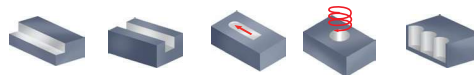


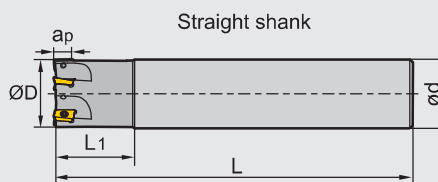
Square shoulder milling tools

Kr:90°



EMP01

P M K N S



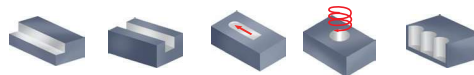
Specification of tools

Type		Dimensions(inch)					
		ØD	Ød	L1	L	apmax	Z (Number of teeth)
EMP01 Cylindrical	-0.50"-G0.625"-AP11-01	0.500	0.625	1.00	3.50	0.433	1
	-0.625"-G0.625"-AP11-02(L=2")	0.625	0.625	1.00	2.00	0.433	2
	-0.625"-G0.625"-AP11-02	0.625	0.625	1.00	3.50	0.433	2
	-0.75"-G0.75"-AP11-02	0.750	0.750	1.25	4.00	0.433	2
	-0.75"-G0.75"-AP11-02(L=6.5")	0.750	0.750	3.50	6.50	0.433	2
	-0.75"-G0.75"-AP11-02(L=10")	0.750	0.750	1.25	10.00	0.433	2
	-1.00"-G1.00"-AP11-03	1.000	1.000	1.50	4.50	0.433	3
	-1.25"-G1.25"-AP11-04	1.250	1.250	1.50	5.00	0.433	4
	-1.00"-G1.00"-AP16-02	1.000	1.000	1.50	4.50	0.630	2
	-1.00"-G1.00"-AP11-03 (L=10")	1.000	1.000	1.50	10.00	0.433	3
	-1.00"-G1.00"-AP11-03 (L=6.5")	1.000	1.000	3.50	6.50	0.433	3
	-1.00"-G1.00"-AP16-02 (L=7")	1.000	1.000	4.00	7.00	0.630	2
	-1.00"-G1.00"-AP16-02 (L=10")	1.000	1.000	1.50	10.00	0.630	2
	-1.25"-G1.25"-AP16-03	1.250	1.250	1.50	5.00	0.630	3
	-1.25"-G1.25"-AP11-04 (L=10")	1.250	1.250	1.50	10.00	0.433	4
	-1.25"-G1.25"-AP16-03 (L=7")	1.250	1.250	4.00	7.00	0.630	3
	-1.25"-G1.25"-AP16-03 (L=10")	1.250	1.250	1.50	10.00	0.630	3
	-1.50"-G1.25"-AP16-04	1.500	1.250	1.75	5.00	0.630	4
	-1.50"-G1.25"-AP16-04 (L=7")	1.500	1.250	1.75	7.00	0.630	4
	-1.50"-G1.25"-AP16-04 (L=10")	1.500	1.250	1.75	10.00	0.630	4
	-1.50"-G1.50"-AP16-04 (L=7")	1.500	1.500	4.00	7.00	0.630	4
	-2.00"-G1.25"-AP16-05	2.000	1.250	1.75	5.50	0.630	5
	-2.50"-G1.25"-AP16-06	2.500	1.250	1.75	5.50	0.630	6



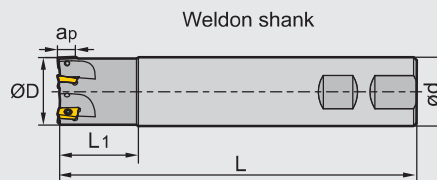
Square shoulder milling tools

Kr:90°



EMP01

P M K N S



Specification of tools

Type		Dimensions(inch)					
		ØD	ød	L1	L	apmax	Z (Number of teeth)
EMP01 Weldon	-0.50"-XP0.625"-AP11-01	0.500	0.625	1.25	3.50	0.433	1
	-0.625"-XP0.625"-AP11-02	0.625	0.625	1.25	3.50	0.433	2
	-0.75"-XP0.75"-AP11-02	0.750	0.750	1.75	4.00	0.433	2
	-0.75"-XP0.75"-AP11-03	0.750	0.750	1.75	4.00	0.433	3
	-1.00"-XP1.00"-AP11-03	1.000	1.000	2.25	4.50	0.433	3
	-1.25"-XP1.25"-AP11-04	1.250	1.250	2.75	5.00	0.433	4
	-1.00"-XP1.00"-AP16-02	1.000	1.000	2.25	4.50	0.630	2
	-1.25"-XP1.25"-AP16-03	1.250	1.250	2.75	5.00	0.630	3
	-1.50"-XP1.25"-AP16-04	1.500	1.250	1.75	5.00	0.630	4
	-2.00"-XP1.25"-AP16-05	2.000	1.250	1.75	5.50	0.630	5
	-2.50"-XP1.25"-AP16-06	2.500	1.250	1.75	5.50	0.630	6
	-1.00"-XPL1.00"-AP16-02	1.000	1.000	4.25	6.50	0.630	2
	-1.00"-XPXL1.00"-AP16-02	1.000	1.000	5.75	8.00	0.630	2
	-1.25"-XPL1.25"-AP16-03	1.250	1.250	4.25	6.50	0.630	3
	-1.25"-XPXL1.25"-AP16-03	1.250	1.250	6.25	8.50	0.630	3

Spare parts

Diameter ØD	Insert specification	screw	Wrench	Sketch of installation
				
Ø0.50"~Ø1.25"	APKT11□□□□-APF/APM/ALH	I60M2.5×6.5T	WT08IP	
Ø1.00"~Ø2.50"	APKT16□□□□-APF/APM/ALH	I60M4×8.4	WT15IS	

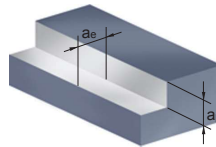
😊 Good working conditions 😐 General working conditions 😞 Adverse working conditions

[illegible][illegible]

☒ Always stock available ☐ Produce according to order

Chipbreaker selection

Classification	Function	For finishing	For Semi-finishing
P		-APF	-APM
M		-APF	-APM
S		-APF	-APM
K		-APF	-APM
N		-ALH	

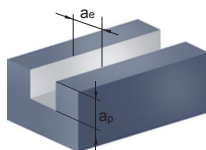


1 Square shoulder milling

Recommended cutting parameters

(D: Diameter)

Workpiece material		Hardness HB	Insert grade	Cutting parameters			
				V(SFPM)	f(IPT)		ae(inch)
					-APF	-APM	
P	Low-carbon steel、Soft steel	≤180	YBC302	1000 (750-1300)	0.004 (0.003-0.008)	--	≤0.5D
			YB9320	1000 (650-1300)	0.004 (0.003-0.008)	0.008 (0.004-0.012)	
			YBM253	950 (1000-1100)	0.004 (0.003-0.008)	0.008 (0.004-0.012)	
	High-carbon steel、Alloy steel	180-280	YBC302	900 (650-1200)	0.004 (0.003-0.008)	--	≤0.5D
			YB9320	900 (590-1100)	0.004 (0.003-0.008)	0.008 (0.004-0.012)	
			YBM253	850 (490-1200)	0.004 (0.003-0.008)	0.008 (0.004-0.012)	
	Alloy tool steel	280-350	YBC302	850 (590-1100)	0.004 (0.003-0.008)	--	≤0.5D
			YB9320	850 (520-1000)	0.004 (0.003-0.008)	0.008 (0.004-0.012)	
			YBM253	720 (490-910)	0.004 (0.003-0.008)	0.008 (0.004-0.012)	
M	Stainless steel	≤270	YB9320	650 (360-980)	0.004 (0.003-0.008)	0.008 (0.004-0.012)	≤0.5D
			YBM253	590 (490-820)			
K	Cast iron	180-250	YB9320	590 (490-820)	0.004 (0.003-0.008)	0.008 (0.004-0.012)	≤0.5D
			YBD152	650 (490-820)	--	0.008 (0.004-0.012)	
S	High-temperature alloy	≤400	YBS203	320 (190-400)	0.004 (0.003-0.008)	0.008 (0.004-0.012)	≤0.5D
			YBS303	320 (190-400)	0.004 (0.003-0.008)	0.008 (0.004-0.012)	≤0.5D
N					-ALH		
	Aluminium alloy	--	YD101	1000-	0.008 (0.03-0.016)		≤0.5D
			YD201	1000-	0.008 (0.03-0.016)		≤0.5D



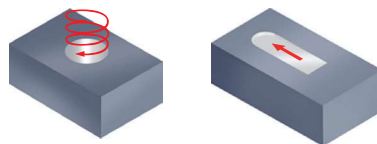
2 Slot milling

Recommended cutting parameters (D: Diameter)

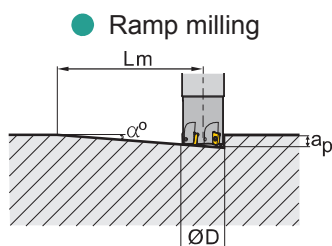
Workpiece material	Hardness HB	Insert grade	Cutting parameters			
			V(SFPM)	f(IPT)		a _e (inch)
				-APF	-APM	
P	Low-carbon steel, Soft steel	YBC302	620 (550-820)	0.004 (0.003-0.006)	--	D
		YB9320	620 (450-820)	0.004 (0.003-0.006)	0.006 (0.004-0.01)	
		YBM253	490 (420-690)	0.004 (0.003-0.006)	0.006 (0.004-0.01)	
	High-carbon steel, Alloy steel	YBC302	550 (490-720)	0.004 (0.003-0.006)	--	D
		YB9320	550 (420-820)	0.004 (0.003-0.006)	0.006 (0.004-0.01)	
		YBM253	450 (360-650)	0.004 (0.003-0.006)	0.006 (0.004-0.01)	
M	Alloy tool steel	YBC302	490 (420-680)	0.004 (0.003-0.006)	--	D
		YB9320	490 (360-780)	0.004 (0.003-0.006)	0.006 (0.004-0.01)	
		YBM253	420 (360-590)	0.004 (0.003-0.006)	0.006 (0.004-0.01)	
K	Stainless steel	YB9320	390 (260-620)	0.004 (0.003-0.006)	0.006 (0.004-0.01)	D
		YBM253	320 (260-550)	0.004 (0.003-0.006)	0.006 (0.004-0.01)	
S	Cast iron	YB9320	390 (260-590)	0.004 (0.003-0.006)	0.006 (0.004-0.01)	D
		YBD152	390 (260-690)	--	0.006 (0.004-0.01)	
N	High-temperature alloy	YBS203	190 (150-360)	0.004 (0.003-0.006)	0.006 (0.004-0.01)	D
		YBS303	190 (150-360)	0.004 (0.003-0.006)	0.006 (0.004-0.01)	
N	Aluminium alloy			-ALH		
		YD101	1000-	0.008 (0.003-0.012)		D
		YD201	1000-	0.008 (0.003-0.012)		D



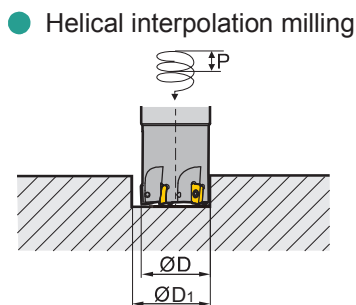
3 Ramp milling, helical interpolation milling



Recommended cutting parameters (D: Diameter)



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



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

Diameter ØD(mm)	APKT Ramp milling, helical interpolation milling (Inserts-11)				
	Ramp milling			Helical interpolation milling	
	Maximum cutting depth a_p (in)	Maximum ramp angle α°	Minimum length L_m (in)	Minimum diameter ØD_1 (in)	Maximum pitch(in)
Ø0.62"	0.394	10.0	2.232	0.787	0.079
Ø0.75"	0.394	5.0	4.504	1.102	0.079
Ø1.00"	0.394	4.5	5.000	1.575	0.079
Ø1.25"	0.394	3.0	7.512	2.205	0.079
Ø1.50"	0.394	2.0	11.276	2.756	0.079
Diameter ØD(mm)	APKT Ramp milling, helical interpolation milling (Inserts-16)				
	Ramp milling			Helical interpolation milling	
	Maximum cutting depth a_p (in)	Maximum ramp angle α°	Minimum length L_m (in)	Minimum diameter ØD_1 (in)	Maximum pitch(in)
Ø1.00"	0.59	6.0	5.59	1.25	0.079
Ø1.25"	0.59	4.5	8.425	1.89	0.079
Ø1.50"	0.59	2.5	13.50	2.362	0.079
Ø2.00"	0.59	1.5	22.52	3.15	0.079
Ø2.50"	0.59	1.0	33.82	4.134	0.079

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