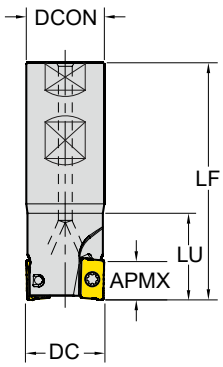
Milling - Shoulder Milling - Cutter

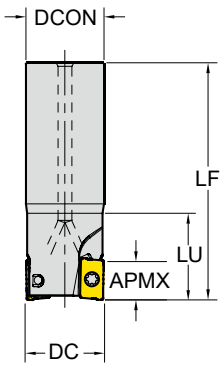
Cutters for APKT

Cutting Angle : 90°
2 Corner Positive

<W> Weldon



<C> Cyindrical



ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CBDP : Connection Bore Depth

: p. 132

Unit:mm

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
APKT 1003	10.0	E90 - APKT10 - D16Z2C16 - L100	0083	16	2	40	100	Cylindrical	16	-	-	-	-	●
		E90 - APKT10 - D16Z2C16 - L120	0532	16	2	30	120		16	-	-	-	-	●
		E90 - APKT10 - D16Z2C16 - L150	0154	16	2	40	150		16	-	-	-	-	●
		E90 - APKT10 - D16Z2C16 - L200	0533	16	2	100	200		16	-	-	-	-	●
		E90 - APKT10 - D20Z2C20 - L250	0534	20	2	150	250		20	-	-	-	-	●
		E90 - APKT10 - D20Z3C20 - L100	0535	20	3	30	100		20	-	-	-	-	●
		E90 - APKT10 - D20Z3C20 - L120	0085	20	3	40	120		20	-	-	-	-	●
		E90 - APKT10 - D20Z3C20 - L150	0536	20	3	50	150		20	-	-	-	-	●
		E90 - APKT10 - D20Z3C20 - L200	0270	20	3	100	200		20	-	-	-	-	●
		E90 - APKT10 - D25Z3C25 - L100	0537	25	3	30	100		25	-	-	-	-	●
		E90 - APKT10 - D25Z3C25 - L120	0186	25	3	40	120		25	-	-	-	-	●
		E90 - APKT10 - D30Z4C25 - L100	0122	30	4	30	100		25	-	-	-	-	●
		E90 - APKT10 - D30Z4C25 - L120	0086	30	4	30	120		25	-	-	-	-	●
		E90 - APKT10 - D32Z4C25 - L100	0538	32	4	35	100		25	-	-	-	-	●
		E90 - APKT10 - D32Z4C25 - L150 - WOC	0539	32	4	35	150		25	-	-	-	-	X
		E90 - APKT10 - D12Z1W16 - L100	0540	12	1	30	100	Weldon	16	-	-	-	-	●
		E90 - APKT10 - D14Z1W16 - L100	0541	14	1	30	100		16	-	-	-	-	●
		E90 - APKT10 - D16Z2W16 - L100	0542	16	2	30	100		16	-	-	-	-	●
		E90 - APKT10 - D16Z2W16 - L85	0082	16	2	-	85		16	-	-	-	-	●
		E90 - APKT10 - D18Z2W16 - L100	0543	18	2	30	100		16	-	-	-	-	●

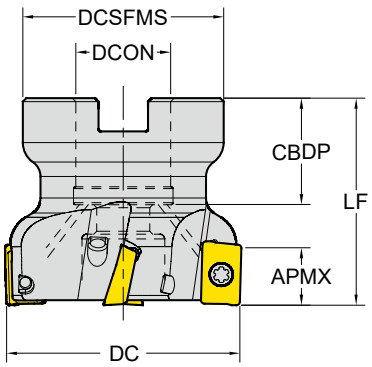
▶ NEXT PAGE

Milling - Shoulder Milling - Cutter

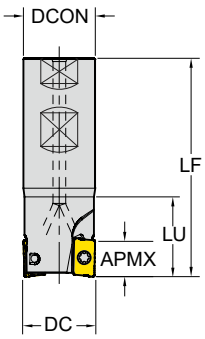
Cutters for APKT

Cutting Angle : 90˚
2 Corner Positive

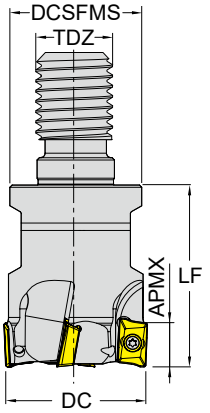
<S> Shell Mill



<W> Weldon



<M> Modular



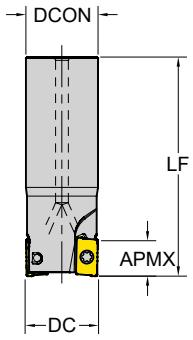
ZEFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CBDP : Connection Bore Depth

: p. 132

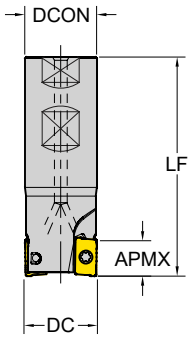
Unit : mm

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON /TDZ	CBDP	DCSFMS	PCD1	PCD2	
APKT 1003	10.0	E90 - APKT10 - D20Z3W20 - L100	0461	20	3	30	100	Weldon	20	-	-	-	-	●
		E90 - APKT10 - D20Z3W20 - L90	0084	20	3	40	90		20	-	-	-	-	●
		E90 - APKT10 - D22Z3W20 - L100	0544	22	3	30	100		20	-	-	-	-	●
		E90 - APKT10 - D25Z3W25 - L100	0545	25	3	30	100		25	-	-	-	-	●
		E90 - APKT10 - D25Z4W25 - L100	0546	25	4	30	100		25	-	-	-	-	●
		E90 - APKT10 - D32Z4W32 - L150 - WOC	0547	32	4	50	150		32	-	-	-	-	X
		F90 - APKT10 - D40Z4S16	0087	40	4	-	40	Shellmill	16	18	34	-	-	●
		F90 - APKT10 - D40Z5S16	0472	40	5	-	40		16	20	36	-	-	●
		F90 - APKT10 - D50Z6S22	0215	50	6	-	40		22	22	42	-	-	●
		F90 - APKT10 - D50Z7S22	0088	50	7	-	40		22	20	42	-	-	●
		F90 - APKT10 - D63Z7S22	0548	63	7	-	40		22	22	48	-	-	●
		F90 - APKT10 - D80Z8S27	0549	80	8	-	50		27	25	58	-	-	●
		F90 - APKT10 - D100Z9S32	0550	100	9	-	50		32	26	65	-	-	●
		M90 - APKT10 - D16Z2M08	0551	16	2	-	30	Modular	M08	-	14.75	-	-	●
		M90 - APKT10 - D20Z3M10	0552	20	3	-	30		M10	-	18	-	-	●
		M90 - APKT10 - D25Z3M12	0553	25	3	-	35		M12	-	21	-	-	●
		M90 - APKT10 - D32Z4M16	0554	32	4	-	35		M16	-	29	-	-	●
		M90 - APKT10 - D40Z5M16	0555	40	5	-	43		M16	-	29	-	-	●
		M90 - APKT10 - D42Z5M16	0556	42	5	-	43		M16	-	29	-	-	●

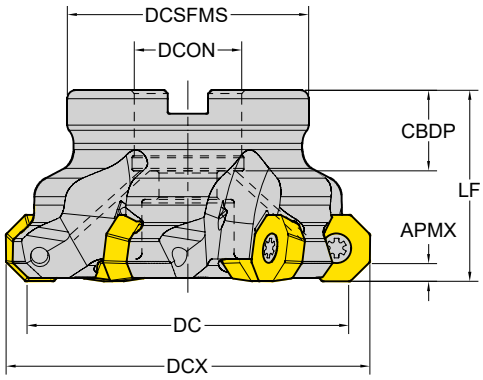
Code Keys - Milling Cutters



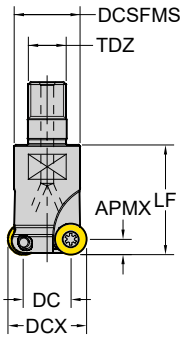
<C> Cylindrical



<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

E	90	-	APKT10	-	D16	Z2	C16	-	L100
	KAPR				DC or DCX*	ZEFP	DCON or TDZ		LF*

* DCX for Round insert

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

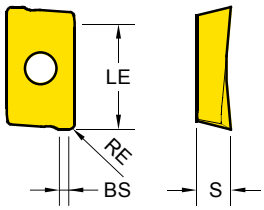
Insert Series
(APKT 10)

Number of Teeth
(Z=2)

Functional Length
(100mm)

Milling - Shoulder Milling - Inserts

APKT - Shoulder Milling Positive (2 Corner)



Series	LE	IC	S
APKT 1003	9.9	6.7	3.6
APKT 1604	15.2	9.4	5.3

EDP 1200..
●: Stock item ○: Order made item

APKT		Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	P25 M30 K30 S20 YG602	P30 K30 YG622	P20 YG712	P30 YG713	P40 M35 S30 YG603	K15 H15 YG501	K15 YG5020
APKT General		APKT 100305 PDTR	0.5	0.15 ~ 0.24	0.86	● 0005	● 0429		● 0638			
		APKT 100308 PDTR	0.8	0.15 ~ 0.24	0.90	● 0004	● 0430		● 0632			
		APKT 160404 PDTR	0.4	0.15 ~ 0.25	1.11	● 0003						
		APKT 160408 PDTR	0.8	0.15 ~ 0.30	1.32	● 0001			● 0633			
		APKT 160412 PDTR	1.2	0.15 ~ 0.32	1.13	● 0002						
		APKT 160416 PDTR	1.6	0.15 ~ 0.34	1.13	● 0006						
		APKT 160424 PDTR	2.4	0.15 ~ 0.38		● 0255						
-ST Stainless Steel Super Alloy		APKT 100305 - ST	0.5	0.08 ~ 0.22	0.86	● 0278						
		APKT 160408 - ST	0.8	0.08 ~ 0.25	1.32	● 0270						
-TR Hardened Steel		APKT 160404 - TR	0.4	0.26 ~ 0.40	2.12	● 0492	● 0505					
		APKT 160408 - TR	0.8	0.26 ~ 0.40	1.32	● 0256	● 0337					
		APKT 160412 - TR	1.2	0.26 ~ 0.40	2.40	● 0493	● 0523					
		APKT 160416 - TR	1.6	0.26 ~ 0.40	2.40	● 0472	● 0524					
		APKT 160424 - TR	2.4	0.26 ~ 0.40	1.50	● 0494	● 0520					

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	-	-

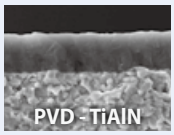
Milling Grades and Chipbreakers

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

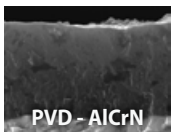


Universal grade for General Milling Application

- Ultra Dense PVD Coating with optimal thermal resistance & strength
- Sub-Micron substrate designed for demanding application

YG622

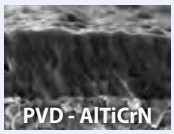
P20 - P40 | K20 - K40



Optimized Grade for High Alloyed or Prehardened Steel
Excellent hot hardness and oxidation resistance at high speed

YG712

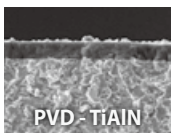
P10 - P30



General Milling Grade for Steel

YG713

P15 - P25 | H20-H30

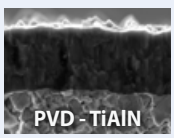


Milling Grade for General Steel Application

- Multi-layer TiAlN structure realizes stronger crater and flank wear resistance
- Fine-grained carbide and balanced substrate

YG603

P35 - P45 | M30 - M40 | S30

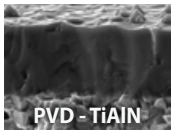
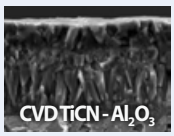
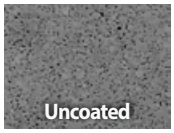


Tough Milling grade for Stainless Steel

- 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

Milling - Code System

Insert ISO Code System

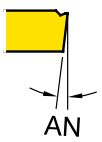
1	2	3	4	5	6	7
A	**P**	**K**	**T**	**16**	**04**	**08**
Shape	Relief Angle (AN)	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness (S)	CornerRadius

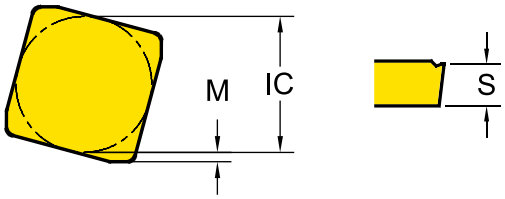
1 - Shape

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

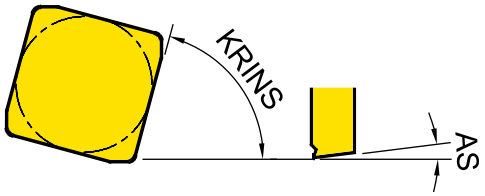
Insert ISO Code System

	8		9		10
(	**PDTR**		**-TR**	)	**YG602**
	Corner Geometry		Chipbreaker		Grade
		page 105			page 104

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