

Parmak Frezeler / Milling - End Milling Cutters



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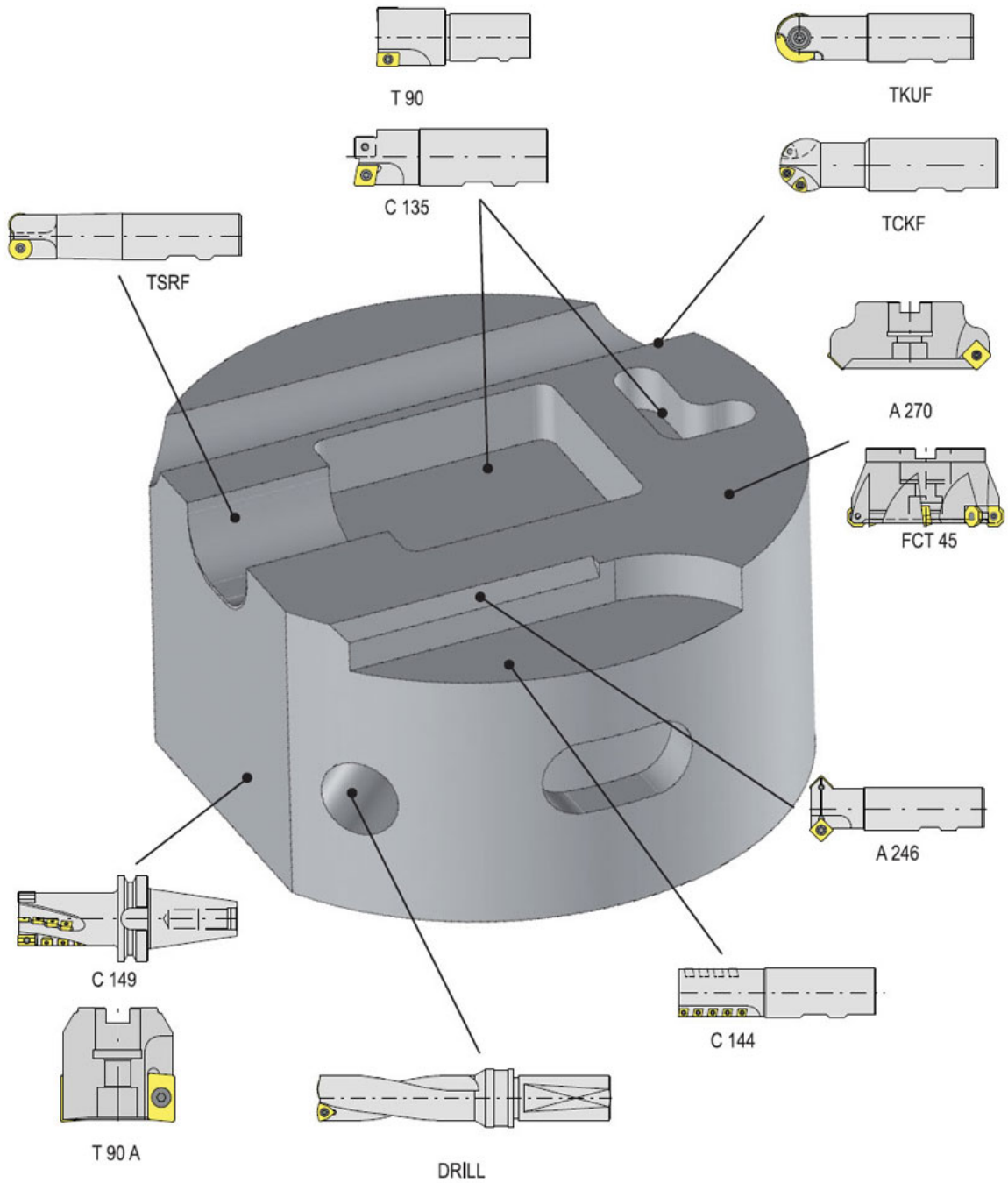
C 149 BT MAS
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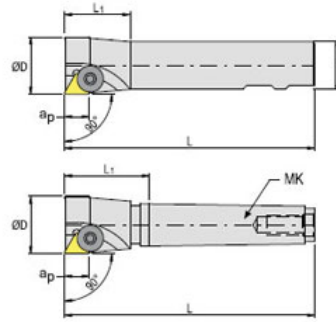


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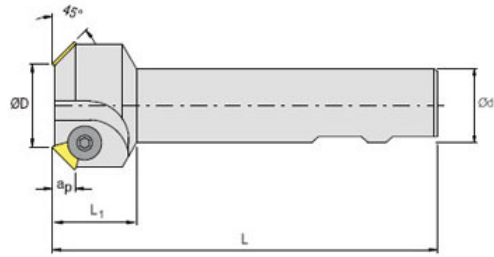


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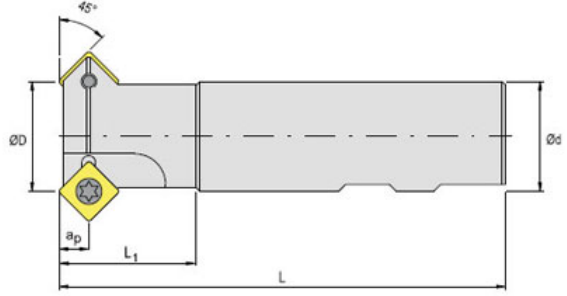
Kod Code			Stok Stock	Ölçüler Dimensions					 Z	Uç Tipi Insert Type	Baskı Vidası Clamp Screw	Anahtar Wrench
				ØD	Ød	L	L ₁	a _p				
FK 15 17	20 20 11		20	20	105	75	9	2	TP.... 1103,...	C16 636	Ta3	
	20 22 11		22	20	105	75	9	2				
	25 25 11		25	25	105	75	9	2				
	25 28 11		28	25	105	85	9	2				
	32 32 16		32	32	125	90	14,5	2	TP.... 1603,...	C16 644	Ta4	
	32 36 16		36	32	125	90	14,5	2				
	32 40 16		40	32	125	90	14,5	3				
	30 22,2		22	MK3	115	35	9	2	TP.... 1103,...	C16 636	Ta3	
	30 25,2		25	MK3	115	35	9	2				
	30 28,2		28	MK3	115	35	9	2				
	30 32,2		32	MK3	120	35	14,5	2	TP.... 1603,...	C16 644	Ta4	
	30 36,2		36	MK3	120	35	14,5	2				
	30 40,2		40	MK4	120	40	14,5	3				

Parmak Frezeler
Milling - Chamfer Milling Cutters


Kod Code			Stok Stock	Ölçüler Dimensions						Z	Uç Tipi Insert Type	Baskı Vidası Clamp Screw	Anahtar Wrench
				ØD	Ød	L	L ₁	a _p					
PF 15 17	25 20	○	20	25	100	30	6	2	TP.... 1103...	C16 636	Ta3		
	25 25	○	25	25	125	30	9	2					
	25 28	○	28	25	125	30	9	2					
	32 32	○	32	32	125	30	9	2					
	32 36	○	36	32	125	30	9	2					
	32 40	○	40	32	125	30	9	3					
									TP.... 1603...	C16 644	Ta3		

Parmak Frezeler

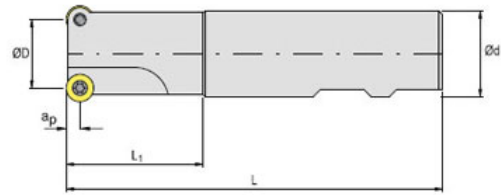
Milling - Chamfer Milling Cutters



Kod Code	Stok Stock	Ölçüler Dimensions						 Z	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	L	L ₁	a _p					
A 246	12 R01 09	●	12	16	100	29	6	1	SCMT 09T308	7883209	T15 IP
	16 R02 09	●	16	20	105	32	6	2			
	20 R02 09	●	20	25	110	35	6	2			
	22 R02 09	●	22	25	115	35	6	2			
	25 R02 12	○	25	32	120	38	8	2	SCMT 120408	7883202	
	28 R02 12	○	28	32	125	40	8	2			
	32 R03 12	○	32	32	130	40	8	3			

Parmak Frezeler

Milling - Copy Milling Cutters

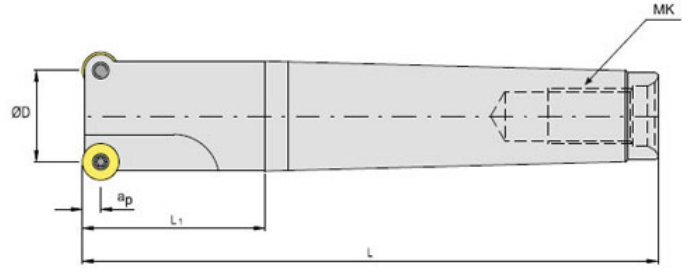


Kod Code	Stok Stock	Ölçüler Dimensions						 Z	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	L	L ₁	a _p					
A 150	12 R01 08 CW	○	12	16	100	50	4	1	RCM...0803..	7883203	T08 IP
	16 R01 08 CW	○	16	20	110	65	4	2			
	20 R02 08 CW	○	20	25	110	40	4	2			
	20 R02 08 CWU	○	20	25	140	65	4	2			
	25 R02 10 CW	○	25	32	110	50	5	3	RCM...1003..	7883209	T15 IP
	25 R02 10 CWU	○	25	32	140	75	5	3			
	32 R02 10 CW	○	32	32	140	75	5	3			
	32 R02 10 CWU	○	32	32	170	110	5	3			
40 R02 10 CW	○	40	32	150	90	5	4				

R : Sağ / Right
● Stoktan / Stock

L : Sol / Left
● 2 Hafta / in two weeks

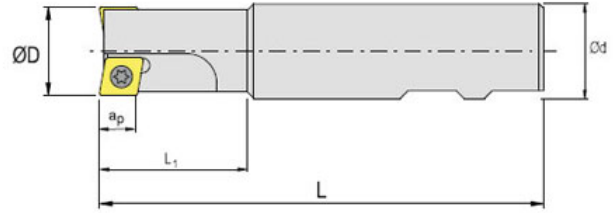
Sipariş Örneği / Ordering Sample : A 246 20 R02 09
○ Stokta yok / Non stock item



Kod Code	Stok Stock	Ölçüler Dimensions							Z	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	MK	L	L ₁	a _p						
A 150	25 R02 08 MK	○	25	3	135	55	4	2	RCM...0803..	7883203	T08 IP	
	32 R02 10 MK	○	32	3	135	55	5	2	RCM...1003..	7883209	T15 IP	
	36 R02 12 MK	○	36	4	157	60	6	2	RCM...1204..	7883202		
	40 R02 12 MK	○	40	4	167	65	6	3				
	50 R02 12 MK	○	50	4	167	65	6	4				

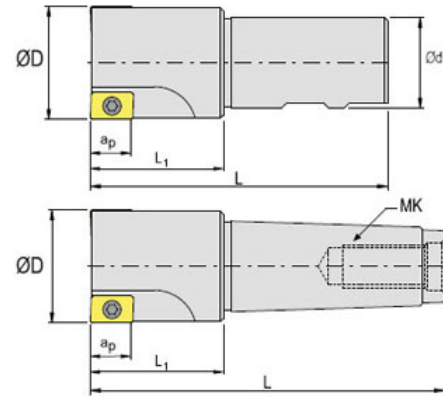


Parmak Frezeler Milling - Slot Milling Cutters



Kod Code	Stok Stock	Ölçüler Dimensions						Z	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	L	L ₁	a _p					
C 130	10 R01 CW	●	10	12	75	25	6	1	CPMT 060304	7815101	T08 IP
	12 R01 CW	●	12	12	75	25	6	1			
	14 R02 CW	●	14	16	75	25	6	2			
	16 R02 CW	●	16	16	90	25	6	2			
	18 R02 CW	●	18	20	100	25	6	2			
	20 R02 CW	○	20	20	105	30	6	2			
	22 R02 CW	○	22	25	110	30	9	2	CPMT 09T308	7883209	T15 IP
	25 R02 CW	○	25	25	115	30	9	2			
	28 R02 CW	○	28	25	115	30	9	2			
	32 R02 CW	○	32	25	120	30	9	3			

Parmak Frezeler Milling - Slot Milling Cutters



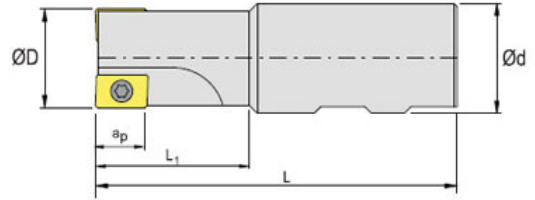
Kod Code	Stok Stock	Ölçüler Dimensions							Z	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	L	L ₁	a _p	MK					
C 140	22 R02 CW	○	22	20	100	38	14	—	2	LD., 15T308	7883209	T15 IP
	25 R02 CW	●	25	25	120	38	14	—	2			
	25 R02 MK	○	25	—	135	38	14	3	2			
	28 R02 CW	○	28	25	120	50	14	—	2			
	28 R02 MK	○	28	—	135	55	14	3	2			
	32 R03 CW	○	32	32	120	40	14	—	3			
	32 R03 MK	○	32	—	140	49	14	3	3			
	36 R03 CW	○	36	32	120	40	14	—	3			
	36 R03 MK	○	36	—	140	40	14	3	3			
	40 R04 CW	○	40	32	125	47	14	—	4			
	40 R04 MK	○	40	—	156	47	14	4	4			

Sipariş Örneği / Ordering Sample : C 130 20 R02 CW

● Stokta / Stock

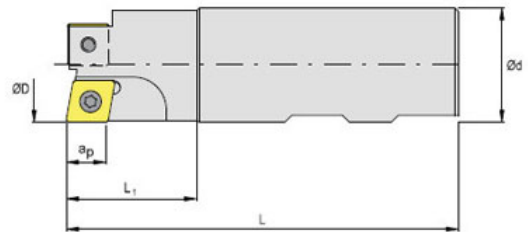
● 2 Hafta / in two weeks

○ Stokta yok / Non stock item



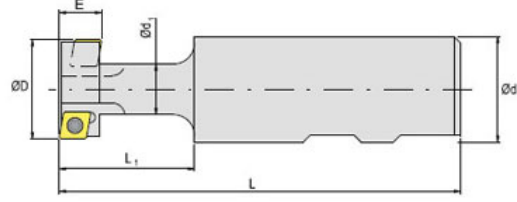
Kod Code	Stok Stock	Ölçüler Dimensions							Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	L	L ₁	a _p	Z				
T90	16 R02 CW	●	16	16	90	35	9	2	APKT 1003...PD-R	7815101	T08 IP
	20 R02 CW	●	20	20	105	35	9	2			
	22 R02 CW	●	22	20	105	35	15	2	APKT 1604...PD-R	7815102	T15 IP
	25 R02 CW	●	25	25	105	35	15	2			
	28 R02 CW	●	28	25	105	35	15	2			
	32 R03 CW	○	32	32	120	40	15	3			
	40 R04 CW	○	40	32	120	40	15	4			

Parmak Frezeler
Milling - Spot Milling Cutters



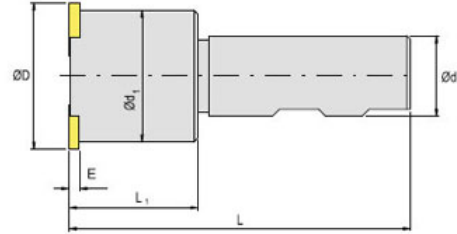
Kod Code	Stok Stock	Ölçüler Dimensions						Z	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	L	L ₁	a _p					
C135	20 18 4 06T	○	18	20	105	30	4	2	CPMT 060304	7815101	T08 IP
	20 20 4 06T	○	20	20	105	30	4	2			
	25 25 4 09T	○	25	25	115	35	6	2	CPMT 09T308 / SPMT 09T308	7815102	
	32 32 4 12T	○	32	32	120	40	8	2	CPMT 120408 / SPMT 120408	7883202	
	32 36 4 12T	○	36	32	120	40	8	2			
	32 40 4 12T	○	40	32	120	40	8	2			

"T" Kanal Frezeler Milling - "T" Slot Milling Cutters



Kod Code	Stok Stock	Ölçüler Dimensions								Z	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	Ød ₁	L	L ₁	E						
CNF	17 R01 CW	○	17.5	16	10	80	25	8.5	2	CPMT 060304	7815101	T08 IP	
	20 R01 CW	○	20.5	16	11	85	30	9	2				
	23 R01 CW	○	23.5	20	12	95	32	10	2				
	30 R02 CW	○	30.5	25	16	100	40	12	2				
	32 R02 CW	○	32.5	32	16	105	40	12	2				
	37 R02 CW	○	37.5	32	17	115	50	16	2	CPMT 09T304	7883209	T15 IP	
	42 R02 CW	○	42.5	32	19	120	50	17	4				
	47 R02 CW	○	47	32	25	125	60	20	4	CPMT 120408	7883202		
	52 R02 CW	○	52	32	25	125	60	21	4				
	55 R02 CW	○	55	32	25	125	60	22	4				

Kanal Açma Frezeleri Milling - Disc Milling Cutters for Grooving



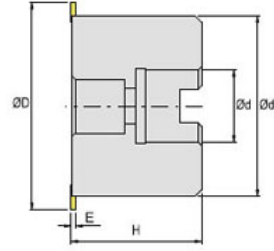
Kod Code		Stok Stock	Ölçüler Dimensions						 Z	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
			ØD	Ød	Ød ₁	L	L ₁	E				
CZF	20 R01 CW	○	20	20	15	100	30	1.1/2.65/4.15	1	R 154.3.16.....	7883209	T15 IP
	25 R01 CW	○	25	20	19	100	30	1.1/2.65/4.15	1			
	32 R02 CW	○	32	25	26	115	45	1.1/2.65/4.15	2			
	36 R03 CW	○	36	32	30	120	55	1.1/2.65/4.15	3			
	40 R03 CW	○	40	32	34	125	60	1.1/2.65/4.15	3			
	50 R04 CW	○	50	32	42	130	60	1.1/2.65/4.15	4			
	63 R05 CW	○	63	40	55	135	65	1.1/2.65/4.15	5			
	80 R06 CW	○	80	40	72	140	70	1.1/2.65/4.15	6			

Sipariş Örneği / Ordering Sample : CNF 42 R02 CW

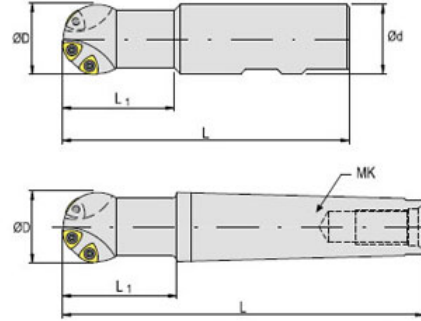
● Stoktan / Stock

● 2 Hafta / in two weeks

○ Stokta yok / Non stock item



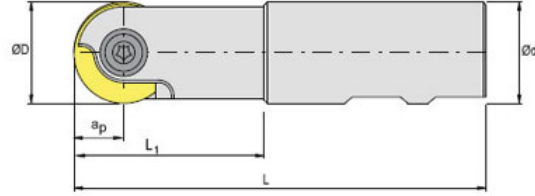
Kod Code	Stok Stock	Ölçüler Dimensions						Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	Ød ₁	H	E	Z			
CZF 40 R03 SK 16	○	40	16	33	40	1.1/2.65/4.15	3	R 154.3.16.....	7883209	T15
50 R04 SK 16	○	50	22	42	45	1.1/2.65/4.15	4			
63 R05 SK 16	○	63	22	55	45	1.1/2.65/4.15	5			
80 R06 SK 16	○	80	27	72	45	1.1/2.65/4.15	6			



Kod Code	Stok Stock	Ölçüler Dimensions						Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	L	L ₁	MK	Z			
TCKF 2016 OCR	○	16	20	130	50	—	2	RT 19 080T	7815101	T08 IP
2520 OCR	○	20	25	140	60	—	2	RT 19 100T		
3225 OCR	○	32	25	162	82	—	2	RT 19 125T		
3232 OCR	○	32	32	168	88	—	2	RT 19 160T	7883209	T15 IP
2016 3 17M	○	16	—	109	40	2	2	RT 19 080T	7815101	T08 IP
2020 3 22M	○	20	—	111	42	2	2	RT 19 100T	7883209	T15 IP
3032 3 30M	○	32	—	141	55	3	2	RT 19 160T		

Küresel Frezeler

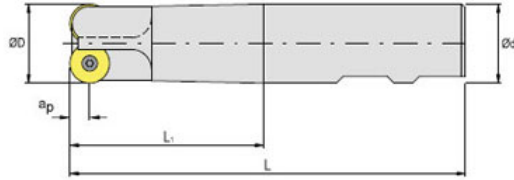
Milling - Form Milling Cutters



Kod Code	Stok Stock	Ölçüler Dimensions						Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	L	L ₁	a _p				
TKUF 10 R01 CW12	○	10	12	115	45	5		WPR 10 N	GWS 10	T15 IP
12 R01 CW16	○	12	16	115	45	6		WPR 12 N	GWS 12	T20
16 R01 CW20	○	16	20	115	60	8		WPR 16 N	GWS 16	
20 R01 CW25	○	20	25	130	60	10		WPR 20 N	GWS 20	
25 R01 CW25	○	25	25	140	70	12		WPR 25 N	GWS 25	
32 R01 CW32	○	32	32	160	90	16		WPR 32 N	GWS 32	T15 IP
10 130 R01 CW12	○	10	12	130	60	5		WPR 10 N	GWS 10	
12 130 R01 CW16	○	12	16	130	70	6		WPR 12 N	GWS 12	
16 140 R01 CW20	○	16	20	140	80	8		WPR 16 N	GWS 16	
20 180 R01 CW25	○	20	25	180	110	10		WPR 20 N	GWS 20	T20
25 190 R01 CW25	○	25	25	190	120	12		WPR 25 N	GWS 25	
32 200 R01 CW32	○	32	32	200	130	16		WPR 32 N	GWS 32	

Parmak Frezeler

Milling - Copy Milling Cutters



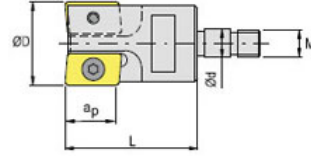
Kod Code		Stok Stock	Ölçüler Dimensions						Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
			ØD	Ød	L	L ₁	a _p				
TSRF	20 R02 CW20 - 10	●	20	20	100	49	5	2	RDHX 1003 MOT	7883209	T15 IP
	25 R02 CW25 - 10	○	25	25	120	60	5	2			
	25 R03 CW25 - 10	○	25	25	120	60	5	3			
	25 R03 CW32 - U10	○	25	32	180	100	5	2			
	32 R03 CW32 - 10	○	32	32	125	55	5	3			
	32 R03 CW40 - U10	○	32	40	200	100	5	3			
	40 R04 CW40 - 10	○	40	40	150	70	5	4	RDHX 12T3 MOT		
	25 R02 CW25 - 12	●	25	25	120	60	6	2			
	32 R03 CW32 - 12	●	32	32	125	55	6	3			
	32 R03 CW32 - U12	○	32	32	200	120	6	3	RDHX 1604 MOT	7883202	
	32 R02 CW32 - 16	○	32	32	200	120	8	2			
	32 R02 CW32 - U16	○	32	32	250	170	8	2			
	40 R03 CW40 - 16	○	40	40	200	120	8	3			
	40 R03 CW40 - U16	○	40	40	250	170	8	3			

Sipariş Örneği / Ordering Sample : TKUF 25 R01 CW25

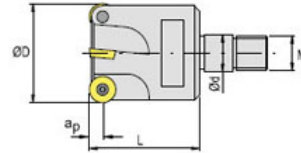
● Stoktan / Stock

● 2 Hafta / in two weeks

○ Stokta yok / Non stock item



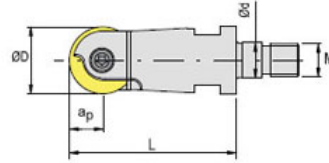
Kod Code		Stok Stock	Ölçüler Dimensions					 Z	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
			ØD	Ød	M	L	ap				
T 90	16 R02 MD8	○	16	8,5	M8	24	9	2	APKT 1003	7815101	T08
	20 R03 MD10	○	20	10,5	M10	26	9	3			
	25 R04 MD12	○	25	12,5	M12	33	9	4			
	25 R02 MD12	○	25	12,5	M12	33	15	2	APKT 1604	7883209	T15
	32 R03 MD16	○	32	17	M16	43	15	3			
	40 R04 MD16	○	40	17	M16	43	15	4			

Modüler Parmak Frezeler
Milling - End Milling Cutters


Kod Code	Stok Stock	Ölçüler Dimensions						Z	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	M	L	ap					
TSRF	16 R02 07 MD8	○	16	8,5	M8	24	3	2	RDHX 0702 MOT	7815101	T08 IP
	20 R03 10 MD10	○	20	10,5	M10	26	5	3	RDHX 1003 MOT		
	25 R03 10 MD12	○	25	12,5	M12	33	5	3			
	25 R02 12 MD12	○	25	12,5	M12	33	6	2	RDHX 12T3 MOT	7883209	T15 IP
	32 R03 10 MD16	○	32	17	M16	43	5	3	RDHX 1003 MOT		
	32 R03 12 MD16	○	32	17	M16	43	6	3	RDHX 12T3 MOT		
	40 R04 12 MD16	○	40	17	M16	43	6	4			

Küresel Frezeler

Milling - Form Milling Cutters



Kod Code		Stok Stock	Ölçüler Dimensions						Z	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
			ØD	Ød	M	L	ap					
TKUF	16 R01 MD8	○	16	8,5	M8	40	8	1	WPR 16 N	GWS 16	T20	
	20 R01 MD10	○	20	10,5	M10	40	10	1	WPR 20 N	GWS 20		
	25 R01 MD12	○	25	12,5	M12	45	12	1	WPR 25 N	GWS 25		

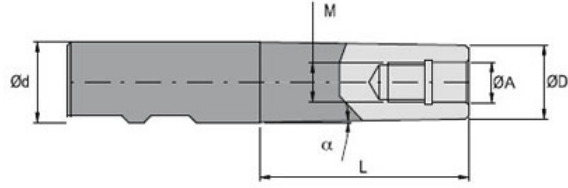


Sipariş Örneği / Ordering Sample : TKUF 16 R01 MD8

● Stoktan / Stock

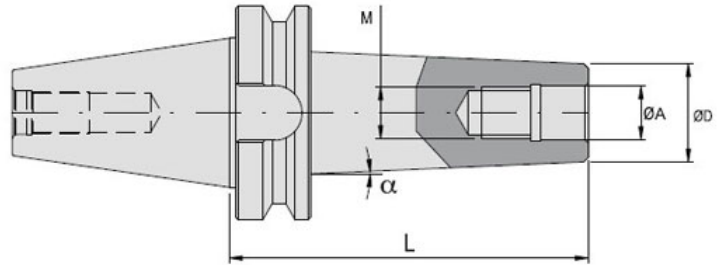
● 2 Hafta / in two weeks

○ Stokta yok / Non stock item



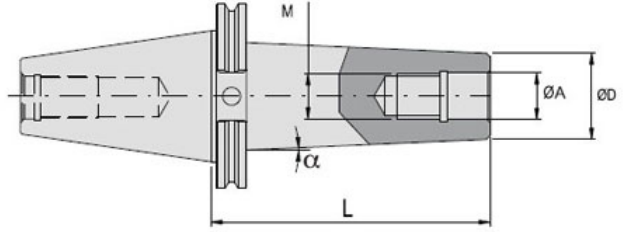
Kod Code	Stok Stock	Ölçüler Dimensions					
		ØD	ØA	Ød	L	M	α
CW20 MDS8 40	●	14	8,5	20	40	M8	3°
CW20 MDS8 80	●	14	8,5	20	80	M8	1°
CW25 MDS8 40	○	14	8,5	25	40	M8	3°
CW25 MDS8 80	●	14	8,5	25	80	M8	1°
CW20 MDS10 40	○	18	10,5	20	40	M10	3°
CW20 MDS10 80	●	18	10,5	20	80	M10	1°
CW25 MDS10 40	●	18	10,5	25	40	M10	3°
CW25 MDS10 100	●	18	10,5	25	100	M10	1°
CW25 MDS12 50	○	22	12,5	25	50	M12	3°
CW25 MDS12 100	●	22	12,5	25	100	M12	1°
CW32 MDS12 50	○	22	12,5	32	50	M12	3°
CW32 MDS12 100	○	22	12,5	32	105	M12	1°
CW32 MDS16 50	○	28	17	32	50	M16	3°
CW32 MDS16 100	○	28	17	32	100	M16	1°
CW32 MDS16 150	○	28	17	32	150	M16	1°

Modüler Sistem Freze Tutucuları BT MAS - Form A
Milling - Toolholders, Arbor BT MAS - Form A



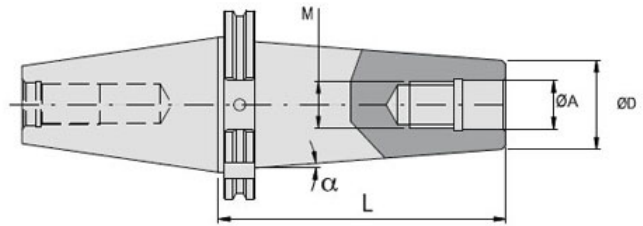
Kod Code	Stok Stock	Ölçüler Dimensions					α
		ØD	ØA	L	M		
BT40	MDS8 80	○	14	8,5	80	M8	1°
	MDS10 100	○	18	10,5	100	M10	
	MDS12 105	○	22	12,5	105	M12	
	MDS16 150	○	28	17	150	M16	
BT50	MDS8 80	○	14	8,5	80	M8	
	MDS10 100	○	18	10,5	100	M10	
	MDS12 105	○	22	12,5	105	M12	
	MDS16 150	○	28	17	150	M16	

Modüler Sistem Freze Tutucuları (A.N.S.I) CAT - Form A
Milling - Toolholders, Arbor (A.N.S.I) CAT - Form A



Kod Code	Stok Stock	Ölçüler Dimensions				
		ØD	ØA	L	M	α
CAT40	MDS8 80	○	14	8,5	80	M8
	MDS10 100	○	18	10,5	100	M10
	MDS12 105	○	22	12,5	105	M12
	MDS16 150	○	28	17	150	M16
CAT50	MDS8 80	○	14	8,5	80	M8
	MDS10 100	○	18	10,5	100	M10
	MDS12 105	○	22	12,5	105	M12
	MDS16 150	○	28	17	150	M16

Modüler Sistem Freze Tutucuları DIN 69871 - Form A
Milling - Toolholders, Arbor DIN 69871 - Form A



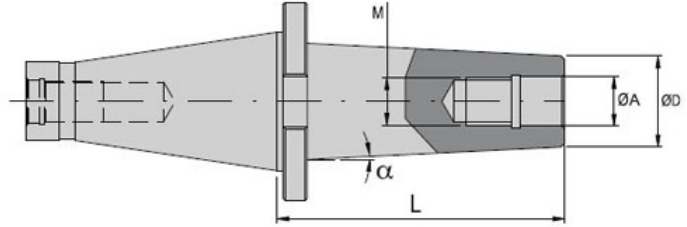
Kod Code	Stok Stock	Ölçüler Dimensions				
		ØD	ØA	L	M	α
IT40	MDS8 80	○	14	8,5	80	M8
	MDS10 100	○	18	10,5	100	M10
	MDS12 105	○	22	12,5	105	M12
	MDS16 150	○	28	17	150	M16
IT50	MDS8 80	○	14	8,5	80	M8
	MDS10 100	○	18	10,5	100	M10
	MDS12 105	○	22	12,5	105	M12
	MDS16 150	○	28	17	150	M16

Sipariş Örneği / Ordering Sample : IT40 MDS8 80

● Stoktan / Stock

● 2 Hafta / in two weeks

○ Stokta yok / Non stock item

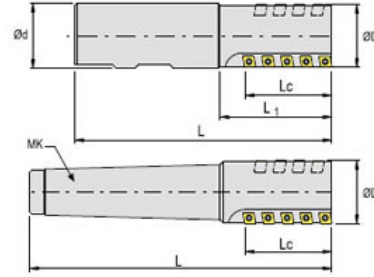


Kod Code	Stok Stock	Ölçüler Dimensions				
		ØD	ØA	L	M	α
ISO40	MDS8 80	14	8,5	80	M8	1°
	MDS10 100	18	10,5	100	M10	
	MDS12 105	22	12,5	105	M12	
	MDS16 150	28	17	150	M16	
ISO50	MDS8 80	14	8,5	80	M8	
	MDS10 100	18	10,5	100	M10	
	MDS12 105	22	12,5	105	M12	
	MDS16 150	28	17	150	M16	



Helis Frezeler

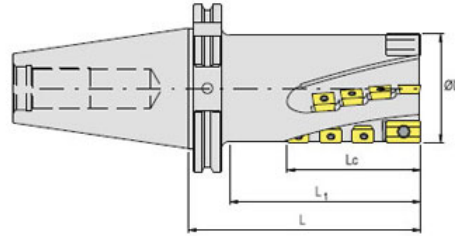
Milling - Helical Milling Cutters



Kod Code		Stok Stock	Ölçüler Dimensions							Uç Sayısı Insert Number	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtarı Torx Wrench
			ØD	Ød	L	L ₁	MK	Lc					
C144	20 R01 CW	○	20	20	90	45	—	25	2	5	CPMT 060304	7815101	T08 IP
	20 R01 MK	○	20	—	90	45	2	25	2	5			
	25 R02 CW	○	25	25	100	55	—	30	4	12			
	25 R02 MK	○	25	—	100	55	3	30	4	12			
	32 R02 CW	○	32	32	115	60	—	38	4	16			
	32 R02 MK	○	32	—	115	60	4	38	4	16			
	36 R02 CW	○	36	32	125	70	—	48	4	16			
	36 R02 MK	○	36	—	125	70	4	48	4	16			
	40 R02 CW	○	40	32	125	70	—	48	4	14	CPMT 09T304	7883209	T15 IP
	40 R02 MK	○	40	—	125	70	4	48	4	14			

Helis Frezeler - DIN 69871 - Form A

Milling - Helical Milling Cutters - DIN 69871 - Form A



Kod Code	Stok Stock	Ölçüler Dimensions					Uç Sayısı Insert Number	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench	
		ØD	L	L ₁	Lc						
C149	50 R02 IT40	○	50	120	95	65	4	12	LPHT 200408 / SPMT 120408	7883202	T15 IP
	50 R02 IT50	○	50	120	95	65	4	12			
	63 R02 IT40	○	63	135	110	80	4	14			
	63 R02 IT50	○	63	135	110	80	4	14			
	80 R03 IT50	○	80	150	125	95	6	30			
	100 R04 IT50	○	100	175	150	120	8	44			

Sipariş Örneği / Ordering Sample : C 144 40 R02 CW

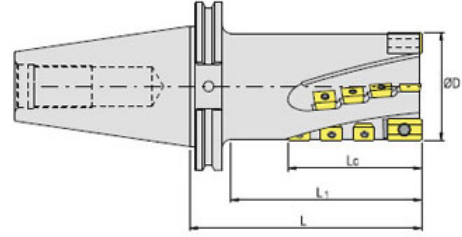
● Stoktan / Stock

● 2 Hafta / in two weeks

○ Stokta yok / Non stock item

Helis Frezeler - (A.N.S.I) CAT - Form A

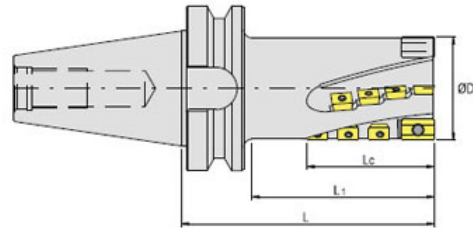
Milling - Helical Milling Cutters - (A.N.S.I) CAT - Form A



Kod Code	Stok Stock	Ölçüler Dimensions					Uç Sayısı Insert Number	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench	
		ØD	L	L ₁	L _c						
C149	50 R02 C40	○	50	120	95	65	4	12	LPHT 200408 / SPMT 120408	7883202	T15 IP
	50 R02 C50	○	50	120	95	65	4	12			
	63 R02 C40	○	63	135	110	80	4	14			
	63 R02 C50	○	63	135	110	80	4	14			
	80 R03 C50	○	80	150	125	95	6	30			
	100 R04 C50	○	100	175	150	120	8	44			

Helis Frezeler - BT MAS - Form A

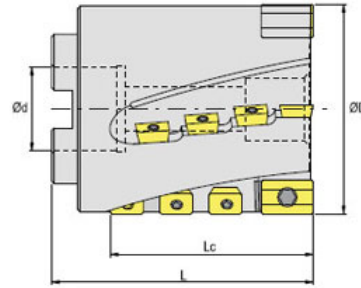
Milling - Helical Milling Cutters - BT MAS - Form A



Kod Code		Stok Stock	Ölçüler Dimensions					Uç Sayısı Insert Number	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
			ØD	L	L ₁	L _c					
C149	50 R02 B40	○	50	120	95	65	4	12	LPHT 200408 / SPMT 120408	7883202	T15 IP
	50 R02 B50	○	50	130	95	65	4	12			
	63 R02 B40	○	63	140	110	80	4	14			
	63 R02 B50	○	63	145	110	80	4	14			
	80 R03 B50	○	80	160	125	95	6	30			
	100 R04 B50	○	100	180	150	120	8	44			

Helis Frezeler

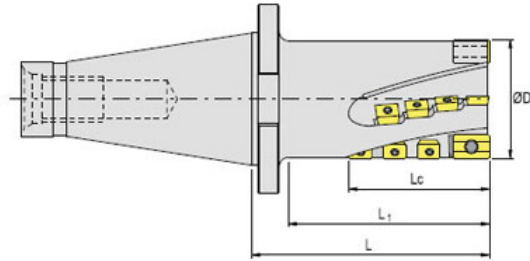
Milling - Helical Milling Cutters



Kod Code	Stok Stock	Ölçüler Dimension				Z	Uç Sayısı Insert Number	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	Ød	L	Lc					
C149	63 R02 M54	○	63	27	74	54	4	2/10	LPHT 200408/SPMT 120408	7883202
	80 R03 M80	○	80	32	100	80	6	3/21		
	100 R04 M90	○	100	40	110	90	8	4/48		
	125 R05 M100	○	125	50	120	100	10	5/58		

Helis Frezeler - DIN 2080 - Form A

Milling - Helical Milling Cutters - DIN 2080 - Form A



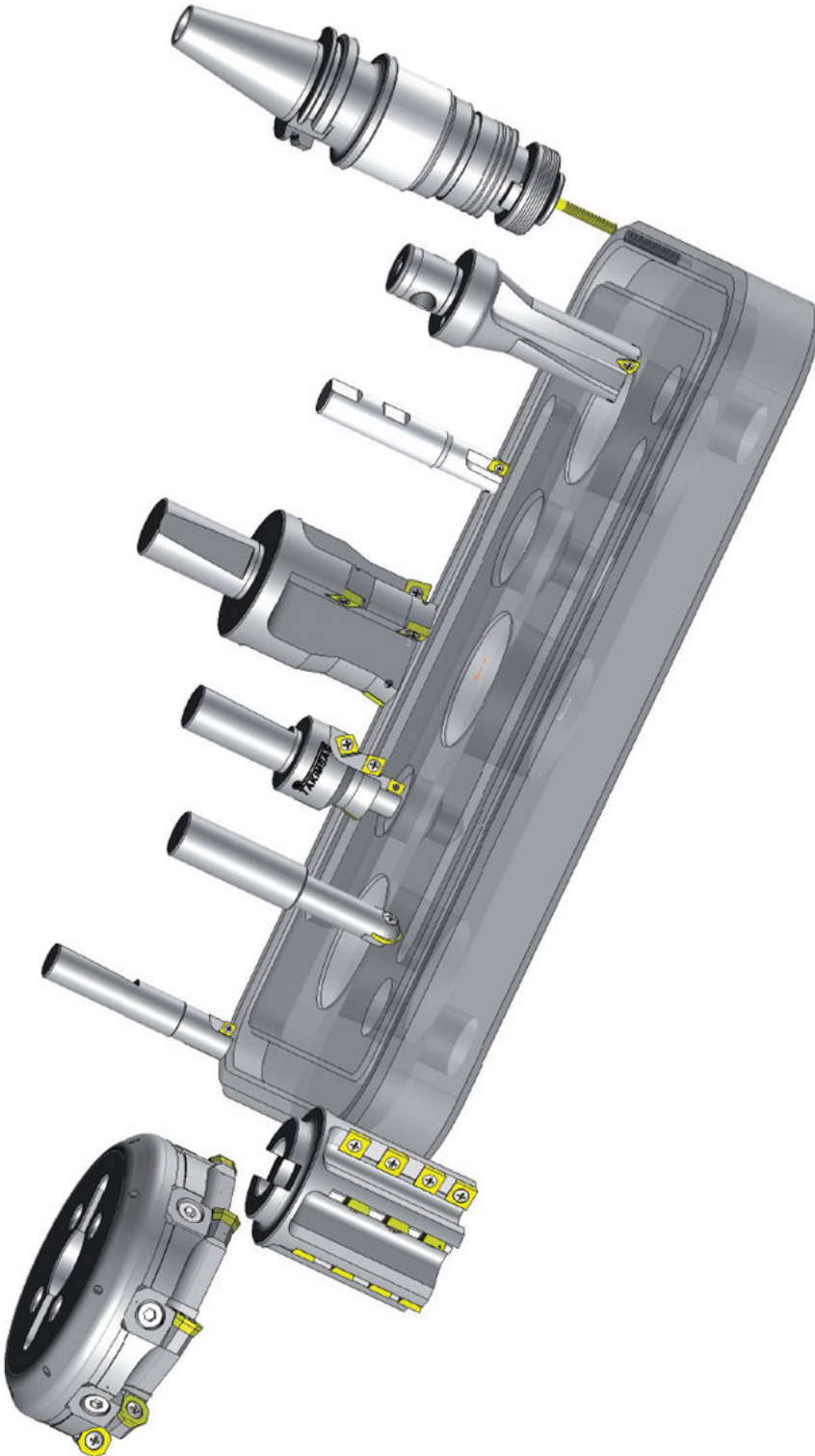
Kod Code	Stok Stock	Ölçüler Dimensions				Z	Uç Sayısı Insert Number	Uç Tipi Insert Type	Uç Vidası Insert Screw	Torx Anahtar Torx Wrench
		ØD	L	L _c	L _t					
C149	50 R02 D40	○	50	115	95	65	4	12	LPHT 200408 / SPMT 120408	7883202
	50 R02 D50	○	50	115	95	65	4	12		
	63 R02 D40	○	63	130	110	80	4	14		
	63 R02 D50	○	63	130	110	80	4	14		
	80 R03 D50	○	80	145	125	95	6	30		
	100 R04 D50	○	100	170	150	120	8	44		
	125 R05 D50	○	125	180	160	130	10	54		

Sipariş Örneği / Ordering Sample : C 149 80 R03 M80

● Stoktan / Stock

● 2 Hafta / in two weeks

○ Stokta yok / Non stock item



Problem \ Çözüm	Aşırı serbest yüzey aşınması	Aşırı krater aşınması	Talaş birikmesi (kaynaması)	Kesme kenarının ufak parçalar halinde kopması	Plastik deformasyon	Termal çatlaklar (kırıklar)	Kesme kenarının çentiklenmesi	Kötü iş parçası yüzeyi	İş parçasının küçük parçalar halinde kopması
Uç kalitesinin aşınma dayanımı	↑↑	↑↑			↑↑			↑↑	
Uç kalitesinin sünekliği				↑↑		↑↑			
Kesme hızı	↓↓	↓↓	↑↑	↑↑	↓↓			↑↑	
Diş başına ilerleme	↑↑	↓↓	↑↑	↓↓	↓↓				↓↓
Kesme derinliği			↓↓	↔				↔	↓↓
Yanaşma açısı			↔						↓↓
Kesme kenar pahlı	↑↑				↑↑			↓↓	↓↓
Stabilite					↑↑			↑↑	
Soğutma		↑↑	↑↑					↔	

↑↑ : Yükseltin

↓↓ : Azaltın

↔ : Uygun hale getirin

Kesme hızı (m/dak)	$V_c = \frac{D_m \cdot \pi \cdot n}{1000}$
Tabla ilerleme hızı (mm/dak)	$V_f = f_z \cdot z \cdot n$
Ortalama talaş kalınlığı (mm)	$h_m = f_z \cdot \sqrt{\frac{a_e}{d_1}}$
Talaş hacmi (cm ³ /dak)	$v = \frac{a_p \cdot a_e \cdot V_f}{1000}$

ap... Kesme derinliği (mm)
ae... Frezeleme genişliği (mm)
fz ... Diş başına ilerleme (mm)
d1... Freze kafa çapı (mm)
n ... Devir sayısı (dev/dak)



Problem \ Option	Extreme flank wear	Extreme crater wear	Edge build up	Chipping of cutting edge	Plastic deformation	Thermal crack	Notch wear	Poor workpiece surface	Chipping of workpiece
Carbide wear resistance	↑↑	↑↑			↑↑			↑↑	
Carbide toughness				↑↑		↑↑			
Cutting speed	↓↓	↓↓	↑↑	↑↑	↓↓			↑↑	
Feed per tooth	↑↑	↓↓	↑↑	↓↓	↓↓				↓↓
Cutting depth			↓↓	↔				↔	↓↓
Lead angle			↔						↓↓
Cutting edge chamfer	↑↑				↑↑			↓↓	↓↓
Stability					↑↑			↑↑	
Cooling		↑↑	↑↑					↔	

↑↑ : Increase

↓↓ : Reduce

↔ : Optimize

Cutting speed (m/min)	$V_c = \frac{D_m \cdot \pi \cdot n}{1000}$
Feed speed (mm/min)	$V_f = f_z \cdot z \cdot n$
Average chip thickness (mm)	$h_m = f_z \cdot \sqrt{\frac{a_e}{d_1}}$
Metal removal rate (cm ³ /min)	$v = \frac{a_p \cdot a_e \cdot V_f}{1000}$

a_p ... Cutting depth (mm)
 a_e ... Contact width (mm)
 f_z ... Feed per tooth (mm)
 d_1 ... Cutter diameter (mm)
 n ... Revolution per minute (Rev/min)