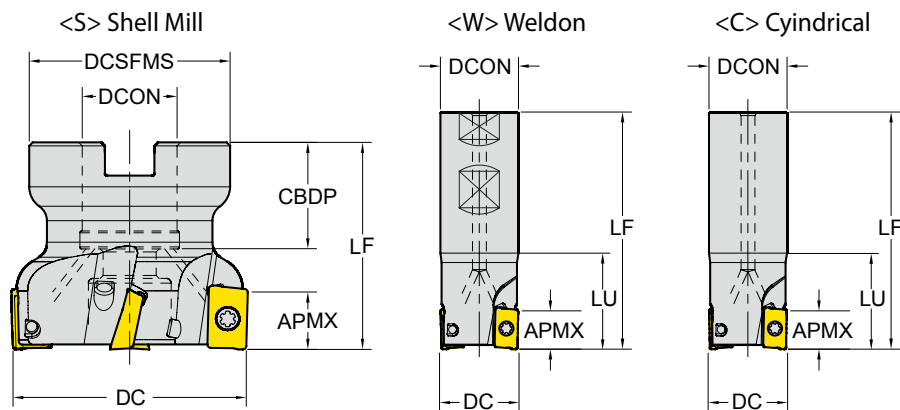


Milling - Shoulder Milling - Cutter

Cutters for APKT

Cutting Angle : 90°
2 Corner Positive



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

□ : p.132

Unit:mm

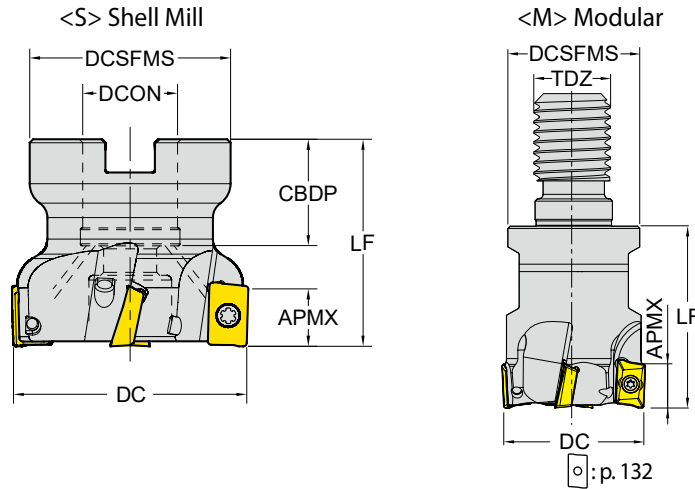
Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	☉		
APKT 1604	16.0	E90 - APKT16 - D25Z2C20 - L100	0091	25	2	-	100	Cylindrical	20	-	-	-	-	●		
		E90 - APKT16 - D25Z2C20 - L100 - WOC	0243	25	2	35	100		20	-	-	-	-	-	X	
		E90 - APKT16 - D25Z2C25 - L250 - WOC	0557	25	2	100	250		25	-	-	-	-	-	X	
		E90 - APKT16 - D32Z2C32 - L250 - WOC	0558	32	2	100	250		32	-	-	-	-	-	X	
		E90 - APKT16 - D32Z3C25 - L110	0094	32	3	-	110		25	-	-	-	-	-	●	
		E90 - APKT16 - D32Z3C25 - L200	0559	32	3	40	200		25	-	-	-	-	-	●	
		E90 - APKT16 - D32Z3C32 - L150 - WOC	0250	32	3	50	150		32	-	-	-	-	-	X	
		E90 - APKT16 - D32Z3C32 - L250 - WOC	0560	32	3	100	250		32	-	-	-	-	-	X	
		E90 - APKT16 - D40Z4C32 - L150 - WOC	0561	40	4	40	150		32	-	-	-	-	-	X	
		E90 - APKT16 - D25Z2W25 - L100	0562	25	2	35	100	Weldon	25	-	-	-	-	-	●	
		E90 - APKT16 - D25Z2W25 - L110	0092	25	2	-	110		25	-	-	-	-	-	-	●
		E90 - APKT16 - D28Z3W25 - L100	0563	28	3	40	100		25	-	-	-	-	-	-	●
		E90 - APKT16 - D30Z3W25 - L110	0564	30	3	40	110		25	-	-	-	-	-	-	●
		E90 - APKT16 - D32Z3W25 - L110	0093	32	3	-	110		25	-	-	-	-	-	-	●
		E90 - APKT16 - D32Z3W32 - L110	0565	32	3	40	110		32	-	-	-	-	-	-	●
		E90 - APKT16 - D36Z3W32 - L110	0566	36	3	40	110		32	-	-	-	-	-	-	●
F90 - APKT16 - D40Z4S16	0275	40	4	-	40	Shellmill	16	20	36	-	-	-	●			
F90 - APKT16 - D50Z5S22	0095	50	5	-	40		22	20	45	-	-	-	●			

▶ NEXT PAGE

Milling - Shoulder Milling - Cutter

Cutters for APKT

Cutting Angle : 90°
2 Corner Positive

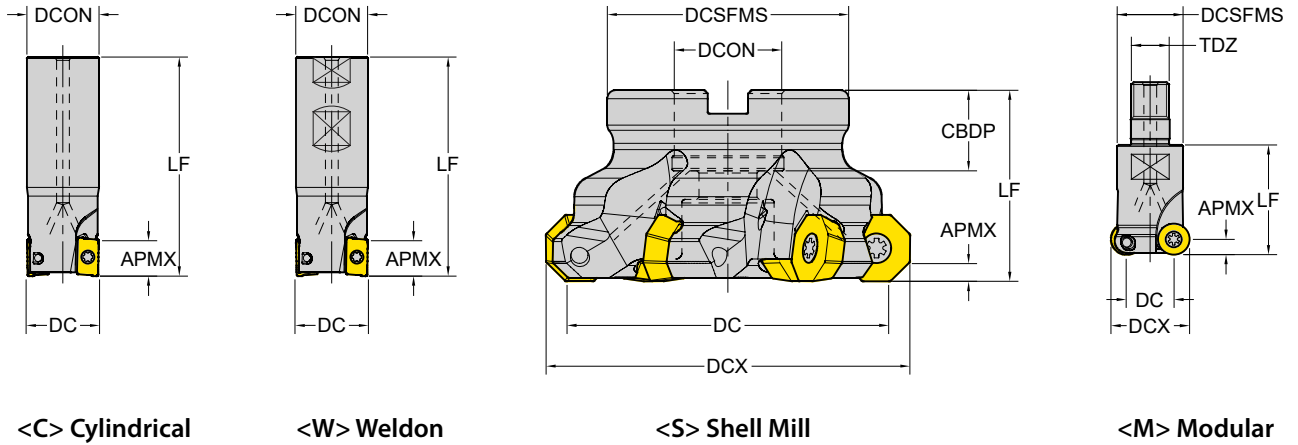


ZAFP : Effective Number of Cutting Edges
CICT : Number of Inserts
CBDP : Connection Bore Depth

Unit : mm

Series	APMX	Designation	EDP 1700..	DC	ZAFP	LU	LF	TYPE	DCON /TDZ	CBDP	DCSFMS	PCD1	PCD2	
APKT 1604	16.0	F90 - APKT16 - D52Z5S22	0567	52	5	-	40	Shellmill	22	22	42	-	-	●
		F90 - APKT16 - D63Z6S22	0096	63	6	-	40		22	20	50	-	-	●
		F90 - APKT16 - D80Z7S27	0097	80	7	-	50		27	23	56	-	-	●
		F90 - APKT16 - D100Z8S32	0181	100	8	-	50		32	26	65	-	-	●
		F90 - APKT16 - D125Z9S40 - WOC	0238	125	9	-	63		40	32	80	-	-	X
		F90 - APKT16 - D160Z10S40 - WOC	0568	160	10	-	63		40	32	110	66.7	-	X
		F90 - APKT16 - D200Z12S60 - WOC	0569	200	12	-	63		60	40	130	101.6	-	X
M90 - APKT16 - D25Z2M12	0570	25	2	-	43	Modular	M12	-	21	-	-	●		
M90 - APKT16 - D32Z3M16	0571	32	3	-	43		M16	-	29	-	-	●		
M90 - APKT16 - D42Z4M16	0572	42	4	-	43		M16	-	29	-	-	●		

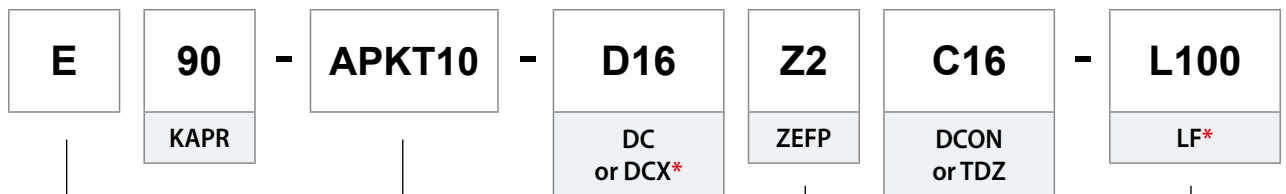
Code Keys - Milling Cutters



Cutting Angle
(90°)

Cutter Diameter
(Ø16)

Connection Type and Size
C - Cylindrical W - Weldon
S - Shell Mill M - Modular
(Cylindrical Ø16)



* DCX for Round insert

* Shank Type Only

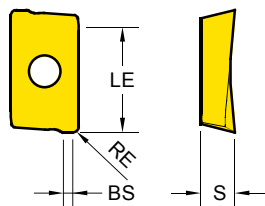
Cutter Type
E - Endmill Type
F - Facemill Type
M - Modular Type

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

P25	P30	P20	P30	P40	K15	K15
M30	K30			M35	S30	H15
S20						

APKT	Designation	RE (mm)	Fz (mm/tooth)	BS (mm)	EDP 1200..							
					YG602	YG622	YG712	YG713	YG603	YG501	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	1.13	●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		
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

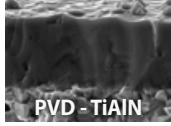
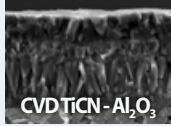
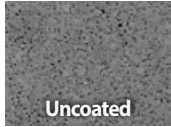
Milling Grades

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								






<p>YG602</p> <p>P20 - P35 M20 - M40</p> <p>K20 - K40 S15 - S25</p>	<p>PVD - TiAlN</p>	<p>Universal grade for General Milling Application</p> <ul style="list-style-type: none"> • Ultra Dense PVD Coating with optimal thermal resistance & strength • Sub-Micron substrate designed for demanding application
<p>YG622</p> <p>P20 - P40</p> <p>K20 - K40</p>	<p>PVD - AlCrN</p>	<p>Optimized Grade for High Alloyed or Prehardened Steel</p> <p>Excellent hot hardness and oxidation resistance at high speed</p>
<p>YG712</p> <p>P10 - P30</p>	<p>PVD - AlTiCrN</p>	<p>General Milling Grade for Steel</p>
<p>YG713</p> <p>P15 - P25</p> <p>H20-H30</p>	<p>PVD - TiAlN</p>	<p>Milling Grade for General Steel Application</p> <ul style="list-style-type: none"> • Multi-layer TiAlN structure realizes stronger crater and flank wear resistance • Fine-grained carbide and balanced substrate
<p>YG603</p> <p>P35 - P45 M30 - M40</p> <p>S30</p>	<p>PVD - TiAlN</p>	<p>Tough Milling grade for Stainless Steel</p> <ul style="list-style-type: none"> • 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

<p>YG501</p> <p>K05 - K25</p> <p>H05 - H25</p>	 <p>PVD - TiAlN</p>	<p>Hard Milling grade for Cast Iron</p> <ul style="list-style-type: none"> • Substrate especially designed for high wear resistance • Excellent wear resistance in cast iron milling application
<p>YG5020</p> <p>K01 - K30</p>	 <p>CVD TiCN - Al₂O₃</p>	<p>CVD Milling grade for Cast Iron</p> <ul style="list-style-type: none"> • CVD coating for Excellent wear resistance • Improved Toughness for chipping resistance
<p>YG50</p> <p>N05 - N20</p>	 <p>Uncoated</p>	<p>Uncoated Milling Grade for Aluminium</p> <ul style="list-style-type: none"> • Submicron carbide substrate for high wear resistance • Preventing built up edge with shining surface

Milling Chipbreakers

<p>-AL</p>		<ul style="list-style-type: none"> • For Aluminum • Very Sharp Geometry
<p>-ST</p>		<ul style="list-style-type: none"> • For Stainless Steel, Super Alloy • Sharp Geometry
<p>General Inserts (No Description)</p>		<ul style="list-style-type: none"> • First Choice for General Application
<p>-TR</p>		<ul style="list-style-type: none"> • For Hardened Steels • Reinforced Geometry
<p>...W / ...N</p>		<ul style="list-style-type: none"> • For Hardened Material and Cast Irons

Milling - Code System

Insert ISO Code System

TURNING

PARTING & GROOVING

MILLING

DRILLING

THERMAL SPRAY COATING

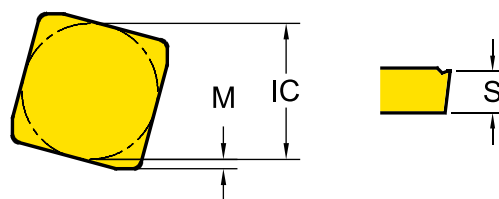


1 - Shape

Symbol	Shape	Diagram
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)	Diagram
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

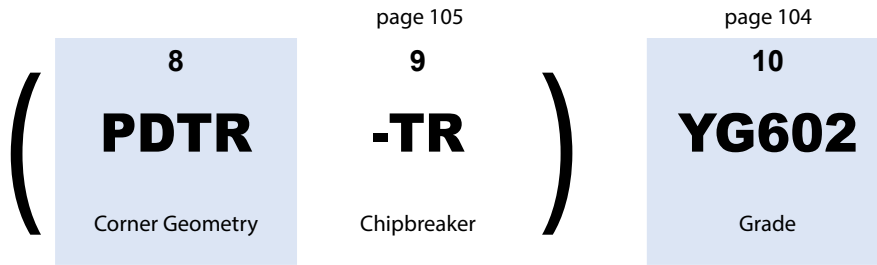
* No Standard for milling insert size

6 - Insert Thickness

* No Standard for milling insert thickness

Milling - Code System

Insert ISO Code System



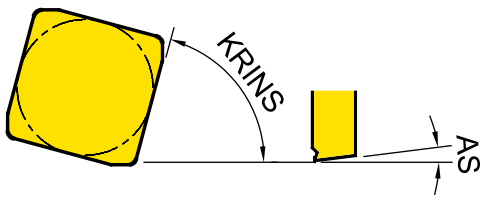
page 105

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