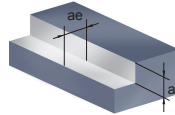


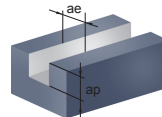
1 Square shoulder milling



Recommended cutting parameters (D: Diameter)

Workpiece material	Hardness HB	Insert grade	Cutting parameters			
			Vc(m/min)	fz(mm/z)		ae(mm)
				-APF	-APM	
P Low-carbon steel, Soft steel High-carbon steel, Alloy steel Alloy tool steel	≤ 180	YBC302	320 (240-400)	0.1 (0.08-0.2)	--	≤ 0.5D
		YB9320	320 (200-400)	0.1 (0.08-0.2)	0.2 (0.1-0.3)	
		YBM253	300 (320-350)	0.1 (0.08-0.2)	0.2 (0.1-0.3)	
	180-280	YBC302	280 (210-380)	0.1 (0.08-0.2)	--	≤ 0.5D
		YB9320	280 (180-350)	0.1 (0.08-0.2)	0.2 (0.1-0.3)	
		YBM253	260 (150-380)	0.1 (0.08-0.2)	0.2 (0.1-0.3)	
	280-350	YBC302	260 (180-350)	0.1 (0.08-0.2)	--	≤ 0.5D
		YB9320	260 (160-330)	0.1 (0.08-0.2)	0.2 (0.1-0.3)	
		YBM253	220 (150-280)	0.1 (0.08-0.2)	0.2 (0.1-0.3)	
M Stainless steel	≤ 270	YB9320	200 (110-300)	0.1 (0.08-0.2)	0.2 (0.1-0.3)	≤ 0.5D
		YBM253	180 (150-300)			
K Cast iron	180-250	YB9320	180 (150-250)	0.1 (0.08-0.2)	0.2 (0.1-0.3)	≤ 0.5D
		YBD152	200 (150-250)	--	0.2 (0.1-0.3)	
S Difficult-to-machine materials	≤ 400	YBS203	100 (60-120)	0.1 (0.08-0.2)	0.2 (0.1-0.3)	≤ 0.5D
		YBS303	100 (60-120)	0.1 (0.08-0.2)	0.2 (0.1-0.3)	≤ 0.5D
N Aluminium alloy	--	-ALH				
		YD101	300-	0.2 (0.08-0.4)		≤ 0.5D
		YD201	300-	0.2 (0.08-0.4)		≤ 0.5D

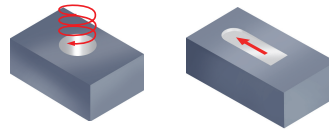
2 Slot milling



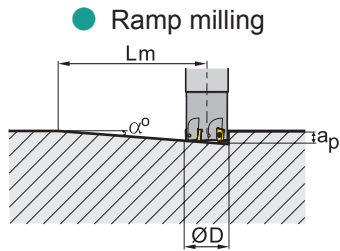
Recommended cutting parameters (D: Diameter)

Workpiece material	Hardness HB	Insert grade	Cutting parameters			
			Vc(m/min)	fz(mm/z)		ae(mm)
				-APF	-APM	
P Low-carbon steel, Soft steel High-carbon steel, Alloy steel Alloy tool steel	≤ 180	YBC302	190 (170-250)	0.1 (0.08-0.15)	--	D
		YB9320	190 (140-250)	0.1 (0.08-0.15)	0.15 (0.1-0.25)	
		YBM253	150 (130-210)	0.1 (0.08-0.15)	0.15 (0.1-0.25)	
	180-280	YBC302	170 (150-220)	0.1 (0.08-0.15)	--	D
		YB9320	170 (130-250)	0.1 (0.08-0.15)	0.15 (0.1-0.25)	
		YBM253	140 (110-200)	0.1 (0.08-0.15)	0.15 (0.1-0.25)	
	280-350	YBC302	150 (130-210)	0.1 (0.08-0.15)	--	D
		YB9320	150 (110-240)	0.1 (0.08-0.15)	0.15 (0.1-0.25)	
		YBM253	130 (110-180)	0.1 (0.08-0.15)	0.15 (0.1-0.25)	
M Stainless steel	≤ 270	YB9320	120 (80-190)	0.1 (0.08-0.15)	0.15 (0.1-0.25)	D
		YBM253	100 (80-170)			
K Cast iron	180-250	YB9320	120 (80-180)	0.1 (0.08-0.15)	0.15 (0.1-0.25)	D
		YBD152	120 (80-210)	--	0.15 (0.1-0.25)	
S Difficult-to-machine materials	≤ 400	YBS203	60 (45-110)	0.1 (0.08-0.15)	0.15 (0.1-0.25)	D
		YBS303	60 (45-110)	0.1 (0.08-0.15)	0.15 (0.1-0.25)	D
N Aluminium alloy	--	-ALH				
		YD101	300-	0.2 (0.08-0.3)		D
		YD201	300-	0.2 (0.08-0.3)		D

3 Ramp milling, helical interpolation milling

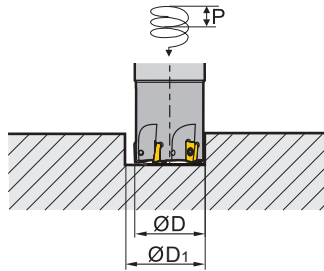


▶ Recommended cutting parameters (D: Diameter)



$$L_m = \frac{a_p}{\tan \alpha} \quad (\alpha: \text{Maximum ramp angle})$$

● Helical interpolation milling



$$\tan \alpha = \frac{P}{\pi D_1} \quad (\alpha: \text{Helical angle})$$

Diameter ØD(mm)	APKT Ramp milling, helical interpolation milling (Inserts-7)				
	Ramp milling			Helical interpolation milling	
	Maximum cutting depth ap(mm)	Maximum ramp angle α°	Minimum length Lm(mm)	Minimum diameter ØD1(mm)	Maximum pitch (mm)
10	6	6	57	12	2.0
12	6	4	85	15	2.0
14	6	3	114	18	2.0
16	6	2.5	137	21	2.0
Diameter ØD(mm)	APKT Ramp milling, helical interpolation milling (Inserts-11)				
	Ramp milling			Helical interpolation milling	
	Maximum cutting depth ap(mm)	Maximum ramp angle α°	Minimum length Lm(mm)	Minimum diameter ØD1(mm)	Maximum pitch (mm)
16	10.0	10.0	56.7	20.0	2.0
20	10.0	5.0	114.4	28.0	2.0
25	10.0	4.5	127.0	40.0	2.0
30	10.0	3.5	153.0	48.0	2.0
32	10.0	3.0	190.8	56.0	2.0
40	10.0	2.0	286.4	70.0	2.0
Diameter ØD(mm)	APKT Ramp milling, helical interpolation milling (Inserts-16)				
	Ramp milling			Helical interpolation milling	
	Maximum cutting depth ap(mm)	Maximum ramp angle α°	Minimum length Lm(mm)	Minimum diameter ØD1(mm)	Maximum pitch (mm)
25	15	6	142	32	2.0
30	15	5	171	40	2.0
32	15	4.5	214	45	2.0
40	15	2.5	343	60	2.0
50	15	1.5	572	80	2.0
63	15	1	859	105	2.0

Note: For cutting speed and feed rate per tooth, see square shoulder milling.

Case for EMP01



Machine: Vertical machining center
 Diameter: Ø40mm
 Operation: Interpolation milling
 Insert: APKT160408-APM/YB9320
 Workpiece material: P20(HRC 33-36)
 Cutting data:
 Vc=150m/min
 f= 0.2mm/z

Insert specification/grade: APKT160408-APM/YB9320

Tools specification: EMP01-040-XP32-AP16-04

● Comprehensively improve mould cavity machining efficiency



Optimized structure in combination with brand-new "golden drill" coating technique, ZCC-CT products with APM chipbreaker is more suitable for mold cavity machining, greatly improve machining efficiency when compare with competitors similar products.