Turning insert

P

Negative inserts

Chip control	Recommended	Toughness
NC3215	NC3225	NC3030
Heavy: HL	HG	HV
Roughing	GR	
Medium cutting: VM	MP	HM
Medium to finishing: VC	LP	CP NC3225P
Finishing	VB	VF

Positive insert

Chip control	Recommended	Toughness
NC3215	NC3225	NC3030
Medium cutting	C25	
Medium to finishing: HMP	MP	
Finishing: FP	VL	VF

M

Negative inserts

Chip control	Recommended	Toughness
NC9115	NC9125	NC9135 PC5300
Roughing	RM	
Medium cutting: MP	MM	
Finishing	VP2	

Positive insert

Chip control	Recommended	Toughness
NC9115	NC9125	NC9135 PC5300
Medium cutting	C25	
Medium to finishing: HMP	MP	
Finishing: FP	VL	

K

Negative inserts

Chip control	Recommended	Toughness
NC6310	NC6315	NC3215
Roughing: VR	RK	-MA
Medium cutting	MK	
Medium to finishing	MK	B25
Finishing	MP	

Positive insert

Chip control	Recommended	Toughness
NC6310	NC6315	NC3215
Medium cutting	C25	
Medium to finishing	MP	

N

Negative inserts

	Recommended	Toughness
	H01	H05
Medium to finishing	HA	

Positive insert

	Recommended	Toughness
	H01	H05
Medium cutting	AR	
Medium to finishing	AK	

S

Negative inserts

Chip control	Recommended	Toughness
PC8105 UNC805	PC8110	PC8115
Roughing	VP4	
Medium cutting	VP3	
Medium to finishing	VP2	
Finishing	VP1	

Positive insert

Chip control	Recommended	Toughness
PC8105 UNC805	PC8110	PC8115
Medium to finishing: MU	MP	
Finishing: LU	VP1	VL

Turning tool holder

Clamping system	Features	Holder shape	
		For external machining	For internal machining
Double clamp system Top and hole clamping (Multi clamp, pin and clamp) **D**	• High clamping force • High machinability in high interrupted roughing • Easy to clamp the insert		
Clamp on system Top clamping without hole **C**	• Normal clamping force • Possible to face chip evacuation matter • Time saving in insert exchange • Mainly use for ceramic		
Wedge clamp system Top and hole clamping (Multi clamp, pin and clamp) **W**	• High clamping force • Possible to face chip evacuation matter • Time saving in insert exchange • Proper for medium cutting and external holder machining		–
Lever lock system Hole clamping (Pin lock) **P**	• Normal clamping force • Good chip evacuation • Easy to exchange insert in short time		
Screw on system Screw on **S**	• Normal clamping force • Good chip evacuation • For internal holder and small-sized holder • Long time for exchanging insert		

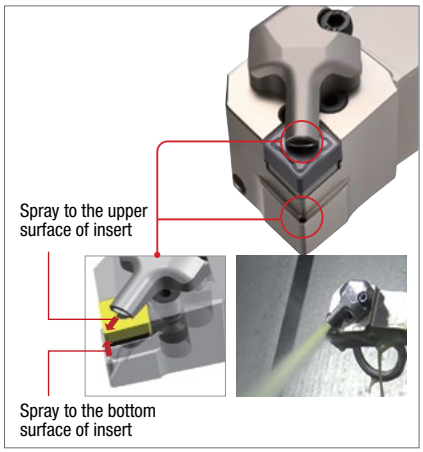
NEW

KHP Coolant features

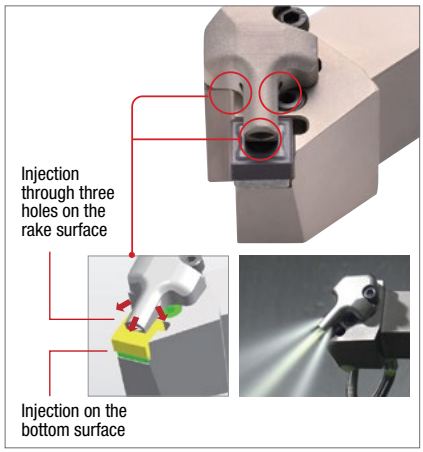
(KORLOY High Pressure Coolant)

- 300% increased productivity on Inconel machining vs. low pressure coolant system
- Cooling, tool life, and chip control are improved by the high pressure coolant multi-directional injection system

Water clamp with a hole



Water clamp with three holes

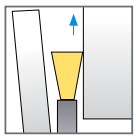
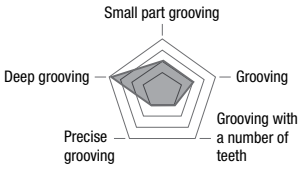
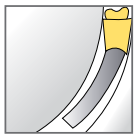
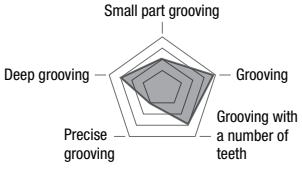
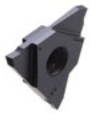
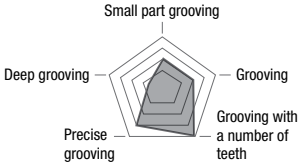
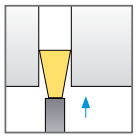
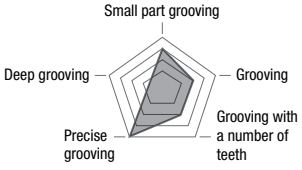
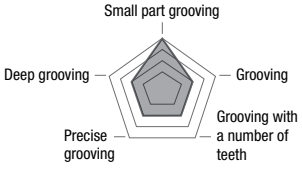
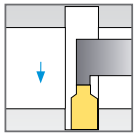
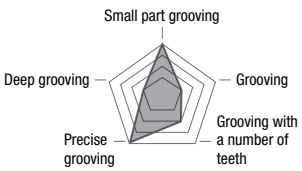
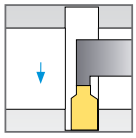
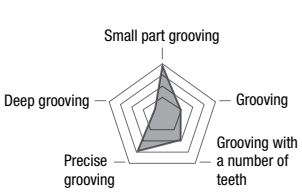


Features of items for grooving

Grade

CVD		PVD				Carbide
NC3225	NC5330	1st PC3035 (Exclusive use for grooving)	PC8110	PC9030	1st PC5300	H01
P	P K	P	S M	M	P M K S	N

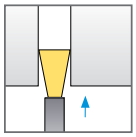
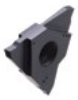
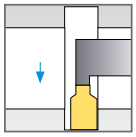
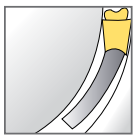
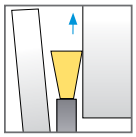
Line-up and feature

Division	Tool type		Features
Parting off 	**Saw Man-X, Saw Man** 		Precise grooving ★☆☆☆ / Grooving ★★☆☆ / Small part grooving ★★☆☆ / Deep grooving ★★★★ / Grooving with a number of teeth ★☆☆☆ • Enhanced stability of clamping in high speed and high feed machining • More convenient exchanging inserts
External, internal facing (ø20 or above) 	**KGT, MGT** 		Precise grooving ★★☆☆ / Grooving ★★★★ / Small part grooving ★★☆☆ / Deep grooving ★★★☆ / Grooving with a number of teeth ★★☆☆ • Strong clamping • Various kinds of chip breakers
	TB 		Precise grooving ★★★☆ / Grooving ★★☆☆ / Small part grooving ★★☆☆ / Deep grooving ★★☆☆ / Grooving with a number of teeth ★★★★ • Machining reliability • Good chip control
External grooving 	**K Notch** 		Precise grooving ★★★★ / Grooving ★★☆☆ / Small part grooving ★★★☆ / Deep grooving ★☆☆☆ / Grooving with a number of teeth ★★☆☆ • Insert for high precise grooving • High machinability and longer tool life
	Auto Tools (Blade, multi functional tools) 		Precise grooving ★★★☆ / Grooving ★★☆☆ / Small part grooving ★★★★ / Deep grooving ★★☆☆ / Grooving with a number of teeth ★★☆☆ • Increased convenience • High productivity
Internal grooving (ø16 or under) 	**Fine Tools** 		Precise grooving ★★★☆ / Grooving ★☆☆☆ / Small part grooving ★★★★ / Deep grooving ★☆☆☆ / Grooving with a number of teeth ★☆☆☆ • Insert shaped properly for small diameter grooving • Precise insert realizes high precision machining
Internal grooving, face grooving (ø10 or under) 	**MSB Tool** 		Precise grooving ★★★☆ / Grooving ★☆☆☆ / Small part grooving ★★★★ / Deep grooving ★☆☆☆ / Grooving with a number of teeth ★★☆☆ • Good surface finish and long tool life • Available for machining of pitting, valve, regulatory affairs, automotive components, semiconductor equipment etc.

Machining types of grooving

( )* : MGT

( )**: Saw Man

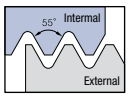
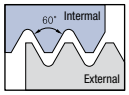
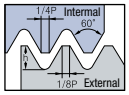
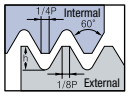
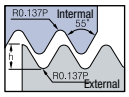
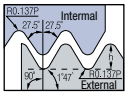
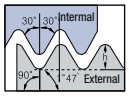
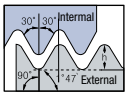
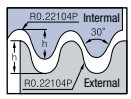
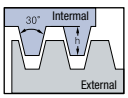
Machining type	Holder			Insert		Product name	Holder	Available inserts	
	Max. ap (mm)	Min. machining dia. (Ø)	Min. machining dia. (Ø)	Cutting edge width (mm)	No. of corner				
External grooving 	2.8~3.3 (3~5)*	40~65	–	3~8	2	KGT	KGEUR/L	**KRG(M)N**	
	8~36 (10~28)*	–	–	1.5~8	2	KGT	KGEHR/L	**KGG(M)N** **KGMR** **KRG(M)N**	
	1~6.5	–	–	0.5~4.5	3	TB	TBH	**TB(-M)**	
	1.27 ~6.35	–	–	0.79 ~6.35	2	K Notch	K Notch	**KNG(P)** **KNR(P)**	
Internal grooving 	1~4.3	–	–	0.75 ~4.02	1	Fine Tools	NFTIH	**NFTG(F/T)**	
	4~8.5 (3.5~12)*	20~45	–	1.5~8	2	KGT	KGIVR/L	**KGMI** **KRG(M)N** **KGG(M)N**	
	3.5 (3.5~6.5)*	35~50	–	3~8	2	KGT	KGIUR/L	**KRG(M)N**	
Face grooving 	3~8 (3~9)*	50~120	–	1.5~8	2	KGT	KGEVR/L	**KGG(M)N** **KRG(M)N**	
	10~25 (10~15)*	34~190 (24~112)*	50~∞ (35~200)*	3~6 (3~4)*	2	KGT	KGFHR/L KGFVR/L	**KGG(M)N** **KRG(M)N**	
	12~25	25~100	30~140	3~5	1	MGT	FGH(V)H	**FGD(M)** **FMM**	
Parting 	25~60 (16~60)**	–	50~120 (30~120)**	2~6 (1.6~9.6)**	1	Saw Man-X	KSPB	**KSP**	
	14~30 (10~31)**	–	28~60 (20~62)**	1.5~8 (2~5)**	2	KGT	KGEHR/L	**KGMR/L-R(L)P**	
	13~60	–	26~120	1.5~8	2 1	KGT	KGTB	**KGMN** **KGGN-S-R**	

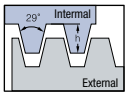
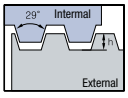
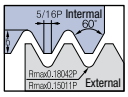
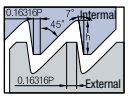
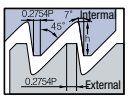
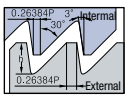
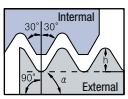
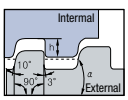
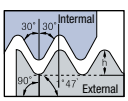
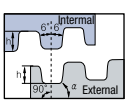
Thread for turning

Grade

Thread for turning						Thread for milling			Solid		
PVD											
PC3030T		PC9070T	PC5300 (M class thread)			PC9570T			PC9070M		
P	K	M	P	M	K	P	M	K	P	M	K

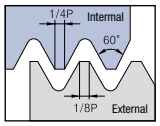
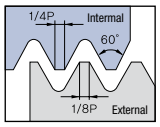
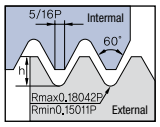
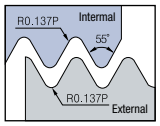
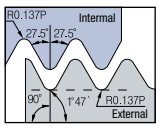
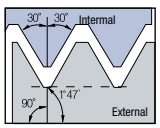
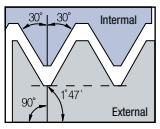
Turning line-up

Division	Appli-cation	Geometries	Unit	Grinding	M-type	U-type
Partial profile (55°)	General threading		mm	0.5~6.0	0.5~5.0	0.5~3.0
			tpi	48~4	48~5	48~8
Partial profile (60°)	General threading		mm	0.5~6.0	0.5~5.0	0.5~3.0
			tpi	48~4	48~5	48~8
ISO metric	General industry		mm	0.35~6.0	1.0~3.0	1.5~2.0
			tpi	–	–	–
American UN (UN, UNC)	General industry		mm	–	–	–
			tpi	72~4	–	–
Withworth (BSW, BSF)	Industrial pipe		mm	–	–	–
			tpi	72~4	14~11	14~11
British standard pipe (BSPT)	Gas and water pipe (55°)		mm	–	–	–
			tpi	28~11	–	–
National pipe (NPT)	Gas and water pipe		mm	–	–	–
			tpi	27~8	–	–
Nationa pipe (NPTF) _Dryseal	Gas and water pipe		mm	–	–	–
			tpi	27~8	–	–
Round DIN405 (RD)	Fire-fighting and food industry		mm	–	–	–
			tpi	10~4	–	–
Trapez DIN103 (TR)	Power transfer		mm	1.5~6.0	–	–
			tpi	–	–	–

Division	Appli-cation	Geometries	Unit	Grinding	M-type	U-type
American ACME (ACME)	Power transfer (feed screw)		mm	–	–	–
			tpi	16~4	–	–
Stub ACME (STACME)	Power transfer (thin shape)		mm	–	–	–
			tpi	16~3	–	–
UNJ	Aero-space industry		mm	–	–	–
			tpi	48~4	–	–
American buttress (ABUT)	One direction		mm	–	–	–
			tpi	20~6	–	–
British buttress (BBUT)	One direction		mm	–	–	–
			tpi	16~8	–	–
Metric buttress (SAGE)	One direction (DIN513)		mm	2.0~4.0	–	–
			tpi	–	–	–
API	Oil and gas industry		mm	–	–	–
			tpi	6~4	–	–
API buttress casing (BUT)	Oil and gas industry (tube, casing)		mm	–	–	–
			tpi	5	–	–
API round casing (APIRD)	Oil and gas industry		mm	–	–	–
			tpi	10~8	–	–
Extreme line casing (EL)	Oil and gas industry (tube, casing)		mm	–	–	–
			tpi	6~5	–	–

Thread for milling

Milling line-up

Division	Application	Geometries	Unit	Indexable	Internal coolant Helical	Internal coolant Helical, drill/chamfer	Deep drilling
							
ISO metric	General industry		mm	0.5~6.0	0.5~3.0	1.0~1.75	0.35~1.75
			tpi	–	–	–	–
American UN (UN, UNC)	General industry		mm	–	–	–	–
			tpi	32~4	32~8	–	72~14
UNJ	Aerospace industry		mm	–	–	–	–
			tpi	24~11	–	–	–
Withworth (BSW, BSF)	Industrial pipe		mm	–	–	–	–
			tpi	28~4	26~11	–	–
British standard pipe (BSPT)	Gas and water pipe (55°)		mm	–	–	–	–
			tpi	19~11	28~11	–	–
National pipe (NPT)	Gas and water pipe		mm	–	–	–	–
			tpi	18~8	27~8	–	–
National pipe (NPTF) _Dryseal	Gas and water pipe		mm	–	–	–	–
			tpi	14~8	27~8	–	–

Features of items for milling

Grade

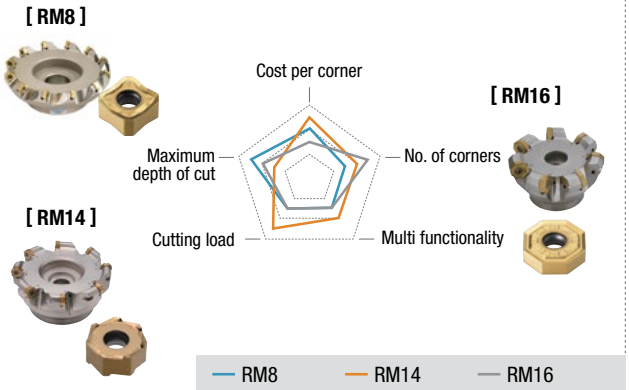
CVD		PVD			Carbide		PVD				CVD	PVD
NCM535	PC3700 (1st)	PC9530	PC9540 (1st)	PC6510	H01 (1st)	H05	PC5300 (1st)	PC5400	PC2505	PC2510	UNC840	UPC845
P K	P	M		K	N		P M K S		H		S (Ultra)	
Interrupted ↔ Heavy Interrupted		Interrupted ↔ Heavy Interrupted			Continuous ↔ Interrupted		Interrupted ↔ Heavy Interrupted		Continuous ↔ Interrupted		Interrupted ↔ Heavy Interrupted	

Chip breaker

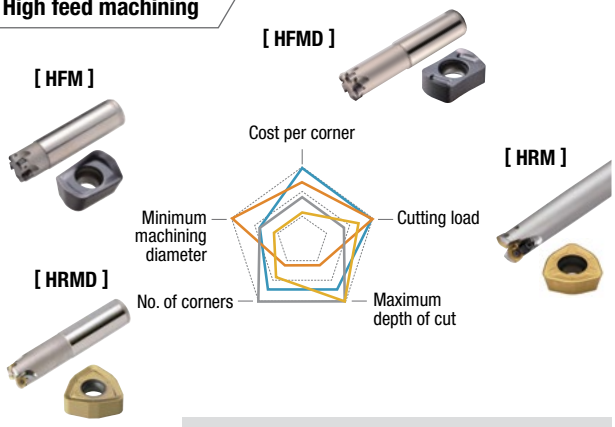
MA	ML	MF	MM
For aluminum	For hard-to-cut material	For light cutting	For general cutting
Sharp cutting edge type	Low cutting load type	Low cutting load type	Reinforced cutting edge type
			

Tool selection guideline by functions

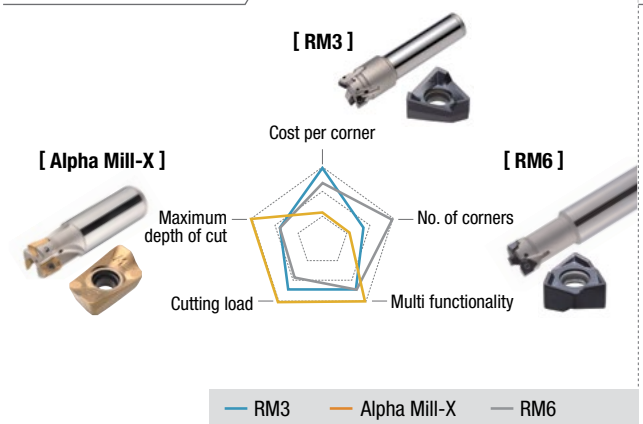
Facing



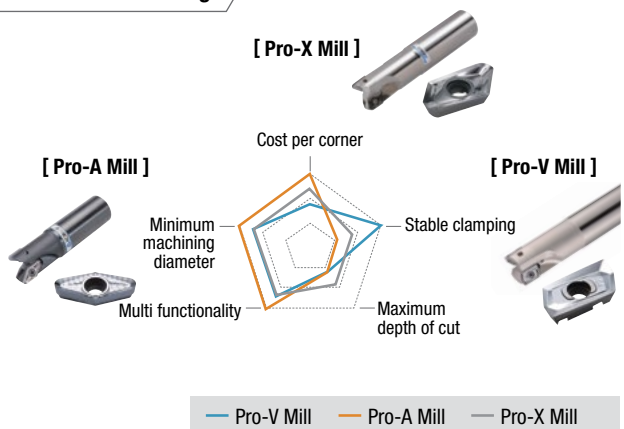
High feed machining



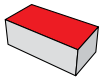
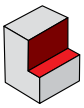
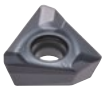
Shouldering



Aluminum machining

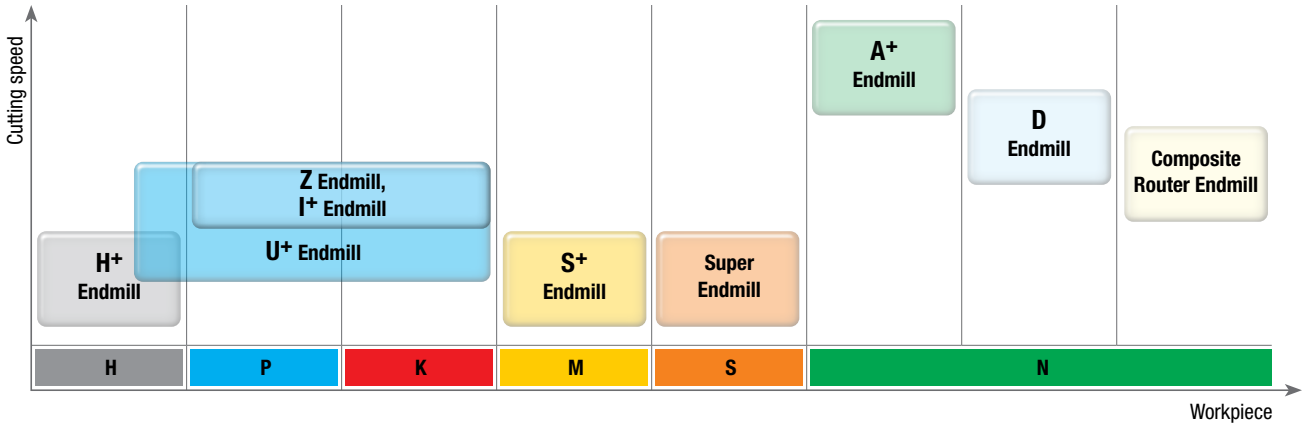


Machining types of milling

Machining type	AA	Max. ap (mm)	Number of edges	Type	Diameter (Ø)	Product name	Holder	Available inserts		
Facing 	45°	7.5 / 6	8	Cutter	50~400	Rich Mill (RM8)	RM8AC	**SNM(E)X15 / 12(ANN)**		INFO
		5.5 / 4	16		63~400	Rich Mill (RM16)	RM16AC	**ONM(H)X08 / 06**		
	51°	3.5 (helix) 4.8 (Flat)	14		50~160	Rich Mill (RM14)	RM14XC	**XNMX06**		INFO
	75°	11 / 9	8		50~400	Rich Mill (RM8)	RM8EC	**SNM(E)X15 / 12(ENN)**		INFO
Shouldering 	90°	16.5 / 11.5 / 9.5	2	Shank	16~40	Alpha Mill-X	AMXS	**ADKT17 / 12 / 10**		INFO
				Cutter	40~125		AMXC			
		11.5 / 8	3	Shank	25~40	Triple Mill	TPMS	**TNKT16 / 11**		INFO
		15.5 / 11.5		Cutter	50~125		TPMC	**TNKT20 / 16**		
		14 / 9	4	Shank	14~63	Rich Mill (RM4)	RM4PS	**LNM(E)X15 / 10**		INFO
				Cutter	40~160		RM4PC			
		8.2 / 4.3	6	Shank	20~50	Rich Mill (RM6)	RM6PS	**WNGX08 / 04**		INFO
				Cutter	40~125		RM6PC			
		8 / 5.5	3	Shank	20~63	Rich Mill (RM3)	RM3PS	**XNK(C)T08 / 06**		INFO
		12 / 8 / 5.5		Cutter	40~125		RM3PC	**XNK(C)T12 / 08 / 06**		
High feed machining	-	1.5 / 1	4	Shank	16~42	HFMD	HFMDS	**LNMX10 / 06**		INFO
				Cutter	32~100		HFMDC			
	13°	0.5	2	Shank	8~21	HFM	HFMS	**LPMT04 LPM(E)W04**		INFO
	14°	2 / 1.5 / 1	6	Shank	16~63	HRMD	HRMDS	**WNMX13 / 09 / 06**		INFO
		2.5 / 2 / 1.5		Cutter	40~315		HRMDC	**WNMX16 / 13 / 09**		
	15°	2.5 / 2 / 1 / 1	3	Shank	20~63	HRM	HRMS	**WDKT15 / 13 / 10 / 08**		–
		2.5 / 2		Cutter	50~160		HRMC	**WDKT15 / 13**		
Aluminum machining	90°	34 / 25	2	Shank	32~63	Pro-L Mill	PALS	**LXET34 / 25**		–
		34		Cutter	63		PALC	**LXET34**		
		23 /17	2	Shank	20~40	Pro-X Mill	PAXS	**XEKT25 / 19**		–
				Cutter	40~125		PAXC			
		17	2	Shank	25~40	Pro-V Mill	PAVS	**XDET19**		INFO
				Cutter	40~125		PAVC			
		15 / 8	2	Shank	12~40	Pro-A Mill	PAS	**VC(D)KT22 / 11**		INFO
				Cutter	40~100		PAC			

Solid endmill

Guideline by workpieces



Tool selection guideline by functions

● 1st recommended ◑ 2st recommended ○ Not recommended

Type	No. of tooth		Precise finishing	Finishing	Roughing	Slotting	Plunging	Copying	Trochoidal milling
Flat/ Radius	2 teeth	2	○	○	◑	●	●	○	○
	3 teeth	3	○	◑	◑	●	◑	○	○
	4 teeth	4	●	●	●	●	○	○	●
	6 teeth or over	6	●	●	○	○	○	○	●
Ball	2 teeth	2	○	○	○	●	○	●	○
	4 teeth	4	○	○	○	◑	○	●	○

- It is recommended to choose the shortest length tool in every application as possible.
- Stable machining actualizes long tool life and enhanced surface finish.

Line-up and features

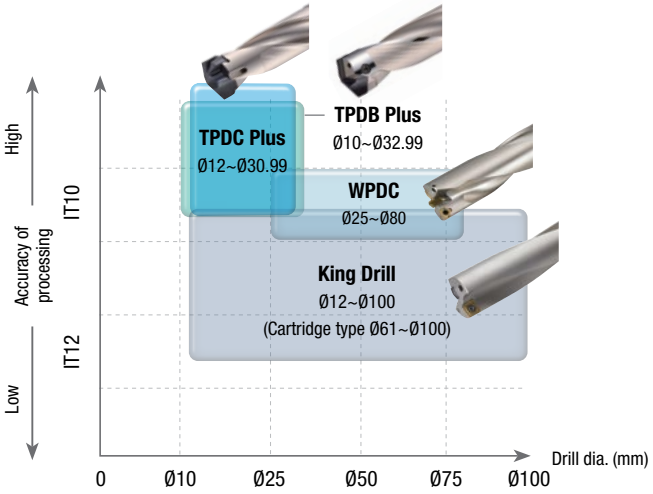
Work-piece	Use	Product name	Type	No. of tooth	Diameter (tolerance)	Picture / No. of standard items	Features
H	High hardness (~HRC70)	H+ Endmill	F B R	2~6	0.1~20	 1,395 Items	• Economical tools for high speed and high hardness machining
P K	hardness (~HRC55)	U+ Endmill	F B R	2~6	0.1~25	 3,980 Items	• Economical tools for general machining with high performance • For various workpiece machining (carbon steel, alloy steel, cast iron, pre-hardened, etc.)
P K	General (~HRC47)	Z Endmill	F B R	2~4	1.0~16	 133 Items	• For general machining with high performance and high quality • For various workpiece machining (carbon steel, alloy steel, cast iron, pre-hardened, etc.)
P K	General (~HRC45)	I+ Endmill	F B R	2~4	1.0~20	 398 Items	• For general machining from finishing to roughing
M	Stainless steel	S+ Endmill	F R	4	1.0~12	 72 Items	• Optimal performance in stainless machining • Enhanced oxidation resistance
S	HRSA	Super Endmill	F R	4	3.0~20	 162 Items	• Endmill for HRSA machining • Optimal for machining of Ni based HRSA such as Inconel, Hastelloy, Waspaloy, etc.
N	Non-ferrous metal, Aluminum	A+ Endmill	F B R	2~3	1.0~20	 187 Items	• Effective chip evacuation in high feed machining with U-shape • Double relief angle (stronger cutting edge)
N	Non-ferrous metal, Aluminum	SSEA	F B	2~3	1.0~20	 128 Items	• Good welding resistance and chip evacuation • Minimized cutting load and built-up-edge and good surface finish
N	Composite materials	Composite Router Endmill	F	2~8	4.0~12	 44 Items	• Router for composite material machining • High performance due to Nano-Crystalline dia-coating
N	Graphite, Ceramics	D Endmill	F B	2~4	0.6~12	 151 Items	• Longer tool life due to high hardness dia-coating • Applying one-pass grinding and good surface finish
N	Dental, metal, wax, Zirconia	T Endmill	B	2	0.6~3	 11 Items	• Endmill for machining materials for stooping teeth, Zirconia, Titanium, Co-Cr, Wax, PMMA, etc. • Applicable to dental milling machine and various materials for stooping teeth
For general machining with special function	Multi-functional	M+ Endmill	F D	4	3.0~20	 32 Items	• Multi-endmill for various machining (drilling, milling, etc.)
For general machining with special function	Roughing	R+ Endmill	R	2~4	5.0~25	 204 Items	• Endmill with a shape minimizing cutting load for roughing

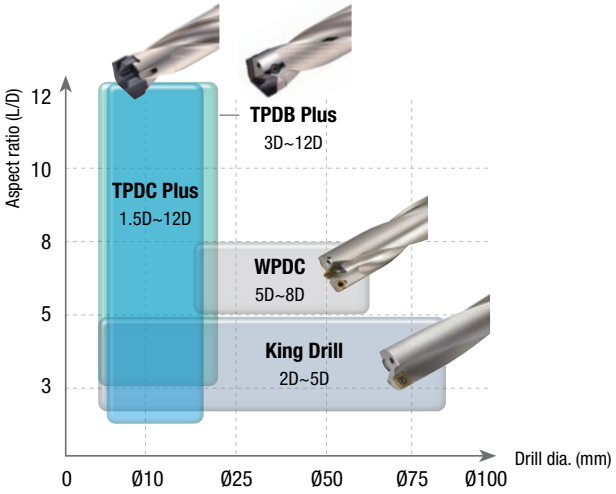
Indexable drill

Grade

King Drill					TPDC Plus				TPDB Plus			
1st	1st PVD			Carbide	1st	PVD		Carbide	PVD		1st	
PC3700	PC5300	PC5335	PC6510	H01	PC5335	PC5300	PC330N	H01	PC330P	PC5335	PC5300	PC340Q
P	P M K S	P M	K	N	P	P K	M	N	P		P K	P
		LD Chip Breaker							Carbon steel for structure			H-Beam

Application range



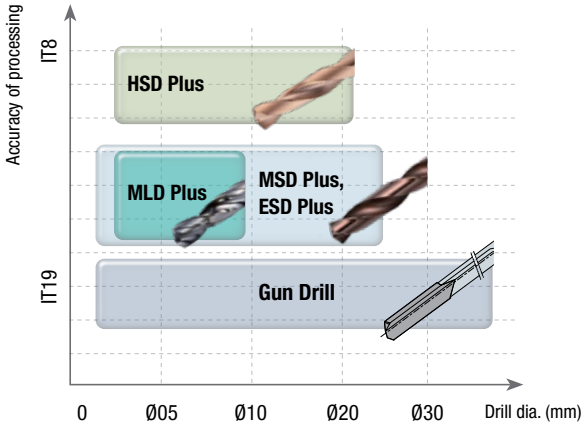


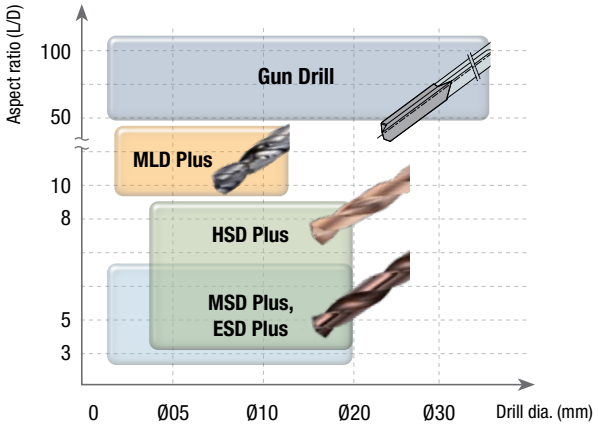
Line-up and features

Aspect ratio (L/D)	Drill dia.	Tolerance of hole	Holder	Product name	Features	Available insert		
2D~5D	Ø12.0 ~Ø60.5	-0.1~+0.4	K□D	King Drill	• Central and peripheral inserts ensures high quality of machining	External : SPE(M)T04 / 05 / 06 / 07 / 09 / 11 / 13 / 15 / 18		INFO
2D~4D	Ø61.0 ~Ø100				• Cartridge type • Adjusting machining diameter in 5 mm	Internal : XOE(M)T04 / 05 / 06 / 07 / 09 / 11 / 13 / 15 / 18		
2D~4D	Ø13.0 ~Ø60.5		K□D-HP		• For inner coolant of lathe			
1.5D~12D	Ø12.0 ~Ø30.9	0~+0.1	TPDC□D	TPDC Plus	• Optimal shape by work-piece • Management of flat type • Compatible with one holder	TPD□CP / CM / CN		INFO
						TPD□CP-FC (Flat type)		
3D~12D	Ø10.0 ~Ø32.9	0~+0.1	TPDB-P	TPDB Plus	• Standard type	TPD□B		INFO
1.5D	Ø14.0 ~Ø30.9		TPDB-F		• Flat type	TPD□B-F (Flat type)		INFO
3D~8D	Ø14.0 ~Ø30.9		TPDB-H		• Exclusive for steel structural frame	TPD□B-H		INFO

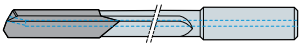
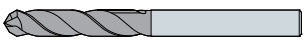
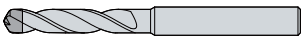
Solid drill

Application range





Line-up and feature

Work-piece	Use	Product name	Coolant	Drill dia. (tolerance)	Aspect ratio (L/D)	Geometries	Features
P M K	Medium hardness	HSD Plus	Central/ peripheral	Ø3.0~20.0 (h7)	3D~8D		• The optimal international standard for high speed machining with ~ HRC50
P M K	General	MSD Plus	Central/ peripheral	Ø1.0~20.0 (h7)	3D~7D		• High efficiency machining for various workpiece machining such as automobile components
P M K	General	MLD Plus (Long drill)	Central	Ø3.0~10.0 (h7)	10D~25D		• For deep drilling with high efficiency and high quality
P M K	General	ESD Plus	Peripheral	Ø1.0~20.0 (h7)	3D~7D		• High efficient and economic endmill
P M K	General	MSFD	Central/ peripheral	Ø2.5~12.0 (h7)	2D~3D		• Flat drill for various types of drilling such as helical machining, curved surface machining, flat surface machining, etc.
P M K	General	Gun Drill	–	Ø2.0~33.0 (h5)	50D ~ 100D		• High efficient drilling of deep hole (50D~100D) • Availability of special types
S	HRSA	MSD Plus-S	Central	Ø3.0~16.0 (h7)	3D~5D		• For HRSA machining • For hard-to-cut material machining of aerospace, energy, power generation, automobile, etc.
N	CFRP	MSD Plus CFRP	Peripheral	Ø3.0~12.7 (m7)	5D		• Machining for CFRP workpiece
N	Non-ferrous metal, Aluminum	SSD-N	Peripheral	Ø1.0~13.0 (h7)	–		• Non-coated drill for non-ferrous steel and mild steel
N	Non-ferrous metal, Aluminum	PCD Drill	Peripheral	Ø2.0~12.0 (h7)	–		• High precision and surface finish • Cone/Sandwich type

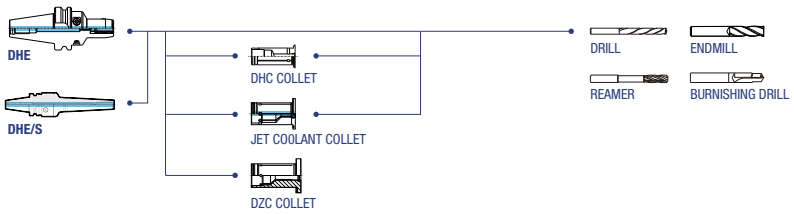
DINOX map

Division	Milling chuck	Hydraulic expansion chuck	Shrinking chuck
Use	Low to medium speed machining/ general machining	High speed finishing/ precision machining	High speed finishing for narrow and deep shape
Maintaining clamping force	★★★★	★★	★★★
Precision	★★	★★★	★★★★
High speed machining	★	★★★★	★★★★
Easy to use	★★★	★★★★	★★

Hydraulic expansion chuck

DHE

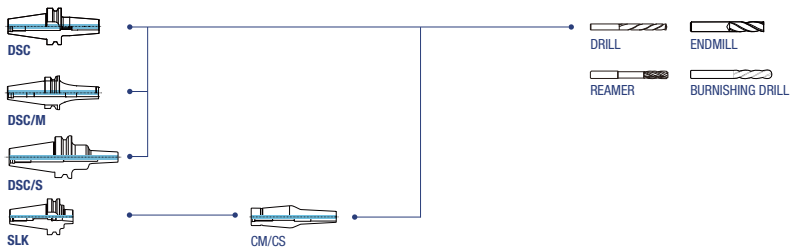
DHE/S



Shrinking chuck

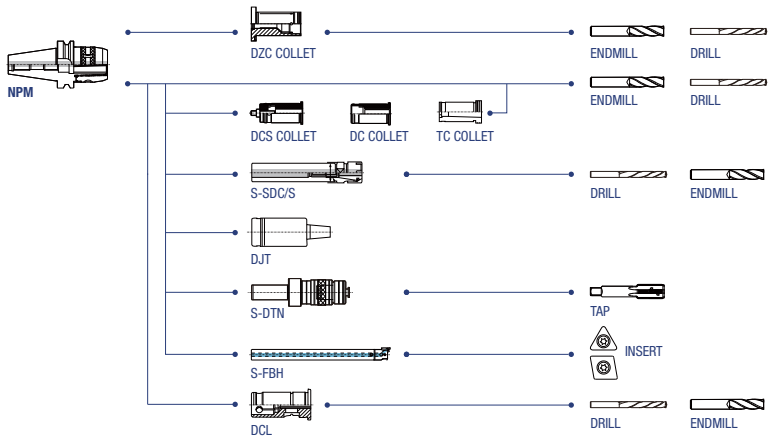
DSC

DSC/S



Milling chuck

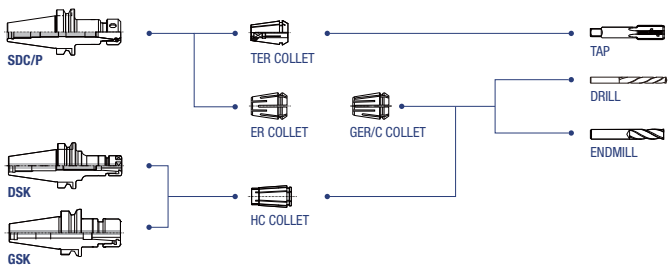
NPM



Collet chuck

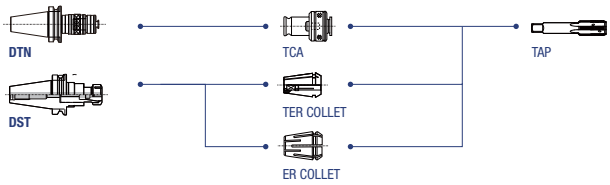
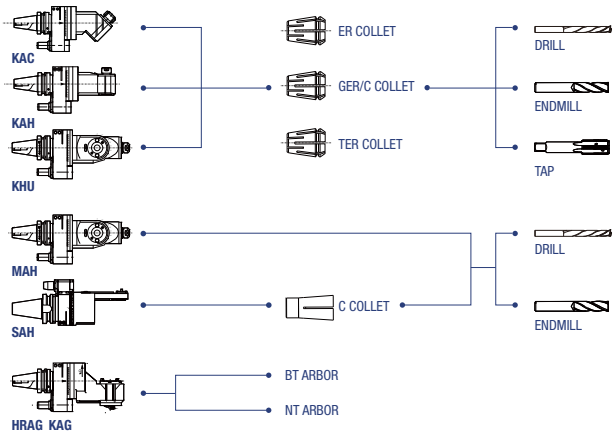
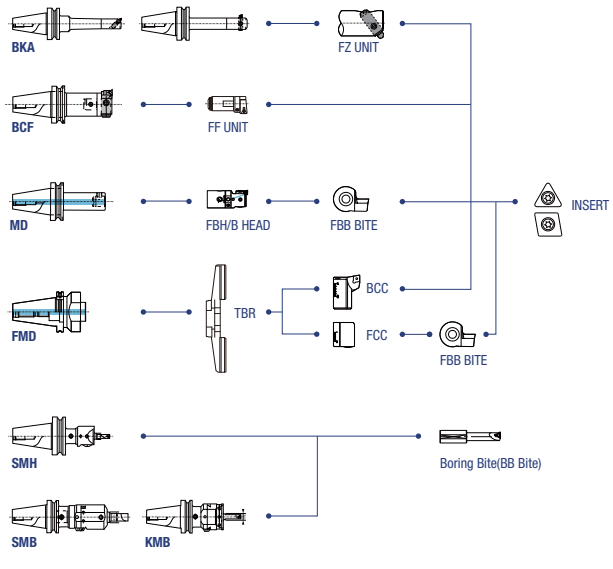
SDC/P

GSK



Drill chuck

NPU

Tapping holder	 DTN  DST	
Side lock arbor	 SLA	
Face mill arbor	 FMA	
Angular head	 KAH  MAH  KAG	
Boring series	 BT-FBH/B  BCF  TBC, FBC  KMB	
Pull stud bolt	 PSB