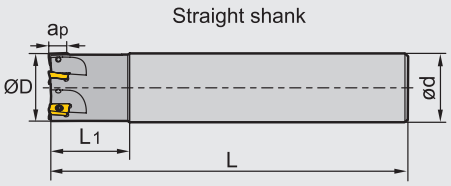
Square shoulder milling tools Kr:90°

EMP01 P M N

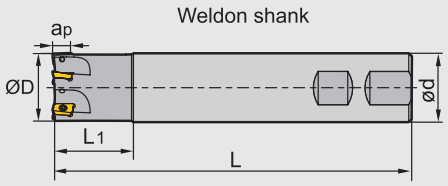


Specification of tools

Type		Dimensions(inch)					
		ØD	Ød	L_1	L	$a_p$max	Z
EMP01 Cylindrical	**-0.50"-G0.625"-AP11-01**	0.50	0.625	1.00	3.50	0.433	1
	-0.625"-G0.625"-AP11-02	0.625	0.625	1.00	3.50	0.433	2
	-0.75"-G0.75"-AP11-02	0.75	0.75	1.25	4.00	0.433	2
	-0.75"-G0.75"-AP11-02(L=6.5")	0.75	0.75	3.50	6.50	0.433	2
	-0.75"-G0.75"-AP11-02(L=10")	0.75	0.75	1.25	10.0	0.433	2
	-1.00"-G1.00"-AP11-03	1.00	1.00	1.50	4.50	0.433	3
	-1.25"-G1.25"-AP11-04	1.25	1.25	1.50	5.00	0.433	4
	-1.00"-G1.00"-AP16-02	1.00	1.00	1.50	4.50	0.630	2
	-1.00"-G1.00"-AP11-03 (L=10")	1.00	1.00	1.50	10.0	0.433	3
	-1.00"-G1.00"-AP11-03 (L=6.5")	1.00	1.00	3.50	6.50	0.433	3
	-1.00"-G1.00"-AP16-02 (L=7")	1.00	1.00	4.00	7.00	0.630	2
	-1.00"-G1.00"-AP16-02 (L=10")	1.00	1.00	1.50	10.0	0.630	2
	-1.25"-G1.25"-AP16-03	1.25	1.25	1.50	5.00	0.630	3
	-1.25"-G1.25"-AP11-04 (L=10")	1.25	1.25	1.50	10.0	0.433	4
	-1.25"-G1.25"-AP16-03 (L=7")	1.25	1.25	4.00	7.00	0.630	3
	-1.25"-G1.25"-AP16-03 (L=10")	1.25	1.25	1.50	10.0	0.630	3
	-1.50"-G1.25"-AP16-04	1.50	1.25	1.75	5.00	0.630	4
	-1.50"-G1.25"-AP16-04 (L=7")	1.50	1.25	1.75	7.00	0.630	4
	-1.50"-G1.25"-AP16-04 (L=10")	1.50	1.25	1.75	10.0	0.630	4
	-1.50"-G1.50"-AP16-04 (L=7")	1.50	1.50	4.00	7.00	0.630	4
	-2.00"-G1.25"-AP16-05	2.00	1.25	1.75	5.50	0.630	5
	-2.50"-G1.25"-AP16-06	2.50	1.25	1.75	5.50	0.630	6

Square shoulder milling tools Kr:90°

EMP01 P M N



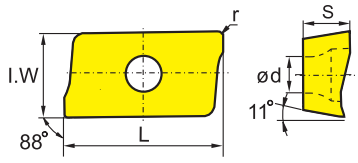
Specification of tools

Type		Dimensions(inch)					
		ØD	Ød	L_1	L	a_{pmax}	Z
EMP01 Weldon	**-0.50"-XP0.625"-AP11-01**	0.50	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	0.75	0.75	1.75	4.00	0.433	2
	-0.75"-XP0.75"-AP11-03	0.75	0.75	1.75	4.00	0.433	3
	-1.00"-XP1.00"-AP11-03	1.00	1.00	2.25	4.50	0.433	3
	-1.25"-XP1.25"-AP11-04	1.25	1.25	2.75	5.00	0.433	4
	-1.00"-XP1.00"-AP16-02	1.00	1.00	2.25	4.50	0.630	2
	-1.25"-XP1.25"-AP16-03	1.25	1.25	2.75	5.00	0.630	3
	-1.50"-XP1.25"-AP16-04	1.50	1.25	1.75	5.00	0.630	4
	-2.00"-XP1.25"-AP16-05	2.00	1.25	1.75	5.50	0.630	5
	-2.50"-XP1.25"-AP16-06	2.50	1.25	1.75	5.50	0.630	6
	-1.00"-XPL1.00"-AP16-02	1.00	1.00	4.25	6.50	0.630	2
	-1.00"-XPXL1.00"-AP16-02	1.00	1.00	5.75	8.00	0.630	2
	-1.25"-XPL1.25"-AP16-03	1.25	1.25	4.25	6.50	0.630	3
	-1.25"-XPXL1.25"-AP16-03	1.25	1.25	6.25	8.50	0.630	3

Spare parts

Diameter ØD	Insert specifrication	screw	Wrench	Sketch of installation
				
ØD=0.50 "~1.25"	AP11	I60M2.5×6.5T	WT08IP	
ØD=1.00 "~2.50"	AP16	I60M4×8.4	WT15IS	

Selection of inserts



Good working conditions General working conditions Adverse working conditions

Workpiece material

P	Steel
M	Stainless steel
K	Cast iron
N	Ferrite materials
S	Heat-resistant steel

Insert shape	Type	Dimensions(inch)					Coated grade												Cermet		Cemented carbide			
		L	I.W	S	ød	r	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YNG151	YNG151C	YC30S	YD051	YD101	YD201
	APKT11T304-APF	0.482	0.256	0.142	0.110	0.016										●									
	APKT11T308-APF	0.482	0.256	0.142	0.110	0.031										●									
	APKT160408-APF	0.704	0.367	0.227	0.173	0.031										●									
	APKT11T304-APM	0.482	0.256	0.142	0.110	0.016										●									
	APKT11T308-APM	0.482	0.256	0.142	0.110	0.031										●									
	APKT11T312-APM	0.482	0.256	0.142	0.110	0.047										●									
	APKT11T316-APM	0.482	0.256	0.142	0.110	0.063										●									
	APKT11T320-APM	0.482	0.256	0.142	0.110	0.079										●									
	APKT160408-APM	0.704	0.367	0.227	0.173	0.031										●									
	APKT160416-APM	0.704	0.367	0.227	0.173	0.063										●									
	APKT160420-APM	0.704	0.367	0.227	0.173	0.079										●									
	APKT160424-APM	0.704	0.367	0.227	0.173	0.094										●									
	APKT160430-APM	0.704	0.367	0.227	0.173	0.118										●									
	APKT11T304-ALH	0.482	0.256	0.142	0.110	0.016																	●	●
	APKT11T308-ALH	0.482	0.256	0.142	0.110	0.031																	●	○
	APKT160408-ALH	0.704	0.367	0.227	0.173	0.031																	●	●

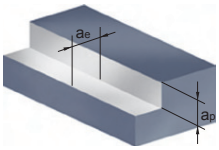
● Always stock available ○ Produce according to order

D

Chipbreaker selection

Classification \ Function	For finishing	For Semi-finishing
P	-APF	-APM
M	-APF	-APM
AL	-ALH	

1 Square shoulder milling



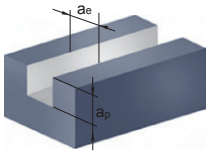
Recommended cutting parameters

(D: Diameter)

Workpiece material		Hardness HB	Insert grade	Cutting parameters			
				V(SFPM)	f(in/z)		a_e(inch)
					-APF	-APM	
P	Low–carbon steel、Soft steel	≤180	YB9320	1000(650-1300)	0.004(0.003-0.008)	0.008(0.004-0.012)	≤0.5D
P	High–carbon steel、Alloy steel	180-280	YB9320	900(600-1100)	0.004(0.003-0.008)	0.008(0.004-0.012)	≤0.5D
P	Alloy tool steel	280-350	YB9320	850(500-1100)	0.004(0.003-0.008)	0.008(0.004-0.012)	≤0.5D
M	Stainless steel	≤270	YB9320	650(360-1000)	0.004(0.003-0.008)	0.008(0.004-0.012)	≤0.5D
N					-ALH		
N	Aluminium alloy	----	YD101	1000-	0.008(0.003-0.016)		≤0.5D
N			YD201	1000-	0.008(0.003-0.016)		≤0.5D

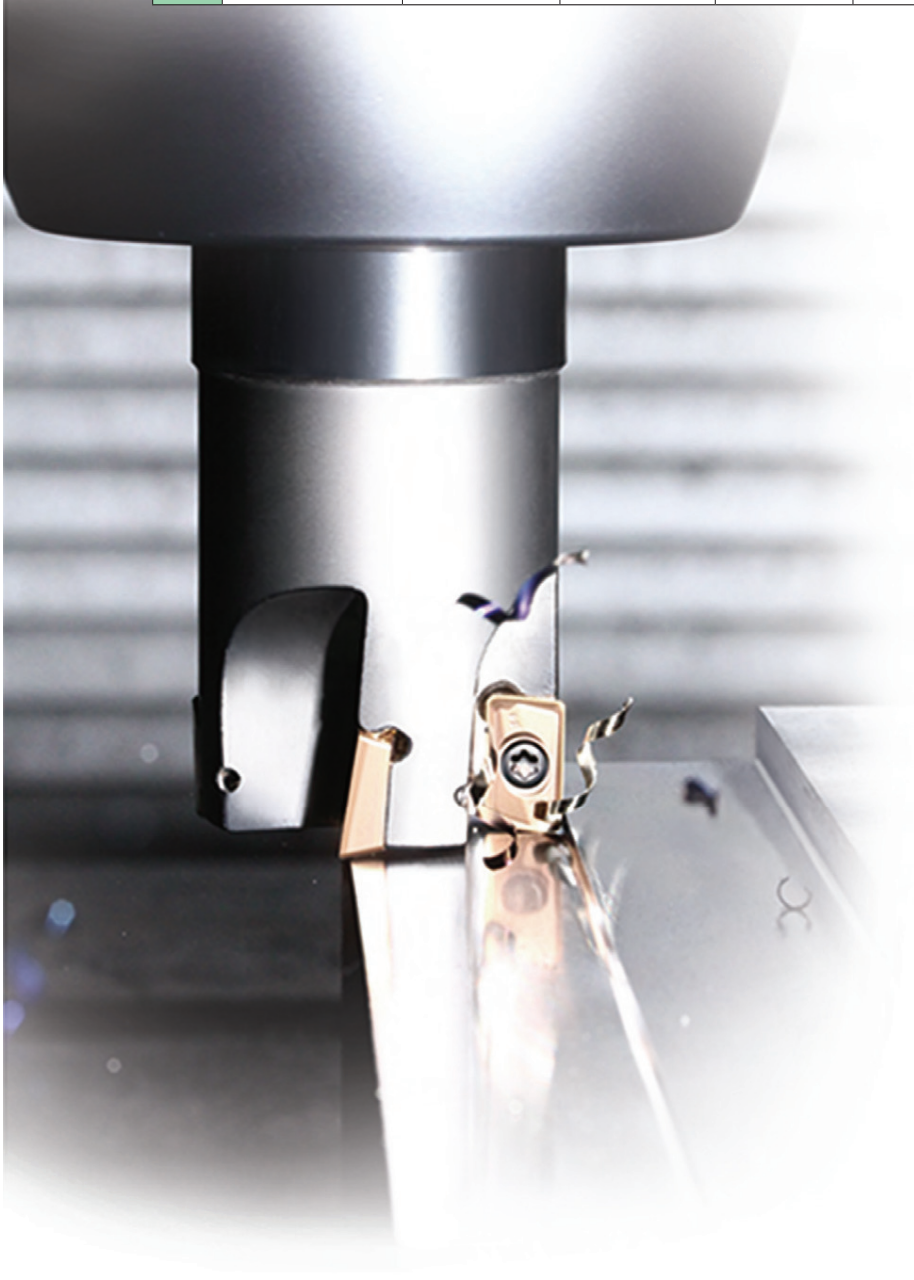
D

2 Slot milling

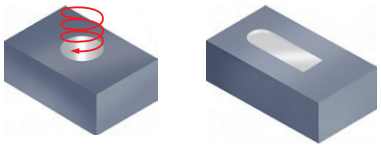


Recommended cutting parameters (D: Diameter)

Workpiece material		Hardness HB	Insert grade	Cutting parameters			
				V(SFPM)	f(in/z)		ae(inch)
					-APF	-APM	
P	Low–carbon steel、Soft steel	≤180	YB9320	600(450-800)	0.004(0.003-0.006)	0.006(0.004-0.01)	D
	High–carbon steel、Alloy steel	180-280	YB9320	550(400-800)	0.004(0.003-0.006)	0.006(0.004-0.01)	D
	Alloy tool steel	280-350	YB9320	500(360-800)	0.004(0.003-0.006)	0.006(0.004-0.01)	D
M	Stainless steel	≤270	YB9320	400(260-600)	0.004(0.003-0.006)	0.006(0.004-0.01)	D
N					-ALH		
	Aluminium alloy	----	YD101	1000-	0.008(0.003-0.012)		D
			YD201	1000-	0.008(0.003-0.012)		D



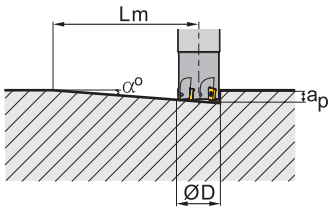
3 Ramp milling, helical interpolation milling



Recommended cutting parameters

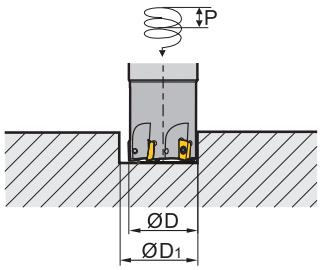
(D: Diameter)

● Ramp milling



$$L_m = \frac{a_p}{tg\alpha}$$ (α:Maximum ramp angle)

● Helical interpolation milling



$$tg\alpha = \frac{P}{\pi D_1}$$ (α:Helical angle)

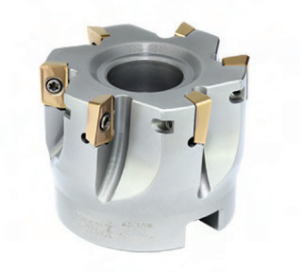
Diameter ØD(mm)	APKT Ramp milling, helical interpolation milling (Inserts-11)				
	Ramp milling			Helical interpolation milling	
	Maximum cutting depth a_p(inch)	Maximum ramp angle α°	Minimum length L_m(inch)	Minimum diameter $ØD_1$(inch)	Maximum pitch(inch)
0.62	0.394	10.0	2.232	0.787	0.079
0.75	0.394	5.0	4.504	1.102	0.079
1	0.394	4.5	5.000	1.575	0.079
1.25	0.394	3.0	7.512	2.205	0.079
1.5	0.394	2.0	11.276	2.756	0.079

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

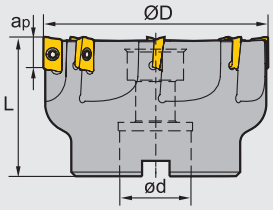
D

Square shoulder milling tools Kr:90°

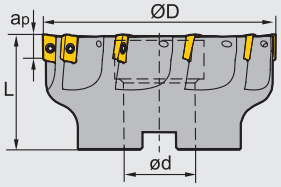
EMP02 P M N



A type of mounting



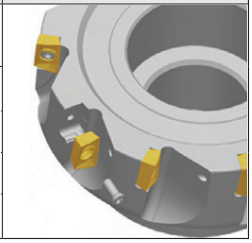
B type of mounting



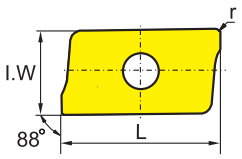
Specification of tools

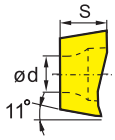
Type		Dimensions(inch)					
		ØD	ød	L	ap	Z	Interface form
EMP02	-2.00"-A0.75"-AP11-06	2.00	0.75	1.50	0.433	6	A
	-2.50"-A0.75"-AP11-08	2.50	0.75	1.50	0.433	8	A
	-3.00"-A1.00"-AP11-08	3.00	1.00	2.00	0.433	8	A
	-4.00"-B1.25"-AP11-10	4.00	1.25	2.00	0.433	10	B
	-2.00"-A0.75"-AP16-05	2.00	0.75	1.50	0.630	5	A
	-2.50"-A0.75"-AP16-06	2.50	0.75	1.50	0.630	6	A
	-3.00"-A1.00"-AP16-07	3.00	1.00	2.00	0.630	7	A
	-4.00"-B1.25"-AP16-08	4.00	1.25	2.00	0.630	8	B
	-5.00"-B1.50"-AP16-08	5.00	1.50	2.50	0.630	8	B
	-6.00"-B1.50"-AP16-09	6.00	1.50	2.50	0.630	9	B
	-8.00"-C2.50"-AP16-12	8.00	2.50	2.50	0.630	12	C

Spare parts

Diameter ØD	Inserts	Screw	Wrench	Sketch of installation
				
Ø=2"~4"	AP11	I60M2.5×6.5T	WT08IS	
Ø=2"~4"	AP16	I60M4×10	WT15IS	
Ø=5"~8"	AP16	I60M4×10	WT15IS	

Selection of inserts





😊 Good working conditions 😐 General working conditions ☹ Adverse working conditions

Workpiece material		YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YNG151	YNG151C	YC30S	YD051	YD101	YD201
P	Steel	😐	😐	😐	☹				😐	😐	😊	😐		😊	😊	😊	☹			
M	Stainless steel	😐	😐	😐	☹				😐	😐	😐	😐		😊	😊	😊	☹			
K	Cast iron					☹	☹	😊					☹	😊				😊		☹
N	Ferrite materials																		😐	☹
S	Heat-resistant steel							😊	☹	☹										

Insert shape	Type	Dimensions(inch)					Coated grade												Cermet		Cemented carbide			
		L	I.W	S	ød	r	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YNG151	YNG151C	YC30S	YD051	YD101	YD201
	APKT11T304-APF	0.482	0.256	0.142	0.110	0.016										●								
	APKT11T308-APF	0.482	0.256	0.142	0.110	0.031										●								
	APKT160408-APF	0.704	0.367	0.227	0.173	0.031										●								
	APKT11T304-APM	0.482	0.256	0.142	0.110	0.016										●								
	APKT11T308-APM	0.482	0.256	0.142	0.110	0.031										●								
	APKT11T312-APM	0.482	0.256	0.142	0.110	0.047										●								
	APKT11T316-APM	0.482	0.256	0.142	0.110	0.063										●								
	APKT11T320-APM	0.482	0.256	0.142	0.110	0.079										●								
	APKT160408-APM	0.704	0.367	0.227	0.173	0.031										●								
	APKT160416-APM	0.704	0.367	0.227	0.173	0.063										●								
	APKT160420-APM	0.704	0.367	0.227	0.173	0.079										●								
	APKT160424-APM	0.704	0.367	0.227	0.173	0.094										●								
	APKT160430-APM	0.704	0.367	0.227	0.173	0.118										●								
	APKT11T304-ALH	0.482	0.256	0.142	0.110	0.016																	●	●
	APKT11T308-ALH	0.482	0.256	0.142	0.110	0.031																	●	○
	APKT160408-ALH	0.704	0.367	0.227	0.173	0.031																	●	●

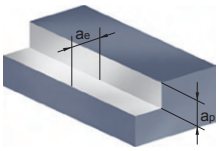
● Always stock available ○ Produce according to order

D

Chipbreaker selection

Classification \ Function	For finishing	For Semi-finishing
P	-APF	-APM
M	-APF	-APM
AL	-ALH	

Square shoulder milling



Recommended cutting parameters

(D: Diameter)

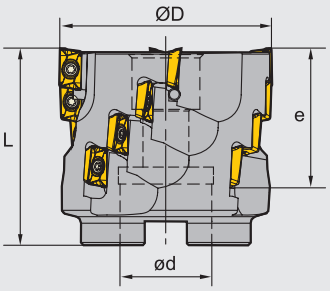
Workpiece material		Hardness HB	Insert grade	Cutting parameters			
				V(SFPM)	f(in/z)		a_e(inch)
					-APF	-APM	
P	Low–carbon steel、Soft steel	≤180	YB9320	1000(650-1300)	0.004(0.003-0.008)	0.008(0.004-0.012)	≤0.5D
	High–carbon steel、Alloy steel	180-280	YB9320	900(600-1100)	0.004(0.003-0.008)	0.008(0.004-0.012)	≤0.5D
	Alloy tool steel	280-350	YB9320	850(500-1100)	0.004(0.003-0.008)	0.008(0.004-0.012)	≤0.5D
M	Stainless steel	≤270	YB9320	650(360-1000)	0.004(0.003-0.008)	0.008(0.004-0.012)	≤0.5D
N					-ALH		
	Aluminium alloy	---	YD101	1000-	0.008(0.003-0.016)		≤0.5D
			YD201	1000-	0.008(0.003-0.016)		≤0.5D

D

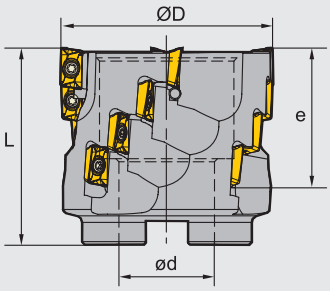
Square shoulder milling tools Kr:90°

EMP03 P M N

A type of mounting



B type of mounting

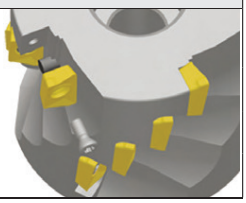


Specification of tools

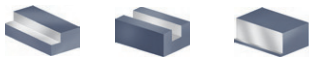
Type		Dimensions(inch)						
		ØD	ød	L	e	Z	Inserts total	Interface form
EMP03	-2.00"-A0.75"-AP11-04	2.00	0.75	2.5	1.535	4	16	A
	-2.50"-A1.00"-AP11-04	2.50	1.00	2.5	1.535	4	16	A
	-3.00"-B1.25"-AP11-05	3.00	1.25	2.5	1.535	5	20	B
	-4.00"-B1.50"-AP11-06	4.00	1.50	2.5	1.535	6	24	B

D

Spare parts

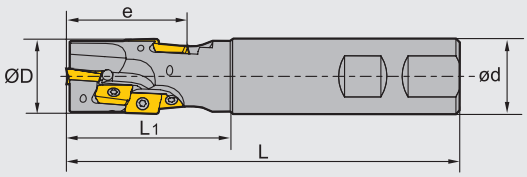
Inserts screw	Wrench	Sketch of installation
		
I60M2.5×6.5T	WT08IS	

Square shoulder milling tools Kr:90°



EMP04 P M N

Weldon shank

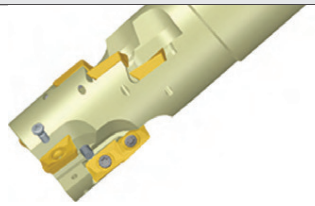


Specification of tools

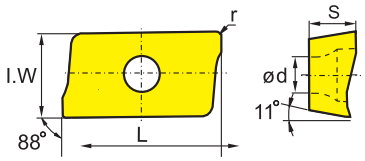
Type		Dimensions(inch)						
		ØD	ød	L_1	L	e	Z	Inserts total
EMP04	-0.75" -XP0.75" -AP11-01	0.75	0.75	2.50	4.75	1.157	1	3
	-1.00" -XP1.00" -AP11-02	1.00	1.00	2.75	5.00	1.531	2	8
	-1.25" -XP1.25" -AP11-02	1.25	1.25	3.25	5.50	1.909	2	10
	-1.50" -XP1.50" -AP11-02	1.50	1.50	3.75	6.00	2.283	2	14

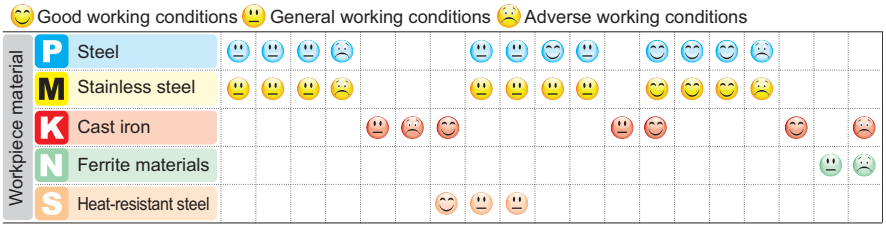
D

Spare parts

Insert screw	Wrench	Sketch of installation
		
I60M2.5×6.5T	WT08IS	

Selection of inserts





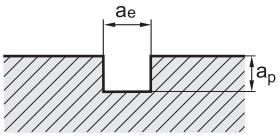
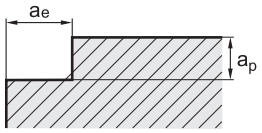
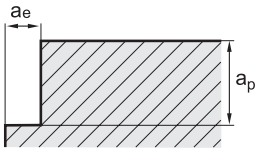
Insert shape	Type	Dimensions(inch)					Coated grade												Cermet		Cemented carbide			
		L	I.W	S	ød	r	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252	YNG151	YNG151C	YC30S	YD051	YD101	YD201
	APKT11T304-APF	0.482	0.256	0.142	0.110	0.016										●									
	APKT11T308-APF	0.482	0.256	0.142	0.110	0.031										●									
	APKT11T304-APM	0.482	0.256	0.142	0.110	0.016										●									
	APKT11T308-APM	0.482	0.256	0.142	0.110	0.031										●									
	APKT11T312-APM	0.482	0.256	0.142	0.110	0.047										●									
	APKT11T316-APM	0.482	0.256	0.142	0.110	0.063										●									
	APKT11T320-APM	0.482	0.256	0.142	0.110	0.079										●									
	APKT11T304-ALH	0.482	0.256	0.142	0.110	0.016																	●	●
	APKT11T308-ALH	0.482	0.256	0.142	0.110	0.031																	●	○

● Always stock available ○ Produce according to order

Chipbreaker selection

Classification \ Function	For finishing	For semi-finishing
P	-APF	-APM
M	-APF	-APM
AL	-ALH	

Recommended cutting parameters

Slot milling	Square shoulder milling	Deep square shoulder milling
		
a_e=D a_p≤0.5D	a_e≤0.5D a_p≤1.2D	a_e≤0.2D a_p<Cutting length of insert

Workpiece material		Hardness HB	Insert grade	Cutting parameters		
				Square shoulder milling		
				V(SFPM)	f(in/z)	
					-APF	-APM
P	Low–carbon steel、Soft steel	≤180	YB9320	900(650-1200)	0.004(0.003-0.008)	0.008(0.004-0.012)
	High–carbon steel、Alloy steel	180-280	YB9320	800(600-1200)	0.004(0.003-0.008)	0.008(0.004-0.012)
	Alloy tool steel	280-350	YB9320	700(500-1100)	0.004(0.003-0.008)	0.008(0.004-0.012)
M	Stainless steel	≤270	YB9320	500(360-900)	0.004(0.003-0.008)	0.008(0.004-0.012)
N					-ALH	
	Aluminium alloy	--	YD101	1000-	0.008 (0.003-0.016)	
			YD201	1000-	0.008 (0.003-0.016)	

D

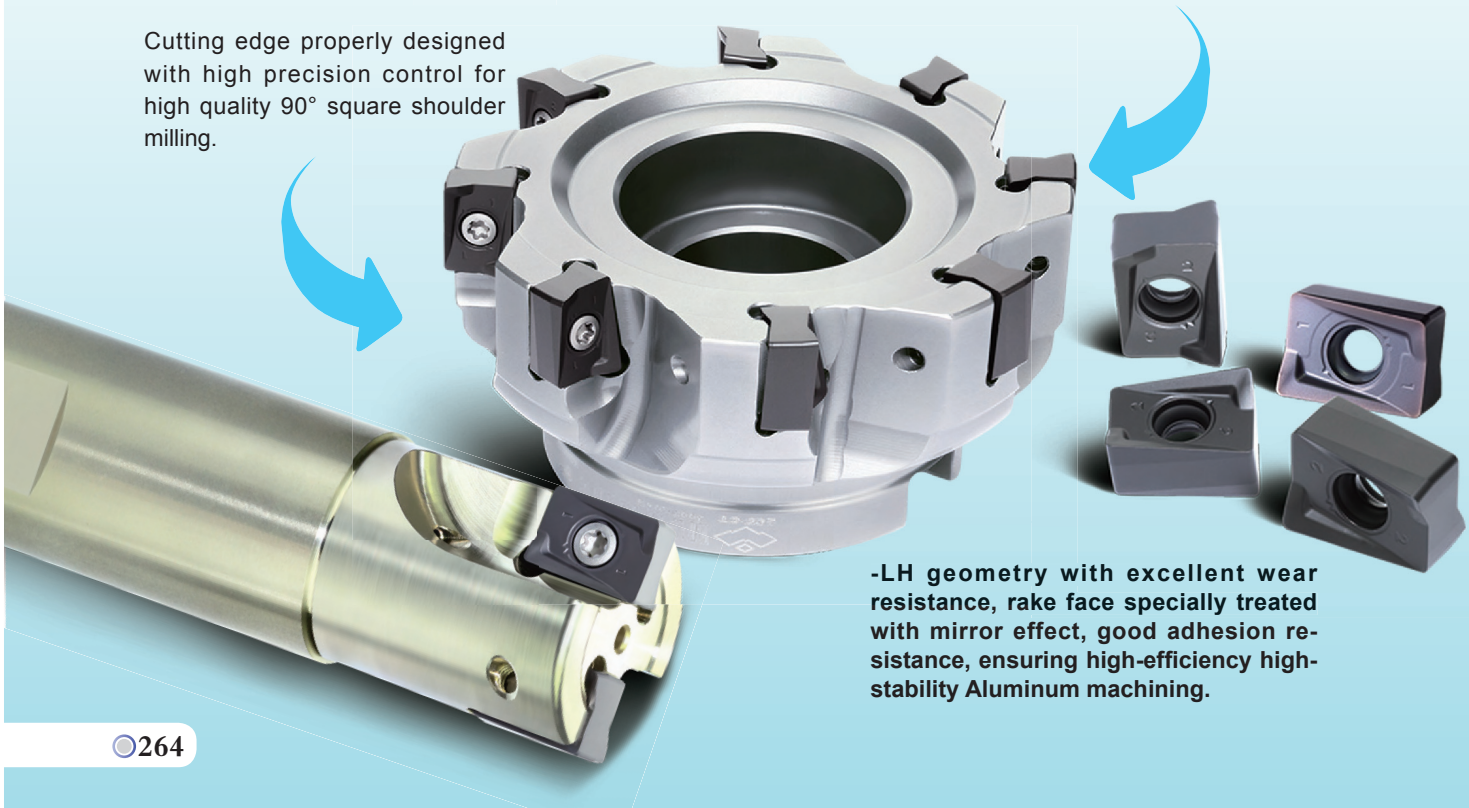
Kr:90°

Achieving high quality 90° square shoulder milling

EMP13 Series Square Shoulder Mills

Extra thick insert with double negative cutter can achieve double positive cutting angle, reduce cutting force and greatly improve impact resistance.

Cutting edge properly designed with high precision control for high quality 90° square shoulder milling.

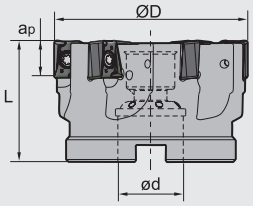


-LH geometry with excellent wear resistance, rake face specially treated with mirror effect, good adhesion resistance, ensuring high-efficiency high-stability Aluminum machining.

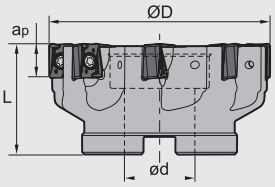
Square shoulder milling tools Kr:90°

EMP13 P K N

A type of mounting



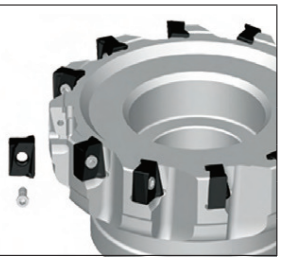
B type of mounting



Specification of tools

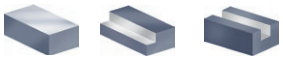
Type		Basic dimensions (inch)				Z	Interface form
		ØD	Ød	L	$a_p$max		
EMP13	-2.00"-A0.75"-AN11-06C	2.00	0.75	1.75	0.441	6	A
	-2.50"-A0.75"-AN11-07C	2.50	0.75	1.75	0.441	7	A
	-3.00"-A1.00"-AN11-09C	3.00	1.00	2.00	0.441	9	A
	-4.00"-B1.50"-AN11-12	4.00	1.50	2.50	0.441	12	B
	-5.00"-B1.50"-AN11-14	5.00	1.50	2.50	0.441	14	B
	-6.00"-B2.00"-AN11-16	6.00	2.00	2.50	0.441	16	B
	-2.00"-A0.75"-AN15-04C	2.00	0.75	1.75	0.571	4	A
	-2.50"-A0.75"-AN15-05C	2.50	0.75	1.75	0.571	5	A
	-3.00"-A1.00"-AN15-06C	3.00	1.00	2.00	0.571	6	A
	-4.00"-B1.50"-AN15-08	4.00	1.50	2.50	0.571	8	B
	-5.00"-B1.50"-AN15-10	5.00	1.50	2.50	0.571	10	B
	-6.00"-B2.00"-AN15-12	6.00	2.00	2.50	0.571	12	B

Spare parts

Diameter ØD	Insert specification	Insert screw	Wrench	
				
Ø2.00"-Ø6.00"	ANGX110504PNR-GM/LH	I60M3X9	WT09IS	
	ANGX110508PNR-GM/LH			
Ø2.00"-Ø6.00"	ANGX150608PNR-GM/LH	I60M4X12	WT15IS	
	ANGX150616PNR-GM/LH			

D

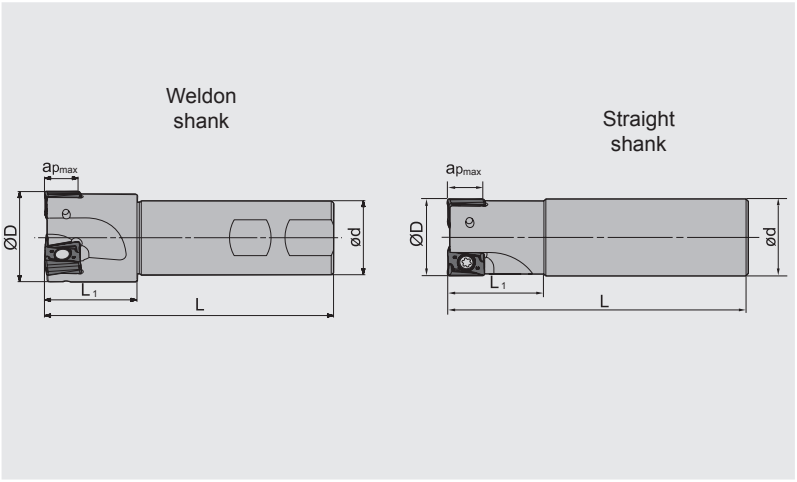
Square shoulder milling tools Kr:90°



EMP13 P K N

Straight shank

Weldon shank



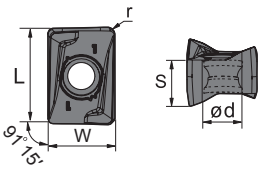
Specification of tools

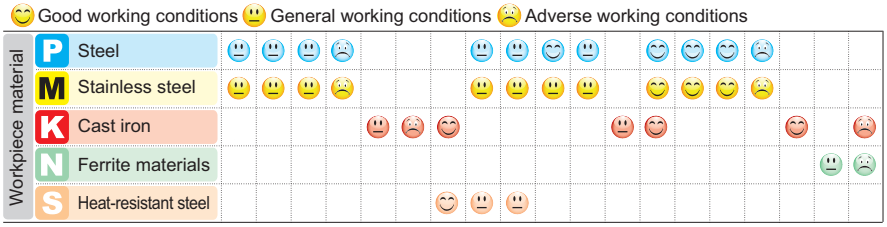
Type		Basic dimensions (inch)					Z
		ØD	Ød	L	L_1	$a_p$max	
EMP13 Weldon shank	**-0.75″-XP0.75″-AN11-01C**	0.75	0.75	4.00	1.75	0.441	1
	-1.00″-XP1.00″-AN11-02C	1.00	1.00	4.50	2.25	0.441	2
	-1.25″-XP1.25″-AN11-03C	1.25	1.25	5.00	2.75	0.441	3
	-1.50″-XP1.25″-AN11-04C	1.50	1.25	5.00	1.50	0.441	4
	-1.25″-XP1.25″-AN15-02C	1.25	1.25	5.00	2.75	0.571	2
	-1.50″-XP1.25″-AN15-03C	1.50	1.25	5.00	1.50	0.571	3
straight shank	**-0.75″-G0.75″-AN11-01C**	0.75	0.75	4.00	1.25	0.441	1
	-1.00″-G1.00″-AN11-02C	1.00	1.00	4.50	1.50	0.441	2
	-1.25″-G1.25″-AN11-03C	1.25	1.25	5.00	1.50	0.441	3
	-1.50″-G1.25″-AN11-04C	1.50	1.25	5.00	1.75	0.441	4
	-1.25″-G1.25″-AN15-02C	1.25	1.25	5.00	1.50	0.571	2
	-1.50″-G1.25″-AN15-03C	1.50	1.25	5.00	1.75	0.571	3

Spare parts

Diameter ØD	Insert specification	Insert screw	Wrench	
				
Ø0.75"-Ø1.50"	**ANGX110504PNR-GM/LH**	I60M3X9	WT09IS	
	ANGX110508PNR-GM/LH			
Ø0.75"-Ø1.50"	**ANGX150608PNR-GM/LH**	I60M4X12	WT15IS	
	ANGX150616PNR-GM/LH			

Selection of inserts





Insert shape	Type	Dimensions(inch)					CVD Coating						PVD Coating								Cermet		Cemented carbide			
		L	W	S	ød	r	YBC302	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YB9320	YBG302	YBG152	YBG252		YNG151	YNG151C	YC30S	YD051	YD101	YD201
	ANGX110504PNR-GM	0.467	0.331	0.224	0.138	0.016			●		●				●	●										
	ANGX110508PNR-GM	0.467	0.331	0.224	0.138	0.031			●		●				●	●										
	ANGX110520PNR-GM	0.467	0.331	0.224	0.138	0.079			●		●	●			●											
	ANGX150608PNR-GM	0.608	0.433	0.287	0.173	0.031			●		●				●	●										
	ANGX150616PNR-GM	0.608	0.433	0.287	0.173	0.063			●		●				●	●										
	ANGX150620PNR-GM	0.608	0.433	0.287	0.173	0.079					●	●			●											
	ANGX110502PNR-LH	0.467	0.331	0.224	0.138	0.008																			●	
	ANGX110504PNR-LH	0.467	0.331	0.224	0.138	0.016																			●	
	ANGX150608PNR-LH	0.608	0.433	0.287	0.173	0.031																			●	

● Always stock available ○ Produce according to order

Recommended cutting parameters

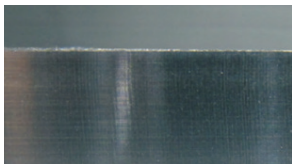
Workpiece material		Hardness HB	Grade	Cutting data		
				V(SFPM)	f(in/z)	a_{pmax}(in)
P	Low carbon steel	⩽180	YBM253 YBG205 YB9320	900(700-1100)	0.01(0.004-0.016)	0.441(AN11) 0.571(AN15)
P	Alloy steel	180-350	YBM253 YBG205 YB9320	800(600-1000)	0.01(0.004-0.016)	
K	Cast iron	180-260	YBD152 YBD252	880(500-1000) 700(400-1000)	0.01(0.004-0.016) 0.08(0.004-0.012)	
N	Aluminium alloy	--	YD101	-LH		
				1000-	0.008(0.003-0.016)	

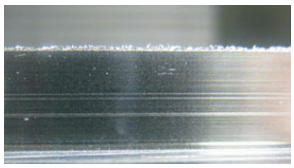
Case for EMP13

(Machining quality)

Workpiece material: NAK80(HRC36)
Tool: EMP13-1.25"-G1.25"-AN15-02C
Insert: ANGX150608PNR-GM/YBG205
Cutting data: Vc=700SFPM, fz=0.004in/z, a_p=0.5inch, a_e=0.4inch
Cutting condition: Dry cutting

Surface quality comparison


EMP13


Company A

Surface quality and perpendicularity of workpiece machined by EMP13 is obviously superior to that of company A.