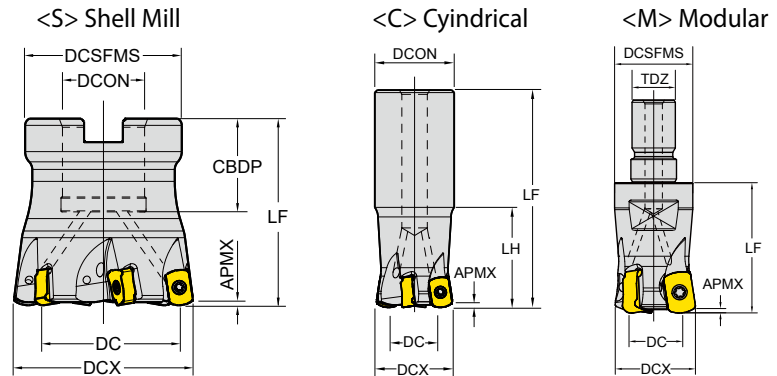


Milling - High Feed Milling - Cutter

Cutters for ENMX

Cutting Angle : 10°
4 Corner Negative



ZEFP : Effective Number of Cutting Edges
CDBP : Connection Bore Depth

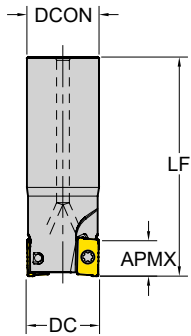
□ : p. 145 Unit : mm

Series	APMX	Designation	EDP 1700..	DC	DCX	ZEFP	LF	Type	DCON /TDZ	LH	CDBP	DCSFMS	
ENMX	0.9	EHF-ENMX06-D16Z2C16-L100	0644	9.0	16	2	100	Cylindrical	16	30	-	-	●
		EHF-ENMX06-D16Z2C16-L150	0645	9.0	16	2	150		16	50	-	-	●
		EHF-ENMX06-D17Z2C16-L100	0674	10.0	17	2	100		16	20	-	-	●
		EHF-ENMX06-D17Z2C16-L150	0473	10.0	17	2	150		16	20	-	-	●
	1	EHF-ENMX06-D20Z3C20-L130	0463	12.6	20	3	130	Cylindrical	20	50	-	-	●
		EHF-ENMX06-D20Z3C20-L160	0646	12.6	20	3	160		20	80	-	-	●
		EHF-ENMX06-D21Z3C20-L150	0475	13.6	21	3	150		20	20	-	-	●
		EHF-ENMX06-D21Z3C20-L200	0476	13.6	21	3	200		20	20	-	-	●
		EHF-ENMX06-D25Z4C25-L140	0647	17.6	25	4	140		25	60	-	-	●
		EHF-ENMX06-D25Z4C25-L180	0464	17.6	25	4	180		25	80	-	-	●
		EHF-ENMX06-D25Z4C25-L250	0648	17.6	25	4	250		25	120	-	-	●
		EHF-ENMX06-D26Z4C25-L150	0479	18.6	26	4	150		25	30	-	-	●
		EHF-ENMX06-D26Z4C25-L200	0480	18.6	26	4	200		25	30	-	-	●
		EHF-ENMX06-D32Z5C32-L150	0649	24.6	32	5	150		32	70	-	-	●
		EHF-ENMX06-D32Z5C32-L200	0465	24.6	32	5	200		32	100	-	-	●
	0.9	MHF-ENMX06-D16Z2M08	0691	9.0	16	2	23	Modular	M08		-	13	●
		MHF-ENMX06-D18Z2M08	0730	11.0	18	2	23		M08		-	13	●
	1	MHF-ENMX06-D20Z3M10	0692	12.6	20	3	30	Modular	M10		-	18	●
		MHF-ENMX06-D25Z4M12	0693	17.6	25	4	35		M12		-	21	●
		MHF-ENMX06-D32Z5M16	0694	24.6	32	5	42		M16		-	29	●
		MHF-ENMX06-D35Z5M16	0695	27.6	35	5	42		M16		-	29	●
		MHF-ENMX06-D40Z6M16	0732	32.6	40	6	42		M16		-	29	●
		MHF-ENMX06-D42Z6M16	0696	34.6	42	6	42		M16		-	29	●
	1	FHF-ENMX06-D40Z6S16	0482	32.6	40	6	40	Shell Mill	16		18	37	●
		FHF-ENMX06-D50Z6S22	0471	42.6	50	6	50		22		25	42	●

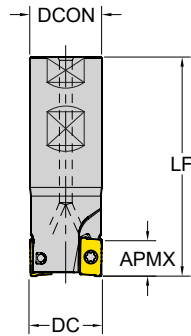
Technical Information

		Unit:mm				
		DCX Cutting Diameter Maximum	APMXR Radial AP Max	RP Programmed Corner R	UTCN Uncut Thickness	Overcut
		16	3.5	R2.0	0.31	0.00
		16~	3.7	R2.5	0.18	0.18
				R3.0	0.07	0.36

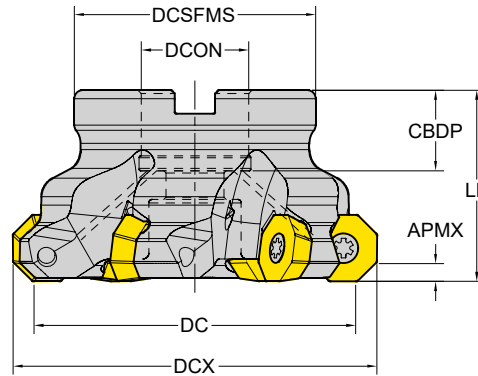
Code Keys - Milling Cutters



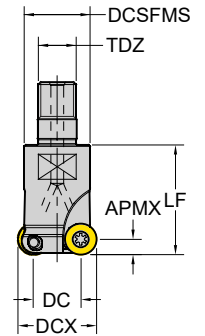
<C> Cylindrical



<W> Weldon



<S> Shell Mill



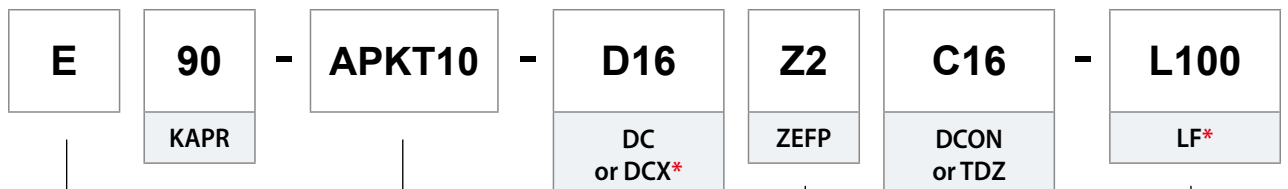
<M> Modular

Cutting Angle
(90°)

Cutter Diameter
(Ø16)

Connection Type and Size

C - Cylindrical W - Weldon
S - Shell Mill M - Modular
(Cylindrical Ø16)



* Shank Type Only

* DCX for Round insert

Cutter Type
E - Endmill Type
F - Facemill Type
M - Modular Type

Insert Series
(APKT 10)

Number of Teeth
(Z=2)

Functional Length
(100mm)

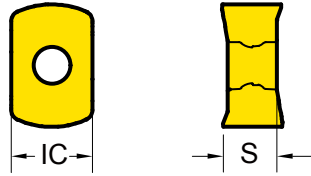


Milling - High Feed Milling - Inserts

ENMX - High Feed Negative (4 Corners)

[Click for the ENMX Catalog](#)

Series	IC	S
ENMX 0604	6.3	4.21

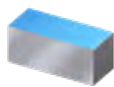


EDP 1200..

●: Stock item ○: Order made item

P25	P30	P20	P30	P40	K15	K15
M30	K30	K30	S30	H15		

ENMX	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	YG602	YG622	YG712	YG713	YG603	YG501	YG5020
ENMX General	ENMX 0604		0.3 ~ 2.0		● 0474						
- TR Hardened Steel	ENMX 0604 -TR		0.3 ~ 2.5		● 0459						



General



Plunging



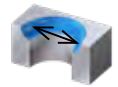
Ramping



Profiling



Helical Interpolation



Enlarge Hole

DCX	APMX	APMXR	RMPX	RP	UTCN	Diameter	Diameter	Pitch	Ae
External Cutter Diameter	Maximum Depth of Cut	Maximum Radial Depth of Cut	Maximum Ramping Angle(°)	Programmed Corner Radius	Uncut Thickness	Minimum Cutting Diameter	Maximum Cutting Diameter	Helical Interpolation Pitch	Enlarge Width
16	0.9	3.5	3.5°	R2.0	0.3	21	30	0.9	12.5
20	1	3.7	1.8°	R2.0	0.31	29	38	1	16.3
25	1	3.7	1.2°	R2.0	0.31	39	48	1	21.3
32	1	3.7	0.8°	R2.0	0.31	53	62	1	28.3
40	1	3.7	0.6°	R2.0	0.31	69	78	1	36.3
50	1	3.7	0.5°	R2.0	0.31	89	98	1	46.3

Cutting Speed			Vc (m/min.)													
ISO	VDI	Sub Group	YG602		YG622		YG712		YG713		YG603		YG501		YG5020	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
P	1~5	Non-Alloyed Steel	140	380	140	400	170	300	150	280	90	230	-	-	-	-
	6~9	Low-Alloyed Steel	120	300	120	320	180	250	130	235	70	210	-	-	-	-
	10~11	High-Alloyed Steel	70	150	70	170	100	140	90	130	60	100	-	-	-	-
M	12~13	Ferritic & Martensitic	120	200	-	-	-	-	-	-	80	180	-	-	-	-
	14	Austenitic Stainless Steel	130	250	-	-	-	-	-	-	100	200	-	-	-	-
K	15~16	Grey Cast Iron	120	250	120	270	-	-	-	-	-	-	180	350	200	350
	17~18	Nodular Cast Iron	130	220	130	240	-	-	-	-	-	-	120	270	150	300
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	25	45	-	-	-	-	-	-	20	40			-	-
H	38~41	Hard Materials	40	80	40	100	-	-	50	100	-	-	50	90	-	-

Milling Grades and Chipbreakers

Milling Grades

Milling Grades		P Steel					M Stainless steel				K Cast iron				N Non-ferrous				S Superalloys			
		P05	P15	P25	P35	P45	M05	M15	M25	M35	K05	K15	K25	K35	N05	N15	N25	N35	S05	S15	S25	S35
PVD	YG602			602					602				602							602		
	YG622			622									622									
	YG712			712																		
	YG713			713																		
	YG603				603				603													603
	YG501												501									
CVD	YG5020												5020									
Uncoated	YG50															50						

YG602 P20 - P35 M20 - M40 K20 - K40 S15 - S25	 PVD - TiAlN	Universal grade for General Milling Application • Ultra Dense PVD Coating with optimal thermal resistance & strength • Sub-Micron substrate designed for demanding application
YG622 P20 - P40 K20 - K40	 PVD - AlCrN	Optimized Grade for High Alloyed or Prehardened Steel Excellent hot hardness and oxidation resistance at high speed
YG712 P10 - P30	 PVD - AlTiCrN	General Milling Grade for Steel
YG713 P15 - P25 H20-H30	 PVD - TiAlN	Milling Grade for General Steel Application • Multi-layer TiAlN structure realizes stronger crater and flank wear resistance • Fine-grained carbide and balanced substrate
YG603 P35 - P45 M30 - M40 S30	 PVD - TiAlN	Tough Milling grade for Stainless Steel • New coating layer with high toughness and lubrication on ultra fine grain substrate with high toughness. • The toughest substrates provides excellent cutting performance in stainless steel

Milling Grades and Chipbreakers

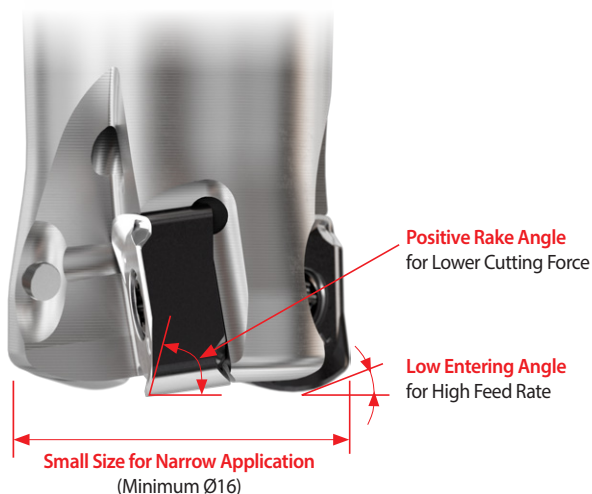
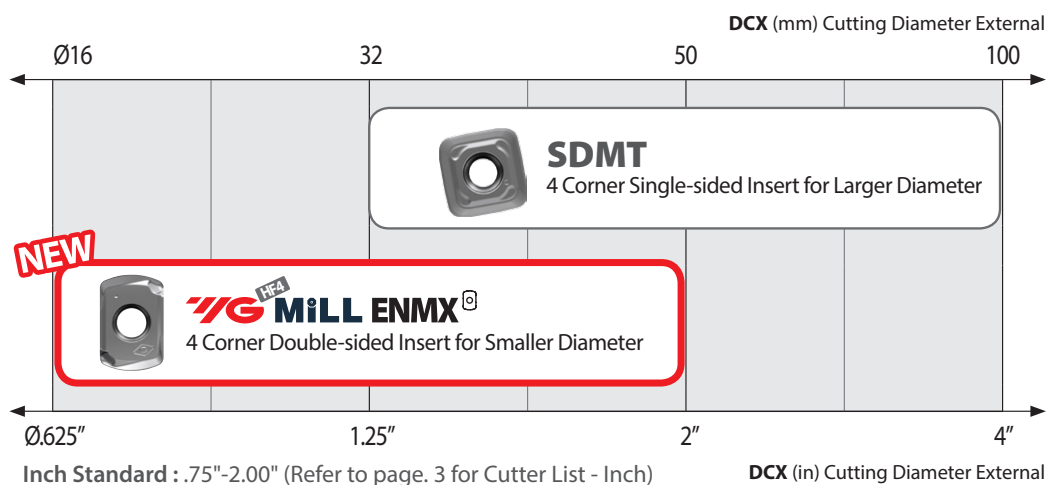
Milling Grades

YG501 K05 - K25 H05 - H25		Hard Milling grade for Cast Iron • Substrate especially designed for high wear resistance • Excellent wear resistance in cast iron milling application
YG5020 K01-K30		CVD Milling grade for Cast Iron • CVD coating for Excellent wear resistance • Improved Toughness for chipping resistance
YG50 N05 - N20		Uncoated Milling Grade for Aluminium • Submicron carbide substrate for high wear resistance • Preventing built up edge with shining surface

Milling Chipbreakers

-AL		• For Aluminum • Very Sharp Geometry
-ST		• For Stainless Steel, Super Alloy • Sharp Geometry
General Inserts (No Description)		• First Choice for General Application
-TR		• For Hardened Steels • Reinforced Geometry
...W / ...N		• For Hardened Material and Cast Irons

NEW High Feed Milling Series for Small Size



Application

- High Feed Milling, Profiling, Face Milling, Ramping, Plunging, Helical Interpolation

Features

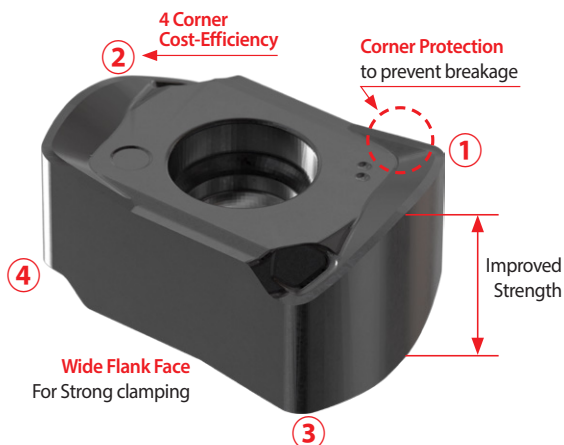
- Diameter Range : 16~50mm (.750"-2.0")
- Double-sided Insert with 4 Corners
- Wide Flank Face with Reinforced Insert Shape
- Positive Rake Angle & Low Entering Angle
- 2 Insert Geometries



ENMX[®] General
Carbon Steel
Low Alloy Steel



ENMX[®]-TR
Reinforced Edge
High Alloy Steel
Hardened Steel
Cast Iron



Advantages

- Narrow application Available (Minimum Ø16)
- High Versatile Machining
- High Cost-Efficiency
- Rigid Clamping on Insert Seat
- Prevent Breakage on Machining
- High Feed Rate Available with Low Cutting Force

Benefits

- Expand machining ability with High Versatility & Small Diameter Ability
- Boost up productivity with High Feed Rate
- Safe Machining with Rigidity and Strong Insert Shape

Milling - Code System

Insert ISO Code System

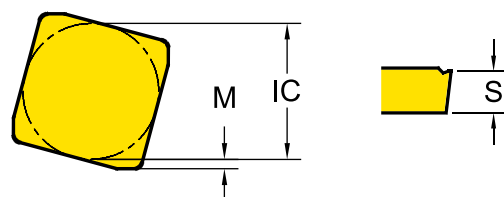
1	2	3	4	5	6	7
A	P	K	T	16	04	08
Shape	Relief Angle (AN)	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness (S)	CornerRadius

1 - Shape

Symbol	Shape	
H	Hexagonal	
O	Octagonal	
P	Pentagonal	
S	Square	
T	Triangular	
V	Rhombic 35°	
W	Trigon	
L	Rectangular	
A	Parallelogram 80°	
R	.Round	

2 - Relief Angle (AN)

Symbol	Relief Angle (AN)	
N	No Relief Angle	
B	Relief 5°	
C	Relief 7°	
P	Relief 11°	
D	Relief 15°	
E	Relief 20°	
F	Relief 25°	
O	Special	



3 - Tolerance Class

Symbol	Inner Circle IC (mm)	Nose Height M (mm)	Thickness S (mm)
C	± 0.025	± 0.013	± 0.025
E	± 0.025	± 0.025	± 0.025
G	± 0.025	± 0.025	± 0.13
H	± 0.013	± 0.013	± 0.025
K*	± 0.05~0.15*	± 0.013	± 0.025
M*	± 0.05~0.15*	± 0.08~0.2*	± 0.13
U*	± 0.08~0.25*	± 0.13~0.38*	± 0.13

* Tolerance is different by insert IC size. Please see ISO 1832

4 - Clamping & Chipbreaker

Symbol	Clamping	Chipbreaker	Figure
N	No clamping hole	X	
R		One Face	
W	Screw Hole	X	
T		One Face	
U		Both Faces	
X	Special		

5 - Insert Size

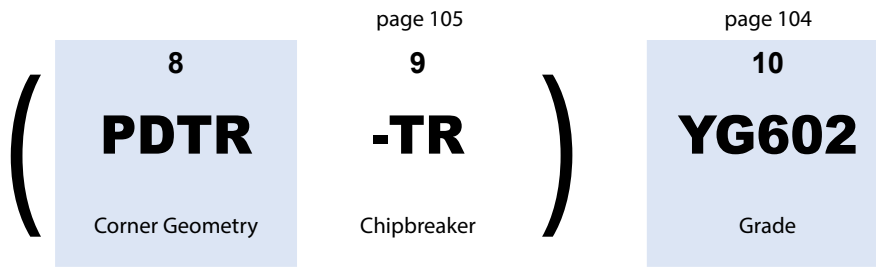
* No Standard for milling insert size

6 - Insert Thickness

* No Standard for milling insert thickness

Milling - Code System

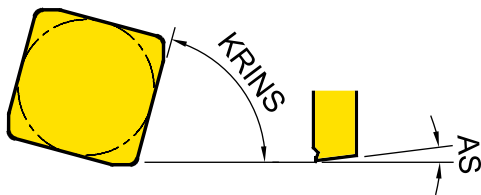
Insert ISO Code System



7 - Corner Radius (RE)

Symbol	Thickness - S (mm)	Symbol	Thickness - S (mm)
04	0.4	16	1.6
08	0.8	20	2.0
12	1.2	24	2.4

8 - Corner Geometry



8-1	8-2	8-3	8-4
P	D	T	R
Cutting Edge Angle (KRINS)	Wiper Edge Clearance (AS)	Edge Condition	Feed Direction

*Refer to page. 105 for -AL, -ST, -TR... types

8-1 - Cutting Edge Angle (KRINS)

Symbol	Cutting Edge Angle (KRINS)
P	90°
A	45°
D	60°
E	75°
F	85°
Z	Special

8-3 - Edge Condition

Symbol	Edge Condition
F	Sharp
E	Rounded
T	Chamfered
S	Chamfered and Rounded

8-2 - Wiper Edge Clearance (AS)

Symbol	Wiper Edge Clearance (AS)
N	0°
P	11°
D	15°
E	20°
F	25°
Z	Special

8-4 - Feed Direction

Symbol	Feed Direction
R	Right-hand Insert
N	Neutral Insert
L	Left-hand Insert