



High speed milling cutter

TUNGALUMILL

Tungaloy Report No. 429S1-G

High performance aluminum milling cutters with redesigned inserts

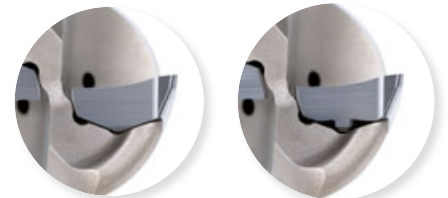
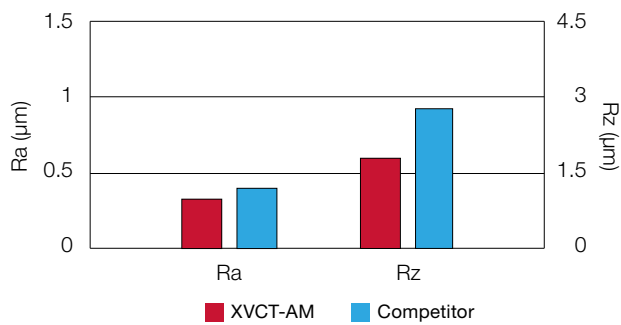


Advanced aluminum milling inserts with improved design for higher performance

Improved compatible bottom shape

Cutting performance

Comparison of surface roughness



XVCT-AJ

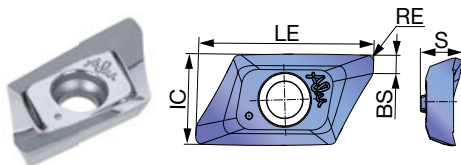
XVCT-AM

N

Cutter : TPV16R050M22.0E04 (ø50 mm, z = 4)
 Insert : XVCT160508PEFR-AM TH10
 Workpiece material : A5052
 Cutting speed : Vc = 1000 m/min
 Feed per tooth : fz = 0.16 mm/t
 Depth of cut : ap = 3 mm
 Width of cut : ae = 35 mm
 Coolant : Wet
 Machine : Vertical M/C, BT50

INSERT

XVCT16-AM



	P	M	K	N	S	H
Steel	Yes	Yes	Yes	Yes	Yes	Yes
Stainless	Yes	Yes	Yes	Yes	Yes	Yes
Cast iron	Yes	Yes	Yes	Yes	Yes	Yes
Non-ferrous	Yes	Yes	Yes	★	Yes	Yes
Superalloys	Yes	Yes	Yes	Yes	Yes	Yes
Hard materials	Yes	Yes	Yes	Yes	Yes	Yes

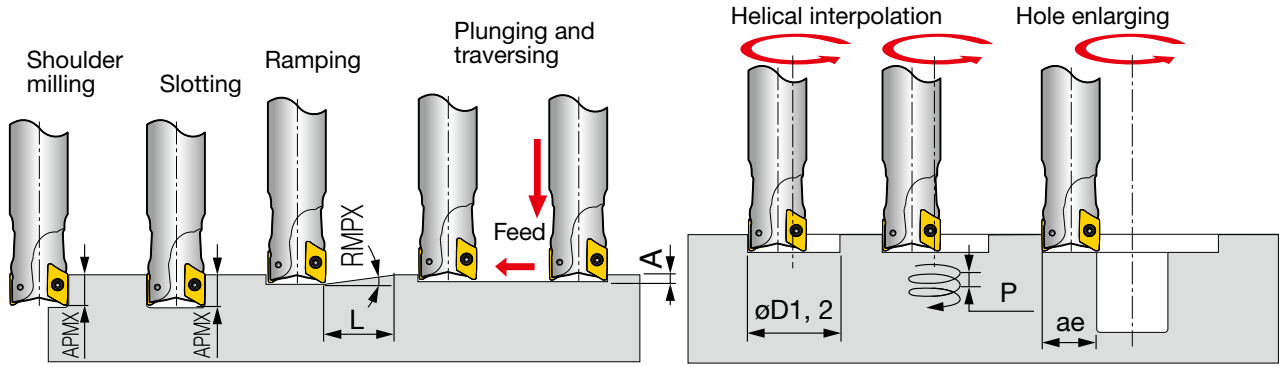
★ : First choice

Designation	RE	APMX	Uncoated											
			TH10								LE	IC	S	BS
XVCT160504PEFR-AM	0.4	16	●								22.2	11.2	5.5	1.5
XVCT160508PEFR-AM	0.8	16	●								22.2	11.2	5.5	1.1
XVCT160512PEFR-AM	1.2	16	●								21.8	11.2	5.5	1.1
XVCT160516PEFR-AM	1.6	16	●								21.2	11.2	5.5	1.1
XVCT160520PEFR-AM	2	15.5	●								20.8	11.2	5.4	1.1
XVCT160525PEFR-AM	2.5	14.5	●								20.2	11.23	5.34	1
XVCT160530PEFR-AM	3	14.5	●								19.6	11.2	5.2	1
XVCT160532PEFR-AM	3.2	14.5	●								19.2	11.2	5.2	1.1
XVCT160540PEFR-AM	4	14.5	●								18.5	11.2	5.2	1.5
XVCT160550PEFR-AM	5	14.5	●								18.3	11.2	5.1	0.6

* When using inserts with corner radius RE ≥ 3.2 mm, standard cutter body has to be modified with "R". "R" = RE - 0.3 mm

● : New

APPLICATION RANGE



Designation	Tool DC	Corner radius RE	Max. depth of cut APMX	Max. ramping angle RMPX	Straight ramp down			Helical ramp down			Hole enlarging Max. width ae
					Max. depth of cut L	Max. plunging depth A	Min. length	Max. machining øD1	Max. pitch/rev P	Max. machining øD2	
EPV16R025...	25	0.4, 0.8	16	22	40	4.2	29.1	4.4	49	13.6	22.5
EPV16R025...	25	1.2	15.5	22	40	4.2	29.1	4.4	49	13.6	22.5
EPV16R025...	25	1.6	15	22	38	3.7	29.1	4.4	49	13.2	22.5
EPV16R025...	25	2	14.5	22	38	3.7	29.1	4.4	49	13.2	22.5
EPV16R025...	25	2.5, 3, 3.2	14	21	38	2.5	29.1	4.2	49	12.3	22.5
EPV16R025...	25	4, 5	13	18.5	40	2.3	29.1	3.7	49	12.3	22.5
EPV16R032...	32	0.4, 0.8	16	16.5	54	4	43.1	8.8	63	13.6	28.8
EPV16R032...	32	1.2	15.5	16.5	54	4	43.1	8.8	63	13.6	28.8
EPV16R032...	32	1.6	15	16	54	3.5	43.1	8.5	63	13.2	28.8
EPV16R032...	32	2	14.5	16	54	3.5	43.1	8.5	63	13.2	28.8
EPV16R032...	32	2.5, 3, 3.2	14	15	54	3	43.1	7.9	63	12.3	28.8
EPV16R032...	32	4, 5	13	13.5	56	2.5	43.1	7.1	63	12.3	28.8
T/EPV16R040...	40	0.4, 0.8	16	11.5	79	4	59.1	10.4	79	13.6	36
T/EPV16R040...	40	1.2	15.5	11.5	79	4	59.1	10.4	79	13.6	36
T/EPV16R040...	40	1.6	15	11	80	3.5	59.1	9.9	79	13.2	36
T/EPV16R040...	40	2	14.5	11	80	3.5	59.1	9.9	79	13.2	36
T/EPV16R040...	40	2.5, 3, 3.2	14	10	82	3	59.1	9	79	12.3	36
T/EPV16R040...	40	4, 5	13	8.5	90	2.5	59.1	7.6	79	12.3	36
TPV16R050...	50	0.4, 0.8	16	9.5	96	4	79.1	13	99	13.6	45
TPV16R050...	50	1.2	15.5	9.5	96	4	79.1	13	99	13.6	45
TPV16R050...	50	1.6	15	9	98	3.5	79.1	12.3	99	13.2	45
TPV16R050...	50	2	14.5	9	98	3.5	79.1	12.3	99	13.2	45
TPV16R050...	50	2.5, 3, 3.2	14	8	103	3	79.1	10.9	99	12.3	45
TPV16R050...	50	4, 5	13	7	110	2.5	79.1	9.5	99	12.3	45
TPV16R063...	63	0.4, 0.8	16	7	130	4	105.1	13.6	125	13.6	56.7
TPV16R063...	63	1.2	15.5	7	130	4	105.1	13.6	125	13.6	56.7
TPV16R063...	63	1.6	15	6.5	136	3.5	105.1	12.8	125	13.2	56.7
TPV16R063...	63	2	14.5	6.5	136	3.5	105.1	12.8	125	13.2	56.7
TPV16R063...	63	2.5, 3, 3.2	14	6	136	3	105.1	11.8	125	12.3	56.7
TPV16R063...	63	4, 5	13	5.5	140	2.5	105.1	10.8	125	12.3	56.7
TPV16R080...	80	0.4, 0.8	16	5	183	4	139.1	13.6	159	13.6	72
TPV16R080...	80	1.2	15.5	5	183	4	139.1	13.6	159	13.6	72
TPV16R080...	80	1.6	15	4.5	197	3.5	139.1	12.4	159	13.2	72
TPV16R080...	80	2	14.5	4.5	197	3.5	139.1	12.4	159	13.2	72
TPV16R080...	80	2.5, 3, 3.2	14	4	207	3	139.1	11	159	12.3	72
TPV16R080...	80	4, 5	13	3.5	221	2.5	139.1	9.6	159	12.3	72
TPV16R100...	100	0.4, 0.8	16	3.5	262	4	179.1	12.9	199	13.6	90
TPV16R100...	100	1.2	15.5	3.5	262	4	179.1	12.9	199	13.6	90
TPV16R100...	100	1.6	15	3	296	3.5	179.1	11.1	199	13.2	90
TPV16R100...	100	2	14.5	3	296	3.5	179.1	11.1	199	13.2	90
TPV16R100...	100	2.5, 3, 3.2	14	2.5	332	3	179.1	9.2	199	12.3	90
TPV16R100...	100	4, 5	13	2.5	309	2.5	179.1	9.2	199	11.6	90
TPV16R125...	125	0.4, 0.8	16	2.5	367	4	229.1	12.1	249	13.6	112.5
TPV16R125...	125	1.2	15.5	2.5	367	4	229.1	12.1	249	13.6	112.5
TPV16R125...	125	1.6	15	2	444	3.5	229.1	9.7	249	13.2	112.5
TPV16R125...	125	2	14.5	2	444	3.5	229.1	9.7	249	13.2	112.5
TPV16R125...	125	2.5, 3, 3.2	14	1.5	554	3	229.1	7.3	249	8.7	112.5
TPV16R125...	125	4, 5	13	1.5	516	2.5	229.1	7.3	249	8.7	112.5

STANDARD CUTTING CONDITIONS

ISO	Workpiece material	Hardness HB	Grade	Chip-breaker	Cutting speed Vc (m/min)	Feed per tooth fz (mm/t)
N	Aluminium alloy	60	TH10	AM	550 - 700	0.15 - 0.35
		100	TH10	AM	600 - 750	0.1 - 0.25
	Cast aluminium alloy Si ≤ 12%	75	TH10	AM	800 - 900	0.15 - 0.3
		90	TH10	AM	650 - 800	0.1 - 0.25
	Cast aluminium alloy Si > 12%	130	TH10	AM	250 - 320	0.07 - 0.15
	Copper alloys Pb > 1%	110	TH10	AM	300 - 400	0.07 - 0.15
	Copper alloys	90	TH10	AM	300 - 400	0.1 - 0.15
		100	TH10	AM	210 - 280	0.1 - 0.15
	Duroplastics, fiber plastics	-	TH10	AM	150 - 250	0.1 - 0.15
	Hard rubber	-	TH10	AM	150 - 250	0.1 - 0.15

Safety guidelines

1. Use only the original inserts, cutters and spare parts.
2. Insert pocket must be cleaned before clamping the insert.
3. Clamp torque of screw should be 4.5 N·m.
4. For safety reasons, use a new screw when changing the insert.
5. Maximum RPM values are determined based on the burst test. Using RPM beyond maximum values may cause insert breakage, machine damage or personal injury.
6. XVCT insert has sharp cutting edges. Always wear gloves for protection from injury when handling.



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