

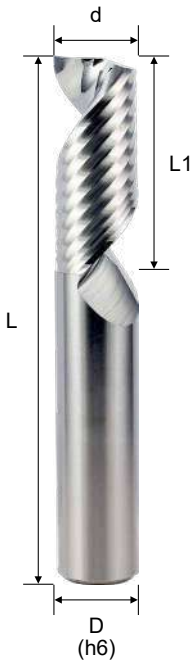
d Tolerance	
d ≤ 10	0 ~ -0.03
d > 10	0 ~ -0.04

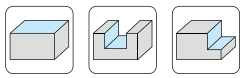
A100 - High Helix · Square · 1F

- 45° helix design for side milling.
- Single flute endmill has large chip evacuation.
- Sharp and polishing cutting edge produces an excellent surface finish.
- Suitable for aluminum, copper and plastic material.

ENSSP

P	M	K	N	S	H
			●		





Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENSSP104000	4	12	50	6	1
ENSSP106000	6	15	50	6	1
ENSSP108000	8	20	60	8	1
ENSSP110000	10	30	75	10	1
ENSSP112000	12	30	75	12	1

Cutting conditions：Table 075

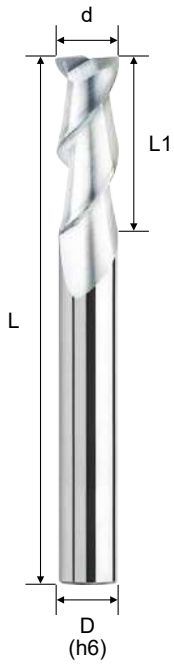
d Tolerance	
d ≤ 10	0 ~ -0.03
d > 10	0 ~ -0.04

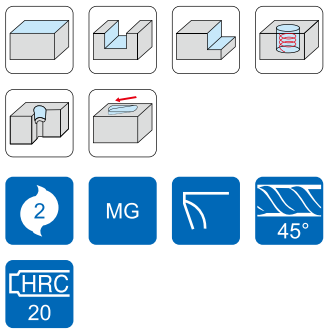
A100 - Square · 2F

- Suitable for cutting non-ferrous metals, Aluminum, Aluminum Alloy, Copper (HRC< 20).
- High Helix offers excellent and stable finished surfaces in high speed.
- Great chip evacuation and flute polishing increase cutting surface and feed rate.

ENSSS

P	M	K	N	S	H
			●		





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* ENSSS241000	1	3	50	4	2
* ENSSS242000	2	6	50	4	2
* ENSSS233000	3	9	50	3	2
* ENSSS243000	3	9	50	4	2
* ENSSS244000	4	12	50	4	2
ENSSS204000	4	12	50	6	2
ENSSS205000	5	15	50	6	2
ENSSS206000	6	15	50	6	2
ENSSS208000	8	20	60	8	2
ENSSS210000	10	30	75	10	2
ENSSS212000	12	30	75	12	2
ENSSS216000	16	40	100	16	2
ENSSS220000	20	45	100	20	2

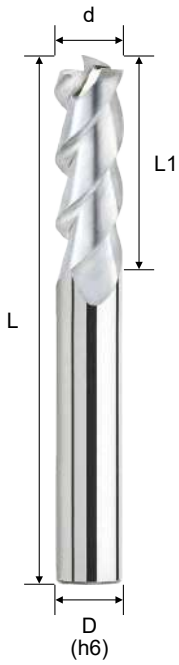
Cutting conditions：Table 076

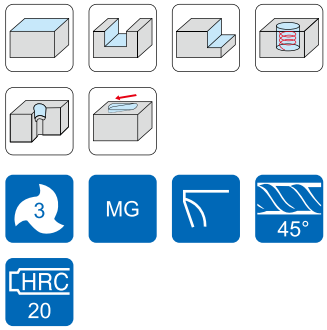
A100 - Square · 3F

- Suitable for cutting non-ferrous metals, Aluminum, Aluminum Alloy, Copper (HRC< 20)
- High Helix offers excellent and stable finished surfaces in high speed.
- Great chip evacuation and flute polishing get good cutting surface and high feed rate.

ENSSS

P	M	K	N	S	H
			●		





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* ENSSS342000	2	6	50	4	3
* ENSSS333000	3	9	50	3	3
* ENSSS343000	3	9	50	4	3
* ENSSS344000	4	12	50	4	3
ENSSS304000	4	12	50	6	3
ENSSS305000	5	15	50	6	3
ENSSS306000	6	15	50	6	3
ENSSS308000	8	20	60	8	3
ENSSS310000	10	30	75	10	3
ENSSS312000	12	30	75	12	3
ENSSS316000	16	40	100	16	3
ENSSS320000	20	45	100	20	3

Cutting conditions：Table 076

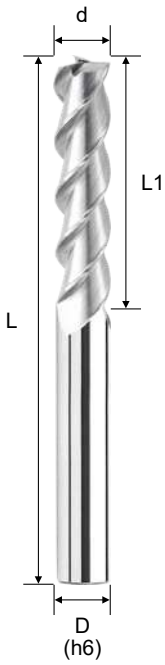
WINSTAR

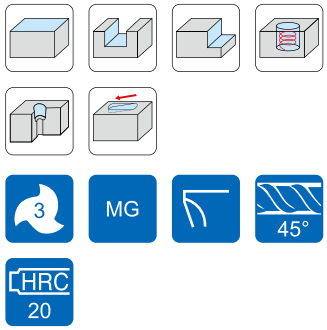
A100 - Long Flute · Square · 3F

- Suitable for cutting non-ferrous metals, Aluminum, Aluminum Alloy, Copper (HRC< 20)
- High Helix offers excellent and stable finished surfaces in high speed.
- Great chip evacuation and flute polishing get good cutting surface and high feed rate.

ENSCS

P	M	K	N	S	H
			●		





Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENSCS303000	3	15	60	6	3
ENSCS304000	4	20	60	6	3
ENSCS305000	5	25	60	6	3
ENSCS306000	6	30	75	6	3
ENSCS308000	8	45	100	8	3
ENSCS310000	10	55	100	10	3
ENSCS312000	12	55	100	12	3
ENSCS316000	16	75	150	16	3
ENSCS320000	20	90	150	20	3

Cutting conditions：Table 076

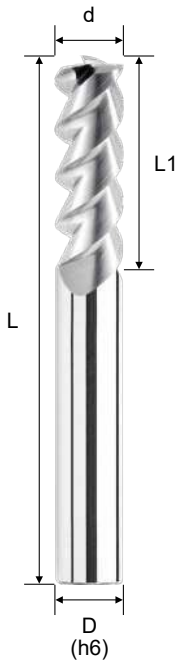
d Tolerance	
d ≤ 6	0 ~ -0.03
6 < d ≤ 12	0 ~ -0.04
d > 12	0 ~ -0.05

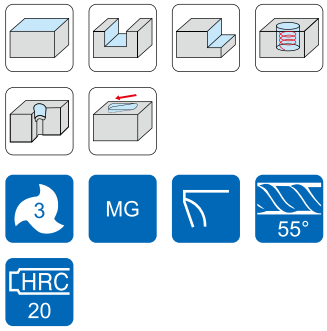
A100 - High Helix · Square · 3F

- Suitable for cutting non-ferrous metals, Aluminum, Aluminum Alloy, Copper (HRC< 20).
- 55° degree Helix offers excellent and stable finished surfaces in high speed side milling.
- Flute polishing gives a very good cutting surface and high feed rate.

ENSSH

P	M	K	N	S	H
			●		





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENSSH304000	4	12	50	6	3
ENSSH305000	5	15	50	6	3
ENSSH306000	6	15	50	6	3
ENSSH308000	8	20	60	8	3
ENSSH310000	10	30	75	10	3
ENSSH312000	12	30	75	12	3
ENSSH316000	16	40	100	16	3

Cutting conditions：Table 076

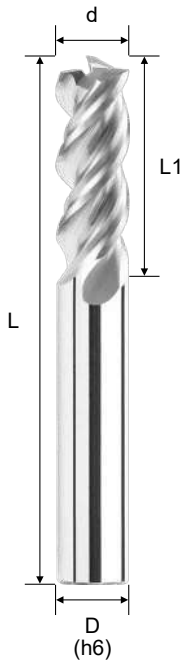
WINSTAR

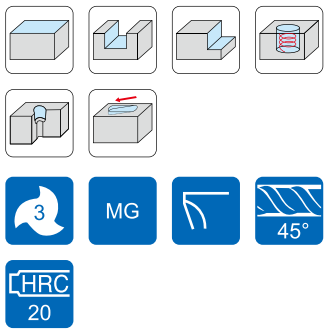
A100 - High Performance · Square · 3F (for side milling)

- Suitable for cutting non-ferrous metals, Aluminum, Aluminum Alloy, Copper (HRC< 20).
- U-flute design with high chips volume space and easy to remove chips.
- Excellent for high feed rough milling.
- Also suitable for surface finish in high speed milling.

ENSSB

P	M	K	N	S	H
			●		





Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* ENSSB343000	3	9	50	4	3
* ENSSB344000	4	12	50	4	3
ENSSB304000	4	12	50	6	3
ENSSB305000	5	15	50	6	3
ENSSB306000	6	15	50	6	3
ENSSB308000	8	20	60	8	3
ENSSB310000	10	30	75	10	3
ENSSB312000	12	30	75	12	3
ENSSB316000	16	40	100	16	3
ENSSB320000	20	45	100	20	3

Cutting conditions：Table 077

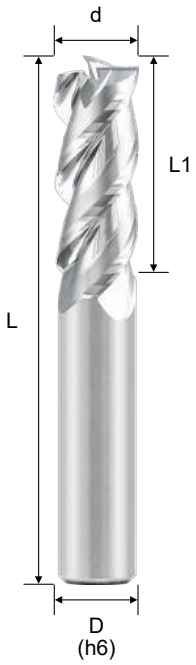
d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

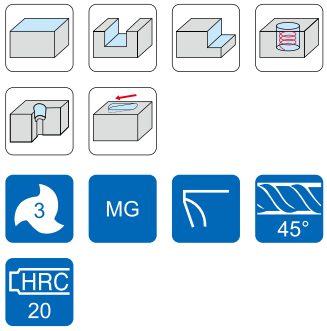
A100 - AL Finishing · Square · 3F

- Mirror-like flute surface design.
- For finishing cutting of aluminum alloys.
- Medium to high speed cutting.

ENSSF

P	M	K	N	S	H
			●		





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENSSF301000	1	3	50	6	3
ENSSF302000	2	6	50	6	3
ENSSF303000	3	11	60	6	3
ENSSF304000	4	13	60	6	3
ENSSF305000	5	17	60	6	3
ENSSF306000	6	17	60	6	3
ENSSF308000	8	22	75	8	3
ENSSF310000	10	27	75	10	3
ENSSF312000	12	32	75	12	3

Cutting conditions：Table 078

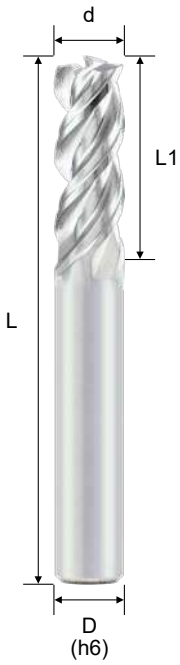
WINSTAR

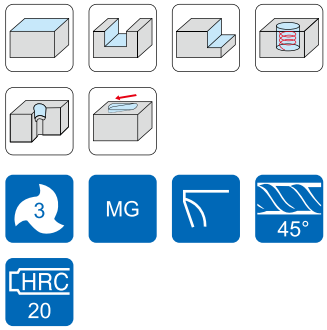
A100 - ALU High Speed Finishing · Square · 3F

- U-flute and Mirror-like flute surface design.
- For medium to finishing cutting of aluminum alloys.
- High speed cutting.
- Is better for Aluminum alloy with Si ≥ 8%.

ENSSP

P	M	K	N	S	H
			●		





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENSSP306000	6	15	50	6	3
ENSSP308000	8	20	60	8	3
ENSSP310000	10	30	75	10	3
ENSSP312000	12	30	75	12	3
ENSSP316000	16	40	100	16	3

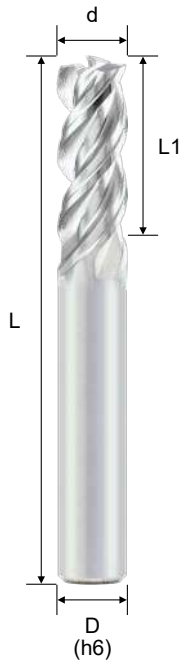
Cutting conditions：Table 079

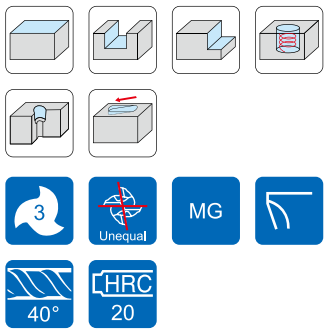
A100 - Variable Spacing · Square · 3F

- Unequal flute spacing, good for high performance machining.
- No chattering surface due to anti-vibration design.
- Polished and U flute designs provide excellent chip evacuation.
- Good for semi-fininshing and roughing of aluminum parts(5052/6061/7075).

ENSSV

P	M	K	N	S	H
			●		





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENSSV303000	3	9	50	6	3
ENSSV304000	4	12	50	6	3
ENSSV305000	5	15	50	6	3
ENSSV306000	6	18	50	6	3
ENSSV308000	8	24	60	8	3
ENSSV310000	10	30	75	10	3
ENSSV312000	12	35	75	12	3
ENSSV316000	16	40	100	16	3
INCH Size					
ENS2V30120500	1/8	1/2	2	1/8	3
ENS2V30250300	1/4	3/8	2	1/4	3
ENS2V30310500	5/16	1/2	2	5/16	3
ENS2V30370600	3/8	5/8	3	3/8	3
ENS3V30371000	3/8	1	3	3/8	3
ENS2V30501000	1/2	1	3	1/2	3
ENS3V30621600	5/8	1 5/8	3 1/2	5/8	3

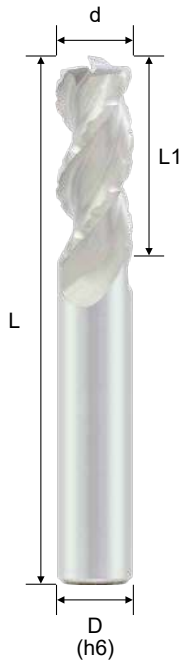
Cutting conditions：Table 080

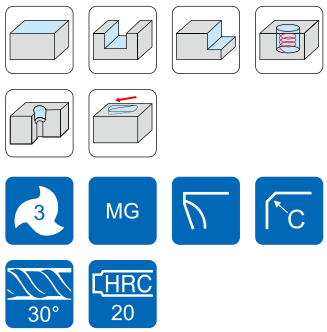
A100 - Roughing · Square · 3F

- Suitable for cutting non-ferrous metals, Aluminum, Aluminum Alloy, Copper (HRC< 20)
- Suitable for rough and high remove rate cutting environment.
- Chamfering design provides a stronger cutting edge.
- Middle coarse pitch provides hi performance and avoids tip fracture.
-

ENSSR

P	M	K	N	S	H
			●		





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

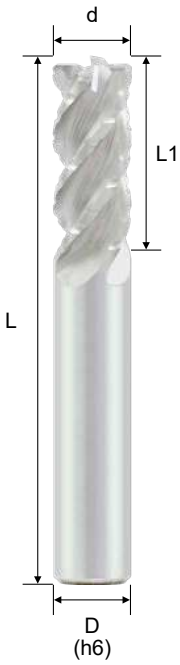
Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENSSR306000	6	15	50	6	3
ENSSR308000	8	20	60	8	3
ENSSR310000	10	25	75	10	3
ENSSR312000	12	30	75	12	3
ENSSR316000	16	40	100	16	3
ENSSR320000	20	45	100	20	3

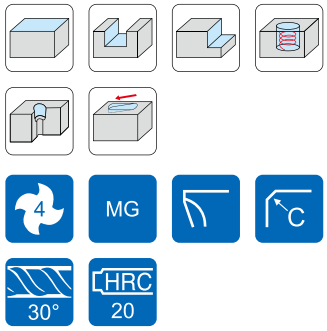
A100 - Roughing · Square · 4F

- Suitable for cutting non-ferrous metals, Aluminum, Aluminum Alloy, Copper (HRC< 20)
- Suitable for rough and high remove rate cutting environment.
- Chamfering design provides a stronger cutting edge.
- Middle coarse pitch provides hi performance and avoids tip fracture.
-

ENSSR

P	M	K	N	S	H
			●		





d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENSSR406000	6	15	50	6	4
ENSSR408000	8	20	60	8	4
ENSSR410000	10	25	75	10	4
ENSSR412000	12	30	75	12	4
ENSSR416000	16	40	100	16	4
ENSSR420000	20	45	100	20	4

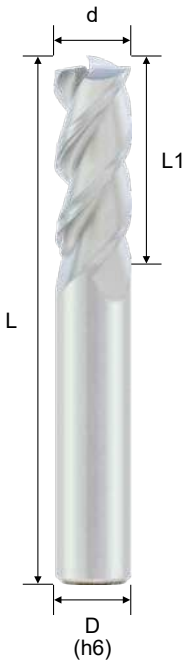
WINSTAR

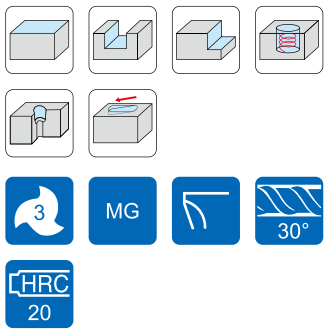
A100 - Wave Edge · Square · 3F

- Suitable for cutting non-ferrous metals, Aluminum, Aluminum Alloy, Copper (HRC< 20)
- Incredible toughness and vibration reduction at high speeds.
- Wave type increases the performance.

ENSSW

P	M	K	N	S	H
			●		





Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENSSW306000	6	15	50	6	3
ENSSW308000	8	20	60	8	3
ENSSW310000	10	30	75	10	3
ENSSW312000	12	30	75	12	3

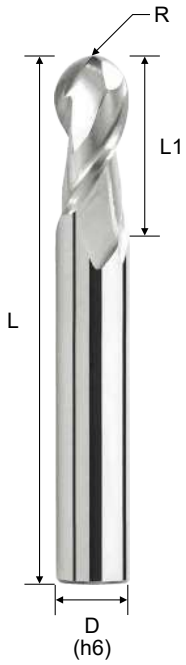
d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

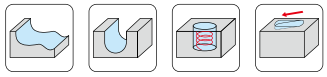
A100 - Ball Nose · 2F

- Suitable for cutting non-ferrous metals, Aluminum, Aluminum Alloy, Copper (HRC< 20).
- Great chip evacuation.
- Due to polish surface grinding of cutting it provides an excellent surface.
- New tool geometry increases wear resistance and cutting force is decreased.

ENBSA

P	M	K	N	S	H
			●		





R Tolerance	
R ≤ 3	±0.015
R > 3	±0.020

Order No.	Radius (R)	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
* ENBSA241000	0.5R	1	2	50	4	2
* ENBSA242000	1.0R	2	4	50	4	2
* ENBSA243000	1.5R	3	6	50	4	2
* ENBSA244000	2.0R	4	8	50	4	2
ENBSA204000	2.0R	4	8	50	6	2
ENBSA205000	2.5R	5	10	50	6	2
ENBSA206000	3.0R	6	12	50	6	2
ENBSA208000	4.0R	8	16	60	8	2
ENBSA210000	5.0R	10	20	75	10	2
ENBSA212000	6.0R	12	24	75	12	2
ENBSA216000	8.0R	16	32	100	16	2

Cutting conditions：Table 081

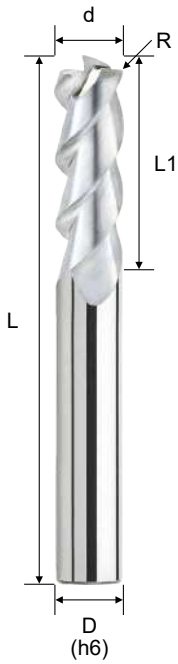
WINSTAR

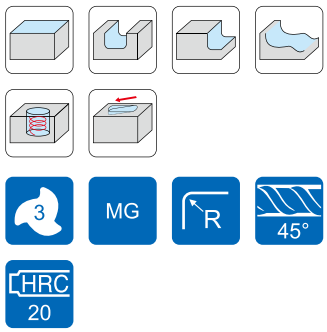
A100 - Corner Radius · 3F

- Suitable for cutting non-ferrous metals, Aluminum, Aluminum Alloy, Copper (HRC< 20)
- High Helix offers excellent and stable finished surfaces in high speed.
- Great chip evacuation and flute polishing get good cutting surface and high feed rate.

ENCSS

P	M	K	N	S	H
			●		





Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENCSS306005	6	0.5R	15	50	6	3
ENCSS308005	8	0.5R	20	60	8	3
ENCSS310010	10	1.0R	30	75	10	3
ENCSS312010	12	1.0R	30	75	12	3
ENCSS316020	16	2.0R	40	100	16	3

d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

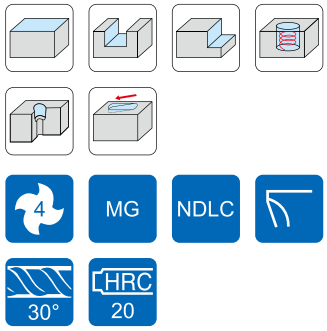
R Tolerance	
R < 2	±0.015
R ≥ 2	±0.020

A100 - Square · 4F (for CU & AL)

- Suitable for copper alloy, copper electrodes, aluminum processing special.
- Sharp cutting edge and flute polished.
- Multiple processing efficiency, coefficient of friction <0.1μm.
- Large positive rake angle and deep flute design, improves cutting efficiency.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.

ENSSC

P	M	K	N	S	H
			●		



d Tolerance	
d ≤ 6	0 ~ -0.02
6 < d ≤ 12	0 ~ -0.03
d > 12	0 ~ -0.04

Order No.	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ENSSC405000L	5	13	50	6	4
ENSSC406000L	6	15	50	6	4
ENSSC408000L	8	20	60	8	4
ENSSC410000L	10	25	75	10	4
ENSSC412000L	12	30	75	12	4

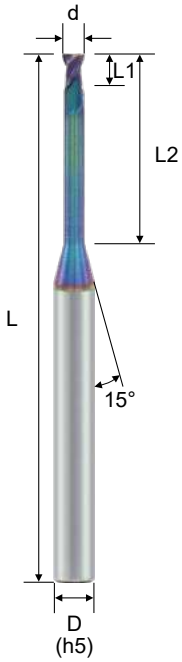
WINSTAR

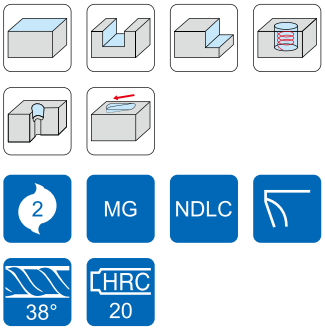
A100 - Long Neck · Square · 2F (for CU & AL)

- Suitable for copper alloy, copper electrodes, aluminum processing special.
- Sharp cutting edge and flute polished.
- Available in various cut lengths.
- Suitable for deep cutting application.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.

ENSRC

P	M	K	N	S	H
			●		





d Tolerance	
d	0 ~ -0.015

Order No.	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
ENSRC240501L	0.5	1	1.5	50	4	2
ENSRC240502L	0.5	1	2	50	4	2
ENSRC240503L	0.5	1	3	50	4	2
ENSRC240504L	0.5	1	4	50	4	2
ENSRC240506L	0.5	1	6	50	4	2
ENSRC241003L	1	2	3	50	4	2
ENSRC241004L	1	2	4	50	4	2
ENSRC241005L	1	2	5	50	4	2
ENSRC241006L	1	2	6	50	4	2
ENSRC241008L	1	2	8	50	4	2
ENSRC241010L	1	2	10	50	4	2
ENSRC241012L	1	2	12	50	4	2
ENSRC242006L	2	4	6	50	4	2
ENSRC242008L	2	4	8	50	4	2
ENSRC242010L	2	4	10	50	4	2
ENSRC242012L	2	4	12	50	4	2
ENSRC242014L	2	4	14	50	4	2
ENSRC242016L	2	4	16	50	4	2
ENSRC242020L	2	4	20	50	4	2
ENSRC243010L	3	6	10	50	4	2
ENSRC243016L	3	6	16	50	4	2
ENSRC243020L	3	6	20	50	4	2
ENSRC244016L	4	8	16	50	4	2
ENSRC244020L	4	8	20	50	4	2

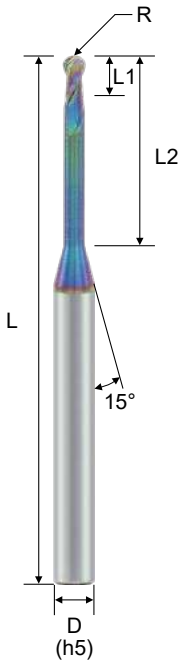
Cutting conditions：Table 082

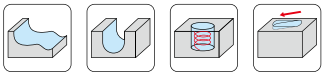
A100 - Long Neck · Ball Nose · 2F (for CU & AL)

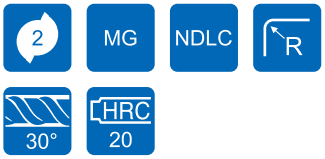
- Suitable for copper alloy, copper electrodes, aluminum processing special.
- Sharp cutting edge and flute polished.
- It provides an excellent surface due to better surface grindings.
- Long neck design is suitable for rid cutting.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.

ENBRC

P	M	K	N	S	H
			●		







R Tolerance	
R	±0.01

Order No.	Radius (R)	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
ENBRC240502L	0.25R	0.5	0.35	2	50	4	2
ENBRC240503L	0.25R	0.5	0.35	3	50	4	2
ENBRC240504L	0.25R	0.5	0.35	4	50	4	2
ENBRC240505L	0.25R	0.5	0.35	5	50	4	2
ENBRC241003L	0.5R	1	0.75	3	50	4	2
ENBRC241004L	0.5R	1	0.75	4	50	4	2
ENBRC241005L	0.5R	1	0.75	5	50	4	2
ENBRC241006L	0.5R	1	0.75	6	50	4	2
ENBRC241008L	0.5R	1	0.75	8	50	4	2
ENBRC241010L	0.5R	1	0.75	10	50	4	2
ENBRC241012L	0.5R	1	0.75	12	50	4	2
ENBRC242004L	1.0R	2	1.5	4	50	4	2
ENBRC242006L	1.0R	2	1.5	6	50	4	2
ENBRC242008L	1.0R	2	1.5	8	50	4	2
ENBRC242010L	1.0R	2	1.5	10	50	4	2
ENBRC242012L	1.0R	2	1.5	12	50	4	2
ENBRC242016L	1.0R	2	1.5	16	50	4	2
ENBRC242020L	1.0R	2	1.5	20	50	4	2
ENBRC243008L	1.5R	3	2.5	8	50	4	2
ENBRC243010L	1.5R	3	2.5	10	50	4	2
ENBRC243016L	1.5R	3	2.5	16	50	4	2
ENBRC243020L	1.5R	3	2.5	20	50	4	2
ENBRC244012L	2.0R	4	3	12	50	4	2
ENBRC244016L	2.0R	4	3	16	50	4	2
ENBRC244020L	2.0R	4	3	20	50	4	2

Cutting conditions：Table 083

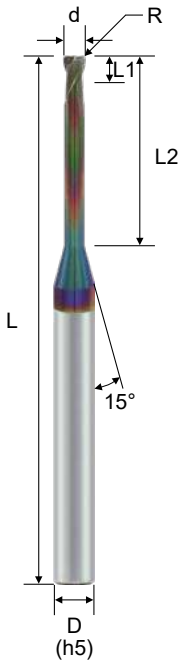
WINSTAR

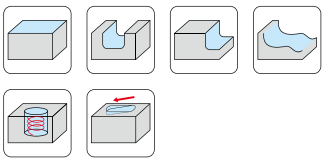
A100 - Long Neck · Corner Radius · 2F (for CU & AL)

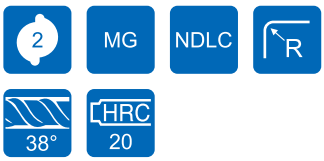
- Suitable for copper alloy, copper electrodes, aluminum processing special.
- Sharp cutting edge and flute polished.
- Available in various cut lengths.
- Corner radius with long neck are suitable for deep general cutting and 3D milling.
- NDLC - Nano DLC coating provides exceptional wear resistance and good tool life.

ENCRC

P	M	K	N	S	H
			●		







d Tolerance	
d	0 ~ -0.015

R Tolerance	
R	±0.0015

Order No.	Dia. (d)	Corner Radius (R)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
ENCRC24050102L	0.5	0.1R	1	2	50	4	2
ENCRC24050103L	0.5	0.1R	1	3	50	4	2
ENCRC24050104L	0.5	0.1R	1	4	50	4	2
ENCRC24050105L	0.5	0.1R	1	5	50	4	2
ENCRC24100103L	1	0.1R	2	3	50	4	2
ENCRC24100104L	1	0.1R	2	4	50	4	2
ENCRC24100105L	1	0.1R	2	5	50	4	2
ENCRC24100106L	1	0.1R	2	6	50	4	2
ENCRC24100108L	1	0.1R	2	8	50	4	2
ENCRC24100110L	1	0.1R	2	10	50	4	2
ENCRC24100203L	1	0.2R	2	3	50	4	2
ENCRC24100204L	1	0.2R	2	4	50	4	2
ENCRC24100205L	1	0.2R	2	5	50	4	2
ENCRC24100206L	1	0.2R	2	6	50	4	2
ENCRC24100208L	1	0.2R	2	8	50	4	2
ENCRC24100210L	1	0.2R	2	10	50	4	2
ENCRC24200105L	2	0.1R	4	5	50	4	2
ENCRC24200108L	2	0.1R	4	8	50	4	2
ENCRC24200110L	2	0.1R	4	10	50	4	2
ENCRC24200115L	2	0.1R	4	15	50	4	2
ENCRC24200120L	2	0.1R	4	20	50	4	2
ENCRC24200305L	2	0.3R	4	5	50	4	2
ENCRC24200308L	2	0.3R	4	8	50	4	2
ENCRC24200310L	2	0.3R	4	10	50	4	2
ENCRC24200315L	2	0.3R	4	15	50	4	2
ENCRC24200320L	2	0.3R	4	20	50	4	2
ENCRC24300212L	3	0.2R	6	12	50	4	2
ENCRC24300215L	3	0.2R	6	15	50	4	2
ENCRC24300220L	3	0.2R	6	20	50	4	2
ENCRC24300512L	3	0.5R	6	12	50	4	2
ENCRC24300515L	3	0.5R	6	15	50	4	2
ENCRC24300520L	3	0.5R	6	20	50	4	2
ENCRC24400216L	4	0.2R	8	16	50	4	2
ENCRC24400220L	4	0.2R	8	20	50	4	2
ENCRC24400516L	4	0.5R	8	16	50	4	2
ENCRC24400520L	4	0.5R	8	20	50	4	2

Cutting conditions：Table 084

Recommended Cutting Conditions

Table 001

H700 Seires EHSSS

WORKING MATERIAL	HARDENED STEEL		HARDENED STEEL		HARDENED STEEL	
CODE	SKT, SKD		SKT, SKD		SKT, SKD	
HARDNESS	HRC 45~55		HRC 55~60		HRC 60~70	
Vc	129 M/min		98 M/min		65 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
6mm	6,890	1,900	5,200	1,000	3,445	505
8mm	5,200	1,900	3,900	1,000	2,600	505
10mm	4,160	1,900	3,120	1,000	2,080	505
12mm	3,445	1,900	2,600	1,000	1,755	505
14mm	2,925	1,800	2,210	1,000	1,430	505
16mm	2,535	1,700	2,015	930	1,294	505
18mm	2,275	1,600	1,885	895	1,151	505
20mm	2,015	1,500	1,495	845	1,040	505
25mm	1,625	1,500	1,242	915	826	505
Milling Amount (mm)			ap 1.5D, ae 0.05D; aeMax ≦ 1.0mm		ap 1.5D, ae 0.03D; aeMax ≦ 0.5mm	ap 1.0D, ae 0.02D; aeMax ≦ 0.5mm

Table 002

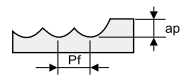
H700 Seires EHSUS4, EHSUS6, EHSUS8

WORKING MATERIAL	HARDENED STEEL		HARDENED STEEL		HARDENED STEEL	
CODE	SKT, SKD		SKT, SKD		SKT, SKD	
HARDNESS	HRC 45~55		HRC 55~60		HRC 60~70	
Vc	208 M/min		195 M/min		129 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
6mm	11,050	2,450	10,335	2,000	6,890	1,210
8mm	8,255	2,440	7,735	1,995	5,200	1,215
10mm	6,630	2,450	6,110	1,970	4,160	1,215
12mm	5,525	2,450	5,135	1,985	3,445	1,210
14mm	4,680	2,420	4,420	1,995	2,925	1,200
16mm	4,095	2,420	3,900	2,000	2,535	1,285
18mm	3,640	2,420	3,445	2,000	2,275	1,200
20mm	3,250	2,400	3,055	1,970	2,015	1,180
25mm	2,600	2,400	2,470	1,990	1,625	1,190
Milling Amount (mm)			ap 1.5D, ae 0.05D; aeMax ≦ 1.0mm		ap 1.5D, ae 0.03D; aeMax ≦ 0.5mm	ap 1.0D, ae 0.02D; aeMax ≦ 0.5mm

Recommended Cutting Conditions

Table 003

H700 Seires EHBUS2

WORKING MATERIAL	HARDENED STEEL		HARDENED STEEL		HARDENED STEEL	
CODE	SKT, SKD		SKT, SKD		SKT, SKD	
HARDNESS	HRC 45~55		HRC 55~60		HRC 60~70	
Vc	86 ~ 129 m/min		77 ~ 116 m/min		42 ~ 63 m/min	
Radius	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
0.5R	41,600	960	39,000	850	33,150	500
1.0R	40,950	1,900	37,050	1,880	20,150	600
1.5R	27,300	2,080	24,700	1,880	13,650	625
2.0R	20,150	2,050	18,200	1,850	10,335	630
2.5R	16,250	2,060	14,300	1,815	8,255	630
3.0R	13,650	2,080	12,350	1,880	6,890	630
4.0R	10,335	1,550	9,295	1,400	5,135	470
5.0R	8,255	1,250	7,410	1,100	4,095	375
6.0R	6,890	1,050	6,175	950	3,445	315
8.0R	5,135	790	4,745	710	2,535	230
Milling Amount (mm)	ap: 0.02D, Pf: 0.1D 					

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Recommended Cutting Conditions

Table 004

H700 Seires EHCUK4

WORKING MATERIAL	HARDENED STEEL		HARDENED STEEL		HARDENED STEEL	
HARDNESS	HRC 40~50		HRC 50~55		HRC 55~60	
Vc	90 ~ 130 m/min		55 ~ 78 m/min		36 ~ 52 m/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
2mm	20,700	5,750	12,420	3,450	8,280	2,310
3mm	13,800	6,050	8,280	3,640	5,520	2,420
4mm	10,350	7,030	6,210	4,220	4,140	2,810
6mm	6,900	6,900	4,140	4,140	2,760	2,760
8mm	5,200	6,850	3,105	4,090	2,070	2,730
10mm	4,150	6,600	2,500	3,970	1,650	2,640
12mm	3,450	6,900	2,070	4,140	1,380	2,760
Milling Amount (mm)						

	ae	ap
R ≦ 1	0.2 x R	0.025D
R > 1	0.4mm	0.025D

	ae	ap
R ≦ 1	0.1 x R	0.025D
R > 1	0.2mm	0.025D

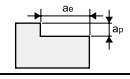


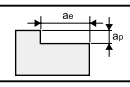
Table 005

H700 Seires EHCUS4

WORKING MATERIAL	HARDENED STEEL		HARDENED STEEL		HARDENED STEEL	
CODE	SKT, SKD		SKT, SKD		SKT, SKD	
HARDNESS	HRC 45~55		HRC 55~60		HRC 60~70	
Vc	65 M/min		39 M/min		26 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
1mm	20,670	2,150	12,350	980	8,281	500
2mm	10,335	2,145	6,175	980	4,134	500
3mm	6,890	2,150	4,160	990	2,756	500
4mm	5,200	2,160	3,120	990	2,067	500
6mm	4,350	2,150	2,600	990	1,750	500
8mm	3,260	2,160	1,950	990	1,310	500
10mm	2,600	2,160	1,560	980	1,050	500
12mm	2,175	2,190	1,300	980	875	500
Milling Amount (mm)						

	ae	ap
R ≦ 2	0.2 x R	0.05D
R > 2	0.4mm	0.05D

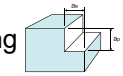
	ae	ap
R ≦ 2	0.1 x R	0.05D
R > 2	0.2mm	0.05D



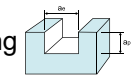
1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Table 006

H680 Seires EHSSF4, EHSLF4, EHCSF4, EHCLF4

Side Milling 

Work Material	Condition Range	Cutting Depth	Cutting Condition	Diameter (d)							
				Ø1	Ø2	Ø3	Ø4	Ø6	Ø8	Ø10	Ø12
Pre-Harden Steels (HRC 35~45) NAK80,CENA1	High Speed	ap=1.5D	RPM	35000	17500	12000	8700	5830	4380	3500	2900
		ae=0.05D	Feed(mm/min)	630	830	1000	1000	1100	1100	1100	1100
	General	ap=1.5D	RPM	25500	12700	8500	6350	4200	3200	2500	2150
		ae=0.07D	Feed(mm/min)	460	510	550	600	750	800	750	700
Hardened Steels (HRC 45~60) SKD61,SKD11,SKH51	High Speed	ap=1.5D	RPM	32000	16000	11000	8000	5300	4000	3200	2750
		ae=0.02D	Feed(mm/min)	600	750	800	850	900	1000	900	850
	General	ap=1.5D	RPM	22000	11200	7400	5600	3750	2800	2200	2000
		ae=0.05D	Feed(mm/min)	360	440	460	500	560	600	580	550

Slotting Milling 

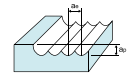
Work Material	Condition Range	Cutting Depth	Cutting Condition	Diameter (d)						
				Ø3	Ø4	Ø5	Ø6	Ø8	Ø10	Ø12
Pre-Harden Steels (HRC 35~45) NAK80,CENA1	General	ap=0.5D	RPM	7690	5800	4640	3770	2900	2320	1890
		ae=1D	Feed(mm/min)	460	580	670	610	580	550	520
Hardened Steels (HRC 45~60) SKD61,SKD11,SKH51	General	ap=0.2D	RPM	3990	3000	2430	1950	1500	1200	1020
		ae=1D	Feed(mm/min)	200	240	300	330	300	270	240

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Recommended Cutting Conditions

Table 007

H680 Seires EHBSF2, EHBLF2, EHBUF2



Work Material	Condition Range	Cutting Depth	Cutting Condition	Radius						
				0.5R	1R	2R	3R	4R	5R	6R
Pre-Harden Steels (HRC 35~45) NAK80,CENA1	High Speed	ap=0.05~0.1	RPM	50000	32000	22000	16000	12000	10000	8000
		ae=0.02D	Feed(mm/min)	4000	3000	2850	2800	2400	2000	1600
	General	ap=0.05~0.1	RPM	36000	20000	13000	8500	6400	5000	4200
		ae=0.02D	Feed(mm/min)	1600	1500	1500	1400	1200	1060	920
Hardened Steels (HRC 45~55) SKD61,SKT4	High Speed	ap=0.05~0.1	RPM	50000	32000	20000	13000	10000	8000	6600
		ae=0.02D	Feed(mm/min)	3200	2560	2500	2200	1840	1600	1400
	General	ap=0.05~0.1	RPM	36000	20000	10000	6800	5200	4000	3500
		ae=0.02D	Feed(mm/min)	1280	1280	1280	1160	960	820	730
Hardened Steels (HRC 55~60) SKD11,SKH51	High Speed	ap=0.05~0.1	RPM	50000	32000	16000	11000	8000	6400	5300
		ae=0.15D	Feed(mm/min)	2000	2000	1920	1760	1400	1200	1060
	General	ap=0.05~0.1	RPM	25000	15000	9500	6500	4800	3800	3200
		ae=0.15D	Feed(mm/min)	1000	1000	960	960	840	720	640

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Table 008

H650 Seires EHSSH2, EHSSH4

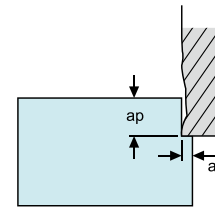
Material	PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Hardened Steel SKD11,SKH51			
Hardness	HRC 35~45				HRC 40~55				HRC 55~65			
Vc	145(m/min)				125 (m/min)				105 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	15390	1415	3	0.15	13270	1220	3	0.15	11150	1025	3	0.15
4mm	11550	1386	4	0.2	9950	1194	4	0.2	8360	1003	4	0.2
6mm	7700	1232	6	0.3	6630	1060	6	0.3	5570	891	6	0.3
8mm	5770	923	8	0.4	4980	796	8	0.4	4180	668	8	0.4
10mm	4620	924	10	0.5	3980	796	10	0.5	3345	669	10	0.5
12mm	3850	770	12	0.6	3320	664	12	0.6	2790	558	12	0.6

Table 009

H650 Seires EHSLH4

Material	PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Hardened Steel SKD11,SKH51			
Hardness	HRC 35~45				HRC 40~55				HRC 55~65			
Vc	123 (m/min)				106 (m/min)				89 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	13080	1200	3	0.15	11280	1038	3	0.15	9480	871	3	0.15
4mm	9820	1178	4	0.2	8460	1015	4	0.2	7100	852	4	0.2
6mm	6545	1050	6	0.3	5635	900	6	0.3	4740	757	6	0.3
8mm	4905	785	8	0.4	4235	676	8	0.4	3555	568	8	0.4
10mm	3927	785	10	0.5	3385	676	10	0.5	2845	568	10	0.5
12mm	3270	655	12	0.6	2820	564	12	0.6	2370	474	12	0.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 010

H650 Seires EHBSH2

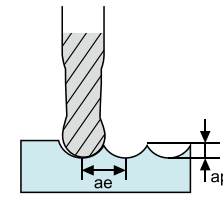
Material	PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Hardened Steel SKD11,SKH51			
Hardness	HRC 35~45				HRC 40~55				HRC 55~65			
Vc	145 (m/min)				125 (m/min)				105 (m/min)			
Radius	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1R	45270	1130	0.14	0.2	39030	975	0.14	0.2	32780	820	0.14	0.2
2R	22636	1358	0.28	0.4	19500	1170	0.28	0.4	16400	984	0.28	0.4
3R	15090	1130	0.42	0.6	13000	975	0.42	0.6	10930	820	0.42	0.6
4R	11320	905	0.56	0.8	9750	780	0.56	0.8	8195	655	0.56	0.8
5R	9055	770	0.7	1	7800	663	0.7	1	6555	557	0.7	1
6R	7545	680	0.84	1.2	6500	585	0.84	1.2	5460	491	0.84	1.2

Table 011

H650 Seires EHBLH2

Material	PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Hardened Steel SKD11,SKH51			
Hardness	HRC 35~45				HRC 40~55				HRC 55~65			
Vc	145 (m/min)				125 (m/min)				105 (m/min)			
Radius	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1R	36200	904	0.14	0.2	31200	780	0.14	0.2	26200	656	0.14	0.2
2R	18100	1086	0.28	0.4	15600	930	0.28	0.4	13120	787	0.28	0.4
3R	12050	904	0.42	0.6	10400	780	0.42	0.6	8750	656	0.42	0.6
4R	9050	724	0.56	0.8	7800	624	0.56	0.8	6550	524	0.56	0.8
5R	7250	616	0.7	1	6250	530	0.7	1	5250	446	0.7	1
6R	6036	544	0.84	1.2	5200	468	0.84	1.2	4370	393	0.84	1.2

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 012

H650 Seires EHBUH2

Material	PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Hardened Steel SKD11,SKH51			
Hardness	HRC 35~45				HRC 40~55				HRC 55~65			
Vc	145 (m/min)				125 (m/min)				105 (m/min)			
Radius	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1R	45270	1130	0.14	0.2	39030	975	0.14	0.2	32780	820	0.14	0.2
2R	22636	1358	0.28	0.4	19500	1170	0.28	0.4	16400	984	0.28	0.4
3R	15090	1130	0.42	0.6	13000	975	0.42	0.6	10930	820	0.42	0.6
4R	11320	905	0.56	0.8	9750	780	0.56	0.8	8195	655	0.56	0.8
5R	9055	770	0.7	1	7800	663	0.7	1	6555	557	0.7	1
6R	7545	680	0.84	1.2	6500	585	0.84	1.2	5460	491	0.84	1.2

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

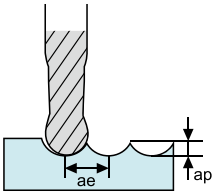
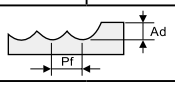


Table 013

H650 Seires EHBRT2

WORKING MATERIAL	HARDENED STEEL		HARDENED STEEL		HARDENED STEEL	
CODE	SKT, SKD		SKT, SKD		SKT, SKD	
HARDNESS	HRC 35~45		HRC 45~55		HRC 55~60	
Vc	260 M/min		195 M/min		130 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
1.0R	41,600	1,920	31,200	1,440	20,800	960
2.0R	20,800	1,920	15,600	1,440	10,335	955
3.0R	13,650	1,890	10,335	1,430	6,890	955
4.0R	10,335	1,910	7,735	1,430	5,200	960
5.0R	8,255	1,905	6,240	1,440	4,160	960
6.0R	6,890	1,910	5,200	1,440	3,445	955
8.0R	5,200	1,920	3,900	1,440	2,600	960
10.0R	4,160	1,920	3,120	1,440	2,080	960
Milling Amount (mm)	Ad = 0.05D Pf = 0.1D					



1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Recommended Cutting Conditions

Table 014

H650 Seires EHCSH4

Material	PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Hardened Steel SKD11,SKH51			
Hardness	HRC 35~45				HRC 40~55				HRC 55~65			
Vc	145 (m/min)				125 (m/min)				105 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	15390	1415	3	0.15	13270	1220	3	0.15	11150	1025	3	0.15
4mm	11550	1386	4	0.2	9950	1194	4	0.2	8360	1003	4	0.2
6mm	7700	1232	6	0.3	6630	1060	6	0.3	5570	891	6	0.3
8mm	5770	923	8	0.4	4980	796	8	0.4	4180	668	8	0.4
10mm	4620	924	10	0.5	3980	796	10	0.5	3345	669	10	0.5
12mm	3850	770	12	0.6	3320	664	12	0.6	2790	558	12	0.6

Table 015

H650 Seires EHCLH4

Material	PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Hardened Steel SKD11,SKH51			
Hardness	HRC 35~45				HRC 40~55				HRC 55~65			
Vc	123 (m/min)				106 (m/min)				89 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	13080	1200	3	0.15	11280	1038	3	0.15	9480	871	3	0.15
4mm	9820	1178	4	0.2	8460	1015	4	0.2	7100	852	4	0.2
6mm	6545	1050	6	0.3	5635	900	6	0.3	4740	757	6	0.3
8mm	4905	785	8	0.4	4235	676	8	0.4	3555	568	8	0.4
10mm	3927	785	10	0.5	3385	676	10	0.5	2845	568	10	0.5
12mm	3270	655	12	0.6	2820	564	12	0.6	2370	474	12	0.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

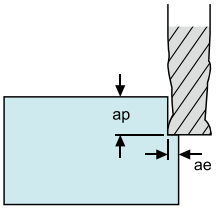


Table 016

H650 Seires EHCUH4

Material	PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Hardened Steel SKD11,SKH51			
Hardness	HRC 35~45				HRC 40~55				HRC 55~65			
Vc	123 (m/min)				106 (m/min)				89 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	15390	1415	3	0.15	13270	1220	3	0.15	11150	1025	3	0.15
4mm	11550	1386	4	0.2	9950	1194	4	0.2	8360	1003	4	0.2
6mm	7700	1232	6	0.3	6630	1060	6	0.3	5570	891	6	0.3
8mm	5770	923	8	0.4	4980	796	8	0.4	4180	668	8	0.4
10mm	4620	924	10	0.5	3980	796	10	0.5	3345	669	10	0.5
12mm	3850	770	12	0.6	3320	664	12	0.6	2790	558	12	0.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

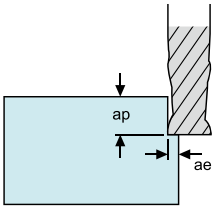


Table 017

H650 Seires EHWSA4, EHWSA6

Working Material	Carbon / Alloy steel (< HRC 30)			Carbon / Alloy steel (HRC 35~45)			Stainless steel			Hardened steel (HRC 40~55)	High temperature alloy		Hardened steel (HRC 55~62)
Vc	150 m/min			135 m/min			120 m/min				80 m/min		
Diameter (d)	fz (mm/z)	ap (mm)	ae (mm)	fz (mm/z)	ap (mm)	ae (mm)	fz (mm/z)	ap (mm)	ae (mm)		fz (mm/z)	ap (mm)	ae (mm)
6mm	0.35	0.24	3.0	0.35	0.24	3.0	0.35	0.24	3.0		0.30	0.24	3.0
8mm	0.35	0.32	4.8	0.35	0.32	4.8	0.35	0.32	4.8		0.30	0.32	4.8
10mm	0.40	0.40	6.0	0.40	0.40	6.0	0.40	0.40	6.0		0.35	0.40	6.0
12mm	0.45	0.48	7.2	0.45	0.48	7.2	0.45	0.48	7.2		0.40	0.48	7.2

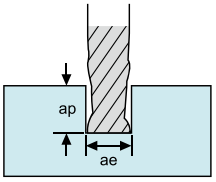
Recommended Cutting Conditions

Table 018

H650 Seires EHSRC2

Material		PREHARDENED STEELS NAK80 CENA1			HARDENED STEELS SKD61,SKD11			Hardened Steel SKD11,SKH51			
Hardness		HRC 35~45			HRC 40~55			HRC 55~65			
Dia	EFF-L	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
0.2mm	0.5	56000	270	0.003	44800	180	0.002	15000	10	0.001	0.160
	1	50900	230	0.004	40800	160	0.003	-	-	-	
	1.5	48200	200	0.002	38500	140	0.002	-	-	-	
0.3mm	1.5	50800	360	0.005	42700	260	0.004	14600	13	0.003	0.057
	3	31900	190	0.001	25500	130	0.001	14600	10	0.001	0.004
	5	20400	80	0.001	16300	60	0.001	-	-	-	-
0.4mm	1	48100	470	0.008	38500	320	0.005	14300	17	0.003	0.054
	5	30100	240	0.002	24100	160	0.001	14300	14	0.001	0.003
	10	24600	150	0.001	19700	100	0.001	14300	11	0.001	0.001
0.5mm	3	32200	370	0.008	25700	260	0.006	14000	19	0.004	0.016
	5	27200	290	0.006	21700	200	0.004	14000	17	0.003	0.008
	8	21600	190	0.001	17400	130	0.001	14000	14	0.001	0.002
	10	19600	150	0.001	15600	100	0.001	14000	12	0.001	0.001
	14	16300	70	0.001	13000	50	0.001	-	-	-	-
0.6mm	3	33500	500	0.013	26800	340	0.009	12000	22	0.005	0.114
	6	23000	290	0.005	18400	200	0.003	12000	19	0.002	0.008
	8	20000	230	0.003	16000	160	0.002	12000	17	0.001	0.003
	10	17900	180	0.002	14300	130	0.001	12000	15	0.001	0.002
	12	16400	150	0.001	13100	100	0.001	12000	13	0.001	0.001
	16	13500	70	0.001	10800	50	0.001	-	-	-	-
0.7mm	4	25800	440	0.012	20600	290	0.009	10000	22	0.006	0.047
	6	21200	330	0.007	16900	230	0.005	10000	20	0.003	0.014
	8	18400	260	0.004	14700	190	0.003	10000	18	0.002	0.006
	10	16500	220	0.003	13200	160	0.002	10000	16	0.001	0.003
0.8mm	4	24100	480	0.019	19300	330	0.013	8000	20	0.010	0.080
	8	17200	300	0.006	13800	200	0.004	8000	16	0.003	0.010
	12	14100	200	0.003	11300	140	0.002	8000	12	0.001	0.003
	14	12300	150	0.001	9800	100	0.001	-	-	-	
0.9mm	6	18500	420	0.013	14800	290	0.010	7200	18	0.007	0.038
	8	16100	330	0.008	12900	230	0.006	7200	16	0.004	0.016
	10	14500	270	0.005	11600	190	0.004	7200	14	0.002	0.008

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



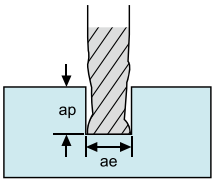
Recommended Cutting Conditions

Table 019

H650 Seires EHSRC2

Material		PREHARDENED STEELS NAK80 CENA1			HARDENED STEELS SKD61,SKD11			Hardened Steel SKD11,SKH51			
Hardness		HRC 35~45			HRC 40~55			HRC 55~65			
Dia	EFF-L	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1.0mm	5	19600	510	0.022	15700	360	0.016	6500	15	0.009	0.013
	10	13800	300	0.007	11000	210	0.005	6500	12	0.003	0.013
	12	12600	250	0.005	10100	170	0.003	6500	11	0.002	0.007
	14	11700	210	0.003	9400	150	0.002	650	10	0.001	0.005
	16	11000	180	0.003	8800	130	0.002	-	-	-	-
	20	9800	130	0.002	7900	90	0.001	-	-	-	-
1.2mm	6	16100	490	0.026	12800	340	0.019	9600	22	0.011	0.120
	12	11400	290	0.008	9100	200	0.005	-	-	-	-
	16	9800	220	0.004	7900	150	0.003	-	-	-	-
	20	8800	170	0.003	7000	120	0.002	-	-	-	-
1.4mm	8	12900	440	0.025	10300	310	0.018	9600	18	0.010	0.094
	10	11500	380	0.017	9200	260	0.012	-	-	-	0.048
	16	9100	250	0.007	7300	180	0.005	-	-	-	0.012
	20	7800	180	0.004	6200	120	0.003	-	-	-	0.005
1.5mm	8	12500	460	0.029	10000	320	0.020	9600	25	0.012	0.124
	12	10200	340	0.016	8200	240	0.011	-	-	-	-
	14	9500	300	0.012	7600	210	0.008	-	-	-	-
	16	8900	270	0.009	7100	190	0.007	-	-	-	-
	20	7900	220	0.006	6300	150	0.004	-	-	-	-
1.6mm	10	10800	410	0.025	8600	280	0.018	9600	15	0.010	0.082
	14	9100	320	0.014	7300	220	0.010	-	-	-	-
	18	8000	260	0.009	6400	180	0.006	-	-	-	-
2.0mm	6	12500	650	0.045	10000	450	0.032	9600	211	0.019	0.926
	10	9700	470	0.031	7800	330	0.022	9600	45	0.013	0.200
	12	8900	420	0.026	7100	290	0.019	9600	56	0.011	0.116
	14	8200	370	0.022	6600	260	0.016	9600	16	0.009	0.073
	20	6900	280	0.013	5500	190	0.009	-	-	-	-
	25	6200	230	0.008	4900	160	0.006	-	-	-	-
	30	5600	180	0.005	4500	130	0.004	-	-	-	-
2.5mm	8	9600	670	0.054	7700	460	0.039	9600	227	0.023	0.954
	12	7900	520	0.042	6300	360	0.030	9600	67	0.018	0.283
	16	6800	430	0.031	5500	290	0.022	9600	28	0.013	0.119
	20	6100	360	0.023	4900	250	0.017	9600	14	0.010	0.061
	25	5500	300	0.015	4400	210	0.011	-	-	-	-
	30	5000	250	0.010	4000	170	0.007	-	-	-	-
	35	4800	190	0.007	3800	140	0.005	-	-	-	-

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



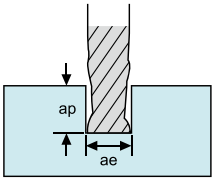
Recommended Cutting Conditions

Table 020

H650 Seires EHSRC2

Material		PREHARDENED STEELS NAK80 CENA1			HARDENED STEELS SKD61,SKD11			Hardened Steel SKD11,SKH51			
Hardness		HRC 35~45			HRC 40~55			HRC 55~65			
Dia	EFF-L	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3.0mm	6	8000	700	0.072	6400	480	0.052	8000	435	0.031	1.978
	10	7200	620	0.064	5800	430	0.046	8000	222	0.027	1.013
	16	5900	470	0.045	4700	320	0.032	8000	54	0.019	0.247
	20	5300	400	0.035	4300	280	0.025	8000	27	0.015	0.127
	25	4800	340	0.025	3900	230	0.018	8000	14	0.010	0.065
	30	4500	290	0.018	3600	200	0.013	8000	10	0.007	0.038
	35	4200	250	0.013	3300	170	0.009	-	-	-	-
4.0mm	8	6800	770	0.093	5300	500	0.070	6000	450	0.050	1.990
	12	5100	600	0.078	4100	410	0.056	6000	388	0.033	1.852
	16	4400	510	0.065	3600	350	0.046	6000	164	0.027	0.781
	20	4000	440	0.054	3200	300	0.038	6000	84	0.022	0.400
	25	3600	380	0.042	2900	260	0.030	6000	43	0.018	0.205
	30	3300	330	0.033	2600	230	0.024	6000	24	0.014	0.119
	35	3100	290	0.026	2500	200	0.019	6000	15	0.011	0.075
5.0mm	16	3500	520	0.089	2800	360	0.064	4800	457	0.038	1.907
	20	3100	440	0.085	2500	310	0.061	4800	234	0.036	0.977
	25	2800	390	0.077	2200	270	0.055	4800	120	0.033	0.500
	30	2500	340	0.066	2000	230	0.047	4800	69	0.028	0.289
	35	2300	300	0.054	1900	210	0.038	4800	43	0.022	0.182
6.0mm	20	2600	470	0.088	2100	330	0.063	4000	607	0.037	2.025
	30	2000	340	0.077	1600	240	0.055	4000	180	0.033	0.600
8.0mm	20	2300	450	0.130	1700	330	0.090	3400	580	0.050	1.600
	40	1500	250	0.800	1100	160	0.060	3400	84	0.035	0.200
10.0mm	25	2100	430	0.130	1500	310	0.080	3200	540	0.050	1.760
	45	1300	220	0.700	900	150	0.050	3200	76	0.030	0.240
12.0mm	30	2000	400	0.140	1400	280	0.080	3000	540	0.050	1.840
	50	1500	200	0.800	800	140	0.050	3000	72	0.030	0.280

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



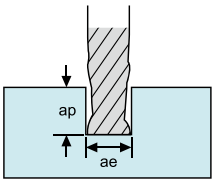
Recommended Cutting Conditions

Table 021

H650 Seires EHSRC4

Material	PREHARDENED STEELS NAK80 CENA1		HARDENED STEELS SKD61,SKD11		Hardened Steel SKD11,SKH51	
Hardness	HRC 35~45		HRC 40~55		HRC 55~65	
Dia	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1mm	38000	1050	25500	710	20500	430
2mm	26000	1250	17500	840	14500	520
3mm	17300	1250	11500	840	9500	520
4mm	13200	1300	8800	880	7200	540
5mm	12500	1500	8300	1000	6400	580
6mm	10350	1400	6900	950	5300	560
8mm	7800	1350	5200	900	4000	520
10mm	6450	1260	4100	840	3200	480
12mm	5250	1260	3500	840	2650	480

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



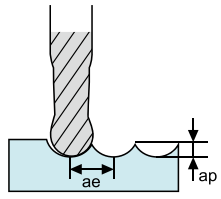
Recommended Cutting Conditions

Table 022

H650 Seires EHBRC2

Material		PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Hardened Steel SKD11,SKH51			
Hardness		HRC 35~45				HRC 40~55				HRC 55~65			
Radius	EFF-L	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
R0.15	1	45000	552	0.010	0.010	38000	420	0.090	0.010	38000	348	0.007	0.009
	3	40800	360	0.006	0.007	33600	264	0.005	0.005	33600	216	0.004	0.005
R0.2	1	54000	768	0.016	0.022	39600	516	0.013	0.022	39600	432	0.011	0.021
	3	44400	480	0.010	0.010	32400	312	0.009	0.010	32400	264	0.008	0.010
	5	30000	372	0.008	0.010	26400	288	0.006	0.010	26400	228	0.004	0.005
R0.25	5	34800	552	0.008	0.008	31200	444	0.007	0.010	31200	216	0.006	0.009
	10	28800	456	0.007	0.010	28800	372	0.005	0.010	27600	216	0.005	0.009
R0.3	1	39600	960	0.022	0.091	27600	600	0.019	0.091	26400	516	0.014	0.091
	5	28800	504	0.012	0.043	26400	396	0.008	0.042	26400	336	0.007	0.040
	10	24000	360	0.005	0.020	22800	312	0.004	0.020	22800	240	0.003	0.018
R0.4	2	34800	816	0.045	0.100	27600	552	0.038	0.100	26400	456	0.030	0.010
	6	28800	636	0.028	0.068	21600	420	0.020	0.068	21600	348	0.015	0.065
	10	2040	468	0.020	0.050	19200	408	0.015	0.050	16800	336	0.010	0.050
R0.5	5	33600	900	0.052	0.220	21600	540	0.040	0.220	18000	540	0.008	0.014
	10	16320	600	0.020	0.056	15000	456	0.014	0.056	13680	312	0.008	0.050
	16	13680	480	0.016	0.056	12360	384	0.012	0.056	11520	252	0.005	0.030
R0.75	10	14760	782	0.080	0.170	9720	480	0.062	0.170	9720	456	0.050	0.160
	18	12120	504	0.022	0.110	9600	432	0.020	0.110	9600	408	0.012	0.110
	30	9840	456	0.012	0.050	9480	420	0.010	0.050	9480	396	0.010	0.050
R1.0	4	21000	1392	0.180	0.350	14640	1080	0.140	0.350	14640	900	0.120	0.350
	10	21000	1224	0.140	0.230	14640	972	0.110	0.230	14640	792	0.090	0.230
	20	15960	600	0.060	0.110	12720	600	0.055	0.110	12720	492	0.035	0.110
R1.5	6	14400	1824	0.200	0.340	9840	1320	0.160	0.320	6480	732	0.160	0.320
	10	14400	1824	0.200	0.340	9840	1320	0.160	0.320	6480	732	0.160	0.300
	20	12360	1476	0.145	0.320	8520	1128	0.120	0.310	5760	660	0.080	0.300
	30	9360	816	0.100	0.150	8520	816	0.080	0.150	5760	384	0.070	0.300
R2.0	8	10440	1752	0.290	0.550	7200	1332	0.220	0.500	7200	1056	0.150	0.500
	20	10440	1752	0.290	0.550	7200	1332	0.220	0.500	7200	1056	0.150	0.500
	30	8880	1380	0.200	0.320	6600	1056	0.150	0.300	6600	816	0.130	0.300
	35	7200	1056	0.132	0.320	6600	1056	0.100	0.300	6600	816	0.090	0.300
R2.5	15	8400	1500	0.300	0.700	6000	1140	0.220	0.700	6000	900	0.200	0.650
	25	8400	1380	0.300	0.550	6000	1080	0.220	0.550	6000	816	0.200	0.500
R3.0	15	8160	1764	0.420	0.800	5760	1320	0.300	0.800	4440	864	0.300	0.800
R4.0	25	7200	1176	0.350	0.750	4920	912	0.180	0.600	4560	732	0.200	0.630
R5.0	30	5880	1128	0.370	0.900	4800	852	0.200	0.670	4200	708	0.200	0.650
R6.0	30	4800	984	0.420	0.900	4320	828	0.250	0.600	3600	600	0.250	0.600

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



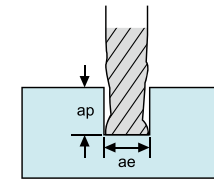
Recommended Cutting Conditions

Table 023

H650 Seires EHCBC2, EHCRC2

Material		PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Hardened Steel SKD11,SKH51			
Hardness		HRC 35~45				HRC 40~55				HRC 55~65			
Dia	EFF-L	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1.0mm	4	13800	805	0.029	0.264	11730	655	0.034	0.264	8280	78	0.017	0.264
	10	8625	311	0.011	0.123	7475	264	0.013	0.123	5290	31	0.006	0.123
1.2mm	6	9200	575	0.018	0.088	8165	483	0.215	0.088	6095	59	0.011	0.088
	12	6670	368	0.007	0.070	5980	299	0.008	0.070	4370	37	0.004	0.070
1.5mm	4	12880	1070	0.044	0.440	11730	920	0.059	0.440	8970	121	0.032	0.440
	10	8280	736	0.031	0.282	7590	633	0.041	0.282	5865	83	0.022	0.282
	16	5865	403	0.005	0.106	5405	345	0.006	0.106	4141	45	0.003	0.106
2.0mm	6	12535	1001	0.042	0.792	11730	909	0.095	0.792	9430	130	0.035	0.792
	12	9200	805	0.030	0.440	8280	725	0.043	0.440	6785	105	0.025	0.440
	20	6900	633	0.017	0.194	6440	564	0.023	0.194	5175	82	0.014	0.194
	25	5865	541	0.005	0.132	5405	495	0.005	0.132	4255	68	0.002	0.132
2.5mm	10	10350	1001	0.051	0.528	9775	943	0.073	0.528	8165	151	0.047	0.528
	25	6210	437	0.011	0.176	5865	414	0.016	0.176	4830	65	0.010	0.176
3.0mm	10	10350	1127	0.103	0.616	9775	874	0.103	0.655	8740	196	0.073	0.655
	20	8165	863	0.071	0.567	7705	667	0.071	0.567	6900	147	0.043	0.567
	30	6900	702	0.049	0.371	6325	541	0.049	0.371	5865	115	0.028	0.362
4.0mm	13	8740	1058	0.081	1.124	7360	920	0.117	1.124	6210	210	0.083	1.124
	20	6785	978	0.053	0.880	5750	840	0.078	0.880	4830	194	0.057	0.880
	30	5750	748	0.028	0.671	4715	656	0.041	0.671	4025	149	0.030	0.708
5.0mm	16	7705	1702	0.106	1.346	5520	1139	0.150	1.346	4600	342	0.110	1.346
	30	5290	817	0.053	1.035	3795	541	0.075	1.035	3220	164	0.055	1.035
6.0mm	20	5980	1219	0.476	1.356	3565	1035	0.186	1.356	3105	393	0.145	1.356
	30	4600	909	0.410	1.304	2645	759	0.164	1.304	2300	304	0.123	1.304
8.0mm	22	5520	1081	0.419	1.518	3220	909	0.164	1.518	2760	346	0.128	1.518
10.0mm	24	4485	920	0.356	1.645	2760	771	0.139	1.645	2300	294	0.108	1.645
12.0mm	26	3795	771	0.299	2.024	2300	644	0.117	2.024	1955	247	0.091	2.024

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



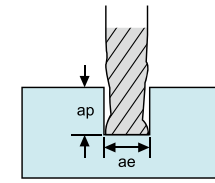
Recommended Cutting Conditions

Table 024

H650 Seires EHCBC4, EHCRC4

Material		**PREHARDENED STEELS** NAK80 CENA1				**Hardened Steel** SKD11,SKH51			
Hardness		HRC 35~45				HRC 55~65			
Dia	EFF-L	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
2.0mm	6	12650	1265	0.063	0.633	11730	1173	0.059	0.713
	12	8970	1012	0.045	0.396	8280	943	0.043	0.396
2.5mm	10	10580	1380	0.065	0.528	9775	1150	0.065	0.528
	20	7590	1150	0.047	0.640	7360	655	0.030	0.220
3.0mm	10	11040	2070	0.094	0.684	10235	2070	0.059	0.684
	20	8165	1495	0.057	0.567	7705	1495	0.035	0.567
4.0mm	13	9085	1576	0.105	1.150	7590	1530	0.082	1.150
	20	7130	1380	0.069	0.920	59801	1288	0.054	0.920
	30	6325	1104	0.043	0.745	5290	1058	0.033	0.745
6.0mm	20	5635	1691	0.176	2.305	3335	978	0.176	1.281
	30	2875	782	0.098	1.320	1610	460	0.098	0.733
8.0mm	22	4600	1840	0.212	2.921	2760	782	0.212	1.518
10.0mm	24	3680	2013	0.242	3.140	2185	621	0.253	1.645
12.0mm	26	2875	2070	0.265	3.105	1725	495	0.276	1.714

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 025

H600 Seires EHSSC2 *(H600 Series, vc, rpm and feed increase 20%)*

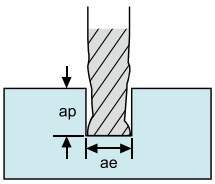
G550 Seires EPSSC2

G450 Seires EPSSA2

Material	**CARBON STEEL / ALLOY STEEL**				**ALLOY STEEL / TOOL STEEL** SCM, SKT, SKD				**PREHARDENED STEEL** NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	120(m/min)				95(m/min)				79(m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	12700	380	1.5	3	10000	300	0.9	3	8386	251	0.15	3
4mm	9550	382	2	4	7560	302	1.2	4	6290	251	0.2	4
6mm	6370	445	3	6	5040	352	1.8	6	4200	294	0.3	6
8mm	4770	333	4	8	3780	264	2.4	8	3140	220	0.4	8
10mm	3820	230	5	10	3020	181	3	10	2515	150	0.5	10
12mm	3180	190	6	12	2520	151	3.6	12	2100	126	0.6	12

Material	**HARDENED STEEL** SKD61, SKD11				**STAINLESS STEEL** SUS304 316				**CAST IRON** FC / FCD			
Hardness	HRC 40~55)											
Vc	48(m/min)				79(m/min)				120(m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	5095	152	0.15	3	8386	251	0.15	3	12700	380	1.5	3
4mm	3820	152	0.2	4	6290	251	0.2	4	9550	382	2	4
6mm	2548	178	0.3	6	4200	294	0.3	6	6370	445	3	6
8mm	1910	133	0.4	8	3140	220	0.4	8	4770	333	4	8
10mm	1528	92	0.5	10	2515	150	0.5	10	3820	230	5	10
12mm	1274	76	0.6	12	2100	126	0.6	12	3180	190	6	12

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 026

H600 Seires EHSSC4, EHSHC4 *(H600 Series, vc, rpm and feed increase 20%)*

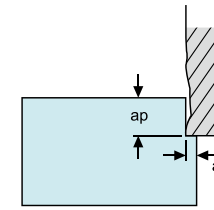
G550 Seires EPSSC3, EPSSC4, EPSSA4

G450 Seires EPSSA4

Material	CARBON STEEL / ALLOY STEEL				ALLOY STEEL / TOOL STEEL SCM, SKT, SKD				PREHARDENED STEEL NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	120 (m/min)				95 (m/min)				79 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	12700	762	3	0.15	10000	600	3	0.15	8386	503	3	0.15
4mm	9550	764	4	0.2	7560	604	4	0.2	6290	503	4	0.2
6mm	6370	890	6	0.3	5040	705	6	0.3	4200	588	6	0.3
8mm	4770	668	8	0.4	3780	529	8	0.4	3140	440	8	0.4
10mm	3820	458	10	0.5	3020	362	10	0.5	2515	301	10	0.5
12mm	3180	380	12	0.6	2520	302	12	0.6	2100	252	12	0.6

Material	HARDENED STEEL SKD61, SKD11				STAINLESS STEEL SUS304 316				CAST IRON FC / FCD			
Hardness	HRC 40~55)											
Vc	48 (m/min)				79 (m/min)				120 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	5095	305	3	0.15	8386	503	3	0.15	12700	503	3	0.15
4mm	3820	305	4	0.2	6290	503	4	0.2	9550	503	4	0.2
6mm	2548	356	6	0.3	4200	588	6	0.3	6370	588	6	0.3
8mm	1910	267	8	0.4	3140	440	8	0.4	4770	440	8	0.4
10mm	1528	183	10	0.5	2515	301	10	0.5	3820	301	10	0.5
12mm	1274	152	12	0.6	2100	252	12	0.6	3180	252	12	0.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 027

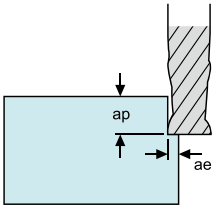
H600 Seires EHSSD4 *(H600 Series, vc, rpm and feed increase 20%)*

G550 Seires EPSSH4, EPSCH6

Material	**CARBON STEEL / ALLOY STEEL**				**ALLOY STEEL / TOOL STEEL** SCM, SKT, SKD				**PREHARDENED STEEL** NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	120 (m/min)				95 (m/min)				79 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	12700	762	4.5	0.15	10000	600	4.5	0.15	8386	503	4.5	0.15
4mm	9550	764	6	0.2	7560	604	6	0.2	6290	503	6	0.2
6mm	6370	890	9	0.3	5040	705	9	0.3	4200	588	9	0.3
8mm	4770	668	12	0.4	3780	529	12	0.4	3140	440	12	0.4
10mm	3820	458	15	0.5	3020	362	15	0.5	2515	301	15	0.5
12mm	3180	380	18	0.6	2520	302	18	0.6	2100	252	18	0.6

Material	**HARDENED STEEL** SKD61, SKD11				**STAINLESS STEEL** SUS304 316				**CAST IRON** FC / FCD			
Hardness	HRC 40~55)											
Vc	48 (m/min)				79 (m/min)				120 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	5095	305	4.5	0.15	7430	743	4.5	0.15	12700	503	4.5	0.15
4mm	3820	305	6	0.2	5570	577	6	0.2	9550	503	6	0.2
6mm	2548	356	9	0.3	3720	595	9	0.3	6370	588	9	0.3
8mm	1910	267	12	0.4	2780	556	12	0.4	4770	440	12	0.4
10mm	1528	183	15	0.5	2230	535	15	0.5	3820	301	15	0.5
12mm	1274	152	18	0.6	1860	484	18	0.6	3180	252	18	0.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 028

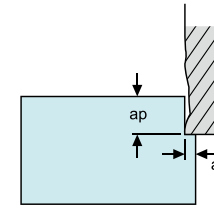
H600 Seires EHSCC4, EHSCH4 *(H600 Series, vc, rpm and feed increase 20%)*

G550 Seires EPSCC4

Material	**CARBON STEEL / ALLOY STEEL**				**ALLOY STEEL / TOOL STEEL** SCM, SKT, SKD				**PREHARDENED STEEL** NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	96 (m/min)				76 (m/min)				63 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	10160	610	3	0.15	8000	480	3	0.15	6708	402	3	0.15
4mm	7640	610	4	0.2	6048	483	4	0.2	5032	402	4	0.2
6mm	5096	712	6	0.3	4032	564	6	0.3	3360	470	6	0.3
8mm	3816	534	8	0.4	3024	423	8	0.4	2512	352	8	0.4
10mm	3056	366	10	0.5	2416	290	10	0.5	2012	240	10	0.5
12mm	2544	304	12	0.6	2016	242	12	0.6	1680	202	12	0.6

Material	**HARDENED STEEL** SKD61, SKD11				**STAINLESS STEEL** SUS304 316				**CAST IRON** FC / FCD			
Hardness	HRC 40~55)											
Vc	38 (m/min)				63 (m/min)				96 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	4076	244	3	0.15	6708	402	3	0.15	10160	610	3	0.15
4mm	3056	244	4	0.2	5032	402	4	0.2	7640	610	4	0.2
6mm	2038	285	6	0.3	3360	470	6	0.3	5096	712	6	0.3
8mm	1528	214	8	0.4	2512	352	8	0.4	3816	534	8	0.4
10mm	1222	146	10	0.5	2012	240	10	0.5	3056	366	10	0.5
12mm	1016	122	12	0.6	1680	202	12	0.6	2544	304	12	0.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

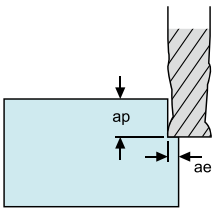
Table 029

G550 Seires EPSSH4, EPSCH6

Material	CARBON STEEL / ALLOY STEEL				ALLOY STEEL / TOOL STEEL SCM, SKT, SKD				PREHARDENED STEEL NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	96 (m/min)				76 (m/min)				63 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	10160	610	4.5	0.15	8000	480	4.5	0.15	67010	402	4.5	0.15
4mm	7640	611	6	0.2	6048	483	6	0.2	5032	402	6	0.2
6mm	5096	712	9	0.3	4032	564	9	0.3	3360	470	9	0.3
8mm	3816	534	12	0.4	3024	423	12	0.4	2512	352	12	0.4
10mm	3056	366	15	0.5	2416	290	15	0.5	2012	241	15	0.5
12mm	2544	304	18	0.6	2016	242	18	0.6	1680	202	18	0.6

Material	HARDENED STEEL SKD61, SKD11				STAINLESS STEEL SUS304 316				CAST IRON FC / FCD			
Hardness	HRC 40~55)											
Vc	38 (m/min)				63 (m/min)				96 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	4076	244	4.5	0.15	5944	594	4.5	0.15	10160	402	4.5	0.15
4mm	3056	244	6	0.2	4456	462	6	0.2	7640	402	6	0.2
6mm	2040	285	9	0.3	2976	476	9	0.3	5096	470	9	0.3
8mm	1528	214	12	0.4	2224	445	12	0.4	3816	352	12	0.4
10mm	1220	146	15	0.5	1784	428	15	0.5	3056	241	15	0.5
12mm	1020	122	18	0.6	1488	387	18	0.6	2544	202	18	0.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

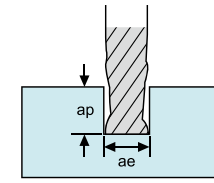
Table 030

G550 Seires EPSLC2

Material	CARBON STEEL / ALLOY STEEL				ALLOY STEEL / TOOL STEEL SCM, SKT, SKD				PREHARDENED STEEL NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	102 (m/min)				80 (m/min)				67 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	10800	323	1.5	3	8500	255	0.9	3	7128	213	0.15	3
4mm	8118	324	2	4	4626	256	1.2	4	5346	213	0.2	4
6mm	5414	378	3	6	4284	300	1.8	6	3570	250	0.3	6
8mm	4054	283	4	8	3210	224	2.4	8	2670	187	0.4	8
10mm	3248	195	5	10	2568	154	3	10	2138	127	0.5	10
12mm	2700	160	6	12	2142	128	3.6	12	1785	107	0.6	12

Material	HARDENED STEEL SKD61, SKD11				STAINLESS STEEL SUS304 316				CAST IRON FC / FCD			
Hardness	HRC 40~55)											
Vc	40 (m/min)				67 (m/min)				102 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	4330	130	0.15	3	7128	213	0.15	3	10800	323	1.5	3
4mm	3247	130	0.2	4	5346	213	0.2	4	8118	324	2	4
6mm	2165	151	0.3	6	3570	250	0.3	6	5414	378	3	6
8mm	1624	113	0.4	8	2670	187	0.4	8	4054	283	4	8
10mm	1298	78	0.5	10	2138	127	0.5	10	3248	195	5	10
12mm	1082	65	0.6	12	1785	107	0.6	12	2700	160	6	12

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 031

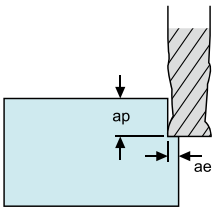
H600 Seires EHSLC4 *(H600 Series, vc, rpm and feed increase 20%)*

G550 Seires EPSLC4

Material	**CARBON STEEL / ALLOY STEEL**				**ALLOY STEEL / TOOL STEEL** SCM, SKT, SKD				**PREHARDENED STEEL** NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	102 (m/min)				80 (m/min)				67 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	10800	647	3	0.15	8500	510	3	0.15	7128	427	3	0.15
4mm	8118	649	4	0.2	4626	513	4	0.2	5346	427	4	0.2
6mm	5414	756	6	0.3	4284	600	6	0.3	3570	500	6	0.3
8mm	4054	568	8	0.4	3210	450	8	0.4	2670	340	8	0.4
10mm	3248	389	10	0.5	2568	307	10	0.5	2138	255	10	0.5
12mm	2700	323	12	0.6	2142	256	12	0.6	1785	214	12	0.6

Material	**HARDENED STEEL** SKD61, SKD11				**STAINLESS STEEL** SUS304 316				**CAST IRON** FC / FCD			
Hardness	HRC 40~55)											
Vc	40 (m/min)				67 (m/min)				102 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	4330	260	3	0.15	7128	427	3	0.15	10800	647	3	0.15
4mm	3247	260	4	0.2	5346	427	4	0.2	8118	649	4	0.2
6mm	2165	302	6	0.3	3570	500	6	0.3	5414	756	6	0.3
8mm	1624	226	8	0.4	2670	340	8	0.4	4054	568	8	0.4
10mm	1298	155	10	0.5	2138	255	10	0.5	3248	389	10	0.5
12mm	1082	129	12	0.6	1785	214	12	0.6	2700	323	12	0.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

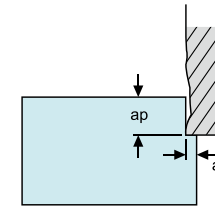
Table 032

G550 Seires EPSRR4

Material	CARBON STEEL / ALLOY STEEL				ALLOY STEEL / TOOL STEEL SCM, SKT, SKD				PREHARDENED STEEL NAK80 CENA1			
Hardness	HB 180~250				HRC 25~35				HRC 35~45			
Vc	68 (m/min)				54 (m/min)				45 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
6mm	3600	430	6	0.6	2880	295	6	0.6	2340	200	6	0.6
8mm	2700	430	8	0.8	2160	295	8	0.8	1800	200	8	0.8
10mm	2160	430	10	1	1710	295	10	1	1440	200	10	1
12mm	1800	430	12	1.2	1440	295	12	1.2	1200	200	12	1.2

Material	HARDENED STEEL SKD61, SKD11				STAINLESS STEEL SUS304 316				CAST IRON FC / FCD			
Hardness	HRC 40~55											
Vc	27 (m/min)				54 (m/min)				79 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
6mm	1440	85	6	0.3	2880	295	6	0.6	4320	520	6	0.6
8mm	1080	85	8	0.4	2160	295	8	0.8	3240	520	8	0.8
10mm	860	85	10	0.5	1710	295	10	1	2520	520	10	1
12mm	720	85	12	0.6	1440	295	12	1.2	2160	520	12	1.2

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 033

G550 Seires EPSHC2, EPSHC4

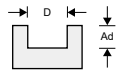
Working Material	Cutting Application	ae (mm)	ap (mm)	Vc (m/min)	fz (mm/z)					
					1mm	2mm	3mm	4mm	5mm	6mm
Carbon steel (S45C, S50C)	Slot milling	1×d	≤ 0.5×d	50 ~ 90	0.007	0.013	0.018	0.024	0.030	0.036
	Side milling	≤ 0.3×d	≤ 0.3×d	55 ~ 100	0.007	0.013	0.018	0.024	0.030	0.036
	Profile milling	≤ 0.3×d	≤ 0.1×d	80 ~ 135	0.007	0.013	0.018	0.024	0.030	0.036
Alloy steel & Tool steel (SCM, SKT, SKD)	Slot milling	1×d	≤ 0.5×d	40 ~ 70	0.006	0.012	0.017	0.022	0.028	0.033
	Side milling	≤ 0.3×d	≤ 0.3×d	40 ~ 80	0.006	0.012	0.017	0.022	0.028	0.033
	Profile milling	≤ 0.3×d	≤ 0.1×d	55 ~ 100	0.006	0.012	0.017	0.022	0.028	0.033
Stainless steel (SUS304, SUS316)	Slot milling	1×d	≤ 0.5×d	30 ~ 40	0.006	0.011	0.015	0.020	0.025	0.030
	Side milling	≤ 0.3×d	≤ 0.3×d	40 ~ 60	0.006	0.011	0.015	0.020	0.025	0.030
	Profile milling	≤ 0.3×d	≤ 0.1×d	50 ~ 70	0.006	0.011	0.015	0.020	0.025	0.030
Hardened steel & High temperature alloy	Slot milling	1×d	≤ 0.5×d	20 ~ 40	0.005	0.010	0.014	0.018	0.023	0.027
	Side milling	≤ 0.3×d	≤ 0.3×d	30 ~ 55	0.005	0.010	0.014	0.018	0.023	0.027
	Profile milling	≤ 0.3×d	≤ 0.1×d	40 ~ 70	0.005	0.010	0.014	0.018	0.023	0.027

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

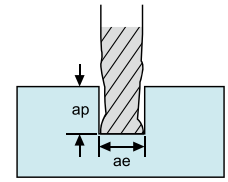
Recommended Cutting Conditions

Table 034

G550 Seires EPSST2

WORKING MATERIAL	ALLOY STEEL / TOOL STEEL		ALLOY STEEL / TOOL STEEL		ALLOY STEEL / TOOL STEEL		HARDENED STEEL		STAINLESS STEEL		CAST IRON	
CODE	45C,S50C,SCM		SCM,SKT,SKD		SCM,SKT,SKD		SKT, SKD		SUS 304		FC / FCD	
HARDNESS	HRC < 20		HRC 20 ~ 30		HRC 30 ~ 40		HRC 45~45		–		–	
Vc	88 M/min		71 M/min		59 M/min		35 M/min		71 M/min		103 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
1MM	26,000	190	22,230	140	18,720	100	10,400	40	22,230	165	32,760	240
2MM	14,040	235	11,232	160	9,360	110	5,616	45	11,232	185	16,380	270
3MM	9,828	270	7,488	175	6,084	120	3,900	55	7,488	205	11,232	310
4MM	7,020	260	5,616	175	4,680	120	2,808	50	5,616	205	8,424	310
5MM	5,850	270	4,446	175	3,744	120	2,340	55	4,446	205	6,552	300
6MM	4,680	260	3,744	175	3,042	120	1,872	50	3,744	205	5,616	310
8MM	3,510	260	2,808	175	2,340	120	1,404	50	2,808	205	4,212	310
10MM	2,808	260	2,223	175	1,872	120	1,131	50	2,223	205	3,276	300
Milling Amount (mm)							Ad = 0.1D (D < 3, Ad ≦ 0.05D)		Ad = 0.5D (D < 3, Ad ≦ 0.25D)			

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 035

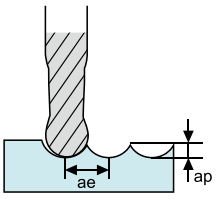
H600 Seires EHBSC2 *(H600 Series, vc, rpm and feed increase 20%)*

G550 Seires EPBSC2

Material	CARBON STEEL / ALLOY STEEL				ALLOY STEEL / TOOL STEEL SCM, SKT, SKD				PREHARDENED STEEL NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	120 (m/min)				95 (m/min)				79 (m/min)			
Radius	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1R	37470	936	0.14	0.2	29660	740	0.14	0.2	24660	616	0.14	0.2
2R	18730	1120	0.28	0.4	14830	890	0.28	0.4	12330	740	0.28	0.4
3R	12490	936	0.42	0.6	9890	740	0.42	0.6	8220	616	0.42	0.6
4R	9366	750	0.56	0.8	7415	593	0.56	0.8	6170	494	0.56	0.8
5R	7490	636	0.7	1	5930	504	0.7	1	4930	420	0.7	1
6R	6244	560	0.84	1.2	4940	444	0.84	1.2	4110	370	0.84	1.2

Material	HARDENED STEEL SKD61, SKD11				STAINLESS STEEL SUS304 316				CAST IRON FC / FCD			
Hardness	HRC 40~55)											
Vc	48 (m/min)				79 (m/min)				120 (m/min)			
Radius	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1R	14990	374	0.14	0.2	24660	616	0.14	0.2	37470	936	0.14	0.2
2R	7490	450	0.28	0.4	12330	740	0.28	0.4	18730	1120	0.28	0.4
3R	4995	374	0.42	0.6	8220	616	0.42	0.6	12490	936	0.42	0.6
4R	3750	300	0.56	0.8	6170	494	0.56	0.8	9366	750	0.56	0.8
5R	3000	255	0.7	1	4930	420	0.7	1	7490	636	0.7	1
6R	2500	225	0.84	1.2	4110	370	0.84	1.2	6244	560	0.84	1.2

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 036

G550 Seires EPBSC4

Material	CARBON STEEL / ALLOY STEEL				ALLOY STEEL / TOOL STEEL SCM, SKT, SKD				PREHARDENED STEEL NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	120 (m/min)				95 (m/min)				79 (m/min)			
Radius	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1R	37470	936	0.14	0.2	29660	740	0.14	0.2	24660	616	0.14	0.2
2R	18730	1120	0.28	0.4	14830	890	0.28	0.4	12330	740	0.28	0.4
3R	12490	936	0.42	0.6	9890	740	0.42	0.6	8220	616	0.42	0.6
4R	9366	750	0.56	0.8	7415	593	0.56	0.8	6170	494	0.56	0.8
5R	7490	636	0.7	1	5930	504	0.7	1	4930	420	0.7	1
6R	6244	560	0.84	1.2	4940	444	0.84	1.2	4110	370	0.84	1.2

Material	HARDENED STEEL SKD61, SKD11				STAINLESS STEEL SUS304 316				CAST IRON FC / FCD			
Hardness	HRC 40~55)											
Vc	48 (m/min)				79 (m/min)				120 (m/min)			
Radius	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1R	14990	374	0.14	0.2	24660	616	0.14	0.2	37470	936	0.14	0.2
2R	7490	450	0.28	0.4	12330	740	0.28	0.4	18730	1120	0.28	0.4
3R	4995	374	0.42	0.6	8220	616	0.42	0.6	12490	936	0.42	0.6
4R	3750	300	0.56	0.8	6170	494	0.56	0.8	9366	750	0.56	0.8
5R	3000	255	0.7	1	4930	420	0.7	1	7490	636	0.7	1
6R	2500	225	0.84	1.2	4110	370	0.84	1.2	6244	560	0.84	1.2

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

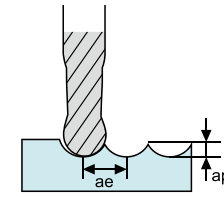


Table 037

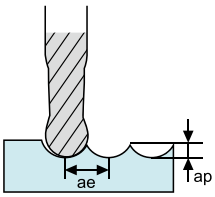
H600 Seires EHBLC2 *(H600 Series, vc, rpm and feed increase 20%)*

G550 Seires EPBLC2

Material	CARBON STEEL / ALLOY STEEL				ALLOY STEEL / TOOL STEEL SCM, SKT, SKD				PREHARDENED STEEL NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	120 (m/min)				95 (m/min)				79 (m/min)			
Radius	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1R	31850	796	0.14	0.2	25210	629	0.14	0.2	20960	524	0.14	0.2
2R	15920	952	0.28	0.4	12606	757	0.28	0.4	10480	629	0.28	0.4
3R	10620	796	0.42	0.6	8400	629	0.42	0.6	6990	524	0.42	0.6
4R	7960	638	0.56	0.8	6300	504	0.56	0.8	5244.5	420	0.56	0.8
5R	6370	540	0.7	1	5040	428	0.7	1	4190	357	0.7	1
6R	5308	476	0.84	1.2	4200	377	0.84	1.2	3495	315	0.84	1.2

Material	HARDENED STEEL SKD61, SKD11				STAINLESS STEEL SUS304 316				CAST IRON FC / FCD			
Hardness	HRC 40~55)				HRC25~35				HRC35~45			
Vc	48 (m/min)				79 (m/min)				120 (m/min)			
Radius	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1R	12740	318	0.14	0.2	20960	524	0.14	0.2	31850	796	0.14	0.2
2R	6370	383	0.28	0.4	10480	629	0.28	0.4	15920	952	0.28	0.4
3R	4245.8	318	0.42	0.6	6990	524	0.42	0.6	10620	796	0.42	0.6
4R	3187.5	255	0.56	0.8	5244.5	420	0.56	0.8	7960	638	0.56	0.8
5R	2550	217	0.7	1	4190	357	0.7	1	6370	540	0.7	1
6R	2125	191	0.84	1.2	3495	315	0.84	1.2	5308	476	0.84	1.2

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 038

G550 Seires EPBLC4

Material	CARBON STEEL / ALLOY STEEL				ALLOY STEEL / TOOL STEEL SCM, SKT, SKD				PREHARDENED STEEL NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	120 (m/min)				95 (m/min)				79 (m/min)			
Radius	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1R	31850	796	0.14	0.2	25210	629	0.14	0.2	20960	524	0.14	0.2
2R	15920	952	0.28	0.4	12606	757	0.28	0.4	10480	629	0.28	0.4
3R	10620	796	0.42	0.6	8400	629	0.42	0.6	6990	524	0.42	0.6
4R	7960	638	0.56	0.8	6300	504	0.56	0.8	5245	420	0.56	0.8
5R	6370	540	0.7	1	5040	428	0.7	1	4190	357	0.7	1
6R	5308	476	0.84	1.2	4200	377	0.84	1.2	3495	315	0.84	1.2

Material	HARDENED STEEL SKD61, SKD11				STAINLESS STEEL SUS304 316				CAST IRON FC / FCD			
Hardness	HRC 40~55)				HRC25~35				HRC35~45			
Vc	48 (m/min)				79 (m/min)				120 (m/min)			
Radius	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
1R	12740	318	0.14	0.2	20960	524	0.14	0.2	31850	796	0.14	0.2
2R	6370	383	0.28	0.4	10480	629	0.28	0.4	15920	952	0.28	0.4
3R	4246	318	0.42	0.6	6990	524	0.42	0.6	10620	796	0.42	0.6
4R	3188	255	0.56	0.8	5245	420	0.56	0.8	7960	638	0.56	0.8
5R	2550	217	0.7	1	4190	357	0.7	1	6370	540	0.7	1
6R	2125	191	0.84	1.2	3495	315	0.84	1.2	5308	476	0.84	1.2

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

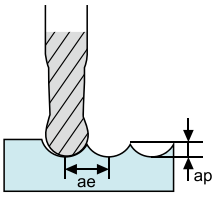


Table 039

G550 Seires EPBHC2

Working Material	Cutting Application	ae (mm)	ap (mm)	Vc (m/min)	fz (mm/z)					
					1mm	2mm	3mm	4mm	5mm	6mm
Carbon steel (S45C, S50C)	Slot milling	1×d	≤ 0.5×d	50 ~ 90	0.007	0.013	0.018	0.024	0.030	0.036
	Side milling	≤ 0.3×d	≤ 0.3×d	55 ~ 100	0.007	0.013	0.018	0.024	0.030	0.036
	Profile milling	≤ 0.3×d	≤ 0.1×d	80 ~ 135	0.007	0.013	0.018	0.024	0.030	0.036
Alloy steel & Tool steel (SCM, SKT, SKD)	Slot milling	1×d	≤ 0.5×d	40 ~ 70	0.006	0.012	0.017	0.022	0.028	0.033
	Side milling	≤ 0.3×d	≤ 0.3×d	40 ~ 80	0.006	0.012	0.017	0.022	0.028	0.033
	Profile milling	≤ 0.3×d	≤ 0.1×d	55 ~ 100	0.006	0.012	0.017	0.022	0.028	0.033
Stainless steel (SUS304, SUS316)	Slot milling	1×d	≤ 0.5×d	30 ~ 40	0.006	0.011	0.015	0.020	0.025	0.030
	Side milling	≤ 0.3×d	≤ 0.3×d	40 ~ 60	0.006	0.011	0.015	0.020	0.025	0.030
	Profile milling	≤ 0.3×d	≤ 0.1×d	50 ~ 70	0.006	0.011	0.015	0.020	0.025	0.030
Hardened steel & High temperature alloy	Slot milling	1×d	≤ 0.5×d	20 ~ 40	0.005	0.010	0.014	0.018	0.023	0.027
	Side milling	≤ 0.3×d	≤ 0.3×d	30 ~ 55	0.005	0.010	0.014	0.018	0.023	0.027
	Profile milling	≤ 0.3×d	≤ 0.1×d	40 ~ 70	0.005	0.010	0.014	0.018	0.023	0.027

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

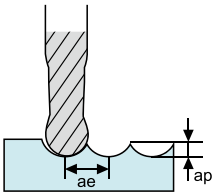
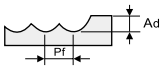


Table 040

G550 Seires EPBST2, EPBRT2

WORKING MATERIAL	ALLOY STEEL / TOOL STEEL		ALLOY STEEL / TOOL STEEL		ALLOY STEEL / TOOL STEEL		HARDENED STEEL		STAINLESS STEEL		CAST IRON	
CODE	45C,S50C,SCM		SCM,SKT,SKD		SCM,SKT,SKD		SKT, SKD		SUS 304		FC / FCD	
HARDNESS	HRC < 20		HRC 20 ~ 30		HRC 30 ~ 40		HRC 45~45		–		–	
Vc	94 M/min		71 M/min		34 M/min		38 M/min		71 M/min		94 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
1.0R	26,676	700	21,060	470	15,210	280	10,660	140	21,060	555	29,718	780
2.0R	14,976	875	11,232	560	8,190	335	5,980	175	11,232	655	14,976	875
3.0R	9,828	860	7,488	560	4,914	300	3,926	170	7,488	655	9,828	860
Milling Amount (mm)	Ad = 0.05D Pf = 0.1D											



Recommended Cutting Conditions

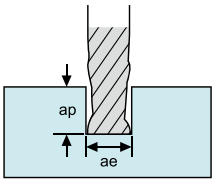
Table 041

G550 Seires EPCSC2

Material	CARBON STEEL / ALLOY STEEL				ALLOY STEEL / TOOL STEEL SCM, SKT, SKD				PREHARDENED STEEL NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	120 (m/min)				95 (m/min)				79 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	12700	380	1.5	3	10000	300	0.9	3	8386	251	0.15	3
4mm	9550	382	2	4	7560	302	1.2	4	6290	251	0.2	4
6mm	6370	445	3	6	5040	352	1.8	6	4200	294	0.3	6
8mm	4770	333	4	8	3780	264	2.4	8	3140	220	0.4	8
10mm	3820	230	5	10	3020	181	3	10	2515	150	0.5	10
12mm	3180	190	6	12	2520	151	3.6	12	2100	126	0.6	12

Material	HARDENED STEEL SKD61, SKD11				STAINLESS STEEL SUS304 316				CAST IRON FC / FCD			
Hardness	HRC 40~55)											
Vc	48 (m/min)				79 (m/min)				120 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	5095	152	0.15	3	8386	251	0.15	3	12700	380	1.5	3
4mm	3820	152	0.2	4	6290	251	0.2	4	9550	382	2	4
6mm	2548	178	0.3	6	4200	294	0.3	6	6370	445	3	6
8mm	1910	133	0.4	8	3140	220	0.4	8	4770	333	4	8
10mm	1528	92	0.5	10	2515	150	0.5	10	3820	230	5	10
12mm	1274	76	0.6	12	2100	126	0.6	12	3180	190	6	12

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 042

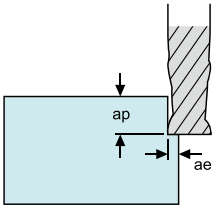
H600 Seires EHCSC4 *(H600 Series, vc, rpm and feed increase 20%)*

G550 Seires EPCSC4

Material	**CARBON STEEL / ALLOY STEEL**				**ALLOY STEEL / TOOL STEEL** SCM, SKT, SKD				**PREHARDENED STEEL** NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	120 (m/min)				95 (m/min)				79 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	12700	762	3	0.15	10000	600	3	0.15	8386	503	3	0.15
4mm	9550	764	4	0.2	7560	604	4	0.2	6290	503	4	0.2
6mm	6370	890	6	0.3	5040	705	6	0.3	4200	588	6	0.3
8mm	4770	668	8	0.4	3780	529	8	0.4	3140	440	8	0.4
10mm	3820	458	10	0.5	3020	362	10	0.5	2515	301	10	0.5
12mm	3180	380	12	0.6	2520	302	12	0.6	2100	252	12	0.6

Material	**HARDENED STEEL** SKD61, SKD11				**STAINLESS STEEL** SUS304 316				**CAST IRON** FC / FCD			
Hardness	HRC 40~55)											
Vc	48 (m/min)				79 (m/min)				120 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	5095	305	3	0.15	8386	503	3	0.15	12700	503	3	0.15
4mm	3820	305	4	0.2	6290	503	4	0.2	9550	503	4	0.2
6mm	2548	356	6	0.3	4200	588	6	0.3	6370	588	6	0.3
8mm	1910	267	8	0.4	3140	440	8	0.4	4770	440	8	0.4
10mm	1528	183	10	0.5	2515	301	10	0.5	3820	301	10	0.5
12mm	1274	152	12	0.6	2100	252	12	0.6	3180	252	12	0.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

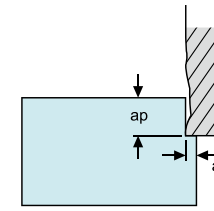
Table 043

G550 Seires EPCSH4

Material	CARBON STEEL / ALLOY STEEL				ALLOY STEEL / TOOL STEEL SCM, SKT, SKD				PREHARDENED STEEL NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	120 (m/min)				95 (m/min)				79 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	12700	762	3	0.15	10000	600	3	0.15	8386	503	3	0.15
4mm	9550	764	4	0.2	7560	604	4	0.2	6290	503	4	0.2
6mm	6370	890	6	0.3	5040	705	6	0.3	4200	588	6	0.3
8mm	4770	668	8	0.4	3780	529	8	0.4	3140	440	8	0.4
10mm	3820	458	10	0.5	3020	362	10	0.5	2515	301	10	0.5
12mm	3180	380	12	0.6	2520	302	12	0.6	2100	252	12	0.6

Material	HARDENED STEEL SKD61, SKD11				STAINLESS STEEL SUS304 316				CAST IRON FC / FCD			
Hardness	HRC 40~55)											
Vc	48 (m/min)				79 (m/min)				120 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	5095	305	3	0.15	8386	503	3	0.15	12700	503	3	0.15
4mm	3820	305	4	0.2	6290	503	4	0.2	9550	503	4	0.2
6mm	2548	356	6	0.3	4200	588	6	0.3	6370	588	6	0.3
8mm	1910	267	8	0.4	3140	440	8	0.4	4770	440	8	0.4
10mm	1528	183	10	0.5	2515	301	10	0.5	3820	301	10	0.5
12mm	1274	152	12	0.6	2100	252	12	0.6	3180	252	12	0.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 044

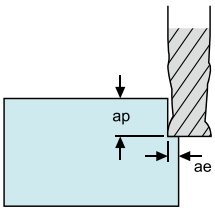
H600 Seires EHCLC4 *(H600 Series, vc, rpm and feed increase 20%)*

G550 Seires EPCLC4

Material	**CARBON STEEL / ALLOY STEEL**				**ALLOY STEEL / TOOL STEEL** SCM, SKT, SKD				**PREHARDENED STEEL** NAK80 CENA1			
Hardness	HB180~250				HRC25~35				HRC35~45			
Vc	102 (m/min)				80 (m/min)				67 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	10800	647	3	0.15	8500	510	3	0.15	7128	427	3	0.15
4mm	8118	649	4	0.2	4626	513	4	0.2	5346	427	4	0.2
6mm	5414	756	6	0.3	4284	600	6	0.3	3570	500	6	0.3
8mm	4054	568	8	0.4	3210	450	8	0.4	2670	340	8	0.4
10mm	3248	389	10	0.5	2568	307	10	0.5	2138	255	10	0.5
12mm	2700	323	12	0.6	2142	256	12	0.6	1785	214	12	0.6

Material	**HARDENED STEEL** SKD61, SKD11				**STAINLESS STEEL** SUS304 316				**CAST IRON** FC / FCD			
Hardness	HRC 40~55)											
Vc	40 (m/min)				67 (m/min)				102 (m/min)			
Dia	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
3mm	4330	260	3	0.15	7128	427	3	0.15	10800	647	3	0.15
4mm	3247	260	4	0.2	5346	427	4	0.2	8118	649	4	0.2
6mm	2165	302	6	0.3	3570	500	6	0.3	5414	756	6	0.3
8mm	1624	226	8	0.4	2670	340	8	0.4	4054	568	8	0.4
10mm	1298	155	10	0.5	2138	255	10	0.5	3248	389	10	0.5
12mm	1082	129	12	0.6	1785	214	12	0.6	2700	323	12	0.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



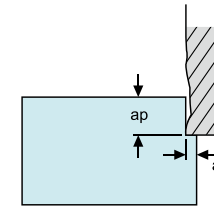
Recommended Cutting Conditions

Table 045

G550 Seires EPCHC2, EPCHC4

Working Material	Cutting Application	ae (mm)	ap (mm)	Vc (m/min)	fz (mm/z)					
					1mm	2mm	3mm	4mm	5mm	6mm
Carbon steel (S45C, S50C)	Slot milling	1×d	≤ 0.5×d	50 ~ 90	0.007	0.013	0.018	0.024	0.030	0.036
	Side milling	≤ 0.3×d	≤ 0.3×d	55 ~ 100	0.007	0.013	0.018	0.024	0.030	0.036
	Profile milling	≤ 0.3×d	≤ 0.1×d	80 ~ 135	0.007	0.013	0.018	0.024	0.030	0.036
Alloy steel & Tool steel (SCM, SKT, SKD)	Slot milling	1×d	≤ 0.5×d	40 ~ 70	0.006	0.012	0.017	0.022	0.028	0.033
	Side milling	≤ 0.3×d	≤ 0.3×d	40 ~ 80	0.006	0.012	0.017	0.022	0.028	0.033
	Profile milling	≤ 0.3×d	≤ 0.1×d	55 ~ 100	0.006	0.012	0.017	0.022	0.028	0.033
Stainless steel (SUS304, SUS316)	Slot milling	1×d	≤ 0.5×d	30 ~ 40	0.006	0.011	0.015	0.020	0.025	0.030
	Side milling	≤ 0.3×d	≤ 0.3×d	40 ~ 60	0.006	0.011	0.015	0.020	0.025	0.030
	Profile milling	≤ 0.3×d	≤ 0.1×d	50 ~ 70	0.006	0.011	0.015	0.020	0.025	0.030
Hardened steel & High temperature alloy	Slot milling	1×d	≤ 0.5×d	20 ~ 40	0.005	0.010	0.014	0.018	0.023	0.027
	Side milling	≤ 0.3×d	≤ 0.3×d	30 ~ 55	0.005	0.010	0.014	0.018	0.023	0.027
	Profile milling	≤ 0.3×d	≤ 0.1×d	40 ~ 70	0.005	0.010	0.014	0.018	0.023	0.027

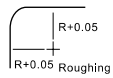
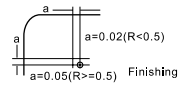
1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 046

G550 Seires EPISA2, EPISA4

WORKING MATERIAL	CARBON STEEL			ALLOY STEEL / TOOL STEEL			HARDENED STEEL		
CODE	S50C			SCM, SKD			SKT, SKD		
HARDNESS	HRC < 20			HRC 30 ~ 40			HRC 40~50		
Vc	30~40 M/min			20~30 M/min			15~25 M/min		
DIAMETER	R.P.M	ROUGHING FEED (mm/min)	FINISHING FEED (mm/min)	R.P.M	ROUGHING FEED (mm/min)	FINISHING FEED (mm/min)	R.P.M	ROUGHING FEED (mm/min)	FINISHING FEED (mm/min)
0.50R	8,800	50	80	6,400	40	55	5,100	30	50
0.75R	7,200	50	80	5,100	40	55	4,100	30	50
1.00R	5,000	50	80	3,500	40	55	3,400	30	50
1.25R	4,300	50	80	3,100	40	55	2,900	30	50
1.50R	3,000	50	80	2,200	40	55	2,600	30	50
2.00R	2,600	50	80	1,900	40	55	2,200	30	50
2.50R	2,200	50	80	1,800	40	55	2,000	30	50
3.00R	2,000	50	80	1,600	40	55	1,700	30	50
4.00R	1,500	50	80	1,200	40	55	1,300	30	50
5.00R	1,300	50	80	960	40	55	1,000	30	50
6.00R	1,200	50	80	880	40	55	900	30	50
Milling Amount (mm)	 						· Divide the cutting depth into several time paths. · Use cutting fluid.		

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Recommended Cutting Conditions

Table 047

G550 Seires EPFSA4, EPFSA5, EPFSA6

Material	Carbon Steel / Alloy Steel / Cast iron					Alloy Steel / Tool Steel / Pre-Hardened Steel (SCM, SKT, SKD)					Stainless Steel (SUS304, SUS316)					Hardened Steel				
Hardness	HRC < 30					HRC 30 ~ 40					-					HRC 40 ~ 55				
Vc	80 ~ 230 m/min					60 ~ 180 m/min					45 ~ 140 m/min					25 ~ 30 m/min				
d (mm)	fz (mm)	α = 60°		α = 90°		fz (mm)	α = 60°		α = 90°		fz (mm)	α = 60°		α = 90°		fz (mm)	α = 60°		α = 90°	
		ap (mm)	ae (mm)	ap (mm)	ae (mm)		ap (mm)	ae (mm)	ap (mm)	ae (mm)		ap (mm)	ae (mm)	ap (mm)	ae (mm)		ap (mm)	ae (mm)	ap (mm)	ae (mm)
4	0.04	0.30	0.2	0.2	0.2	0.04	0.30	0.2	0.2	0.2	0.04	0.30	0.2	0.2	0.2	0.04	0.30	0.2	0.2	0.2
6	0.04	0.45	0.3	0.3	0.3	0.04	0.45	0.3	0.3	0.3	0.04	0.45	0.3	0.3	0.3	0.04	0.45	0.3	0.3	0.3
8	0.05	0.60	0.4	0.4	0.4	0.05	0.60	0.4	0.4	0.4	0.05	0.60	0.4	0.4	0.4	0.05	0.60	0.4	0.4	0.4
10	0.06	0.75	0.5	0.5	0.5	0.06	0.75	0.5	0.5	0.5	0.06	0.75	0.5	0.5	0.5	0.06	0.75	0.5	0.5	0.5
12	0.07	0.90	0.6	0.6	0.6	0.07	0.90	0.6	0.6	0.6	0.07	0.90	0.6	0.6	0.6	0.07	0.90	0.6	0.6	0.6

※ Effective Cutter Diameter = (d + d1)/2
For machining on two sides, Feed rate reduce 20~30%.
For vertical plunging, Feed rate reduce 30~40%.

Table 048

G550 Seires EPFSC2

Working Material	Normal Steel (S45C)			Alloy Steel / Tool Steel (SCM, SKT, SKD)			Stainless Steel (SUS304)			Aluminum Alloy		
Hardness	HRC < 20			HRC < 30~40			-			-		
Vc	60 m/min			50 m/min			40 m/min			100 m/min		
Dia	RPM	Feed (mm/min)		RPM	Feed (mm/min)		RPM	Feed (mm/min)		RPM	Feed (mm/min)	
		Vertical	Horizontal		Vertical	Horizontal		Vertical	Horizontal		Vertical	Horizontal
3 mm	6400	25	50	5300	20	40	4200	20	40	10600	40	80
4 mm	4800	25	55	4000	20	45	3200	20	45	8000	40	85
6 mm	3200	25	60	2650	20	50	2100	20	50	5300	40	90
8 mm	2400	25	65	2000	20	55	1600	20	55	4000	40	110
10 mm	1900	25	70	1600	20	60	1300	20	60	3200	40	110
12 mm	1600	25	70	1350	20	60	1050	20	60	2700	40	120

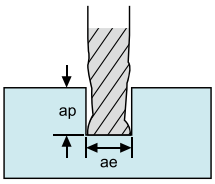
Recommended Cutting Conditions

Table 049

G550 Seires EPSRC2

Material		Carbon Steels/Cast iron/Alloy Steels S50C/FC250/SCM/NAK		
Hardness		HRC 35~45		
Dia	EFF-L	RPM	Feed (mm/min)	ap (mm)
0.2mm	1	40000	400	0.001
	2	40000	200	0.005
0.3mm	1	40000	650	0.007
	2	40000	550	0.004
	3	40000	500	0.002
	4	30000	200	0.001
0.4mm	2	40000	800	0.007
	4	40000	800	0.003
	6	28000	350	0.001
	8	20000	200	0.001
	10	17000	150	0.001
0.5mm	4	40000	850	0.003
	6	40000	700	0.003
	8	30000	500	0.002
	12	20000	300	0.001
	14	14000	150	0.001
0.6mm	4	40000	950	0.010
	8	35000	500	0.004
	10	25000	450	0.003
	12	20000	300	0.002
	16	12000	150	0.001
0.7mm	4	40000	950	0.015
	8	30000	700	0.005
	12	9000	200	0.002
0.8mm	4	40000	1100	0.015
	8	40000	1000	0.010
	12	25000	400	0.030
	14	20000	300	0.020
0.9mm	6	40000	1300	0.020
	8	38000	1200	0.010
	10	35000	1000	0.010

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



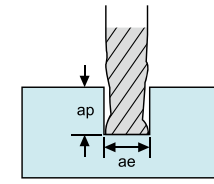
Recommended Cutting Conditions

Table 050

G550 Seires EPSRC2

Material		Carbon Steels/Cast iron/Alloy Steels S50C/FC250/SCM/NAK		
Hardness		HRC 35~45		
Dia	EFF-L	RPM	Feed (mm/min)	ap (mm)
1.0mm	6	40000	1600	0.040
	8	40000	1600	0.030
	10	38000	1300	0.025
	12	30000	1000	0.02
	16	23000	600	0.010
	20	15000	400	0.005
1.2mm	6	40000	1900	0.060
	10	35000	1500	0.040
	16	15000	500	0.020
	20	6500	150	0.01
1.4mm	6	40000	1900	0.060
	10	35000	1500	0.040
	16	15000	500	0.02
	20	6500	150	0.01
1.5mm	6	40000	2400	0.1
	10	30000	1800	0.05
	12	28000	1300	0.04
	16	20000	800	0.02
	20	15000	600	0.02
1.6mm	10	30000	1800	0.07
	14	25000	1500	0.05
	18	20000	1000	0.04
1.8mm	10	30000	1800	0.07
	14	25000	1500	0.05
	18	20000	1000	0.04
2.0mm	6	40000	2400	0.18
	10	30000	1800	0.1
	12	25000	1500	0.08
	16	20000	1000	0.06
	20	12000	800	0.05
	25	9000	600	0.04
	30	8000	500	0.04
	35	6500	300	0.02

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



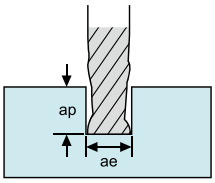
Recommended Cutting Conditions

Table 051

G550 Seires EPSRC2

Material		Carbon Steels/Cast iron/Alloy Steels S50C/FC250/SCM/NAK		
Hardness		HRC 35~45		
Dia	EFF-L	RPM	Feed (mm/min)	ap (mm)
2.5mm	8	25000	2500	0.2
	12	20000	2000	0.15
	16	18000	1700	0.1
	20	12000	1000	0.08
	25	10000	700	0.07
	30	9000	600	0.06
	35	8500	500	0.05
3.0mm	8	20000	2000	0.3
	12	20000	1500	0.18
	16	15000	1400	0.15
	20	10000	800	0.1
	25	8000	600	0.08
	30	7000	450	0.06
	35	6000	300	0.05
4.0mm	10	20000	3200	0.3
	16	13000	2500	0.25
	20	11000	2200	0.22
	25	8000	1500	0.15
	30	6400	1200	0.12
	35	5000	700	0.08
5.0mm	16	12000	2500	0.35
	20	10000	1200	0.3
	25	8000	1000	0.25
	30	6000	900	0.2
	35	5100	750	0.15
6.0mm	20	10000	2000	0.4
	30	6000	1200	0.3
8.0mm	20	3200	910	0.18
	30	3000	800	0.15
	40	2600	600	0.12
10.0mm	25	2900	890	0.20
	35	2500	700	0.16
	45	2200	580	0.14
12.0mm	30	2500	710	0.22
	40	2300	500	0.18
	50	1900	420	0.16

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



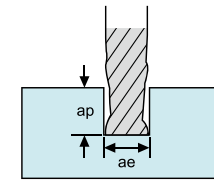
Recommended Cutting Conditions

Table 052

G550 Seires EPSRC4

Material		Carbon Steels/Cast iron/Alloy Steels S50C/FC250/SCM/NAK		
Hardness		HRC 35~45		
Dia	EFF-L	RPM	Feed (mm/min)	ap (mm)
1.0mm	4	40000	3000	0.040
	8	36000	2400	0.030
	10	30000	1500	0.025
	12	20000	1000	0.020
	16	10000	500	0.005
1.5mm	6	40000	3200	0.060
	10	35000	2500	0.050
	12	32000	2400	0.050
	16	16000	1100	0.030
	20	10000	600	0.010
	25	9000	500	0.009
2.0mm	6	40000	4000	0.100
	10	35000	3500	0.080
	12	32000	3200	0.070
	16	24000	2400	0.050
	20	12000	1200	0.030
	25	10000	800	0.020
	30	5000	500	0.010
2.5mm	10	32000	4000	0.200
	12	28000	2500	0.120
	16	23000	1800	0.100
	20	20000	1500	0.060
	25	9000	1100	0.040
	30	2500	300	0.005
3.0mm	10	25000	3600	0.400
	12	23000	3000	0.300
	16	18000	2500	0.200
	20	15000	2000	0.150
	25	12000	1700	0.100
	30	7000	800	0.050
	35	5000	300	0.030

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



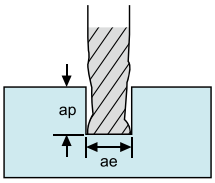
Recommended Cutting Conditions

Table 053

G550 Seires EPSRC4

Material		**Carbon Steels/Cast iron/Alloy Steels** S50C/FC250/SCM/NAK		
Hardness		HRC 35~45		
Dia	EFF-L	RPM	Feed (mm/min)	ap (mm)
4mm	10	20000	3200	1.200
	12	18000	3000	1.000
	16	15000	2500	1.000
	20	12000	2000	0.500
	25	10000	1800	0.400
	30	8000	1300	0.200
5mm	20	12000	2300	1.000
	25	9500	1800	0.500
	30	6400	1200	0.200
6mm	20	11000	2200	1.200
	30	8000	1600	0.600
8mm	20	8000	1600	1.000
	30	4000	800	0.500
	40	4000	800	0.500
10mm	25	6400	1300	1.000
	35	3200	640	0.600
	45	3200	640	0.600
12mm	30	6000	1200	2.000
	40	3200	640	0.600
	50	3200	640	0.600

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



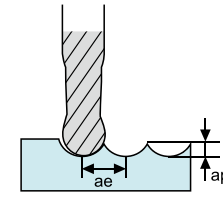
Recommended Cutting Conditions

Table 054

G550 Seires EPBRC2

Material		PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Copper			
Hardness		HRC 35~45				HRC 40~55							
Radius	EFF-L	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
R0.15	1.5	48000	480	0.010	0.010	41000	370	0.009	0.010	54000	640	0.014	0.015
	2	43000	370	0.008	0.008	37000	270	0.008	0.008	49000	530	0.011	0.011
	3	38000	320	0.007	0.006	32000	240	0.006	0.006	43000	460	0.009	0.010
	4	28000	200	0.003	0.004	24000	160	0.003	0.004	37000	300	0.004	0.006
	5	26000	125	0.001	0.003	18000	110	0.002	0.003	31000	200	0.002	0.004
R0.2	2	48000	590	0.018	0.024	37000	400	0.015	0.020	54000	790	0.022	0.036
	4	38000	400	0.009	0.012	30000	270	0.009	0.012	50000	640	0.012	0.018
	6	29000	260	0.005	0.006	26000	200	0.004	0.006	37000	360	0.006	0.010
	8	27000	170	0.003	0.003	23000	150	0.002	0.003	27000	200	0.003	0.006
R0.25	2	42000	750	0.022	0.036	32000	500	0.018	0.036	57000	1250	0.028	0.054
	4	38000	580	0.017	0.024	31000	400	0.014	0.024	55000	1010	0.021	0.036
	6	28000	400	0.008	0.012	27000	330	0.005	0.012	36000	610	0.009	0.018
	10	28000	400	0.008	0.012	27000	330	0.005	0.012	36000	460	0.009	0.018
R0.3	2	37000	770	0.027	0.144	37000	770	0.027	0.096	57000	1540	0.034	0.144
	4	35000	600	0.020	0.108	35000	600	0.020	0.072	54000	1130	0.026	0.108
	6	28000	460	0.016	0.072	28000	460	0.016	0.048	46000	960	0.019	0.072
	8	24000	400	0.009	0.054	24000	400	0.009	0.036	30000	570	0.010	0.054
	10	24000	330	0.006	0.036	24000	330	0.006	0.024	30000	490	0.007	0.036
	12	24000	330	0.006	0.036	24000	330	0.006	0.024	30000	490	0.007	0.036
R0.35	4	33000	600	0.035	0.042	26500	410	0.029	0.096	54500	1500	0.045	0.063
	8	12215	420	0.020	0.048	22500	355	0.012	0.048	32000	800	0.019	0.072
	10	22500	380	0.014	0.042	21500	330	0.011	0.042	26500	540	0.017	0.063
	12	21500	380	0.012	0.032	21500	320	0.010	0.042	23000	420	0.017	0.063
R0.4	4	31000	600	0.050	0.012	27000	440	0.041	0.120	55000	1860	0.063	0.018
	8	21000	430	0.021	0.060	22000	390	0.018	0.060	34000	1040	0.027	0.090
	12	19000	430	0.018	0.040	20000	350	0.016	0.060	16000	350	0.027	0.090
	16	16000	430	0.013	0.018	20000	310	0.014	0.060	7600	115	0.027	0.090
R0.45	4	32000	685	0.054	0.130	24500	460	0.043	0.180	50500	1900	0.067	0.190
R0.5	4	32000	770	0.057	0.240	22000	480	0.045	0.240	46000	2000	0.071	0.360
	6	26000	760	0.055	0.120	17600	480	0.009	0.120	39000	1500	0.071	0.180
	8	26000	760	0.034	0.120	17600	480	0.027	0.120	39000	1500	0.043	0.180
	12	17600	530	0.024	0.060	16500	420	0.018	0.060	18700	660	0.027	0.090
	16	15400	440	0.018	0.060	14300	360	0.014	0.060	18700	640	0.022	0.090
	22	14300	360	0.013	0.036	13200	300	0.009	0.036	18700	540	0.017	0.054

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



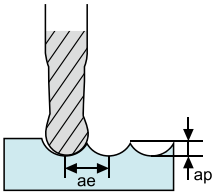
Recommended Cutting Conditions

Table 055

G550 Seires EPBRC2

Material		PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Copper			
Hardness		HRC 35~45				HRC 40~55							
Radius	EFF-L	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
R0.6	6	26000	770	0.068	0.240	18200	480	0.054	0.240	38000	2000	0.085	0.360
	10	16400	530	0.027	0.120	15100	420	0.022	0.120	24000	1080	0.036	0.180
	12	15300	530	0.027	0.120	14100	420	0.022	0.120	24000	1080	0.036	0.180
	16	13100	460	0.019	0.096	11900	380	0.016	0.096	15400	580	0.024	0.144
	20	12100	380	0.013	0.060	11000	320	0.009	0.096	15400	580	0.017	0.090
	24	11100	320	0.009	0.040	9800	290	0.070	0.040	15400	580	0.010	0.060
R0.7	6	17600	680	0.076	0.180	13600	440	0.063	0.180	28000	1470	0.099	0.270
	8	17600	680	0.079	0.180	13600	440	0.063	0.180	28000	1470	0.099	0.270
	12	13800	530	0.033	0.180	13600	420	0.027	0.180	19800	1080	0.042	0.270
	16	13100	480	0.027	0.120	11900	390	0.021	0.120	13200	620	0.033	0.180
R0.75	4	21000	1060	0.137	0.216	14800	660	0.110	0.216	30000	2200	0.171	0.324
	8	16300	700	0.084	0.180	12100	450	0.069	0.180	26000	1500	0.106	0.270
	12	16300	700	0.084	0.180	12100	450	0.069	0.180	26000	1500	0.106	0.270
	16	12400	480	0.027	0.120	11600	390	0.022	0.120	12100	620	0.036	0.180
	20	12400	480	0.016	0.060	11600	390	0.012	0.060	12100	620	0.019	0.090
	25	12400	440	0.016	0.060	11000	390	0.012	0.060	11000	500	0.019	0.090
	30	10900	400	0.016	0.060	11000	390	0.012	0.060	10700	450	0.019	0.090
R0.8	8	18900	940	0.126	0.216	13800	580	0.102	0.216	26000	1970	0.157	0.324
	12	15100	700	0.09	0.120	11500	440	0.072	0.120	25000	1490	0.112	0.180
	16	12300	530	0.036	0.096	11400	440	0.030	0.096	17600	110	0.046	0.144
	20	11500	480	0.030	0.060	10900	400	0.024	0.060	11000	630	0.036	0.090
R0.9	6	18400	1200	0.185	0.320	18400	738	0.150	0.320	32000	2600	0.230	0.021
	12	13800	700	0.094	0.180	10300	440	0.077	0.180	21000	1480	0.120	0.270
	16	10800	530	0.039	0.120	9900	420	0.031	0.120	15400	1080	0.048	0.180
	20	10200	480	0.031	0.060	9700	400	0.025	0.060	10500	630	0.039	0.090
R1.0	6	18500	1260	0.185	0.360	13200	960	0.150	0.360	22000	2140	0.232	0.540
	10	18500	1120	0.147	0.240	13200	870	0.120	0.240	22000	1920	0.185	0.360
	12	16000	990	0.133	0.240	11700	780	0.107	0.240	18700	1470	0.166	0.360
	16	16000	990	0.118	0.240	11700	780	0.090	0.240	18700	1470	0.148	0.360
	18	14700	580	0.074	0.120	11600	580	0.061	0.120	14300	1070	0.093	0.180
	20	14700	580	0.074	0.120	11600	580	0.061	0.120	14300	1070	0.093	0.180
	25	10600	450	0.058	0.120	10200	450	0.045	0.120	9500	630	0.074	0.180

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



Recommended Cutting Conditions

Table 056

G550 Seires EPBRC2

Material		PREHARDENED STEELS NAK80 CENA1				HARDENED STEELS SKD61,SKD11				Copper			
Hardness		HRC 35~45				HRC 40~55							
Radius	EFF-L	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
R1.25	8	14500	1400	0.185	0.240	9700	1080	0.150	0.240	18400	2400	0.232	0.360
	10	14500	1400	0.185	0.240	9700	1080	0.150	0.240	18400	2400	0.232	0.360
	16	13500	1230	0.166	0.240	8400	980	0.135	0.240	16100	1810	0.208	0.360
	20	10200	950	0.093	0.120	8400	980	0.074	0.120	11500	1330	0.116	0.180
	25	8400	540	0.074	0.120	8400	560	0.061	0.120	6900	770	0.093	0.180
	30	8400	540	0.033	0.060	8400	560	0.026	0.060	6900	770	0.040	0.090
R1.5	8	12900	1680	0.222	0.360	9200	1300	0.180	0.360	15000	2890	0.278	0.540
	12	12900	1510	0.222	0.360	9200	1170	0.180	0.360	15000	2600	0.278	0.540
	16	11300	1330	0.166	0.360	8100	1040	0.135	0.360	12700	1970	0.029	0.504
	20	11300	1330	0.166	0.360	8100	1040	0.135	0.360	12700	1970	0.029	0.504
	25	8800	1040	0.111	0.180	8100	1040	0.090	0.180	10100	1450	0.139	0.270
	30	8800	780	0.111	0.180	8100	780	0.090	0.180	10100	1450	0.139	0.270
	35	7900	62	0.055	0.180	7500	650	0.045	0.180	6600	840	0.073	0.270
R2.0	8	9700	1560	0.297	0.600	6800	1210	0.241	0.600	11500	2710	0.370	0.900
	12	9700	1560	0.297	0.600	6800	1210	0.241	0.600	11500	2710	0.390	0.900
	16	9700	1560	0.297	0.600	6800	1210	0.241	0.600	11500	2710	0.390	0.900
	20	9700	1560	0.297	0.600	6800	1210	0.241	0.600	11500	2710	0.390	0.900
	25	8400	1250	0.223	0.360	6000	980	0.180	0.36	10300	1850	0.279	0.540
	30	8400	1250	0.223	0.360	6000	980	0.180	0.361	10300	1850	0.279	0.540
	35	6600	950	0.148	0.360	6000	700	0.120	0.360	7500	1360	0.185	0.540
R2.5	15	7800	1350	0.324	0.800	5600	1050	0.252	0.800	9600	2590	0.406	0.900
	20	7800	1240	0.324	0.600	5600	950	0.252	0.600	9600	2100	0.406	0.900
	25	7800	1240	0.324	0.600	5600	950	0.252	0.600	9600	2100	0.406	0.900
	30	7800	760	0.243	0.600	4800	600	0.197	0.600	8200	1320	0.305	0.900
R3.0	15	7400	1670	0.443	1.200	5200	1300	0.360	1.200	8000	2530	0.555	1.800
R4.0	25	7200	1200	0.5	1.000	5200	920	0.350	1.000	9000	2400	0.600	1.500
R5.0	30	6800	720	0.23	0.600	4600	570	0.190	0.570	7800	1300	0.300	0.900
R6.0	30	6350	684	0.210	0.570	4370	541.5	0.181	0.550	7410	1235	0.285	0.855

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

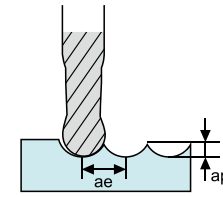


Table 057

G550 Seires EPCRC2

Material	CARBON STEEL / ALLOY STEEL SCM, SNCM, S45		ALLOY STEEL / TOOL STEEL SCM, SKT, SKD		PREHARDENED STEEL NAK80 CENA1	
Hardness	~HRC35		HRC35~45		HRC45~55	
Dia	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
1.0mm	33100	280	21600	120	13200	70
1.2mm	30000	300	18000	125	12000	70
1.5mm	26400	300	16200	130	10200	70
2.0mm	21600	310	13800	140	8640	80
2.5mm	18000	320	11400	150	7320	80
3.0mm	15900	330	10300	160	6300	80
4.0mm	12800	400	8200	200	5150	95
5.0mm	11000	500	7000	240	4560	120
6.0mm	9500	600	6000	300	3930	140
8.0mm	7200	640	4550	300	3020	140
10.0mm	6000	640	4000	300	2420	140
12.0mm	5000	500	3340	270	2000	120

Table 058

G550 Seires EPCRC4

Material	CARBON STEEL / ALLOY STEEL SCM, SNCM, S45		ALLOY STEEL / TOOL STEEL SCM, SKT, SKD		PREHARDENED STEEL NAK80 CENA1	
Hardness	~HRC35		HRC35~45		HRC45~55	
Dia	RPM	Feed (mm/min)	RPM	Feed (mm/min)	RPM	Feed (mm/min)
2mm	21600	380	13800	280	8640	150
2.5mm	18000	390	11400	300	7320	150
3mm	15900	400	10300	310	6300	150
4mm	12800	500	8200	360	5150	160
5mm	11000	510	7000	430	4560	200
6mm	9500	510	6000	430	3930	200
8mm	7200	550	4550	430	3020	200
10mm	6000	550	4000	430	2420	200
12mm	5000	430	3340	380	2000	160

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

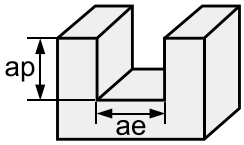
Recommended Cutting Conditions

Table 059

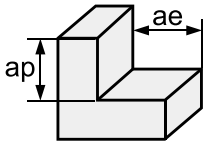
V470 Seires EPSSV4

※If the machine not stable, please reduce the feed about 20%.

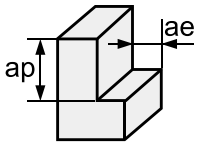
Working Material	Cutting Application	ae (mm)	ap (mm)	Vc (m/min)	fz (mm/z)					
					4mm	6mm	8mm	10mm	12mm	16mm
Carbon steel (S45C，S55C)	Slot milling	1×d	0.5 ~ 1.0×d	80 ~ 145	0.025	0.030	0.040	0.050	0.060	0.080
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	90 ~ 160	0.030	0.035	0.050	0.060	0.075	0.100
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	130 ~ 225	0.020	0.025	0.035	0.045	0.055	0.072
Alloy steel (SK, SCM)	Slot milling	1×d	0.5 ~ 1.0×d	70 ~ 130	0.024	0.029	0.038	0.048	0.057	0.076
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	80 ~ 145	0.029	0.033	0.048	0.057	0.071	0.095
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	95 ~ 180	0.019	0.024	0.033	0.043	0.052	0.068
Tool steel (SKD)	Slot milling	1×d	0.5 ~ 1.0×d	65 ~ 110	0.020	0.025	0.035	0.045	0.055	0.072
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	70 ~ 130	0.030	0.035	0.045	0.055	0.070	0.088
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	90 ~ 160	0.020	0.025	0.035	0.040	0.050	0.064
Stainless steel (SUS304, SUS316)	Slot milling	1×d	0.5 ~ 1.0×d	50 ~ 65	0.015	0.020	0.030	0.035	0.040	0.056
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	65 ~ 100	0.020	0.025	0.035	0.045	0.055	0.072
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	80 ~ 110	0.020	0.025	0.035	0.040	0.050	0.064
Hardened steel (HRC ≤ 45)	Slot milling	1×d	0.5 ~ 1.0×d	30 ~ 60	0.015	0.020	0.025	0.030	0.035	0.048
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	50 ~ 90	0.015	0.020	0.030	0.035	0.040	0.056
	Side finishing	0.1~ 0.3×d	0.7 ~ 1.5×d	65 ~ 120	0.020	0.025	0.035	0.040	0.050	0.064



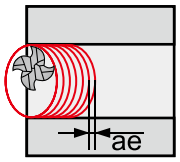
Slot milling



Side roughing



Side finishing



Trochoidal

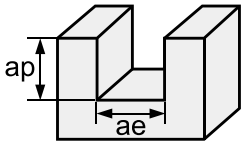
Recommended Cutting Conditions

Table 060

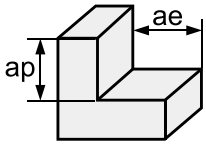
V470 Seires EPS_V4, EPC_V4, EPF_V4

※If the machine not stable, please reduce the feed about 20%.

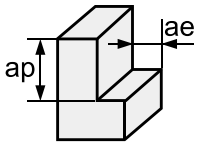
Working Material	Cutting Application	ae	ap	SFM	fz (inch/z)				
					1/8	1/4	5/16	3/8	1/2
Carbon steel (S45C, S55C)	Slot milling	1×d	0.5 ~ 1.0×d	260 ~ 475	.0008	.0012	.0016	.0019	.0025
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	295 ~ 525	.0009	.0015	.0020	.0023	.0031
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	425 ~ 740	.0006	.0010	.0014	.0017	.0023
Alloy steel (SK, SCM)	Slot milling	1×d	0.5 ~ 1.0×d	230 ~ 430	.0007	.0011	.0015	.0018	.0024
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	260 ~ 475	.0008	.0014	.0019	.0022	.0030
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	310 ~ 590	.0005	.0009	.0013	.0016	.0022
Tool Steel (SKD)	Slot milling	1×d	0.5 ~ 1.0×d	215 ~ 360	.0006	.0010	.0014	.0017	.0023
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	230 ~ 430	.0009	.0015	.0018	.0021	.0029
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	295 ~ 525	.0006	.0010	.0014	.0015	.0021
Stainless steel (SUS304, SUS316)	Slot milling	1×d	0.5 ~ 1.0×d	165 ~ 215	.0005	.0008	.0012	.0013	.0017
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	215 ~ 330	.0006	.0010	.0014	.0017	.0023
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	260 ~ 360	.0006	.0010	.0014	.0015	.0021
Hardened steel (HRC ≤ 45)	Slot milling	1×d	0.5 ~ 1.0×d	100 ~ 200	.0005	.0008	.0010	.0011	.0015
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	165 ~ 300	.0005	.0008	.0012	.0013	.0017
	Side finishing	0.1~ 0.3×d	0.7 ~ 1.5×d	215 ~ 395	.0006	.0010	.0014	.0015	.0021



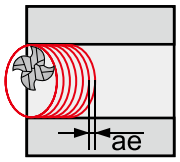
Slot milling



Side roughing



Side finishing



Trochoidal

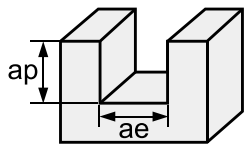
Recommended Cutting Conditions

Table 061

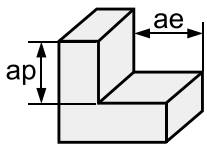
V530 Seires ESSSVA4, ESSSVB4, ESSSVC4, ESSSVC5, ESSSVD4

※If the machine not stable, please reduce the feed about 20%.

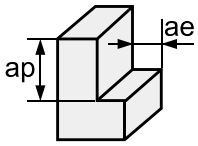
Working Material	Cutting Application	ae (mm)	ap (mm)	Vc (m/min)	fz (mm/z)				
					6mm	8mm	10mm	12mm	16mm
Carbon Steel (S45C)	Slot milling	1×d	0.5 ~ 1.0×d	100 ~ 180	0.035	0.045	0.060	0.070	0.090
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	110 ~ 200	0.040	0.055	0.070	0.085	0.100
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	160 ~ 280	0.030	0.040	0.055	0.065	0.080
Carbon Steel (S50C)	Slot milling	1×d	0.5 ~ 1.0×d	90 ~ 160	0.035	0.045	0.060	0.070	0.090
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	100 ~ 180	0.040	0.055	0.070	0.085	0.100
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	120 ~ 220	0.030	0.040	0.055	0.065	0.080
Tool Steel (SKD)	Slot milling	1×d	0.5 ~ 1.0×d	80 ~ 135	0.030	0.040	0.055	0.065	0.080
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	90 ~ 160	0.040	0.050	0.065	0.080	0.095
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	110 ~ 200	0.030	0.040	0.050	0.060	0.070
Hardened Steel (HRC < 55)	Slot milling	1×d	0.5 ~ 1.0×d	40 ~ 70	0.025	0.030	0.040	0.045	0.070
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	65 ~ 110	0.025	0.035	0.045	0.050	0.080
	Side finishing	0.1~ 0.3×d	0.7 ~ 1.5×d	80 ~ 150	0.030	0.040	0.050	0.060	0.090
Stainless Steel (SUS304, SUS316)	Slot milling	1×d	0.5 ~ 1.0×d	60 ~ 80	0.025	0.035	0.045	0.050	0.065
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	80 ~ 120	0.030	0.040	0.055	0.065	0.080
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	100 ~ 140	0.030	0.040	0.050	0.060	0.070
Superalloy, Inconel	Slot milling	1×d	0.5 ~ 1.0×d	20 ~ 30	0.015	0.020	0.025	0.030	0.040
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	25 ~ 35	0.020	0.030	0.035	0.040	0.055
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	30 ~ 45	0.020	0.030	0.035	0.040	0.055
Titanium	Slot milling	1×d	0.5 ~ 1.0×d	40 ~ 60	0.025	0.035	0.045	0.050	0.065
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	60 ~ 90	0.030	0.040	0.055	0.065	0.080
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	90 ~ 130	0.030	0.040	0.055	0.065	0.080



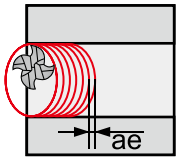
Slot milling



Side roughing



Side finishing



Trochoidal

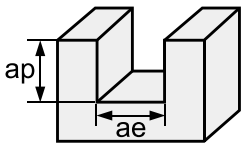
Recommended Cutting Conditions

Table 062

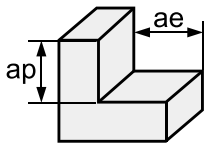
V520 Seires EMSSV4, EMSHV4, EMSRV4, EMSSV4, EMSCV4, EMSSV4, EMSCV4

※If the machine not stable, please reduce the feed about 20%.

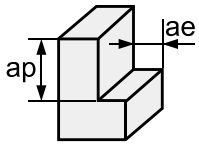
Working Material	Cutting Application	ae (mm)	ap (mm)	Vc (m/min)	fz (mm/z)					
					4mm	6mm	8mm	10mm	12mm	16mm
Carbon steel (S45C, S55C)	Slot milling	1×d	0.5 ~ 1.0×d	80 ~ 145	0.025	0.030	0.040	0.050	0.060	0.080
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	90 ~ 160	0.030	0.035	0.050	0.060	0.075	0.100
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	130 ~ 225	0.020	0.025	0.035	0.045	0.055	0.072
Alloy steel (SK, SCM)	Slot milling	1×d	0.5 ~ 1.0×d	70 ~ 130	0.024	0.029	0.038	0.048	0.057	0.076
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	80 ~ 145	0.029	0.033	0.048	0.057	0.071	0.095
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	95 ~ 180	0.019	0.024	0.033	0.043	0.052	0.068
Tool steel (SKD)	Slot milling	1×d	0.5 ~ 1.0×d	65 ~ 110	0.020	0.025	0.035	0.045	0.055	0.072
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	70 ~ 130	0.030	0.035	0.045	0.055	0.070	0.088
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	90 ~ 160	0.020	0.025	0.035	0.040	0.050	0.064
Stainless steel (SUS304, SUS316)	Slot milling	1×d	0.5 ~ 1.0×d	50 ~ 65	0.015	0.020	0.030	0.035	0.040	0.056
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	65 ~ 100	0.020	0.025	0.035	0.045	0.055	0.072
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	80 ~ 110	0.020	0.025	0.035	0.040	0.050	0.064
Superalloy & Hardened steel	Slot milling	1×d	0.5 ~ 1.0×d	30 ~ 60	0.015	0.020	0.025	0.030	0.035	0.048
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	50 ~ 90	0.015	0.020	0.030	0.035	0.040	0.056
	Side finishing	0.1~ 0.3×d	0.7 ~ 1.5×d	65 ~ 120	0.020	0.025	0.035	0.040	0.050	0.064



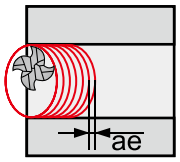
Slot milling



Side roughing



Side finishing



Trochoidal

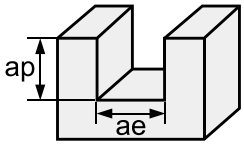
Recommended Cutting Conditions

Table 063

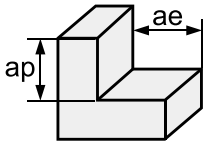
V520 Seires EMS_V4, EMC_V4, EMF_V4

※If the machine not stable, please reduce the feed about 20%.

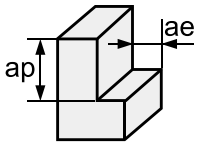
Working Material	Cutting Application	ae	ap	SFM	fz (inch/z)				
					1/8	1/4	5/16	3/8	1/2
Carbon steel (S45C, S55C)	Slot milling	1×d	0.5 ~ 1.0×d	260 ~ 475	.0008	.0012	.0016	.0019	.0025
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	295 ~ 525	.0009	.0015	.0020	.0023	.0031
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	425 ~ 740	.0006	.0010	.0014	.0017	.0023
Alloy steel (SK, SCM)	Slot milling	1×d	0.5 ~ 1.0×d	230 ~ 430	.0007	.0011	.0015	.0018	.0024
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	260 ~ 475	.0008	.0014	.0019	.0022	.0030
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	310 ~ 590	.0005	.0009	.0013	.0016	.0022
Tool Steel (SKD)	Slot milling	1×d	0.5 ~ 1.0×d	215 ~ 360	.0006	.0010	.0014	.0017	.0023
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	230 ~ 430	.0009	.0015	.0018	.0021	.0029
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	295 ~ 525	.0006	.0010	.0014	.0015	.0021
Stainless steel (SUS304, SUS316)	Slot milling	1×d	0.5 ~ 1.0×d	165 ~ 215	.0005	.0008	.0012	.0013	.0017
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	215 ~ 330	.0006	.0010	.0014	.0017	.0023
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.5×d	260 ~ 360	.0006	.0010	.0014	.0015	.0021
Superalloy & Hardened steel	Slot milling	1×d	0.5 ~ 1.0×d	100 ~ 200	.0005	.0008	.0010	.0011	.0015
	Side roughing	0.4 ~ 0.9×d	0.7 ~ 1.0×d	165 ~ 300	.0005	.0008	.0012	.0013	.0017
	Side finishing	0.1~ 0.3×d	0.7 ~ 1.5×d	215 ~ 395	.0006	.0010	.0014	.0015	.0021



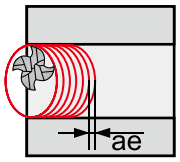
Slot milling



Side roughing



Side finishing



Trochoidal

Recommended Cutting Conditions

Table 064

V520 Seires EMB_V4

※If the machine not stable, please reduce the feed about 20%.

Working Material	Cutting Application	ae	ap	SFM	fz (inch/z)				
					1/8	1/4	5/16	3/8	1/2
Carbon steel (S45C, S55C)	Slot milling	0.5×d	0.5 ~ 1.0×d	260 ~ 475	.0008	.0012	.0016	.0019	.0025
	Side roughing	0.3 ~ 0.6×d	0.6 ~ 1.0×d	295 ~ 525	.0009	.0015	.0020	.0023	.0031
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.0×d	425 ~ 740	.0006	.0010	.0014	.0017	.0023
Alloy steel (SK, SCM)	Slot milling	0.5×d	0.5 ~ 1.0×d	230 ~ 430	.0007	.0011	.0015	.0018	.0024
	Side roughing	0.3 ~ 0.6×d	0.6 ~ 1.0×d	260 ~ 475	.0008	.0014	.0019	.0022	.0030
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.0×d	310 ~ 590	.0005	.0009	.0013	.0016	.0022
Tool Steel (SKD)	Slot milling	0.5×d	0.5 ~ 1.0×d	215 ~ 360	.0006	.0010	.0014	.0017	.0023
	Side roughing	0.3 ~ 0.6×d	0.6 ~ 1.0×d	230 ~ 430	.0009	.0015	.0018	.0021	.0029
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.0×d	295 ~ 525	.0006	.0010	.0014	.0015	.0021
Stainless steel (SUS304, SUS316)	Slot milling	0.4 ~ 0.5×d	0.3 ~ 1.0×d	165 ~ 215	.0005	.0008	.0012	.0013	.0017
	Side roughing	0.3 ~ 0.6×d	0.5 ~ 1.0×d	215 ~ 330	.0006	.0010	.0014	.0017	.0023
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.0×d	260 ~ 360	.0006	.0010	.0014	.0015	.0021
Superalloy & Hardened steel	Slot milling	0.4 ~ 0.5×d	0.3 ~ 0.5×d	100 ~ 200	.0005	.0008	.0010	.0011	.0015
	Side roughing	0.3 ~ 0.6×d	0.5 ~ 1.0×d	165 ~ 300	.0005	.0008	.0012	.0013	.0017
	Side finishing	0.1 ~ 0.3×d	0.7 ~ 1.0×d	215 ~ 395	.0006	.0010	.0014	.0015	.0021

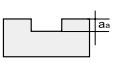
Recommended Cutting Conditions

Table 065

M500 Seires ESSSA2

WORKING MATERIAL	STAINLESS 304		Moderately Difficults SUS		STAINLESS 316 L		TITANIUM (ALLOYS)		SOFT STEEL		SG CAST IRON		High Temperature ALLOYS	
Vc	72~90 M/min		56~70 M/min		48~60 M/min		40~56 M/min		120~160 M/min		96~120 M/min		20~25 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
4mm	7,452	458	4,459	286	3,822	183	3,185	122	9,554	764	7,643	611	1,592	56
5mm	4,586	440	3,567	286	3,057	245	2,548	122	7,643	734	6,115	587	1,274	45
6mm	3,822	489	2,972	333	2,548	245	2,123	136	6,369	815	5,096	652	1,062	58
8mm	2,866	458	2,229	321	1,911	245	1,592	153	4,777	917	3,822	734	796	69
10mm	2,293	440	1,783	286	1,529	220	1,274	124	3,822	734	3,057	587	637	55
12mm	1,911	398	1,486	262	1,274	204	1,062	136	3,185	714	2,548	570	531	65
14mm	1,638	351	1,274	232	1,092	185	910	126	2,730	637	2,184	510	455	65
16mm	1,433	321	1,115	214	955	168	796	114	2,389	574	1,911	458	398	62
Milling Amount (mm)														

	aa
D ≦ ø3	0.15D
ø3 < D	0.20D



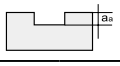
	aa
D ≦ ø6	0.10D
ø6 < D	0.15D

Table 066

M500 Seires ESSSA4

WORKING MATERIAL	STAINLESS 304		Moderately Difficults SUS		STAINLESS 316 L		TITANIUM (ALLOYS)		SOFT STEEL		SG CAST IRON		High Temperature ALLOYS	
Vc	72~90 M/min		56~70 M/min		48~60 M/min		40~56 M/min		120~160 M/min		96~120 M/min		20~25 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
4mm	5,732	458	4,459	286	3,822	183	3,185	122	9,554	764	7,643	611	1,592	56
5mm	4,586	440	3,567	286	3,057	245	2,548	122	7,643	734	6,115	587	1,274	45
6mm	3,822	489	2,972	333	2,548	245	2,123	136	6,369	815	5,096	652	1,062	58
8mm	2,866	458	2,229	321	1,911	245	1,592	153	4,777	917	3,822	734	796	69
10mm	2,293	440	1,783	286	1,529	220	1,274	124	3,822	734	3,057	587	637	55
12mm	1,911	398	1,486	262	1,274	204	1,062	136	3,185	714	2,548	570	531	65
14mm	1,638	351	1,274	232	1,092	185	910	126	2,730	637	2,184	510	455	65
16mm	1,433	321	1,115	214	955	168	796	114	2,389	574	1,911	458	398	62
Milling Amount (mm)														

	aa
D ≦ ø3	0.15D
ø3 < D	0.20D



	aa
D ≦ ø6	0.10D
ø6 < D	0.15D

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Recommended Cutting Conditions

Table 067

M500 Seires ESSSB4

WORKING MATERIAL	Carbon steel (S45C)			Alloy Steel (SKD)			Stainless steel (SUS304, SUS316)		
Vc	130 m/min			90 m/min			80 m/min		
Diameter	fz (mm/z)	ap (mm)	ae (mm)	fz (mm/z)	ap (mm)	ae (mm)	fz (mm/z)	ap (mm)	ae (mm)
4mm	0.020	4	0.4	0.020	4	0.4	0.020	4	0.4
6mm	0.025	6	0.6	0.025	6	0.6	0.025	6	0.6
8mm	0.035	8	0.8	0.035	8	0.8	0.035	8	0.8
10mm	0.045	10	1.0	0.040	10	1.0	0.040	10	1.0
12mm	0.055	12	1.2	0.050	12	1.2	0.050	12	1.2
16mm	0.072	16	1.6	0.064	16	1.6	0.064	16	1.6

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Recommended Cutting Conditions

Table 068

M500 Seires ESSSW3, ESSSW4

WORKING MATERIAL	ALLOY STEEL / TOOL STEEL		ALLOY STEEL / TOOL STEEL		ALLOY STEEL / TOOL STEEL		HARDENED STEEL		STAINLESS STEEL		CAST IRON	
CODE	45C,S50C,SCM		SCM,SKT,SKD		SCM,SKT,SKD		SKT, SKD		SUS 304		FC / FCD	
HARDNESS	HRC < 20		HRC 20 ~ 30		HRC 30 ~ 40		HRC 45~45		–		–	
Vc	88 M/min		71 M/min		59 M/min		35 M/min		71 M/min		103 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
1mm	26,000	190	22,230	140	18,720	100	10,400	40	22,230	165	32,760	240
2mm	14,040	235	11,232	160	9,360	110	5,616	45	11,232	185	16,380	270
3mm	9,828	270	7,488	175	6,084	120	3,900	55	7,488	205	11,232	310
4mm	7,020	260	5,616	175	4,680	120	2,808	50	5,616	205	8,424	310
5mm	5,850	270	4,446	175	3,744	120	2,340	55	4,446	205	6,552	300
6mm	4,680	260	3,744	175	3,042	120	1,872	50	3,744	205	5,616	310
8mm	3,510	260	2,808	175	2,340	120	1,404	50	2,808	205	4,212	310
10mm	2,808	260	2,223	175	1,872	120	1,131	50	2,223	205	3,276	300
12mm	2,340	260	1,872	175	1,560	120	936	50	1,872	205	2,808	310
14mm	2,340	300	1,768	195	1,482	135	936	60	1,768	230	2,600	335
16mm	2,028	300	2,730	345	1,300	135	819	60	2,730	400	2,340	345
18mm	2,028	305	1,378	175	1,144	120	819	60	1,378	205	2,080	310
20mm	1,560	260	1,248	175	1,040	120	624	50	1,248	205	1,820	300
Milling Amount (mm)												

	aa	ar
D<ø 6	1.0D	0.02D
ø6 ≦ D	1.0D	0.05D

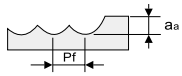
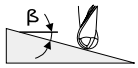
	aa	ar
D < ø 6	1.0D	0.01D
ø 6 ≦ D	1.0D	0.02D

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Recommended Cutting Conditions

Table 069

M500 Seires ESBFA2, ESBSA2

WORKING MATERIAL	ALLOY STEEL / TOOL STEEL		ALLOY STEEL / TOOL STEEL		ALLOY STEEL / TOOL STEEL		HARDENED STEEL		STAINLESS STEEL		CAST IRON	
CODE	45C,S50C,SCM		SCM,SKT,SKD		SCM,SKT,SKD		SKT, SKD		SUS 304		FC / FCD	
HARDNESS	HRC < 20		HRC 20 ~ 30		HRC 30 ~ 40		HRC 45~55		–		–	
Vc	94 M/min		71 M/min		44 M/min		38 M/min		71 M/min		94 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
0.5R	46,800	545	42,120	420	28,080	230	18,720	110	42,120	490	58,500	685
1.0R	26,676	700	21,060	470	15,210	280	10,660	140	21,060	555	29,718	780
2.0R	14,976	875	11,232	560	8,190	335	5,980	175	11,232	655	14,976	875
3.0R	9,828	860	7,488	560	4,914	300	3,926	170	7,488	655	9,828	860
4.0R	7,488	875	5,616	560	3,744	305	2,990	175	5,616	655	7,488	875
5.0R	5,967	870	4,446	550	2,808	285	2,379	175	4,446	650	5,967	870
6.0R	4,914	860	3,744	560	2,340	285	1,976	175	3,744	655	4,914	860
8.0R	4,160	970	3,120	620	2,028	330	1,664	195	3,120	730	4,160	970
10.0R	3,380	890	2,496	560	1,690	310	1,352	175	2,496	655	3,380	890
When β is less than 15° milling speed and feed speed in the table can be increased 1.0-1.2 times.												
Milling Amount (mm)	a_a = 0.02D Pf = 0.05D  											

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

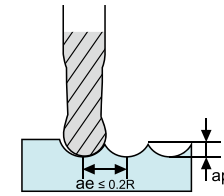
Recommended Cutting Conditions

Table 070

M500 Seires ESBHS4

Work Material	High temperature alloy (Nickel Titanium)			Hardened steel (HRC 40 ~55) (SKD11, SKD61)			Hardened steel (HRC 50~60) (SKD11, SUS420)			Hardened steel (HRC 60~65) (SKS, SKH)		
Radius (R)	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)
3R	15000	3400	0.25	21000	8400	0.25	16000	4800	0.2	8000	2300	0.09
4R	12000	2600	0.3	16000	6400	0.3	12000	3600	0.2	6000	1900	0.09
5R	9600	2200	0.5	13000	5200	0.5	10000	3200	0.2	4800	1500	0.1
6R	7200	1700	0.5	9000	3600	0.5	7000	2200	0.3	3600	1100	0.1
8R	5400	1300	0.7	6800	2700	0.7	5300	1700	0.4	2700	830	0.13

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.



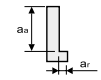
Recommended Cutting Conditions

Table 071

M500 Seires ESCSA4

WORKING MATERIAL	ALLOY STEEL / TOOL STEEL		ALLOY STEEL / TOOL STEEL		ALLOY STEEL / TOOL STEEL		HARDENED STEEL		STAINLESS STEEL		CAST IRON	
CODE	45C,S50C,SCM		SCM,SKT,SKD		SCM,SKT,SKD		SKT, SKD		SUS 304		FC / FCD	
HARDNESS	HRC < 20		HRC 20 ~ 30		HRC 30 ~ 40		HRC 45~45		–		–	
Vc	88 M/min		71 M/min		59 M/min		35 M/min		71 M/min		103 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
3mm	9,828	455	7,098	295	6,084	195	3,900	90	7,488	345	11,232	520
4mm	7,020	430	5,616	295	4,680	200	2,808	85	5,616	345	8,424	520
5mm	5,850	450	4,446	290	3,744	200	2,340	90	4,446	345	6,552	505
6mm	4,680	430	3,744	295	3,042	195	1,872	85	3,744	345	5,616	520
8mm	3,510	430	2,808	295	2,340	200	1,404	85	2,808	345	4,212	520
10mm	2,808	430	2,223	290	1,872	200	1,131	85	2,223	340	3,276	505
12mm	2,340	430	1,872	295	1,560	200	936	85	1,872	345	2,808	520
Milling Amount (mm)												

	aa	ar
D<ø6	1.0D	0.02D
ø6≦D	1.0D	0.05D



	aa	ar
D < ø6	1.0D	0.01D
ø6≦D	1.0D	0.02D

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Recommended Cutting Conditions

Table 072

A300 Seires ECSSF

Material	CFRP			GFRP		
Vc	160 ~ 220 m/min			100 ~ 160 m/min		
Dia (mm)	ap (mm)	ae (mm)	fz (mm/tooth)	ap (mm)	ae (mm)	fz (mm/tooth)
6	1.5×d	≤ 0.35×d	0.020	1.5×d	≤ 0.35×d	0.020
8	1.5×d	≤ 0.35×d	0.030	1.5×d	≤ 0.35×d	0.030
10	1.5×d	≤ 0.35×d	0.030	1.5×d	≤ 0.35×d	0.030
12	1.5×d	≤ 0.35×d	0.035	1.5×d	≤ 0.35×d	0.035

Table 073

A300 Seires ECSSF

Material	CFRP			GFRP		
Vc	140 ~ 200 m/min			90 ~ 140 m/min		
Dia (mm)	ap (mm)	ae (mm)	fz (mm/tooth)	ap (mm)	ae (mm)	fz (mm/tooth)
6	2×d	0.35×d	0.020	2×d	0.35×d	0.020
8	2×d	0.35×d	0.030	2×d	0.35×d	0.030
10	2×d	0.35×d	0.030	2×d	0.35×d	0.030
12	2×d	0.35×d	0.035	2×d	0.35×d	0.035

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

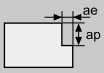
Table 074

A100 Seires ENSSC1

Material	**Aluminum**			
Application	Slot Milling			
Vc	150 ~ 250 m/min			
Dia (mm)	RPM	Feed (mm/min)	fz (mm/tooth)	ap (mm)
4	15000	5000	0.33	0.5×d
6	10000	5000	0.50	0.5×d
8	8400	4000	0.48	0.5×d
10	6700	4000	0.60	0.5×d
12	5000	4000	0.80	0.5×d

Table 075

A100 Seires ENSSP1

Material	**Aluminum**				
Application	Side Milling 				
Vc	150 ~ 250 m/min				
Dia (mm)	RPM	Feed (mm/min)	fz (mm/tooth)	ap (mm)	ae (mm)
4	15000	5000	0.33	1×d	0.3×d
6	10000	5000	0.50	1×d	0.3×d
8	8400	4000	0.48	1×d	0.3×d
10	6700	4000	0.60	1×d	0.3×d
12	5000	4000	0.80	1×d	0.3×d

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Recommended Cutting Conditions

Table 076

A100 Seires ENSSS2, ENSSS3, ENSCS3, ENSSH3

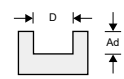
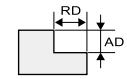
WORKING MATERIAL	ALLUMINUM ALLOY			
CODE	A5052			
	Slotting		Side Milling	
Vc	196 M/min		325 M/min	
DIAMETER	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
3mm	20,800	1,200	34,580	1,350
4mm	15,600	1,000	26,000	1,350
5mm	12,480	900	20,670	1,350
6mm	10,400	820	17,290	1,350
8mm	7,800	750	13,000	1,350
10mm	6,240	680	10,270	1,350
12mm	5,200	620	8,580	1,350
Milling Amount (mm)	Ad = 0.1D  			

Table 077

A100 Seires ENSSB3

WORKING MATERIAL	ALLUMINUM ALLOY				
Application	Shoulder Milling			Slot Milling	
Vc	200 ~400 m/min			150 ~ 300 m/min	
DIAMETER	fz (mm/z)	ap (mm)	ae (mm)	fz (mm/z)	ap (mm)
4mm	0.0200	≤ 1.5×d	≤ 0.3×d	0.030	≤ 1×d
5mm	0.0250	≤ 1.5×d	≤ 0.3×d	0.040	≤ 1×d
6mm	0.0350	≤ 1.5×d	≤ 0.3×d	0.057	≤ 1×d
8mm	0.0450	≤ 1.5×d	≤ 0.3×d	0.075	≤ 1×d
10mm	0.0570	≤ 1.5×d	≤ 0.3×d	0.096	≤ 1×d
12mm	0.0670	≤ 1.5×d	≤ 0.3×d	0.110	≤ 1×d
16mm	0.0880	≤ 1.5×d	≤ 0.3×d	0.145	≤ 1×d
20mm	0.1200	≤ 1.5×d	≤ 0.3×d	0.180	≤ 1×d

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Table 078

A100 Seires ENSSF3

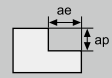
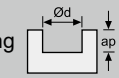
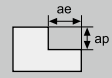
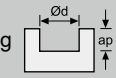
Material	Aluminum Alloy						
Application	Shoulder Milling 				Slot Milling 		
Vc	55 ~ 225 (m/min)				55 ~ 225 (m/min)		
Dia (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)
1	17800	590	1 ~ 2×d	0.05 ~ 0.15×d	17800	470	0.2×d
2	17800	620	1 ~ 2×d	0.05 ~ 0.15×d	17800	500	0.2×d
3	15000	650	1 ~ 2×d	0.05 ~ 0.15×d	15000	520	0.2×d
4	13000	685	1 ~ 2×d	0.05 ~ 0.15×d	13000	550	0.2×d
5	12000	720	1 ~ 2×d	0.05 ~ 0.15×d	12000	580	0.2×d
6	10000	760	1 ~ 2×d	0.05 ~ 0.15×d	10000	610	0.2×d
8	8500	840	1 ~ 2×d	0.05 ~ 0.15×d	8500	670	0.2×d
10	7000	920	1 ~ 2×d	0.05 ~ 0.15×d	7000	740	0.2×d
12	6000	1010	1 ~ 2×d	0.05 ~ 0.15×d	6000	810	0.2×d

Table 079

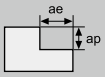
A100 Seires ENSSP3

Material	Aluminum Alloy						
Application	Shoulder Milling 				Slot Milling 		
Vc	150 ~ 350 (m/min)				120 ~ 300 (m/min)		
Dia (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)
6	16000	1280	1 ~ 2×d	0.05 ~ 0.15×d	13000	880	0.2×d
8	12000	1520	1 ~ 2×d	0.05 ~ 0.15×d	9500	960	0.2×d
10	9500	1520	1 ~ 2×d	0.05 ~ 0.15×d	7600	960	0.2×d
12	8000	1520	1 ~ 2×d	0.05 ~ 0.15×d	6400	960	0.2×d
16	6000	1520	1 ~ 2×d	0.05 ~ 0.15×d	4800	960	0.2×d

Recommended Cutting Conditions

Table 080

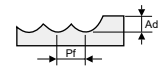
A100 Seires ENSSV3

Material	Aluminum alloy (AL5052 / 6061 / 7075)				
Application	Shoulder Milling 			Slot Milling	
Vc	200 ~ 400 m/min			150 ~ 300 m/min	
Dia (mm)	ap (mm)	ae (mm)	fz (mm/tooth)	ap (mm)	fz (mm/tooth)
3	1.5×d	0.1~0.5×d	0.02	0.5~1.0×d	0.01
4	1.5×d	0.1~0.5×d	0.03	0.5~1.0×d	0.02
5	1.5×d	0.1~0.5×d	0.03	0.5~1.0×d	0.02
6	1.5×d	0.1~0.5×d	0.05	0.5~1.0×d	0.03
8	1.5×d	0.1~0.5×d	0.07	0.5~1.0×d	0.04
10	1.5×d	0.1~0.5×d	0.09	0.5~1.0×d	0.06
12	1.5×d	0.1~0.5×d	0.11	0.5~1.0×d	0.08
16	1.5×d	0.1~0.5×d	0.15	0.5~1.0×d	0.10

※When machining Aluminum alloy with Si ≥ 8% , reduce RPM 30% and Feed 30%.

Table 081

A100 Seires ENBSA2

WORKING MATERIAL	ALLUMINUM ALLOY	
CODE	A5052	
Vc	327 M/min	
DIAMETER	R.P.M	FEED (mm/min)
2mm	50,700	2,000
3mm	33,800	2,000
4mm	26,000	2,000
5mm	20,800	2,000
6mm	16,900	2,000
8mm	13,000	2,000
10mm	10,400	2,000
12mm	7,800	2,000
16mm	6,500	2,000
Milling Amount (mm)	Ad = 0.1D 	

1.Use as highly rigid and accurate machine as possible.
2.If the rpm available is lower than the recommend condition, please reduce the feed rate to the same ratio.
3.Use long shank type please reduce the rpm and feed rate.
4.The Feed and RPM may be changed depending on the M/C conditions ,lubricating and cooling system.

Table 082

A100 Seires ENSRC2

Material		Copper							Copper Tungsten (W70%-Cu30%)						
Application		Side Milling				Slotting			Side Milling				Slotting		
Dia (mm)	EFF-L	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)
0.5	1.5	40000	900	0.5	0.025	40000	800	0.070	30000	650	0.3	0.02	30000	550	0.05
	2	38000	800	0.5	0.02	35000	700	0.055	28000	550	0.3	0.016	26000	450	0.04
	3	35000	700	0.5	0.015	32000	600	0.040	26000	500	0.3	0.012	25000	400	0.03
	4	28000	550	0.5	0.008	26000	500	0.030	24000	400	0.3	0.005	22000	300	0.02
	6	18000	350	0.5	0.005	18000	300	0.015	15000	220	0.3	0.003	15000	180	0.01
1	3	24000	2200	1	0.06	24000	2000	0.22	20000	1600	0.8	0.04	20000	1400	0.16
	4	24000	2000	1	0.05	22000	1800	0.20	20000	1400	0.8	0.035	18000	1100	0.14
	5	22000	1700	1	0.04	20000	1500	0.16	18000	1200	0.8	0.028	16000	950	0.12
	6	20000	1500	1	0.03	18000	1200	0.14	16000	1000	0.8	0.02	14000	800	0.10
	8	16000	1200	1	0.025	15000	1000	0.10	14000	800	0.8	0.018	12000	650	0.08
	10	14000	1000	1	0.02	12000	800	0.07	12000	650	0.8	0.014	11000	550	0.05
	12	10000	700	1	0.01	10000	650	0.05	9000	450	0.8	0.007	8000	400	0.035
2	6	18000	2500	2	0.10	16000	2200	0.45	14000	1800	1.5	0.08	12000	1500	0.30
	8	16000	2200	2	0.09	14000	1900	0.40	12000	1500	1.5	0.07	12000	1400	0.28
	10	14000	1900	2	0.08	12000	1600	0.35	10000	1200	1.5	0.06	10000	1000	0.24
	12	12000	1600	2	0.07	11000	1400	0.28	10000	1100	1.5	0.05	9000	900	0.20
	14	11000	1400	2	0.06	10000	1200	0.24	9000	950	1.5	0.04	8000	800	0.16
	16	10000	1200	2	0.045	9000	1000	0.18	8000	800	1.5	0.03	7000	650	0.12
	20	9000	1000	2	0.03	8000	850	0.12	7000	700	1.5	0.02	6000	550	0.08
3	10	16000	2400	3	0.12	14000	2000	0.7	12000	1800	2.4	0.08	11000	1500	0.5
	16	14000	2100	3	0.10	12000	1600	0.6	11000	1600	2.4	0.07	9000	1100	0.4
	20	11000	1500	3	0.07	10000	1200	0.4	9000	1100	2.4	0.05	8000	900	0.3
	25	10000	1300	3	0.05	9000	1000	0.2	8000	900	2.4	0.03	7000	700	0.15
4	16	12000	2400	4	0.20	10000	2000	0.9	9000	1600	3	0.15	8000	1400	0.7
	20	10000	2000	4	0.15	8000	1600	0.7	8000	1400	3	0.10	6000	1000	0.5
	25	9000	1700	4	0.10	8000	1500	0.5	7000	1200	3	0.07	6000	1000	0.3

Recommended Cutting Conditions

Table 083

A100 Seires ENBRC2

Material		Copper				Copper Tungsten (W70%-Cu30%)			
Radius	EFF-L	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
0.25R	2	40000	800	0.08	0.15	30000	500	0.08	0.15
	3	35000	600	0.06	0.1	27000	400	0.06	0.08
	4	30000	400	0.04	0.08	22000	200	0.025	0.05
	5	25000	300	0.02	0.04	18000	150	0.01	0.02
0.5R	3	40000	2800	0.25	0.4	30000	2000	0.25	0.4
	4	40000	2400	0.2	0.4	30000	1600	0.2	0.4
	5	35000	2000	0.16	0.3	27000	1400	0.12	0.25
	6	30000	1600	0.14	0.3	25000	1000	0.1	0.25
	8	25000	1000	0.12	0.2	18000	500	0.06	0.1
	10	20000	800	0.08	0.15	16000	300	0.03	0.05
	12	16000	600	0.06	0.1	12000	200	0.015	0.04
1.0R	4	30000	4000	0.45	0.8	22000	2400	0.45	0.8
	6	27000	3000	0.45	0.8	20000	1800	0.45	0.8
	8	25000	2400	0.4	0.8	18000	1600	0.4	0.8
	10	22000	2000	0.3	0.6	16000	1400	0.25	0.5
	12	16000	1400	0.3	0.6	12000	900	0.25	0.5
	16	12000	1000	0.25	0.5	9000	500	0.12	0.25
	20	10000	800	0.15	0.3	8000	350	0.06	0.1
	25	8000	600	0.08	0.15	6000	200	0.03	0.05
1.5R	8	22000	3800	0.8	1.95	18000	2800	0.7	1.3
	10	20000	3400	0.7	1.5	16000	2400	0.6	1.2
	16	18000	3000	0.6	1.0	14000	2000	0.6	1.2
	20	16000	2400	0.5	0.8	12000	1400	0.4	0.6
	25	12000	1800	0.4	0.6	10000	900	0.2	0.3
	30	8000	1200	0.2	0.4	6000	500	0.08	0.15
2.0R	12	16000	4000	1.0	1.6	12000	2800	0.8	1.6
	16	16000	3400	0.8	1.6	12000	2400	0.8	1.6
	20	14000	3000	0.8	1.6	10000	2000	0.8	1.6
	25	14000	3000	0.6	1.2	10000	2000	0.5	1.0
	30	12000	2400	0.5	1.0	7000	1200	0.3	0.5
	40	8000	1200	0.4	0.8	5000	500	0.15	0.3

Table 084

A100 Seires ENCRC2

Material			Copper				Copper Tungsten (W70%-Cu30%)			
Dia (mm)	Radius	EFF-L	RPM	Feed (mm/min)	ap (mm)	ae (mm)	RPM	Feed (mm/min)	ap (mm)	ae (mm)
0.5	0.1R	2	40000	800	0.06	0.25	36000	720	0.054	0.23
		3	35000	640	0.05	0.25	32000	580	0.045	0.23
		4	30000	480	0.036	0.25	27000	420	0.032	0.23
		5	25000	400	0.024	0.25	23000	360	0.022	0.23
1	0.1R	3	25000	2400	0.06	0.6	23000	2200	0.054	0.55
		4	25000	2200	0.055	0.6	23000	2000	0.05	0.55
		5	22000	2000	0.05	0.6	20000	1800	0.045	0.55
		6	20000	1800	0.045	0.6	18000	1600	0.04	0.55
		8	16000	1400	0.04	0.6	14000	1200	0.036	0.55
		10	12000	1000	0.03	0.6	11000	900	0.027	0.55
	0.2R	3	25000	2400	0.12	0.6	23000	2200	0.11	0.55
		4	25000	2200	0.11	0.6	23000	2000	0.10	0.55
		5	22000	2000	0.10	0.6	20000	1800	0.09	0.55
		6	20000	1800	0.09	0.6	18000	1600	0.08	0.55
		8	16000	1400	0.08	0.6	14000	1200	0.07	0.55
		10	12000	1000	0.06	0.6	11000	900	0.054	0.55
2	0.1R	5	16000	3000	0.06	1.2	14000	2700	0.054	1.1
		8	14000	2600	0.06	1.2	13000	2400	0.054	1.1
		10	12000	2000	0.06	1.2	11000	1800	0.054	1.1
		15	10000	1600	0.05	1.2	9000	1400	0.045	1.1
		20	8000	1200	0.04	1.2	7000	1100	0.036	1.1
	0.3R	5	16000	3000	0.18	1.2	14000	2700	0.16	1.1
		8	14000	2600	0.18	1.2	13000	2400	0.16	1.1
		10	12000	2000	0.18	1.2	11000	1800	0.16	1.1
		15	10000	1600	0.14	1.2	9000	1400	0.13	1.1
		20	8000	1200	0.10	1.2	7000	1100	0.09	1.1
3	0.2R	12	14000	3000	0.12	1.8	13000	2700	0.11	1.6
		15	13000	2600	0.12	1.8	12000	2400	0.11	1.6
		18	12000	2400	0.10	1.8	11000	2200	0.09	1.6
		24	10000	1800	0.08	1.8	9000	1600	0.07	1.6
		30	8000	1400	0.07	1.8	7000	1200	0.06	1.6
	0.5R	12	14000	3000	0.30	1.8	13000	2700	0.27	1.6
		15	13000	2600	0.30	1.8	12000	2400	0.27	1.6
		18	12000	2400	0.25	1.8	11000	2200	0.23	1.6
		24	10000	1800	0.20	1.8	9000	1600	0.18	1.6
		30	8000	1400	0.16	1.8	7000	1200	0.14	1.6
4	0.2R	16	10000	2800	0.14	2.8	9000	2500	0.13	2.5
		24	8000	2200	0.12	2.8	7000	1900	0.11	2.5
		32	6000	1600	0.10	2.8	5500	1400	0.09	2.5
	0.5R	16	10000	2800	0.30	2.4	9000	2500	0.27	2.2
		24	8000	2200	0.24	2.4	7000	1900	0.22	2.2
		32	6000	1600	0.18	2.4	5500	1400	0.16	2.2

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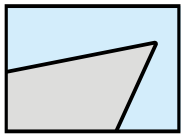
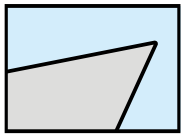
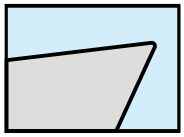
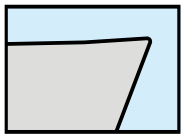
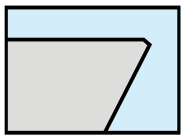
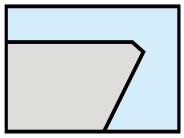
Milling Insert Grades

Grade Type	Coating Type	Properties	Application	Working Material						Industry Area
				P	M	K	N	S	H	
CX22HS	PVD	• High Wear resistance	• Continuous finishing machining • For Hardened steel and Cast iron	●	●	●		○	●	• Die and mould • Hardened parts • Aircraft parts
CX23TS				●	●	●		●	●	
CX31NS	PVD	• Wear resistance • Impact resistance	• Medium machining • For Carbon steel, Alloy steel, Stainless steel and High temperature alloy	●	●	●			○	• Auto parts • Machinery parts • Aircraft parts
CX32HS				●	●	●		○	○	
CX33TS				●	●	●		●	●	
CX43TS	PVD	• High Impact resistance • High toughness	• Roughing or interrupted machining • For Carbon steel, Alloy steel, Stainless steel and High temperature alloy	●	●	●		●		• Auto parts • Machinery parts • Aircraft parts
CX10	Uncoated	• Superior Wear resistance	• Finishing and medium cutting • For Aluminum alloy				●			• Bike and auto parts • Electronic parts

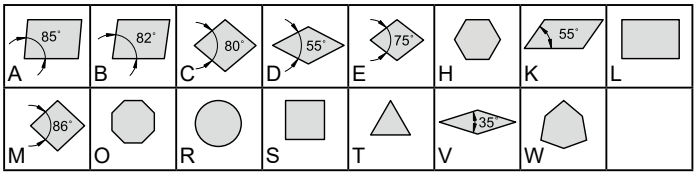
Milling Insert Chip Breakers

Chip Breaker		Application
 for Aluminum	**AL**	Large positive rake angle with sharp cutting edge for Non-ferrous materials.
 Finishing	**FG**	Large positive rake angle with sharp cutting edge for finishing cutting in steel.
 Semi-Finishing	**SM** **SG**	Sharp geometry design for Semi-finishing cutting in steel, stainless and difficult-to-cut material.
 Medium	**MF** **MM** **MG**	Low cutting force for medium cutting in steel, stainless and cast iron.
 Roughing	**RG**	Strong geometry design for rough cutting in steel, alloy steel and hardened steel.
 Heavy-Roughing	**HG**	Strong, negative and big chamfering cutting edge for roughing, forging and cast skin.

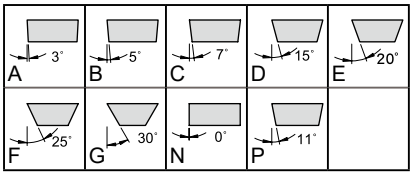
Designations For Milling Insert

A	P	M	T	16	04	08	PD	ER	-	MG
①	②	③	④	⑤	⑥	⑦	⑧	⑨		⑩

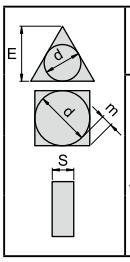
① Insert Shape



② Relief Angle



③ Tolerance Class

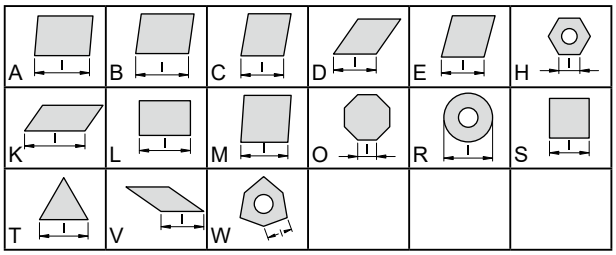


Tolerance		A	C	E	F	G	H	J	K	L	M	N	U
Range of tolerance	d±	0.025	0.025	0.025	0.013	0.025	0.013	0.05~0.15	0.05~0.15	0.05~0.15	0.05~0.15	0.05~0.15	0.08~0.25
	m±	0.005	0.013	0.025	0.005	0.025	0.013	0.005	0.013	0.025	0.08~0.2	0.08~0.2	0.13~0.38
	s±	0.025	0.025	0.025	0.025	0.05~0.13	0.025	0.025	0.025	0.025	0.05~0.13	0.025	0.13

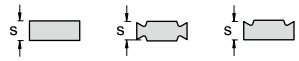
④ Insert Features

A	C	F	G	H	J	M	N	Q	R	T	U	W	X
													Special shape

⑤ Edge Length



⑥ Thickness



Index	01	T1	02	03	T3	04	05	06	07	09
S(mm)	1.59	1.98	2.38	3.18	3.97	4.76	5.56	6.35	7.94	9.52

⑦ Corner Radius

02	04	08	16	20	…
0.2R	0.4R	0.8R	1.6R	2.0R	…

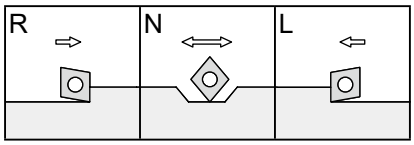
⑧ Edge Clearance

A	D	E	F	P	Z				
45°	60°	75°	85°	90°	other				

A	B	C	D	E	F	G	N	P	Z
3°	5°	7°	15°	20°	25°	30°	0°	11°	other

⑨ Cutting Edge & Direction

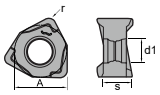
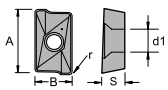
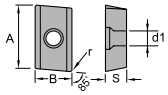
E	F	T	S
Rounded	Sharp	Chamferd	Chamferd and rounded



⑩ Chip Breaker Geometry

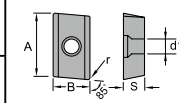
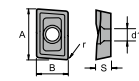
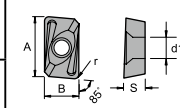
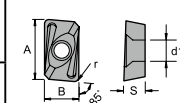
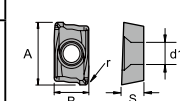
AL, FG, SG, MF,
MG, RG, HG

Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
Shoulder Milling - Double-sided Inserts																	
	XNMX040304-SG *S*	✓	✓		✓	✓				6.7	-	3.285	0.4	3.15	-		A296
	XNMX040304-MG *S*	✓			✓	✓				6.7	-	3.285	0.4	3.15	-		
	XNMX040308-MG *S*	✓	✓		✓	✓	✓			6.7	-	3.285	0.8	3.15	-		
	XNMX080608-MG *S*	✓	✓		✓	✓	✓			12.53	-	6.5	0.8	4.5	-		
	XNMX080608-RG *S*				✓	✓	✓			12.53	-	6.5	0.8	4.5	-		
Shoulder Milling - Single-sided Inserts																	
	NEW **APKT100304PDER-AL** *I*							✓		10.5	6.7	3.5	0.4	2.8	-		A315 A392
	NEW **APKT100304PDER-SG** *I*	✓								10.5	6.7	3.5	0.4	2.8	-		
	APKT100304PDER-MG *I*	✓	✓		✓	✓	✓			10.5	6.7	3.5	0.4	2.8	-		
	APKT100308PDER-MG *I*	✓	✓		✓	✓	✓			10.5	6.7	3.5	0.8	2.8	-		
	APKT100304PDER-RG *I*				✓	✓				10.5	6.7	3.5	0.4	2.8	-		
	APKT160408PDER-MG *T*	✓			✓	✓	✓			16.3	9.525	5.25	0.8	4.5	-		
	APKT160408PDER-RG *I*	✓			✓	✓	✓			16.3	9.525	5.25	0.8	4.5	-		
	APKT170516PEER-RG *I*	✓	✓		✓	✓	✓			18.5	10.7	5.56	1.6	4.5	-		
	APET160402PDFR-AL *I*							✓		16.3	9.525	5.25	0.2	4.5	-		
	APET160404PDFR-AL *I*							✓		16.3	9.525	5.25	0.4	4.5	-		

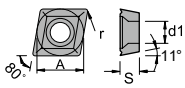
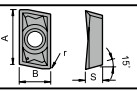
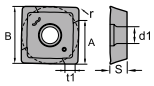
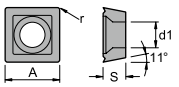
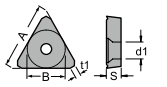
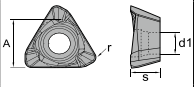
** Customized insert or other grade (CX21NS, CX31NA or CX31NS) are acceptable.*

Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
Shoulder Milling - Single-sided Inserts																	
	APET160402PDFR-FG *I*	✓								16.3	9.525	5.25	0.2	4.5	-		A315 A392
	APET160404PDFR-FG *I*	✓								16.3	9.525	5.25	0.4	4.5	-		
	APMT103508PDER-RG *S*	✓			✓	✓	✓			10.64	6.5	3.5	0.8	3	-		-
	APMT113508PDER-MG *M*	✓	✓		✓	✓	✓			11.0	6.35	3.5	0.8	2.8	-		A323 A390
	APMT113516PDER-MG *M*					✓	✓			11.0	6.35	3.5	1.6	2.8	-		
	APMT113508PDER-RG *M*	✓	✓		✓	✓	✓			11.0	6.35	3.5	0.8	2.8	-		
	APMT113508PDER-HG *M*				✓	✓	✓			11.0	6.35	3.5	0.8	2.8	-		
	APMT160408PDER-MG *M*	✓			✓	✓	✓			16.5	9.525	4.76	0.8	4.4	-		
	APMT160416PDER-MG *M*					✓	✓			16.5	9.525	4.76	1.6	4.4	-		
	APMT160408PDER-RG *M*	✓	✓		✓	✓	✓			16.5	9.525	4.76	0.8	4.4	-		
	APMT160408PDER-HG *M*	✓			✓	✓	✓			16.5	9.525	4.76	0.8	4.4	-		
	APGT160408PDER-AL *M*							✓		16.5	9.525	4.76	0.8	4.4	-		
	APGT160408PDER-FG *M*	✓								16.5	9.525	4.76	0.8	4.4	-		
	AXMT123508PEER-RG *S*	✓			✓	✓	✓			12.18	6.93	3.58	0.8	3.4	-		A319
	AXMT170508PEER-RG *S*				✓	✓	✓			17.50	10.2	5.56	0.8	4.6	-		
	AXMT170516PEER-RG *S*				✓	✓	✓			17.50	10.2	5.56	1.6	4.6	-		

** Customized insert or other grade (CX21NS, CX31NA or CX31NS) are acceptable.*

Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
Shoulder Milling - Single-sided Inserts																	
	CPMT090308-MG *H*				✓					9.525	-	3.18	0.8	4.4	-		-
	CPMT120408-MG *H*				✓					12.7	-	4.76	0.8	5.5	-		
	JDMT150508R-MG *H*				✓	✓	✓			15.1	9.12	5.0	0.8	4.5	-		-
	NEW **SOMT08T308-SG** *S*					✓				5.6	8.5	3.3	0.8	2.8	1.2		A330
	SOMT140408-SG *S*					✓	✓			10.3	13.8	3.9	0.8	4.1	2.0		
	SPMG050204-MG *T*				✓	✓	✓			5.00	-	2.38	0.4	2.30	-		A308 A388 A396 A398
	SPMG060204-MG *T*				✓	✓	✓			6.00	-	2.38	0.4	2.65	-		
	SPMG07T308-MG *T*				✓	✓	✓			7.94	-	3.97	0.8	2.85	-		
	SPMG090408-MG *T*				✓	✓	✓			9.80	-	4.3	0.8	4.05	-		
	SPMG090408-RG *T*				✓	✓	✓			9.80	-	4.3	0.8	4.05	-		
	SPMG110408-MG *T*				✓	✓	✓			11.50	-	4.8	0.8	4.45	-		
	SPMG110408-RG *T*				✓	✓	✓			11.50	-	4.8	0.8	4.45	-		
	NEW **TPKR1603PPR-MG** *I*				✓	✓				16.5	9.525	3.1	-	2.2	1.423		-
	TPKR1603PPR-RG *I*				✓	✓	✓			16.5	9.525	3.1	-	2.2	1.423		
	NEW **TPMX100408-SG** *T*				✓	✓				6.9	-	4	0.8	3	-		A326
	TPMX100408-MG *T*	✓	✓		✓	✓	✓			6.9	-	4	0.8	3	-		
	TPMX150508-MG *T*	✓	✓		✓	✓	✓			10.7	-	5	0.8	4.85	-		

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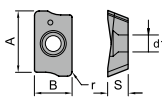
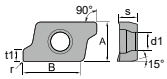
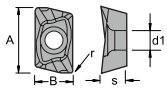
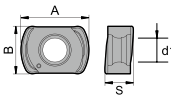
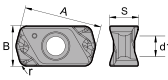
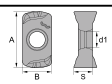
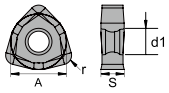
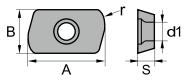
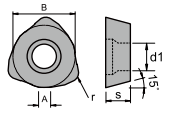
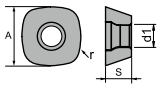
Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
Shoulder Milling - Single-sided Inserts																	
	W39011T308-MG *S*	✓	✓		✓	✓	✓			11	6.9	3.59	0.8	2.8	-		A311
	W39011T320-MG *S*	✓	✓		✓	✓				11	6.9	3.59	2.0	2.8	-		
	NEW **W390180612-MG** *S*				✓	✓	✓			15.4	11	6.33	1.2	4.2	-		
	WRT070204-RG *S*	✓	✓		✓	✓	✓			4.30	6.4	2.38	0.4	2.2	1.3		A304
	WRT100308-RG *S*	✓	✓		✓	✓	✓			6.35	9.3	3.4	0.8	2.9	1.8		
	NEW **XOMT060208-SG** *S*				✓	✓				7	4.09	2.45	0.8	2	-		A300
	XOMT060204-MG *S*	✓			✓	✓				7	4.09	2.45	0.4	2	-		
	XOMT060208-MG *S*	✓	✓		✓	✓	✓			7	4.09	2.45	0.8	2	-		
	XOMT060216-MG *S*					✓	✓			7	4.09	2.45	1.6	2	-		
	XOMT10T308-SG *S*				✓	✓	✓			11.08	6.86	3.8	0.8	3	-		
High Feed Face Milling - Double-sided Inserts																	
	BNMX0603-SG *T*	✓	✓		✓	✓	✓			9.0	6.38	3.75	-	3.2	-		A333
	BNMX0603-MG *T*	✓	✓		✓	✓	✓			9.0	6.38	3.75	-	3.2	-		
	BNMX0603-RG *T*	✓	✓		✓	✓	✓			9.0	6.38	3.75	-	3.2	-		
	BNMX0904-MG *T*	✓	✓		✓	✓	✓			11.9	9.18	4.8	-	4.2	-		
	LNMX0303-SG *T*	✓	✓		✓	✓	✓			11.59	6.0	4.29	-	2.85	-		A337
	LNMX0303-MG *T*	✓	✓		✓	✓	✓			11.59	6.0	4.29	-	2.85	-		
	NEW **LOGX030310-SG** *K*				✓	✓				11.9	6.2	3.96	-	3.45	-		A341

** Customized insert or other grade (CX21NS, CX31NA or CX31NS) are acceptable.*

Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
High Feed Face Milling - Double-sided Inserts																	
	WNMX09T316-MG *K*	✓			✓	✓	✓			9.525	-	3.97	1.6	3.6	-		A344
	WNMX09T316-RG *K*	✓	✓		✓	✓	✓			9.525	-	3.97	1.6	3.6	-		
	WNMX130516-MG *S*	✓	✓		✓	✓	✓			12.7	-	6.02	1.6	4.7	-		
High Feed Face Milling - Single-sided Inserts																	
	ISR145 *S*	✓			✓	✓	✓			12	7.0	3.0	1.45	3.4	-		-
	ISR145-F *S*	✓			✓	✓	✓			12	7.0	3.0	1.45	3.4	-		
	JDMW120420ZDSR-MF *M*	✓			✓	✓	✓			2.5	12.0	4.76	2.0	4.75	-		A350
	JDMW120420ZDSR-RG *M*	✓	✓		✓	✓	✓			2.5	12.0	4.76	2.0	4.75	-		
	JDMW140520ZDSR-MF *M*				✓	✓				2.8	14.0	5.56	2.0	5.75	-		
	JDMW140520ZDSR-RG *M*				✓	✓				2.8	14.0	5.56	2.0	5.75	-		
	NEW **JDMT140520ZDSR-MG** *M*				✓	✓	✓			2.8	14.0	5.56	2.0	5.75	-		
	SDMT1205ZDSN-MF *H*	✓			✓	✓	✓			12.7	-	5.56	15	4.6	-		A348
	SDMT1205ZDTN-MG *H*		✓		✓	✓	✓			12.7	-	5.56	15	4.6	-		
	SDMT1205ZDTN-RG *H*		✓		✓	✓	✓			12.7	-	5.56	15	4.6	-		
	SDNW1205ZDSN-MF *H*				✓	✓				12.7	-	5.56	15	4.6	-		
	SDNW1205ZDTN-RG *H*	✓	✓		✓	✓	✓			12.7	-	5.56	15	4.6	-		

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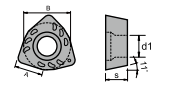
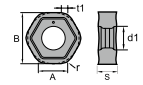
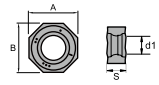
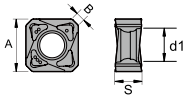
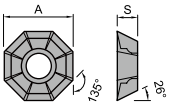
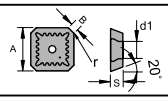
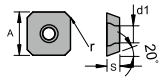
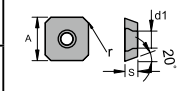
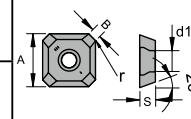
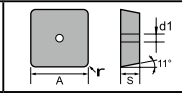
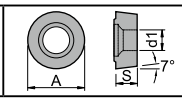
Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
High Feed Face Milling - Single-sided Inserts																	
	WPMW080615ZPSR-MF *T*				✓	✓				8	12.87	6.35	1.5	5.5	-		-
	WPMW080615ZPSR-RG *T*				✓	✓				8	12.87	6.35	1.5	5.5	-		
Face Milling - Double-sided Inserts																	
	HNMX0704-SG *W*				✓	✓	✓			6.8	12.7	4.45	1.2	4.9	1.4		A358
	ONMX0505-RG *W*	✓			✓	✓	✓			12.7	12.7	6.4	-	6	-		A354
	SNMX1205-MG *W*	✓			✓	✓	✓			12.7	1.5	6.4	-	6	-		
	SNMX1205-RG *W*	✓			✓	✓	✓			12.7	1.5	6.4	-	6	-		
Face Milling - Single-sided Inserts																	
	OFMT05T3TN-MG *T*				✓	✓	✓			12.7	-	3.8	0.6	4.6	-		A362
	OFMT05T3TN-RG *T*				✓	✓	✓			12.7	-	3.8	0.6	4.6	-		
	SEMR1203AFSN-RG *T*				✓	✓				12.7	1.6	3.18	1	2	-		-
	SEKT1204AFEN-MF *K*				✓	✓				12.7	-	4.76	0.8	5.5	-		A364
	SEKT1204AFTN-RG *K*				✓	✓	✓			12.7	-	4.76	0.8	5.5	-		
	SEKW1204AFEN *K*				✓	✓				12.7	-	4.76	0.8	5.5	-		
	SEKW1204AFSN-F *K*				✓	✓				12.7	-	4.76	0.8	5.5	-		
	SEKW1204AFTN *K*				✓	✓				12.7	-	4.76	0.8	5.5	-		

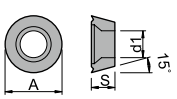
∗ *Customized insert or other grade (CX21NS, CX31NA or CX31NS) are acceptable.*

Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
Face Milling - Single-sided Inserts																	
	SEET1204AFFN-AL *K*							✓		12.7	-	4.76	0.8	5.5	-		A364
	SEET1204AFFN-FG *K*	✓								12.7	-	4.76	0.8	5.5	-		
	SEMT13T3AGEN-MF *M*	✓			✓	✓	✓			13.4	1.9	3.97	1.5	4.2	-		A360
	SEMT13T3AGSN-MF *M*	✓			✓	✓	✓			13.4	1.9	3.97	1.5	4.2	-		
	SEMT13T3AGEN-MG *M*	✓			✓	✓	✓			13.4	1.9	3.97	1.5	4.2	-		
	SEMT13T3AGTN-MG *M*	✓			✓	✓	✓			13.4	1.9	3.97	1.5	4.2	-		
	SEMT13T3AGTN-RG *M*				✓	✓	✓			13.4	1.9	3.97	1.5	4.2	-		
	SEMT13T3AGTN-HG *M*				✓	✓	✓			13.4	1.9	3.97	1.5	4.2	-		
	SEET13T3AGFN-AL *M*							✓		13.4	1.9	3.97	1.5	4.2	-		
	SEET13T3AGFN-FG *M*	✓								13.4	1.9	3.97	1.5	4.2	-		
	SPMN120308				✓					12.7	-	3.18	0.8	2	-		-
Copy Milling - Single-sided Inserts																	
	NEW **RCMT1204MO-FG** *S*	✓			✓					12	-	4.76	-	4.2	-		-

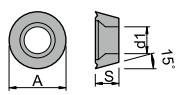
∗ *Customized insert or other grade (CX21NS, CX31NA or CX31NS) are acceptable.*

Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
Copy Milling - Single-sided Inserts																	
	RDKW0501MOE *S*	✓			✓	✓	✓			5	-	1.59	-	2.2	-		
	RDKW0501MOT *S*	✓			✓	✓	✓			5	-	1.59	-	2.2	-		
	RDKW0702MOE *S*	✓			✓	✓	✓			7	-	2.38	-	2.8	-		
	NEW **RDKW0702MOS-F** *S*				✓	✓				7	-	2.38	-	2.8	-		
	RDKW0702MOT *S*	✓			✓	✓	✓			7	-	2.38	-	2.8	-		
	RDMT1003MOE *T*	✓			✓	✓	✓			10	-	3.18	-	3.9	-		
	RDMT1003MOT *T*	✓	✓		✓	✓	✓			10	-	3.18	-	3.9	-		A367
	RDMX1003MOE *K*	✓			✓	✓	✓			10	-	3.18	-	4.15	-		
	RDMX1003MOT *K*	✓			✓	✓	✓			10	-	3.18	-	4.15	-		
	RDMT10T3MOE *H*	✓			✓	✓	✓			10	-	3.97	-	4.5	-		
	RDMT10T3MOT *H*	✓			✓	✓	✓			10	-	3.97	-	4.5	-		
	RDMW10T3MOE *H*				✓	✓				10	-	3.97	-	4.5	-		
	RDMW10T3MOT *H*				✓	✓				10	-	3.97	-	4.5	-		

✱ Customized insert or other grade (CX21NS, CX31NA or CX31NS) are acceptable.

Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
Copy Milling - Single-sided Inserts																	
	RDMT12T3MOE *T*	✓			✓	✓				12	-	3.97	-	4.1	-		A367
	RDMT12T3MOT *T*	✓			✓	✓				12	-	3.97	-	4.1	-		
	RDMX12T3MOE *L*	✓			✓	✓	✓			12	-	3.97	-	4.1	-		
	RDMX12T3MOT *L*	✓			✓	✓	✓			12	-	3.97	-	4.1	-		
	RDMT1204MOE *H*	✓			✓	✓	✓			12	-	4.76	-	4.4	-		
	RDMT1204MOT *H*	✓			✓	✓	✓			12	-	4.76	-	4.4	-		
	RDMW1204MOE *W*	✓			✓	✓	✓			12	-	4.76	-	4.4	-		
	NEW **RDMW1204MOS-F** *W*					✓	✓			12	-	4.76	-	4.4	-		
	RDMW1204MOT *W*	✓			✓	✓	✓			12	-	4.76	-	4.4	-		
	RDMT1604MOT *H*	✓			✓	✓	✓			16	-	4.76	-	5.5	-		
	RDMW1604MOE *H*	✓			✓	✓	✓			16	-	4.76	-	5.5	-		
	RDMW1604MOS-F *H*	✓			✓	✓	✓			16	-	4.76	-	5.5	-		
	RDMW1604MOT *H*	✓	✓		✓	✓	✓			16	-	4.76	-	5.5	-		

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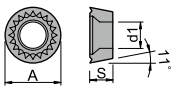
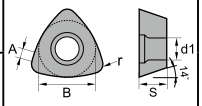
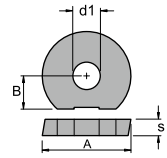
Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
Copy Milling - Single-sided Inserts																	
	RPMT08T2MOE *M*				✓	✓	✓			8	-	2.78	-	3.2	-		A373
	RPMT08T2MOT *M*				✓	✓	✓			8	-	2.78	-	3.2	-		
	RPMW1003MOE *M*	✓			✓	✓	✓			10	-	3.18	-	4.6	-		
	NEW **RPMW1003MOS-F** *M*					✓				10	-	3.18	-	4.6	-		
	RPMW1003MOT *M*	✓			✓	✓	✓			10	-	3.18	-	4.6	-		
	RPMT10T3MOE *M*				✓	✓	✓			10	-	3.97	-	4.5	-		
	RPMT10T3MOT *M*				✓	✓	✓			10	-	3.97	-	4.3	-		
	RPMT1204MOE *M*	✓			✓	✓	✓			12	-	4.76	-	4.3	-		
	RPMT1204MOT *M*	✓			✓	✓	✓			12	-	4.76	-	4.3	-		
	RPMW1204MOE *M*				✓	✓	✓			12	-	4.76	-	4.3	-		
	RPMW1204MOT *M*				✓	✓	✓			12	-	4.76	-	4.3	-		

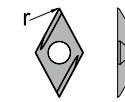
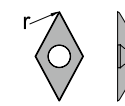
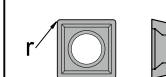
** Customized insert or other grade (CX21NS, CX31NA or CX31NS) are acceptable.*

Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
Copy Milling - Single-sided Inserts																	
	WP26339R14-RG *W*	✓	✓		✓	✓	✓			-	9.52	3.97	1.2	4.4	-		A352 A380
	WP26379R25-RG *W*	✓	✓		✓	✓	✓			1.1	13	5.56	2.0	5.5	-		
	WP3212-SM *W*	✓								12	6	2.5	-	5	-		A377
	WP3216-SM *W*	✓								16	6	3	-	5	-		
	WP3220-SM *W*	✓								20	6	3	-	5	-		
	WP3225-SM *W*	✓								25	9	4	-	6	-		
	WP3232-SM *W*	✓								32	10	5	-	8	-		
	WP3212-MM *W*	✓								12	6	2.5	-	5	-		
	WP3216-MM *W*	✓								16	6	3	-	5	-		
	WP3220-MM *W*	✓								20	6	3	-	5	-		
	WP3225-MM *W*	✓								25	9	4	-	6	-		
	WP3232-MM *W*	✓								32	10	5	-	8	-		

∗ *Customized insert or other grade (CX21NS, CX31NA or CX31NS) are acceptable.*

Milling Inserts

Inserts	Designation	Grade No.								Dimensions (mm)						Drawing	Cutter Page
		CX22HS	CX23TS	CX31NS	CX32HS	CX33TS	CX43TS	CX10		A	B	S	r	d1	t1		
Chamfering & Engraving Inserts																	
	DCEX11T301-XF				✓					-	-	-	0.1	-	-		A384
	DCEX11T302-XF				✓					-	-	-	0.2	-	-		
	DCEX11T304-XF				✓					-	-	-	0.4	-	-		
	DCEX11T304-XR				✓					-	-	-	0.4	-	-		
	DCEX11T308-XR				✓					-	-	-	0.8	-	-		
	SCGX09T304-AG							✓		-	-	-	0.4	-	-		A385
	SCGX09T304-FG	✓								-	-	-	0.4	-	-		
	SCMX09T304-SM				✓					-	-	-	0.4	-	-		
	TCGX16T308-AG							✓		-	-	-	0.8	-	-		
	TCGX16T308-FG	✓								-	-	-	0.8	-	-		
	TCMX16T308-MP				✓					-	-	-	0.8	-	-		

∗ *Customized insert is acceptable.*

INDEX

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CXXN - double sided, 6 cutting edges..... A296
CAXO - single sided, 2 cutting edges..... A300
CART - single sided, 2 cutting edges..... A304
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CR39 - single sided, 2 cutting edges..... A311
CAPK - single sided, 2 cutting edges..... A315
CWEX - single sided, 2 cutting edges..... A319
CBAP - single sided, 2 cutting edges..... A323
CATP - single sided, 3 cutting edges..... A326
CR49 - single sided, 4 cutting edges..... A330

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CASE - single sided, 4 cutting edges..... A364

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Double Sided				
	CXXNE	Ø20 ~ Ø32	XNMX0403	A296
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	CXXNM	Ø17 ~ Ø32	XNMX0403	
	CXSNE	Ø50 ~ Ø80	SNMX1205	A354
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	CAXOE	Ø10 ~ Ø32	XOMT0602 / XOMT10T3	A300
	CAXOM	Ø10 ~ Ø20	XOMT0602	
	CARTE	Ø10 ~ Ø26	WRT0702 / WRT1003	A304
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	CASPE	Ø12 ~ Ø32	SPMG..	A308
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	CR39E	Ø16 ~ Ø32	W39011T3	A311
	CR39F	Ø50 ~ Ø80		
	CR39M	Ø16 ~ Ø32		
	CAPKE	Ø16 ~ Ø32	APKT1003 / APKT1604 / APET1604	A315
	CAPKF	Ø50 ~ Ø100		
	CAPKM	Ø16 ~ Ø32		
	CWEXE	Ø16 ~ Ø32	AXMT1235 / AXMT1705	A319
	CWEXF	Ø50 ~ Ø100		
	CBAPE	Ø16 ~ Ø32	APMT1135 / APMT1604 / APGT1604	A323
	CBAPF	Ø50 ~ Ø80		
	CBAPM	Ø16 ~ Ø33		
	CATPE	Ø20 ~ Ø40	TPMX1004 / TPMX1505	A326
	CATPF	Ø50 ~ Ø63	TPMX1004	
	CATPM	Ø21 ~ Ø33		
	CR49F	Ø50 ~ Ø80	SOMT1404	A330

Face Milling

Cutter Series		Cutter Range	Inserts	Page
High Feed Application				
	CXBNE	Ø15 ~ Ø32	BNMX0603 / BNMX0904	A333
	CXBNF	Ø40 ~ Ø80		
	CXBNM	Ø16 ~ Ø42		
	CXLNE	Ø16 ~ Ø32	LNMX0303	A337
	CXLNF	Ø50		
	CXLNM	Ø17 ~ Ø32		
	CXLOE	Ø16 ~ Ø35	LOGX0303	A341
	CXLOF	Ø50		
	CXLOM	Ø17 ~ Ø35		
	CXWNE	Ø25 ~ Ø32	WNMX09T3	A344
	CXWNF	Ø50 ~ Ø80	WNMX09T3 / WNMX1305	
	CASRF	Ø50 ~ Ø80	SDNW1205 / SDMT1205	A348
	CAJXE	Ø32	JDMW1204	A350
	CAJXF	Ø50 ~ Ø100	JDMW1204 / JDMW1405	
	CF23E	Ø32 ~ Ø50	WP26339 / WP26379	A352
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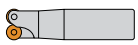
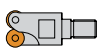
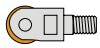
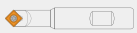
General Application				
	CXSNF	Ø50 ~ Ø102.9	SNMX1205 / ONMX0505	A354
	CXHNF	Ø50 ~ Ø100	HNMX0704	A358
	CASXF	Ø50 ~ Ø100	SEET13T3 / SEMT13T3	A360
	CAOFF	Ø50 ~ Ø100	OFMT05T3	A362
	CASEF	Ø50 ~ Ø120	SEKT1204 / SEKW1204	A364

Copy Milling

Cutter Series		Cutter Range	Inserts	Page
Corner Radius Type				
	***CARDE***	Ø10 ~ Ø32	RDKW0501 / RDKW0702 RDMT1003 / RDMX1003 RDMT10T3 / RDMW10T3 RDMT1204 / RDMW1204	A367
	CARDF	Ø50 ~ Ø100	RDMT1003 / RDMX1003 RDMT10T3 / RDMW10T3 RDMT1204 / RDMW1204 RDMT1604 / RDMW1604	
	***CARDM***	Ø12 ~ Ø42	RDKW0501 / RDKW0702 RDMT1003 / RDMX1003 RDMT10T3 / RDMW10T3	
	CARPE	Ø16 ~ Ø32	RPMT08T2 RPMW1003 RPMT10T3 RPMT1204 / RPMW1204	A373
	CARPF	Ø50 ~ Ø80	RPMT10T3 RPMT1204 / RPMW1204	
Ball Nose Type				
	CF21E	Ø12 ~ Ø32	WP32..	A377
	***CF21M***	Ø12 ~ Ø32		
	CF22M	Ø25 ~ Ø50	WP26339 / WP26379	A380

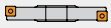
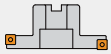
Chamfering & Engraving

Cutter Series		Cutter Range	Inserts	Page
	DTS6	Ø10 ~ Ø12	DCEX11T3	A384
	***DTS9***	Ø10 ~ Ø20	SCGX09T3 / SCMX09T3 TCGX16T3 / TCMX16T3	A385
	CSPCE	Ø11 ~ Ø50	SPMG...	A388

Helical Milling

Cutter Series		Cutter Range	Inserts	Page
	CBAHE	Ø20 ~ Ø50	APMT1135 / APMT1604 / APGT1604	A390
	CBAHM	Ø50 ~ Ø63	APMT1604 / APGT1604	
	CAPHE	Ø20 ~ Ø32	APKT1003	A392
	CAPHM	Ø50 ~ Ø63	APKT1604 / APET1604	
	C39HE	Ø25 ~ Ø32	W39011T3	A394

Disc Milling

Cutter Series		Cutter Range	Inserts	Page
	CSPTE	Ø19 ~ Ø32	SPMG...	A396
	***CSPDE***	Ø80 ~ Ø200	SPMG...	A398
	***CSPDF***	Ø80 ~ Ø125		

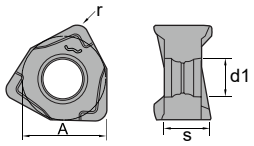
CXXN Shoulder Milling

Economical solution in various end-milling applications !!!

- ***CXXN is the best solution 90° milling with the economy of 6 cutting edges while providing the highest performance.***
- ***Available in multiple mounting tools, such as End mill, Modular and Face mill type.***
- ***Suitable for small and large sized milling machines.***

Insert Specifications

Insert	Dimensions (mm)			
	A	S	r	d1
XNMX040304	**6.7**	**3.285**	**0.4**	**3.15**
XNMX040308	**6.7**	**3.285**	**0.8**	**3.15**
XNMX080608	**12.53**	**6.5**	**0.8**	**4.5**



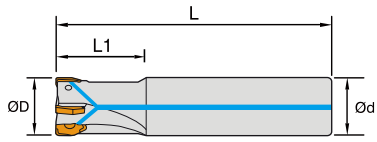
Insert Order Code

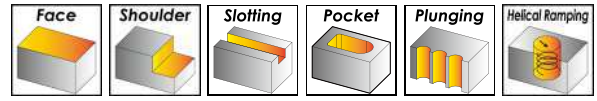
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IXNMX040304SG22HS	XNMX040304-SG-CX22HS	●	●	●		○	●
	IXNMX040304SG23TS	XNMX040304-SG-CX23TS	●	●	●		●	●
	IXNMX040304SG32HS	XNMX040304-SG-CX32HS	●	●	●		○	○
	IXNMX040304SG33TS	XNMX040304-SG-CX33TS	●	●	●		●	●
	IXNMX040304MG22HS	XNMX040304-MG-CX22HS	●	●	●		○	●
	IXNMX040304MG32HS	XNMX040304-MG-CX32HS	●	●	●		○	○
	IXNMX040304MG33TS	XNMX040304-MG-CX33TS	●	●	●		●	●
	IXNMX040308MG22HS	XNMX040308-MG-CX22HS	●	●	●		○	●
	IXNMX040308MG23TS	XNMX040308-MG-CX23TS	●	●	●		●	●
	IXNMX040308MG32HS	XNMX040308-MG-CX32HS	●	●	●		○	○
	IXNMX040308MG33TS	XNMX040308-MG-CX33TS	●	●	●		●	●
	IXNMX040308MG43TS	XNMX040308-MG-CX43TS	●	●	●		●	
	IXNMX080608MG22HS	XNMX080608-MG-CX22HS	●	●	●		○	●
	IXNMX080608MG23TS	XNMX080608-MG-CX23TS	●	●	●		●	●
	IXNMX080608MG32HS	XNMX080608-MG-CX32HS	●	●	●		○	○
	IXNMX080608MG33TS	XNMX080608-MG-CX33TS	●	●	●		●	●
	IXNMX080608MG43TS	XNMX080608-MG-CX43TS	●	●	●		●	
	IXNMX080608RG32HS	XNMX080608-RG-CX32HS	●	●	●		○	○
	IXNMX080608RG33TS	XNMX080608-RG-CX33TS	●	●	●		●	●
	IXNMX080608RG43TS	XNMX080608-RG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

Working Material	for XNMX0403			for XNMX0806		
	Vc	fz	ap	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.16	0.3 ~ 3.0	120 ~ 250	0.1 ~ 0.3	0.3 ~ 7.0
Stainless Steel	100 ~ 180	0.08 ~ 0.12	0.3 ~ 1.6	100 ~ 180	0.08 ~ 0.25	0.3 ~ 4.5
Cast Iron	120 ~ 250	0.10 ~ 0.16	0.3 ~ 3.0	120 ~ 250	0.1 ~ 0.3	0.3 ~ 7.0
High Temperature Alloy	40 ~ 100	0.08 ~ 0.12	0.3 ~ 1.5	40 ~ 100	0.08 ~ 0.18	0.3 ~ 4.0
Hardened Steel	50 ~ 100	0.09 ~ 0.13	0.3 ~ 1.5	50 ~ 100	0.09 ~ 0.19	0.3 ~ 4.0

CXXNE - Milling tools



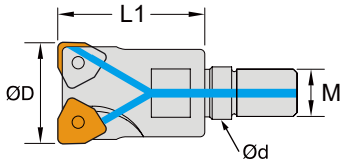


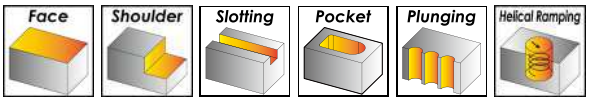
Order No.	D	L1	L	d	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXXNE403020150	20	40	150	20	3		XNMX0403	ITS2512	ITK08	●
ICXXNE403020200	20	100	200	20	3					●
ICXXNE404025150	25	40	150	25	4					●
ICXXNE405032200	32	45	200	32	5					●
ICXXNE403020111	20	28	110	20	3	✓		ITS2512		●
ICXXNE404025121	25	28	120	25	4	✓				●
ICXXNE405032131	32	30	130	32	5	✓				●

● stock ○ by inquiry

Customize available.

CXXNM - Modular tools



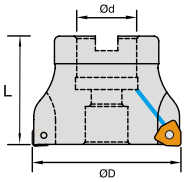


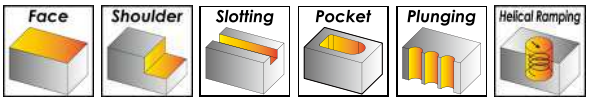
Order No.	D	L1	d	M	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXXNM402017081	17	26	8.5	M08	2	✓	XNMX0403	ITS2512	ITK08	●
ICXXNM403021101	21	32	10.5	M10	3	✓				●
ICXXNM404026121	26	38	12.5	M12	4	✓				●
ICXXNM404032160	32	41	17	M16	4					○

● stock ○ by inquiry

Customize available.

CXXNF - Milling tools





Order No.	D	L	d	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXXNF406050220	50	50	22	6		XNMX0403	ITS2512	ITK08	●
ICXXNF407063220	63	50	22	7					●
ICXXNF407063250	63	50	25.4	7					●
ICXXNF407040161	40	40	16	7	✓				●
ICXXNF409050221	50	40	22	9	✓				●
ICXXNF805050221	50	40	22	5	✓	XNMX0806	ITS4006	ITK15	●
ICXXNF806063221	63	40	22	6	✓				●
ICXXNF807080271	80	50	27	7	✓				●
ICXXNF811100321	100	50	32	11	✓				○
ICXXNF811125401	125	63	40	11	✓				○

● stock ○ by inquiry

Customize available.

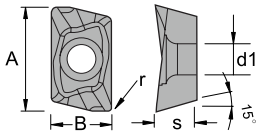
CAXO Shoulder Milling

Mini Size Cutter for Wider Applications !

- ***Ø10 cutter with 2 teeth, Ø12 cutter with 3 teeth, Ø16 cutter with 4 teeth and Ø20 cutter with 5 teeth.***
- ***Replace solid end mill with better cost saving.***
- ***Offering excellent tool life and precision on small to medium size work pieces.***
- ***Cutter and modular head ensure better flexibility.***

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
XOMT060204	**7**	**4.09**	**2.45**	**0.4**	**2**
XOMT060208	**7**	**4.09**	**2.45**	**0.8**	**2**
XOMT10T308	**11.08**	**6.86**	**3.8**	**0.8**	**3**



Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IXOMT060208SG32HS	XOMT060208-SG-CX32HS	●	●	●		○	○
	IXOMT060208SG33TS	XOMT060208-SG-CX33TS	●	●	●		●	●
	IXOMT060204MG22HS	XOMT060204-MG-CX22HS	●	●	●		○	●
	IXOMT060204MG32HS	XOMT060204-MG-CX32HS	●	●	●		○	○
	IXOMT060204MG33TS	XOMT060204-MG-CX33TS	●	●	●		●	●
	IXOMT060208MG22HS	XOMT060208-MG-CX22HS	●	●	●		○	●
	IXOMT060208MG23TS	XOMT060208-MG-CX23TS	●	●	●		●	●
	IXOMT060208MG32HS	XOMT060208-MG-CX32HS	●	●	●		○	○
	IXOMT060208MG33TS	XOMT060208-MG-CX33TS	●	●	●		●	●
	IXOMT060208MG43TS	XOMT060208-MG-CX43TS	●	●	●		●	
	IXOMT060216MG33TS	XOMT060216-MG-CX33TS	●	●	●		●	●
	IXOMT060216MG43TS	XOMT060216-MG-CX43TS	●	●	●		●	
	IXOMT10T308SG32HS	XOMT10T308-SG-CX32HS	●	●	●		○	○
	IXOMT10T308SG33TS	XOMT10T308-SG-CX33TS	●	●	●		●	●
	IXOMT10T308SG43TS	XOMT10T308-SG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

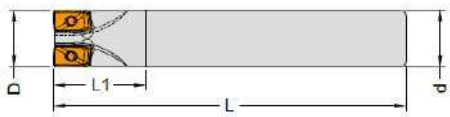
for XOMT0602

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.08 ~ 0.20	0.3 ~ 3.0
Stainless Steel	100 ~ 180	0.05 ~ 0.15	0.3 ~ 2.5
Cast Iron	120 ~ 250	0.08 ~ 0.13	0.3 ~ 3.0
High Temperature Alloy	40 ~ 100	0.05 ~ 0.12	0.3 ~ 2.5
Hardened Steel	50 ~ 100	0.05 ~ 0.13	0.3 ~ 2.5

for XOMT10T3

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.22	0.3 ~ 7.0
Stainless Steel	100 ~ 180	0.08 ~ 0.18	0.3 ~ 4.0
Cast Iron	120 ~ 250	0.10 ~ 0.22	0.3 ~ 7.0
High Temperature Alloy	40 ~ 100	0.07 ~ 0.14	0.3 ~ 5.0
Hardened Steel	50 ~ 100	0.07 ~ 0.15	0.3 ~ 5.0

CAXOE - Milling tools

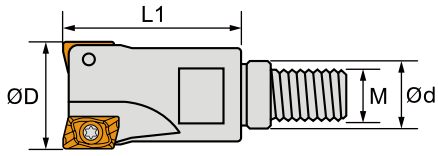


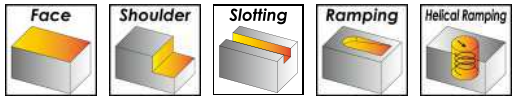
Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICAXOE602010100	10	20	100	10	2	XOMT0602	ITS1801	ITK06	●
ICAXOE602012100	12	20	100	12	2				●
ICAXOE603012100	12	20	100	12	3				●
ICAXOE602013100	13	20	100	12	2				●
ICAXOE603013100	13	20	100	12	3				●
ICAXOE604016100	16	30	100	16	4				●
ICAXOE605020120	20	30	120	20	5				●
ICAXOE102016150	16	22	150	16	2	XOMT10T3	ITS2515	ITK08	○
ICAXOE102020150	20	28	150	20	2				○
ICAXOE104025150	25	35	150	25	4				○
ICAXOE105032150	32	40	150	32	5				○

● stock ○ by inquiry

Customize available.

CAXOM - Modular tools





Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICAXOM602010050	10	16	5.5	M5	2	XOMT0602	ITS1801	ITK06	○
ICAXOM603012060	12	18	6.5	M6	3				●
ICAXOM604016080	16	20	8.5	M8	4				●
ICAXOM605020100	20	30	10.5	M10	5				●

● stock ○ by inquiry

Customize available.

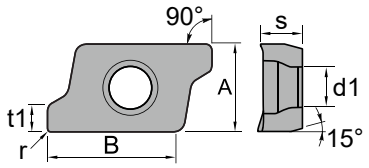
CART Shoulder Milling

Suitable for small power machine !

- ***Ø10,Ø11,Ø12,Ø13 cutter with 2 teeth and Ø16,Ø20,Ø21 cutter with 3 teeth.***
- ***Strong Pocket design with excellent chip evacuation.***
- ***Extreme well ramping and slotting capabilities.***
- ***Unique geometry designed for low cutting force.***

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
WRT070204	**4.30**	**6.4**	**2.38**	**0.4**	**2.2**
WRT100308	**6.35**	**9.3**	**3.4**	**0.8**	**2.9**



Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IWRT070204RG22HS	WRT070204-RG-CX22HS	●	●	●		○	●
	IWRT070204RG23TS	WRT070204-RG-CX23TS	●	●	●		●	●
	IWRT070204RG32HS	WRT070204-RG-CX32HS	●	●	●		○	○
	IWRT070204RG33TS	WRT070204-RG-CX33TS	●	●	●		●	●
	IWRT070204RG43TS	WRT070204-RG-CX43TS	●	●	●		●	
	IWRT100308RG22HS	WRT100308-RG-CX22HS	●	●	●		○	●
	IWRT100308RG23TS	WRT100308-RG-CX23TS	●	●	●		●	●
	IWRT100308RG32HS	WRT100308-RG-CX32HS	●	●	●		○	○
	IWRT100308RG33TS	WRT100308-RG-CX33TS	●	●	●		●	●
	IWRT100308RG43TS	WRT100308-RG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

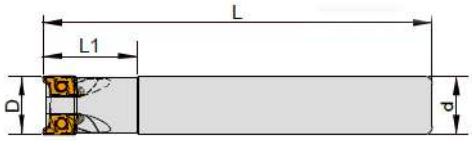
for WRT0702

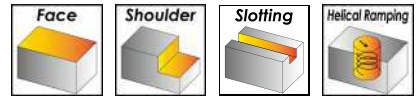
Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.08 ~ 0.20	0.3 ~ 5.0
Stainless Steel	100 ~ 180	0.05 ~ 0.15	0.3 ~ 3.0
Cast Iron	120 ~ 250	0.08 ~ 0.20	0.3 ~ 4.0
High Temperature Alloy	40 ~ 100	0.05 ~ 0.12	0.3 ~ 3.0
Hardened Steel	50 ~ 100	0.05 ~ 0.13	0.3 ~ 3.0

for WRT1003

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.22	0.5 ~ 7.0
Stainless Steel	100 ~ 180	0.08 ~ 0.18	0.5 ~ 4.0
Cast Iron	120 ~ 250	0.10 ~ 0.22	0.5 ~ 6.0
High Temperature Alloy	40 ~ 100	0.07 ~ 0.14	0.5 ~ 4.0
Hardened Steel	50 ~ 100	0.07 ~ 0.15	0.5 ~ 4.0

CARTE - Milling tools



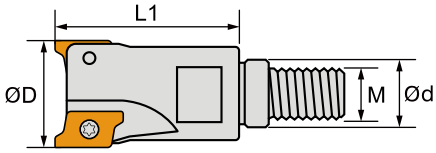


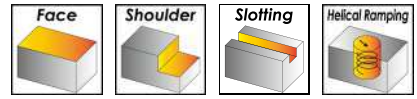
Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICARTE702010100	10	18	100	10	2	WRT0702	ITS2003	ITK06	○
ICARTE702011100	11	18	100	10	2				●
ICARTE702013100	13	20	100	12	2				●
ICARTE703016150	16	30	150	16	3				○
ICARTE102017150	17	30	150	16	2	WRT1003	ITS2515	ITK08	●
ICARTE103021150	21	30	150	20	3				●
ICARTE104026150	26	40	150	25	4				●

● stock ○ by inquiry

Customize available.

CARTM - Modular tools





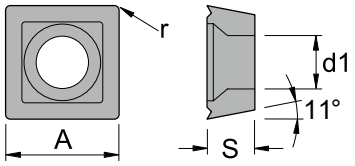
Order No.	D	L1	M	d	T	Inserts	Screw	Wrench	Stock
ICARTM702010050	10	18	M5	5.5	2	WRT0702	ITS2003	ITK06	●
ICARTM702011050	11	18	M5	5.5	2				●
ICARTM702012060	12	20	M6	6.5	2				●
ICARTM702013060	13	20	M6	6.5	2				●
ICARTM103017080	17	30	M8	8.5	3	WRT1003	ITS2515	ITK08	●
ICARTM103021100	21	32	M10	10.5	3				●

● stock ○ by inquiry

Customize available.

Insert Specifications

Insert	Dimensions (mm)			
	A	S	r	d1
SPMG050204	5.00	2.38	0.4	2.30
SPMG060204	6.00	2.38	0.4	2.65
SPMG07T308	7.94	3.97	0.8	2.85
SPMG090408	9.80	4.3	0.8	4.05
SPMG110408	11.50	4.8	0.8	4.45



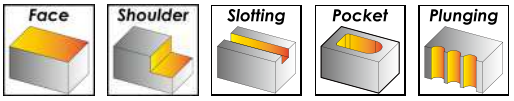
Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ISPMG050204MG32HS	SPMG050204-MG-CX32HS	●	●	●		○	○
	ISPMG050204MG33TS	SPMG050204-MG-CX33TS	●	●	●		●	●
	ISPMG050204MG43TS	SPMG050204-MG-CX43TS	●	●	●		●	
	ISPMG060204MG32HS	SPMG060204-MG-CX32HS	●	●	●		○	○
	ISPMG060204MG33TS	SPMG060204-MG-CX33TS	●	●	●		●	●
	ISPMG060204MG43TS	SPMG060204-MG-CX43TS	●	●	●		●	
	ISPMG07T308MG32HS	SPMG07T308-MG-CX32HS	●	●	●		○	○
	ISPMG07T308MG33TS	SPMG07T308-MG-CX33TS	●	●	●		●	●
	ISPMG07T308MG43TS	SPMG07T308-MG-CX43TS	●	●	●		●	
	ISPMG090408MG32HS	SPMG090408-MG-CX32HS	●	●	●		○	○
	ISPMG090408MG33TS	SPMG090408-MG-CX33TS	●	●	●		●	●
	ISPMG090408MG43TS	SPMG090408-MG-CX43TS	●	●	●		●	
	ISPMG090408RG32HS	SPMG090408-RG-CX32HS	●	●	●		○	○
	ISPMG090408RG33TS	SPMG090408-RG-CX33TS	●	●	●		●	●
	ISPMG090408RG43TS	SPMG090408-RG-CX43TS	●	●	●		●	
	ISPMG110408MG32HS	SPMG110408-MG-CX32HS	●	●	●		○	○
	ISPMG110408MG33TS	SPMG110408-MG-CX33TS	●	●	●		●	●
	ISPMG110408MG43TS	SPMG110408-MG-CX43TS	●	●	●		●	
	ISPMG110408RG32HS	SPMG110408-RG-CX32HS	●	●	●		○	○
	ISPMG110408RG33TS	SPMG110408-RG-CX33TS	●	●	●		●	●
	ISPMG110408RG43TS	SPMG110408-RG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

Working Material	SPMG050204 & SPMG060204			SPMT07T308 & SPMG090408		
	Vc	fz	ap	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.22	0.3 ~ 3.0	120 ~ 250	0.10 ~ 0.22	0.5 ~ 6.0
Stainless Steel	100 ~ 180	0.08 ~ 0.18	0.3 ~ 2.0	100 ~ 180	0.08 ~ 0.18	0.5 ~ 4.0
Cast Iron	120 ~ 250	0.10 ~ 0.22	0.3 ~ 3.0	120 ~ 250	0.10 ~ 0.22	0.5 ~ 6.0
High Temperature Alloy	40 ~ 100	0.07 ~ 0.14	0.3 ~ 2.0	40 ~ 100	0.07 ~ 0.14	0.5 ~ 4.0
Hardened Steel	50 ~ 100	0.07 ~ 0.15	0.3 ~ 2.0	50 ~ 100	0.07 ~ 0.15	0.5 ~ 4.0

CASPE - Milling tools

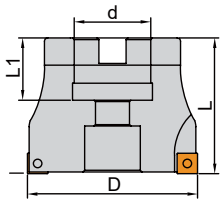


Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICASPE502012100	12	20	100	12	2	SPMG0502	ITS2003	ITK06	●
ICASPE502013100	13	20	100	12	2				○
ICASPE502014100	14	20	100	12	2				○
ICASPE502015100	15	20	100	12	2				○
ICASPE602016120	16	25	120	16	2	SPMG0602	ITS2205	ITK06	●
ICASPE603020120	20	30	120	20	3				●
ICASPE603025120	25	30	120	25	3				●
ICASPE604030120	30	30	120	25	4				●
ICASPE605032120	32	30	120	25	5				●
ICASPE703025150	25	35	150	25	3	SPMG07T3	ITS3504	ITK15	●
ICASPE703030150	30	35	150	25	3				○
ICASPE704030150	30	40	150	32	4				○
ICASPE704032150	32	40	150	32	4				●

● stock ○ by inquiry

Customize available.

CASPF - Milling tools



Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICASPF607050220	50	20	45	22	7	SPMG0602	ITS2205	ITK06	●
ICASPF607050250	50	20	45	25.4	7				○
ICASPF609063220	63	20	45	22	9				●
ICASPF609063250	63	20	45	25.4	9				●
ICASPF611080270	80	23	50	27	11				○
ICASPF611080250	80	23	50	25.4	11				●
ICASPF905050220	50	20	45	22	5	SPMG0904	ITS3504	ITK15	●
ICASPF905050250	50	20	45	25.4	5				○
ICASPF906063220	63	20	45	22	6				●
ICASPF906063250	63	20	45	25.4	6				○
ICASPF907080270	80	23	50	27	7				●
ICASPF907080250	80	23	50	25.4	7				○

● stock ○ by inquiry

Customize available.

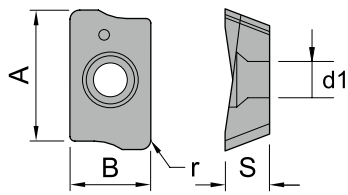
CR39 Shoulder Milling

Versatile concept suitable for various applications !

- ***Specially designed for productive milling at high temperature alloys.***
- ***Finishing and roughing capability in a wide range of operations and materials.***
- ***High removal rates can be achieved even at smaller low powered machines.***

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
W39011T308	**11**	**6.9**	**3.59**	**0.8**	**2.8**
W39011T320	**11**	**6.9**	**3.59**	**2.0**	**2.8**



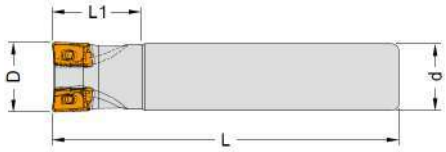
Insert Order Code

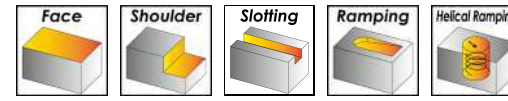
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IW39011T308MG22HS	W39011T308-MG-CX22HS	●	●	●		○	●
	IW39011T308MG23TS	W39011T308-MG-CX23TS	●	●	●		●	●
	IW39011T308MG32HS	W39011T308-MG-CX32HS	●	●	●		○	○
	IW39011T308MG33TS	W39011T308-MG-CX33TS	●	●	●		●	●
	IW39011T308MG43TS	W39011T308-MG-CX43TS	●	●	●		●	
	IW39011T320MG22HS	W39011T320-MG-CX22HS	●	●	●		○	●
	IW39011T320MG23TS	W39011T320-MG-CX23TS	●	●	●		●	●
	IW39011T320MG32HS	W39011T320-MG-CX32HS	●	●	●		○	○
	IW39011T320MG33TS	W39011T320-MG-CX33TS	●	●	●		●	●

Recommended Cutting Conditions

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.22	0.3 ~ 7.0
Stainless Steel	100 ~ 180	0.08 ~ 0.18	0.3 ~ 4.0
Cast Iron	120 ~ 250	0.10 ~ 0.22	0.3 ~ 6.0
High Temperature Alloy	40 ~ 100	0.07 ~ 0.14	0.3 ~ 4.0
Hardened Steel	50 ~ 100	0.07 ~ 0.15	0.3 ~ 4.0

CR39E - Milling tools



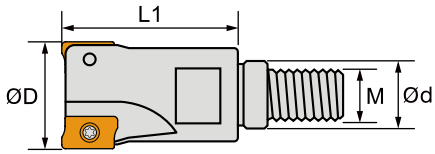


Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICR39E302016150	16	30	150	16	2	W39011T3	ITS2515	ITK08	●
ICR39E303025150	25	30	150	25	3				●
ICR39E303032150	32	35	150	32	3				○

● stock ○ by inquiry

Customize available.

CR39M - Modular tools

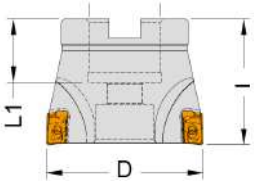


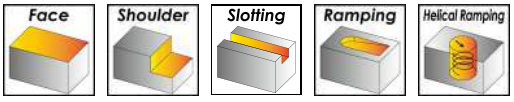
Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICR39M302016080	16	26	8.5	M8	2	W39011T3	ITS2515	ITK08	○
ICR39M303020100	20	32	10.5	M10	3				○
ICR39M303025120	25	38	12.5	M12	3				○
ICR39M303032160	32	41	17	M16	3				○

● stock ○ by inquiry

Customize available.

CR39F - Milling tools





Order No.	D	L	d	T	Inserts	Screw	Wrench	Stock
ICR39F304050220	50	40	22	4	W39011T3	ITS2515	ITK08	●
ICR39F305063220	63	40	22	5				○
ICR39F308080270	80	50	27	8				○

● stock ○ by inquiry

Customize available.

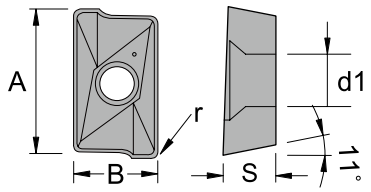
CAPK Shoulder Milling

Versatile concept suitable for various applications !

- ***Enhancement chip breaker design for longer tool life.***
- ***Offering better cost efficiency on medium to large work pieces.***
- ***Medium to large sized cutter for shoulder milling and face milling available.***

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
APKT100304	10.5	6.7	3.5	0.4	2.8
APKT100308	10.5	6.7	3.5	0.8	2.8
APET160402	16.3	9.525	5.25	0.2	4.5
APET160404	16.3	9.525	5.25	0.4	4.5
APKT160408	16.3	9.525	5.25	0.8	4.5
APKT170516	18.5	10.7	5.56	1.6	4.5



Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IAPKT100304EAL10	APKT100304PDER-AL-CX10				●		
	IAPKT100304ESG22HS	APKT100304PDER-SG-CX22HS	●	●	●		○	●
	IAPKT100304EMG22HS	APKT100304PDER-MG-CX22HS	●	●	●		○	●
	IAPKT100304EMG23TS	APKT100304PDER-MG-CX23TS	●	●	●		●	●
	IAPKT100304EMG32HS	APKT100304PDER-MG-CX32HS	●	●	●		○	○
	IAPKT100304EMG33TS	APKT100304PDER-MG-CX33TS	●	●	●		●	●
	IAPKT100304EMG43TS	APKT100304PDER-MG-CX43TS	●	●	●		●	
	IAPKT100308EMG22HS	APKT100308PDER-MG-CX22HS	●	●	●		○	●
	IAPKT100308EMG23TS	APKT100308PDER-MG-CX23TS	●	●	●		●	●
	IAPKT100308EMG32HS	APKT100308PDER-MG-CX32HS	●	●	●		○	○
	IAPKT100308EMG33TS	APKT100308PDER-MG-CX33TS	●	●	●		●	●
	IAPKT100308EMG43TS	APKT100308PDER-MG-CX43TS	●	●	●		●	
	IAPKT100304ERG32HS	APKT100304PDER-RG-CX32HS	●	●	●		○	○
	IAPKT100304ERG33TS	APKT100304PDER-RG-CX33TS	●	●	●		●	●
	IAPKT160408EMG22HS	APKT160408PDER-MG-CX22HS	●	●	●		○	●
	IAPKT160408EMG32HS	APKT160408PDER-MG-CX32HS	●	●	●		○	○
	IAPKT160408EMG33TS	APKT160408PDER-MG-CX33TS	●	●	●		●	●
	IAPKT160408EMG43TS	APKT160408PDER-MG-CX43TS	●	●	●		●	
	IAPKT160408ERG22HS	APKT160408PDER-RG-CX22HS	●	●	●		○	●
	IAPKT160408ERG32HS	APKT160408PDER-RG-CX32HS	●	●	●		○	○
	IAPKT160408ERG33TS	APKT160408PDER-RG-CX33TS	●	●	●		●	●
	IAPKT160408ERG43TS	APKT160408PDER-RG-CX43TS	●	●	●		●	
	IAPKT170516ERG22HS	APKT170516PEER-RG-CX22HS	●	●	●		○	●
	IAPKT170516ERG23TS	APKT170516PEER-RG-CX23TS	●	●	●		●	●
	IAPKT170516ERG32HS	APKT170516PEER-RG-CX32HS	●	●	●		○	○
	IAPKT170516ERG33TS	APKT170516PEER-RG-CX33TS	●	●	●		●	●
	IAPKT170516ERG43TS	APKT170516PEER-RG-CX43TS	●	●	●		●	
	IAPET160402FAL10	APET160402PDFR-AL-CX10				●		
	IAPET160404FAL10	APET160404PDFR-AL-CX10				●		
	IAPET160402FFG22HS	APET160402PDFR-FG-CX22HS	●	●	●		○	●
	IAPET160404FFG22HS	APET160404PDFR-FG-CX22HS	●	●	●		○	●

Recommended Cutting Conditions

for APKT1003

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.22	0.3 ~ 7.0
Stainless Steel	100 ~ 180	0.08 ~ 0.18	0.3 ~ 4.0
Cast Iron	120 ~ 250	0.10 ~ 0.22	0.3 ~ 6.0
High Temperature Alloy	40 ~ 100	0.07 ~ 0.14	0.3 ~ 4.0
Hardened Steel	50 ~ 100	0.07 ~ 0.15	0.3 ~ 4.0

for APKT1604

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.12 ~ 0.28	0.5 ~ 11.0
Stainless Steel	100 ~ 180	0.10 ~ 0.22	0.5 ~ 7.0
Cast Iron	120 ~ 250	0.12 ~ 0.28	0.5 ~ 10.0
Aluminum Alloy	300 ~ 1000	0.10 ~ 0.40	0.5 ~ 11.0
High Temperature Alloy	40 ~ 100	0.10 ~ 0.18	0.5 ~ 7.0
Hardened Steel	50 ~ 100	0.10 ~ 0.20	0.5 ~ 7.0

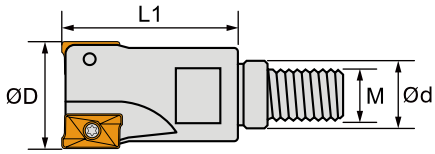
CAPKE - Milling tools

Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICAPKE302016120	16	25	120	16	2	APKT1003	ITS2515	ITK08	●
ICAPKE302020120	20	30	120	20	2				●
ICAPKE304025150	25	35	150	25	4				●
ICAPKE305032150	32	35	150	32	5				○
ICAPKE402025150	25	40	150	25	2	APKT1604 or APET1604	ITS4004	ITK15	●
ICAPKE402032150	32	45	150	32	2				○

● stock ○ by inquiry

Customize available.

CAPKM - Modular tools

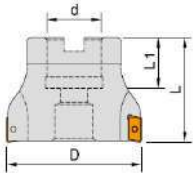


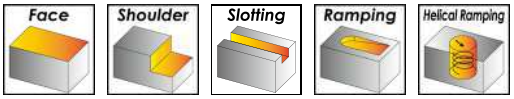
Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICAPKM302016080	16	26	8.5	M8	2	APKT1003	ITS2515	ITK08	●
ICAPKM303020100	20	32	10.5	M10	3				○
ICAPKM304025120	25	38	12.5	M12	4				●
ICAPKM305032160	32	41	17	M16	5				○
ICAPKM402025120	25	38	12.5	M12	2	APKT1604 or APET1604	ITS4004	ITK15	○
ICAPKM403032160	32	41	17	M16	3				○

● stock ○ by inquiry

Customize available.

CAPKF - Milling tools





Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICAPKF306050220	50	20	40	22	6	APKT1003	ITS2515	ITK08	●
ICAPKF306063220	63	21	45	22	6				●
ICAPKF307080270	80	23	50	27	7				●
ICAPKF404050220	50	23	50	22	4	APKT1604 or APET1604	ITS4004	ITK15	●
ICAPKF405063220	63	23	50	22	5				●
ICAPKF406080270	80	32	55	27	6				●
ICAPKF408100320	100	32	55	32	8				●

● stock ○ by inquiry

Customize available.

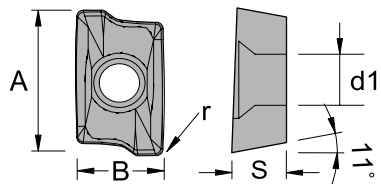
CWEX Shoulder Milling

Shoulder Milling with high efficiency and high removal rates !

- ***Shoulder milling with strong cutting edges for high feed rate capabilities.***
- ***High efficiency and productive machining can be achieved due to optimize cutting edge geometry and high rigidity body.***

Insert Specifications

Insert	Dimensions (mm)			
	A	S	r	d1
AXMT123508	**12.18**	**3.58**	**0.8**	**3.4**
AXMT170508	**17.50**	**5.56**	**0.8**	**4.6**
AXMT170516	**17.50**	**5.56**	**1.6**	**4.6**



Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IAXMT123508ERG22HS	AXMT123508PEER-RG-CX22HS	●	●	●		○	●
	IAXMT123508ERG32HS	AXMT123508PEER-RG-CX32HS	●	●	●		○	○
	IAXMT123508ERG33TS	AXMT123508PEER-RG-CX33TS	●	●	●		●	●
	IAXMT123508ERG43TS	AXMT123508PEER-RG-CX43TS	●	●	●		●	
	IAXMT170508ERG32HS	AXMT170508PEER-RG-CX32HS	●	●	●		○	○
	IAXMT170508ERG33TS	AXMT170508PEER-RG-CX33TS	●	●	●		●	●
	IAXMT170508ERG43TS	AXMT170508PEER-RG-CX43TS	●	●	●		●	
	IAXMT170516ERG32HS	AXMT170516PEER-RG-CX32HS	●	●	●		○	○
	IAXMT170516ERG43TS	AXMT170516PEER-RG-CX43TS	●	●	●		●	●
	IAXMT170516ERG33TS	AXMT170516PEER-RG-CX33TS	●	●	●		●	

Recommended Cutting Conditions

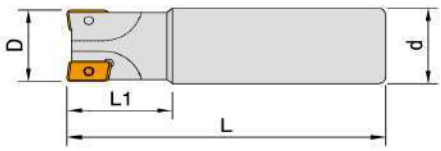
for AXMT1235

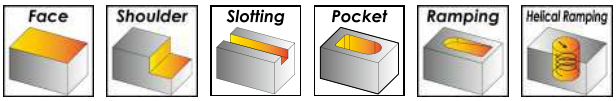
Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.22	0.3 ~ 7.0
Stainless Steel	100 ~ 180	0.08 ~ 0.18	0.3 ~ 4.0
Cast Iron	120 ~ 250	0.10 ~ 0.22	0.3 ~ 6.0
High Temperature Alloy	40 ~ 100	0.07 ~ 0.14	0.3 ~ 4.0
Hardened Steel	50 ~ 100	0.07 ~ 0.15	0.3 ~ 4.0

for AXMT1705

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.12 ~ 0.28	0.5 ~ 11.0
Stainless Steel	100 ~ 180	0.10 ~ 0.22	0.5 ~ 7.0
Cast Iron	120 ~ 250	0.12 ~ 0.28	0.5 ~ 10.0
High Temperature Alloy	40 ~ 100	0.10 ~ 0.18	0.5 ~ 7.0
Hardened Steel	50 ~ 100	0.10 ~ 0.20	0.5 ~ 7.0

CWEXE - Milling tools



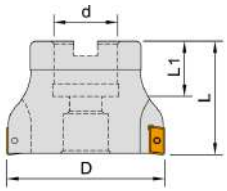


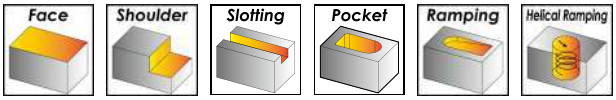
Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICWEXE202016120	16	35	120	16	2	AXMT1235	ITS3002	ITK09	●
ICWEXE203020120	20	40	120	20	3				●
ICWEXE204025150	25	45	150	25	4				●
ICWEXE205032150	32	45	150	32	5				●
ICWEXE702025150	25	40	150	25	2	AXMT1705	ITS4004	ITK15	●
ICWEXE703032150	32	45	150	32	3				●

● stock ○ by inquiry

Customize available.

CWEXF - Milling tools





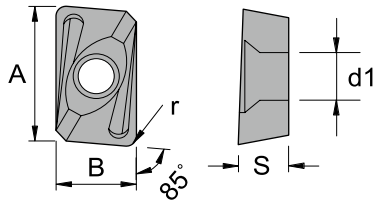
Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICWEXF206050220	50	20	45	22	6	AXMT1235	ITS3002	ITK09	●
ICWEXF207063220	63	20	45	22	7				●
ICWEXF208080270	80	26	50	27	8				●
ICWEXF704050220	50	20	45	22	4	AXMT1705	ITS4004	ITK15	●
ICWEXF705063220	63	20	45	22	5				●
ICWEXF707080270	80	26	50	27	7				●
ICWEXF707100320	100	26	50	32	7				○

● stock ○ by inquiry

Customize available.

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
APMT113508	11.0	6.35	3.5	0.8	2.8
APMT113516	11.0	6.35	3.5	1.6	2.8
APMT160408	16.5	9.525	4.76	0.8	4.4
APMT160416	16.5	9.525	4.76	1.6	4.4
APGT160408	16.5	9.525	4.76	0.8	4.4



Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IAPMT113508EMG22HS	APMT113508PDER-MG-CX22HS	●	●	●		○	●
	IAPMT113508EMG23TS	APMT113508PDER-MG-CX23TS	●	●	●		●	●
	IAPMT113508EMG32HS	APMT113508PDER-MG-CX32HS	●	●	●		○	○
	IAPMT113508EMG33TS	APMT113508PDER-MG-CX33TS	●	●	●		●	●
	IAPMT113508EMG43TS	APMT113508PDER-MG-CX43TS	●	●	●		●	
	IAPMT113516EMG33TS	APMT113516PDER-MG-CX33TS	●	●	●		●	●
	IAPMT113516EMG43TS	APMT113516PDER-MG-CX43TS	●	●	●		●	
	IAPMT113508ERG22HS	APMT113508PDER-RG-CX22HS	●	●	●		○	●
	IAPMT113508ERG23TS	APMT113508PDER-RG-CX23TS	●	●	●		●	●
	IAPMT113508ERG32HS	APMT113508PDER-RG-CX32HS	●	●	●		○	○
	IAPMT113508ERG33TS	APMT113508PDER-RG-CX33TS	●	●	●		●	●
	IAPMT113508ERG43TS	APMT113508PDER-RG-CX43TS	●	●	●		●	
	IAPMT113508EHG32HS	APMT113508PDER-HG-CX32HS	●	●	●		○	○
	IAPMT113508EHG33TS	APMT113508PDER-HG-CX33TS	●	●	●		●	●
	IAPMT113508EHG43TS	APMT113508PDER-HG-CX43TS	●	●	●		●	
	IAPMT160408EMG22HS	APMT160408PDER-MG-CX22HS	●	●	●		○	●
	IAPMT160408EMG32HS	APMT160408PDER-MG-CX32HS	●	●	●		○	○
	IAPMT160408EMG33TS	APMT160408PDER-MG-CX33TS	●	●	●		●	●
	IAPMT160408EMG43TS	APMT160408PDER-MG-CX43TS	●	●	●		●	
	IAPMT160416EMG33TS	APMT160416PDER-MG-CX33TS	●	●	●		●	●
	IAPMT160416EMG43TS	APMT160416PDER-MG-CX43TS	●	●	●		●	
	IAPMT160408ERG22HS	APMT160408PDER-RG-CX22HS	●	●	●		○	●
	IAPMT160408ERG23TS	APMT160408PDER-RG-CX23TS	●	●	●		●	●
	IAPMT160408ERG32HS	APMT160408PDER-RG-CX32HS	●	●	●		○	○
	IAPMT160408ERG33TS	APMT160408PDER-RG-CX33TS	●	●	●		●	●
	IAPMT160408ERG43TS	APMT160408PDER-RG-CX43TS	●	●	●		●	
	IAPMT160408EHG22HS	APMT160408PDER-HG-CX22HS	●	●	●		○	●
	IAPMT160408EHG32HS	APMT160408PDER-HG-CX32HS	●	●	●		○	○
	IAPMT160408EHG33TS	APMT160408PDER-HG-CX33TS	●	●	●		●	●
	IAPMT160408EHG43TS	APMT160408PDER-HG-CX43TS	●	●	●		●	

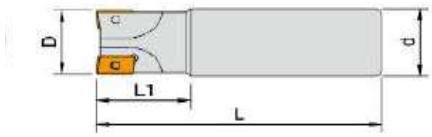
Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IAPGT160408EAL10	APGT160408PDER-AL-CX10				●		
	IAPGT160408EFG22HS	APGT160408PDER-FG-CX22HS	●	●	●		○	●

Recommended Cutting Conditions

Working Material	for APMT1135			for APMT1604		
	Vc	fz	ap	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.22	0.5 ~ 7.0	120 ~ 250	0.12 ~ 0.28	0.5 ~ 11.0
Stainless Steel	100 ~ 180	0.08 ~ 0.18	0.5 ~ 4.0	100 ~ 180	0.10 ~ 0.22	0.5 ~ 7.0
Cast Iron	120 ~ 250	0.10 ~ 0.22	0.5 ~ 6.0	120 ~ 250	0.12 ~ 0.28	0.5 ~ 11.0
Aluminum Alloy	-	-	-	300 ~ 1000	0.10 ~ 0.40	0.5 ~ 11.0
High Temperature Alloy	40 ~ 100	0.07 ~ 0.14	0.5 ~ 4.0	40 ~ 100	0.10 ~ 0.22	0.5 ~ 7.0
Hardened Steel	50 ~ 100	0.07 ~ 0.15	0.5 ~ 4.0	50 ~ 100	0.10 ~ 0.22	0.5 ~ 7.0

CBAPE - Milling tools

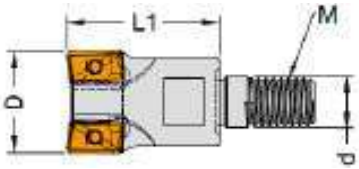


Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICBAPE302016100	16	25	100	16	2	APMT1135	ITS2515	ITK08	●
ICBAPE302016160	16	35	160	16	2				●
ICBAPE302020150	20	35	150	20	2				●
ICBAPE303020100	20	30	100	20	3				●
ICBAPE303020150	20	35	150	20	3				●
ICBAPE304025100	25	35	100	25	4				○
ICBAPE304030120	30	40	120	25	4				○
ICBAPE305032120	32	40	120	32	5				○
ICBAPE402025150	25	40	150	25	2	APMT1604 or APGT1604	ITS4023	ITK15	●
ICBAPE402025200	25	70	200	25	2				○
ICBAPE403032150	32	45	150	32	3				●
ICBAPE403032200	32	80	200	32	3				●

● stock ○ by inquiry

Customize available.

CBAPM - Modular tools

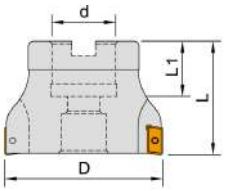


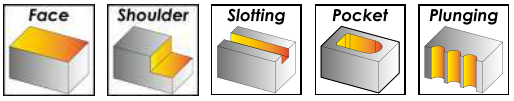
Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICBAPM302016080	16	26	8.5	M8	2	APMT1135	ITS2515	ITK08	●
ICBAPM302020100	20	30	10.5	M10	2				●
ICBAPM303020100	20	30	10.5	M10	3				○
ICBAPM304025120	25	35	12.5	M12	4				●
ICBAPM305032160	32	40	17	M16	5				●
ICBAPM305033160	33	40	17	M16	5				○
ICBAPM402025120	25	35	12.5	M12	2	APMT1604 or APGT1604	ITS4023	ITK15	●
ICBAPM402032160	32	40	17	M16	3				●

● stock ○ by inquiry

Customize available.

CBAPF - Milling tools





Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICBAPF306050250	50	45	18	25.4	6	APMT1135	ITS2515	ITK08	●
ICBAPF307063220	63	45	22	22	7				●
ICBAPF307063254	63	45	22	25.4	7				●
ICBAPF308063250	80	50	26	25.4	8				●
ICBAPF308063270	80	50	26	27	8				●
ICBAPF405050220	50	45	22	22	5	APMT1604 or APGT1604	ITS4023	ITK15	●
ICBAPF405050250	50	45	18	25.4	5				●
ICBAPF406063220	63	45	22	22	6				●
ICBAPF406063250	63	45	22	25.4	6				●
ICBAPF407080250	80	50	26	25.4	7				●
ICBAPF407080270	80	50	26	27	7				●

● stock ○ by inquiry

Customize available.

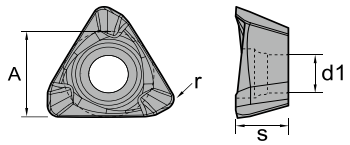
CATP Shoulder Milling

Innovative & Economical milling with 3 cutting edges !

- ***Ensures productive milling of true 90° machining.***
- ***Provide an improved low cost per cutting edge for various milling applications.***
- ***Low cutting force and excellent chip evacuation.***
- ***More economical compare to AP inserts.***

Insert Specifications

Insert	Dimensions (mm)			
	A	S	r	d1
TPMX100408	**6.9**	**4**	**0.8**	**3**
TPMX150508	**10.7**	**5**	**0.8**	**4.85**



Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ITPMX100408SG32HS	TPMX100408-SG-CX32HS	●	●	●		○	○
	ITPMX100408SG33TS	TPMX100408-SG-CX33TS	●	●	●		●	●
	ITPMX100408MG22HS	TPMX100408-MG-CX22HS	●	●	●		○	●
	ITPMX100408MG23TS	TPMX100408-MG-CX23TS	●	●	●		●	●
	ITPMX100408MG32HS	TPMX100408-MG-CX32HS	●	●	●		○	○
	ITPMX100408MG33TS	TPMX100408-MG-CX33TS	●	●	●		●	●
	ITPMX100408MG43TS	TPMX100408-MG-CX43TS	●	●	●		●	
	ITPMX150508MG22HS	TPMX150508-MG-CX22HS	●	●	●		○	●
	ITPMX150508MG23TS	TPMX150508-MG-CX23TS	●	●	●		●	●
	ITPMX150508MG32HS	TPMX150508-MG-CX32HS	●	●	●		○	○
	ITPMX150508MG33TS	TPMX150508-MG-CX33TS	●	●	●		●	●
	ITPMX150508MG43TS	TPMX150508-MG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

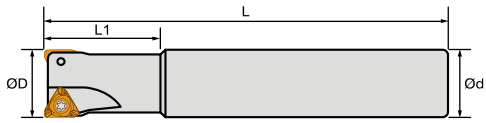
for TPMX1004

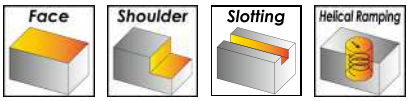
Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.08 ~ 0.20	0.3 ~ 7.0
Stainless Steel	100 ~ 180	0.05 ~ 0.15	0.3 ~ 4.0
Cast Iron	120 ~ 250	0.08 ~ 0.20	0.3 ~ 6.0
High Temperature Alloy	40 ~ 100	0.05 ~ 0.12	0.3 ~ 4.0
Hardened Steel	50 ~ 100	0.05 ~ 0.13	0.3 ~ 4.0

for TPMX1505

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.12 ~ 0.28	0.5 ~ 11.0
Stainless Steel	100 ~ 180	0.10 ~ 0.22	0.5 ~ 7.0
Cast Iron	120 ~ 250	0.12 ~ 0.28	0.5 ~ 10.0
High Temperature Alloy	40 ~ 100	0.10 ~ 0.18	0.5 ~ 7.0
Hardened Steel	50 ~ 100	0.10 ~ 0.20	0.5 ~ 7.0

CATPE - Milling tools



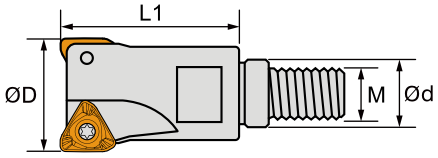


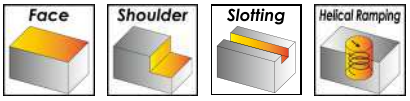
Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICATPE102020130	20	50	130	20	2	TPMX1004	ITS2517	ITK08	●
ICATPE103025150	25	55	150	25	3				●
ICATPE503033200	33	45	200	32	3	TPMX1505	ITS4014	ITK15	●
ICATPE504040200	40	45	200	32	4				○

● stock ○ by inquiry

Customize available.

CATPM - Modular tools



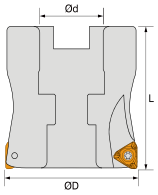


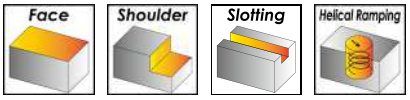
Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICATPM102021100	21	35	18	M10	2	TPMX1004	ITS2517	ITK08	●
ICATPM103026120	26	35	21	M12	3				●
ICATPM105033160	33	43	29	M16	5				●

● stock ○ by inquiry

Customize available.

CATPF - Milling tools



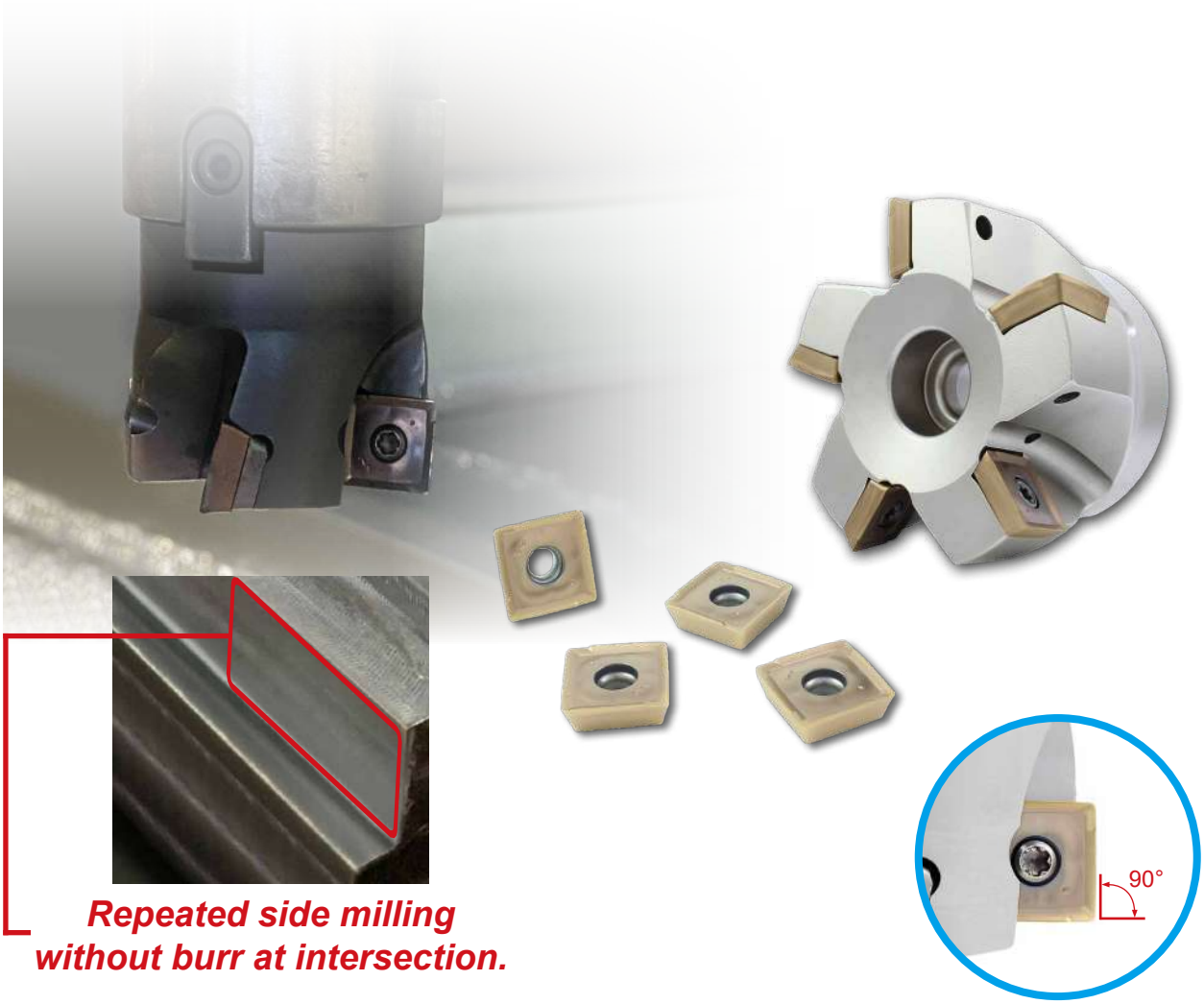


Order No.	D	L	d	T	Inserts	Screw	Wrench	Stock
ICATPF107050220	50	50	22	7	TPMX1004	ITS2517	ITK08	●
ICATPF109063220	63	50	22	9				●

● stock ○ by inquiry

Customize available.

CR49 Shoulder Milling

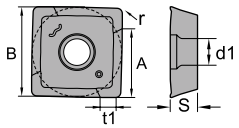


Repeated side milling without burr at intersection.

- Good for shoulder and face milling with excellent surface finish.
- Repeated shoulder milling without burr.
- Light and quiet cutting performance provide an optimal utilization of low powered machines.
- Large cutting depth, max 9mm.

Insert Specifications

Insert	Dimensions (mm)					
	A	B	S	r	d1	t1
SOMT140408	**10.3**	**13.8**	**3.9**	**0.8**	**4.1**	**2.0**



Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ISOMT140408SG30	SOMT140408-SG-CX30				●		
	ISOMT140408SG33TS	SOMT140408-SG-CX33TS	●	●	●		●	○
	ISOMT140408SG43TS	SOMT140408-SG-CX43TS	●	●	●		●	○

Case Study 1

Tool : 50mm / 4t

Insert : SOMT140408-SG CX33TS

Working Material : S45C

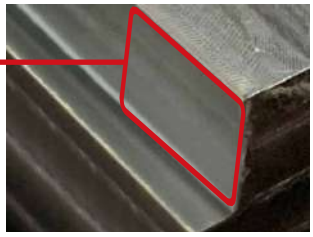
Vc : 200 m/min

fz : 0.13 mm/t

ap : 5 mm (total depth 20mm)

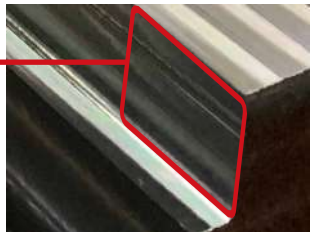
ae : 5 mm

Comparison of repeated side milling



SOMT140408-SG

No burr at intersection



Other Inserts

Have burr at intersection

Case Study 2

Tool : 50mm / 4t

Insert : SOMT140408-SG CX33TS

Working Material : Cast Iron(FCD550)

Vc : 200 m/min

fz : 0.29 mm/t

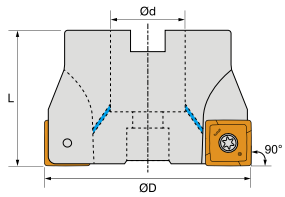
ap : 8 mm, ae : 40 mm

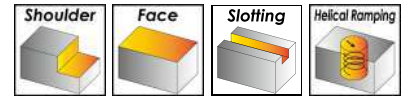
https://youtu.be/sQInOyNx9oU

Recommended Cutting Conditions

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.05 ~ 0.15	0.3 ~ 9
Stainless Steel	100 ~ 180	0.04 ~ 0.12	0.3 ~ 8
Cast Iron	120 ~ 250	0.05 ~ 0.15	0.3 ~ 9
Aluminum Alloy	300 ~ 1000	0.05 ~ 0.15	0.3 ~ 9
High Temperature Alloy	40 ~ 100	0.03 ~ 0.11	0.3 ~ 8
Hardened Steel	50 ~ 100	0.03 ~ 0.11	0.3 ~ 8

CR49F - Milling tools





Order No.	D	L	d	T	Coolant	Inserts	Screw	Wrench	Stock
ICR49F404050221	50	40	22	4	✓	SOMT1404	ITS3505	ITK15	●
ICR49F405063221	63	40	22	5	✓				●
ICR49F407080271	80	50	27	7	✓				●

● stock ○ by inquiry

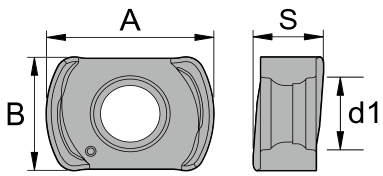
CXBN High Feed Face Milling

High Feed Face Milling Offers Increased Productivity !!!

- ***The CXBN Mini milling cutters offer exceptional milling performance.***
- ***The BNMX0603 and BNMX0904 high feed inserts allow lowest cutting force to insure maximum productivity!***
- ***Many insert geometries, wide range cutting applications, strong insert clamping and solid high feed design insure higher efficient performance!***
- ***Let the CXBN stream line improve your milling process!***

Insert Specifications

Insert	Dimensions (mm)			
	A	B	S	d1
BNMX0603	**9.0**	**6.38**	**3.75**	**3.2**
BNMX0904	**11.9**	**9.18**	**4.8**	**4.2**

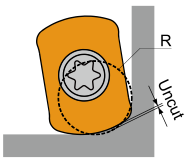


Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IBNMX0603SG22HS	BNMX0603-SG-CX22HS	●	●	●		○	●
	IBNMX0603SG23TS	BNMX0603-SG-CX23TS	●	●	●		●	●
	IBNMX0603SG32HS	BNMX0603-SG-CX32HS	●	●	●		○	○
	IBNMX0603SG33TS	BNMX0603-SG-CX33TS	●	●	●		●	●
	IBNMX0603SG43TS	BNMX0603-SG-CX43TS	●	●	●		●	
	IBNMX0603MG22HS	BNMX0603-MG-CX22HS	●	●	●		○	●
	IBNMX0603MG23TS	BNMX0603-MG-CX23TS	●	●	●		●	●
	IBNMX0603MG32HS	BNMX0603-MG-CX32HS	●	●	●		○	○
	IBNMX0603MG33TS	BNMX0603-MG-CX33TS	●	●	●		●	●
	IBNMX0603MG43TS	BNMX0603-MG-CX43TS	●	●	●		●	
	IBNMX0603RG22HS	BNMX0603-RG-CX22HS	●	●	●		○	●
	IBNMX0603RG23TS	BNMX0603-RG-CX23TS	●	●	●		●	●
	IBNMX0603RG32HS	BNMX0603-RG-CX32HS	●	●	●		○	○
	IBNMX0603RG33TS	BNMX0603-RG-CX33TS	●	●	●		●	●
	IBNMX0603RG43TS	BNMX0603-RG-CX43TS	●	●	●		●	
	IBNMX0904MG22HS	BNMX0904-MG-CX22HS	●	●	●		○	●
	IBNMX0904MG23TS	BNMX0904-MG-CX23TS	●	●	●		●	●
	IBNMX0904MG32HS	BNMX0904-MG-CX32HS	●	●	●		○	○
	IBNMX0904MG33TS	BNMX0904-MG-CX33TS	●	●	●		●	●
	IBNMX0904MG43TS	BNMX0904-MG-CX43TS	●	●	●		●	

Corner R Programming

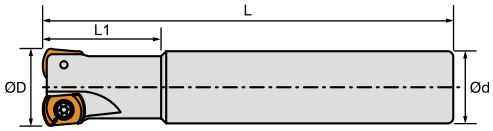
Designation	Approx. R (mm)	
	Input. R	Uncut
BNMX0603	2.0	0.42
BNMX0904	2.5	0.61

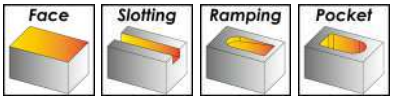


Recommended Cutting Conditions

Working Material	for BNMX0603			for BNMX0904		
	Vc	fz	ap	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.4 ~ 1.6	0.3 ~ 0.9	120 ~ 250	0.4 ~ 2.0	0.3 ~ 1.4
Stainless Steel	100 ~ 180	0.3 ~ 1.2	0.3 ~ 0.7	100 ~ 180	0.3 ~ 1.6	0.3 ~ 1.2
Cast Iron	120 ~ 250	0.4 ~ 1.6	0.3 ~ 0.9	120 ~ 250	0.4 ~ 2.0	0.3 ~ 1.4
High Temperature Alloy	40 ~ 100	0.3 ~ 0.8	0.3 ~ 0.6	40 ~ 100	0.3 ~ 1.2	0.3 ~ 1.2
Hardened Steel	50 ~ 100	0.3 ~ 1.0	0.3 ~ 0.6	50 ~ 100	0.3 ~ 1.4	0.3 ~ 1.2

CXBNE - Milling tools



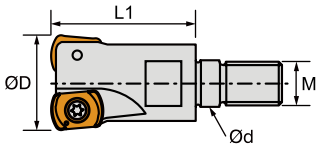


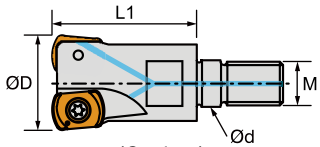
Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICXBNE602015130	15	26	130	16	2	BNMX0603	ITS3004	ITK08	●
ICXBNE602016130	16	26	130	16	2				●
ICXBNE602017130	17	26	130	16	2				●
ICXBNE602018130	18	25	130	20	2				●
ICXBNE603020150	20	40	150	20	3				●
ICXBNE603021150	21	40	150	20	3				●
ICXBNE604025150	25	40	150	25	4				●
ICXBNE604026150	26	30	150	25	4				●
ICXBNE604032200	32	45	200	32	4				●
ICXBNE903025150	25	40	150	25	3	BNMX0904	ITS4009	ITK15	●
ICXBNE903032150	32	40	150	32	3				●

● stock ○ by inquiry

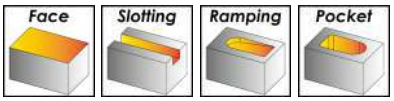
Customize available.

CXBNM - Modular tools





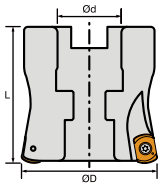
(Coolant)

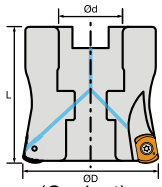


Order No.	D	L1	d	M	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXBNM602016080	16	26	8.5	M8	2		BNMX0603	ITS3004	ITK08	●
ICXBNM602016081	16	26	8.5	M8	2	✓				●
ICXBNM603020100	20	30	10.5	M10	3					●
ICXBNM603020101	20	30	10.5	M10	3	✓				●
ICXBNM603021100	21	30	10.5	M10	3					●
ICXBNM603025120	25	35	12.5	M12	3					●
ICXBNM604025120	25	35	12.5	M12	4					●
ICXBNM604025121	25	35	12.5	M12	4	✓				●
ICXBNM603026120	26	35	12.5	M12	3					●
ICXBNM604032161	32	40	17.0	M16	4	✓				●
ICXBNM605032160	32	40	17.0	M16	5					●
ICXBNM606040161	40	43	17.0	M16	6	✓				●
ICXBNM903025121	25	35	12.5	M12	3	✓	BNMX0904	ITS3504	ITK15	●
ICXBNM904032161	32	40	17.0	M16	4	✓				●
ICXBNM904035161	35	43	17.0	M16	4	✓				○
ICXBNM905042161	42	43	17.0	M16	5	✓				●

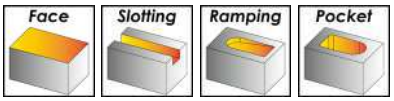
Customize available.

CXBNF - Milling tools





(Coolant)



Order No.	D	L	d	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXBNF606040220	40	50	22	6		BNMX0603	ITS3004	ITK08	●
ICXBNF606040221	40	50	22	6	✓				●
ICXBNF607050220	50	50	22	7					●
ICXBNF607050221	50	50	22	7	✓				●
ICXBNF607052221	52	50	22	7	✓				○
ICXBNF607063220	63	50	22	7					●
ICXBNF906050221	50	50	22	6	✓	BNMX0904	ITS3504	ITK15	●
ICXBNF906052221	52	50	22	6	✓				●
ICXBNF907063220	63	50	22	7			ITS4009		●
ICXBNF907063271	63	50	27	7	✓		ITS3504		●
ICXBNF907066271	66	50	27	7	✓				○
ICXBNF908080271	80	50	27	8	✓				●
ICXBNF908100321	100	50	32	8	✓				●

● stock ○ by inquiry

Customize available.

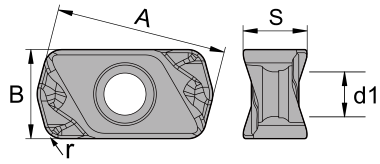
CXLN High Feed Face Milling

More Speed, More Feed,
More Cutting Depth and More Performance !!

- ***Available in End mill, Modular and Face mill type.***
- ***Up to 1mm D.O.C capability.***
- ***Large positive insert rake angles for extremely easy cutting.***
- ***Single screw design for high rigid & tensile clamping.***

Insert Specifications

Insert	Dimensions (mm)			
	A	B	S	d1
LNMX0303	**11.59**	**6.0**	**4.29**	**2.85**

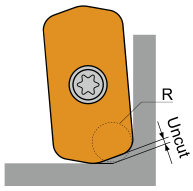


Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ILNMX0303SG22HS	LNMX0303-SG-CX22HS	●	●	●		○	●
	ILNMX0303SG23TS	LNMX0303-SG-CX23TS	●	●	●		●	●
	ILNMX0303SG32HS	LNMX0303-SG-CX32HS	●	●	●		○	○
	ILNMX0303SG33TS	LNMX0303-SG-CX33TS	●	●	●		●	●
	ILNMX0303SG43TS	LNMX0303-SG-CX43TS	●	●	●		●	
	ILNMX0303MG22HS	LNMX0303-MG-CX22HS	●	●	●		○	●
	ILNMX0303MG23TS	LNMX0303-MG-CX23TS	●	●	●		●	●
	ILNMX0303MG32HS	LNMX0303-MG-CX32HS	●	●	●		○	○
	ILNMX0303MG33TS	LNMX0303-MG-CX33TS	●	●	●		●	●
	ILNMX0303MG43TS	LNMX0303-MG-CX43TS	●	●	●		●	

Corner R Programming

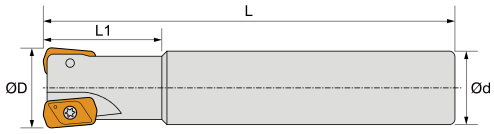
Designation	Approx. R (mm)	
	Input. R	Uncut
LNMX0303	1.5	0.5

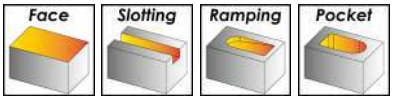


Recommended Cutting Conditions

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.4 ~ 1.6	0.3 ~ 0.9
Stainless Steel	100 ~ 180	0.3 ~ 1.2	0.3 ~ 0.7
Cast Iron	120 ~ 250	0.4 ~ 1.6	0.3 ~ 0.9
High Temperature Alloy	40 ~ 100	0.3 ~ 0.8	0.3 ~ 0.6
Hardened Steel	50 ~ 100	0.3 ~ 1.0	0.3 ~ 0.6

CXLNE - Milling tools



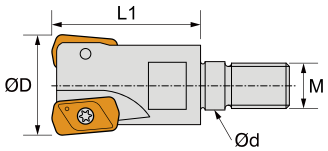


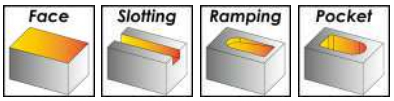
Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICXLNE302016100	16	30	100	16	2	LNMX0303	ITS2535	ITK07	●
ICXLNE302016150	16	50	150	16	2				●
ICXLNE303020150	20	50	150	20	3				●
ICXLNE304020130	20	50	130	20	4				○
ICXLNE304025150	25	60	150	25	4				●
ICXLNE305025140	25	60	140	25	5				○
ICXLNE306032150	32	70	150	32	6				●

● stock ○ by inquiry

Customize available.

CXLNM - Modular tools



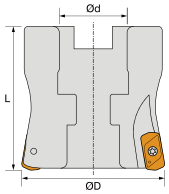


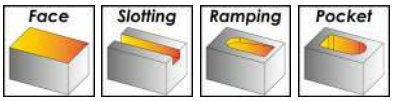
Order No.	D	L1	d	M	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXLNM302017080	17	26	8.5	M8	2		LNMX0303	ITS2535	ITK07	●
ICXLNM303021100	21	32	10.5	M10	3					●
ICXLNM303021101	21	32	10.5	M10	3	✓				●
ICXLNM304026120	26	38	12.5	M12	4					●
ICXLNM304032160	32	41	17	M16	4					●

● stock ○ by inquiry

Customize available.

CXLNF - Milling tools





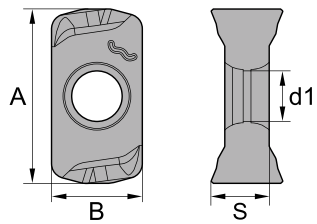
Order No.	D	L	d	T	Inserts	Screw	Wrench	Stock
ICXLNF305050220	50	50	22	5	LNMX0303	ITS2535	ITK07	○

● stock ○ by inquiry

Customize available.

Insert Specifications

Insert	Dimensions (mm)			
	A	B	S	d1
LOGX030310	**11.9**	**6.2**	**3.96**	**3.45**

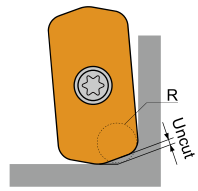


Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ILOGX030310SG32HS	LOGX030310-SG-CX32HS	●	●	●			○
	ILOGX030310SG33TS	LOGX030310-SG-CX33TS	●	●	●		○	●

Corner R Programming

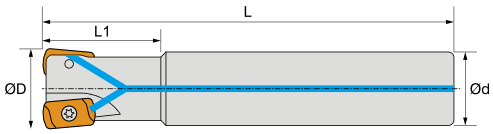
Designation	Approx. R (mm)	
	Input. R	Uncut
LOGX030310	1.6	0.39

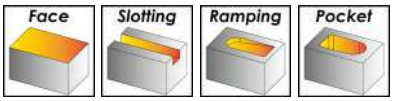


Recommended Cutting Conditions

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.4 ~ 1.6	0.3 ~ 0.9
Stainless Steel	100 ~ 180	0.3 ~ 1.2	0.3 ~ 0.7
Cast Iron	120 ~ 250	0.4 ~ 1.6	0.3 ~ 0.9
High Temperature Alloy	40 ~ 100	0.3 ~ 0.8	0.3 ~ 0.6
Hardened Steel	50 ~ 100	0.3 ~ 1.0	0.3 ~ 0.6

CXLOE - Milling tools



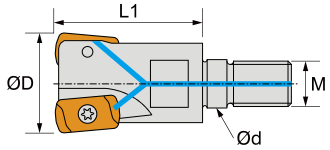


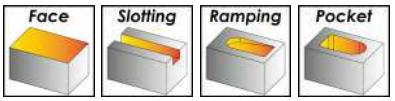
Order No.	D	L1	L	d	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXLOE302016150	16	30	150	16	2		LOGX0303	ITS3004	ITK08	●
ICXLOE302016151	16	30	150	16	2	✓				●
ICXLOE302017150	17	20	150	16	2					●
ICXLOE302018150	18	20	150	16	2					●
ICXLOE303020150	20	50	150	20	3					●
ICXLOE303020151	20	50	150	20	3	✓				●
ICXLOE303021150	21	30	150	20	3					●
ICXLOE303022150	22	20	150	20	3					●
ICXLOE304025150	25	60	150	25	4					●
ICXLOE304025151	25	60	150	25	4	✓				●
ICXLOE304026150	26	35	150	25	4					●
ICXLOE304026151	26	35	150	25	4	✓				●
ICXLOE304026200	26	45	200	25	4					●
ICXLOE304028150	28	20	150	25	4					●
ICXLOE305028150	28	20	150	25	5					●
ICXLOE304030150	30	46	150	32	4					●
ICXLOE305032150	32	70	150	32	5					●
ICXLOE305033151	33	20	150	32	5	✓				●
ICXLOE305033200	33	20	200	32	5					●
ICXLOE305035200	35	20	200	32	5					●

● stock ○ by inquiry

Customize available.

CXLOM - Modular tools



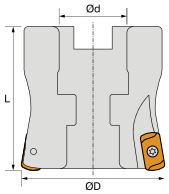


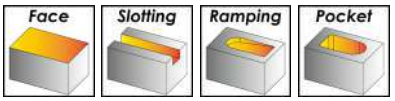
Order No.	D	L1	d	M	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXLOM302017081	17	25	8.5	M8	2	✓	LOGX0303	ITS3004	ITK08	●
ICXLOM303021101	21	30	10.5	M10	3	✓				●
ICXLOM304026121	26	35	12.5	M12	4	✓				●
ICXLOM304035161	35	40	17	M16	4	✓				●
ICXLOM305035161	35	40	17	M16	5	✓				●

● stock ○ by inquiry

Customize available.

CXLOF - Milling tools





Order No.	D	L	d	T	Inserts	Screw	Wrench	Stock
ICXLOF307050220	50	50	22	7	LOGX0303	ITS3004	ITK08	●

● stock ○ by inquiry

Customize available.

CXWN High Feed Face Milling

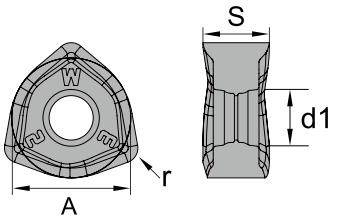
New Economical Solution for High Feed Face Milling Applications!!!

- ***CXWN High Feed Face Mill Series is more economical due to the use of 6 cutting edges compared to conventional tool with a 3/4 edges positive insert.***
- ***Double sided has been designed for rigidity of cutting edge.***
- ***New insert design for multiple functional machining, such as face milling, Ramping and plunging.***

CXWN High Feed Face Milling

Insert Specifications

Insert	Dimensions (mm)			
	A	S	r	d1
WNMX09T3	**9.525**	**3.97**	**1.6**	**3.6**
WNMX1305	**12.7**	**6.0**	**1.6**	**4.7**

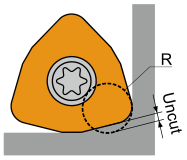


Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IWNMX09T316MG22HS	WNMX09T316-MG-CX22HS	●	●	●		○	●
	IWNMX09T316MG32HS	WNMX09T316-MG-CX32HS	●	●	●		○	○
	IWNMX09T316MG33TS	WNMX09T316-MG-CX33TS	●	●	●		●	●
	IWNMX09T316MG43TS	WNMX09T316-MG-CX43TS	●	●	●		●	
	IWNMX09T316RG22HS	WNMX09T316-RG-CX22HS	●	●	●		○	●
	IWNMX09T316RG23TS	WNMX09T316-RG-CX23TS	●	●	●		●	●
	IWNMX09T316RG32HS	WNMX09T316-RG-CX32HS	●	●	●		○	○
	IWNMX09T316RG33TS	WNMX09T316-RG-CX33TS	●	●	●		●	●
	IWNMX09T316RG43TS	WNMX09T316-RG-CX43TS	●	●	●		●	
	IWNMX130516MG22HS	WNMX130516-MG-CX22HS	●	●	●		○	●
	IWNMX130516MG23TS	WNMX130516-MG-CX23TS	●	●	●		●	●
	IWNMX130516MG32HS	WNMX130516-MG-CX32HS	●	●	●		○	○
	IWNMX130516MG33TS	WNMX130516-MG-CX33TS	●	●	●		●	●
	IWNMX130516MG43TS	WNMX130516-MG-CX43TS	●	●	●		●	

Corner R Programming

Designation	Approx. R (mm)	
	Input. R	Uncut
WNMX09T3	2.5	0.6
WNMX1305	3.0	1.0



Recommended Cutting Conditions

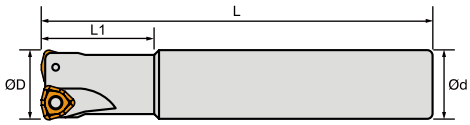
for WNMX09T3

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.4 ~ 1.5	0.4 ~ 1.35
Stainless Steel	100 ~ 180	0.4 ~ 1.2	0.4 ~ 1.0
Cast Iron	120 ~ 250	0.4 ~ 1.5	0.4 ~ 1.35
High Temperature Alloy	40 ~ 100	0.4 ~ 1.0	0.4 ~ 1.0
Hardened Steel	50 ~ 100	0.4 ~ 1.1	0.4 ~ 1.0

for WNMX1305

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.4 ~ 3.0	0.4 ~ 1.7
Stainless Steel	100 ~ 180	0.3 ~ 2.0	0.4 ~ 1.4
Cast Iron	120 ~ 250	0.4 ~ 3.0	0.4 ~ 1.7
High Temperature Alloy	40 ~ 100	0.3 ~ 1.6	0.4 ~ 1.3
Hardened Steel	50 ~ 100	0.3 ~ 2.0	0.4 ~ 1.3

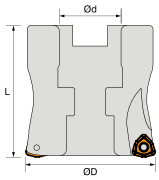
CXWNE - Milling tools



Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICXWNE902025150	25	40	150	25	2	WNMX09T3	ITS3006	ITK10	●
ICXWNE903032150	32	40	150	32	3				●

● stock ○ by inquiry *Customize available.*

CXWNF - Milling tools

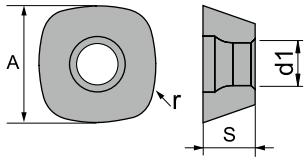


Order No.	D	L	d	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXWNF905050220	50	50	22	5		WNMX09T3	ITS3006	ITK10	●
ICXWNF905050221	50	50	22	5	✓				●
ICXWNF905063220	63	50	22	5					●
ICXWNF905063221	63	50	22	5	✓				●
ICXWNF305063220	63	50	22	5		WNMX1305	ITS4006	ITK15	●
ICXWNF307080270	80	50	27	7					●

● stock ○ by inquiry *Customize available.*

Insert Specifications

Insert	Dimensions (mm)			
	A	S	r	d1
SDMT1205	**12.7**	**5.56**	**15**	**4.6**
SDNW1205	**12.7**	**5.56**	**15**	**4.6**

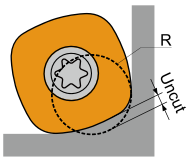


Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ISDMT1205ZDSNMF22HS	SDMT1205ZDSN-MF-CX22HS	●	●	●		○	●
	ISDMT1205ZDSNMF32HS	SDMT1205ZDSN-MF-CX32HS	●	●	●		○	○
	ISDMT1205ZDSNMF33TS	SDMT1205ZDSN-MF-CX33TS	●	●	●		●	●
	ISDMT1205ZDSNMF43TS	SDMT1205ZDSN-MF-CX43TS	●	●	●		●	
	ISDMT1205ZDTNMG23TS	SDMT1205ZDTN-MG-CX23TS	●	●	●		●	●
	ISDMT1205ZDTNMG32HS	SDMT1205ZDTN-MG-CX32HS	●	●	●		○	○
	ISDMT1205ZDTNMG33TS	SDMT1205ZDTN-MG-CX33TS	●	●	●		●	●
	ISDMT1205ZDTNMG43TS	SDMT1205ZDTN-MG-CX43TS	●	●	●		●	
	ISDMT1205ZDTNRG23TS	SDMT1205ZDTN-RG-CX23TS	●	●	●		●	●
	ISDMT1205ZDTNRG32HS	SDMT1205ZDTN-RG-CX32HS	●	●	●		○	○
	ISDMT1205ZDTNRG33TS	SDMT1205ZDTN-RG-CX33TS	●	●	●		●	●
	ISDMT1205ZDTNRG43TS	SDMT1205ZDTN-RG-CX43TS	●	●	●		●	
	ISDNW1205ZDSNMF32HS	SDNW1205ZDSN-MF-CX32HS	●	●	●		○	○
	ISDNW1205ZDSNMF33TS	SDNW1205ZDSN-MF-CX33TS	●	●	●		●	●
	ISDNW1205ZDTNRG22HS	SDNW1205ZDTN-RG-CX22HS	●	●	●		○	●
	ISDNW1205ZDTNRG23TS	SDNW1205ZDTN-RG-CX23TS	●	●	●		●	●
	ISDNW1205ZDTNRG32HS	SDNW1205ZDTN-RG-CX32HS	●	●	●		○	○
	ISDNW1205ZDTNRG33TS	SDNW1205ZDTN-RG-CX33TS	●	●	●		●	●
	ISDNW1205ZDTNRG43TS	SDNW1205ZDTN-RG-CX43TS	●	●	●		●	

Corner R Programming

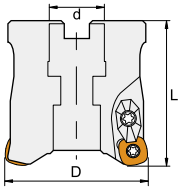
Designation	Approx. R (mm)	
	Input. R	Uncut
SDMT1205 / SDNW1205	4.5	0.83

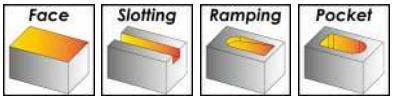


Recommended Cutting Conditions

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.8 ~ 1.8	0.3 ~ 1.5
Stainless Steel	100 ~ 180	0.6 ~ 1.2	0.3 ~ 1.0
Cast Iron	120 ~ 250	0.8 ~ 1.8	0.3 ~ 1.5
High Temperature Alloy	40 ~ 100	0.5 ~ 1.2	0.3 ~ 1.0
Hardened Steel	50 ~ 100	0.5 ~ 1.2	0.3 ~ 1.0

CASRF - Milling tools



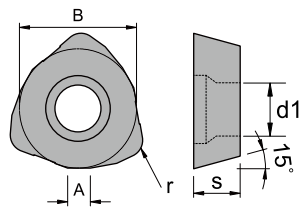


Order No.	D	L	d	T	Inserts	Screw	Wrench	Clamp	Clamp Screw	Stock
ICASRF203050220	50	22	50	3	SDMT1205 or SDNW1205	IMS4011A	ITF15	IYR-06	IMS4008ES	●
ICASRF204050220	50	22	50	4						●
ICASRF203063220	63	22	50	3						●
ICASRF204063220	63	22	50	4						●
ICASRF204080310	80	31.75	55	4						●
ICASRF204080320	80	32	55	4						●
ICASRF205080310	80	31.75	55	5						●
ICASRF205080320	80	32	55	5						●

● stock ○ by inquiry

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
JDMW1204	2.5	12.0	4.76	2.0	4.75
JDMW1405	2.8	1.4	5.56	2.0	5.75
JDMT1405	2.8	1.4	5.56	2.0	5.75

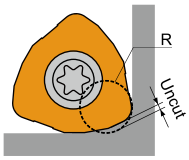


Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IJDMW120420SMF22HS	JDMW120420ZDSR-MF-CX22HS	●	●	●		○	●
	IJDMW120420SMF32HS	JDMW120420ZDSR-MF-CX32HS	●	●	●		○	○
	IJDMW120420SMF33TS	JDMW120420ZDSR-MF-CX33TS	●	●	●		●	●
	IJDMW120420SMF43TS	JDMW120420ZDSR-MF-CX43TS	●	●	●		●	
	IJDMW120420SRG22HS	JDMW120420ZDSR-RG-CX22HS	●	○	●		○	●
	IJDMW120420SRG23TS	JDMW120420ZDSR-RG-CX23TS	●	●	●		●	●
	IJDMW120420SRG32HS	JDMW120420ZDSR-RG-CX32HS	●	●	●		○	○
	IJDMW120420SRG33TS	JDMW120420ZDSR-RG-CX33TS	●	●	●		●	●
	IJDMW120420SRG43TS	JDMW120420ZDSR-RG-CX43TS	●	●	●		●	
	IJDMW140520SMF32HS	JDMW140520ZDSR-MF-CX32HS	●	●	●		○	○
	IJDMW140520SMF33TS	JDMW140520ZDSR-MF-CX33TS	●	●	●		●	●
	IJDMW140520SRG32HS	JDMW140520ZDSR-RG-CX32HS	●	●	●		○	○
	IJDMW140520SRG33TS	JDMW140520ZDSR-RG-CX33TS	●	●	●		●	●
	IJDMT140520SMG32HS	JDMT140520ZDSR-MG-CX32HS	●	●	●		○	○
	IJDMT140520SMG33TS	JDMT140520ZDSR-MG-CX33TS	●	●	●		●	●
	IJDMT140520SMG43TS	JDMT140520ZDSR-MG-CX43TS	●	●	●		●	

Corner R Programming

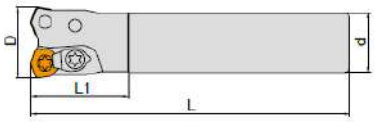
Designation	Approx. R (mm)	
	Input. R	Uncut
JDMW1204	3.0	0.63
JDMW / JDMT1405	3.0	0.64

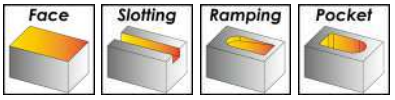


Recommended Cutting Conditions

Working Material	for JDMW1204			for JDMW1405		
	Vc	fz	ap	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.8 ~ 1.3	0.3 ~ 1.5	120 ~ 250	0.8 ~ 1.8	0.5 ~ 2.0
Stainless Steel	100 ~ 180	0.6 ~ 1.0	0.3 ~ 1.0	100 ~ 180	0.6 ~ 1.2	0.5 ~ 1.5
Cast Iron	120 ~ 250	0.8 ~ 1.3	0.3 ~ 1.5	120 ~ 250	0.8 ~ 1.8	0.5 ~ 2.0
High Temperature Alloy	40 ~ 100	0.5 ~ 1.0	0.3 ~ 1.0	40 ~ 100	0.5 ~ 1.2	0.5 ~ 1.5
Hardened Steel	50 ~ 100	0.5 ~ 1.0	0.3 ~ 1.0	50 ~ 100	0.5 ~ 1.2	0.5 ~ 1.5

CAJXE - Milling tools

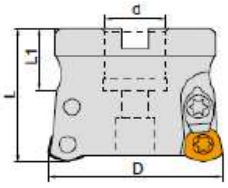


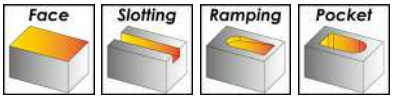


Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Clamp	Clamp Screw	Stock
ICAJXE202032150	32	35	150	32	2	JDMW1204	ITS4008	ITK15	IAS04	IAJ4012	●

● stock ○ by inquiry

CAJXF - Milling tools



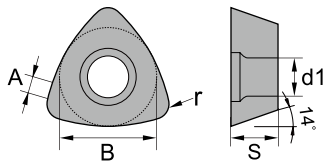


Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Clamp	Clamp Screw	Stock
ICAJXF204050220	50	23	45	22	4	JDMW1204	ITS4008	ITK15	IAS04	IAJ4012	●
ICAJXF205063220	63	23	50	22	5						●
ICAJXF206080270	80	26	55	27	6						●
ICAJXF403063220	63	23	50	22	4	JDMW1405 or JDMT1405	ITS5001	ITK20	IAS05	IAJ5014	●
ICAJXF404080270	80	26	55	27	5						●
ICAJXF405100320	100	32	55	32	6						●

● stock ○ by inquiry

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
WP26339R14	-	9.52	3.97	1.2	4.4
WP26379R25	1.1	13	5.56	2.0	5.5



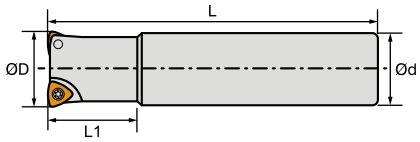
Insert Order Code

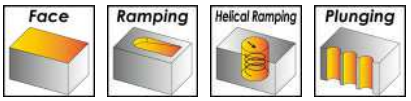
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IWP26314RG22HS	WP26339R14-RG-CX22HS	●	●	●		○	●
	IWP26314RG23TS	WP26339R14-RG-CX23TS	●	●	●		●	●
	IWP26314RG32HS	WP26339R14-RG-CX32HS	●	●	●		○	○
	IWP26314RG33TS	WP26339R14-RG-CX33TS	●	●	●		●	●
	IWP26314RG43TS	WP26339R14-RG-CX43TS	●	●	●		●	
	IWP26725RG22HS	WP26379R25-RG-CX22HS	●	●	●		○	●
	IWP26725RG23TS	WP26379R25-RG-CX23TS	●	●	●		●	●
	IWP26725RG32HS	WP26379R25-RG-CX32HS	●	●	●		○	○
	IWP26725RG33TS	WP26379R25-RG-CX33TS	●	●	●		●	●
	IWP26725RG43TS	WP26379R25-RG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

Working Material	WP26339R14			WP26379R25		
	Vc	fz	ap	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.4 ~ 1.5	0.4 ~ 1.5	120 ~ 250	0.4 ~ 3.0	0.4 ~ 2.0
Stainless Steel	100 ~ 180	0.4 ~ 1.2	0.4 ~ 1.0	100 ~ 180	0.4 ~ 2.0	0.4 ~ 1.4
Cast Iron	120 ~ 250	0.4 ~ 1.5	0.4 ~ 1.5	120 ~ 250	0.4 ~ 3.0	0.4 ~ 2.0
High Temperature Alloy	40 ~ 100	0.4 ~ 1.0	0.4 ~ 1.0	40 ~ 100	0.4 ~ 1.6	0.4 ~ 1.2

CF23E - Milling tools



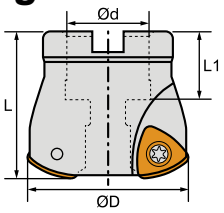


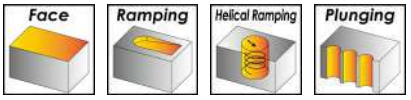
Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICF23E203032150	32	28	150	32	3	WP26339R14	ITS4005	ITK15	○
ICF23E203035180	35	40	180	32	3				○
ICF23E203035230	35	40	230	32	3				●
ICF23E204040200	40	40	200	32	4				○
ICF23E202040200	40	45	200	32	2	WP26379R25	ITS5002	ITK20	○
ICF23E203050200	50	45	200	32	3				○

● stock ○ by inquiry

Customize available.

CF23F - Milling tools





Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICF23F203050220	50	21	50	22	3	WP26379R25	ITS5002	ITK20	●
ICF23F204063220	63	21	50	22	4				○
ICF23F205080270	80	23	50	27	5				○
ICF23F206100320	100	26	50	32	6				●
ICF23F207125400	125	38	63	40	7				○
ICF23F208160400	160	38	63	40	8				●

● stock ○ by inquiry

Customize available.

CXSN Face Milling

2 types of double sided inserts fit in same pocket !

Brings a top performance in face milling operation !

- *SNMX1205 - 8 cutting edges suitable for large depth of cutting.*
- *ONMX0505 - 16 cutting edges suitable for small depth of cutting.*
- *High cutting edges strength and high efficiency machining for general purpose application.*

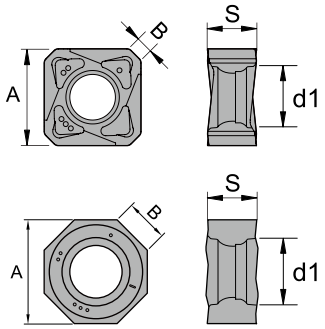
CXSNF

SNMX1205

ONMX0505

Insert Specifications

Insert	Dimensions (mm)			
	A	B	S	d1
SNMX1205	**12.7**	**1.5**	**6.4**	**6**
ONMX0505	**12.7**	**5.0**	**6.4**	**6**



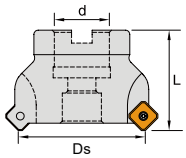
Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ISNMX1205MG22HS	SNMX1205-MG-CX22HS	●	●	●		○	●
	ISNMX1205MG32HS	SNMX1205-MG-CX32HS	●	●	●		○	○
	ISNMX1205MG33TS	SNMX1205-MG-CX33TS	●	●	●		●	●
	ISNMX1205MG43TS	SNMX1205-MG-CX43TS	●	●	●		●	
	ISNMX1205RG22HS	SNMX1205-RG-CX22HS	●	●	●		○	●
	ISNMX1205RG32HS	SNMX1205-RG-CX32HS	●	●	●		○	○
	ISNMX1205RG33TS	SNMX1205-RG-CX33TS	●	●	●		●	●
	ISNMX1205RG43TS	SNMX1205-RG-CX43TS	●	●	●		●	
	IONMX0505RG22HS	ONMX0505-RG-CX22HS	●	●	●		○	●
	IONMX0505RG32HS	ONMX0505-RG-CX32HS	●	●	●		○	○
	IONMX0505RG33TS	ONMX0505-RG-CX33TS	●	●	●		●	●
	IONMX0505RG43TS	ONMX0505-RG-CX43TS	●	●	●		●	

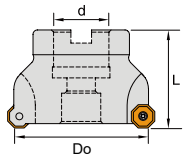
Recommended Cutting Conditions

Working Material	for SNMX1205			for ONMX0505		
	Vc	fz	ap	Vc	fz	ap
Carbon Steel / Alloy Steel	80 ~ 200	0.1 ~ 0.3	0.3 ~ 6.0	80 ~ 200	0.1 ~ 0.3	0.3 ~ 2.0
Stainless Steel	50 ~ 110	0.08 ~ 0.25	0.3 ~ 3.6	50 ~ 110	0.08 ~ 0.25	0.3 ~ 1.5
Cast Iron	80 ~ 180	0.1 ~ 0.3	0.3 ~ 6.0	80 ~ 180	0.1 ~ 0.3	0.3 ~ 2.0
High Temperature Alloy	30 ~ 60	0.08 ~ 0.2	0.3 ~ 3.6	30 ~ 60	0.08 ~ 0.2	0.3 ~ 1.5
Hardened Steel	35 ~ 70	0.08 ~ 0.23	0.3 ~ 3.6	35 ~ 70	0.08 ~ 0.23	0.3 ~ 1.5

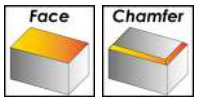
CXSNF - Milling tools



for SNMX1205



for ONMX0505



Order No.	D		L	d	T	Inserts	Screw	Wrench	Stock
	Ds	Do							
ICXSNF504050220	50	52.9	40	22	4	SNMX1205 or ONMX0505	ITS4015	ITK15	●
ICXSNF505063220	63	65.9	40	22	5				●
ICXSNF506080270	80	82.9	50	27	6				●
ICXSNF508100320	100	102.9	50	32	8				●

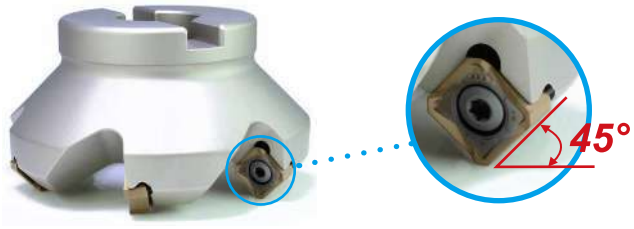
● stock ○ by inquiry

Customize available.

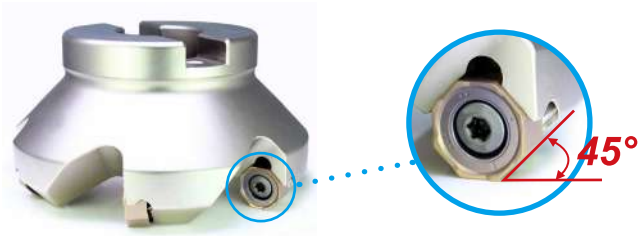
Tools Features

2 types of double sided inserts fit in same pocket !

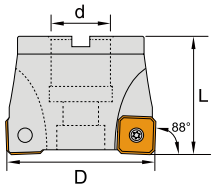
- *Depth of cutting > 2mm, use Square insert* - **SNMX1205 (Total 8 cutting edges)**



- *Depth of cutting <= 2mm, use Octagonal insert* - **ONMX0505 (Total 16 cutting edges)**



CXSNE - Milling tools



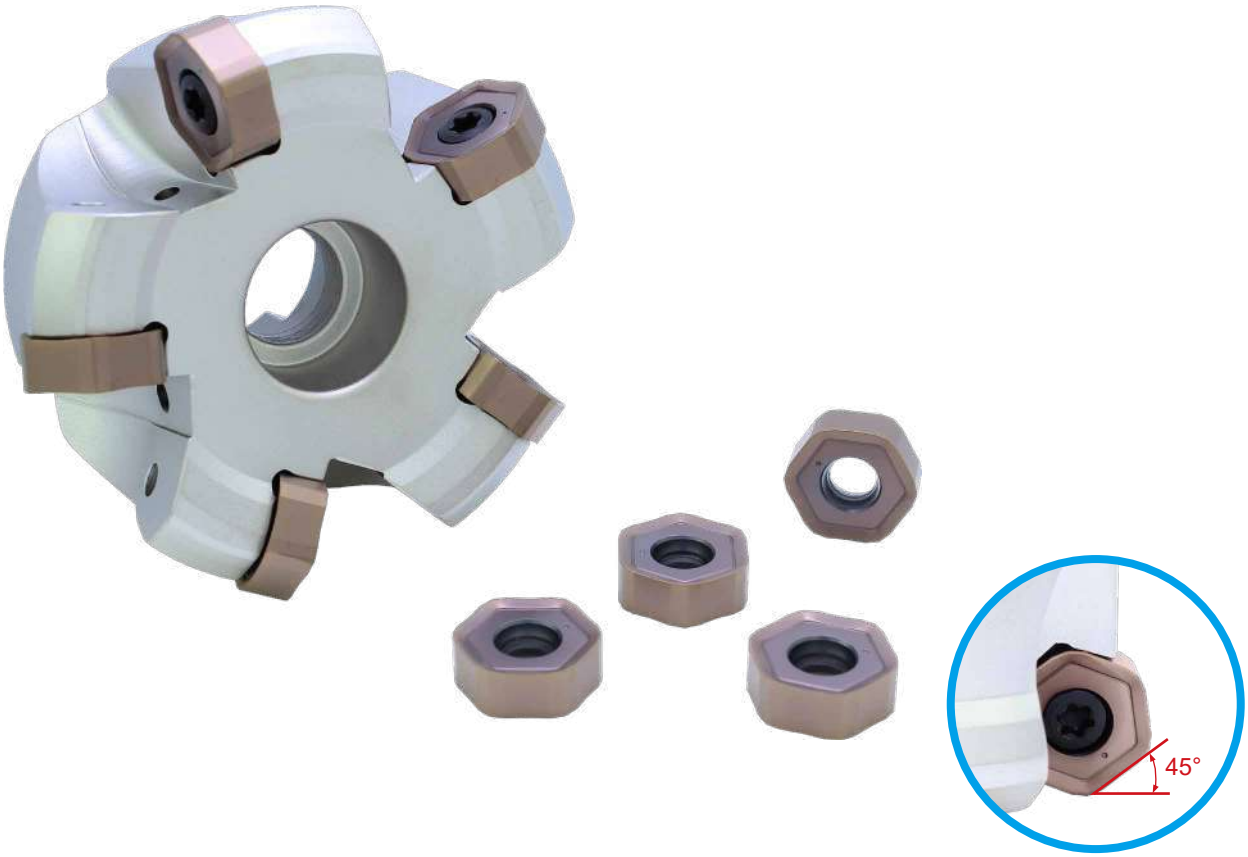
Order No.	D	L	d	T	Inserts	Screw	Wrench	Stock
ICXSNE504050220	50	40	22	4	SNMX1205	ITS4015	ITK15	●
ICXSNE505063220	63	40	22	5				●
ICXSNE506080270	80	50	27	6				●

● stock ○ by inquiry

Recommended Cutting Conditions (for CXSNE)

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	80 ~ 200	0.1 ~ 0.2	0.3 ~ 11
Stainless Steel	50 ~ 110	0.08 ~ 0.18	0.3 ~ 5
Cast Iron	80 ~ 180	0.1 ~ 0.2	0.3 ~ 11
High Temperature Alloy	30 ~ 60	0.08 ~ 0.14	0.3 ~ 5
Hardened Steel	35 ~ 70	0.08 ~ 0.16	0.3 ~ 5

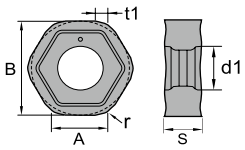
CXHN Series, Double sided, 12 cutting edges



- *CXHN face milling series is more economical due to the use of 12 cutting edges insert.*
- *Sharp cutting edge design for low depth-of-cut face milling.*
- *HNMX double sided insert have excellent tool life.*
- *CX43TS grade is suitable for high temperature alloy and stainless steel machining.*

Insert Specification

Insert	Dimensions (mm)					
	A	B	S	r	d1	t1
HNMX0704	**6.8**	**12.7**	**4.45**	**1.2**	**4.9**	**1.4**



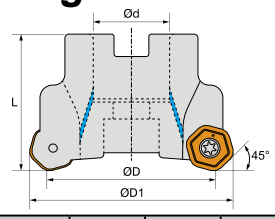
Insert Order Code

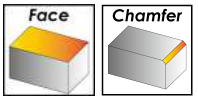
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IHNMX0704SG32HS	HNMX0704-SG-CX32HS	●	●	●		○	○
	IHNMX0704SG33TS	HNMX0704-SG-CX33TS	●	●	●		●	●
	IHNMX0704SG43TS	HNMX0704-SG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	140 ~ 250	0.10 ~ 0.3	0.3 ~ 3.5
Stainless Steel	60 ~ 140	0.08 ~ 0.2	0.3 ~ 2.0
High Temperature Alloy	30 ~ 70	0.08 ~ 0.2	0.3 ~ 2.0

CXHNF - Milling tools



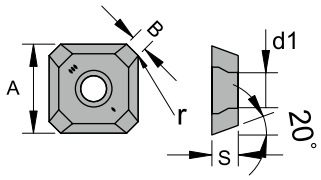


Order No.	D	D1	L	d	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXHNF705050224	50	58.7	40	22	5	✓	HNMX0704	ITS4005	ITK15	●
ICXHNF706063224	63	71.7	40	22	6	✓				●
ICXHNF708080274	80	88.7	50	27	8	✓				●
ICXHNF709100324	100	108.7	50	32	9	✓				●

● stock ○ by inquiry

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
SEMT13T3	**13.4**	**1.9**	**3.97**	**1.5**	**4.2**
SEET13T3	**13.4**	**1.9**	**3.97**	**1.5**	**4.2**



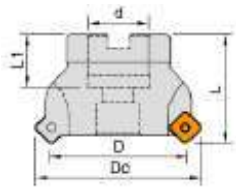
Insert Order Code

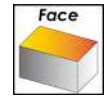
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ISEMT13T3AGENMF22HS	SEMT13T3AGEN-MF-CX22HS	●	●	●		○	●
	ISEMT13T3AGENMF32HS	SEMT13T3AGEN-MF-CX32HS	●	●	●		○	○
	ISEMT13T3AGENMF33TS	SEMT13T3AGEN-MF-CX33TS	●	●	●		●	●
	ISEMT13T3AGENMF43TS	SEMT13T3AGEN-MF-CX43TS	●	●	●		●	
	ISEMT13T3AGSNMF22HS	SEMT13T3AGSN-MF-CX22HS	●	●	●		○	●
	ISEMT13T3AGSNMF32HS	SEMT13T3AGSN-MF-CX32HS	●	●	●		○	○
	ISEMT13T3AGSNMF33TS	SEMT13T3AGSN-MF-CX33TS	●	●	●		●	●
	ISEMT13T3AGSNMF43TS	SEMT13T3AGSN-MF-CX43TS	●	●	●		●	
	ISEMT13T3AGENMG22HS	SEMT13T3AGEN-MG-CX22HS	●	●	●		○	●
	ISEMT13T3AGENMG32HS	SEMT13T3AGEN-MG-CX32HS	●	●	●		○	○
	ISEMT13T3AGENMG33TS	SEMT13T3AGEN-MG-CX33TS	●	●	●		●	●
	ISEMT13T3AGENMG43TS	SEMT13T3AGEN-MG-CX43TS	●	●	●		●	
	ISEMT13T3AGTNMG22HS	SEMT13T3AGTN-MG-CX22HS	●	●	●		○	●
	ISEMT13T3AGTNMG32HS	SEMT13T3AGTN-MG-CX32HS	●	●	●		○	○
	ISEMT13T3AGTNMG33TS	SEMT13T3AGTN-MG-CX33TS	●	●	●		●	●
	ISEMT13T3AGTNMG43TS	SEMT13T3AGTN-MG-CX43TS	●	●	●		●	
	ISEMT13T3AGTNRG32HS	SEMT13T3AGTN-RG-CX32HS	●	●	●		○	○
	ISEMT13T3AGTNRG33TS	SEMT13T3AGTN-RG-CX33TS	●	●	●		●	●
	ISEMT13T3AGTNRG43TS	SEMT13T3AGTN-RG-CX43TS	●	●	●		●	
	ISEMT13T3AGTNHG32HS	SEMT13T3AGTN-HG-CX32HS	●	●	●		○	○
	ISEMT13T3AGTNHG33TS	SEMT13T3AGTN-HG-CX33TS	●	●	●		●	●
	ISEMT13T3AGTNHG43TS	SEMT13T3AGTN-HG-CX43TS	●	●	●		●	
	ISEMT13T3AGFNAL10	SEMT13T3AGFN-AL-CX10				●		
	ISEMT13T3AGFNFG22HS	SEMT13T3AGFN-FG-CX22HS	●	●	●		○	●

Recommended Cutting Conditions

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.30	0.3 ~ 5.5
Stainless Steel	100 ~ 180	0.08 ~ 0.25	0.3 ~ 3.0
Cast Iron	120 ~ 250	0.10 ~ 0.30	0.3 ~ 5.0
Aluminum Alloy	300 ~ 1000	0.10 ~ 0.40	0.3 ~ 5.5
High Temperature Alloy	40 ~ 100	0.08 ~ 0.25	0.3 ~ 3.0
Hardened Steel	50 ~ 100	0.08 ~ 0.25	0.3 ~ 3.0

CASXF - Milling tools





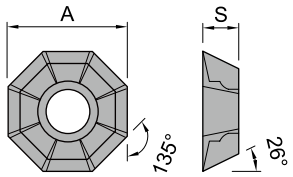
Order No.	D	L	L1	d	Dc	T	Inserts	Stock
ICASXF304050220	50	40	20	22	63	4	SEMT13T3	●
ICASXF305063220	63	40	20	22	75.9	5		●
ICASXF305063250	63	40	20	25.4	75.9	5		●
ICASXF306080250	80	50	26	25.4	93.2	6		●
ICASXF306080270	80	50	26	27	93.2	6		●
ICASXF307100310	100	50	32	31.75	113.2	7		●
ICASXF307100320	100	50	32	32	113.2	7		●

● stock ○ by inquiry

Shim	Screw	Screw	Wrench	Wrench
IAS445N	IPS35T	ITS3505	ITK15	ITK20

Insert Specifications

Insert	Dimensions (mm)			
	A	S	r	d1
OFMT05T3	**12.7**	**3.8**	**0.6**	**4.6**



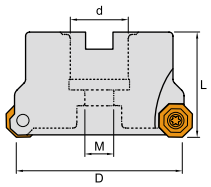
Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IOFMT05T3TNMG32HS	OFMT05T3TN-MG-CX32HS	●	●	●		○	○
	IOFMT05T3TNMG33TS	OFMT05T3TN-MG-CX33TS	●	●	●		●	●
	IOFMT05T3TNMG43TS	OFMT05T3TN-MG-CX43TS	●	●	●		●	
	IOFMT05T3TNRG32HS	OFMT05T3TN-RG-CX32HS	●	●	●		○	○
	IOFMT05T3TNRG33TS	OFMT05T3TN-RG-CX33TS	●	●	●		●	●
	IOFMT05T3TNRG43TS	OFMT05T3TN-RG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.30	0.3 ~ 2.8
Stainless Steel	100 ~ 180	0.08 ~ 0.25	0.3 ~ 1.7
Cast Iron	120 ~ 250	0.10 ~ 0.30	0.3 ~ 2.8
High Temperature Alloy	40 ~ 100	0.08 ~ 0.25	0.3 ~ 1.7
Hardened Steel	50 ~ 100	0.08 ~ 0.25	0.3 ~ 1.7

CAOFF - Milling tools

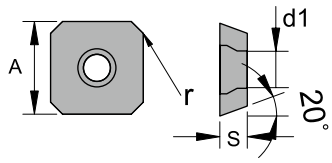


Order No.	D	d	L	M	T	Inserts	Screw	Wrench	Stock
ICAOFF505050220	50	22	40	11	5	OFMT05T3...	IMS4011A	ITK15	●
ICAOFF506063220	63	22	40	11	6				●
ICAOFF506063250	63	25.4	50	13	6				●
ICAOFF507080250	80	25.4	50	13	7				●
ICAOFF507080270	80	27	50	38	7				●
ICAOFF508100310	100	31.75	50	46	8				●
ICAOFF508100320	100	32	50	46	8				●

● stock ○ by inquiry

Insert Specifications

Insert	Dimensions (mm)			
	A	S	r	d1
SEKT1204	12.7	4.76	0.8	5.5
SEKW1204				
SEET1204				



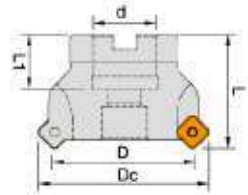
Insert Order Code

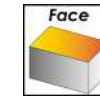
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ISEKT1204AFENMF32HS	SEKT1204AFEN-MF-CX32HS	●	●	●		○	○
	ISEKT1204AFENMF33TS	SEKT1204AFEN-MF-CX33TS	●	●	●		●	●
	ISEKT1204AFTNRG32HS	SEKT1204AFTN-RG-CX32HS	●	●	●		○	○
	ISEKT1204AFTNRG33TS	SEKT1204AFTN-RG-CX33TS	●	●	●		●	●
	ISEKT1204AFTNRG43TS	SEKT1204AFTN-RG-CX43TS	●	●	●		●	
	ISEKW1204AFEN32HS	SEKW1204AFEN-CX32HS	●	●	●		○	○
	ISEKW1204AFEN33TS	SEKW1204AFEN-CX33TS	●	●	●		●	●
	ISEKW1204AFSNF32HS	SEKW1204AFSN-F-CX32HS	●	●	●		○	○
	ISEKW1204AFSNF33TS	SEKW1204AFSN-F-CX33TS	●	●	●		●	●
	ISEKW1204AFTN32HS	SEKW1204AFTN-CX32HS	●	●	●		○	○
	ISEKW1204AFTN33TS	SEKW1204AFTN-CX33TS	●	●	●		●	●
	ISEET1204AFFNAL10	SEET1204AFFN-AL-CX10				●		
	ISEET1204AFFNFG22HS	SEET1204AFFN-FG-CX22HS	●	●	●		○	●

Recommended Cutting Conditions

Working Material	Vc	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.30	0.3 ~ 5.5
Stainless Steel	100 ~ 180	0.08 ~ 0.25	0.3 ~ 3.0
Cast Iron	120 ~ 250	0.10 ~ 0.30	0.3 ~ 5.0
Aluminum Alloy	300 ~ 1000	0.10 ~ 0.40	0.3 ~ 5.5
High Temperature Alloy	40 ~ 100	0.08 ~ 0.25	0.3 ~ 3.0
Hardened Steel	50 ~ 100	0.08 ~ 0.25	0.3 ~ 3.0

CASEF - Milling tools





Order No.	D	L	L1	d	Dc	T	Inserts	Screw	Wrench	Stock
ICASEF204050220	50	40	20	22	64	4	SEKT1204 or SEKW1204 or SEET1204	ITS5006	ITK20	●
ICASEF205063220	63	45	21	22	77	5				●
ICASEF205063250	63	45	21	25.4	77	5				○
ICASEF206080270	80	50	26	27	94	6				●
ICASEF206080310	80	50	26	31.75	94	6				○
ICASEF206100310	100	32	32	31.75	114	6				○
ICASEF206100320	100	32	32	32	114	6				○

● stock ○ by inquiry

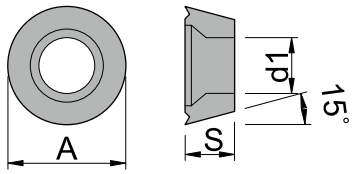
CARD / CARP Copy Milling

Suitable for mould & die machining and steel profiling !!

- ***Inserts for CARD Series***
  2.5R, 3.5R, 5R, 6R & 8R
- ***Inserts for CARP Series***
  4R, 5R & 6R

Insert Specifications

Insert	Dimensions (mm)		
	A	S	d1
RDKW0501	5	1.59	2.2
RDKW0702	7	2.38	2.8
RDMT1003	10	3.18	3.9
RDMX1003	10	3.18	4.15
RDMT10T3	10	3.97	4.5
RDMW10T3	10	3.97	4.5
RDMT12T3	12	3.97	4.1
RDMX12T3	12	3.97	4.1
RDMT1204	12	4.76	4.4
RDMW1204	12	4.76	4.4
RDMT1604	16	4.76	5.5
RDMW1604	16	4.76	5.5



Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IRDKW0501MOE22HS	RDKW0501MOE-CX22HS	●	●	●		○	●
	IRDKW0501MOE32HS	RDKW0501MOE-CX32HS	●	●	●		○	○
	IRDKW0501MOE33TS	RDKW0501MOE-CX33TS	●	●	●		●	●
	IRDKW0501MOE43TS	RDKW0501MOE-CX43TS	●	●	●		●	
	IRDKW0702MOSF32HS	RDKW0702MOS-F-CX32HS	●	●	●		○	○
	IRDKW0702MOSF33TS	RDKW0702MOS-F-CX33TS	●	●	●		●	●
	IRDKW0501MOT22HS	RDKW0501MOT-CX22HS	●	●	●		○	●
	IRDKW0501MOT32HS	RDKW0501MOT-CX32HS	●	●	●		○	○
	IRDKW0501MOT33TS	RDKW0501MOT-CX33TS	●	●	●		●	●
	IRDKW0501MOT43TS	RDKW0501MOT-CX43TS	●	●	●		●	
	IRDKW0702MOE22HS	RDKW0702MOE-CX22HS	●	●	●		○	●
	IRDKW0702MOE32HS	RDKW0702MOE-CX32HS	●	●	●		○	○
	IRDKW0702MOE33TS	RDKW0702MOE-CX33TS	●	●	●		●	●
	IRDKW0702MOE43TS	RDKW0702MOE-CX43TS	●	●	●		●	
	IRDKW0702MOT22HS	RDKW0702MOT-CX22HS	●	●	●		○	●
	IRDKW0702MOT32HS	RDKW0702MOT-CX32HS	●	●	●		○	○
	IRDKW0702MOT33TS	RDKW0702MOT-CX33TS	●	●	●		●	●
	IRDKW0702MOT43TS	RDKW0702MOT-CX43TS	●	●	●		●	

Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IRDMT1003MOE22HS	RDMT1003MOE-CX22HS	●	●	●		○	●
	IRDMT1003MOE32HS	RDMT1003MOE-CX32HS	●	●	●		○	○
	IRDMT1003MOE33TS	RDMT1003MOE-CX33TS	●	●	●		●	●
	IRDMT1003MOE43TS	RDMT1003MOE-CX43TS	●	●	●		●	
	IRDMT1003MOT22HS	RDMT1003MOT-CX22HS	●	●	●		○	●
	IRDMT1003MOT23TS	RDMT1003MOT-CX23TS	●	●	●		●	●
	IRDMT1003MOT32HS	RDMT1003MOT-CX32HS	●	●	●		○	○
	IRDMT1003MOT33TS	RDMT1003MOT-CX33TS	●	●	●		●	●
	IRDMT1003MOT43TS	RDMT1003MOT-CX43TS	●	●	●		●	
	IRDMX1003MOE22HS	RDMX1003MOE-CX22HS	●	●	●		○	●
	IRDMX1003MOE32HS	RDMX1003MOE-CX32HS	●	●	●		○	○
	IRDMX1003MOE33TS	RDMX1003MOE-CX33TS	●	●	●		●	●
	IRDMX1003MOE43TS	RDMX1003MOE-CX43TS	●	●	●		●	
	IRDMX1003MOT22HS	RDMX1003MOT-CX22HS	●	●	●		○	●
	IRDMX1003MOT32HS	RDMX1003MOT-CX32HS	●	●	●		○	○
	IRDMX1003MOT33TS	RDMX1003MOT-CX33TS	●	●	●		●	●
	IRDMX1003MOT43TS	RDMX1003MOT-CX43TS	●	●	●		●	
	IRDMT10T3MOE22HS	RDMT10T3MOE-CX22HS	●	●	●		○	●
	IRDMT10T3MOE32HS	RDMT10T3MOE-CX32HS	●	●	●		○	○
	IRDMT10T3MOE33TS	RDMT10T3MOE-CX33TS	●	●	●		●	●
	IRDMT10T3MOE43TS	RDMT10T3MOE-CX43TS	●	●	●		●	
	IRDMT10T3MOT22HS	RDMT10T3MOT-CX22HS	●	●	●		○	●
	IRDMT10T3MOT32HS	RDMT10T3MOT-CX32HS	●	●	●		○	○
	IRDMT10T3MOT33TS	RDMT10T3MOT-CX33TS	●	●	●		●	●
	IRDMT10T3MOT43TS	RDMT10T3MOT-CX43TS	●	●	●		●	
	IRDMW10T3MOE32HS	RDMW10T3MOE-CX32HS	●	●	●		○	○
	IRDMW10T3MOE33TS	RDMW10T3MOE-CX33TS	●	●	●		●	●
	IRDMW10T3MOT32HS	RDMW10T3MOT-CX32HS	●	●	●		○	○
	IRDMW10T3MOT33TS	RDMW10T3MOT-CX33TS	●	●	●		●	●
	IRDMT12T3MOE22HS	RDMT12T3MOE-CX22HS	●	●	●		○	●
	IRDMT12T3MOE32HS	RDMT12T3MOE-CX32HS	●	●	●		○	○
	IRDMT12T3MOE33TS	RDMT12T3MOE-CX33TS	●	●	●		●	●
	IRDMT12T3MOT22HS	RDMT12T3MOT-CX22HS	●	●	●		○	●
	IRDMT12T3MOT32HS	RDMT12T3MOT-CX32HS	●	●	●		○	○
	IRDMT12T3MOT33TS	RDMT12T3MOT-CX33TS	●	●	●		●	●
	IRDMX12T3MOE22HS	RDMX12T3MOE-CX22HS	●	●	●		○	●
	IRDMX12T3MOE32HS	RDMX12T3MOE-CX32HS	●	●	●		○	○
	IRDMX12T3MOE33TS	RDMX12T3MOE-CX33TS	●	●	●		●	●
	IRDMX12T3MOE43TS	RDMX12T3MOE-CX43TS	●	●	●		●	
	IRDMX12T3MOT22HS	RDMX12T3MOT-CX22HS	●	●	●		○	●
	IRDMX12T3MOT32HS	RDMX12T3MOT-CX32HS	●	●	●		○	○
	IRDMX12T3MOT33TS	RDMX12T3MOT-CX33TS	●	●	●		●	●
	IRDMX12T3MOT43TS	RDMX12T3MOT-CX43TS	●	●	●		●	

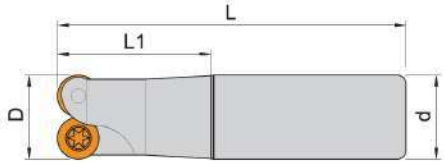
Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IRDMT1204MOE22HS	RDMT1204MOE-CX22HS	●	●	●		○	●
	IRDMT1204MOE32HS	RDMT1204MOE-CX32HS	●	●	●		○	○
	IRDMT1204MOE33TS	RDMT1204MOE-CX33TS	●	●	●		●	●
	IRDMT1204MOE43TS	RDMT1204MOE-CX43TS	●	●	●		●	
	IRDMT1204MOT22HS	RDMT1204MOT-CX22HS	●	●	●		○	●
	IRDMT1204MOT32HS	RDMT1204MOT-CX32HS	●	●	●		○	○
	IRDMT1204MOT33TS	RDMT1204MOT-CX33TS	●	●	●		●	●
	IRDMT1204MOT43TS	RDMT1204MOT-CX43TS	●	●	●		●	
	IRDMW1204MOE22HS	RDMW1204MOE-CX22HS	●	●	●		○	●
	IRDMW1204MOE32HS	RDMW1204MOE-CX32HS	●	●	●		○	○
	IRDMW1204MOE33TS	RDMW1204MOE-CX33TS	●	●	●		●	●
	IRDMW1204MOE43TS	RDMW1204MOE-CX43TS	●	●	●		●	
	IRDMW1204MOSF33TS	RDMW1204MOS-F-CX33TS	●	●	●		●	●
	IRDMW1204MOSF43TS	RDMW1204MOS-F-CX43TS	●	●	●		●	
	IRDMW1204MOT22HS	RDMW1204MOT-CX22HS	●	●	●		○	●
	IRDMW1204MOT32HS	RDMW1204MOT-CX32HS	●	●	●		○	○
	IRDMW1204MOT33TS	RDMW1204MOT-CX33TS	●	●	●		●	●
	IRDMW1204MOT43TS	RDMW1204MOT-CX43TS	●	●	●		●	
	IRDMT1604MOT22HS	RDMT1604MOT-CX22HS	●	●	●		○	●
	IRDMT1604MOT32HS	RDMT1604MOT-CX32HS	●	●	●		○	○
	IRDMT1604MOT33TS	RDMT1604MOT-CX33TS	●	●	●		●	●
	IRDMT1604MOT43TS	RDMT1604MOT-CX43TS	●	●	●		●	
	IRDMW1604MOE22HS	RDMW1604MOE-CX22HS	●	●	●		○	●
	IRDMW1604MOE32HS	RDMW1604MOE-CX32HS	●	●	●		○	○
	IRDMW1604MOE33TS	RDMW1604MOE-CX33TS	●	●	●		●	●
	IRDMW1604MOE43TS	RDMW1604MOE-CX43TS	●	●	●		●	
	IRDMW1604MOSF22HS	RDMW1604MOS-F-CX22HS	●	●	●		○	●
	IRDMW1604MOSF32HS	RDMW1604MOS-F-CX32HS	●	●	●		○	○
	IRDMW1604MOSF33TS	RDMW1604MOS-F-CX33TS	●	●	●		●	●
	IRDMW1604MOSF43TS	RDMW1604MOS-F-CX43TS	●	●	●		●	
	IRDMW1604MOE22HS	RDMW1604MOT-CX22HS	●	●	●		○	●
	IRDMW1604MOE23TS	RDMW1604MOT-CX23TS	●	●	●		●	●
	IRDMW1604MOE32HS	RDMW1604MOT-CX32HS	●	●	●		○	○
	IRDMW1604MOE33TS	RDMW1604MOT-CX33TS	●	●	●		●	●
	IRDMW1604MOE43TS	RDMW1604MOT-CX43TS	●	●	●		●	

Recommended Cutting Conditions

Working Material	Vc	Dia ≤ 10		Dia > 10	
		fz	ap	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.1 ~ 0.6	0.3 ~ 1.5	0.2 ~ 0.8	0.5 ~ 2.5
Stainless Steel	100 ~ 180	0.08 ~ 0.4	0.3 ~ 1.2	0.15 ~ 0.4	0.5 ~ 2.0
Cast Iron	120 ~ 250	0.1 ~ 0.6	0.3 ~ 1.5	0.2 ~ 0.8	0.5 ~ 2.5
High Temperature Alloy	40 ~ 100	0.08 ~ 0.3	0.3 ~ 1.0	0.15 ~ 0.3	0.3 ~ 2.0
Hardened Steel	50 ~ 100	0.08 ~ 0.3	0.3 ~ 1.0	0.15 ~ 0.3	0.3 ~ 2.0

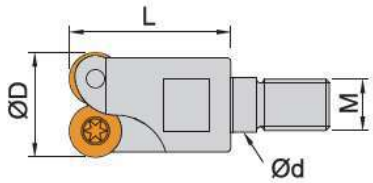
CARDE - Milling tools

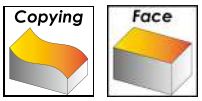


Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICARDE502010100	10	25	100	10	2	RDKW0501	ITS2003	ITK06	●
ICARDE502012100	12	25	100	12	2				○
ICARDE503016130	16	35	130	16	3				○
ICARDE703016130	16	40	130	16	3	RDKW0702	ITS2015	ITK08	○
ICARDE704020150	20	40	150	20	4				●
ICARDE704025150	25	40	150	25	4				○
ICARDE102025150	25	45	150	25	2	RDMT10T3 or RDMW10T3	ITS3504	ITK15	●
ICARDE102030150	30	45	150	25	2				●
ICARDE103032150	32	45	150	32	3				○
ICARDE202032150	32	50	150	32	2	RDMT1204 or RDMW1204	ITS4008	ITK15	○
ICARDE302020150	20	40	150	20	2	RDMT1003 or RDMX1003	IMS3507A	ITK15	●
ICARDE303025150	25	40	150	25	3				●
ICARDE303026150	26	25	150	25	3				●
ICARDE303030150	30	25	150	25	3		IMS3509A		●
ICARDE304035150	35	40	150	32	4				●

● stock ○ by inquiry

CARDM - Modular tools

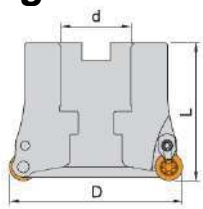


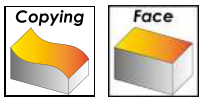


Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICARDM502012060	12	21	6.5	M06	2	RDKW0501	ITS2003	ITK06	●
ICARDM503012060	12	21	6.5	M06	3				○
ICARDM504016080	16	26	8.5	M08	4				○
ICARDM703016080	16	26	8.5	M08	3	RDKW0702	ITS2515	ITK08	○
ICARDM704020100	20	32	10.5	M10	4				○
ICARDM705025120	25	38	12.5	M12	5				○
ICARDM103025120	25	38	12.5	M12	3	RDMT10T3 or RDMW10T3	ITS3504	ITK10	●
ICARDM104030120	30	38	12.5	M12	4				●
ICARDM105032120	35	38	12.5	M12	5				○
ICARDM302020100	20	30	10.5	M10	2	RDMT1003 or RDMX1003	IMS3507A	ITK15	●
ICARDM302021100	21	30	10.5	M10	2				●
ICARDM303025120	25	35	12.5	M12	3				●
ICARDM303026120	26	35	12.5	M12	3				●
ICARDM303030120	30	35	12.5	M12	3		IMS3509A		●

● stock ○ by inquiry

CARDF - Milling tools



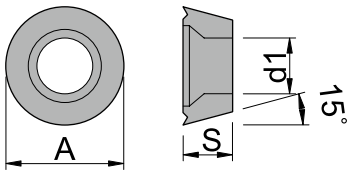


Order No.	D	L	d	T	Inserts	Screw	Wrench	Clamp	Clamp Screw	Stock
ICARDF104050220	50	45	22	4	RDMT10T3 or RDMW10T3	ITS3504	ITK15	IRD-45	ITS4009	●
ICARDF106063220	63	45	22	6						●
ICARDF204050220	50	45	22	4	RDMT1204 or RDMW1204	ITS4008	ITK15	IRD-6R	ITS5004	●
ICARDF205050220	50	45	22	5						●
ICARDF205063220	63	45	22	5						●
ICARDF206063220	63	45	22	6						●
ICARDF207080270	80	50	27	7						○
ICARDF208100320	100	50	32	8						○
ICARDF604063220	63	45	22	4	RDMT1604 or RDMW1604	ITS5007	ITK20	IRD-68	ITS5009	●
ICARDF605063220	63	45	22	5						●
ICARDF606080270	80	50	27	6						○
ICARDF607100320	100	50	32	7						○
ICARDF305050220	50	40	22	5	RDMT1003 or RDMX1003	IMS3509A	ITK15	IMC35-3V	-	●
ICARDF305050250	50	50	25.4	5						●
ICARDF306063250	63	50	25.4	6						●

● stock ○ by inquiry

Insert Specifications

Insert	Dimensions (mm)		
	A	S	d1
RPMT08T2	8	2.78	3.2
RPMW1003	10	3.18	4.6
RPMT10T3	10	3.97	4.5
RPMT1204	12	4.76	4.3
RPMW1204	12	4.76	4.3



Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IRPMT08T2MOE32HS	RPMT08T2MOE-CX32HS	●	●	●		○	○
	IRPMT08T2MOE33TS	RPMT08T2MOE-CX33TS	●	●	●		●	●
	IRPMT08T2MOE43TS	RPMT08T2MOE-CX43TS	●	●	●		●	
	IRPMT08T2MOT32HS	RPMT08T2MOT-CX32HS	●	●	●		○	○
	IRPMT08T2MOT33TS	RPMT08T2MOT-CX33TS	●	●	●		●	●
	IRPMT08T2MOT43TS	RPMT08T2MOT-CX43TS	●	●	●		●	
	IRPMW1003MOE22HS	RPMW1003MOE-CX22HS	●	●	●		○	●
	IRPMW1003MOE32HS	RPMW1003MOE-CX32HS	●	●	●		○	○
	IRPMW1003MOE33TS	RPMW1003MOE-CX33TS	●	●	●		●	●
	IRPMW1003MOE43TS	RPMW1003MOE-CX43TS	●	●	●		●	
	IRPMW1003MOSF33TS	RPMW1003MOS-F-CX33TS	●	●	●		●	●
	IRPMW1003MOT22HS	RPMW1003MOT-CX22HS	●	●	●		○	●
	IRPMW1003MOT32HS	RPMW1003MOT-CX32HS	●	●	●		○	○
	IRPMW1003MOT33TS	RPMW1003MOT-CX33TS	●	●	●		●	●
	IRPMW1003MOT43TS	RPMW1003MOT-CX43TS	●	●	●		●	

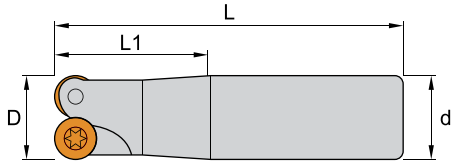
Insert Order Code

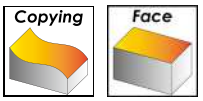
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IRPMT10T3MOE32HS	RPMT10T3MOE-CX32HS	●	●	●		○	○
	IRPMT10T3MOE33TS	RPMT10T3MOE-CX33TS	●	●	●		●	●
	IRPMT10T3MOE43TS	RPMT10T3MOE-CX43TS	●	●	●		●	
	IRPMT10T3MOT32HS	RPMT10T3MOT-CX32HS	●	●	●		○	○
	IRPMT10T3MOT33TS	RPMT10T3MOT-CX33TS	●	●	●		●	●
	IRPMT10T3MOT43TS	RPMT10T3MOT-CX43TS	●	●	●		●	
	IRPMT1204MOE22HS	RPMT1204MOE-CX22HS	●	●	●		○	●
	IRPMT1204MOE32HS	RPMT1204MOE-CX32HS	●	●	●		○	○
	IRPMT1204MOE33TS	RPMT1204MOE-CX33TS	●	●	●		●	●
	IRPMT1204MOE43TS	RPMT1204MOE-CX43TS	●	●	●		●	
	IRPMT1204MOT22HS	RPMT1204MOT-CX22HS	●	●	●		○	●
	IRPMT1204MOT32HS	RPMT1204MOT-CX32HS	●	●	●		○	○
	IRPMT1204MOT33TS	RPMT1204MOT-CX33TS	●	●	●		●	●
	IRPMT1204MOT43TS	RPMT1204MOT-CX43TS	●	●	●		●	
	IRPMW1204MOE32HS	RPMW1204MOE-CX32HS	●	●	●		○	○
	IRPMW1204MOE33TS	RPMW1204MOE-CX33TS	●	●	●		●	●
	IRPMW1204MOE43TS	RPMW1204MOE-CX43TS	●	●	●		●	
	IRPMW1204MOT32HS	RPMW1204MOT-CX32HS	●	●	●		○	○
	IRPMW1204MOT43TS	RPMW1204MOT-CX43TS	●	●	●		●	●
	IRPMW1204MOT33TS	RPMW1204MOT-CX33TS	●	●	●		●	

Recommended Cutting Conditions

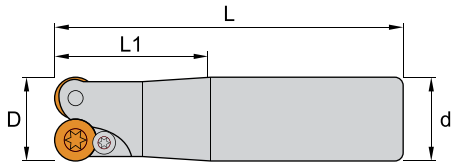
Working Material	Vc	Dia ≤ 10		Dia > 10	
		fz	ap	fz	ap
Carbon Steel / Alloy Steel	120 ~ 250	0.1 ~ 0.6	0.3 ~ 1.5	0.2 ~ 0.8	0.5 ~ 2.5
Stainless Steel	100 ~ 180	0.08 ~ 0.4	0.3 ~ 1.2	0.15 ~ 0.4	0.5 ~ 2.0
Cast Iron	120 ~ 250	0.1 ~ 0.6	0.3 ~ 1.5	0.2 ~ 0.8	0.5 ~ 2.5
High Temperature Alloy	40 ~ 100	0.08 ~ 0.3	0.3 ~ 1.0	0.15 ~ 0.3	0.3 ~ 2.0
Hardened Steel	50 ~ 100	0.08 ~ 0.3	0.3 ~ 1.0	0.15 ~ 0.3	0.3 ~ 2.0

CARPE - Milling tools





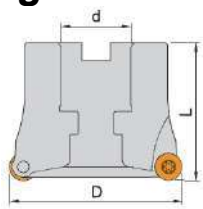
Order No.	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICARPE802016150	16	50	150	16	2	RPMT08T2	ITS3004	ITK09	●
ICARPE802020150	20	50	150	20	2				●
ICARPE803025150	25	40	150	25	3				●
ICARPE102025150	25	40	150	25	2	RPMT10T3	ITS3503	ITK15	●
ICARPE103030150	30	40	150	25	3				●
ICARPE103032150	32	40	150	32	3				●
ICARPE202032170	32	45	170	32	2	RPMT1204 or RPMW1204	ITS4006	ITK15	●

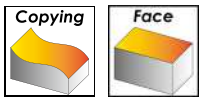


Order No.	D	L1	L	d	T	Inserts	Screw	Clamp	Wrench	Stock
ICARPE302025150	25	50	150	25	2	RPMW1003	ITS4004	IAS5	ITK15	●
ICARPE302025180	25	50	180	25	2					●
ICARPE302025200	25	50	200	25	2					●
ICARPE302025250	25	50	250	25	2					●
ICARPE302026150	26	30	150	25	2					●
ICARPE302030150	30	35	150	25	2					●
ICARPE302030200	30	35	200	25	2					●
ICARPE302030300	30	35	300	25	2					●
ICARPE303032120	32	55	125	32	3					●
ICARPE303035150	35	55	150	32	3					●
ICARPE303035250	35	55	250	32	3					●
ICARPE303035300	35	55	300	32	3					●

● stock ○ by inquiry

CARPF - Milling tools





Order No.	D	L	d	T	Inserts	Screw	Wrench	Stock
ICARPF305050220	50	45	22	5	RPMT10T3	ITS3503	ITK15	●
ICARPF305050250	50	45	25.4	5				●
ICARPF306063220	63	45	22	6				○
ICARPF306063250	63	45	25.4	6				○
ICARPF204050250	50	45	25.4	4	RPMT1204 or RPMW1204	ITS4006	ITK15	●
ICARPF205063220	63	45	22	5				●
ICARPF205063250	63	45	25.4	5				●
ICARPF206080250	80	50	25.4	6				●
ICARPF206080270	80	50	27	6				●

● stock ○ by inquiry

CF21 Copy Milling

Suitable for mould & die machining and steel profiling !!

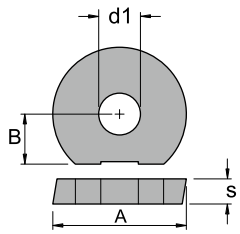
- ***CF21 Series :***

  Copy milling for medium & finishing

  WP32 Inserts : 6R, 8R, 10R, 12.5R & 16R

Insert Specifications

Insert	Dimensions (mm)			
	A	B	S	d1
WP3212	12	6	2.5	5
WP3216	16	6	3	5
WP3220	20	6	3	5
WP3225	25	9	4	6
WP3232	32	10	5	8



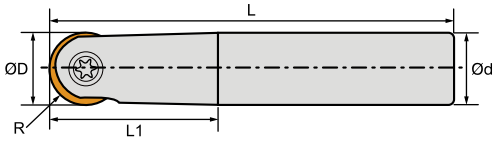
Insert Order Code

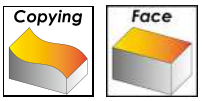
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IWP3212SM22HS	WP3212-SM-CX22HS	●	●	●		○	●
	IWP3216SM22HS	WP3216-SM-CX22HS	●	●	●		○	●
	IWP3220SM22HS	WP3220-SM-CX22HS	●	●	●		○	●
	IWP3225SM22HS	WP3225-SM-CX22HS	●	●	●		○	●
	IWP3232SM22HS	WP3232-SM-CX22HS	●	●	●		○	●
	IWP3212MM22HS	WP3212-MM-CX22HS	●	●	●		○	●
	IWP3216MM22HS	WP3216-MM-CX22HS	●	●	●		○	●
	IWP3220MM22HS	WP3220-MM-CX22HS	●	●	●		○	●
	IWP3225MM22HS	WP3225-MM-CX22HS	●	●	●		○	●
	IWP3232MM22HS	WP3232-MM-CX22HS	●	●	●		○	●

Recommended Cutting Conditions

Working Material	Vc	fz					ap
		WP3212	WP3216	WP3220	WP3225	WP3232	
Carbon Steel / Alloy Steel	150 ~ 300	0.20	0.20	0.25	0.25	0.30	≤ 0.03 × ØD
Stainless Steel	100 ~ 250	0.20	0.20	0.25	0.25	0.30	≤ 0.03 × ØD
Cast Iron	90 ~ 350	0.25	0.30	0.30	0.35	0.40	≤ 0.04 × ØD
Hardened Steel	100 ~ 350	0.10	0.125	0.15	0.20	0.25	≤ 0.02 × ØD

CF21E - Milling tools

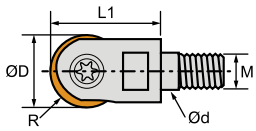


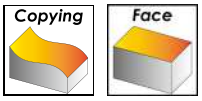


Order No.	R	D	L1	L	d	T	Inserts	Screw	Wrench	Stock
ICF21E302012150	6R	12	32	150	12	2	WP3212 ..	IMGR5012	ITK20	●
ICF21E302012200	6R	12	58	200	16	2				
ICF21E302016150	8R	16	36	150	16	2	WP3216..	IMGR5016	ITK20	●
ICF21E302016200	8R	16	36	200	16	2				
ICF21E302016201	8R	16	65	200	20	2				
ICF21E302020150	10R	20	45	150	20	2	WP3220..	IMGR5020	ITK20	●
ICF21E302020200	10R	20	45	200	20	2				
ICF21E302020201	10R	20	76	200	25	2				
ICF21E302020250	10R	20	76	250	25	2				
ICF21E302025200	12.5R	25	45	200	25	2	WP3225..	IMGR6025	ITK30	●
ICF21E302025250	12.5R	25	45	250	25	2				
ICF21E302025201	12.5R	25	98	200	32	2				
ICF21E302025251	12.5R	25	98	250	32	2				
ICF21E302025300	12.5R	25	98	300	32	2				
ICF21E302032200	16R	32	50	200	32	2	WP3232..	IMGR8030	ITK30	●
ICF21E302032250	16R	32	50	250	32	2				
ICF21E302032300	16R	32	50	300	32	2				

● stock ○ by inquiry

CF21M - Modular tools





Order No.	R	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICF21M302012060	6R	12	22	6.5	M6	2	WP3212 ..	IMGR5012	ITK20	●
ICF21M302012080	6R	12	30	8.5	M8	2				
ICF21M302016080	8R	16	28	8.5	M8	2	WP3216 ..	IMGR5016	ITK20	●
ICF21M302020100	10R	20	30	10.5	M10	2	WP3220 ..	IMGR5020	ITK20	●
ICF21M302025120	12.5R	25	40	12.5	M12	2	WP3225 ..	IMGR6025	ITK30	●
ICF21M302032160	16R	32	43	17	M16	2	WP3232 ..	IMGR8030	ITK30	●

● stock ○ by inquiry

CF22 Copy Milling

Suitable for mould & die machining and steel profiling !!

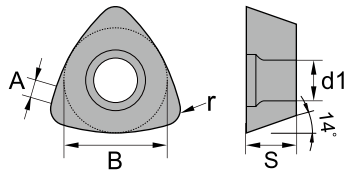
- ***CF22 Series :***

  Copy milling for roughing

  WP26 Inserts : 14R & 25R

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
WP26339R14	-	9.52	3.97	1.2	4.4
WP26379R25	1.1	13	5.56	2.0	5.5



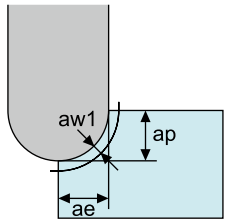
Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IWP26314RG22HS	WP26339R14-RG-CX22HS	●	●	●		○	●
	IWP26314RG23TS	WP26339R14-RG-CX23TS	●	●	●		●	●
	IWP26314RG32HS	WP26339R14-RG-CX32HS	●	●	●		○	○
	IWP26314RG33TS	WP26339R14-RG-CX33TS	●	●	●		●	●
	IWP26314RG43TS	WP26339R14-RG-CX43TS	●	●	●		●	
	IWP26725RG22HS	WP26379R25-RG-CX22HS	●	●	●		○	●
	IWP26725RG23TS	WP26379R25-RG-CX23TS	●	●	●		●	●
	IWP26725RG32HS	WP26379R25-RG-CX32HS	●	●	●		○	○
	IWP26725RG33TS	WP26379R25-RG-CX33TS	●	●	●		●	●
	IWP26725RG43TS	WP26379R25-RG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

for WP26339R14

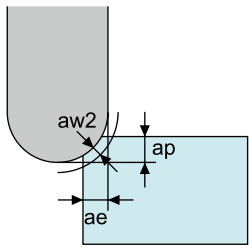
Working Material	Vc	aw1 = (0.5D, 0.5D)	aw2 = (0.25D, 0.25D)
		fz	
Carbon Steel / Alloy Steel	120 ~ 250	0.16 ~ 0.30	0.2 ~ 0.39
Stainless Steel	100 ~ 180	0.08 ~ 0.14	0.1 ~ 0.18
Cast Iron	120 ~ 250	0.16 ~ 0.30	0.2 ~ 0.39
High Temperature Alloy	40 ~ 100	0.08 ~ 0.12	0.1 ~ 0.18



aw1 = (ap, ae)

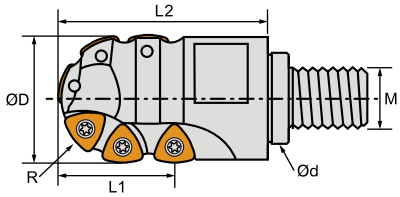
for WP26379R25

Working Material	Vc	aw1 = (0.5D, 0.5D)	aw2 = (0.25D, 0.25D)
		fz	
Carbon Steel / Alloy Steel	120 ~ 250	0.20 ~ 0.36	0.26 ~ 0.46
Stainless Steel	100 ~ 180	0.08 ~ 0.14	0.10 ~ 0.18
Cast Iron	120 ~ 250	0.20 ~ 0.36	0.26 ~ 0.46
High Temperature Alloy	40 ~ 100	0.08 ~ 0.12	0.10 ~ 0.18



aw2 = (ap, ae)

CF22M - Modular tools

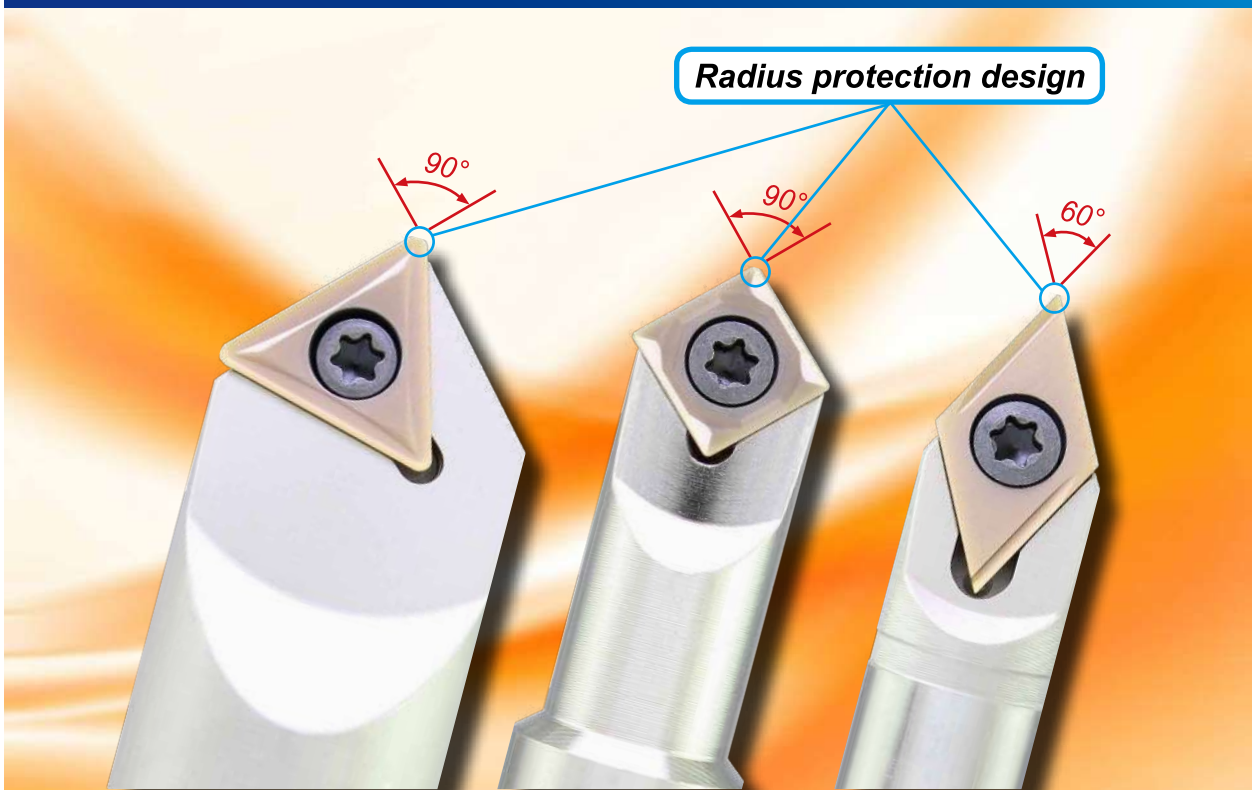


Order No.	R	D	L1	L2	d	M	T	Inserts	Screw	Wrench	Stock
ICF22M202025120	12.5R	25	21	42	12.5	M12	2	WP26339R14	ITS4023	ITK15	●
ICF22M202030120	15R	30	23	50	12.5	M12	2				●
ICF22M202032160	16R	32	23	50	17.0	M16	2				●
ICF22M202040180	20R	40	38	65	28.0	M18	2	WP26379R25	ITS5007	ITK20	○
ICF22M202050250	25R	50	45	80	36.0	M25	2				○

● stock ○ by inquiry

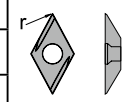
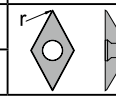
Customize available.

DTS Chamfering & Engraving



- Multiple-function in one tool.
- Many cutting edges insert for better cost efficiency.
- Working size up to 20mm.

■ *Insert Order Code and Specifications*

Insert	Order No.	Designation	r	Working Ød	Working Materials						Figure
				Engraving	P	M	K	N	S	H	
	IDCEX11T301XF32HS	DCEX11T301-XF-CX32HS	0.1	0.2 ~ 1	●	●	●	※	○	○	
	IDCEX11T302XF32HS	DCEX11T302-XF-CX32HS	0.2	0.4 ~ 2	●	●	●	※	○	○	
	IDCEX11T304XF32HS	DCEX11T304-XF-CX32HS	0.4	0.8 ~ 3	●	●	●	※	○	○	
	IDCEX11T304XR32HS	DCEX11T304-XR-CX32HS	0.4	0.8 ~ 3	●	●	●	※	○	○	
	IDCEX11T308XR32HS	DCEX11T308-XR-CX32HS	0.8	0.8 ~ 3	●	●	●	※	○	○	

※ To choose CX10(uncoating) for N material machining.

Recommended Cutting Conditions

for 60° Chamfering / Countersinking

Material		Vc (m/min)	Fr (mm/rev)
P	Carbon Steel	12 ~ 180	0.05 ~ 0.15
	Alloy Steel	12 ~ 180	0.05 ~ 0.15
M	Stainless Steel	12 ~ 180	0.05 ~ 0.15
K	Cast Iron	12 ~ 180	0.05 ~ 0.15
N	Aluminum	12 ~ 180	0.10 ~ 0.20
H	Hardened Steel	12 ~ 180	0.03 ~ 0.10

for 60° Grooving / Engraving

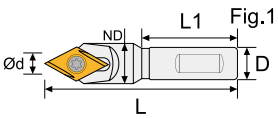
Material		Vc (m/min)	Fr (mm/rev)
P	Carbon Steel	10 ~ 170	0.005 ~ 0.05
	Alloy Steel	10 ~ 170	0.005 ~ 0.03
M	Stainless Steel	10 ~ 170	0.005 ~ 0.05
K	Cast Iron	10 ~ 170	0.005 ~ 0.03
N	Aluminum	10 ~ 170	0.005 ~ 0.08
H	Hardened Steel	10 ~ 170	0.005 ~ 0.02

for 60° Depth of Cut and Number of Passes

No. of Passes	Material					
	Aluminum	Cast iron	Carbon steel	Alloy steel	Stainless steel	Hardened steel
	ap (mm)					
1	1.0	0.8	0.8	0.6	0.5	0.2
2	0.8	0.7	0.6	0.5	0.4	0.2
3	0.2	0.3	0.3	0.3	0.3	0.15
4		0.2	0.2	0.3	0.3	0.15
5			0.1	0.2	0.2	0.1
6				0.1	0.2	0.1
7					0.1	0.1

※ Finally ap is equal to the total depth. MAX ap : 2mm

■ *Holder Order Code and Specifications*



Order No.	D	ND	L	L1	Degree	Fig	Insert	Screw	Wrench	Stock
IDTS1006006011	10	12	60	30	60°	1	DCEX11T3	ITS3520	ITK15	●
IDTS1210006011	12	12	100	-	60°	2				●

● stock ○ by inquiry

■ *Insert Order Code and Specifications*

Insert	Order No.	Designation	r	Working Ød		Working Materials						Figure
				Spotting	Engraving	P	M	K	N	S	H	
	ISCGX09T304AG10	SCGX09T304-AG-CX10	0.4	2 ~ 11	0.8 ~ 2.5				●			
	ISCGX09T304FG12HS	SCGX09T304-FG-CX12HS	0.4	2 ~ 11	0.8 ~ 2.5	●	●	●	●	●		
	ISCMX09T304SM32HS	SCMX09T304-SM-CX32HS	0.4	2 ~ 11	0.8 ~ 2.5	●	●	●		○	○	
	ITCGX16T308AG10	TCGX16T308-AG-CX10	0.8	3 ~ 20	1.6 ~ 4.0				●			
	ITCGX16T308FG12HS	TCGX16T308-FG-CX12HS	0.8	3 ~ 20	1.6 ~ 4.0	●	●	●	●	●		
	ITCMX16T308MP32HS	TCMX16T308-MP-CX32HS	0.8	-	-	●	●	●		○	○	

Recommended Cutting Conditions

for 90° Spotting

Material		Vc (m/min)		Fr (mm/rev)	
		Ød = 2 ~ 4.9 mm	Ød ≥ 5 mm	Ød = 2 ~ 4.9 mm	Ød ≥ 5 mm
P	Carbon steel	60 ~ 120	90 ~ 220	0.04 ~ 0.08	0.06 ~ 0.10
	Alloy steel	50 ~ 100	75 ~ 180	0.03 ~ 0.06	0.05 ~ 0.08
M	Stainless steel	30 ~ 60	45 ~ 120	0.02 ~ 0.04	0.04 ~ 0.06
K	Cast iron	40 ~ 80	60 ~ 130	0.04 ~ 0.08	0.06 ~ 0.10
H	Hardened steel	20 ~ 40	30 ~ 60	0.02 ~ 0.04	0.04 ~ 0.08

for 90° Chamfering / Countersinking

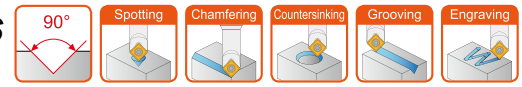
Material		Vc (m/min)	Fr (mm/rev)
P	Carbon steel	60 ~ 270	0.15 ~ 0.24
	Alloy steel	50 ~ 220	0.12 ~ 0.20
M	Stainless steel	35 ~ 120	0.10 ~ 0.20
K	Cast iron	60 ~ 220	0.15 ~ 0.25
H	Hardened steel	20 ~ 60	0.03 ~ 0.08

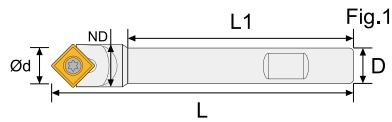
for 90° Grooving / Engraving

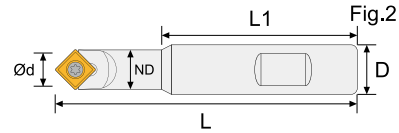
Material		Vc (m/min)	Fr (mm/rev)
P	Carbon steel	40 ~ 140	0.12 ~ 0.18
	Alloy steel	35 ~ 120	0.10 ~ 0.14
M	Stainless steel	25 ~ 70	0.08 ~ 0.12
K	Cast iron	30 ~ 100	0.12 ~ 0.18
H	Hardened steel	20 ~ 50	0.02 ~ 0.04

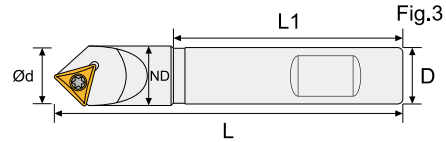
DTS9 90° Chamfering & Engraving

■ *Holder Order Code and Specifications*









Order No.	D	ND	L	L1	Degree	Fig	Insert	Screw	Wrench	Stock
IDTS1010009009	10	12.2	100	71	90°	1	SCGX09T3 or SCMX09T3	ITS3520	ITK15	●
IDTS1210009009	12	12.2	100	71	90°	2				●
IDTS1610009009	16	12.2	100	71	90°					●
IDTS1613009009	16	12.2	130	101	90°					●
IDTS2012009016	20	21.2	120	78	90°	3	TCGX16T3 or TCMX16T3	ITS3521	ITK15	●

● stock ○ by inquiry

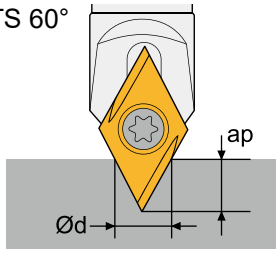
■ *How to calculate Ød ,RPM and Feed*

Formula :

$$RPM = \frac{Vc \times 1000}{Ød \times \pi}$$

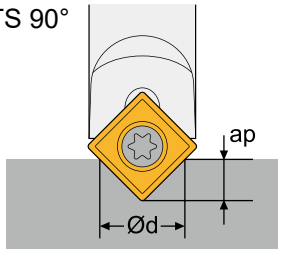
Feed = RPM × Fr

DTS 60°



Ød ≒ (0.577 × (ap + r) + 0.05) × 2

DTS 90°



Ød ≒ (0.4r + ap + 0.05) × 2

EX :

Working Material = Cast iron
Use insert = SCGX09T304
Application = 90° Spotting
ap = 2.5mm

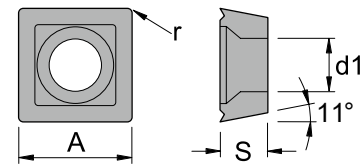
Ød = (0.4r + ap + 0.05) × 2 = (0.4 × 0.4 + 2.5 + 0.05) × 2 = 5.42 mm
Reference conditions table get Vc ≒ 85 m/min and Fr ≒ 0.075 mm/rev
RPM = (Vc × 1000) / (Ød × π) = (85 × 1000) / (5.42 × π) ≒ 5000
Feed = RPM × Fr = 5000 × 0.075 = 375 mm/min

■ *Working Demonstration*

Cutting parameter	
Tools	DTS 90° with SCMX09T304-SP CX32HS
Material	Cast Iron
Coolant	Dry
Application	Spotting
Vc	85 m/min
S	4800 rpm
Feed	360 mm/min
ap	2.5 mm

Insert Specifications

Insert	Dimensions (mm)			
	A	S	r	d1
SPMG050204	5.00	2.38	0.4	2.30
SPMG060204	6.00	2.38	0.4	2.65
SPMG07T308	7.94	3.97	0.8	2.85
SPMG090408	9.80	4.3	0.8	4.05



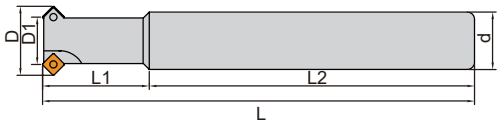
Insert Order Code

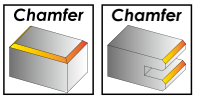
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ISPMG050204MG32HS	SPMG050204-MG-CX32HS	●	●	●		○	○
	ISPMG050204MG33TS	SPMG050204-MG-CX33TS	●	●	●		●	●
	ISPMG050204MG43TS	SPMG050204-MG-CX43TS	●	●	●		●	
	ISPMG060204MG32HS	SPMG060204-MG-CX32HS	●	●	●		○	○
	ISPMG060204MG33TS	SPMG060204-MG-CX33TS	●	●	●		●	●
	ISPMG060204MG43TS	SPMG060204-MG-CX43TS	●	●	●		●	
	ISPMG07T308MG32HS	SPMG07T308-MG-CX32HS	●	●	●		○	○
	ISPMG07T308MG33TS	SPMG07T308-MG-CX33TS	●	●	●		●	●
	ISPMG07T308MG43TS	SPMG07T308-MG-CX43TS	●	●	●		●	
	ISPMG090408MG32HS	SPMG090408-MG-CX32HS	●	●	●		○	○
	ISPMG090408MG33TS	SPMG090408-MG-CX33TS	●	●	●		●	●
	ISPMG090408MG43TS	SPMG090408-MG-CX43TS	●	●	●		●	
	ISPMG090408RG32HS	SPMG090408-RG-CX32HS	●	●	●		○	○
	ISPMG090408RG33TS	SPMG090408-RG-CX33TS	●	●	●		●	●
	ISPMG090408RG43TS	SPMG090408-RG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

Working Material	Vc	fz				
		Ø11 ~ Ø15	Ø16 ~ Ø22	Ø23 ~ Ø33	Ø34 ~ Ø41	Ø42 ~ Ø50
Carbon Steel / Alloy Steel	120 ~ 250	0.06 ~ 0.12	0.06 ~ 0.12	0.06 ~ 0.12	0.12 ~ 0.24	0.12 ~ 0.25
Stainless Steel	100 ~ 180	0.05 ~ 0.10	0.05 ~ 0.10	0.05 ~ 0.10	0.10 ~ 0.17	0.10 ~ 0.17
Cast Iron	120 ~ 250	0.06 ~ 0.12	0.06 ~ 0.12	0.06 ~ 0.12	0.12 ~ 0.24	0.12 ~ 0.25
High Temperature Alloy	40 ~ 100	0.03 ~ 0.06	0.03 ~ 0.06	0.03 ~ 0.06	0.05 ~ 0.10	0.05 ~ 0.10
Hardened Steel	50 ~ 100	0.03 ~ 0.06	0.03 ~ 0.06	0.03 ~ 0.06	0.05 ~ 0.10	0.05 ~ 0.10

CSPCE - Milling tools



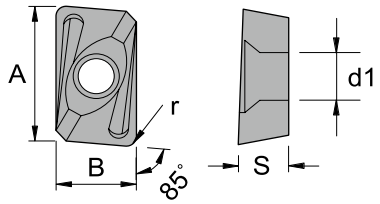


Order No.	D	D1	d	L1	L2	L	T	Inserts	Screw	Wrench	Stock
ICSPCE501011100	11	6	10	17	83	100	1	SPMG0502	ITS2003	ITK06	●
ICSPCE502015120	15	10	12	20	100	120	2				●
ICSPCE503017150	17	11	16	25	125	150	3				●
ICSPCE503019150	19	13	16	30	120	150	3				●
ICSPCE504024150	24	18	20	35	115	150	4				●
ICSPCE603022120	22	16	16	30	80	120	3	SPMG0602	ITS2205	ITK06	●
ICSPCE703027120	27	17	20	30	80	120	3	SPMG07T3	ITS2511	ITK08	●
ICSPCE902030150	30	19	20	40	110	150	2	SPMG0904	ITS3504	ITK15	●
ICSPCE903040150	40	29	25	40	110	150	3				●
ICSPCE904050150	50	39	25	40	110	150	4				●

● stock ○ by inquiry

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
APMT113508	11.0	6.35	3.5	0.8	2.8
APMT113516	11.0	6.35	3.5	1.6	2.8
APMT160408	16.5	9.525	4.76	0.8	4.4
APMT160416	16.5	9.525	4.76	1.6	4.4
APGT160408	16.5	9.525	4.76	0.8	4.4



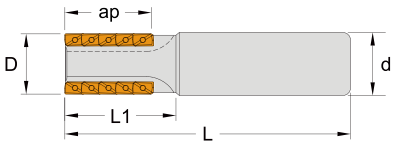
Insert Order Code

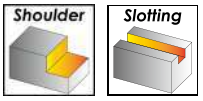
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IAPMT113508EMG22HS	APMT113508PDER-MG-CX22HS	●	●	●		○	●
	IAPMT113508EMG23TS	APMT113508PDER-MG-CX23TS	●	●	●		●	●
	IAPMT113508EMG32HS	APMT113508PDER-MG-CX32HS	●	●	●		○	○
	IAPMT113508EMG33TS	APMT113508PDER-MG-CX33TS	●	●	●		●	●
	IAPMT113508EMG43TS	APMT113508PDER-MG-CX43TS	●	●	●		●	
	IAPMT113516EMG33TS	APMT113516PDER-MG-CX33TS	●	●	●		●	●
	IAPMT113516EMG43TS	APMT113516PDER-MG-CX43TS	●	●	●		●	
	IAPMT113508ERG22HS	APMT113508PDER-RG-CX22HS	●	●	●		○	●
	IAPMT113508ERG23TS	APMT113508PDER-RG-CX23TS	●	●	●		●	●
	IAPMT113508ERG32HS	APMT113508PDER-RG-CX32HS	●	●	●		○	○
	IAPMT113508ERG33TS	APMT113508PDER-RG-CX33TS	●	●	●		●	●
	IAPMT113508ERG43TS	APMT113508PDER-RG-CX43TS	●	●	●		●	
	IAPMT113508EHG32HS	APMT113508PDER-HG-CX32HS	●	●	●		○	○
	IAPMT113508EHG33TS	APMT113508PDER-HG-CX33TS	●	●	●		●	●
	IAPMT113508EHG43TS	APMT113508PDER-HG-CX43TS	●	●	●		●	
	IAPMT160408EMG22HS	APMT160408PDER-MG-CX22HS	●	●	●		○	●
	IAPMT160408EMG32HS	APMT160408PDER-MG-CX32HS	●	●	●		○	○
	IAPMT160408EMG33TS	APMT160408PDER-MG-CX33TS	●	●	●		●	●
	IAPMT160408EMG43TS	APMT160408PDER-MG-CX43TS	●	●	●		●	
	IAPMT160416EMG33TS	APMT160416PDER-MG-CX33TS	●	●	●		●	●
	IAPMT160416EMG43TS	APMT160416PDER-MG-CX43TS	●	●	●		●	
	IAPMT160408ERG22HS	APMT160408PDER-RG-CX22HS	●	●	●		○	●
	IAPMT160408ERG23TS	APMT160408PDER-RG-CX23TS	●	●	●		●	●
	IAPMT160408ERG32HS	APMT160408PDER-RG-CX32HS	●	●	●		○	○
	IAPMT160408ERG33TS	APMT160408PDER-RG-CX33TS	●	●	●		●	●
	IAPMT160408ERG43TS	APMT160408PDER-RG-CX43TS	●	●	●		●	
	IAPMT160408EHG22HS	APMT160408PDER-HG-CX22HS	●	●	●		○	●
	IAPMT160408EHG32HS	APMT160408PDER-HG-CX32HS	●	●	●		○	○
	IAPMT160408EHG33TS	APMT160408PDER-HG-CX33TS	●	●	●		●	●
	IAPMT160408EHG43TS	APMT160408PDER-HG-CX43TS	●	●	●		●	
	IAPGT160408EAL10	APGT160408PDER-AL-CX10				●		
	IAPGT160408EFG22HS	APGT160408PDER-FG-CX22HS	●	●	●		○	●

Recommended Cutting Conditions

Working Material	for APMT1135		for APMT1604	
	Vc	fz	Vc	fz
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.22	120 ~ 250	0.12 ~ 0.28
Stainless Steel	100 ~ 180	0.08 ~ 0.18	100 ~ 180	0.10 ~ 0.22
Cast Iron	120 ~ 250	0.10 ~ 0.22	120 ~ 250	0.12 ~ 0.28
Aluminum Alloy	-	-	300 ~ 1000	0.10 ~ 0.40
High Temperature Alloy	40 ~ 100	0.07 ~ 0.14	40 ~ 100	0.10 ~ 0.22

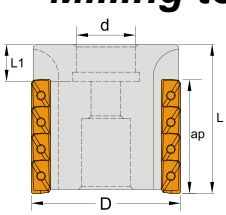
CBAHE - Milling tools

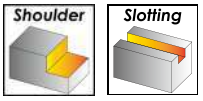




Order No.	D	ap	L1	L	d	T × Pcs	Inserts	Screw	Wrench	Stock
ICBAHE305020100	20	28	42	107	20	1 x 5	APMT1135	ITS2515	ITK08	●
ICBAHE308025120	25	35	50	125	25	2 x 4				●
ICBAHE315032130	32	44	60	135	32	3 x 5				●
ICBAHE324040170	40	72	94	175	32	3 x 8				●
ICBAHE406032130	32	42	55	135	32	2 x 3	APMT1604 or APGT1604	ITS4023	ITK15	●
ICBAHE410040170	40	68	94	175	32	2 x 5				●
ICBAHE415040170	40	68	94	175	32	3 x 5				●
ICBAHE424050220	50	100	128	224	50.8	3 x 8				●
ICBAHE436050280	50	158	188	284	50.8	3 x 12				●

CBAHF - Milling tools



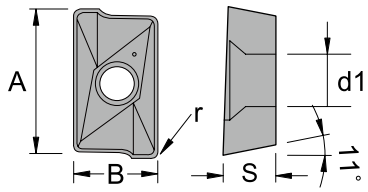


Order No.	D	ap	L1	L	d	T × Pcs	Inserts	Screw	Wrench	Stock
ICBAHF409050220	50	42	21	69	22	3 x 3	APMT1604 or APGT1604	ITS4023	ITK15	●
ICBAHF412063250	63	42	38	69	25.4	4 x 3				●
ICBAHF420063250	63	68	38	97	25.4	4 x 5				●

● stock ○ by inquiry

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
APKT100304	10.5	6.7	3.5	0.4	2.8
APKT100308	10.5	6.7	3.5	0.8	2.8
APET160402	16.3	9.525	5.25	0.2	4.5
APET160404	16.3	9.525	5.25	0.4	4.5
APKT160408	16.3	9.525	5.25	0.8	4.5



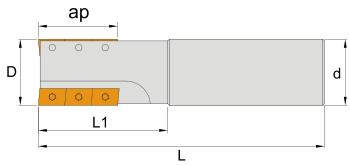
Insert Order Code

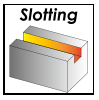
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IAPKT100304EAL10	APKT100304PDER-AL-CX10				●		
	IAPKT100304ESG22HS	APKT100304PDER-SG-CX22HS	●	●	●		○	●
	IAPKT100304EMG22HS	APKT100304PDER-MG-CX22HS	●	●	●		○	●
	IAPKT100304EMG23TS	APKT100304PDER-MG-CX23TS	●	●	●		●	●
	IAPKT100304EMG32HS	APKT100304PDER-MG-CX32HS	●	●	●		○	○
	IAPKT100304EMG33TS	APKT100304PDER-MG-CX33TS	●	●	●		●	●
	IAPKT100304EMG43TS	APKT100304PDER-MG-CX43TS	●	●	●		●	
	IAPKT100308EMG22HS	APKT100308PDER-MG-CX22HS	●	●	●		○	●
	IAPKT100308EMG23TS	APKT100308PDER-MG-CX23TS	●	●	●		●	●
	IAPKT100308EMG32HS	APKT100308PDER-MG-CX32HS	●	●	●		○	○
	IAPKT100308EMG33TS	APKT100308PDER-MG-CX33TS	●	●	●		●	●
	IAPKT100308EMG43TS	APKT100308PDER-MG-CX43TS	●	●	●		●	
	IAPKT100304ERG32HS	APKT100304PDER-RG-CX32HS	●	●	●		○	○
	IAPKT100304ERG33TS	APKT100304PDER-RG-CX33TS	●	●	●		●	●
	IAPKT160408EMG22HS	APKT160408PDER-MG-CX22HS	●	●	●		○	●
	IAPKT160408EMG32HS	APKT160408PDER-MG-CX32HS	●	●	●		○	○
	IAPKT160408EMG33TS	APKT160408PDER-MG-CX33TS	●	●	●		●	●
	IAPKT160408EMG43TS	APKT160408PDER-MG-CX43TS	●	●	●		●	
	IAPKT160408ERG22HS	APKT160408PDER-RG-CX22HS	●	●	●		○	●
	IAPKT160408ERG32HS	APKT160408PDER-RG-CX32HS	●	●	●		○	○
	IAPKT160408ERG33TS	APKT160408PDER-RG-CX33TS	●	●	●		●	●
	IAPKT160408ERG43TS	APKT160408PDER-RG-CX43TS	●	●	●		●	
	IAPET160402FAL10	APET160402PDFR-AL-CX10				●		
	IAPET160404FAL10	APET160404PDFR-AL-CX10				●		
	IAPET160402FFG22HS	APET160402PDFR-FG-CX22HS	●	●	●		○	●
	IAPET160404FFG22HS	APET160404PDFR-FG-CX22HS	●	●	●		○	●

Recommended Cutting Conditions

Working Material	for APKT1003		for APKT1604	
	Vc	fz	Vc	fz
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.22	120 ~ 250	0.12 ~ 0.28
Stainless Steel	100 ~ 180	0.08 ~ 0.18	100 ~ 180	0.10 ~ 0.22
Cast Iron	120 ~ 250	0.10 ~ 0.22	120 ~ 250	0.12 ~ 0.28
Aluminum Alloy	-	-	300 ~ 1000	0.10 ~ 0.40
High Temperature Alloy	40 ~ 100	0.07 ~ 0.14	40 ~ 100	0.10 ~ 0.18

CAPHE - Milling tools

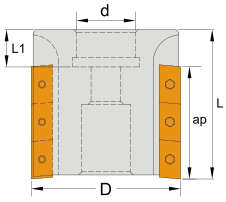


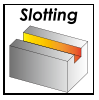


Order No.	D	ap	L1	L	d	T × Pcs	Inserts	Screw	Wrench	Stock
ICAPHE305020100	20	28	42	107	20	1 x 5	APKT1003	ITS2515	ITK08	●
ICAPHE308025120	25	35	50	125	25	2 x 4				●
ICAPHE315032130	32	44	60	135	32	3 x 5				●

● stock ○ by inquiry

CAPHF - Milling tools



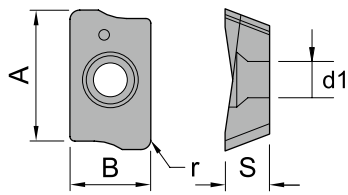


Order No.	D	ap	L2	L	d	T × Pcs	Inserts	Screw	Wrench	Stock
ICAPHF409050220	50	42	21	69	22	3 x 3	APKT1604 or APET1604	ITS4023	ITK15	●
ICAPHF412063250	63	42	38	69	25.4	4 x 3				●
ICAPHF420063252	63	68	38	97	25.4	4 x 5				●

● stock ○ by inquiry

Insert Specifications

Insert	Dimensions (mm)				
	A	B	S	r	d1
W39011T308	**11**	**6.9**	**3.59**	**0.8**	**2.8**
W39011T320	**11**	**6.9**	**3.59**	**2.0**	**2.8**



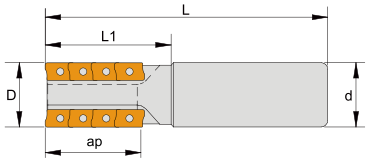
Insert Order Code

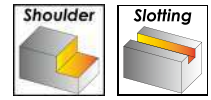
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IW39011T308MG22HS	W39011T308-MG-CX22HS	●	●	●		○	●
	IW39011T308MG23TS	W39011T308-MG-CX23TS	●	●	●		●	●
	IW39011T308MG32HS	W39011T308-MG-CX32HS	●	●	●		○	○
	IW39011T308MG33TS	W39011T308-MG-CX33TS	●	●	●		●	●
	IW39011T308MG43TS	W39011T308-MG-CX43TS	●	●	●		●	
	IW39011T320MG22HS	W39011T320-MG-CX22HS	●	●	●		○	●
	IW39011T320MG23TS	W39011T320-MG-CX23TS	●	●	●		●	●
	IW39011T320MG32HS	W39011T320-MG-CX32HS	●	●	●		○	○
	IW39011T320MG33TS	W39011T320-MG-CX33TS	●	●	●		●	●

Recommended Cutting Conditions

Working Material	Vc	fz
Carbon Steel / Alloy Steel	120 ~ 250	0.10 ~ 0.22
Stainless Steel	100 ~ 180	0.08 ~ 0.18
Cast Iron	120 ~ 250	0.10 ~ 0.22
High Temperature Alloy	40 ~ 100	0.07 ~ 0.14

C39HE - Milling tools



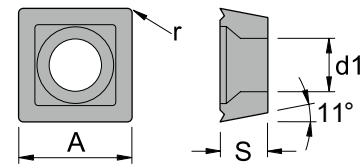


Order No.	D	ap	L1	L	d	T × Pcs	Inserts	Screw	Wrench	Stock
IC39HE308025110	25	36	50	110	25	2 x 4	W39011T3	ITS2515	ITK08	●
IC39HE308032120	32	36	50	125	32	2 x 4				●

● stock ○ by inquiry

Insert Specifications

Insert	Dimensions (mm)			
	A	S	r	d1
SPMG050204	**5.00**	**2.38**	**0.4**	**2.30**
SPMG060204	**6.00**	**2.38**	**0.4**	**2.65**
SPMG07T308	**7.94**	**3.97**	**0.8**	**2.85**
SPMG090408	**9.80**	**4.3**	**0.8**	**4.05**



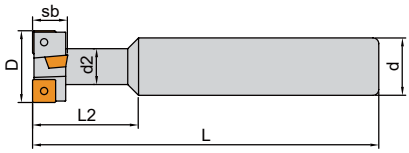
Insert Order Code

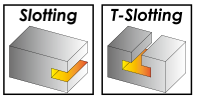
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ISPMG050204MG32HS	SPMG050204-MG-CX32HS	●	●	●		○	○
	ISPMG050204MG33TS	SPMG050204-MG-CX33TS	●	●	●		●	●
	ISPMG050204MG43TS	SPMG050204-MG-CX43TS	●	●	●		●	
	ISPMG060204MG32HS	SPMG060204-MG-CX32HS	●	●	●		○	○
	ISPMG060204MG33TS	SPMG060204-MG-CX33TS	●	●	●		●	●
	ISPMG060204MG43TS	SPMG060204-MG-CX43TS	●	●	●		●	
	ISPMG07T308MG32HS	SPMG07T308-MG-CX32HS	●	●	●		○	○
	ISPMG07T308MG33TS	SPMG07T308-MG-CX33TS	●	●	●		●	●
	ISPMG07T308MG43TS	SPMG07T308-MG-CX43TS	●	●	●		●	
	ISPMG090408MG32HS	SPMG090408-MG-CX32HS	●	●	●		○	○
	ISPMG090408MG33TS	SPMG090408-MG-CX33TS	●	●	●		●	●
	ISPMG090408MG43TS	SPMG090408-MG-CX43TS	●	●	●		●	
	ISPMG090408RG32HS	SPMG090408-RG-CX32HS	●	●	●		○	○
	ISPMG090408RG33TS	SPMG090408-RG-CX33TS	●	●	●		●	●
	ISPMG090408RG43TS	SPMG090408-RG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

Working Material	Vc	fz
Carbon Steel / Alloy Steel	120 ~ 250	0.08 ~ 0.12
Stainless Steel	100 ~ 180	0.07 ~ 0.10
Cast Iron	120 ~ 250	0.08 ~ 0.12
High Temperature Alloy	40 ~ 100	0.05 ~ 0.08
Hardened Steel	50 ~ 100	0.05 ~ 0.08

CSPTE - Milling tools



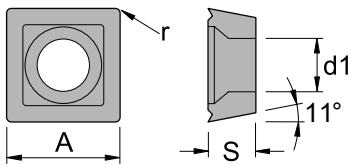


Order No.	D	sb	d2	L2	L	d	T	Inserts	Screw	Wrench	Stock
ICSPTE504019950	19	8	9.5	25	95	16	4	SPMG0502	ITS2003	ITK06	○
ICSPTE604021100	21	9	11	27	100	16	4	SPMG0602	ITS2205	ITK06	●
ICSPTE504022090	22	6.3	15	15	90	20	4	SPMG0502	ITS2003	ITK06	●
ICSPTE704025110	25	11	12	31	110	20	4	SPMG07T3	ITS2511	ITK08	●
ICSPTE904032110	32	14	17	39	110	25	4	SPMG0904	ITS3504	ITK15	●

● stock ○ by inquiry

Insert Specifications

Insert	Dimensions (mm)			
	A	S	r	d1
SPMG050204	5.00	2.38	0.4	2.30
SPMG060204	6.00	2.38	0.4	2.65
SPMG07T308	7.94	3.97	0.8	2.85
SPMG090408	9.80	4.3	0.8	4.05
SPMG110408	11.50	4.8	0.8	4.45



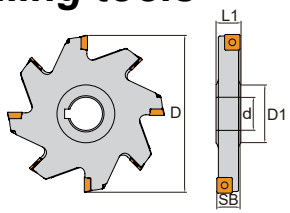
Insert Order Code

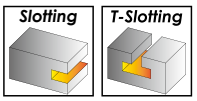
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ISPMG050204MG32HS	SPMG050204-MG-CX32HS	●	●	●		○	○
	ISPMG050204MG33TS	SPMG050204-MG-CX33TS	●	●	●		●	●
	ISPMG050204MG43TS	SPMG050204-MG-CX43TS	●	●	●		●	
	ISPMG060204MG32HS	SPMG060204-MG-CX32HS	●	●	●		○	○
	ISPMG060204MG33TS	SPMG060204-MG-CX33TS	●	●	●		●	●
	ISPMG060204MG43TS	SPMG060204-MG-CX43TS	●	●	●		●	
	ISPMG07T308MG32HS	SPMG07T308-MG-CX32HS	●	●	●		○	○
	ISPMG07T308MG33TS	SPMG07T308-MG-CX33TS	●	●	●		●	●
	ISPMG07T308MG43TS	SPMG07T308-MG-CX43TS	●	●	●		●	
	ISPMG090408MG32HS	SPMG090408-MG-CX32HS	●	●	●		○	○
	ISPMG090408MG33TS	SPMG090408-MG-CX33TS	●	●	●		●	●
	ISPMG090408MG43TS	SPMG090408-MG-CX43TS	●	●	●		●	
	ISPMG090408RG32HS	SPMG090408-RG-CX32HS	●	●	●		○	○
	ISPMG090408RG33TS	SPMG090408-RG-CX33TS	●	●	●		●	●
	ISPMG090408RG43TS	SPMG090408-RG-CX43TS	●	●	●		●	
	ISPMG110408MG32HS	SPMG110408-MG-CX32HS	●	●	●		○	○
	ISPMG110408MG33TS	SPMG110408-MG-CX33TS	●	●	●		●	●
	ISPMG110408MG43TS	SPMG110408-MG-CX43TS	●	●	●		●	
	ISPMG110408RG32HS	SPMG110408-RG-CX32HS	●	●	●		○	○
	ISPMG110408RG33TS	SPMG110408-RG-CX33TS	●	●	●		●	●
	ISPMG110408RG43TS	SPMG110408-RG-CX43TS	●	●	●		●	

Recommended Cutting Conditions

Working Material	Vc	fz
Carbon Steel / Alloy Steel	100 ~ 220	0.10 ~ 0.35
Stainless Steel	130 ~ 200	0.12 ~ 0.30
Cast Iron	100 ~ 210	0.10 ~ 0.20

CSPDE - Milling tools

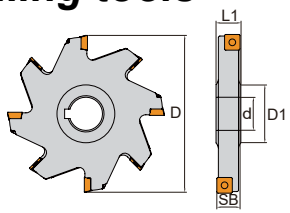


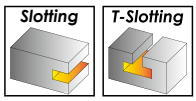


Order No.	D	L1	SB	d	D1	T	Inserts	Screw	Wrench	Stock
ICSPDE506080220	80	12	6	22	44	2 × 4	SPMG0502	ITS2003	ITK06	●
ICSPDE507080220	80	12	7	22	44	2 × 4	SPMG0502	ITS2003	ITK06	○
ICSPDE608080220	80	12	8	22	44	2 × 4	SPMG0602	ITS2205	ITK06	●
ICSPDE609080220	80	12	9	22	44	2 × 4	SPMG0602	ITS2205	ITK06	○
ICSPDE610080220	80	12	10	22	44	2 × 4	SPMG0602	ITS2205	ITK06	●
ICSPDE711080220	80	12	11	22	44	2 × 4	SPMG0703	ITS2511	ITK08	○
ICSPDE712080220	80	12	12	22	44	2 × 4	SPMG0703	ITS2511	ITK08	●
ICSPDE506100270	100	12	6	27	50	2 × 5	SPMG0502	ITS2003	ITK06	●
ICSPDE507100270	100	12	7	27	50	2 × 5	SPMG0502	ITS2003	ITK06	●
ICSPDE608100270	100	12	8	27	50	2 × 5	SPMG0602	ITS2205	ITK06	●
ICSPDE609100270	100	12	9	27	50	2 × 5	SPMG0602	ITS2205	ITK06	○
ICSPDE710100270	100	12	10	27	50	2 × 5	SPMG0703	ITS2511	ITK08	●
ICSPDE711100270	100	12	11	27	50	2 × 5	SPMG0703	ITS2511	ITK08	○
ICSPDE712100270	100	12	12	27	50	2 × 5	SPMG0703	ITS2511	ITK08	●
ICSPDE914100270	100	16	14	27	50	2 × 5	SPMG0904	ITS3504	ITK15	○
ICSPDE916100270	100	16	16	27	50	2 × 5	SPMG0904	ITS3504	ITK15	●
ICSPDE711125320	125	12	11	32	65	2 × 6	SPMG0703	ITS2511	ITK08	○
ICSPDE712125320	125	12	12	32	65	2 × 6	SPMG0703	ITS2511	ITK08	○
ICSPDE914125320	125	16	14	32	65	2 × 6	SPMG0904	ITS3504	ITK15	○
ICSPDE916125320	125	16	16	32	65	2 × 6	SPMG0904	ITS3504	ITK15	●
ICSPDE118125320	125	20	18	32	65	2 × 5	SPMG1104	ITS4006	ITK15	○
ICSPDE120125320	125	20	20	32	65	2 × 5	SPMG1104	ITS4006	ITK15	○
ICSPDE711160400	160	12	11	40	75	2 × 8	SPMG0703	ITS2511	ITK08	○
ICSPDE712160400	160	12	12	40	75	2 × 8	SPMG0703	ITS2511	ITK08	●
ICSPDE914160400	160	16	14	40	75	2 × 8	SPMG0904	ITS3504	ITK15	○
ICSPDE916160400	160	16	16	40	75	2 × 8	SPMG0904	ITS3504	ITK15	●
ICSPDE118160400	160	20	18	40	75	2 × 6	SPMG1104	ITS4006	ITK15	○
ICSPDE120160400	160	20	20	40	75	2 × 6	SPMG1104	ITS4006	ITK15	●
ICSPDE914200400	200	16	14	40	80	2 × 9	SPMG0904	ITS3504	ITK15	○
ICSPDE915200400	200	16	16	40	80	2 × 9	SPMG0904	ITS3504	ITK15	●
ICSPDE118200400	200	20	18	40	80	2 × 9	SPMG1104	ITS4006	ITK15	○
ICSPDE120200400	200	20	20	40	80	2 × 7	SPMG1104	ITS4006	ITK15	○

● stock ○ by inquiry

CSPDE - Milling tools

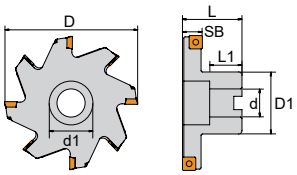


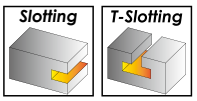


Order No.	D	L1	SB	d	D1	T	Inserts	Screw	Wrench	Stock
ICSPDE506080250	80	12	6	25.4	44	2 × 4	SPMG0502	ITS2003	ITK06	●
ICSPDE507080250	80	12	7	25.4	44	2 × 4	SPMG0502	ITS2003	ITK06	●
ICSPDE608080250	80	12	8	25.4	44	2 × 4	SPMG0602	ITS2205	ITK06	●
ICSPDE609080250	80	12	9	25.4	44	2 × 4	SPMG0602	ITS2205	ITK06	●
ICSPDE610080250	80	12	10	25.4	44	2 × 4	SPMG0602	ITS2205	ITK06	●
ICSPDE711080250	80	12	11	25.4	44	2 × 4	SPMG07T3	ITS2511	ITK08	●
ICSPDE712080250	80	12	12	25.4	44	2 × 4	SPMG07T3	ITS2511	ITK08	●
ICSPDE608100250	100	12	8	25.4	50	2 × 5	SPMG0602	ITS2205	ITK06	○
ICSPDE609100250	100	12	9	25.4	50	2 × 5	SPMG0602	ITS2205	ITK06	●
ICSPDE610100250	100	12	10	25.4	50	2 × 5	SPMG0602	ITS2205	ITK06	●
ICSPDE711100250	100	12	11	25.4	50	2 × 5	SPMG07T3	ITS2511	ITK08	○
ICSPDE712100250	100	12	12	25.4	50	2 × 5	SPMG07T3	ITS2511	ITK08	●
ICSPDE914100250	100	16	14	25.4	50	2 × 5	SPMG0904	ITS3504	ITK15	○
ICSPDE916100250	100	16	16	25.4	50	2 × 5	SPMG0904	ITS3504	ITK15	○
ICSPDE506125310	125	12	6	31.75	65	2 × 6	SPMG0502	ITS2003	ITK06	●
ICSPDE507125310	125	12	7	31.75	65	2 × 6	SPMG0502	ITS2003	ITK06	○
ICSPDE608125310	125	12	8	31.75	65	2 × 6	SPMG0602	ITS2205	ITK06	○
ICSPDE610125310	125	12	10	31.75	65	2 × 6	SPMG0602	ITS2205	ITK06	○
ICSPDE711125310	125	12	11	31.75	65	2 × 6	SPMG07T3	ITS2511	ITK08	○
ICSPDE712125310	125	12	12	31.75	65	2 × 6	SPMG07T3	ITS2511	ITK08	○
ICSPDE914125310	125	16	14	31.75	65	2 × 6	SPMG0904	ITS3504	ITK15	●
ICSPDE916125310	125	16	16	31.75	65	2 × 6	SPMG0904	ITS3504	ITK15	○
ICSPDE118125310	125	20	18	31.75	65	2 × 5	SPMG1104	ITS4006	ITK15	○
ICSPDE120125310	125	20	20	31.75	65	2 × 5	SPMG1104	ITS4006	ITK15	○

● stock ○ by inquiry

CSPDF - Milling tools





Order No.	D	L1	L	SB	d	D1	T	Inserts	Screw	Wrench	Stock
ICSPDF506080220	80	22	40	6	22	42	2 × 4	SPMG0502	ITS2003	ITK06	●
ICSPDF507080220	80	22	40	7	22	42	2 × 4	SPMG0502	ITS2003	ITK06	●
ICSPDF608080220	80	22	40	8	22	42	2 × 4	SPMG0602	ITS2205	ITK06	●
ICSPDF609080220	80	22	40	9	22	42	2 × 4	SPMG0602	ITS2205	ITK06	○
ICSPDF610080220	80	22	40	10	22	42	2 × 4	SPMG0602	ITS2205	ITK06	●
ICSPDF711080220	80	22	40	11	22	42	2 × 4	SPMG0703	ITS2511	ITK08	○
ICSPDF712080220	80	22	40	12	22	42	2 × 4	SPMG0703	ITS2511	ITK08	●
ICSPDF506100270	100	22	40	6	27	50	2 × 5	SPMG0502	ITS2003	ITK06	○
ICSPDF507100270	100	22	40	7	27	50	2 × 5	SPMG0502	ITS2003	ITK06	○
ICSPDF608100270	100	22	40	8	27	50	2 × 5	SPMG0602	ITS2205	ITK06	●
ICSPDF609100270	100	22	40	9	27	50	2 × 5	SPMG0602	ITS2205	ITK06	●
ICSPDF710100270	100	22	40	10	27	50	2 × 5	SPMG0703	ITS2511	ITK08	●
ICSPDF711100270	100	22	40	11	27	50	2 × 5	SPMG0703	ITS2511	ITK08	○
ICSPDF712100270	100	22	40	12	27	50	2 × 5	SPMG0703	ITS2511	ITK08	●
ICSPDF914100270	100	22	40	14	27	50	2 × 5	SPMG0904	ITS3504	ITK15	○
ICSPDF916100270	100	22	40	16	27	50	2 × 5	SPMG0904	ITS3504	ITK15	○
ICSPDF608125320	125	25	45	8	32	70	2 × 6	SPMG0602	ITS2205	ITK06	○
ICSPDF610125320	125	25	45	10	32	70	2 × 6	SPMG0602	ITS2205	ITK06	●
ICSPDF711125320	125	25	45	11	32	70	2 × 6	SPMG0703	ITS2511	ITK08	●
ICSPDF712125320	125	25	45	12	32	70	2 × 6	SPMG0703	ITS2511	ITK08	●
ICSPDF914125320	125	25	45	14	32	70	2 × 6	SPMG0904	ITS3504	ITK15	○
ICSPDF916125320	125	25	45	16	32	70	2 × 6	SPMG0904	ITS3504	ITK15	○

● stock ○ by inquiry

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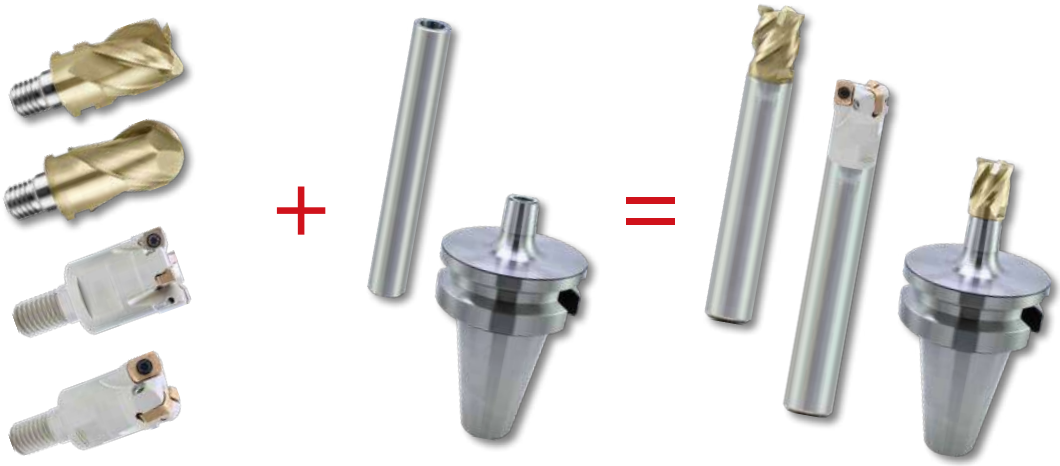
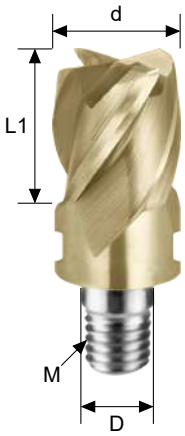


Winmaster - Square Head · 2F

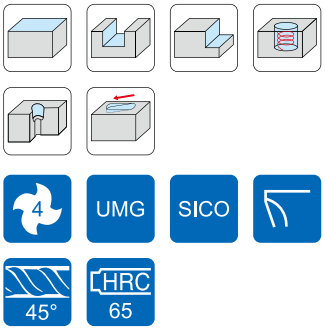
Work Material						
Carbon Steel (S45C, S55C)	Alloy Steel (SK, SCM)	Pre-Hardened Steel / Hardened Steel			Stainless Steel (SUS304, 316)	Cast Iron
		~ HRC 40	~ HRC 45	~ HRC 55		
○	◎	◎	◎	◎	○	◎

EHSWH

P	M	K	N	S	H
●	○	●		○	●



Order No.	Dia. (d)	CL (L1)	ND (D)	M (M)	Flutes (F)
EHSWH410000S	10	10	6.5	M6	4
EHSWH412000S	12	12	6.5	M6	4
EHSWH416000S	16	16	8.5	M8	4
EHSWH420000S	20	20	10.5	M10	4



d Tolerance	
d	0 ~ -0.04

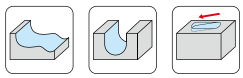
Winmaster - Ball Nose Head · 2F

Work Material						
Carbon Steel (S45C, S55C)	Alloy Steel (SK, SCM)	Pre-Hardened Steel / Hardened Steel			Stainless Steel (SUS304, 316)	Cast Iron
		~ HRC 40	~ HRC 45	~ HRC 55		
○	◎	◎	◎	◎	○	◎

EHBWH

P	M	K	N	S	H
●	○	●		○	●

Order No.	Radius (R)	Dia. (d)	CL (L1)	ND (D)	M (M)	Flutes (F)
EHBWH210000S	5R	10	10	6.5	M6	2
EHBWH212000S	6R	12	12	6.5	M6	2
EHBWH216000S	8R	16	16	8.5	M8	2
EHBWH220000S	10R	20	20	10.5	M10	2



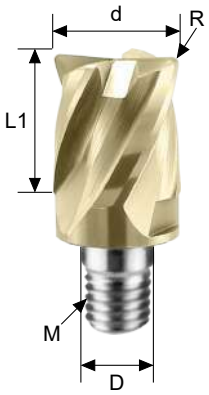
R Tolerance	
R	± 0.02

Winmaster - Corner Radius Head · 4F

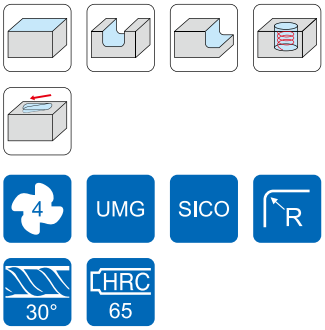
Work Material						
Carbon Steel (S45C, S55C)	Alloy Steel (SK, SCM)	Pre-Hardened Steel / Hardened Steel			Stainless Steel (SUS304, 316)	Cast Iron
		~ HRC 40	~ HRC 45	~ HRC 55		
○	◎	◎	◎	◎	○	◎

EHCWH

P	M	K	N	S	H
●	○	●		○	●



Order No.	Dia. (d)	Radius (R)	CL (L1)	ND (D)	M (M)	Flutes (F)
EHCWH410005S	10	0.5R	10	6.5	M6	4
EHCWH410010S	10	1.0R	10	6.5	M6	4
EHCWH412005S	12	0.5R	12	6.5	M6	4
EHCWH412010S	12	1.0R	12	6.5	M6	4
EHCWH412020S	12	2.0R	12	6.5	M6	4
EHCWH412030S	12	3.0R	12	6.5	M6	4
EHCWH416010S	16	1.0R	16	8.5	M8	4
EHCWH416020S	16	2.0R	16	8.5	M8	4
EHCWH416030S	16	3.0R	16	8.5	M8	4
EHCWH420010S	20	1.0R	20	10.5	M10	4
EHCWH420020S	20	2.0R	20	10.5	M10	4
EHCWH420030S	20	3.0R	20	10.5	M10	4



d Tolerance	
d	0 ~ -0.04

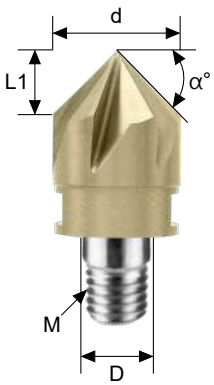
R Tolerance	
R	± 0.02

Winmaster - Chamfer Head · 4F / 6F

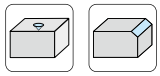
Work Material						
Carbon Steel (S45C, S55C)	Alloy Steel (SK, SCM)	Pre-Hardened Steel / Hardened Steel			Stainless Steel (SUS304, 316)	Cast Iron
		~ HRC 40	~ HRC 45	~ HRC 55		
○	◎	◎	◎	◎	○	◎

EPFWA

P	M	K	N	S	H
●	○	●		○	●



Order No.	Dia. (d)	CL (L1)	α°	ND (D)	M (M)	Flutes (F)
EPFWA410090S	10	5	45°	6.5	M6	4
EPFWA412090S	12	6	45°	6.5	M6	4
EPFWA610090S	10	5	45°	6.5	M6	6
EPFWA612090S	12	6	45°	6.5	M6	6
EPFWA616090S	16	8	45°	8.5	M8	6

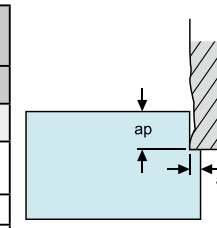


Recommended Cutting Conditions

EHSWH4, EHCWH4 (Square Head - 4F, Corner Radius Head - 4F)

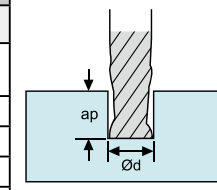
Shoulder Milling L/D ≤ 3 (Reference L/D ratio table, reduce vc, fz and ae value)

Material	Pre-Hardened Steels NAK80 CENA1				Hardened Steels SKD61,SKD11				Hardened Steels SKD11,SKH51			
Hardness	HRC 35~45				HRC 40~55				HRC 55~65			
VC	90 ~ 150(m/min)				80 ~ 120 (m/min)				70 ~ 100 (m/min)			
Dia	RPM	fz (mm/tooth)	ap (mm)	ae (mm)	RPM	fz (mm/tooth)	ap (mm)	ae (mm)	RPM	fz (mm/tooth)	ap (mm)	ae (mm)
10mm	3820	0.05	8.0	2.0	3190	0.05	8.0	1.5	2390	0.05	8.0	1.0
12mm	3190	0.05	9.6	2.4	2650	0.05	9.6	1.8	2000	0.05	9.6	1.2
16mm	2390	0.06	12.8	3.2	2000	0.06	12.8	2.4	1500	0.06	12.8	1.6
20mm	1910	0.06	16.0	4.0	1600	0.06	16.0	3.0	1190	0.06	16.0	2.0



Slot Milling L/D ≤ 3 (Reference L/D ratio table, reduce vc and fz value)

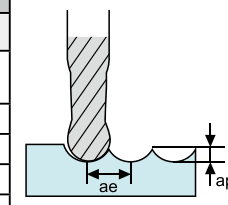
Material	Pre-Hardened Steels NAK80 CENA1			Hardened Steels SKD61,SKD11			Hardened Steels SKD11,SKH51		
Hardness	HRC 35~45			HRC 40~55			HRC 55~65		
VC	60 ~ 100(m/min)			50 ~ 90 (m/min)			40 ~ 80 (m/min)		
Dia	RPM	fz (mm/tooth)	ap (mm)	RPM	fz (mm/tooth)	ap (mm)	RPM	fz (mm/tooth)	ap (mm)
10mm	2550	0.02	4.0	2390	0.02	4.0	1900	0.02	4.0
12mm	2120	0.02	4.8	2000	0.02	4.8	1590	0.02	4.8
16mm	1590	0.03	6.4	1490	0.03	6.4	1190	0.03	6.4
20mm	1275	0.03	8.0	1190	0.03	8.0	950	0.03	8.0



EHBWH2 (Ball Nose Head - 2F)

L/D ≤ 3 (Reference L/D ratio table, reduce vc and fz value)

Material	Pre-Hardened Steels NAK80 CENA1				Hardened Steels SKD61,SKD11				Hardened Steels SKD11,SKH51			
Hardness	HRC 35~45				HRC 40~55				HRC 55~65			
VC	100 ~ 190(m/min)				90 ~ 160 (m/min)				70 ~ 140 (m/min)			
Dia	RPM	fz (mm/tooth)	ap (mm)	ae (mm)	RPM	fz (mm/tooth)	ap (mm)	ae (mm)	RPM	fz (mm/tooth)	ap (mm)	ae (mm)
10mm	4620	0.1	0.7	2	3980	0.05	0.4	1.5	3345	0.02	0.2	1.0
12mm	3850	0.1	0.84	2.4	3320	0.05	0.5	1.8	2790	0.02	0.2	1.2
16mm	2885	0.15	1.12	3.2	2485	0.075	0.64	2.4	2090	0.03	0.3	1.6
20mm	2300	0.2	1.4	4.0	2000	0.1	0.8	3.0	1670	0.04	0.4	2.0

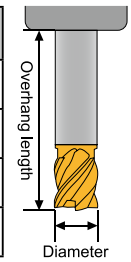


How to set cutting conditions on different overhang length

The recommended cutting condition is depended by the L/D factor.

L/D ratio table :

L/D	VC (m/min)	fz (mm/t)	ae (mm)
2 ~ 3	100%	100%	100%
4 ~ 5	70%	80%	50%
6 ~ 7	50%	70%	30%
8 ~ 9	40%	60%	20%



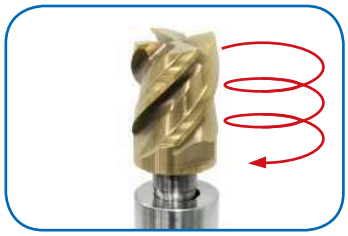
EX :
Tool : Ød=12mm Square Head
Overhang length : 50mm
L/D : 50/12 = 4.16
Material HRC : 35 ~ 45
Application : Shoulder Milling

Cutting condition is recommended as :
*Vc = 120*70% = 84 m/min*
*fz = 0.05*80% = 0.04 mm/t*
ap = 9.6 mm
*max ae = 2.4*50% = 1.2 mm*

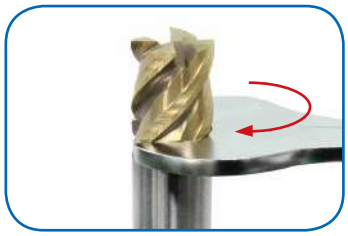
Install the Head

How to install the Head

1. Screw the adapter to the holder and clean.



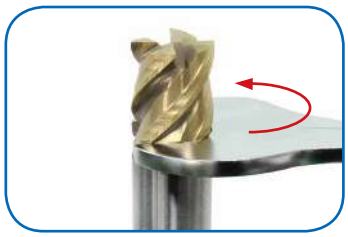
2. Screw the Head to the adapter.



3. Use the spanner to screw the Head.

4. Complete installation.

How to uninstall the Head



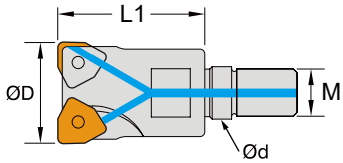
When uninstall the head, please push the spanner lightly for avoiding the neck broken.

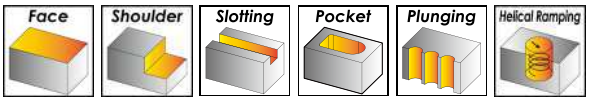
Recommended Torque

Suitable Endmill Head Diameter	Recommended Clamping Torque (N · m)
10mm	10
12mm	10
16mm	10
20mm	10

Shoulder Milling - CXXNM

CXXNM use double sided insert with 6 cutting edges, for small and large sized milling machines.





Order No.	D	L1	d	M	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXXNM402017081	17	26	8.5	M08	2	✓	XNMX0403	ITS2512	ITK08	●
ICXXNM403021101	21	32	10.5	M10	3	✓				●
ICXXNM404026121	26	38	12.5	M12	4	✓				●
ICXXNM404032160	32	41	17	M16	4					○

● stock ○ by inquiry

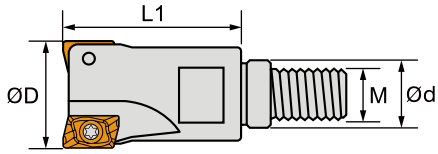
Customize available.

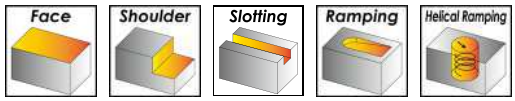
Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IXNMX040304SG22HS	XNMX040304-SG-CX22HS	●	●	●		○	●
	IXNMX040304SG23TS	XNMX040304-SG-CX23TS	●	●	●		●	●
	IXNMX040304SG32HS	XNMX040304-SG-CX32HS	●	●	●		○	○
	IXNMX040304SG33TS	XNMX040304-SG-CX33TS	●	●	●		●	●
	IXNMX040304MG22HS	XNMX040304-MG-CX22HS	●	●	●		○	●
	IXNMX040304MG32HS	XNMX040304-MG-CX32HS	●	●	●		○	○
	IXNMX040304MG33TS	XNMX040304-MG-CX33TS	●	●	●		●	●
	IXNMX040308MG22HS	XNMX040308-MG-CX22HS	●	●	●		○	●
	IXNMX040308MG23TS	XNMX040308-MG-CX23TS	●	●	●		●	●
	IXNMX040308MG32HS	XNMX040308-MG-CX32HS	●	●	●		○	○
	IXNMX040308MG33TS	XNMX040308-MG-CX33TS	●	●	●		●	●
	IXNMX040308MG43TS	XNMX040308-MG-CX43TS	●	●	●		●	

Shoulder Milling - CAXOM

CAXOM is offered excellent tool life and precision on small to medium size work pieces.





Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICAXOM602010050	10	16	5.5	M5	2	XOMT0602	ITS1801	ITK06	○
ICAXOM603012060	12	18	6.5	M6	3				●
ICAXOM604016080	16	20	8.5	M8	4				●
ICAXOM605020100	20	30	10.5	M10	5				●

● stock ○ by inquiry

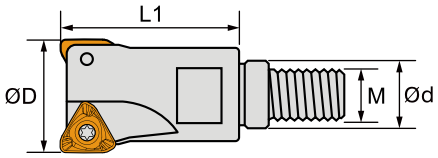
Customize available.

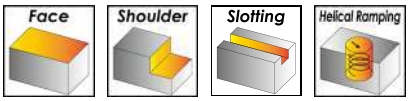
Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IXOMT060208SG32HS	XOMT060208-SG-CX32HS	●	●	●		○	○
	IXOMT060208SG33TS	XOMT060208-SG-CX33TS	●	●	●		●	●
	IXOMT060204MG22HS	XOMT060204-MG-CX22HS	●	●	●		○	●
	IXOMT060204MG32HS	XOMT060204-MG-CX32HS	●	●	●		○	○
	IXOMT060204MG33TS	XOMT060204-MG-CX33TS	●	●	●		●	●
	IXOMT060208MG22HS	XOMT060208-MG-CX22HS	●	●	●		○	●
	IXOMT060208MG23TS	XOMT060208-MG-CX23TS	●	●	●		●	●
	IXOMT060208MG32HS	XOMT060208-MG-CX32HS	●	●	●		○	○
	IXOMT060208MG33TS	XOMT060208-MG-CX33TS	●	●	●		●	●
	IXOMT060208MG43TS	XOMT060208-MG-CX43TS	●	●	●		●	
	IXOMT060216MG33TS	XOMT060216-MG-CX33TS	●	●	●		●	●
	IXOMT060216MG43TS	XOMT060216-MG-CX43TS	●	●	●		●	

Shoulder Milling - CATPM

CATPM use 3 cutting edges insert to save the cost. It's more economical compared with AP series inserts, and also use for various milling applications.





Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICATPM102021100	21	35	18	M10	2	TPMX1004	ITS2517	ITK08	●
ICATPM103026120	26	35	21	M12	3				●
ICATPM105033160	33	43	29	M16	5				●

● stock ○ by inquiry

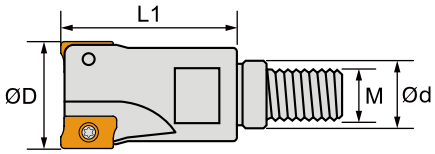
Customize available.

Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ITPMX100408SG32HS	TPMX100408-SG-CX32HS	●	●	●		○	○
	ITPMX100408SG33TS	TPMX100408-SG-CX33TS	●	●	●		●	●
	ITPMX100408MG22HS	TPMX100408-MG-CX22HS	●	●	●		○	●
	ITPMX100408MG23TS	TPMX100408-MG-CX23TS	●	●	●		●	●
	ITPMX100408MG32HS	TPMX100408-MG-CX32HS	●	●	●		○	○
	ITPMX100408MG33TS	TPMX100408-MG-CX33TS	●	●	●		●	●
	ITPMX100408MG43TS	TPMX100408-MG-CX43TS	●	●	●		●	

Shoulder Milling - CR39M

CR39M is special on the unique designed for high productivity and high efficiency.



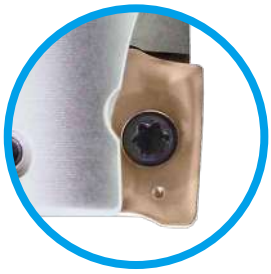
Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICR39M302016080	16	26	8.5	M8	2	W39011T3	ITS2515	ITK08	○
ICR39M303020100	20	32	10.5	M10	3				○
ICR39M303025120	25	38	12.5	M12	3				○
ICR39M303032160	32	41	17	M16	3				○

● stock ○ by inquiry

Customize available.

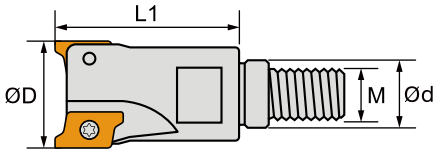
Insert Order Code

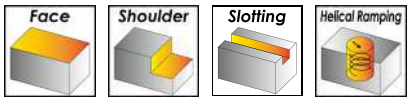
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IW39011T308MG22HS	W39011T308-MG-CX22HS	●	●	●		○	●
	IW39011T308MG23TS	W39011T308-MG-CX23TS	●	●	●		●	●
	IW39011T308MG32HS	W39011T308-MG-CX32HS	●	●	●		○	○
	IW39011T308MG33TS	W39011T308-MG-CX33TS	●	●	●		●	●
	IW39011T308MG43TS	W39011T308-MG-CX43TS	●	●	●		●	
	IW39011T320MG22HS	W39011T320-MG-CX22HS	●	●	●		○	●
	IW39011T320MG23TS	W39011T320-MG-CX23TS	●	●	●		●	●
	IW39011T320MG32HS	W39011T320-MG-CX32HS	●	●	●		○	○
	IW39011T320MG33TS	W39011T320-MG-CX33TS	●	●	●		●	●



Shoulder Milling - CARTM

CARTM used for small sized milling machine, the insert design with excellent chip evacuation.





Order No.	D	L1	M	d	T	Inserts	Screw	Wrench	Stock
ICARTM702010050	10	18	M5	5.5	2	WRT0702	ITS2003	ITK06	●
ICARTM702011050	11	18	M5	5.5	2				●
ICARTM702012060	12	20	M6	6.5	2				●
ICARTM702013060	13	20	M6	6.5	2				●
ICARTM103017080	17	30	M8	8.5	3	WRT1003	ITS2515	ITK08	●
ICARTM103021100	21	32	M10	10.5	3				●

● stock ○ by inquiry

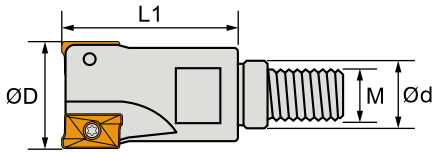
Customize available.

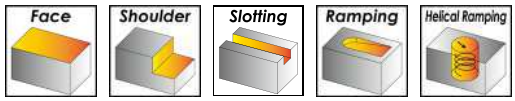
Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IWRT070204RG22HS	WRT070204-RG-CX22HS	●	●	●		○	●
	IWRT070204RG23TS	WRT070204-RG-CX23TS	●	●	●		●	●
	IWRT070204RG32HS	WRT070204-RG-CX32HS	●	●	●		○	○
	IWRT070204RG33TS	WRT070204-RG-CX33TS	●	●	●		●	●
	IWRT070204RG43TS	WRT070204-RG-CX43TS	●	●	●		●	
	IWRT100308RG22HS	WRT100308-RG-CX22HS	●	●	●		○	●
	IWRT100308RG23TS	WRT100308-RG-CX23TS	●	●	●		●	●
	IWRT100308RG32HS	WRT100308-RG-CX32HS	●	●	●		○	○
	IWRT100308RG33TS	WRT100308-RG-CX33TS	●	●	●		●	●
	IWRT100308RG43TS	WRT100308-RG-CX43TS	●	●	●		●	

Shoulder Milling - CAPKM

CAPKM is emphasized a new designed of the chip breaker for longer tool life.





Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICAPKM302016080	16	26	8.5	M8	2	APKT1003	ITS2515	ITK08	●
ICAPKM303020100	20	32	10.5	M10	3				○
ICAPKM304025120	25	38	12.5	M12	4				●
ICAPKM305032160	32	41	17	M16	5				○
ICAPKM402025120	25	38	12.5	M12	2	APKT1604 or APET1604	ITS4004	ITK15	○
ICAPKM403032160	32	41	17	M16	3				○

● stock ○ by inquiry

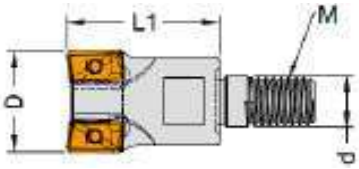
Customize available.

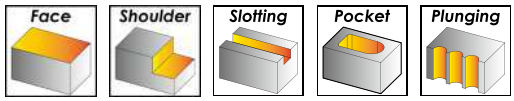
Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IAPKT100304EAL10	APKT100304PDER-AL-CX10				●		
	IAPKT100304ESG22HS	APKT100304PDER-SG-CX22HS	●	●	●		○	●
	IAPKT100304EMG22HS	APKT100304PDER-MG-CX22HS	●	●	●		○	●
	IAPKT100304EMG23TS	APKT100304PDER-MG-CX23TS	●	●	●		●	●
	IAPKT100304EMG32HS	APKT100304PDER-MG-CX32HS	●	●	●		○	○
	IAPKT100304EMG33TS	APKT100304PDER-MG-CX33TS	●	●	●		●	●
	IAPKT100304EMG43TS	APKT100304PDER-MG-CX43TS	●	●	●		●	
	IAPKT100308EMG22HS	APKT100308PDER-MG-CX22HS	●	●	●		○	●
	IAPKT100308EMG23TS	APKT100308PDER-MG-CX23TS	●	●	●		●	●
	IAPKT100308EMG32HS	APKT100308PDER-MG-CX32HS	●	●	●		○	○
	IAPKT100308EMG33TS	APKT100308PDER-MG-CX33TS	●	●	●		●	●
	IAPKT100308EMG43TS	APKT100308PDER-MG-CX43TS	●	●	●		●	
	IAPKT100304ERG32HS	APKT100304PDER-RG-CX32HS	●	●	●		○	○
	IAPKT100304ERG33TS	APKT100304PDER-RG-CX33TS	●	●	●		●	●
	IAPKT160408EMG22HS	APKT160408PDER-MG-CX22HS	●	●	●		○	●
	IAPKT160408EMG32HS	APKT160408PDER-MG-CX32HS	●	●	●		○	○
	IAPKT160408EMG33TS	APKT160408PDER-MG-CX33TS	●	●	●		●	●
	IAPKT160408EMG43TS	APKT160408PDER-MG-CX43TS	●	●	●		●	
	IAPKT160408ERG22HS	APKT160408PDER-RG-CX22HS	●	●	●		○	●
	IAPKT160408ERG32HS	APKT160408PDER-RG-CX32HS	●	●	●		○	○
	IAPKT160408ERG33TS	APKT160408PDER-RG-CX33TS	●	●	●		●	●
	IAPKT160408ERG43TS	APKT160408PDER-RG-CX43TS	●	●	●		●	
	IAPET160402FAL10	APET160402PDFR-AL-CX10				●		
	IAPET160404FAL10	APET160404PDFR-AL-CX10				●		
	IAPET160402FFG22HS	APET160402PDFR-FG-CX22HS	●	●	●		○	●
	IAPET160404FFG22HS	APET160404PDFR-FG-CX22HS	●	●	●		○	●

Shoulder Milling - CBAPM

CBAPM is the most economical choose for your machining.





Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICBAPM302016080	16	26	8.5	M8	2	APMT1135	ITS2515	ITK08	●
ICBAPM302020100	20	30	10.5	M10	2				●
ICBAPM303020100	20	30	10.5	M10	3				○
ICBAPM304025120	25	35	12.5	M12	4				●
ICBAPM305032160	32	40	17	M16	5				●
ICBAPM305033160	33	40	17	M16	5				○
ICBAPM402025120	25	35	12.5	M12	2	APMT1604 or APGT1604	ITS4023	ITK15	●
ICBAPM402032160	32	40	17	M16	3				●

● stock ○ by inquiry

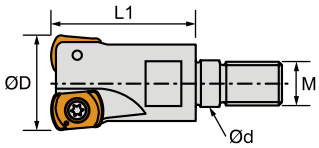
Customize available.

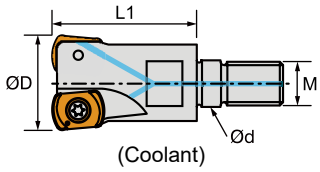
Insert Order Code

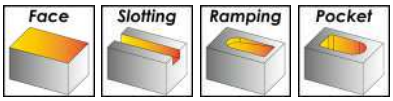
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IAPMT113508EMG22HS	APMT113508PDER-MG-CX22HS	●	●	●		○	●
	IAPMT113508EMG23TS	APMT113508PDER-MG-CX23TS	●	●	●		●	●
	IAPMT113508EMG32HS	APMT113508PDER-MG-CX32HS	●	●	●		○	○
	IAPMT113508EMG33TS	APMT113508PDER-MG-CX33TS	●	●	●		●	●
	IAPMT113508EMG43TS	APMT113508PDER-MG-CX43TS	●	●	●		●	
	IAPMT113516EMG33TS	APMT113516PDER-MG-CX33TS	●	●	●		●	●
	IAPMT113516EMG43TS	APMT113516PDER-MG-CX43TS	●	●	●		●	
	IAPMT113508ERG22HS	APMT113508PDER-RG-CX22HS	●	●	●		○	●
	IAPMT113508ERG23TS	APMT113508PDER-RG-CX23TS	●	●	●		●	●
	IAPMT113508ERG32HS	APMT113508PDER-RG-CX32HS	●	●	●		○	○
	IAPMT113508ERG33TS	APMT113508PDER-RG-CX33TS	●	●	●		●	●
	IAPMT113508ERG43TS	APMT113508PDER-RG-CX43TS	●	●	●		●	
	IAPMT113508EHG32HS	APMT113508PDER-HG-CX32HS	●	●	●		○	○
	IAPMT113508EHG33TS	APMT113508PDER-HG-CX33TS	●	●	●		●	●
	IAPMT113508EHG43TS	APMT113508PDER-HG-CX43TS	●	●	●		●	
	IAPMT160408EMG22HS	APMT160408PDER-MG-CX22HS	●	●	●		○	●
	IAPMT160408EMG32HS	APMT160408PDER-MG-CX32HS	●	●	●		○	○
	IAPMT160408EMG33TS	APMT160408PDER-MG-CX33TS	●	●	●		●	●
	IAPMT160408EMG43TS	APMT160408PDER-MG-CX43TS	●	●	●		●	
	IAPMT160416EMG33TS	APMT160416PDER-MG-CX33TS	●	●	●		●	●
	IAPMT160416EMG43TS	APMT160416PDER-MG-CX43TS	●	●	●		●	
	IAPMT160408ERG22HS	APMT160408PDER-RG-CX22HS	●	●	●		○	●
	IAPMT160408ERG23TS	APMT160408PDER-RG-CX23TS	●	●	●		●	●
	IAPMT160408ERG32HS	APMT160408PDER-RG-CX32HS	●	●	●		○	○
	IAPMT160408ERG33TS	APMT160408PDER-RG-CX33TS	●	●	●		●	●
	IAPMT160408ERG43TS	APMT160408PDER-RG-CX43TS	●	●	●		●	
	IAPMT160408EHG22HS	APMT160408PDER-HG-CX22HS	●	●	●		○	●
	IAPMT160408EHG32HS	APMT160408PDER-HG-CX32HS	●	●	●		○	○
	IAPMT160408EHG33TS	APMT160408PDER-HG-CX33TS	●	●	●		●	●
	IAPMT160408EHG43TS	APMT160408PDER-HG-CX43TS	●	●	●		●	
	IAPGT160408EAL10	APGT160408PDER-AL-CX10				●		
	IAPGT160408EFG22HS	APGT160408PDER-FG-CX22HS	●	●	●		○	●

High Feed Face Milling - CXBNM

CXBNM use double sided insert with 4 cutting edges for high feed face milling to increased productivity.







Order No.	D	L1	d	M	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXBNM602016080	16	26	8.5	M8	2		BNMX0603	ITS3004	ITK08	●
ICXBNM602016081	16	26	8.5	M8	2	✓				●
ICXBNM603020100	20	30	10.5	M10	3					●
ICXBNM603020101	20	30	10.5	M10	3	✓				●
ICXBNM603021100	21	30	10.5	M10	3					●
ICXBNM603025120	25	35	12.5	M12	3					●
ICXBNM604025120	25	35	12.5	M12	4					●
ICXBNM604025121	25	35	12.5	M12	4	✓				●
ICXBNM603026120	26	35	12.5	M12	3					●
ICXBNM604032161	32	40	17.0	M16	4	✓				●
ICXBNM605032160	32	40	17.0	M16	5					●
ICXBNM606040161	40	43	17.0	M16	6	✓				●
ICXBNM903025121	25	35	12.5	M12	3	✓	BNMX0904	ITS3504	ITK15	●
ICXBNM904032161	32	40	17.0	M16	4	✓				●
ICXBNM904035161	35	43	17.0	M16	4	✓				○
ICXBNM905042161	42	43	17.0	M16	5	✓				●

● stock ○ by inquiry

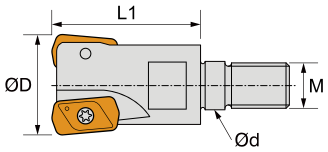
Customize available.

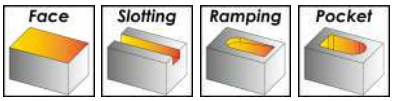
Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IBNMX0603SG22HS	BNMX0603-SG-CX22HS	●	●	●		○	●
	IBNMX0603SG23TS	BNMX0603-SG-CX23TS	●	●	●		●	●
	IBNMX0603SG32HS	BNMX0603-SG-CX32HS	●	●	●		○	○
	IBNMX0603SG33TS	BNMX0603-SG-CX33TS	●	●	●		●	●
	IBNMX0603SG43TS	BNMX0603-SG-CX43TS	●	●	●		●	
	IBNMX0603MG22HS	BNMX0603-MG-CX22HS	●	●	●		○	●
	IBNMX0603MG23TS	BNMX0603-MG-CX23TS	●	●	●		●	●
	IBNMX0603MG32HS	BNMX0603-MG-CX32HS	●	●	●		○	○
	IBNMX0603MG33TS	BNMX0603-MG-CX33TS	●	●	●		●	●
	IBNMX0603MG43TS	BNMX0603-MG-CX43TS	●	●	●		●	
	IBNMX0603RG22HS	BNMX0603-RG-CX22HS	●	●	●		○	●
	IBNMX0603RG23TS	BNMX0603-RG-CX23TS	●	●	●		●	●
	IBNMX0603RG32HS	BNMX0603-RG-CX32HS	●	●	●		○	○
	IBNMX0603RG33TS	BNMX0603-RG-CX33TS	●	●	●		●	●
	IBNMX0603RG43TS	BNMX0603-RG-CX43TS	●	●	●		●	
	IBNMX0904MG22HS	BNMX0904-MG-CX22HS	●	●	●		○	●
	IBNMX0904MG23TS	BNMX0904-MG-CX23TS	●	●	●		●	●
	IBNMX0904MG32HS	BNMX0904-MG-CX32HS	●	●	●		○	○
	IBNMX0904MG33TS	BNMX0904-MG-CX33TS	●	●	●		●	●
	IBNMX0904MG43TS	BNMX0904-MG-CX43TS	●	●	●		●	

High Feed Face Milling - CXLNM

CXLNM use double sided insert with 4 cutting edges for high feed face milling on small machines.





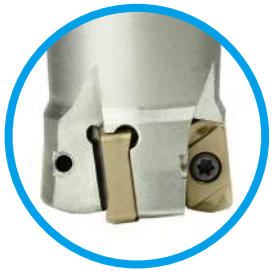
Order No.	D	L1	d	M	T	Coolant Hole	Inserts	Screw	Wrench	Stock
ICXLNM302017080	17	26	8.5	M8	2		LNMX0303	ITS2535	ITK07	●
ICXLNM303021100	21	32	10.5	M10	3					●
ICXLNM303021101	21	32	10.5	M10	3	✓				●
ICXLNM304026120	26	38	12.5	M12	4					●
ICXLNM304032160	32	41	17	M16	4					●

● stock ○ by inquiry

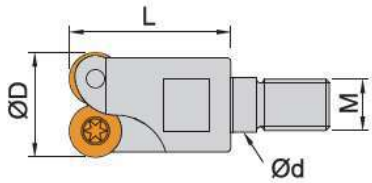
Customize available.

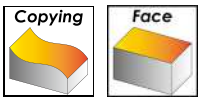
Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ILNMX0303SG22HS	LNMX0303-SG-CX22HS	●	●	●		○	●
	ILNMX0303SG23TS	LNMX0303-SG-CX23TS	●	●	●		●	●
	ILNMX0303SG32HS	LNMX0303-SG-CX32HS	●	●	●		○	○
	ILNMX0303SG33TS	LNMX0303-SG-CX33TS	●	●	●		●	●
	ILNMX0303SG43TS	LNMX0303-SG-CX43TS	●	●	●		●	
	ILNMX0303MG22HS	LNMX0303-MG-CX22HS	●	●	●		○	●
	ILNMX0303MG23TS	LNMX0303-MG-CX23TS	●	●	●		●	●
	ILNMX0303MG32HS	LNMX0303-MG-CX32HS	●	●	●		○	○
	ILNMX0303MG33TS	LNMX0303-MG-CX33TS	●	●	●		●	●
	ILNMX0303MG43TS	LNMX0303-MG-CX43TS	●	●	●		●	



CARDM suit for mould & die machining and steel profiling.





Order No.	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICARDM502012060	12	21	6.5	M06	2	RDKW0501	ITS2003	ITK06	●
ICARDM503012060	12	21	6.5	M06	3				○
ICARDM504016080	16	26	8.5	M08	4				○
ICARDM703016080	16	26	8.5	M08	3	RDKW0702	ITS2515	ITK08	○
ICARDM704020100	20	32	10.5	M10	4				○
ICARDM705025120	25	38	12.5	M12	5				○
ICARDM103025120	25	38	12.5	M12	3	RDMT10T3 or RDMW10T3	ITS3504	ITK10	●
ICARDM104030120	30	38	12.5	M12	4				●
ICARDM105032120	35	38	12.5	M12	5				○
ICARDM302020100	20	30	10.5	M10	2	RDMT1003 or RDMX1003	IMS3507A	ITK15	●
ICARDM302021100	21	30	10.5	M10	2				●
ICARDM303025120	25	35	12.5	M12	3				●
ICARDM303026120	26	35	12.5	M12	3				●
ICARDM303030120	30	35	12.5	M12	3		IMS3509A		●

● stock ○ by inquiry

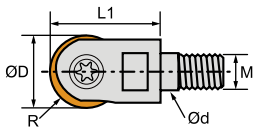
Insert Order Code

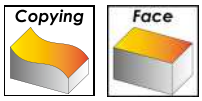
Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IRDKW0501MOE22HS	RDKW0501MOE-CX22HS	●	●	●		○	●
	IRDKW0501MOE32HS	RDKW0501MOE-CX32HS	●	●	●		○	○
	IRDKW0501MOE33TS	RDKW0501MOE-CX33TS	●	●	●		●	●
	IRDKW0501MOE43TS	RDKW0501MOE-CX43TS	●	●	●		●	
	IRDKW0702MOSF32HS	RDKW0702MOS-F-CX32HS	●	●	●		○	○
	IRDKW0702MOSF33TS	RDKW0702MOS-F-CX33TS	●	●	●		●	●
	IRDKW0501MOT22HS	RDKW0501MOT-CX22HS	●	●	●		○	●
	IRDKW0501MOT32HS	RDKW0501MOT-CX32HS	●	●	●		○	○
	IRDKW0501MOT33TS	RDKW0501MOT-CX33TS	●	●	●		●	●
	IRDKW0501MOT43TS	RDKW0501MOT-CX43TS	●	●	●		●	
	IRDKW0702MOE22HS	RDKW0702MOE-CX22HS	●	●	●		○	●
	IRDKW0702MOE32HS	RDKW0702MOE-CX32HS	●	●	●		○	○
	IRDKW0702MOE33TS	RDKW0702MOE-CX33TS	●	●	●		●	●
	IRDKW0702MOE43TS	RDKW0702MOE-CX43TS	●	●	●		●	
	IRDKW0702MOT22HS	RDKW0702MOT-CX22HS	●	●	●		○	●
	IRDKW0702MOT32HS	RDKW0702MOT-CX32HS	●	●	●		○	○
	IRDKW0702MOT33TS	RDKW0702MOT-CX33TS	●	●	●		●	●
	IRDKW0702MOT43TS	RDKW0702MOT-CX43TS	●	●	●		●	
	IRDMT1003MOE22HS	RDMT1003MOE-CX22HS	●	●	●		○	●
	IRDMT1003MOE32HS	RDMT1003MOE-CX32HS	●	●	●		○	○
	IRDMT1003MOE33TS	RDMT1003MOE-CX33TS	●	●	●		●	●
	IRDMT1003MOE43TS	RDMT1003MOE-CX43TS	●	●	●		●	
	IRDMT1003MOT22HS	RDMT1003MOT-CX22HS	●	●	●		○	●
	IRDMT1003MOT23TS	RDMT1003MOT-CX23TS	●	●	●		●	●
	IRDMT1003MOT32HS	RDMT1003MOT-CX32HS	●	●	●		○	○
	IRDMT1003MOT33TS	RDMT1003MOT-CX33TS	●	●	●		●	●
	IRDMT1003MOT43TS	RDMT1003MOT-CX43TS	●	●	●		●	

Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IRDMX1003MOE22HS	RDMX1003MOE-CX22HS	●	●	●		○	●
	IRDMX1003MOE32HS	RDMX1003MOE-CX32HS	●	●	●		○	○
	IRDMX1003MOE33TS	RDMX1003MOE-CX33TS	●	●	●		●	●
	IRDMX1003MOE43TS	RDMX1003MOE-CX43TS	●	●	●		●	
	IRDMX1003MOT22HS	RDMX1003MOT-CX22HS	●	●	●		○	●
	IRDMX1003MOT32HS	RDMX1003MOT-CX32HS	●	●	●		○	○
	IRDMX1003MOT33TS	RDMX1003MOT-CX33TS	●	●	●		●	●
	IRDMX1003MOT43TS	RDMX1003MOT-CX43TS	●	●	●		●	
	IRDMT10T3MOE22HS	RDMT10T3MOE-CX22HS	●	●	●		○	●
	IRDMT10T3MOE32HS	RDMT10T3MOE-CX32HS	●	●	●		○	○
	IRDMT10T3MOE33TS	RDMT10T3MOE-CX33TS	●	●	●		●	●
	IRDMT10T3MOE43TS	RDMT10T3MOE-CX43TS	●	●	●		●	
	IRDMT10T3MOT22HS	RDMT10T3MOT-CX22HS	●	●	●		○	●
	IRDMT10T3MOT32HS	RDMT10T3MOT-CX32HS	●	●	●		○	○
	IRDMT10T3MOT33TS	RDMT10T3MOT-CX33TS	●	●	●		●	●
	IRDMT10T3MOT43TS	RDMT10T3MOT-CX43TS	●	●	●		●	
	IRDMW10T3MOE32HS	RDMW10T3MOE-CX32HS	●	●	●		○	○
	IRDMW10T3MOE33TS	RDMW10T3MOE-CX33TS	●	●	●		●	●
	IRDMW10T3MOT32HS	RDMW10T3MOT-CX32HS	●	●	●		○	○
	IRDMW10T3MOT33TS	RDMW10T3MOT-CX33TS	●	●	●		●	●

CF21M suit for mould & die medium & finishing.





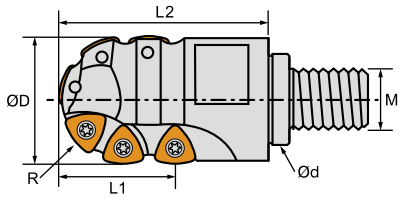
Order No.	R	D	L1	d	M	T	Inserts	Screw	Wrench	Stock
ICF21M302012060	6R	12	22	6.5	M6	2	WP3212 ..	IMGR5012	ITK20	●
ICF21M302012080	6R	12	30	8.5	M8	2				
ICF21M302016080	8R	16	28	8.5	M8	2	WP3216 ..	IMGR5016	ITK20	●
ICF21M302020100	10R	20	30	10.5	M10	2	WP3220 ..	IMGR5020	ITK20	●
ICF21M302025120	12.5R	25	40	12.5	M12	2	WP3225 ..	IMGR6025	ITK30	●
ICF21M302032160	16R	32	43	17	M16	2	WP3232 ..	IMGR8030	ITK30	●

● stock ○ by inquiry

Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IWP3212SM22HS	WP3212-SM-CX22HS	●	●	●		○	●
	IWP3216SM22HS	WP3216-SM-CX22HS	●	●	●		○	●
	IWP3220SM22HS	WP3220-SM-CX22HS	●	●	●		○	●
	IWP3225SM22HS	WP3225-SM-CX22HS	●	●	●		○	●
	IWP3232SM22HS	WP3232-SM-CX22HS	●	●	●		○	●
	IWP3212MM22HS	WP3212-MM-CX22HS	●	●	●		○	●
	IWP3216MM22HS	WP3216-MM-CX22HS	●	●	●		○	●
	IWP3220MM22HS	WP3220-MM-CX22HS	●	●	●		○	●
	IWP3225MM22HS	WP3225-MM-CX22HS	●	●	●		○	●
	IWP3232MM22HS	WP3232-MM-CX22HS	●	●	●		○	●

CF22M suit for mould & die roughing.



Order No.	R	D	L1	L2	d	M	T	Inserts	Screw	Wrench	Stock
ICF22M202025120	12.5R	25	21	42	12.5	M12	2	WP26339R14	ITS4023	ITK15	●
ICF22M202030120	15R	30	23	50	12.5	M12	2				●
ICF22M202032160	16R	32	23	50	17.0	M16	2				●
ICF22M202040180	20R	40	38	65	28.0	M18	2	WP26379R25	ITS5007	ITK20	○
ICF22M202050250	25R	50	45	80	36.0	M25	2				○

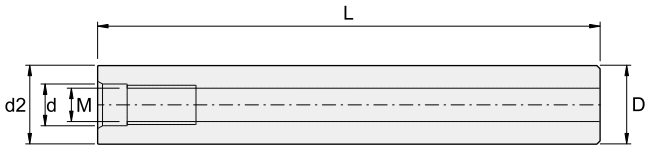
● stock ○ by inquiry

Customize available.

Insert Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IWP26314RG22HS	WP26339R14-RG-CX22HS	●	●	●		○	●
	IWP26314RG23TS	WP26339R14-RG-CX23TS	●	●	●		●	●
	IWP26314RG32HS	WP26339R14-RG-CX32HS	●	●	●		○	○
	IWP26314RG33TS	WP26339R14-RG-CX33TS	●	●	●		●	●
	IWP26725RG22HS	WP26379R25-RG-CX22HS	●	●	●		○	●
	IWP26725RG23TS	WP26379R25-RG-CX23TS	●	●	●		●	●
	IWP26725RG32HS	WP26379R25-RG-CX32HS	●	●	●		○	○
	IWP26725RG33TS	WP26379R25-RG-CX33TS	●	●	●		●	●

SWMEA - Carbide Adapter (Straight)

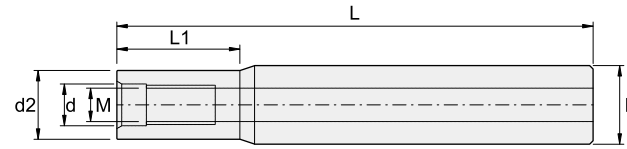


Straight

Order No.	Dimensions (mm)				
	d2	d	L	D	M
ISWMEA10075050	10	5.5	75	10	M5
ISWMEA10100050	10	5.5	100	10	M5
ISWMEA10150050	10	5.5	150	10	M5
ISWMEA10100060	10	5.5	100	10	M6
ISWMEA10150060	10	5.5	150	10	M6
ISWMEA11100060	11	6.5	100	11	M6
ISWMEA11150060	11	6.5	150	11	M6
ISWMEA12075060	12	6.5	75	12	M6
ISWMEA12100060	12	6.5	100	12	M6
ISWMEA12150060	12	6.5	150	12	M6
ISWMEA12200060	12	6.5	200	12	M6
ISWMEA15100080	15	8.5	100	15	M8
ISWMEA15150080	15	8.5	150	15	M8
ISWMEA15200080	15	8.5	200	15	M8
ISWMEA16100080	16	8.5	100	16	M8
ISWMEA16150080	16	8.5	150	16	M8
ISWMEA16200080	16	8.5	200	16	M8
ISWMEA16250080	16	8.5	250	16	M8
ISWMEA20100100	20	10.5	100	20	M10
ISWMEA20150100	20	10.5	150	20	M10
ISWMEA20200100	20	10.5	200	20	M10
ISWMEA20250100	20	10.5	250	20	M10
ISWMEA20300100	20	10.5	300	20	M10
ISWMEA25100120	25	12.5	100	25	M12
ISWMEA25150120	25	12.5	150	25	M12
ISWMEA25200120	25	12.5	200	25	M12
ISWMEA25250120	25	12.5	250	25	M12
ISWMEA25300120	25	12.5	300	25	M12
ISWMEA32200160	32	17.0	200	32	M16
ISWMEA32300160	32	17.0	300	32	M16

Customize available.

SWMEB - Carbide Adapter (Straight Neck)

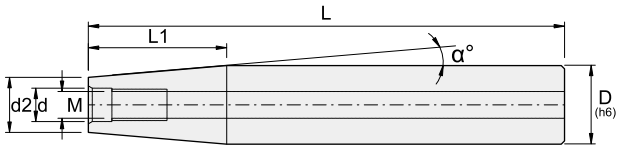


Straight Neck

Order No.	Dimensions (mm)					
	d2	d	L1	L	D	M
ISWMEB12100060	11.5	6.5	24	100	12	M6
ISWMEB12100061	11.5	6.5	40	100	12	M6
ISWMEB12100062	11.5	6.5	60	100	12	M6
ISWMEB12150060	11.5	6.5	24	150	12	M6
ISWMEB12150061	11.5	6.5	100	150	12	M6
ISWMEB16150082	13.0	8.5	32	150	16	M8
ISWMEB16150080	15.0	8.5	30	150	16	M8
ISWMEB16150081	15.0	8.5	100	150	16	M8
ISWMEB16200080	15.0	8.5	40	200	16	M8
ISWMEB16200081	15.0	8.5	120	200	16	M8
ISWMEB20150102	17.0	10.5	40	150	20	M10
ISWMEB20150100	19.0	10.5	40	150	20	M10
ISWMEB20150101	19.0	10.5	100	150	20	M10
ISWMEB20200100	19.0	10.5	40	200	20	M10
ISWMEB20200101	19.0	10.5	120	200	20	M10
ISWMEB25150120	24.0	12.5	48	150	25	M12
ISWMEB25150121	24.0	12.5	100	150	25	M12
ISWMEB25200120	24.0	12.5	48	200	25	M12
ISWMEB25200121	24.0	12.5	100	200	25	M12

Customize available.

SWMET - Carbide Adapter (Taper Neck)

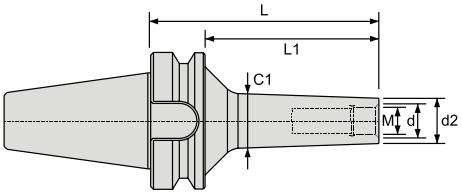


Taper Neck

Order No.	Dimensions (mm)						
	d2	d	α°	L1	L	D	M
ISWMET12150050	9.8	5.5	1°	60	150	12	M5
ISWMET12150060	9.8	5.5	1°	60	150	12	M6
ISWMET16150060	11.8	6.5	1.5°	70	150	16	M6
ISWMET20200080	15.5	8.5	1.5°	90	200	20	M8
ISWMET25200100	19.8	10.5	1.5°	90	200	25	M10
ISWMET32200120	24.5	12.5	2	90	200	32	M12

Customize available.

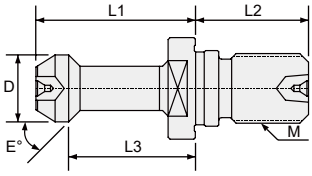
BT40/50 - Replaceable Integrated Shank



Order No.	d2	d	C1	L1	L	M	Arbor Type
IBT40DM08050	13	8.5	15	23	50	M8	BT40
IBT40DM10057	18	10.5	21	30	57	M10	
IBT40DM12080	21	12.5	25	53	80	M12	
IBT40DM16087	28	17.0	31	60	87	M16	
IBT40FMC403060	36	28.0	40	30	60	M18	
IBT40FMC406090	36	28.0	40	60	90	M18	
IBT50FMC5003065	48	36.0	50	30	65	M25	BT50
IBT50FMC50080115	48	36.0	50	80	115	M25	
IBT50FMC50130165	48	36.0	50	130	165	M25	

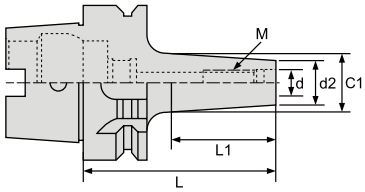
Customize available.

Pull Studs



Order No.	Dimensions (mm)						For Shank
	L1	L2	L3	D	E°	M	
IP40T01	35	25	28	15	45°	M16	BT40
IP40T02	35	25	28	15	60°	M16	BT40
IP50T01	45	40	35	23	45°	M24	BT50
IP50T02	45	40	35	23	60°	M24	BT50

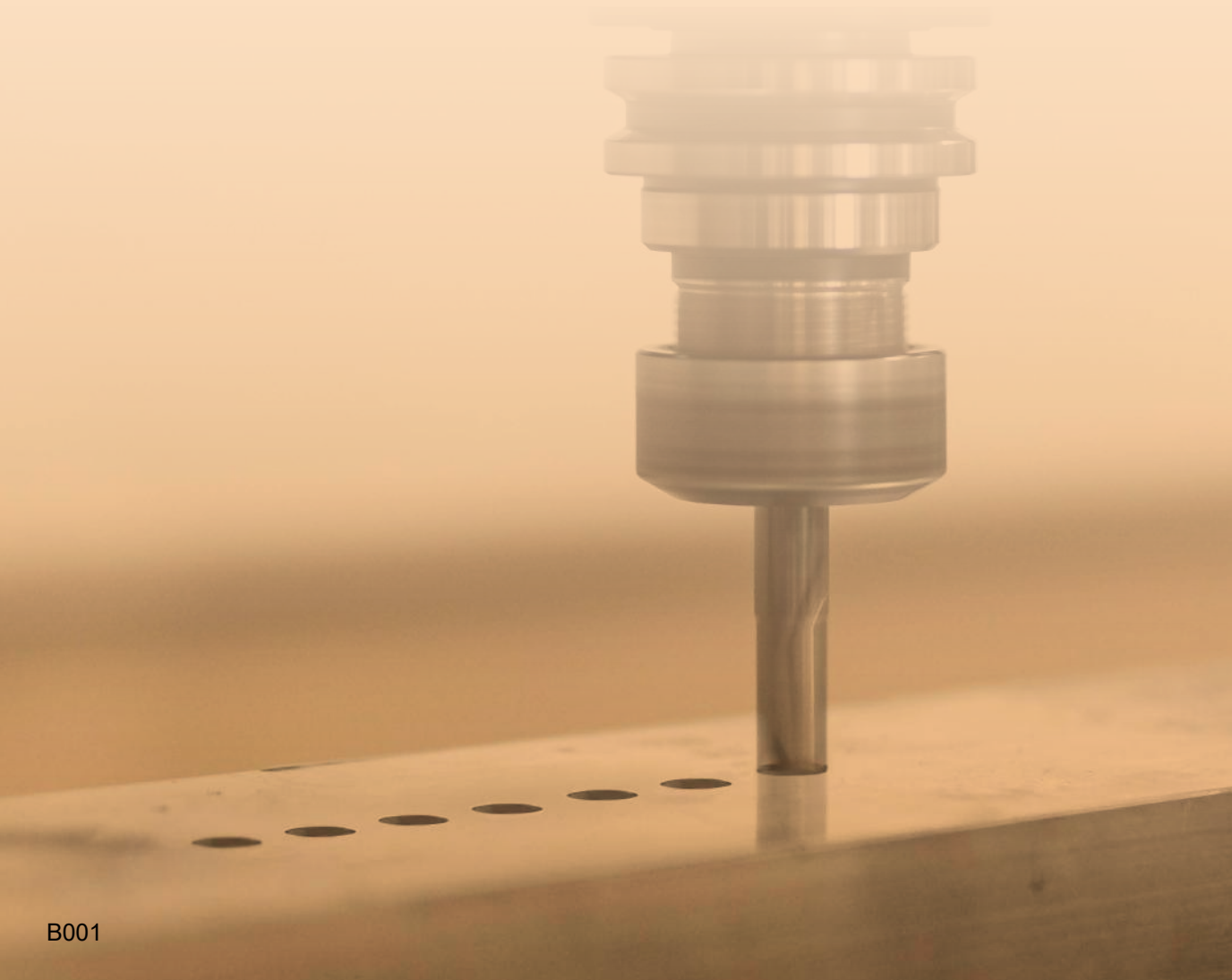
HSK63 - Replaceable Integrated Shank



Order No.	d2	d	C1	L1	L	M
IHSK63AM08050	17	8.5	18	16	50	M8×P1.25
IHSK63AM10060	18	10.5	23	26	60	M10×P1.5
IHSK63AM10080	20	10.5	24	44	80	M10×P1.5
IHSK63AM12060	23	12.5	24	26	60	M12×P1.75
IHSK63AM12080	21	12.5	24	44	80	M12×P1.75
IHSK63AM16080	29	17	34	46	80	M16×P2.0
IHSK63AM16100	34	17	34	66	100	M16×P2.0

Holemaking

Solid Carbide Drills..... B002
Modular Drills..... B047
Indexable Drills..... B051
Spotting & Centering Drills..... B074
Solid Carbide Reamers..... B088
Indexable Boring Tools..... B094



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DLN - for Universal, Mini, External Coolant, Ø0.18 ~ Ø3.0mm, 2D~15D.....B021
DMC - for Stainless steel, Internal Coolant, Ø4~Ø20mm, 3D~5D.....B024
DMN - for Stainless steel, External Coolant, Ø4~Ø20mm, 3D.....B026
DHN - for High temperature alloy, External Coolant, Ø0.9~Ø12mm, 3D.....B028
DFN - Flat, External Coolant, Ø3~Ø20mm, 3D.....B031
DZC - Step, Internal Coolant, Ø3.3~Ø8.5mm, 3D.....B034
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High Performance Series												
DP Series for Universal (Reinforced Shank)												
	DPC - Internal Coolant · 3D	DPC3	Internal	Ø3~Ø20	140	●	○	●	○	○	○	B006
	DPC - Internal Coolant · 5D	DPC5	Internal	Ø3~Ø20	140	●	○	●	○	○	○	B008
	DPC - Internal Coolant · 7D	DPC7	Internal	Ø4~Ø16	140	●	○	●	○	○	○	B010
	DPC - Internal Coolant · 10D	DPC9	Internal	Ø3~Ø12	135	●	○	●	○	○	○	B011
	DPC - Internal Coolant · 15D	DPC9	Internal	Ø3~Ø12	135	●	○	●	○	○	○	B012
	DPC - Internal Coolant · 20D	DPC9	Internal	Ø3~Ø10	135	●	○	●	○	○	○	B013
	DPN - External Coolant · 3D	DPN3	External	Ø3~Ø20	140	●	○	●	○	○	○	B014
	DPN - External Coolant · 5D	DPN5	External	Ø3~Ø20	140	●	○	●	○	○	○	B016
DL Series for Universal Mini Hole (Reinforced Shank)												
	DLC - Internal Coolant · 3D~20D	DLC	Internal	Ø1.2~Ø3	135, 140	●	○	●	○	○	○	B019
	DLN - External Coolant · 2D~15D	DLN	External	Ø0.18~Ø3	130	●	○	●	○	○	○	B021
DM Series for Stainless steel (Reinforced Shank)												
	DMC - Internal Coolant · 3D	DMC3	Internal	Ø4~Ø20	140	●	●	●	○	●		B024
	DMC - Internal Coolant · 5D	DMC5	Internal	Ø3.4~Ø20	140	●	●	●	○	●		B025
	DMN - External Coolant · 3D	DMN3	External	Ø4~Ø20	140	●	●	●	○	●		B026
DH Series for High temperature alloy & Hardened steel (Reinforced Shank)												
	DHN - External Coolant · 3D	DHN3	External	Ø0.9~Ø12	140	○	○	○		●	●	B028

Index

Appearance	Items	Series	Coolant	ØRange	Degree Tip Angle	Work Materials P	M	K	N	S	H	Page
High Performance Series												
DF Series with Flat Tip												
	DFN - External Coolant · 3D	DFN3	External	Ø2.2~Ø20	180	●	○	●				B031
DZ Series for Step Hole (Reinforced Shank)												
	DZC - Internal Coolant · 3D	DZC	Internal	Ø3.3~Ø8.5	140	●	●	●			○	B034
	DZN - External Coolant · 3D	DZN	External	Ø3.3~Ø8.5	140	●	○	●				B035
DA Series with Straight Flute												
	DAN - External Coolant · 3D	DAN3	External	Ø4~Ø16	130	○		●	●			B037
	DAN - External Coolant · 5D	DAN5	External	Ø4~Ø16	130	○		●	●			B038

General Purpose Series

DG Series for Universal (Straight Shank)												
	DGN - External Coolant · 3D	DGN3	External	Ø2~Ø16	130	●	○	●				B040
	DGN - External Coolant · 5D	DGN5	External	Ø5~Ø16	130	●	○	●				B042

DPC, DPN for Universal Drilling

Features

- Superior Rigidity
- High Cutting Performance
- Customized Service
- For Steel & Cast iron
- 3xD to 20xD Cutting Depth

Specs

- UNIX Coating
- 135°, 140° TIP ANGLE
- Reinfored Shank

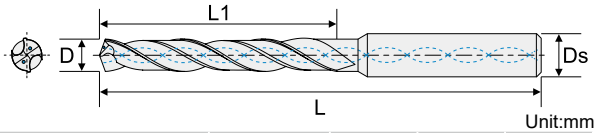
WINSTAR

DPC - for Universal · Internal Coolant · 3D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 3×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- Internal Coolant
- UNIX Coating
- Tolerance h8 standard / m7 possible on request
- Double Margins Design
- SX Design



Unit:mm

Order No.	D	L1	L	Ds
DPC303000341	3.00	20	60	4
DPC303100341	3.10	20	60	4
DPC303170341	3.17(1/8")	20	60	4
DPC303200341	3.20	20	60	4
DPC303300341	3.30	20	60	4
DPC303400341	3.40	20	60	4
DPC303500341	3.50	20	60	4
DPC303600341	3.60	20	60	4
DPC303700341	3.70	20	60	4
DPC303800341	3.80	24	60	4
DPC303900341	3.90	24	60	4
DPC304000301	4.00	24	66	6
DPC304100301	4.10	24	66	6
DPC304200301	4.20	24	66	6
DPC304300301	4.30	24	66	6
DPC304400301	4.40	24	66	6
DPC304500301	4.50	24	66	6
DPC304600301	4.60	24	66	6
DPC304650301	4.65(13/71")	24	66	6
DPC304700301	4.70	24	66	6
DPC304760301	4.76(3/16")	28	66	6
DPC304800301	4.80	28	66	6
DPC304900301	4.90	28	66	6
DPC305000301	5.00	28	66	6
DPC305100301	5.10	28	66	6
DPC305200301	5.20	28	66	6
DPC305300301	5.30	28	66	6
DPC305400301	5.40	28	66	6
DPC305500301	5.50	28	66	6
DPC305560301	5.56	28	66	6
DPC305600301	5.60	28	66	6
DPC305700301	5.70	28	66	6
DPC305800301	5.80	28	66	6
DPC305900301	5.90	28	66	6
DPC306000301	6.00	28	66	6
DPC306100301	6.10	34	79	8
DPC306200301	6.20	34	79	8
DPC306300301	6.30	34	79	8
DPC306350301	6.35(1/4")	34	79	8
DPC306400301	6.40	34	79	8
DPC306500301	6.50	34	79	8
DPC306600301	6.60	34	79	8
DPC306700301	6.70	34	79	8
DPC306800301	6.80	34	79	8
DPC306900301	6.90	34	79	8
DPC307000301	7.00	34	79	8
DPC307100301	7.10	41	79	8
DPC307200301	7.20	41	79	8

Order No.	D	L1	L	Ds
DPC307300301	7.30	41	79	8
DPC307400301	7.40	41	79	8
DPC307500301	7.50	41	79	8
DPC307600301	7.60	41	79	8
DPC307700301	7.70	41	79	8
DPC307800301	7.80	41	79	8
DPC307900301	7.90	41	79	8
DPC307940301	7.94(5/16)	41	79	8
DPC308000301	8.00	41	79	8
DPC308100301	8.10	47	89	10
DPC308200301	8.20	47	89	10
DPC308300301	8.30	47	89	10
DPC308400301	8.40	47	89	10
DPC308500301	8.50	47	89	10
DPC308600301	8.60	47	89	10
DPC308700301	8.70	47	89	10
DPC308800301	8.80	47	89	10
DPC308900301	8.90	47	89	10
DPC309000301	9.00	47	89	10
DPC309100301	9.10	47	89	10
DPC309200301	9.20	47	89	10
DPC309250301	9.25(23/64")	47	89	10
DPC309300301	9.30	47	89	10
DPC309400301	9.40	47	89	10
DPC309500301	9.50	47	89	10
DPC309520301	9.52(3/8")	47	89	10
DPC309600301	9.60	47	89	10
DPC309700301	9.70	47	89	10
DPC309800301	9.80	47	89	10
DPC309900301	9.90	47	89	10
DPC310000301	10.00	47	89	10
DPC310100301	10.10	55	102	12
DPC310200301	10.20	55	102	12
DPC310300301	10.30	55	102	12
DPC310400301	10.40	55	102	12
DPC310500301	10.50	55	102	12
DPC310600301	10.60	55	102	12
DPC310700301	10.70	55	102	12
DPC310800301	10.80	55	102	12
DPC310900301	10.90	55	102	12
DPC311000301	11.00	55	102	12
DPC311100301	11.10	55	102	12
DPC311110301	11.11(7/16")	55	102	12
DPC311200301	11.20	55	102	12
DPC311300301	11.30	55	102	12
DPC311400301	11.40	55	102	12
DPC311500301	11.50	55	102	12
DPC311600301	11.60	55	102	12

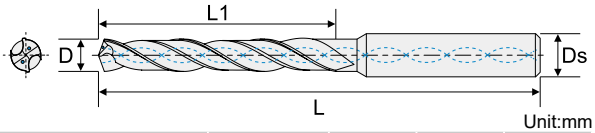
Cutting conditions : Table 01

DPC - for Universal · Internal Coolant · 3D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 3×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- Internal Coolant
- UNIX Coating
- Tolerance h8 standard / m7 possible on request
- Double Margins Design
- SX Design



Unit:mm

Order No.	D	L1	L	Ds
DPC311700301	11.70	55	102	12
DPC311800301	11.80	55	102	12
DPC311900301	11.90	55	102	12
DPC312000301	12.00	55	102	12
DPC312100301	12.10	60	107	14
DPC312200301	12.20	60	107	14
DPC312300301	12.30	60	107	14
DPC312400301	12.40	60	107	14
DPC312500301	12.50	60	107	14
DPC312600301	12.60	60	107	14
DPC312700301	12.70(1/2")	60	107	14
DPC312800301	12.80	60	107	14
DPC312900301	12.90	60	107	14
DPC313000301	13.00	60	107	14
DPC313200301	13.20	60	107	14
DPC313300301	13.30	60	107	14
DPC313500301	13.50	60	107	14
DPC313700301	13.70	60	107	14
DPC313800301	13.80	60	107	14
DPC314000301	14.00	60	107	14
DPC314200301	14.20	65	115	16
DPC314290301	14.29(9/16")	65	115	16
DPC314300301	14.30	65	115	16
DPC314400301	14.40	65	115	16
DPC314500301	14.50	65	115	16
DPC314700301	14.70	65	115	16
DPC315000301	15.00	65	115	16
DPC315200301	15.20	65	115	16
DPC315500301	15.50	65	115	16
DPC315600301	15.60	65	115	16
DPC315700301	15.70	65	115	16
DPC315800301	15.80	65	115	16
DPC315870301	15.87(5/8")	65	115	16
DPC316000301	16.00	65	115	16
DPC316500301	16.50	73	123	18
DPC317000301	17.00	73	123	18
DPC317500301	17.50	73	123	18
DPC318000301	18.00	73	123	18
DPC318500301	18.50	79	131	20
DPC319000301	19.00	79	131	20
DPC319050301	19.05(3/4")	79	131	20
DPC319500301	19.50	79	131	20
DPC320000301	20.00	79	131	20

Order No.	D	L1	L	Ds

Cutting conditions : Table 01

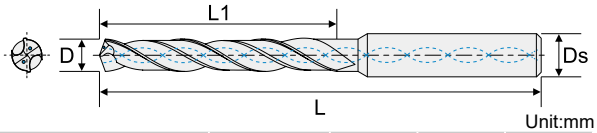
WINSTAR

DPC - for Universal · Internal Coolant · 5D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 5×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- Internal Coolant
- UNIX Coating
- Tolerance h8 standard / m7 possible on request
- Double Margins Design
- SX Design



Unit:mm

Order No.	D	L1	L	Ds
DPC503000541	3.00	28	60	4
* DPC503170541	3.17(1/8")	28	60	4
DPC503250541	3.25	28	60	4
DPC503300541	3.30	28	60	4
DPC503400541	3.40	28	60	4
DPC503500541	3.50	28	60	4
DPC503600541	3.60	28	60	4
DPC503700541	3.70	28	60	4
DPC503800541	3.80	36	74	4
DPC503970541	3.97(5/32")	36	74	4
DPC504000501	4.00	36	74	6
DPC504100501	4.10	36	74	6
DPC504200501	4.20	36	74	6
DPC504300501	4.30	36	74	6
DPC504400501	4.40	36	74	6
DPC504500501	4.50	36	74	6
DPC504600501	4.60	36	74	6
DPC504650501	4.65(13/71")	36	74	6
DPC504700501	4.70	36	74	6
DPC504760501	4.76(3/16")	44	82	6
DPC504800501	4.80	44	82	6
DPC504900501	4.90	44	82	6
DPC505000501	5.00	44	82	6
DPC505100501	5.10	44	82	6
DPC505200501	5.20	44	82	6
DPC505300501	5.30	44	82	6
DPC505400501	5.40	44	82	6
DPC505500501	5.50	44	82	6
DPC505550501	5.55(7/32")	44	82	6
DPC505600501	5.60	44	82	6
DPC505700501	5.70	44	82	6
DPC505800501	5.80	44	82	6
DPC505900501	5.90	44	82	6
DPC506000501	6.00	44	82	6
DPC506100501	6.10	53	91	8
DPC506200501	6.20	53	91	8
DPC506300501	6.30	53	91	8
DPC506350501	6.35(1/4")	53	91	8
DPC506400501	6.40	53	91	8
DPC506500501	6.50	53	91	8
DPC506600501	6.60	53	91	8
DPC506700501	6.70	53	91	8
DPC506800501	6.80	53	91	8
DPC506900501	6.90	53	91	8
DPC507000501	7.00	53	91	8
DPC507100501	7.10	53	91	8
DPC507200501	7.20	53	91	8
DPC507300501	7.30	53	91	8

Order No.	D	L1	L	Ds
DPC507400501	7.40	53	91	8
DPC507500501	7.50	53	91	8
DPC507600501	7.60	53	91	8
DPC507700501	7.70	53	91	8
DPC507800501	7.80	53	91	8
DPC507900501	7.90	53	91	8
DPC507940501	7.94(5/16")	53	91	8
DPC508000501	8.00	53	91	8
DPC508100501	8.10	61	103	10
DPC508200501	8.20	61	103	10
DPC508300501	8.30	61	103	10
DPC508400501	8.40	61	103	10
DPC508500501	8.50	61	103	10
DPC508600501	8.60	61	103	10
DPC508700501	8.70	61	103	10
DPC508800501	8.80	61	103	10
DPC508900501	8.90	61	103	10
DPC509000501	9.00	61	103	10
DPC509100501	9.10	61	103	10
DPC509200501	9.20	61	103	10
DPC509250501	9.25(23/64")	61	103	10
DPC509300501	9.30	61	103	10
DPC509400501	9.40	61	103	10
DPC509500501	9.50	61	103	10
DPC509520501	9.52(3/8")	61	103	10
DPC509600501	9.60	61	103	10
DPC509700501	9.70	61	103	10
DPC509800501	9.80	61	103	10
DPC509900501	9.90	61	103	10
DPC510000501	10.00	61	103	10
DPC510100501	10.10	71	118	12
DPC510200501	10.20	71	118	12
DPC510300501	10.30	71	118	12
DPC510400501	10.40	71	118	12
DPC510500501	10.50	71	118	12
DPC510600501	10.60	71	118	12
DPC510700501	10.70	71	118	12
DPC510800501	10.80	71	118	12
DPC510900501	10.90	71	118	12
DPC511000501	11.00	71	118	12
DPC511100501	11.10	71	118	12
DPC511110501	11.11(7/16")	71	118	12
DPC511200501	11.20	71	118	12
DPC511300501	11.30	71	118	12
DPC511400501	11.40	71	118	12
DPC511500501	11.50	71	118	12
DPC511600501	11.60	71	118	12
DPC511700501	11.70	71	118	12

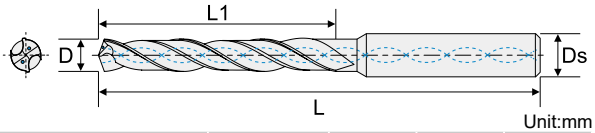
Cutting conditions : Table 01

DPC - for Universal · Internal Coolant · 5D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 5×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- Internal Coolant
- UNIX Coating
- Tolerance h8 standard / m7 possible on request
- Double Margins Design
- SX Design



Unit:mm

Order No.	D	L1	L	Ds
DPC511800501	11.80	71	118	12
DPC511900501	11.90	71	118	12
DPC512000501	12.00	71	118	12
DPC512100501	12.10	77	124	14
DPC512200501	12.20	77	124	14
DPC512300501	12.30	77	124	14
DPC512400501	12.40	77	124	14
DPC512500501	12.50	77	124	14
DPC512600501	12.60	77	124	14
DPC512700501	12.70(1/2")	77	124	14
DPC512800501	12.80	77	124	14
DPC512900501	12.90	77	124	14
DPC513000501	13.00	77	124	14
DPC513100501	13.10	77	124	14
DPC513300501	13.30	77	124	14
DPC513400501	13.40	77	124	14
DPC513500501	13.50	77	124	14
DPC513600501	13.60	77	124	14
DPC513700501	13.70	77	124	14
DPC513800501	13.80	77	124	14
DPC513900501	13.90	77	124	14
DPC514000501	14.00	77	124	14
DPC514100501	14.10	83	133	16
DPC514200501	14.20	83	133	16
DPC514290501	14.29(9/16")	83	133	16
DPC514300501	14.30	83	133	16
DPC514400501	14.40	83	133	16
DPC514500501	14.50	83	133	16
DPC514600501	14.60	83	133	16
DPC514700501	14.70	83	133	16
DPC514800501	14.80	83	133	16
DPC514900501	14.90	83	133	16
DPC515000501	15.00	83	133	16
DPC515100501	15.10	83	133	16
DPC515200501	15.20	83	133	16
DPC515300501	15.30	83	133	16
DPC515400501	15.40	83	133	16
DPC515500501	15.50	83	133	16
DPC515600501	15.60	83	133	16
DPC515700501	15.70	83	133	16
DPC515800501	15.80	83	133	16
DPC515870501	15.87(5/8")	83	133	16
DPC515900501	15.90	83	133	16
DPC516000501	16.00	83	133	16
DPC516500501	16.50	93	143	18
DPC517000501	17.00	93	143	18
DPC517500501	17.50	93	143	18
DPC518000501	18.00	93	143	18

Order No.	D	L1	L	Ds
DPC518500501	18.50	101	153	20
DPC519000501	19.00	101	153	20
DPC519050501	19.05(3/4")	101	153	20
DPC519500501	19.50	101	153	20
DPC520000501	20.00	101	153	20

Cutting conditions : Table 01

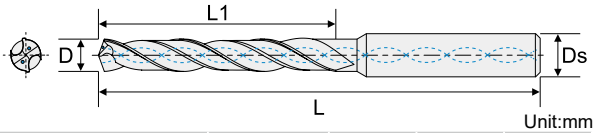
WINSTAR

DPC - for Universal · Internal Coolant · 7D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 7×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- Internal Coolant
- UNIX Coating
- Tolerance h8 standard
- Double Margins Design
- SX Design



Unit:mm

Order No.	D	L1	L	Ds
* DPC704000701	4.00	40	80	6
* DPC704100701	4.10	40	80	6
* DPC704200701	4.20	40	80	6
* DPC704300701	4.30	45	80	6
* DPC704400701	4.40	45	80	6
* DPC704500701	4.50	45	80	6
* DPC704600701	4.60	45	80	6
* DPC704650701	4.65(13/71")	45	80	6
* DPC704700701	4.70	45	80	6
* DPC704800701	4.80	50	97	6
* DPC704900701	4.90	50	97	6
* DPC705000701	5.00	50	97	6
* DPC705100701	5.10	50	97	6
* DPC705200701	5.20	50	97	6
* DPC705300701	5.30	50	97	6
DPC705400701	5.40	57	97	6
DPC705500701	5.50	57	97	6
DPC705700701	5.70	57	97	6
DPC705800701	5.80	57	97	6
DPC705900701	5.90	57	97	6
DPC706000701	6.00	57	97	6
DPC706200701	6.20	66	106	8
DPC706300701	6.30	66	106	8
DPC706350701	6.35(1/4")	66	106	8
DPC706500701	6.50	66	106	8
DPC706600701	6.60	66	106	8
DPC706700701	6.70	66	106	8
DPC706800701	6.80	66	106	8
DPC706900701	6.90	76	116	8
DPC707000701	7.00	76	116	8
DPC707100701	7.10	76	116	8
DPC707200701	7.20	76	116	8
DPC707500701	7.50	76	116	8
DPC707600701	7.60	76	116	8
DPC707700701	7.70	76	116	8
DPC707800701	7.80	76	116	8
DPC708000701	8.00	76	116	8
DPC708100701	8.10	87	131	10
DPC708200701	8.20	87	131	10
DPC708400701	8.40	87	131	10
DPC708500701	8.50	87	131	10
DPC708600701	8.60	87	131	10
DPC708700701	8.70	87	131	10
DPC708800701	8.80	87	131	10
DPC708900701	8.90	87	131	10
DPC709000701	9.00	95	139	10

Order No.	D	L1	L	Ds
DPC709100701	9.10	95	139	10
DPC709200701	9.20	95	139	10
DPC709300701	9.30	95	139	10
DPC709400701	9.40	95	139	10
DPC709500701	9.50	95	139	10
DPC709520701	9.52	95	139	10
DPC709700701	9.70	95	139	10
DPC709800701	9.80	95	139	10
DPC710000701	10.00	95	139	10
DPC710200701	10.20	106	155	12
DPC710300701	10.30	106	155	12
DPC710500701	10.50	106	155	12
DPC710720701	10.72(27/64")	106	155	12
DPC710800701	10.80	106	155	12
DPC711000701	11.00	106	155	12
DPC711200701	11.20	114	155	12
DPC711500701	11.50	114	155	12
DPC711800701	11.80	114	155	12
DPC712000701	12.00	114	155	12
DPC712100701	12.10	133	182	14
DPC712200701	12.20	133	182	14
DPC712300701	12.30	133	182	14
DPC712500701	12.50	133	182	14
DPC712700701	12.70	133	182	14
DPC713000701	13.00	133	182	14
DPC713500701	13.50	133	182	14
DPC714000701	14.00	133	182	14
DPC714100701	14.10	152	200	16
DPC714200701	14.20	152	200	16
DPC714500701	14.50	152	200	16
DPC715000701	15.00	152	200	16
DPC715500701	15.50	152	200	16
DPC715870701	15.87	152	200	16
DPC716000701	16.00	152	200	16

* Made to order

Cutting conditions : Table 01

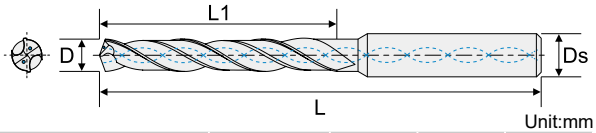
DPC - for Universal · Internal Coolant · 10D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 10×D Cutting depth
- Reinforced Shank
- 135° Tip Angle
- Internal Coolant
- UNIX Coating
- Tolerance h8
- Double Margins Design
- SX Design

※Require an initial pilot hole to guide the drill.



Unit:mm

Order No.	D	L1	L	Ds
DPC903001001	3.00	48	100	4
DPC903501001	3.50	48	100	4
DPC904001001	4.00	48	100	4
DPC904501001	4.50	72	125	6
DPC905001001	5.00	72	125	6
DPC905501001	5.50	72	125	6
DPC906001001	6.00	72	125	6
DPC906501001	6.50	96	150	8
DPC907001001	7.00	96	150	8
DPC907501001	7.50	96	150	8
DPC908001001	8.00	96	150	8
DPC908501001	8.50	120	175	10
DPC909001001	9.00	120	175	10
DPC909501001	9.50	120	175	10
DPC910001001	10.00	120	175	10
DPC911001001	11.00	132	200	12
DPC912001001	12.00	144	200	12

Order No.	D	L1	L	Ds

＊ Made to order

Cutting conditions : Table 01

WINSTAR

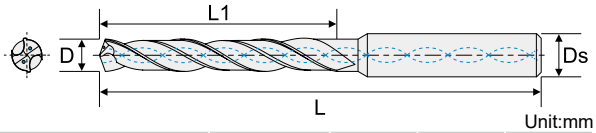
DPC - for Universal · Internal Coolant · 15D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 15×D Cutting depth
- Reinforced Shank
- 135° Tip Angle
- Internal Coolant
- UNIX Coating
- Tolerance h8
- Double Margins Design
- SX Design

※Require an initial pilot hole to guide the drill.



Unit:mm

Order No.	D	L1	L	Ds
* DPC903001501	3.00	55	100	4
DPC903501501	3.50	76	116	4
DPC904001501	4.00	76	116	4
DPC904501501	4.50	93	133	6
DPC905001501	5.00	93	133	6
DPC905501501	5.50	110	150	6
DPC906001501	6.00	110	150	6
DPC906501501	6.50	127	167	8
DPC907001501	7.00	127	167	8
DPC907501501	7.50	143	183	8
DPC908001501	8.00	143	183	8
DPC908501501	8.50	160	204	10
DPC909001501	9.00	160	204	10
DPC909501501	9.50	177	221	10
DPC910001501	10.00	177	221	10
DPC911001501	11.00	198	247	12
DPC912001501	12.00	214	263	12

Order No.	D	L1	L	Ds

＊ Made to order

Cutting conditions : Table 01

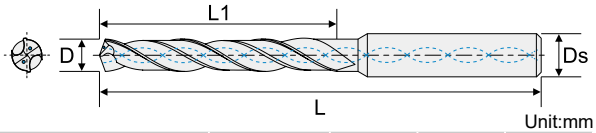
DPC - for Universal · Internal Coolant · 20D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 20×D Cutting depth
- Reinforced Shank
- 135° Tip Angle
- Internal Coolant
- UNIX Coating
- Tolerance h8
- Double Margins Design
- SX Design

※Require an initial pilot hole to guide the drill.



Unit:mm

Order No.	D	L1	L	Ds
DPC903002001	3.00	70	110	4
DPC903502001	3.50	83	123	4
DPC904002001	4.00	96	136	4
DPC904502001	4.50	118	158	6
DPC905002001	5.00	118	158	6
DPC905502001	5.50	140	180	6
DPC906002001	6.00	140	180	6
DPC906502001	6.50	162	202	8
DPC907002001	7.00	162	202	8
DPC907502001	7.50	183	223	8
DPC908002001	8.00	183	223	8
DPC908502001	8.50	205	249	10
DPC909002001	9.00	205	249	10
DPC909502001	9.50	227	271	10
DPC910002001	10.00	227	271	10

Order No.	D	L1	L	Ds

＊ Made to order

Cutting conditions : Table 01

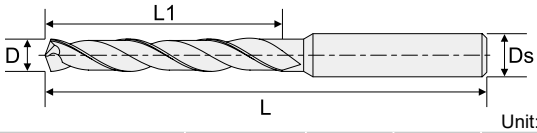
WINSTAR

DPN - for Universal · External Coolant · 3D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 3×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h8 standard / m7 possible on request
- SX Design



Unit:mm

Order No.	D	L1	L	Ds
DPN303000341	3.00	20	60	4
DPN303100341	3.10	20	60	4
DPN303170341	3.17(1/8")	20	60	4
DPN303200341	3.20	20	60	4
DPN303250341	3.25(5/39")	20	60	4
DPN303300341	3.30	20	60	4
DPN303400341	3.40	20	60	4
DPN303500341	3.50	20	60	4
DPN303600341	3.60	20	60	4
DPN303700341	3.70	20	60	4
DPN303800341	3.80	24	60	4
DPN303900341	3.90	24	60	4
DPN303970341	3.97(5/32")	24	60	4
DPN303000301	3.00	20	62	6
DPN303100301	3.10	20	62	6
DPN303170301	3.17(1/8")	20	62	6
DPN303200301	3.20	20	62	6
DPN303230301	3.23	20	62	6
DPN303250301	3.25(5/39")	20	62	6
DPN303300301	3.30	20	62	6
DPN303400301	3.40	20	62	6
DPN303500301	3.50	20	62	6
DPN303600301	3.60	20	62	6
DPN303700301	3.70	20	62	6
DPN303800301	3.80	24	66	6
DPN303900301	3.90	24	66	6
DPN303970301	3.97(5/32")	24	66	6
DPN304000301	4.00	24	66	6
DPN304100301	4.10	24	66	6
DPN304200301	4.20	24	66	6
DPN304300301	4.30	24	66	6
DPN304400301	4.40	24	66	6
DPN304500301	4.50	24	66	6
DPN304600301	4.60	24	66	6
DPN304650301	4.65(13/71")	24	66	6
DPN304700301	4.70	24	66	6
DPN304760301	4.76(3/16")	28	66	6
DPN304800301	4.80	28	66	6
DPN304900301	4.90	28	66	6
DPN305000301	5.00	28	66	6
DPN305100301	5.10	28	66	6
DPN305200301	5.20	28	66	6
DPN305300301	5.30	28	66	6
DPN305400301	5.40	28	66	6
DPN305500301	5.50	28	66	6
DPN305560301	5.56(7/32")	28	66	6
DPN305600301	5.60	28	66	6
DPN305700301	5.70	28	66	6

Order No.	D	L1	L	Ds
DPN305800301	5.80	28	66	6
DPN305900301	5.90	28	66	6
DPN306000301	6.00	28	66	6
DPN306100301	6.10	34	79	8
DPN306200301	6.20	34	79	8
DPN306300301	6.30	34	79	8
DPN306350301	6.35(1/4")	34	79	8
DPN306400301	6.40	34	79	8
DPN306500301	6.50	34	79	8
DPN306600301	6.60	34	79	8
DPN306700301	6.70	34	79	8
DPN306800301	6.80	34	79	8
DPN306900301	6.90	34	79	8
DPN307000301	7.00	34	79	8
DPN307100301	7.10	41	79	8
DPN307200301	7.20	41	79	8
DPN307300301	7.30	41	79	8
DPN307400301	7.40	41	79	8
DPN307500301	7.50	41	79	8
DPN307600301	7.60	41	79	8
DPN307700301	7.70	41	79	8
DPN307800301	7.80	41	79	8
DPN307900301	7.90	41	79	8
DPN307940301	7.94(5/16")	41	79	8
DPN308000301	8.00	41	79	8
DPN308100301	8.10	47	89	10
DPN308200301	8.20	47	89	10
DPN308300301	8.30	47	89	10
DPN308400301	8.40	47	89	10
DPN308500301	8.50	47	89	10
DPN308600301	8.60	47	89	10
DPN308700301	8.70	47	89	10
DPN308800301	8.80	47	89	10
DPN308900301	8.90	47	89	10
DPN309000301	9.00	47	89	10
DPN309100301	9.10	47	89	10
DPN309200301	9.20	47	89	10
DPN309250301	9.25(23/64")	47	89	10
DPN309300301	9.30	47	89	10
DPN309400301	9.40	47	89	10
DPN309500301	9.50	47	89	10
DPN309520301	9.52(3/8")	47	89	10
DPN309600301	9.60	47	89	10
DPN309700301	9.70	47	89	10
DPN309800301	9.80	47	89	10
DPN309900301	9.90	47	89	10
DPN310000301	10.00	47	89	10
DPN310100301	10.10	55	102	12

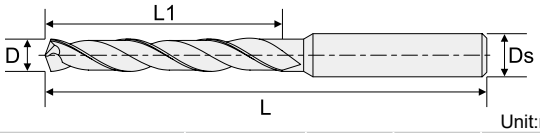
Cutting conditions : Table 02

DPN - for Universal · External Coolant · 3D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 3×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h8 standard / m7 possible on request
- SX Design



Unit:mm

Order No.	D	L1	L	Ds
DPN310200301	10.20	55	102	12
DPN310300301	10.30	55	102	12
DPN310400301	10.40	55	102	12
DPN310500301	10.50	55	102	12
DPN310600301	10.60	55	102	12
DPN310700301	10.70	55	102	12
DPN310800301	10.80	55	102	12
DPN310900301	10.90	55	102	12
DPN311000301	11.00	55	102	12
DPN311100301	11.10	55	102	12
DPN311110301	11.11(7/16")	55	102	12
DPN311200301	11.20	55	102	12
DPN311300301	11.30	55	102	12
DPN311400301	11.40	55	102	12
DPN311500301	11.50	55	102	12
DPN311600301	11.60	55	102	12
DPN311700301	11.70	55	102	12
DPN311800301	11.80	55	102	12
DPN311900301	11.90	55	102	12
DPN312000301	12.00	55	102	12
DPN312100301	12.10	60	107	14
DPN312200301	12.20	60	107	14
DPN312300301	12.30	60	107	14
DPN312400301	12.40	60	107	14
DPN312500301	12.50	60	107	14
DPN312600301	12.60	60	107	14
DPN312700301	12.70(1/2")	60	107	14
DPN312800301	12.80	60	107	14
DPN312900301	12.90	60	107	14
DPN313000301	13.00	60	107	14
DPN313200301	13.20	60	107	14
DPN313300301	13.30	60	107	14
DPN313500301	13.50	60	107	14
DPN313700301	13.70	60	107	14
DPN313800301	13.80	60	107	14
DPN314000301	14.00	60	107	14
DPN314200301	14.20	65	115	16
DPN314290301	14.29(9/16")	65	115	16
DPN314300301	14.30	65	115	16
DPN314400301	14.40	65	115	16
DPN314500301	14.50	65	115	16
DPN314700301	14.70	65	115	16
DPN315000301	15.00	65	115	16
DPN315200301	15.20	65	115	16
DPN315500301	15.50	65	115	16
DPN315600301	15.60	65	115	16
DPN315700301	15.70	65	115	16
DPN315800301	15.80	65	115	16

Order No.	D	L1	L	Ds
DPN315870301	15.87(5/8")	65	115	16
DPN316000301	16.00	65	115	16
DPN316500301	16.50	73	123	18
DPN317000301	17.00	73	123	18
DPN317500301	17.50	73	123	18
DPN318000301	18.00	73	123	18
DPN318500301	18.50	79	131	20
DPN319000301	19.00	79	131	20
DPN319050301	19.05(3/4")	79	131	20
DPN319500301	19.50	79	131	20
DPN320000301	20.00	79	131	20

Cutting conditions : Table 02

WINSTAR

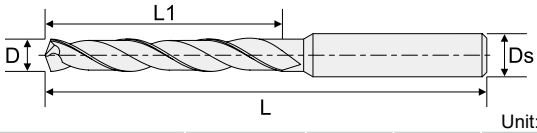
DPN - for Universal · External Coolant · 5D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 5×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h8 standard / m7 possible on request
- SX Design

※Peck drilling (G73/G83 code) is recommended for M, S, H materials.



Unit:mm

Order No.	D	L1	L	Ds
DPN503000501	3.00	28	66	6
DPN503170501	3.17(1/8")	28	66	6
DPN503250501	3.25	28	66	6
DPN503300501	3.30	28	66	6
DPN503400501	3.40	28	66	6
DPN503500501	3.50	28	66	6
DPN503570501	3.57	28	66	6
DPN503600501	3.60	28	66	6
DPN503700501	3.70	28	66	6
DPN503800501	3.80	36	74	6
DPN503900501	3.90	36	74	6
DPN503970501	3.97(5/32")	36	74	6
DPN504000501	4.00	36	74	6
DPN504100501	4.10	36	74	6
DPN504200501	4.20	36	74	6
DPN504300501	4.30	36	74	6
DPN504400501	4.40	36	74	6
DPN504500501	4.50	36	74	6
DPN504600501	4.60	36	74	6
DPN504650501	4.65(13/71")	36	74	6
DPN504700501	4.70	36	74	6
DPN504760501	4.76(3/16")	44	82	6
DPN504800501	4.80	44	82	6
DPN504900501	4.90	44	82	6
DPN505000501	5.00	44	82	6
DPN505100501	5.10	44	82	6
DPN505200501	5.20	44	82	6
DPN505300501	5.30	44	82	6
DPN505400501	5.40	44	82	6
DPN505500501	5.50	44	82	6
DPN505550501	5.55	44	82	6
DPN505560501	5.56(7/32")	44	82	6
DPN505600501	5.60	44	82	6
DPN505700501	5.70	44	82	6
DPN505800501	5.80	44	82	6
DPN505900501	5.90	44	82	6
DPN506000501	6.00	44	82	6
DPN506100501	6.10	53	91	8
DPN506200501	6.20	53	91	8
DPN506300501	6.30	53	91	8
DPN506350501	6.35(1/4")	53	91	8
DPN506400501	6.40	53	91	8
DPN506500501	6.50	53	91	8
DPN506600501	6.60	53	91	8
DPN506700501	6.70	53	91	8
DPN506800501	6.80	53	91	8
DPN506900501	6.90	53	91	8
DPN507000501	7.00	53	91	8

Order No.	D	L1	L	Ds
DPN507100501	7.10	53	91	8
DPN507200501	7.20	53	91	8
DPN507300501	7.30	53	91	8
DPN507400501	7.40	53	91	8
DPN507500501	7.50	53	91	8
DPN507600501	7.60	53	91	8
DPN507700501	7.70	53	91	8
DPN507800501	7.80	53	91	8
DPN507900501	7.90	53	91	8
DPN507940501	7.94(5/16")	53	91	8
DPN508000501	8.00	53	91	8
DPN508100501	8.10	61	103	10
DPN508200501	8.20	61	103	10
DPN508300501	8.30	61	103	10
DPN508400501	8.40	61	103	10
DPN508500501	8.50	61	103	10
DPN508600501	8.60	61	103	10
DPN508700501	8.70	61	103	10
DPN508800501	8.80	61	103	10
DPN508900501	8.90	61	103	10
DPN509000501	9.00	61	103	10
DPN509100501	9.10	61	103	10
DPN509200501	9.20	61	103	10
DPN509250501	9.25(23/64")	61	103	10
DPN509300501	9.30	61	103	10
DPN509400501	9.40	61	103	10
DPN509500501	9.50	61	103	10
DPN509520501	9.52(3/8")	61	103	10
DPN509600501	9.60	61	103	10
DPN509700501	9.70	61	103	10
DPN509800501	9.80	61	103	10
DPN509900501	9.90	61	103	10
DPN510000501	10.00	61	103	10
DPN510100501	10.10	71	118	12
DPN510200501	10.20	71	118	12
DPN510300501	10.30	71	118	12
DPN510400501	10.40	71	118	12
DPN510500501	10.50	71	118	12
DPN510600501	10.60	71	118	12
DPN510700501	10.70	71	118	12
DPN510800501	10.80	71	118	12
DPN510900501	10.90	71	118	12
DPN511000501	11.00	71	118	12
DPN511100501	11.10	71	118	12
DPN511110501	11.11(7/16")	71	118	12
DPN511200501	11.20	71	118	12
DPN511300501	11.30	71	118	12
DPN511400501	11.40	71	118	12

Cutting conditions : Table 02

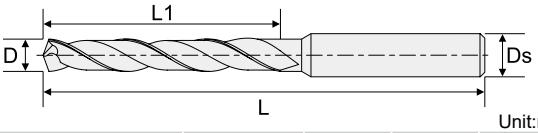
DPN - for Universal · External Coolant · 5D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 5×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h8 standard / m7 possible on request
- SX Design

※Peck drilling (G73/G83 code) is recommended for M, S, H materials.



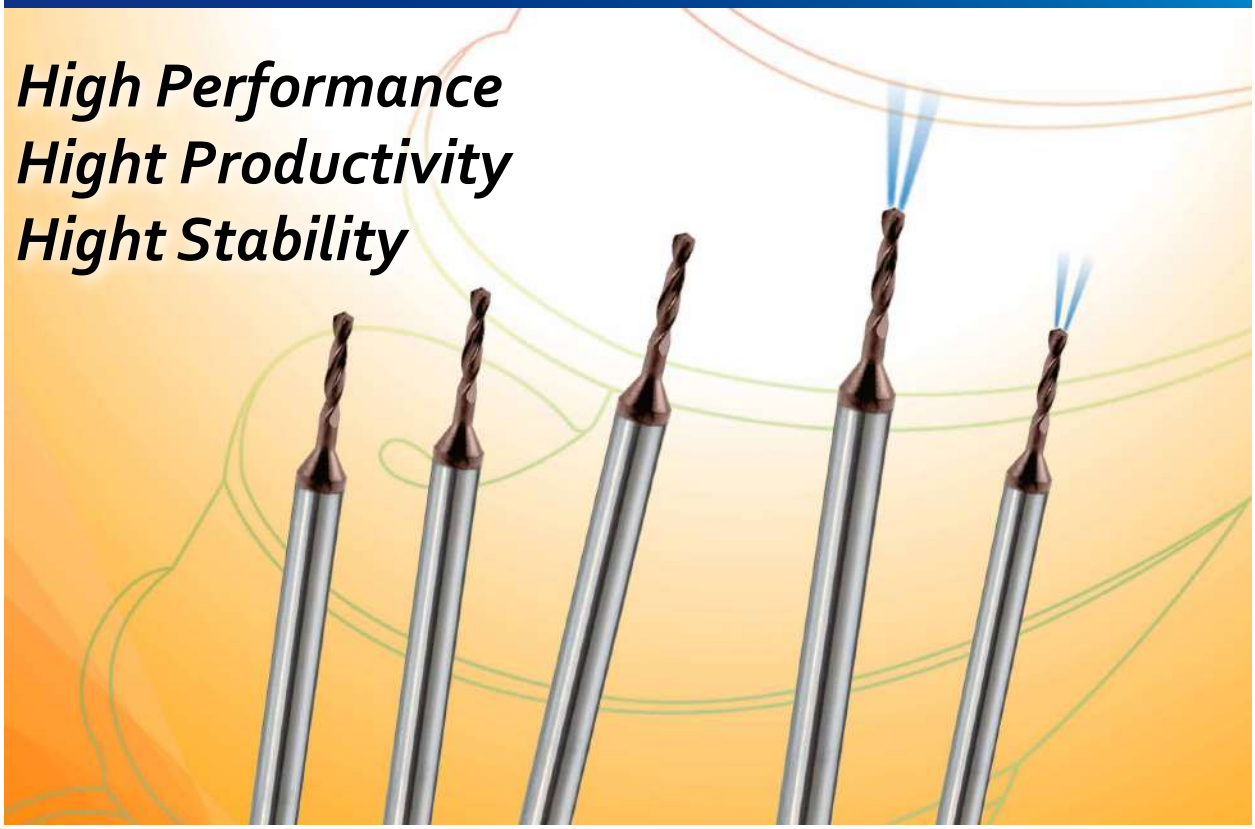
Unit:mm

Order No.	D	L1	L	Ds
DPN511500501	11.50	71	118	12
DPN511600501	11.60	71	118	12
DPN511700501	11.70	71	118	12
DPN511800501	11.80	71	118	12
DPN511900501	11.90	71	118	12
DPN512000501	12.00	71	118	12
DPN512100501	12.10	77	124	14
DPN512200501	12.20	77	124	14
DPN512300501	12.30	77	124	14
DPN512400501	12.40	77	124	14
DPN512500501	12.50	77	124	14
DPN512600501	12.60	77	124	14
DPN512700501	12.70(1/2")	77	124	14
DPN512800501	12.80	77	124	14
DPN512900501	12.90	77	124	14
DPN513000501	13.00	77	124	14
DPN513100501	13.10	77	124	14
DPN513300501	13.30	77	124	14
DPN513400501	13.40	77	124	14
DPN513500501	13.50	77	124	14
DPN513600501	13.60	77	124	14
DPN513700501	13.70	77	124	14
DPN513800501	13.80	77	124	14
DPN513900501	13.90	77	124	14
DPN514000501	14.00	77	124	14
DPN514100501	14.10	83	133	16
DPN514200501	14.20	83	133	16
DPN514290501	14.29(9/16")	83	133	16
DPN514300501	14.30	83	133	16
DPN514400501	14.40	83	133	16
DPN514500501	14.50	83	133	16
DPN514600501	14.60	83	133	16
DPN514700501	14.70	83	133	16
DPN514800501	14.80	83	133	16
DPN514900501	14.90	83	133	16
DPN515000501	15.00	83	133	16
DPN515100501	15.10	83	133	16
DPN515200501	15.20	83	133	16
DPN515300501	15.30	83	133	16
DPN515400501	15.40	83	133	16
DPN515500501	15.50	83	133	16
DPN515600501	15.60	83	133	16
DPN515700501	15.70	83	133	16
DPN515800501	15.80	83	133	16
DPN515870501	15.87(5/8")	83	133	16
DPN515900501	15.90	83	133	16
DPN516000501	16.00	83	133	16
DPN516500501	16.50	93	143	18

Order No.	D	L1	L	Ds
DPN517000501	17.00	93	143	18
DPN517500501	17.50	93	143	18
DPN518000501	18.00	93	143	18
DPN518500501	18.50	101	153	20
DPN519000501	19.00	101	153	20
DPN519050501	19.05(3/4")	101	153	20
DPN519500501	19.50	101	153	20
DPN520000501	20.00	101	153	20

Cutting conditions : Table 02

DLC, DLN for Universal, Mini Hole Drilling



Features

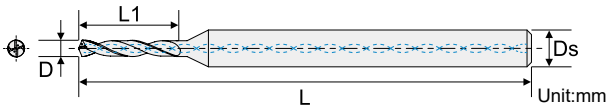
- Internal coolant design
- Unique UNIX coating improves tool life
- Optimized flute improves drilling efficiency
- Customized available
- Diameter 0.18 ~ 3.0mm

DLC - for Universal · Mini · Internal Coolant · 3D~5D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 3~5×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- Internal Coolant
- UNIX Coating
- Tolerance h8
- NX Design
- For Alloy Steel, Stainless Steel, Cast Iron and High Temperature Alloy.



3×D

140° Tip Angle

Order No.	D	L1	L	Ds
DLC301200311	1.20	8	50	3
DLC301300311	1.30	8	50	3
DLC301400311	1.40	8	50	3
DLC301500311	1.50	10	50	3
DLC301600311	1.60	10	50	3
DLC301700311	1.70	10	50	3
DLC301800311	1.80	12	50	3
DLC301900311	1.90	12	50	3
DLC302000311	2.00	12	50	3
DLC302100311	2.10	12	50	3
DLC302200311	2.20	12	50	3
DLC302300311	2.30	14	50	3
DLC302400311	2.40	14	50	3
DLC302500311	2.50	16	50	3
DLC302600311	2.60	16	50	3
DLC302700311	2.70	16	50	3
DLC302800311	2.80	16	50	3
DLC302900311	2.90	16	50	3
DLC303000311	3.00	16	50	3

5×D

140° Tip Angle

Order No.	D	L1	L	Ds
DLC501200511	1.20	10	50	3
DLC501300511	1.30	10	50	3
DLC501400511	1.40	10	50	3
DLC501500511	1.50	12	50	3
DLC501600511	1.60	12	50	3
DLC501700511	1.70	12	50	3
DLC501800511	1.80	14	50	3
DLC501900511	1.90	14	50	3
DLC502000511	2.00	14	50	3
DLC502100511	2.10	16	50	3
DLC502200511	2.20	16	50	3
DLC502300511	2.30	18	50	3
DLC502400511	2.40	18	50	3
DLC502500511	2.50	20	60	3
DLC502600511	2.60	20	60	3
DLC502700511	2.70	20	60	3
DLC502800511	2.80	20	60	3
DLC502900511	2.90	22	60	3
DLC503000511	3.00	22	60	3

Cutting conditions : Table 03

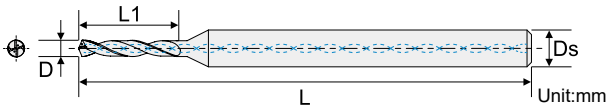
WINSTAR

DLC - for Universal · Mini · Internal Coolant · 10D~20D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 10~20×D Cutting depth
- Reinforced Shank
- 135° Tip Angle
- Internal Coolant
- UNIX Coating
- Tolerance h8
- NX Design
- For Alloy Steel, Stainless Steel, Cast Iron and High Temperature Alloy.



10×D

135° Tip Angle

Order No.	D	L1	L	Ds
DLC901201021	1.20	16	60	3
DLC901301021	1.30	16	60	3
DLC901401021	1.40	18	60	3
DLC901501021	1.50	18	60	3
DLC901601021	1.60	22	60	3
DLC901701021	1.70	22	60	3
DLC901801021	1.80	24	60	3
DLC901901021	1.90	24	60	3
DLC902001021	2.00	26	60	3
DLC902101021	2.10	26	60	3
DLC902201021	2.20	30	75	3
DLC902301021	2.30	30	75	3
DLC902401021	2.40	30	75	3
DLC902501021	2.50	34	75	3
DLC902601021	2.60	34	75	3
DLC902701021	2.70	34	75	3
DLC902801021	2.80	36	75	3
DLC902901021	2.90	36	75	3
DLC903001021	3.00	36	75	3

∗ Made to order

20×D

135° Tip Angle

Order No.	D	L1	L	Ds
DLC901202021	1.20	30	75	3
DLC901302021	1.30	32	75	3
DLC901402021	1.40	34	75	3
DLC901502021	1.50	36	75	3
DLC901602021	1.60	36	75	3
DLC901702021	1.70	40	75	3
DLC901802021	1.80	40	75	3
DLC901902021	1.90	44	79	3
DLC902002021	2.00	44	79	3
DLC902102021	2.10	50	100	3
DLC902202021	2.20	50	100	3
DLC902302021	2.30	54	100	3
DLC902402021	2.40	54	100	3
DLC902502021	2.50	58	100	3
DLC902602021	2.60	58	100	3
DLC902702021	2.70	62	100	3
DLC902802021	2.80	62	100	3
DLC902902021	2.90	66	100	3
DLC903002021	3.00	66	100	3

∗ Made to order

Cutting conditions : Table 03

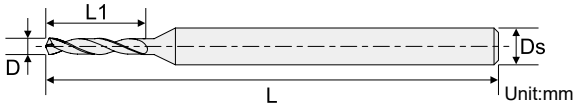
DLN - for Universal · Mini · External Coolant · 2D~7D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 2~7×D Cutting depth
- Reinforced Shank
- 130° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h8
- NX Design

※Peck drilling (G73/G83 code) is recommended for M, S, H materials with cutting depth of 5D or more.



2×D ~ 3×D

130° Tip Angle

Order No.	D	L1	L	Ds
DLN300300301	0.30	2	38	3
DLN300500301	0.50	3	38	3
DLN300600301	0.60	3	38	3
DLN300700301	0.70	3	38	3
DLN300800301	0.80	4	38	3
DLN300900301	0.90	4	38	3
DLN301000301	1.00	4	38	3
DLN301100301	1.10	6	38	3
DLN301200301	1.20	6	38	3
DLN301300301	1.30	6	38	3
DLN301400301	1.40	6	38	3
DLN301500301	1.50	6	38	3
DLN301600301	1.60	8	38	3
DLN301700301	1.70	8	38	3
DLN201800201	1.80	8	38	3
DLN201900201	1.90	8	38	3
DLN202000201	2.00	8	38	3
DLN202100201	2.10	8	38	3
DLN302100301	2.10	12	50	3
DLN202200201	2.20	8	38	3
DLN302200301	2.20	12	50	3
DLN202300201	2.30	8	38	3
DLN302300301	2.30	12	50	3
DLN202400201	2.40	8	38	3
DLN302400301	2.40	12	50	3
DLN202500201	2.50	8	38	3
DLN302500301	2.50	16	50	3
DLN202600201	2.60	8	38	3
DLN302600301	2.60	16	50	3
DLN202700201	2.70	8	38	3
DLN302700301	2.70	16	50	3
DLN202800201	2.80	8	38	3
DLN302800301	2.80	16	50	3
DLN202900201	2.90	8	38	3
DLN302900301	2.90	16	50	3
DLN203000201	3.00	8	38	3
DLN303000301	3.00	16	50	3

5×D ~ 7×D

130° Tip Angle

Order No.	D	L1	L	Ds
5×D				
DLN500200501	0.20	1.5	38	3
DLN501200501	1.20	10	50	3
DLN501300501	1.30	10	50	3
DLN501400501	1.40	10	50	3
DLN501500501	1.50	12	50	3
DLN501600501	1.60	12	50	3
DLN501700501	1.70	12	50	3
DLN501800501	1.80	14	50	3
DLN501900501	1.90	14	50	3
DLN502000501	2.00	14	50	3
DLN502100501	2.10	14	50	3
DLN502200501	2.20	16	50	3
DLN502300501	2.30	16	50	3
DLN502400501	2.40	16	50	3
DLN502500501	2.50	20	50	3
DLN502600501	2.60	20	50	3
DLN502700501	2.70	20	50	3
DLN502800501	2.80	20	50	3
DLN502900501	2.90	20	50	3
DLN503000501	3.00	22	60	3
7×D				
DLN700700701	0.70	8	38	3
DLN700750701	0.75	8	38	3
DLN700800701	0.80	8	38	3
DLN700900701	0.90	8	38	3
DLN701000701	1.00	10	50	3
DLN701100701	1.10	10	50	3

Cutting conditions : Table 03

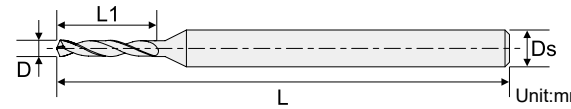
DLN - for Universal · Mini · External Coolant · 10D~15D

P	M	K	N	S	H
●	○	●	○	○	○

Specification

- 10~15×D Cutting depth
- Reinforced Shank
- 130° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h8
- NX Design

※Peck drilling (G73/G83 code) is recommended for M, S, H materials.



10×D

130° Tip Angle

Order No.	D	L1	L	Ds
DLN900451001	0.45	6	38	3
DLN900501001	0.50	6	38	3
DLN900601001	0.60	8	38	3
DLN900611001	0.61	8	38	3
DLN900621001	0.62	8	38	3
DLN900651001	0.65	8	38	3

＊ Made to order

12×D ~ 15×D

130° Tip Angle

Order No.	D	L1	L	Ds
12×D				
DLN900181201	0.18	3	38	3
DLN900251201	0.25	4	38	3
DLN900301201	0.30	4.5	38	3
DLN900331201	0.33	5.5	38	3
DLN900351201	0.35	5.5	38	3
DLN900361201	0.36	5.5	38	3
DLN900401201	0.40	6	38	3
DLN900551201	0.55	8	38	3
15×D				
DLN900201501	0.20	4	38	3

＊ Made to order

Cutting conditions : Table 03

DMC, DMN for Stainless steel Drilling

High Performance Excellent Tool Life

Features

- Suitable for Inconel, Titanium and Stainless Steel machining.
- Special NR geometry design for excellent chip removal.
- Optimized flute design and excellent polishing to enable efficiency chips evacuation.
- Drill performance compete against not of international manufacturers.

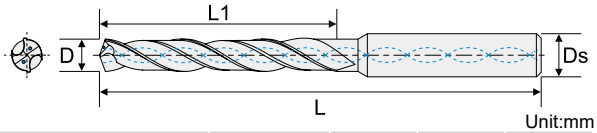
WINSTAR

DMC - for Stainless steel · Internal Coolant · 3D

P	M	K	N	S	H
○	●	○	○	●	

Specification

- 3×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- Internal Coolant
- SINIX Coating
- Tolerance h8 standard / m7 possible on request
- Double Margins Design
- NR Tip Design



Unit:mm

Order No.	D	L1	L	Ds
DMC304000302	4.00	24	66	6
DMC304100302	4.10	24	66	6
DMC304200302	4.20	24	66	6
DMC304300302	4.30	24	66	6
DMC304400302	4.40	24	66	6
DMC304500302	4.50	24	66	6
DMC304600302	4.60	24	66	6
DMC304650302	4.65	24	66	6
DMC304700302	4.70	24	66	6
DMC304760302	4.76(3/16")	24	66	6
DMC304800302	4.80	28	66	6
DMC304900302	4.90	28	66	6
DMC305000302	5.00	28	66	6
DMC305100302	5.10	28	66	6
DMC305200302	5.20	28	66	6
DMC305300302	5.30	28	66	6
DMC305400302	5.40	28	66	6
DMC305500302	5.50	28	66	6
DMC305560302	5.56(7/32")	28	66	6
DMC305700302	5.70	28	66	6
DMC305800302	5.80	28	66	6
DMC305900302	5.90	28	66	6
DMC306000302	6.00	28	66	6
DMC306100302	6.10	34	79	8
DMC306200302	6.20	34	79	8
DMC306300302	6.30	34	79	8
DMC306350302	6.35(1/4")	34	79	8
DMC306400302	6.40	34	79	8
DMC306500302	6.50	34	79	8
DMC306600302	6.60	34	79	8
DMC306700302	6.70	34	79	8
DMC306800302	6.80	34	79	8
DMC306900302	6.90	34	79	8
DMC307000302	7.00	34	79	8
DMC307100302	7.10	41	79	8
DMC307140302	7.14(9/32")	41	79	8
DMC307200302	7.20	41	79	8
DMC307300302	7.30	41	79	8
DMC307400302	7.40	41	79	8
DMC307500302	7.50	41	79	8
DMC307600302	7.60	41	79	8
DMC307700302	7.70	41	79	8
DMC307800302	7.80	41	79	8
DMC307900302	7.90	41	79	8
DMC307940302	7.94(5/16")	41	79	8
DMC308000302	8.00	41	79	8
DMC308100302	8.10	47	89	10
DMC308200302	8.20	47	89	10

Order No.	D	L1	L	Ds
DMC308300302	8.30	47	89	10
DMC308400302	8.40	47	89	10
DMC308500302	8.50	47	89	10
DMC308600302	8.60	47	89	10
DMC308700302	8.70	47	89	10
DMC308800302	8.80	47	89	10
DMC308900302	8.90	47	89	10
DMC309000302	9.00	47	89	10
DMC309100302	9.10	47	89	10
DMC309200302	9.20	47	89	10
DMC309250302	9.25	47	89	10
DMC309300302	9.30	47	89	10
DMC309400302	9.40	47	89	10
DMC309500302	9.50	47	89	10
DMC309520302	9.52(3/8")	47	89	10
DMC309600302	9.60	47	89	10
DMC309700302	9.70	47	89	10
DMC309800302	9.80	47	89	10
DMC309900302	9.90	47	89	10
DMC310000302	10.00	47	89	10
DMC310200302	10.20	55	102	12
DMC310500302	10.50	55	102	12
DMC310700302	10.70	55	102	12
DMC311000302	11.00	55	102	12
DMC311200302	11.20	55	102	12
DMC311500302	11.50	55	102	12
DMC311700302	11.70	55	102	12
DMC312000302	12.00	55	102	12
DMC312500302	12.50	60	107	14
DMC312700302	12.70(1/2")	60	107	14
DMC313000302	13.00	60	107	14
DMC313500302	13.50	60	107	14
DMC313700302	13.70	60	107	14
DMC314000302	14.00	60	107	14
DMC314500302	14.50	65	115	16
DMC314700302	14.70	65	115	16
DMC315000302	15.00	65	115	16
DMC315500302	15.50	65	115	16
DMC315700302	15.70	65	115	16
DMC316000302	16.00	65	115	16
DMC318000302	18.00	73	123	18
DMC319000302	19.00	79	131	20
DMC320000302	20.00	79	131	20

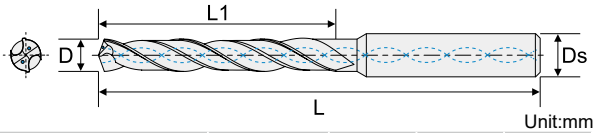
Cutting conditions : Table 04

DMC - for Stainless steel · Internal Coolant · 5D

P	M	K	N	S	H
○	●	○	○	●	

Specification

- 5×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- Internal Coolant
- SINIX Coating
- Tolerance h8 standard / m7 possible on request
- Double Margins Design
- NR Tip Design



Unit:mm

Order No.	D	L1	L	Ds
DMC503400542	3.40	28	60	4
DMC503800542	3.80	36	74	4
DMC504000502	4.00	36	74	6
DMC504100502	4.10	36	74	6
DMC504200502	4.20	36	74	6
DMC504300502	4.30	36	74	6
DMC504400502	4.40	36	74	6
DMC504500502	4.50	36	74	6
DMC504600502	4.60	36	74	6
DMC504650502	4.65	36	74	6
DMC504700502	4.70	36	74	6
DMC504760502	4.76(3/16")	36	74	6
DMC504800502	4.80	44	82	6
DMC504900502	4.90	44	82	6
DMC505000502	5.00	44	82	6
DMC505100502	5.10	44	82	6
DMC505200502	5.20	44	82	6
DMC505300502	5.30	44	82	6
DMC505400502	5.40	44	82	6
DMC505500502	5.50	44	82	6
DMC505550502	5.55(7/32")	44	82	6
DMC505600502	5.60	44	82	6
DMC505700502	5.70	44	82	6
DMC505800502	5.80	44	82	6
DMC505900502	5.90	44	82	6
DMC506000502	6.00	44	82	6
DMC506100502	6.10	53	91	8
DMC506200502	6.20	53	91	8
DMC506300502	6.30	53	91	8
DMC506350502	6.35(1/4")	53	91	8
DMC506400502	6.40	53	91	8
DMC506500502	6.50	53	91	8
DMC506600502	6.60	53	91	8
DMC506700502	6.70	53	91	8
DMC506800502	6.80	53	91	8
DMC506900502	6.90	53	91	8
DMC507000502	7.00	53	91	8
DMC507100502	7.10	53	91	8
DMC507140502	7.14(9/32")	53	91	8
DMC507200502	7.20	53	91	8
DMC507300502	7.30	53	91	8
DMC507400502	7.40	53	91	8
DMC507500502	7.50	53	91	8
DMC507600502	7.60	53	91	8
DMC507700502	7.70	53	91	8
DMC507800502	7.80	53	91	8
DMC507900502	7.90	53	91	8
DMC507940502	7.94(5/16")	53	91	8

Order No.	D	L1	L	Ds
DMC508000502	8.00	53	91	8
DMC508100502	8.10	61	103	10
DMC508200502	8.20	61	103	10
DMC508300502	8.30	61	103	10
DMC508400502	8.40	61	103	10
DMC508500502	8.50	61	103	10
DMC508600502	8.60	61	103	10
DMC508700502	8.70	61	103	10
DMC508800502	8.80	61	103	10
DMC508900502	8.90	61	103	10
DMC509000502	9.00	61	103	10
DMC509100502	9.10	61	103	10
DMC509200502	9.20	61	103	10
DMC509250502	9.25	61	103	10
DMC509300502	9.30	61	103	10
DMC509400502	9.40	61	103	10
DMC509500502	9.50	61	103	10
DMC509520502	9.52(3/8")	61	103	10
DMC509600502	9.60	61	103	10
DMC509700502	9.70	61	103	10
DMC509800502	9.80	61	103	10
DMC509900502	9.90	61	103	10
DMC510000502	10.00	61	103	10
DMC510200502	10.20	71	118	12
DMC510500502	10.50	71	118	12
DMC510700502	10.70	71	118	12
DMC511000502	11.00	71	118	12
DMC511200502	11.20	71	118	12
DMC511500502	11.50	71	118	12
DMC511700502	11.70	71	118	12
DMC512000502	12.00	71	118	12
DMC512500502	12.50	77	124	14
DMC512700502	12.70(1/2")	77	124	14
DMC513000502	13.00	77	124	14
DMC513500502	13.50	77	124	14
DMC513700502	13.70	77	124	14
DMC514000502	14.00	77	124	14
DMC514500502	14.50	83	133	16
DMC514700502	14.70	83	133	16
DMC515000502	15.00	83	133	16
DMC515500502	15.50	83	133	16
DMC515700502	15.70	83	133	16
DMC516000502	16.00	83	133	16
DMC518000502	18.00	93	143	18
DMC519000502	19.00	101	153	20
DMC520000502	20.00	101	153	20

Cutting conditions : Table 04

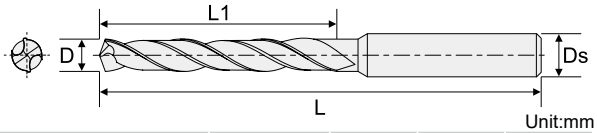
WINSTAR

DMN - for Stainless steel · External Coolant · 3D

P	M	K	N	S	H
○	●	○	○	●	

Specification

- 3×D Cutting depth
- Reinforced Shank
- 140° Tip Angle
- External Coolant
- SINIX Coating
- Tolerance h8 standard / m7 possible on request
- Double Margins Design
- NR Tip Design



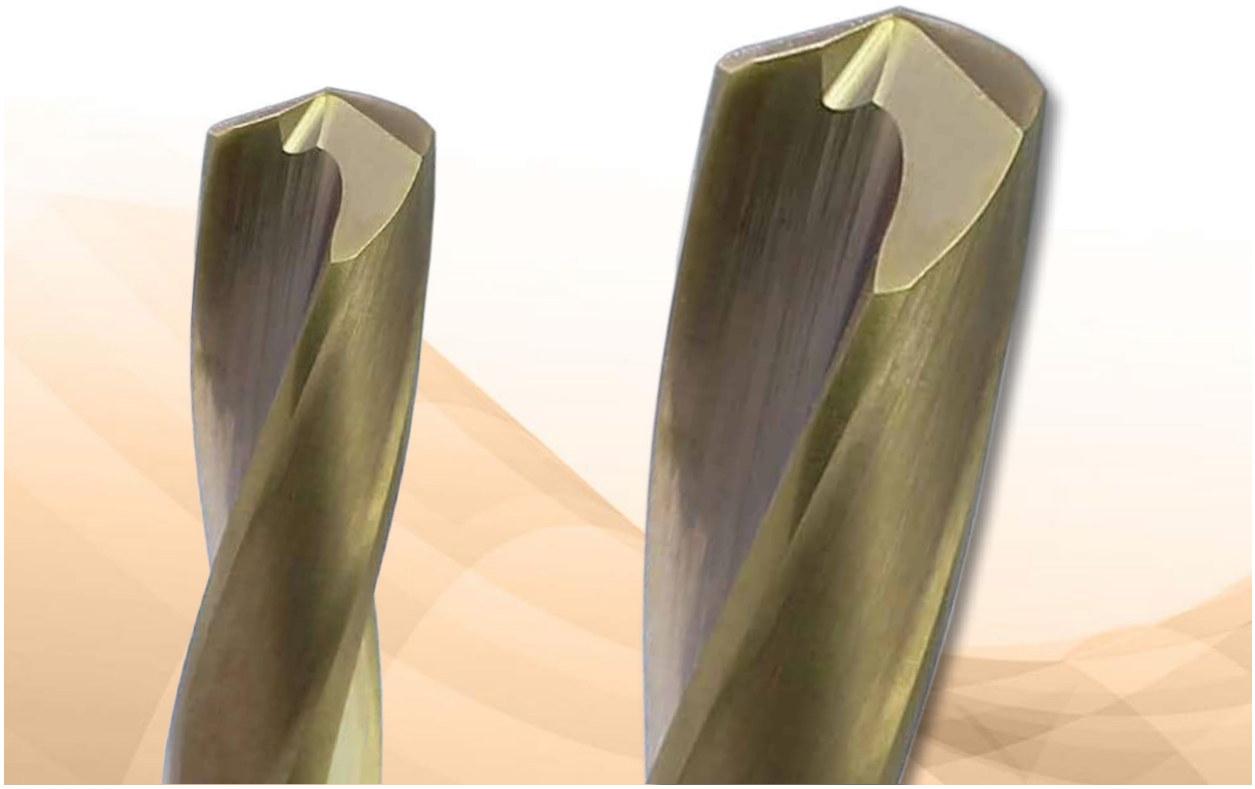
Unit:mm

Order No.	D	L1	L	Ds
DMN304000302	4.00	24	66	6
DMN304100302	4.10	24	66	6
DMN304200302	4.20	24	66	6
DMN304300302	4.30	24	66	6
DMN304400302	4.40	24	66	6
DMN304500302	4.50	24	66	6
DMN304600302	4.60	24	66	6
DMN304650302	4.65	24	66	6
DMN304700302	4.70	24	66	6
DMN304760302	4.76(3/16")	24	66	6
DMN304800302	4.80	28	66	6
DMN304900302	4.90	28	66	6
DMN305000302	5.00	28	66	6
DMN305100302	5.10	28	66	6
DMN305200302	5.20	28	66	6
DMN305300302	5.30	28	66	6
DMN305400302	5.40	28	66	6
DMN305500302	5.50	28	66	6
DMN305560302	5.56(7/32")	28	66	6
DMN305600302	5.60	28	66	6
DMN305700302	5.70	28	66	6
DMN305800302	5.80	28	66	6
DMN305900302	5.90	28	66	6
DMN306000302	6.00	28	66	6
DMN306100302	6.10	34	79	8
DMN306200302	6.20	34	79	8
DMN306300302	6.30	34	79	8
DMN306350302	6.35(1/4")	34	79	8
DMN306400302	6.40	34	79	8
DMN306500302	6.50	34	79	8
DMN306600302	6.60	34	79	8
DMN306700302	6.70	34	79	8
DMN306800302	6.80	34	79	8
DMN306900302	6.90	34	79	8
DMN307000302	7.00	34	79	8
DMN307100302	7.10	41	79	8
DMN307140302	7.14(9/32")	41	79	8
DMN307200302	7.20	41	79	8
DMN307300302	7.30	41	79	8
DMN307400302	7.40	41	79	8
DMN307500302	7.50	41	79	8
DMN307600302	7.60	41	79	8
DMN307700302	7.70	41	79	8
DMN307800302	7.80	41	79	8
DMN307900302	7.90	41	79	8
DMN307940302	7.94(5/16")	41	79	8
DMN308000302	8.00	41	79	8
DMN308100302	8.10	47	89	10

Order No.	D	L1	L	Ds
DMN308200302	8.20	47	89	10
DMN308300302	8.30	47	89	10
DMN308400302	8.40	47	89	10
DMN308500302	8.50	47	89	10
DMN308600302	8.60	47	89	10
DMN308700302	8.70	47	89	10
DMN308800302	8.80	47	89	10
DMN308900302	8.90	47	89	10
DMN309000302	9.00	47	89	10
DMN309100302	9.10	47	89	10
DMN309200302	9.20	47	89	10
DMN309250302	9.25	47	89	10
DMN309300302	9.30	47	89	10
DMN309400302	9.40	47	89	10
DMN309500302	9.50	47	89	10
DMN309520302	9.52(3/8")	47	89	10
DMN309600302	9.60	47	89	10
DMN309700302	9.70	47	89	10
DMN309800302	9.80	47	89	10
DMN309900302	9.90	47	89	10
DMN310000302	10.00	47	89	10
DMN310200302	10.20	55	102	12
DMN310500302	10.50	55	102	12
DMN310700302	10.70	55	102	12
DMN311000302	11.00	55	102	12
DMN311200302	11.20	55	102	12
DMN311500302	11.50	55	102	12
DMN311700302	11.70	55	102	12
DMN312000302	12.00	55	102	12
DMN312500302	12.50	60	107	14
DMN312700302	12.70(1/2)	60	107	14
DMN313000302	13.00	60	107	14
DMN313500302	13.50	60	107	14
DMN313700302	13.70	60	107	14
DMN314000302	14.00	60	107	14
DMN314500302	14.50	65	115	16
DMN314700302	14.70	65	115	16
DMN315000302	15.00	65	115	16
DMN315500302	15.50	65	115	16
DMN315700302	15.70	65	115	16
DMN316000302	16.00	65	115	16
DMN318000302	18.00	73	123	18
DMN319000302	19.00	79	131	20
DMN320000302	20.00	79	131	20

Cutting conditions : Table 05

DHN for High temperature alloy & Hardened steel Drilling



Features

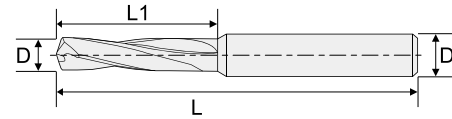
- Suitable for Superalloy and Hardened steel machining.
- Special RX geometry design for tip protecting.
- Low helix and special coating with efficiency cutting ability.

DHN - for High temperature alloy · External Coolant · 3D

P	M	K	N	S	H
○	○	○		●	●

Specification

- 3×D Cutting depth
- UNIX / SINIX Plus Coating
- External Coolant
- Reinforced Shank
- Tolerance h8
- 140° Tip Angle
- Single Margin Design
- Helix : 12° ~ 20°
- RX Tip Design



Unit:mm

Order No.	D	L1	L	Ds
DHN300900301	0.90	8	50	3
DHN300950301	0.95	8	50	3
DHN301000301	1.00	8	50	3
DHN301100301	1.10	8	50	3
DHN301200301	1.20	8	50	3
DHN301250301	1.25	8	50	3
DHN301300301	1.30	10	50	3
DHN301320301	1.32	10	50	3
DHN301400301	1.40	10	50	3
DHN301450301	1.45	10	50	3
DHN301500301	1.50	10	50	3
DHN301600301	1.60	10	50	3
DHN301650301	1.65	10	50	3
DHN301700301	1.70	10	50	3
DHN301750301	1.75	10	50	3
DHN301850301	1.85	10	50	3
DHN301900301	1.90	10	50	3
DHN302000301	2.00	12	50	3
DHN302050301	2.05	12	50	3
DHN302100301	2.10	12	50	3
DHN302200301	2.20	12	50	3
DHN302300301	2.30	12	50	3
DHN302400301	2.40	12	50	3
DHN302500301	2.50	12	50	3
DHN302600301	2.60	16	60	3
DHN302700301	2.70	16	60	3
DHN302800301	2.80	16	60	3
DHN302900301	2.90	16	60	3
DHN303000301	3.00	16	60	3

※The coating can change to SINIX Plus.

Order No.	D	L1	L	Ds

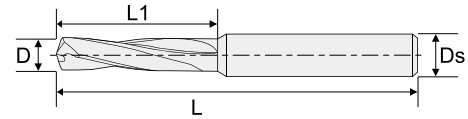
Cutting conditions : Table 06

DHN - for High temperature alloy · External Coolant · 3D

P	M	K	N	S	H
○	○	○		●	●

Specification

- 3×D Cutting depth
- SINIX Plus Coating
- External Coolant
- Reinforced Shank
- Tolerance h8
- 140° Tip Angle
- Double Margins Design
- Helix : 12° ~ 20°
- RX Tip Design



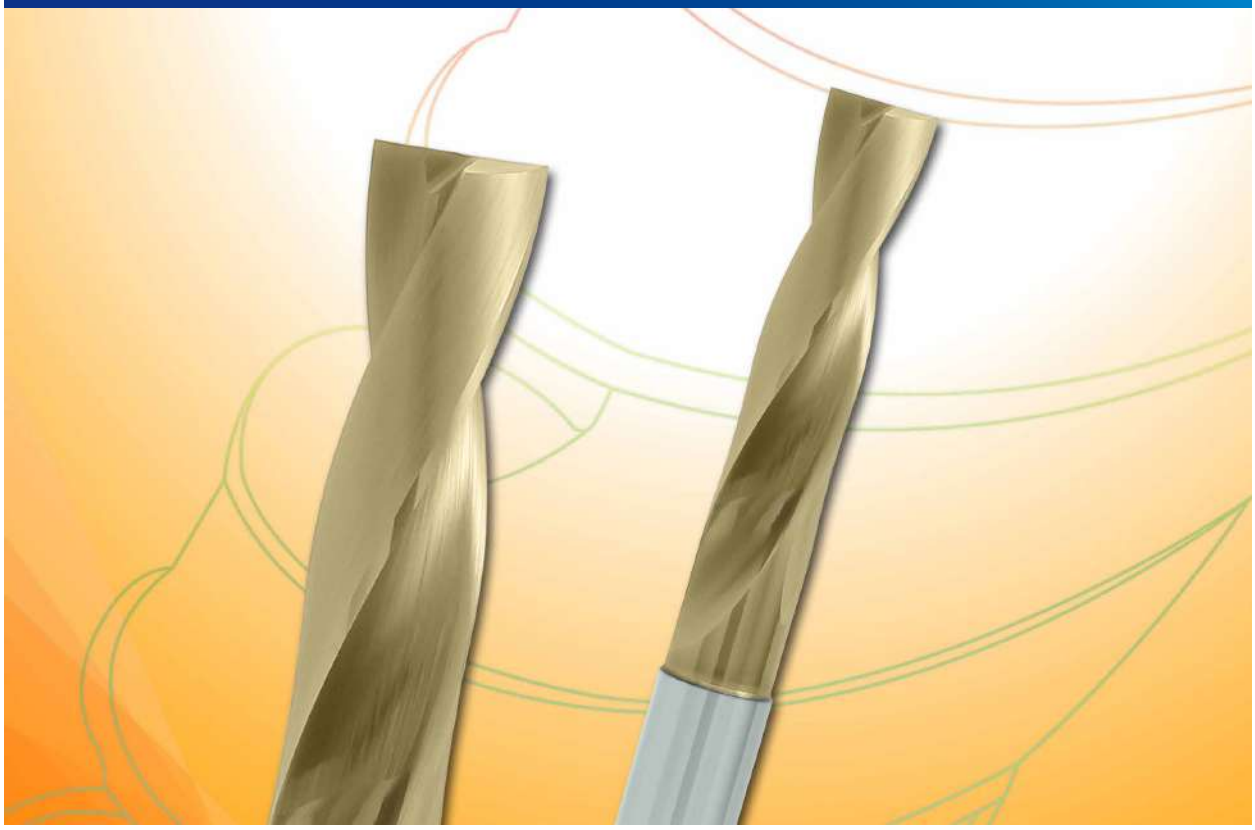
Unit:mm

Order No.	D	L1	L	Ds
DHN303100307	3.10	20	62	6
DHN303200307	3.20	20	62	6
DHN303300307	3.30	20	62	6
DHN303400307	3.40	20	62	6
DHN303500307	3.50	20	62	6
DHN303600307	3.60	20	62	6
DHN303700307	3.70	20	62	6
DHN303800307	3.80	20	62	6
DHN303900307	3.90	20	62	6
DHN304000307	4.00	24	66	6
DHN304200307	4.20	24	66	6
DHN304500307	4.50	24	66	6
DHN304600307	4.60	24	66	6
DHN304650307	4.65	24	66	6
DHN304800307	4.80	28	66	6
DHN305000307	5.00	28	66	6
DHN305500307	5.50	28	66	6
DHN305560307	5.56(7/32")	28	66	6
DHN305700307	5.70	28	66	6
DHN305800307	5.80	28	66	6
DHN306000307	6.00	28	66	6
DHN306350307	6.35(1/4")	34	79	8
DHN306400307	6.40	34	79	8
DHN306500307	6.50	34	79	8
DHN306800307	6.80	34	79	8
DHN307000307	7.00	34	79	8
DHN307400307	7.40	41	79	8
DHN307500307	7.50	41	79	8
DHN307800307	7.80	41	79	8
DHN308000307	8.00	41	79	8
DHN308500307	8.50	47	89	10
DHN308800307	8.80	47	89	10
DHN309000307	9.00	47	89	10
DHN309250307	9.25	47	89	10
DHN309300307	9.30	47	89	10
DHN309500307	9.50	47	89	10
DHN309800307	9.80	47	89	10
DHN310000307	10.00	47	89	10
DHN310200307	10.20	55	102	12
DHN310500307	10.50	55	102	12
DHN310700307	10.70	55	102	12
DHN311000307	11.00	55	102	12
DHN311200307	11.20	55	102	12
DHN311500307	11.50	55	102	12
DHN311700307	11.70	55	102	12
DHN312000307	12.00	55	102	12

Order No.	D	L1	L	Ds

Cutting conditions : Table 06

DFN with Flat tip



Features

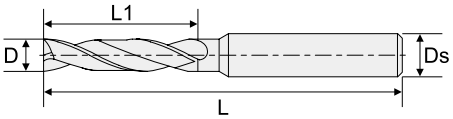
- Multiple application
- Counter boring, Slope, Curve, Cross hole, Thin plate
- Pre-hole
- Hole correction
- Reduce manufacturing procedure

DFN - Flat · External Coolant · 3D

P	M	K	N	S	H
●	○	●			

Specification

- 3×D Cutting depth
- Reinforced Shank
- Flat tip
- External Coolant
- SINIX Coating
- Tolerance h8
- FX Design



Unit:mm

Order No.	D	L1	L	Ds
DFN302200342	2.20	13	60	4
DFN302600342	2.60	15	60	4
DFN302700342	2.70	15	60	4
DFN303000342	3.00	20	60	4
DFN303100342	3.10	20	60	4
DFN303170342	3.17(1/8")	20	60	4
DFN303200342	3.20	20	60	4
DFN303250342	3.25(5/39")	20	60	4
DFN303300342	3.30	20	60	4
DFN303400342	3.40	20	60	4
DFN303500342	3.50	20	60	4
DFN303600342	3.60	20	60	4
DFN303700342	3.70	20	60	4
DFN303800342	3.80	24	60	4
DFN303900342	3.90	24	60	4
DFN303970342	3.97(5/32")	24	60	4
DFN303000302	3.00	20	62	6
DFN303100302	3.10	20	62	6
DFN303200302	3.20	20	62	6
DFN303250302	3.25(5/39")	20	62	6
DFN303300302	3.30	20	62	6
DFN303400302	3.40	20	62	6
DFN303500302	3.50	20	62	6
DFN303600302	3.60	20	62	6
DFN303700302	3.70	20	62	6
DFN303800302	3.80	24	66	6
DFN303900302	3.90	24	66	6
DFN303970302	3.97(5/32")	24	66	6
DFN304000302	4.00	24	66	6
DFN304100302	4.10	24	66	6
DFN304200302	4.20	24	66	6
DFN304300302	4.30	24	66	6
DFN304400302	4.40	24	66	6
DFN304500302	4.50	24	66	6
DFN304600302	4.60	24	66	6
DFN304650302	4.65(13/71")	24	66	6
DFN304700302	4.70	24	66	6
DFN304800302	4.80	28	66	6
DFN304900302	4.90	28	66	6
DFN305000302	5.00	28	66	6
DFN305100302	5.10	28	66	6
DFN305200302	5.20	28	66	6
DFN305300302	5.30	28	66	6
DFN305400302	5.40	28	66	6
DFN305500302	5.50	28	66	6
DFN305560302	5.56(7/32")	28	66	6
DFN305600302	5.60	28	66	6
DFN305700302	5.70	28	66	6

Order No.	D	L1	L	Ds
DFN305800302	5.80	28	66	6
DFN305900302	5.90	28	66	6
DFN306000302	6.00	28	66	6
DFN306100302	6.10	34	79	8
DFN306200302	6.20	34	79	8
DFN306300302	6.30	34	79	8
DFN306350302	6.35	34	79	8
DFN306400302	6.40	34	79	8
DFN306500302	6.50	34	79	8
DFN306600302	6.60	34	79	8
DFN306700302	6.70	34	79	8
DFN306800302	6.80	34	79	8
DFN306900302	6.90	34	79	8
DFN307000302	7.00	34	79	8
DFN307100302	7.10	41	79	8
DFN307200302	7.20	41	79	8
DFN307300302	7.30	41	79	8
DFN307400302	7.40	41	79	8
DFN307500302	7.50	41	79	8
DFN307600302	7.60	41	79	8
DFN307700302	7.70	41	79	8
DFN307800302	7.80	41	79	8
DFN307900302	7.90	41	79	8
DFN308000302	8.00	41	79	8
DFN308100302	8.10	47	89	10
DFN308200302	8.20	47	89	10
DFN308300302	8.30	47	89	10
DFN308400302	8.40	47	89	10
DFN308500302	8.50	47	89	10
DFN308600302	8.60	47	89	10
DFN308700302	8.70	47	89	10
DFN308800302	8.80	47	89	10
DFN308900302	8.90	47	89	10
DFN309000302	9.00	47	89	10
DFN309100302	9.10	47	89	10
DFN309200302	9.20	47	89	10
DFN309250302	9.25(23/64")	47	89	10
DFN309300302	9.30	47	89	10
DFN309400302	9.40	47	89	10
DFN309500302	9.50	47	89	10
DFN309600302	9.60	47	89	10
DFN309700302	9.70	47	89	10
DFN309800302	9.80	47	89	10
DFN309900302	9.90	47	89	10

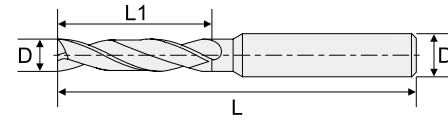
Cutting conditions : Table 02

DFN - Flat · External Coolant · 3D

P	M	K	N	S	H
●	○	●			

Specification

- 3×D Cutting depth
- SINIX Coating
- Reinforced Shank
- Tolerance h8
- Flat tip
- FX Design
- External Coolant



Unit:mm

Order No.	D	L1	L	Ds
DFN310000302	10.00	47	89	10
DFN310100302	10.10	55	102	12
DFN310200302	10.20	55	102	12
DFN310300302	10.30	55	102	12
DFN310400302	10.40	55	102	12
DFN310500302	10.50	55	102	12
DFN310600302	10.60	55	102	12
DFN310700302	10.70	55	102	12
DFN310800302	10.80	55	102	12
DFN310900302	10.90	55	102	12
DFN311000302	11.00	55	102	12
DFN311100302	11.10	55	102	12
DFN311200302	11.20	55	102	12
DFN311300302	11.30	55	102	12
DFN311400302	11.40	55	102	12
DFN311500302	11.50	55	102	12
DFN311600302	11.60	55	102	12
DFN311700302	11.70	55	102	12
DFN311800302	11.80	55	102	12
DFN311900302	11.90	55	102	12
DFN312000302	12.00	55	102	12
DFN312100302	12.10	60	107	14
DFN312200302	12.20	60	107	14
DFN312300302	12.30	60	107	14
DFN312400302	12.40	60	107	14
DFN312500302	12.50	60	107	14
DFN312600302	12.60	60	107	14
DFN312700302	12.70(1/2")	60	107	14
DFN312800302	12.80	60	107	14
DFN312900302	12.90	60	107	14
DFN313000302	13.00	60	107	14
DFN313200302	13.20	60	107	14
DFN313300302	13.30	60	107	14
DFN313500302	13.50	60	107	14
DFN313700302	13.70	60	107	14
DFN313800302	13.80	60	107	14
DFN314000302	14.00	60	107	14
DFN314200302	14.20	65	115	16
DFN314300302	14.30	65	115	16
DFN314400302	14.40	65	115	16
DFN314500302	14.50	65	115	16
DFN314700302	14.70	65	115	16

Order No.	D	L1	L	Ds
DFN315000302	15.00	65	115	16
DFN315200302	15.20	65	115	16
DFN315500302	15.50	65	115	16
DFN315600302	15.60	65	115	16
DFN315700302	15.70	65	115	16
DFN315800302	15.80	65	115	16
DFN316000302	16.00	65	115	16
DFN316500302	16.50	73	123	18
DFN317000302	17.00	73	123	18
DFN317500302	17.50	73	123	18
DFN318000302	18.00	73	123	18
DFN318500302	18.50	79	131	20
DFN319000302	19.00	79	131	20
DFN319500302	19.50	79	131	20
DFN320000302	20.00	79	131	20

Cutting conditions : Table 02

DZC, DZN for Step Hole Drilling

Features

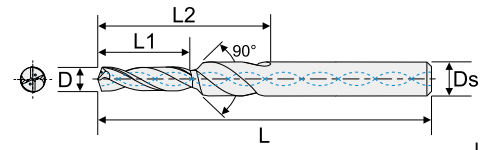
- For drill a hole with counterbore, countersink, or chamfer
- For steel,alloy steel,cast iron
- Customized Service

DZC - Step · Internal Coolant · 3D

P	M	K	N	S	H
●	●	●			○

Specification

- Reinforced Shank
- Internal Coolant
- UNIX Coating
- Tolerance h8
- For drill with a counterbore, countersink, or chamfer.
- Customizable



Unit:mm

Order No.	D	L1	L2	L	Ds
DZC03300301	3.30	12	26	62	6
DZC04200301	4.20	15	28	66	6
DZC05000301	5.00	18	36	79	8
DZC06800301	6.80	24	48	90	10
DZC08500301	8.50	30	55	102	12

Order No.	D	L1	L2	L	Ds

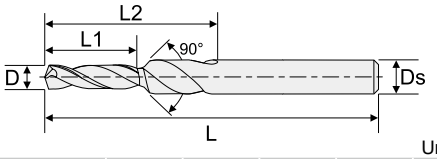
Cutting conditions : Table 07

DZN - Step · External Coolant · 3D

P	M	K	N	S	H
●	○	●			

Specification

- Reinforced Shank
- External Coolant
- UNIX Coating
- Tolerance h8
- For drill with a counterbore, countersink, or chamfer.
- Customizable



Unit:mm

Order No.	D	L1	L2	L	Ds
DZN03300301	3.30	12	26	62	6
DZN04200301	4.20	15	28	66	6
DZN05000301	5.00	18	36	79	8
DZN06800301	6.80	24	48	90	10
DZN08500301	8.50	30	55	102	12

Order No.	D	L1	L2	L	Ds

Cutting conditions : Table 08

DAN with Straight Flute

Features

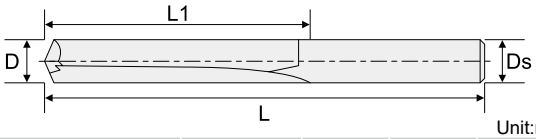
- Tolerance: h7
- Tip angle: 130°
- UNIX Coating
- 3×D ~ 5×D Cutting Depth

DAN - Straight flute · External Coolant · 3D

P	M	K	N	S	H
○		●	●		

Specification

- 3×D Cutting depth
- 130° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h7



Unit:mm

Order No.	D	L1	L	Ds
* DAN304000341	4.00	24	75	4
DAN304500301	4.50	24	75	6
DAN305000301	5.00	28	75	6
DAN305500301	5.50	28	75	6
DAN306000301	6.00	28	75	6
DAN306500301	6.50	34	100	8
DAN307000301	7.00	34	100	8
DAN307500301	7.50	41	100	8
DAN308000301	8.00	41	100	8
DAN308500301	8.50	47	100	10
DAN309000301	9.00	47	100	10
DAN309500301	9.50	47	100	10
DAN310000301	10.00	47	100	10
DAN312000301	12.00	55	100	12
DAN314000301	14.00	60	100	14
DAN316000301	16.00	65	107	16

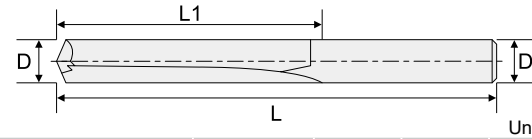
Order No.	D	L1	L	Ds

DAN - Straight flute · External Coolant · 5D

P	M	K	N	S	H
○		●	●		

Specification

- 5×D Cutting depth
- 130° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h7



Unit:mm

Order No.	D	L1	L	Ds
* DAN504000541	4.00	36	100	4
DAN504500501	4.50	36	100	6
DAN505000501	5.00	44	100	6
DAN505500501	5.50	44	100	6
DAN506000501	6.00	44	100	6
DAN506500501	6.50	53	100	8
DAN507000501	7.00	53	100	8
DAN507500501	7.50	53	100	8
DAN508000501	8.00	53	100	8
DAN508500501	8.50	61	107	10
DAN509000501	9.00	61	107	10
DAN509500501	9.50	61	107	10
DAN510000501	10.00	61	107	10
DAN512000501	12.00	71	150	12
DAN514000501	14.00	77	150	14
DAN516000501	16.00	83	150	16

Order No.	D	L1	L	Ds

DGN for Universal Drilling

Features

- General Purpose Drilling
- For Steel and Cast Iron
- Longer Tool Life
- Competitive Price

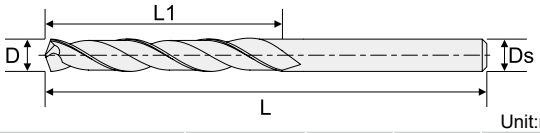
WINSTAR

DGN - for Universal · External Coolant · 3D

P	M	K	N	S	H
●	○	●			

Product Specs

- 3×D Cutting depth
- Straight Shank
- 130° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h8
- NX Design
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



Unit:mm

Order No.	D	L1	L	Ds
DGN302000301	2.00	12	38	2.00
DGN302100301	2.10	12	38	2.10
DGN302200301	2.20	13	40	2.20
DGN302300301	2.30	13	40	2.30
DGN302380301	2.38(3/32")	14	43	2.38
DGN302400301	2.40	14	43	2.40
DGN302500301	2.50	14	43	2.50
DGN302600301	2.60	14	43	2.60
DGN302700301	2.70	16	46	2.70
DGN302780301	2.78(7/64")	16	46	2.78
DGN302800301	2.80	16	46	2.80
DGN302900301	2.90	16	46	2.90
DGN303000301	3.00	16	46	3.00
DGN303100301	3.10	18	49	3.10
DGN303170301	3.17(1/8")	18	49	3.17
DGN303200301	3.20	18	49	3.20
DGN303300301	3.30	18	49	3.30
DGN303400301	3.40	20	52	3.40
DGN303500301	3.50	20	52	3.50
DGN303570301	3.57(9/64")	20	52	3.57
DGN303600301	3.60	20	52	3.60
DGN303700301	3.70	20	52	3.70
DGN303800301	3.80	22	55	3.80
DGN303900301	3.90	22	55	3.90
DGN303970301	3.97(5/32")	22	55	3.97
DGN304000301	4.00	22	55	4.00
DGN304100301	4.10	22	55	4.10
DGN304200301	4.20	24	58	4.20
DGN304300301	4.30	24	58	4.30
DGN304370301	4.37(11/64")	24	58	4.37
DGN304400301	4.40	24	58	4.40
DGN304500301	4.50	24	58	4.50
DGN304600301	4.60	24	58	4.60
DGN304700301	4.70	24	58	4.70
DGN304760301	4.76(3/16")	26	62	4.76
DGN304800301	4.80	26	62	4.80
DGN304900301	4.90	26	62	4.90
DGN305000301	5.00	26	62	5.00
DGN305100301	5.10	26	62	5.10
DGN305200301	5.20	26	62	5.20
DGN305300301	5.30	26	62	5.30
DGN305400301	5.40	28	66	5.40
DGN305500301	5.50	28	66	5.50
DGN305600301	5.60	28	66	5.60
DGN305700301	5.70	28	66	5.70
DGN305800301	5.80	28	66	5.80
DGN305900301	5.90	28	66	5.90

Order No.	D	L1	L	Ds
DGN306000301	6.00	28	66	6.00
DGN306100301	6.10	31	70	6.10
DGN306200301	6.20	31	70	6.20
DGN306300301	6.30	31	70	6.30
DGN306350301	6.35(1/4")	31	70	6.35
DGN306400301	6.40	31	70	6.40
DGN306500301	6.50	31	70	6.50
DGN306600301	6.60	31	70	6.60
DGN306700301	6.70	31	70	6.70
DGN306800301	6.80	34	74	6.80
DGN306900301	6.90	34	74	6.90
DGN307000301	7.00	34	74	7.00
DGN307100301	7.10	34	74	7.10
DGN307140301	7.14(9/32")	34	74	7.14
DGN307200301	7.20	34	74	7.20
DGN307300301	7.30	34	74	7.30
DGN307400301	7.40	34	74	7.40
DGN307500301	7.50	34	74	7.50
DGN307600301	7.60	37	79	7.60
DGN307700301	7.70	37	79	7.70
DGN307800301	7.80	37	79	7.80
DGN307900301	7.90	37	79	7.90
DGN307940301	7.94(5/16")	37	79	7.94
DGN308000301	8.00	37	79	8.00
DGN308100301	8.10	37	79	8.10
DGN308200301	8.20	37	79	8.20
DGN308300301	8.30	37	79	8.30
DGN308400301	8.40	37	79	8.40
DGN308500301	8.50	37	79	8.50
DGN308600301	8.60	37	79	8.60
DGN308700301	8.70	37	79	8.70
DGN308730301	8.73(11/32")	40	84	8.73
DGN308800301	8.80	40	84	8.80
DGN308900301	8.90	40	84	8.90
DGN309000301	9.00	40	84	9.00
DGN309100301	9.10	40	84	9.10
DGN309200301	9.20	40	84	9.20
DGN309300301	9.30	40	84	9.30
DGN309400301	9.40	40	84	9.40
DGN309500301	9.50	40	84	9.50
DGN309700301	9.70	43	89	9.70
DGN309800301	9.80	43	89	9.80
DGN309900301	9.90	43	89	9.90

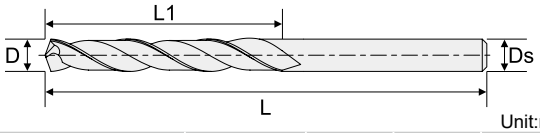
Cutting conditions : Table 02

DGN - for Universal · External Coolant · 3D

P	M	K	N	S	H
●	○	●			

Product Specs

- 3×D Cutting depth
- Straight Shank
- 130° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h8
- NX Design
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



Unit:mm

Order No.	D	L1	L	Ds
DGN310000301	10.00	43	89	10.00
DGN310100301	10.10	43	89	10.10
DGN310200301	10.20	43	89	10.20
DGN310300301	10.30	43	89	10.30
DGN310400301	10.40	43	89	10.40
DGN310500301	10.50	43	89	10.50
DGN310600301	10.60	43	89	10.60
DGN310800301	10.80	47	95	10.80
DGN310900301	10.90	47	95	10.90
DGN311000301	11.00	47	95	11.00
DGN311100301	11.10	47	95	11.10
DGN311200301	11.20	47	95	11.20
DGN311500301	11.50	47	95	11.50
DGN311600301	11.60	47	95	11.60
DGN311800301	11.80	47	95	11.80
DGN311900301	11.90	51	102	11.90
DGN312000301	12.00	51	102	12.00
DGN312500301	12.50	51	102	12.50
DGN312700301	12.70	51	102	12.70
DGN313000301	13.00	51	102	13.00
DGN313500301	13.50	54	107	13.50
DGN314000301	14.00	54	107	14.00
DGN314500301	14.50	56	111	14.50
DGN315000301	15.00	56	111	15.00
DGN315500301	15.50	58	115	15.50
DGN316000301	16.00	58	115	16.00

Order No.	D	L1	L	Ds

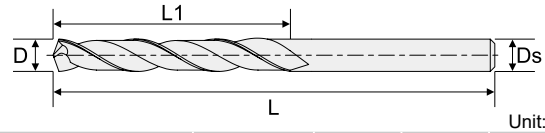
Cutting conditions : Table 02

DGN - for Universal · External Coolant · 5D

P	M	K	N	S	H
●	○	●			

Product Specs

- 5×D Cutting depth
- Straight Shank
- 130° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h8
- NX Design
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



Unit:mm

Order No.	D	L1	L	Ds
DGN505000501	5.00	34	73	5.00
DGN505100501	5.10	38	76	5.10
DGN505200501	5.20	38	76	5.20
DGN505300501	5.30	38	76	5.30
DGN505400501	5.40	38	76	5.40
DGN505500501	5.50	38	76	5.50
DGN505600501	5.60	41	81	5.60
DGN505700501	5.70	41	81	5.70
DGN505800501	5.80	41	81	5.80
DGN505900501	5.90	41	81	5.90
DGN506000501	6.00	41	81	6.00
DGN506100501	6.10	41	81	6.10
DGN506200501	6.20	41	81	6.20
DGN506300501	6.30	41	81	6.30
DGN506400501	6.40	41	81	6.40
DGN506500501	6.50	41	81	6.50
DGN506600501	6.60	43	83	6.60
DGN506700501	6.70	43	83	6.70
DGN506800501	6.80	43	83	6.80
DGN506900501	6.90	43	83	6.90
DGN507000501	7.00	43	83	7.00
DGN507100501	7.10	45	87	7.10
DGN507200501	7.20	45	87	7.20
DGN507300501	7.30	45	87	7.30
DGN507400501	7.40	45	87	7.40
DGN507500501	7.50	45	87	7.50
DGN507600501	7.60	48	90	7.60
DGN507700501	7.70	48	90	7.70
DGN507800501	7.80	48	90	7.80
DGN507900501	7.90	48	90	7.90
DGN508000501	8.00	48	90	8.00
DGN508100501	8.10	53	96	8.10
DGN508200501	8.20	53	96	8.20
DGN508300501	8.30	53	96	8.30
DGN508400501	8.40	53	96	8.40
DGN508500501	8.50	53	96	8.50
DGN508600501	8.60	55	98	8.60
DGN508700501	8.70	55	98	8.70
DGN508800501	8.80	55	98	8.80

Order No.	D	L1	L	Ds
DGN509000501	9.00	55	98	9.00
DGN509100501	9.10	58	102	9.10
DGN509200501	9.20	58	102	9.20
DGN509300501	9.30	58	102	9.30
DGN509500501	9.50	58	102	9.50
DGN509600501	9.60	60	105	9.60
DGN509700501	9.70	60	105	9.70
DGN509800501	9.80	60	105	9.80
DGN510000501	10.00	60	105	10.00
DGN510200501	10.20	66	112	10.20
DGN510300501	10.30	66	112	10.30
DGN510400501	10.40	66	112	10.40
DGN510500501	10.50	66	112	10.50
DGN510600501	10.60	68	114	10.60
DGN510700501	10.70	68	114	10.70
DGN510800501	10.80	68	114	10.80
DGN510900501	10.90	68	114	10.90
DGN511000501	11.00	68	114	11.00
DGN511100501	11.10	71	118	11.10
DGN511200501	11.20	71	118	11.20
DGN511400501	11.40	71	118	11.40
DGN511500501	11.50	71	118	11.50
DGN511600501	11.60	73	121	11.60
DGN511700501	11.70	73	121	11.70
DGN511800501	11.80	73	121	11.80
DGN511900501	11.90	73	121	11.90
DGN512000501	12.00	73	121	12.00
DGN512500501	12.50	76	135	12.50
DGN512700501	12.70	78	137	12.70
DGN513000501	13.00	78	137	13.00
DGN513500501	13.50	84	144	13.50
DGN514000501	14.00	86	147	14.00
DGN514500501	14.50	89	151	14.50
DGN515000501	15.00	91	153	15.00
DGN515500501	15.50	94	157	15.50
DGN516000501	16.00	96	160	16.00

Cutting conditions : Table 02

Recommended Cutting Conditions

Table 01 - DPC Series (Internal Coolant)

Work Material		Drill Diameter	Ø3-6mm		Ø6.1~10mm		Ø10.1-16mm	
		Hardness	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)
P	Mild Steel	(<180HB)	70~120	0.1~0.2	90~130	0.15~0.3	110~150	0.25~0.4
	Cabon Steel	(180~280HB)	70~110	0.1~0.2	90~120	0.15~0.3	110~140	0.25~0.4
	Alloy Steel	(280~350HB)	60~100	0.08~0.18	65~110	0.15~0.27	80~120	0.22~0.35
M	Stainless Steel	(<200HB)	35~60	0.06~0.15	45~80	0.1~0.25	55~100	0.2~0.3
K	Cast Iron	(<350Mpa)	70~100	0.1~0.2	80~120	0.15~0.3	90~140	0.25~0.4
	Ductile Cast Iron	(<450Mpa)	50~80	0.1~0.2	60~90	0.15~0.3	70~110	0.25~0.4
N	Aluminum <12% Si	-	80~140	0.1~0.25	100~160	0.15~0.35	110~180	0.3~0.45
	Aluminum >12% Si	-	70~120	0.1~0.25	90~130	0.15~0.35	100~150	0.3~0.45
S	Heat Resistant Alloy	-	15~30	0.02~0.08	20~40	0.04~0.1	25~45	0.06~0.12
H	Hardened Material	40~60HRC	10~25	0.02~0.08	15~35	0.04~0.1	20~40	0.06~0.12

Warning :
For deep hole drills(10xD~20xD), need reduce the Vc to 90% and require an initial pilot hole to help guide the drill.

Table 02 - DPN, DFN, DGN Series (External Coolant)

Work Material		Drill Diameter	Ø3-6mm		Ø6.1~10mm		Ø10.1-16mm	
		Hardness	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)
P	Mild Steel	(<180HB)	40~70	0.1~0.2	55~85	0.15~0.3	60~100	0.25~0.4
	Cabon Steel	(180~280HB)	35~65	0.1~0.2	50~80	0.15~0.3	55~90	0.25~0.4
	Alloy Steel	(280~350HB)	30~60	0.08~0.18	40~75	0.15~0.27	50~85	0.22~0.35
M	Stainless Steel	(<200HB)	20~40	0.06~0.15	25~50	0.1~0.25	30~60	0.2~0.3
K	Cast Iron	(<350Mpa)	40~60	0.1~0.2	50~75	0.15~0.3	55~85	0.25~0.4
	Ductile Cast Iron	(<450Mpa)	35~55	0.1~0.2	45~70	0.15~0.3	50~80	0.25~0.4
N	Aluminum <12% Si	-	60~100	0.1~0.25	65~115	0.15~0.35	70~130	0.3~0.45
	Aluminum >12% Si	-	50~90	0.1~0.25	60~110	0.15~0.35	65~120	0.3~0.45
S	Heat Resistant Alloy	-	15~30	0.02~0.08	20~40	0.04~0.1	25~45	0.06~0.12
H	Hardened Material	40~60HRC	10~25	0.02~0.08	15~35	0.04~0.1	20~40	0.06~0.12

Warning :For slope drilling, please adjust cutting data acording to inclined angle
1. For inclined angle under 20 degree, reduce the feed to 50%
2. For inclined angle between 20 to 50 degree, reduce the feed to 40%, and reduce rotation to 70%
3. For inclined angle between 50 to 65 degree, reduce the feed to 30%, and reduce rotation to 70%
4. Not recommend to side milling

Recommended Cutting Conditions

Table 03 - DLC, DLN Series

Work Material		ØD < 1mm		1mm ≤ ØD < 3mm	
		Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)
P	Steel	30 - 45 - 60	0.005 - 0.018 - 0.03	40 - 50 - 60	0.015 - 0.038 - 0.06
M	Stainless Steel	20 - 30 - 40	0.005 - 0.018 - 0.03	20 - 30 - 40	0.015 - 0.038 - 0.06
K	Cast Iron	30 - 45 - 60	0.005 - 0.018 - 0.03	40 - 50 - 60	0.015 - 0.038 - 0.06
N	Aluminum	45 - 68 - 90	0.015 - 0.053 - 0.09	60 - 75 - 90	0.045 - 0.113 - 0.18
S	High Temperature Alloy	15 - 23 - 30	0.005 - 0.013 - 0.02	20 - 25 - 30	0.01 - 0.02 - 0.03
H	Hardened Material	15 - 23 - 30	0.005 - 0.013 - 0.02	20 - 25 - 30	0.01 - 0.02 - 0.03

※ Deep hole machining is suitable for DLN series and uses peck drilling.
To choose uncoating tool for aluminum machining.

Table 04 - DMC Series (Internal Coolant)

Material	Stainless Steel				Titanium Alloy		Nickel Alloy		Carbon Steel / Alloy Steel	
Hardness	< HRC 20		≥ HRC 20		HRC 33 ~ 45		HRC 33 ~ 45		< HRC 35	
Vc	60 ~ 100 m/min		40 ~ 80 m/min		20 ~ 40 m/min		18 ~ 30 m/min		60 ~ 100 m/min	
Dia (mm)	RPM	Feed (mm/rev)	RPM	Feed (mm/rev)	RPM	Feed (mm/rev)	RPM	Feed (mm/rev)	RPM	Feed (mm/rev)
4	4800 ~ 8000	0.06 ~ 0.11	3200 ~ 6400	0.06 ~ 0.11	1600 ~ 3200	0.05 ~ 0.08	1400 ~ 2400	0.05 ~ 0.08	4800 ~ 8000	0.07 ~ 0.12
6	3200 ~ 5300	0.09 ~ 0.17	2100 ~ 4200	0.09 ~ 0.17	1000 ~ 2100	0.07 ~ 0.12	1000 ~ 1600	0.07 ~ 0.12	3200 ~ 5300	0.11 ~ 0.18
8	2400 ~ 4000	0.12 ~ 0.22	1600 ~ 3200	0.12 ~ 0.22	800 ~ 1600	0.10 ~ 0.16	700 ~ 1200	0.10 ~ 0.16	2400 ~ 4000	0.14 ~ 0.24
10	1900 ~ 3200	0.17 ~ 0.28	1300 ~ 2500	0.17 ~ 0.28	600 ~ 1300	0.12 ~ 0.20	600 ~ 1000	0.12 ~ 0.20	1900 ~ 3200	0.18 ~ 0.30
12	1600 ~ 2700	0.19 ~ 0.33	1000 ~ 2100	0.19 ~ 0.33	500 ~ 1100	0.14 ~ 0.24	500 ~ 800	0.14 ~ 0.24	1600 ~ 2700	0.21 ~ 0.36
16	1200 ~ 2000	0.22 ~ 0.32	800 ~ 1600	0.22 ~ 0.32	400 ~ 800	0.19 ~ 0.32	400 ~ 600	0.19 ~ 0.32	1200 ~ 2000	0.28 ~ 0.40
20	1000 ~ 1600	0.28 ~ 0.40	600 ~ 1300	0.28 ~ 0.40	300 ~ 600	0.24 ~ 0.40	300 ~ 500	0.24 ~ 0.40	1000 ~ 1600	0.35 ~ 0.50

Table 05 - DMN Series (External Coolant)

Material	Stainless Steel				Titanium Alloy		Nickel Alloy		Carbon Steel / Alloy Steel	
Hardness	< HRC 20		≥ HRC 20		HRC 33 ~ 45		HRC 33 ~ 45		< HRC 35	
Vc	60 ~ 100 m/min		40 ~ 80 m/min		20 ~ 40 m/min		18 ~ 30 m/min		60 ~ 100 m/min	
Dia (mm)	RPM	Feed (mm/rev)	RPM	Feed (mm/rev)	RPM	Feed (mm/rev)	RPM	Feed (mm/rev)	RPM	Feed (mm/rev)
4	4800 ~ 8000	0.05 ~ 0.08	3200 ~ 6400	0.05 ~ 0.08	1600 ~ 3200	0.05 ~ 0.07	1400 ~ 2400	0.05 ~ 0.07	4800 ~ 8000	0.06 ~ 0.10
6	3200 ~ 5300	0.08 ~ 0.12	2100 ~ 4200	0.08 ~ 0.12	1000 ~ 2100	0.06 ~ 0.11	1000 ~ 1600	0.06 ~ 0.11	3200 ~ 5300	0.09 ~ 0.15
8	2400 ~ 4000	0.10 ~ 0.16	1600 ~ 3200	0.10 ~ 0.16	800 ~ 1600	0.09 ~ 0.14	700 ~ 1200	0.09 ~ 0.14	2400 ~ 4000	0.12 ~ 0.20
10	1900 ~ 3200	0.13 ~ 0.20	1300 ~ 2500	0.13 ~ 0.20	600 ~ 1300	0.11 ~ 0.18	600 ~ 1000	0.11 ~ 0.18	1900 ~ 3200	0.15 ~ 0.25
12	1600 ~ 2700	0.15 ~ 0.24	1000 ~ 2100	0.15 ~ 0.24	500 ~ 1100	0.13 ~ 0.22	500 ~ 800	0.13 ~ 0.22	1600 ~ 2700	0.18 ~ 0.30
16	1200 ~ 2000	0.20 ~ 0.32	800 ~ 1600	0.20 ~ 0.32	400 ~ 800	0.17 ~ 0.29	400 ~ 600	0.17 ~ 0.29	1200 ~ 2000	0.24 ~ 0.40
20	1000 ~ 1600	0.25 ~ 0.40	600 ~ 1300	0.25 ~ 0.40	300 ~ 600	0.22 ~ 0.36	300 ~ 500	0.22 ~ 0.36	1000 ~ 1600	0.30 ~ 0.50

Recommended Cutting Conditions

Table 06 - DHN Series (External Coolant)

Material	Hardened Steel / Pre-Hardened Steel						Nickel Alloy	
Hardness	HRC 40 ~ 45		HRC 45 ~ 50		HRC 50 ~ 60		HRC 33 ~ 45	
Vc	30 ~ 50 m/min		20 ~ 30 m/min		20 ~ 30 m/min		15 ~ 30 m/min	
Dia (mm)	RPM	Feed(mm/rev)	RPM	Feed(mm/rev)	RPM	Feed(mm/rev)	RPM	Feed(mm/rev)
4	3200	0.04 ~ 0.08	2000	0.04 ~ 0.08	2000	0.03 ~ 0.06	1600	0.04 ~ 0.08
5	2500	0.05 ~ 0.10	1600	0.05 ~ 0.10	1600	0.04 ~ 0.08	1300	0.05 ~ 0.10
6	2100	0.06 ~ 0.12	1300	0.06 ~ 0.12	1300	0.05 ~ 0.09	1100	0.06 ~ 0.12
7	1800	0.07 ~ 0.14	1100	0.07 ~ 0.14	1100	0.06 ~ 0.11	900	0.07 ~ 0.14
8	1600	0.08 ~ 0.16	1000	0.08 ~ 0.16	1000	0.06 ~ 0.12	800	0.08 ~ 0.16
9	1400	0.09 ~ 0.18	900	0.09 ~ 0.18	900	0.07 ~ 0.14	700	0.09 ~ 0.18
10	1300	0.10 ~ 0.20	800	0.10 ~ 0.20	800	0.08 ~ 0.15	600	0.10 ~ 0.20
11	1150	0.11 ~ 0.22	720	0.11 ~ 0.22	720	0.09 ~ 0.17	600	0.11 ~ 0.22
12	1100	0.12 ~ 0.24	700	0.12 ~ 0.24	700	0.10 ~ 0.18	500	0.12 ~ 0.24

Table 07 - DZC Series (Internal Coolant)

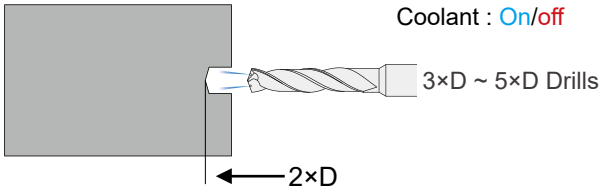
Work Material		Drill Diameter	Ø3-6mm		Ø6.1~10mm		Ø10.1-16mm	
		Hardness	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)
P	Mild Steel	(<180HB)	60~100	0.1~0.2	80~120	0.15~0.3	100~140	0.25~0.4
	Cabon Steel	(180~280HB)	60~90	0.1~0.2	80~110	0.15~0.3	100~130	0.25~0.4
	Alloy Steel	(280~350HB)	50~80	0.08~0.18	60~100	0.15~0.27	70~110	0.22~0.35
M	Stainless Steel	(<200HB)	30~50	0.06~0.15	40~70	0.1~0.25	50~90	0.2~0.3
K	Cast Iron	(<350Mpa)	70~100	0.1~0.2	80~120	0.15~0.3	90~140	0.25~0.4
	Ductile Cast Iron	(<450Mpa)	50~80	0.1~0.2	60~90	0.15~0.3	70~110	0.25~0.4
N	Aluminum <12% Si	-	70~120	0.1~0.25	80~140	0.15~0.35	90~160	0.3~0.45
	Aluminum >12% Si	-	60~100	0.1~0.25	70~120	0.15~0.35	90~140	0.3~0.45
S	Heat Resistant Alloy	-	15~30	0.02~0.08	20~40	0.04~0.1	25~45	0.06~0.12
H	Hardened Material	40~60HRC	10~25	0.02~0.08	15~35	0.04~0.1	20~40	0.06~0.12

Table 08 - DZN Series (External Coolant)

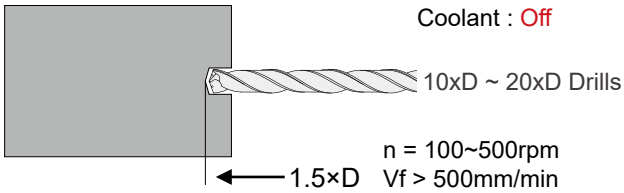
Work Material		Drill Diameter	Ø3-6mm		Ø6.1~10mm		Ø10.1-16mm	
		Hardness	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)
P	Mild Steel	(<180HB)	35~60	0.1~0.2	45~75	0.15~0.3	50~85	0.25~0.4
	Cabon Steel	(180~280HB)	30~55	0.1~0.2	40~70	0.15~0.3	45~80	0.25~0.4
	Alloy Steel	(280~350HB)	25~50	0.08~0.18	35~65	0.15~0.27	40~75	0.22~0.35
M	Stainless Steel	(<200HB)	20~40	0.06~0.15	25~50	0.1~0.25	30~60	0.2~0.3
K	Cast Iron	(<350Mpa)	40~60	0.1~0.2	50~75	0.15~0.3	55~85	0.25~0.4
	Ductile Cast Iron	(<450Mpa)	35~55	0.1~0.2	45~70	0.15~0.3	50~80	0.25~0.4
N	Aluminum <12% Si	-	60~100	0.1~0.25	65~115	0.15~0.35	70~130	0.3~0.45
	Aluminum >12% Si	-	50~90	0.1~0.25	60~110	0.15~0.35	65~120	0.3~0.45
S	Heat Resistant Alloy	-	15~30	0.02~0.08	20~40	0.04~0.1	25~45	0.06~0.12
H	Hardened Material	40~60HRC	10~25	0.02~0.08	15~35	0.04~0.1	20~40	0.06~0.12

Deep Hole Drilling Application Guide

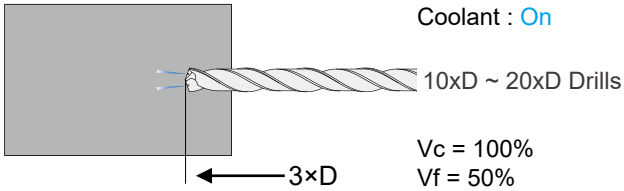
1 Short drill for piloting



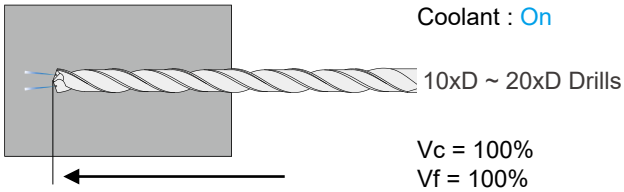
2 Long drill into pilot hole



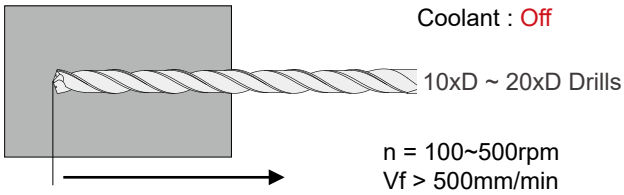
3 Spotting



4 Deep Hole drilling



5 Retracting



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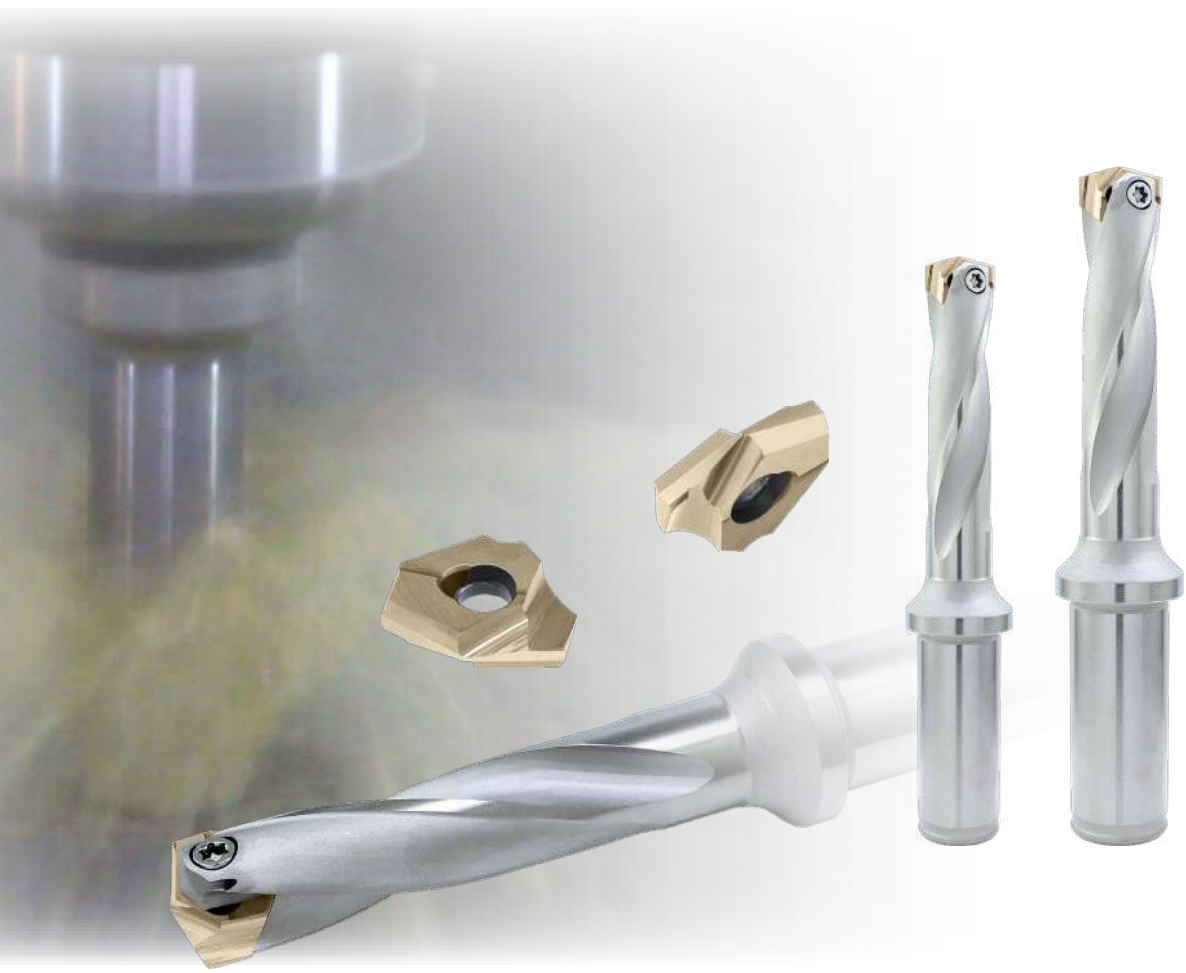
DMWA Inserts.....B048

DMW3 - 3D Holders.....B050

DMW5 - 5D Holders.....B050

DMW7 - 7D Holders.....B050

DMW9 - 10D Holders.....B050

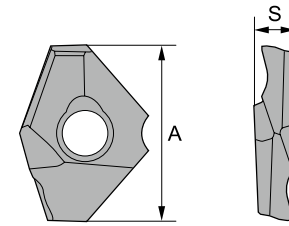


DMW Modular Drill

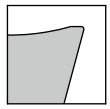
Insert Specification

Insert	Dimensions (mm)	
	A	S
DMWA1400	14.00	4.0
DMWA1450	14.50	4.0
DMWA1500	15.00	4.0
DMWA1550	15.50	4.0
DMWA1587	15.875 (5/8")	4.0
DMWA1600	16.00	4.5
DMWA1630	16.30	4.5
DMWA1650	16.50	4.5
DMWA1700	17.00	4.5
DMWA1750	17.50	4.5

*Customized sizes (two decimal places) are acceptable.



Insert Geometry

Shape	Chipbreaker	Application
	 FM	● Tip Angle : 140° ● Low cutting force for medium cutting in steel, stainless steel, cast iron and high temperature alloy.

Insert Grade

Grade Type	Machining Application	Industry area
CX33TS	● General machining ● For Carbon steel, Alloy steel and Stainless steel	● Auto parts ● Machinery parts ● Aircraft parts

※ Different grades for various applications are available to select, please contact us for more information.

DMW Modular Drill

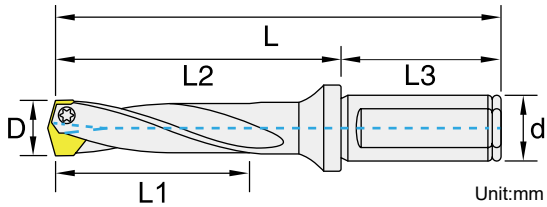
Order Code

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IDMWA1400FM33TS	DMWA1400-FM-CX33TS	●	●	●		●	
	IDMWA1450FM33TS	DMWA1450-FM-CX33TS	●	●	●		●	
	IDMWA1500FM33TS	DMWA1500-FM-CX33TS	●	●	●		●	
	IDMWA1550FM33TS	DMWA1550-FM-CX33TS	●	●	●		●	
	IDMWA1587FM33TS	DMWA1587-FM-CX33TS	●	●	●		●	
	IDMWA1600FM33TS	DMWA1600-FM-CX33TS	●	●	●		●	
	IDMWA1630FM33TS	DMWA1630-FM-CX33TS	●	●	●		●	
	IDMWA1650FM33TS	DMWA1650-FM-CX33TS	●	●	●		●	
	IDMWA1700FM33TS	DMWA1700-FM-CX33TS	●	●	●		●	
	IDMWA1750FM33TS	DMWA1750-FM-CX33TS	●	●	●		●	

Recommended Cutting Conditions

Work Material		Vc (m/min)	fr (mm/rev)	
			14.0mm ≤ ØD ≤ 15.9mm	16.0mm ≤ ØD ≤ 17.9mm
P	Carbon Steel	70 - 105 - 140	0.18 - 0.27 - 0.35	0.23 - 0.30 - 0.38
	Alloy Steel	60 - 95 - 130	0.15 - 0.23 - 0.30	0.20 - 0.28 - 0.35
M	Stainless Steel	55 - 75 - 95	0.13 - 0.19 - 0.25	0.15 - 0.23 - 0.30
K	Cast Iron	70 - 105 - 140	0.18 - 0.27 - 0.35	0.20 - 0.30 - 0.40
S	High Temperature Alloy	35 - 50 - 65	0.10 - 0.15 - 0.20	0.12 - 0.17 - 0.22

DMW Modular Drill



3×D

Order No.	Dimensions, mm						Insert	Screw	Wrench	Stock
	D	L1	L2	L3	L	d				
IDMW3140020	14.0 ~ 14.9	42	71	48	119	20	DMWA14 □□	ITWA3012	TK10	●
IDMW3150020	15.0 ~ 15.9	45	77	50	127	20	DMWA15 □□			●
IDMW3160020	16.0 ~ 16.9	48	82	50	132	20	DMWA16 □□	ITWA3514	TK15	●
IDMW3170020	17.0 ~ 17.9	51	82	50	132	20	DMWA17 □□			●

5×D

Order No.	Dimensions, mm						Insert	Screw	Wrench	Stock
	D	L1	L2	L3	L	d				
IDMW5140020	14.0 ~ 14.9	70	99	48	147	20	DMWA14 □□	ITWA3012	TK10	●
IDMW5150020	15.0 ~ 15.9	75	107	50	157	20	DMWA15 □□			●
IDMW5160020	16.0 ~ 16.9	80	114	50	164	20	DMWA16 □□	ITWA3514	TK15	●
IDMW5170020	17.0 ~ 17.9	85	116	50	166	20	DMWA17 □□			●

7×D

Order No.	Dimensions, mm						Insert	Screw	Wrench	Stock
	D	L1	L2	L3	L	d				
IDMW7140020	14.0 ~ 14.9	98	127	48	175	20	DMWA14 □□	ITWA3012	TK10	○
IDMW7150020	15.0 ~ 15.9	105	137	50	187	20	DMWA15 □□			○
IDMW7160020	16.0 ~ 16.9	112	146	50	196	20	DMWA16 □□	ITWA3514	TK15	○
IDMW7170020	17.0 ~ 17.9	119	150	50	200	20	DMWA17 □□			○

10×D

Order No.	Dimensions, mm						Insert	Screw	Wrench	Stock
	D	L1	L2	L3	L	d				
IDMW9140020	14.0 ~ 14.9	140	169	48	217	20	DMWA14 □□	ITWA3012	TK10	○
IDMW9150020	15.0 ~ 15.9	150	182	50	232	20	DMWA15 □□			○
IDMW9160020	16.0 ~ 16.9	160	194	50	244	20	DMWA16 □□	ITWA3514	TK15	○
IDMW9170020	17.0 ~ 17.9	170	201	50	251	20	DMWA17 □□			○

● stock ○ by inquiry

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DSP Series

SPMG Inserts - internal coolant, 4 cutting edges.....B053
DSP 2D Holders.....B055
DSP 3D Holders.....B057
DSP 4D Holders.....B059
DSP 5D Holders.....B061

DWC Series

WCMT Inserts - internal coolant, 3 cutting edges.....B064
DWC 2D Holders.....B066
DWC 3D Holders.....B068
DWC 4D Holders.....B070
DWC 5D Holders.....B072

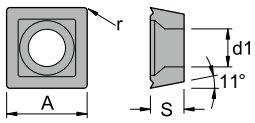
DSP Series

Features

- SPMG series inserts
- Optimized flute design
- Internal coolant
- Better tool life
- Self-Produced inserts
- Diameter 12.5-50 mm

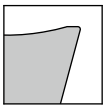
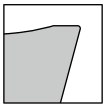
■ *Insert Specifications*

Insert	Dimensions (mm)			
	A	S	r	d1
SPMG050204	5.00	2.38	0.4	2.30
SPMG060204	6.00	2.38	0.4	2.65
SPMG07T308	7.94	3.97	0.8	2.85
SPMG090408	9.80	4.3	0.8	4.05
SPMG110408	11.50	4.8	0.8	4.45



SPMG

■ *Insert Geometry*

Shape	Chipbreaker	Application
	 MG	Low cutting force for medium cutting in steel, stainless and cast iron.
	 RG	Strong geometry design for rough cutting in steel, alloy steel and hardened steel.

■ *Insert Grade*

Grade Type	Coating Type	Properties	Application	Working Material						Industry Area
				P	M	K	N	S	H	
CX32HS	PVD	• Wear resistance • Impact resistance	• Medium machining • For Carbon steel, Alloy steel, Stainless steel and High temperature alloy	●	●	●		○	○	• Auto parts • Machinery parts • Aircraft parts
CX33TS				●	●	●		●	●	
CX43TS	PVD	• High Impact resistance • High toughness	• Roughing or interrupted machining • For Carbon steel, Alloy steel, Stainless steel and High temperature alloy	●	●	●		●		• Auto parts • Machinery parts • Aircraft parts

※ Different grades for various applications are available to select, please contact us for more information.

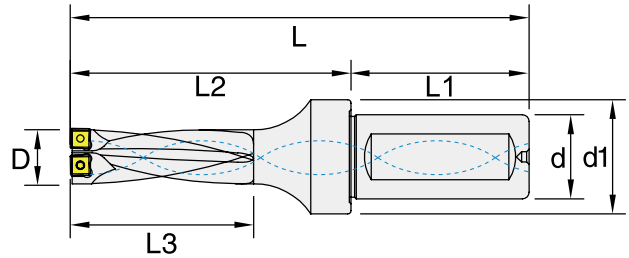
■ *Insert Order Code*

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ISPMG050204MG32HS	SPMG050204-MG-CX32HS	●	●	●		○	○
	ISPMG050204MG33TS	SPMG050204-MG-CX33TS	●	●	●		●	●
	ISPMG050204MG43TS	SPMG050204-MG-CX43TS	●	●	●		●	
	ISPMG060204MG32HS	SPMG060204-MG-CX32HS	●	●	●		○	○
	ISPMG060204MG33TS	SPMG060204-MG-CX33TS	●	●	●		●	●
	ISPMG060204MG43TS	SPMG060204-MG-CX43TS	●	●	●		●	
	ISPMG07T308MG32HS	SPMG07T308-MG-CX32HS	●	●	●		○	○
	ISPMG07T308MG33TS	SPMG07T308-MG-CX33TS	●	●	●		●	●
	ISPMG07T308MG43TS	SPMG07T308-MG-CX43TS	●	●	●		●	
	ISPMG090408MG32HS	SPMG090408-MG-CX32HS	●	●	●		○	○
	ISPMG090408MG33TS	SPMG090408-MG-CX33TS	●	●	●		●	●
	ISPMG090408MG43TS	SPMG090408-MG-CX43TS	●	●	●		●	
	ISPMG090408RG32HS	SPMG090408-RG-CX32HS	●	●	●		○	○
	ISPMG090408RG33TS	SPMG090408-RG-CX33TS	●	●	●		●	●
	ISPMG090408RG43TS	SPMG090408-RG-CX43TS	●	●	●		●	
	ISPMG110408MG32HS	SPMG110408-MG-CX32HS	●	●	●		○	○
	ISPMG110408MG33TS	SPMG110408-MG-CX33TS	●	●	●		●	●
	ISPMG110408MG43TS	SPMG110408-MG-CX43TS	●	●	●		●	
	ISPMG110408RG32HS	SPMG110408-RG-CX32HS	●	●	●		○	○
	ISPMG110408RG33TS	SPMG110408-RG-CX33TS	●	●	●		●	●
	ISPMG110408RG43TS	SPMG110408-RG-CX43TS	●	●	●		●	

DSP - 2D

Specification

- 2×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with SPMG series inserts
- Indexable Insert with 4 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



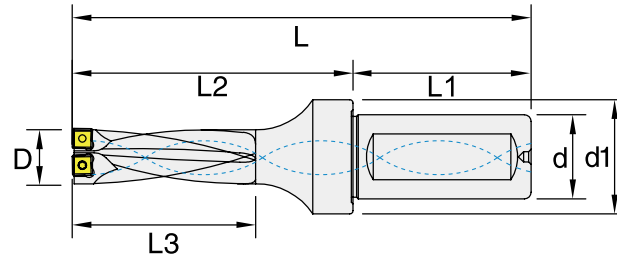
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDSP125220T205	12.5	20	27	94	26	44	50	2	SPMG0502	ITS2003	ITK06	○
IDSP130220T205	13							2				●
IDSP135220T205	13.5			96	28	46		2				○
IDSP140220T205	14							2				●
IDSP145220T205	14.5			99	30	49		2				○
IDSP150220T205	15							2				●
IDSP155225T206	15.5	25	33	108	32	52	56	2	SPMG0602	ITS2205	ITK06	○
IDSP160225T206	16							2				●
IDSP165225T206	16.5			110	34	54		2				○
IDSP170225T206	17							2				●
IDSP175225T206	17.5			113	36	57		2				○
IDSP180225T206	18							2				●
IDSP185225T206	18.5			115	38	59		2				○
IDSP190225T206	19							2				●
IDSP195225T206	19.5			119	40	63		2				○
IDSP200225T206	20							2				●
IDSP205225T206	20.5			121	42	65		2				○
IDSP210225T206	21							2				●
IDSP215225T206	21.5			123	44	67		2				○
IDSP220225T207	22							2	SPMG07T308	ITS2511	ITK08	●
IDSP225232T207	22.5	32	43	131	46	71	60	2				○
IDSP230232T207	23							2				●
IDSP235232T207	23.5			134	48	74		2				○
IDSP240232T207	24							2				●
IDSP245232T207	24.5			137	50	77		2				○
IDSP250232T207	25							2				●
IDSP255232T207	25.5			139	52	79		2				○
IDSP260232T207	26							2				●
IDSP265232T207	26.5			142	54	81		2				○
IDSP270232T207	27							2				●
IDSP275232T207	27.5			144	56	84		2				○

● stock ○ by inquiry

DSP - 2D

Specification

- 2×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with SPMG series inserts
- Indexable Insert with 4 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



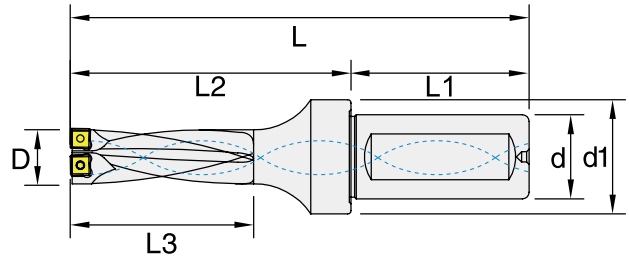
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDSP280232T209	28	32	43	144	56	84	60	2	SPMG090408	ITS3504	ITK15	●
IDSP285232T209	28.5			146	58	86		2				○
IDSP290232T209	29							2				●
IDSP295232T209	29.5			148	60	88		2				○
IDSP300232T209	30							2				●
IDSP305232T209	30.5			150	62	90		2				○
IDSP310232T209	31							2				●
IDSP315232T209	31.5			152	64	92		2				○
IDSP320232T209	32							2				●
IDSP325232T209	32.5			154	66	94		2				○
IDSP330232T209	33							2				●
IDSP340232T211	34			156	68	96		2	SPMG110408	ITS4006	ITK15	●
IDSP350232T211	35			158	70	98		2				●
IDSP360232T211	36			160	72	100		2				●
IDSP370232T211	37			162	74	102		2				●
IDSP380232T211	38			164	76	104		2				●
IDSP390232T211	39			166	78	106		2				●
IDSP400240T211	40	40	53	185	80	115		2				●
IDSP410240T211	41			187	82	117		2				○

● stock ○ by inquiry

DSP - 3D

Specification

- 3×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with SPMG series inserts
- Indexable Insert with 4 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



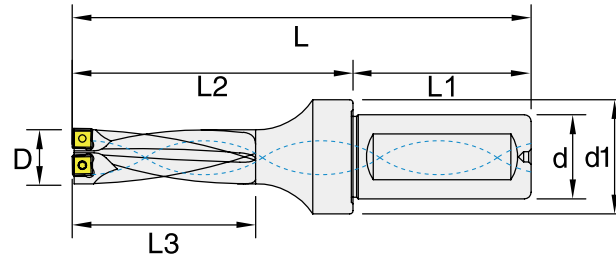
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDSP125320T205	12.5	20	25	107	39	57	50	2	SPMG0502	ITS2003	ITK06	○
IDSP130320T205	13							2				●
IDSP135320T205	13.5			110	42	60		2				○
IDSP140320T205	14							2				●
IDSP145320T205	14.5			114	45	64		2				○
IDSP150320T205	15							2				●
IDSP155325T206	15.5	25	33	124	48	68	56	2	SPMG0602	ITS2205	ITK06	○
IDSP160325T206	16							2				●
IDSP165325T206	16.5			127	51	71		2				○
IDSP170325T206	17							2				●
IDSP175325T206	17.5			131	54	75		2				○
IDSP180325T206	18							2				●
IDSP185325T206	18.5			134	57	78		2				○
IDSP190325T206	19							2				●
IDSP195325T206	19.5			139	60	83		2				○
IDSP200325T206	20							2				●
IDSP205325T206	20.5			142	63	86		2				○
IDSP210325T206	21							2				●
IDSP215325T206	21.5			145	66	89		2				○
IDSP220325T207	22							2	SPMG07T3	ITS2511	ITK08	●
IDSP225332T207	22.5	32	43	154	69	94	60	2				○
IDSP230332T207	23							2				●
IDSP235332T207	23.5			158	72	98		2				○
IDSP240332T207	24							2				●
IDSP245332T207	24.5			162	75	102		2				○
IDSP250332T207	25							2				●
IDSP255332T207	25.5			165	78	105		2				○
IDSP260332T207	26							2				●
IDSP265332T207	26.5			169	81	108		2				○
IDSP270332T207	27							2				●
IDSP275332T207	27.5			172	84	112		2				○

● stock ○ by inquiry

DSP - 3D

Specification

- 3×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with SPMG series inserts
- Indexable Insert with 4 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



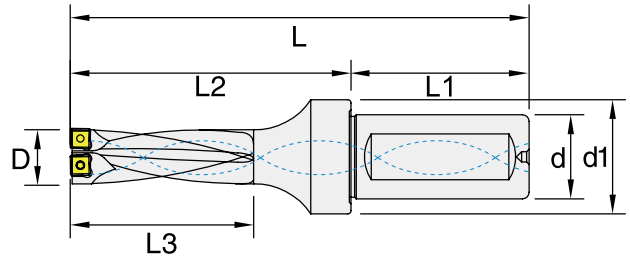
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDSP280332T209	28	32	43	172	84	112	60	2	SPMG0904	ITS3504	ITK15	●
IDSP285332T209	28.5			175	87	115		2				○
IDSP290332T209	29							2				●
IDSP295332T209	29.5			178	90	118		2				○
IDSP300332T209	30							2				●
IDSP305332T209	30.5			181	93	121		2				○
IDSP310332T209	31							2				●
IDSP315332T209	31.5			184	96	124		2				○
IDSP320332T209	32							2				●
IDSP325332T209	32.5			187	99	127		2				○
IDSP330332T209	33							2				●
IDSP340332T211	34			190	102	130		2	SPMG1104	ITS4006	ITK15	●
IDSP350332T211	35			193	105	133		2				●
IDSP360332T211	36			196	108	136		2				●
IDSP370332T211	37			199	111	139		2				●
IDSP380332T211	38			202	114	142		2				●
IDSP390332T211	39			205	117	145		2				●
IDSP400340T211	40	40	53	225	120	155		2				●
IDSP410340T211	41			228	123	158		2				○

● stock ○ by inquiry

DSP - 4D

Specification

- 4×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with SPMG series inserts
- Indexable Insert with 4 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



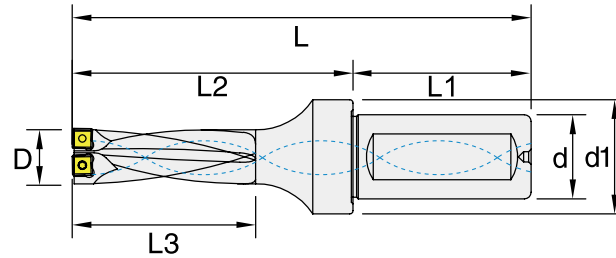
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDSP125420T205	12.5	20	27	120	52	70	50	2	SPMG0502	ITS2003	ITK06	○
IDSP130420T205	13							2				●
IDSP135420T205	13.5			124	56	74		2				○
IDSP140420T205	14							2				●
IDSP145420T205	14.5			129	60	79		2				○
IDSP150420T205	15							2				●
IDSP155425T206	15.5	25	33	140	64	84	56	2	SPMG0602	ITS2205	ITK06	○
IDSP160425T206	16							2				●
IDSP165425T206	16.5			144	68	88		2				○
IDSP170425T206	17							2				●
IDSP175425T206	17.5			148	72	92		2				○
IDSP180425T206	18							2				●
IDSP185425T206	18.5			152	76	96		2				○
IDSP190425T206	19							2				●
IDSP195425T206	19.5			156	80	100		2				○
IDSP200425T206	20							2				●
IDSP205425T206	20.5			160	84	104		2				○
IDSP210425T206	21							2				●
IDSP215425T206	21.5			164	88	108		2				○
IDSP220425T207	22							2	SPMG07T3	ITS2511	ITK08	●
IDSP225432T207	22.5	32	43	177	92	117	60	2				○
IDSP230432T207	23							2				●
IDSP235432T207	23.5			181	96	121		2				○
IDSP240432T207	24							2				●
IDSP245432T207	24.5			185	100	125		2				○
IDSP250432T207	25							2				●
IDSP255432T207	25.5			189	104	129		2				○
IDSP260432T207	26							2				●
IDSP265432T207	26.5			196	108	136		2				○
IDSP270432T207	27							2				●
IDSP275432T207	27.5			200	112	140		2				○

● stock ○ by inquiry

DSP - 4D

Specification

- 4×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with SPMG series inserts
- Indexable Insert with 4 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



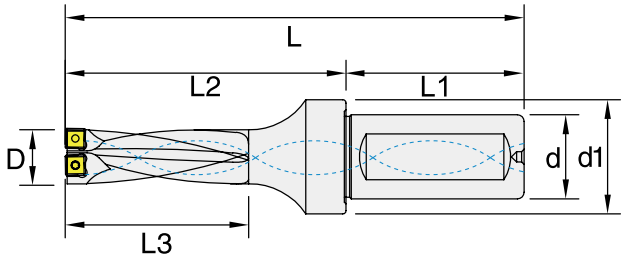
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDSP280432T209	28	32	43	200	112	140	60	2	SPMG0904	TS3504	TK15	●
IDSP285432T209	28.5			204	116	144		2				○
IDSP290432T209	29							2				●
IDSP295432T209	29.5			208	120	148		2				○
IDSP300432T209	30							2				●
IDSP305432T209	30.5			212	124	152		2				○
IDSP310432T209	31							2				●
IDSP315432T209	31.5			216	128	156		2				○
IDSP320432T209	32							2				●
IDSP325432T209	32.5			220	132	160		2				○
IDSP330432T209	33							2				●
IDSP340432T211	34			224	136	164		2	SPMG1104	TS4006	TK15	●
IDSP350432T211	35			228	140	168		2				●
IDSP360432T211	36			232	144	172		2				●
IDSP370432T211	37			236	148	176		2				●
IDSP380432T211	38			240	152	180		2				●
IDSP390432T211	39			244	156	184		2				●
IDSP400440T211	40	40	53	265	160	195		2				●
IDSP410440T211	41			269	164	199		2				○

● stock ○ by inquiry

DSP - 5D

Specification

- 5×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with SPMG series inserts
- Indexable Insert with 4 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDSP130520T205	13	20	27	133	65	83	50	2	SPMG0502	ITS2003	ITK06	○
IDSP140520T205	14			138	70	88		2				○
IDSP150520T205	15			144	75	94		2				○
IDSP160525T206	16	25	33	156	80	100	56	2	SPMG0602	ITS2205	ITK06	○
IDSP170525T206	17			161	85	105		2				○
IDSP180525T206	18			166	90	110		2				○
IDSP190525T206	19			171	95	115		2				○
IDSP200525T206	20			176	100	120		2				○
IDSP210525T206	21			181	105	125		2				○
IDSP220525T207	22			186	110	130		2	SPMG07T3	ITS2511	ITK08	○
IDSP230532T207	23	32	43	200	115	140	60	2				○
IDSP240532T207	24			205	120	145		2				○
IDSP250532T207	25			210	125	150		2				○
IDSP260532T207	26			215	130	155		2				○
IDSP270532T207	27			223	135	163		2				○
IDSP280532T209	28			228	140	168		2	SPMG0904	ITS3504	ITK15	○
IDSP290532T209	29			233	145	173		2				○
IDSP300532T209	30			238	150	178		2				○
IDSP310532T209	31			243	155	183		2				○
IDSP320532T209	32			248	160	188		2				○
IDSP330532T209	33			253	165	193		2				○
IDSP340532T211	34			258	170	198		2	SPMG1104	ITS4006	ITK15	○
IDSP350532T211	35			263	175	203		2				○
IDSP360532T211	36			268	180	208		2				○

● stock ○ by inquiry

Recommended Cutting Conditions

DSP Series (2×D, 3×D)

Work Material		Hardness	Vc (m/min)	Feed Rate (mm/rev)				
				SPMG05 Ø13-Ø15	SPMG06 Ø16-Ø21	SPMG07 Ø22-Ø27	SPMG09 Ø28-Ø33	SPMG11 Ø34-Ø41
P	Mild Steel	(<180HB)	220~350	0.04~0.08	0.05~0.10	0.06~0.13	0.07~0.15	0.08~0.18
	Cabon Steel	(180~280HB)	100~150	0.04~0.08	0.05~0.09	0.06~0.12	0.07~0.13	0.08~0.15
	Alloy Steel	(280~350HB)	80~140	0.04~0.07	0.05~0.08	0.05~0.09	0.06~0.12	0.07~0.14
M	Stainless Steel	(<200HB)	80~180	0.04~0.08	0.05~0.09	0.05~0.10	0.06~0.12	0.07~0.14
K	Cast Iron	(<350Mpa)	150~250	0.05~0.09	0.07~0.12	0.08~0.15	0.09~0.17	0.12~0.20
	Ductile Cast Iron	(<450Mpa)	100~160	0.05~0.08	0.06~0.11	0.07~0.13	0.08~0.15	0.10~0.18
N	Aluminum <12% Si	-	300~400	0.05~0.11	0.07~0.13	0.08~0.15	0.09~0.20	0.12~0.25
	Aluminum >12% Si	-	200~330	0.04~0.08	0.05~0.10	0.06~0.13	0.07~0.15	0.08~0.18
S	Heat Resistant Alloy	-	30~60	0.02~0.04	0.03~0.05	0.03~0.05	0.04~0.06	0.05~0.08
H	Hardened Material	40~60HRC	30~60	0.02~0.04	0.03~0.05	0.03~0.05	0.04~0.06	0.05~0.08

Apply for 4×D reduce 10%, 5×D reduce 15%.

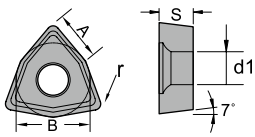
DWC Series

Features

- WCMT series inserts
- Optimized flute design
- Internal coolant
- Better tool life
- Self-Produced inserts
- Diameter 14-60 mm

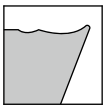
■ *Insert Specifications*

Insert	Dimensions (mm)				
	A	B	S	r	d1
WCMT030208	3.8	5.56	2.38	0.8	2.8
WCMT040208	4.3	6.35	2.38	0.8	3.0
WCMT050308	5.4	7.94	3.18	0.8	3.4
WCMT06T308	6.5	9.53	3.97	0.8	4.0
WCMT080412	8.7	12.7	4.76	1.2	4.3



WCMT

■ *Insert Geometry*

Shape	Chipbreaker	Application
	 MM	Low cutting force for medium cutting in steel, stainless and cast iron.

■ *Insert Grade*

Grade Type	Coating Type	Properties	Application	Working Material						Industry Area
				P	M	K	N	S	H	
CX32HS	PVD	• Wear resistance • Impact resistance	• Medium machining • For Carbon steel, Alloy steel, Stainless steel and High temperature alloy	●	●	●		○	○	• Auto parts • Machinery parts • Aircraft parts
CX33TS				●	●	●		●	●	
CX43TS	PVD	• High Impact resistance • High toughness	• Roughing or interrupted machining • For Carbon steel, Alloy steel, Stainless steel and High temperature alloy	●	●	●		●		• Auto parts • Machinery parts • Aircraft parts

※ Different grades for various applications are available to select, please contact us for more information.

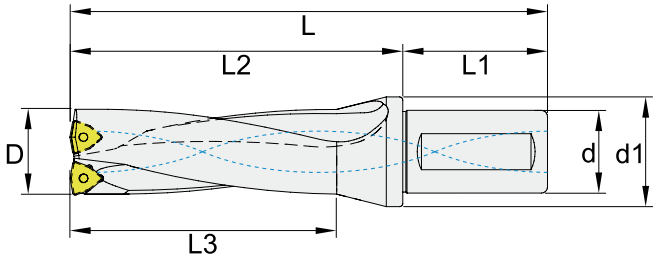
■ *Insert Order Code*

Insert	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IWCMT030208MM32HS	WCMT030208-MM-CX32HS	●	●	●		○	○
	IWCMT030208MM33TS	WCMT030208-MM-CX33TS	●	●	●		●	●
	IWCMT030208MM43TS	WCMT030208-MM-CX43TS	●	●	●		●	
	IWCMT040208MM32HS	WCMT040208-MM-CX32HS	●	●	●		○	○
	IWCMT040208MM33TS	WCMT040208-MM-CX33TS	●	●	●		●	●
	IWCMT040208MM43TS	WCMT040208-MM-CX43TS	●	●	●		●	
	IWCMT050308MM32HS	WCMT050308-MM-CX32HS	●	●	●		○	○
	IWCMT050308MM33TS	WCMT050308-MM-CX33TS	●	●	●		●	●
	IWCMT050308MM43TS	WCMT050308-MM-CX43TS	●	●	●		●	
	IWCMT06T308MM32HS	WCMT06T308-MM-CX32HS	●	●	●		○	○
	IWCMT06T308MM33TS	WCMT06T308-MM-CX33TS	●	●	●		●	●
	IWCMT06T308MM43TS	WCMT06T308-MM-CX43TS	●	●	●		●	
	IWCMT080412MM32HS	WCMT080412-MM-CX32HS	●	●	●		○	○
	IWCMT080412MM33TS	WCMT080412-MM-CX33TS	●	●	●		●	●
	IWCMT080412MM43TS	WCMT080412-MM-CX43TS	●	●	●		●	

DWC - 2D

Specification

- 2×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with WCMT series inserts
- Indexable Insert with 3 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



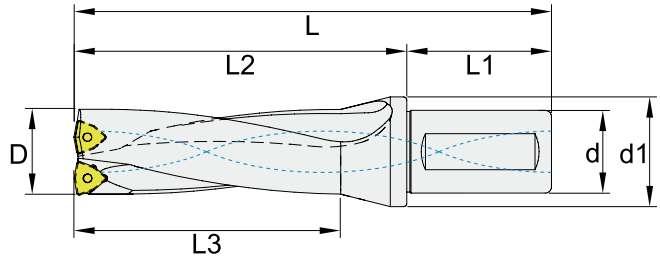
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDWC140225T203	14	25	38	114	28	58	56	2	WCMT0302	ITS2502	ITK08	●
IDWC145225T203	14.5							2				○
IDWC150225T203	15			116	30	60		2		ITS2507		●
IDWC155225T203	15.5							2				○
IDWC160225T203	16			119	32	63		2				●
IDWC165225T203	16.5							2				○
IDWC170225T203	17			120	34	64		2				●
IDWC175225T203	17.5							2				○
IDWC180225T203	18			122	36	66		2				●
IDWC185225T203	18.5							2				○
IDWC190225T203	19			124	38	68		2				●
IDWC195225T203	19.5							2				○
IDWC200225T203	20			126	40	70		2				●
IDWC205225T203	20.5							2				○
IDWC210225T204	21			128	42	72		2	WCMT0402			●
IDWC215225T204	21.5							2				○
IDWC220232T204	22	32	43	136	44	76	60	2				●
IDWC225232T204	22.5							2				○
IDWC230232T204	23			138	46	78		2				●
IDWC235232T204	23.5							2				○
IDWC240232T204	24			141	48	81		2				●
IDWC245232T204	24.5							2				○
IDWC250232T204	25			142	50	82		2				●
IDWC255232T204	25.5							2				○
IDWC260232T205	26			144	52	84		2	WCMT0503	ITS3007	ITK10	●
IDWC270232T205	27			146	54	86		2				●
IDWC280232T205	28			148	56	88		2				●
IDWC290232T205	29			150	58	90		2				●
IDWC300232T205	30			152	60	92		2				●

● stock ○ by inquiry

DWC - 2D

Specification

- 2×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with WCMT series inserts
- Indexable Insert with 3 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



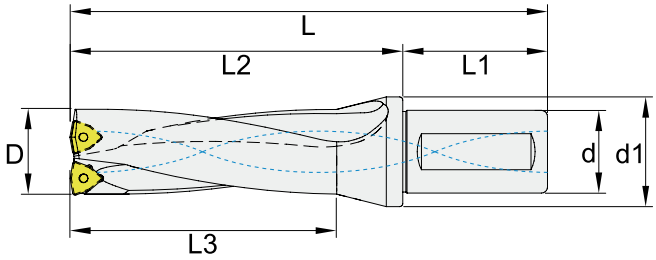
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDWC310232T206	31			154	62	94		2				●
IDWC320232T206	32			156	64	96		2				●
IDWC330232T206	33			159	66	99		2				●
IDWC340232T206	34			160	68	100		2				●
IDWC350232T206	35	32	43	162	70	102	60	2				●
IDWC360232T206	36			164	72	104		2	WCMT06T3	ITS3504		●
IDWC370232T206	37			166	74	106		2				●
IDWC380232T206	38			168	76	106		2				●
IDWC390232T206	39			170	78	110		2				●
IDWC400240T206	40			185	80	115		2				●
IDWC410240T206	41			187	82	117		2				○
IDWC420240T208	42			189	84	119		2				○
IDWC430240T208	43			191	86	121		2				○
IDWC440240T208	44			194	88	124		2				○
IDWC450240T208	45			195	90	125		2				○
IDWC460240T208	46			197	92	127		2			ITK15	○
IDWC470240T208	47		54	199	94	129		2				○
IDWC480240T208	48			201	96	131		2				○
IDWC490240T208	49			202	98	132		2				○
IDWC500240T208	50	40		204	100	134	70	2				○
IDWC510240T208	51			206	102	136		2	WCMT0804	ITS4004		○
IDWC520240T208	52			208	104	138		2				○
IDWC530240T208	53			210	106	140		2				○
IDWC540240T208	54			212	108	142		2				○
IDWC550240T208	55			215	110	145		2				○
IDWC560240T208	56		58	217	112	147		2				○
IDWC570240T208	57			219	114	149		2				○
IDWC580240T208	58		59	221	116	151		2				○
IDWC590240T208	59			223	118	153		2				○
IDWC600240T208	60		63	225	120	155		2				○

● stock ○ by inquiry

DWC - 3D

Specification

- 3×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with WCMT series inserts
- Indexable Insert with 3 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



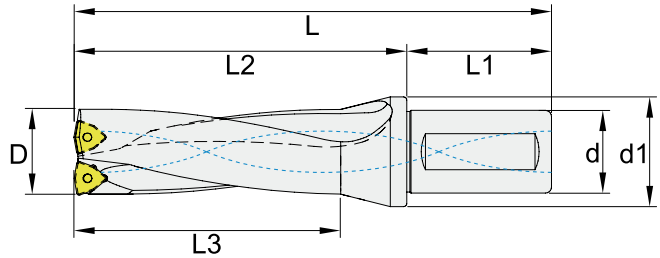
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDWC140325T203	14	25	38	128	42	72	56	2	WCMT0302	ITS2502	ITK08	●
IDWC145325T203	14.5							2				○
IDWC150325T203	15			131	45	75		2		ITS2507		●
IDWC155325T203	15.5							2				○
IDWC160325T203	16			134	48	78		2				●
IDWC165325T203	16.5							2				○
IDWC170325T203	17			137	51	81		2				●
IDWC175325T203	17.5							2				○
IDWC180325T203	18			140	54	84		2				●
IDWC185325T203	18.5							2				○
IDWC190325T203	19			143	57	87		2				●
IDWC195325T203	19.5							2				○
IDWC200325T203	20			146	60	90		2				●
IDWC205325T203	20.5							2				○
IDWC210325T204	21			149	63	93		2	WCMT0402			●
IDWC215325T204	21.5			151	64	95		2				○
IDWC220332T204	22	32	43	158	66	98	60	2				●
IDWC225332T204	22.5							2				○
IDWC230332T204	23			161	69	101		2				●
IDWC235332T204	23.5							2				○
IDWC240332T204	24			164	72	104		2				●
IDWC245332T204	24.5							2				○
IDWC250332T204	25			167	75	107		2				●
IDWC255332T204	25.5							2				○
IDWC260332T205	26			170	78	110		2	WCMT0503	ITS3007	ITK10	●
IDWC270332T205	27			173	81	113		2				●
IDWC280332T205	28			176	84	116		2				●
IDWC290332T205	29			179	87	119		2				●
IDWC300332T205	30			182	90	122		2				●
IDWC305332T206	30.5			182	93	125		2	WCMT06T3	ITS3504	ITK15	○
IDWC310332T206	31			185	93	125		2				●

● stock ○ by inquiry

DWC - 3D

Specification

- 3×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with WCMT series inserts
- Indexable Insert with 3 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



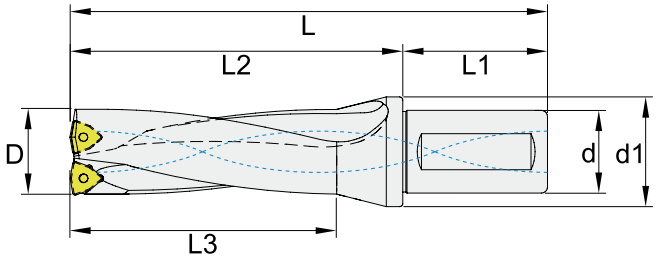
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDWC315332T206	31.5	32	43	185	93	125	60	2	WCMT06T3	ITS3504	ITK15	○
IDWC320332T206	32			188	96	128		2				●
IDWC325332T206	32.5			188	96	128		2				○
IDWC330332T206	33			191	99	131		2				●
IDWC340332T206	34			194	102	134		2				●
IDWC350332T206	35			197	105	137		2				●
IDWC360332T206	36			200	108	140		2				●
IDWC370332T206	37			203	111	143		2				●
IDWC380332T206	38			206	114	146		2				●
IDWC390332T206	39			209	117	149	70	2				●
IDWC400340T206	40	40	54	225	120	155		2				●
IDWC410340T208	41			228	123	158		2				○
IDWC420340T208	42			231	126	161		2	WCMT0804	ITS4004		○
IDWC430340T208	43			234	129	164		2				○
IDWC440340T208	44			238	132	168		2				○
IDWC450340T208	45			240	135	170		2				○
IDWC460340T208	46			243	138	173		2				○
IDWC470340T208	47			246	141	176		2				○
IDWC480340T208	48			249	144	179		2				○
IDWC490340T208	49			253	147	182		2				○
IDWC500340T208	50			254	150	184		2				○
IDWC510340T208	51			257	153	187		2				○
IDWC520340T208	52			260	156	190		2				○
IDWC530340T208	53			263	159	193		2				○
IDWC540340T208	54			266	162	196		2				○
IDWC550340T208	55		58	270	165	200		2				○
IDWC560340T208	56			273	168	203		2				○
IDWC570340T208	57			276	171	205		2				○
IDWC580340T208	58		59	279	174	209		2				○
IDWC590340T208	59			282	177	212		2				○
IDWC600340T208	60		63	285	180	215		2				○

● stock ○ by inquiry

DWC - 4D

Specification

- 4×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with WCMT series inserts
- Indexable Insert with 3 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



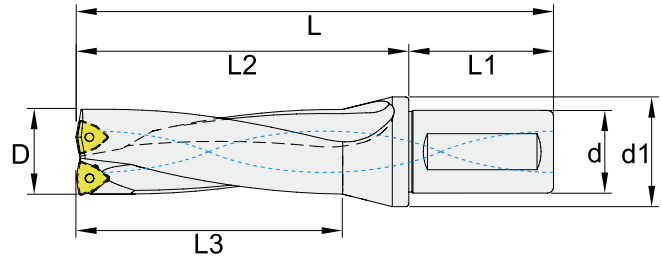
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDWC140425T203	14	25	38	142	56	86	56	2	WCMT0302	ITS2502	ITK08	●
IDWC150425T203	15			146	60	90		2		ITS2507		●
IDWC160425T203	16			150	64	94		2				●
IDWC170425T203	17			154	68	98		2				●
IDWC180425T203	18			158	72	102		2				●
IDWC190425T203	19			162	76	106		2				●
IDWC200425T203	20			166	80	110		2				●
IDWC210425T204	21			170	84	114		2	WCMT0402	ITS2507		●
IDWC220432T204	22	32	43	180	88	120	60	2				●
IDWC230432T204	23			184	92	124		2				●
IDWC240432T204	24			188	96	128		2				●
IDWC250432T204	25			192	100	132		2				●
IDWC260432T205	26			196	104	136		2	WCMT0503	ITS3007	ITK10	●
IDWC270432T205	27			200	108	140		2				●
IDWC280432T205	28			204	112	144		2				●
IDWC290432T205	29			208	116	148		2				●
IDWC300432T205	30			212	120	152		2				●
IDWC310432T206	31			216	124	156		2	WCMT06T3	ITS3504	ITK15	●
IDWC320432T206	32			220	128	160		2				●
IDWC330432T206	33			224	132	164		2				●
IDWC340432T206	34			228	136	168		2				●
IDWC350432T206	35			232	140	172		2				●
IDWC360432T206	36			236	144	176		2				●
IDWC370432T206	37			240	148	180		2				●
IDWC380432T206	38			244	152	184		2				●
IDWC390432T206	39			248	156	188		2				●
IDWC400440T206	40	40	54	265	160	195	70	2				●
IDWC410440T206	41			269	164	199		2				○

● stock ○ by inquiry

DWC - 4D

Specification

- 4×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with WCMT series inserts
- Indexable Insert with 3 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



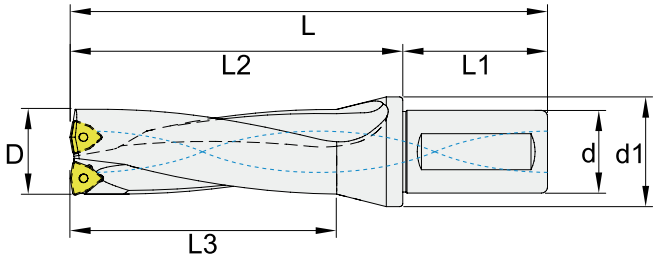
Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDWC420440T208	42	40	54	273	168	203	70	2	WCMT0804	ITS4004	ITK15	○
IDWC430440T208	43			277	172	207		2				○
IDWC440440T208	44			282	176	212		2				○
IDWC450440T208	45			285	180	215		2				○
IDWC460440T208	46			289	184	219		2				○
IDWC470440T208	47			293	188	223		2				○
IDWC480440T208	48			297	192	227		2				○
IDWC490440T208	49			301	196	231		2				○
IDWC500440T208	50			305	200	235		2				○
IDWC510440T208	51			309	204	239		2				○
IDWC520440T208	52			313	208	243		2				○
IDWC530440T208	53			317	212	247		2				○
IDWC540440T208	54			320	216	250		2				○
IDWC550440T208	55			325	220	255		2				○
IDWC560440T208	56		58	329	224	259		2				○
IDWC570440T208	57			333	228	263		2				○
IDWC580440T208	58		59	337	232	267		2				○
IDWC590440T208	59			341	236	271		2				○
IDWC600440T208	60		63	345	240	275		2				○

● stock ○ by inquiry

DWC - 5D

Specification

- 5×D Cutting depth
- High durable SDK holder body
- Internal Coolant
- Use with WCMT series inserts
- Indexable Insert with 3 sides cutting edge
- For Alloy Steel, Steel, Stainless Steel and Cast Iron.



Order No.	Dimensions, mm							T	Insert	Screw	Wrench	Stock
	D	d	d1	L	L3	L2	L1					
IDWC160525T203	16	25	38	166	80	110	56	2	WCMT0302	ITS2507	ITK08	○
IDWC170525T203	17	25	38	171	85	115	56	2				○
IDWC180525T203	18	25	38	176	90	120	56	2				○
IDWC190525T203	19	25	38	181	95	125	56	2				○
IDWC200525T203	20	25	38	186	100	130	56	2				○
IDWC210525T203	21	25	38	191	105	135	56	2				○
IDWC220525T203	22	25	38	196	110	140	56	2				○
IDWC230532T204	23	32	43	207	115	147	60	2	WCMT0402	ITS2507	ITK08	○
IDWC240532T204	24	32	43	212	120	152	60	2				○
IDWC250532T204	25	32	43	217	125	157	60	2				○
IDWC260532T205	26	32	43	222	130	162	60	2	WCMT0503	ITS3007	ITK10	○
IDWC270532T205	27	32	43	227	135	167	60	2				○
IDWC280532T205	28	32	43	232	140	172	60	2				○
IDWC290532T205	29	32	43	237	145	177	60	2				○
IDWC300532T205	30	32	43	242	150	182	60	2				○
IDWC310532T206	31	32	43	247	155	187	60	2	WCMT06T3	ITS3504	ITK15	○
IDWC320532T206	32	32	43	252	160	192	60	2				○
IDWC330532T206	33	32	43	257	165	197	60	2				○
IDWC340532T206	34	32	43	262	170	202	60	2				○
IDWC350532T206	35	32	43	267	175	207	60	2				○
IDWC360532T206	36	32	43	272	180	212	60	2				○
IDWC440540T208	44	40	54	326	220	256	70	2	WCMT0804	ITS4004	ITK15	○

● stock ○ by inquiry

Recommended Cutting Conditions

DWC Series (2×D, 3×D)

Work Material		Hardness	Vc (m/min)	Feed Rate (mm/rev)				
				WCMT03 Ø14-Ø20.5	WCMT04 Ø22-Ø25.5	WCMT05 Ø26-Ø30	WCMT06 Ø31-Ø39	WCMT08 Ø40-Ø60
P	Mild Steel	(<180HB)	110~220	0.06~0.09	0.06~0.11	0.07~0.13	0.08~0.18	0.10~0.25
	Cabon Steel	(180~280HB)	90~140	0.06~0.09	0.06~0.11	0.07~0.13	0.08~0.18	0.10~0.25
	Alloy Steel	(280~350HB)	70~120	0.05~0.07	0.05~0.09	0.06~0.11	0.07~0.14	0.08~0.17
M	Stainless Steel	(<200HB)	60~140	0.05~0.09	0.05~0.10	0.06~0.13	0.07~0.15	0.08~0.18
K	Cast Iron	(<350Mpa)	110~260	0.07~0.11	0.07~0.13	0.08~0.15	0.09~0.18	0.11~0.22
	Ductile Cast Iron	(<450Mpa)	90~120	0.06~0.10	0.06~0.12	0.07~0.14	0.08~0.16	0.10~0.20
N	Aluminum <12% Si	-	200~360	0.06~0.11	0.08~0.13	0.09~0.15	0.11~0.18	0.12~0.25
	Aluminum >12% Si	-	150~250	0.06~0.11	0.08~0.13	0.09~0.15	0.11~0.18	0.12~0.25
S	Heat Resistant Alloy	-	25~50	0.03~0.05	0.03~0.06	0.04~0.08	0.05~0.10	0.06~0.12
H	Hardened Material	-	-	-	-	-	-	-

Apply for 4×D reduce 10%, 5×D reduce 15%.

INDEX

Spotting

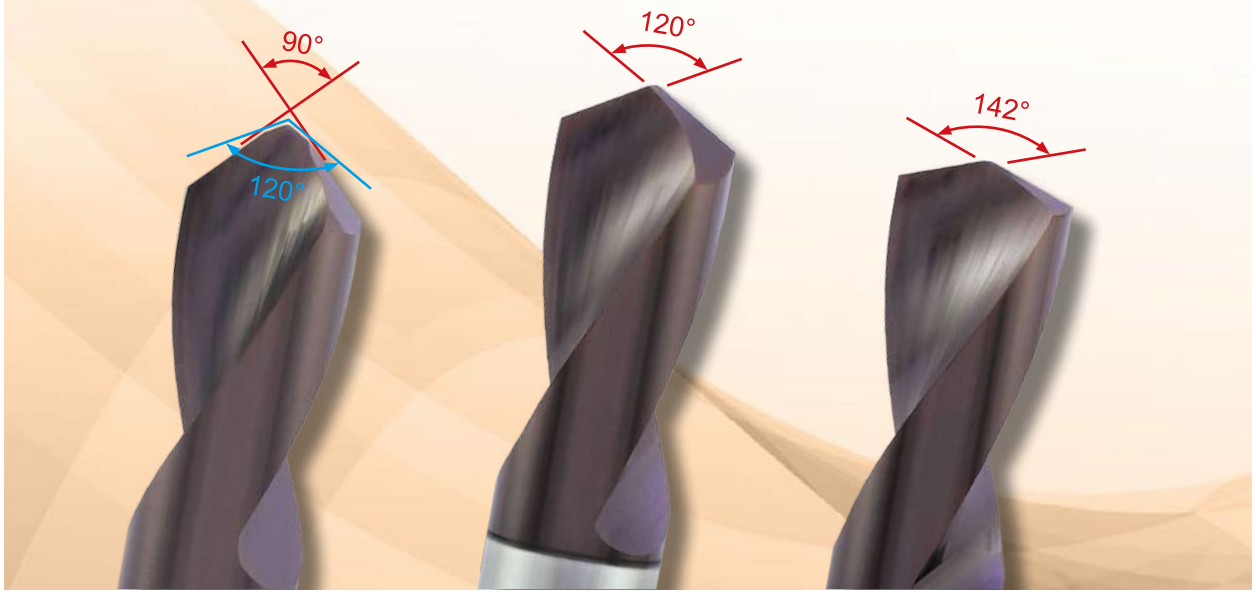
Solid carbide spotting drills - DTN.....B075
Indexable spotting drills - DTS6 60°.....B081
Indexable spotting drills - DTS9 90°.....B082

Centering

Solid carbide centering drills - DCN.....B085

DTN for Spotting Drilling

- ***Suitable for spotting or chamfering machining.***
- ***For steel, stainless steel, cast iron, pre-hardened steel, from HRC 20 to HRC 60 materials.***
- ***High accuracy double tip angle to reduce burr generation.***



Features

- Spotting Drills

  Tip angle 90°, 120°, 142°

- Better Tool Life
- Competitive Price
- Customized Service

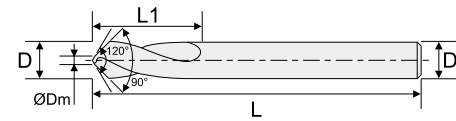
WINSTAR

DTN - for Spotting · External Coolant · Tip angle 90°

P	M	K	N	S	H
●	●	●	○	●	●

Specification

- 90° Tip Angle
- 45° Chamfer Angle
- External Coolant
- UNIX Coating
- Tolerance h8
- 90˚ & 120˚ double angle tip design, reduces drill tip cracking.



Unit:mm

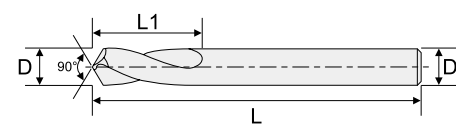
Order No.	ØDm	D	L1	L	Ds
DTN01300901	0.3	1.30	4	50	3
DTN01700901	0.4	1.70	5	50	3
DTN03000901	0.8	3.00	8	50	3
DTN04000901	1.0	4.00	10	50	4
DTN05000901	1.3	5.00	13	50	5
DTN06000901	1.5	6.00	15	50	6
DTN08000901	2.0	8.00	20	60	8
DTN10000901	2.5	10.00	25	75	10
DTN12000901	3.0	12.00	30	75	12
DTN16000901	4.0	16.00	35	100	16

Order No.	ØDm	D	L1	L	Ds
∗ Long Shank Type					
DTN04000911	1.0	4.00	10	75	4
DTN05000911	1.3	5.00	13	75	5
DTN06000911	1.5	6.00	15	100	6
DTN08000911	2.0	8.00	20	100	8
DTN10000911	2.5	10.00	25	150	10
DTN12000911	3.0	12.00	30	150	12
DTN16000911	4.0	16.00	35	150	16

P	M	K	N	S	H
●	●	●	○	○	●

Specification

- 90° Tip Angle
- 45° Chamfer Angle
- External Coolant
- UNIX Coating
- Tolerance h8
- 90˚ single angle tip design.



Unit:mm

Order No.	D	L1	L	Ds
DTN01300951	1.30	4	50	3
DTN01700951	1.70	5	50	3
DTN03000951	3.00	8	50	3
DTN04000951	4.00	10	50	4
DTN05000951	5.00	13	50	5
DTN06000951	6.00	15	50	6
DTN08000951	8.00	20	60	8
DTN10000951	10.00	25	75	10
DTN12000951	12.00	30	75	12
DTN16000951	16.00	35	100	16

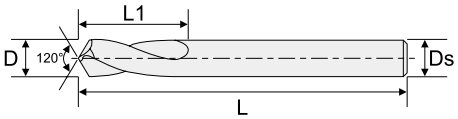
Order No.	D	L1	L	Ds
∗ Long Shank Type				
DTN04000961	4.00	10	75	4
DTN05000961	5.00	13	75	5
DTN06000961	6.00	15	100	6
DTN08000961	8.00	20	100	8
DTN10000961	10.00	25	150	10
DTN12000961	12.00	30	150	12
DTN16000961	16.00	35	150	16

DTN - for Spotting · External Coolant · Tip angle 120°

P	M	K	N	S	H
●	●	●	○	●	●

Specification

- 120° Tip Angle
- 60° Chamfer Angle
- External Coolant
- UNIX Coating
- Tolerance h8



Unit:mm

Order No.	D	L1	L	Ds
DTN03001201	3.00	8	50	3
DTN04001201	4.00	10	50	4
DTN05001201	5.00	13	50	5
DTN06001201	6.00	15	50	6
DTN08001201	8.00	20	60	8
DTN10001201	10.00	25	75	10
DTN12001201	12.00	30	75	12
DTN16001201	16.00	35	100	16

Order No.	D	L1	L	Ds
∗ Long Shank Type				
DTN04001211	4.00	10	75	4
DTN05001211	5.00	13	75	5
DTN06001211	6.00	15	100	6
DTN08001211	8.00	20	100	8
DTN10001211	10.00	25	150	10
DTN12001211	12.00	30	150	12
DTN16001211	16.00	35	150	16

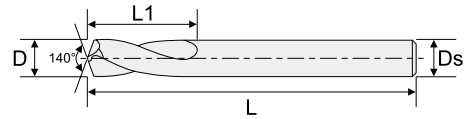
WINSTAR

DTN - for Spotting · External Coolant · Tip angle 142°

P	M	K	N	S	H
●	●	●	○	●	●

Specification

- 142° Tip Angle
- External Coolant
- UNIX Coating
- Tolerance h8



Unit:mm

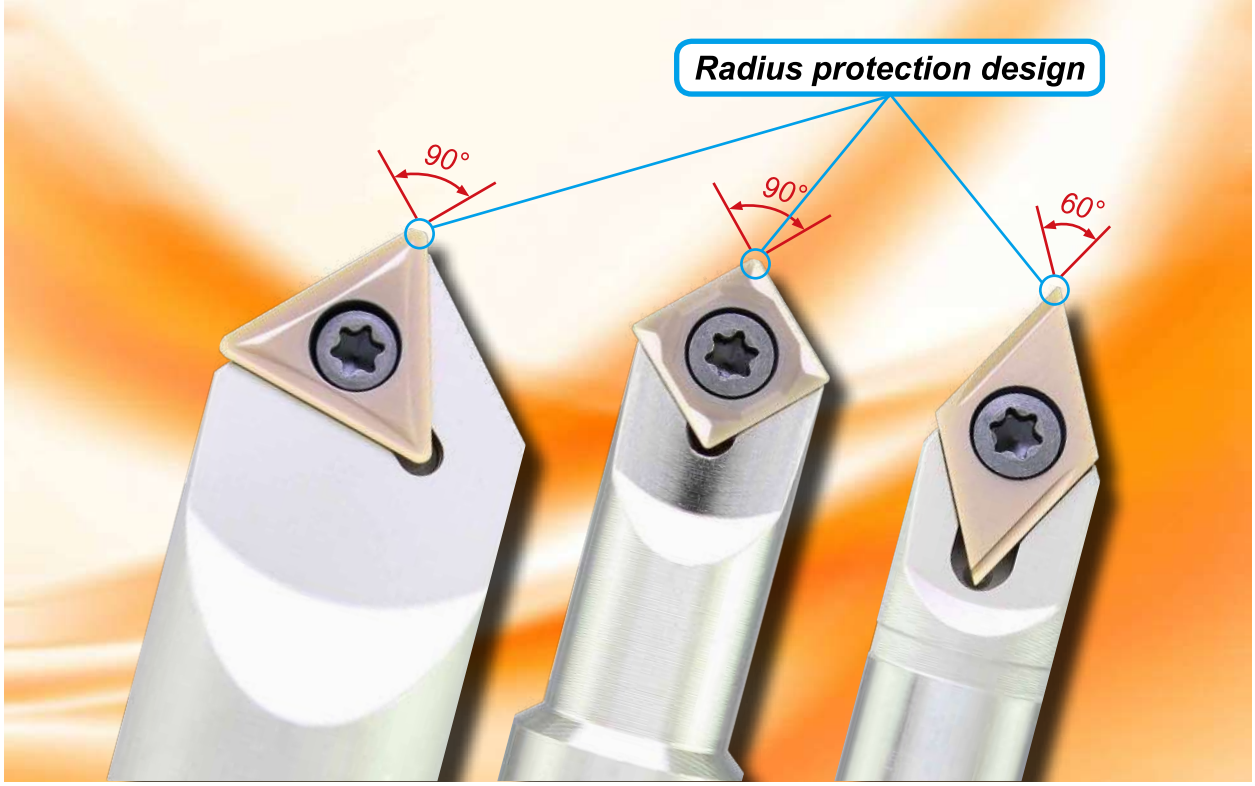
Order No.	D	L1	L	Ds
DTN03001401	3.00	8	50	3
DTN04001401	4.00	10	50	4
DTN05001401	5.00	13	50	5
DTN06001401	6.00	15	50	6
DTN08001401	8.00	20	60	8
DTN10001401	10.00	25	75	10
DTN12001401	12.00	30	75	12
DTN16001401	16.00	35	100	16

Order No.	D	L1	L	Ds
＊ Long Shank Type				
DTN04001411	4.00	10	75	4
DTN05001411	5.00	13	75	5
DTN06001411	6.00	15	100	6
DTN08001411	8.00	20	100	8
DTN10001411	10.00	25	150	10
DTN12001411	12.00	30	150	12
DTN16001411	16.00	35	150	16

Recommended Cutting Conditions

Material		VC (m/min)		Fr (mm/rev)
		DTN 90° & DTN 120°	DTN 140°	
P	Carbon steel	55 ~ 75	60 ~ 90	0.04 ~ 0.14
	Alloy steel	50 ~ 70	55 ~ 85	0.03 ~ 0.10
M	Stainless steel	20 ~ 40	22 ~ 50	0.02 ~ 0.10
K	Cast iron	50 ~ 80	55 ~ 95	0.04 ~ 0.13
H	Hardened steel	20 ~ 40	22 ~ 50	0.02 ~ 0.06

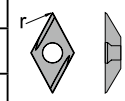
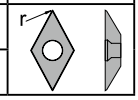
DTS Chamfering & Engraving



- Multiple-function in one tool.
- Many cutting edges insert for better cost efficiency.
- Working size up to 20mm.

DTS6 60° Chamfering & Engraving

■ *Insert Order Code and Specifications*

Insert	Order No.	Designation	r	Working Ød	Working Materials						Figure
				Engraving	P	M	K	N	S	H	
	IDCEX11T301XF32HS	DCEX11T301-XF-CX32HS	0.1	0.2 ~ 1	●	●	●	※	○	○	
	IDCEX11T302XF32HS	DCEX11T302-XF-CX32HS	0.2	0.4 ~ 2	●	●	●	※	○	○	
	IDCEX11T304XF32HS	DCEX11T304-XF-CX32HS	0.4	0.8 ~ 3	●	●	●	※	○	○	
	IDCEX11T304XR32HS	DCEX11T304-XR-CX32HS	0.4	0.8 ~ 3	●	●	●	※	○	○	
	IDCEX11T308XR32HS	DCEX11T308-XR-CX32HS	0.8	0.8 ~ 3	●	●	●	※	○	○	

※ To choose CX10(uncoating) for N material machining.

Recommended Cutting Conditions

for 60° Chamfering / Countersinking

Material		Vc (m/min)	Fr (mm/rev)
P	Carbon Steel	12 ~ 180	0.05 ~ 0.15
	Alloy Steel	12 ~ 180	0.05 ~ 0.15
M	Stainless Steel	12 ~ 180	0.05 ~ 0.15
K	Cast Iron	12 ~ 180	0.05 ~ 0.15
N	Aluminum	12 ~ 180	0.10 ~ 0.20
H	Hardened Steel	12 ~ 180	0.03 ~ 0.10

for 60° Grooving / Engraving

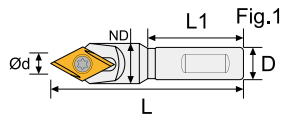
Material		Vc (m/min)	Fr (mm/rev)
P	Carbon Steel	10 ~ 170	0.005 ~ 0.05
	Alloy Steel	10 ~ 170	0.005 ~ 0.03
M	Stainless Steel	10 ~ 170	0.005 ~ 0.05
K	Cast Iron	10 ~ 170	0.005 ~ 0.03
N	Aluminum	10 ~ 170	0.005 ~ 0.08
H	Hardened Steel	10 ~ 170	0.005 ~ 0.02

for 60° Depth of Cut and Number of Passes

No. of Passes	Material					
	Aluminum	Cast iron	Carbon steel	Alloy steel	Stainless steel	Hardened steel
	ap (mm)					
1	1.0	0.8	0.8	0.6	0.5	0.2
2	0.8	0.7	0.6	0.5	0.4	0.2
3	0.2	0.3	0.3	0.3	0.3	0.15
4		0.2	0.2	0.3	0.3	0.15
5			0.1	0.2	0.2	0.1
6				0.1	0.2	0.1
7					0.1	0.1

※ Finally ap is equal to the total depth. MAX ap : 2mm

■ *Holder Order Code and Specifications*



Order No.	D	ND	L	L1	Degree	Fig	Insert	Screw	Wrench	Stock
IDTS1006006011	10	12	60	30	60°	1	DCEX11T3	ITS3520	ITK15	●
IDTS1210006011	12	12	100	-	60°	2				●

● stock ○ by inquiry

■ *Insert Order Code and Specifications*

Insert	Order No.	Designation	r	Working Ød		Working Materials						Figure
				Spotting	Engraving	P	M	K	N	S	H	
	ISCGX09T304AG10	SCGX09T304-AG-CX10	0.4	2 ~ 11	0.8 ~ 2.5				●			
	ISCGX09T304FG12HS	SCGX09T304-FG-CX12HS	0.4	2 ~ 11	0.8 ~ 2.5	●	●	●	●	●		
	ISCMX09T304SM32HS	SCMX09T304-SM-CX32HS	0.4	2 ~ 11	0.8 ~ 2.5	●	●	●		○	○	
	ITCGX16T308AG10	TCGX16T308-AG-CX10	0.8	3 ~ 20	1.6 ~ 4.0				●			
	ITCGX16T308FG12HS	TCGX16T308-FG-CX12HS	0.8	3 ~ 20	1.6 ~ 4.0	●	●	●	●	●		
	ITCMX16T308MP32HS	TCMX16T308-MP-CX32HS	0.8	-	-	●	●	●		○	○	

Recommended Cutting Conditions

for 90° Spotting

Material		Vc (m/min)		Fr (mm/rev)	
		Ød = 2 ~ 4.9 mm	Ød ≥ 5 mm	Ød = 2 ~ 4.9 mm	Ød ≥ 5 mm
P	Carbon steel	60 ~ 120	90 ~ 220	0.04 ~ 0.08	0.06 ~ 0.10
P	Alloy steel	50 ~ 100	75 ~ 180	0.03 ~ 0.06	0.05 ~ 0.08
M	Stainless steel	30 ~ 60	45 ~ 120	0.02 ~ 0.04	0.04 ~ 0.06
K	Cast iron	40 ~ 80	60 ~ 130	0.04 ~ 0.08	0.06 ~ 0.10
H	Hardened steel	20 ~ 40	30 ~ 60	0.02 ~ 0.04	0.04 ~ 0.08

for 90° Chamfering / Countersinking

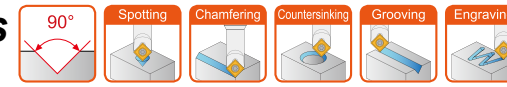
Material		Vc (m/min)	Fr (mm/rev)
P	Carbon steel	60 ~ 270	0.15 ~ 0.24
P	Alloy steel	50 ~ 220	0.12 ~ 0.20
M	Stainless steel	35 ~ 120	0.10 ~ 0.20
K	Cast iron	60 ~ 220	0.15 ~ 0.25
H	Hardened steel	20 ~ 60	0.03 ~ 0.08

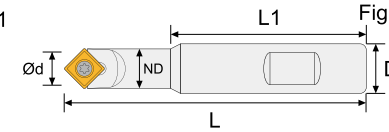
for 90° Grooving / Engraving

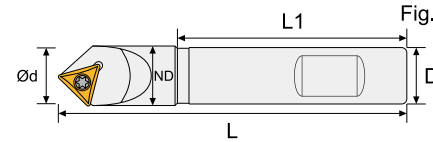
Material		Vc (m/min)	Fr (mm/rev)
P	Carbon steel	40 ~ 140	0.12 ~ 0.18
P	Alloy steel	35 ~ 120	0.10 ~ 0.14
M	Stainless steel	25 ~ 70	0.08 ~ 0.12
K	Cast iron	30 ~ 100	0.12 ~ 0.18
H	Hardened steel	20 ~ 50	0.02 ~ 0.04

DTS9 90° Chamfering & Engraving

■ *Holder Order Code and Specifications*







Order No.	D	ND	L	L1	Degree	Fig	Insert	Screw	Wrench	Stock
IDTS1010009009	10	12.2	100	71	90°	1	SCGX09T3 or SCMX09T3	ITS3520	ITK15	●
IDTS1210009009	12	12.2	100	71	90°	2				●
IDTS1610009009	16	12.2	100	71	90°					●
IDTS1613009009	16	12.2	130	101	90°					●
IDTS2012009016	20	21.2	120	78	90°	3	TCGX16T3 or TCMX16T3	ITS3521	ITK15	●

● stock ○ by inquiry

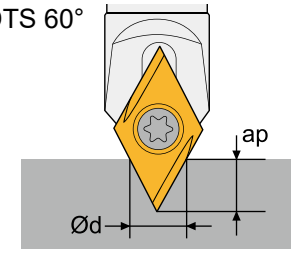
■ How to calculate Ød ,RPM and Feed

Formula :

$$RPM = \frac{Vc \times 1000}{Ød \times \pi}$$

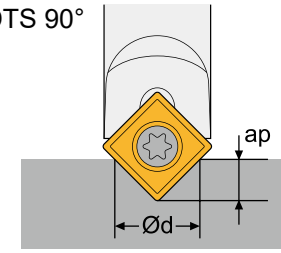
Feed = RPM × Fr

DTS 60°



Ød ≒ (0.577 × (ap + r) + 0.05) × 2

DTS 90°



Ød ≒ (0.4r + ap + 0.05) × 2

EX :

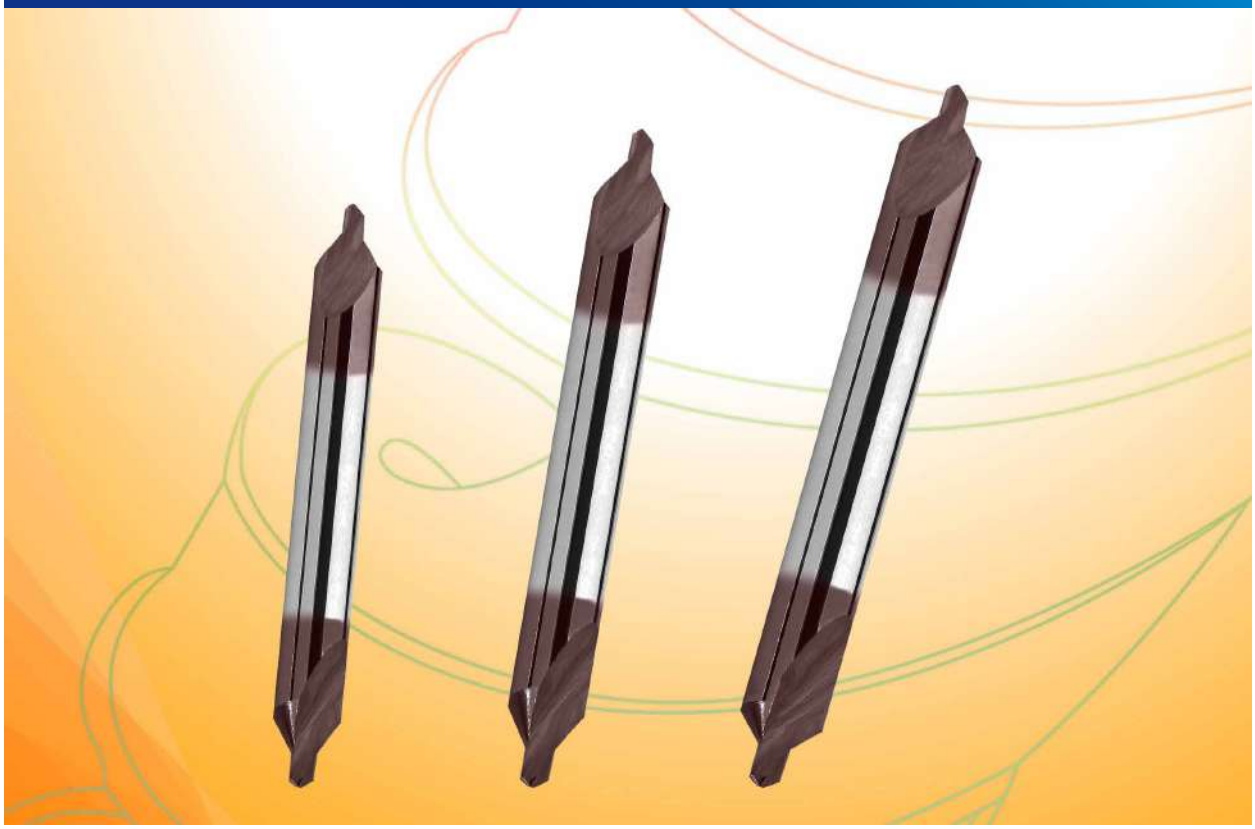
Working Material = Cast iron
Use insert = SCGX09T304
Application = 90° Spotting
ap = 2.5mm

Ød = (0.4r + ap + 0.05) × 2 = (0.4 × 0.4 + 2.5 + 0.05) × 2 = 5.42 mm
Reference conditions table get Vc ≒ 85 m/min and Fr ≒ 0.075 mm/rev
RPM = (Vc × 1000) / (Ød × π) = (85 × 1000) / (5.42 × π) ≒ 5000
Feed = RPM × Fr = 5000 × 0.075 = 375 mm/min

■ Working Demonstration

Cutting parameter	
Tools	DTS 90° with SCMX09T304-SP CX32HS
Material	Cast Iron
Coolant	Dry
Application	Spotting
Vc	85 m/min
S	4800 rpm
Feed	360 mm/min
ap	2.5 mm

DCN for Centering Drilling



Features

- Centering Drills

  Countersink angle 60°

  Countersink angle 90°

- Better Tool Life
- Competitive Price
- Customized Service

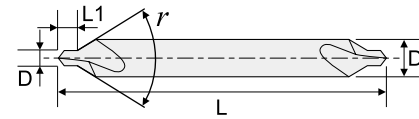
WINSTAR

DCN - for Centering · External Coolant · Countersink angle 60°

P	M	K	N	S	H
●	○	●			

Specification

- 120° Tip Angle
- Tolerance h8
- 60° Countersink Angle (γ)
- External Coolant
- UNIX Coating



Unit:mm

Order No.	D	L1	L	Ds
DCN01000601	1.00	1.6	38	3
DCN01250601	1.25	1.9	38	3
DCN01600601	1.60	2.4	42	4
DCN02000601	2.00	2.9	50	5
DCN02500601	2.50	3.6	50	6
DCN03000601	3.00	3.9	60	8
DCN03150601	3.15	3.9	60	8
DCN04000601	4.00	5.0	75	10
DCN05000601	5.00	6.3	75	12

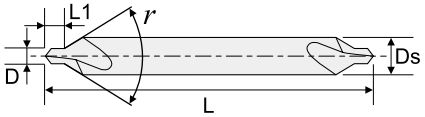
Order No.	D	L1	L	Ds

DCN - for Centering · External Coolant · Countersink angle 90°

P	M	K	N	S	H
●	○	●			

Specification

- 120° Tip Angle
- 90° Countersink Angle (γ)
- External Coolant
- UNIX Coating
- Tolerance h8



Unit:mm

Order No.	D	L1	L	Ds
DCN01000901	1.00	1.6	38	3
DCN01250901	1.25	1.9	38	3
DCN01600901	1.60	2.4	42	4
DCN02000901	2.00	2.9	50	5
DCN02500901	2.50	3.6	50	6
DCN03000901	3.00	3.9	60	8
DCN03150901	3.15	3.9	60	8
DCN04000901	4.00	5.0	75	10
DCN05000901	5.00	6.3	75	12

Order No.	D	L1	L	Ds

INDEX

DRC - Straight flute, Internal Coolant, Ø3~Ø12mm.....B090
DRN - Straight flute, External Coolant, Ø3~Ø12mm.....B091
DRN - Left spiral flute, External Coolant, Ø3~Ø12mm.....B092

DRC, DRN

Features

- Unique durable UNIX coating
- Specially for high accurate hole machining
- Superior hole surface finish
- Internal & external coolant available
- Customized available

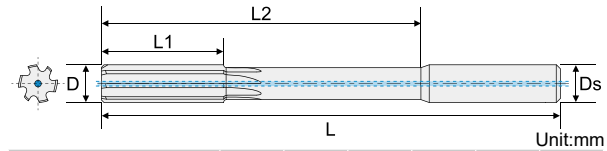
WINSTAR

DRC - Straight flute · Internal Coolant

P	M	K	N	S	H
●	○	●	●	○	

Specification

- Internal
- Unequal flute spacing
- Straight flute
- Provides high degree of accuracy of leave smooth sides
- UNIX Coating
- Tolerance h7
- For blind hole using



Order No.	D	L1	L2	L	Ds	F
DRC03000901	3.00	15	35	60	4	4
DRC03100901	3.10	15	35	60	4	4
DRC03200901	3.20	15	35	60	4	4
DRC03300901	3.30	15	35	60	4	4
DRC03400901	3.40	15	35	60	4	4
DRC03500901	3.50	18	35	60	4	4
DRC03600901	3.60	18	35	60	4	4
DRC03700901	3.70	18	35	60	4	4
DRC03800901	3.80	18	35	60	4	4
DRC03900901	3.90	18	35	60	4	4
DRC04000901	4.00	19	50	75	4	4
DRC04100901	4.10	19	50	75	6	4
DRC04200901	4.20	19	50	75	6	4
DRC04300901	4.30	19	50	75	6	4
DRC04400901	4.40	19	50	75	6	4
DRC04500901	4.50	21	50	75	6	4
DRC04600901	4.60	21	50	75	6	4
DRC04700901	4.70	21	50	75	6	4
DRC04800901	4.80	21	50	75	6	4
DRC04900901	4.90	21	50	75	6	4
DRC05000901	5.00	23	50	75	6	6
DRC05100901	5.10	23	50	75	6	6
DRC05200901	5.20	23	50	75	6	6
DRC05300901	5.30	23	50	75	6	6
DRC05400901	5.40	23	50	75	6	6
DRC05500901	5.50	26	50	75	6	6
DRC05600901	5.60	26	50	75	6	6
DRC05700901	5.70	26	50	75	6	6
DRC05800901	5.80	26	50	75	6	6
DRC05900901	5.90	26	50	75	6	6
DRC06000901	6.00	26	65	100	6	6
DRC06500901	6.50	28	65	100	8	6
DRC07000901	7.00	31	70	109	8	6
DRC07500901	7.50	31	70	109	8	6
DRC08000901	8.00	33	80	109	8	6
DRC08500901	8.50	33	80	125	10	6
DRC09000901	9.00	36	85	125	10	6
DRC09500901	9.50	36	85	125	10	6
DRC10000901	10.00	38	85	125	10	6
DRC10500901	10.50	38	85	125	12	6
DRC11000901	11.00	41	100	150	12	6
DRC11500901	11.50	41	100	150	12	6
DRC12000901	12.00	44	100	150	12	6

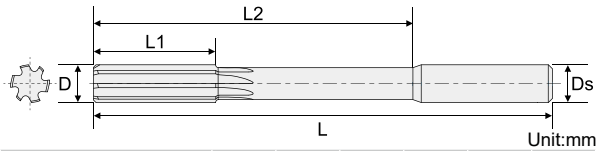
Order No.	D	L1	L2	L	Ds	F

DRN - Straight flute · External Coolant

P	M	K	N	S	H
●	○	●	●	○	

Specification

- External
- Straight flute
- UNIX Coating
- Tolerance h7
- Unequal flute spacing
- Provides high degree of accuracy of leave smooth sides
- For blind hole using



Order No.	D	L1	L2	L	Ds	F
DRN03000901	3.00	15	35	60	4	4
DRN03100901	3.10	15	35	60	4	4
DRN03200901	3.20	15	35	60	4	4
DRN03300901	3.30	15	35	60	4	4
DRN03400901	3.40	15	35	60	4	4
DRN03500901	3.50	18	35	60	4	4
DRN03600901	3.60	18	35	60	4	4
DRN03700901	3.70	18	35	60	4	4
DRN03800901	3.80	18	35	60	4	4
DRN03900901	3.90	18	35	60	4	4
DRN04000901	4.00	19	50	75	4	4
DRN04100901	4.10	19	50	75	6	4
DRN04200901	4.20	19	50	75	6	4
DRN04300901	4.30	19	50	75	6	4
DRN04400901	4.40	19	50	75	6	4
DRN04500901	4.50	21	50	75	6	4
DRN04600901	4.60	21	50	75	6	4
DRN04700901	4.70	21	50	75	6	4
DRN04800901	4.80	21	50	75	6	4
DRN04900901	4.90	21	50	75	6	4
DRN05000901	5.00	23	50	75	6	6
DRN05100901	5.10	23	50	75	6	6
DRN05200901	5.20	23	50	75	6	6
DRN05300901	5.30	23	50	75	6	6
DRN05400901	5.40	23	50	75	6	6
DRN05500901	5.50	26	50	75	6	6
DRN05600901	5.60	26	50	75	6	6
DRN05700901	5.70	26	50	75	6	6
DRN05800901	5.80	26	50	75	6	6
DRN05900901	5.90	26	50	75	6	6
DRN06000901	6.00	26	65	100	6	6
DRN06500901	6.50	28	65	100	8	6
DRN07000901	7.00	31	70	109	8	6
DRN07500901	7.50	31	70	109	8	6
DRN08000901	8.00	33	80	109	8	6
DRN08500901	8.50	33	80	125	10	6
DRN09000901	9.00	36	85	125	10	6
DRN09500901	9.50	36	85	125	10	6
DRN10000901	10.00	38	85	125	10	6
DRN10500901	10.50	38	85	125	12	6
DRN11000901	11.00	41	100	150	12	6
DRN11500901	11.50	41	100	150	12	6
DRN12000901	12.00	44	100	150	12	6

Order No.	D	L1	L2	L	Ds	F

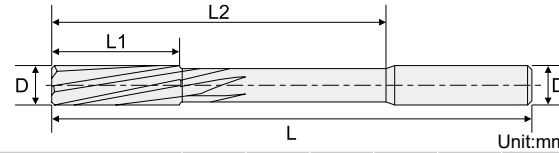
WINSTAR

DRN - Left spiral flute · External Coolant

P	M	K	N	S	H
●		●	●		

Specification

- External
- Left spiral flute
- UNIX Coating
- Tolerance h7
- Provide high degree of accuracy to leave smooth sides.
- For through hole using



Order No.	D	L1	L2	L	Ds	F
* DRN03000911	3.00	15	35	60	4	4
* DRN03100911	3.10	15	35	60	4	4
* DRN03200911	3.20	15	35	60	4	4
* DRN03300911	3.30	15	35	60	4	4
* DRN03400911	3.40	15	35	60	4	4
* DRN03500911	3.50	18	35	60	4	4
* DRN03600911	3.60	18	35	60	4	4
* DRN03700911	3.70	18	35	60	4	4
* DRN03800911	3.80	18	35	60	4	4
* DRN03900911	3.90	18	35	60	4	4
* DRN04000911	4.00	19	50	75	4	4
* DRN04100911	4.10	19	50	75	6	4
* DRN04200911	4.20	19	50	75	6	4
* DRN04300911	4.30	19	50	75	6	4
* DRN04400911	4.40	19	50	75	6	4
* DRN04500911	4.50	21	50	75	6	4
* DRN04600911	4.60	21	50	75	6	4
* DRN04700911	4.70	21	50	75	6	4
* DRN04800911	4.80	21	50	75	6	4
* DRN04900911	4.90	21	50	75	6	4
* DRN05000911	5.00	23	50	75	6	6
* DRN05100911	5.10	23	50	75	6	6
* DRN05200911	5.20	23	50	75	6	6
* DRN05300911	5.30	23	50	75	6	6
* DRN05400911	5.40	23	50	75	6	6
* DRN05500911	5.50	26	50	75	6	6
* DRN05600911	5.60	26	50	75	6	6
* DRN05700911	5.70	26	50	75	6	6
* DRN05800911	5.80	26	50	75	6	6
* DRN05900911	5.90	26	50	75	6	6
* DRN06000911	6.00	26	65	100	6	6
* DRN06500911	6.50	28	65	100	8	6
* DRN07000911	7.00	31	70	109	8	6
* DRN07500911	7.50	31	70	109	8	6
* DRN08000911	8.00	33	80	109	8	6
* DRN08500911	8.50	33	80	125	10	6
* DRN09000911	9.00	36	85	125	10	6
* DRN09500911	9.50	36	85	125	10	6
* DRN10000911	10.00	38	85	125	10	6
* DRN10500911	10.50	38	85	125	12	6
* DRN11000911	11.00	41	100	150	12	6
* DRN11500911	11.50	41	100	150	12	6
* DRN12000911	12.00	44	100	150	12	6

Order No.	D	L1	L2	L	Ds	F

Recommended Cutting Conditions

DRC Series (Internal Coolant)

Work Material		Drill Diameter	Ø3-6mm		Ø6.1~10mm		Ø10.1-12mm	
		Hardness	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)
P	Mild Steel	(<180HB)	40~70	0.1~0.2	40~70	0.1~0.24	40~70	0.1~0.3
	Cabon Steel	(180~280HB)	25~50	0.1~0.2	25~50	0.1~0.24	25~50	0.1~0.3
	Alloy Steel	(280~350HB)	15~25	0.08~0.16	15~25	0.08~0.2	15~25	0.08~0.24
M	Stainless Steel	(<200HB)	8~15	0.08~0.16	8~15	0.08~0.18	8~15	0.08~0.2
K	Cast Iron	(<350Mpa)	35~60	0.1~0.32	35~60	0.1~0.36	35~60	0.1~0.4
	Ductile Cast Iron	(<450Mpa)	20~45	0.1~0.24	20~45	0.1~0.28	20~45	0.1~0.32
N	Aluminum <12% Si	-	110~195	0.12~0.32	110~195	0.12~0.36	110~195	0.12~0.4
	Aluminum >12% Si	-	105~180	0.12~0.32	105~180	0.12~0.36	105~180	0.12~0.4
S	Heat Resistant Alloy	-	8~15	0.08~0.16	8~15	0.08~0.18	8~15	0.08~0.2
H	Hardened Material	-	-	-	-	-	-	-

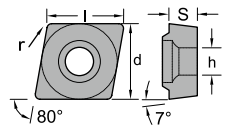
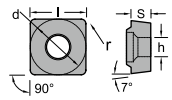
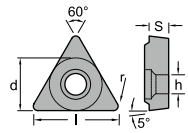
DRN Series (External Coolant)

Work Material		Drill Diameter	Ø3-6mm		Ø6.1~10mm		Ø10.1-12mm	
		Hardness	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)	Vc (m/min)	Feed (mm/rev)
P	Mild Steel	(<180HB)	10~20	0.03~0.12	10~20	0.06~0.2	10~20	0.1~0.22
	Cabon Steel	(180~280HB)	10~16	0.03~0.12	10~16	0.06~0.2	10~16	0.1~0.22
	Alloy Steel	(280~350HB)	8~12	0.03~0.12	8~12	0.06~0.2	8~12	0.1~0.22
M	Stainless Steel	-	-	-	-	-	-	-
K	Cast Iron	(<350Mpa)	8~16	0.03~0.12	8~16	0.06~0.02	8~16	0.1~0.22
	Ductile Cast Iron	(<450Mpa)	8~16	0.03~0.12	8~16	0.06~0.02	8~16	0.1~0.22
N	Aluminum <12% Si	-	20~30	0.03~0.13	20~30	0.07~0.23	20~30	0.1~0.28
	Aluminum >12% Si	-	20~30	0.03~0.13	20~30	0.07~0.23	20~30	0.1~0.28
S	Heat Resistant Alloy	-	-	-	-	-	-	-
H	Hardened Material	-	-	-	-	-	-	-

INDEX

Inserts.....B095
DBP Finish Boring Heads.....B096
DB Rough Boring Heads.....B097
DBBT Boring Taper Shanks for DBP, DB.....B098
DBLA Rough Boring Heads for Large Hole.....B099
DBLBT Boring Taper Shanks for DBLA.....B100

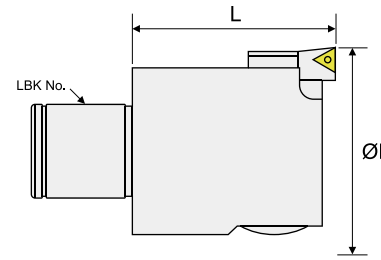
Inserts

Inserts	Designation	Grade No.								Dimensions (mm)					Drawing
		CX1060	CX1555	CX2545	CX2555	CX2560				d	l	S	r	h	
	CCGT 060202-FG	✓								6.35	6.4	2.38	0.2	2.8	
	060204-FG	✓								6.35	6.4	2.38	0.4	2.8	
	09T304-FG	✓								9.53	9.7	3.97	0.4	4.4	
	09T308-FG	✓								9.53	9.7	3.97	0.8	4.4	
	120404-FG	✓								12.7	12.9	4.76	0.4	5.5	
	CCMT 060204-MP				✓	✓				6.35	6.4	2.38	0.4	2.8	
	09T304-MP				✓	✓				9.53	9.7	3.97	0.4	4.4	
	09T308-MP				✓	✓				9.53	9.7	3.97	0.8	4.4	
	CCMT 060204-MG			✓	✓	✓				6.35	6.4	2.38	0.4	2.8	
	09T304-MG			✓	✓	✓				9.53	9.7	3.97	0.4	4.4	
	09T308-MG			✓	✓	✓				9.53	9.7	3.97	0.8	4.4	
	120408-MG			✓	✓	✓				12.7	12.9	4.76	0.8	5.5	
	SCGT 09T304-FG	✓								9.53	9.53	3.97	0.4	4.4	
	09T308-FG	✓								9.53	9.53	3.97	0.8	4.4	
	SCMT 09T304-MP				✓	✓				9.53	9.53	3.97	0.4	4.4	
	SCMT 09T304-MG			✓	✓	✓				9.53	9.53	3.97	0.4	4.4	
	09T308-MG			✓	✓	✓				9.53	9.53	3.97	0.8	4.4	
	TCGT 090204-FG	✓								5.56	9.6	2.38	0.4	2.5	
	110204-FG	✓								6.35	11.0	2.38	0.4	2.8	
	16T304-FG	✓								9.53	16.5	3.97	0.4	4.4	
	16T308-FG	✓								9.53	16.5	3.97	0.8	4.4	
	TCMT 110204-MP				✓	✓				6.35	11.0	2.38	0.4	2.8	
	TCMT 110204-MG			✓	✓	✓				6.35	11.0	2.38	0.4	2.8	
	16T304-MG			✓	✓	✓				9.53	16.5	3.97	0.4	4.4	
	16T308-MG			✓	✓	✓				9.53	16.5	3.97	0.8	4.4	

Order No. = Item No. + Grade No.

DBP Finsih Boring Head

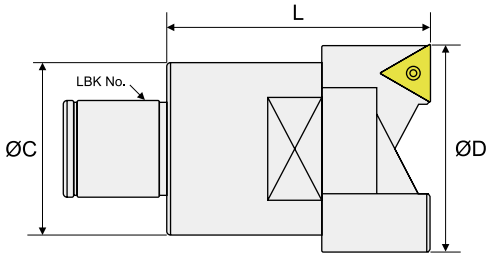
- Finish boring head is suitable for finish boring
- Coolant nozzle easily cools the insert elongating its working life.
- Boring diameter from 20mm to 202mm.

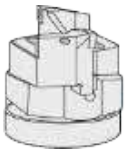


Order No.	LBK No.	Boring Range ØD (mm)	L (mm)	Insert	Weight (kg)
IDBP020	IDB1	20 ~ 26	35	TC..0902	0.1
IDBP025	IDB2	25 ~ 33	40		0.2
IDBP032	IDB3	32 ~ 42	40		0.3
IDBP040	IDB4	40 ~ 55	50		0.5
IDBP052	IDB5	52 ~ 75	60	TC..1102	1.0
IDBP068	IDB6	68 ~ 102	70		2.0
IDBP100	IDB6	100 ~ 152	70		2.9
IDBP150	IDB6	150 ~ 202	70		4.2

DB Rough Boring Head

- Adjustable twin boring arm system for variety situation of rough boring.
- Reliable cartridge system provides high rigidity and efficiency.
- Step boring arm design, suitable for single bit boring, twin bit boring, and step boring.
- Side division easy to adjust tool extended without pre-setter.
- Boring diameter from 25mm to 204mm.



	Order No.	LBK No.	Boring Range ØD (mm)	L (mm)	C (mm)	Insert	Weight (kg)
	IDB2533C	IDB2	25 ~ 33	45	24	CC..0602	0.15
	IDB3242C	IDB3	32 ~ 42	55	31	CC..0602	0.3
	IDB3242T					TC..1102	
	IDB4055C	IDB4	40 ~ 55	65	39	CC..09T3	0.5
	IDB4055T					TC..16T3	
	IDB4055S					SC..09T3	
	IDB5270C	IDB5	52 ~ 70	75	50	CC..09T3	1.0
	IDB5270T					TC..16T3	
	IDB5270S					SC..09T3	
	IDB6892C	IDB6	68 ~ 92	85	64	CC..1204	2.0
	IDB6892T					TC..16T3	
	IDB6892S					SC..09T3	
	IDB90122C		90 ~ 122	100	80	CC..1204	2.9
	IDB120164C	IDB120	120 ~ 164	100	100	CC..1204	3.8
	IDB160204C		160 ~ 204	130	130	CC..1204	4.8

DBBT Boring Taper Shank for DBP, DB Heads

Fig. 1

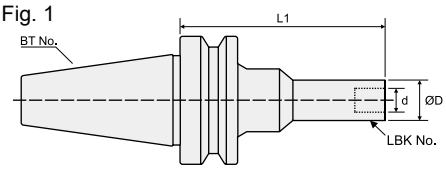


Fig. 2

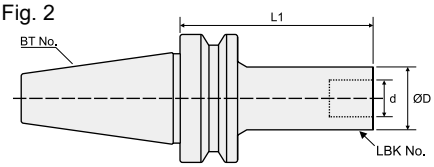
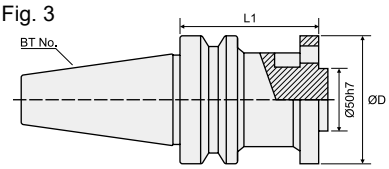


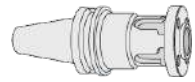
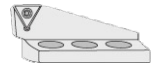
Fig. 3



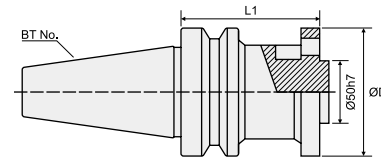
Order No.	Type	LBK No.	OAL with boring head (L) (mm)	L1 (mm)	ØD (mm)	Weight
IDBBT301105	Fig. 2	IDB1	105	70	19	0.70
IDBBT302120		IDB2	120	80	24	0.80
IDBBT303120		IDB3	120	80	31	0.90
IDBBT304120		IDB4	120	70	39	1.00
IDBBT305120		IDB5	120	60	50	1.10
IDBBT306130		IDB6	130	60	64	1.20
IDBBT401110		IDB1	110	75	19	1.20
IDBBT402125		IDB2	125	85	24	1.30
IDBBT403135		IDB3	135	95	31	1.45
IDBBT404135		IDB4	135	85	39	1.50
IDBBT405135		IDB5	135	75	50	1.40
IDBBT406135		IDB6	135	65	64	2.15
IDBBT501150	Fig. 1	IDB1	150	115	19	3.50
IDBBT502150	Fig. 2	IDB2	155	110	24	4.20
IDBBT503165		IDB3	165	125	31	4.40
IDBBT504165		IDB4	165	115	39	4.80
IDBBT504225		IDB4	225	175	39	5.20
IDBBT505165		IDB5	165	105	50	5.90
IDBBT505240		IDB5	240	180	50	6.50
IDBBT505300		IDB5	300	240	50	6.90
IDBBT506165		IDB6	165	95	64	4.09
IDBBT506240		IDB6	240	170	64	6.15
IDBBT506300		IDB6	300	230	64	7.74
IDBBT506360	Fig. 1	IDB6	290	290	64	9.07
IDBBT506420	Fig. 2	IDB6	420	350	90	13.51
IDBLBT40120200	Fig. 3	IDB120	170	70	95	3.20
IDBLBT50120230		IDB120	205	105	95	5.71
IDBLBT50120330		IDB120	300	200	95	8.79
IDBLBT50120430		IDB120	400	300	95	11.25
IDBLBT50120530		IDB120	530	430	95	13.74

DBLA Rough Boring Head For Large Hole

- Optional accessories for different boring work and working diameter.
- Reliable cartridge system provides high rigidity and efficiency.
- Alloy steel body provides great rigidity to large size rough boring.
- Variable inserts for different material of rough boring.
- Boring diameter from 200mm to 610mm.

Boring Head	***Order No.***		IDBLA200	IDBLA300	IDBLA400	IDBLA500
	Length (mm)		130			
	Total Weight (kg)		9.5	11.5	13.5	15.5
Module	***Boring Range (mm)***		200 ~ 310	300 ~ 410	400 ~ 510	500 ~ 610
	Shank		IDBLBT50...			
	Flange		BR200			
	Weight (kg)		2.7			
	Extension Slide		RST200	RST300	RST400	RST500
	Weight (kg)		3.4	5.4	7.4	9.4
	Clamp Base		RS200			
	Weight (kg)		0.98			
	Height Setting Shim		RS201			
	Weight (kg)		0.05			
	Insert Height		RB200C12, RB200T16			
	Insert		CC..1204 , TC..16T3			
	Weight (kg)		0.68			

DBLBT Boring Taper Shank for DBLA Heads



Order No.	OAL with boring head (L) (mm)	L1 (mm)	ØD (mm)	Weight
IDBLBT50120230	205	105	95	5.71
IDBLBT50120330	300	200	95	8.79
IDBLBT50120430	400	300	95	11.25
IDBLBT50120530	530	430	95	13.74

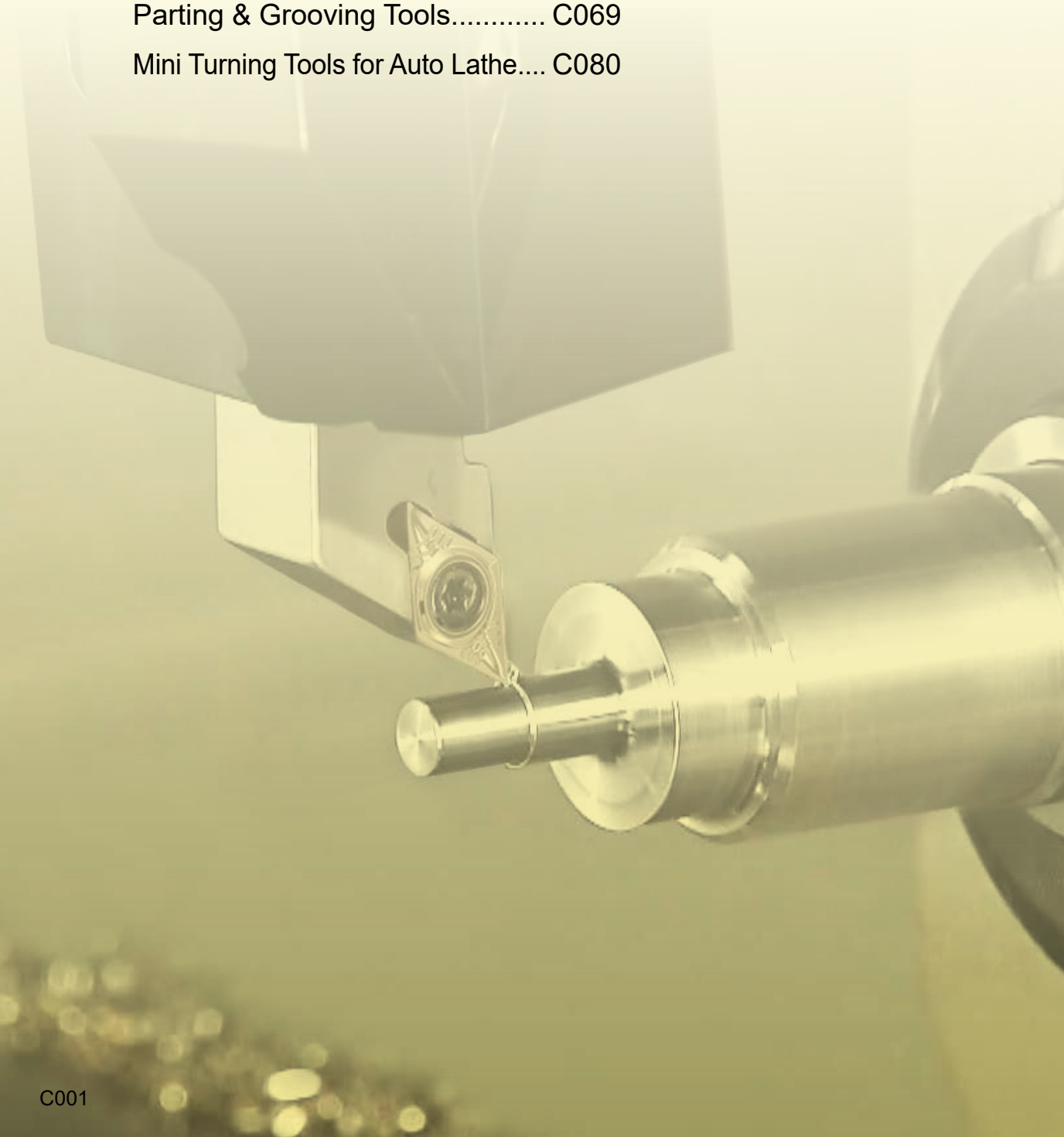
Recommended Cutting Conditions

DB Series (Boring Tools)

Work Material		Hardness	Vc (m/min)	Feed (mm/rev)
P	Mild Steel	(<180HB)	90~200	0.04~0.14
	Cabon Steel	(180~280HB)	60~180	0.04~0.15
	Alloy Steel	(280~350HB)	50~150	0.04~0.15
M	Stainless Steel	(<200HB)	60~230	0.07~0.12
K	Cast Iron	(<350Mpa)	120~230	0.04~0.13
	Ductile Cast Iron	(<450Mpa)	120~230	0.04~0.13
N	Aluminum <12% Si	-	120~700	0.04~0.25
	Aluminum >12% Si	-	120~700	0.04~0.25
S	Heat Resistant Alloy	-	20~80	0.04~0.05
H	Hardened Material	-	20~70	0.04~0.05

Turning

ISO Turning Inserts..... C002
Turning Holders..... C020
Parting & Grooving Tools..... C069
Mini Turning Tools for Auto Lathe.... C080



INDEX

Insert grades.....C003

Insert chip breakers.....C004

ISO positive turning inserts

CCGT, CCMT.....C006

DCET, DCEW, DCGT, DCMT.....C007

RCMT.....C008

SCGT, SCMT.....C009

TCGT, TCMT.....C010

TPMH.....C011

VBET, VBEW, VBGT, VBMT.....C012

VCET, VCEW, VCGT.....C013

ISO negative turning inserts

CNMG.....C014

DNGX, DNMG.....C015

SNMG.....C016

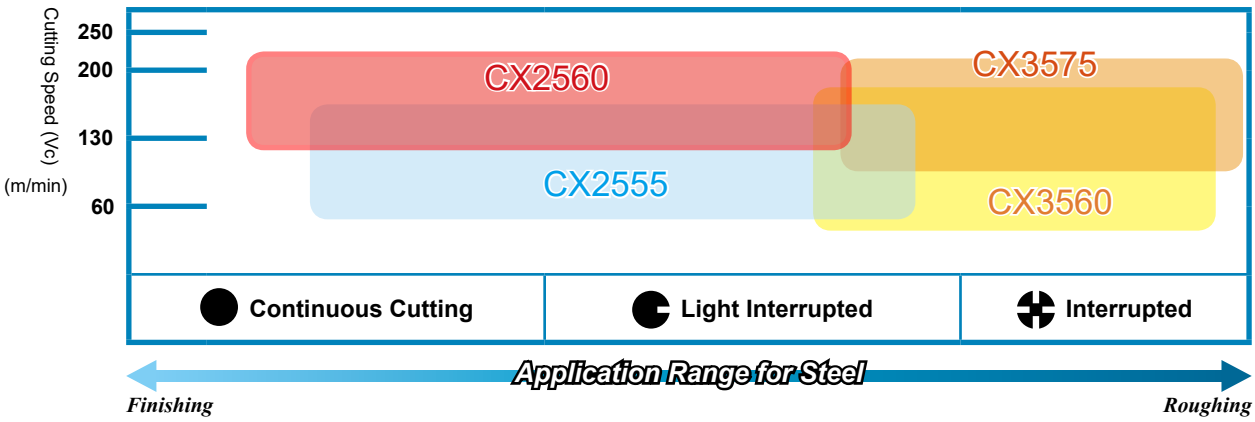
TNMG.....C017

VNMG.....C018

WNMG.....C019

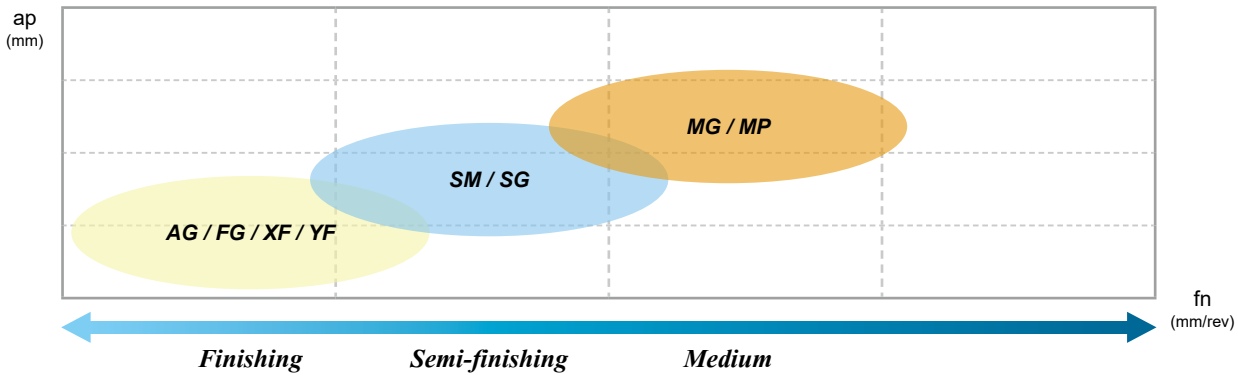
Turning Insert Grades

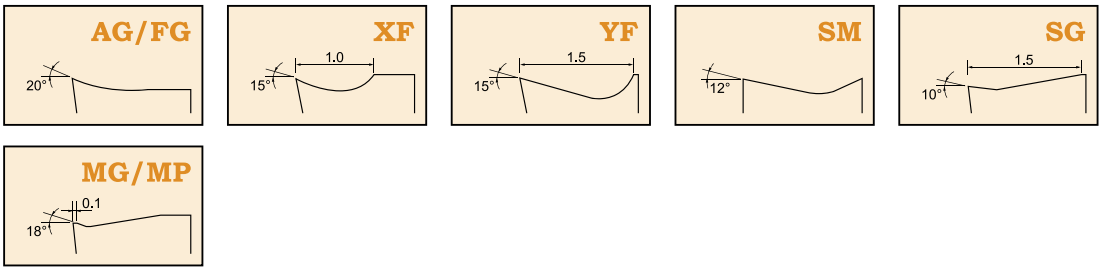
Grade Type	Coating Type	Substrate Classification	Application	Working Material						Industry Area
				P	M	K	N	S	H	
CX1060	PVD	K05 ~ K10	• Continuous finishing cutting • For finishing application	●	●	●	○	○		• Auto and machinery parts • Aircraft parts
CX1555	PVD	K10 ~ K20	• Continuous finishing cutting • For finishing application	●	●	●	○	●	●	• Auto and machinery parts • Aircraft parts
CX2545	PVD	K20 ~ K30	• Medium or light interrupted cutting • For Stainless steel & High temperature alloy	○	●			●	○	• Auto and machinery parts • Aircraft parts
CX2560 ***(CX2555)***	PVD	K20 ~ K30	• Medium or light interrupted cutting • For Carbon steel	●	○	○		○	○	• Carbon steel parts manufacturing
CX3560	PVD	K30 ~ K40	• Roughing or interrupted cutting • For Carbon steel	●	○	○		○	○	• Steel parts manufacturing
CX3575	CVD	K30 ~ K40	• Roughing or interrupted cutting • For Alloy steel, Cast iron and Hardened steel	●	○	●		○	●	• Auto and machinery parts • Mold & die
CX1010	CVD	K05 ~ K10	• Finishing and medium cutting • For Aluminum alloy with Silicon				●			• Bike and auto parts • Aluminium rim
CX10	Uncoated	K05 ~ K10	• Finishing and medium cutting • For Aluminum alloy				●			• Bike and auto parts • Electronic parts



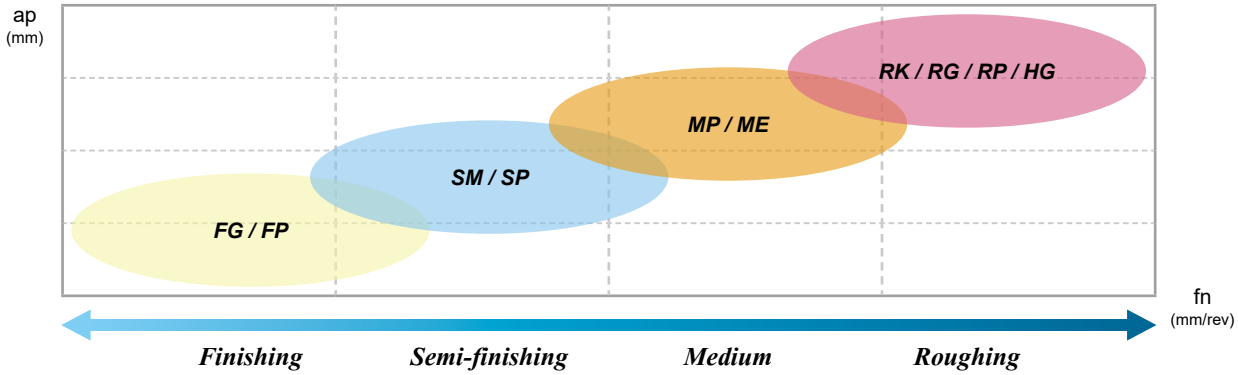
Turning Insert Chip Breakers

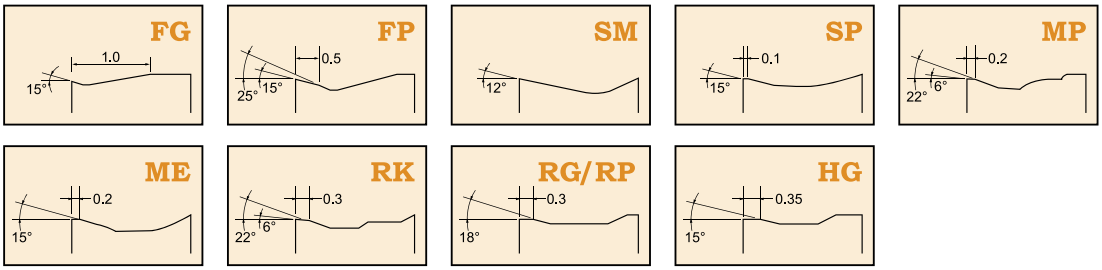
· Positive





· Negative

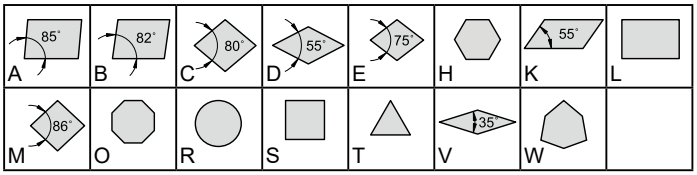




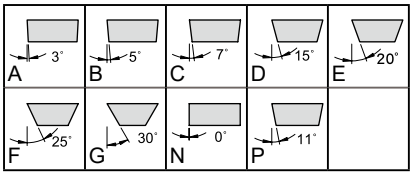
Designations For Turning Insert

C	N	M	G	12	04	08	(L)	-	MG
①	②	③	④	⑤	⑥	⑦	⑧		⑨

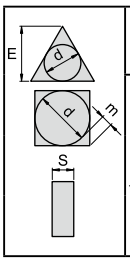
① Insert Shape



② Relief Angle



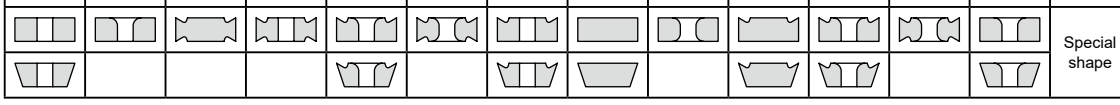
③ Tolerance Class



Tolerance		A	F	C	H	E	G	J	K	L	M	N	U
Range of tolerance	d±	0.025	0.013	0.025	0.013	0.025	0.025	0.05~0.15	0.05~0.15	0.05~0.15	0.05~0.15	0.05~0.15	0.08~0.25
	m±	0.005	0.005	0.013	0.013	0.025	0.025	0.005	0.013	0.025	0.08~0.2	0.08~0.2	0.13~0.38
	s±	0.025	0.025	0.025	0.025	0.025	0.05~0.13	0.025	0.025	0.025	0.05~0.13	0.025	0.13

④ Insert Features

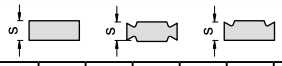
A	C	F	G	H	J	M	N	Q	R	T	U	W	X
													Special shape



⑤ Edge Length

C	D	S	T	R	V	W	I.C.
Metric							mm
03	04	03	06	03	-	02	3.97
04	05	04	08	04	08	S3	4.76
05	06	05	09	05	09	03	5.56
-	-	-	-	06	-	-	6.00
06	07	06	11	06	11	04	6.35
08	09	07	13	07	13	05	7.94
-	-	-	-	08	-	-	8.00
09	11	09	16	09	16	06	9.525
-	-	-	-	10	-	-	10.00
11	13	11	19	11	19	07	11.11
-	-	-	-	12	-	-	12.00
12	15	12	22	12	22	08	12.70
14	17	14	24	14	24	09	14.29
16	19	15	27	15	27	10	15.875
-	-	-	-	16	-	-	16.00
17	21	17	30	17	30	11	17.46
19	23	19	33	19	33	13	19.05
-	-	-	-	20	-	-	20.00
22	27	22	38	22	38	15	22.225
-	-	-	-	25	-	-	25.00
25	31	25	44	25	44	17	25.40
32	38	31	54	31	54	21	31.75
-	-	-	-	32	-	-	32.00

⑥ Thickness

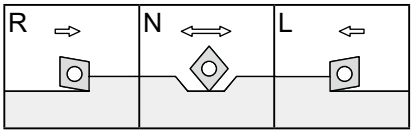


Symbol	01	T1	02	03	T3	04	05	06	07	09
S(mm)	1.59	1.98	2.38	3.18	3.97	4.76	5.56	6.35	7.94	9.52

⑦ Corner Radius

Symbol	01	02	04	08	12	16	20	24	28	32
r(mm)	0.1	0.2	0.4	0.8	1.2	1.6	2.0	2.4	2.8	3.2

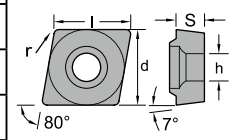
⑧ Cutting Direction



⑨ Chip Breaker Geometry

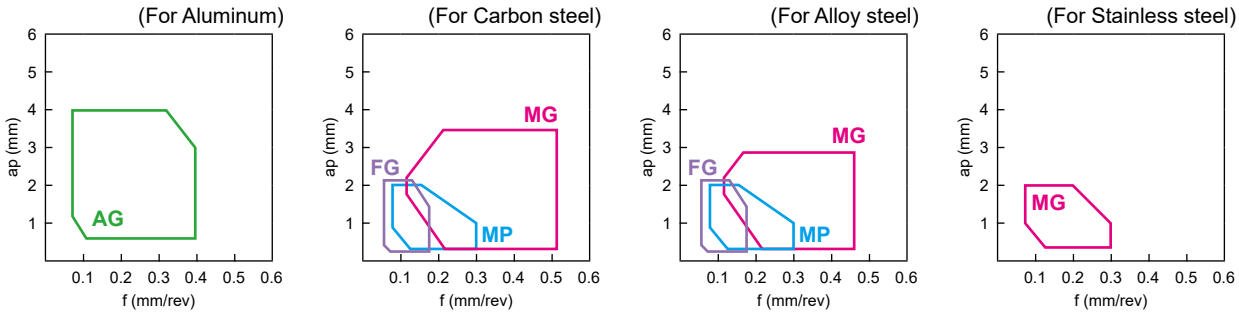
Positive Type	Negative Type
AG, XF, YF, FG, MG, MP	FG, FP, SM, SP, MP, ME, RK, RG, RP, HG

CC□□ - Positive Turning Inserts

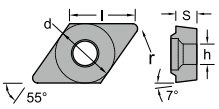
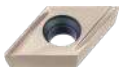
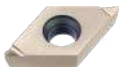
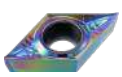
Inserts	Designation		Grade No.								Dimensions (mm)					Drawing	Holder Page
			CX1060	CX1555	CX2545	CX2555	CX2560	CX1010	CX10		d	l	S	r	h		
	CCGT	060202-AG						✓	✓		6.35	6.4	2.38	0.2	2.8		C032 ~ C035 C057 ~ C059
		060204-AG						✓	✓		6.35	6.4	2.38	0.4	2.8		
		09T304-AG						✓	✓		9.53	9.7	3.97	0.4	4.4		
		09T308-AG						✓	✓		9.53	9.7	3.97	0.8	4.4		
		120404-AG						✓	✓		12.7	12.9	4.76	0.4	5.5		
	CCGT	060202-FG	✓								6.35	6.4	2.38	0.2	2.8		
		060204-FG	✓								6.35	6.4	2.38	0.4	2.8		
		09T304-FG	✓								9.53	9.7	3.97	0.4	4.4		
		09T308-FG	✓								9.53	9.7	3.97	0.8	4.4		
		120404-FG	✓								12.7	12.9	4.76	0.4	5.5		
	CCMT	060204-MP				✓	✓				6.35	6.4	2.38	0.4	2.8		
		09T304-MP				✓	✓				9.53	9.7	3.97	0.4	4.4		
		09T308-MP				✓	✓				9.53	9.7	3.97	0.8	4.4		
	CCMT	060204-MG			✓	✓	✓				6.35	6.4	2.38	0.4	2.8		
		09T304-MG			✓	✓	✓				9.53	9.7	3.97	0.4	4.4		
		09T308-MG			✓	✓	✓				9.53	9.7	3.97	0.8	4.4		
		120408-MG			✓	✓	✓				12.7	12.9	4.76	0.8	5.5		

Order No. = Item No. + Grade No.

Chip control range



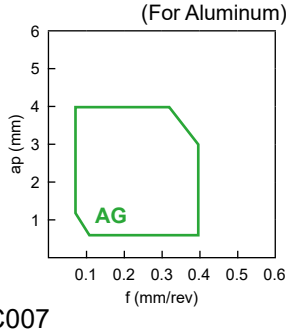
DC□□ - Positive Turning Inserts

Inserts	Designation		Grade No.								Dimensions (mm)					Drawing	Holder Page
			CX1060	CX1555	CX2545	CX2555	CX2560	CX1010	CX10		d	l	S	r	h		
	DCET	11T301R-XF		✓							9.53	11.6	3.97	0.1	4.4		C036 ~ C040 C059 ~ C061
		11T302R-XF		✓							9.53	11.6	3.97	0.2	4.4		
		11T304R-XF		✓							9.53	11.6	3.97	0.4	4.4		
	DCET	11T301L-XF		✓							9.53	11.6	3.97	0.1	4.4		
		11T302L-XF		✓							9.53	11.6	3.97	0.2	4.4		
		11T304L-XF		✓							9.53	11.6	3.97	0.4	4.4		
	DCET	11T301R-YF		✓							9.53	11.6	3.97	0.1	4.4		
		11T302R-YF		✓							9.53	11.6	3.97	0.2	4.4		
		11T304R-YF		✓							9.53	11.6	3.97	0.4	4.4		
	DCET	11T301L-YF		✓							9.53	11.6	3.97	0.1	4.4		
		11T302L-YF		✓							9.53	11.6	3.97	0.2	4.4		
		11T304L-YF		✓							9.53	11.6	3.97	0.4	4.4		
	DCEW	11T301		✓							9.53	11.6	3.97	0.1	4.4		
		11T302		✓							9.53	11.6	3.97	0.2	4.4		
		11T304		✓							9.53	11.6	3.97	0.4	4.4		
	DCGT	070202-AG						✓	✓		6.35	7.75	2.38	0.2	2.8		
		070204-AG						✓	✓		6.35	7.75	2.38	0.4	2.8		
		11T302-AG						✓	✓		9.53	11.6	3.97	0.2	4.4		
		11T304-AG						✓	✓		9.53	11.6	3.97	0.4	4.4		
		11T308-AG						✓	✓		9.53	11.6	3.97	0.8	4.4		
	DCGT	070202-FG	✓								6.35	7.75	2.38	0.2	2.8		
		070204-FG	✓								6.35	7.75	2.38	0.4	2.8		
		11T302-FG	✓								9.53	11.6	3.97	0.2	4.4		
		11T304-FG	✓								9.53	11.6	3.97	0.4	4.4		
		11T308-FG	✓								9.53	11.6	3.97	0.8	4.4		
	DCMT	11T304-MP				✓	✓				9.53	11.6	3.97	0.4	4.4		
		11T308-MP				✓	✓				9.53	11.6	3.97	0.8	4.4		
	DCMT	070204-MG			✓	✓	✓				6.35	7.75	2.38	0.4	2.8		
		11T304-MG			✓	✓	✓				9.53	11.6	3.97	0.4	4.4		
		11T308-MG			✓	✓	✓				9.53	11.6	3.97	0.8	4.4		

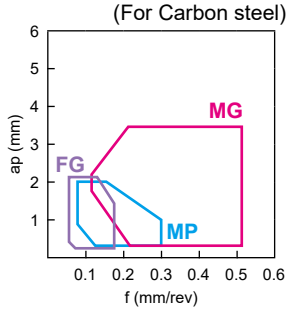
Order No. = Item No. + Grade No.

Chip control range

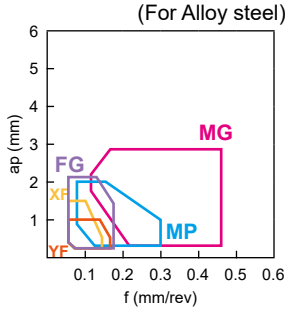
(For Aluminum)



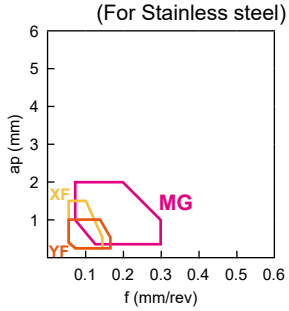
(For Carbon steel)



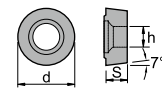
(For Alloy steel)



(For Stainless steel)



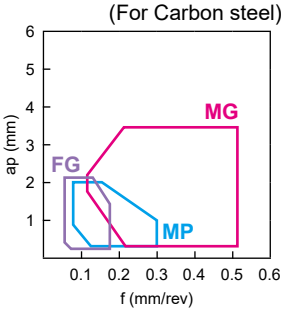
RC□□ - Positive Turning Inserts

Inserts	Designation	Grade No.								Dimensions (mm)					Drawing	Holder Page
		CX1060	CX1555	CX2545	CX2555	CX2560	CX1010	CX10		d	l	S	r	h		
	RCMT 1204MO-FG					✓				12	-	3.97	-	4.2		-

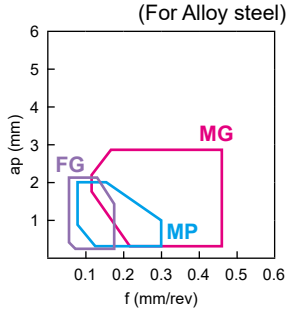
Order No. = Item No. + Grade No.

Chip control range

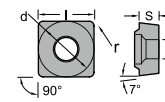
(For Carbon steel)



(For Alloy steel)

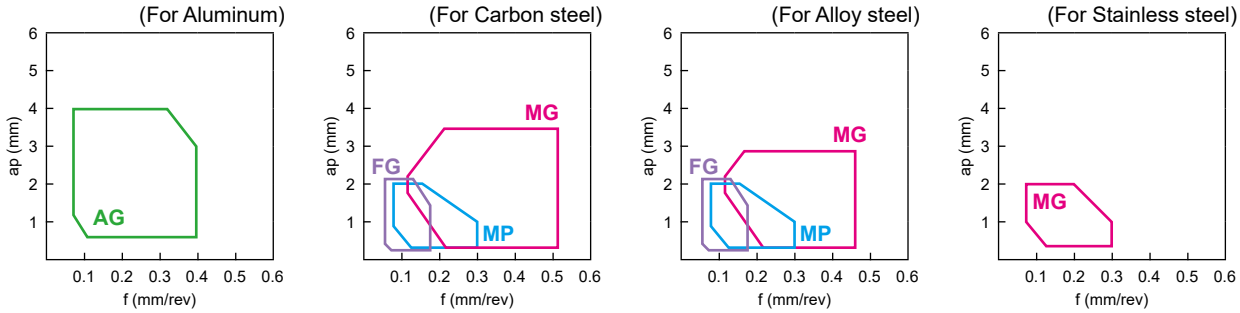


SC□□ - Positive Turning Inserts

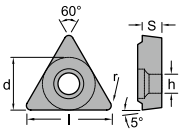
Inserts	Designation	Grade No.								Dimensions (mm)					Drawing	Holder Page
		CX1060	CX1555	CX2545	CX2555	CX2560	CX1010	CX10		d	l	S	r	h		
	SCGT 09T304-AG						✓	✓		9.53	9.53	3.97	0.4	4.4		C062 ~ C064
	09T308-AG						✓	✓		9.53	9.53	3.97	0.8	4.4		
	SCGT 09T304-FG	✓								9.53	9.53	3.97	0.4	4.4		
	09T308-FG	✓								9.53	9.53	3.97	0.8	4.4		
	SCMT 09T304-SM					✓				9.53	9.53	3.97	0.4	4.4		
	SCMT 09T304-MP				✓	✓				9.53	9.53	3.97	0.4	4.4		
	SCMT 09T304-MG			✓	✓	✓				9.53	9.53	3.97	0.4	4.4		
	09T308-MG			✓	✓	✓				9.53	9.53	3.97	0.8	4.4		

Order No. = Item No. + Grade No.

Chip control range

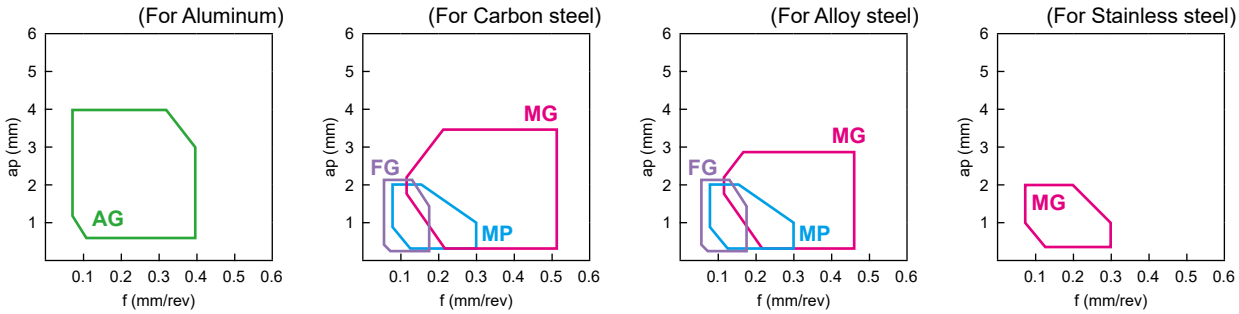


TC□□ - Positive Turning Inserts

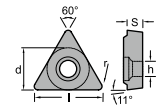
Inserts	Designation		Grade No.								Dimensions (mm)					Drawing	Holder Page
			CX1060	CX1555	CX2545	CX2555	CX2560	CX1010	CX10		d	l	S	r	h		
	TCGT	090204-AG						✓	✓		5.56	9.6	2.38	0.4	2.5		C041 ~ C043 C065 ~ C066
		110204-AG						✓	✓		6.35	11.0	2.38	0.4	2.8		
		16T304-AG						✓	✓		9.53	16.5	3.97	0.4	4.4		
		16T308-AG						✓	✓		9.53	16.5	3.97	0.8	4.4		
	TCGT	090204-FG	✓								5.56	9.6	2.38	0.4	2.5		
		110204-FG	✓								6.35	11.0	2.38	0.4	2.8		
		16T304-FG	✓								9.53	16.5	3.97	0.4	4.4		
		16T308-FG	✓								9.53	16.5	3.97	0.8	4.4		
	TCMT	110204-MP				✓	✓				6.35	11.0	2.38	0.4	2.8		
	TCMT	110204-MG			✓	✓	✓				6.35	11.0	2.38	0.4	2.8		
		16T304-MG			✓	✓	✓				9.53	16.5	3.97	0.4	4.4		
		16T308-MG			✓	✓	✓				9.53	16.5	3.97	0.8	4.4		

Order No. = Item No. + Grade No.

Chip control range

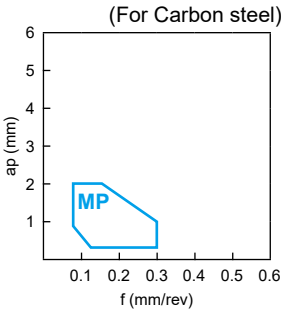


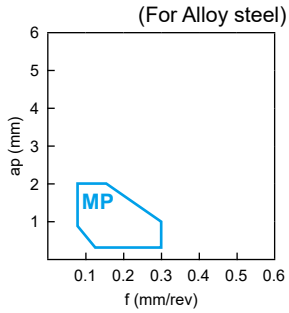
TP□□ - Positive Turning Inserts

Inserts	Designation	Grade No.								Dimensions (mm)					Drawing	Holder Page
		CX1060	CX1555	CX2545	CX2555	CX2560	CX1010	CX10		d	l	S	r	h		
	TPMH 160304-MP				✓	✓				9.53	16.5	3.18	0.4	4.4		C042

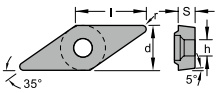
Order No. = Item No. + Grade No.

Chip control range



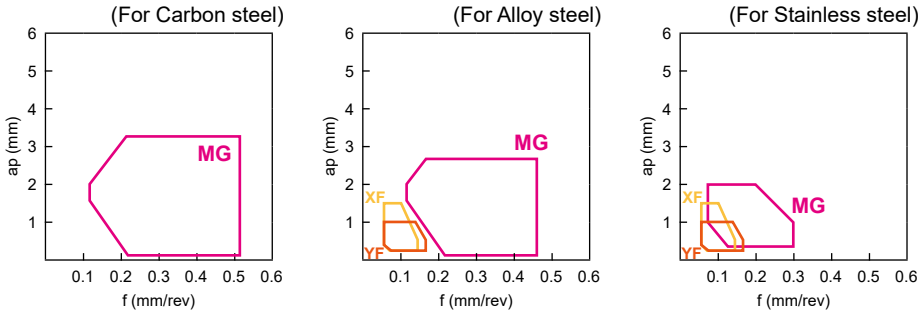


VB □□ - Positive Turning Inserts

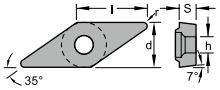
Inserts	Designation		Grade No. CX1060	CX1555	CX2545	CX2555	CX2560	CX1010	CX10		Dimensions (mm) d	l	S	r	h	Drawing	Holder Page
	VBET	110301R-XF		✓							11.1	6.35	3.18	0.1	2.8		C044 ~ C047 C067 ~ C068
		110302R-XF		✓							11.1	6.35	3.18	0.2	2.8		
		110304R-XF		✓							11.1	6.35	3.18	0.4	2.8		
	VBET	110301L-XF		✓							11.1	6.35	3.18	0.1	2.8		
		110302L-XF		✓							11.1	6.35	3.18	0.2	2.8		
		110304L-XF		✓							11.1	6.35	3.18	0.4	2.8		
	VBET	110301R-YF		✓							11.1	6.35	3.18	0.1	2.8		
		110302R-YF		✓							11.1	6.35	3.18	0.2	2.8		
		110304R-YF		✓							11.1	6.35	3.18	0.4	2.8		
	VBET	110301L-YF		✓							11.1	6.35	3.18	0.1	2.8		
		110302L-YF		✓							11.1	6.35	3.18	0.2	2.8		
		110304L-YF		✓							11.1	6.35	3.18	0.4	2.8		
	VBEW	110301		✓							11.1	6.35	3.18	0.1	2.8		
		110302		✓							11.1	6.35	3.18	0.2	2.8		
		110304		✓							11.1	6.35	3.18	0.4	2.8		
	VBMT	160404-MG			✓	✓	✓				9.53	16.6	4.76	0.4	4.4		
		160408-MG			✓	✓	✓				9.53	16.6	4.76	0.8	4.4		

Order No. = Item No. + Grade No.

Chip control range



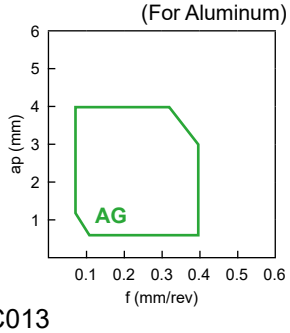
VC □□ - Positive Turning Inserts

Inserts	Designation		Grade No.								Dimensions (mm)					Drawing	Holder Page
			CX1060	CX1555	CX2545	CX2555	CX2560	CX1010	CX10		d	l	S	r	h		
	VCET	110301R-XF		✓							11.1	6.35	3.18	0.1	2.8		C044 ~ C047 C067 ~ C068
		110302R-XF		✓							11.1	6.35	3.18	0.2	2.8		
		110304R-XF		✓							11.1	6.35	3.18	0.4	2.8		
	VCET	110301L-XF		✓							11.1	6.35	3.18	0.1	2.8		
		110302L-XF		✓							11.1	6.35	3.18	0.2	2.8		
		110304L-XF		✓							11.1	6.35	3.18	0.4	2.8		
	VCET	110301R-YF		✓							11.1	6.35	3.18	0.1	2.8		
		110302R-YF		✓							11.1	6.35	3.18	0.2	2.8		
		110304R-YF		✓							11.1	6.35	3.18	0.4	2.8		
	VCET	110301L-YF		✓							11.1	6.35	3.18	0.1	2.8		
		110302L-YF		✓							11.1	6.35	3.18	0.2	2.8		
		110304L-YF		✓							11.1	6.35	3.18	0.4	2.8		
	VCEW	110301		✓							11.1	6.35	3.18	0.1	2.8		
		110302		✓							11.1	6.35	3.18	0.2	2.8		
		110304		✓							11.1	6.35	3.18	0.4	2.8		
	VCGT	110302-AG						✓	✓		11.1	6.35	3.18	0.2	2.8		
		110304-AG						✓	✓		11.1	6.35	3.18	0.4	2.8		
		160402-AG						✓	✓		9.525	16.6	4.76	0.2	4.4		
		160404-AG						✓	✓		9.525	16.6	4.76	0.4	4.4		
		160408-AG						✓	✓		9.525	16.6	4.76	0.8	4.4		
	VCGT	110302-FG	✓								11.1	6.35	3.18	0.2	2.8		
		110304-FG	✓								11.1	6.35	3.18	0.4	2.8		
		160402-FG	✓								9.525	16.6	4.76	0.2	4.4		
		160404-FG	✓								9.525	16.6	4.76	0.4	4.4		
		160408-FG	✓								9.525	16.6	4.76	0.8	4.4		
	VCGT	110301-SG		✓							11.1	6.35	3.18	0.1	2.8		
		110302-SG		✓							11.1	6.35	3.18	0.2	2.8		
		110304-SG		✓							11.1	6.35	3.18	0.4	2.8		

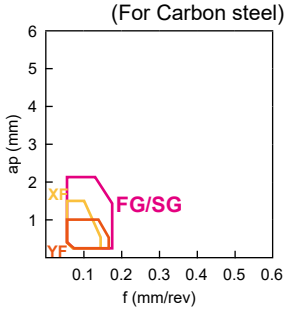
Order No. = Item No. + Grade No.

Chip control range

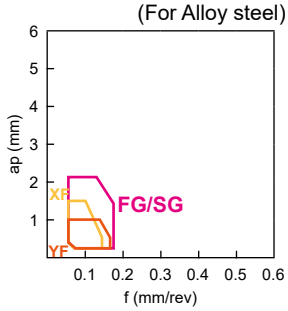
(For Aluminum)



(For Carbon steel)

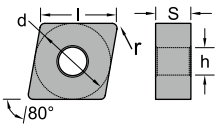


(For Alloy steel)



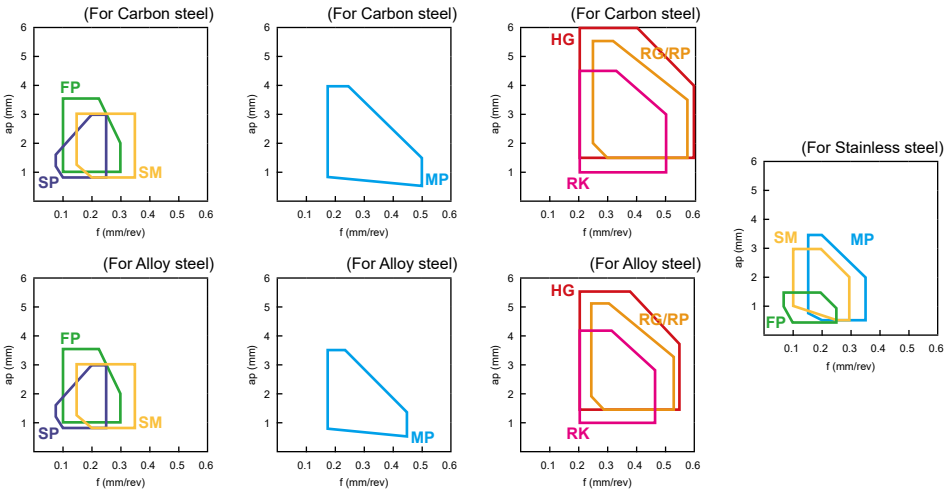
WINSTAR

CN□□ - Negative Turning Inserts

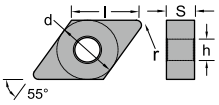
Inserts	Designation	Grade No.								Dimensions (mm)					Drawing	Holder Page
		CX2545	CX2555	CX2560	CX3560	CX3575				d	l	S	r	h		
	CNMG 120404-FP	✓		✓						12.7	12.9	4.76	0.4	5.16		C025 ~ C027 C048 ~ C049
	120408-FP	✓	✓	✓						12.7	12.9	4.76	0.8	5.16		
	CNMG 120404-SM	✓	✓	✓						12.7	12.9	4.76	0.4	5.16		
	120408-SM	✓	✓	✓						12.7	12.9	4.76	0.8	5.16		
	CNMG 120404-SP		✓	✓						12.7	12.9	4.76	0.4	5.16		
	120408-SP		✓	✓						12.7	12.9	4.76	0.8	5.16		
	CNMG 120404-MP	✓	✓	✓	✓	✓				12.7	12.9	4.76	0.4	5.16		
	120408-MP	✓	✓	✓	✓	✓				12.7	12.9	4.76	0.8	5.16		
	120412-MP	✓	✓	✓	✓	✓				12.7	12.9	4.76	1.2	5.16		
	CNMG 120408-RK		✓	✓						12.7	12.9	4.76	0.8	5.16		
	CNMG 120408-RG		✓	✓	✓					12.7	12.9	4.76	0.8	5.16		
	CNMG 120408-RP		✓	✓	✓					12.7	12.9	4.76	0.8	5.16		
	120412-RP		✓							12.7	12.9	4.76	1.2	5.16		
	CNMG 120408-HG		✓	✓	✓					12.7	12.9	4.76	0.8	5.16		
	120412-HG		✓	✓						12.7	12.9	4.76	1.2	5.16		

Order No. = Item No. + Grade No.

Chip control range

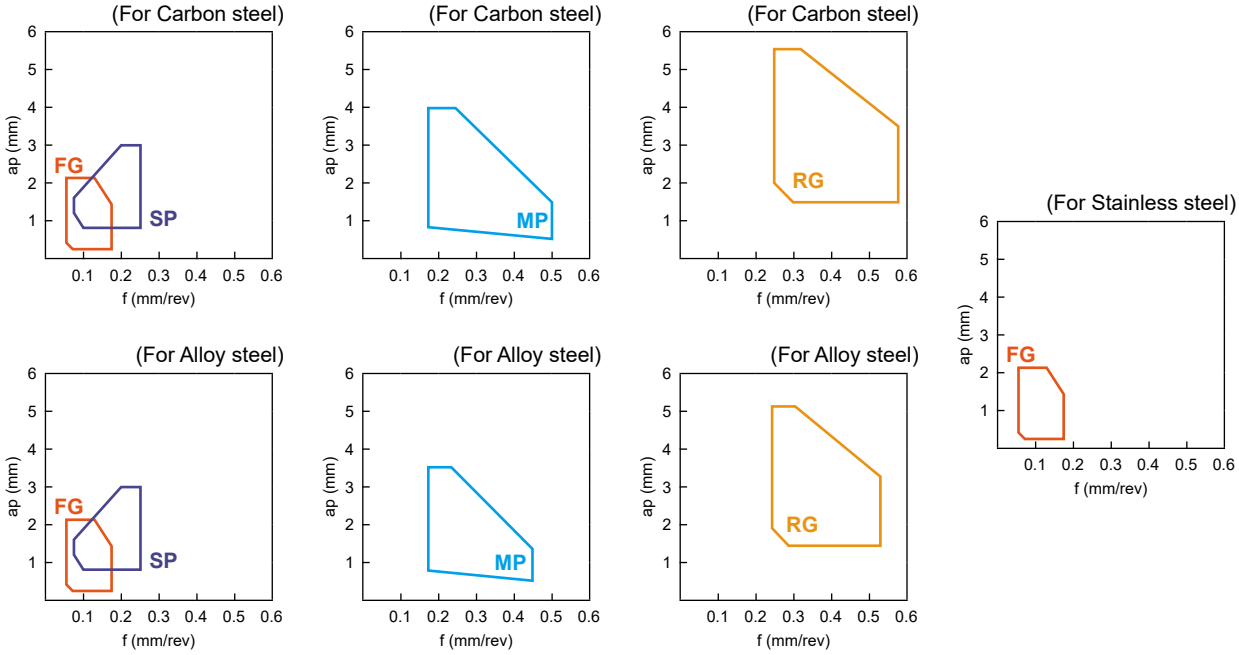


DN□□ - Negative Turning Inserts

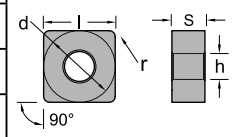
Inserts	Designation	Grade No.								Dimensions (mm)					Drawing	Holder Page
		CX2545	CX2555	CX2560	CX3560	CX3575	CX1555			d	l	S	r	h		
	DNGX 110401-FG						✓			9.525	11.6	4.76	0.1	4.5		
	110402-FG						✓			9.525	11.6	4.76	0.2	4.5		
	DNMG 150404-SP		✓	✓						12.7	15.5	4.76	0.4	5.16		C027
	DNMG 150404-MP					✓				12.7	15.5	4.76	0.4	5.16		C050
	150408-MP					✓				127.	15.5	4.76	0.8	5.16		
	DNMG 110408-RG		✓	✓						9.525	11.6	4.76	0.8	3.81		
	150408-RG		✓	✓	✓					12.7	15.5	4.76	0.8	5.16		
	150608-RG			✓						12.7	15.5	6.35	0.8	5.16		

Order No. = Item No. + Grade No.

Chip control range

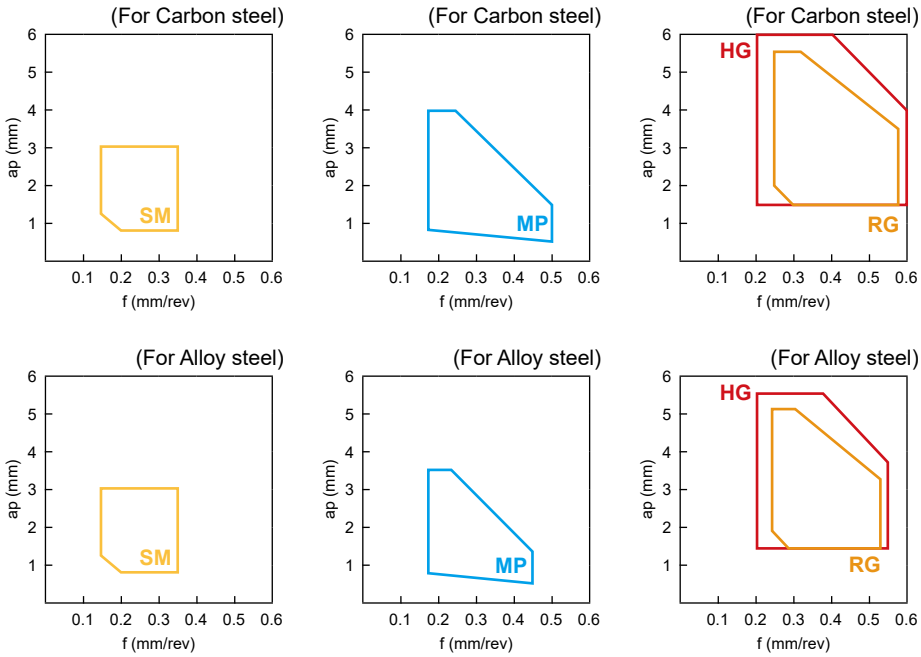


SN□□ - Negative Turning Inserts

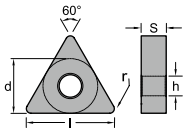
Inserts	Designation	Grade No.								Dimensions (mm)					Drawing	Holder Page
		CX2545	CX2555	CX2560	CX3560	CX3575				d	l	S	r	h		
	SNMG 120404-SM		✓	✓						12.7	12.7	4.76	0.4	5.16		C028 C051
	SNMG 120404-MP					✓				12.7	12.7	4.76	0.4	5.16		
	120408-MP					✓				12.7	12.7	4.76	0.8	5.16		
	120412-MP					✓				12.7	12.7	4.76	1.2	5.16		
	SNMG 120408-RG		✓	✓	✓					12.7	12.7	4.76	0.8	5.16		
	120412-RG		✓	✓						12.7	12.7	4.76	1.2	5.16		

Order No. = Item No. + Grade No.

Chip control range

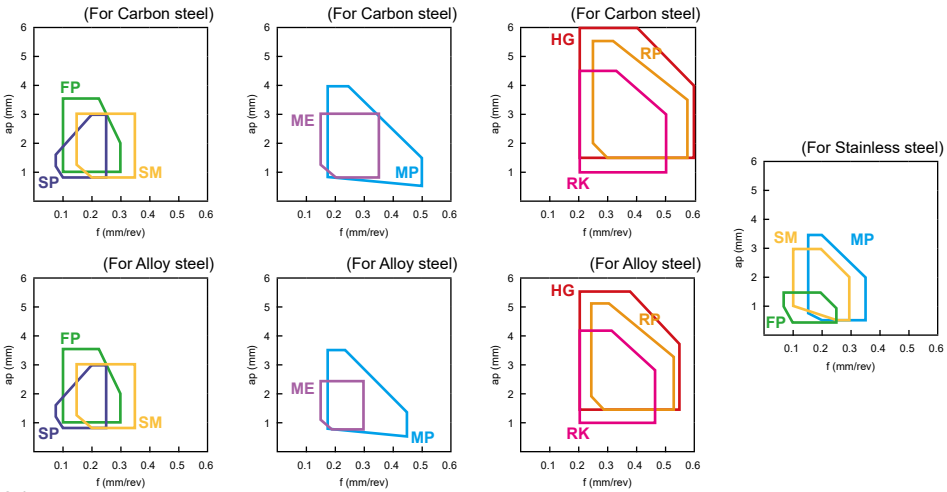


TN□□ - Negative Turning Inserts

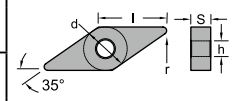
Inserts	Designation	Grade No.								Dimensions (mm)					Drawing	Holder Page
		CX2545	CX2555	CX2560	CX3560	CX3575				d	l	S	r	h		
	TNMG 160408-FP	✓	✓	✓						9.53	16.5	4.76	0.8	3.81		C028 ~ C030 C050 ~ C053
	TNMG 160408-SM	✓	✓	✓						9.53	16.5	4.76	0.8	3.81		
	TNMG 160404-SP		✓	✓						9.53	16.5	4.76	0.4	3.81		
	160408-SP		✓	✓						9.53	16.5	4.76	0.8	3.81		
	TNMG 160404R-ME		✓	✓						9.53	16.5	4.76	0.4	3.81		
	160408R-ME		✓	✓						9.53	16.5	4.76	0.8	3.81		
	TNMG 160404L-ME		✓	✓						9.53	16.5	4.76	0.4	3.81		
	160408L-ME		✓	✓						9.53	16.5	4.76	0.8	3.81		
	TNMG 160404-MP	✓	✓	✓		✓				9.53	16.5	4.76	0.4	3.81		
	160408-MP	✓	✓	✓		✓				9.53	16.5	4.76	0.8	3.81		
	160412-MP	✓	✓	✓						9.53	16.5	4.76	1.2	3.81		
	TNMG 160408-RP		✓	✓						9.53	16.5	4.76	0.8	3.81		
	TNMG 160408-HG		✓	✓	✓					9.53	16.5	4.76	0.8	3.81		
	160412-HG		✓	✓						9.53	16.5	4.76	1.2	3.81		
	TNMG 220408-RK		✓	✓						12.7	22	4.76	0.8	5.16		

Order No. = Item No. + Grade No.

Chip control range

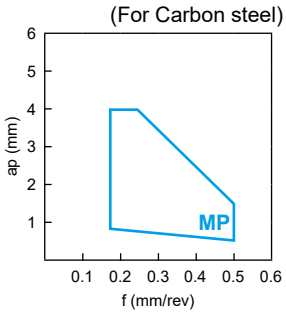


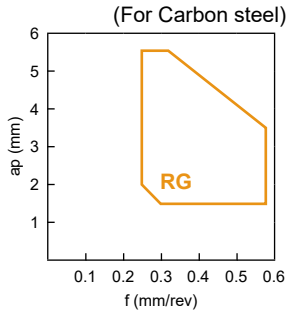
VN□□ - Negative Turning Inserts

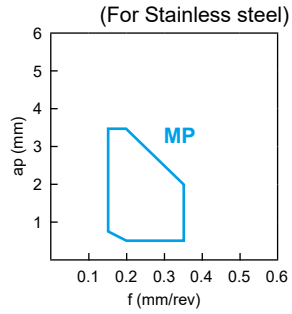
Inserts	Designation	Grade No.								Dimensions (mm)					Drawing	Holder Page
		CX2545	CX2555	CX2560	CX3560	CX3575				d	l	S	r	h		
	VNMG 160404-MP	✓	✓	✓		✓				9.53	16.5	4.76	0.4	3.81		C030 C054 ~ C055
	160408-MP					✓				9.53	16.5	4.76	0.8	3.81		
	VNMG 160408-RG		✓	✓	✓					9.53	16.5	4.76	0.8	3.81		

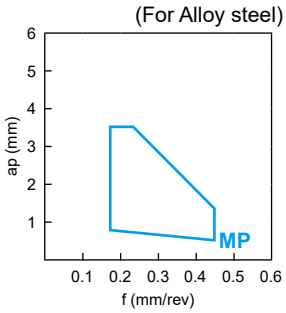
Order No. = Item No. + Grade No.

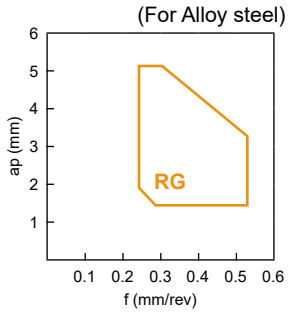
Chip control range



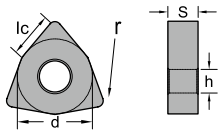






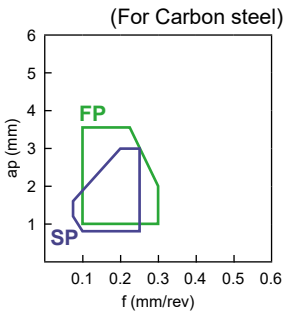


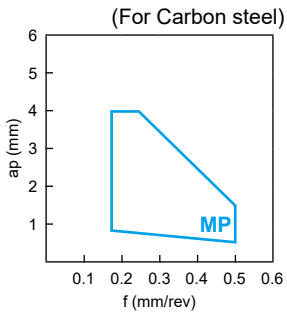
WN□□ - Negative Turning Inserts

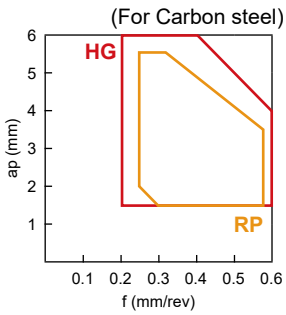
Inserts	Designation	Grade No.								Dimensions (mm)					Drawing	Holder Page
		CX2545	CX2555	CX2560	CX3560	CX3575				d	l	S	r	h		
	WNMG 080408-FP		✓	✓	✓					12.7	8.7	4.76	0.8	5.16		C031 C055 ~ C056
	WNMG 080404-SP	✓	✓	✓						12.7	8.7	4.76	0.4	5.16		
	080408-SP		✓	✓						12.7	8.7	4.76	0.8	5.16		
	WNMG 080404-MP	✓	✓	✓		✓				12.7	8.7	4.76	0.4	5.16		
	080408-MP	✓	✓	✓		✓				12.7	8.7	4.76	0.8	5.16		
	080412-MP	✓	✓	✓		✓				12.7	8.7	4.76	1.2	5.16		
	WNMG 080408-RP		✓	✓						12.7	8.7	4.76	0.8	5.16		
	WNMG 080408-HG		✓	✓	✓					12.7	8.7	4.76	0.8	5.16		
	080412-HG		✓	✓	✓					12.7	8.7	4.76	1.2	5.16		

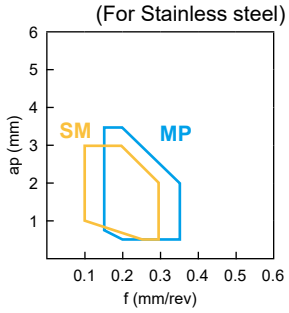
Order No. = Item No. + Grade No.

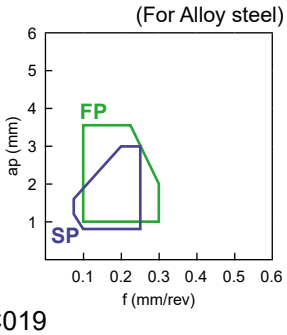
Chip control range

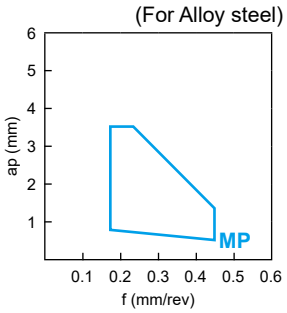


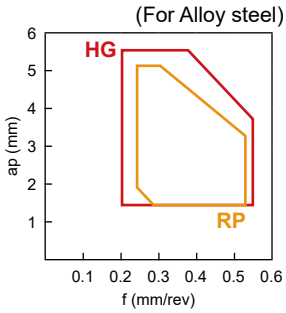












INDEX

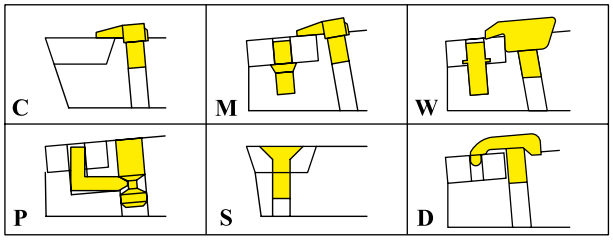
Turning Holders

Tools Designations.....C021
Internal Turning Holders.....C025
External Turning Holders.....C048

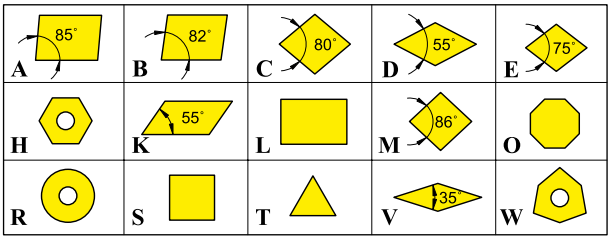
Tools Designations For External Turning

M	C	L	N	R	2	5	2	5	M	1	2	*
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬

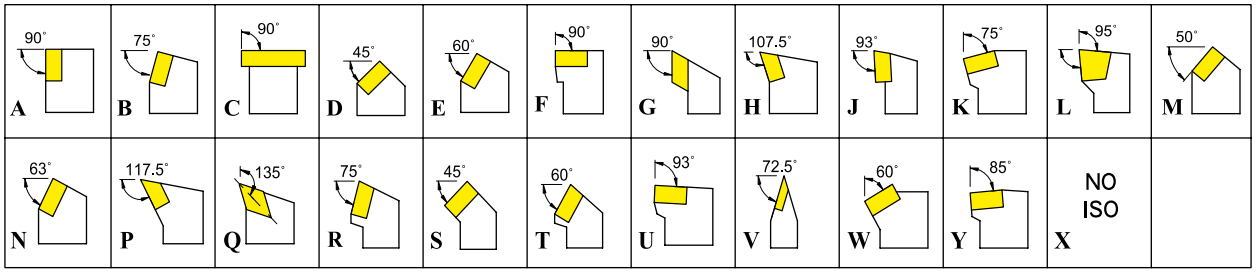
① Type of Locking



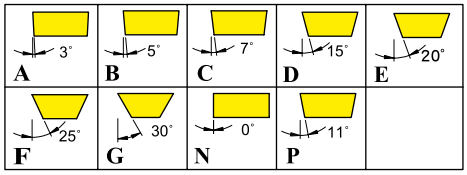
② Insert Shape



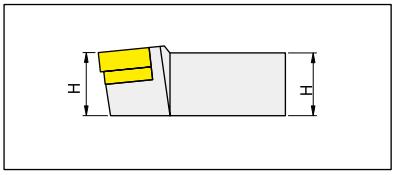
③ Type of Tool



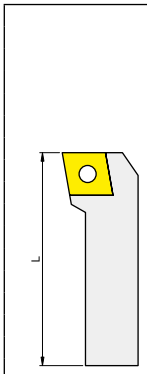
④ Rake Angle



⑥/⑦ Shank Height

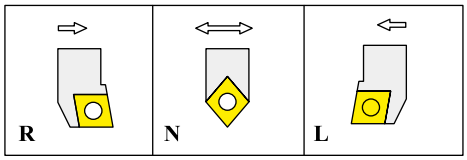


⑩ Tool Length

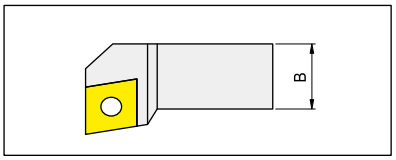


32	A
40	B
50	C
60	D
70	E
80	F
90	G
100	H
110	J
125	K
140	L
150	M
160	N
170	P
180	Q
200	R
250	S
300	T
350	U
400	V
450	W
500	Y
Special	X

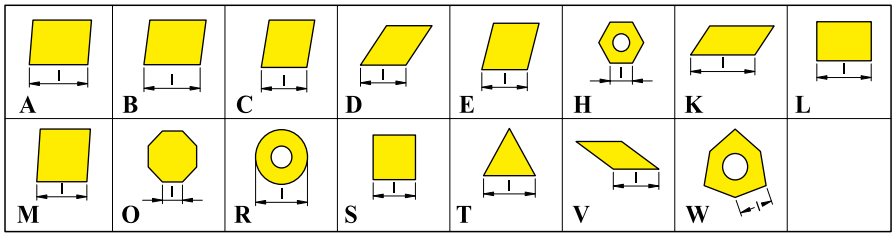
⑤ Hand of Tool



⑧/⑨ Shank Width



⑪/⑫ Edge Length



⑬ Optional Code

INSERTS	R-L

Tools Designations For Internal Turning

S	2	0	R		S	C	L	C	R	0	9		*
⑥	⑧	⑨	⑩		①	②	③	④	⑤	⑪	⑫		⑬

⑥ Shank

S = Steel shank

A = Steel shank + coolant hole

B = Steel shank + device anti-vibration

C = Cemented carbide shank with steel head

D = Steel shank + device anti-vibration + coolant hole

E = Cemented carbide shank with steel head + coolant hole

F = Cemented carbide shank with steel head + device anti-vibration

G = Cemented carbide shank with steel head + device anti-vibration + coolant hole

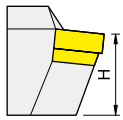
H = Heavy metal shank

J = Heavy mteal shank + coolant hole

Cartridges Designation

S	T	F	C	R		1	0	C	A		1	1
①	②	③	④	⑤		⑥	⑦	⑧	⑨		⑪	⑫

⑥/⑦ Shank Height



⑧ Type of Tool

C = Cartridge

⑨ Execution

A = ISO 5611

Internal Turning Tools Index

MCKN C025

MCLN C026

DCLN C027

MDUN C027

MSKN C028

MTUN C028

WTUN C029

DTUN C029

MTWN C030

MVUN C030

MWLN C031

DWLN C031

SCKC C032

SCLC C033

SCLC C035

SDJC C036

SDNC C037

SDQC C038

SDUC C039

SDZC C040

STUC C041

STUP C042

STWC C043

SVJB C044

SVJC C045

SVQB C046

SVUB C047

SVVB C047

External Turning Tools Index

MCBN C048

MCKN C048

MCLN C049

MCNN C049

MDJN C050

MTQN C050

MSDN C051

MSSN C051

MTJN C052

MTEN C052

DTFN C053

MTFN C053

MVJN C054

MVQN C054

MVVN C055

WWLN C055

MWLN C056

MWLN-N C056

SCBC C057

SCKC C057

SCLC C058

SCL2C C058

SCNC C059

SDJC C059

SDJ2C C060

SDNC C060

SDQC C061

SDFC C061

SSAC C062

SSBC C062

SSDC C063

SSEC C063

SSXC C064

STAC C065

STFC C065

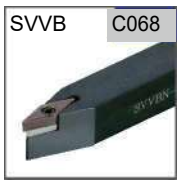
STGC C066

CTYC C066

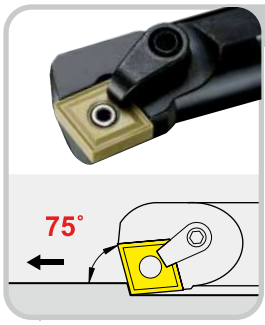
SVJB C067

SVJ2B C067

SVQB C068

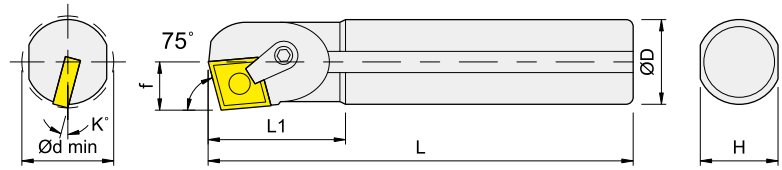
SVVB C068


Internal Turning Tools



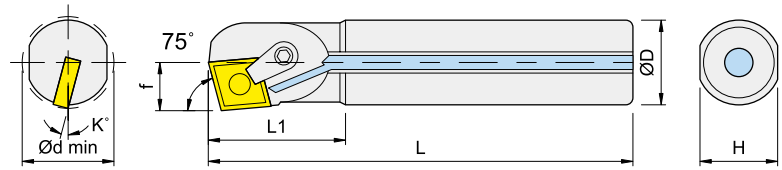
MCKN

S..-MCKNR/L-12 Steel shank



Right-hand shown

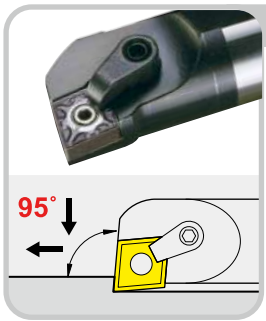
A..-MCKNR/L-12 Steel shank+coolant hole



Right-hand shown

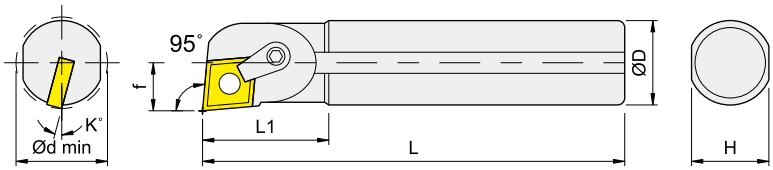
Order No.	Dimensions, mm							Insert	Shim	Pin	Wrench	Clamp	Screw	Wrench
	D	L	L1	f	H	K	dmin							
IS20R-MCKN$^{R}/_{L}$-12	20	200	40	13	18	15	25	CN..1204..	--	IMLP44-A	IPL25	IMC620	IMS620TX	IETL15
IS25R-MCKN$^{R}/_{L}$-12	25	200	40	15.5	23	13	30							
IS32S-MCKN$^{R}/_{L}$-12	32	250	48	19.5	30	13	40		ICMS432	IMLP46-A	IPL25		IMS625TX	
IS40T-MCKN$^{R}/_{L}$-12	40	300	55	25.5	37	12	50							
IS50U-MCKN$^{R}/_{L}$-12	50	350	60	30.5	47	10	60							
IS60V-MCKN$^{R}/_{L}$-12	60	400	60	35.5	57	9	70							
IA20R-MCKN$^{R}/_{L}$-12	20	200	40	13	18	15	25		--	IMLP44-A	IPL25		IMS620TX	
IA25R-MCKN$^{R}/_{L}$-12	25	200	40	15.5	23	13	30							
IA32S-MCKN$^{R}/_{L}$-12	32	250	48	19.5	30	13	40		ICMS432	IMLP46-A	IPL25		IMS625TX	
IA40T-MCKN$^{R}/_{L}$-12	40	300	55	25.5	37	12	50							

Internal Turning Tools



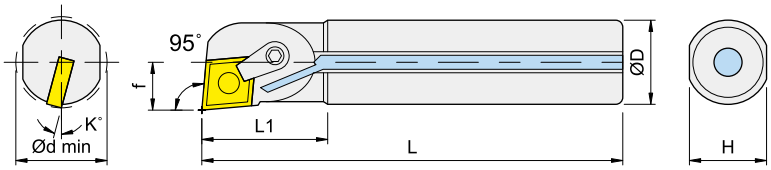
MCLN

■ S..-MCKNR/L-12 Steel shank



Right-hand shown

■ A..-MCKNR/L-12 Steel shank+coolant hole

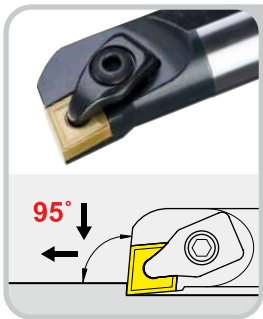


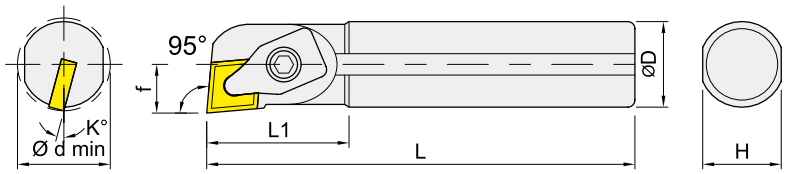
Right-hand shown

Order No.	Dimensions, mm							Insert	Shim	Pin	Wrench	Clamp	Screw	Wrench
	D	L	L1	f	H	K	dmin							
IS20R-MCLN$^{R}/_{L}$-12	20	200	40	13	18	15	25	CN..1204..	--	IMLP44-A	IPL25	IMC620	IMS620TX	IETL15
IS25R-MCLN$^{R}/_{L}$-12	25	200	40	15.5	23	13	30							
IS32S-MCLN$^{R}/_{L}$-12	32	250	48	19.5	30	13	40		ICMS432	IMLP46-A	IPL25		IMS625TX	
IS40T-MCLN$^{R}/_{L}$-12	40	300	55	25.5	37	12	50							
IS50U-MCLN$^{R}/_{L}$-12	50	350	60	30.5	47	10	60							
IS60V-MCLN$^{R}/_{L}$-12	60	400	60	35	57	9	70							
IA20R-MCLN$^{R}/_{L}$-12	20	200	40	13	18	15	25		--	IMLP44-A	IPL25		IMS620TX	
IA25R-MCLN$^{R}/_{L}$-12	25	200	40	15.5	23	13	30							
IA32S-MCLN$^{R}/_{L}$-12	32	250	48	19.5	30	13	40		ICMS432	IMLP46-A	IPL25		IMS625TX	
IA40T-MCLN$^{R}/_{L}$-12	40	300	55	25.5	37	12	50							

Internal Turning Tools

DCLN

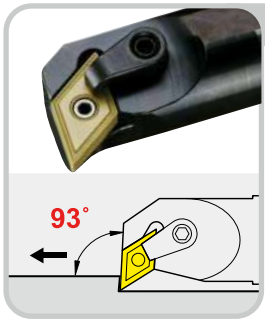




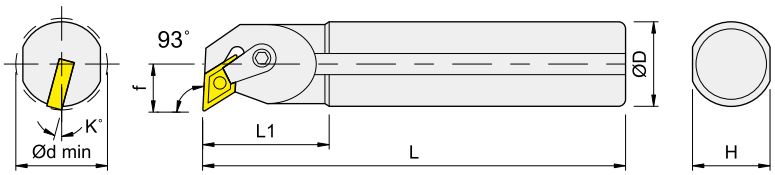
Right-hand shown

Order No.	Dimensions, mm							Insert	Shim	Screw	Wrench	Clamp	Wrench
	D	L	L1	f	H	K	dmin						
IS20R-DCLN$^{R}/_{L}$-12	20	200	40	14	18	15	28	CN..1204..	--	--	--	IMCD425	IETL20
IS25R-DCLN$^{R}/_{L}$-12	25	200	40	15	23	15	30						

MDUN

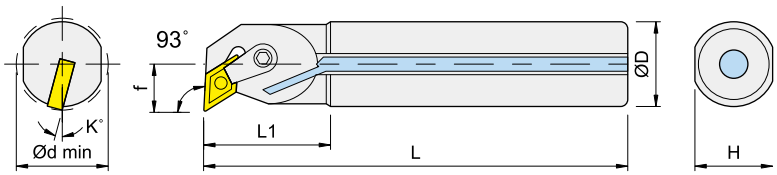


■ S..-MDUNR/L-15 Steel shank



Right-hand shown

■ A..-MDUNR/L-15 Steel shank+coolant hole

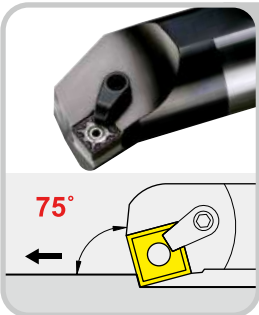


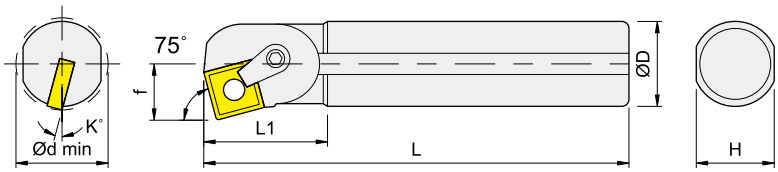
Right-hand shown

Order No.	Dimensions, mm							Insert	Shim	Pin	Wrench	Clamp	Screw	Wrench
	D	L	L1	f	H	K	dmin							
IS25R-MDUN$^{R}/_{L}$-15	25	200	40	17	23	13	32	DN..1504..	--	IMLP44-A	IPL25	IMC620	IMS620TX	IETL15
IS32S-MDUN$^{R}/_{L}$-15	32	250	50	21	30	13	40		IDMS432	IMLP46-A			IMS625TX	
IA25R-MDUN$^{R}/_{L}$-15	25	200	40	17	23	13	32		--	IMLP44-A			IMS620TX	
IA32S-MDUN$^{R}/_{L}$-15	32	250	50	21	30	13	40		IDMS432	IMLP46-A			IMS625TX	

Internal Turning Tools

MSKN

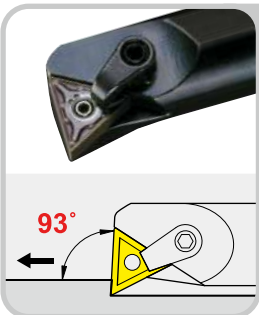




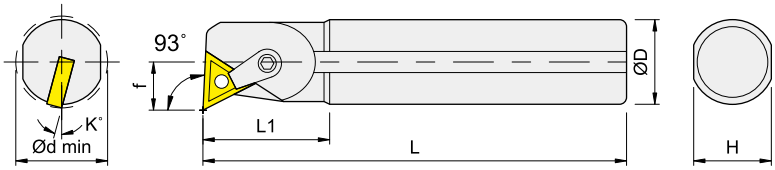
Right-hand shown

Order No.	Dimensions, mm							Insert	Shim	Pin	Wrench	Clamp	Screw	Wrench
	D	L	L1	f	H	K	dmin							
IS40T-MSKN$^{R}/_{L}$-12	40	300	55	25.5	37	12	50	SN..1204..	ISMS432	IMLP46-A	IPL25	IMC620	IMS625TX	IETL15
IS50U-MSKN$^{R}/_{L}$-12	50	350	60	30.5	47	10	60							
IS60V-MSKN$^{R}/_{L}$-12	60	400	60	36	57	9	70							

MTUN

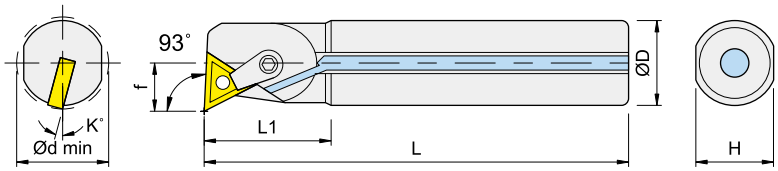


■ S..-MTUNR/L-16 Steel shank



Right-hand shown

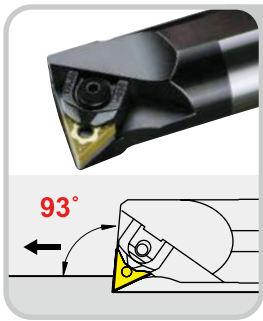
■ A..-MTUNR/L-16 Steel shank+coolant hole



Right-hand shown

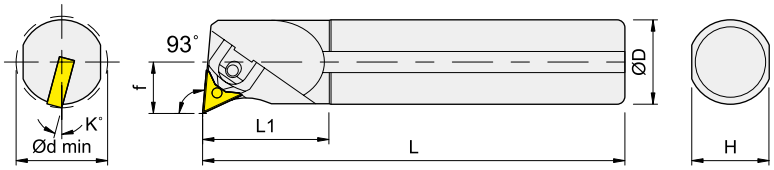
Order No.	Dimensions, mm							Insert	Shim	Pin	Wrench	Clamp	Screw	Wrench
	D	L	L1	f	H	K	dmin							
IS20R-MTUN$^{R}/_{L}$-16	20	200	36	13	18	15	25	TN..1604..	--	IMLP33L	IPL20	IMC515	IMS520TX	IETL10
IS25R-MTUN$^{R}/_{L}$-16	25	200	40	15	23	13	30							
IS32S-MTUN$^{R}/_{L}$-16	32	250	48	20	30	13	40		ITMS322	IMLP34L		IMC620	IMS625TX	IETL15
IS40T-MTUN$^{R}/_{L}$-16	40	300	55	26	37	10	50							
IS50U-MTUN$^{R}/_{L}$-16	50	350	60	31	47	9	60							
IS60V-MTUN$^{R}/_{L}$-16	60	400	60	35.5	57	8	70							
IA20R-MTUN$^{R}/_{L}$-16	20	200	36	13	18	15	25		--	IMLP33L		IMC515	IMS520TX	IETL10
IA25R-MTUN$^{R}/_{L}$-16	25	200	40	15	23	13	30							
IA32S-MTUN$^{R}/_{L}$-16	32	250	48	20	30	13	40		ITMS322	IMLP34L		IMC620	IMS625TX	IETL15
IA40T-MTUN$^{R}/_{L}$-16	40	300	55	26	37	10	50							

Internal Turning Tools



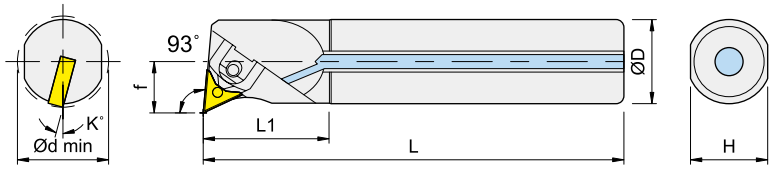
WTUN

■ S..-WTUNR/L-16 Steel shank



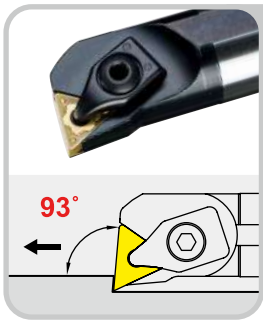
Right-hand shown

■ A..-WTUNR/L-16 Steel shank+coolant hole



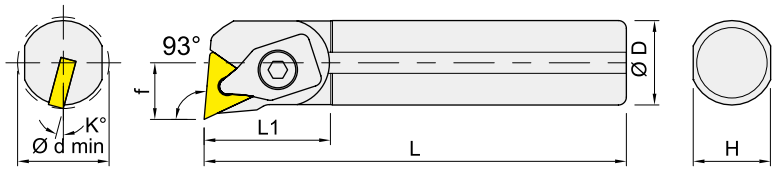
Right-hand shown

Order No.	Dimensions, mm							Insert	Shim	Pin	Clamp	Wrench
	D	L	L1	f	H	K	dmin					
IS32S-WTUN$^{R}/_{L}$-16	32	250	48	19.5	30	13	40	TN..1604..	ITMS322	ISCP315	IMCW3-P25	IPL25
IS40T-WTUN$^{R}/_{L}$-16	40	300	55	25.5	37	10	50			ISCP318		
IS40U-WTUN$^{R}/_{L}$-16	40	350	55	25.5	37	10	50					
IS50U-WTUN$^{R}/_{L}$-16	50	350	60	30.5	47	9	60					
IS50V-WTUN$^{R}/_{L}$-16	50	400	60	30.5	47	9	60					
IS60V-WTUN$^{R}/_{L}$-16	60	400	60	35.5	57	8	70					
IA32S-WTUN$^{R}/_{L}$-16	32	250	48	19.5	30	13	40			ISCP315		
IA40T-WTUN$^{R}/_{L}$-16	40	300	55	25.5	37	10	50			ISCP318		
IA40U-WTUN$^{R}/_{L}$-16	40	350	55	25.5	37	10	50					



DTUN

■ S..-DTUNR/L-16 Steel shank

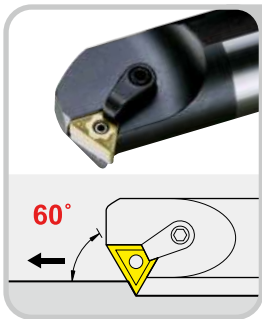


Right-hand shown

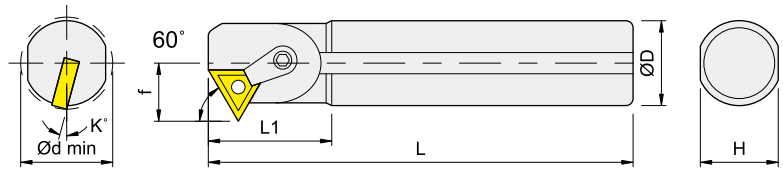
Order No.	Dimensions, mm							Insert	Shim	Screw	Wrench	Clamp	Wrench
	D	L	L1	f	H	K	dmin						
IS20R-DTUN$^{R}/_{L}$-16	20	200	40	14	18	15	28	TN..1604..	--	--	--	IMCD324	IETL20
IS25R-DTUN$^{R}/_{L}$-16	25	200	40	15.5	23	13	30						
IS32S-DTUNR-16	32	250	48	19.5	30	13	40		ITWS322	IMS4008H	IPL25	IMCD324B	

Internal Turning Tools

MTWN



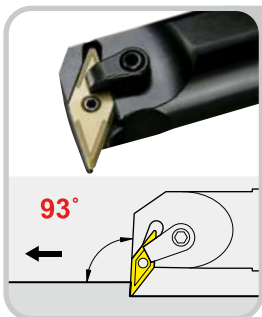
■ S..-MTWNR/L-16 Steel shank



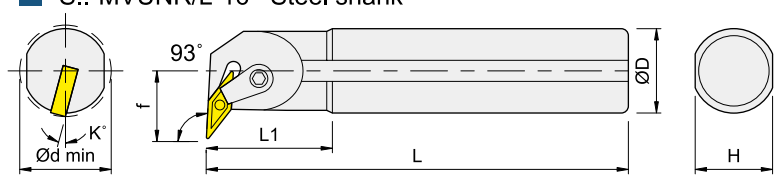
Right-hand shown

Order No.	Dimensions, mm							Insert	Shim	Pin	Wrench	Clamp	Screw	Wrench
	D	L	L1	f	H	K	dmin							
IS20R-MTWN$^{R}/_{L}$-16	20	200	40	13.5	18	15	27	TN..1604..	--	IMLP33L	IPL20	IMC515	IMS520TX	IETL10
IS25R-MTWN$^{R}/_{L}$-16	25	200	40	16	23	13	32							
IS32S-MTWN$^{R}/_{L}$-16	32	250	48	20	30	13	40		ITWS322	IMLP34L		IMC620	IMS625TX	IETL15

MVUN

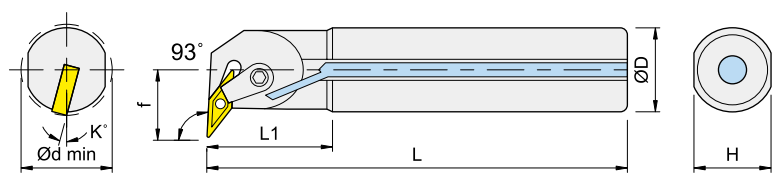


■ S..-MVUNR/L-16 Steel shank



Right-hand shown

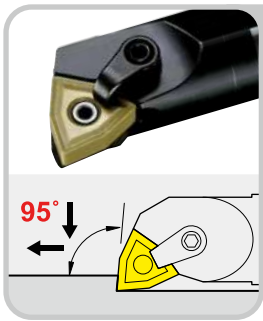
■ A..-MVUNR/L-16 Steel shank+coolant hole



Right-hand shown

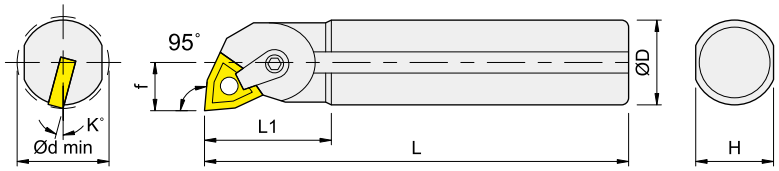
Order No.	Dimensions, mm							Insert	Shim	Pin	Wrench	Clamp	Screw	Wrench
	D	L	L1	f	H	K	dmin							
IS25R-MVUN$^{R}/_{L}$-16	25	200	45	18	23	13	32	VN..1604..	--	IMLP33L	IPL20	IMC515	IMS520TX	IETL10
IS32S-MVUN$^{R}/_{L}$-16	32	250	50	21	30	13	40		IVMS322	IMLP34L	IPL20	IMC620	IMS625TX	IETL15
IA25R-MVUN$^{R}/_{L}$-16	25	200	45	18	23	13	32		--	IMLP33L	IPL20	IMC515	IMS520TX	IETL10
IA32S-MVUN$^{R}/_{L}$-16	32	250	50	21	30	13	40		IVMS322	IMLP34L	IPL20	IMC620	IMS625TX	IETL15

Internal Turning Tools



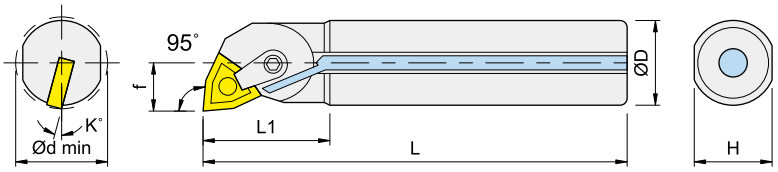
MWLN

■ S..-MWLNR/L-08 Steel shank



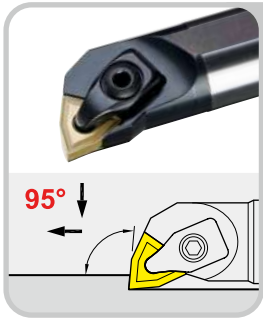
Right-hand shown

■ A..-MWLNR/L-08 Steel shank+coolant hole



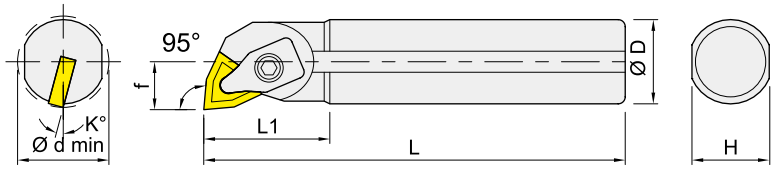
Right-hand shown

Order No.	Dimensions, mm							Insert	Shim	Pin	Wrench	Clamp	Screw	Wrench
	D	L	L1	f	H	K	dmin							
IS20R-MWLN$^{R}/_{L}$-08	20	200	36	13	18	15	25	WN..0804..	--	IMLP44-A	IPL25	IMC515	IMS520TX	IETL10
IS25R-MWLN$^{R}/_{L}$-08	25	200	40	15	23	13	30							
IS32S-MWLN$^{R}/_{L}$-08	32	250	48	20	30	13	40		IWMS432	IMLP46-A			IMS520TX	
IS40T-MWLN$^{R}/_{L}$-08	40	300	55	25.5	37	10	50					IMC620	IMS625TX	IETL15
IS50U-MWLN$^{R}/_{L}$-08	50	350	60	30.5	47	9	60							
IS60V-MWLN$^{R}/_{L}$-08	60	400	60	35.5	57	8	70							
IA20R-MWLN$^{R}/_{L}$-08	20	200	36	13	18	15	25		--	IMLP44-A		IMC515	IMS520TX	IETL10
IA25R-MWLN$^{R}/_{L}$-08	25	200	40	15	23	13	30							
IA32S-MWLN$^{R}/_{L}$-08	32	250	48	20	30	13	40		IWMS432	IMLP46-A			IMS520TX	



DWLN

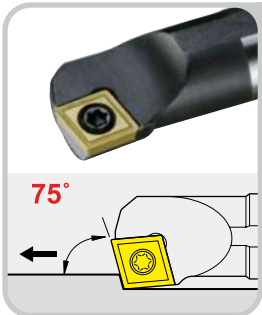
■ S..-DWLNR/L-.. Steel shank



Right-hand shown

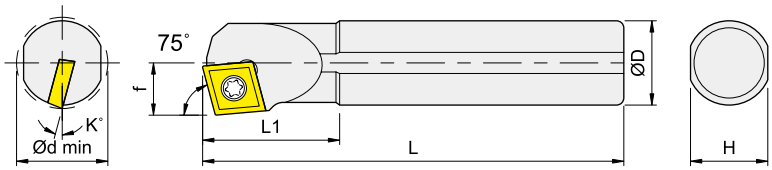
Order No.	Dimensions, mm							Insert	Shim	Screw	Wrench	Clamp	Wrench
	D	L	L1	f	H	K	dmin						
IS20R-DWLN$^{R}/_{L}$-08	20	200	40	14	18	15	28	WN..0804..	--	--	--	IMCD425	IETL20
IS25R-DWLN$^{R}/_{L}$-08	25	200	40	15	23	13	30						

Internal Turning Tools



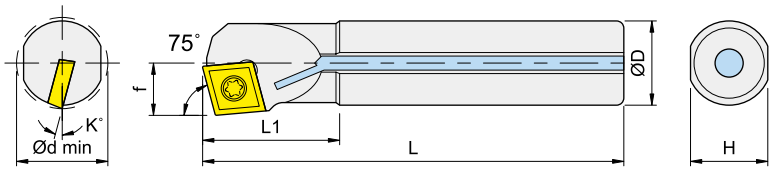
SCKC

■ S..-SCKC/PR/L-.. Steel shank



Right-hand shown

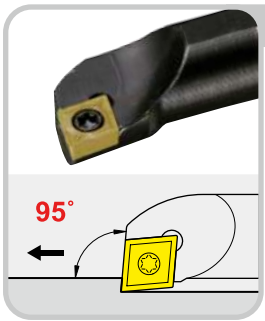
■ A..-SCKC/PR/L-.. Steel shank+coolant hole



Right-hand shown

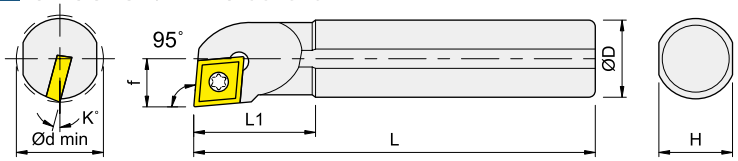
Order No.	Dimensions, mm							Insert	Screw	Wrench
	D	L	L1	f	H	K	dmin			
IS08K-SCKC$^{R}/_{L}$-06	8	125	20	5	7	15	10	CC..0602..	IMS2506A	ITK09
IS10K-SCKC$^{R}/_{L}$-06	10	125	22	6	9	13	12			
IS12M-SCKC$^{R}/_{L}$-06	12	150	26	8	11	10	16			
IS16Q-SCKC$^{R}/_{L}$-06	16	180	32	10	15	7	20			
IS12M-SCKC$^{R}/_{L}$-09	12	150	28	8	11	11	16	CC..09T3..	IMS4008A	ITK15
IS16Q-SCKC$^{R}/_{L}$-09	16	180	32	10	15	7	20			
IS20R-SCKC$^{R}/_{L}$-09	20	200	36	12.5	18	5	25		IMS4009A	
IA08K-SCKC$^{R}/_{L}$-06	8	125	20	5	7	15	10	CC..0602..	IMS2506A	ITK09
IA10K-SCKC$^{R}/_{L}$-06	10	125	22	6	9	13	12			
IA12M-SCKC$^{R}/_{L}$-06	12	150	26	8	11	10	16			
IA16Q-SCKC$^{R}/_{L}$-06	16	180	32	10	15	7	20			
IA12M-SCKC$^{R}/_{L}$-09	12	150	28	8	11	11	16	CC..09T3..	IMS4008A	ITK15
IA16Q-SCKC$^{R}/_{L}$-09	16	180	32	10	15	7	20			
IA20R-SCKC$^{R}/_{L}$-09	20	200	36	12.5	18	5	25		IMS4009A	

Internal Turning Tools



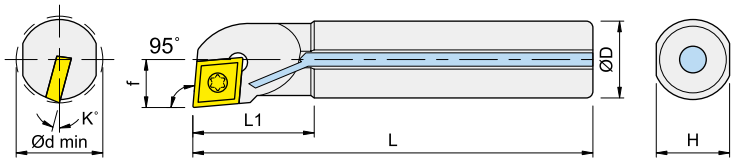
SCLC

S..-SCLCR/L-.. Steel shank



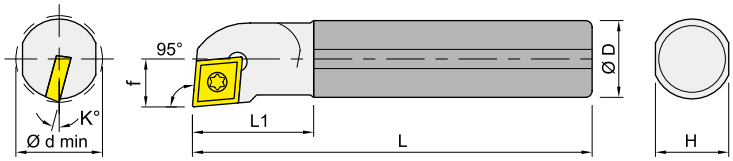
Right-hand shown

A..-SCLCR/L-.. Steel shank+coolant hole



Right-hand shown

C..-SCLCR/L-.. Carbide shank



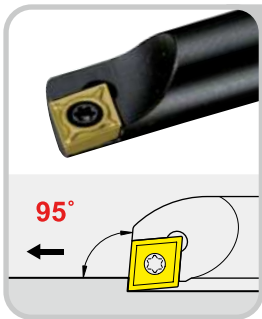
Right-hand shown

Order No.	Dimensions, mm							Insert	Screw	Wrench
	D	L	L1	f	H	K	dmin			
IS08K-SCLC$^{R}/_{L}$-06	8	125	20	5	7	15	10	CC..0602..	IMS2506A	ITK09
IS08K-SCLC$^{R}/_{L}$-06-D09	8	125	20	4.5	7	15	9			
IS10K-SCLC$^{R}/_{L}$-06	10	125	22	6	9	13	12			
IS10K-SCLC$^{R}/_{L}$-06-D11	10	125	22	5.5	9	13	11			
IS12M-SCLC$^{R}/_{L}$-06	12	150	26	8	11	10	16			
IS12M-SCLC$^{R}/_{L}$-06-D13	12	150	26	6.5	11	10	13			
IS14Q-SCLC$^{R}/_{L}$-06	14	180	26	8	13	10	16			
IS16Q-SCLC$^{R}/_{L}$-06	16	180	32	10	15	7	20			
IS12M-SCLC$^{R}/_{L}$-09	12	150	26	8	11	10	16	CC..09T3..	IMS4008A	ITK15
IS14Q-SCLC$^{R}/_{L}$-09	14	180	26	8	13	10	16			
IS15Q-SCLC$^{R}/_{L}$-09	15	180	32	8.5	14	10	17			
IS16Q-SCLC$^{R}/_{L}$-09	16	180	32	10	15	7	20			
IS16Q-SCLC$^{R}/_{L}$-09-D18	16	180	32	9	15	7	18			
IS18Q-SCLCR-09	18	180	32	10	17	7	20			
IS20R-SCLC$^{R}/_{L}$-09	20	200	36	13	18	5	25		IMS4009A	
IS22R-SCLC$^{R}/_{L}$-09	22	200	40	12.5	20	5	25			
IS25R-SCLC$^{R}/_{L}$-09	25	200	40	15	23	5	30	CC..09T3..	IMS4011A	ITK15
IS32S-SCLC$^{R}/_{L}$-12	32	250	48	20	30	5	38	CC..1204..	IMS5011A	ITK20
IS40T-SCLC$^{R}/_{L}$-12	40	300	55	26	37	3	50			
IS40V-SCLC$^{R}/_{L}$-12	40	400	55	26	37	3	50			

Internal Turning Tools

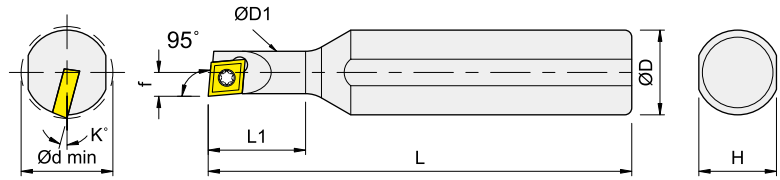
Order No.	Dimensions, mm							Insert	Screw	Wrench
	D	L	L1	f	H	K	dmin			
IA08K-SCLC$^{R}/_{L}$-06	8	125	20	5	7	15	10	CC..0602..	IMS2506A	ITK09
IA08K-SCLC$^{R}/_{L}$-06-D09	8	125	20	4.5	7	15	9			
IA10K-SCLC$^{R}/_{L}$-06	10	125	22	6	9	13	12			
IA10K-SCLC$^{R}/_{L}$-06-D11	10	125	22	5.5	9	13	11			
IA12M-SCLC$^{R}/_{L}$-06	12	150	26	8	11	10	16			
IA12M-SCLC$^{R}/_{L}$-06-D13	12	150	26	6.5	11	10	13			
IA14Q-SCLC$^{R}/_{L}$-06	14	180	26	8	13	10	16			
IA16Q-SCLC$^{R}/_{L}$-06	16	180	32	10	15	7	20			
IA12M-SCLC$^{R}/_{L}$-09	12	150	26	8	11	10	16	CC..09T3..	IMS4008A	ITK15
IA16Q-SCLC$^{R}/_{L}$-09	16	180	32	10	15	7	20			
IA16Q-SCLC$^{R}/_{L}$-09-D18	16	180	32	9	15	7	18			
IA20R-SCLC$^{R}/_{L}$-09	20	200	40	13	18	5	25		IMS4009A	
IA25R-SCLC$^{R}/_{L}$-09	25	200	40	15	23	5	30	CC..09T3..	IMS4011A	ITK15
IA32S-SCLC$^{R}/_{L}$-12	32	250	48	20	30	5	38	CC..1204..	IMS5011A	ITK20
IC07J-SCLC$^{R}/_{L}$-06	7	110	18	4	6.7	15	8	CC..0602..	IMS2506A	ITK09
IC08K-SCLC$^{R}/_{L}$-06	8	125	20	5	7.2	15	10	CC..0602..	IMS2506A	ITK09
IC08K-SCLC$^{R}/_{L}$-06-D09	8	125	20	4.5	7.2	15	9			
IC10K-SCLC$^{R}/_{L}$-06	10	125	22	6	9.2	13	12			
IC10K-SCLC$^{R}/_{L}$-06-D11	10	125	22	5.5	9.2	13	11			
IC12M-SCLC$^{R}/_{L}$-06	12	150	26	8	11.2	10	16			
IC12M-SCLC$^{R}/_{L}$-06-D13	12	150	26	6.5	11.2	10	13			
IC12Q-SCLC$^{R}/_{L}$-09	12	150	26	8	11.2	10	16	CC..09T3..	IMS4008A	ITK15
IC16R-SCLC$^{R}/_{L}$-09	16	200	32	10	15.2	7	20			
IC16R-SCLCR-09-D18	16	200	32	9	15.2	7	18			

Internal Turning Tools



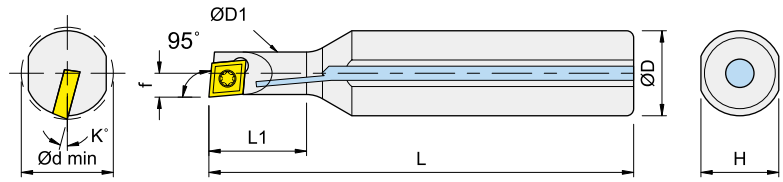
SCLC

■ S..-SCLCR/L-.. Steel shank



Right-hand shown

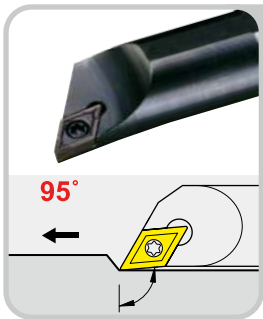
■ A..-SCLCR/L-.. Steel shank+coolant hole



Right-hand shown

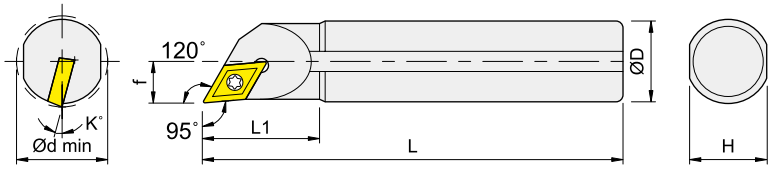
Order No.	Dimensions, mm								Insert	Screw	Wrench
	D	D1	L	L1	f	H	K	dmin			
IS1607K-SCLC$^{R}/_{L}$-06	16	7	125	20	4	15	13	8	CC..0602..	IMS2506A	ITK09
IS1608K-SCLC$^{R}/_{L}$-06A	16	8	125	20	4.5	15	11	9			
IS1608K-SCLC$^{R}/_{L}$-06	16	8	125	25	4.5	15	11	9			
IS1609K-SCLC$^{R}/_{L}$-06	16	9	125	25	5	15	11	10			
IA1607K-SCLC$^{R}/_{L}$-06	16	7	125	20	4	15	13	8	CC..0602..	IMS2506A	ITK09
IA1608K-SCLC$^{R}/_{L}$-06A	16	8	125	20	4.5	15	11	9			
IA1608K-SCLCR-06	16	8	125	25	4.5	15	11	9			
IA1609K-SCLC$^{R}/_{L}$-06	16	9	125	25	5	15	11	10			

Internal Turning Tools



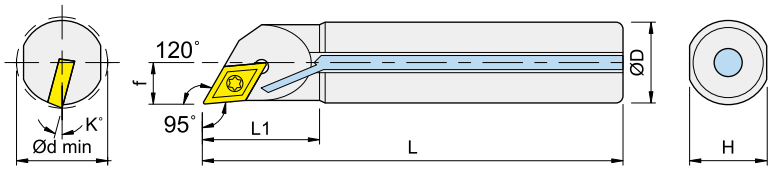
SDJC

■ S..-SDJCR/L-.. Steel shank



Right-hand shown

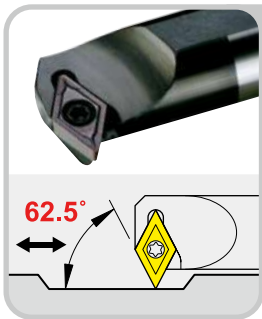
■ A..-SDJCR/L-.. Steel shank+coolant hole



Right-hand shown

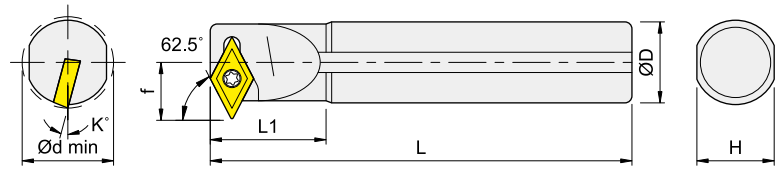
Order No.	Dimensions, mm							Insert	Screw	Wrench
	D	L	L1	f	H	K	dmin			
IS08K-SDJC$^{R}/_{L}$-07	8	125	22	5	7	15	10	DC..0702..	IMS2506B	ITK09
IS10K-SDJC$^{R}/_{L}$-07	10	125	25	6	9	13	12			
IS12M-SDJC$^{R}/_{L}$-07	12	150	30	7	11	10	14			
IS16Q-SDJC$^{R}/_{L}$-07	16	180	38	9.5	15	7	19			
IS16Q-SDJC$^{R}/_{L}$-11	16	180	38	9.5	15	7	19	DC..11T3..	IMS4009A	ITK15
IS20R-SDJC$^{R}/_{L}$-11	20	200	42	11.5	18	7	23			
IS25R-SDJC$^{R}/_{L}$-11	25	200	45	14	23	5	28			
IS32S-SDJC$^{R}/_{L}$-11	32	250	48	17.5	30	5	35			
IA08K-SDJC$^{R}/_{L}$-07	8	125	22	5	7	15	10	DC..0702..	IMS2506B	ITK09
IA10K-SDJC$^{R}/_{L}$-07	10	125	25	6	9	13	12			
IA12M-SDJC$^{R}/_{L}$-07	12	150	30	7	11	10	14			
IA16Q-SDJC$^{R}/_{L}$-07	16	180	38	9.5	15	7	19			
IA16Q-SDJC$^{R}/_{L}$-11	16	180	38	9.5	15	7	19	DC..11T3..	IMS4009A	ITK15
IA20R-SDJC$^{R}/_{L}$-11	20	200	42	11.5	18	7	23			
IA25R-SDJC$^{R}/_{L}$-11	25	200	45	14	23	5	28			

Internal Turning Tools



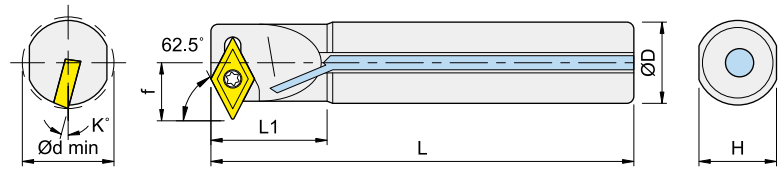
SDNC

■ S..-SDNCR/L-.. Steel shank



Right-hand shown

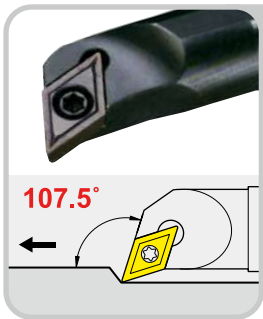
■ A..-SDNCR/L-.. Steel shank+coolant hole



Right-hand shown

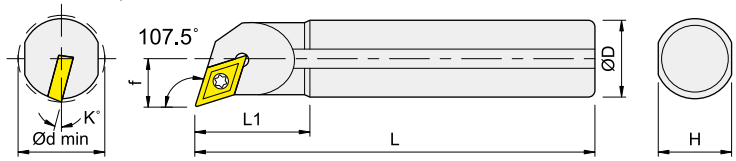
Order No.	Dimensions, mm							Insert	Screw	Wrench
	D	L	L1	f	H	K	dmin			
IS12M-SDNC$^{R}/_{L}$-07	12	150	25	9	11	7	16	DC..0702..	IMS2506B	ITK09
IS16Q-SDNC$^{R}/_{L}$-07	16	180	30	11	15	7	20			
IS20R-SDNC$^{R}/_{L}$-11	20	200	35	15	18	7	25	DC..11T3..	IMS4009A	ITK15
IS25R-SDNC$^{R}/_{L}$-11	25	200	35	17	23	5	32			
IS32S-SDNC$^{R}/_{L}$-11	32	250	40	20.5	30	5	40			
IA12M-SDNC$^{R}/_{L}$-07	12	150	25	9	11	7	16	DC..0702..	IMS2506B	ITK09
IA16Q-SDNC$^{R}/_{L}$-07	16	180	30	11	15	7	20			
IA20R-SDNC$^{R}/_{L}$-11	20	200	35	15	18	7	25	DC..11T3..	IMS4009A	ITK15
IA25R-SDNC$^{R}/_{L}$-11	25	200	35	17	23	5	32			

Internal Turning Tools



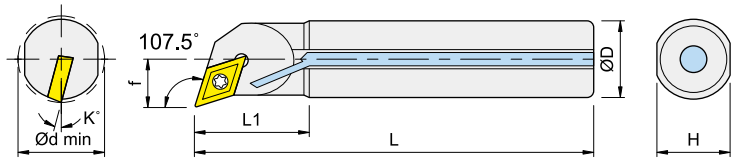
SDQC

■ S..-SDQCR/L-.. Steel shank



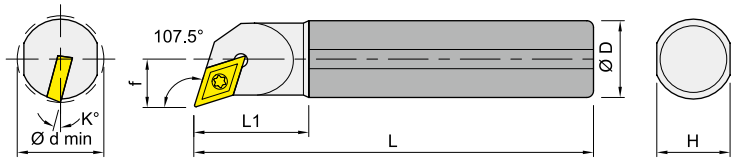
Right-hand shown

■ A..-SDQCR/L-.. Steel shank+coolant hole



Right-hand shown

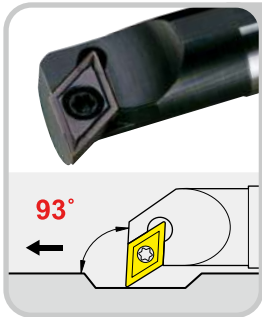
■ C..-SDQCR/L-.. Carbide shank



Right-hand shown

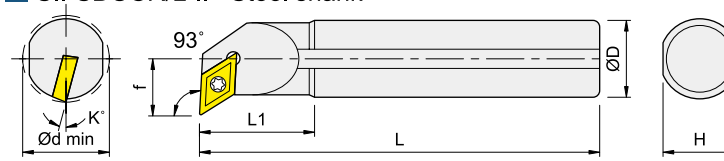
Order No.	Dimensions, mm							Insert	Screw	Wrench
	D	L	L1	f	H	K	dmin			
IS10K-SDQC$^{R}/_{L}$-07	10	125	22	6.5	9	13	13	DC..0702..	IMS2506B	ITK09
IS12M-SDQC$^{R}/_{L}$-07	12	150	30	8	11	10	16			
IS16Q-SDQC$^{R}/_{L}$-07	16	180	35	10.25	15	7	20			
IS20R-SDQC$^{R}/_{L}$-07	20	200	40	12.5	18	7	25			
IS16Q-SDQC$^{R}/_{L}$-11	16	180	35	10.5	15	7	20	DC..11T3..	IMS4009A	ITK15
IS20R-SDQC$^{R}/_{L}$-11	20	200	40	13	18	7	25			
IS25R-SDQC$^{R}/_{L}$-11	25	200	45	15.5	23	5	32			
IS32S-SDQC$^{R}/_{L}$-11	32	250	48	19.5	30	5	40			
IS40T-SDQC$^{R}/_{L}$-11	40	300	55	25	37	3	50			
IS50U-SDQC$^{R}/_{L}$-11	50	350	60	30	47	2	60			
IA10K-SDQC$^{R}/_{L}$-07	10	125	22	6.5	9	13	13	DC..0702..	IMS2506B	ITK09
IA12M-SDQC$^{R}/_{L}$-07	12	150	30	8	11	10	16			
IA16Q-SDQC$^{R}/_{L}$-07	16	180	35	10.25	15	7	20			
IA16Q-SDQC$^{R}/_{L}$-11	16	180	35	10.5	15	7	20	DC..11T3..	IMS4009A	ITK15
IA20R-SDQC$^{R}/_{L}$-11	20	200	40	13	18	7	25			
IA25R-SDQC$^{R}/_{L}$-11	25	200	45	15.5	23	5	32			
IA32S-SDQC$^{R}/_{L}$-11	32	250	48	19.5	30	5	40			
IA40T-SDQCR/L-11	40	300	55	25	37	3	50			
IA50U-SDQCR/L-11	50	350	60	30	47	2	60			
IC10M-SDQCR-07	10	150	22	6	9.2	13	13	DC..0702..	IMS2506B	ITK09
IC12Q-SDQCR-07	12	180	30	8	11.2	10	16			
IC16R-SDQC$^{R}/_{L}$-07	16	200	35	10.25	15.2	7	20			

Internal Turning Tools



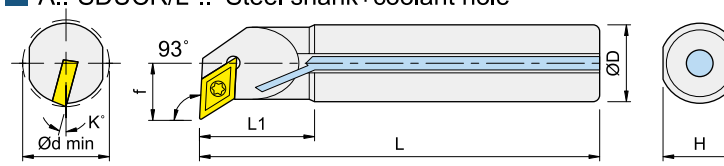
SDUC

■ S..-SDUCR/L-.. Steel shank



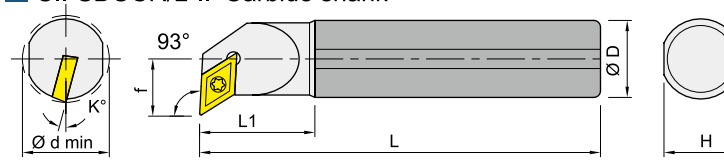
Right-hand shown

■ A..-SDUCR/L-.. Steel shank+coolant hole



Right-hand shown

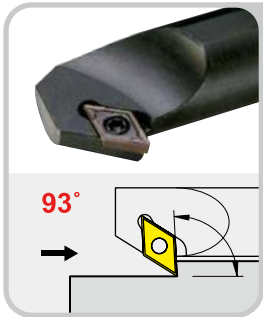
■ C..-SDUCR/L-.. Carbide shank



Right-hand shown

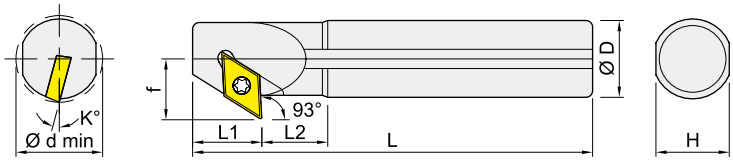
Order No.	Dimensions, mm							Insert	Screw	Wrench
	D	L	L1	f	H	K	dmin			
IS10K-SDUC$^{R}/_{L}$-07	10	125	25	7	9	13	13	DC..0702..	IMS2506B	ITK09
IS12M-SDUC$^{R}/_{L}$-07	12	150	30	8.5	11	10	16			
IS16Q-SDUC$^{R}/_{L}$-07	16	180	30	11	15	7	20			
IS20R-SDUC$^{R}/_{L}$-07	20	200	40	12.5	18	7	25			
IS16Q-SDUC$^{R}/_{L}$-11	16	180	30	11	15	7	20	DC..11T3..	IMS4009A	ITK15
IS20R-SDUC$^{R}/_{L}$-11	20	200	40	13	18	7	25			
IS25R-SDUC$^{R}/_{L}$-11	25	200	45	17	23	5	32			
IS32S-SDUC$^{R}/_{L}$-11	32	250	48	20	30	5	40			
IS40T-SDUC$^{R}/_{L}$-11	40	300	55	25	37	3	50			
IA10K-SDUC$^{R}/_{L}$-07	10	125	25	7	9	13	13	DC..0702..	IMS2506B	ITK09
IA12M-SDUC$^{R}/_{L}$-07	12	150	30	8.5	11	10	16			
IA16Q-SDUC$^{R}/_{L}$-07	16	180	30	11	15	7	20			
IA16Q-SDUC$^{R}/_{L}$-11	16	180	30	11	15	7	20	DC..11T3..	IMS4009A	ITK15
IA20R-SDUC$^{R}/_{L}$-11	20	200	40	12.5	18	7	25			
IA25R-SDUC$^{R}/_{L}$-11	25	200	45	17	23	5	32			
IA32S-SDUC$^{R}/_{L}$-11	32	250	48	20	30	5	40			
IA40T-SDUC$^{R}/_{L}$-11	40	300	55	25	37	3	50			
IC10M-SDUCR-07	10	150	25	7	9.2	13	13	DC..0702..	IMS2506B	ITK09
IC12Q-SDUCR-07	12	180	30	8.5	11.2	10	16			
IC16R-SDUCR-11	16	200	30	11	15.2	7	20	DC..11T3..	IMS4009A	ITK15

Internal Turning Tools



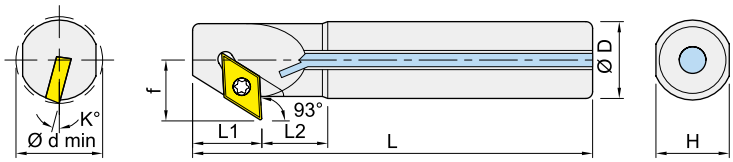
SDZC

■ S..-SDZCR/L-.. Steel shank



Right-hand shown

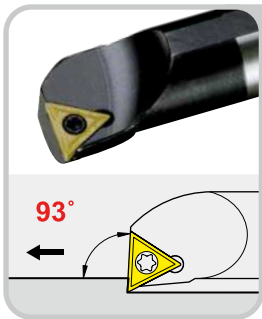
■ A..-SDZCR/L-.. Steel shank+coolant hole



Right-hand shown

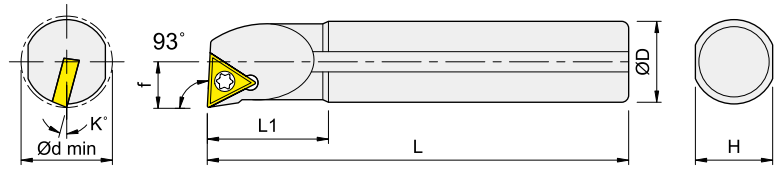
Order No.	Dimensions, mm								Insert	Screw	Wrench
	D	L	L1	L2	f	H	K	dmin			
IS10M-SDZC$^{R}/_{L}$-07	10	150	12	18	8.5	9	13	14	DC..0702..	IMS2506B	ITK09
IS12M-SDZC$^{R}/_{L}$-07	12	150	12	20	10.5	11	10	17			
IS16Q-SDZC$^{R}/_{L}$-07	16	180	12	26	12.5	15	7	21			
IS20R-SDZC$^{R}/_{L}$-11	20	200	18	27	15.5	18	7	26	DC..11T3..	IMS4009A	ITK15
IS25R-SDZC$^{R}/_{L}$-11	25	200	18	32	18	23	5	33			
IS32S-SDZC$^{R}/_{L}$-11	32	250	18	42	21.5	30	5	40			
IA10M-SDZC$^{R}/_{L}$-07	10	150	12	18	8.5	9	13	14	DC..0702..	IMS2506B0	ITK09
IA12M-SDZC$^{R}/_{L}$-07	12	150	12	20	10.5	11	10	17			
IA16Q-SDZC$^{R}/_{L}$-07	16	180	12	26	12.5	15	7	21			
IA20R-SDZC$^{R}/_{L}$-11	20	200	18	27	15.5	18	7	26	DC..11T3..	IMS4009A	ITK15
IA25R-SDZC$^{R}/_{L}$-11	25	200	18	32	18	23	5	33			
IA32S-SDZC$^{R}/_{L}$-11	32	250	18	42	21.5	30	5	40			

Internal Turning Tools



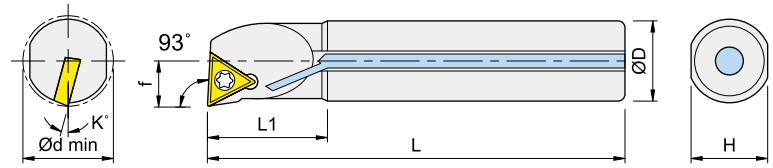
STUC

■ S..-STUCR/L-.. Steel shank



Right-hand shown

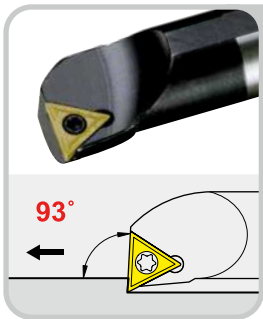
■ A..-STUCR/L-.. Steel shank+coolant hole



Right-hand shown

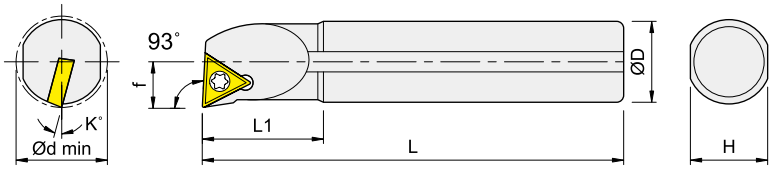
Order No.	Dimensions, mm							Insert	Screw	Wrench
	D	L	L1	f	H	K	dmin			
IS08K-STUC$^{R}/_{L}$-09	8	125	20	5.5	7	15	10	TC..0902..	IMS2205A	ITK07
IS10K-STUC$^{R}/_{L}$-09	10	125	22	6	9	13	12		IMS2206A	
IS10K-STUC$^{R}/_{L}$-09-D11	10	125	22	5.5	9	13	11			
IS12M-STUCR-09	12	150	26	8	11	10	16			
IS14M-STUCR-09	14	150	26	8	13	10	16			
IS10K-STUC$^{R}/_{L}$-11	10	125	22	6	9	13	12	TC..1102..	IMS2506A	ITK09
IS12M-STUC$^{R}/_{L}$-11	12	150	26	8	11	10	16			
IS12M-STUC$^{R}/_{L}$-11-D13	12	150	26	6.5	11	10	13			
IS16Q-STUC$^{R}/_{L}$-11	16	180	32	10	15	7	20			
IS16Q-STUC$^{R}/_{L}$-11-D18	16	180	32	9	15	7	18			
IS20R-STUC$^{R}/_{L}$-16	20	200	40	13	18	7	25	TC..16T3..	IMS4011A	ITK15
IS25R-STUC$^{R}/_{L}$-16	25	200	40	15	23	5	30			
IS32S-STUC$^{R}/_{L}$-16	32	250	48	20	30	5	38			
IS32T-STUC$^{R}/_{L}$-16	32	300	48	20	30	5	38			
IA08K-STUC$^{R}/_{L}$-09	8	125	20	5.5	7	15	10	TC..0902..	IMS2205A	ITK07
IA10K-STUC$^{R}/_{L}$-09	10	125	22	6	9	13	12		IMS2206A	
IA10K-STUC$^{R}/_{L}$-11	10	125	22	6	9	13	12	TC..1102..	IMS2506A	ITK09
IA12M-STUC$^{R}/_{L}$-11	12	150	26	8	11	10	16			
IA16Q-STUC$^{R}/_{L}$-11	16	180	32	10	15	7	20			
IA20R-STUC$^{R}/_{L}$-16	20	200	40	13	18	7	25	TC..16T3..	IMS4011A	ITK15
IA25R-STUC$^{R}/_{L}$-16	25	200	40	15	23	5	30			
IA32S-STUC$^{R}/_{L}$-16	32	250	48	20	30	5	38			
IA32T-STUC$^{R}/_{L}$-16	32	300	48	20	30	5	38			

Internal Turning Tools



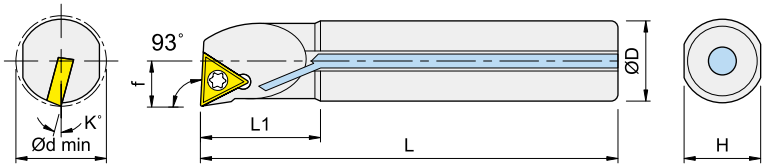
STUP

■ S..-STUPR/L-.. Steel shank



Right-hand shown

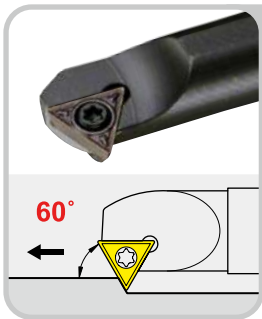
■ A..-STUPR/L-.. Steel shank+coolant hole



Right-hand shown

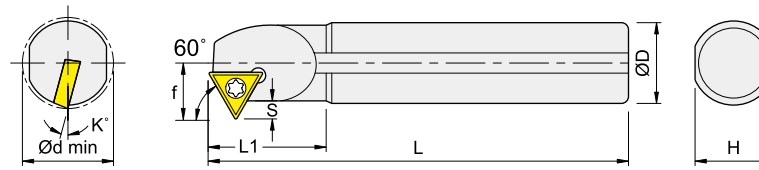
Order No.	Dimensions, mm							Insert	Screw	Wrench
	D	L	L1	f	H	K	dmin			
S20R-STUP$^{R}/_{L}$-1603	20	200	40	13	18	4	25	TP..1603..	IMS4011A	ITK15
S25R-STUP$^{R}/_{L}$-1603	25	200	40	16	23	0	30			
S32R-STUP$^{R}/_{L}$-1603	32	250	48	20	30	0	38			
A20R-STUP$^{R}/_{L}$-1603	20	200	40	13	18	4	25			
A25R-STUP$^{R}/_{L}$-1603	25	200	40	16	23	0	30			
A32R-STUP$^{R}/_{L}$-1603	32	250	48	20	30	0	38			

Internal Turning Tools



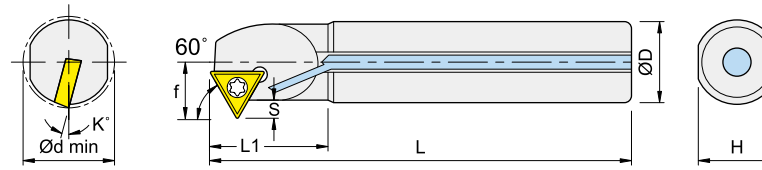
STWC

■ S..-STWCR/L-.. Steel shank



Right-hand shown

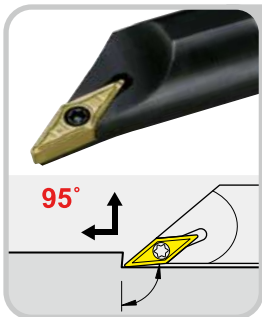
■ A..-STWCR/L-.. Steel shank+coolant hole



Right-hand shown

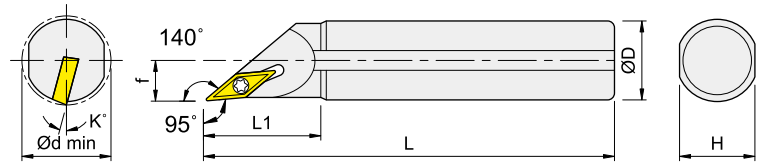
Order No.	Dimensions, mm								Insert	Screw	Wrench
	D	L	L1	f	S	H	K	dmin			
IS08K-STWC$^{R}/_{L}$-09	8	125	23	6	2	7	15	11	TC..0902..	IMS2205A	ITK07
IS10K-STWC$^{R}/_{L}$-11	10	125	23	7.5	2.5	9	15	13	TC..1102..	IMS2506A	ITK09
IS12M-STWC$^{R}/_{L}$-11	12	150	30	8.5	2.5	11	13	16			
IS16Q-STWC$^{R}/_{L}$-11	16	180	30	10.5	2.5	15	10	20			
IS20R-STWC$^{R}/_{L}$-11	20	200	40	12.5	2.5	18	7	25			
IS20R-STWC$^{R}/_{L}$-16	20	200	40	14.5	4.5	18	8	26	TC..16T3..	IMS4011A	ITK15
IS25R-STWC$^{R}/_{L}$-16	25	200	45	17	4.5	23	6	30			
IS32S-STWC$^{R}/_{L}$-16	32	250	45	20.5	4.5	30	4	40			
IA10K-STWC$^{R}/_{L}$-11	10	125	23	7.5	2.5	9	15	13	TC..1102..	IMS2506A	ITK09
IA12M-STWC$^{R}/_{L}$-11	12	150	30	8.5	2.5	11	13	16			
IA16Q-STWC$^{R}/_{L}$-11	16	180	30	10.5	2.5	15	10	20			
IA20R-STWC$^{R}/_{L}$-11	20	200	40	12.5	2.5	18	7	25			
IA20R-STWC$^{R}/_{L}$-16	20	200	40	14.5	4.5	18	8	26	TC..16T3..	IMS4011A	ITK15
IA25R-STWC$^{R}/_{L}$-16	25	200	45	17	4.5	23	6	30			
IA32S-STWC$^{R}/_{L}$-16	32	250	45	20.5	4.5	30	4	40			

Internal Turning Tools



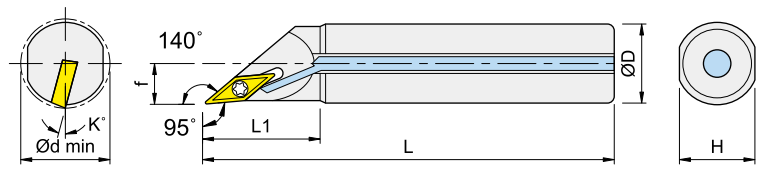
SVJB

■ S..-SVJBR/L-.. Steel shank



Right-hand shown

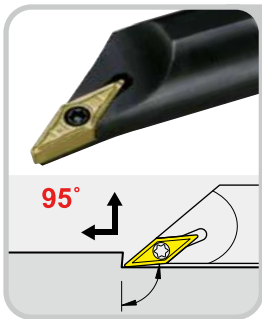
■ A..-SVJBR/L-.. Steel shank+coolant hole



Right-hand shown

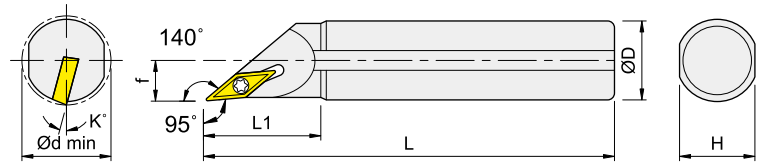
Order No.	Dimensions, mm							Insert	Screw	Wrench
	D	L	L1	f	H	K	dmin			
IS16Q-SVJB$^{R}/_{L}$-16	16	180	38	9.5	15	7	19	VB..1604..	IMS3509B	ITK15
IS20R-SVJB$^{R}/_{L}$-16	20	200	42	11.5	18	7	23			
IS25R-SVJB$^{R}/_{L}$-16	25	200	45	14	23	5	28			
IS32S-SVJB$^{R}/_{L}$-16	32	250	50	17.5	30	4	35			
IA16Q-SVJB$^{R}/_{L}$-16	16	180	38	9.5	15	7	19	VB..1604..	IMS3509B	ITK15
IA20R-SVJB$^{R}/_{L}$-16	20	200	42	11.5	18	7	23			
IA25R-SVJB$^{R}/_{L}$-16	25	200	45	14	23	5	28			
IA32S-SVJB$^{R}/_{L}$-16	32	250	50	17.5	30	4	35			

Internal Turning Tools



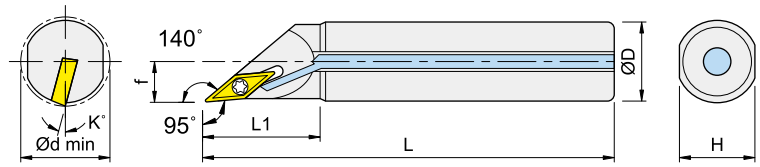
SVJC

■ S..-SVJCR/L-.. Steel shank



Right-hand shown

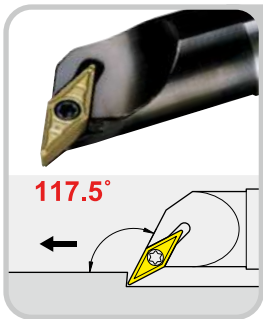
■ A..-SVJCR/L-.. Steel shank+coolant hole



Right-hand shown

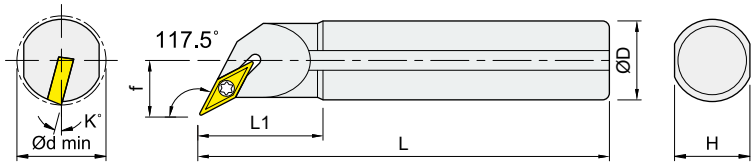
Order No.	Dimensions, mm							Insert	Screw	Wrench
	D	L	L1	f	H	K	dmin			
IC10K-SVJC$^{R}/_{L}$-11	10	125	25	6	9	13	12	VC..1103..	IMS2506A	ITK09
IC12M-SVJC$^{R}/_{L}$-11	12	150	30	7	11	10	14			
IC16Q-SVJC$^{R}/_{L}$-11	16	180	38	9.5	15	7	19			
IC20R-SVJC$^{R}/_{L}$-11	20	200	42	11.5	18	7	23			
IE10K-SVJC$^{R}/_{L}$-11	10	125	25	6	9	13	12			
IE12M-SVJC$^{R}/_{L}$-11	12	150	30	7	11	10	14			
IE16Q-SVJC$^{R}/_{L}$-11	16	180	38	9.5	15	7	19			
IE20R-SVJC$^{R}/_{L}$-11	20	200	42	11.5	18	7	23			

Internal Turning Tools



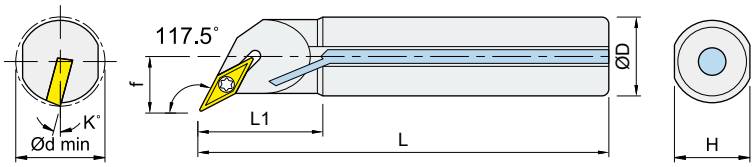
SVQB

■ S..-SVQB/CR/L-.. Steel shank



Right-hand shown

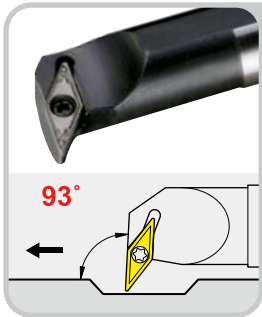
■ A..-SVQB/CR/L-.. Steel shank+coolant hole



Right-hand shown

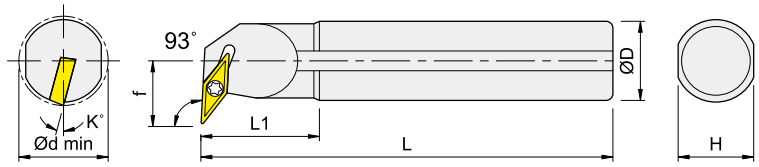
Order No.	Dimensions, mm							Insert	Shim	Screw	Wrench	Screw	Wrench
	D	L	L1	f	H	K	dmin						
IS25R-SVQB$^{R}/_{L}$-16	25	200	45	16	23	5	32	VB..1604..	--	--	--	IMS3509B	ITK15
IS32S-SVQB$^{R}/_{L}$-16	32	250	48	20	30	5	40		IVSS322	IMDS5035S	IPL35	IMS3512B	
IS40T-SVQB$^{R}/_{L}$-16	40	300	60	25.5	37	5	50						
IA25R-SVQB$^{R}/_{L}$-16	25	200	45	16	23	5	32		--	--	--	IMS3509B	
IA32S-SVQB$^{R}/_{L}$-16	32	250	48	20	30	5	40		IVSS322	IMDS5035S	IPL35	IMS3512B	
IS12M-SVQC$^{R}/_{L}$-11	12	150	28	9	11	10	16	VC..1103..	--	--	--	IMS2506A	ITK09
IS16Q-SVQC$^{R}/_{L}$-11	16	180	35	11	15	7	20						
IS20R-SVQC$^{R}/_{L}$-11	20	200	40	13	18	7	25						
IA16Q-SVQC$^{R}/_{L}$-11	16	180	35	11	15	7	20						
IA25R-SVQC$^{R}/_{L}$-16	20	200	40	13	18	7	25						

Internal Turning Tools



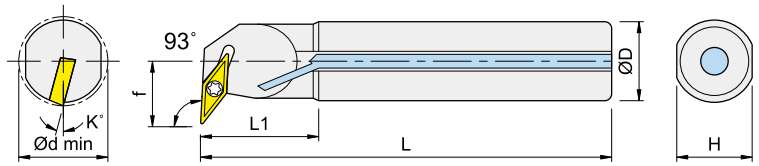
SVUB

■ S..-SVUBR/L-.. Steel shank



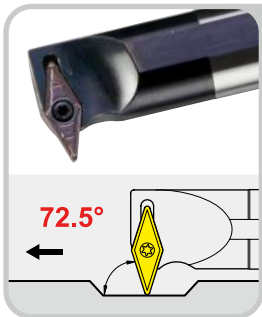
Right-hand shown

■ A..-SVUBR/L-.. Steel shank+coolant hole

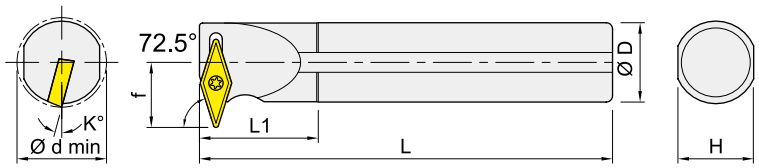


Right-hand shown

Order No.	Dimensions, mm							Insert	Shim	Screw	Wrench	Screw	Wrench
	D	L	L1	f	H	K	dmin						
IS25R-SVUB$^{R}/_{L}$-16	25	200	45	18	23	5	32	VB..1604..	--	--	--	IMS3509B	ITK15
IS32S-SVUB$^{R}/_{L}$-16	32	250	50	22	30	5	40		IVSS322	IMDS5035S	IPL35	IMS3512B	
IS40T-SVUB$^{R}/_{L}$-16	40	300	55	27	37	5	50						
IA25R-SVUB$^{R}/_{L}$-16	25	200	45	18	23	5	32		--	--	--	IMS3509B	
IS16Q-SVUC$^{R}/_{L}$-11	16	180	30	13	15	7	22	VC..1103..	--	--	--	IMS2506A	ITK09
IS20R-SVUC$^{R}/_{L}$-11	20	200	40	15	18	7	27						
IA16Q-SVUC$^{R}/_{L}$-11	16	180	30	13	15	7	22						
IA20R-SVUC$^{R}/_{L}$-11	20	200	40	15	18	7	27						



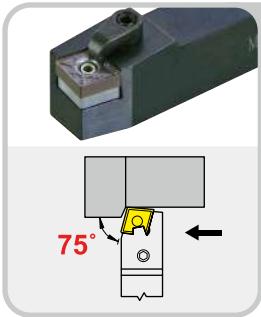
SVVB



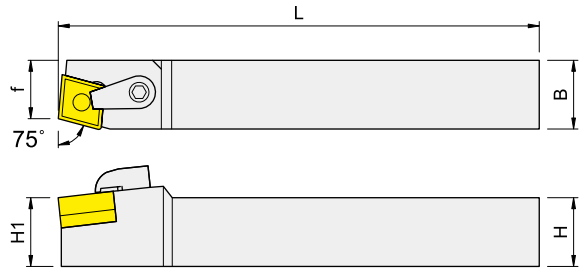
Right-hand shown

Order No.	Dimensions, mm							Insert	Shim	Screw	Wrench	Screw	Wrench
	D	L	L1	f	H	K	dmin						
IS25R-SVVB$^{R}/_{L}$-16	25	200	45	20.5	23	5	34	VB..1604..	--	--	--	IMS3509B	ITK15
IS25S-SVVB$^{R}/_{L}$-16	25	250	45	20.5	23	5	34						
IS32S-SVVB$^{R}/_{L}$-16	32	250	50	25	30	5	42	VB..1604..	IVSS322	IMDS5035S	IPL35	IMS3512B	ITK15

External Turning Tools

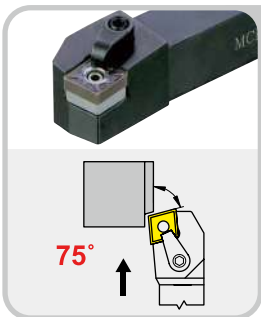


MCBN

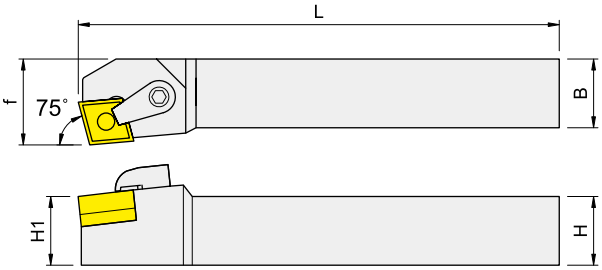


Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMCBN$^{R}/_{L}$-2020K-12	20	20	125	20	17	CN..1204..	IMLP46-A	ICMS432	IPL25	IMS625TX	IMC620	IETL15
IMCBN$^{R}/_{L}$-2525M-12	25	25	150	25	22					IMS630TX		
IMCBN$^{R}/_{L}$-3232P-12	32	32	170	32	29							



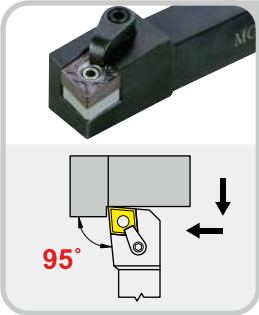
MCKN



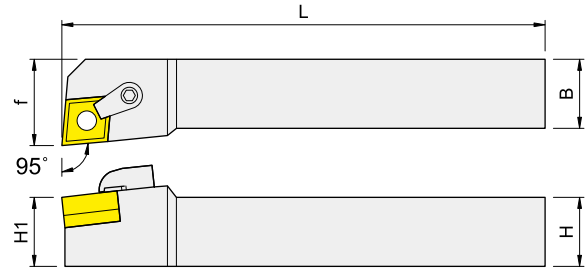
Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMCKN$^{R}/_{L}$-1616K-12	16	16	125	16	20	CN..1204..	IMLP46-A	ICMS432	IPL25	IMS625TX	IMC620	IETL15
IMCKN$^{R}/_{L}$-2020K-12	20	20	125	20	25							
IMCKN$^{R}/_{L}$-2525M-12	25	25	150	25	32					IMS630TX		
IMCKN$^{R}/_{L}$-3232P-12	32	32	170	32	40							

External Turning Tools

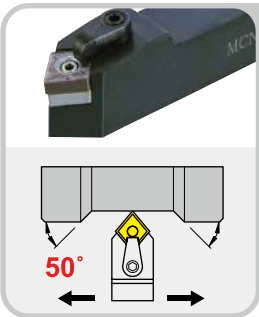


MCLN

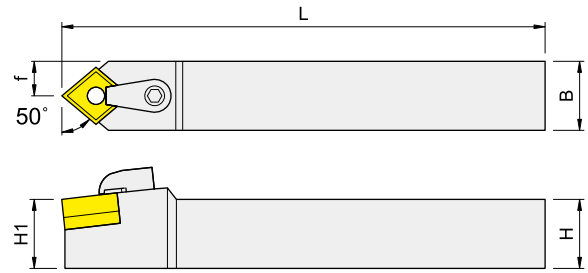


Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMCLN$^{R}/_{L}$-1616K-12	16	16	125	16	20	CN..1204..	IMLP46-A	ICMS432	IPL25	IMS625TX	IMC620	IETL15
IMCLN$^{R}/_{L}$-2020K-12	20	20	125	20	25							
IMCLN$^{R}/_{L}$-2525M-12	25	25	150	25	32					IMS630TX		
IMCLN$^{R}/_{L}$-3232P-12	32	32	170	32	40							

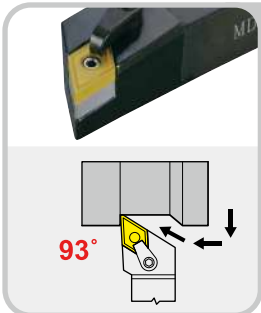


MCNN

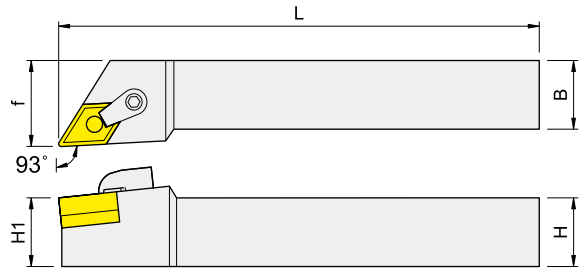


Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMCNNN-1616K-12	16	16	125	16	8	CN..1204..	IMLP46-A	ICMS432	IPL25	IMS625TX	IMC620	IETL15
IMCNNN-2020K-12	20	20	125	20	10							
IMCNNN-2525M-12	25	25	150	25	12.5					IMS630TX		
IMCNNN-3232P-12	32	32	170	32	16							

External Turning Tools

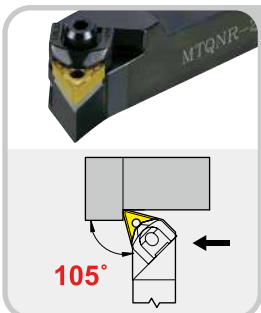


MDJN

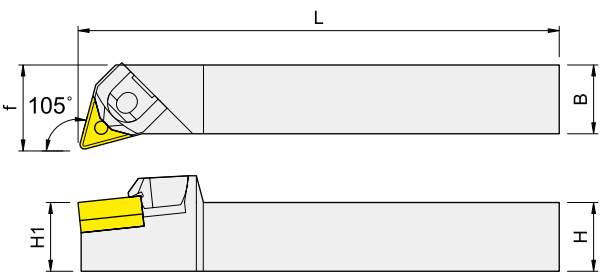


Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMDJN$^{R}/_{L}$-2020K-1504	20	20	125	20	25	DN..1504..	IMLP46-AL	IDMS442	IPL25	IMS625TX	IMC622	IETL15
IMDJN$^{R}/_{L}$-2525M-1504	25	25	150	25	32					IMS630TX		
IMDJN$^{R}/_{L}$-2020K-1506	20	20	125	20	25	DN..1506..	IMLP46-AL	IDMS432	IPL25	IMS625TX	IMC622	IETL15
IMDJN$^{R}/_{L}$-2525M-1506	25	25	150	25	32					IMS630TX		



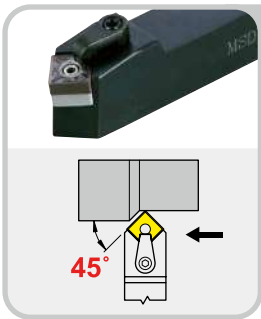
MTQN



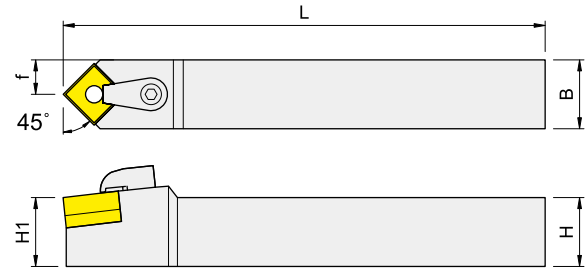
Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Screw	Wrench	Shim	Clamp	Wrench
	H	B	L	H1	f							
IMTQN$^{R}/_{L}$-2020K-16	20	20	125	20	25	TN..1604..	IMCP3	IMCS3S-11	IPL30	ITWS322	IMCW3-P40	IPL40
IMTQN$^{R}/_{L}$-2525M-16	25	25	150	25	32							

External Turning Tools

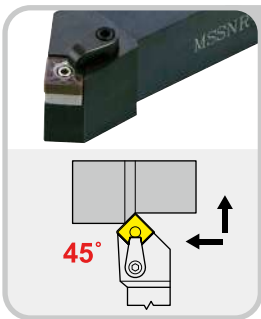


MSDN

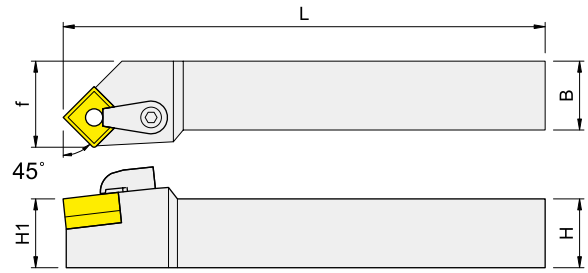


Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMSDNN-2020K-12	20	20	125	20	10	SN..1204..	IMLP46-A	ISMS432	IPL25	IMS625TX	IMC620	IETL15
IMSDNN-2525M-12	25	25	150	25	12.5					IMS630TX		



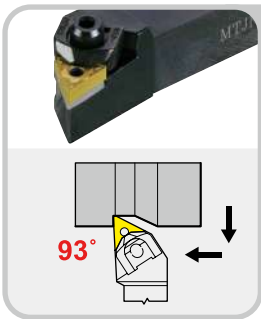
MSSN



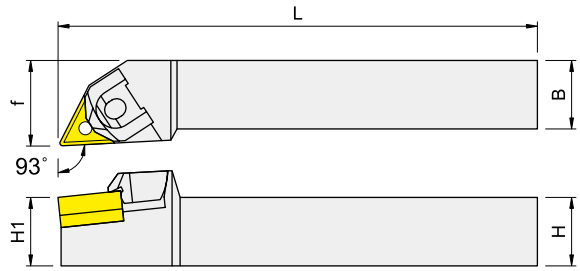
Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMSSN$^{R}/_{L}$-1616K-12	16	16	125	16	20	SN..1204..	IMLP46-A	ISMS432	IPL25	IMS625TX	IMC620	IETL15
IMSSN$^{R}/_{L}$-2020K-12	20	20	125	20	25							
IMSSN$^{R}/_{L}$-2525M-12	25	25	150	25	32					IMS630TX		

External Turning Tools

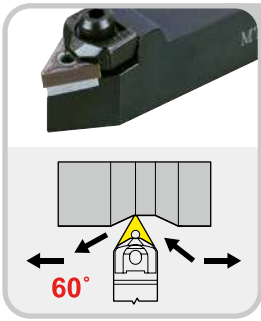


MTJN

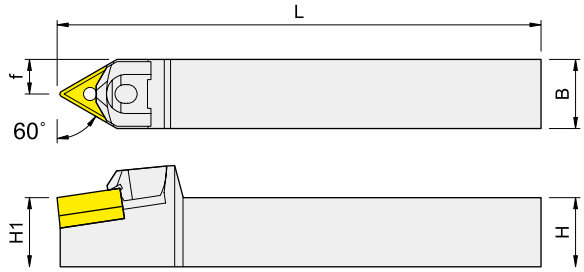


Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Screw	Wrench	Shim	Clamp	Wrench
	H	B	L	H1	f							
IMTJN$^{R}/_{L}$-1216K-16	12	16	125	16	21	TN..1604..	IMCP3	IMCS3S-11	IPL30	ITWS322	IMCW3-P40	IPL40
IMTJN$^{R}/_{L}$-1616K-16	16	16	125	16	21							
IMTJN$^{R}/_{L}$-2020K-16	20	20	125	20	25							
IMTJN$^{R}/_{L}$-2525M-16	25	25	150	25	32							
IMTJN$^{R}/_{L}$-3232P-16	32	32	170	32	40							

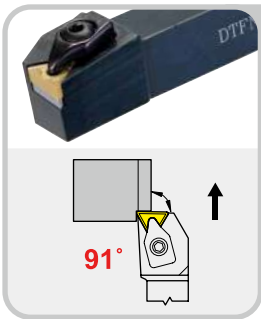


MTEN

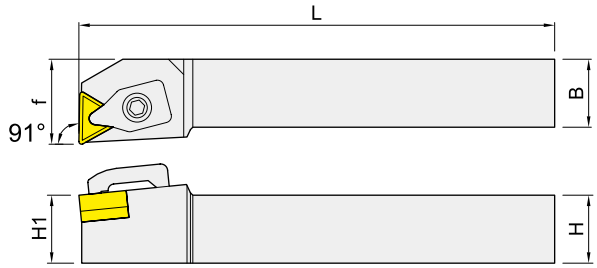


Order No.	Dimensions, mm					Insert	Pin	Screw	Wrench	Shim	Clamp	Wrench
	H	B	L	H1	f							
IMTENN-1216K-16	12	16	125	16	8	TN..1604..	IMCP3	IMCS3S-09	IPL30	ITWS322	IMCW3-P40	IPL40
IMTENN-1616K-16	16	16	125	16	8							
IMTENN-2020K-16	20	20	125	20	10							
IMTENN-2525M-16	25	25	150	25	12.5							

External Turning Tools

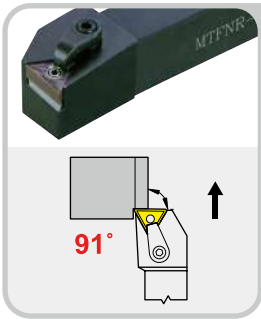


DTFN

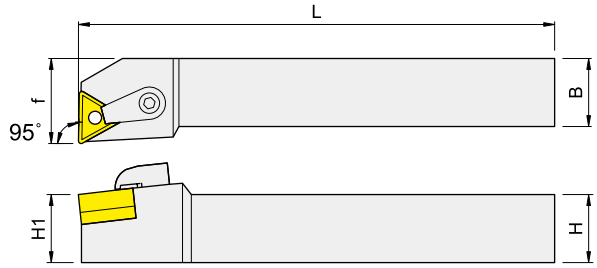


Right-hand shown

Order No.	Dimensions, mm					Insert	Shim	Screw	Wrench	Clamp	Wrench
	H	B	L	H1	f						
IDTFN$^{R}/_{L}$-1616K-16	16	16	125	16	20	TN..1604..	ITWS322	IMS4008H	IPL25	IMCD324B	IPL40
IDTFN$^{R}/_{L}$-2020K-16	20	20	125	20	25						
IDTFN$^{R}/_{L}$-2525M-16	25	25	150	25	32						



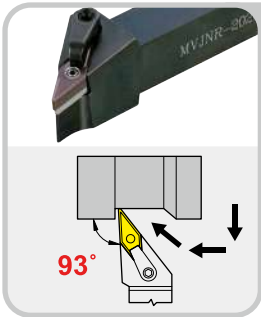
MTFN



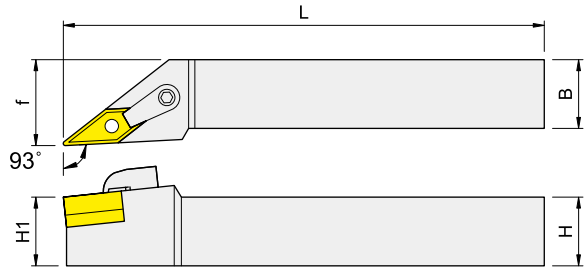
Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMTFNR-1616K-16	16	16	125	16	20	TN..1604..	IMLP34L-A	ITMS322	IPL20	IMS625TX	IMC620	IETL15
IMTFNR-2020K-16	20	20	125	20	25					IMS630TX		
IMTFNR-2525M-16	25	25	150	25	32							

External Turning Tools

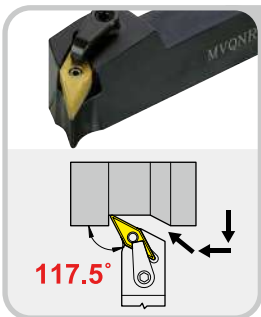


MVJN

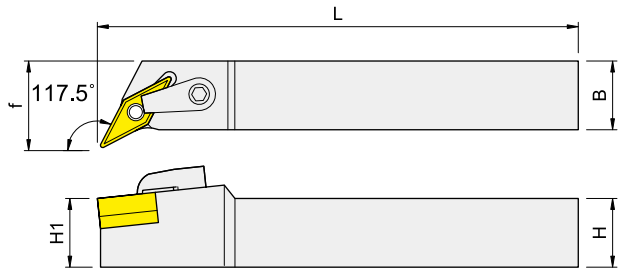


Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMVJN$^{R}/_{L}$-1616K-16	16	16	125	16	21	VN..1604..	IMLP34L -A	IVMS322	IPL20	IMS625TX	IMC622	IETL15
IMVJN$^{R}/_{L}$-2020K-16	20	20	125	20	25							
IMVJN$^{R}/_{L}$-2525M-16	25	25	150	25	32					IMS630TX		



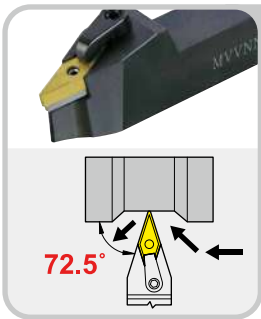
MVQN



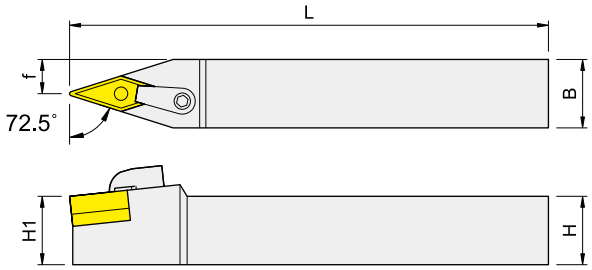
Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMVQN$^{R}/_{L}$-2020K-16	20	20	125	20	25	VN..1604..	IMLP34L-A	IVMS322	IPL20	IMS625TX	IMC622	IETL15
IMVQN$^{R}/_{L}$-2525M-16	25	25	150	25	32					IMS630TX		

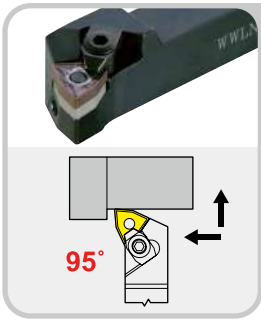
External Turning Tools



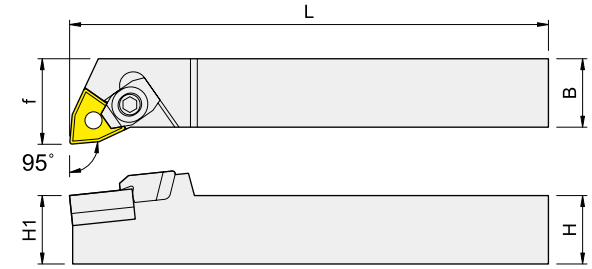
MVVN



Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMVVNN-1616K-16	16	16	125	16	8	VN..1604..	IMLP34L-A	IVMS322	IPL20	IMS625TX	IMC622	IETL15
IMVVNN-2020K-16	20	20	125	20	10							
IMVVNN-2525M-16	25	25	150	25	12.5					IMS630TX		



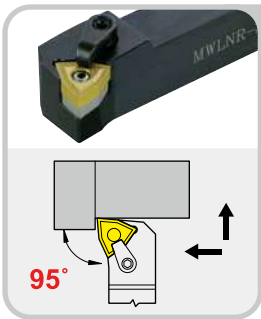
WWLN



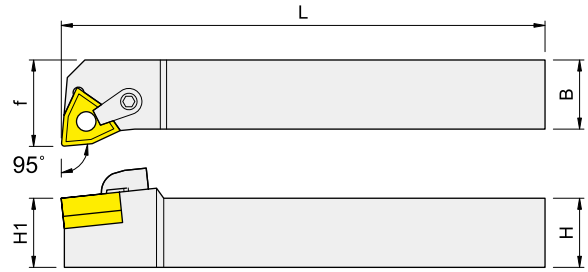
Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Screw	Wrench	Shim	Clamp	Wrench
	H	B	L	H1	f							
IWWLN$^{R}/_{L}$-2020K-08	20	20	125	20	25	WN..0804..	IMCP4	IMCS3S-09	IPL30	IWMS432	IWCW6-P4	IPL40
IWWLN$^{R}/_{L}$-2525M-08	25	25	150	25	32							

External Turning Tools

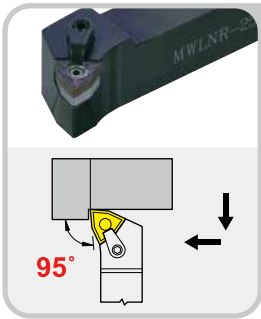


MWLN

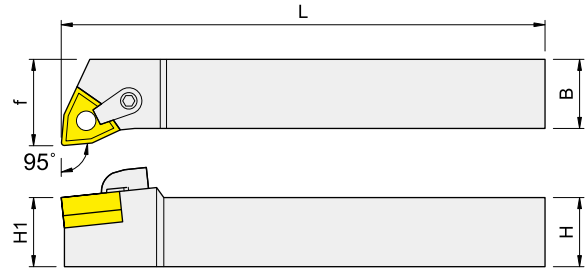


Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMWLN$^{R}/_{L}$-2020K-08	20	20	125	20	25	WN..0804..	IMLP46-A	IWMS432	IPL25	IMS625TX	IMC620	IETL15
IMWLN$^{R}/_{L}$-2525M-08	25	25	150	25	32					IMS630TX		



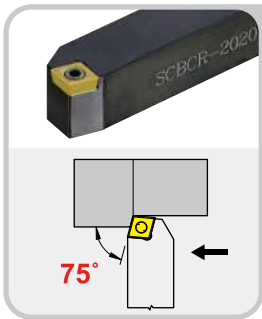
MWLN-N



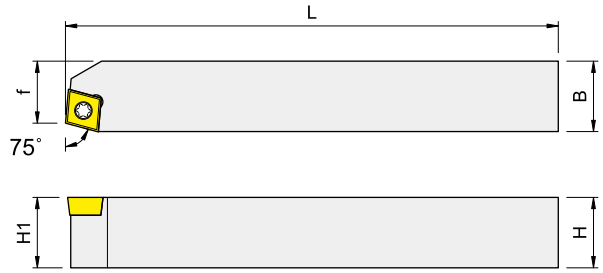
Right-hand shown

Order No.	Dimensions, mm					Insert	Pin	Shim	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f							
IMWLN$^{R}/_{L}$-2020K-08N	20	20	125	20	25	WN..0804..	IMLP46-A	IWMS432	IPL25	IMS625TX	IMC620	IETL15
IMWLN$^{R}/_{L}$-2525M-08N	25	25	150	25	32					IMS630TX		

External Turning Tools

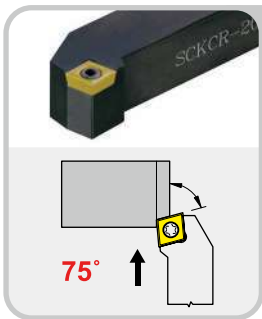


SCBC

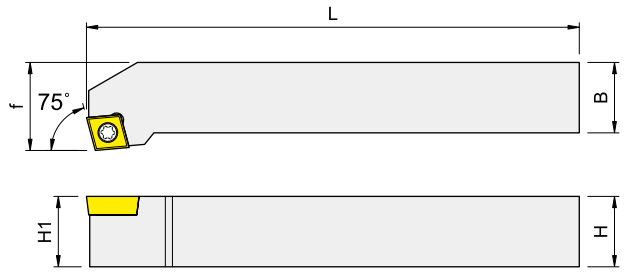


Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISCBC$^{R}/_{L}$-2020K-09	20	20	125	20	17.5	CC..09T3..	IMS4011A	ITK15



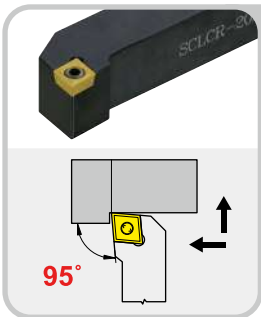
SCKC



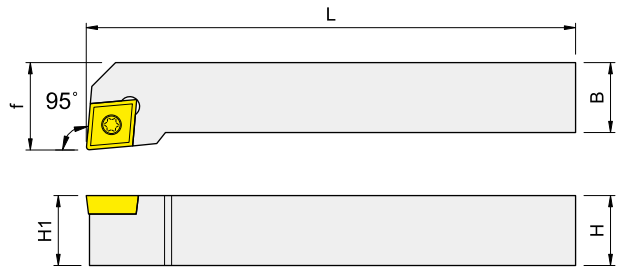
Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISCKC$^{R}/_{L}$-1212K-09	12	12	125	12	16	CC..09T3..	IMS4011A	ITK15
ISCKC$^{R}/_{L}$-1616K-09	16	16	125	16	20			
ISCKC$^{R}/_{L}$-2020K-09	20	20	125	20	25			
ISCKC$^{R}/_{L}$-2525M-09	25	25	150	25	32			

External Turning Tools

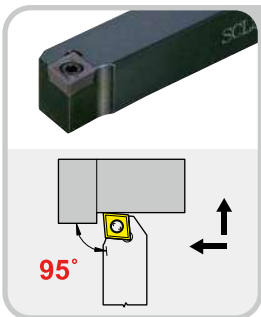


SCLC

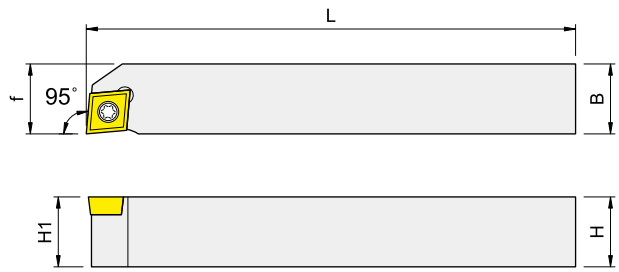


Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISCLC$^{R}/_{L}$-1010H-06	10	10	100	10	12	CC..0602..	IMS2506A	ITK09
ISCLC$^{R}/_{L}$-1010K-06	10	10	125	10	12			
ISCLC$^{R}/_{L}$-1212H-09	12	12	100	12	16	CC..09T3..	IMS4011A	ITK15
ISCLC$^{R}/_{L}$-1212K-09	12	12	125	12	16			
ISCLC$^{R}/_{L}$-1616K-09	16	16	125	16	20			
ISCLC$^{R}/_{L}$-2020K-09	20	20	125	20	25			
ISCLC$^{R}/_{L}$-2525M-09	25	25	150	25	32			
ISCLC$^{R}/_{L}$-2020K-12	20	20	125	20	25	CC..1204..	IMS5011A	ITK20
ISCLC$^{R}/_{L}$-2525K-12	25	25	150	25	32			



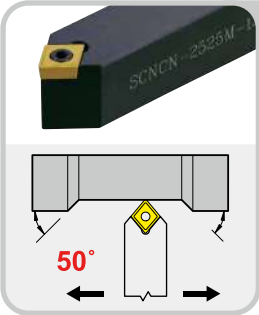
SCL2C



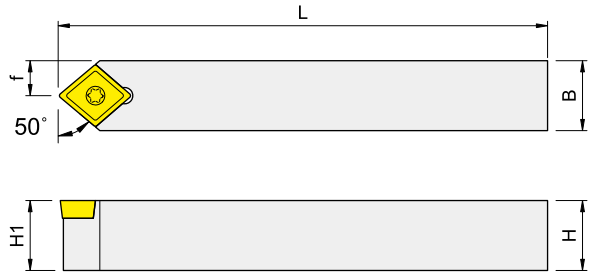
Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISCL2C$^{R}/_{L}$-1010H-06	10	10	100	10	10	CC..0602..	IMS2506A	ITK09
ISCL2C$^{R}/_{L}$-1212H-09	12	12	100	12	12	CC..09T3..	IMS4011A	ITK15
ISCL2C$^{R}/_{L}$-1616K-09	16	16	125	16	16			
ISCL2C$^{R}/_{L}$-2020K-09	20	20	125	20	25			

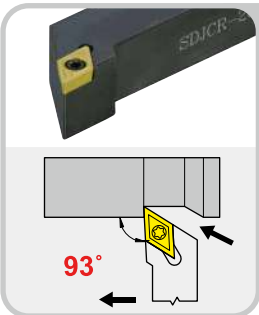
External Turning Tools



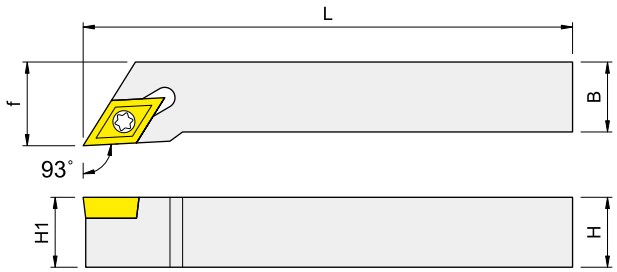
SCNC



Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISCNCN-1616K-06	16	16	125	16	8	CC..0602..	IMS2506A	ITK09
ISCNCN-1212K-09	12	12	125	12	6	CC..09T3..	IMS4011A	ITK15
ISCNCN-1616K-09	16	16	125	16	8			
ISCNCN-2020K-09	20	20	125	20	10			
ISCNCN-2525M-09	25	25	150	25	12.5			
ISCNCN-2020K-12	20	20	125	20	10	CC..1204..	IMS5011A	ITK20
ISCNCN-2525M-12	25	25	150	25	12.5			



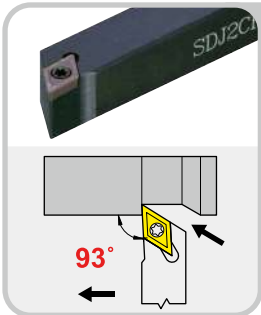
SDJC



Right-hand shown

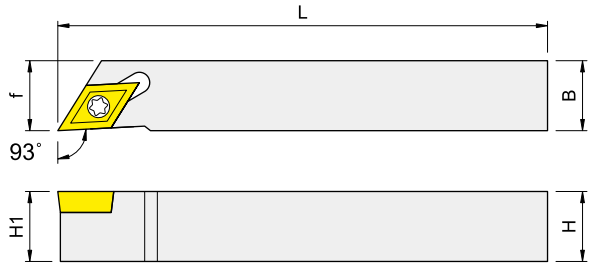
Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISDJC$^{R}/_{L}$-1010H-07	10	10	100	10	12	DC..0702..	IMS2506B	ITK09
ISDJC$^{R}/_{L}$-1212H-07	12	12	100	12	16			
ISDJC$^{R}/_{L}$-1212K-07	12	12	125	12	16			
ISDJC$^{R}/_{L}$-1616K-07	16	16	125	16	20			
ISDJC$^{R}/_{L}$-2020K-07	20	20	125	20	25			
ISDJC$^{R}/_{L}$-1212H-11	12	12	100	12	16	DC..11T3..	IMS4009A	ITK15
ISDJC$^{R}/_{L}$-1212K-11	12	12	125	12	16			
ISDJC$^{R}/_{L}$-1616K-11	16	16	125	16	20			
ISDJC$^{R}/_{L}$-2020K-11	20	20	125	20	25			
ISDJC$^{R}/_{L}$-2525M-11	25	25	150	25	32			

External Turning Tools



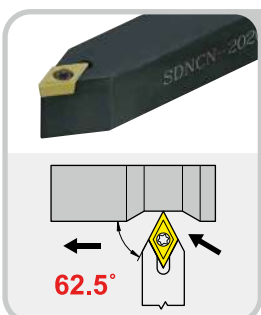
SDJ2C

SDJ2CR-1010H/K-11

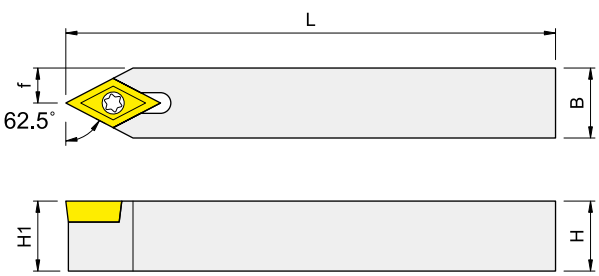


Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISDJ2C$^{R}/_{L}$-1010H-07	10	10	100	10	10	DC..0702..	IMS2506B	ITK09
ISDJ2C$^{R}/_{L}$-1212H-07	12	12	100	12	12			
ISDJ2C$^{R}/_{L}$-1212K-07	12	12	125	12	12			
ISDJ2C$^{R}/_{L}$-1616K-07	16	16	125	16	16			
ISDJ2C$^{R}/_{L}$-2020K-07	20	20	125	20	20			
ISDJ2C$^{R}/_{L}$-2525M-07	25	25	150	25	25			
ISDJ2C$^{R}/_{L}$-1010H-11	10	10	100	10	10	DC..11T3..	IMS4009A	ITK15
ISDJ2C$^{R}/_{L}$-1010K-11	10	10	125	10	10			
ISDJ2C$^{R}/_{L}$-1212H-11	12	12	100	12	12		IMS4011A	
ISDJ2C$^{R}/_{L}$-1616K-11	16	16	125	16	16			
ISDJ2C$^{R}/_{L}$-2020K-11	20	20	125	20	20			
ISDJ2C$^{R}/_{L}$-2525M-11	25	25	150	25	25			
ISDJ2C$^{R}/_{L}$-3232P-11	32	32	170	32	32			

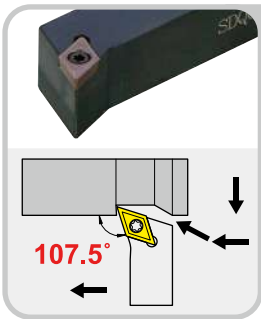


SDNC

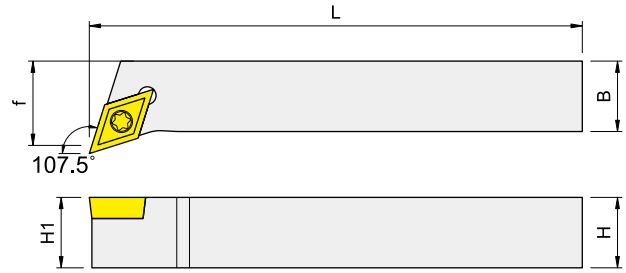


Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISDNCN-1010H-07	10	10	100	10	5	DC..0702..	IMS2506B	ITK09
ISDNCN-1212H-07	12	12	100	12	6			
ISDNCN-1616K-07	16	16	125	16	8			
ISDNCN-1212H-11	12	12	100	12	6	DC..11T3..	IMS4011A	ITK15
ISDNCN-1212K-11	12	12	125	12	6			
ISDNCN-1616K-11	16	16	125	16	8			
ISDNCN-2020K-11	20	20	125	20	10			
ISDNCN-2525M-11	25	25	150	25	12.5			

External Turning Tools

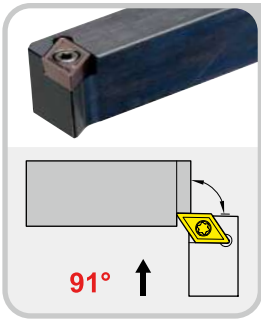


SDQC

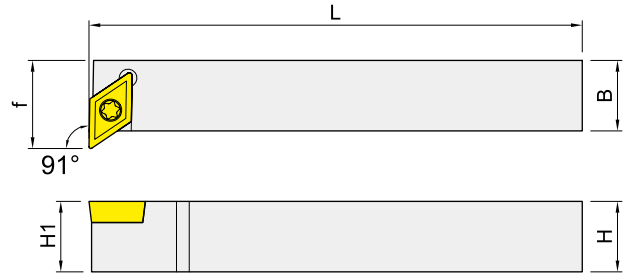


Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISDQC$^{R}/_{L}$-1212H-11	12	12	100	12	16	DC..11T3..	IMS4011A	ITK15
ISDQC$^{R}/_{L}$-1616K-11	16	16	125	16	20			
ISDQC$^{R}/_{L}$-2020K-11	20	20	125	20	25			
ISDQC$^{R}/_{L}$-2525M-11	25	25	150	25	32			



SDFC

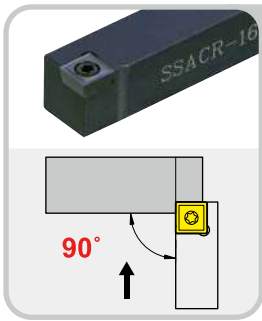


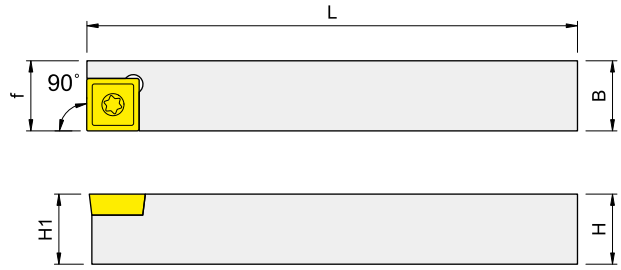
Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISDFC$^{R}/_{L}$-1212K-07	12	12	125	12	16	DC..0702..	IMS2506B	ITK09
ISDFC$^{R}/_{L}$-1212K-11	12	12	125	12	19	DC..11T3..	IMS4011A	ITK15
ISDFC$^{R}/_{L}$-1616K-11	16	16	125	16	20			

External Turning Tools

SSAC

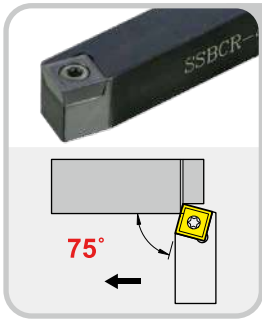


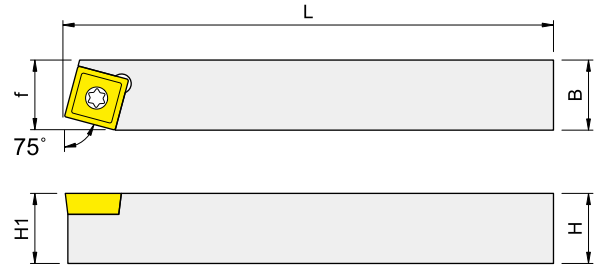


Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISSAC$^{R}/_{L}$-3.4H-09	9.5	12.7	100	9.5	12.7	SC..09T3..	IMS4009A	ITK15
ISSAC$^{R}/_{L}$-4.4H-09	12.7	12.7	100	12.7	12.7		IMS4011A	ITK15
ISSACR-1212H-09	12	12	100	12	12			
ISSAC$^{R}/_{L}$-1616K-09	16	16	125	16	16			

SSBC

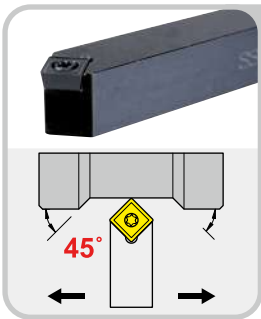




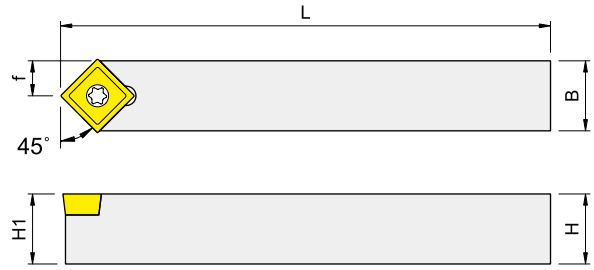
Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISSBC$^{R}/_{L}$-3.4H-09	9.5	12.7	100	9.5	12.7	SC..09T3..	IMS4009A	ITK15
ISSBC$^{R}/_{L}$-4.4H-09	12.7	12.7	100	12.7	12.7		IMS4011A	ITK15
ISSBC$^{R}/_{L}$-1212H-09	12	12	100	12	12			

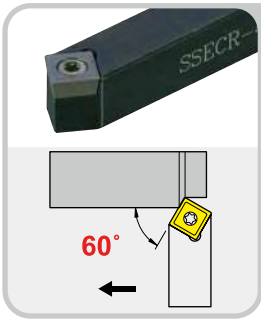
External Turning Tools



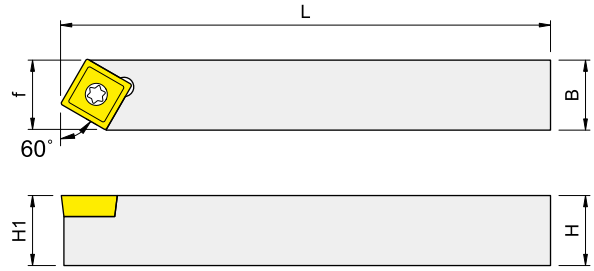
SSDC



Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISSDCN-3.4H-09	9.5	12.7	100	9.5	6.35	SC..09T3..	IMS4009A	ITK15
ISSDCN-4.4H-09	12.7	12.7	100	12.7	6.35	SC..09T3..	IMS4011A	ITK15
ISSDCN-1212H-09	12	12	100	12	6			
ISSDCN-1616K-09	16	16	125	16	8			
ISSDCN-2020K-09	20	20	125	20	10			
ISSDCN-2525M-09	25	25	150	25	12.5			



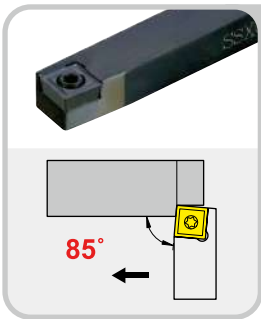
SSEC



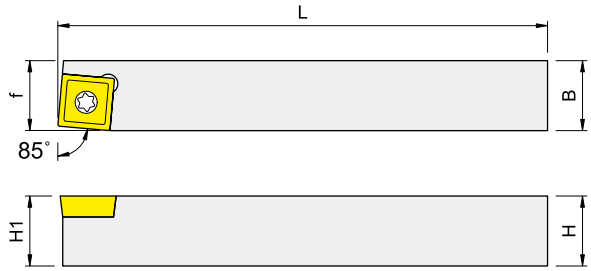
Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISSEC$^{R}/_{L}$-3.4H-09	9.5	12.7	100	9.5	12.7	SC..09T3..	IMS4009A	ITK15
ISSEC$^{R}/_{L}$-4.4H-09	12.7	12.7	100	12.7	12.7	SC..09T3..	IMS4011A	ITK15
ISSEC$^{R}/_{L}$-1212H-09	12	12	100	12	12			

External Turning Tools



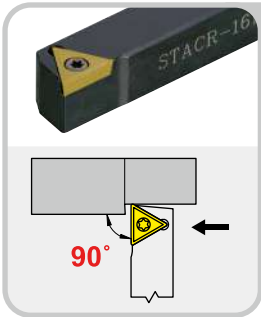
SSXC



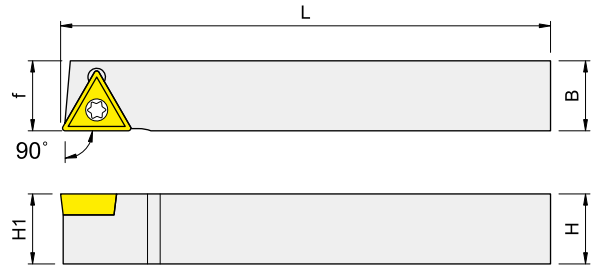
Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISSXCR-3.4H-09	9.5	12.7	100	9.5	12.7	SC..09T3..	IMS4009A	ITK15

External Turning Tools

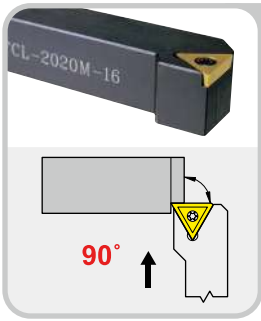


STAC

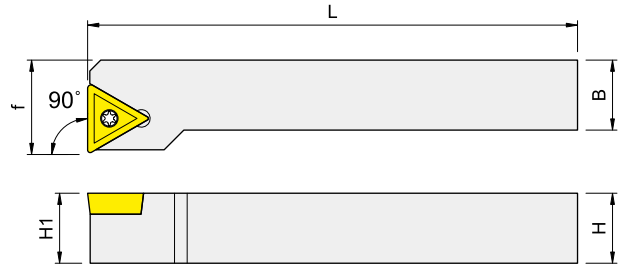


Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISTACR-1010H-11	10	10	100	10	10	TC..1102..	IMS2506A	ITK09
ISTACR-1212H-11	12	12	100	12	12			
ISTACR-1616K-11	16	16	125	16	16			
ISTACR-3.4H-11	9.5	12.7	100	9.5	12.7			
ISTACR-4.4H-11	12.7	12.7	100	12.7	12.7			
ISTACR-1616K-16	16	16	125	16	16	TC..16T3..	IMS4011A	ITK15



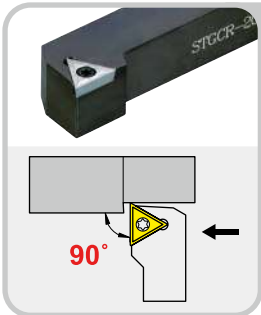
STFC



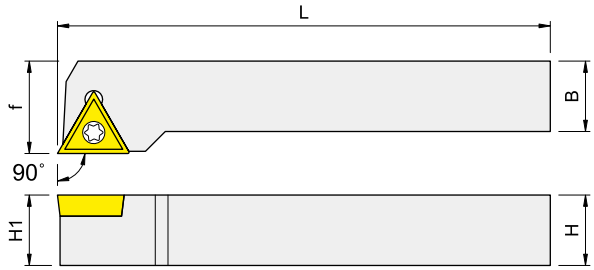
Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISTFC$^{R}/_{L}$-2020K-16	20	20	125	20	25	TC..16T3..	IMS4011A	ITK15
ISTFC$^{R}/_{L}$-2525M-16	25	25	150	25	32			

External Turning Tools

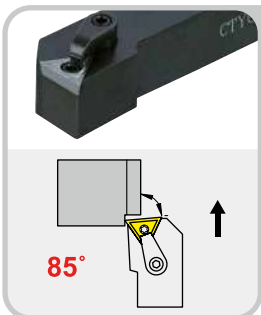


STGC

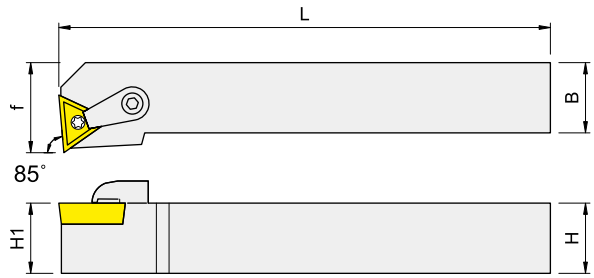


Right-hand shown

Order No.	Dimensions, mm					Insert	Clamp	Wrench
	H	B	L	H1	f			
ISTGC$^{R}/_{L}$-1212K-16	12	12	100	12	16	TC..16T3..	IMS4011A	ITK15
ISTGC$^{R}/_{L}$-1616K-16	16	16	125	16	20			
ISTGC$^{R}/_{L}$-2020K-16	20	20	125	20	25			
ISTGC$^{R}/_{L}$-2525M-16	25	25	150	25	32			



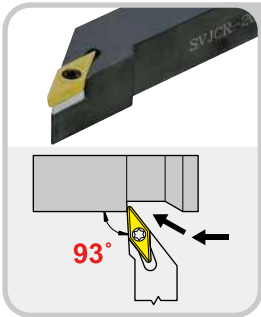
CTYC



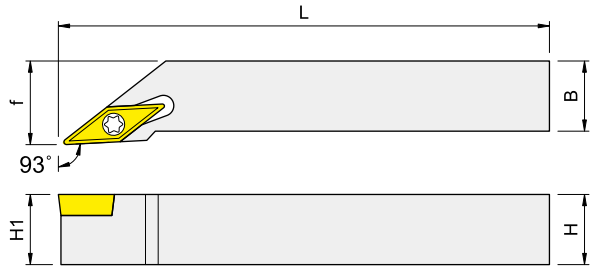
Right-hand shown

Order No.	Dimensions, mm					Insert	Screw	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f						
ICTYC$^{R}/_{L}$-2020K-16	20	20	125	20	25	TC..16T3..	IMS4011A	ITK15	IMS625TX	IMC620	IETL15

External Turning Tools

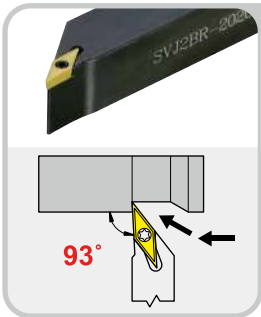


SVJB

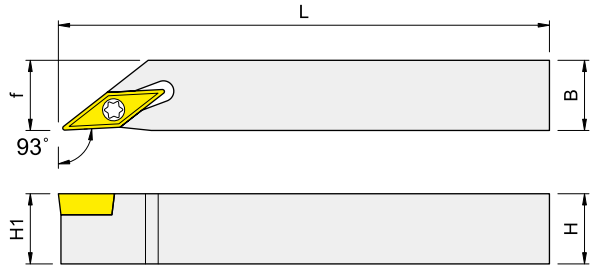


Right-hand shown

Order No.	Dimensions, mm					Insert	Shim	Screw	Wrench	Screw	Wrench
	H	B	L	H1	f						
ISVJB$^{R}/_{L}$-1616K-16	16	16	125	16	20	VB..1604..	IVSS322	IMDS5035S	IPL35	IMS3512B	ITK15
ISVJB$^{R}/_{L}$-2020K-16	20	20	125	20	25						
ISVJB$^{R}/_{L}$-2525M-16	25	25	150	25	32						
ISVJC$^{R}/_{L}$-1010H-11	10	10	100	10	12	VC..1103..	--	--	--	IMS2506A	ITK09
ISVJC$^{R}/_{L}$-1212K-11	12	12	125	12	16						
ISVJC$^{R}/_{L}$-1616K-11	16	16	125	16	20						
ISVJC$^{R}/_{L}$-2020K-11	20	20	125	20	25						
ISVJC$^{R}/_{L}$-2525M-11	25	25	150	25	32						



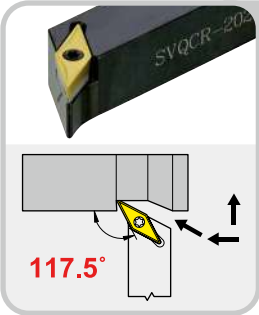
SVJ2B



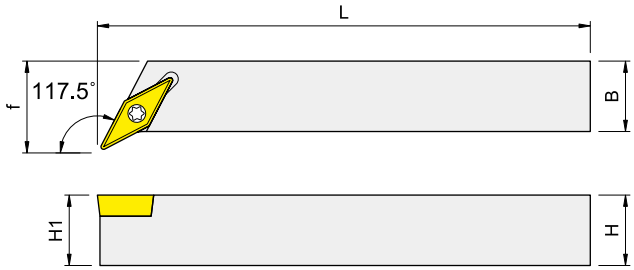
Right-hand shown

Order No.	Dimensions, mm					Insert	Screw	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f						
ISVJ2C$^{R}/_{L}$-1010H-11	10	10	100	10	10	VC..1103..	--	--	--	IMS2506A	ITK09
ISVJ2C$^{R}/_{L}$-1212H-11	12	12	100	12	12						
ISVJ2C$^{R}/_{L}$-1616K-11	16	16	125	16	16						
ISVJ2C$^{R}/_{L}$-2020K-11	20	20	125	20	20						

External Turning Tools

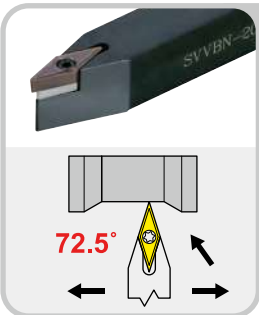


SVQB

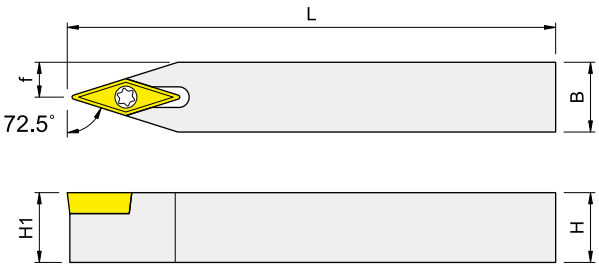


Right-hand shown

Order No.	Dimensions, mm					Insert	Shim	Screw	Wrench	Screw	Wrench
	H	B	L	H1	f						
ISVQB$^{R}/_{L}$-2020K-16	20	20	125	20	25	VB..1604..	IVSS322	IMDS5035S	IPL35	IMS3512B	ITK15
ISVQB$^{R}/_{L}$-2525M-16	25	25	150	25	32						
ISVQC$^{R}/_{L}$-1212H-11	12	12	100	12	16	VC..1103..	--	--	--	IMS2506A	ITK09
ISVQC$^{R}/_{L}$-1616K-11	16	16	125	16	20						
ISVQC$^{R}/_{L}$-2020K-11	20	20	125	20	25						



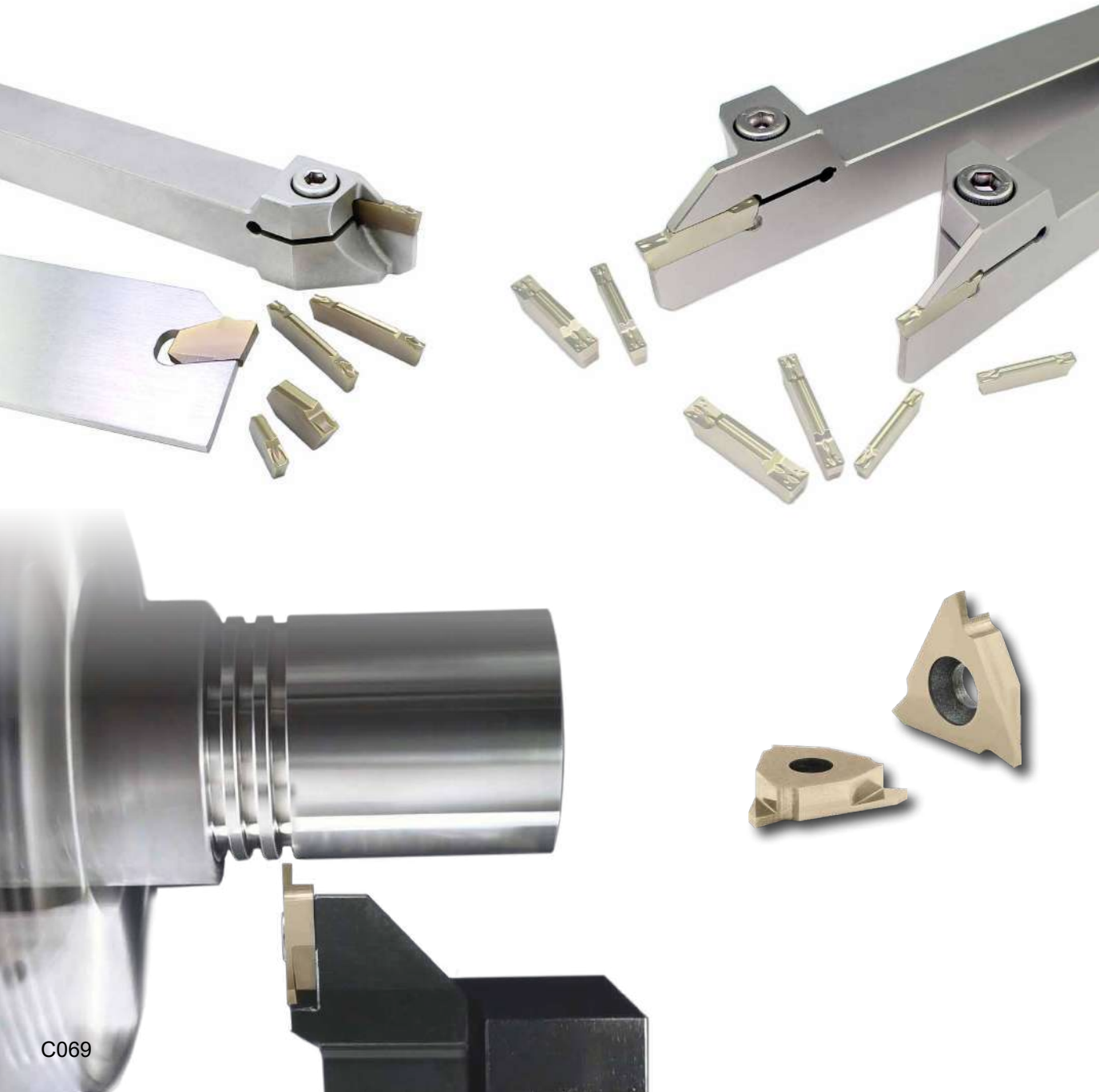
SVVB



Order No.	Dimensions, mm					Insert	Screw	Wrench	Screw	Clamp	Wrench
	H	B	L	H1	f						
ISVVBN-1616K-16	16	16	125	16	8	VB..1604..	IVSS322	IMDS5035S	IPL35	IMS3512B	ITK15
ISVVBN-2020K-16	20	20	125	20	10						
ISVVBN-2525M-16	25	25	150	25	12.5						
ISVVCN-1010H-11	10	10	100	10	5	VC..1103..	--	--	--	IMS2506A	ITK09
ISVVCN-1212K-11	12	12	125	12	6						
ISVVCN-1616K-11	16	16	125	16	8						
ISVVCN-2020K-11	20	20	125	20	10						
ISVVCN-2525M-11	25	25	150	25	12.5						

INDEX

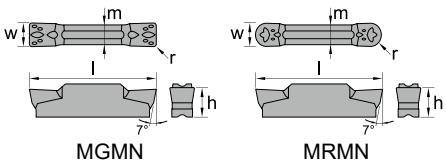
MGEH - for general cutting, depth below 20mm, 2 cutting edges.....C070
KGM - for high feed cutting, depth below 20mm, 2 cutting edges.....C072
SGIH - for parting of large workpieces, 1 cutting edge.....C074
KTGF - for shallow grooving, depth below 2.5mm, 3 cutting edges.....C076



Insert Specifications

Insert	Dimensions (mm)				
	w	r	l	h	m
MGMN200	**2.0**	**0.2**	**16**	**3.5**	**1.60**
MGMN300	**3.0**	**0.4**	**21**	**4.8**	**2.35**
MGMN400	**4.0**	**0.4**	**21**	**4.8**	**3.30**
MRMN200	**2.0**	**1.0**	**16**	**3.5**	**1.60**
MRMN300	**3.0**	**1.5**	**21**	**4.8**	**2.35**
MRMN400	**4.0**	**2.0**	**21**	**4.8**	**3.30**

Chipbreaker	
MG	For general cutting

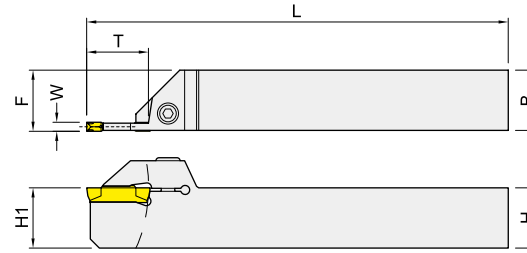


Insert Order Code

Inserts	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IMGMN200SG32HS	MGMN200-SG-CX32HS	●	●	●		○	○
	IMGMN200SG33TS	MGMN200-SG-CX33TS	●	●	●		●	●
	IMGMN200SG43TS	MGMN200-SG-CX43TS	●	●	●		●	
	IMGMN300MG32HS	MGMN300-MG-CX32HS	●	●	●		○	○
	IMGMN300MG33TS	MGMN300-MG-CX33TS	●	●	●		●	●
	IMGMN300MG43TS	MGMN300-MG-CX43TS	●	●	●		●	
	IMGMN400MG32HS	MGMN400-MG-CX32HS	●	●	●		○	○
	IMGMN400MG33TS	MGMN400-MG-CX33TS	●	●	●		●	●
	IMGMN400MG43TS	MGMN400-MG-CX43TS	●	●	●		●	
	IMRMN200MG32HS	MRMN200-MG-CX32HS	●	●	●		○	○
	IMRMN200MG33TS	MRMN200-MG-CX33TS	●	●	●		●	●
	IMRMN200MG43TS	MRMN200-MG-CX43TS	●	●	●		●	
	IMRMN300MG32HS	MRMN300-MG-CX32HS	●	●	●		○	○
	IMRMN300MG33TS	MRMN300-MG-CX33TS	●	●	●		●	●
	IMRMN300MG43TS	MRMN300-MG-CX43TS	●	●	●		●	
	IMRMN400MG32HS	MRMN400-MG-CX32HS	●	●	●		○	○
	IMRMN400MG33TS	MRMN400-MG-CX33TS	●	●	●		●	●
	IMRMN400MG43TS	MRMN400-MG-CX43TS	●	●	●		●	

＊ CX32HS, CX33TS grade for General cutting.
CX43TS grade for Interrupted cutting.

Tool Holder Specifications



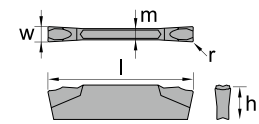
Right-hand shown

Order No.	Dimensions (mm)						Inserts	Screw	Wrench
	H (H1)	B	L	F	T	W			
IMGEH$^{R}/_{L}$1616K2T16T	16	16	125	16.25	16	2.0	MGMN200.. MRMN200..	IHTMT520	IETL25
IMGEH$^{R}/_{L}$2020K2T20T	20	20	125	20.25	20	2.0		IHTMT525	IETL25
IMGEH$^{R}/_{L}$2525M2T20T	25	25	150	25.25	20	2.0		IHTMT525	IETL25
IMGEH$^{R}/_{L}$1616K3T20T	16	16	125	16.30	20	3.0	MGMN300.. MRMG300..	IHTMT520	IETL25
IMGEH$^{R}/_{L}$2020K3T20T	20	20	125	20.30	20	3.0		IHTMT525	IETL25
IMGEHR2525M3T20T	25	25	150	25.30	20	3.0		IHTMT525	IETL25
IMGEHR2525M4T20T	25	25	150	25.35	20	4.0	MGMN400.. MRMN400..	IHTMT525	IETL25

Insert Specifications

Insert	Dimensions (mm)				
	w	r	l	h	m
GMM2020	**2.0**	**0.20**	**20**	**4.3**	**1.5**
GMM2520	**2.5**	**0.20**	**20**	**4.3**	**1.9**
GMM3020	**3.0**	**0.25**	**20**	**4.3**	**2.3**

Chipbreaker	
MR	For high feed cutting

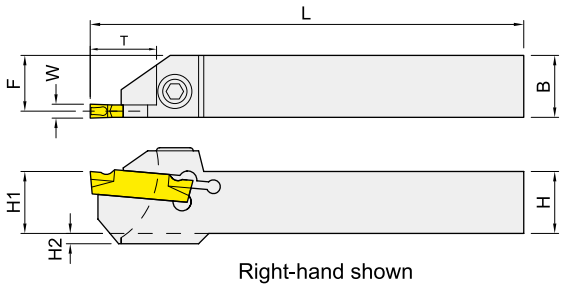


Insert Order Code

Inserts	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	IGMM2020MR32HS	GMM2020-MR-CX32HS	●	●	●		○	○
	IGMM2020MR33TS	GMM2020-MR-CX33TS	●	●	●		●	●
	IGMM2020MR43TS	GMM2020-MR-CX43TS	●	●	●		●	
	IGMM2520MR32HS	GMM2520-MR-CX32HS	●	●	●		○	○
	IGMM2520MR33TS	GMM2520-MR-CX33TS	●	●	●		●	●
	IGMM3020MR32HS	GMM3020-MR-CX32HS	●	●	●		○	○
	IGMM3020MR33TS	GMM3020-MR-CX33TS	●	●	●		●	●

＊ CX32HS, CX33TS grade for General cutting.
CX43TS grade for Interrupted cutting.

Tool Holder Specifications

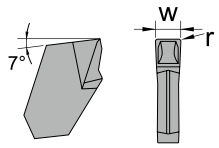


Right-hand shown

Order No.	Dimensions (mm)						W (mm)		Inserts	Screw	Wrench
	H (H1)	B	L	F	T	H2	min	max			
IKGM$^{R}/_{L}$1212K1.5L10	12	12	125	11.4	10	2	1.5	2.0	GMM2020..	IHTM416	IPL30
IKGM$^{R}/_{L}$1616K1.5L10	16	16	125	15.4	10	-	1.5	2.0		IHTMT520	IETL25
IKGM$^{R}/_{L}$2020K1.5L10	20	20	125	19.4	10	-	1.5	2.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$2525M1.5L10	25	25	150	24.4	10	-	1.5	2.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$1212K2TL10	12	12	125	11.1	10	2	2.0	3.0	GMM2020.. GMM2520.. GMM3020..	IHTM416	IPL30
IKGM$^{R}/_{L}$1616K2TL10	16	16	125	15.1	10	-	2.0	3.0		IHTMT520	IETL25
IKGM$^{R}/_{L}$2020K2TL10	20	20	125	19.1	10	-	2.0	3.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$2525M2TL10	25	25	150	24.1	10	-	2.0	3.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$1212K2TL13	12	12	125	11.1	13	3	2.0	3.0		IHTM420	IPL30
IKGM$^{R}/_{L}$1616K2TL13	16	16	125	15.1	13	-	2.0	3.0		IHTMT520	IETL25
IKGM$^{R}/_{L}$2020K2TL13	20	20	125	19.1	13	-	2.0	3.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$2525M2TL13	25	25	150	24.1	13	-	2.0	3.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$1212K2TL17	12	12	125	11.1	17	4	2.0	3.0		IHTM420	IPL30
IKGM$^{R}/_{L}$1616K2TL17	16	16	125	15.1	17	-	2.0	3.0		IHTMT520	IETL25
IKGM$^{R}/_{L}$2020K2TL17	20	20	125	19.1	17	-	2.0	3.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$2525M2TL17	25	25	150	24.1	17	-	2.0	3.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$1616K3TL16	16	16	125	14.8	16	-	3.0	4.0	GMM3020..	IHTMT520	IETL25
IKGM$^{R}/_{L}$2020K3TL16	20	20	125	18.8	16	-	3.0	4.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$2525M3TL16	25	25	150	23.8	16	-	3.0	4.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$1616K3TL20	16	16	125	14.8	20	4	3.0	4.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$2020K3TL20	20	20	125	18.8	20	-	3.0	4.0		IHTMT525	IETL25
IKGM$^{R}/_{L}$2525M3TL20	25	25	150	23.8	20	-	3.0	4.0		IHTMT525	IETL25
IKGMR3232P3TL20	32	32	170	30.8	20	-	3.0	4.0		IHTMT525	IETL25

Insert Specifications

Insert	Dimensions (mm)	
	w	r
TGTN0220	2.2	0.2
TGTN0310	3.1	0.2
TGTN0410	4.1	0.25



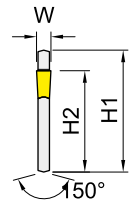
Insert Order Code

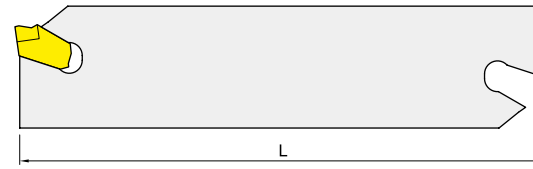
Inserts	Order No.	Designation	Working Material					
			P	M	K	N	S	H
	ITGTN022032HS	TGTN0220-CX32HS	●	●	●		○	○
	ITGTN022033TS	TGTN0220-CX33TS	●	●	●		●	●
	ITGTN022043TS	TGTN0220-CX43TS	●	●	●		●	
	ITGTN031032HS	TGTN0310-CX32HS	●	●	●		○	○
	ITGTN031033TS	TGTN0310-CX33TS	●	●	●		●	●
	ITGTN031043TS	TGTN0310-CX43TS	●	●	●		●	
	ITGTN041032HS	TGTN0410-CX32HS	●	●	●		○	○
	ITGTN041033TS	TGTN0410-CX33TS	●	●	●		●	●
	ITGTN041042HS	TGTN0410-CX42HS	●	●	●		●	

＊ CX32HS, CX33TS grade for General cutting.
CX43TS grade for Interrupted cutting.

Tool Holder Specifications

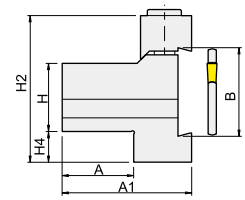
SGIH

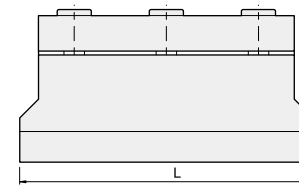




Order No.	Dimensions (mm)				Insert	Tool Block	Wrench
	H1	H2	L	W			
ISGIH26-2	26	21.4	110	2.2	TGTN0220	ISGTBU..-26	IESG-1
ISGIH26-3	26	21.4	110	3.1	TGTN0310		
ISGIH26-4	26	21.4	110	4.1	TGTN0410		
ISGIH32-2	32	25	150	2.2	TGTN0220	ISGTBU..-32	
ISGIH32-3	32	25	150	3.1	TGTN0310		
ISGIH32-4	32	25	150	4.1	TGTN0410		

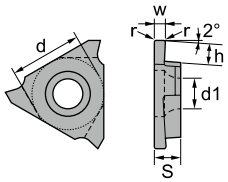
SGTBU



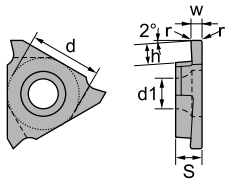


Order No.	Dimensions (mm)							Screw	Wrench	BLADE
	H	B	A	A1	L	H2	H4			
ISGTBU20-26	20	26	21	38	86	43	9	IHTM630	IPL50	ISGIH26-3
ISGTBU25-26	25	26	23	40	86	43	4			
ISGTBU20-32	20	32	21	40	110	50	13			ISGIH32-3
ISGTBU25-32	25	32	23	42	110	50	8			

Insert Specifications & Order Code



Right hand

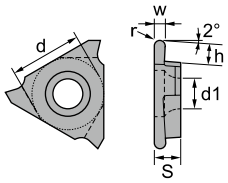


Left hand

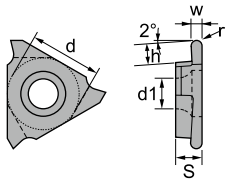
Order No.	Designation	Dimensions (mm)						Max Depth of Cut		Working Material					
		w	h	r	S	d	d1	O.D.	I.D.	P	M	K	N	S	H
ITGF32R0331555	TGF32R033-CX1555	0.33	1.0	0.05	3.18	9.525	4.4	0.8	0.5	●	●	●		○	○
ITGF32L0331555	TGF32L033-CX1555	0.33	1.0	0.05	3.18	9.525	4.4	0.8	0.5	●	●	●		○	○
ITGF32R0501555	TGF32R050-CX1555	0.50	1.4	0.05	3.18	9.525	4.4	1.2	0.8	●	●	●		○	○
ITGF32L0501555	TGF32L050-CX1555	0.50	1.4	0.05	3.18	9.525	4.4	1.2	0.8	●	●	●		○	○
ITGF32R0751555	TGF32R075-CX1555	0.75	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L0751555	TGF32L075-CX1555	0.75	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R0951555	TGF32R095-CX1555	0.95	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L0951555	TGF32L095-CX1555	0.95	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R1001555	TGF32R100-CX1555	1.00	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L1001555	TGF32L100-CX1555	1.00	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R1101555	TGF32R110-CX1555	1.10	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L1101555	TGF32L110-CX1555	1.10	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R1251555	TGF32R125-CX1555	1.25	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L1251555	TGF32L125-CX1555	1.25	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R1351555	TGF32R135-CX1555	1.35	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L1351555	TGF32L135-CX1555	1.35	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R1451555	TGF32R145-CX1555	1.45	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L1451555	TGF32L145-CX1555	1.45	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R1501555	TGF32R150-CX1555	1.50	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L1501555	TGF32L150-CX1555	1.50	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R1651555	TGF32R165-CX1555	1.65	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L1651555	TGF32L165-CX1555	1.65	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R1751555	TGF32R175-CX1555	1.75	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L1751555	TGF32L175-CX1555	1.75	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R1801555	TGF32R180-CX1555	1.80	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L1801555	TGF32L180-CX1555	1.80	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R1851555	TGF32R185-CX1555	1.85	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L1851555	TGF32L185-CX1555	1.85	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R2001555	TGF32R200-CX1555	2.00	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L2001555	TGF32L200-CX1555	2.00	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R2501555	TGF32R250-CX1555	2.50	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L2501555	TGF32L250-CX1555	2.50	2.5	0.1	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○

※ To choose CX10(uncoating) for N material machining.

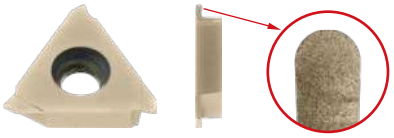
Insert Specifications & Order Code



Right hand



Left hand



Order No.	Designation	Dimensions (mm)						Max Depth of Cut		Working Material					
		w	h	r	S	d	d1	O.D.	I.D.	P	M	K	N	S	H
ITGF32R025R1555	TGF32R025R-CX1555	0.50	1.4	0.25	3.18	9.525	4.4	1.2	0.8	●	●	●		○	○
ITGF32L025R1555	TGF32L025R-CX1555	0.50	1.4	0.25	3.18	9.525	4.4	1.2	0.8	●	●	●		○	○
ITGF32R037R1555	TGF32R037R-CX1555	0.75	2.5	0.375	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L037R1555	TGF32L037R-CX1555	0.75	2.5	0.375	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R050R1555	TGF32R050R-CX1555	1.00	2.5	0.5	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L050R1555	TGF32L050R-CX1555	1.00	2.5	0.5	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R062R1555	TGF32R062R-CX1555	1.25	2.5	0.625	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L062R1555	TGF32L062R-CX1555	1.25	2.5	0.625	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32R075R1555	TGF32R075R-CX1555	1.50	2.5	0.75	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○
ITGF32L075R1555	TGF32L075R-CX1555	1.50	2.5	0.75	3.18	9.525	4.4	2.0	1.5	●	●	●		○	○

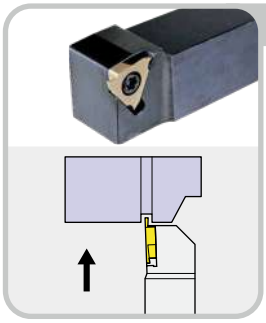
※ To choose CX10(uncoating) for N material machining.

Recommended Cutting Conditions

Working Material	Vc (m/min)	fr (mm/rev)
Carbon Steel / Alloy Steel	50 ~ 200	0.02 ~ 0.10
Stainless Steel	50 ~ 200	0.02 ~ 0.10
Cast Iron	50 ~ 200	0.02 ~ 0.10
Aluminum Alloy	200 ~ 300	0.05 ~ 0.15
High Temperature Alloy	80 ~ 120	0.03 ~ 0.07
Hardened Steel	80 ~ 120	0.03 ~ 0.07

KTGF Series - External Grooving Tool Holders

Tool Holder Specifications



KTGF

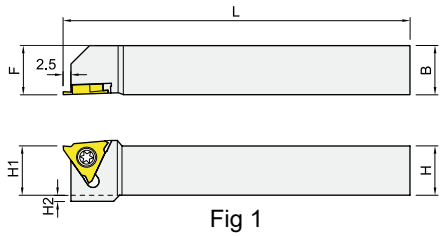


Fig 1

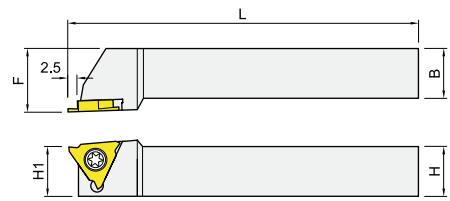
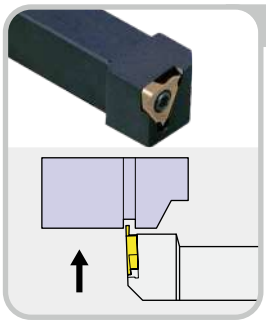


Fig 2

Right-hand shown

Order No.	Dimensions (mm)					Insert	Screw	Wrench	Fig
	H(H1)	B	L	H2	F				
IKTGF$^{R}/_{L}$1010K16F	10	10	125	4	10	TGF32R or TGF32L	IMS4009A	ITK15	1
IKTGFR1012K16F	10	12	125	2	12		IMS4011A		
IKTGF$^{R}/_{L}$1212K16F	12	12	125	2	12				
IKTGF$^{R}/_{L}$1616K16F	16	16	125	-	16				
IKTGFR2020K16F	20	20	125	-	20	TGF32R			
IKTGF$^{R}/_{L}$1616K16	16	16	125	-	20	TGF32R or TGF32L			2
IKTGF$^{R}/_{L}$2020K16	20	20	125	-	25				
IKTGF$^{R}/_{L}$2525M16	25	25	150	-	32				



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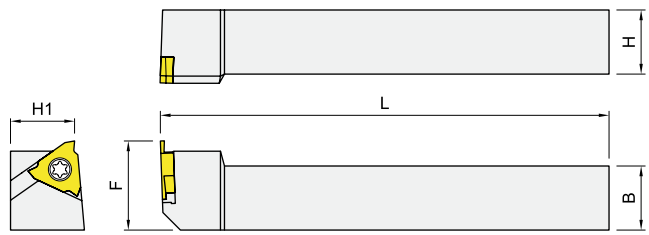
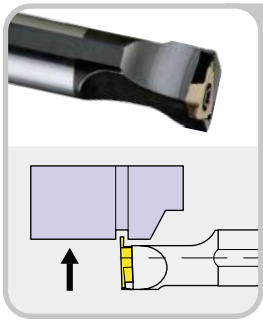


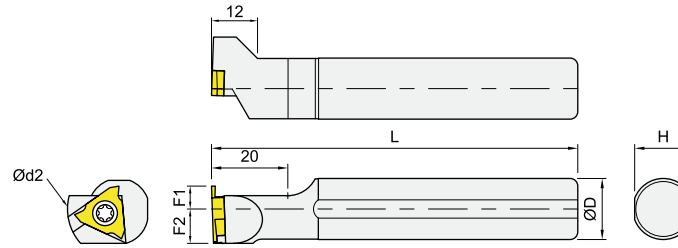
Left-hand shown

Order No.	Dimensions (mm)				Insert	Screw	Wrench
	H(H1)	B	L	F			
IKTGFSL1616K16	16	16	125	22	TGF32R	IMS4009A	ITK15
IKTGFSL2020K16	20	20	125	26			

Tool Holder Specifications



KTGFL



Left-hand shown

Order No.	Dimensions (mm)						Insert	Screw	Wrench
	D	L	H	F1	F2	d2			
IS16HKTGFL16	16	100	15	6	9	27	TGF32R	IMS4009A	ITK15

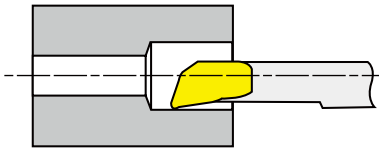
INDEX

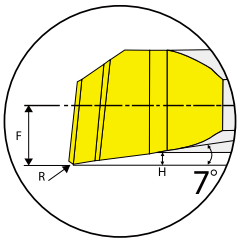
DL Series - Solid Carbide Mini Bars.....C081
DE Series - Solid Carbide Modular Mini Bars.....C091
ETU Series - Solid Carbide Endmills, Short Total Length.....C101
ETW Series - Solid Carbide Slitting Saws.....C103
SAKG Series - Indexable Mini Turning Tools.....C108

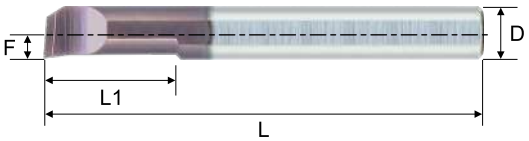
DL Series - Solid Carbide Mini Bars

- ***Suitable for small holes boring, internal grooving, face grooving and threading machining.***
- ***Mini boring tools lineup for a wide application range.***
- ***Customized available.***

DL Solid Carbide Mini Bars - Internal Boring (7°)



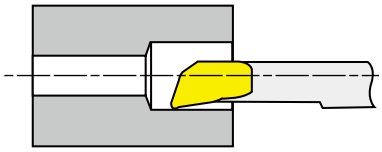


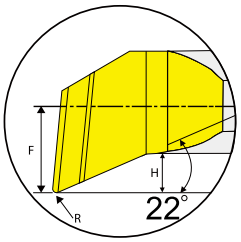


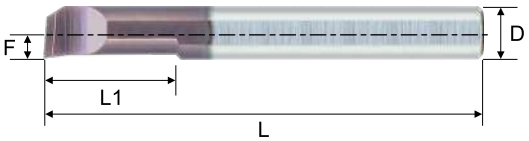
Order No.	F	L1	L	R	D	H	Min. Bore Dia.
DLBSR08051507U	0.8	5	50	0.15	3	0.1	2.4
DLBSR08101507U	0.8	10	50	0.15	3	0.1	2.4
DLBSR13100507U	1.3	10	50	0.05	3	0.2	3.1
DLBSR13150507U	1.3	15	50	0.05	3	0.2	3.1
DLBSR13151007U	1.3	15	50	0.10	3	0.2	3.1
DLBSR13102007U	1.3	10	50	0.20	3	0.2	3.1
DLBSR13152007U	1.3	15	50	0.20	3	0.2	3.1
DLBSR17101007U	1.7	10	50	0.10	4	0.2	4.1
DLBSR17151007U	1.7	15	50	0.10	4	0.2	4.1
DLBSR17221007U	1.7	22	50	0.10	4	0.2	4.1
DLBSR17102007U	1.7	10	50	0.20	4	0.2	4.1
DLBSR17152007U	1.7	15	50	0.20	4	0.2	4.1
DLBSR17222007U	1.7	22	50	0.20	4	0.2	4.1
DLBSR21151007U	2.1	15	50	0.10	5	0.3	5.1
DLBSR21221007U	2.1	22	50	0.10	5	0.3	5.1
DLBSR21301007U	2.1	30	75	0.10	5	0.3	5.1
DLBSR21152007U	2.1	15	50	0.20	5	0.3	5.1
DLBSR21222007U	2.1	22	50	0.20	5	0.3	5.1
DLBSR21302007U	2.1	30	75	0.20	5	0.3	5.1
DLBSR28150507U	2.8	15	50	0.05	6	0.3	6.1
DLBSR28151007U	2.8	15	50	0.10	6	0.3	6.1
DLBSR28152007U	2.8	15	50	0.20	6	0.3	6.1
DLBSR28222007U	2.8	22	50	0.20	6	0.3	6.1
DLBSR28302007U	2.8	30	60	0.20	6	0.3	6.1

＊ For left hand tools specify DLBSL instead of DLBSR.

DL Solid Carbide Mini Bars - Internal Boring (22°)



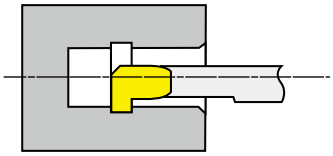


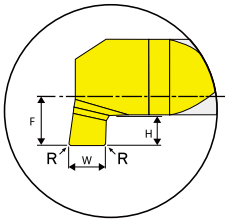


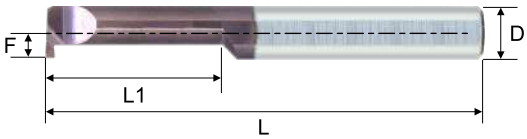
Order No.	F	L1	L	R	D	H	Min. Bore Dia.
DLBSR04030522U	0.4	3	50	0.05	4	0.2	1.0
DLBSR04050522U	0.4	5	50	0.05	4	0.2	1.0
DLBSR08060522U	0.8	6	50	0.05	4	0.4	2.0
DLBSR08100522U	0.8	10	50	0.05	4	0.4	2.0
DLBSR08140522U	0.8	14	50	0.05	4	0.4	2.0
DLBSR13091022U	1.3	9	50	0.10	4	0.6	3.0
DLBSR13151022U	1.3	15	50	0.10	4	0.6	3.0
DLBSR13211022U	1.3	21	50	0.10	4	0.6	3.0
DLBSR18121022U	1.8	12	50	0.10	4	0.8	4.0
DLBSR18201022U	1.8	20	50	0.10	4	0.8	4.0
DLBSR18281022U	1.8	28	60	0.10	4	0.8	4.0
DLBSR23152022U	2.3	15	50	0.20	6	1.0	5.0
DLBSR23252022U	2.3	25	50	0.20	6	1.0	5.0
DLBSR23302022U	2.3	30	60	0.20	6	1.0	5.0
DLBSR28182022U	2.8	18	50	0.20	6	1.2	6.0
DLBSR28302022U	2.8	30	60	0.20	6	1.2	6.0
DLBSR28422022U	2.8	42	65	0.20	6	1.2	6.0

＊ For left hand tools specify DLBSL instead of DLBSR.

DL Solid Carbide Mini Bars - Internal Grooving



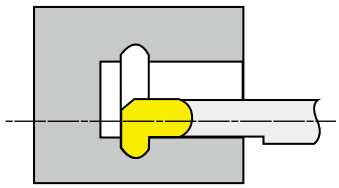


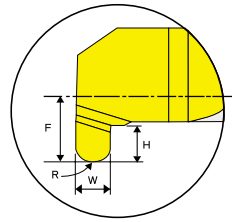


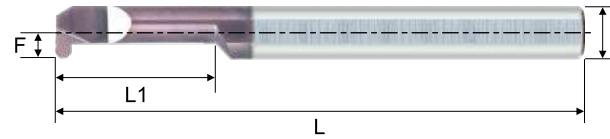
Order No.	F	L1	L	W	R	D	H	Min. Bore Dia.
DLGSR17101010U	1.7	10	50	1.00	0.1	4	1.0	4.1
DLGSR17101510U	1.7	10	50	1.50	0.1	4	1.0	4.1
DLGSR23101012U	2.3	10	50	1.00	0.1	5	1.2	5.1
DLGSR23101512U	2.3	10	50	1.50	0.1	5	1.2	5.1
DLGSR23102012U	2.3	10	50	2.00	0.1	5	1.2	5.1
DLGSR28201014U	2.8	20	50	1.00	0.1	6	1.4	6.1
DLGSR28201514U	2.8	20	50	1.50	0.1	6	1.4	6.1
DLGSR28202014U	2.8	20	50	2.00	0.1	6	1.4	6.1
DLGSR38301022U	3.8	30	60	1.00	0.15	8	2.2	8.1
DLGSR38301522U	3.8	30	60	1.50	0.15	8	2.2	8.1
DLGSR38302022U	3.8	30	60	2.00	0.15	8	2.2	8.1

＊ For left hand tools specify DLGSL instead of DLGSR.

DL Solid Carbide Mini Bars - Internal R Grooving



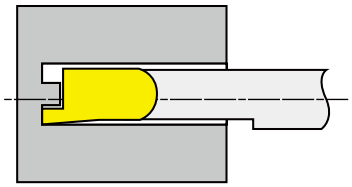


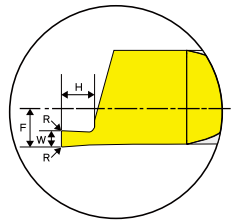


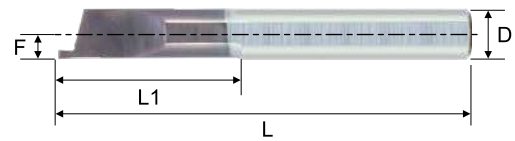
Order No.	F	L1	L	W	R	D	H	Min. Bore Dia.
DLGBR17101010U	1.7	10	50	1.00	0.50	4	1.0	4.1
DLGBR17101510U	1.7	10	50	1.50	0.75	4	1.0	4.1
DLGBR23151012U	2.3	15	50	1.00	0.50	5	1.2	5.1
DLGBR23151512U	2.3	15	50	1.50	0.75	5	1.2	5.1
DLGBR23152012U	2.3	15	50	2.00	1.00	5	1.2	5.1
DLGBR28151016U	2.8	15	50	1.00	0.50	6	1.6	6.1
DLGBR28151516U	2.8	15	50	1.50	0.75	6	1.6	6.1
DLGBR28152016U	2.8	15	50	2.00	1.00	6	1.6	6.1

∗ For left hand tools specify DLGBL instead of DLGBR.

DL Solid Carbide Mini Bars - Internal Face Grooving



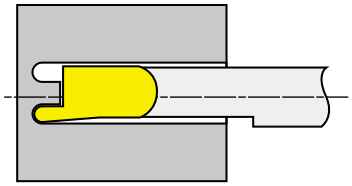


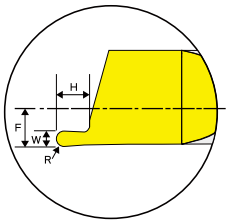


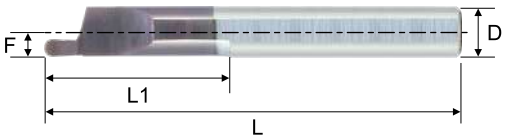
Order No.	F	L1	L	W	R	D	H	Min. Bore Dia.
DLFSR18150712U	1.8	15	50	0.75	0.1	4	1.2	4
DLFSR18151015U	1.8	15	50	1.00	0.1	4	1.5	4
DLFSR18151526U	1.8	15	50	1.50	0.1	4	2.6	4
DLFSR23220712U	2.3	22	50	0.75	0.1	6	1.2	5
DLFSR23221015U	2.3	22	50	1.00	0.1	6	1.5	5
DLFSR23221525U	2.3	22	50	1.50	0.1	6	2.5	5
DLFSR23222036U	2.3	22	50	2.00	0.1	6	3.6	5
DLFSR28221015U	2.8	22	50	1.00	0.1	6	1.5	6
DLFSR28221525U	2.8	22	50	1.50	0.1	6	2.5	6
DLFSR28222030U	2.8	22	50	2.00	0.1	6	3.0	6
DLFSR28222546U	2.8	22	50	2.50	0.1	6	4.6	6

＊ For left hand tools specify DLFSL instead of DLFSR.

DL Solid Carbide Mini Bars - Internal Face R Grooving



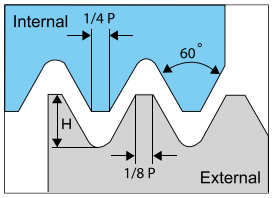


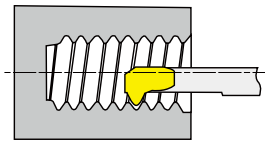


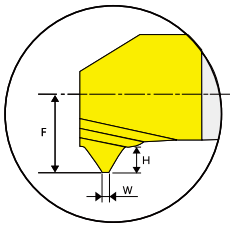
Order No.	F	L1	L	W	R	D	H	Min. Bore Dia.
DLFBR18150512U	1.8	15	50	1.0	0.50	4	1.2	4
DLFBR18150715U	1.8	15	50	1.5	0.75	4	1.5	4
DLFBR23220512U	2.3	22	50	1.0	0.50	6	1.2	5
DLFBR23220715U	2.3	22	50	1.5	0.75	6	1.5	5
DLFBR23221025U	2.3	22	50	2.0	1.00	6	2.5	5
DLFBR28220715U	2.8	22	50	1.5	0.75	6	1.5	6
DLFBR28221025U	2.8	22	50	2.0	1.00	6	2.5	6

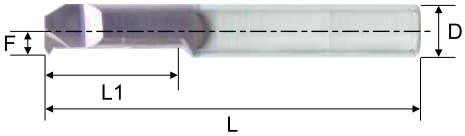
∗ For left hand tools specify DLFBL instead of DLFBR.

DL Solid Carbide Mini Bars - Internal Thread (ISO Metric 60°)







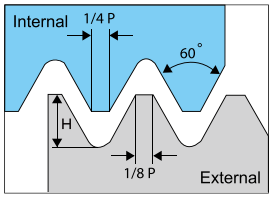


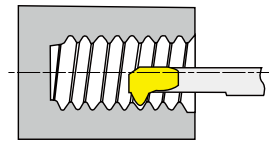
Tolerance class : 6H

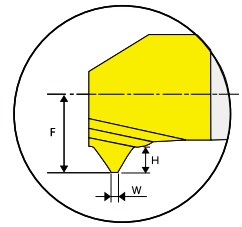
Order No.	F	Pitch	L1	W	L	D	H	Min. Bore Dia.
DLTSR05010360U	1.4	0.50	10	0.062	39	3	0.33	3.2
DLTSR07010360U	1.4	0.70	10	0.087	39	3	0.46	3.2
DLTSR07510360U	1.4	0.75	10	0.093	39	3	0.49	3.2
DLTSR05010460U	1.8	0.50	10	0.062	50	4	0.33	4.1
DLTSR07510460U	1.8	0.75	10	0.093	50	4	0.49	4.1
DLTSR08010460U	1.8	0.80	10	0.100	50	4	0.52	4.1
DLTSR10010560U	2.2	1.00	10	0.125	50	5	0.65	4.9
DLTSR05015660U	2.6	0.50	15	0.062	50	6	0.33	5.9
DLTSR07515660U	2.6	0.75	15	0.093	50	6	0.49	5.9
DLTSR10015660U	2.6	1.00	15	0.125	50	6	0.65	5.9
DLTSR12522660U	2.8	1.25	22	0.156	50	6	0.81	6.1

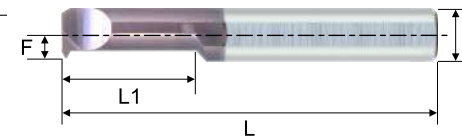
∗ For left hand tools specify DLTSL instead of DLTSR.

DL Solid Carbide Mini Bars - Internal Multipurpose Thread (ISO Metric 60°)







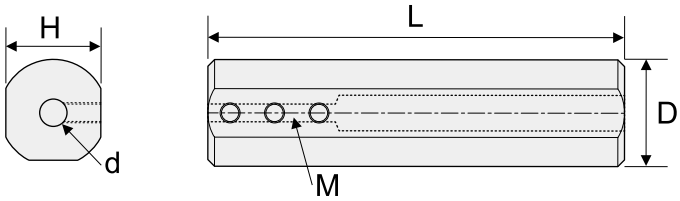


Tolerance class : 6H

Order No.	F	Pitch	L1	W	L	D	H	Min. Bore Dia.
DLTMR04508360U	1.0	0.45 ~ 0.70	8	0.056	50	3	0.5	2.6
DLTMR07015360U	1.4	0.70 ~ 1.00	15	0.087	50	3	0.7	3.2
DLTMR08015460U	1.8	0.80 ~ 1.00	15	0.100	50	4	0.7	4.1
DLTMR10015560U	2.3	1.00 ~ 1.25	15	0.125	50	5	0.8	5.1
DLTMR10015660U	2.6	1.00 ~ 1.50	15	0.125	50	6	1.0	6.0
DLTMR10018860U	3.6	1.00 ~ 1.75	18	0.125	60	8	1.4	8.0
DLTMR10018160U	4.6	1.00 ~ 2.00	18	0.125	75	10	1.8	10.0

∗ For left hand tools specify DLTML instead of DLTMR.

DL Solid Carbide Mini Bars - Sleeves

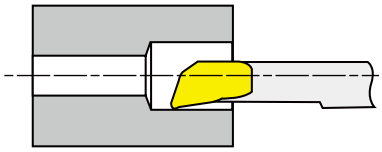


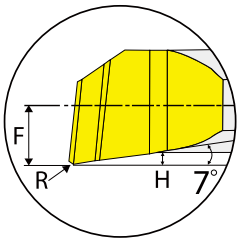
Order No.	d	D	L	H	M
DLS0316100	3	16	100	14	M4
DLS0416100	4	16	100	14	M4
DLS0516100	5	16	100	14	M4
DLS0616100	6	16	100	14	M5
DLS0816100	8	16	100	14	M5
DLS1016100	10	16	100	14	M5

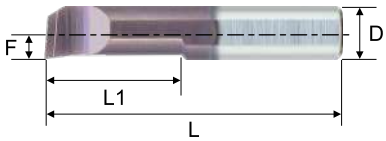
DE Series - Solid Carbide Modular Mini Bars

- ***Easy tool changeover and position repeatability (±0.05mm).***
- ***Double ended design for two different shank sizes.***
- ***Suitable for small holes boring, internal grooving, face grooving and threading machining.***
- ***Mini boring tools lineup for a wide application range.***

DE Solid Carbide Modular Mini Bars - Internal Boring (7°)



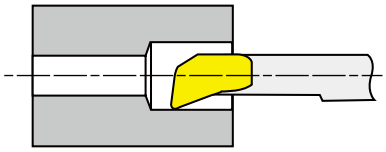


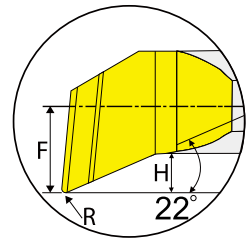


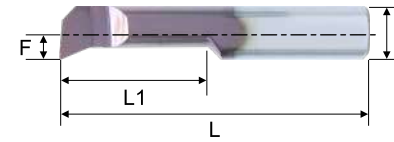
Order No.	F	L1	L (±0.05mm)	R	D	H	Min. Bore Dia.
DEBSR08051507U	0.8	5	21.5	0.15	3	0.1	2.4
DEBSR08101507U	0.8	10	26.5	0.15	3	0.1	2.4
DEBSR13100507U	1.3	10	26.5	0.05	3	0.2	3.1
DEBSR13150507U	1.3	15	31.5	0.05	3	0.2	3.1
DEBSR13151007U	1.3	15	31.5	0.10	3	0.2	3.1
DEBSR13102007U	1.3	10	26.5	0.20	3	0.2	3.1
DEBSR13152007U	1.3	15	31.5	0.20	3	0.2	3.1
DEBSR17101007U	1.7	10	26.5	0.10	4	0.2	4.1
DEBSR17151007U	1.7	15	31.5	0.10	4	0.2	4.1
DEBSR17221007U	1.7	22	38.5	0.10	4	0.2	4.1
DEBSR17102007U	1.7	10	26.5	0.20	4	0.2	4.1
DEBSR17152007U	1.7	15	31.5	0.20	4	0.2	4.1
DEBSR17222007U	1.7	22	38.5	0.20	4	0.2	4.1
DEBSR21151007U	2.1	15	31.5	0.10	5	0.3	5.1
DEBSR21221007U	2.1	22	38.5	0.10	5	0.3	5.1
DEBSR21301007U	2.1	30	46.5	0.10	5	0.3	5.1
DEBSR21152007U	2.1	15	31.5	0.20	5	0.3	5.1
DEBSR21222007U	2.1	22	38.5	0.20	5	0.3	5.1
DEBSR21302007U	2.1	30	46.5	0.20	5	0.3	5.1
DEBSR28150507U	2.8	15	31.5	0.05	6	0.3	6.1
DEBSR28151007U	2.8	15	31.5	0.10	6	0.3	6.1
DEBSR28152007U	2.8	15	31.5	0.20	6	0.3	6.1
DEBSR28222007U	2.8	22	38.5	0.20	6	0.3	6.1
DEBSR28302007U	2.8	30	46.5	0.20	6	0.3	6.1

＊ For left hand tools specify DEBSL instead of DEBSR.

DE Solid Carbide Modular Mini Bars - Internal Boring (22°)



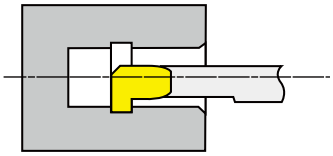


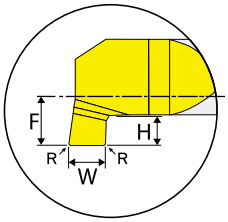


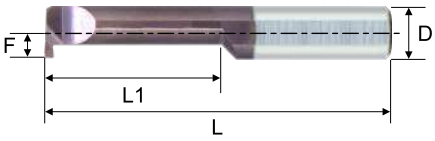
Order No.	F	L1	L (±0.05mm)	R	D	H	Min. Bore Dia.
DEBSR04030522U	0.4	3	19.5	0.05	4	0.2	1.0
DEBSR04050522U	0.4	5	21.5	0.05	4	0.2	1.0
DEBSR08060522U	0.8	6	22.5	0.05	4	0.4	2.0
DEBSR08100522U	0.8	10	26.5	0.05	4	0.4	2.0
DEBSR08140522U	0.8	14	30.5	0.05	4	0.4	2.0
DEBSR13091022U	1.3	9	25.5	0.10	4	0.6	3.0
DEBSR13151022U	1.3	15	31.5	0.10	4	0.6	3.0
DEBSR13211022U	1.3	21	37.5	0.10	4	0.6	3.0
DEBSR18121022U	1.8	12	28.5	0.10	4	0.8	4.0
DEBSR18201022U	1.8	20	36.5	0.10	4	0.8	4.0
DEBSR18281022U	1.8	28	44.5	0.10	4	0.8	4.0
DEBSR23152022U	2.3	15	31.5	0.20	6	1.0	5.0
DEBSR23252022U	2.3	25	41.5	0.20	6	1.0	5.0
DEBSR23302022U	2.3	30	46.5	0.20	6	1.0	5.0
DEBSR28182022U	2.8	18	34.5	0.20	6	1.2	6.0
DEBSR28302022U	2.8	30	46.5	0.20	6	1.2	6.0
DEBSR28422022U	2.8	42	58.5	0.20	6	1.2	6.0

＊ For left hand tools specify DEBSL instead of DEBSR.

DE Solid Carbide Modular Mini Bars - Internal Grooving



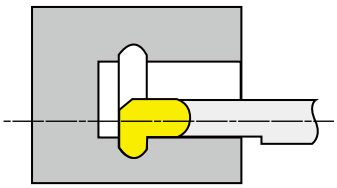


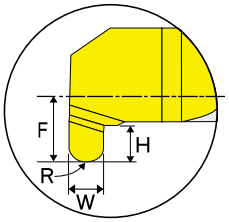


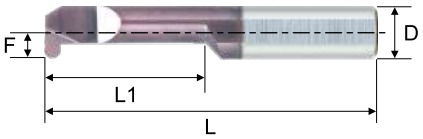
Order No.	F	L1	L (±0.05mm)	W	R	D	H	Min. Bore Dia.
DEGSR17101010U	1.7	10	26.5	1.00	0.1	4	1.0	4.1
DEGSR17101510U	1.7	10	26.5	1.50	0.1	4	1.0	4.1
DEGSR23101012U	2.3	10	26.5	1.00	0.1	5	1.2	5.1
DEGSR23101512U	2.3	10	26.5	1.50	0.1	5	1.2	5.1
DEGSR23102012U	2.3	10	26.5	2.00	0.1	5	1.2	5.1
DEGSR28201014U	2.8	20	36.5	1.00	0.1	6	1.4	6.1
DEGSR28201514U	2.8	20	36.5	1.50	0.1	6	1.4	6.1
DEGSR28202014U	2.8	20	36.5	2.00	0.1	6	1.4	6.1

＊ For left hand tools specify DEGSL instead of DEGSR.

DE Solid Carbide Modular Mini Bars - Internal R Grooving



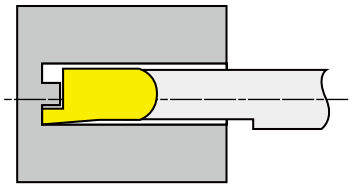


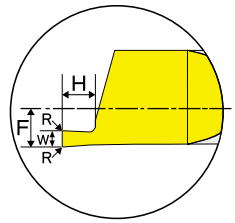


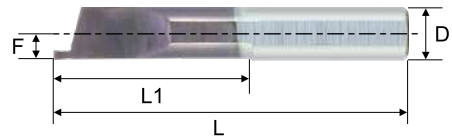
Order No.	F	L1	L (±0.05mm)	W	R	D	H	Min. Bore Dia.
DEGBR17101010U	1.7	10	26.5	1.00	0.50	4	1.0	4.1
DEGBR17101510U	1.7	10	26.5	1.50	0.75	4	1.0	4.1
DEGBR23151012U	2.3	15	31.5	1.00	0.50	5	1.2	5.1
DEGBR23151512U	2.3	15	31.5	1.50	0.75	5	1.2	5.1
DEGBR23152012U	2.3	15	31.5	2.00	1.00	5	1.2	5.1
DEGBR28151016U	2.8	15	31.5	1.00	0.50	6	1.6	6.1
DEGBR28151516U	2.8	15	31.5	1.50	0.75	6	1.6	6.1
DEGBR28152016U	2.8	15	31.5	2.00	1.00	6	1.6	6.1

∗ For left hand tools specify DEGBL instead of DEGBR.

DE Solid Carbide Modular Mini Bars - Internal Face Grooving



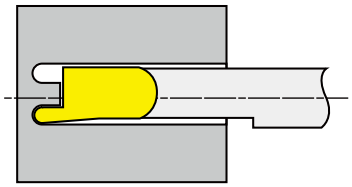


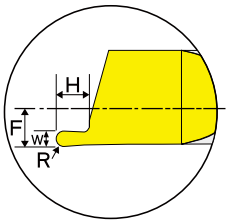


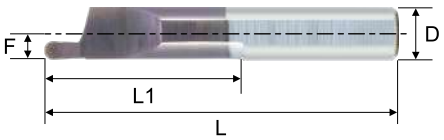
Order No.	F	L1	L (±0.05mm)	W	R	D	H	Min. Bore Dia.
DEFSR18150712U	1.8	15	31.5	0.75	0.1	4	1.2	4
DEFSR18151015U	1.8	15	31.5	1.00	0.1	4	1.5	4
DEFSR18151526U	1.8	15	31.5	1.50	0.1	4	2.6	4
DEFSR23220712U	2.3	22	38.5	0.75	0.1	6	1.2	5
DEFSR23221015U	2.3	22	38.5	1.00	0.1	6	1.5	5
DEFSR23221525U	2.3	22	38.5	1.50	0.1	6	2.5	5
DEFSR23222036U	2.3	22	38.5	2.00	0.1	6	3.6	5
DEFSR28221015U	2.8	22	38.5	1.00	0.1	6	1.5	6
DEFSR28221525U	2.8	22	38.5	1.50	0.1	6	2.5	6
DEFSR28222030U	2.8	22	38.5	2.00	0.1	6	3.0	6
DEFSR28222546U	2.8	22	38.5	2.50	0.1	6	4.6	6

∗ For left hand tools specify DEFSL instead of DEFSR.

DE Solid Carbide Modular Mini Bars - Internal Face R Grooving



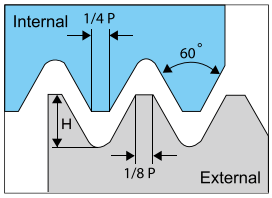


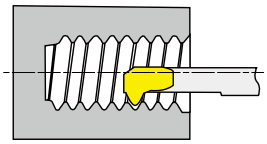


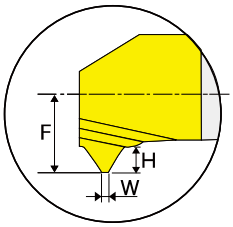
Order No.	F	L1	L (±0.05mm)	W	R	D	H	Min. Bore Dia.
DEFBR18150512U	1.8	15	31.5	1.0	0.50	4	1.2	4
DEFBR18150715U	1.8	15	31.5	1.5	0.75	4	1.5	4
DEFBR23220512U	2.3	22	38.5	1.0	0.50	6	1.2	5
DEFBR23220715U	2.3	22	38.5	1.5	0.75	6	1.5	5
DEFBR23221025U	2.3	22	38.5	2.0	1.00	6	2.5	5
DEFBR28220715U	2.8	22	38.5	1.5	0.75	6	1.5	6
DEFBR28221025U	2.8	22	38.5	2.0	1.00	6	2.5	6

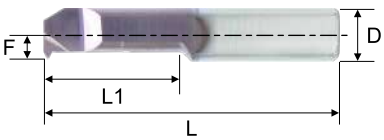
∗ For left hand tools specify DEFBL instead of DEFBR.

DE Solid Carbide Modular Mini Bars - Internal Thread (ISO Metric 60°)







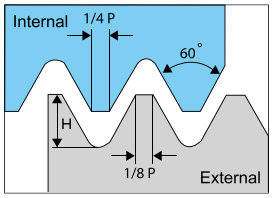


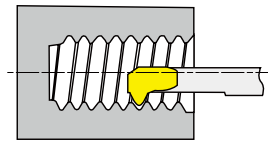
Tolerance class : 6H

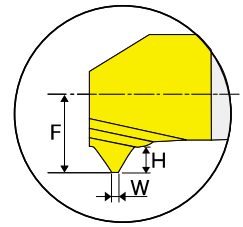
Order No.	F	Pitch	L1	W	L (±0.05mm)	D	H	Min. Bore Dia.
DETSR05010360U	1.4	0.50	10	0.062	26.5	3	0.33	3.2
DETSR07010360U	1.4	0.70	10	0.087	26.5	3	0.46	3.2
DETSR07510360U	1.4	0.75	10	0.093	26.5	3	0.49	3.2
DETSR05010460U	1.8	0.50	10	0.062	26.5	4	0.33	4.1
DETSR07510460U	1.8	0.75	10	0.093	26.5	4	0.49	4.1
DETSR08010460U	1.8	0.80	10	0.100	26.5	4	0.52	4.1
DETSR10010560U	2.2	1.00	10	0.125	26.5	5	0.65	4.9
DETSR05015660U	2.6	0.50	15	0.062	31.5	6	0.33	5.9
DETSR07515660U	2.6	0.75	15	0.093	31.5	6	0.49	5.9
DETSR10015660U	2.6	1.00	15	0.125	31.5	6	0.65	5.9
DETSR12522660U	2.8	1.25	22	0.156	38.5	6	0.81	6.1

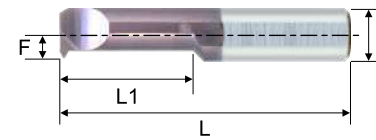
∗ For left hand tools specify DETSL instead of DETSR.

DE Solid Carbide Modular Mini Bars - Internal Multipurpose Thread (ISO Metric 60°)







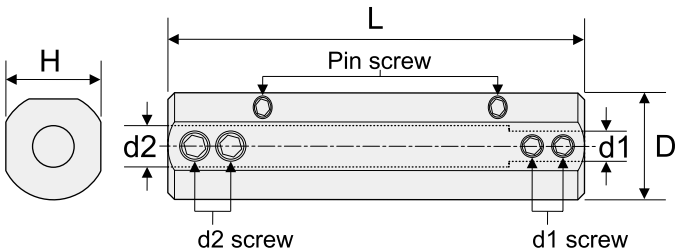


Tolerance class : 6H

Order No.	F	Pitch	L1	W	L (±0.05mm)	D	H	Min. Bore Dia.
DETMR04508360U	1.0	0.45 ~ 0.70	8	0.056	24.5	3	0.5	2.6
DETMR07015360U	1.4	0.70 ~ 1.00	15	0.087	31.5	3	0.7	3.2
DETMR08015460U	1.8	0.80 ~ 1.00	15	0.100	31.5	4	0.7	4.1
DETMR10015560U	2.3	1.00 ~ 1.25	15	0.125	31.5	5	0.8	5.1
DETMR10015660U	2.6	1.00 ~ 1.50	15	0.125	31.5	6	1.0	6.0

∗ For left hand tools specify DETML instead of DETMR.

DE Solid Carbide Modular Mini Bars - Double Sizes Sleeves



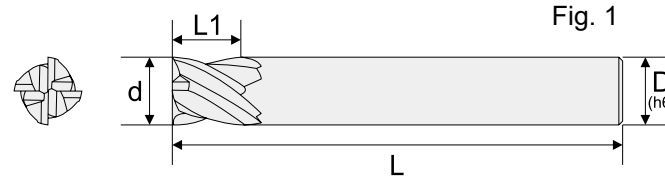
Order No.	D	d1	d2	L	H	Spare parts
DES1635075	16	3	5	75	15	①
DES1646075	16	4	6	75	15	②

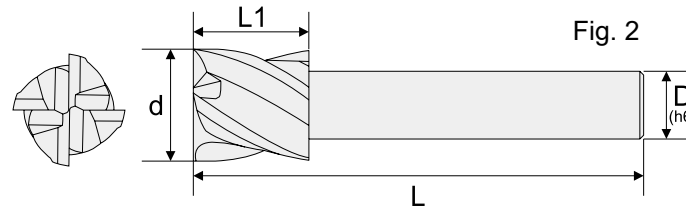
Spare parts	d1		d2		Pin	
	Screw	Wrench	Screw	Wrench	Screw	Wrench
①	ITHM405	IPL20	ITHM405	IPL20	ITTS412	IPL20
②	ITHM405	IPL20	ITHM505	IPL25	ITTS412	IPL20

ETU Series - Solid Endmills for Automatic Lathe

- ***Short total length design.***
- ***Shank size is suitable for automatic lathe.***
- ***Sharp cutting edge produces an excellent surface finish.***
- ***1~12mm of diameters to cover a variety of applications.***
- ***The short length of 40mm is suitable for automatic lathes.***

ETU Series - Solid Endmills for Automatic Lathe



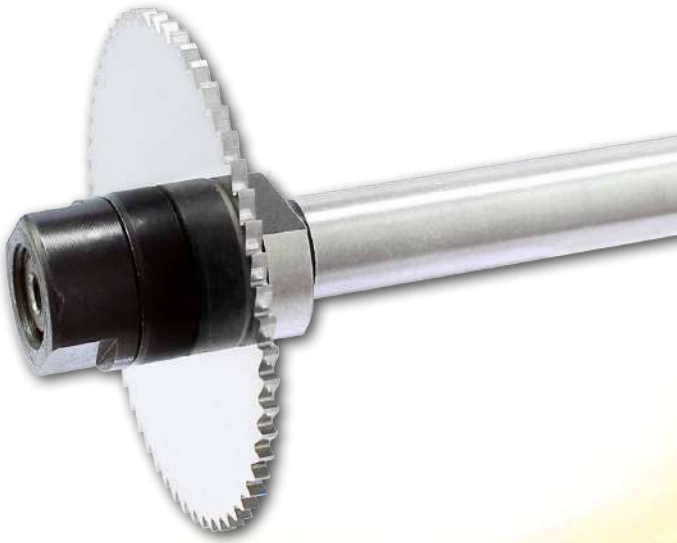


Order No.	Dia (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)	Coating	Fig
ETSSC401000U	1.0	1.0	40	6	4	UNICO	1
ETSSC401500U	1.5	1.5	40	6	4	UNICO	1
ETSSC402000U	2.0	2.0	40	6	4	UNICO	1
ETSSC402500U	2.5	2.5	40	6	4	UNICO	1
ETSSC403000U	3.0	3.0	40	6	4	UNICO	1
ETSSC404000U	4.0	4.0	40	6	4	UNICO	2
ETSSC405000U	5.0	5.0	40	6	4	UNICO	2
ETSSC406000U	6.0	6.0	40	6	4	UNICO	2
ETSSC408000U	8.0	8.0	40	6	4	UNICO	2
ETSSC410000U	10.0	10.0	40	6	4	UNICO	2
ETSSC412000U	12.0	10.0	40	6	4	UNICO	2

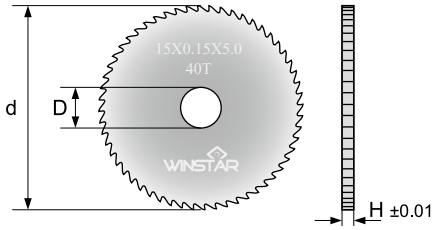
ETW Series - Carbide Slitting Saws for Automatic Lathe

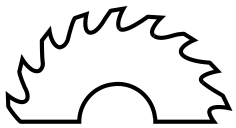
- ***Suitable for small parts cutting off or slot machining.***
- ***Saw arbor shank from Ø6 ~ Ø10mm.***
- ***Carbide saw diameters from 15 ~ 30mm.***
- ***The slitting saw thickness between 0.15 ~ 2.00mm, other size can be customized.***

Small Diameter Slitting Saws



ETW Carbide Slitting Saws for Automatic Lathe - Ø15 & Ø20

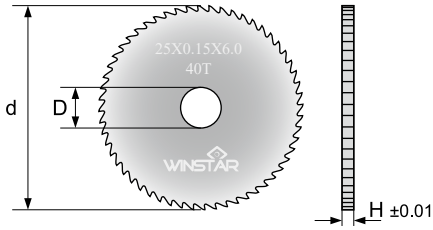


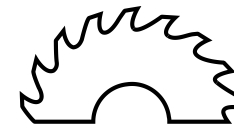


Order No.	d	H	D	T
ETWSF04015015	15	0.15	5	40
ETWSF04015020	15	0.20	5	40
ETWSF04015025	15	0.25	5	40
ETWSF04015030	15	0.30	5	40
ETWSF04015040	15	0.40	5	40
ETWSF04015050	15	0.50	5	40
ETWSF04015060	15	0.60	5	40
ETWSF04015070	15	0.70	5	40
ETWSF04015080	15	0.80	5	40
ETWSF04015090	15	0.90	5	40
ETWSF04015100	15	1.00	5	40
ETWSF05020015	20	0.15	5	56
ETWSF05020020	20	0.20	5	56
ETWSF05020025	20	0.25	5	56
ETWSF05020030	20	0.30	5	56
ETWSF05020040	20	0.40	5	56
ETWSF05020050	20	0.50	5	56
ETWSF05020060	20	0.60	5	56
ETWSF05020070	20	0.70	5	56
ETWSF05020080	20	0.80	5	56
ETWSF05020090	20	0.90	5	56
ETWSF05020100	20	1.00	5	56
ETWSF05020120	20	1.20	5	56
ETWSF05020150	20	1.50	5	56

* Other diameters make to order.

ETW Carbide Slitting Saws for Automatic Lathe - Ø25

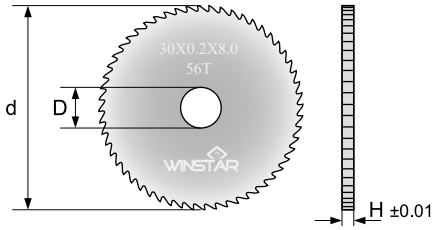


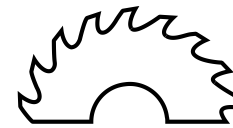


Order No.	d	H	D	T
ETWSF04025015	25	0.15	6	40
ETWSF04025020	25	0.20	6	40
ETWSF04025025	25	0.25	6	40
ETWSF04025030	25	0.30	6	40
ETWSF04025040	25	0.40	6	40
ETWSF04025050	25	0.50	6	40
ETWSF04025060	25	0.60	6	40
ETWSF04025070	25	0.70	6	40
ETWSF04025080	25	0.80	6	40
ETWSF04025090	25	0.90	6	40
ETWSF04025100	25	1.00	6	40
ETWSF04025120	25	1.20	6	40
ETWSF04025150	25	1.50	6	40
ETWSF07025015	25	0.15	6	72
ETWSF07025020	25	0.20	6	72
ETWSF07025025	25	0.25	6	72
ETWSF07025030	25	0.30	6	72
ETWSF07025040	25	0.40	6	72
ETWSF07025050	25	0.50	6	72
ETWSF07025060	25	0.60	6	72
ETWSF07025070	25	0.70	6	72
ETWSF07025080	25	0.80	6	72
ETWSF07025090	25	0.90	6	72
ETWSF07025100	25	1.00	6	72
ETWSF07025120	25	1.20	6	72
ETWSF07025150	25	1.50	6	72

* Other diameters make to order.

ETW Carbide Slitting Saws for Automatic Lathe - Ø30

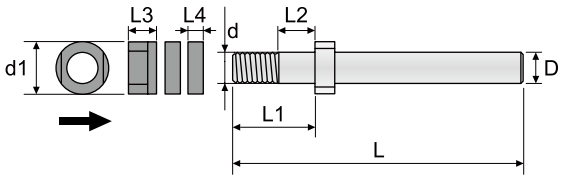




Order No.	d	H	D	T
ETWLF05030020	30	0.20	8	56
ETWLF05030025	30	0.25	8	56
ETWLF05030030	30	0.30	8	56
ETWLF05030040	30	0.40	8	56
ETWLF05030050	30	0.50	8	56
ETWLF05030060	30	0.60	8	56
ETWLF05030070	30	0.70	8	56
ETWLF05030080	30	0.80	8	56
ETWLF05030090	30	0.90	8	56
ETWLF05030100	30	1.00	8	56
ETWLF05030110	30	1.10	8	56
ETWLF05030120	30	1.20	8	56
ETWLF05030150	30	1.50	8	56
ETWLF05030200	30	2.00	8	56

∗ Other diameters make to order.

ETW Carbide Slitting Saws for Automatic Lathe - Arbors



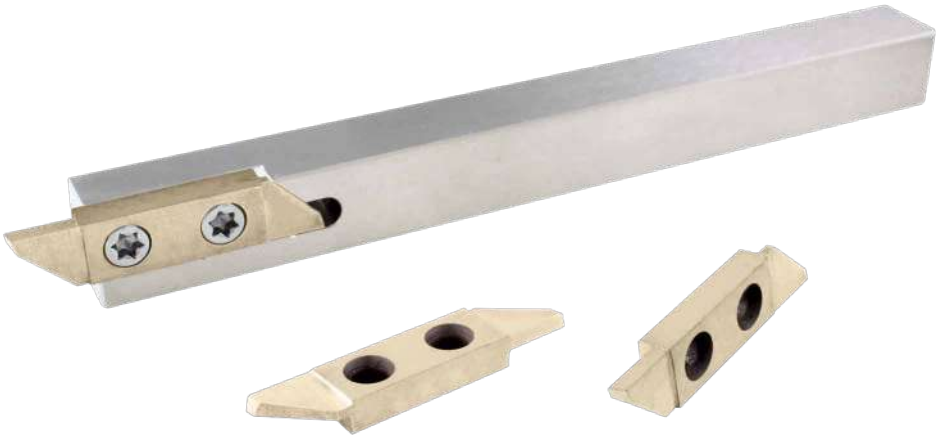
Order No.	d	D	d1	L1	L2	L	L3	L4
ETWSA050065	5	6	10	12	5.2	50	5	3.0
ETWSA050076	5	7	13	16	7.5	60	8.8	4.0
ETWSA060065	6	6	10	12	5.2	50	5.1	3.2
ETWSA060076	6	7	13	16	7.5	60	8.8	4.0
ETWSA060106	6	10	16	11	5.2	60	5.5	1.5 / 3.0
ETWSA060109	6	10	13	16	7.5	90	8.2	4.2
ETWSA080106	8	10	13	16	7.5	60	7.5	4.2

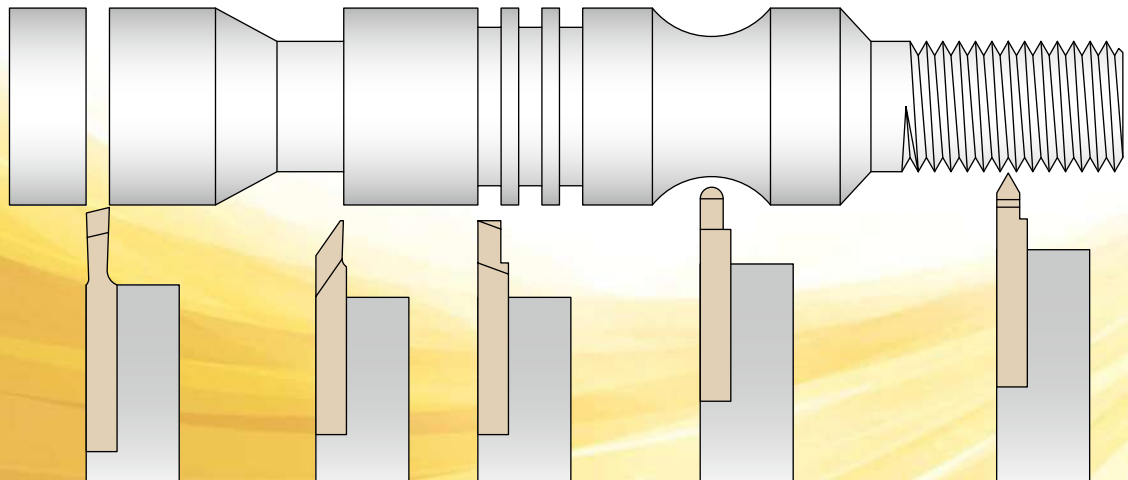
Recommended Cutting Conditions

Working Material	Carbon Steel (S35C,S45C,S50C)		Alloy Steel (SCM,SKT,SKD)		Stainless Steel (SUS304)		Cast Iron (FC,FCD)		Aluminum / Copper		Hardened Steel (SKT,SKD)	
Hardness	HRC < 30		HRC 30 ~ 45		-		HRC < 30		-		HRC 45 ~ 55	
Vc	54 - 68 - 82 m/min		36 - 45 - 54 m/min		48 - 59 - 70 m/min		54 - 68 - 82 m/min		120 - 150 - 180 m/min		23 - 29 - 35 m/min	
Diameter (mm)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)	R.P.M	FEED (mm/min)
15	1450	220	950	150	1250	180	1450	220	3180	560	620	90
20	1080	240	720	160	940	200	1080	240	2390	580	460	100
25	860	260	570	170	750	220	860	260	1900	600	370	110
30	740	280	470	180	630	240	740	280	1590	620	310	120

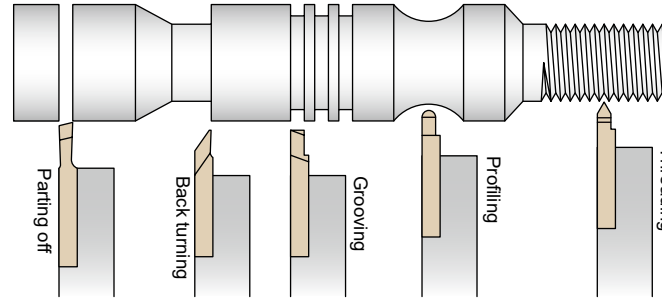
SAKG Series - Indexable Turning Tools for Automatic Lathe

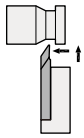
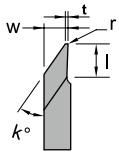
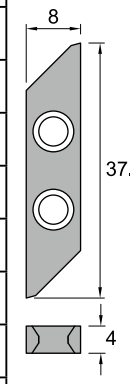
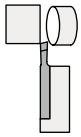
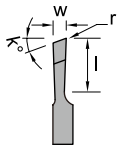
- **Back turning / Parting off / Grooving / Profiling / Threading for small to mid-sized parts.**
- **Insert is more stable on holder by two screw clamping.**
- **Insert has two cutting edges.**
- **Cutting range : maximum parting off diameter 18mm, maximum grooving depth 9mm.**



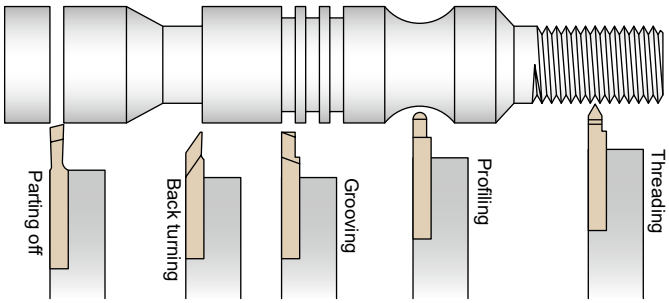


SAKG Indexable Turning Tools for Automatic Lathe - Inserts

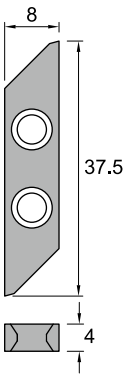


Inserts		Designation	Grade No.						Dimensions (mm)					Drawing
			CX1555	CX1560					w	r	l	k	t	
 Back turning		**SAKBR20005**	✓						2.0	-	5.0	35	0.5	
		SAKBR20015	✓						2.0	0.1	5.0	35	0.5	
		SAKBR20025	✓						2.0	0.2	5.0	35	0.5	
		SAKBR30015	✓						3.0	0.1	5.0	35	0.5	
		SAKBR30025	✓						3.0	0.2	5.0	35	0.5	
 Parting off		**SAKCR15018**	✓						1.5	0.1	8.5	15	-	
		SAKCR20019	✓						2.0	0.1	9.0	15	-	
		SAKCR25019	✓						2.5	0.1	9.0	15	-	
		SAKCR30019	✓						3.0	0.1	9.0	15	-	

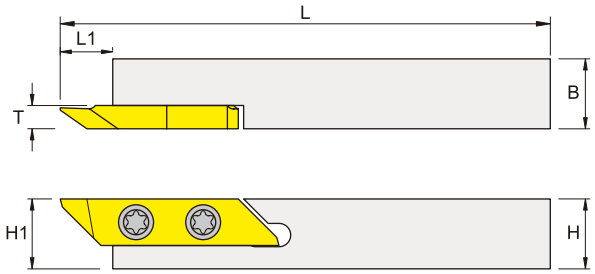
SAKG Indexable Turning Tools for Automatic Lathe - Inserts



Inserts		Designation	Grade No.						Dimensions (mm)					Drawing
			CX1555	CX1560					w	r	l	k	pitch	
Grooving		**SAKGR10013**	✓						1.0	0.1	3.0	-	-	
		SAKGR15013	✓						1.5	0.1	3.0	-	-	
		SAKGR15025	✓						1.5	0.2	5.0	-	-	
		SAKGR15027	✓						1.5	0.2	7.0	-	-	
		SAKGR20015	✓						2.0	0.1	5.0	-	-	
		SAKGR20025	✓						2.0	0.2	5.0	-	-	
		SAKGR20027	✓						2.0	0.2	7.0	-	-	
		SAKGR20029	✓						2.0	0.2	9.0	-	-	
		SAKGR25015	✓						2.5	0.1	5.0	-	-	
		SAKGR25025	✓						2.5	0.2	5.0	-	-	
		SAKGR25029	✓						2.5	0.2	9.0	-	-	
		SAKGR30015	✓						3.0	0.1	5.0	-	-	
		SAKGR30019	✓						3.0	0.1	9.0	-	-	
		SAKGR30025	✓						3.0	0.2	5.0	-	-	
		SAKGR30027	✓						3.0	0.2	7.0	-	-	
		SAKGR30029	✓						3.0	0.2	9.0	-	-	
Profiling		**SAKPR10053**	✓						1.0	0.5	3.0	-	-	
		SAKPR15075	✓						1.5	0.75	5.0	-	-	
		SAKPR20105	✓						2.0	1.0	5.0	-	-	
		SAKPR25125	✓						2.5	1.25	5.0	-	-	
		SAKPR30158	✓						3.0	1.5	8.0	-	-	
Threading		**SAKTR20655**	✓						2.0	0.05	6.0	55	0.5~2	
		SAKTR30655	✓						3.0	0.1	6.0	55	1~3	
		SAKTR20660	✓						2.0	0.05	6.0	60	0.5~2	
		SAKTR30660	✓						3.0	0.1	6.0	60	1~3	



SAKG Indexable Turning Tools for Automatic Lathe - Holders



Right-hand shown

Order No.	Item Specification	Dimensions (mm)					Insert	Screw	Wrench
		H(H1)	B	L	L1	T			
ISAKGR1010K	SAKGR-1010K-374	10	10	125	9	4	SAK...	IMS3509A	ITK15
ISAKGL1010K	SAKGL-1010K-374	10	10	125	9	4			
ISAKGR1212K	SAKGR-1212K-374	12	12	125	9	4			
ISAKGL1212K	SAKGL-1212K-374	12	12	125	9	4			
ISAKGR1212M	SAKGR-1212M-374	12	12	150	9	4			
ISAKGL1212M	SAKGL-1212M-374	12	12	150	9	4			
ISAKGR1616M	SAKGR-1616M-374	16	16	150	9	4			
ISAKGL1616M	SAKGL-1616M-374	16	16	150	9	4			
ISAKGR2020K	SAKGR-2020K-374	20	20	125	9	4			
ISAKGL2020K	SAKGL-2020K-374	20	20	125	9	4			
ISAKGR2525M	SAKGR-2525M-374	25	25	150	9	4			
ISAKGL2525M	SAKGL-2525M-374	25	25	150	9	4			

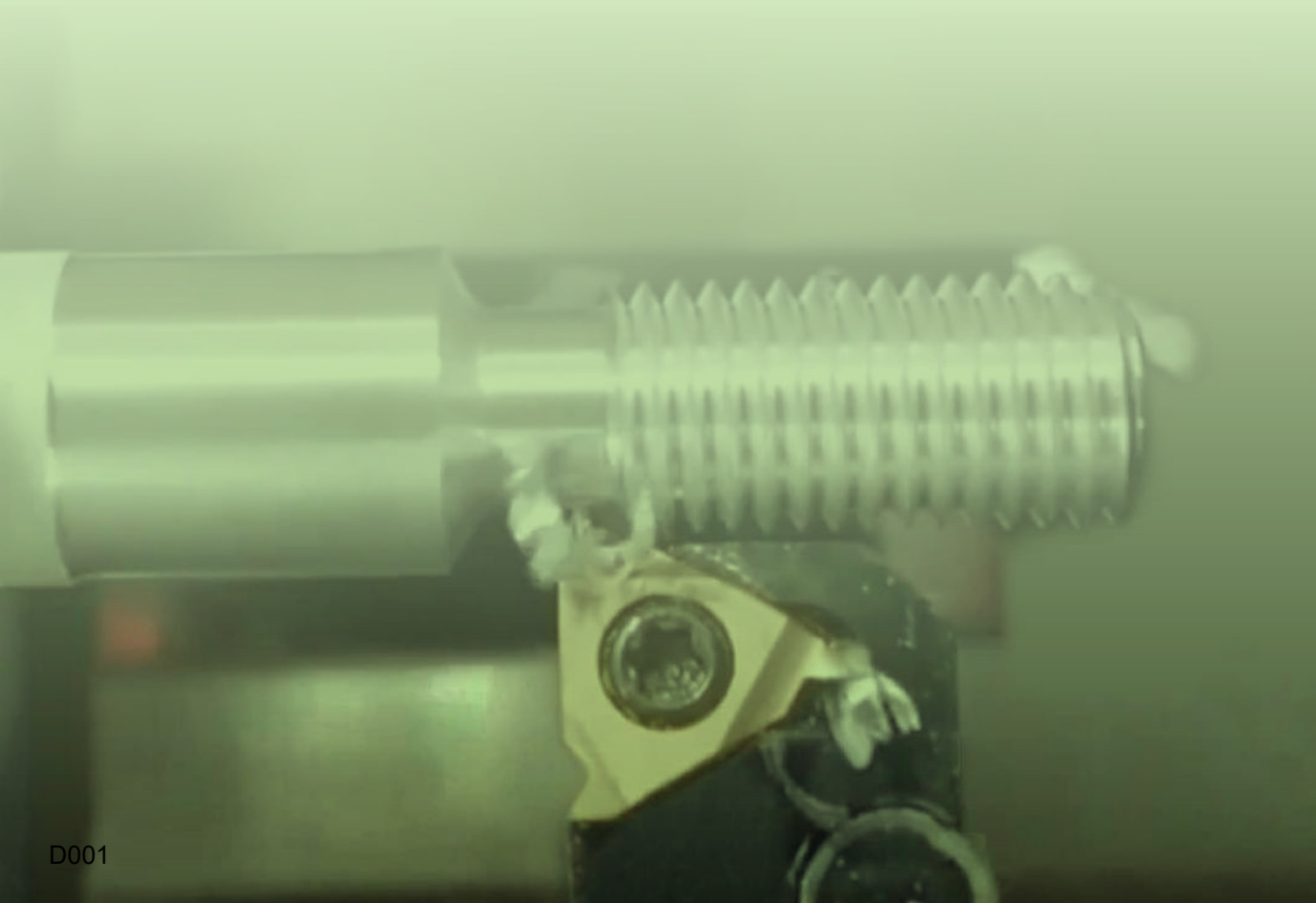
Recommended Cutting Conditions

For Back turning, Parting off and Grooving

Working Material	Vc (m/min)	fr (mm/rev)
Carbon Steel / Alloy Steel	50 ~ 200	0.02 ~ 0.10
Stainless Steel	50 ~ 200	0.02 ~ 0.10
Cast Iron	50 ~ 200	0.02 ~ 0.10
Aluminum Alloy	200 ~ 300	0.05 ~ 0.15
High Temperature Alloy	80 ~ 120	0.03 ~ 0.07
Hardened Steel	80 ~ 120	0.03 ~ 0.07

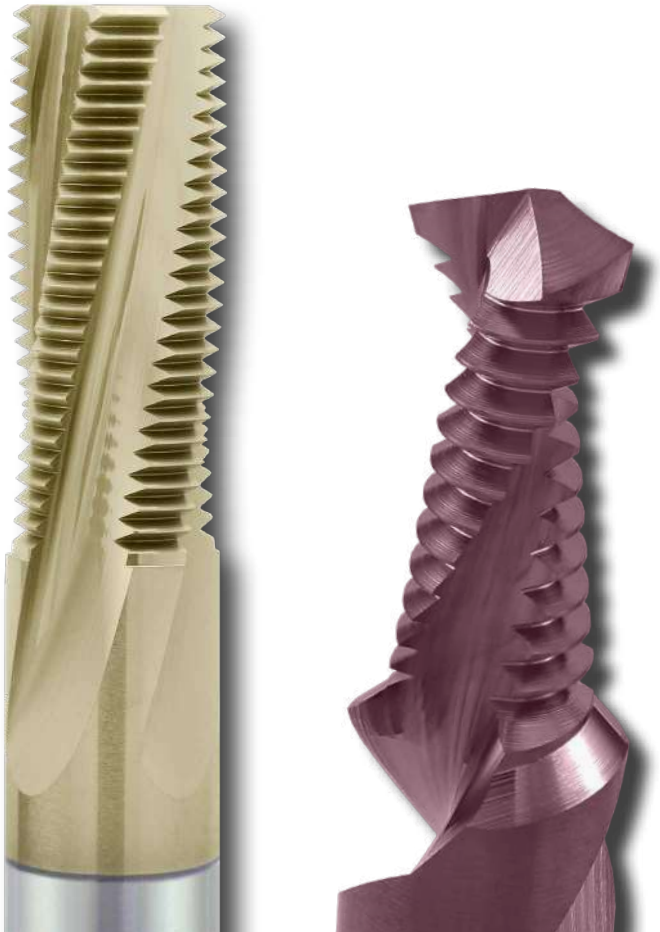
Threading

Solid Thread Mills..... D002
Solid Thread Turning Bars..... D009
Indexable Thread Turning Tool.. D016



INDEX

ETH Series - Thread Mills.....D003
ETD Series - Drill / Thread Mills.....D007

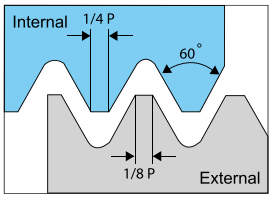


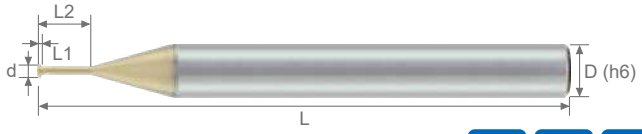
ETH Series

- ***The thread mill is designed to cut threads by milling.***
- ***A single tool is suitable for thread cutting in various sizes of diameter.***
- ***Large diameter thread can be machined with low power machine.***

ETH Series

■ *ETSNM Series*



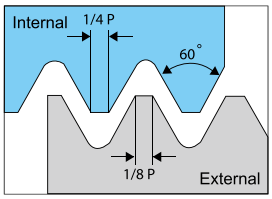


Tolerance class : 6H

Order No.	Size	Pitch	No. of Threads	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
ETSNM30072025S	M1.0	0.25	1	0.72	0.25	2.75	42	4	3
ETSNM30092025S	M1.2	0.25	1	0.91	0.25	3.25	42	4	3
ETSNM30105030S	M1.4	0.30	1	1.05	0.30	3.80	42	4	3
ETSNM30120035S	M1.6	0.35	1	1.20	0.35	4.35	42	4	3
ETSNM30130035S	M1.7~M1.8	0.35	1	1.30	0.35	4.85	42	4	3
ETSNM30152040S	M2	0.40	1	1.52	0.40	6	42	4	3
ETSNM30240050S	M3	0.50	1	2.40	0.50	9	42	4	3
ETSNM30315070S	M4	0.70	1	3.15	0.70	12	50	4	3
ETSNM40480100S	M6	1.00	1	4.80	1.00	18	60	6	4
ETSNM50820150S	M10	1.50	1	8.20	1.50	32	75	10	5
ETSNM50990175S	M12	1.75	1	9.90	1.75	38	75	10	5

∗ Customized specification available.

■ *ETTNM Series*



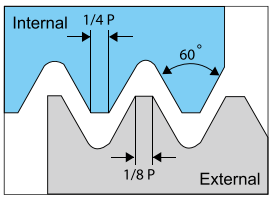
Tolerance class : 6H

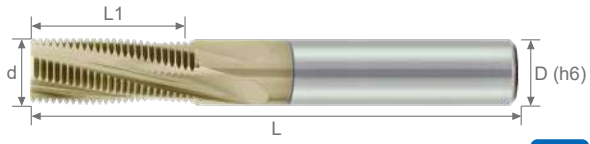
Order No.	Size	Pitch	No. of Threads	Dia. (d)	CL (L1)	EFF-L (L2)	OAL (L)	Shank (D)	Flutes (F)
ETTNM30150040S	M2.0	0.40	3	1.5	1.20	4.4	50	6	3
ETTNM30190045S	M2.5	0.45	3	1.9	1.35	5.6	50	6	3
ETTNM30240050S	M3.0	0.50	3	2.4	1.50	6.5	50	6	3
ETTNM30310070S	M4.0	0.70	3	3.1	2.10	8.7	50	6	3
ETTNM30400080S	M5.0	0.80	3	4.0	2.40	10.8	50	6	3

∗ Customized specification available.

ETH Series

■ *ETMNM Series*



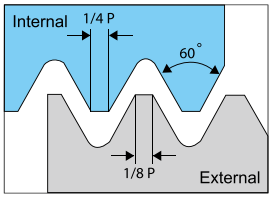


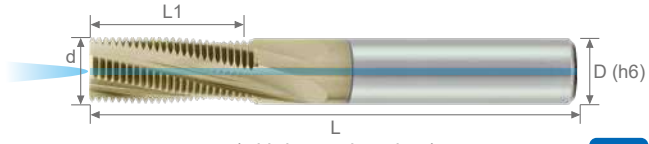
Tolerance class : 6H

Order No.	Size	Pitch	No. of Threads	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ETMNM30390100S	M6	1.00	12	3.90	12.00	50	6	3
ETMNM30390075S		0.75	16	3.90	12.00	50	6	3
ETMNM30580125S	M8	1.25	13	5.80	16.25	60	6	3
ETMNM30590100S		1.00	16	5.90	16.00	60	6	3
ETMNM30770150S	M10	1.50	14	7.70	21.00	60	8	3
ETMNM30770125S		1.25	16	7.70	20.00	60	8	3
ETMNM30790100S		1.00	20	7.90	20.00	60	8	3
ETMNM40870175S	M12	1.75	14	8.70	24.50	75	10	4
ETMNM40940150S		1.50	16	9.40	24.00	75	10	4
ETMNM40990100S		1.00	24	9.90	24.00	75	10	4
ETMNM40990200S	M14	2.00	14	9.90	28.00	75	10	4
ETMNM41120150S		1.50	19	11.20	28.50	75	12	4
ETMNM41190200S	M16	2.00	16	11.90	32.00	100	12	4
ETMNM41190150S		1.50	22	11.90	33.00	100	12	4

∗ Customized specification available.

■ *ETMCM Series*





(with internal coolant)

Tolerance class : 6H

Order No.	Size	Pitch	No. of Threads	Dia. (d)	CL (L1)	OAL (L)	Shank (D)	Flutes (F)
ETMCM30390100S	M6	1.00	12	3.90	12.00	50	6	3
ETMCM30390075S		0.75	16	3.90	12.00	50	6	3
ETMCM30580125S	M8	1.25	13	5.80	16.25	60	6	3
ETMCM30590100S		1.00	16	5.90	16.00	60	6	3
ETMCM30770150S	M10	1.50	14	7.70	21.00	60	8	3
ETMCM30770125S		1.25	16	7.70	20.00	60	8	3
ETMCM30790100S		1.00	20	7.90	20.00	60	8	3
ETMCM40870175S	M12	1.75	14	8.70	24.50	75	10	4
ETMCM40940150S		1.50	16	9.40	24.00	75	10	4
ETMCM40990100S		1.00	24	9.90	24.00	75	10	4
ETMCM40990200S	M14	2.00	14	9.90	28.00	75	10	4
ETMCM41120150S		1.50	19	11.20	28.50	75	12	4
ETMCM41190200S	M16	2.00	16	11.90	32.00	100	12	4
ETMCM41190150S		1.50	22	11.90	33.00	100	12	4

∗ Customized specification available.

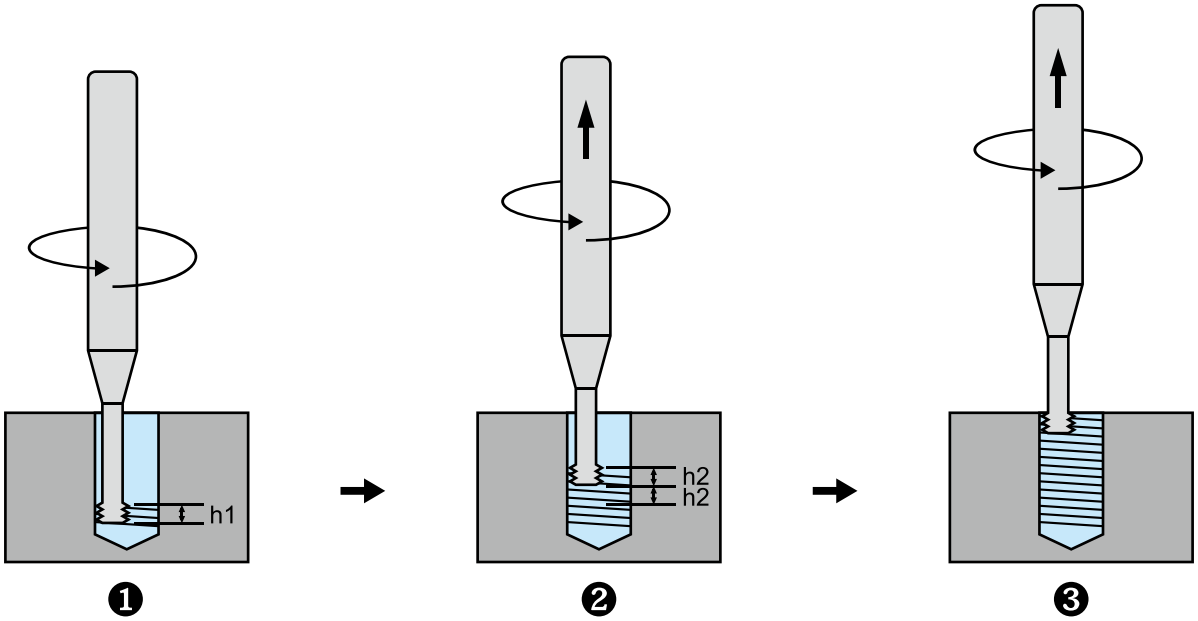
ETH Series

■ *Recommended Cutting Conditions*

Work Material	for ETTNM		for ETMNM	
	Vc (m/min)	Feed (mm/t)	Vc (m/min)	Feed (mm/t)
Carbon Steel / Alloy Steel	60 ~ 90	0.02 ~ 0.08	50 ~ 70	0.02 ~ 0.07
Stainless Steel	60 ~ 90	0.02 ~ 0.08	50 ~ 70	0.02 ~ 0.07
Cast Iron	50 ~ 100	0.03 ~ 0.10	50 ~ 100	0.03 ~ 0.10
Aluminum Alloy	50 ~ 100	0.02 ~ 0.06	50 ~ 70	0.03 ~ 0.10
High Temperature Alloy	20 ~ 60	0.01 ~ 0.03	20 ~ 60	0.01 ~ 0.03
Hardened Steel	30 ~ 60	0.01 ~ 0.03	25 ~ 50	0.01 ~ 0.05

※ To choose uncoated tool for aluminum materials machining.

■ ETTNM *Cutting method*



❶ Machine h1 distance at the bottom of the hole and move the tool to the center of the hole. (h1 = 3 Pitch)

❷ Machine h2 distance while moving in Z axial direction.

❸ Repeat operation ❷ to finish the hole.

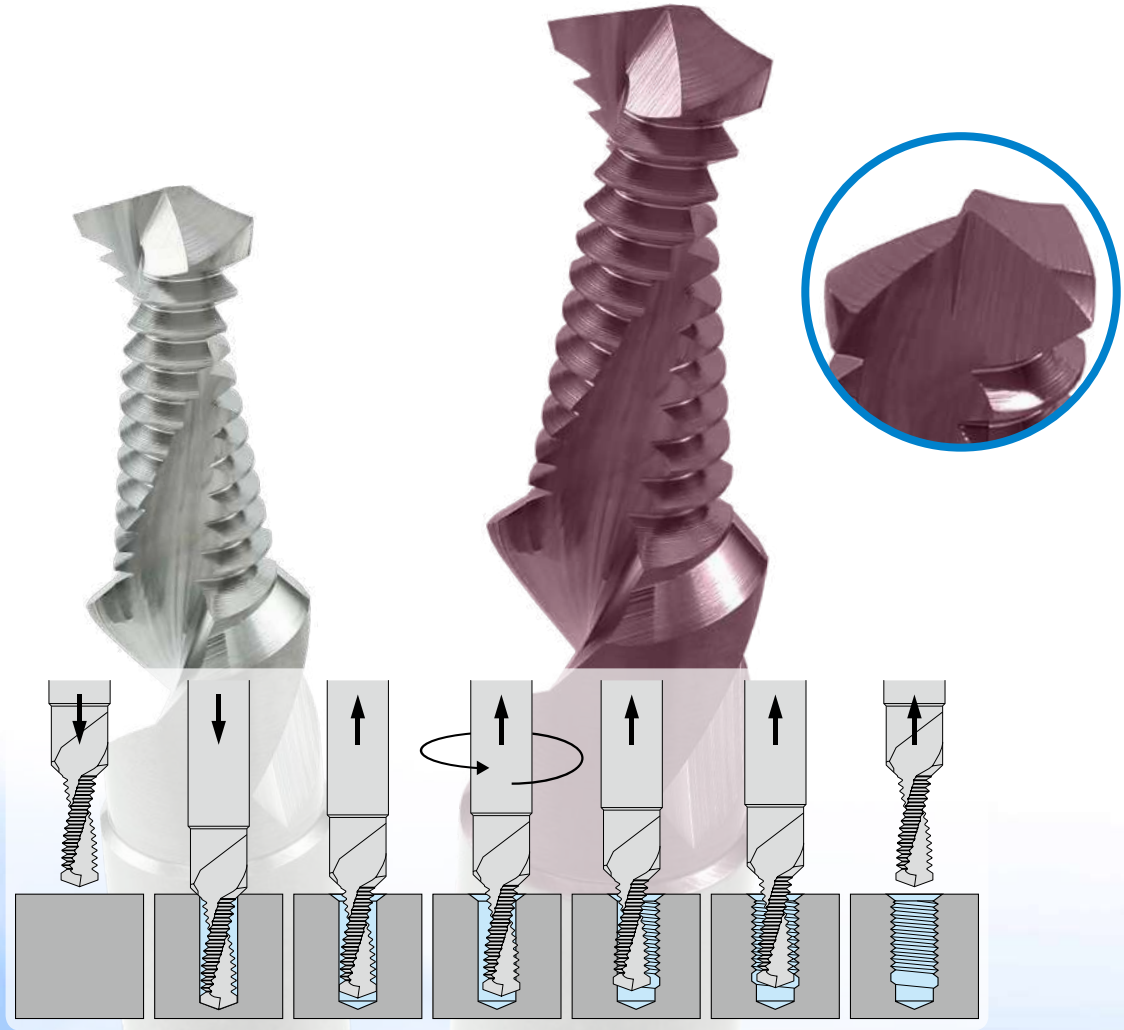
Remark

h2 value set :

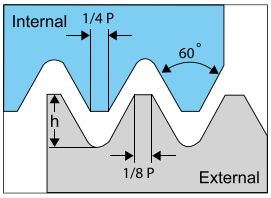
1. for Machining General materials, h2 = 3 Pitch.
2. for Machining Heat resistant alloys or High hardness material, h2 = 1 Pitch.

ETD Series

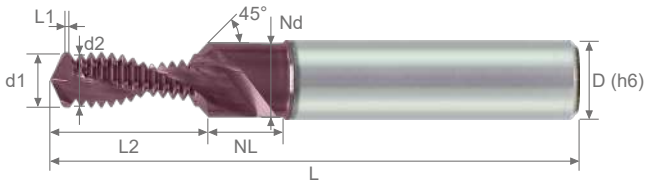
- ***Multiple functions in one tool - drilling, chamfering and thread milling.***
- ***Work cycle optimization, drilling, chamfering and thread milling in one operation.***
- ***For cast iron, aluminum alloy, copper and plastic material machining.***



ETD Series



Tolerance class : 6g / 6H



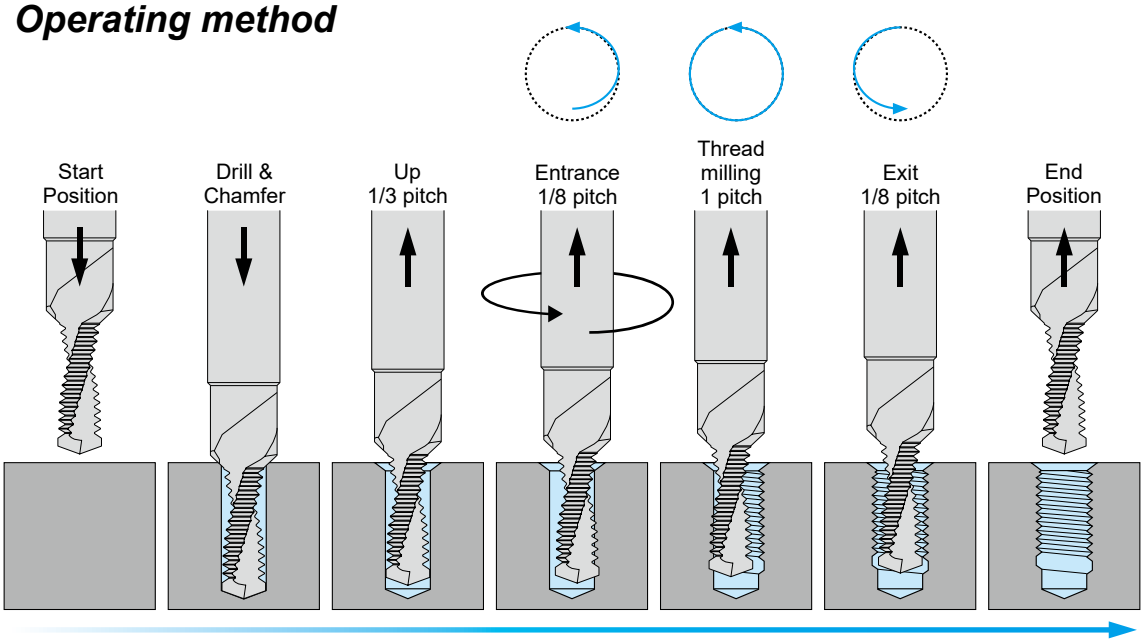
Order No.	Size (Coarse)	Pitch	No. of Threads	d1	d2	Lt	L1	L2	Nd	NL	L	D	h	Coating
ETDNM20420080U	M5	0.80	12	4.2	4.00	9.60	0.8	11.9	5.7	6.1	55	6	0.46	●
ETDNM20050100U	M6	1.00	11	5.0	4.85	11.00	1.0	13.7	6.6	9.5	60	8	0.58	●
ETDNM20680125U	M8	1.25	11	6.8	6.45	13.75	1.3	17.1	9.0	16.8	75	10	0.72	●
ETDNM20850150U	M10	1.50	12	8.5	8.08	18.00	1.5	22.1	11.0	11.6	80	12	0.87	●
ETDNM20420080	M5	0.80	12	4.2	4.00	9.60	0.8	11.9	5.7	6.1	55	6	0.46	
ETDNM20050100	M6	1.00	11	5.0	4.85	11.00	1.0	13.7	6.6	9.5	60	8	0.58	
ETDNM20680125	M8	1.25	11	6.8	6.45	13.75	1.3	17.1	9.0	16.8	75	10	0.72	
ETDNM20850150	M10	1.50	12	8.5	8.08	18.00	1.5	22.1	11.0	11.6	80	12	0.87	

∗ Maximum chamfering depth = (Nd - d1) × 0.5

■ Recommended Cutting Conditions

Work Material		HB	Strength (N-mm)	Vc (m/min)	Drilling f (mm/rev)		Thread milling fz (mm)	
					≤ 6mm	≤ 12mm	≤ 6mm	≤ 12mm
K	Grey Cast Iron	≤150	≤500	55 ~ 85	0.07 ~ 0.105	0.105 ~ 0.154	0.014 ~ 0.035	0.035 ~ 0.07
K	Grey Cast Iron (Heat Treated)	150 ~ 300	500 ~ 1000	55 ~ 85	0.07 ~ 0.105	0.105 ~ 0.154	0.014 ~ 0.035	0.035 ~ 0.07
N	Short Chips, Brass, Bronze	≤200	≤700	70 ~ 280	0.07 ~ 0.210	0.042 ~ 0.070	0.021 ~ 0.042	0.042 ~ 0.07
N	Aluminium, Cast Alloy (Si<10%)	≤180	≤600	70 ~ 280	0.07 ~ 0.175	0.175 ~ 0.210	0.021 ~ 0.042	0.042 ~ 0.07
N	Aluminium, Cast Alloy (Si≥10%)	≤180	≤600	70 ~ 280	0.07 ~ 0.175	0.175 ~ 0.210	0.021 ~ 0.042	0.042 ~ 0.07
N	Thermoplastics	-	-	40 ~ 80	0.07 ~ 0.175	0.175 ~ 0.210	0.021 ~ 0.042	0.042 ~ 0.07

■ Operating method



INDEX

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DLTMR - Internal Multipurpose Thread - ISO Metric 60°.....D011

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DE Modular Series - Exchangable Type

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DETMR - Internal Multipurpose Thread - ISO Metric 60°.....D014

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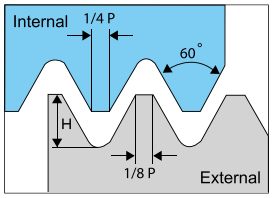
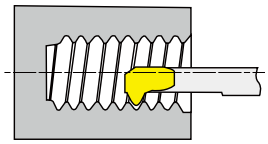
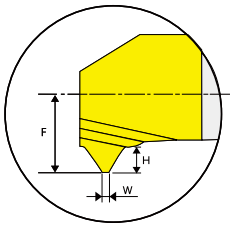
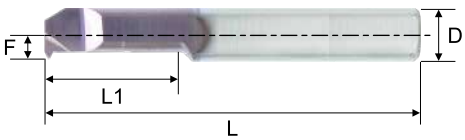
DL Series - Internal Thread (ISO Metric 60°)







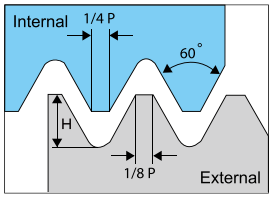


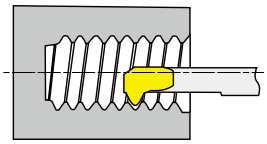
Tolerance class : 6H

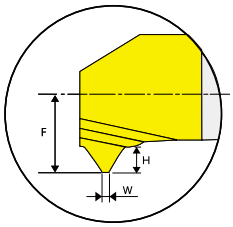
Order No.	F	Pitch	L1	W	L	D	H	Min. Bore Dia.
DLTSR05010360U	1.4	0.50	10	0.062	39	3	0.33	3.2
DLTSR07010360U	1.4	0.70	10	0.087	39	3	0.46	3.2
DLTSR07510360U	1.4	0.75	10	0.093	39	3	0.49	3.2
DLTSR05010460U	1.8	0.50	10	0.062	50	4	0.33	4.1
DLTSR07510460U	1.8	0.75	10	0.093	50	4	0.49	4.1
DLTSR08010460U	1.8	0.80	10	0.100	50	4	0.52	4.1
DLTSR10010560U	2.2	1.00	10	0.125	50	5	0.65	4.9
DLTSR05015660U	2.6	0.50	15	0.062	50	6	0.33	5.9
DLTSR07515660U	2.6	0.75	15	0.093	50	6	0.49	5.9
DLTSR10015660U	2.6	1.00	15	0.125	50	6	0.65	5.9
DLTSR12522660U	2.8	1.25	22	0.156	50	6	0.81	6.1

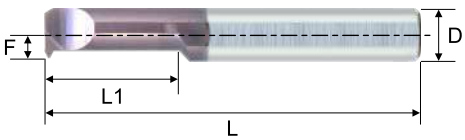
∗ For left hand tools specify DLTSL instead of DLTSR.

DL Series - Internal Multipurpose Thread (ISO Metric 60°)







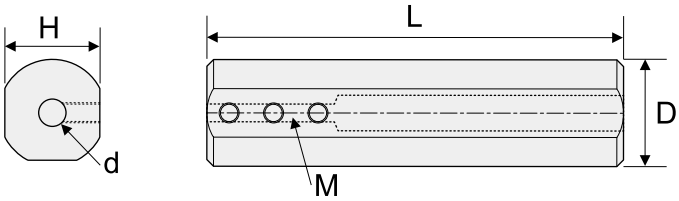


Tolerance class : 6H

Order No.	F	Pitch	L1	W	L	D	H	Min. Bore Dia.
DLTMR04508360U	1.0	0.45 ~ 0.70	8	0.056	50	3	0.5	2.6
DLTMR07015360U	1.4	0.70 ~ 1.00	15	0.087	50	3	0.7	3.2
DLTMR08015460U	1.8	0.80 ~ 1.00	15	0.100	50	4	0.7	4.1
DLTMR10015560U	2.3	1.00 ~ 1.25	15	0.125	50	5	0.8	5.1
DLTMR10015660U	2.6	1.00 ~ 1.50	15	0.125	50	6	1.0	6.0
DLTMR10018860U	3.6	1.00 ~ 1.75	18	0.125	60	8	1.4	8.0
DLTMR10018160U	4.6	1.00 ~ 2.00	18	0.125	75	10	1.8	10.0

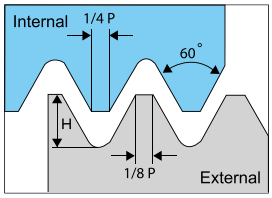
∗ For left hand tools specify DLTML instead of DLTMR.

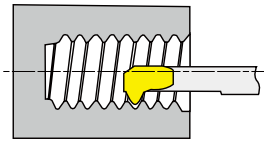
DL Series - Sleeves

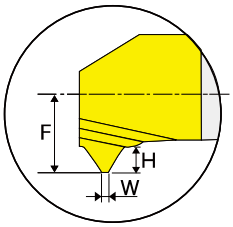


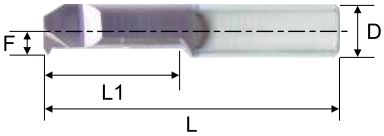
Order No.	d	D	L	H	M
DLS0316100	3	16	100	14	M4
DLS0416100	4	16	100	14	M4
DLS0516100	5	16	100	14	M4
DLS0616100	6	16	100	14	M5
DLS0816100	8	16	100	14	M5
DLS1016100	10	16	100	14	M5

DE Modular Series - Internal Thread (ISO Metric 60°)







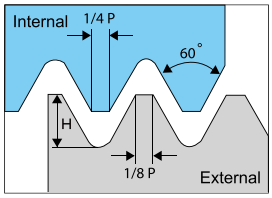


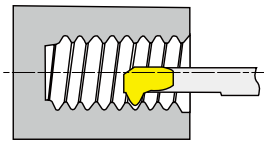
Tolerance class : 6H

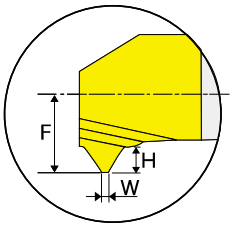
Order No.	F	Pitch	L1	W	L (±0.05mm)	D	H	Min. Bore Dia.
DETSR05010360U	1.4	0.50	10	0.062	26.5	3	0.33	3.2
DETSR07010360U	1.4	0.70	10	0.087	26.5	3	0.46	3.2
DETSR07510360U	1.4	0.75	10	0.093	26.5	3	0.49	3.2
DETSR05010460U	1.8	0.50	10	0.062	26.5	4	0.33	4.1
DETSR07510460U	1.8	0.75	10	0.093	26.5	4	0.49	4.1
DETSR08010460U	1.8	0.80	10	0.100	26.5	4	0.52	4.1
DETSR10010560U	2.2	1.00	10	0.125	26.5	5	0.65	4.9
DETSR05015660U	2.6	0.50	15	0.062	31.5	6	0.33	5.9
DETSR07515660U	2.6	0.75	15	0.093	31.5	6	0.49	5.9
DETSR10015660U	2.6	1.00	15	0.125	31.5	6	0.65	5.9
DETSR12522660U	2.8	1.25	22	0.156	38.5	6	0.81	6.1

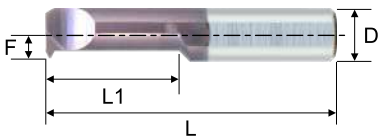
∗ For left hand tools specify DETSL instead of DETSR.

DE Modular Series - Internal Multipurpose Thread (ISO Metric 60°)







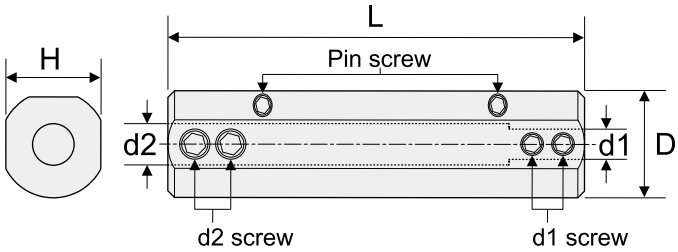


Tolerance class : 6H

Order No.	F	Pitch	L1	W	L (±0.05mm)	D	H	Min. Bore Dia.
DETMR04508360U	1.0	0.45 ~ 0.70	8	0.056	24.5	3	0.5	2.6
DETMR07015360U	1.4	0.70 ~ 1.00	15	0.087	31.5	3	0.7	3.2
DETMR08015460U	1.8	0.80 ~ 1.00	15	0.100	31.5	4	0.7	4.1
DETMR10015560U	2.3	1.00 ~ 1.25	15	0.125	31.5	5	0.8	5.1
DETMR10015660U	2.6	1.00 ~ 1.50	15	0.125	31.5	6	1.0	6.0

∗ For left hand tools specify DETML instead of DETMR.

DE Modular Series - Double Sizes Sleeves



Order No.	D	d1	d2	L	H	Spare parts
DES1635075	16	3	5	75	15	①
DES1646075	16	4	6	75	15	②

Spare parts	d1		d2		Pin	
	Screw	Wrench	Screw	Wrench	Screw	Wrench
①	ITHM405	IPL20	ITHM405	IPL20	ITTS412	IPL20
②	ITHM405	IPL20	ITHM505	IPL25	ITTS412	IPL20

INDEX

60° Thread Turning Inserts

Partial Profile.....D018

ISO Metric.....D020

UN – American standard.....D024

55° Thread Turning Inserts

Partial Profile.....D028

Thread Turning Holders

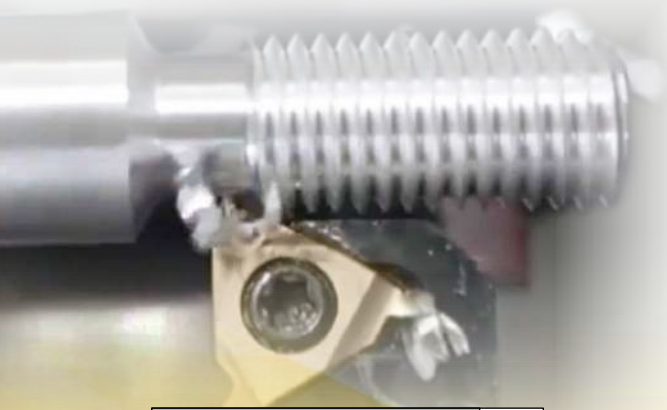
External Thread Turning Holders.....D029

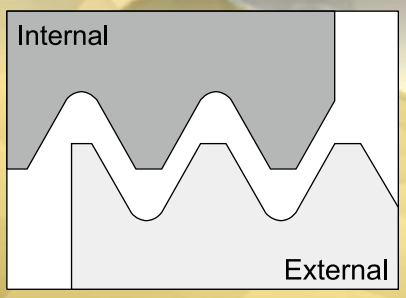
Internal Thread Turning Holders.....D032

Recommended Cutting Conditions.....D034

Thread Methods.....D037

- *Positive chipbreaker design provides excellent chip control.*
- *Sharp edge and low cutting forces reduce burr and vibration.*
- *CX1555 and CX1560 grade are available.*
- *Welcome to order other thread types.*

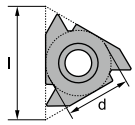




Designations For Threading Insert

16	I	R	A	60
①	②	③	④	⑤

① Insert Size



l (mm)	d (inch)
11	1/4
16	3/8

② Application

E	External
I	Internal

③ Hand of Tool

R	Right Hand
L	Left Hand

④ Thread Pitch or TPI

Partial Profile

	TP (mm)	TPI
A	0.5 ~ 1.5	48 ~ 16
AG	0.5 ~ 3.0	48 ~ 8
G	1.75 ~ 3.0	14 ~ 8

Full Profile

Value by number

TP (mm)	TPI
0.75	34
⋮	⋮
3.00	8

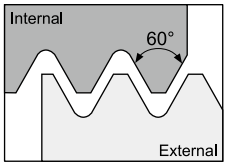
⑤ Thread Standard

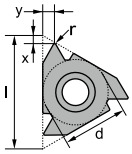
Partial Profile	
55°	Partial Profile 55°
60°	Partial Profile 60°

Full Profile	
ISO	ISO Metric 60°
UN	American UN 60°
W	Whitworth 55°

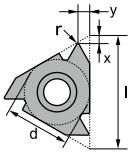
Threading Inserts - Partial Profile 60°

External





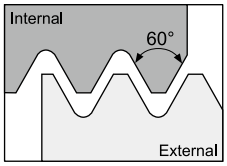
Right hand

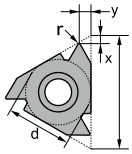


Left hand

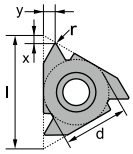
Order No.	Designation	Pitch		Dimensions (mm)					Working Material					
		TP (mm)	TPI	d	l	r	x	y	P	M	K	N	S	H
I11ERA601555	11ERA60-CX1555	0.5 ~ 1.5	48 ~ 16	1/4"	11	0.05	0.8	0.9	●	●	●		○	○
I11ELA601555	11ELA60-CX1555	0.5 ~ 1.5	48 ~ 16	1/4"	11	0.05	0.8	0.9	●	●	●		○	○
I16ERA601555	16ERA60-CX1555	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●		○	○
I16ERA601560	16ERA60-CX1560	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●	○	●	●
I16ELA601555	16ELA60-CX1555	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●		○	○
I16ELA601560	16ELA60-CX1560	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●	○	●	●
I16ERAG601555	16ERAG60-CX1555	0.5 ~ 3.0	48 ~ 8	3/8"	16	0.05	1.2	1.7	●	●	●		○	○
I16ELAG601555	16ELAG60-CX1555	0.5 ~ 3.0	48 ~ 8	3/8"	16	0.05	1.2	1.7	●	●	●		○	○
I16ERG601555	16ERG60-CX1555	1.75 ~ 3.0	14 ~ 8	3/8"	16	0.17	1.2	1.7	●	●	●		○	○
I16ELG601555	16ELG60-CX1555	1.75 ~ 3.0	14 ~ 8	3/8"	16	0.17	1.2	1.7	●	●	●		○	○
I16ELG601560	16ELG60-CX1560	1.75 ~ 3.0	14 ~ 8	3/8"	16	0.17	1.2	1.7	●	●	●	○	●	●

Internal





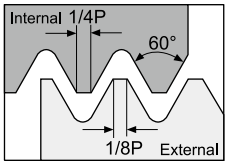
Right hand



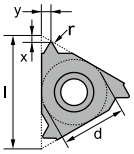
Left hand

Order No.	Designation	Pitch		Dimensions (mm)					Working Material					
		TP (mm)	TPI	d	l	r	x	y	P	M	K	N	S	H
I11IRA601555	11IRA60-CX1555	0.5 ~ 1.5	48 ~ 16	1/4"	11	0.05	0.8	0.9	●	●	●		○	○
I11ILA601555	11ILA60-CX1555	0.5 ~ 1.5	48 ~ 16	1/4"	11	0.05	0.8	0.9	●	●	●		○	○
I16IRA601555	16IRA60-CX1555	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●		○	○
I16IRA601560	16IRA60-CX1560	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●	○	●	●
I16ILA601555	16ILA60-CX1555	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●		○	○
I16ILA601560	16ILA60-CX1560	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●	○	●	●
I16IRAG601555	16IRAG60-CX1555	0.5 ~ 3.0	48 ~ 8	3/8"	16	0.05	1.2	1.7	●	●	●		○	○
I16IRAG601560	16IRAG60-CX1560	0.5 ~ 3.0	48 ~ 8	3/8"	16	0.05	1.2	1.7	●	●	●	○	●	●
I16ILAG601555	16ILAG60-CX1555	0.5 ~ 3.0	48 ~ 8	3/8"	16	0.05	1.2	1.7	●	●	●		○	○
I16ILAG601560	16ILAG60-CX1560	0.5 ~ 3.0	48 ~ 8	3/8"	16	0.05	1.2	1.7	●	●	●	○	●	●
I16IRG601555	16IRG60-CX1555	1.75 ~ 3.0	14 ~ 8	3/8"	16	0.12	1.2	1.7	●	●	●		○	○
I16IRG601560	16IRG60-CX1560	1.75 ~ 3.0	14 ~ 8	3/8"	16	0.12	1.2	1.7	●	●	●	○	●	●
I16ILG601555	16ILG60-CX1555	1.75 ~ 3.0	14 ~ 8	3/8"	16	0.12	1.2	1.7	●	●	●		○	○
I16ILG601560	16ILG60-CX1560	1.75 ~ 3.0	14 ~ 8	3/8"	16	0.12	1.2	1.7	●	●	●	○	●	●

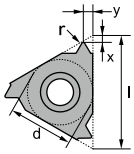
External



Tolerance Class : 6g/6H



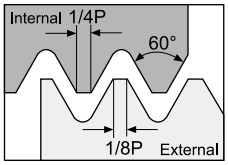
Right hand



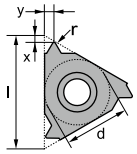
Left hand

Order No.	Designation	Pitch	Dimensions (mm)					Working Material					
		TP (mm)	d	l	r	x	y	P	M	K	N	S	H
I11ER035ISO1555	11ER0.35ISO-CX1555	0.35	1/4"	11	0.04	0.8	0.4	●	●	●		○	○
I11EL035ISO1555	11EL0.35ISO-CX1555	0.35	1/4"	11	0.04	0.8	0.4	●	●	●		○	○
I11ER040ISO1555	11ER0.40ISO-CX1555	0.40	1/4"	11	0.04	0.7	0.4	●	●	●		○	○
I11ER045ISO1555	11ER0.45ISO-CX1555	0.45	1/4"	11	0.05	0.7	0.4	●	●	●		○	○
I11ER050ISO1555	11ER0.50ISO-CX1555	0.50	1/4"	11	0.05	0.6	0.6	●	●	●		○	○
I11EL050ISO1555	11EL0.50ISO-CX1555	0.50	1/4"	11	0.05	0.6	0.6	●	●	●		○	○
I11ER060ISO1555	11ER0.60ISO-CX1555	0.60	1/4"	11	0.07	0.6	0.6	●	●	●		○	○
I11ER070ISO1555	11ER0.70ISO-CX1555	0.70	1/4"	11	0.07	0.6	0.6	●	●	●		○	○
I11ER075ISO1555	11ER0.75ISO-CX1555	0.75	1/4"	11	0.08	0.6	0.6	●	●	●		○	○
I11EL075ISO1555	11EL0.75ISO-CX1555	0.75	1/4"	11	0.08	0.6	0.6	●	●	●		○	○
I11ER080ISO1555	11ER0.80ISO-CX1555	0.80	1/4"	11	0.09	0.6	0.6	●	●	●		○	○
I11ER100ISO1555	11ER1.00ISO-CX1555	1.00	1/4"	11	0.12	0.7	0.7	●	●	●		○	○
I11EL100ISO1555	11EL1.00ISO-CX1555	1.00	1/4"	11	0.12	0.7	0.7	●	●	●		○	○
I11ER125ISO1555	11ER1.25ISO-CX1555	1.25	1/4"	11	0.15	0.8	0.9	●	●	●		○	○
I11ER150ISO1555	11ER1.50ISO-CX1555	1.50	1/4"	11	0.18	0.8	1.0	●	●	●		○	○
I11EL150ISO1555	11EL1.50ISO-CX1555	1.50	1/4"	11	0.18	0.8	1.0	●	●	●		○	○
I16ER075ISO1555	16ER0.75ISO-CX1555	0.75	3/8"	16	0.08	0.6	0.6	●	●	●		○	○
I16ER075ISO1560	16ER0.75ISO-CX1560	0.75	3/8"	16	0.08	0.6	0.6	●	●	●	○	●	●
I16EL075ISO1555	16EL0.75ISO-CX1555	0.75	3/8"	16	0.08	0.6	0.6	●	●	●		○	○
I16EL075ISO1560	16EL0.75ISO-CX1560	0.75	3/8"	16	0.08	0.6	0.6	●	●	●	○	●	●
I16ER080ISO1555	16ER0.80ISO-CX1555	0.80	3/8"	16	0.09	0.6	0.6	●	●	●		○	○
I16ER080ISO1560	16ER0.80ISO-CX1560	0.80	3/8"	16	0.09	0.6	0.6	●	●	●	○	●	●
I16EL080ISO1555	16EL0.80ISO-CX1555	0.80	3/8"	16	0.09	0.6	0.6	●	●	●		○	○
I16EL080ISO1560	16EL0.80ISO-CX1560	0.80	3/8"	16	0.09	0.6	0.6	●	●	●	○	●	●
I16ER100ISO1555	16ER1.00ISO-CX1555	1.00	3/8"	16	0.12	0.7	0.7	●	●	●		○	○
I16ER100ISO1560	16ER1.00ISO-CX1560	1.00	3/8"	16	0.12	0.7	0.7	●	●	●	○	●	●
I16EL100ISO1555	16EL1.00ISO-CX1555	1.00	3/8"	16	0.12	0.7	0.7	●	●	●		○	○
I16EL100ISO1560	16EL1.00ISO-CX1560	1.00	3/8"	16	0.12	0.7	0.7	●	●	●	○	●	●

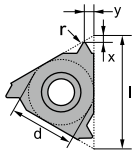
External



Tolerance Class : 6g/6H



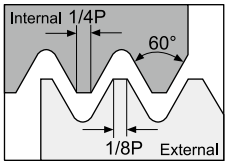
Right hand



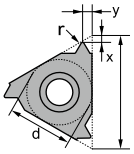
Left hand

Order No.	Designation	Pitch	Dimensions (mm)					Working Material					
		TP (mm)	d	l	r	x	y	P	M	K	N	S	H
I16ER125ISO1555	16ER1.25ISO-CX1555	1.25	3/8"	16	0.15	0.8	0.9	●	●	●		○	○
I16EL125ISO1555	16EL1.25ISO-CX1555	1.25	3/8"	16	0.15	0.8	0.9	●	●	●		○	○
I16EL125ISO1560	16EL1.25ISO-CX1560	1.25	3/8"	16	0.15	0.8	0.9	●	●	●	○	●	●
I16ER150ISO1555	16ER1.50ISO-CX1555	1.50	3/8"	16	0.18	0.8	1.0	●	●	●		○	○
I16ER150ISO1560	16ER1.50ISO-CX1560	1.50	3/8"	16	0.18	0.8	1.0	●	●	●	○	●	●
I16EL150ISO1555	16EL1.50ISO-CX1555	1.50	3/8"	16	0.18	0.8	1.0	●	●	●		○	○
I16EL150ISO1560	16EL1.50ISO-CX1560	1.50	3/8"	16	0.18	0.8	1.0	●	●	●	○	●	●
I16ER175ISO1555	16ER1.75ISO-CX1555	1.75	3/8"	16	0.21	0.9	1.2	●	●	●		○	○
I16ER175ISO1560	16ER1.75ISO-CX1560	1.75	3/8"	16	0.21	0.9	1.2	●	●	●	○	●	●
I16EL175ISO1555	16EL1.75ISO-CX1555	1.75	3/8"	16	0.21	0.9	1.2	●	●	●		○	○
I16EL175ISO1560	16EL1.75ISO-CX1560	1.75	3/8"	16	0.21	0.9	1.2	●	●	●	○	●	●
I16ER200ISO1555	16ER2.00ISO-CX1555	2.00	3/8"	16	0.25	1.0	1.3	●	●	●		○	○
I16EL200ISO1555	16EL2.00ISO-CX1555	2.00	3/8"	16	0.25	1.0	1.3	●	●	●		○	○
I16EL200ISO1560	16EL2.00ISO-CX1560	2.00	3/8"	16	0.25	1.0	1.3	●	●	●	○	●	●
I16ER250ISO1555	16ER2.50ISO-CX1555	2.50	3/8"	16	0.31	1.1	1.5	●	●	●		○	○
I16ER250ISO1560	16ER2.50ISO-CX1560	2.50	3/8"	16	0.31	1.1	1.5	●	●	●	○	●	●
I16EL250ISO1555	16EL2.50ISO-CX1555	2.50	3/8"	16	0.31	1.1	1.5	●	●	●		○	○
I16EL250ISO1560	16EL2.50ISO-CX1560	2.50	3/8"	16	0.31	1.1	1.5	●	●	●	○	●	●
I16ER300ISO1555	16ER3.00ISO-CX1555	3.00	3/8"	16	0.38	1.2	1.6	●	●	●		○	○
I16EL300ISO1555	16EL3.00ISO-CX1555	3.00	3/8"	16	0.38	1.2	1.6	●	●	●		○	○
I16EL300ISO1560	16EL3.00ISO-CX1560	3.00	3/8"	16	0.38	1.2	1.6	●	●	●	○	●	●

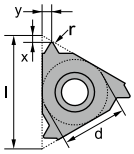
Internal



Tolerance Class : 6g/6H



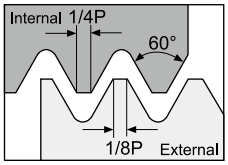
Right hand



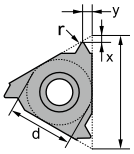
Left hand

Order No.	Designation	Pitch	Dimensions (mm)					Working Material					
		TP (mm)	d	l	r	x	y	P	M	K	N	S	H
I11IR035ISO1555	11IR0.35ISO-CX1555	0.35	1/4"	11	0.02	0.8	0.3	●	●	●		○	○
I11IL035ISO1555	11IL0.35ISO-CX1555	0.35	1/4"	11	0.02	0.8	0.3	●	●	●		○	○
I11IR040ISO1555	11IR0.40ISO-CX1555	0.40	1/4"	11	0.02	0.8	0.4	●	●	●		○	○
I11IR050ISO1555	11IR0.50ISO-CX1555	0.50	1/4"	11	0.03	0.6	0.6	●	●	●		○	○
I11IL050ISO1555	11IL0.50ISO-CX1555	0.50	1/4"	11	0.03	0.6	0.6	●	●	●		○	○
I11IR070ISO1555	11IR0.70ISO-CX1555	0.70	1/4"	11	0.04	0.6	0.6	●	●	●		○	○
I11IR075ISO1555	11IR0.75ISO-CX1555	0.75	1/4"	11	0.04	0.6	0.6	●	●	●		○	○
I11IL075ISO1555	11IL0.75ISO-CX1555	0.75	1/4"	11	0.04	0.6	0.6	●	●	●		○	○
I11IR080ISO1555	11IR0.80ISO-CX1555	0.80	1/4"	11	0.04	0.6	0.6	●	●	●		○	○
I11IR100ISO1555	11IR1.00ISO-CX1555	1.00	1/4"	11	0.05	0.6	0.7	●	●	●		○	○
I11IL100ISO1555	11IL1.00ISO-CX1555	1.00	1/4"	11	0.05	0.6	0.7	●	●	●		○	○
I11IR125ISO1555	11IR1.25ISO-CX1555	1.25	1/4"	11	0.07	0.8	0.8	●	●	●		○	○
I11IL125ISO1555	11IL1.25ISO-CX1555	1.25	1/4"	11	0.07	0.8	0.8	●	●	●		○	○
I11IR150ISO1555	11IR1.50ISO-CX1555	1.50	1/4"	11	0.08	0.8	1.0	●	●	●		○	○
I11IL150ISO1555	11IL1.50ISO-CX1555	1.50	1/4"	11	0.08	0.8	1.0	●	●	●		○	○
I16IR075ISO1555	16IR0.75ISO-CX1555	0.75	3/8"	16	0.04	0.6	0.6	●	●	●		○	○
I16IR075ISO1560	16IR0.75ISO-CX1560	0.75	3/8"	16	0.04	0.6	0.6	●	●	●	○	●	●
I16IL075ISO1555	16IL0.75ISO-CX1555	0.75	3/8"	16	0.04	0.6	0.6	●	●	●		○	○
I16IL075ISO1560	16IL0.75ISO-CX1560	0.75	3/8"	16	0.04	0.6	0.6	●	●	●	○	●	●
I16IR080ISO1555	16IR0.80ISO-CX1555	0.80	3/8"	16	0.04	0.6	0.6	●	●	●		○	○
I16IR080ISO1560	16IR0.80ISO-CX1560	0.80	3/8"	16	0.04	0.6	0.6	●	●	●	○	●	●
I16IL080ISO1555	16IL0.80ISO-CX1555	0.80	3/8"	16	0.04	0.6	0.6	●	●	●		○	○
I16IL080ISO1560	16IL0.80ISO-CX1560	0.80	3/8"	16	0.04	0.6	0.6	●	●	●	○	●	●
I16IR100ISO1555	16IR1.00ISO-CX1555	1.00	3/8"	16	0.05	0.6	0.7	●	●	●		○	○
I16IR100ISO1560	16IR1.00ISO-CX1560	1.00	3/8"	16	0.05	0.6	0.7	●	●	●	○	●	●
I16IL100ISO1555	16IL1.00ISO-CX1555	1.00	3/8"	16	0.05	0.6	0.7	●	●	●		○	○
I16IL100ISO1560	16IL1.00ISO-CX1560	1.00	3/8"	16	0.05	0.6	0.7	●	●	●	○	●	●

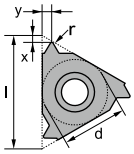
Internal



Tolerance Class : 6g/6H



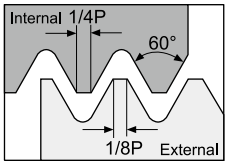
Right hand



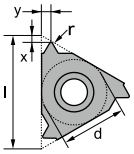
Left hand

Order No.	Designation	Pitch	Dimensions (mm)					Working Material					
		TP (mm)	d	l	r	x	y	P	M	K	N	S	H
I16IR125ISO1555	16IR1.25ISO-CX1555	1.25	3/8"	16	0.07	0.8	0.9	●	●	●		○	○
I16IR125ISO1560	16IR1.25ISO-CX1560	1.25	3/8"	16	0.07	0.8	0.9	●	●	●	○	●	●
I16IL125ISO1555	16IL1.25ISO-CX1555	1.25	3/8"	16	0.07	0.8	0.9	●	●	●		○	○
I16IL125ISO1560	16IL1.25ISO-CX1560	1.25	3/8"	16	0.07	0.8	0.9	●	●	●	○	●	●
I16IR150ISO1555	16IR1.50ISO-CX1555	1.50	3/8"	16	0.10	0.8	1.0	●	●	●		○	○
I16IR150ISO1560	16IR1.50ISO-CX1560	1.50	3/8"	16	0.10	0.8	1.0	●	●	●	○	●	●
I16IL150ISO1555	16IL1.50ISO-CX1555	1.50	3/8"	16	0.10	0.8	1.0	●	●	●		○	○
I16IL150ISO1560	16IL1.50ISO-CX1560	1.50	3/8"	16	0.10	0.8	1.0	●	●	●	○	●	●
I16IR175ISO1555	16IR1.75ISO-CX1555	1.75	3/8"	16	0.12	0.9	1.2	●	●	●		○	○
I16IR175ISO1560	16IR1.75ISO-CX1560	1.75	3/8"	16	0.12	0.9	1.2	●	●	●	○	●	●
I16IL175ISO1555	16IL1.75ISO-CX1555	1.75	3/8"	16	0.12	0.9	1.2	●	●	●		○	○
I16IL175ISO1560	16IL1.75ISO-CX1560	1.75	3/8"	16	0.12	0.9	1.2	●	●	●	○	●	●
I16IR200ISO1555	16IR2.00ISO-CX1555	2.00	3/8"	16	0.13	1.0	1.3	●	●	●		○	○
I16IR200ISO1560	16IR2.00ISO-CX1560	2.00	3/8"	16	0.13	1.0	1.3	●	●	●	○	●	●
I16IL200ISO1555	16IL2.00ISO-CX1555	2.00	3/8"	16	0.13	1.0	1.3	●	●	●		○	○
I16IL200ISO1560	16IL2.00ISO-CX1560	2.00	3/8"	16	0.13	1.0	1.3	●	●	●	○	●	●
I16IR250ISO1555	16IR2.50ISO-CX1555	2.50	3/8"	16	0.15	1.1	1.5	●	●	●		○	○
I16IR250ISO1560	16IR2.50ISO-CX1560	2.50	3/8"	16	0.15	1.1	1.5	●	●	●	○	●	●
I16IL250ISO1555	16IL2.50ISO-CX1555	2.50	3/8"	16	0.15	1.1	1.5	●	●	●		○	○
I16IL250ISO1560	16IL2.50ISO-CX1560	2.50	3/8"	16	0.15	1.1	1.5	●	●	●	○	●	●
I16IR300ISO1555	16IR3.00ISO-CX1555	3.00	3/8"	16	0.18	1.1	1.5	●	●	●		○	○
I16IR300ISO1560	16IR3.00ISO-CX1560	3.00	3/8"	16	0.18	1.1	1.5	●	●	●	○	●	●
I16IL300ISO1555	16IL3.00ISO-CX1555	3.00	3/8"	16	0.18	1.1	1.5	●	●	●		○	○
I16IL300ISO1560	16IL3.00ISO-CX1560	3.00	3/8"	16	0.18	1.1	1.5	●	●	●	○	●	●

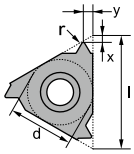
External



Tolerance Class : 2A/2B



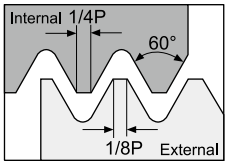
Right hand



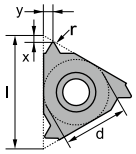
Left hand

Order No.	Designation	Pitch	Dimensions (mm)					Working Material					
		TPI	d	l	r	x	y	P	M	K	N	S	H
I11ER32UN1555	11ER32UN-CX1555	32	1/4"	11	0.09	0.6	0.6	●	●	●		○	○
I11ER28UN1555	11ER28UN-CX1555	28	1/4"	11	0.10	0.6	0.7	●	●	●		○	○
I11EL28UN1555	11EL28UN-CX1555	28	1/4"	11	0.10	0.6	0.7	●	●	●		○	○
I11ER18UN1555	11ER18UN-CX1555	18	1/4"	11	0.17	0.8	1.0	●	●	●		○	○
I11ER16UN1555	11ER16UN-CX1555	16	1/4"	11	0.18	0.9	1.1	●	●	●		○	○
I16ER40UN1555	16ER40UN-CX1555	40	3/8"	16	0.06	0.6	0.6	●	●	●		○	○
I16EL40UN1555	16EL40UN-CX1555	40	3/8"	16	0.06	0.6	0.6	●	●	●		○	○
I16ER36UN1555	16ER36UN-CX1555	36	3/8"	16	0.07	0.6	0.6	●	●	●		○	○
I16EL36UN1555	16EL36UN-CX1555	36	3/8"	16	0.07	0.6	0.6	●	●	●		○	○
I16ER32UN1555	16ER32UN-CX1555	32	3/8"	16	0.09	0.6	0.6	●	●	●		○	○
I16EL32UN1555	16EL32UN-CX1555	32	3/8"	16	0.09	0.6	0.6	●	●	●		○	○
I16ER28UN1555	16ER28UN-CX1555	28	3/8"	16	0.10	0.6	0.7	●	●	●		○	○
I16EL28UN1555	16EL28UN-CX1555	28	3/8"	16	0.10	0.6	0.7	●	●	●		○	○
I16ER26UN1555	16ER26UN-CX1555	26	3/8"	16	0.11	0.7	0.8	●	●	●		○	○
I16EL26UN1555	16EL26UN-CX1555	26	3/8"	16	0.11	0.7	0.8	●	●	●		○	○
I16ER24UN1555	16ER24UN-CX1555	24	3/8"	16	0.12	0.7	0.8	●	●	●		○	○
I16EL24UN1555	16EL24UN-CX1555	24	3/8"	16	0.12	0.7	0.8	●	●	●		○	○
I16ER20UN1555	16ER20UN-CX1555	20	3/8"	16	0.15	0.8	0.9	●	●	●		○	○
I16EL20UN1555	16EL20UN-CX1555	20	3/8"	16	0.15	0.8	0.9	●	●	●		○	○

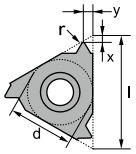
External



Tolerance Class : 2A/2B



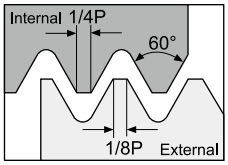
Right hand



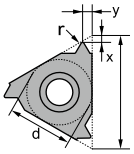
Left hand

Order No.	Designation	Pitch	Dimensions (mm)					Working Material					
		TPI	d	l	r	x	y	P	M	K	N	S	H
I16ER18UN1555	16ER18UN-CX1555	18	3/8"	16	0.17	0.8	1.0	●	●	●		○	○
I16EL18UN1555	16EL18UN-CX1555	18	3/8"	16	0.17	0.8	1.0	●	●	●		○	○
I16ER16UN1555	16ER16UN-CX1555	16	3/8"	16	0.18	0.9	1.1	●	●	●		○	○
I16EL16UN1555	16EL16UN-CX1555	16	3/8"	16	0.18	0.9	1.1	●	●	●		○	○
I16ER14UN1555	16ER14UN-CX1555	14	3/8"	16	0.22	1.0	1.2	●	●	●		○	○
I16EL14UN1555	16EL14UN-CX1555	14	3/8"	16	0.22	1.0	1.2	●	●	●		○	○
I16ER13UN1555	16ER13UN-CX1555	13	3/8"	16	0.24	1.0	1.3	●	●	●		○	○
I16EL13UN1555	16EL13UN-CX1555	13	3/8"	16	0.24	1.0	1.3	●	●	●		○	○
I16ER12UN1555	16ER12UN-CX1555	12	3/8"	16	0.26	1.1	1.4	●	●	●		○	○
I16EL12UN1555	16EL12UN-CX1555	12	3/8"	16	0.26	1.1	1.4	●	●	●		○	○
I16ER115UN1555	16ER11.5UN-CX1555	11.5	3/8"	16	0.27	1.1	1.5	●	●	●		○	○
I16EL115UN1555	16EL11.5UN-CX1555	11.5	3/8"	16	0.27	1.1	1.5	●	●	●		○	○
I16ER11UN1555	16ER11UN-CX1555	11	3/8"	16	0.28	1.1	1.5	●	●	●		○	○
I16EL11UN1555	16EL11UN-CX1555	11	3/8"	16	0.28	1.1	1.5	●	●	●		○	○
I16ER10UN1555	16ER10UN-CX1555	10	3/8"	16	0.32	1.1	1.5	●	●	●		○	○
I16EL10UN1555	16EL10UN-CX1555	10	3/8"	16	0.32	1.1	1.5	●	●	●		○	○
I16ER9UN1555	16ER9UN-CX1555	9	3/8"	16	0.36	1.2	1.7	●	●	●		○	○
I16EL9UN1555	16EL9UN-CX1555	9	3/8"	16	0.36	1.2	1.7	●	●	●		○	○
I16ER8UN1555	16ER8UN-CX1555	8	3/8"	16	0.41	1.2	1.6	●	●	●		○	○
I16EL8UN1555	16EL8UN-CX1555	8	3/8"	16	0.41	1.2	1.6	●	●	●		○	○

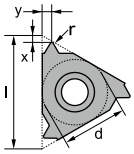
Internal



Tolerance Class : 2A/2B



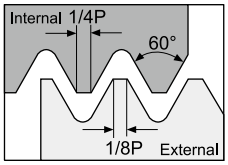
Right hand



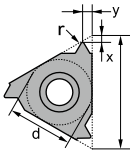
Left hand

Order No.	Designation	Pitch	Dimensions (mm)					Working Material					
		TPI	d	l	r	x	y	P	M	K	N	S	H
I11IR32UN1555	11IR32UN-CX1555	32	1/4"	11	0.04	0.6	0.6	●	●	●		○	○
I11IL32UN1555	11IL32UN-CX1555	32	1/4"	11	0.04	0.6	0.6	●	●	●		○	○
I11IR28UN1555	11IR28UN-CX1555	28	1/4"	11	0.04	0.6	0.7	●	●	●		○	○
I11IL28UN1555	11IL28UN-CX1555	28	1/4"	11	0.04	0.6	0.7	●	●	●		○	○
I11IR24UN1555	11IR24UN-CX1555	24	1/4"	11	0.05	0.7	0.8	●	●	●		○	○
I11IL24UN1555	11IL24UN-CX1555	24	1/4"	11	0.05	0.7	0.8	●	●	●		○	○
I11IR20UN1555	11IR20UN-CX1555	20	1/4"	11	0.06	0.8	0.9	●	●	●		○	○
I11IL20UN1555	11IL20UN-CX1555	20	1/4"	11	0.06	0.8	0.9	●	●	●		○	○
I11IR18UN1555	11IR18UN-CX1555	18	1/4"	11	0.07	0.8	1.0	●	●	●		○	○
I11IL18UN1555	11IL18UN-CX1555	18	1/4"	11	0.07	0.8	1.0	●	●	●		○	○
I11IR16UN1555	11IR16UN-CX1555	16	1/4"	11	0.09	0.9	1.1	●	●	●		○	○
I11IL16UN1555	11IL16UN-CX1555	16	1/4"	11	0.09	0.9	1.1	●	●	●		○	○
I16IR40UN1555	16IR40UN-CX1555	40	3/8"	16	0.03	0.6	0.6	●	●	●		○	○
I16IL40UN1555	16IL40UN-CX1555	40	3/8"	16	0.03	0.6	0.6	●	●	●		○	○
I16IR36UN1555	16IR36UN-CX1555	36	3/8"	16	0.03	0.6	0.6	●	●	●		○	○
I16IL36UN1555	16IL36UN-CX1555	36	3/8"	16	0.03	0.6	0.6	●	●	●		○	○
I16IR32UN1555	16IR32UN-CX1555	32	3/8"	16	0.04	0.6	0.6	●	●	●		○	○
I16IL32UN1555	16IL32UN-CX1555	32	3/8"	16	0.04	0.6	0.6	●	●	●		○	○
I16IR28UN1555	16IR28UN-CX1555	28	3/8"	16	0.04	0.6	0.7	●	●	●		○	○
I16IL28UN1555	16IL28UN-CX1555	28	3/8"	16	0.04	0.6	0.7	●	●	●		○	○
I16IR26UN1555	16IR26UN-CX1555	26	3/8"	16	0.04	0.7	0.8	●	●	●		○	○
I16IL26UN1555	16IL26UN-CX1555	26	3/8"	16	0.04	0.7	0.8	●	●	●		○	○
I16IR24UN1555	16IR24UN-CX1555	24	3/8"	16	0.05	0.7	0.8	●	●	●		○	○
I16IL24UN1555	16IL24UN-CX1555	24	3/8"	16	0.05	0.7	0.8	●	●	●		○	○
I16IR20UN1555	16IR20UN-CX1555	20	3/8"	16	0.06	0.8	0.9	●	●	●		○	○
I16IL20UN1555	16IL20UN-CX1555	20	3/8"	16	0.06	0.8	0.9	●	●	●		○	○

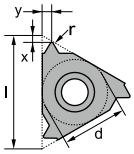
Internal



Tolerance Class : 2A/2B



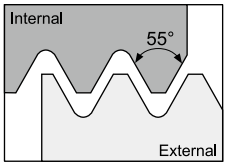
Right hand

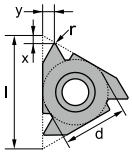


Left hand

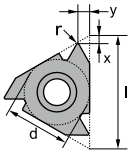
Order No.	Designation	Pitch	Dimensions (mm)					Working Material					
		TPI	d	l	r	x	y	P	M	K	N	S	H
I16IR18UN1555	16IR18UN-CX1555	18	3/8"	16	0.07	0.8	1.0	●	●	●		○	○
I16IL18UN1555	16IL18UN-CX1555	18	3/8"	16	0.07	0.8	1.0	●	●	●		○	○
I16IR16UN1555	16IR16UN-CX1555	16	3/8"	16	0.09	0.9	1.1	●	●	●		○	○
I16IL16UN1555	16IL16UN-CX1555	16	3/8"	16	0.09	0.9	1.1	●	●	●		○	○
I16IR14UN1555	16IR14UN-CX1555	14	3/8"	16	0.10	0.9	1.2	●	●	●		○	○
I16IL14UN1555	16IL14UN-CX1555	14	3/8"	16	0.10	0.9	1.2	●	●	●		○	○
I16IR13UN1555	16IR13UN-CX1555	13	3/8"	16	0.11	1.0	1.3	●	●	●		○	○
I16IL13UN1555	16IL13UN-CX1555	13	3/8"	16	0.11	1.0	1.3	●	●	●		○	○
I16IR12UN1555	16IR12UN-CX1555	12	3/8"	16	0.12	1.1	1.4	●	●	●		○	○
I16IL12UN1555	16IL12UN-CX1555	12	3/8"	16	0.12	1.1	1.4	●	●	●		○	○
I16IR115UN1555	16IR11.5UN-CX1555	11.5	3/8"	16	0.13	1.1	1.5	●	●	●		○	○
I16IL115UN1555	16IL11.5UN-CX1555	11.5	3/8"	16	0.13	1.1	1.5	●	●	●		○	○
I16IR11UN1555	16IR11UN-CX1555	11	3/8"	16	0.14	1.1	1.5	●	●	●		○	○
I16IL11UN1555	16IL11UN-CX1555	11	3/8"	16	0.14	1.1	1.5	●	●	●		○	○
I16IR10UN1555	16IR10UN-CX1555	10	3/8"	16	0.15	1.1	1.5	●	●	●		○	○
I16IL10UN1555	16IL10UN-CX1555	10	3/8"	16	0.15	1.1	1.5	●	●	●		○	○
I16IR9UN1555	16IR9UN-CX1555	9	3/8"	16	0.17	1.2	1.7	●	●	●		○	○
I16IL9UN1555	16IL9UN-CX1555	9	3/8"	16	0.17	1.2	1.7	●	●	●		○	○
I16IR8UN1555	16IR8UN-CX1555	8	3/8"	16	0.19	1.1	1.5	●	●	●		○	○
I16IL8UN1555	16IL8UN-CX1555	8	3/8"	16	0.19	1.1	1.5	●	●	●		○	○

External





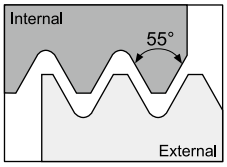
Right hand

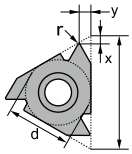


Left hand

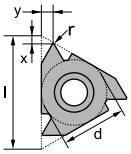
Order No.	Designation	Pitch		Dimensions (mm)					Working Material					
		TP (mm)	TPI	d	l	r	x	y	P	M	K	N	S	H
I11ERA551555	11ERA55-CX1555	0.5 ~ 1.5	48 ~ 16	1/4"	11	0.05	0.8	0.9	●	●	●		○	○
I11ELA551555	11ELA55-CX1555	0.5 ~ 1.5	48 ~ 16	1/4"	11	0.05	0.8	0.9	●	●	●		○	○
I16ERA551555	16ERA55-CX1555	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●		○	○
I16ELA551555	16ELA55-CX1555	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●		○	○
I16ERAG551555	16ERAG55-CX1555	0.5 ~ 3.0	48 ~ 8	3/8"	16	0.05	1.2	1.7	●	●	●		○	○
I16ELAG551555	16ELAG55-CX1555	0.5 ~ 3.0	48 ~ 8	3/8"	16	0.05	1.2	1.7	●	●	●		○	○
I16ERG551555	16ERG55-CX1555	1.75 ~ 3.0	14 ~ 8	3/8"	16	0.17	1.2	1.7	●	●	●		○	○
I16ELG551555	16ELG55-CX1555	1.75 ~ 3.0	14 ~ 8	3/8"	16	0.17	1.2	1.7	●	●	●		○	○

Internal





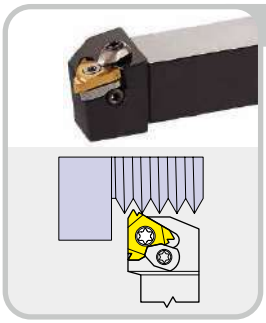
Right hand



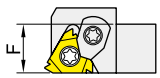
Left hand

Order No.	Designation	Pitch		Dimensions (mm)					Working Material					
		TP (mm)	TPI	d	l	r	x	y	P	M	K	N	S	H
I11IRA551555	11IRA55-CX1555	0.5 ~ 1.5	48 ~ 16	1/4"	11	0.05	0.8	0.9	●	●	●		○	○
I11ILA551555	11ILA55-CX1555	0.5 ~ 1.5	48 ~ 16	1/4"	11	0.05	0.8	0.9	●	●	●		○	○
I16IRA551555	16IRA55-CX1555	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●		○	○
I16ILA551555	16ILA55-CX1555	0.5 ~ 1.5	48 ~ 16	3/8"	16	0.05	0.8	0.9	●	●	●		○	○
I16IRAG551555	16IRAG55-CX1555	0.5 ~ 3.0	48 ~ 8	3/8"	16	0.05	1.2	1.7	●	●	●		○	○
I16ILAG551555	16ILAG55-CX1555	0.5 ~ 3.0	48 ~ 8	3/8"	16	0.05	1.2	1.7	●	●	●		○	○
I16IRG551555	16IRG55-CX1555	1.75 ~ 3.0	14 ~ 8	3/8"	16	0.12	1.2	1.7	●	●	●		○	○
I16ILG551555	16ILG55-CX1555	1.75 ~ 3.0	14 ~ 8	3/8"	16	0.12	1.2	1.7	●	●	●		○	○

External Threading Tool Holders

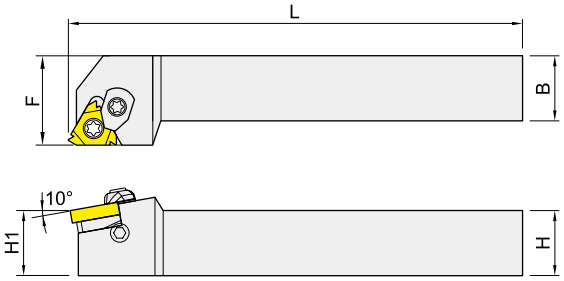


SE..CL



SER1010K16HC
SER1212K16HC

SER1216K16HC
SER1616K16HC



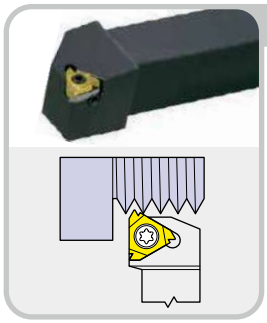
Right-hand shown

Order No.	Dimensions (mm)				Insert	Spare parts
	H(H1)	B	L	F		
ISE$^{R}/_{L}$1010K16HC	10	10	125	10	16ER or 16EL	①
ISE$^{R}/_{L}$1212K16HC	12	12	125	12		
ISE$^{R}/_{L}$1216K16HC	12	16	125	16		
ISE$^{R}/_{L}$1616K16HC	16	16	125	16		
ISE$^{R}/_{L}$1616K16CL	16	16	125	20		②
ISE$^{R}/_{L}$2020K16CL	20	20	125	25		
ISE$^{R}/_{L}$2525M16CL	25	25	150	32		
ISE$^{R}/_{L}$3232P16CL	32	32	170	40		

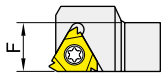
Spare parts	Screw	Shim	Screw	Wrench	Clamp	Wrench
①	IMS3509A	-	-	-	-	ITK15
②	IMS3512A	IGXN16 or IGXE16	IHTM309	IPL25	IMC353V	ITK15

※ SER right hand tools shim is IGXE16, SEL left hand tools shim is IGXN16.

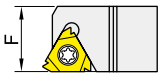
External Threading Tool Holders



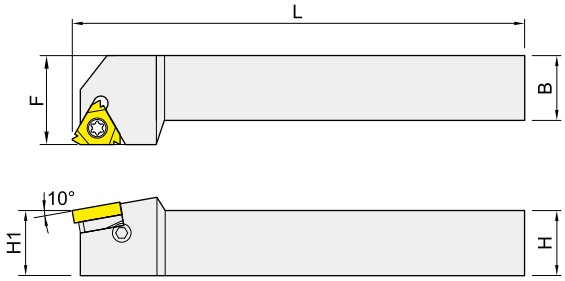
SE



SER1010K16
SER1212K16



SER1216K16
SER1616K16H



Right-hand shown

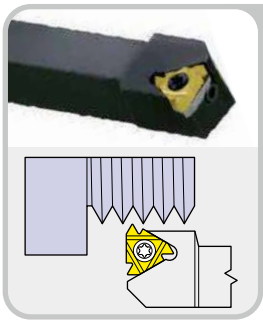
Order No.	Dimensions (mm)				Insert	Spare parts
	H(H1)	B	L	F		
ISE$^{R}/_{L}$1216K16	12	16	125	16	16ER or 16EL	①
ISE$^{R}/_{L}$1010K16H	10	10	125	10		
ISE$^{R}/_{L}$1212K16H	12	12	125	12		
ISE$^{R}/_{L}$1616K16H	16	16	125	16		
ISE$^{R}/_{L}$1616K16	16	16	125	20		②
ISE$^{R}/_{L}$2020K16	20	20	125	25		
ISE$^{R}/_{L}$2525M16	25	25	150	32		
ISE$^{R}/_{L}$3232P16	32	32	170	40		

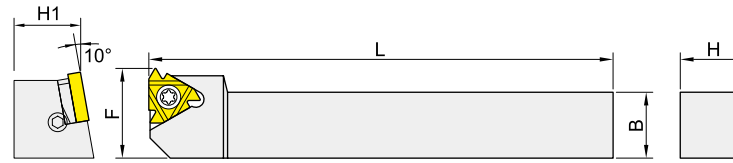
Spare parts	Screw	Shim	Screw	Wrench	Wrench
①	IMS3509A	-	-	-	ITK15
②	IMS3512A	IGXN16 or IGXE16	IHTM309	IPL25	ITK15

※ SER right hand tools shim is IGXE16, SEL left hand tools shim is IGXN16.

External Threading Tool Holders

SKE





Right-hand shown

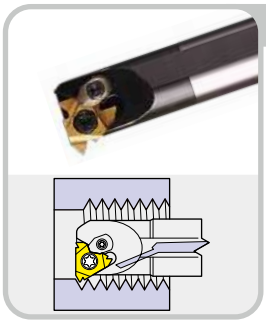
Order No.	Dimensions (mm)				Insert	Spare parts
	H(H1)	B	L	F		
ISKE$^{R}/_{L}$1212K16	12	12	125	18	16ER or 16EL	①
ISKE$^{R}/_{L}$1616K16	16	16	125	22		②
ISKE$^{R}/_{L}$2020K16	20	20	125	27		
ISKE$^{R}/_{L}$2525M16	25	25	150	34		

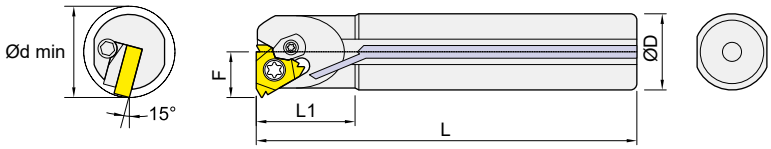
Spare parts	Screw	Shim	Screw	Wrench	Wrench
①	IMS3509A	-	-	-	ITK15
②	IMS3512A	IGXN16 or IGXE16	IHTM309	IPL25	ITK15

※ SKER right hand tools shim is IGXE16, SKEL left hand tools shim is IGXN16.

Internal Threading Tool Holders

SN..CL





Right-hand shown

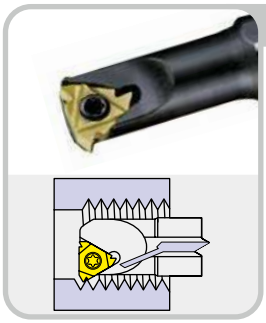
Order No.	Dimensions (mm)					Coolant	Insert	Spare parts
	D	L	L1	F	d min			
ISN$^{R}/_{L}$0020R16CL	20	200	40	12	24		16IR or 16IL	①
ISN$^{R}/_{L}$0025R16CL	25	200	45	14.5	29			
ISN$^{R}/_{L}$0032S16CL	32	250	45	18.5	36			
ISN$^{R}/_{L}$A0020R16CL	20	200	40	12	24	●		
ISN$^{R}/_{L}$A0025R16CL	25	200	45	14.5	29	●		
ISN$^{R}/_{L}$A0032S16CL	32	250	45	18.5	36	●		

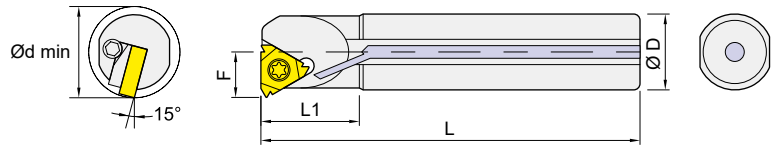
Spare parts	Screw	Shim	Screw	Wrench	Clamp	Wrench
①	IMS3512A	IGXN16 or IGXE16	IHTM309	IPL25	IMC353V	ITK15

※ SNR right hand tools shim is IGXN16, SNL left hand tools shim is IGXE16.

Internal Threading Tool Holders

SN





Right-hand shown

Order No.	Dimensions (mm)					Coolant	Insert	Spare parts
	D	L	L1	F	d min			
ISN$^{R}/_{L}$0010K11S10	10	125	22	6.5	13		11IR or 11IL	①
ISN$^{R}/_{L}$0012M11S12	12	150	26	8	16			
ISN$^{R}/_{L}$A0010K11S10	10	125	22	6.5	13	●		
ISN$^{R}/_{L}$A0012M11S12	12	150	26	8	16	●		
ISN$^{R}/_{L}$0016Q16	16	180	36	10	19		16IR or 16IL	②
ISN$^{R}/_{L}$0020R16	20	200	40	12	24			③
ISN$^{R}/_{L}$0025R16	25	200	45	14.5	29			
ISN$^{R}/_{L}$0032S16	32	250	45	18.5	36			
ISN$^{R}/_{L}$A0016Q16	16	180	36	10	19	●		②
ISN$^{R}/_{L}$A0020R16	20	200	40	12	24	●		③
ISN$^{R}/_{L}$A0025R16	25	200	45	14.5	29	●		
ISN$^{R}/_{L}$A0032S16	32	250	45	18.5	36	●		

Spare parts	Screw	Wrench	Shim	Screw	Wrench
①	IMS2507G	ITK08	-	-	-
②	IMS3509A	ITK15	-	-	-
③	IMS3512A	ITK15	IGXN16 or IGXE16	IHTM309	IPL25

※ SNR right hand tools shim is IGXN16, SNL left hand tools shim is IGXE16.

Recommended Cutting Conditions

Working Material	Vc (m/min)
Carbon Steel (HB85-225)	60 -100 -140
Stainless 300 Series	40 - 80 - 120
Cast Iron (HB140-220)	60 - 90 -120
High Temperature Alloy	25 - 45 - 65
Hardened Steel	20 - 40 -60

Depth of Cut And Number of Passes

ISO Metric 60° External

No. of Passes	Pitch (mm)															
	0.5	0.75	0.8	1.0	1.25	1.5	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
	Radial infeed per pass (mm)															
1	0.102	0.178	0.178	0.178	0.178	0.229	0.229	0.254	0.279	0.279	0.330	0.330	0.381	0.406	0.432	0.457
2	0.102	0.152	0.152	0.178	0.178	0.203	0.203	0.229	0.254	0.254	0.305	0.330	0.330	0.381	0.406	0.432
3	0.076	0.102	0.127	0.127	0.152	0.178	0.152	0.178	0.203	0.203	0.254	0.254	0.279	0.330	0.330	0.356
4	0.076	0.076	0.076	0.102	0.127	0.152	0.152	0.152	0.178	0.178	0.203	0.229	0.229	0.279	0.279	0.305
5	**0.356**	**0.508**	**0.533**	0.076	0.102	0.127	0.127	0.152	0.152	0.152	0.178	0.178	0.229	0.229	0.229	0.279
6				**0.660**	0.076	0.076	0.102	0.127	0.127	0.152	0.178	0.178	0.203	0.229	0.229	0.229
7					**0.813**	**0.965**	0.102	0.102	0.127	0.127	0.152	0.152	0.178	0.203	0.203	0.229
8							0.076	0.076	0.102	0.127	0.152	0.152	0.178	0.178	0.178	0.203
9							**1.143**	**1.270**	0.102	0.127	0.152	0.152	0.152	0.178	0.178	0.203
10									0.076	0.102	0.127	0.127	0.152	0.178	0.178	0.178
11									**1.600**	0.102	0.102	0.127	0.152	0.152	0.152	0.178
12										0.076	0.076	0.127	0.127	0.152	0.152	0.152
13										**1.880**	**2.210**	0.102	0.127	0.127	0.127	0.152
14												0.076	0.102	0.102	0.127	0.152
15												**2.515**	**2.819**	**3.124**	0.127	0.127
16															0.102	0.102
															3.429	**3.734**

Last pass equals total depth of thread.

ISO Metric 60° Internal

No. of Passes	Pitch (mm)														
	0.5	0.75	1.0	1.25	1.5	1.75	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
	Radial infeed per pass (mm)														
1	0.102	0.178	0.178	0.203	0.254	0.229	0.254	0.279	0.279	0.305	0.330	0.356	0.381	0.381	0.406
2	0.102	0.127	0.152	0.178	0.203	0.203	0.229	0.229	0.229	0.279	0.305	0.330	0.356	0.356	0.406
3	0.076	0.102	0.102	0.127	0.152	0.152	0.178	0.178	0.203	0.229	0.229	0.279	0.305	0.305	0.356
4	0.076	0.076	0.102	0.102	0.102	0.127	0.152	0.152	0.152	0.203	0.203	0.229	0.254	0.254	0.279
5	**0.356**	**0.483**	0.076	0.102	0.102	0.102	0.127	0.152	0.152	0.178	0.178	0.203	0.229	0.229	0.229
6			**0.610**	0.076	0.076	0.102	0.102	0.127	0.152	0.152	0.152	0.178	0.203	0.203	0.229
7				**0.787**	**0.889**	0.102	0.102	0.102	0.127	0.152	0.152	0.152	0.178	0.178	0.203
8						0.076	0.076	0.102	0.102	0.152	0.152	0.152	0.152	0.178	0.178
9						**1.092**	**1.219**	0.102	0.102	0.127	0.127	0.152	0.152	0.152	0.178
10								0.076	0.102	0.102	0.127	0.152	0.152	0.152	0.152
11								**1.499**	0.102	0.102	0.102	0.127	0.152	0.152	0.152
12									0.076	0.076	0.102	0.127	0.152	0.152	0.152
13									**1.778**	**2.057**	0.102	0.102	0.127	0.152	0.152
14											0.076	0.102	0.102	0.127	0.152
15											**2.337**	**2.642**	**2.896**	0.127	0.127
16														0.102	0.102
														3.200	**3.454**

Last pass equals total depth of thread.

Depth of Cut And Number of Passes

Unified(UN) 60° External

No. of Passes	TPI												
	32	28	24	20	18	16	14	13	12	11	10	9	8
	Radial infeed per pass (mm)												
1	0.178	0.178	0.178	0.203	0.229	0.229	0.229	0.254	0.279	0.279	0.279	0.279	0.305
2	0.152	0.152	0.178	0.178	0.203	0.203	0.229	0.229	0.229	0.254	0.229	0.229	0.254
3	0.127	0.127	0.152	0.152	0.152	0.152	0.178	0.178	0.203	0.203	0.203	0.203	0.229
4	0.076	0.102	0.127	0.127	0.152	0.152	0.152	0.152	0.152	0.178	0.178	0.178	0.178
5	**0.533**	0.076	0.076	0.102	0.127	0.127	0.127	0.152	0.152	0.152	0.152	0.152	0.178
6		**0.635**	**0.711**	0.076	0.076	0.102	0.102	0.127	0.152	0.152	0.152	0.152	0.152
7				**0.838**	**0.940**	0.076	0.102	0.102	0.127	0.127	0.152	0.152	0.152
8						**1.041**	0.076	0.076	0.076	0.102	0.127	0.127	0.152
9							**1.194**	**1.270**	**1.372**	0.076	0.102	0.127	0.127
10										**1.499**	0.076	0.102	0.127
11											**1.651**	0.076	0.102
12												**1.778**	0.076
13													**2.032**

Last pass equals total depth of thread.

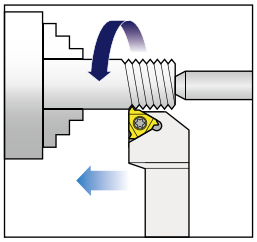
Unified(UN) 60° Internal

No. of Passes	TPI												
	32	28	24	20	18	16	14	13	12	11	10	9	8
	Radial infeed per pass (mm)												
1	0.178	0.178	0.178	0.203	0.229	0.229	0.229	0.254	0.279	0.279	0.279	0.279	0.305
2	0.152	0.152	0.152	0.178	0.178	0.178	0.203	0.229	0.229	0.229	0.229	0.229	0.279
3	0.102	0.102	0.152	0.127	0.152	0.152	0.152	0.152	0.178	0.178	0.152	0.178	0.203
4	0.076	0.102	0.102	0.102	0.127	0.127	0.152	0.152	0.152	0.152	0.152	0.152	0.178
5	**0.508**	0.076	0.076	0.102	0.102	0.102	0.102	0.127	0.127	0.152	0.152	0.152	0.152
6		**0.610**	**0.660**	0.076	0.076	0.102	0.102	0.102	0.102	0.127	0.127	0.152	0.152
7				**0.787**	**0.864**	0.076	0.102	0.102	0.102	0.102	0.102	0.127	0.127
8						**0.940**	0.076	0.076	0.076	0.102	0.102	0.102	0.102
9							**1.118**	**1.194**	**1.245**	0.076	0.102	0.102	0.102
10										**1.397**	0.076	0.102	0.102
11											**1.499**	0.076	0.102
12												**1.651**	0.076
13													**1.880**

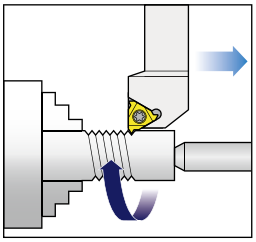
Last pass equals total depth of thread.

Thread Methods

External Right Hand Thread

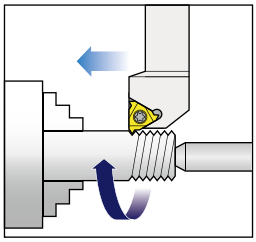


Spindle : Clockwise
Tool : right hand

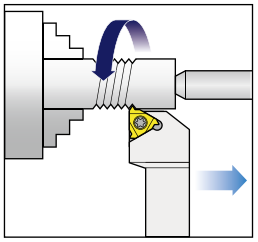


Spindle : Counterclockwise
Tool : left hand

External Left Hand Thread

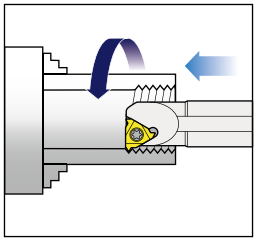


Spindle : Counterclockwise
Tool : left hand

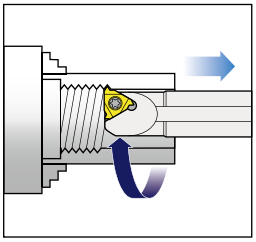


Spindle : Clockwise
Tool : right hand

Internal Right Hand Thread

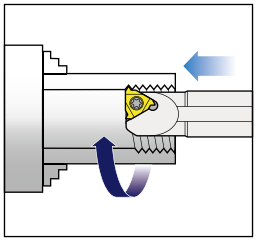


Spindle : Clockwise
Tool : right hand

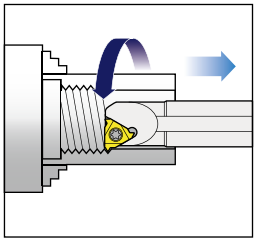


Spindle : Counterclockwise
Tool : left hand

Internal Left Hand Thread

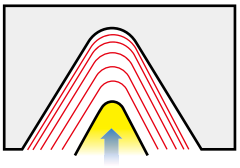
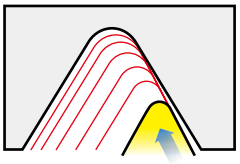
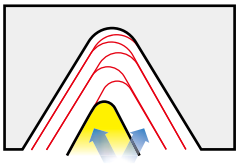


Spindle : Counterclockwise
Tool : left hand



Spindle : Clockwise
Tool : right hand

Infeed Methods

Infeed Methods	Features
 Radial Infeed	• For pitches of less than 1.5mm or 16 T.P.I. • Most commonly used method on manual lathes. • Equal wear on leading and trailing edge. • Good surface finish on trailing edge. • Use on work hardening materials. • Use on short chipping materials.
 Modified Flank Infeed	• For threads greater than 1.5mm or 16 T.P.I. • Reduced cutting pressure on larger pitches. • Reduced chatter. • Directs chip away from the cutting edge. • Displaced in-feed angle improves surface finish. • First choice for internal threading.
 Alternating Flank Infeed	• Recommended for large pitches. • Recommended for long chipping materials. • Method divides the work between both flanks. • Results in equal wear. • Less cutting pressure. • Not available on all lathes.

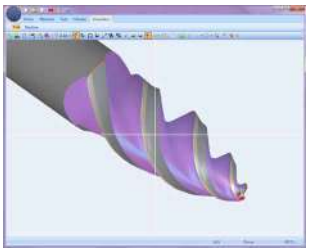
Customized & Tooling

Customized Tools..... E002
BT / HSK Face Milling Holder..... E006
Technical Data..... E010

Customized Endmills & Drills

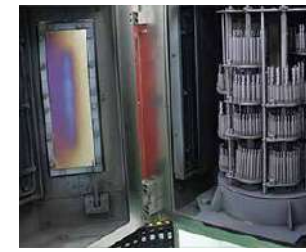
We provide customized Endmills & Drills service, if you have specialize request, you can provide specifications of what you need in detail, files in CAD or sample please sent to we.

3D Design

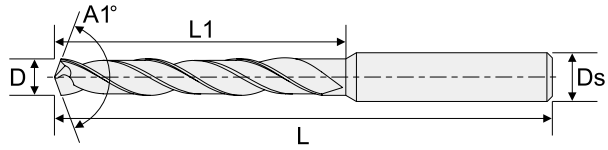


Grinding

Coating



■ *Customized Drill Order Form*



Tool Data

Unit : mm

D : _____ Ds : _____ A1° : _____ Working depth : _____

L : _____ L1 : _____ Helix type : ☐ Left ☐ Right

Hole tolerance : _____

Work piece

Part : _____ Material : _____ Hardness : _____

Technical data

· Machine type

☐ MCT ☐ Lathe ☐ Vertical ☐ Horizontal

· Coolant supply

☐ Internal ☐ External

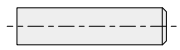
Hole type

☐ Blind hole ☐ Through hole

Coating

☐ UNIX ☐ SINIX ☐ No Coating

Shank type

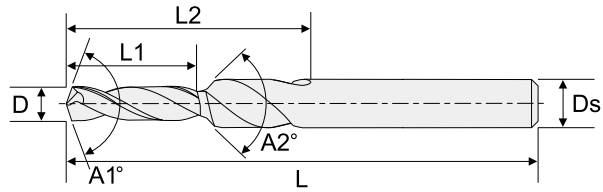


☐ Cylindrical shank

☐ Cylindrical with flat type

Comment

■ *Customized Step Drill Order Form*



Tool Data

Unit : mm

D : _____ Ds : _____ A1° : _____ A2° : _____ Working depth : _____

L : _____ L1 : _____ L2 : _____ Helix type : ☐ Left ☐ Right

Hole tolerance : _____

Work piece

Part : _____ Material : _____ Hardness : _____

Technical data

· Machine type

☐ MCT ☐ Lathe ☐ Vertical ☐ Horizontal

· Coolant supply

☐ Internal ☐ External

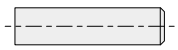
Hole type

☐ Blind hole ☐ Through hole

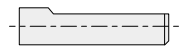
Coating

☐ UNIX ☐ SINIX ☐ No Coating

Shank type



☐ Cylindrical shank



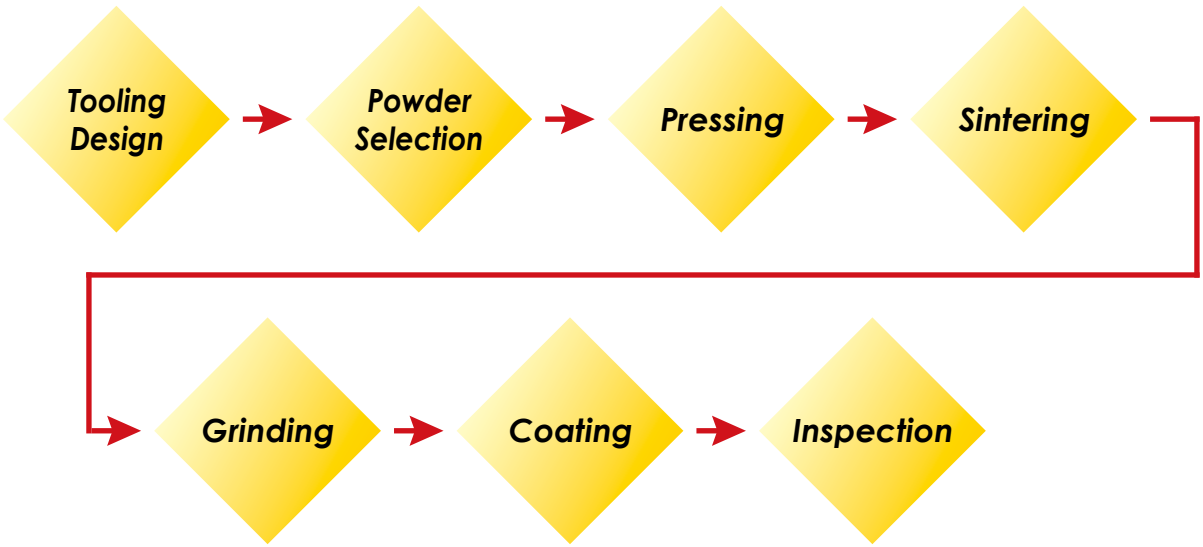
☐ Cylindrical with flat type

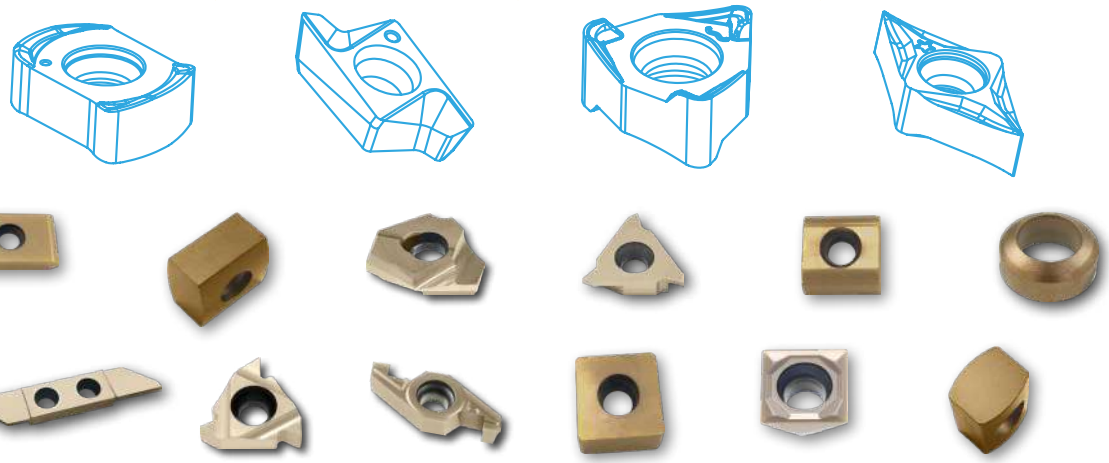
Comment

Customized Inserts

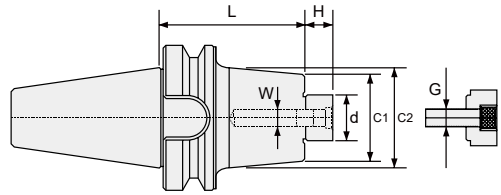
We has integrated manufacturing processes of indexable inserts, such as design, sintering, grinding, polishing and coating are completed in house. The special insert for various machining applications can be customized and developed in factory. The industries we can service include automotive, die & mold, aerospace, wind power, electronics and steel structure.

Customized Inserts Integrated Manufacturing Processes



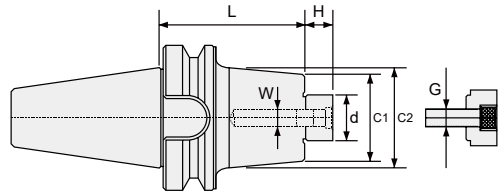


BT FMA Series (BT30, BT40, BT50)



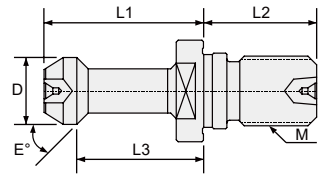
Order No.	Dimensions (mm)							
	Cutter dia.	d	L	C1	C2	H	W	G
IBT30FMA25045	76	25.4	45	45	-	20	9.5	M12
IBT30FMA31045	100	31.75	45	60	-	22	12.7	M12
IBT40FMA25045	76	25.4	45	50	-	20	9.5	M12
IBT40FMA25090	76	25.4	90	50	60	20	9.5	M12
IBT40FMA31045	100	31.75	45	60	-	22	12.5	M12
IBT40FMA31075	100	31.75	75	60	70	22	12.5	M12
IBT40FMA31105	100	31.75	105	60	70	22	12.5	M12
IBT50FMA25045	76	25.4	45	50	-	20	9.5	M12
IBT50FMA25075	76	25.4	75	50	60	20	9.5	M12
IBT50FMA25100	76	25.4	100	50	60	20	9.5	M12
IBT50FMA31045	100	31.75	45	60	-	20	12.5	M12
IBT50FMA31075	100	31.75	75	60	70	20	12.5	M12
IBT50FMA31100	100	31.75	100	60	70	20	12.5	M12

BT FMB Series (BT30, BT40, BT50)



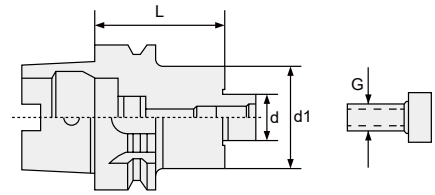
Order No.	Dimensions (mm)							
	Cutter dia.	d	L	C1	C2	H	W	G
IBT30FMB22045	60	22	45	56	-	18	10	M10
IBT30FMB27045	80	27	45	64	-	20	12	M12
IBT30FMB32045	100	32	45	70	-	20	14	M16
IBT40FMB22045	60	22	45	50	-	18	10	M10
IBT40FMB22060	60	22	60	50	60	81	10	M10
IBT40FMB22090	60	22	90	50	60	18	10	M10
IBT40FMB27045	80	27	45	60	-	20	12	M12
IBT40FMB27060	80	27	60	60	-	20	12	M12
IBT40FMB27090	80	27	90	60	-	20	12	M12
IBT40FMB27105	80	27	105	60	-	20	12	M12
IBT40FMB32045	100	32	45	78	-	20	14	M16
IBT40FMB40060	125	40	60	85	-	22	16	M16
IBT50FMB22060	60	22	60	50	-	18	10	M10
IBT50FMB22090	60	22	90	50	60	18	10	M10
IBT50FMB22150	60	22	150	50	60	18	10	M10
IBT50FMB27045	80	27	45	60	-	20	12	M12
IBT50FMB27090	80	27	90	60	70	20	12	M12
IBT50FMB27150	80	27	150	60	70	20	12	M12
IBT50FMB32045	100	32	45	70	-	20	14	M16
IBT50FMB32090	100	32	90	70	80	20	14	M16
IBT50FMB40045	125	40	45	90	-	23	16	M16
IBT50FMB40090	125	40	90	90	100	23	16	M16

Pull Studs



Order No.	Dimensions (mm)						For Shank
	L1	L2	L3	D	E°	M	
IP30T01	23	20	18	11	45°	M12	BT30
IP30T02	23	20	18	11	60°	M12	BT30
IP40T01	35	25	28	15	45°	M16	BT40
IP40T02	35	25	28	15	60°	M16	BT40
IP50T01	45	40	35	23	45°	M24	BT50
IP50T02	45	40	35	23	60°	M24	BT50

HSK63 FMA / FMB Series



Order No.	Dimensions (mm)			
	d	d1	L	G
IHSK63AFMA25050	25.4	52	50	M12
IHSK63AFMA25075	25.4	51	75	M12
IHSK63AFMA25105	25.4	54	105	M12
IHSK63AFMA25150	25.4	54	150	M12
IHSK63AFMB16045	16	37	45	M8
IHSK63AFMB22050	22	45	50	M10
IHSK63AFMB22075	22	47	75	M10
IHSK63AFMB22105	22	47	105	M10
IHSK63AFMB22150	22	47	150	M10
IHSK63AFMB27050	27	52	50	M12
IHSK63AFMB27150	27	58	150	M12
IHSK63AFMB32150	32	76	150	M16

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DIN Material Chart

Material Group	Description	Content	Tensile Strength RM (MPa)*	Hardness (HB)	Hardness (HRC)	DIN Standards
P1	Low-Carbon Steels	C < 0.25%	< 530	< 125	-	C15, Ck22, ST37-2, S235JR, 9SMnPb28, GS38
P2	Medium-Carbon Steels, High-Carbon Steels	C > 0.25%	> 530	< 220	< 25	ST52, S355JR, C35, GS60, Cf53
P3	Alloy Steels, Tool Steels	C > 0.25%	600 ~ 850	< 330	< 35	16MnCr5, Ck45, 21CrMoV5-7, 38SMn28
P4	Alloy Steels, Tool Steels	C > 0.25%	800 ~ 1000	350 ~ 450	35 ~ 48	100Cr6, 105MnCr4, 51CrMnV4, 105WCr6, 100Cr2
P5	Ferritic, Martensitic, PH Stainless Steels	C = 0~0.4%	600 ~ 850	< 330	< 35	X6Cr13, X10Cr13, X20Cr13, X12CrMoS17, X20CrMo13
P6	High-Strength Ferritic, Martensitic, PH Stainless Steels	C = 0.1~0.6%	900 ~ 1350	350 ~ 450	35 ~ 48	X40CrMoV51, H1, X155CrVMo121, S6-5-2-5, X45Cr13, X120Mn12
M1	Austenitic Stainless Steel	C = 0.05~0.15%	< 650	130 ~ 200	-	X5CrNi1810, GX6CrNiMo1810, X6CrNiMoTi17122, X8CrNiMoAl1572
M2	High-Strength Austenitic Stainless and Cast Stainless Steels	C = 0.05~0.15%	500 ~ 700	150 ~ 230	< 25	X2CrNiMo134, X10CrNi189, X5CrNiCuNb1744
M3	Duplex Stainless Steel	C = 0.05~0.2%	< 900	135 ~ 275	< 30	X2CrNiMoN2315, X20CrNiSi254, GX40CrNiSi274, X2CrNiMoN2253
K1	Grey Cast Iron	-	150 ~ 400	120 ~ 290	< 32	GG10, GG15, GG20, GG25, GG40
K2	Low- and Medium-Strength Ductile Irons and Compacted Graphite Irons (CGI)	-	400 ~ 600	130 ~ 260	< 28	GGG35.3, GGG40.3, GGG70
K3	High-Strength Ductile Irons and Austempered Ductile Iron (ADI)	-	600 ~ 900	180 ~ 350	< 43	GTW-35-04, GTW-65, GTS-35-10, GTS-45-06
N1	Wrought Aluminium	-	< 520	60 ~ 90	-	AlMg1, Al99.5, AlCuMg1, AlCuBiPb, AlMgSi1, ALMgSiPb
N2	Low-Silicon Aluminium Alloys	Si < 12.2%	< 350	70 ~ 120	-	GAlSiCu4, GDAlSi10Mg
N3	High-Silicon Aluminium Alloys	Si > 12.2%	200 ~ 320	60 ~ 120	-	G-ALSi12, G-AlSi17Cu4, G-AlSi21CuNiMg
N4	Copper and Copper Alloys	-	200 ~ 650	60 ~ 200	-	CuZn40, Ms60, G-CuSn5ZnPb, CuZn37, CuSi3Mn
N5	Nylon, Plastics	-	-	-	-	Lexan, Hostalen, Polystyrol, Makrolon
N6	Carbon, Graphite Composites, CFRP	-	600 ~ 1500	-	-	CFRP, CFK, GFK
S1	Iron-Based, Heat-Resistant Alloys	-	500 ~ 1200	160 ~ 260	25 ~ 48	X1NiCrMoCu32287, X12NiCrSi3616, X5NiCrAlTi3120, X40CoCrNi20 20
S2	Cobalt-Based, Heat-Resistant Alloys	-	1000 ~ 1450	250 ~ 450	25 ~ 48	Haynes 188, Stellite 6, 21, 31
S3	Nickel-Based, Heat-Resistant Alloys	-	600 ~ 1700	160 ~ 450	33 ~ 48	NiCr29Fe, NiCr22Mo9Nb, NiCr20Mo, NiCr19FeNbMo, NiCr16Fe7TiAl
S4	Titanium and Titanium Alloys	-	900 ~ 1600	300 ~ 400	33 ~ 48	Ti1, TiAl5Sn2, TiAl6V4, TiAl4Mo4Sn2
H1	Hardened Materials	-	-	< 460	< 48	GX260NiCr42, GX330NiCr42, GX300CrNiSi952, GX300CrMo153
H2	Hardened Materials	-	-	460 ~ 560	48 ~ 55	-
H3	Hardened Materials	-	-	560 ~ 650	56 ~ 60	-
H4	Hardened Materials	-	-	> 650	> 60	-

Troubleshooting in Milling

Trouble	Occurrences	Countermeasures
Chipping	Too high feed	Reduce feed
	Up milling	Change down milling
	Sharp cutting edge	Honing at the cutting edge-chamfering or rounding if needed
	Chattering	Check spindle speed down
	Too much overhang	Adjust to minimize overhang
	Unfixed chucking of Endmill	Check the precision of chuck and collet
Wear	High Cutting speed	Decrease cutting speed
	Low feed	Increase feed
	Up milling	Down milling
	High-hardened work piece	Choosing special coating endmill
Tool Breakage	Too much cutting amount	Decrease cutting amount
	High cutting force	Feed down; spindle speed up
	Too much overhang	Adjust to minimize overhang
Surface Roughness	Chattering	Change the cutting condition
	Generation of built-up edge	Increasing cutting speed & Feed rate or down milling
	high feed, low speed	Reduce feed & Increase speed
Accuracy of finished work piece	Incorrect Numbers of flute	Replace more flutes Endmill
	Deflection of Tool	Using big diameter tool & Minimize the overhang

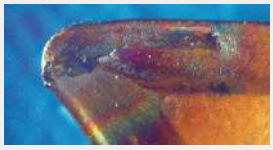
Troubleshooting in Drilling

Trouble	Occurrences	Countermeasures
Deformation of hole	Becoming thread scratch in the hole	1.Check for suitable guide-bush 2.Reduce relief angle 3.Check for proper point angle & length of lips
	Generation of chattering & vibration	1.Reduce relief angle 2.Grind web thinning 3.Shortening length of drill 4.Check for proper drill 5.Check for chuck & collet & socket 6.Pre-centering 7.Inspect rigidity of the drill machine
	Poor chip evacuation	1.Increase feed 2.Check for proper helix angle 3.Check for proper chip space 4.Using step feed
Deflection of hole	Drill won't enter work	1.Check for suitable guide-bush 2.Reduce feed 3.Pre-centering
	Insufficient rigidity of drill	Shortening length of drill
	Unsuitable angle	Regrinding
Excessive wear of cutting edge	Cutting speed too high	1.Reduce cutting speed 2.Check lip relief 3.Increase coolant flow 4.Check for proper material

Troubleshooting in Drilling

Trouble	Occurrences	Countermeasures
Poor surface conditions of work piece	Excessive wear of cutting edge	Regrinding
	Too much feed	Decrease feed
	Chips clog in hole	Add number of exit
	The others	1.Thin web 2.Check for proper guide-bush 3.Use the highly rigid spindle
Breakage	Feed too heavy	Decrease feed rate
	Chips clog in hole	1.Check for proper chip space 2.Check for proper helix angle
	Insufficient rigidity of drill	1.Reduce feed 2.Shortening length of drill 3.Increasing web thickness
	Unstable in throughout hole drilling	1.Reduce feed while throughout drilling 2.Check set up rigidity 3.Use the highly rigid spindle
Chipping	Feed speed too high	Decrease feed rate
	Tool high lip relief angle	1.Reduce lip relief angle 2.Reduce feed in drilling 3.Check set up rigidity
	During oversize operation	1.Properly grind point angle 2.Reduce cutting speed
Hole oversize	Point angle is not properly, large chip of one flute; small chip of other flute	1.Regrinding 2.Thin web 3.Properly grind point angle 4.Guide-bush

Troubleshooting in Insert

Trouble	Occurrences	Countermeasures
Thermal Crackin	Intermittent heating of the cutting edge. High speed, high volume metal removal.	1.Use heat resistant grades 2.Use positive or large rake tools 3.Increase nose radius 4.Reduce speed, feed or depth of cut
Chipping	Cutting tool excessively brittle.	1.Use tougher grades 2.Use negative or smaller rake tools 3.Increase nose radius 4.Use increased edge land 5.Increase cutting speed
Excessive Flank Wear	Cutting tool too soft. Surface speed too fast.	1.Use harder and more wear resistant grade 2.Reduce cutting speed 3.Increase feed 4.Use coolant
Notching	Cutting material working harden cause serious wear of insert.	1.Increase approach angle 2.Reduce cutting speed and feed 3.Use high lubricity coolant
Built-Up-Edge	Cutting speed too slow for material being machined.	1.Increase cutting speed 2.Use friction reducing grade 3.Use high lubricity coolant
 Deformation	Heavy feeds or higher cutting speed.	1.Reduce cutting speed or feed 2.Use polished tools to reducing friction 3.Use more heat resistant grade
Crater Wear	Excessive heat and pressure welding of chip to rake.	1.Use a harder grade 2.Reduce cutting speed and feed 3.Use high lubricity coolant

＊ Pictures from Kennametal Tooling Catalogue

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- Turning
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