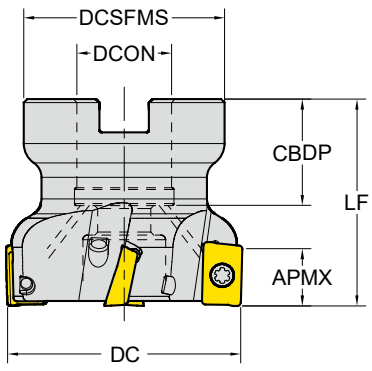
Milling - Shoulder Milling - Cutter

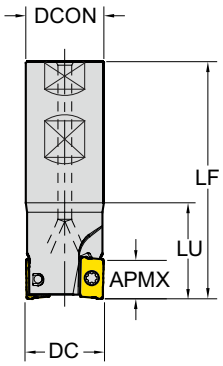
Cutters for APKT

Entry Angle : 90°
2 Corner Positive

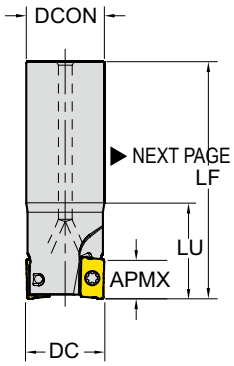
<S> Shell Mill



<W> Weldon



<C> Cyindrical



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

: p. 98

Unit : inch

Series	APMX	Designation	EDP 1700..	DC	ZEFP	LU	LF	TYPE	DCON	CBDP	DCSFMS	PCD1	PCD2	
APKT 1003	.350	E90-APKT10-D100Z4C075-L350i	0149	1.00	4	-	3.50	Cyindrical	.750	-	-	-	-	●
		E90-APKT10-D0625Z2W0625-L325i	0144	.625	2	-	3.25	Weldon	.625	-	-	-	-	●
		E90-APKT10-D075Z3W075-L320i	0146	.750	3	1.17	3.20		.750	-	-	-	-	●
		E90-APKT10-D100Z4W100-L350i	0148	1.00	4	-	3.50		1.00	-	-	-	-	●
		F90-APKT10-D150Z4S075i	0150	1.50	4	-	1.575	Shell Mill	.750	.750	1.34	-	-	●
		F90-APKT10-D200Z7S075i	0151	2.00	7	-	1.75		.750	.750	1.75	-	-	●
APKT 1604	.630	E90-APKT16-D100Z2C0875-L378i	0089	1.00	2	1.50	3.78	Cyindrical	.875	-	-	-	-	●
		E90-APKT16-D125Z3C100-L428i	0090	1.25	3	-	4.28		1.00	-	-	-	-	●
		E90-APKT16-D100Z2W100-L400i	0158	1.00	2	1.72	4.00	Weldon	1	-	-	-	-	●
		E90-APKT16-D100Z2W100-L1000i	0208	1.00	2	1.50	1.00		1	-	-	-	-	●
		E90-APKT16-D125Z3W100-L400i	0159	1.25	3	1.72	4.00		1	-	-	-	-	●
		E90-APKT16-D125Z3W125-L1000i	0205	1.25	3	1.50	1.00		1.25	-	-	-	-	●
		E90-APKT16-D125Z4W125-L1000i	0206	1.25	4	1.50	1.00		1.25	-	-	-	-	●
		F90-APKT16-D200Z5S075i	0160	2.00	5	-	1.75	Shell Mill	.750	.750	1.75	-	-	●
		F90-APKT16-D250Z6S075i	0161	2.50	6	-	1.75		.750	.750	1.75	-	-	X
		F90-APKT16-D300Z7S100i	0162	3.00	7	-	2.00		1	.945	2.19	-	-	●
		F90-APKT16-D400Z8S150i	0207	4.00	8	-	2.50		1.50	1.57	3.50	-	-	●

▶ NEXT PAGE

Insert ISO Code System

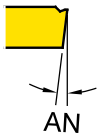
1	2	3	4	5	6	7
A	**P**	**K**	**T**	**16**	**04**	**08**
Shape	Relief Angle (AN)	Tolerance	Clamping & Chipbreaker	Insert Size	Insert Thickness (S)	CornerRadius

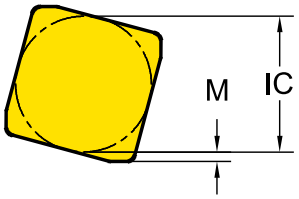
1 - Shape

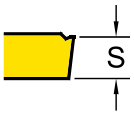
Symbol	Shape	
H	Hexagonal	
O	Octagonal	
P	Pentagonal	
S	Square	
T	Triangular	
V	Rhombic 35°	
W	Trigon	
L	Rectangular	
A	Parallelogram 80°	
R	Round	

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 (in)	Nose Height M (in)	Thickness S (in)
C	±.0010	±.0005	±.0010
E	±.001	±.0010	±.001
G	±.001	±.0010	±.005
H	±.0005	± .0005	±.0010
K*	±.002~.006*	±.0005	±.005
M*	±.002~.006*	±.003~.010*	±.005
U*	±.003~.010*	±.005~.015*	±.005

* 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

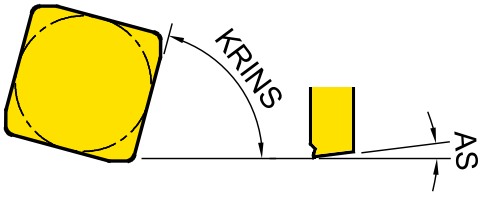
Insert ISO Code System

	page 75		page 74	
(	8 **PDTR** Corner Geometry	9 **-TR** Chipbreaker	)	10 **YG602** Grade

7 - Corner Radius (RE)

Symbol	Thickness - S (in)	Symbol	Thickness - S (in)
04	.016	**16**	.063
08	.031	**20**	.079
12	.047	**24**	.094

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. 75 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

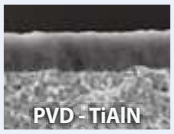
Symbol	Feed Direction	
R	Right-hand Insert	
N	Neutral Insert	
L	Left-hand Insert	

Milling Grades and Chip breakers

Milling Grades

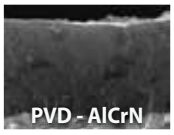
Milling Grades		P Steel					M Stainless steel				K Cast iron				N Non-ferrous				S Superalloys				H Hardened steel			
		P05	P15	P25	P35	P45	M05	M15	M25	M35	K05	K15	K25	K35	N05	N15	N25	N35	S05	S15	S25	S35	H15	H25	H35	
PVD	YG602			602					602				602								602						
	YG622			622									622										622			
	YG712		712																							
	YG713		713																							
	YG613				613				613												613					
	YG501											501														
CVD	YG5020										5020															
Uncoated	YG50														50											

YG602
P20 - P35 | M20 - M40 | K20 - K40 | S15 - S25



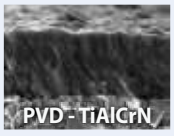
Universal grade for General Milling Application
- Ultra Dense PVD Coating with optimal thermal resistance & strength
- Sub-Micron substrate designed for demanding application

YG622
P20 - P40 | K20 - K40 | H10 - H20



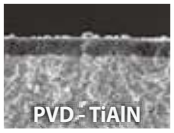
Optimized Grade for High Alloyed or Prehardened Steel
- Excellent hot hardness and oxidation resistance at high speed
- Smooth surface treatment technology provide to prevent thermal shock and chipping resistance

YG712
P10 - P30



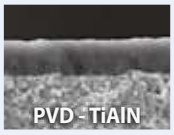
Milling Grade for Medium of Steel Application
- Superior wear resistance and excellent toughness in high speed machining
- Coating layer with high hardness and oxidation resistance

YG713
P15 - P25



Milling Grade for General Steel Application
- Multi-layer TiAlN structure realizes stronger crater and flank wear resistance
- Fine-grained carbide and balanced substrate

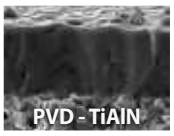
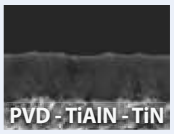
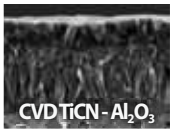
YG613
P30 - P50 | M30 - M40 | S25 - S35



Milling Grade for Stainless Steel Application
- 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
- Prevents welding and chipping of heat-resistant alloy workpieces through a special coating layer

Milling Grades and Chip breakers

Milling Grades

YG501 K05- K25		**Hard Milling grade for Cast Iron** • High wear resistance substrate based on TiAlN PVD Coating • Very good for cast Iron
YG501G K05- K25		**Hard Milling grade for Cast Iron** • High wear resistance sbustrate based on TiAlN / TiN PVD Coating • Excellent performance for cast Iron at high cutting speed
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

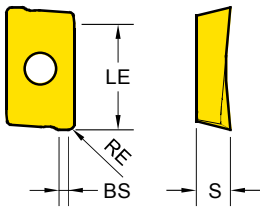
Milling Chip breakers

–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

YG MiLL INCH

Milling - Shoulder Milling - Inserts

APKT - Shoulder Milling Positive (2 Corner)



Series	LE	IC	S
APKT 1003	.390	.264	.142
APKT 1604	.598	.370	.209

EDP 1200..

●: Stock item ○: Order made item

APKT	Designation	RE (in)	Fz (in/tooth)	BS (in)	P25 M30 K30 S20 YG602	P30 K30 H15 YG622	P20 YG712	P30 YG713	P40 M35 S30 YG613	K15 YG501	K20 YG5020
APKT General	APKT 100305 PDTR	.020	.006~.009	.034	● 0005	○ 0429		○ 0638	● 0672		
	APKT 100308 PDTR	.031	.006~.009	.035	● 0004	○ 0430		○ 0632	● 0610		
	APKT 100316 PDTR	.062	.006~.009	0.05	● 0713	○ 0712			● 0714		
	APKT 160404 PDTR	.016	.006~.010	.044	● 0003			○ 0656			
	APKT 160408 PDTR	.031	.006~.012	.052	● 0001			○ 0633	● 0607		
	APKT 160412 PDTR	.047	.006~.013	.044	● 0002			○ 0649			
	APKT 160416 PDTR	.063	.006~.013	.044	● 0006			○ 0661			
	APKT 160424 PDTR	.094	.006~.015	.059	● 0255			○ 0653			
-ST Stainless Steel Super Alloy	APKT 100305 -ST	.020	.003~.009	.034	● 0278				● 0618		
	APKT 100316 -ST	.062	.006~.009	0.05					● 0719		
	APKT 160408 -ST	.031	.003~.010	.052	● 0270				● 0617		
-TR Hardened Steel	APKT 160404 -TR	.016	.010~.016	.083	● 0492	○ 0505					
	APKT 160408 -TR	.031	.010~.016	.052	● 0256	○ 0337		○ 0637			
	APKT 160412 -TR	.047	.010~.016	.094	● 0493	○ 0523					
	APKT 160416 -TR	.063	.010~.016	.094	● 0472	○ 0524					
	APKT 160424 -TR	.094	.010~.016	.059	● 0494	○ 0520					

Cutting Speed — Vc (ft/min)

ISO	VDI	Sub Group	YG602 Min	YG602 Max	YG622 Min	YG622 Max	YG712 Min	YG712 Max	YG713 Min	YG713 Max	YG613 Min	YG613 Max	YG501 Min	YG501 Max	YG5020 Min	YG5020 Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	-	-	590	1150	660	1150
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	-	-	390	890	490	980
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	-

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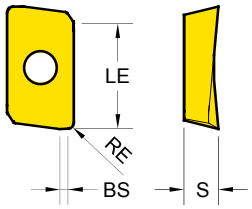
YG-1 CO., LTD.

Milling - Shoulder Milling - Inserts

APGT Shoulder Milling Positive (2 Corner)



Series	LE	IC	S
AP*T 1135	.374	.244	.141
AP*T 1604	.575	.362	.189

EDP 1200..

●: Stock item ○: Order made item

APGT	Designation	RE (in)	Fz (in/tooth)	BS (in)	YG602	YG622	YG712	YG713	YG613	YG5020	YG50
					P25 M30 K30 S20	P30 K30 H15	P20	P30	P40 M35 S30	K20	N15
-AL Aluminium	APGT100305-AL	.019	.002~.012	.056							● 0730
	APGT 160408 -AL	.031	.004~.051	.070							● 0428

Cutting Speed — Vc (ft/min)

ISO	VDI	Sub Group	YG602 Min	YG602 Max	YG622 Min	YG622 Max	YG712 Min	YG712 Max	YG713 Min	YG713 Max	YG613 Min	YG613 Max	YG5020 Min	YG5020 Max	YG50 Min	YG50 Max
P	1~5	Non-Alloyed Steel	590	1250	460	1310	560	980	660	980	330	690	-	-	-	-
	6~9	Low-Alloyed Steel	390	980	390	1050	590	820	560	890	230	590	-	-	-	-
	10~11	High-Alloyed Steel	230	490	230	560	330	460	280	480	130	290	-	-	-	-
M	12~13	Ferritic & Martensitic	390	660	-	-	-	-	-	-	230	590	-	-	-	-
	14	Austenitic Stainless Steel	430	820	-	-	-	-	-	-	230	660	-	-	-	-
K	15~16	Grey Cast Iron	390	820	390	890	-	-	-	-	-	-	660	1150	-	-
	17~18	Nodular Cast Iron	430	720	430	790	-	-	-	-	-	-	490	980	-	-
N	21~30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-	-	-	-	-	980	2620
S	31~37	Superalloys & Titanium	80	150	-	-	-	-	-	-	-	-	-	-	-	-
H	38~41	Hard Materials	130	260	130	330	-	-	-	-	-	-	-	-	-	-

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