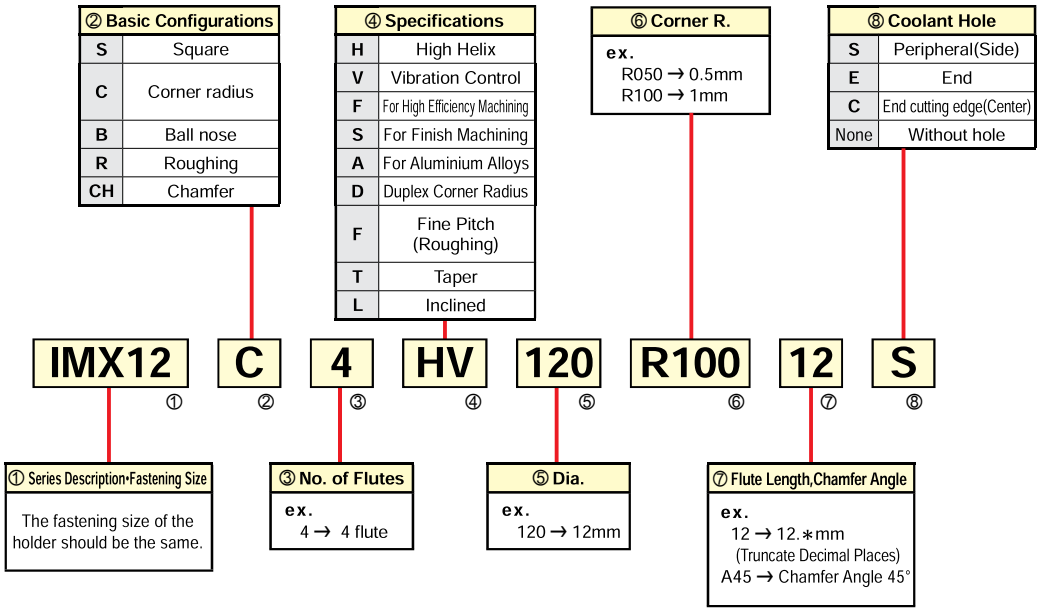
CARBIDE

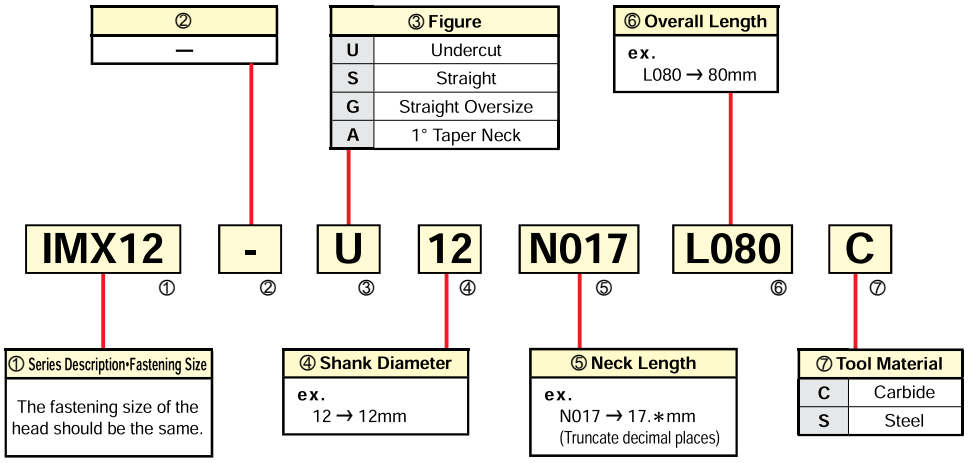
IDENTIFICATION

iMX End Mill Series

■HEAD



■HOLDER



■RUN-OUT ACCURACY AND HEAD EXCHANGE ACCURACY

(mm)

Dia. DC	Run-out accuracy for the peripheral cutting edge *	Head exchange accuracy (Axial)
<ϕ25	0.015	±0.02
≥ϕ25	0.020	

∗ Use the carbide holder. (Except iMX-R4F roughing head)

K

EXCHANGEABLE HEAD END MILLS

SYMBOL DESCRIPTIONS

Tool Material

Ultra Micro Grain Carbide
Ultra micro grain carbide is used as the substrate material.

Angle, Coolant hole, Sharp corner edge and Gash land

Helix Angle
Indicates the helix angle of the end mill.

End Cutting Edge with Coolant Hole

Peripheral Cutting Edge with Coolant Hole

Sharp Corner Edge
Indicates the end mill has a sharp corner edge.

Gash Land
Indicates the end mill cutting edge has a gash land.

Tolerances

Outside Diameter Tolerance
Indicates diameter tolerance of end mill.

R Tolerance
Indicates the radial tolerance of a ball nose end mill.

R Tolerance
Indicates the radial tolerance of an end mill with a corner radius.

Tolerance of Point Angle
Indicates the tolerance of the point angle.

Shank Diameter Tolerance
Indicates the shank diameter tolerance of end mill.

Correction factor by overhang length (Shoulder Milling)

Use by multiplying the recommended cutting condition by the correction factor by overhang length.
Refer to each recommended condition for the long cutting and offset type.

(mm)

Work Material	Carbon steel, Alloy steel, Mild steel, Copper, Copper alloys AISI 1045, AISI 4140, ASTM A36, AISI 1010				Pre-hardened steel, Carbon steel, Alloy steel, Alloy tool steel AISI P21, AISI P20, AISI 4340, SKD, SKT				Austenitic stainless steel, Ferritic and Martensitic stainless steels, Titanium alloy AISI 304, AISI 316, AISI 304LN, AISI 316LN, AISI 410, AISI 430, AISI 431, AISI 420J2, Ti-6Al-4V			
L/D	Cutting Speed (m/min)	Revolution (min^{-1})	Feed per Tooth (mm/t.)	Width of Cut ae	Cutting Speed (m/min)	Revolution (min^{-1})	Feed per Tooth (mm/t.)	Width of Cut ae	Cutting Speed (m/min)	Revolution (min^{-1})	Feed per Tooth (mm/t.)	Width of Cut ae
2	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
3	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
4	80%	80%	90%	70%	80%	80%	90%	70%	80%	80%	90%	70%
5	60%	60%	80%	40%	60%	60%	80%	40%	60%	60%	80%	40%
6	50%	50%	70%	30%	50%	50%	70%	30%	50%	50%	70%	30%
7	40%	40%	70%	20%	40%	40%	70%	20%	30%	30%	60%	20%
8	40%	40%	60%	10%	40%	40%	60%	10%	30%	30%	50%	10%
9	30%	30%	60%	10%	30%	30%	60%	10%	20%	20%	50%	10%

Work Material	Precipitation hardening stainless steel, Cobalt chromium alloy AISI 630, AISI 631				Heat resistant alloys Inconel718			
L/D	Cutting Speed (m/min)	Revolution (min^{-1})	Feed per Tooth (mm/t.)	Width of Cut ae	Cutting Speed (m/min)	Revolution (min^{-1})	Feed per Tooth (mm/t.)	Width of Cut ae
2	100%	100%	100%	100%	100%	100%	100%	100%
3	100%	100%	100%	100%	100%	100%	100%	100%
4	80%	80%	90%	70%	80%	80%	90%	70%
5	60%	60%	80%	40%	60%	60%	80%	40%
6	50%	50%	70%	30%	50%	50%	70%	30%
7	30%	30%	60%	20%	30%	30%	60%	20%
8	30%	30%	50%	10%	30%	30%	50%	10%
9	20%	20%	50%	10%	20%	20%	50%	10%

CLASSIFICATION

HEAD

(mm)

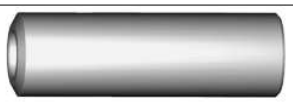
Type	Applications, Features	No. of Flutes	Product Code	Shape	Dia. DC	Coolant	Long Cutting Edge	Work Material: P – Carbon Steel	P – Tool Steel	H – -55HRC	H – 55HRC-	M – Stainless Steel	S – Titanium Alloy, Heat Resistant Alloy	N – Copper Alloy	N – Aluminium Alloy	Page
SQUARE																
	For Difficult-to-cut Materials	3	iMX-S3HV	Square head, 3 flute, Irregular helix 	10—25			◎	○			◎	◎	○		K006
		4	iMX-S4HV	Square head, 4 flute, Irregular helix 	10—32			◎	○			◎	◎	○		K010
				Square head, 4 flute, Irregular helix, Long cutting edge type 	16, 20		●	◎	○			◎	◎	○		K010
		4	iMX-S4HV-S	Square head with coolant hole, 4 flute, Irregular helix 	10—25	●		◎	○			◎	◎	○		K011
	For Aluminium Alloys	3	iMX-S3A	Square head, 3 flute, For aluminium alloy 	10—28										◎	K017
RADIUS																
	For Difficult-to-cut Materials	4	iMX-C4HV	Corner radius head, 4 flute, Irregular helix 	10—28			◎	○			◎	◎	○		K032
				Corner radius head, 4 flute, Irregular helix, Long cutting edge type 	16, 20		●	◎	○			◎	◎	○		K033
		4	iMX-C4HV-S	Corner radius head, 4 flute, Irregular helix, With coolant hole 	10—25	●		◎	○			◎	◎	○		K034
		6	iMX-C6HV	Corner radius head, Multi-flute, Irregular helix 	10, 12			◎	○			◎	◎			K040
		10	iMX-C10HV		16			◎	○			◎	◎			
		12	iMX-C12HV		20, 25			◎	○			◎	◎			
	For High Feed Machining	4	iMX-C4FD-C	With coolant hole Multi-task corner radius end mill for high feed cutting 	10—25	●		◎	◎	◎		◎	◎	○		K042
	For High Efficiency Machining	4	iMX-C4FV	Corner radius head for high efficiency machining, 4 flute, Irregular helix 	10—25			◎	◎	◎						K044
	For Aluminium Alloys	3	iMX-C3A	Corner radius head, 3 flute, For aluminium alloy 	10—28										◎	K046
	For Blade	8	iMX-C8T-C	Corner radius, Taper head, Multi-flute, With coolant hole 	8	●						◎	◎			K049
		10	iMX-C10T-C		10	●						◎	◎			
		12	iMX-C12T-C		15, 19	●						◎	◎			
		15	iMX-C15T-C		15, 19	●						◎	◎			

(mm)

Type	Applications, Features	No. of Flutes	Product Code	Shape	Dia. DC	Coolant	Long Cutting Edge	Work Material: P – Carbon Steel	P – Tool Steel	H – -55HRC	H – 55HRC-	M – Stainless Steel	S – Titanium Alloy, Heat Resistant Alloy	N – Copper Alloy	N – Aluminium Alloy	Page
ROUGHING																
	For Difficult-to-cut Materials	4	iMX-R4F	Roughing head, 4 flute 	10—25			◎	○			◎	◎	○		K020
BALL																
	For Hardened Steels	2	NEW iMX-B2S	Ball nose head, 2 flute, For hardened steels 	16—20						◎					K022
		4	NEW iMX-B4S	Ball nose head, 4 flute, For hardened steels 	16—20						◎					K023
	For High Efficiency Machining	3	NEW iMX-B3FV	Ball nose head, 3 flute, Irregular curve, For high efficiency machining 	10—20				◎	◎						K024
	For Difficult-to-cut Materials	4	iMX-B4HV	Ball nose head, 4 flute, Irregular helix 	10—25			◎	○			◎	◎	○		K026
		4	iMX-B4HV-E	Ball nose head with coolant hole, 4 flute, Irregular helix 	10—25	●		◎	○			◎	◎	○		K027
		6	iMX-B6HV	Ball nose head, 6 flute, Irregular helix 	10—25			◎	○			◎	◎			K030
CHAMFER																
	For Chamfer Materials	3	iMX-CH3L	Chamfer head, 3 flute 	10—20			◎	○	○		◎	◎			K050
		6	iMX-CH6V	Chamfer head, 6 flute 	12—20			◎	○	○		◎	◎			K052

HOLDERS

The undercut type is available in medium, semi-long, and long lengths.

Figure			Length	Taper angle one side	Tool material	Page
Undercut			Medium Semi-long Long	—	Carbide	K054
					Steel	K055
Straight	Straight		Semi-long Long	—	Carbide	K054
	Straight Oversize		Medium	—	Steel	K055
Taper neck			Long	1°	Carbide	K054