

MS PLUS

YEKPARE KARBÜR PARMAK FREZE SERİSİ

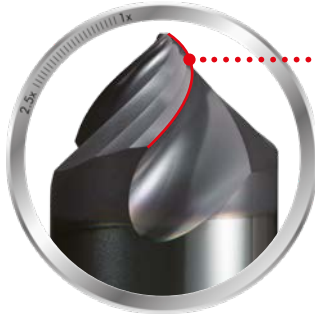


NEW

MP3C

PAH KIRICI, 3 KANALLI

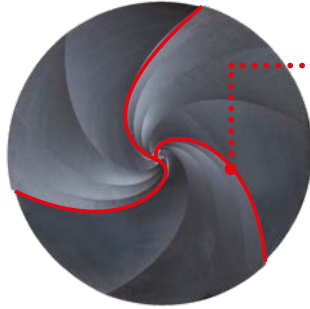
Pah kırma amaçlı yüksek performanslı uzun ömürlü parmak freze.



KESKİN HELİSEL KANAL

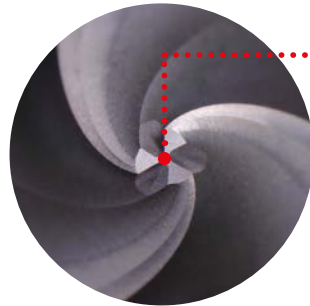
İdeal helis açısı mükemmel keskinlik sağlar ve çapak oluşmasını azaltır.

Pah açısı 45°'dir.



3 KANALIN ÖZELLİKLERİ

3 kanallı tasarım yüksek ilerleme ile işleme sırasında esneklik ve talaş boşaltma arasında mükemmel bir denge oluşmasına olanak tanır. Yüksek verimlilikte işleme elde edilir.



KESME KENARI UCU

Kesme kenarı ucu ayrıca V kanal işleme amaçlı da kullanılabilir.



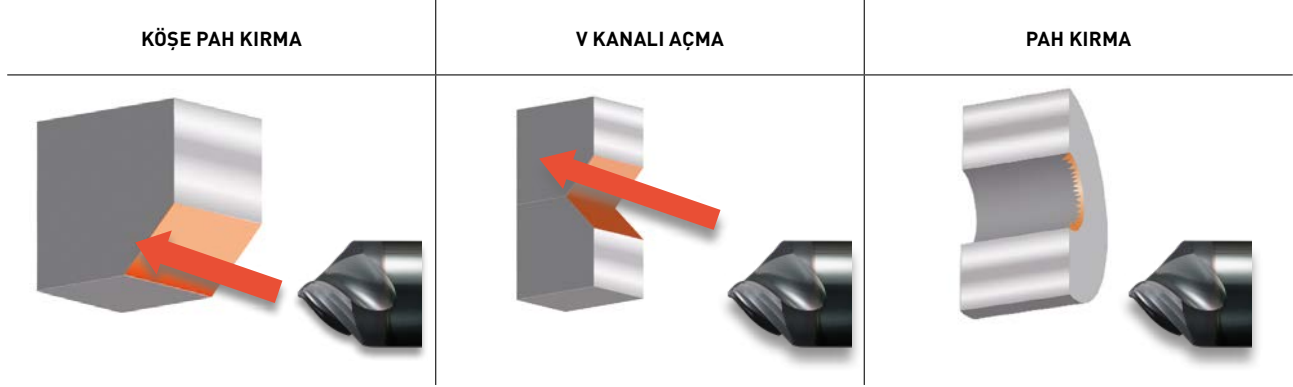
V-kanal işleme

NEW

MP3C

YÜKSEK VERİMLİLİKTE PAH KIRMA

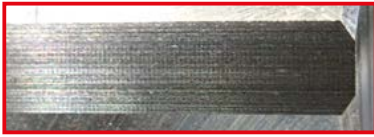


3 kanallı geometri ile yüksek ilerleme ve daha uzun takım ömrü elde edilir ve helisel kanalların etkisi ile pah kırma sırasında çapak oluşmasını engellenir.



1. Merkezleme için DLE ve GKCD tip matkaplar tavsiye edilir.

İş Parçası Malzemesi	JIS S55C
Takım (mm)	DC = Ø 6
Vc (m/dk)	100
n (dak ⁻¹)	5300
fz (mm/diş)	0.03
ap (mm)	1.2
Takım serbest boy uzunluğu (mm)	18
Soğutma türü	Basıncılı Hava püskürtme

S55C MALZEME İŞLENİRKEN KANAL AÇMA SONRASINDA ÇAPAK KARŞILAŞTIRMASI

MP3C 3 helisel kanal		İyi yüzey finışı
Geleneksel kesici 4 düz kanal		Çapak oluşuyor
Geleneksel kesici 2 düz kanal		Çapak oluşuyor

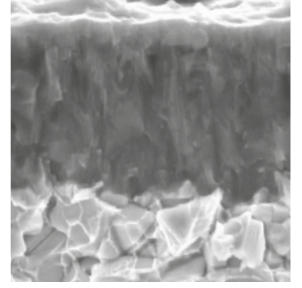
MS PLUS

YEKPARE KARBÜR PARMAK FREZE SERİSİ



(Al,Ti,Cr)N ÇOK KATLI KAPLAMA (MS PLUS)

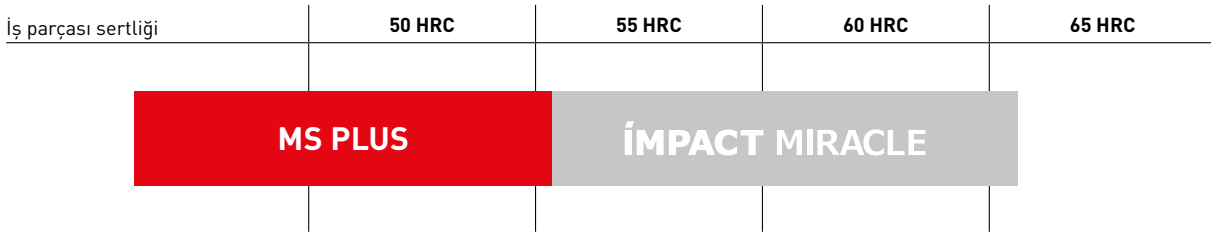
Orijinal (Al,Ti)N and (Al,Cr)N çok katlı kaplama teknolojisi, geniş aralıkta iş parçası malzemelerinin işlenmesine olanak sağlar.



(Al,Ti,Cr)N ÇOK KATLI KAPLAMANIN (MS PLUS) ÖZELLİKLERİ

	(Al,Ti,Cr)N Çok katlı	(Al,Ti)N	(Al,Cr)N
Sertlik (HV)	3200	2800	3100
Oksitlenme (r)	1100	800	1100
Yapışma-Tutunma (N)	100	80	80

UYGULAMA ARALIĞI



MS PLUS, 55 HRC'YE KADAR SERTLİK DEĞERİNE SAHİP MALZEMELERDE UZUN TAKIM ÖMRÜ SAĞLAR.

55 HRC'den daha sert çelikler için, İMPACT MIRACLE teknolojisine sahip parmak frezeler tavsiye edilir.

MS PLUS

UYGULAMA ARALIĞI

Ürün Kodu	Şekil	DC	P	M	S	N	H	
KÖŞE RADYÜSLÜ PARMAK FREZELER								
MPMHVRB	Köşe radyüslü, Orta Kesme Uzunluğu, 4 ağızlı, Değişken Helisli	 DC 1 - 20	⊙	⊙	○		○	7
MPXLRB	Köşe radyusu, kısa kesme boyu, Uzun boyun, 2-4 kanal	 DC 0.2 - 6	⊙	○	○	○	⊙	12
DÜZ UÇLU PARMAK FREZELER								
MP2ES	İsviçre tipi tornalar için 2 kanallı parmak freze	 DC 3 - 10	⊙	○	○	○	○	19
MP3ES	İsviçre tipi tornalar için 3 kanallı parmak freze	 DC 3 - 12	⊙	○	○	○	○	22
MP4EC	İsviçre tipi tornalar için 4 kanallı parmak freze	 DC 3 - 14	⊙	○	○	○	○	26
MPSHV/W	Parmak freze , Kısa kesme boyu, 2,5xDC boyun boşluğu, 4 ağızlı düzensiz helis kanalı	 DC 6 - 20	⊙	⊙	○		○	30
MPMHV/W	Parmak freze , Orta kesme boyu, 2,5xDC boyun boşluğu, 4 ağızlı düzensiz helis kanalı	 DC 6 - 20	⊙	⊙	○		○	34
MPMHV	Parmak freze, Orta kesme boyu, 4 Değişken açılı helis kanallı	 DC 1 - 22	⊙	⊙	○		○	38
MPJHV	Parmak freze, Yarı uzun kesme boyu, 4 Değişken açılı helis kanallı	 DC 1 - 20	⊙	⊙	○		○	44

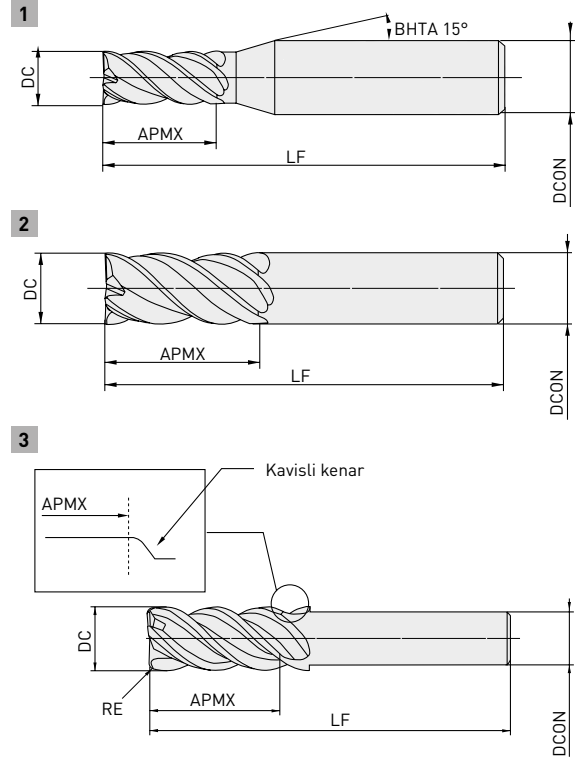
Ürün Kodu	Şekil	RE	P	M	S	N	H	
KÜRE UÇLU PARMAK FREZELER								
MP2SSB	Küre uçlu, Kısa kesme boylu, 2 helis kanallı, Kısa şaftlı	RE 0.1 - 6	⊙	○	○	○	⊙	47
MP2SB	Küre uçlu, Kısa kesme boylu, 2 helis kanallı standart şaftlı	RE 0.1 - 6	⊙	○	○	○	⊙	50
MP2MB	Küre uçlu, Orta kesme boylu, 2 helis kanallı	RE 0.25 - 6	⊙	○	○	○	⊙	53
MP2SDB	Küre uçlu, Kısa kesme boylu, 2 helis kanallı, Yüksek mukavemetli	RE 0.5 - 6	⊙				⊙	56
MP2XLB	Küre uçlu, Kısa kesme boylu, 2 helis kanallı, Uzun boyunlu	RE 0.05 - 3	⊙			○	⊙	59
MP3XB	Küre uçlu, 3 helis kanallı, Konik boyunlu	RE 0.5 - 6	⊙			○	⊙	74
PAH								
NEW MP3C	Pah kırıcı, 3 kanallı	RE 2 - 12	⊙	○	○		⊙	87

MPMHVRB



KÖŞE RADYÜSLÜ, ORTA KESME UZUNLUĞU, 4 AĞIZLI, DEĞİŞKEN HELİSLİ

P M S H



	0.1 ≤ RE ≤ 5
	±0.015
	DC ≤ 12 DC > 12
	0 0
	-0.02 -0.03
	DCON = 4 DCON = 6 DCON = 8
	0 0 0
	-0.005 -0.005 -0.006
	DCON = 8(DC=10) DCON = 10(DC=12) DCON = 10 12 ≤ DCON ≤ 16 DCON = 20
	0 0 0 0 0
	-0.009 -0.009 -0.009 -0.011 -0.013

- Paslanmaz çelik ve karbon çeliği işlenirken daha az titreşim için değişken açılı 4 helisli parmak freze.

Sipariş Numarası	Stok	DC	RE	APMX	LF	DCON	ZEFP	Tip
MPMHVRBD0100R010	●	1	0.1	2.5	45	4	4	1
MPMHVRBD0100R020	●	1	0.2	2.5	45	4	4	1
MPMHVRBD0200R010	●	2	0.1	5	45	4	4	1
MPMHVRBD0200R020	●	2	0.2	5	45	4	4	1
MPMHVRBD0200R030	●	2	0.3	5	45	4	4	1
MPMHVRBD0200R050	●	2	0.5	5	45	4	4	1
MPMHVRBD0300R010	●	3	0.1	7.5	45	6	4	1
MPMHVRBD0300R020	●	3	0.2	7.5	45	6	4	1
MPMHVRBD0300R030	●	3	0.3	7.5	45	6	4	1
MPMHVRBD0300R050	●	3	0.5	7.5	45	6	4	1
MPMHVRBD0400R010	●	4	0.1	10	45	6	4	1
MPMHVRBD0400R020	●	4	0.2	10	45	6	4	1
MPMHVRBD0400R030	●	4	0.3	10	45	6	4	1
MPMHVRBD0400R050	●	4	0.5	10	45	6	4	1
MPMHVRBD0400R100	●	4	1	10	45	6	4	1

● : Avrupa da standart stok. ★ : Japonya da standart stok.

MPMHVRB

Sipariş Numarası		DC	RE	APMX	LF	DCON	ZEFP	Tip
MPMHVRBD0500R010	●	5	0.1	12.5	50	6	4	1
MPMHVRBD0500R020	●	5	0.2	12.5	50	6	4	1
MPMHVRBD0500R030	●	5	0.3	12.5	50	6	4	1
MPMHVRBD0500R050	●	5	0.5	12.5	50	6	4	1
MPMHVRBD0500R100	●	5	1	12.5	50	6	4	1
MPMHVRBD0600R010	●	6	0.1	15	60	6	4	2
MPMHVRBD0600R020	●	6	0.2	15	60	6	4	2
MPMHVRBD0600R030	●	6	0.3	15	60	6	4	2
MPMHVRBD0600R050	●	6	0.5	15	60	6	4	2
MPMHVRBD0600R100	●	6	1	15	60	6	4	2
MPMHVRBD0800R020	●	8	0.2	20	70	8	4	2
MPMHVRBD0800R030	●	8	0.3	20	70	8	4	2
MPMHVRBD0800R050	●	8	0.5	20	70	8	4	2
MPMHVRBD0800R100	●	8	1	20	70	8	4	2
MPMHVRBD0800R150	●	8	1.5	20	70	8	4	2
MPMHVRBD0800R200	●	8	2	20	70	8	4	2
MPMHVRBD0800R250	●	8	2.5	20	70	8	4	2
MPMHVRBD0800R300	●	8	3	20	70	8	4	2
MPMHVRBD1000R030S08	●	10	0.3	25	100	8	4	3
MPMHVRBD1000R050S08	●	10	0.5	25	100	8	4	3
MPMHVRBD1000R100S08	●	10	1	25	100	8	4	3
MPMHVRBD1000R200S08	●	10	2	25	100	8	4	3
MPMHVRBD1000R020	●	10	0.2	25	80	10	4	2
MPMHVRBD1000R030	●	10	0.3	25	80	10	4	2
MPMHVRBD1000R050	●	10	0.5	25	80	10	4	2
MPMHVRBD1000R100	●	10	1	25	80	10	4	2
MPMHVRBD1000R150	●	10	1.5	25	80	10	4	2
MPMHVRBD1000R200	●	10	2	25	80	10	4	2
MPMHVRBD1000R250	●	10	2.5	25	80	10	4	2
MPMHVRBD1000R300	●	10	3	25	80	10	4	2
MPMHVRBD1200R030S10	●	12	0.3	30	110	10	4	3
MPMHVRBD1200R050S10	●	12	0.5	30	110	10	4	3
MPMHVRBD1200R100S10	●	12	1	30	110	10	4	3
MPMHVRBD1200R200S10	●	12	2	30	110	10	4	3
MPMHVRBD1200R300S10	●	12	3	30	110	10	4	3
MPMHVRBD1200R030	●	12	0.3	30	100	12	4	2
MPMHVRBD1200R050	●	12	0.5	30	100	12	4	2
MPMHVRBD1200R100	●	12	1	30	100	12	4	2
MPMHVRBD1200R150	●	12	1.5	30	100	12	4	2
MPMHVRBD1200R200	●	12	2	30	100	12	4	2
MPMHVRBD1200R300	●	12	3	30	100	12	4	2
MPMHVRBD1600R030	●	16	0.3	40	110	16	4	2
MPMHVRBD1600R050	●	16	0.5	40	110	16	4	2
MPMHVRBD1600R100	●	16	1	40	110	16	4	2
MPMHVRBD1600R200	●	16	2	40	110	16	4	2
MPMHVRBD1600R300	●	16	3	40	110	16	4	2
MPMHVRBD1600R500	●	16	5	40	110	16	4	2
MPMHVRBD2000R030	●	20	0.3	50	125	20	4	2
MPMHVRBD2000R050	●	20	0.5	50	125	20	4	2
MPMHVRBD2000R100	●	20	1	50	125	20	4	2
MPMHVRBD2000R200	●	20	2	50	125	20	4	2
MPMHVRBD2000R300	●	20	3	50	125	20	4	2
MPMHVRBD2000R500	●	20	5	50	125	20	4	2

MPMHVRB

ÖNERİLEN KESME KOŞULLARI

YAN KENAR FREZELEME

Malzeme	DC	n	Vf	ap	ae
P Karbon çeliği, Alaşımli çelik, Sfero Dökme Demir	1	38000	910	1.7	0.2
	1.5	27000	970	2.5	0.3
	2	21000	1500	3.5	0.4
	2.5	18000	1700	4.2	0.5
	3	16000	1800	5	0.6
	4	12000	1700	7	0.8
	5	9500	1800	8.5	1
	6	8000	2100	10	1.2
	7	6800	2000	12	1.4
	8	6000	2000	13.5	1.6
	10	4800	2100	17	2
	11	2600	1200	18.5	1.1
	12	4000	1900	20.5	2.4
	13	2200	1100	22	1.3
	16	3000	1400	27.2	3.2
	20	2400	1200	34	4
	M S Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Alaşımli takım çeliği	1	31000	500	1.7
1.5		22000	530	2.5	0.3
2		17000	820	3.5	0.4
2.5		15000	900	4.2	0.5
3		13000	940	5	0.6
4		9500	950	7	0.8
5		7600	1100	8.5	1
6		6400	1300	10	1.2
7		5500	1400	12	1.4
8		4800	1400	13.5	1.6
10		3800	1500	17	2
11		2100	880	18.5	1.1
12		3200	1400	20.5	2.4
13		1800	830	22	1.3
16		2400	1100	27.2	3.2
20		1900	840	34	4
S Ostenitik paslanmaz çelik, Titanyum alaşımları		1	25000	500	1.7
	1.5	18000	500	2.5	0.3
	2	14000	640	3.5	0.4
	2.5	12000	820	4.2	0.5
	3	11000	880	5	0.6
	4	8000	900	7	0.8
	5	6400	900	8.5	1
	6	5300	1100	10	1.2
	7	4500	1200	12	1.4
	8	4000	1200	13.5	1.6
	10	3200	1100	17	2
	11	1700	520	18.5	1.1
	12	2700	1100	20.5	2.4
	13	1500	490	22	1.3
	16	2000	840	27.2	3.2
	20	1600	670	34	4

MPMHVRB

YAN KENAR FREZELEME

Malzeme	DC	n	Vf	ap	ae
H Sertleştirilmiş Çelik (45 – 55 HRC)	1	18000	290	1.7	0.05
	1.5	13000	310	2.5	0.08
	2	10000	320	3.5	0.1
	2.5	8500	360	4.2	0.13
	3	7400	380	5	0.15
	4	5600	400	7	0.2
	5	4500	430	8.5	0.25
	6	3700	440	10	0.3
	7	3200	450	12	0.35
	8	2800	450	13.5	0.4
	10	2200	440	17	0.5
	11	1200	190	18.5	0.55
	12	1900	380	20.5	0.6
	13	1000	160	22	0.65
	16	1400	340	27.2	0.8
	20	1100	260	34	1



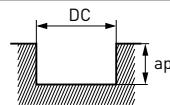
KANAL AÇMA

Malzeme	DC	n	Vf	ap
P Karbon çeliği, Alaşımli çelik, Sfero Dökme Demir	1	31000	620	0.5
	1.5	22000	630	0.8
	2	17000	650	2
	2.5	15000	830	2.5
	3	13000	940	3
	4	9500	820	4
	5	7600	910	5
	6	6400	860	6
	7	5500	960	7
	8	4800	1000	8
	10	3800	910	10
	12	3200	920	12
	16	2400	690	16
	20	1900	550	20

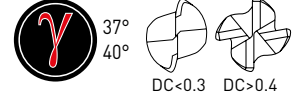
MPMHVRB

KANAL AÇMA

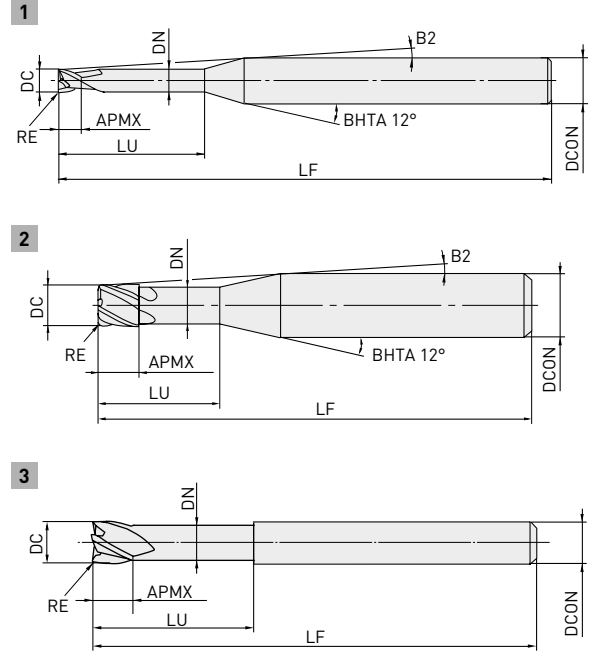
Malzeme	DC	n	Vf	ap
P Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Alaşımli takım çeliği	1	24000	380	0.5
	1.5	17000	410	0.8
	2	14000	450	2
	2.5	12000	580	2.5
	3	10000	660	3
	4	7600	600	4
	5	6100	670	5
	6	5100	630	6
	7	4400	710	7
	8	3800	750	8
	10	3100	680	10
	12	2500	660	12
	16	1900	500	16
	20	1500	400	20
M Ostenitik paslanmaz çelik, Titanyum alaşımları	1	20000	400	0.5
	1.5	14000	390	0.8
	2	11000	500	2
	2.5	9700	660	2.5
	3	8500	680	3
	4	6400	720	4
	5	5100	710	5
	6	4200	870	6
	7	3600	940	7
	8	3200	960	8
	10	2500	880	10
	12	2100	860	12
	16	1600	380	16
	20	1300	310	20
S H Sertleştirilmiş Çelik (45 – 55 HRC)	1	9500	110	0.2
	1.5	6400	130	0.3
	2	4800	130	0.4
	2.5	3800	130	0.5
	3	3200	140	0.6
	4	2400	150	0.8
	5	1900	170	1
	6	1600	190	1.2
	7	1400	190	1.4
	8	1200	190	1.6
	10	950	150	2
	12	800	160	2.4
	16	600	120	3.2
	20	480	96	4



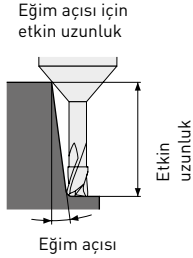
MPXLRB



KÖŞE RAYDUSU, KISA KESME BOYU, UZUN BOYUN, 2-4 KANAL



	$0.1 \leq RE \leq 5$
	± 0.005
	$DC \leq 6$
	0 -0.01
	$DCON \leq 6$
	0 -0.005



- Paslanmaz ve karbon çeliklerinin düşük titreşimle işlenmesi için 2-4 düzensiz helis kanallı köşe radyuslu parmak freze.

Sipariş Numarası	Stok	DC	RE	APMX	LU	DN	B2	LF	DCON	ZEFP	Tip	Eğim açısı için etkin uzunluk			
												30°	1°	2°	3°
MPXLRBD0020R005N005	●	0.2	0.05	0.2	0.5	0.18	11.4°	50	4	2	1	0.5	0.5	0.6	0.7
MPXLRBD0020R005N010	●	0.2	0.05	0.2	1	0.18	10.8°	50	4	2	1	1.0	1.1	1.2	1.3
MPXLRBD0030R005N010	●	0.3	0.05	0.3	1	0.28	10.8°	50	4	2	1	1.0	1.1	1.2	1.3
MPXLRBD0030R005N020	●	0.3	0.05	0.3	2	0.28	9.8°	50	4	2	1	2.1	2.2	2.4	2.7
MPXLRBD0040R005N020	●	0.4	0.05	0.4	2	0.37	9.8°	50	4	4	2	2.1	2.2	2.4	2.6
MPXLRBD0040R005N030	●	0.4	0.05	0.4	3	0.37	8.9°	50	4	4	2	3.1	3.3	3.6	4.0
MPXLRBD0040R005N040	●	0.4	0.05	0.4	4	0.37	8.2°	50	4	4	2	4.2	4.3	4.8	5.3
MPXLRBD0050R005N020	●	0.5	0.05	0.5	2	0.47	9.7°	50	4	4	2	2.1	2.2	2.4	2.6
MPXLRBD0050R005N030	●	0.5	0.05	0.5	3	0.47	8.9°	50	4	4	2	3.1	3.3	3.6	4.0
MPXLRBD0050R005N040	●	0.5	0.05	0.5	4	0.47	8.1°	50	4	4	2	4.2	4.3	4.8	5.3
MPXLRBD0050R005N050	●	0.5	0.05	0.5	5	0.47	7.5°	50	4	4	2	5.2	5.4	6.0	6.6
MPXLRBD0060R005N020	●	0.6	0.05	0.6	2	0.57	9.7°	50	4	4	2	2.1	2.2	2.4	2.6
MPXLRBD0060R005N040	●	0.6	0.05	0.6	4	0.57	8.1°	50	4	4	2	4.2	4.3	4.8	5.3
MPXLRBD0060R005N060	●	0.6	0.05	0.6	6	0.57	6.9°	50	4	4	2	6.2	6.5	7.2	7.9
MPXLRBD0080R005N040	●	0.8	0.05	0.8	4	0.77	7.9°	50	4	4	2	4.2	4.3	4.8	5.3
MPXLRBD0080R005N060	●	0.8	0.05	0.8	6	0.77	6.8°	50	4	4	2	6.2	6.5	7.2	7.9
MPXLRBD0100R005N030	●	1	0.05	1	3	0.96	8.3°	50	4	4	2	3.2	3.4	3.8	4.2
MPXLRBD0100R005N040	●	1	0.05	1	4	0.96	7.6°	50	4	4	2	4.3	4.5	5.0	5.6
MPXLRBD0100R005N050	●	1	0.05	1	5	0.96	7.0°	50	4	4	2	5.4	5.6	6.2	6.9
MPXLRBD0100R005N060	●	1	0.05	1	6	0.96	6.5°	50	4	4	2	6.4	6.7	7.4	8.2
MPXLRBD0100R005N080	●	1	0.05	1	8	0.96	5.6°	50	4	4	2	8.5	8.9	9.8	10.9

MPXLRB

Sipariş Numarası	Stok	DC	RE	APMX	LU	DN	B2	LF	DCON	ZEFP	T _{ip}	Eğim açısı için etkin uzunluk			
												30'	1°	2°	3°
MPXLRBD0100R005N100	●	1	0.05	1	10	0.96	5.0°	50	4	4	2	10.6	11.1	12.2	13.5
MPXLRBD0100R005N120	●	1	0.05	1	12	0.96	4.5°	50	4	4	2	12.7	13.3	14.6	16.2
MPXLRBD0100R010N030	●	1	0.1	1	3	0.96	8.4°	50	4	4	2	3.2	3.4	3.8	4.2
MPXLRBD0100R010N040	●	1	0.1	1	4	0.96	7.6°	50	4	4	2	4.3	4.5	5.0	5.5
MPXLRBD0100R010N050	●	1	0.1	1	5	0.96	7.0°	50	4	4	2	5.3	5.6	6.2	6.9
MPXLRBD0100R010N060	●	1	0.1	1	6	0.96	6.5°	50	4	4	2	6.4	6.7	7.4	8.2
MPXLRBD0100R010N080	●	1	0.1	1	8	0.96	5.6°	50	4	4	2	8.5	8.9	9.8	10.8
MPXLRBD0100R010N100	●	1	0.1	1	10	0.96	5.0°	50	4	4	2	10.6	11.1	12.2	13.5
MPXLRBD0100R010N120	●	1	0.1	1	12	0.96	4.5°	50	4	4	2	12.7	13.3	14.6	16.2
MPXLRBD0120R010N100	●	1.2	0.1	1.2	10	1.16	4.8°	50	4	4	2	10.6	11.1	12.2	13.5
MPXLRBD0120R020N100	●	1.2	0.2	1.2	10	1.16	4.8°	50	4	4	2	10.6	11.1	12.2	13.5
MPXLRBD0150R010N060	●	1.5	0.1	1.5	6	1.44	6.0°	50	4	4	2	6.4	6.7	7.3	8.1
MPXLRBD0150R010N120	●	1.5	0.1	1.5	12	1.44	4.0°	50	4	4	2	12.6	13.2	14.5	16.1
MPXLRBD0150R010N180	●	1.5	0.1	1.5	18	1.44	3.0°	60	4	4	2	18.9	19.7	21.7	24.0
MPXLRBD0150R020N060	●	1.5	0.2	1.5	6	1.44	6.0°	50	4	4	2	6.4	6.7	7.3	8.1
MPXLRBD0150R020N120	●	1.5	0.2	1.5	12	1.44	4.0°	50	4	4	2	12.6	13.2	14.5	16.0
MPXLRBD0150R020N180	●	1.5	0.2	1.5	18	1.44	3.0°	60	4	4	2	18.9	19.7	21.7	*
MPXLRBD0150R030N060	●	1.5	0.3	1.5	6	1.44	6.1°	50	4	4	2	6.3	6.6	7.3	8.0
MPXLRBD0150R030N120	●	1.5	0.3	1.5	12	1.44	4.0°	50	4	4	2	12.6	13.2	14.5	16.0
MPXLRBD0150R030N180	●	1.5	0.3	1.5	18	1.44	3.0°	60	4	4	2	18.9	19.7	21.6	*
MPXLRBD0200R010N080	●	2	0.1	2	8	1.94	4.5°	50	4	4	2	8.5	8.8	9.7	10.8
MPXLRBD0200R010N120	●	2	0.1	2	12	1.94	3.4°	50	4	4	2	12.6	13.2	14.5	16.1
MPXLRBD0200R010N160	●	2	0.1	2	16	1.94	2.8°	60	4	4	2	16.8	17.6	19.3	*
MPXLRBD0200R010N200	●	2	0.1	2	20	1.94	2.3°	60	4	4	2	21.0	21.9	24.1	*
MPXLRBD0200R010N240	●	2	0.1	2	24	1.94	2.0°	70	4	4	2	25.2	26.3	*	*
MPXLRBD0200R020N080	●	2	0.2	2	8	1.94	4.5°	50	4	4	2	8.5	8.8	9.7	10.7
MPXLRBD0200R020N120	●	2	0.2	2	12	1.94	3.4°	50	4	4	2	12.6	13.2	14.5	*
MPXLRBD0200R020N160	●	2	0.2	2	16	1.94	2.8°	60	4	4	2	16.8	17.6	19.3	*
MPXLRBD0200R020N200	●	2	0.2	2	20	1.94	2.3°	60	4	4	2	21.0	21.9	24.0	*
MPXLRBD0200R020N240	●	2	0.2	2	24	1.94	2.0°	70	4	4	2	25.1	26.3	*	*
MPXLRBD0200R030N080	●	2	0.3	2	8	1.94	4.5°	50	4	4	2	8.5	8.8	9.7	10.7
MPXLRBD0200R030N120	●	2	0.3	2	12	1.94	3.5°	50	4	4	2	12.6	13.2	14.5	16.0
MPXLRBD0200R030N160	●	2	0.3	2	16	1.94	2.8°	60	4	4	2	16.8	17.5	19.2	*
MPXLRBD0200R030N200	●	2	0.3	2	20	1.94	2.3°	60	4	4	2	21.0	21.9	24.0	*
MPXLRBD0200R030N240	●	2	0.3	2	24	1.94	2.0°	70	4	4	2	25.1	26.3	*	*
MPXLRBD0300R010N080	●	3	0.1	3	8	2.9	5.7°	60	6	4	2	8.4	8.8	9.6	10.7
MPXLRBD0300R010N120	●	3	0.1	3	12	2.9	4.5°	60	6	4	2	12.6	13.1	14.4	16.0
MPXLRBD0300R010N180	●	3	0.1	3	18	2.9	3.4°	70	6	4	2	18.8	19.7	21.6	23.9
MPXLRBD0300R010N240	●	3	0.1	3	24	2.9	2.8°	70	6	4	2	25.1	26.2	28.8	*
MPXLRBD0300R010N300	●	3	0.1	3	30	2.9	2.3°	70	6	4	2	31.3	32.7	35.9	*
MPXLRBD0300R010N360	●	3	0.1	3	36	2.9	2.0°	90	6	4	2	37.6	39.3	*	*
MPXLRBD0300R020N120	●	3	0.2	3	12	2.9	4.5°	60	6	4	2	12.6	13.1	14.4	15.9
MPXLRBD0300R020N180	●	3	0.2	3	18	2.9	3.4°	60	6	4	2	18.8	19.6	21.6	23.9
MPXLRBD0300R020N240	●	3	0.2	3	24	2.9	2.8°	70	6	4	2	25.1	26.2	28.7	*
MPXLRBD0300R020N300	●	3	0.2	3	30	2.9	2.3°	70	6	4	2	31.3	32.7	35.9	*
MPXLRBD0300R020N360	●	3	0.2	3	36	2.9	2.0°	90	6	4	2	37.6	39.3	43.1	*
MPXLRBD0300R030N120	●	3	0.3	3	12	2.9	4.5°	60	6	4	2	12.5	13.1	14.4	15.9

* Temas yok

MPXLRB

Sipariş Numarası	Stok	DC	RE	APMX	LU	DN	B2	LF	DCON	ZEFP	Tip	Eğim açısı için etkin uzunluk			
												30'	1°	2°	3°
MPXLRBD0300R030N180	●	3	0.3	3	18	2.9	3.5°	60	6	4	2	18.8	19.6	21.5	23.9
MPXLRBD0300R030N240	●	3	0.3	3	24	2.9	2.8°	70	6	4	2	25.1	26.2	28.7	*
MPXLRBD0300R030N300	●	3	0.3	3	30	2.9	2.3°	70	6	4	2	31.3	32.7	35.9	*
MPXLRBD0300R030N360	●	3	0.3	3	36	2.9	2.0°	90	6	4	2	37.6	39.2	*	*
MPXLRBD0300R050N120	●	3	0.5	3	12	2.9	4.6°	60	6	4	2	12.5	13.1	14.3	15.8
MPXLRBD0300R050N180	●	3	0.5	3	18	2.9	3.5°	60	6	4	2	18.8	19.6	21.5	23.8
MPXLRBD0300R050N240	●	3	0.5	3	24	2.9	2.8°	70	6	4	2	25.1	26.2	28.7	*
MPXLRBD0300R050N300	●	3	0.5	3	30	2.9	2.3°	70	6	4	2	31.3	32.7	35.9	*
MPXLRBD0300R050N360	●	3	0.5	3	36	2.9	2.0°	90	6	4	2	37.6	39.2	*	*
MPXLRBD0400R010N160	●	4	0.1	4	16	3.9	2.8°	70	6	4	2	16.7	17.5	19.2	*
MPXLRBD0400R010N240	●	4	0.1	4	24	3.9	2.0°	70	6	4	2	25.1	26.2	*	*
MPXLRBD0400R010N320	●	4	0.1	4	32	3.9	1.6°	70	6	4	2	33.4	34.9	*	*
MPXLRBD0400R010N480	●	4	0.1	4	48	3.9	1.1°	90	6	4	2	50.1	52.3	*	*
MPXLRBD0400R020N160	●	4	0.2	4	16	3.9	2.8°	70	6	4	2	16.7	17.5	19.2	*
MPXLRBD0400R020N240	●	4	0.2	4	24	3.9	2.0°	70	6	4	2	25.1	26.2	*	*
MPXLRBD0400R020N320	●	4	0.2	4	32	3.9	1.6°	70	6	4	2	33.4	34.9	*	*
MPXLRBD0400R020N480	●	4	0.2	4	48	3.9	1.1°	90	6	4	2	50.1	52.3	*	*
MPXLRBD0400R030N160	●	4	0.3	4	16	3.9	2.8°	70	6	4	2	16.7	17.5	19.1	*
MPXLRBD0400R030N240	●	4	0.3	4	24	3.9	2.0°	70	6	4	2	25.1	26.2	*	*
MPXLRBD0400R030N320	●	4	0.3	4	32	3.9	1.6°	70	6	4	2	33.4	34.9	*	*
MPXLRBD0400R030N480	●	4	0.3	4	48	3.9	1.1°	90	6	4	2	50.1	52.3	*	*
MPXLRBD0400R050N160	●	4	0.5	4	16	3.9	2.8°	70	6	4	2	16.7	17.4	19.1	*
MPXLRBD0400R050N240	●	4	0.5	4	24	3.9	2.0°	70	6	4	2	25.1	26.2	*	*
MPXLRBD0400R050N320	●	4	0.5	4	32	3.9	1.6°	70	6	4	2	33.4	34.9	*	*
MPXLRBD0400R050N480	●	4	0.5	4	48	3.9	1.1°	90	6	4	2	50.1	52.3	*	*
MPXLRBD0600R010N240	●	6	0.1	6	24	5.85	—	70	6	4	3	*	*	*	*
MPXLRBD0600R010N480	●	6	0.1	6	48	5.85	—	100	6	4	3	*	*	*	*
MPXLRBD0600R020N240	●	6	0.2	6	24	5.85	—	70	6	4	3	*	*	*	*
MPXLRBD0600R020N480	●	6	0.2	6	48	5.85	—	100	6	4	3	*	*	*	*
MPXLRBD0600R030N240	●	6	0.3	6	24	5.85	—	70	6	4	3	*	*	*	*
MPXLRBD0600R030N480	●	6	0.3	6	48	5.85	—	100	6	4	3	*	*	*	*
MPXLRBD0600R050N240	●	6	0.5	6	24	5.85	—	70	6	4	3	*	*	*	*
MPXLRBD0600R050N480	●	6	0.5	6	48	5.85	—	100	6	4	3	*	*	*	*

* Temas yok

MPXLRB

ÖNERİLEN KESME KOŞULLARI

DİKEY FREZELEME

Malzeme	DC	LU	n	Vf	ap	ae
P Yumuşak Çelik, Karbon çeliği, Alaşımlı çelik, Ön-sertleştirilmiş çelik, Yaşlandırılmış paslanmaz çelik (< 450 HB)	0.2	0.5	30000	180	0.003	0.04
		1	30000	120	0.003	0.04
	0.3	1	30000	210	0.003	0.08
		2	30000	120	0.003	0.08
	0.4	2	31000	970	0.005	0.10
		3	31000	790	0.004	0.10
		4	31000	540	0.003	0.10
	0.5	2	31000	1500	0.006	0.12
		3	31000	1300	0.005	0.12
		4	31000	970	0.004	0.12
		5	25000	790	0.004	0.12
	0.6	2	31000	2100	0.020	0.13
		4	25000	1300	0.015	0.13
		6	20000	790	0.008	0.13
	0.8	4	25000	3200	0.025	0.20
		6	20000	2100	0.020	0.20
	1	3	24000	2400	0.045	0.30
		4	24000	1900	0.040	0.30
		5	24000	1800	0.035	0.25
		6	20000	1400	0.030	0.25
		8	20000	1000	0.020	0.20
		10	15000	800	0.015	0.10
	1.2	12	15000	370	0.010	0.01
		10	18000	1500	0.030	0.25
	1.5	6	20000	2400	0.050	0.40
		12	15000	1400	0.040	0.30
		18	12000	670	0.010	0.15
	2	8	15000	2600	0.050	0.50
		12	15000	2100	0.045	0.50
		16	14000	1900	0.040	0.35
		20	14000	1100	0.015	0.25
	3	24	9300	930	0.010	0.20
		8	12000	3300	0.100	0.80
		12	12000	3100	0.080	0.80
		18	11000	3100	0.070	0.70
		24	11000	2600	0.060	0.50
		30	9000	1300	0.030	0.40
	4	36	6200	910	0.010	0.30
		16	9000	3200	0.100	1.00
		24	7900	2500	0.085	0.80
32		6900	1600	0.040	0.70	
6	48	4800	740	0.010	0.35	
	24	5500	2700	0.120	1.50	
	48	3800	1200	0.050	1.20	

MPXLRB

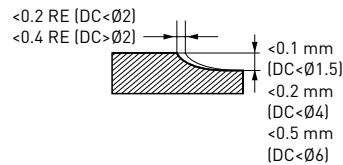
DİKEY FREZELEME

Malzeme	DC	LU	n	Vf	ap	ae
N Bakır, Bakır alaşımları	0.2	0.5	30000	150	0.003	0.08
		1	30000	100	0.003	0.08
	0.3	1	30000	180	0.003	0.16
		2	30000	100	0.003	0.16
	0.4	2	31000	810	0.005	0.20
		3	31000	660	0.004	0.20
		4	31000	450	0.003	0.20
	0.5	2	31000	1300	0.006	0.24
		3	31000	1100	0.005	0.24
		4	31000	8100	0.004	0.24
	0.6	5	25000	660	0.004	0.24
		2	31000	1800	0.020	0.26
		4	25000	1100	0.015	0.26
	0.8	6	20000	660	0.008	0.26
		4	25000	2700	0.025	0.40
		6	20000	1800	0.020	0.40
	1	3	20000	2000	0.045	0.60
		4	20000	1600	0.040	0.60
		5	20000	1500	0.035	0.50
		6	17000	1200	0.030	0.50
		8	17000	880	0.020	0.40
		10	13000	670	0.015	0.20
	1.2	12	13000	310	0.010	0.02
		10	15000	1300	0.030	0.50
	1.5	6	14700	1700	0.050	0.80
		12	11000	1000	0.040	0.60
		18	8600	480	0.010	0.30
	2	8	11000	1900	0.050	1.00
		12	11000	1500	0.045	1.00
		16	10000	1300	0.040	0.70
		20	10000	830	0.015	0.50
		24	6700	670	0.010	0.40
	3	8	8600	2400	0.100	1.60
		12	8600	2200	0.080	1.60
		18	8300	2200	0.070	1.40
		24	8000	1900	0.060	1.00
		30	6500	950	0.030	0.80
		36	4500	660	0.010	0.60
	4	16	6500	2300	0.100	2.00
		24	5700	1800	0.085	1.60
		32	5000	1200	0.040	1.40
		48	3400	530	0.010	0.70
	6	24	4000	1900	0.120	3.00
		48	2700	870	0.050	2.40

MPXLRB

DİKEY FREZELEME

Malzeme	DC	LU	n	Vf	ap	ae
H Sertleştirilmiş çelik (45 – 52 HRC)	0.2	0.5	30000	150	0.003	0.04
		1	30000	100	0.003	0.04
	0.3	1	30000	180	0.003	0.08
		2	30000	100	0.003	0.08
	0.4	2	31000	810	0.005	0.10
		3	31000	660	0.004	0.10
		4	31000	450	0.003	0.10
	0.5	2	31000	1300	0.006	0.12
		3	31000	1100	0.005	0.12
		4	31000	810	0.004	0.12
		5	25000	660	0.004	0.12
	0.6	2	31000	1800	0.020	0.13
		4	25000	1100	0.015	0.13
		6	20000	660	0.008	0.13
	0.8	4	25000	2700	0.025	0.20
		6	20000	1800	0.020	0.20
	1	3	20000	2000	0.045	0.30
		4	20000	1600	0.040	0.30
		5	20000	1500	0.035	0.25
		6	17000	1200	0.030	0.25
		8	17000	880	0.020	0.20
		10	13000	670	0.015	0.10
	1.2	12	13000	310	0.010	0.01
		10	15000	1300	0.030	0.25
	1.5	6	17000	2000	0.050	0.40
		12	13000	1200	0.040	0.30
		18	10000	560	0.010	0.15
	2	8	13000	2200	0.050	0.50
		12	13000	1800	0.045	0.50
		16	12000	1600	0.040	0.35
		20	12000	960	0.015	0.25
		24	7800	780	0.010	0.20
	3	8	10000	2800	0.100	0.80
		12	10000	2600	0.080	0.80
		18	9600	2600	0.070	0.70
		24	9300	2200	0.060	0.50
		30	7500	1100	0.030	0.40
		36	5200	760	0.010	0.30
	4	16	7500	2700	0.100	1.00
		24	6600	2100	0.085	0.80
		32	5800	1400	0.040	0.70
	6	48	4000	620	0.010	0.35
		24	4600	2263	0.120	1.50
		48	3200	1000	0.050	1.20

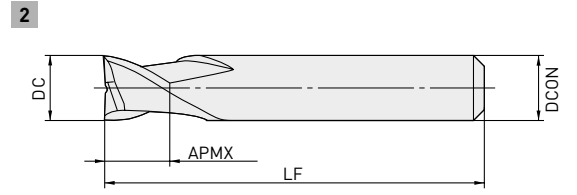
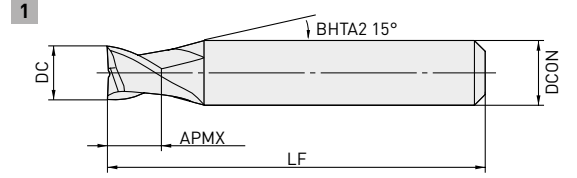


MP2ES



İSVİÇRE TİPİ TORNALAR İÇİN 2 KANALLI PARMAK FREZE

P M S N H



$3 \leq DC \leq 10$
- 0.010
- 0.030



$4 \leq DCON \leq 6$ $7 \leq DCON \leq 10$
0 0
- 0.008 - 0.009

Sipariş Numarası	Stok	DC	APMX	LF	DCON	ZEFP	Tip
MP2ESD0300S04	●	3	4.5	50	4	2	1
MP2ESD0400S04	●	4	6	50	4	2	2
MP2ESD0500S06	●	5	7.5	50	6	2	1
MP2ESD0600S06	●	6	9	50	6	2	2
MP2ESD0700S07	●	7	10.5	50	7	2	2
MP2ESD0800S08	●	8	12	50	8	2	2
MP2ESD1000S10	●	10	15	50	10	2	2

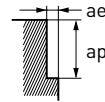


MP2ES

ÖNERİLEN KESME KOŞULLARI

DİKEY FREZELEME

Malzeme	DC	n	Vf	ap	ae	
P Karbon çeliği, Dökme demir, Alaşımlı çelik (-30HRC)	3	10000	600	3	0.6	
	4	7500	600	4	0.6	
	5	6000	600	5	0.6	
	6	5000	600	6	0.6	
	7	4500	560	7	0.6	
	8	4000	520	8	0.6	
	10	3200	450	10	0.6	
	Alaşımlı çelik, Takım çeliği, Ön-sertleştirme görmüş çelik	3	7000	400	3	0.6
		4	5200	400	4	0.6
		5	4200	400	5	0.6
6		3500	400	6	0.6	
7		3200	360	7	0.6	
8		2800	350	8	0.6	
10		2200	300	10	0.6	
M Östenitli paslanmaz çelik, Titanium alaşım	3	6000	300	3	0.6	
	4	4500	300	4	0.6	
	5	3600	300	5	0.6	
	6	3000	300	6	0.6	
	7	2700	280	7	0.6	
S Bakır, Bakır alaşımı	8	2400	260	8	0.6	
	10	1900	230	10	0.6	
	N Bakır, Bakır alaşımı	3	13000	780	3	0.6
4		9500	760	4	0.6	
5		7600	760	5	0.6	
6		6400	770	6	0.6	
7		5500	680	7	0.6	
8		4800	620	8	0.6	
H Sertleştirilmiş çelik (45-55HRC)	10	3800	530	10	0.6	
	3	5000	120	3	0.2	
	4	4000	120	4	0.2	
	5	3200	120	5	0.2	
	6	2700	120	6	0.2	
	7	2300	110	7	0.2	
	8	2000	110	8	0.2	
10	1600	100	10	0.2		

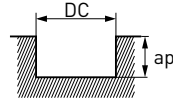


1. Östenitik paslanmaz çelikler kesilirken suda çözünebilir kesme sıvısı kullanılması etkilidir.
2. Kesme derinliği düşükse, devir ve ilerleme hızı artırılabilir.
3. Lütfen delme işleminde ilerleme hızını yukarıdaki değerlerin 1/3'i veya altında ayarlayın.
4. Makine veya iş parçasının bağlama rijitliği çok zayıf ise veya tırlama ve gürültü oluyorsa devir ve ilerleme hızını orantılı olarak düşürün.

MP2ES

KANAL AÇMA

Malzeme	DC	n	Vf	ap	
P Karbon çeliği, Dökme demir, Alaşımli çelik (-30HRC)	3	10000	600	0.6	
	4	7500	600	0.6	
	5	6000	600	0.6	
	6	5000	600	0.6	
	7	4500	560	0.6	
	8	4000	520	0.6	
	10	3200	450	0.6	
	Alaşımli çelik, Takım çeliği, Ön-sertleştirme görmüş çelik	3	7000	400	0.6
		4	5200	400	0.6
		5	4200	400	0.6
6		3500	400	0.6	
7		3200	360	0.6	
8		2800	350	0.6	
10		2200	300	0.6	
M Östenit paslanmaz çelik, Titanyum alaşımı	3	6000	300	0.6	
	4	4500	300	0.6	
	5	3600	300	0.6	
	6	3000	300	0.6	
	7	2700	280	0.6	
	8	2400	260	0.6	
S Bakır, Bakır alaşımı	10	1900	230	0.6	
	3	13000	780	0.6	
	4	9500	760	0.6	
	5	7600	760	0.6	
	6	6400	770	0.6	
	7	5500	680	0.6	
N Bakır, Bakır alaşımı	8	4800	620	0.6	
	10	3800	530	0.6	
	3	5000	120	0.2	
	4	4000	120	0.2	
	5	3200	120	0.2	
	6	2700	120	0.2	
H Sertleştirilmiş çelik (45-55HRC)	7	2300	110	0.2	
	8	2000	110	0.2	
	10	1600	100	0.2	



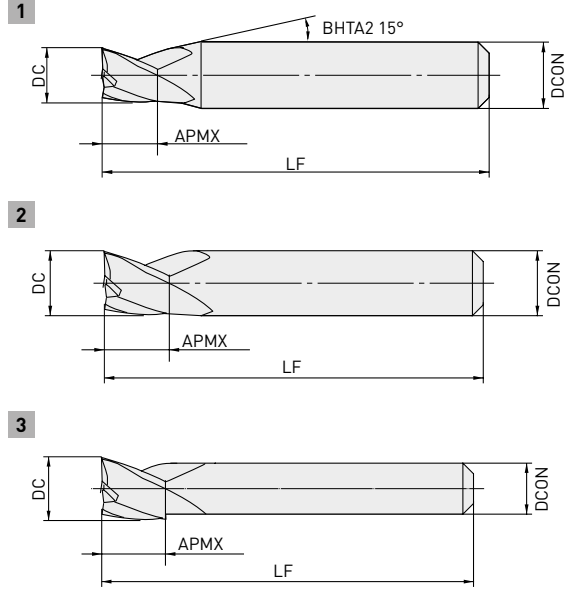
1. Östenitik paslanmaz çelikler kesilirken suda çözünebilir kesme sıvısı kullanılması etkilidir.
2. Kesme derinliği düşükse, devir ve ilerleme hızı artırılabilir.
3. Lütfen delme işleminde ilerleme hızını yukarıdaki değerlerin 1/3'i veya altında ayarlayın.
4. Makine veya iş parçasının bağlama rijidliği çok düşükse veya tırlama ve gürültü oluyorsa devri ve ilerleme hızını orantılı olarak düşürün.

MP3ES



İSVİÇRE TİPİ TORNALAR İÇİN 3 KANALLI PARMAK FREZE

P M S N H



3<DC<12
- 0.010
- 0.030



4<DCON<6	7<DCON<10	DCON=12
0	0	0
- 0.008	- 0.009	- 0.011

Sipariş Numarası	Stok	DC	APMX	LF	DCON	ZEFP	Tip
MP3ESD0300S04	●	3	4.5	50	4	3	1
MP3ESD0400S04	●	4	6	50	4	3	2
MP3ESD0500S06	●	5	7.5	50	6	3	1
MP3ESD0600S06	●	6	9	50	6	3	2
MP3ESD0700S07	●	7	10.5	50	7	3	2
MP3ESD0800S08	●	8	12	50	8	3	2
MP3ESD0900S10	●	9	13.5	50	10	3	1
MP3ESD1000S10	●	10	15	50	10	3	2
MP3ESD1200S10	●	12	15	50	10	3	3
MP3ESD1200S12	●	12	15	50	12	3	2



MP3ES

ÖNERİLEN KESME KOŞULLARI

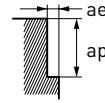
DİKEY FREZELEME

Malzeme	DC	n	Vf	ap	ae	
P Karbon çeliği, Dökme demir, Alaşımli çelik (-30HRC)	3	10000	720	3	0.6	
	4	7500	720	4	0.6	
	5	6000	720	5	0.6	
	6	5000	720	6	0.6	
	7	4500	670	7	0.6	
	8	4000	620	8	0.6	
	9	3500	580	9	0.6	
	10	3200	540	10	0.6	
	12	2700	490	12	0.6	
	Alaşımli çelik, Takım çeliği, Ön-sertleştirme görmüş çelik	3	7000	480	3	0.6
		4	5200	480	4	0.6
		5	4200	480	5	0.6
6		3500	480	6	0.6	
7		3200	440	7	0.6	
8		2800	420	8	0.6	
9		2500	380	9	0.6	
10		2200	360	10	0.6	
12		1900	320	12	0.6	
M Östenitli paslanmaz çelik, Titanyum alaşımı		3	6000	360	3	0.6
		4	4500	360	4	0.6
		5	3600	360	5	0.6
	6	3000	360	6	0.6	
	7	2700	340	7	0.6	
	8	2400	310	8	0.6	
	9	2100	290	9	0.6	
	10	1900	280	10	0.6	
	12	1600	250	12	0.6	
	S N Bakır, Bakır alaşımı	3	13000	940	3	0.6
		4	9500	910	4	0.6
		5	7600	910	5	0.6
6		6400	920	6	0.6	
7		5500	820	7	0.6	
8		4800	740	8	0.6	
9		4200	700	9	0.6	
10		3800	640	10	0.6	
12		3200	580	12	0.6	

MP3ES

DİKEY FREZELEME

Malzeme	DC	n	Vf	ap	ae
H Sertleştirilmiş çelik (45-55HRC)	3	5000	140	3	0.2
	4	4000	140	4	0.2
	5	3200	140	5	0.2
	6	2700	140	6	0.2
	7	2300	130	7	0.2
	8	2000	130	8	0.2
	9	1800	130	9	0.2
	10	1600	120	10	0.2
	12	1300	120	12	0.2



1. Östenitik paslanmaz çelikler kesilirken suda çözünebilir kesme sıvısı kullanılması etkilidir.
2. Kesme derinliği düşükse, devir ve ilerleme hızı artırılabilir.
3. Lütfen delme işleminde ilerleme hızını yukarıdaki değerlerin 1/3'i veya altında ayarlayın.
4. Makine veya iş parçasının bağlama rijidliği çok düşükse veya tırlama ve gürültü oluyorsa devir ve ilerleme hızını orantılı olarak düşürün.

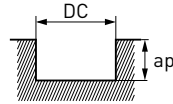
KANAL AÇMA

Malzeme	DC	n	Vf	ap	
P Karbon çeliği, Dökme demir, Alaşımli çelik (-30HRC)	3	10000	720	0.6	
	4	7500	720	0.6	
	5	6000	720	0.6	
	6	5000	720	0.6	
	7	4500	670	0.6	
	8	4000	620	0.6	
	9	3500	580	0.6	
	10	3200	540	0.6	
	12	2700	490	0.6	
	P Alaşımli çelik, Takım çeliği, Ön-sertleştirme gormüş çelik	3	7000	480	0.6
		4	5200	480	0.6
		5	4200	480	0.6
6		3500	480	0.6	
7		3200	440	0.6	
8		2800	420	0.6	
9		2500	380	0.6	
10		2200	360	0.6	
12		1900	320	0.6	

MP3ES

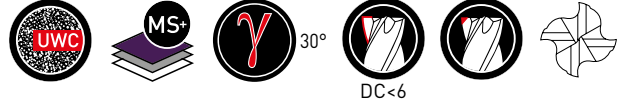
KANAL AÇMA

Malzeme	DC	n	Vf	ap	
M Östenitik paslanmaz çelik, Titanium alaşımı	3	6000	360	0.6	
	4	4500	360	0.6	
	5	3600	360	0.6	
	6	3000	360	0.6	
	7	2700	340	0.6	
	8	2400	310	0.6	
	9	2100	290	0.6	
	10	1900	280	0.6	
	12	1600	250	0.6	
	N Bakır, Bakır alaşımı	3	13000	940	0.6
		4	9500	910	0.6
		5	7600	910	0.6
6		6400	920	0.6	
7		5500	820	0.6	
8		4800	740	0.6	
9		4200	700	0.6	
10		3800	640	0.6	
12		3200	580	0.6	
H Sertleştirilmiş çelik (45-55HRC)		3	5000	140	0.2
		4	4000	140	0.2
		5	3200	140	0.2
	6	2700	140	0.2	
	7	2300	130	0.2	
	8	2000	130	0.2	
	9	1800	130	0.2	
	10	1600	120	0.2	
	12	1300	120	0.2	

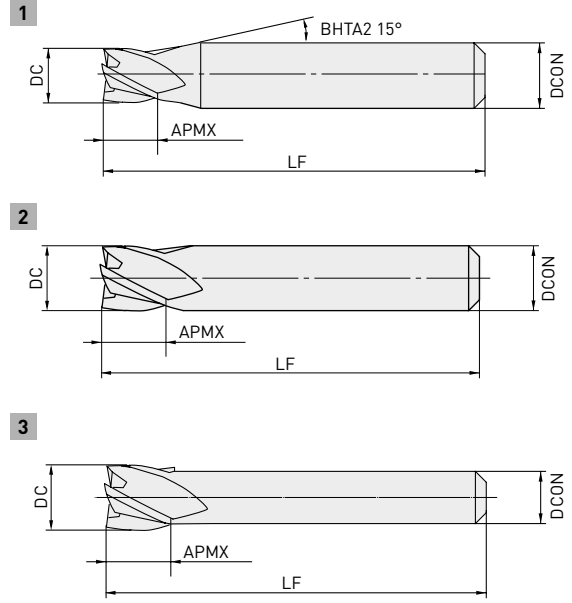


1. Östenitik paslanmaz çelikler kesilirken suda çözünebilir kesme sıvısı kullanılması etkilidir.
2. Kesme derinliği düşükse, devir ve ilerleme hızı artırılabilir.
3. Lütfen delme işleminde ilerleme hızını yukarıdaki değerlerin 1/3'i veya altında ayarlayın.
4. Makine veya iş parçasının bağlama rijidliği çok düşükse veya tırlama ve gürültü oluyorsa devir ve ilerleme hızını orantılı olarak düşürün.

MP4EC



İSVİÇRE TİPİ TORNALAR İÇİN 4 KANALLI PARMAK FREZE



	3<DC≤12	DC=14	
	- 0.010	- 0.010	
	- 0.030	- 0.040	
	4<DCON≤6	7<DCON≤10	DCON=12
	0	0	0
	- 0.008	- 0.009	- 0.011

Sipariş Numarası	Stok	DC	APMX	LF	DCON	ZEFP	Tip
MP4ECD0300S04	●	3	4.5	50	4	4	1
MP4ECD0350S04	●	3.5	5	50	4	4	1
MP4ECD0400S04	●	4	6	50	4	4	2
MP4ECD0500S06	●	5	7.5	50	6	4	1
MP4ECD0600S06	●	6	9	50	6	4	2
MP4ECD0700S07	●	7	10.5	50	7	4	2
MP4ECD0800S07	●	8	12	50	7	4	3
MP4ECD0800S08	●	8	12	50	8	4	2
MP4ECD0900S10	●	9	13.5	50	10	4	1
MP4ECD1000S07	●	10	15	50	7	4	3
MP4ECD1000S10	●	10	15	50	10	4	2
MP4ECD1200S10	●	12	15	50	10	4	3
MP4ECD1200S12	●	12	15	50	12	4	2
MP4ECD1400S10	●	14	15	50	10	4	3

MP4EC

ÖNERİLEN KESME KOŞULLARI

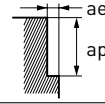
DİKEY FREZELEME

Malzeme	DC	n	Vf	ap	ae	
P Karbon çeliği, Dökme demir, Alaşımli çelik (-30HRC)	3	10000	900	3	0.6	
	3.5	8500	900	3.5	0.6	
	4	7500	900	4	0.6	
	5	6000	900	5	0.6	
	6	5000	900	6	0.6	
	7	4500	840	7	0.6	
	8	4000	780	8	0.6	
	9	3500	720	9	0.6	
	10	3200	680	10	0.6	
	12	2700	620	12	0.6	
	14	2300	550	14	0.6	
	S Alaşımli çelik, Takım çeliği, Ön-sertleştirme görmüş çelik	3	7000	600	3	0.6
		3.5	6000	600	3.5	0.6
		4	5200	600	4	0.6
5		4200	600	5	0.6	
6		3500	600	6	0.6	
7		3200	540	7	0.6	
8		2800	520	8	0.6	
9		2500	480	9	0.6	
10		2200	450	10	0.6	
12		1900	410	12	0.6	
14		1600	350	14	0.6	
M Östenitik paslanmaz çelik, Titanyum alaşımı		3	6000	450	3	0.6
		3.5	5100	450	3.5	0.6
		4	4500	450	4	0.6
	5	3600	450	5	0.6	
	6	3000	450	6	0.6	
	7	2700	420	7	0.6	
	8	2400	390	8	0.6	
	9	2100	360	9	0.6	
	10	1900	340	10	0.6	
	12	1600	310	12	0.6	
	14	1400	280	14	0.6	
	N Bakır, Bakır alaşımı	3	13000	1200	3	0.6
		3.5	11000	1200	3.5	0.6
		4	9500	1100	4	0.6
5		7600	1100	5	0.6	
6		6400	1100	6	0.6	
7		5500	1000	7	0.6	
8		4800	940	8	0.6	
9		4200	860	9	0.6	
10		3800	810	10	0.6	
12		3200	730	12	0.6	
14		2700	650	14	0.6	

MP4EC

DİKEY FREZELEME

Malzeme	DC	n	Vf	ap	ae
H Sertleştirilmiş çelik (45-55HRC)	3	5000	180	3	0.2
	3.5	4500	180	3.5	0.2
	4	4000	180	4	0.2
	5	3200	180	5	0.2
	6	2700	180	6	0.2
	7	2300	160	7	0.2
	8	2000	160	8	0.2
	9	1800	150	9	0.2
	10	1600	140	10	0.2
	12	1300	120	12	0.2
	14	1200	120	14	0.2



1. Östenitik paslanmaz çelikler kesilirken suda çözünebilir kesme sıvısı kullanılması etkilidir.
2. Kesme derinliği düşükse, devir ve ilerleme hızı artırılabilir.
3. Lütfen delme işleminde ilerleme hızını yukarıdaki değerlerin 1/3'i veya altında ayarlayın.
4. Makine veya iş parçasının bağlama rijidliği çok düşükse veya tırlama ve gürültü oluyorsa devir ve ilerleme hızını orantılı olarak düşürün.

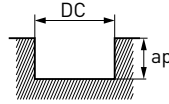
KANAL AÇMA

Malzeme	DC	n	Vf	ap	
P Karbon çeliği, Dökme demir, Alaşımli çelik (-30HRC)	3	10000	900	0.6	
	3.5	8500	900	0.6	
	4	7500	900	0.6	
	5	6000	900	0.6	
	6	5000	900	0.6	
	7	4500	840	0.6	
	8	4000	780	0.6	
	9	3500	720	0.6	
	10	3200	680	0.6	
	12	2700	620	0.6	
	14	2300	550	0.6	
	P Alaşımli çelik, Takım çeliği, Ön-sertleştirme görmüş çelik	3	7000	600	0.6
		3.5	6000	600	0.6
		4	5200	600	0.6
5		4200	600	0.6	
6		3500	600	0.6	
7		3200	540	0.6	
8		2800	520	0.6	
9		2500	480	0.6	
10		2200	450	0.6	
12		1900	410	0.6	
14	1600	350	0.6		

MP4EC

KANAL AÇMA

Malzeme	DC	n	Vf	ap	
M Östenitik paslanmaz çelik, Titanyum alaşımı	3	6000	450	0.6	
	3.5	5100	450	0.6	
	4	4500	450	0.6	
	5	3600	450	0.6	
	6	3000	450	0.6	
	7	2700	420	0.6	
	8	2400	390	0.6	
	9	2100	360	0.6	
	10	1900	340	0.6	
	12	1600	310	0.6	
	14	1400	280	0.6	
	N Bakır, Bakır alaşımı	3	13000	1200	0.6
		3.5	11000	1200	0.6
		4	9500	1100	0.6
5		7600	1100	0.6	
6		6400	1100	0.6	
7		5500	1000	0.6	
8		4800	940	0.6	
9		4200	860	0.6	
10		3800	810	0.6	
12		3200	730	0.6	
14		2700	650	0.6	
H Sertleştirilmiş çelik (45 – 55HRC)		3	5000	180	0.2
		3.5	4500	180	0.2
		4	4000	180	0.2
	5	3200	180	0.2	
	6	2700	180	0.2	
	7	2300	160	0.2	
	8	2000	160	0.2	
	9	1800	150	0.2	
	10	1600	140	0.2	
	12	1300	120	0.2	
	14	1200	120	0.2	



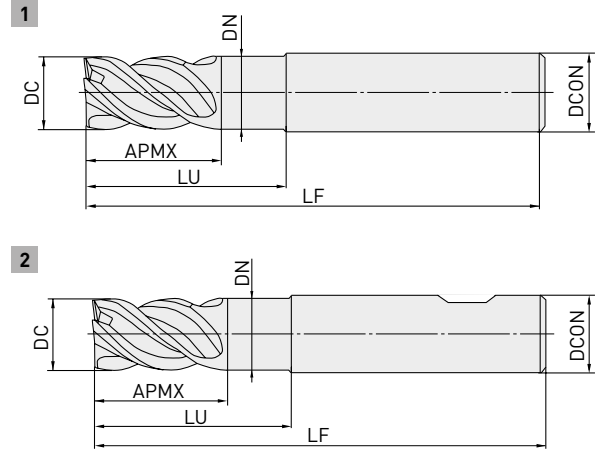
1. Östenitik paslanmaz çelikler kesilirken suda çözünebilir kesme sıvısı kullanılması etkilidir.
2. Kesme derinliği düşükse, devir ve ilerleme hızı artırılabilir.
3. Delme işleminde ilerleme hızını yukarıdaki değerlerin 1/3'ü veya altında ayarlayın.
4. Makine veya iş parçasının bağlama rijidliği çok düşükse veya tırlama ve gürültü oluyorsa devri ve ilerleme hızını orantılı olarak düşürün.

MPSHV/W



PARMAK FREZE , KISA KESME BOYU, 2,5XDC BOYUN BOŞLUĞU, 4 AĞIZLI DÜZENSİZ HELİS KANALI

P M S H



	DC≤12	DC>12
	0	0
	- 0.02	- 0.03

	DCON=6	8≤DCON≤10	12≤DCON≤16	DCON=20
	0	0	0	0
	- 0.008	- 0.009	- 0.011	- 0.013

- MPSHV/W arttırılmış işlevsellik için rahatlatılmış 2,5 x D ekstra boyun

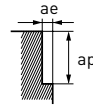
Sipariş Numarası	Stok	DC	APMX	LU	DN	LF	DCON	ZEFP	Tip
MPSHVD0600N015	●	6	9	15	5.85	50	6	4	1
MPSHVD0600N015W	●	6	9	15	5.85	50	6	4	2
MPSHVD0800N020	●	8	12	20	7.85	60	8	4	1
MPSHVD0800N020W	●	8	12	20	7.85	60	8	4	2
MPSHVD1000N025	●	10	15	25	9.7	70	10	4	1
MPSHVD1000N025W	●	10	15	25	9.7	70	10	4	2
MPSHVD1200N030	●	12	18	30	11.7	75	12	4	1
MPSHVD1200N030W	●	12	18	30	11.7	75	12	4	2
MPSHVD1600N040	●	16	24	40	15.5	90	16	4	1
MPSHVD1600N040W	●	16	24	40	15.5	90	16	4	2
MPSHVD2000N050	●	20	30	50	19.5	110	20	4	1
MPSHVD2000N050W	●	20	30	50	19.5	110	20	4	2

MPSHV/W

ÖNERİLEN KESME KOŞULLARI

YAN KENAR FREZELEME — (HSC)

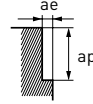
Malzeme	DC	n	Vf	ap	ae	
P Karbon çeliği, Alaşımli çelik, Sfero Dökme Demir	6	11000	3100	9	0.12	
	8	8000	2600	12	0.16	
	10	6400	2600	15	0.2	
	12	5300	2500	18	0.24	
	16	4000	1900	24	0.32	
	20	3200	1500	30	0.4	
	P Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Alaşımli takım çeliği	6	8000	1900	9	0.12
		8	6000	1700	12	0.16
		10	4800	1600	15	0.2
		12	4000	1600	18	0.24
16		3000	1200	24	0.32	
M Ostenitik paslanmaz çelik, Titanyum alaşımları	20	2400	960	30	0.4	
	6	6400	1200	9	0.12	
	8	4800	1200	12	0.16	
	10	3800	1100	15	0.2	
	12	3200	1100	18	0.24	
S Sertleştirilmiş Çelik (40 – 52 HRC)	16	2400	860	24	0.32	
	20	1900	680	30	0.4	
	6	5300	640	9	0.12	
	8	4000	640	12	0.16	
	10	3200	640	15	0.2	
H	12	2700	540	18	0.24	
	16	2000	480	24	0.32	
	20	1600	380	30	0.4	



MPSHV/W

YAN KENAR FREZELEME — (HPC)

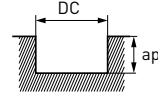
Malzeme	DC	n	Vf	ap	ae	
P Karbon çeliği, Alaşımli çelik, Sfero Dökme Demir	6	8000	2100	9	1.2	
	8	6000	2000	12	1.6	
	10	4800	2000	15	2	
	12	4000	1900	18	2.4	
	16	3000	1400	24	3.2	
	20	2400	1200	30	4	
	P Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Alaşımli takım çeliği	6	6400	1300	9	1.2
		8	4800	1400	12	1.6
		10	3800	1400	15	2
		12	3200	1400	18	2.4
16		2400	1100	24	3.2	
M Ostenitik paslanmaz çelik, Titanyum alaşımları	20	1900	840	30	4	
	6	5300	1100	9	1.2	
	8	4000	1100	12	1.6	
	10	3200	1100	15	2	
	12	2700	1100	18	2.4	
S Sertleştirilmiş Çelik (40 – 52 HRC)	16	2000	840	24	3.2	
	20	1600	670	30	4	
	6	3700	440	9	1.2	
	8	2800	440	12	1.6	
	10	2200	440	15	2	
H Sertleştirilmiş Çelik (40 – 52 HRC)	12	1900	380	18	2.4	
	16	1400	340	24	3.2	
	20	1100	260	30	4	



MPSHV/W

KANAL AÇMA

Malzeme	DC	n	Vf	ap	
P Karbon çeliği, Alaşımli çelik, Sfero Dökme Demir	6	6400	860	6	
	8	4800	1000	8	
	10	3800	910	10	
	12	3200	910	12	
	16	2400	690	16	
	20	1900	550	20	
	P Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Alaşımli takım çeliği	6	5100	630	6
		8	3800	750	8
		10	3100	680	10
		12	2500	660	12
16		1900	500	16	
M Ostenitik paslanmaz çelik, Titanyum alaşımları	20	1500	400	20	
	6	4200	470	6	
	8	3200	580	8	
	10	2500	500	10	
	12	2100	500	12	
S Sertleştirilmiş Çelik (40 - 52 HRC)	16	1600	380	16	
	20	1300	310	20	
	6	1600	190	6	
	8	1200	190	8	
	10	950	150	10	
12	800	150	12		
16	600	120	16		
20	450	96	20		

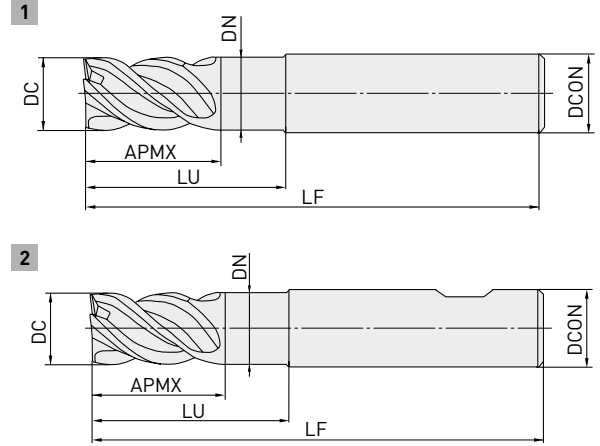


MPMHV/W



PARMAK FREZE , ORTA KESME BOYU, 2,5XDC BOYUN BOŞLUĞU, 4 AĞIZLI DÜZENSİZ HELİS KANALI

P M S H



	DC≤12	DC>12
	0	0
	- 0.02	- 0.03

	DCON=6	8≤DCON≤10	12≤DCON≤16	DCON=20
	0	0	0	0
	- 0.008	- 0.009	- 0.011	- 0.013

- MPMHV/W arttırılmış işlevsellik için rahatlatılmış 2,5 x D ekstra boyun

Sipariş Numarası	Stok	DC	APMX	LU	DN	LF	DCON	ZEFP	Tip
MPMHVD0600N015	●	6	12	15	5.85	50	6	4	1
MPMHVD0600N015W	●	6	12	15	5.85	50	6	4	2
MPMHVD0800N020	●	8	16	20	7.85	60	8	4	1
MPMHVD0800N020W	●	8	16	20	7.85	60	8	4	2
MPMHVD1000N025	●	10	20	25	9.7	70	10	4	1
MPMHVD1000N025W	●	10	20	25	9.7	70	10	4	2
MPMHVD1200N030	●	12	24	30	11.7	75	12	4	1
MPMHVD1200N030W	●	12	24	30	11.7	75	12	4	2
MPMHVD1600N040	●	16	32	40	15.5	90	16	4	1
MPMHVD1600N040W	●	16	32	40	15.5	90	16	4	2
MPMHVD2000N050	●	20	40	50	19.5	110	20	4	1
MPMHVD2000N050W	●	20	40	50	19.5	110	20	4	2

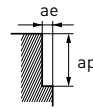
35

MPMHV / W

ÖNERİLEN KESME KOŞULLARI

YAN KENAR FREZELEME — (HSC)

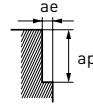
Malzeme	DC	n	Vf	ap	ae	
P Karbon çeliği, Alaşımli çelik, Sfero Dökme Demir	6	11000	3100	10	0.12	
	8	8000	2600	13.5	0.16	
	10	6400	2600	17	0.2	
	12	5300	2500	20.5	0.24	
	16	4000	1900	27.2	0.32	
	20	3200	1500	34	0.4	
	Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Alaşımli takım çeliği	6	8000	1900	10	0.12
		8	6000	1700	13.5	0.16
		10	4800	1600	17	0.2
		12	4000	1600	20.5	0.24
16		3000	1200	27.2	0.32	
20		2400	960	34	0.4	
M Ostenitik paslanmaz çelik, Titanyum alaşımları	6	6400	1200	10	0.12	
	8	4800	1200	13.5	0.16	
	10	3800	1100	17	0.2	
	12	3200	1100	20.5	0.24	
	S Sertleştirilmiş Çelik (40 – 52 HRC)	16	2400	860	27.2	0.32
20		1900	680	34	0.4	
6		5300	640	10	0.12	
8		4000	640	13.5	0.16	
H	10	3200	640	17	0.2	
	12	2700	540	20.5	0.24	
	16	2000	480	27.2	0.32	
	20	1600	380	34	0.4	



MPMHV/W

YAN KENAR FREZELEME — (HPC)

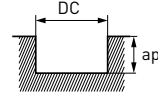
Malzeme	DC	n	Vf	ap	ae	
P Karbon çeliği, Alaşımli çelik, Sfero Dökme Demir	6	8000	2100	10	1.2	
	8	6000	2000	13.5	1.6	
	10	4800	2000	17	2	
	12	4000	1900	20.5	2.4	
	16	3000	1400	27.2	3.2	
	20	2400	1200	34	4	
	P Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Alaşımli takım çeliği	6	6400	1300	10	1.2
		8	4800	1400	13.5	1.6
		10	3800	1400	17	2
		12	3200	1400	20.5	2.4
16		2400	1100	27.2	3.2	
M Ostenitik paslanmaz çelik, Titanyum alaşımları	20	1900	840	34	4	
	6	5300	1100	10	1.2	
	8	4000	1100	13.5	1.6	
	10	3200	1100	17	2	
	12	2700	1100	20.5	2.4	
S Sertleştirilmiş Çelik (40 – 52 HRC)	16	2000	840	27.2	3.2	
	20	1600	670	34	4	
	6	3700	440	10	1.2	
	8	2800	440	13.5	1.6	
	10	2200	440	17	2	
H Sertleştirilmiş Çelik (40 – 52 HRC)	12	1900	380	20.5	2.4	
	16	1400	340	27.2	3.2	
	20	1100	260	34	4	



MPMHV/W

KANAL AÇMA

Malzeme	DC	n	Vf	ap	
P Karbon çeliği, Alaşımli çelik, Sfero Dökme Demir	6	6400	860	6	
	8	4800	1000	8	
	10	3800	910	10	
	12	3200	910	12	
	16	2400	690	16	
	20	1900	550	20	
	P Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Alaşımli takım çeliği	6	5100	630	6
		8	3800	750	8
		10	3100	680	10
		12	2500	660	12
16		1900	500	16	
M Ostenitik paslanmaz çelik, Titanyum alaşımları	20	1500	400	20	
	6	4200	470	6	
	8	3200	580	8	
	10	2500	500	10	
	12	2100	500	12	
S Sertleştirilmiş Çelik (40 - 52 HRC)	16	1600	380	16	
	20	1300	310	20	
	6	1600	190	6	
	8	1200	190	8	
	10	950	150	10	
12	800	150	12		
16	600	120	16		
20	450	96	20		

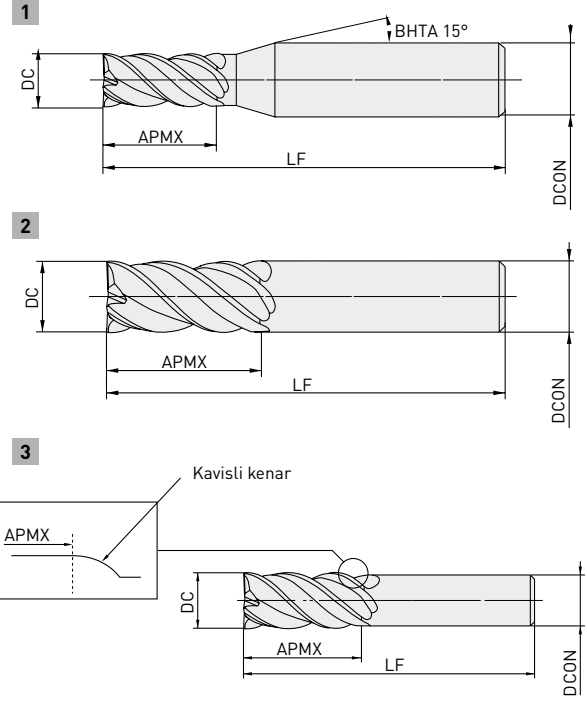


MPMHV



PARMAK FREZE , KESME BOYU ORTA, 4 DEĞİŞKEN AÇILI HELİS KANALLI

P M S H



	DC ≤ 12		DC > 12		
	0	0	0	0	0
-	- 0.02	- 0.03	- 0.005	- 0.005	- 0.006

	DCON=4		DCON=6		DCON=8	
	0	0	0	0	0	0
-	- 0.005	- 0.005	- 0.005	- 0.005	- 0.006	- 0.006

	DCON=6 (DC=8)		DCON=8 (DC=10)		DCON=10		12 ≤ DCON ≤ 16		DCON=20	
	0	0	0	0	0	0	0	0	0	0
-	- 0.008	- 0.009	- 0.009	- 0.009	- 0.009	- 0.011	- 0.011	- 0.011	- 0.013	- 0.013

- Paslanmaz çelik ve karbon çeliği işlenirken daha az titreşim için değişken açılı 4 helisli parmak freze.

Sipariş Numarası	Stok	DC	APMX	LF	DCON	ZEFP	Tip
MPMHVD0100	●	1	2.5	45	4	4	1
MPMHVD0150	●	1.5	3.8	45	4	4	1
MPMHVD0200	●	2	5	45	4	4	1
MPMHVD0250	●	2.5	6.3	45	4	4	1
MPMHVD0300	●	3	7.5	45	6	4	1
MPMHVD0400	●	4	10	45	6	4	1
MPMHVD0500	●	5	12.5	50	6	4	1
MPMHVD0600	●	6	15	60	6	4	2

MPMHV

Sipariş Numarası	Stok	DC	APMX	LF	DCON	ZEFP	Tip
MPMHVD0700S06	●	7	17.5	80	6	4	3
MPMHVD0700	●	7	17.5	70	8	4	1
MPMHVD0800	●	8	20	70	8	4	2
MPMHVD0800S06	●	8	20	90	6	4	3
MPMHVD0900S08	●	9	22.5	90	8	4	3
MPMHVD1000	●	10	25	80	10	4	2
MPMHVD1000S08	●	10	25	100	8	4	3
MPMHVD1100S10	●	11	28	100	10	4	3
MPMHVD1200	●	12	30	100	12	4	2
MPMHVD1200S10	●	12	30	110	10	4	3
MPMHVD1300S12	●	13	32	110	12	4	3
MPMHVD1400S12	●	14	35	130	12	4	3
MPMHVD1600	●	16	40	110	16	4	2
MPMHVD1800S16	●	18	45	150	16	4	3
MPMHVD2000	●	20	50	125	20	4	2
MPMHVD2200S20	●	22	55	160	20	4	3

MPMHV

ÖNERİLEN KESME KOŞULLARI

YAN KENAR FREZELEME

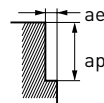
Malzeme	DC	n	Vf	ap	ae
Karbon çeliği, Alaşımli çelik, Sfero Dökme Demir	1	38000	910	1.7	0.2
	1.5	27000	970	2.5	0.3
	2	21000	1500	3.5	0.4
	2.5	18000	1700	4.2	0.5
	3	16000	1800	5	0.6
	4	12000	1700	7	0.8
	5	9500	1800	8.5	1
	6	8000	2100	10	1.2
	7*	4100	1200	12	0.7
	7	6800	2000	12	1.4
	8	6000	2000	13.5	1.6
	9*	3200	1200	15	0.9
	10	4800	2100	17	2
	11	2600	1200	18.5	1.1
	12	4000	1900	20.5	2.4
	13	2200	1100	22	1.3
	14*	2000	960	24	1.4
	16	3000	1400	27.2	3.2
	18*	1600	770	31	1.8
	20	2400	1200	34	4
	22*	1300	620	37.5	2.2
	Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Alaşımli takım çeliği	1	31000	500	1.7
1.5		22000	530	2.5	0.3
2		17000	820	3.5	0.4
2.5		15000	900	4.2	0.5
3		13000	940	5	0.6
4		9500	950	7	0.8
5		7600	1100	8.5	1
6		6400	1300	10	1.2
7*		3300	860	12	0.7
7		5500	1400	12	1.4
8		4800	1400	13.5	1.6
9*		2500	900	15	0.9
10		3800	1500	17	2
11		2100	880	18.5	1.1
12		3200	1400	20.5	2.4
13		1800	830	22	1.3
14*		1600	700	24	1.4
16		2400	1100	27.2	3.2
18*		1300	570	31	1.8
20		1900	840	34	4
22*		1000	440	37.5	2.2

* Tip 3

MPMHV

YAN KENAR FREZELEME

Malzeme	DC	n	Vf	ap	ae
M Ostenitik paslanmaz çelik, Titanyum alaşımları	1	25000	500	1.7	0.2
	1.5	18000	500	2.5	0.3
	2	14000	640	3.5	0.4
	2.5	12000	820	4.2	0.5
	3	11000	880	5	0.6
	4	8000	900	7	0.8
	5	6400	900	8.5	1
	6	5300	1100	10	1.2
	7*	2700	700	12	0.7
	7	4500	1200	12	1.4
	8	4000	1200	13.5	1.6
	9*	2100	660	15	0.9
	10	3200	1100	17	2
	11	1700	520	18.5	1.1
	12	2700	1100	20.5	2.4
	13	1500	490	22	1.3
	14*	1400	460	24	1.4
	16	2000	840	27.2	3.2
	18*	1100	360	31	1.8
	20	1600	670	34	4
	22*	870	280	37.5	2.2
	S H Sertleştirilmiş Çelik (45 – 55 HRC)	1	18000	290	1.7
1.5		13000	310	2.5	0.08
2		10000	320	3.5	0.1
2.5		8500	360	4.2	0.13
3		7400	380	5	0.15
4		5600	400	7	0.2
5		4500	430	8.5	0.25
6		3700	440	10	0.3
7*		1900	270	12	0.35
7		3200	450	12	0.35
8		2800	450	13.5	0.4
9*		1500	270	15	0.45
10		2200	440	17	0.5
11		1200	190	18.5	0.55
12		1900	380	20.5	0.6
13		1000	160	22	0.65
14*		950	150	24	0.7
16		1400	340	27.2	0.8
18*		740	120	31	0.9
20		1100	260	34	1
22*		610	98	37.5	1.2



* Tip 3

MPMHV

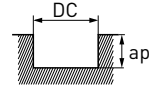
KANAL AÇMA

Malzeme	DC	n	Vf	ap
P Karbon çeliği, Alaşımli çelik, Sfero Dökme Demir	1	31000	620	0.5
	1.5	22000	630	0.8
	2	17000	650	2
	2.5	15000	830	2.5
	3	13000	940	3
	4	9500	820	4
	5	7600	910	5
	6	6400	860	6
	7	5500	960	7
	8	4800	1000	8
	10	3800	910	10
	12	3200	920	12
	16	2400	690	16
P Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Alaşımli takım çeliği	1	24000	380	0.5
	1.5	17000	410	0.8
	2	14000	450	2
	2.5	12000	580	2.5
	3	10000	660	3
	4	7600	600	4
	5	6100	670	5
	6	5100	630	6
	7	4400	710	7
	8	3800	750	8
	10	3100	680	10
	12	2500	660	12
	16	1900	500	16
M S Ostenitik paslanmaz çelik, Titanyum alaşımları	1	20000	400	0.5
	1.5	14000	390	0.8
	2	11000	500	2
	2.5	9700	660	2.5
	3	8500	680	3
	4	6400	720	4
	5	5100	710	5
	6	4200	870	6
	7	3600	940	7
	8	3200	960	8
	10	2500	880	10
	12	2100	860	12
	16	1600	380	16
20	1300	310	20	

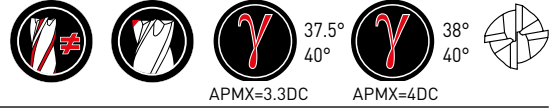
MPMHV

KANAL AÇMA

Malzeme	DC	n	Vf	ap
H Sertleştirilmiş Çelik (45 - 55 HRC)	1	9500	110	0.2
	1.5	6400	130	0.3
	2	4800	130	0.4
	2.5	3800	130	0.5
	3	3200	140	0.6
	4	2400	150	0.8
	5	1900	170	1
	6	1600	190	1.2
	7	1400	190	1.4
	8	1200	190	1.6
	10	950	150	2
	12	800	160	2.4
	16	600	120	3.2
	20	480	96	4



MPJHV



PARMAK FREZE, KESME BOYU ORTA, 4 DEĞİŞKEN AÇILI HELİS KANALLI

P M S H



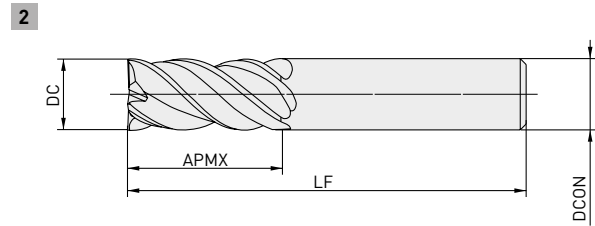
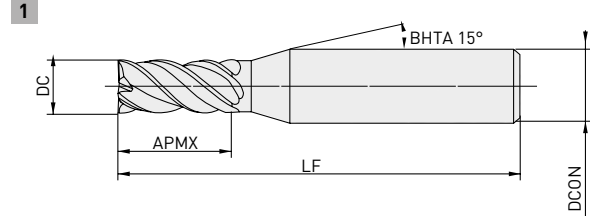
DC ≤ 12	DC > 12
0	0
- 0.02	- 0.03



DCON=4	DCON=6	DCON=8
0	0	0
- 0.005	- 0.005	- 0.006



DCON=10	DCON=12	DCON=16	DCON=20
0	0	0	0
- 0.009	- 0.011	- 0.011	- 0.013



- Paslanmaz çelik ve karbon çeliği işlenirken daha az titreşim için değişken açılı 4 helisli parmak freze.
- Yarı-uzun helis boyu, dik duvar tarama işlemleri için idealdir.

Sipariş Numarası	Stok	DC	APMX	LF	DCON	ZEFP	Tip
MPJHVD0100AP04	●	1	4	45	4	4	1
MPJHVD0150AP06	●	1.5	6	45	4	4	1
MPJHVD0200AP06	●	2	6.5	60	6	4	1
MPJHVD0200AP08	●	2	8	60	6	4	1
MPJHVD0250AP10	●	2.5	10	60	6	4	1
MPJHVD0300AP10	●	3	10	60	6	4	1
MPJHVD0300AP12	●	3	12	60	6	4	1
MPJHVD0400AP13	●	4	13	60	6	4	1
MPJHVD0400AP16	●	4	16	60	6	4	1
MPJHVD0500AP17	●	5	17	60	6	4	1
MPJHVD0500AP20	●	5	20	60	6	4	1
MPJHVD0600AP20	●	6	20	60	6	4	2
MPJHVD0600AP24	●	6	24	60	6	4	2
MPJHVD0800AP26	●	8	26	80	8	4	2
MPJHVD0800AP32	●	8	32	80	8	4	2
MPJHVD1000AP33	●	10	33	100	10	4	2
MPJHVD1000AP40	●	10	40	100	10	4	2
MPJHVD1200AP40	●	12	40	110	12	4	2
MPJHVD1200AP48	●	12	48	110	12	4	2
MPJHVD1600AP53	●	16	53	125	16	4	2
MPJHVD1600AP64	●	16	64	125	16	4	2
MPJHVD2000AP66	●	20	66	140	20	4	2
MPJHVD2000AP80	●	20	80	140	20	4	2

MPJHV

ÖNERİLEN KESME KOŞULLARI

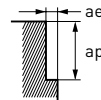
YAN KENAR FREZELEME

Malzeme	DC	APMX	n	Vf	ap	ae
Karbon çeliği, Alaşımli çelik, Sfero Dökme Demir	1	4	19000	300	3	0.03
	1.5	6	16000	320	4.5	0.05
	2	6.5	15000	500	5	0.1
	2	8	14000	470	6	0.06
	2.5	10	13000	660	7.5	0.08
	3	10	13000	890	7.4	0.15
	3	12	12000	820	9	0.09
	4	13	9400	940	9.9	0.2
	4	16	9000	900	12	0.12
	5	17	7500	990	12.4	0.25
	5	20	7200	950	15	0.15
	6	20	6300	1100	14.9	0.3
	6	24	6000	1000	18	0.18
	8	26	4700	1100	19.8	0.4
	8	32	4500	1000	24	0.24
	10	33	3800	1000	24.8	0.5
	10	40	3600	970	30	0.3
	12	40	3100	1000	29.7	0.6
	12	48	3000	970	36	0.36
	Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Alaşımli takım çeliği	16	53	2400	780	27.2
16		64	2200	710	48	0.48
20		66	1900	620	34	0.6
20		80	1800	580	60	0.6
1		4	15000	240	3	0.03
1.5		6	13000	260	4.5	0.05
2		6.5	12000	380	5	0.1
2		8	11000	350	6	0.06
2.5		10	11000	520	7.5	0.08
3		10	10000	620	7.4	0.15
3		12	9500	590	9	0.09
4		13	7500	650	9.9	0.2
4		16	7200	620	12	0.12
5		17	6000	680	12.4	0.25
5		20	5700	650	15	0.15
6		20	5000	760	14.9	0.3
6		24	4800	730	18	0.18
8		26	3800	800	19.8	0.4
8		32	3600	760	24	0.24
10		33	3000	760	24.8	0.5
10	40	2900	730	30	0.3	
12	40	2500	720	29.7	0.6	
12	48	2400	690	36	0.36	
16	53	1900	550	39.6	0.8	
16	64	1800	520	48	0.48	
20	66	1500	430	49.5	1	
20	80	1400	400	60	0.6	

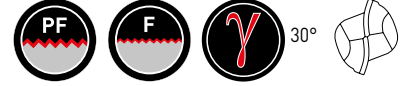
MPJHV

YAN KENAR FREZELEME

Malzeme	DC	APMX	n	Vf	ap	ae
M Ostenitik paslanmaz çelik, Titanium alaşımları	1	4	13000	210	3	0.03
	1.5	6	11000	220	4.5	0.05
	2	6.5	10000	320	5	0.1
	2	8	9500	300	6	0.06
	2.5	10	8900	390	7.5	0.08
	3	10	8400	470	7.4	0.15
	3	12	8000	450	9	0.09
	4	13	6300	530	9.9	0.2
	4	16	6000	500	12	0.12
	5	17	5000	560	12.4	0.25
	5	20	4800	540	15	0.15
	6	20	4200	640	14.9	0.3
	6	24	4000	610	18	0.18
	8	26	3.100	620	19.8	0.4
	8	32	3000	600	24	0.24
	10	33	2500	590	24.8	0.5
	10	40	2400	570	30	0.3
	12	40	2100	550	29.7	0.6
	12	48	2000	520	36	0.36
	16	53	1600	420	39.6	0.8
	16	64	1500	390	48	0.48
	20	66	1300	340	49.5	1
20	80	1200	310	60	0.6	
S H Sertleştirilmiş Çelik (45 – 55 HRC)	1	4	13000	160	3	0.02
	1.5	6	8500	170	4.5	0.03
	2	6.5	7700	220	5	0.06
	2	8	7300	200	6	0.04
	2.5	10	6300	250	7.5	0.05
	3	10	5900	300	7.4	0.09
	3	12	5600	280	9	0.06
	4	13	4700	320	9.9	0.12
	4	16	4500	310	12	0.08
	5	17	3800	350	12.4	0.15
	5	20	3600	330	15	0.1
	6	20	3200	350	14.9	0.18
	6	24	3000	330	18	0.12
	8	26	2400	360	19.8	0.24
	8	32	2300	350	24	0.16
	10	33	1900	330	24.8	0.3
	10	40	1800	310	30	0.2
	12	40	1600	300	29.7	0.36
	12	48	1500	280	36	0.24
	16	53	1200	240	39.6	0.48
	16	64	1100	220	48	0.32
	20	66	950	190	49.5	0.6
20	80	900	180	60	0.4	

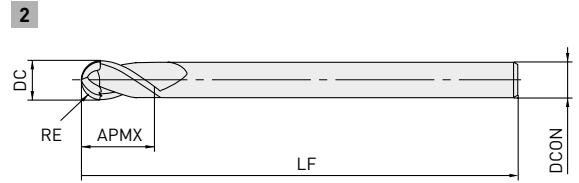
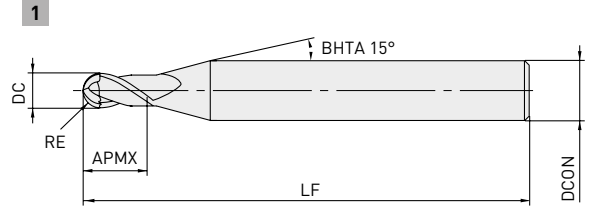


MP2SSB



KÜRE UÇLU, KESME BOYU KISA, 2 HELİS KANALLI, KISA ŞAFTLI

P M N S H



	$0.1 < RE < 6$		
	± 0.005		
	$4 < DCON < 6$	$8 < DCON < 10$	$DCON = 12$
	0	0	0
	-0.005	-0.006	-0.008

- Genel kullanım için kısa kesme boyuna sahip 2 helisli küre uçlu parmak freze. Karbon çeliği, alaşımlı çelik ve sertleştirilmiş çelik gibi geniş bir alanı kapsayan malzemeler için mükemmel performans.

Sipariş Numarası	Stok	RE	DC	APMX	LF	DCON	ZEFP	Tip
MP2SSBR0010	●	0.1	0.2	0.2	40	4	2	1
MP2SSBR0020	●	0.2	0.4	0.4	40	4	2	1
MP2SSBR0030	●	0.3	0.6	0.6	40	4	2	1
MP2SSBR0040	●	0.4	0.8	0.8	40	4	2	1
MP2SSBR0050	●	0.5	1	1	40	4	2	1
MP2SSBR0050S06	●	0.5	1	1	40	6	2	1
MP2SSBR0075	●	0.75	1.5	1.5	40	4	2	1
MP2SSBR0075S06	●	0.75	1.5	1.5	40	6	2	1
MP2SSBR0100	●	1	2	2	45	6	2	1
MP2SSBR0150	●	1.5	3	3	45	6	2	1
MP2SSBR0200	●	2	4	4	45	6	2	1
MP2SSBR0250	●	2.5	5	5	50	6	2	1
MP2SSBR0300	●	3	6	6	50	6	2	2
MP2SSBR0400	●	4	8	8	60	8	2	2
MP2SSBR0500	●	5	10	10	70	10	2	2
MP2SSBR0600	●	6	12	12	75	12	2	2



MP2SSB

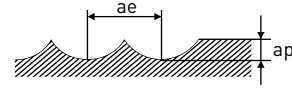
ÖNERİLEN KESME KOŞULLARI

3D FREZELEME

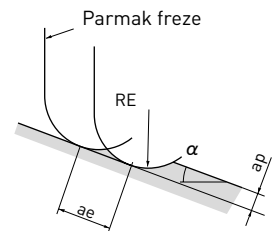
Malzeme	RE	$\alpha < 15^\circ$		$\alpha > 15^\circ$		ap	ae
		n	Vf	n	Vf		
P Yumuşak Çelik, Karbon çeliği, Alaşımlı çelik, Ön-sertleştirilmiş çelik, Sertleştirilmiş çelik (- 45 HRC)	R 0.1	40000	300	40000	250	0.003	0.02
	R 0.15	40000	500	40000	350	0.007	0.03
	R 0.2	40000	1600	40000	1200	0.02	0.04
	R 0.25	40000	2400	40000	1400	0.025	0.05
	R 0.3	40000	3200	40000	1600	0.03	0.06
	R 0.4	40000	4800	40000	2400	0.05	0.08
	R 0.5	40000	5600	40000	3200	0.06	0.1
	R 0.75	40000	6500	40000	4000	0.09	0.15
	R 1	40000	6500	39000	4700	0.11	0.2
	R 1.25	40000	7000	33000	4500	0.12	0.25
	R 1.5	40000	7500	27000	4300	0.13	0.3
	R 2	32000	7500	20000	3600	0.15	0.4
	R 2.5	25000	6000	16000	2900	0.2	0.5
	R 3	21000	5800	13000	2600	0.25	0.6
	R 4	16000	4500	10000	2000	0.3	0.8
	R 5	13000	3600	8000	1700	0.5	1.0
R 6	9000	2500	6000	1300	0.5	1.2	
M S Ostenitik paslanmaz çelik, Titanyum alaşımları	R 0.1	40000	300	40000	250	0.003	0.02
	R 0.15	40000	500	40000	350	0.007	0.03
	R 0.2	40000	1500	40000	1000	0.02	0.04
	R 0.25	40000	2100	40000	1200	0.025	0.05
	R 0.3	40000	2800	40000	1400	0.03	0.06
	R 0.4	40000	4600	40000	2100	0.05	0.08
	R 0.5	40000	5600	40000	3400	0.06	0.1
	R 0.75	40000	6500	36000	3600	0.09	0.15
	R 1	40000	6500	35000	4000	0.11	0.2
	R 1.25	40000	7400	29000	4000	0.12	0.25
	R 1.5	36000	6900	24000	3900	0.13	0.3
	R 2	28000	6900	18000	3100	0.15	0.4
	R 2.5	22000	6200	14000	2600	0.2	0.5
	R 3	18000	5400	11000	2300	0.25	0.6
	R 4	14000	4100	9000	1700	0.3	0.8
	R 5	11000	3300	7200	1300	0.5	1.0
R 6	8100	2300	5400	1100	0.5	1.2	

MP2SSB

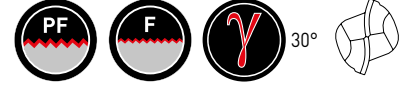
Malzeme	RE	$\alpha < 15^\circ$		$\alpha > 15^\circ$		ap	ae
		n	Vf	n	Vf		
N Bakır, Bakır alaşımları	R 0.1	40000	300	40000	250	0.003	0.02
	R 0.15	40000	500	40000	350	0.007	0.03
	R 0.2	40000	1300	40000	950	0.015	0.04
	R 0.25	40000	1900	40000	1100	0.02	0.05
	R 0.3	40000	2500	40000	1300	0.025	0.06
	R 0.4	40000	4000	40000	1900	0.04	0.08
	R 0.5	40000	5600	40000	3000	0.05	0.1
	R 0.75	40000	6500	32000	3200	0.08	0.15
	R 1	40000	6500	31000	3500	0.11	0.2
	R 1.25	36000	6500	26000	3500	0.12	0.25
	R 1.5	32000	6000	22000	3400	0.13	0.3
	R 2	25000	6000	16000	2700	0.15	0.6
	R 2.5	20000	5400	13000	2300	0.2	0.75
	R 3	17000	4700	10000	2000	0.25	0.9
	R 4	13000	3600	8000	1500	0.3	1.6
	R 5	10000	2900	6400	1200	0.5	2.0
	R 6	8500	2300	5300	1100	0.5	2.4
	H Sertleştirilmiş çelik (45-55 HRC)	R 0.1	40000	300	40000	250	0.003
R 0.15		40000	500	40000	350	0.007	0.03
R 0.2		40000	1300	40000	950	0.015	0.04
R 0.25		40000	1900	40000	1100	0.02	0.05
R 0.3		40000	2500	40000	1300	0.025	0.06
R 0.4		40000	4000	40000	1900	0.04	0.08
R 0.5		40000	5600	40000	3000	0.05	0.1
R 0.75		40000	6500	32000	3200	0.08	0.15
R 1		40000	6500	31000	3500	0.11	0.2
R 1.25		36000	6500	26000	3500	0.12	0.25
R 1.5		32000	6000	22000	3400	0.13	0.3
R 2		25000	6000	16000	2700	0.15	0.4
R 2.5		20000	5400	13000	2300	0.2	0.5
R 3		17000	4700	10000	2000	0.25	0.6
R 4		13000	3600	8000	1500	0.3	0.8
R 5		10000	2900	6400	1200	0.5	1.0
R 6		7200	2000	4800	1000	0.5	1.2



1. α işlenen yüzeyin eğim açısıdır.
2. Kesme derinliği düşükse, devir ve ilerleme hızı arttırılabilir.
3. Makinenin veya çalışma parçasının rijitliği çok düşükse veya gürültülü çalışma ve vuruntu oluyorsa, devri ve ilerleme hızını orantısal olarak düşürün.
4. Ostenitik paslanmaz çelik ve titanyum alaşımları için kesme koşullarını uygularken, lütfen devri %60'a ve ilerleme hızını %45'e düşürün.



MP2SB



KÜRE UÇLU, KESME BOYU KISA, 2 HELİS KANALLI

P M N S H



$0.1 < RE < 6$

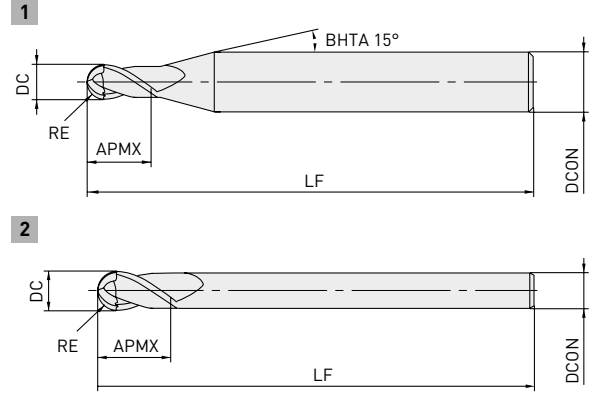
± 0.005



4 < DCON < 6 8 < DCON < 10 DCON = 12

0 0 0

-0.005 -0.006 -0.008



- Genel kullanım için kısa kesme boyuna sahip 2 helisli küre uçlu parmak freze. Karbon çeliği, alaşımlı çelik ve sertleştirilmiş çelik gibi geniş bir alanı kapsayan malzemeler için mükemmel performans.

Sipariş Numarası	Stok	RE	DC	APMX	LF	DCON	ZEFP	Tip
MP2SBR0010	●	0.1	0.2	0.3	45	4	2	1
MP2SBR0015	●	0.15	0.3	0.5	45	4	2	1
MP2SBR0020	●	0.2	0.4	0.6	45	4	2	1
MP2SBR0020S06	●	0.2	0.4	0.6	50	6	2	1
MP2SBR0025	●	0.25	0.5	0.8	45	4	2	1
MP2SBR0030	●	0.3	0.6	0.9	45	4	2	1
MP2SBR0030S06	●	0.3	0.6	0.9	50	6	2	1
MP2SBR0035	●	0.35	0.7	1.1	45	4	2	1
MP2SBR0040	●	0.4	0.8	1.2	45	4	2	1
MP2SBR0040S06	●	0.4	0.8	1.2	50	6	2	1
MP2SBR0045	●	0.45	0.9	1.4	45	4	2	1
MP2SBR0050	●	0.5	1	1.5	45	4	2	1
MP2SBR0050S06	●	0.5	1	1.5	50	6	2	1
MP2SBR0060	●	0.6	1.2	1.8	45	4	2	1
MP2SBR0070	●	0.7	1.4	2.1	45	4	2	1
MP2SBR0075	●	0.75	1.5	2.3	45	4	2	1
MP2SBR0075S06	●	0.75	1.5	2.3	50	6	2	1
MP2SBR0080	●	0.8	1.6	2.4	45	4	2	1
MP2SBR0090	●	0.9	1.8	2.7	45	4	2	1
MP2SBR0100	●	1	2	3	50	4	2	1
MP2SBR0100S06	●	1	2	3	50	6	2	1
MP2SBR0125	●	1.25	2.5	3.8	50	4	2	1
MP2SBR0150	●	1.5	3	4.5	70	6	2	1
MP2SBR0200	●	2	4	6	70	6	2	1
MP2SBR0250	●	2.5	5	7.5	80	6	2	1
MP2SBR0300	●	3	6	9	80	6	2	2
MP2SBR0400	●	4	8	12	90	8	2	2
MP2SBR0500	●	5	10	15	100	10	2	2
MP2SBR0600	●	6	12	18	110	12	2	2

MP2SB

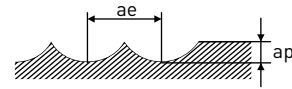
ÖNERİLEN KESME KOŞULLARI

3D FREZELEME

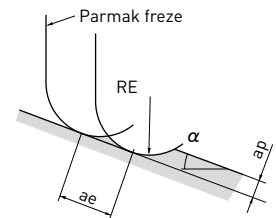
Malzeme	RE	$\alpha < 15^\circ$		$\alpha > 15^\circ$		ap	ae
		n	Vf	n	Vf		
P Yumuşak Çelik, Karbon çeliği, Alaşımli çelik, Ön-sertleştirilmiş çelik, Sertleştirilmiş çelik (- 45 HRC)	R 0.1	40000	300	40000	250	0.003	0.02
	R 0.15	40000	500	40000	350	0.007	0.03
	R 0.2	40000	1600	40000	1200	0.02	0.04
	R 0.25	40000	2400	40000	1400	0.025	0.05
	R 0.3	40000	3200	40000	1600	0.03	0.06
	R 0.4	40000	4800	40000	2400	0.05	0.08
	R 0.5	40000	5600	40000	3200	0.06	0.1
	R 0.75	40000	6500	40000	4000	0.09	0.15
	R 1	40000	6500	39000	4700	0.11	0.2
	R 1.25	40000	7000	33000	4500	0.12	0.25
	R 1.5	40000	7500	27000	4300	0.13	0.3
	R 2	32000	7500	20000	3600	0.15	0.4
	R 2.5	25000	6000	16000	2900	0.2	0.5
	R 3	21000	5800	13000	2600	0.25	0.6
	R 4	16000	4500	10000	2000	0.3	0.8
	R 5	13000	3600	8000	1700	0.5	1.0
	R 6	9000	2500	6000	1300	0.5	1.2
	M S Ostenitik paslanmaz çelik, Titanyum alaşımları	R 0.1	40000	300	40000	250	0.003
R 0.15		40000	500	40000	350	0.007	0.03
R 0.2		40000	1500	40000	1000	0.02	0.04
R 0.25		40000	2100	40000	1200	0.025	0.05
R 0.3		40000	2800	40000	1400	0.03	0.06
R 0.4		40000	4600	40000	2100	0.05	0.08
R 0.5		40000	5600	40000	3400	0.06	0.1
R 0.75		40000	6500	36000	3600	0.09	0.15
R 1		40000	6500	35000	4000	0.11	0.2
R 1.25		40000	7400	29000	4000	0.12	0.25
R 1.5		36000	6900	24000	3900	0.13	0.3
R 2		28000	6900	18000	3100	0.15	0.4
R 2.5		22000	6200	14000	2600	0.2	0.5
R 3		18000	5400	11000	2300	0.25	0.6
R 4		14000	4100	9000	1700	0.3	0.8
R 5		11000	3300	7200	1300	0.5	1.0
R 6		8100	2300	5400	1100	0.5	1.2

MP2SB

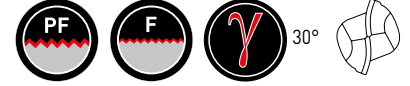
Malzeme	RE	$\alpha < 15^\circ$		$\alpha > 15^\circ$		ap	ae
		n	Vf	n	Vf		
N Bakır, Bakır alaşımları	R 0.1	40000	300	40000	250	0.003	0.02
	R 0.15	40000	500	40000	350	0.007	0.03
	R 0.2	40000	1300	40000	950	0.015	0.04
	R 0.25	40000	1900	40000	1100	0.02	0.05
	R 0.3	40000	2500	40000	1300	0.025	0.06
	R 0.4	40000	4000	40000	1900	0.04	0.08
	R 0.5	40000	5600	40000	3000	0.05	0.1
	R 0.75	40000	6500	32000	3200	0.08	0.15
	R 1	40000	6500	31000	3500	0.11	0.2
	R 1.25	36000	6500	26000	3500	0.12	0.25
	R 1.5	32000	6000	22000	3400	0.13	0.3
	R 2	25000	6000	16000	2700	0.15	0.6
	R 2.5	20000	5400	13000	2300	0.2	0.75
	R 3	17000	4700	10000	2000	0.25	0.9
	R 4	13000	3600	8000	1500	0.3	1.6
	R 5	10000	2900	6400	1200	0.5	2.0
	R 6	8500	2300	5300	1100	0.5	2.4
	H Sertleştirilmiş çelik (45-55 HRC)	R 0.1	40000	300	40000	250	0.003
R 0.15		40000	500	40000	350	0.007	0.03
R 0.2		40000	1300	40000	950	0.015	0.04
R 0.25		40000	1900	40000	1100	0.02	0.05
R 0.3		40000	2500	40000	1300	0.025	0.06
R 0.4		40000	4000	40000	1900	0.04	0.08
R 0.5		40000	5600	40000	3000	0.05	0.1
R 0.75		40000	6500	32000	3200	0.08	0.15
R 1		40000	6500	31000	3500	0.11	0.2
R 1.25		36000	6500	26000	3500	0.12	0.25
R 1.5		32000	6000	22000	3400	0.13	0.3
R 2		25000	6000	16000	2700	0.15	0.4
R 2.5		20000	5400	13000	2300	0.2	0.5
R 3		17000	4700	10000	2000	0.25	0.6
R 4		13000	3600	8000	1500	0.3	0.8
R 5		10000	2900	6400	1200	0.5	1.0
R 6		7200	2000	4800	1000	0.5	1.2



1. α işlenen yüzeyin eğim açısıdır.
2. Kesme derinliği düşükse, devir ve ilerleme hızı arttırılabilir.
3. Makinenin veya çalışma parçasının rijitliği çok düşükse veya gürültülü çalışma ve vuruntu oluyorsa, devri ve ilerleme hızını orantısız olarak düşürün.
4. Ostenitik paslanmaz çelik ve titanyum alaşımları için kesme koşullarını uygularken, lütfen devri %60'a ve ilerleme hızını %45'e düşürün.



MP2MB



KÜRE UÇLU, KESME BOYU ORTA, 2 HELİS KANALLI

P M N S H



$0.25 < RE < 6$

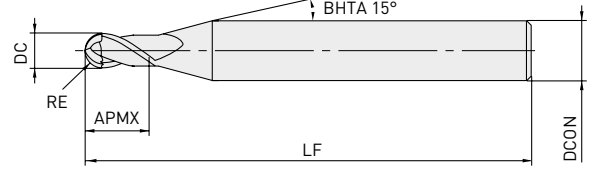
± 0.005



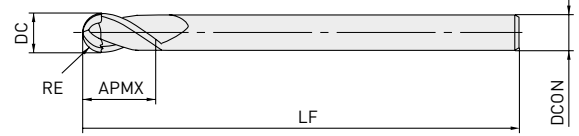
$4 < DCON < 6$ $8 < DCON < 10$ $DCON = 12$

0 0 0
-0.005 -0.006 -0.008

1



2



- Genel kullanım için Orta kesme kenarı uzunluğuna sahip 2 helisli küre uçlu parmak freze. Karbon çeliği, alaşımlı çelik ve sertleştirilmiş çelik gibi geniş bir alanı kapsayan malzemeler için mükemmel performans.

Sipariş Numarası	Stok	RE	DC	APMX	LF	DCON	ZEFP	Tip
MP2MBR0025	●	0.25	0.5	1	45	4	2	1
MP2MBR0030	●	0.3	0.6	1.2	45	4	2	1
MP2MBR0040	●	0.4	0.8	1.6	45	4	2	1
MP2MBR0050	●	0.5	1	2.5	45	4	2	1
MP2MBR0060	●	0.6	1.2	2.5	45	4	2	1
MP2MBR0070	●	0.7	1.4	3	45	4	2	1
MP2MBR0075	●	0.75	1.5	4	45	4	2	1
MP2MBR0080	●	0.8	1.6	4	45	4	2	1
MP2MBR0090	●	0.9	1.8	5	45	4	2	1
MP2MBR0100	●	1	2	6	50	4	2	1
MP2MBR0125	●	1.25	2.5	6	50	4	2	1
MP2MBR0150S03	●	1.5	3	8	70	3	2	2
MP2MBR0150	●	1.5	3	8	70	6	2	1
MP2MBR0175	●	1.75	3.5	8	70	6	2	1
MP2MBR0200S04	●	2	4	8	70	4	2	2
MP2MBR0200	●	2	4	8	70	6	2	1
MP2MBR0250	●	2.5	5	12	80	6	2	1
MP2MBR0300	●	3	6	12	80	6	2	2
MP2MBR0400	●	4	8	14	90	8	2	2
MP2MBR0500	●	5	10	18	100	10	2	2
MP2MBR0600	●	6	12	22	110	12	2	2

MP2MB

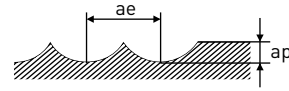
ÖNERİLEN KESME KOŞULLARI

3D FREZELEME

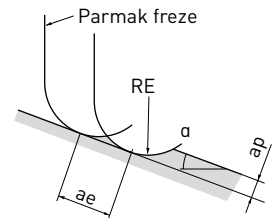
Malzeme	RE	$\alpha < 15^\circ$		$\alpha > 15^\circ$		ap	ae
		n	Vf	n	Vf		
P Yumuşak Çelik, Karbon çeliği, Alaşımlı çelik, Ön-sertleştirilmiş çelik, Sertleştirilmiş çelik (- 45 HRC)	R 0.1	40000	300	40000	250	0.003	0.02
	R 0.15	40000	500	40000	350	0.007	0.03
	R 0.2	40000	1600	40000	1200	0.02	0.04
	R 0.25	40000	2400	40000	1400	0.025	0.05
	R 0.3	40000	3200	40000	1600	0.03	0.06
	R 0.4	40000	4800	40000	2400	0.05	0.08
	R 0.5	40000	5600	40000	3200	0.06	0.1
	R 0.75	40000	6500	40000	4000	0.09	0.15
	R 1	40000	6500	39000	4700	0.11	0.2
	R 1.25	40000	7000	33000	4500	0.12	0.25
	R 1.5	40000	7500	27000	4300	0.13	0.3
	R 2	32000	7500	20000	3600	0.15	0.4
	R 2.5	25000	6000	16000	2900	0.2	0.5
	R 3	21000	5800	13000	2600	0.25	0.6
	R 4	16000	4500	10000	2000	0.3	0.8
	R 5	13000	3600	8000	1700	0.5	1.0
	R 6	9000	2500	6000	1300	0.5	1.2
	M Ostenitik paslanmaz çelik, Titanium alaşımları	R 0.1	40000	300	40000	250	0.003
R 0.15		40000	500	40000	350	0.007	0.03
R 0.2		40000	1500	40000	1000	0.02	0.04
R 0.25		40000	2100	40000	1200	0.025	0.05
R 0.3		40000	2800	40000	1400	0.03	0.06
R 0.4		40000	4600	40000	2100	0.05	0.08
R 0.5		40000	5600	40000	3400	0.06	0.1
R 0.75		40000	6500	36000	3600	0.09	0.15
R 1		40000	6500	35000	4000	0.11	0.2
R 1.25		40000	7400	29000	4000	0.12	0.25
R 1.5		36000	6900	24000	3900	0.13	0.3
R 2		28000	6900	18000	3100	0.15	0.4
R 2.5		22000	6200	14000	2600	0.2	0.5
R 3		18000	5400	11000	2300	0.25	0.6
R 4		14000	4100	9000	1700	0.3	0.8
R 5		11000	3300	7200	1300	0.5	1.0
R 6		8100	2300	5400	1100	0.5	1.2

MP2MB

Malzeme	RE	$\alpha < 15^\circ$		$\alpha > 15^\circ$		ap	ae
		n	Vf	n	Vf		
N Bakır, Bakır alaşımları	R 0.1	40000	300	40000	250	0.003	0.02
	R 0.15	40000	500	40000	350	0.007	0.03
	R 0.2	40000	1300	40000	950	0.015	0.04
	R 0.25	40000	1900	40000	1100	0.02	0.05
	R 0.3	40000	2500	40000	1300	0.025	0.06
	R 0.4	40000	4000	40000	1900	0.04	0.08
	R 0.5	40000	5600	40000	3000	0.05	0.1
	R 0.75	40000	6500	32000	3200	0.08	0.15
	R 1	40000	6500	31000	3500	0.11	0.2
	R 1.25	36000	6500	26000	3500	0.12	0.25
	R 1.5	32000	6000	22000	3400	0.13	0.3
	R 2	25000	6000	16000	2700	0.15	0.6
	R 2.5	20000	5400	13000	2300	0.2	0.75
	R 3	17000	4700	10000	2000	0.25	0.9
	R 4	13000	3600	8000	1500	0.3	1.6
	R 5	10000	2900	6400	1200	0.5	2.0
	R 6	8500	2300	5300	1100	0.5	2.4
H Sertleştirilmiş çelik (45-55 HRC)	R 0.1	40000	300	40000	250	0.003	0.02
	R 0.15	40000	500	40000	350	0.007	0.03
	R 0.2	40000	1300	40000	950	0.015	0.04
	R 0.25	40000	1900	40000	1100	0.02	0.05
	R 0.3	40000	2500	40000	1300	0.025	0.06
	R 0.4	40000	4000	40000	1900	0.04	0.08
	R 0.5	40000	5600	40000	3000	0.05	0.1
	R 0.75	40000	6500	32000	3200	0.08	0.15
	R 1	40000	6500	31000	3500	0.11	0.2
	R 1.25	36000	6500	26000	3500	0.12	0.25
	R 1.5	32000	6000	22000	3400	0.13	0.3
	R 2	25000	6000	16000	2700	0.15	0.4
	R 2.5	20000	5400	13000	2300	0.2	0.5
	R 3	17000	4700	10000	2000	0.25	0.6
	R 4	13000	3600	8000	1500	0.3	0.8
	R 5	10000	2900	6400	1200	0.5	1.0
	R 6	7200	2000	4800	1000	0.5	1.2



1. α işlenen yüzeyin eğim açısıdır.
2. Kesme derinliği düşükse, devir ve ilerleme hızı arttırılabilir.
3. Makinenin veya çalışma parçasının rijitliği çok düşükse veya gürültülü çalışma ve vuruntu oluyorsa, devri ve ilerleme hızını orantısal olarak düşürün.
4. Ostenitik paslanmaz çelik ve titanyum alaşımları için kesme koşullarını uygularken, lütfen devri %60'a ve ilerleme hızını %45'e düşürün.



MP2SDB



KÜRE UÇLU, KESME BOYU KISA, 2 HELİS KANALI, YÜKSEK MUKAVEMETLİ

P

H



$0.1 < RE < 6$

± 0.01



$4 < DCON < 6$ DCON=8

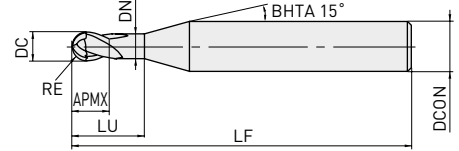
0 0
-0.005 -0.006



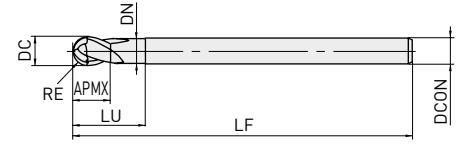
DCON=10 DCON=12

0 0
-0.009 -0.011

1



2



- S kavisli güçlü kesme kenarı sayesinde mükemmel kenar ufalanma direnci.
- Dövme kalıplarının yarı-finiş operasyonları için idealdir.

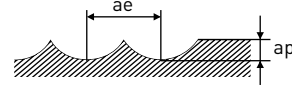
Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	LF	DCON	ZEFP	Tip
MP2SDBR0050	●	0.5	1	1	2	0.96	50	4	2	1
MP2SDBR0075S06	●	0.75	1.5	1.5	3	1.46	50	6	2	1
MP2SDBR0100	●	1	2	2	4	1.90	50	4	2	1
MP2SDBR0100S06	●	1	2	2	4	1.90	60	6	2	1
MP2SDBR0150	●	1.5	3	3	6	2.90	70	4	2	1
MP2SDBR0200	●	2	4	4	8	3.90	60	4	2	2
MP2SDBR0200S06	●	2	4	4	8	3.90	70	6	2	1
MP2SDBR0250	●	2.5	5	5	10	4.90	80	6	2	1
MP2SDBR0300	●	3	6	12	18	5.85	80	6	2	2
MP2SDBR0300A120	●	3	6	12	18	5.85	120	6	2	2
MP2SDBR0400	●	4	8	14	24	7.85	90	8	2	2
MP2SDBR0400A130	●	4	8	14	24	7.85	130	8	2	2
MP2SDBR0500	●	5	10	18	30	9.70	100	10	2	2
MP2SDBR0500A140	●	5	10	18	30	9.70	140	10	2	2
MP2SDBR0600	●	6	12	22	36	11.70	110	12	2	2
MP2SDBR0600A140	●	6	12	22	36	11.70	140	12	2	2

MP2SDB

ÖNERİLEN KESME KOŞULLARI

TAKIM SERBEST BOYU 5D ALTINDAKİ UYGULAMALAR İÇİN(D:ÇAP)

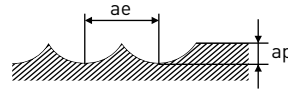
Malzeme	RE	$\alpha < 15^\circ$		$\alpha > 15^\circ$		ap	ae
		n	Vf	n	Vf		
P Karbon çeliği, Alaşımli çelik, Alaşımli takım çeliği, Takım çeliği, Ön-sertleştirilmiş çelik	R 0.5	40000	3900	36000	2100	0.1	0.25
	R 0.75	40000	4200	36000	2600	0.15	0.35
	R 1	40000	4500	36000	3100	0.2	0.5
	R 1.5	37000	5300	24000	2700	0.3	0.75
	R 2x4	24000	3200	15000	2000	0.25	0.7
	R 2	30000	4900	19000	2500	0.4	1
	R 2.5	25000	4500	16000	2300	0.5	1.3
	R 3	22000	4300	14000	2200	0.6	1.8
	R 4	19000	3900	12000	2000	0.8	2.4
	R 5	15000	3300	9500	1800	1	3
	R 6	12000	2550	8000	1600	1.2	3.6
	H Sertleştirilmiş çelik (45-55 HRC)	R 0.5	40000	4300	36000	2200	0.1
R 0.75		40000	4700	36000	2700	0.15	0.35
R 1		40000	5000	36000	3300	0.2	0.5
R 1.5		37000	5800	24000	2800	0.3	0.75
R 2x4		19000	2800	13000	1600	0.25	0.7
R 2		28000	5000	19000	2400	0.4	1
R 2.5		22000	4200	16000	2200	0.5	1.25
R 3		18000	3800	12000	1800	0.6	1.5
R 4		15000	3200	9500	1600	0.8	2
R 5		11000	2500	7000	1400	1	2.5
R 6		9000	2000	6000	1300	1.2	3



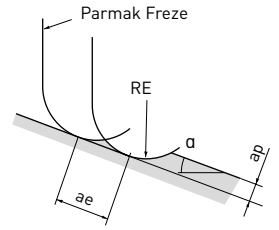
MP2SDB

TAKIM SERBEST BOYU 7D ALTINDAKİ UYGULAMALAR İÇİN (D:ÇAP.)

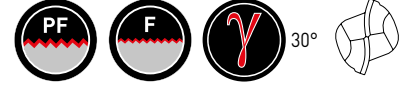
Malzeme	RE	$\alpha < 15^\circ$		$\alpha > 15^\circ$		ap	ae
		n	Vf	n	Vf		
P Karbon çeliği, Alaşımli çelik, Alaşımli takım çeliği, Takım çeliği, Ön-sertleştirilmiş çelik	R 3	10000	1500	6900	1000	0.2	1
	R 4	8000	1400	5600	900	0.3	1.5
	R 5	6000	1200	4100	740	0.4	2
	R 6	5000	1000	3400	600	0.45	2.4
H Sertleştirilmiş çelik (45-55 HRC)	R 3	8000	1400	5300	770	0.2	0.8
	R 4	6400	1300	4000	650	0.3	1.2
	R 5	4800	1100	3200	580	0.4	1.6
	R 6	4000	900	2700	490	0.45	2



1. α işlenen yüzeyin eğimidir.
2. Kesme derinliği bu tabloda verilenden düşükse ilerleme hızı artırılabilir.
3. Makinenin veya çalışma parçasının rijitliği çok düşükse veya gürültülü çalışma ve vuruntu oluyorsa, devri ve ilerleme hızını orantısız olarak düşürün.



MP2XLB

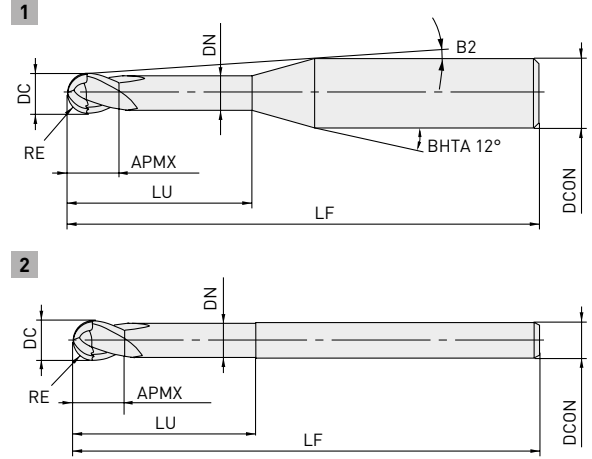


KÜRE UÇLU, KESME BOYU KISA 2 HELİS KANALLI, UZUN BOYUNLU

P N H



	0.05<RE<3
	±0.005
	4<DCON<6
	0
	-0.005



- 2 helisli, uzun boyunlu küre uçlu parmak freze. Karbon çeliği, alaşımlı çelik ve sertleştirilmiş çelik gibi geniş bir alanı kapsayan malzemeler için mükemmel performans.

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	B2	LF	DCON	ZEPF	Tip	Eğim açısı için etkin uzunluk			
												30°	1°	2°	3°
MP2XLB0005N003	●	0.05	0.1	0.08	0.3	0.085	11.6°	50	4	2	1	0.3	0.3	0.4	0.4
MP2XLB0005N005	●	0.05	0.1	0.08	0.5	0.085	11.4°	50	4	2	1	0.5	0.5	0.6	0.7
MP2XLB0010N005	●	0.1	0.2	0.15	0.5	0.18	11.5°	50	4	2	1	0.5	0.5	0.6	0.7
MP2XLB0010N008	●	0.1	0.2	0.15	0.75	0.18	11.2°	50	4	2	1	0.8	0.8	0.9	1.0
MP2XLB0010N010	●	0.1	0.2	0.15	1	0.18	10.9°	50	4	2	1	1.0	1.1	1.2	1.3
MP2XLB0010N013	●	0.1	0.2	0.15	1.25	0.18	10.6°	50	4	2	1	1.3	1.4	1.5	1.7
MP2XLB0010N015	●	0.1	0.2	0.15	1.5	0.18	10.4°	50	4	2	1	1.6	1.6	1.8	2.0
MP2XLB0010N018	●	0.1	0.2	0.15	1.75	0.18	10.2°	50	4	2	1	1.8	1.9	2.1	2.3
MP2XLB0010N020	●	0.1	0.2	0.15	2	0.18	9.9°	50	4	2	1	2.1	2.2	2.4	2.6
MP2XLB0010N025	●	0.1	0.2	0.15	2.5	0.18	9.5°	50	4	2	1	2.6	2.7	3.0	3.3
MP2XLB0015N005	●	0.15	0.3	0.24	0.5	0.28	11.5°	50	4	2	1	0.5	0.5	0.6	0.6
MP2XLB0015N008	●	0.15	0.3	0.24	0.75	0.28	11.2°	50	4	2	1	0.8	0.8	0.9	1.0
MP2XLB0015N010	●	0.15	0.3	0.24	1	0.28	10.9°	50	4	2	1	1.0	1.1	1.2	1.3
MP2XLB0015N010S06	●	0.15	0.3	0.24	1	0.28	11.3°	50	6	2	1	1.0	1.1	1.2	1.3
MP2XLB0015N013	●	0.15	0.3	0.24	1.25	0.28	10.7°	50	4	2	1	1.3	1.4	1.5	1.6
MP2XLB0015N013S06	●	0.15	0.3	0.24	1.25	0.28	11.1°	50	6	2	1	1.3	1.4	1.5	1.6
MP2XLB0015N015	●	0.15	0.3	0.24	1.5	0.28	10.4°	50	4	2	1	1.6	1.6	1.8	2.0
MP2XLB0015N015S06	●	0.15	0.3	0.24	1.5	0.28	10.9°	50	6	2	1	1.6	1.6	1.8	2.0
MP2XLB0015N018	●	0.15	0.3	0.24	1.75	0.28	10.2°	50	4	2	1	1.8	1.9	2.1	2.3
MP2XLB0015N020	●	0.15	0.3	0.24	2	0.28	9.9°	50	4	2	1	2.1	2.2	2.4	2.6
MP2XLB0015N025	●	0.15	0.3	0.24	2.5	0.28	9.5°	50	4	2	1	2.6	2.7	3.0	3.3
MP2XLB0015N030	●	0.15	0.3	0.24	3	0.28	9.1°	50	4	2	1	3.1	3.3	3.6	4.0
MP2XLB0015N035	●	0.15	0.3	0.24	3.5	0.28	8.7°	50	4	2	1	3.7	3.8	4.2	4.6
MP2XLB0015N040	●	0.15	0.3	0.24	4	0.28	8.4°	50	4	2	1	4.2	4.4	4.8	5.3
MP2XLB0020N005	●	0.2	0.4	0.3	0.5	0.37	11.6°	50	4	2	1	0.5	0.5	0.5	0.6
MP2XLB0020N008	●	0.2	0.4	0.3	0.75	0.37	11.3°	50	4	2	1	0.7	0.8	0.9	0.9

● : Avrupa da standart stok. ★ : Japonya da standart stok.

MP2XLB

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	B2	LF	DCON	ZEFP	TİP	Eğim açısı için etkin uzunluk			
												30°	1°	2°	3°
MP2XLB0020N010	●	0.2	0.4	0.3	1	0.37	11°	50	4	2	1	1.0	1.1	1.2	1.3
MP2XLB0020N010S06	●	0.2	0.4	0.3	1	0.37	11.3°	50	6	2	1	1.0	1.1	1.2	1.3
MP2XLB0020N015	●	0.2	0.4	0.3	1.5	0.37	10.4°	50	4	2	1	1.5	1.6	1.7	1.9
MP2XLB0020N020	●	0.2	0.4	0.3	2	0.37	9.9°	50	4	2	1	2.1	2.2	2.3	2.6
MP2XLB0020N020S06	●	0.2	0.4	0.3	2	0.37	10.6°	50	6	2	1	2.1	2.2	2.3	2.6
MP2XLB0020N025	●	0.2	0.4	0.3	2.5	0.37	9.5°	50	4	2	1	2.6	2.7	2.9	3.3
MP2XLB0020N030	●	0.2	0.4	0.3	3	0.37	9.1°	50	4	2	1	3.1	3.2	3.5	3.9
MP2XLB0020N035	●	0.2	0.4	0.3	3.5	0.37	8.7°	50	4	2	1	3.6	3.8	4.1	4.6
MP2XLB0020N040	●	0.2	0.4	0.3	4	0.37	8.4°	50	4	2	1	4.2	4.3	4.7	5.2
MP2XLB0020N045	●	0.2	0.4	0.3	4.5	0.37	8°	50	4	2	1	4.7	4.9	5.3	5.9
MP2XLB0020N050	●	0.2	0.4	0.3	5	0.37	7.7°	50	4	2	1	5.2	5.4	5.9	6.6
MP2XLB0020N055	●	0.2	0.4	0.3	5.5	0.37	7.5°	50	4	2	1	5.7	6.0	6.5	7.2
MP2XLB0020N060	●	0.2	0.4	0.3	6	0.37	7.2°	50	4	2	1	6.2	6.5	7.1	7.9
MP2XLB0025N010	●	0.25	0.5	0.37	1	0.47	11°	50	4	2	1	1.0	1.0	1.1	1.2
MP2XLB0025N015	●	0.25	0.5	0.37	1.5	0.47	10.4°	50	4	2	1	1.5	1.6	1.7	1.9
MP2XLB0025N015S06	●	0.25	0.5	0.37	1.5	0.47	11°	50	6	2	1	1.5	1.6	1.7	1.9
MP2XLB0025N020	●	0.25	0.5	0.37	2	0.47	9.9°	50	4	2	1	2.1	2.1	2.3	2.6
MP2XLB0025N020S06	●	0.25	0.5	0.37	2	0.47	10.6°	50	6	2	1	2.1	2.1	2.3	2.6
MP2XLB0025N025	●	0.25	0.5	0.37	2.5	0.47	9.5°	50	4	2	1	2.6	2.7	2.9	3.2
MP2XLB0025N025S06	●	0.25	0.5	0.37	2.5	0.47	10.3°	50	6	2	1	2.6	2.7	2.9	3.2
MP2XLB0025N030	●	0.25	0.5	0.37	3	0.47	9.1°	50	4	2	1	3.1	3.2	3.5	3.9
MP2XLB0025N030S06	●	0.25	0.5	0.37	3	0.47	10°	50	6	2	1	3.1	3.2	3.5	3.9
MP2XLB0025N035	●	0.25	0.5	0.37	3.5	0.47	8.7°	50	4	2	1	3.6	3.8	4.1	4.6
MP2XLB0025N040	●	0.25	0.5	0.37	4	0.47	8.3°	50	4	2	1	4.1	4.3	4.7	5.2
MP2XLB0025N045	●	0.25	0.5	0.37	4.5	0.47	8°	50	4	2	1	4.7	4.9	5.3	5.9
MP2XLB0025N050	●	0.25	0.5	0.37	5	0.47	7.7°	50	4	2	1	5.2	5.4	5.9	6.6
MP2XLB0025N055	●	0.25	0.5	0.37	5.5	0.47	7.4°	50	4	2	1	5.7	6.0	6.5	7.2
MP2XLB0025N060	●	0.25	0.5	0.37	6	0.47	7.2°	50	4	2	1	6.2	6.5	7.1	7.9
MP2XLB0025N070	●	0.25	0.5	0.37	7	0.47	6.7°	50	4	2	1	7.3	7.6	8.3	9.2
MP2XLB0025N080	●	0.25	0.5	0.37	8	0.47	6.3°	50	4	2	1	8.3	8.7	9.5	10.5
MP2XLB0025N090	●	0.25	0.5	0.37	9	0.47	5.9°	50	4	2	1	9.4	9.8	10.7	11.9
MP2XLB0025N100	●	0.25	0.5	0.37	10	0.47	5.6°	50	4	2	1	10.4	10.9	11.9	13.2
MP2XLB0030N015	●	0.3	0.6	0.45	1.5	0.57	10.4°	50	4	2	1	1.5	1.6	1.8	2.0
MP2XLB0030N015S06	●	0.3	0.6	0.45	1.5	0.57	11°	50	6	2	1	1.5	1.6	1.8	2.0
MP2XLB0030N020	●	0.3	0.6	0.45	2	0.57	9.9°	50	4	2	1	2.1	2.2	2.4	2.6
MP2XLB0030N020S06	●	0.3	0.6	0.45	2	0.57	10.6°	50	6	2	1	2.1	2.2	2.4	2.6
MP2XLB0030N025	●	0.3	0.6	0.45	2.5	0.57	9.4°	50	4	2	1	2.6	2.7	3.0	3.3
MP2XLB0030N030	●	0.3	0.6	0.45	3	0.57	9°	50	4	2	1	3.1	3.3	3.6	4.0
MP2XLB0030N030S06	●	0.3	0.6	0.45	3	0.57	9.9°	50	6	2	1	3.1	3.3	3.6	4.0
MP2XLB0030N035	●	0.3	0.6	0.45	3.5	0.57	8.6°	50	4	2	1	3.7	3.8	4.2	4.6
MP2XLB0030N040	●	0.3	0.6	0.45	4	0.57	8.2°	50	4	2	1	4.2	4.4	4.8	5.3
MP2XLB0030N040S06	●	0.3	0.6	0.45	4	0.57	9.3°	50	6	2	1	4.2	4.4	4.8	5.3
MP2XLB0030N045	●	0.3	0.6	0.45	4.5	0.57	7.9°	50	4	2	1	4.7	4.9	5.4	5.9
MP2XLB0030N050	●	0.3	0.6	0.45	5	0.57	7.6°	50	4	2	1	5.2	5.5	6.0	6.6
MP2XLB0030N050S06	●	0.3	0.6	0.45	5	0.57	8.8°	50	6	2	1	5.2	5.5	6.0	6.6
MP2XLB0030N055	●	0.3	0.6	0.45	5.5	0.57	7.3°	50	4	2	1	5.8	6.0	6.6	7.3
MP2XLB0030N060	●	0.3	0.6	0.45	6	0.57	7.1°	50	4	2	1	6.3	6.6	7.2	7.9
MP2XLB0030N060S06	●	0.3	0.6	0.45	6	0.57	8.3°	50	6	2	1	6.3	6.6	7.2	7.9

MP2XLB

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	B2	LF	DCON	ZEFP	Tip	Eğim açısı için etkin uzunluk			
												30°	1°	2°	3°
MP2XLB0030N065	●	0.3	0.6	0.45	6.5	0.57	6.8°	50	4	2	1	6.8	7.1	7.8	8.6
MP2XLB0030N070	●	0.3	0.6	0.45	7	0.57	6.6°	50	4	2	1	7.3	7.6	8.4	9.3
MP2XLB0030N080	●	0.3	0.6	0.45	8	0.57	6.2°	50	4	2	1	8.4	8.7	9.6	10.6
MP2XLB0030N080S06	●	0.3	0.6	0.45	8	0.57	7.6°	50	6	2	1	8.4	8.7	9.6	10.6
MP2XLB0030N085	●	0.3	0.6	0.45	8.5	0.57	6°	50	4	2	1	8.9	9.3	10.2	11.3
MP2XLB0030N090	●	0.3	0.6	0.45	9	0.57	5.8°	50	4	2	1	9.4	9.8	10.8	11.9
MP2XLB0030N095	●	0.3	0.6	0.45	9.5	0.57	5.7°	50	4	2	1	9.9	10.4	11.4	12.6
MP2XLB0030N100	●	0.3	0.6	0.45	10	0.57	5.5°	50	4	2	1	10.5	10.9	12.0	13.2
MP2XLB0030N110	●	0.3	0.6	0.45	11	0.57	5.2°	50	4	2	1	11.5	12.0	13.2	14.6
MP2XLB0030N120	●	0.3	0.6	0.45	12	0.57	5°	50	4	2	1	12.5	13.1	14.4	15.9
MP2XLB0040N020	●	0.4	0.8	0.6	2	0.77	9.9°	50	4	2	1	2.1	2.2	2.4	2.6
MP2XLB0040N020S06	●	0.4	0.8	0.6	2	0.77	10.6°	50	6	2	1	2.1	2.2	2.4	2.6
MP2XLB0040N024S06	●	0.4	0.8	0.6	2.4	0.77	10.3°	50	6	2	1	2.5	2.6	2.8	3.1
MP2XLB0040N030	●	0.4	0.8	0.6	3	0.77	8.9°	50	4	2	1	3.1	3.3	3.6	3.9
MP2XLB0040N030S06	●	0.4	0.8	0.6	3	0.77	9.9°	50	6	2	1	3.1	3.3	3.6	3.9
MP2XLB0040N040	●	0.4	0.8	0.6	4	0.77	8.2°	50	4	2	1	4.2	4.4	4.8	5.2
MP2XLB0040N040S06	●	0.4	0.8	0.6	4	0.77	9.3°	50	6	2	1	4.2	4.4	4.8	5.2
MP2XLB0040N050	●	0.4	0.8	0.6	5	0.77	7.5°	50	4	2	1	5.2	5.5	6.0	6.6
MP2XLB0040N060	●	0.4	0.8	0.6	6	0.77	6.9°	50	4	2	1	6.3	6.5	7.2	7.9
MP2XLB0040N070	●	0.4	0.8	0.6	7	0.77	6.5°	50	4	2	1	7.3	7.6	8.4	9.2
MP2XLB0040N080	●	0.4	0.8	0.6	8	0.77	6°	50	4	2	1	8.4	8.7	9.5	10.6
MP2XLB0040N090	●	0.4	0.8	0.6	9	0.77	5.7°	50	4	2	1	9.4	9.8	10.7	11.9
MP2XLB0040N100	●	0.4	0.8	0.6	10	0.77	5.4°	50	4	2	1	10.5	10.9	11.9	13.2
MP2XLB0040N120	●	0.4	0.8	0.6	12	0.77	4.8°	50	4	2	1	12.5	13.1	14.3	15.9
MP2XLB0050N030	●	0.5	1	0.75	3	0.96	8.7°	50	4	2	1	3.2	3.4	3.7	4.1
MP2XLB0050N030S06	●	0.5	1	0.75	3	0.96	9.8°	50	6	2	1	3.2	3.4	3.7	4.1
MP2XLB0050N040	●	0.5	1	0.75	4	0.96	7.9°	50	4	2	1	4.3	4.5	4.9	5.4
MP2XLB0050N040S06	●	0.5	1	0.75	4	0.96	9.2°	50	6	2	1	4.3	4.5	4.9	5.4
MP2XLB0050N050	●	0.5	1	0.75	5	0.96	7.3°	50	4	2	1	5.3	5.6	6.1	6.7
MP2XLB0050N050S06	●	0.5	1	0.75	5	0.96	8.6°	50	6	2	1	5.3	5.6	6.1	6.7
MP2XLB0050N060	●	0.5	1	0.75	6	0.96	6.7°	50	4	2	1	6.4	6.7	7.3	8.1
MP2XLB0050N060S06	●	0.5	1	0.75	6	0.96	8.2°	50	6	2	1	6.4	6.7	7.3	8.1
MP2XLB0050N070	●	0.5	1	0.75	7	0.96	6.2°	50	4	2	1	7.4	7.8	8.5	9.4
MP2XLB0050N080	●	0.5	1	0.75	8	0.96	5.8°	50	4	2	1	8.5	8.9	9.7	10.7
MP2XLB0050N080S06	●	0.5	1	0.75	8	0.96	7.3°	50	6	2	1	8.5	8.9	9.7	10.7
MP2XLB0050N090	●	0.5	1	0.75	9	0.96	5.5°	50	4	2	1	9.5	10.0	10.9	12.0
MP2XLB0050N100	●	0.5	1	0.75	10	0.96	5.1°	50	4	2	1	10.6	11.1	12.1	13.4
MP2XLB0050N100S06	●	0.5	1	0.75	10	0.96	6.7°	60	6	2	1	10.6	11.1	12.1	13.4
MP2XLB0050N120	●	0.5	1	0.75	12	0.96	4.6°	50	4	2	1	12.7	13.2	14.5	16.0
MP2XLB0050N120S06	●	0.5	1	0.75	12	0.96	6.1°	60	6	2	1	12.7	13.2	14.5	16.0
MP2XLB0050N140	●	0.5	1	0.75	14	0.96	4.2°	55	4	2	1	14.8	15.4	16.9	18.7
MP2XLB0050N160	●	0.5	1	0.75	16	0.96	3.8°	55	4	2	1	16.9	17.6	19.3	21.3
MP2XLB0050N160S06	●	0.5	1	0.75	16	0.96	5.2°	65	6	2	1	16.9	17.6	19.3	21.3

MP2XLB

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	B2	LF	DCON	ZEFP	TİP	Eğim açısı için etkin uzunluk			
												30°	1°	2°	3°
MP2XLB0050N180	●	0.5	1	0.75	18	0.96	3.5°	55	4	2	1	18.9	19.8	21.7	24.0
MP2XLB0050N200	●	0.5	1	0.75	20	0.96	3.3°	55	4	2	1	21.0	22.0	24.1	26.6
MP2XLB0050N200S06	●	0.5	1	0.75	20	0.96	4.6°	65	6	2	1	21.0	22.0	24.1	26.6
MP2XLB0060N060	●	0.6	1.2	0.9	6	1.16	6.6°	50	4	2	1	6.4	6.7	7.3	8.0
MP2XLB0060N060S06	●	0.6	1.2	0.9	6	1.16	8.1°	55	6	2	1	6.4	6.7	7.3	8.0
MP2XLB0060N080	●	0.6	1.2	0.9	8	1.16	5.7°	50	4	2	1	8.5	8.9	9.7	10.7
MP2XLB0060N080S06	●	0.6	1.2	0.9	8	1.16	7.3°	55	6	2	1	8.5	8.9	9.7	10.7
MP2XLB0060N100	●	0.6	1.2	0.9	10	1.16	5°	50	4	2	1	10.6	11.0	12.1	13.3
MP2XLB0060N100S06	●	0.6	1.2	0.9	10	1.16	6.6°	55	6	2	1	10.6	11.0	12.1	13.3
MP2XLB0060N120	●	0.6	1.2	0.9	12	1.16	4.4°	50	4	2	1	12.7	13.2	14.5	16.0
MP2XLB0060N120S06	●	0.6	1.2	0.9	12	1.16	6°	65	6	2	1	12.7	13.2	14.5	16.0
MP2XLB0060N140	●	0.6	1.2	0.9	14	1.16	4°	55	4	2	1	14.8	15.4	16.9	18.7
MP2XLB0060N160	●	0.6	1.2	0.9	16	1.16	3.7°	55	4	2	1	16.9	17.6	19.3	21.3
MP2XLB0060N160S06	●	0.6	1.2	0.9	16	1.16	5.1°	65	6	2	1	16.9	17.6	19.3	21.3
MP2XLB0060N180	●	0.6	1.2	0.9	18	1.16	3.4°	60	4	2	1	18.9	19.8	21.7	24.0
MP2XLB0060N200	●	0.6	1.2	0.9	20	1.16	3.1°	60	4	2	1	21.0	21.9	24.0	26.6
MP2XLB0060N240	●	0.6	1.2	0.9	24	1.16	2.7°	60	4	2	1	25.2	26.3	28.8	*
MP2XLB0070N080	●	0.7	1.4	1.05	8	1.34	5.5°	50	4	2	1	8.4	8.8	9.6	10.6
MP2XLB0070N120	●	0.7	1.4	1.05	12	1.34	4.3°	50	4	2	1	12.6	13.1	14.4	15.9
MP2XLB0070N160	●	0.7	1.4	1.05	16	1.34	3.5°	50	4	2	1	16.8	17.5	19.2	21.2
MP2XLB0075N030	●	0.75	1.5	1.1	3	1.44	8.6°	50	4	2	1	3.1	3.3	3.6	3.9
MP2XLB0075N040	●	0.75	1.5	1.1	4	1.44	7.7°	50	4	2	1	4.2	4.4	4.8	5.2
MP2XLB0075N060	●	0.75	1.5	1.1	6	1.44	6.3°	50	4	2	1	6.3	6.6	7.2	7.9
MP2XLB0075N060S06	●	0.75	1.5	1.1	6	1.44	8°	50	6	2	1	6.3	6.6	7.2	7.9
MP2XLB0075N080	●	0.75	1.5	1.1	8	1.44	5.4°	50	4	2	1	8.4	8.8	9.6	10.6
MP2XLB0075N080S06	●	0.75	1.5	1.1	8	1.44	7.2°	60	6	2	1	8.4	8.8	9.6	10.6
MP2XLB0075N100	●	0.75	1.5	1.1	10	1.44	4.7°	50	4	2	1	10.5	11.0	12.0	13.2
MP2XLB0075N100S06	●	0.75	1.5	1.1	10	1.44	6.5°	60	6	2	1	10.5	11.0	12.0	13.2
MP2XLB0075N120	●	0.75	1.5	1.1	12	1.44	4.2°	50	4	2	1	12.6	13.1	14.4	15.9
MP2XLB0075N120S06	●	0.75	1.5	1.1	12	1.44	5.9°	60	6	2	1	12.6	13.1	14.4	15.9
MP2XLB0075N140	●	0.75	1.5	1.1	14	1.44	3.8°	55	4	2	1	14.7	15.3	16.8	18.5
MP2XLB0075N160	●	0.75	1.5	1.1	16	1.44	3.4°	55	4	2	1	16.8	17.5	19.2	21.2
MP2XLB0075N160S06	●	0.75	1.5	1.1	16	1.44	5°	60	6	2	1	16.8	17.5	19.2	21.2
MP2XLB0075N180	●	0.75	1.5	1.1	18	1.44	3.1°	60	4	2	1	18.9	19.7	21.6	23.8
MP2XLB0075N200	●	0.75	1.5	1.1	20	1.44	2.9°	60	4	2	1	21.0	21.9	23.9	*
MP2XLB0075N220	●	0.75	1.5	1.1	22	1.44	2.7°	60	4	2	1	23.0	24.0	26.3	*
MP2XLB0080N080	●	0.8	1.6	1.2	8	1.54	5.3°	55	4	2	1	8.4	8.8	9.6	10.5
MP2XLB0080N120	●	0.8	1.6	1.2	12	1.54	4.1°	55	4	2	1	12.6	13.1	14.4	15.9
MP2XLB0080N160	●	0.8	1.6	1.2	16	1.54	3.3°	55	4	2	1	16.8	17.5	19.1	21.2
MP2XLB0080N200	●	0.8	1.6	1.2	20	1.54	2.8°	55	4	2	1	21.0	21.9	23.9	*
MP2XLB0090N080	●	0.9	1.8	1.4	8	1.74	5.1°	55	4	2	1	8.4	8.8	9.6	10.5
MP2XLB0090N120	●	0.9	1.8	1.4	12	1.74	3.9°	55	4	2	1	12.6	13.1	14.3	15.8
MP2XLB0090N160	●	0.9	1.8	1.4	16	1.74	3.1°	55	4	2	1	16.8	17.5	19.1	21.1
MP2XLB0090N200	●	0.9	1.8	1.4	20	1.74	2.6°	55	4	2	1	20.9	21.8	23.9	*
MP2XLB0100N040	●	1	2	1.5	4	1.94	7.2°	50	4	2	1	4.2	4.4	4.7	5.2
MP2XLB0100N040S06	●	1	2	1.5	4	1.94	9°	50	6	2	1	4.2	4.4	4.7	5.2
MP2XLB0100N060	●	1	2	1.5	6	1.94	5.8°	50	4	2	1	6.3	6.6	7.1	7.8
MP2XLB0100N060S06	●	1	2	1.5	6	1.94	7.8°	50	6	2	1	6.3	6.6	7.1	7.8

* Temas yok

MP2XLB

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	B2	LF	DCON	ZEFP	TİP	Eğim açısı için etkin uzunluk			
												30°	1°	2°	3°
MP2XLB0100N080	●	1	2	1.5	8	1.94	4.8°	50	4	2	1	8.4	8.8	9.5	10.5
MP2XLB0100N080S06	●	1	2	1.5	8	1.94	6.9°	50	6	2	1	8.4	8.8	9.5	10.5
MP2XLB0100N100	●	1	2	1.5	10	1.94	4.2°	50	4	2	1	10.5	10.9	11.9	13.1
MP2XLB0100N100S06	●	1	2	1.5	10	1.94	6.2°	50	6	2	1	10.5	10.9	11.9	13.1
MP2XLB0100N120	●	1	2	1.5	12	1.94	3.6°	50	4	2	1	12.6	13.1	14.3	15.8
MP2XLB0100N120S06	●	1	2	1.5	12	1.94	5.6°	60	6	2	1	12.6	13.1	14.3	15.8
MP2XLB0100N140	●	1	2	1.5	14	1.94	3.2°	55	4	2	1	14.7	15.3	16.7	18.4
MP2XLB0100N140S06	●	1	2	1.5	14	1.94	5.1°	60	6	2	1	14.7	15.3	16.7	18.4
MP2XLB0100N160	●	1	2	1.5	16	1.94	2.9°	55	4	2	1	16.8	17.5	19.1	*
MP2XLB0100N160S06	●	1	2	1.5	16	1.94	4.7°	65	6	2	1	16.8	17.5	19.1	21.1
MP2XLB0100N180	●	1	2	1.5	18	1.94	2.7°	55	4	2	1	18.9	19.7	21.5	*
MP2XLB0100N180S06	●	1	2	1.5	18	1.94	4.3°	65	6	2	1	18.9	19.7	21.5	23.8
MP2XLB0100N200	●	1	2	1.5	20	1.94	2.4°	65	4	2	1	20.9	21.8	23.9	*
MP2XLB0100N200S06	●	1	2	1.5	20	1.94	4°	65	6	2	1	20.9	21.8	23.9	26.4
MP2XLB0100N220	●	1	2	1.5	22	1.94	2.3°	65	4	2	1	23.0	24.0	26.3	*
MP2XLB0100N250	●	1	2	1.5	25	1.94	2°	65	4	2	1	26.2	27.3	*	*
MP2XLB0100N250S06	●	1	2	1.5	25	1.94	3.5°	90	6	2	1	26.2	27.3	29.9	33
MP2XLB0100N300	●	1	2	1.5	30	1.94	1.7°	80	4	2	1	31.4	32.7	*	*
MP2XLB0100N300S06	●	1	2	1.5	30	1.94	3°	90	6	2	1	31.4	32.7	35.9	*
MP2XLB0100N350	●	1	2	1.5	35	1.94	1.5°	80	4	2	1	36.6	38.2	*	*
MP2XLB0100N350S06	●	1	2	1.5	35	1.94	2.7°	90	6	2	1	36.6	38.2	41.8	*
MP2XLB0100N400	●	1	2	1.5	40	1.94	1.4°	80	4	2	1	41.8	43.6	*	*
MP2XLB0100N400S06	●	1	2	1.5	40	1.94	2.4°	90	6	2	1	41.8	43.6	47.8	*
MP2XLB0125N100	●	1.25	2.5	1.9	10	2.4	3.5°	55	4	2	1	10.4	10.8	11.8	12.9
MP2XLB0125N150	●	1.25	2.5	1.9	15	2.4	2.5°	55	4	2	1	15.6	16.3	17.8	*
MP2XLB0125N200	●	1.25	2.5	1.9	20	2.4	2°	55	4	2	1	20.8	21.7	*	*
MP2XLB0125N250	●	1.25	2.5	1.9	25	2.4	1.6°	70	4	2	1	26.1	27.2	*	*
MP2XLB0125N300	●	1.25	2.5	1.9	30	2.4	1.4°	70	4	2	1	31.3	32.6	*	*
MP2XLB0125N350	●	1.25	2.5	1.9	35	2.4	1.2°	70	4	2	1	36.5	38.1	*	*
MP2XLB0150N060S03	●	1.5	3	2.3	6	2.9	-	60	3	2	1	*	*	*	*
MP2XLB0150N080	●	1.5	3	2.3	8	2.9	6.3°	60	6	2	1	8.3	8.6	9.3	10.2
MP2XLB0150N100	●	1.5	3	2.3	10	2.9	5.5°	60	6	2	1	10.4	10.8	11.7	12.9
MP2XLB0150N120	●	1.5	3	2.3	12	2.9	4.9°	60	6	2	1	12.5	13.0	14.1	15.5
MP2XLB0150N140	●	1.5	3	2.3	14	2.9	4.4°	60	6	2	1	14.6	15.2	16.5	18.2
MP2XLB0150N160	●	1.5	3	2.3	16	2.9	4°	70	6	2	1	16.7	17.3	18.9	20.8
MP2XLB0150N200	●	1.5	3	2.3	20	2.9	3.4°	70	6	2	1	20.8	21.7	23.7	26.1
MP2XLB0150N250	●	1.5	3	2.3	25	2.9	2.8°	70	6	2	1	26.1	27.2	29.7	*
MP2XLB0150N300	●	1.5	3	2.3	30	2.9	2.5°	70	6	2	1	31.3	32.6	35.7	*
MP2XLB0150N350	●	1.5	3	2.3	35	2.9	2.2°	90	6	2	1	36.5	38.0	41.7	*
MP2XLB0150N400	●	1.5	3	2.3	40	2.9	1.9°	90	6	2	1	41.7	43.5	*	*
MP2XLB0175N150	●	1.75	3.5	2.6	15	3.4	3.8°	65	6	2	1	15.6	16.2	17.7	19.4
MP2XLB0175N250	●	1.75	3.5	2.6	25	3.4	2.5°	65	6	2	1	26.0	27.1	29.6	*

* Temas yok

MP2XLB

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	B2	LF	DCON	ZEFP	TİP	Eğim açısı için etkin uzunluk			
												30'	1°	2°	3°
MP2XLB0175N350	●	1.75	3.5	2.6	35	3.4	1.9°	90	6	2	1	36.5	38.0	*	*
MP2XLB0175N450	●	1.75	3.5	2.6	45	3.4	1.5°	90	6	2	1	46.9	48.9	*	*
MP2XLB0200N080S04	●	2	4	3	8	3.9	-	65	4	2	1	*	*	*	*
MP2XLB0200N100	●	2	4	3	10	3.9	4.5°	65	6	2	1	10.4	10.8	11.6	12.7
MP2XLB0200N120	●	2	4	3	12	3.9	3.9°	65	6	2	1	12.5	12.9	14.0	15.4
MP2XLB0200N140	●	2	4	3	14	3.9	3.4°	65	6	2	1	14.6	15.1	16.4	18.0
MP2XLB0200N160	●	2	4	3	16	3.9	3.1°	70	6	2	1	16.6	17.3	18.8	20.7
MP2XLB0200N200	●	2	4	3	20	3.9	2.6°	70	6	2	1	20.8	21.7	23.6	*
MP2XLB0200N250	●	2	4	3	25	3.9	2.1°	70	6	2	1	26.0	27.1	29.6	*
MP2XLB0200N300	●	2	4	3	30	3.9	1.8°	80	6	2	1	31.2	32.6	*	*
MP2XLB0200N350	●	2	4	3	35	3.9	1.6°	80	6	2	1	36.5	38.0	*	*
MP2XLB0200N400	●	2	4	3	40	3.9	1.4°	90	6	2	1	41.7	43.5	*	*
MP2XLB0200N450	●	2	4	3	45	3.9	1.2°	90	6	2	1	46.9	48.9	*	*
MP2XLB0200N500	●	2	4	3	50	3.9	1.1°	100	6	2	1	52.1	54.3	*	*
MP2XLB0250N150	●	2.5	5	3.8	15	4.9	2°	70	6	2	1	15.6	16.2	*	*
MP2XLB0250N200	●	2.5	5	3.8	20	4.9	1.5°	70	6	2	1	20.8	21.6	*	*
MP2XLB0250N250	●	2.5	5	3.8	25	4.9	1.2°	70	6	2	1	26.0	27.1	*	*
MP2XLB0250N300	●	2.5	5	3.8	30	4.9	1°	80	6	2	1	31.2	*	*	*
MP2XLB0250N350	●	2.5	5	3.8	35	4.9	0.9°	80	6	2	1	36.4	*	*	*
MP2XLB0250N400	●	2.5	5	3.8	40	4.9	0.8°	90	6	2	1	41.7	*	*	*
MP2XLB0300N200	●	3	6	6	20	5.85	-	70	6	2	2	*	*	*	*
MP2XLB0300N250	●	3	6	6	25	5.85	-	70	6	2	2	*	*	*	*
MP2XLB0300N300	●	3	6	6	30	5.85	-	80	6	2	2	*	*	*	*
MP2XLB0300N400	●	3	6	6	40	5.85	-	90	6	2	2	*	*	*	*
MP2XLB0300N500	●	3	6	6	50	5.85	-	100	6	2	2	*	*	*	*

* Temas yok



MP2XLB

ÖNERİLEN KESME KOŞULLARI

3D FREZELEME

Malzeme RE LU n Vf ap

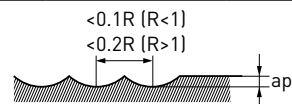
P Karbon çeliği, Alaşımliçelik, Alaşımli takım çeliği, Ön-sertleştirilmiş çelik, Yaşlandırılmış paslanmaz çelik	0.05	0.3	50000	200	0.002
		0.5	50000	200	0.001
	0.1	0.5	50000	400	0.003
		1	50000	400	0.002
		1.5	40000	300	0.001
		2	40000	200	0.001
	0.15	2.5	40000	100	0.001
		1	50000	600	0.007
		1.5	50000	600	0.005
		2	50000	600	0.003
		2.5	40000	400	0.003
		3	40000	300	0.002
	0.2	3.5	30000	250	0.002
		4	30000	200	0.002
		1	50000	1800	0.015
		2	50000	1300	0.01
		3	50000	900	0.005
		4	40000	600	0.004
		5	40000	400	0.003
		6	30000	200	0.002
	0.25	2	50000	2500	0.02
		3	50000	1500	0.015
		4	45000	1200	0.01
		5	45000	900	0.007
		6	36000	600	0.006
		7	32000	400	0.005
		8	32000	300	0.003
		10	26000	200	0.002
	0.3	2	50000	3500	0.03
		3	50000	3500	0.03
		4	44000	2500	0.02
		5	37000	1200	0.01
		6	37000	1000	0.008
		7	35000	750	0.008
		8	35000	600	0.006
		9	30000	500	0.004
		10	30000	500	0.003
		11	22000	300	0.002
		12	22000	200	0.002
		0.4	2	50000	4400
	3		50000	4000	0.04
	4		50000	4000	0.02
	5		35000	2400	0.02
	6		35000	2400	0.02
	7		30000	1500	0.015
	8		30000	1500	0.01
	10		30000	700	0.008
	12		22000	500	0.006

MP2XLB

Malzeme	RE	LU	n	Vf	ap
N Bakır, Bakır alaşımları	0.05	0.3	50000	200	0.004
		0.5	50000	200	0.002
	0.1	0.5	50000	320	0.006
		1	50000	320	0.004
		1.5	40000	240	0.002
		2	40000	160	0.002
		2.5	40000	80	0.002
	0.15	1	50000	480	0.014
		1.5	50000	480	0.01
		2	50000	480	0.006
		2.5	40000	320	0.006
		3	40000	240	0.004
	0.2	3.5	30000	200	0.004
		4	30000	160	0.004
		1	50000	1400	0.03
		2	50000	1000	0.02
		3	50000	700	0.01
		4	40000	480	0.008
	0.25	5	40000	320	0.006
		6	30000	160	0.004
		2	50000	2000	0.04
		3	50000	1200	0.03
		4	45000	950	0.02
		5	45000	700	0.014
		6	36000	480	0.012
		7	32000	320	0.01
		8	32000	240	0.006
		10	26000	160	0.004
	0.3	2	50000	2800	0.06
		3	50000	2800	0.06
		4	44000	2000	0.04
		5	37000	950	0.02
		6	37000	800	0.016
		7	35000	600	0.016
		8	35000	480	0.012
		9	30000	400	0.008
		10	30000	400	0.006
		11	22000	240	0.004
		12	22000	160	0.004
		0.4	2	50000	3500
	3		50000	3200	0.08
	4		50000	3200	0.04
	5		35000	1900	0.04
	6		35000	1900	0.04
	7		30000	1200	0.03
	8		30000	1200	0.02
	10		30000	560	0.016
			12	22000	400

MP2XLB

Malzeme	RE	LU	n	Vf	ap
H Sertleştirilmiş çelik (45-55 HRC)	0.05	0.3	50000	200	0.002
		0.5	50000	200	0.002
	0.1	0.5	50000	320	0.003
		1	50000	320	0.002
		1.5	40000	240	0.001
		2	40000	160	0.001
		2.5	40000	80	0.001
	0.15	1	50000	480	0.007
		1.5	50000	480	0.005
		2	50000	480	0.003
		2.5	40000	320	0.003
		3	40000	240	0.002
	0.2	3.5	30000	200	0.002
		4	30000	160	0.002
		1	50000	1400	0.015
		2	50000	1000	0.01
		3	50000	700	0.005
		4	40000	480	0.004
	0.25	5	40000	320	0.003
		6	30000	160	0.002
		2	50000	2000	0.02
		3	50000	1200	0.015
		4	45000	950	0.01
		5	45000	700	0.007
		6	36000	480	0.006
		7	32000	320	0.005
		8	32000	240	0.003
		10	26000	160	0.002
	0.3	2	50000	2800	0.03
		3	50000	2800	0.03
		4	44000	2000	0.02
		5	37000	950	0.01
		6	37000	800	0.008
		7	35000	600	0.008
		8	35000	480	0.006
		9	30000	400	0.004
		10	30000	400	0.003
		11	22000	240	0.002
		12	22000	160	0.002
		0.4	2	50000	3500
	3		50000	3200	0.04
	4		50000	3200	0.02
	5		35000	1900	0.02
	6		35000	1900	0.02
	7		30000	1200	0.015
	8		30000	1200	0.01
	10		30000	560	0.008
	12		22000	400	0.006



MP2XLB

3D FREZELEME

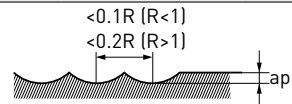
Malzeme	RE	LU	n	Vf	ap
P Karbon çeliği, Alaşımliçelik, Alaşımlı takım çeliği, Ön-sertleştirilmiş çelik, Yaşlandırılmış paslanmaz çelik	0.5	3	40000	4000	0.05
		4	40000	4000	0.05
		6	35000	3000	0.03
		8	30000	2000	0.02
		10	20000	1000	0.01
		12	20000	1000	0.01
		14	18000	600	0.008
		16	18000	500	0.008
		18	13000	300	0.005
		20	13000	250	0.005
	0.6	6	40000	4400	0.04
		8	40000	4000	0.04
		10	27000	1900	0.02
		12	16000	1400	0.02
		18	15000	700	0.008
		24	11000	300	0.006
	0.7	8	40000	4000	0.05
		12	26000	2000	0.04
		16	17000	1400	0.03
	0.75	6	40000	6000	0.07
		8	40000	6000	0.07
		10	40000	5000	0.06
		12	32000	3400	0.04
		16	15000	1400	0.03
		20	12000	900	0.02
	0.8	30	9000	400	0.01
		8	40000	6000	0.08
		12	36000	4500	0.06
		16	14000	1400	0.04
	0.9	20	12000	1000	0.03
		8	40000	6600	0.09
		12	40000	5000	0.07
		16	28000	2800	0.04
	1	20	10000	800	0.03
		4	40000	8000	0.1
		6	40000	8000	0.1
		8	40000	6000	0.1
		10	40000	5000	0.08
		12	40000	5000	0.08
		16	32000	3500	0.05
20		10000	1000	0.04	
25		10000	1000	0.04	
30		10000	800	0.02	
35	10000	600	0.02		
40	8000	400	0.01		

MP2XLB

Malzeme	RE	LU	n	Vf	ap
N Bakır, Bakır alaşımları	0.5	3	40000	3200	0.1
		4	40000	3200	0.1
		6	35000	2400	0.06
		8	30000	1600	0.04
		10	20000	800	0.02
		12	20000	800	0.02
		14	18000	480	0.016
		16	18000	400	0.016
		18	13000	240	0.01
		20	13000	200	0.01
	0.6	6	40000	3500	0.08
		8	40000	3200	0.08
		10	27000	1500	0.04
		12	16000	1100	0.04
		18	15000	560	0.016
		24	11000	240	0.012
	0.7	8	40000	2560	0.1
		12	26000	1280	0.08
		16	17000	896	0.06
	0.75	6	36000	4300	0.14
		8	36000	4300	0.14
		10	36000	3600	0.12
		12	29000	2400	0.08
		16	15000	1100	0.06
		20	12000	720	0.04
	0.8	30	9000	320	0.02
		8	32000	3800	0.16
		12	29000	2800	0.12
		16	14000	1100	0.08
	0.9	20	12000	800	0.06
		8	32000	4200	0.18
		12	32000	3200	0.14
		16	22000	1800	0.08
	1	20	10000	640	0.06
		4	32000	5000	0.2
		6	32000	5000	0.2
		8	32000	3800	0.2
		10	32000	3200	0.16
		12	32000	3200	0.16
		16	26000	2200	0.1
20		10000	800	0.08	
25		10000	800	0.08	
30		10000	640	0.04	
35	10000	480	0.04		
40	8000	320	0.02		

MP2XLB

Malzeme	RE	LU	n	Vf	ap
H Sertleştirilmiş çelik (45-55 HRC)	0.5	3	40000	3200	0.05
		4	40000	3200	0.05
		6	35000	2400	0.03
		8	30000	1600	0.02
		10	20000	800	0.01
		12	20000	800	0.01
		14	18000	480	0.008
		16	18000	400	0.008
		18	13000	240	0.005
		20	13000	200	0.005
	0.6	6	40000	3500	0.04
		8	40000	3200	0.04
		10	27000	1500	0.02
		12	16000	1100	0.02
		18	15000	560	0.008
		24	11000	240	0.006
	0.7	8	40000	3200	0.05
		12	26000	1600	0.04
		16	17000	1120	0.03
	0.75	6	36000	4300	0.07
		8	36000	4300	0.07
		10	36000	3600	0.06
		12	29000	2400	0.04
		16	15000	1100	0.03
		20	12000	720	0.02
	0.8	30	9000	320	0.01
		8	32000	3800	0.08
		12	29000	2800	0.06
		16	14000	1100	0.04
	0.9	20	12000	800	0.03
		8	32000	4200	0.09
		12	32000	3200	0.07
	1	16	22000	1800	0.04
		20	10000	640	0.03
		4	32000	5000	0.1
		6	32000	5000	0.1
8		32000	3800	0.1	
10		32000	3200	0.08	
12		32000	3200	0.08	
16		26000	2200	0.05	
20		10000	800	0.04	
25		10000	800	0.04	
30	10000	640	0.02		
35	10000	480	0.02		
40	8000	320	0.01		



MP2XLB

3D FREZELEME

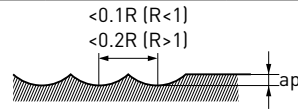
Malzeme	RE	LU	n	Vf	ap
P Karbon çeliği, Alaşımliçelik, Alaşımli takım çeliği, Ön-sertleştirilmiş çelik, Yaşlandırılmış paslanmaz çelik	1.25	10	36000	6000	0.12
		15	32000	4500	0.1
		20	26000	3200	0.07
		25	12000	1400	0.06
		30	8000	900	0.04
		35	8000	800	0.02
	1.5	6	32000	7000	0.15
		10	32000	7000	0.15
		16	32000	5000	0.1
		20	27000	3800	0.1
		25	21000	2700	0.08
		30	10000	700	0.08
		35	6000	700	0.06
	1.75	40	6000	600	0.04
		15	27500	4400	0.13
		25	23000	3600	0.1
		35	10000	1400	0.08
	2	45	7500	900	0.04
		10	24000	6000	0.2
		20	24000	3800	0.15
		30	20000	3000	0.1
		40	12000	1700	0.1
	2.5	50	8000	1000	0.05
		20	22000	6000	0.2
		25	22000	4400	0.2
		30	22000	3800	0.15
	3	40	22000	3600	0.1
		20	20000	6000	0.2
30		20000	6000	0.2	
40		20000	4500	0.15	
50	20000	3000	0.15		

MP2XLB

Malzeme	RE	LU	n	Vf	ap
N Bakır, Bakır alaşımları	1.25	10	29000	3800	0.24
		15	26000	2900	0.2
		20	21000	2000	0.14
		25	8000	720	0.12
		30	8000	700	0.08
		35	8000	510	0.04
	1.5	6	22000	3800	0.3
		10	22000	3800	0.3
		16	22000	2700	0.2
		20	22000	2400	0.2
		25	17000	1700	0.16
		30	6000	560	0.16
		35	6000	560	0.12
	1.75	40	6000	480	0.08
		15	18000	2300	0.26
		25	18000	2200	0.2
		35	10000	1100	0.16
	2	45	7500	720	0.08
		10	16000	3200	0.4
		20	16000	2000	0.3
		30	16000	1900	0.2
		40	12000	1400	0.2
	2.5	50	8000	800	0.1
		20	13000	2800	0.4
		25	13000	2000	0.4
		30	13000	1700	0.3
	3	40	13000	1600	0.2
		20	11000	2600	0.4
30		11000	2600	0.4	
40		11000	2000	0.3	
		50	11000	1300	0.3

MP2XLB

Malzeme	RE	LU	n	Vf	ap
H Sertleştirilmiş çelik (45-55HRC)	1.25	10	29000	3800	0.12
		15	26000	2900	0.1
		20	21000	2000	0.07
		25	8000	720	0.06
		30	8000	700	0.04
		35	8000	640	0.02
	1.5	6	26000	4500	0.15
		10	26000	4500	0.15
		16	26000	3200	0.1
		20	22000	2400	0.1
		25	17000	1700	0.08
		30	6000	560	0.08
		35	6000	560	0.06
		40	6000	480	0.04
	1.75	15	22000	2800	0.13
		25	18000	2200	0.1
		35	10000	1100	0.08
		45	7500	720	0.04
	2	10	19000	3800	0.2
		20	19000	2400	0.15
		30	16000	1900	0.1
		40	12000	1400	0.1
		50	8000	800	0.05
	2.5	20	18000	3800	0.2
		25	18000	2800	0.2
		30	18000	2400	0.15
		40	18000	2300	0.1
	3	20	16000	3800	0.2
		30	16000	3800	0.2
		40	16000	2800	0.15
50		16000	1900	0.15	



- İşlenen yüzeyin eğim açısı yüksek olduğunda veya yüksek yüklerde işleme yapıldığında; (köşelerde olduğu gibi), devri ve ilerleme hızını düşürün.
- Küçük çapla işleme yapıldığında yağ soğutma kullanımı önerilir.
- Devir ve ilerleme hızı küçük kesme derinliklerinde (ap) arttırılabilir.
- Kesme koşulları; takım bağlama uzunluğu, kesme derinliği ve takım tezgahının durumuna göre büyük ölçüde değişebilir. Başlangıç noktanız için, lütfen yukarıdaki tabloyu referans alın.
- 55 HRC üzeri sertleştirilmiş çelikler için, VF2XLB kullanın.
- Ostenitik paslanmaz çelik ve titanyum alaşım malzemelerin kesme koşulları için, yüksek sertlikte çelik (45-55 HRC) tablosunu kullanın ancak fener mili hızını %40, ilerleme hızını da %55 oranında düşürün.

MP3XB



KÜRE UÇLU, 3 HELİS KANALLI, KONİK BOYUNLU

P N H



RE < 3 4 < RE

±0.005 ±0.010



DCON=6 DCON=8

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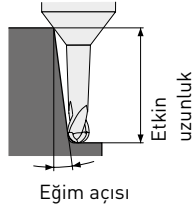


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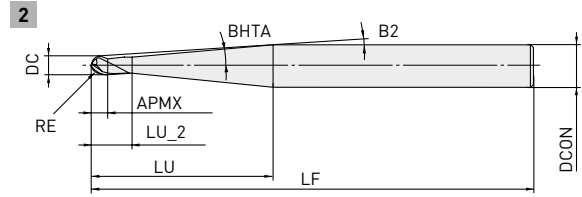
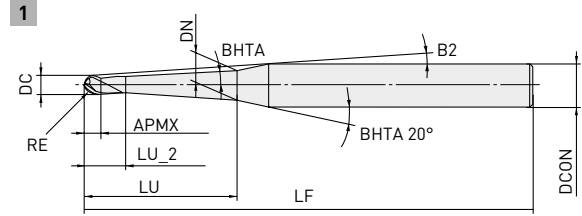
0 0

-0.009 -0.011

Eğim açısı için etkin uzunluk



Eğim açısı



- Serbest takım boyunun uzun olduğu kaba işlemler ve dövme kalıplarının (40-50 HRC) yarı finiş işlemleri için idealdir.
- İşleme verimliliğinin artırılması için yüksek kesme derinliğine ve ilerleme hızına olanak sağlayan; rijid, yüksek helis kanallı, 3 helisli tasarım.

Sipariş Numarası	Stok	RE	DC	BHTA	APMX	LU	LU_2	B2	DN	LF	DCON	ZEFP	TİP	Eğim açısı için etkin uzunluk			
														30°	1°	2°	3°
MP3XBR0050N008T05	●	0.5	1	0.5°	0.8	8	2.3	9.3°	1.04	60	6	3	1	8.5	8.8	9.3	9.8
MP3XBR0050N012T05	●	0.5	1	0.5°	0.8	12	2.3	7.5°	1.1	60	6	3	1	12.6	13	13.6	14.4
MP3XBR0050N016T05	●	0.5	1	0.5°	0.8	16	2.3	6.3°	1.18	60	6	3	1	16.6	17.1	18	18.9
MP3XBR0050N020T05	●	0.5	1	0.5°	0.8	20	2.3	5.4°	1.24	60	6	3	1	20.6	21.2	22.3	23.5
MP3XBR0050N025T05	●	0.5	1	0.5°	0.8	25	2.3	4.6°	1.34	70	6	3	1	25.7	26.3	27.7	29.3
MP3XBR0050N030T05	●	0.5	1	0.5°	0.8	30	2.3	4°	1.42	70	6	3	1	30.7	31.5	33.1	35
MP3XBR0050N050T05	●	0.5	1	0.5°	0.8	50	2.3	2.6°	1.78	90	6	3	1	50.8	52.1	54.8	*
MP3XBR0050N010T10	●	0.5	1	1°	0.8	10	2.3	8.4°	1.2	60	6	3	1	-	10.6	11.2	11.8
MP3XBR0050N016T10	●	0.5	1	1°	0.8	16	2.3	6.4°	1.42	60	6	3	1	-	16.7	17.6	18.5
MP3XBR0050N020T10	●	0.5	1	1°	0.8	20	2.3	5.5°	1.56	60	6	3	1	-	20.7	21.8	23
MP3XBR0050N025T10	●	0.5	1	1°	0.8	25	2.3	4.7°	1.74	70	6	3	1	-	25.7	27.1	28.6
MP3XBR0050N030T10	●	0.5	1	1°	0.8	30	2.3	4.1°	1.9	70	6	3	1	-	30.8	32.4	34.2
MP3XBR0050N035T10	●	0.5	1	1°	0.8	35	2.3	3.6°	2.08	90	6	3	1	-	35.8	37.7	39.8
MP3XBR0050N050T10	●	0.5	1	1°	0.8	50	2.3	2.7°	2.6	90	6	3	1	-	50.9	53.6	*
MP3XBR0050N010T15	●	0.5	1	1.5°	0.8	10	2.3	8.5°	1.34	60	6	3	1	-	-	11	11.6
MP3XBR0050N016T15	●	0.5	1	1.5°	0.8	16	2.3	6.5°	1.66	60	6	3	1	-	-	17.2	18.1
MP3XBR0050N020T15	●	0.5	1	1.5°	0.8	20	2.3	5.6°	1.86	60	6	3	1	-	-	21.3	22.5
MP3XBR0050N023T15	●	0.5	1	1.5°	0.8	23	2.3	5°	2.02	70	6	3	1	-	-	24.4	25.7
MP3XBR0050N025T15	●	0.5	1	1.5°	0.8	25	2.3	4.7°	2.12	70	6	3	1	-	-	26.5	27.9
MP3XBR0050N010T30	●	0.5	1	3°	0.8	10	2.3	8.8°	1.74	60	6	3	1	-	-	-	10.8
MP3XBR0050N020T30	●	0.5	1	3°	0.8	20	2.3	5.9°	2.8	60	6	3	1	-	-	-	20.9
MP3XBR0050N030T30	●	0.5	1	3°	0.8	30	2.3	4.4°	3.84	70	6	3	1	-	-	-	31
MP3XBR0050N042T30	●	0.5	1	3°	0.8	42	2.3	3.4°	5.1	90	6	3	1	-	-	-	43
MP3XBR0050N025T50	●	0.5	1	5°	0.8	25	2.3	5.4°	4.92	60	6	3	1	-	-	-	-
MP3XBR0075N010T05	●	0.75	1.5	0.5°	1.2	10	2.7	7.8°	1.56	60	6	3	1	10.6	10.9	11.4	12

* Temas yok

MP3XB

Sipariş Numarası	Stok	RE	DC	BHTA	APMX	LU	LU_2	B2	DN	LF	DCON	ZEFP	Tip	Eğim açısı için etkin uzunluk			
														30'	1°	2°	3°
MP3XBR0075N016T05	●	0.75	1.5	0.5°	1.2	16	2.7	5.8°	1.68	60	6	3	1	16.6	17.1	17.9	18.9
MP3XBR0075N020T05	●	0.75	1.5	0.5°	1.2	20	2.7	5°	1.74	60	6	3	1	20.6	21.2	22.3	23.5
MP3XBR0075N030T05	●	0.75	1.5	0.5°	1.2	30	2.7	3.7°	1.92	80	6	3	1	30.7	31.5	33.1	35
MP3XBR0075N010T10	●	0.75	1.5	1°	1.2	10	2.7	7.9°	1.7	60	6	3	1	-	10.6	11.2	11.8
MP3XBR0075N016T10	●	0.75	1.5	1°	1.2	16	2.7	5.9°	1.9	60	6	3	1	-	16.7	17.6	18.5
MP3XBR0075N020T10	●	0.75	1.5	1°	1.2	20	2.7	5.1°	2.04	60	6	3	1	-	20.7	21.8	23
MP3XBR0075N030T10	●	0.75	1.5	1°	1.2	30	2.7	3.7°	2.4	80	6	3	1	-	30.8	32.4	34.2
MP3XBR0075N010T15	●	0.75	1.5	1.5°	1.2	10	2.7	8°	1.82	60	6	3	1	-	-	11	11.6
MP3XBR0075N016T15	●	0.75	1.5	1.5°	1.2	16	2.7	6°	2.14	60	6	3	1	-	-	17.2	18.1
MP3XBR0075N020T15	●	0.75	1.5	1.5°	1.2	20	2.7	5.1°	2.34	60	6	3	1	-	-	21.3	22.5
MP3XBR0075N025T15	●	0.75	1.5	1.5°	1.2	25	2.7	4.4°	2.6	80	6	3	1	-	-	26.5	27.9
MP3XBR0075N030T15	●	0.75	1.5	1.5°	1.2	30	2.7	3.8°	2.86	80	6	3	1	-	-	31.6	33.4
MP3XBR0075N046T30	●	0.75	1.5	3°	1.2	46	2.7	2.9°	-	80	6	3	2	-	-	-	*
MP3XBR0100N016T05	●	1	2	0.5°	1.6	16	3.6	5.2°	2.12	60	6	3	1	17	17.6	18.6	19.5
MP3XBR0100N020T05	●	1	2	0.5°	1.6	20	3.6	4.5°	2.18	60	6	3	1	21.1	21.8	22.9	24.1
MP3XBR0100N030T05	●	1	2	0.5°	1.6	30	3.6	3.3°	2.36	70	6	3	1	31.1	32.1	33.7	35.6
MP3XBR0100N035T05	●	1	2	0.5°	1.6	35	3.6	2.9°	2.44	80	6	3	1	36.2	37.2	39.2	*
MP3XBR0100N040T05	●	1	2	0.5°	1.6	40	3.6	2.6°	2.54	80	6	3	1	41.2	42.4	44.6	*
MP3XBR0100N016T10	●	1	2	1°	1.6	16	3.6	5.3°	2.34	60	6	3	1	-	17.1	18.2	19.1
MP3XBR0100N020T10	●	1	2	1°	1.6	20	3.6	4.5°	2.48	60	6	3	1	-	21.2	22.4	23.6
MP3XBR0100N025T10	●	1	2	1°	1.6	25	3.6	3.8°	2.64	70	6	3	1	-	26.2	27.7	29.2
MP3XBR0100N030T10	●	1	2	1°	1.6	30	3.6	3.3°	2.82	70	6	3	1	-	31.3	33	34.8
MP3XBR0100N035T10	●	1	2	1°	1.6	35	3.6	3°	3	80	6	3	1	-	36.3	38.3	40.4
MP3XBR0100N040T10	●	1	2	1°	1.6	40	3.6	2.7°	3.18	80	6	3	1	-	41.3	43.6	*
MP3XBR0100N050T10	●	1	2	1°	1.6	50	3.6	2.2°	3.52	110	6	3	1	-	51.4	54.2	*
MP3XBR0100N070T10	●	1	2	1°	1.6	70	3.6	1.7°	4.22	110	6	3	1	-	71.5	*	*
MP3XBR0100N016T15	●	1	2	1.5°	1.6	16	3.6	5.4°	2.54	60	6	3	1	-	-	22.8	18.7
MP3XBR0100N020T15	●	1	2	1.5°	1.6	20	3.6	4.6°	2.76	60	6	3	1	-	-	21.9	23.1
MP3XBR0100N025T15	●	1	2	1.5°	1.6	25	3.6	3.9°	3.02	70	6	3	1	-	-	27.1	28.5
MP3XBR0100N030T15	●	1	2	1.5°	1.6	30	3.6	3.4°	3.28	70	6	3	1	-	-	32.2	34
MP3XBR0100N035T15	●	1	2	1.5°	1.6	35	3.6	3°	3.54	80	6	3	1	-	-	37.4	39.4
MP3XBR0100N040T15	●	1	2	1.5°	1.6	40	3.6	2.7°	3.8	80	6	3	1	-	-	42.6	*
MP3XBR0100N020T30	●	1	2	3°	1.6	20	3.6	4.8°	3.62	60	6	3	1	-	-	-	20.5
MP3XBR0100N030T30	●	1	2	3°	1.6	30	3.6	3.6°	4.66	70	6	3	1	-	-	-	30.6
MP3XBR0100N042T30	●	1	2	3°	1.6	42	3.6	2.8°	-	80	6	3	2	-	-	-	*
MP3XBR0100N027T50	●	1	2	5°	1.6	27	3.6	4.3°	-	60	6	3	2	-	-	-	-
MP3XBR0150N010T05	●	1.5	3	0.5°	2.4	10	5.4	5.7°	2.98	60	6	3	1	11	11.4	12	12.6
MP3XBR0150N020T05	●	1.5	3	0.5°	2.4	20	5.4	3.5°	3.16	60	6	3	1	21.1	21.8	22.9	24.1
MP3XBR0150N030T05	●	1.5	3	0.5°	2.4	30	5.4	2.6°	3.32	70	6	3	1	31.2	32.1	33.7	*
MP3XBR0150N040T05	●	1.5	3	0.5°	2.4	40	5.4	2°	3.5	80	6	3	1	41.3	42.4	44.6	*
MP3XBR0150N050T05	●	1.5	3	0.5°	2.4	50	5.4	1.7°	3.68	90	6	3	1	51.3	52.7	*	*
MP3XBR0150N020T10	●	1.5	3	1°	2.4	20	5.4	3.6°	3.4	60	6	3	1	-	21.3	22.4	23.6
MP3XBR0150N030T10	●	1.5	3	1°	2.4	30	5.4	2.6°	3.76	70	6	3	1	-	31.3	33	*
MP3XBR0150N035T10	●	1.5	3	1°	2.4	35	5.4	2.3°	3.94	80	6	3	1	-	36.4	38.3	*
MP3XBR0150N040T10	●	1.5	3	1°	2.4	40	5.4	2.1°	4.1	80	6	3	1	-	41.4	43.6	*

* Temas yok

MP3XB

Sipariş Numarası	Stok	RE	DC	BHTA	APMX	LU	LU_2	B2	DN	LF	DCON	ZEEP	Tıp	Eğim açısı için etkin uzunluk			
														30'	1°	2°	3°
MP3XBR0150N050T10	●	1.5	3	1°	2.4	50	5.4	1.7°	4.46	90	6	3	1	-	51.5	*	*
MP3XBR0150N060T10	●	1.5	3	1°	2.4	60	5.4	1.5°	4.8	110	6	3	1	-	61.5	*	*
MP3XBR0150N070T10	●	1.5	3	1°	2.4	70	5.4	1.3°	5.16	110	6	3	1	-	71.6	*	*
MP3XBR0150N020T15	●	1.5	3	1.5°	2.4	20	5.4	3.7°	3.66	60	6	3	1	-	-	22	23.2
MP3XBR0150N030T15	●	1.5	3	1.5°	2.4	30	5.4	2.7°	4.18	70	6	3	1	-	-	32.3	*
MP3XBR0150N035T15	●	1.5	3	1.5°	2.4	35	5.4	2.4°	4.46	70	6	3	1	-	-	37.5	*
MP3XBR0150N040T15	●	1.5	3	1.5°	2.4	40	5.4	2.1°	4.72	80	6	3	1	-	-	42.6	*
MP3XBR0150N045T15	●	1.5	3	1.5°	2.4	45	5.4	1.9°	4.98	80	6	3	1	-	-	*	*
MP3XBR0150N052T15	●	1.5	3	1.5°	2.4	52	5.4	1.7°	5.34	90	6	3	1	-	-	*	*
MP3XBR0150N064T15	●	1.5	3	1.5°	2.4	64	5.4	1.4°	-	110	6	3	2	-	-	*	*
MP3XBR0150N025T30	●	1.5	3	3°	2.4	25	5.4	3.3°	4.96	60	6	3	1	-	-	-	26.8
MP3XBR0150N034T30	●	1.5	3	3°	2.4	34	5.4	2.6°	-	70	6	3	2	-	-	-	*
MP3XBR0150N040T30	●	1.5	3	3°	2.4	40	5.4	3.4°	6.52	90	8	3	1	-	-	-	41.9
MP3XBR0150N054T30	●	1.5	3	3°	2.4	54	5.4	2.7°	-	90	8	3	2	-	-	-	*
MP3XBR0200N030T05	●	2	4	0.5°	3.2	30	6.2	1.8°	4.32	70	6	3	1	31.2	32.1	*	*
MP3XBR0200N040T05	●	2	4	0.5°	3.2	40	6.2	1.4°	4.48	80	6	3	1	41.3	42.4	*	*
MP3XBR0200N060T05	●	2	4	0.5°	3.2	60	6.2	1°	4.84	100	6	3	1	61.4	63	*	*
MP3XBR0200N020T10	●	2	4	1°	3.2	20	6.2	2.6°	4.38	70	6	3	1	-	21.3	22.4	*
MP3XBR0200N030T10	●	2	4	1°	3.2	30	6.2	1.8°	4.74	70	6	3	1	-	31.4	*	*
MP3XBR0200N035T10	●	2	4	1°	3.2	35	6.2	1.6°	4.9	70	6	3	1	-	36.4	*	*
MP3XBR0200N040T10	●	2	4	1°	3.2	40	6.2	1.5°	5.08	80	6	3	1	-	41.4	*	*
MP3XBR0200N045T10	●	2	4	1°	3.2	45	6.2	1.3°	5.26	80	6	3	1	-	46.5	*	*
MP3XBR0200N066T10	●	2	4	1°	3.2	66	6.2	1°	-	100	6	3	2	-	*	*	*
MP3XBR0200N050T15	●	2	4	1.5°	3.2	50	6.2	2.2°	6.2	90	8	3	1	-	-	53	*
MP3XBR0200N084T15	●	2	4	1.5°	3.2	84	6.2	1.5°	-	120	8	3	2	-	-	*	*
MP3XBR0200N030T30	●	2	4	3°	3.2	30	6.2	3.6°	6.4	90	8	3	1	-	-	-	31.9
MP3XBR0200N045T30	●	2	4	3°	3.2	45	6.2	2.6°	-	90	8	3	2	-	-	-	*
MP3XBR0250N038T10	●	2.5	5	1°	4	38	7	0.8°	-	80	6	3	2	-	*	*	*
MP3XBR0250N050T10	●	2.5	5	1°	4	50	7	1.7°	6.4	90	8	3	1	-	51.5	*	*
MP3XBR0250N065T10	●	2.5	5	1°	4	65	7	1.4°	6.92	110	8	3	1	-	66.6	*	*
MP3XBR0250N066T15	●	2.5	5	1.5°	4	66	7	1.4°	-	110	8	3	2	-	-	*	*
MP3XBR0250N036T30	●	2.5	5	3°	4	36	7	2.4°	-	90	8	3	2	-	-	-	*
MP3XBR0300N040T10	●	3	6	1°	9	40	12	1.4°	6.82	80	8	3	1	-	41.8	*	*
MP3XBR0300N050T10	●	3	6	1°	9	50	12	1.2°	7.18	90	8	3	1	-	51.8	*	*
MP3XBR0300N073T10	●	3	6	1°	9	73	12	0.9°	-	110	8	3	2	-	*	*	*
MP3XBR0300N090T10	●	3	6	1°	9	90	12	1.3°	8.58	140	10	3	1	-	92	*	*
MP3XBR0300N053T15	●	3	6	1.5°	9	53	12	1.2°	-	90	8	3	2	-	-	*	*
MP3XBR0300N032T30	●	3	6	3°	9	32	12	1.9°	-	80	8	3	2	-	-	-	*
MP3XBR0400N050T10	●	4	8	1°	12	50	15	1.2°	9.08	110	10	3	1	-	51.9	*	*
MP3XBR0400N065T10	●	4	8	1°	12	65	15	1°	9.6	130	10	3	1	-	67	*	*
MP3XBR0400N076T10	●	4	8	1°	12	76	15	0.8°	-	130	10	3	2	-	*	*	*
MP3XBR0400N090T10	●	4	8	1°	12	90	15	1.3°	10.46	150	12	3	1	-	92.1	*	*
MP3XBR0400N040T15	●	4	8	1.5°	12	40	15	1.5°	9.16	90	10	3	1	-	-	*	*
MP3XBR0400N056T15	●	4	8	1.5°	12	56	15	1.1°	-	110	10	3	2	-	-	*	*
MP3XBR0400N035T30	●	4	8	3°	12	35	15	1.7°	-	90	10	3	2	-	-	-	*
MP3XBR0500N060T10	●	5	10	1°	15	60	25	1°	10.92	120	12	3	1	-	62.6	*	*
MP3XBR0500N070T10	●	5	10	1°	15	70	25	0.9°	11.28	120	12	3	1	-	*	*	*
MP3XBR0500N100T10	●	5	10	1°	15	100	25	1.7°	12.32	160	16	3	1	-	102.8	*	*
MP3XBR0500N050T15	●	5	10	1.5°	15	50	25	1.2°	11	100	12	3	1	-	-	*	*

* Temas yok

MP3XB

Sipariş Numarası	Stok	RE	DC	BHTA	APMX	LU	LU_2	B2	DN	LF	DCON	ZEP	Tip	Eğim açısı için etkin uzunluk			
														30'	1°	2°	3°
MP3XBR0500N068T15	●	5	10	1.5°	15	68	25	0.9°	-	120	12	3	2	-	-	*	*
MP3XBR0500N046T30	●	5	10	3°	15	46	25	1.3°	-	100	12	3	2	-	-	-	*
MP3XBR0600N070T10	●	6	12	1°	18	70	28	1.6°	13.16	130	16	3	1	-	72.7	*	*
MP3XBR0600N100T10	●	6	12	1°	18	100	28	1.2°	14.22	160	16	3	1	-	102.9	*	*
MP3XBR0600N080T15	●	6	12	1.5°	18	80	28	1.5°	14.42	130	16	3	1	-	-	*	*
MP3XBR0600N069T30	●	6	12	3°	18	69	28	1.8°	-	130	16	3	2	-	-	-	*

* Temas yok

MP3XB

ÖNERİLEN KESME KOŞULLARI

3D FREZELEME

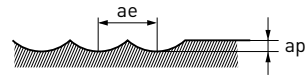
Malzeme	RE	BHTA	LU	n	Vf	ap	ae
P Karbon çeliği, Dökme demir (180 – 280 HB), Takım çeliği (<350 HB), Ön-sertleştirilmiş çelik (35 – 45 HRC)	R 0.5	0.5°	8	40000	1200	0.07	0.22
			12	40000	1200	0.06	0.19
			16	35000	1100	0.06	0.18
			20	32000	960	0.05	0.14
			25	28000	830	0.03	0.11
			30	24000	720	0.03	0.1
	R 0.5	1°	50	10000	300	0.003	0.015
			10	40000	1200	0.07	0.22
			16	35000	1100	0.06	0.18
			20	32000	960	0.05	0.14
			25	28000	830	0.04	0.11
			30	24000	720	0.03	0.1
		1.5°	35	17000	500	0.03	0.08
			50	10000	300	0.003	0.015
			10	40000	1200	0.07	0.22
			16	35000	1100	0.06	0.18
			20	32000	960	0.05	0.14
			23	27000	830	0.04	0.11
	R 0.75	3°	25	27000	830	0.04	0.12
			10	40000	1200	0.07	0.22
			20	32000	960	0.05	0.14
		5°	30	22000	660	0.03	0.1
			42	13000	390	0.005	0.02
			25	32000	960	0.04	0.11
	R 0.75	0.5°	10	30000	1800	0.11	0.34
			16	27000	1600	0.09	0.27
			20	26000	1500	0.08	0.24
			30	25000	1400	0.07	0.21
		1°	10	30000	1900	0.11	0.34
			16	26000	1600	0.09	0.27
20			27000	1700	0.08	0.24	
30			25000	1500	0.07	0.21	
1.5°		10	30000	1900	0.11	0.34	
		16	27500	1700	0.09	0.27	
		20	26500	1700	0.08	0.24	
		25	26000	1600	0.07	0.22	
	30	25000	1500	0.07	0.21		
3°	46	15000	450	0.05	0.16		

MP3XB

Malzeme	RE	BHTA	LU	n	Vf	ap	ae	
N Bakır, Bakır alaşımları	R 0.5	0.5°	8	39000	1200	0.12	0.38	
			12	39000	1200	0.1	0.32	
			16	33000	900	0.09	0.29	
			20	29000	800	0.07	0.22	
			25	24000	600	0.05	0.15	
			30	21000	450	0.04	0.13	
			50	11000	150	0.006	0.019	
		1°	10	39000	1300	0.12	0.38	
			16	33000	1000	0.09	0.29	
			20	29000	900	0.07	0.22	
			25	24000	700	0.05	0.16	
			30	21000	550	0.04	0.13	
			35	13000	350	0.03	0.1	
			50	11000	250	0.006	0.019	
		1.5°	10	39000	1400	0.12	0.38	
			16	33000	1100	0.09	0.29	
			20	29000	1000	0.07	0.22	
			23	24000	800	0.05	0.16	
			25	24000	800	0.05	0.17	
		3°	10	39000	1500	0.12	0.38	
			20	29000	1100	0.07	0.22	
			30	19000	700	0.04	0.13	
			42	11000	390	0.01	0.03	
		5°	25	29000	1000	0.05	0.16	
		R 0.75	0.5°	10	28000	1500	0.19	0.61
				16	24000	1100	0.15	0.48
				20	24000	1100	0.13	0.42
				30	22000	1000	0.11	0.35
			1°	10	28000	1600	0.19	0.61
				16	24000	1200	0.15	0.48
20	24000			1200	0.13	0.42		
30	22000			1100	0.11	0.35		
1.5°	10		28000	1700	0.19	0.61		
	16		24000	1300	0.15	0.48		
	20		24000	1300	0.13	0.42		
	25		23000	1200	0.12	0.38		
	30		22000	1100	0.11	0.35		
	3°		46	14000	800	0.08	0.26	

MP3XB

Malzeme	RE	BHTA	LU	n	Vf	ap	ae
H Sertleştirilmiş çelik (45-55 HRC)	R 0.5	0.5°	8	39000	1200	0.06	0.19
			12	39000	1200	0.05	0.16
			16	33000	900	0.04	0.14
			20	29000	800	0.04	0.11
			25	24000	600	0.02	0.07
			30	21000	450	0.02	0.06
			50	11000	150	0.003	0.015
		1°	10	39000	1300	0.06	0.19
			16	33000	1000	0.05	0.14
			20	29000	900	0.04	0.11
			25	24000	700	0.03	0.08
			30	21000	550	0.02	0.06
			35	13000	350	0.02	0.05
			50	11000	250	0.003	0.015
			1.5°	10	39000	1400	0.06
	16	33000		1100	0.05	0.14	
	20	29000		1000	0.04	0.11	
	23	24000		800	0.03	0.08	
	25	24000		800	0.03	0.09	
	3°	10	39000	1500	0.06	0.19	
		20	29000	1100	0.04	0.11	
		30	19000	700	0.02	0.06	
		42	11000	390	0.005	0.02	
	5°	25	29000	1000	0.03	0.08	
	R 0.75	0.5°	10	28000	1500	0.1	0.3
			16	24000	1100	0.08	0.24
			20	24000	1100	0.07	0.21
			30	22000	1000	0.06	0.18
			10	28000	1600	0.1	0.3
		1°	16	24000	1200	0.08	0.24
20			24000	1200	0.07	0.21	
30			22000	1100	0.06	0.18	
10			28000	1700	0.1	0.3	
1.5°		16	24000	1300	0.08	0.24	
		20	24000	1300	0.07	0.21	
		25	23000	1200	0.06	0.19	
		30	22000	1100	0.06	0.18	
		3°	46	14000	800	0.04	0.13



MP3XB

3D FREZELEME

Malzeme RE BHTA LU n Vf ap ae

Malzeme	RE	BHTA	LU	n	Vf	ap	ae	
P Karbon çeliği, Dökme demir (180 – 280 HB), Takım çeliği (<350 HB), Ön-sertleştirilmiş çelik (35 – 45 HRC)	R 1.0	0.5°	16	25000	1500	0.14	0.45	
			20	23000	1400	0.1	0.3	
			30	20000	1200	0.05	0.17	
			35	19000	1100	0.05	0.15	
			40	19000	1100	0.04	0.14	
			16	25000	2300	0.14	0.45	
		20	23000	2100	0.1	0.3		
		25	23000	1400	0.06	0.19		
		30	20000	1200	0.05	0.17		
		35	19000	1100	0.05	0.15		
		40	19000	1100	0.04	0.14		
		50	17000	900	0.03	0.09		
	70	13000	700	0.02	0.06			
	R 1.5	1.5°	16	25000	2300	0.14	0.45	
			20	23000	2100	0.1	0.3	
			25	23000	1600	0.06	0.19	
			30	20000	1200	0.05	0.17	
			35	19000	1100	0.05	0.15	
			40	19000	1100	0.04	0.14	
		3°	20	23000	2100	0.1	0.3	
			30	18000	1600	0.08	0.26	
			42	16000	1400	0.07	0.21	
			5°	27	18000	2200	0.09	0.29
				10	20000	2400	0.22	0.7
			0.5°	20	17000	2000	0.2	0.64
	30	16000		1700	0.14	0.45		
	40	16000		1400	0.08	0.24		
	50	13000		1100	0.06	0.2		
	1°	20		17000	2000	0.2	0.64	
		30		17000	1900	0.14	0.45	
35		16000	1700	0.08	0.26			
40		16000	1500	0.08	0.24			
50		13000	1200	0.06	0.2			
60		13000	1100	0.06	0.19			
R 1.5	1.5°	70	10000	800	0.05	0.17		
		20	17000	2000	0.2	0.64		
		30	16000	1800	0.14	0.45		
		35	15000	1700	0.08	0.26		
		40	15000	1600	0.08	0.24		
		45	13000	1400	0.07	0.22		
	3°	52	13000	1300	0.06	0.2		
		64	10000	900	0.06	0.18		
		25	16000	2400	0.16	0.51		
		3°	34	14000	2100	0.13	0.4	
			40	14000	1700	0.12	0.37	
			54	12000	1400	0.1	0.3	

MP3XB

Malzeme	RE	BHTA	LU	n	Vf	ap	ae
N Bakır, Bakır alaşımları	R 1.0	0.5°	16	22000	1600	0.26	0.83
			20	20000	1400	0.17	0.54
			30	18000	1100	0.13	0.42
			35	17000	1000	0.12	0.38
			40	16000	900	0.11	0.35
		1°	16	22000	1700	0.26	0.83
			20	20000	1500	0.17	0.54
			25	20000	1300	0.16	0.5
			30	18000	1200	0.13	0.42
			35	17000	1100	0.12	0.37
		1.5°	40	16000	1000	0.11	0.35
			50	15000	900	0.06	0.19
			70	11000	650	0.04	0.12
			16	22000	1800	0.26	0.83
			20	20000	1600	0.17	0.54
	3°	25	20000	1400	0.16	0.5	
		30	18000	1300	0.13	0.42	
		35	17000	1100	0.12	0.38	
		40	16000	1000	0.11	0.35	
		20	20000	1700	0.17	0.54	
	5°	30	16500	1300	0.14	0.45	
		42	13000	1000	0.11	0.35	
		27	17000	1900	0.16	0.51	
		10	17000	1900	0.42	1.34	
		20	15000	1600	0.38	1.22	
	R 1.5	0.5°	30	13000	1400	0.26	0.83
			40	12000	1200	0.2	0.65
			50	11000	1100	0.17	0.54
			20	15000	1800	0.38	1.22
			30	13000	1500	0.26	0.83
1°		35	13000	1500	0.22	0.69	
		40	13000	1300	0.2	0.65	
		50	11000	1100	0.17	0.54	
		60	11000	1000	0.16	0.5	
		70	9000	700	0.13	0.42	
1.5°		20	15000	1900	0.38	1.22	
		30	13000	1600	0.26	0.83	
		35	12000	1400	0.22	0.69	
		40	12000	1300	0.2	0.65	
		45	11000	1300	0.18	0.58	
3°	52	11000	1100	0.17	0.54		
	64	9000	900	0.14	0.46		
	25	13000	1900	0.3	0.96		
	34	11000	1600	0.23	0.74		
	40	11000	1400	0.21	0.67		
54	10000	1200	0.17	0.54			

MP3XB

Malzeme

RE

BHTA

LU

n

Vf

ap

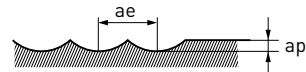
ae

H Sertleştirilmiş çelik
(45-55 HRC)

R 1.0

R 1.5

0.5°	16	22000	1600	0.13	0.42	
	20	20000	1400	0.09	0.27	
	30	18000	1100	0.06	0.18	
	35	17000	1000	0.05	0.16	
	40	16000	900	0.05	0.14	
	1°	16	22000	1700	0.13	0.42
		20	20000	1500	0.09	0.27
		25	20000	1300	0.07	0.21
		30	18000	1200	0.06	0.18
		35	17000	1100	0.05	0.15
		40	16000	1000	0.05	0.14
		50	15000	900	0.03	0.08
	70	11000	650	0.02	0.05	
	1.5°	16	22000	1800	0.13	0.42
		20	20000	1600	0.09	0.27
		25	20000	1400	0.07	0.21
		30	18000	1300	0.06	0.18
		35	16000	1100	0.05	0.16
		40	16000	1000	0.05	0.14
	3°	20	20000	1700	0.09	0.27
30		16000	1300	0.07	0.22	
42		13000	1000	0.06	0.18	
5°	27	17000	1900	0.08	0.26	
0.5°	10	17000	1900	0.21	0.67	
	20	15000	1600	0.19	0.61	
	30	13000	1400	0.13	0.42	
	40	12000	1200	0.09	0.27	
	50	11000	1100	0.07	0.22	
1°	20	15000	1800	0.19	0.61	
	30	13000	1500	0.13	0.42	
	35	13000	1500	0.09	0.29	
	40	13000	1300	0.09	0.27	
	50	11000	1100	0.07	0.22	
	60	11000	1000	0.07	0.21	
	70	9000	700	0.06	0.18	
1.5°	20	15000	1900	0.19	0.61	
	30	13000	1600	0.13	0.42	
	35	12000	1400	0.09	0.29	
	40	12000	1300	0.09	0.27	
	45	11000	1300	0.08	0.24	
	52	11000	1100	0.07	0.22	
	64	9000	900	0.06	0.19	
	25	13000	1900	0.15	0.48	
3°	34	11000	1600	0.12	0.37	
	40	11000	1400	0.11	0.34	
	54	10000	1200	0.09	0.27	



MP3XB

3D FREZELEME

Malzeme RE BHTA LU n Vf ap ae

Malzeme	RE	BHTA	LU	n	Vf	ap	ae	
P Karbon çeliği, Dökme demir (180 – 280 HB), Takım çeliği (<350 HB), Ön-sertleştirilmiş çelik (35 – 45 HRC)	R 2.0	0.5°	30	14000	2100	0.23	0.74	
			40	12000	1800	0.19	0.61	
			60	9000	1300	0.06	0.19	
		R 2.5	1°	20	15000	2700	0.31	0.99
				30	14000	2100	0.23	0.74
				35	12000	1800	0.21	0.67
				40	12000	1700	0.19	0.61
				45	12000	1500	0.13	0.42
				66	9000	1100	0.08	0.24
	1.5°		50	12000	2200	0.11	0.35	
			84	8000	1400	0.04	0.13	
			3°	30	14000	2500	0.23	0.74
	45	11000		1900	0.16	0.51		
	R 3.0	1°	38	10000	2200	0.28	0.9	
			50	9000	1900	0.24	0.77	
			65	8000	1600	0.16	0.51	
		1.5°	66	8000	1600	0.16	0.51	
			3°	36	10000	2700	0.31	0.99
	R 4.0	1°	40	8000	2200	0.28	0.9	
			50	8000	2000	0.23	0.74	
			73	7000	1700	0.15	0.48	
			90	6500	1500	0.09	0.29	
			1.5°	53	7000	2100	0.22	0.7
				3°	32	9000	2400	0.35
R 5.0		1°	50	6000	2200	0.41	1.31	
			65	6000	2000	0.36	1.15	
			76	6000	1800	0.29	0.93	
	1.5°	90	5000	1400	0.19	0.61		
		40	6000	2300	0.46	1.47		
		56	6000	2200	0.38	1.22		
R 6.0	1°	35	7000	2700	0.49	1.57		
		60	5500	2600	0.51	1.63		
		70	5500	2600	0.46	1.47		
	1.5°	100	5000	2400	0.36	1.15		
		50	5000	2400	0.56	1.79		
		68	5000	2400	0.49	1.57		
R 7.0	1°	46	5000	2400	0.69	2.21		
		70	4500	2600	0.81	2.59		
	1.5°	100	4000	2200	0.61	1.95		
		80	5000	2300	0.71	2.27		
R 8.0	3°	69	5000	2700	0.81	2.59		

MP3XB

Malzeme

RE

BHTA

LU

n

Vf

ap

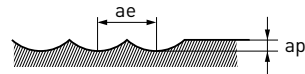
ae

N Bakır, Bakır alaşımları

N	R 2.0	0.5°	30	11000	1800	0.44	1.41	
			40	10000	1600	0.36	1.15	
			60	8500	1400	0.16	0.5	
	R 2.0	1°	20	12000	2200	0.72	2.3	
			30	11000	1800	0.53	1.69	
			35	10000	1700	0.48	1.54	
			40	10000	1600	0.43	1.38	
			45	10000	1600	0.29	0.92	
			66	8500	1300	0.16	0.5	
		1.5°	50	10000	1700	0.24	0.77	
			84	6500	900	0.07	0.23	
			3°	30	11000	2000	0.53	1.69
		45		9000	1600	0.36	1.15	
		R 2.5		1°	38	8500	2000	0.65
			50		8000	1800	0.55	1.77
	65		6500		1400	0.36	1.15	
	1.5°		66	6500	1500	0.36	1.15	
	3°		36	8500	2300	0.72	2.3	
	R 3.0	1°	40	7500	2100	0.65	2.07	
			50	6500	1800	0.53	1.69	
			73	6500	1700	0.34	1.07	
			90	6000	1300	0.19	0.61	
		1.5°	53	6500	1900	0.5	1.61	
		3°	32	8000	2200	0.82	2.61	
R 4.0		1°	50	5500	2000	0.96	3.07	
	65		5200	1700	0.84	2.69		
	76		5000	1500	0.67	2.15		
	90		4700	1200	0.43	1.38		
	1.5°	40	5800	2200	1.08	3.46		
		56	5500	2000	0.9	2.84		
		3°	35	6000	2400	1.15	3.69	
		R 5.0	1°	60	4500	2300	1.2	3.84
70	4500			2200	1.08	3.46		
100	4000			1900	0.84	2.69		
1.5°	50		4600	2400	1.32	4.22		
	68		4600	2300	1.15	3.69		
	3°		46	4800	2500	1.63	5.22	
R 6.0	1°	70	4000	2100	1.92	6.14		
		100	3500	1800	1.44	4.61		
	1.5°	80	4000	2000	1.68	5.38		
	3°	69	4000	2200	1.92	6.14		

MP3XB

Malzeme	RE	BHTA	LU	n	Vf	ap	ae	
H Sertleştirilmiş çelik (45-55 HRC)	R 2.0	0.5°	30	11000	1800	0.22	0.7	
			40	10000	1600	0.18	0.58	
			60	8500	1400	0.07	0.21	
		R 2.5	1°	20	12000	2200	0.3	0.96
				30	11000	1800	0.22	0.7
				35	10000	1700	0.2	0.64
			1.5°	40	10000	1600	0.18	0.58
				45	10000	1600	0.12	0.38
				66	8500	1300	0.07	0.21
	3°		50	10000	1700	0.1	0.32	
			84	6500	900	0.03	0.1	
			30	11000	2000	0.22	0.7	
	R 3.0	1°	45	9000	1600	0.15	0.48	
			38	8500	2000	0.27	0.86	
			50	8000	1800	0.23	0.74	
		1.5°	65	6500	1400	0.15	0.48	
			66	6500	1500	0.15	0.48	
			3°	36	8500	2300	0.3	0.96
		R 4.0	1°	40	7500	2100	0.27	0.86
				50	6500	1800	0.22	0.7
				73	6500	1700	0.14	0.45
	1.5°		90	6000	1300	0.08	0.26	
			53	6500	1900	0.21	0.67	
			3°	32	8000	2200	0.34	1.09
	R 5.0		1°	50	5500	2000	0.4	1.28
				65	5200	1700	0.35	1.12
				76	5000	1500	0.28	0.9
		1.5°	90	4700	1200	0.18	0.58	
			40	5800	2200	0.45	1.44	
			56	5500	2000	0.37	1.18	
3°		35	6000	2400	0.48	1.54		
		60	4500	2300	0.5	1.6		
		70	4500	2200	0.45	1.44		
R 6.0	1°	100	4000	1900	0.35	1.12		
		50	4600	2400	0.55	1.76		
		68	4600	2300	0.48	1.54		
	1.5°	46	4800	2500	0.68	2.18		
		70	4000	2100	0.8	2.56		
		100	3500	1800	0.6	1.92		
	3°	80	4000	2000	0.7	2.24		
		69	4000	2200	0.8	2.56		



1. Kesme derinliği düşükse, devir ve ilerleme hızı arttırılabilir.
2. Makinenin veya çalışma parçasının rijitliği çok düşükse veya gürültülü çalışma ve vuruntu oluyorsa, devri ve ilerleme hızını orantısız olarak düşürün.

NEW

MP3C

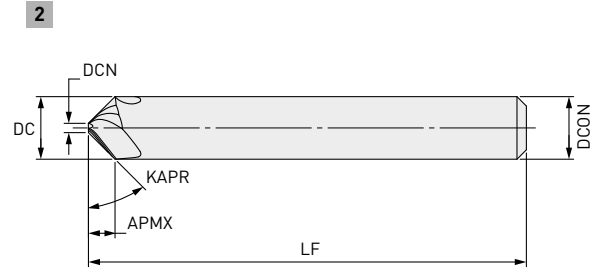
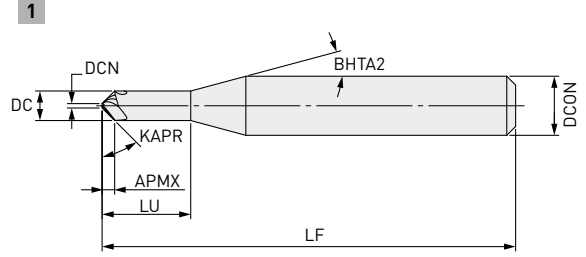
45°
KAPR

UWC

MS+



PAH KIRICI, 3 KANALLI

P **M** **S** **H**

DCN

± 0.03



DCN=6	8<DCN<10	DCN=12
0	0	0
-0.008	-0.009	-0.011

- İdeal helis açısı mükemmel keskinlik sağlar ve çapak oluşmasını önler.
- Yüksek ilerleme ile işleme 3 kanal seçilerek elde edilir.

Sipariş Numarası	Stok	DC	APMX	LU	LF	DCON	ZEFP	DCN	Tip
MP3CD0200	●	2	0.85	6	50	6	3	0.3	1
MP3CD0400	●	4	1.85	12	50	6	3	0.3	1
MP3CD0600	●	6	2.85	—	50	6	3	0.3	2
MP3CD0800	●	8	3.8	—	60	8	3	0.4	2
MP3CD1000	●	10	4.75	—	70	10	3	0.5	2
MP3CD1200	●	12	5.75	—	75	12	3	0.5	2

88

MP3C

ÖNERİLEN KESME KOŞULLARI

KÖŞE VE DELİK PAH KIRMA

Malzeme	DC	Vc	n	Vf	ap		
					Köşe pah kırma	Delik pah kırma	
P Karbonlu çelik, Duktıl dökme demir, Alaşımız çelik (C≥%0,55)	2	100	16000	1400	≤ 0.6	≤ 0.4	
	4	100	8000	720	≤ 1.2	≤ 0.8	
	6	100	5300	480	≤ 1.8	≤ 1.2	
	8	100	4000	360	≤ 2.4	≤ 1.6	
	10	100	3200	290	≤ 2.5	≤ 2.0	
	12	100	2700	240	≤ 2.5	≤ 2.4	
	Alaşımız çelik (325HB) (38-45HRC)	2	70	11000	890	≤ 0.6	≤ 0.4
		4	70	5600	450	≤ 1.2	≤ 0.8
		6	70	3700	300	≤ 1.8	≤ 1.2
		8	70	2800	230	≤ 2.4	≤ 1.6
		10	70	2200	180	≤ 2.5	≤ 2.0
		12	70	1900	150	≤ 2.5	≤ 2.4
M Östenitik paslanmaz, Titanyum alaşım	2	60	9500	680	≤ 0.6	≤ 0.4	
	4	60	4800	350	≤ 1.2	≤ 0.8	
	6	60	3200	230	≤ 1.8	≤ 1.2	
	8	60	2400	170	≤ 2.4	≤ 1.6	
	S	10	60	1900	140	≤ 2.5	≤ 2.0
		12	60	1600	120	≤ 2.5	≤ 2.4
H Sertleştirilmiş Çelik (45-55HRC)	2	50	8000	480	≤ 0.6	≤ 0.4	
	4	50	4000	240	≤ 1.2	≤ 0.8	
	6	50	2700	160	≤ 1.8	≤ 1.2	
	8	50	2000	120	≤ 2.4	≤ 1.6	
	10	50	1600	96	≤ 2.5	≤ 2.0	
	12	50	1300	78	≤ 2.5	≤ 2.4	

1. Östenitik paslanmaz çelikler için suda çözünebilir soğutucu kullanılması etkili olur.
2. Kesme derinliği daha düşük tutularak devir ve ilerleme hızı artırılabilir.
3. Tezgahın veya iş parçasının sağlamlığı düşükse titreşim oluşabilir.
Bu durumda, lütfen devir ve ilerleme hızını orantılı şekilde azaltın.

MP3C

V KANAL AÇMA

Malzeme	DC	Vc	n	Vf	ap	
P Karbonlu çelik, Duktıl dökme demir, Alaşımız çelik (C≥%0,55)	2	80	13000	940	≤ 1.4	
	4	80	6400	460	≤ 2.8	
	6	80	4200	300	≤ 4.2	
	8	80	3200	230	≤ 5.6	
	10	80	2500	180	≤ 7.0	
	12	80	2100	150	≤ 8.4	
	Alaşımız çelik (325HB) (38-45HRC)	2	60	9500	620	≤ 1.4
		4	60	4800	310	≤ 2.8
		6	60	3200	210	≤ 4.2
		8	60	2400	160	≤ 5.6
		10	60	1900	120	≤ 7.0
		12	60	1600	100	≤ 8.4
M Östenitk paslanmaz, Titanıum alışıı	2	50	8000	460	≤ 1.4	
	4	50	4000	230	≤ 2.8	
	6	50	2700	160	≤ 4.2	
	8	50	2000	120	≤ 5.6	
	S	10	50	1600	92	≤ 7.0
		12	50	1300	75	≤ 8.4
H Sertleştirilmiş çelik (45-55HRC)	2	40	6400	310	≤ 1.4	
	4	40	3200	150	≤ 2.8	
	6	40	2100	100	≤ 4.2	
	8	40	1600	77	≤ 5.6	
	10	40	1300	62	≤ 7.0	
	12	40	1100	53	≤ 8.4	

1. Östenitk paslanmaz çelikler için suda çözünebilir soğutucu kullanılması etkili olur.
2. Kesme derinliđi daha düşük tutularak devir ve ilerleme hızı artırılabilir.
3. Tezgahın veya iş parçasının sağlamlığı düşükse titreşim oluşabilir.
Bu durumda, lütfen devir ve ilerleme hızını orantılı şekilde azaltın.

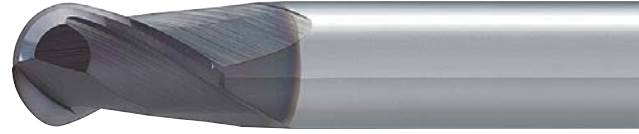
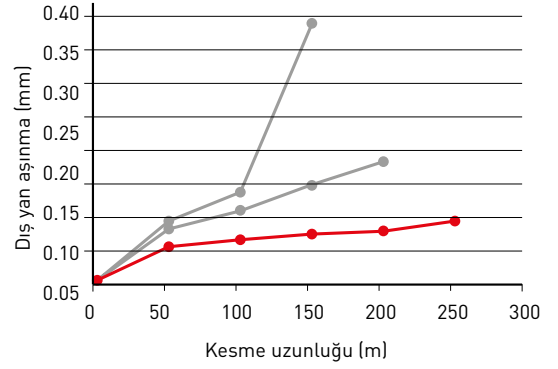
MS PLUS

UYGULAMA ÖRNEKLERİ

KARBON ÇELİĞİ

MS plus, karbon çeliğinin işlenmesi sırasında standart ürünlere göre mükemmel aşınma direnci ve daha uzun takım ömrü sağlar.

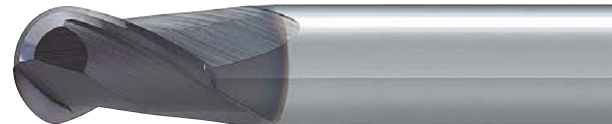
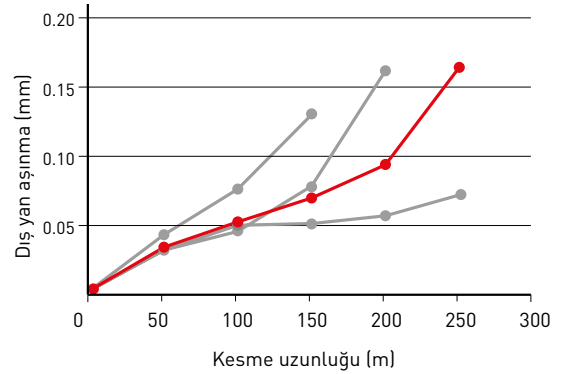
Malzeme	070M55
Takım	2 helisli küre uçlu parmak freze R3
n (dk ⁻¹)	16.000
Vc (m/dk)	284
Vf (mm/dk)	2.000
fz (mm/diş)	0.06
ap (mm)	2
ae (mm)	0.3
Takım çıkma uzunluğu (mm)	20
Kesme Modu	Aşağı kesme
Soğutma Sıvısı	Hava püskürtme
Tezgah	Yatay M/C (BT40)



ALAŞIMLI ÇELİK, TAKIM ÇELİĞİ

MS plus, SKD61 (52 HRC) çeliğin işlenmesi sırasında standart ürünlere göre daha yüksek aşınma direnci gösterir. Daha fazla takım ömrü istenen uygulamalar için, IMPACT MIRACLE teknolojisi tercih edilmelidir.

Malzeme	BH13
Takım	2 helisli küre uçlu parmak freze R3
n (dk ⁻¹)	17.000
Vc (m/dk)	300
Vf (mm/dk)	1.700
fz (mm/diş)	0.05
ap (mm)	2
ae (mm)	0.3
Takım çıkma uzunluğu (mm)	20
Kesme Modu	Aşağı kesme
Soğutma Sıvısı	Hava püskürtme
Tezgah	Yatay M/C (BT40)



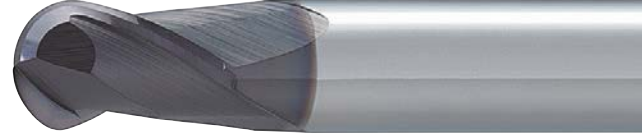
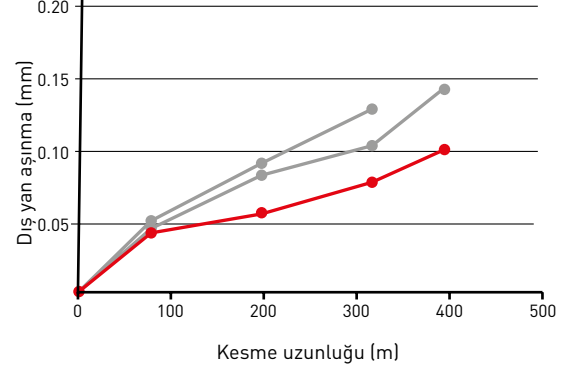
■ : MP2MB ■ A ■ B ■ C : klasik Takım

UYGULAMA ÖRNEKLERİ

SERTLEŞTİRİLMİŞ TAKIM ÇELİĞİ (52 HRC)

MS plus, sertleştirilmiş takım çeliğinin işlenmesinde klasik ürünlerle karşılaştırıldığında daha yüksek aşınma direnci gösterir.

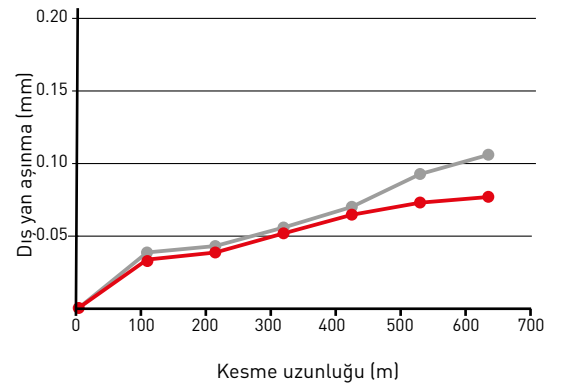
Malzeme	4Cr13
Takım	2 helisli küre uçlu parmak freze R3
n (dk ⁻¹)	18.000
Vc (m/dk)	169
Vf (mm/dk)	3.600
fz (mm/diş)	0.1
ap (mm)	0.4
ae (mm)	1
Takım çıkma uzunluğu (mm)	20
Kesme Modu	Aşağı kesme
Soğutma Sıvısı	Hava püskürtme
Tezgah	Yatay M/C (BT40)



BAKIR

MS plus, bakırın işlenmesi sırasında standart ürünlere göre mükemmel aşınma direnci ve daha uzun takım ömrü sağlar.

Malzeme	Bakır
Takım	2 helisli küre uçlu parmak freze R3
n (dk ⁻¹)	15.000
Vc (m/dk)	267
Vf (mm/dk)	1.500
fz (mm/diş)	0.05
ap (mm)	2
ae (mm)	0.2
Takım çıkma uzunluğu (mm)	20
Kesme Modu	Aşağı kesme
Soğutma Sıvısı	Emülsiyon
Tezgah	Dikey M/C(BT40)



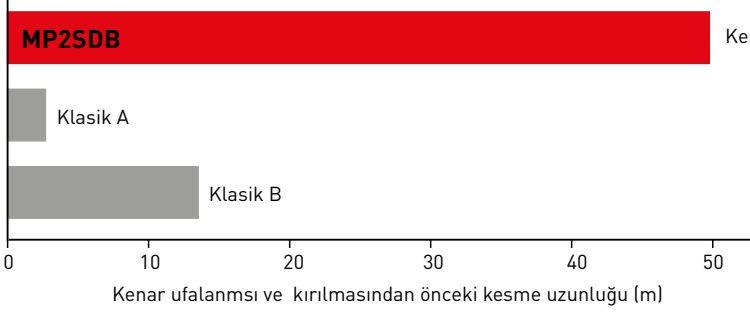
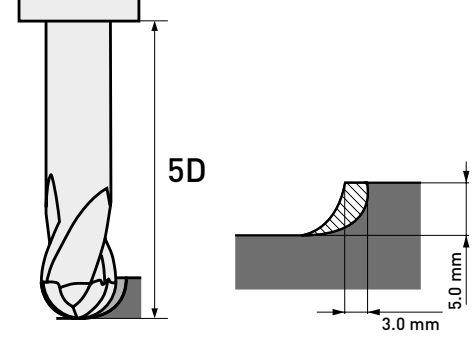
■ : MP2MB ■ A ■ B : klasik Takım

UYGULAMA ÖRNEKLERİ

KENAR UFALANMA DİRENCİ

MP2SDB, kesme derinliğinin fazla, ilerleme hızının yüksek ve takım serbest boyunun uzun olduğu durumlarda bile; kesici uçta yüksek kenar ufalanma direncine sahiptir.

Malzeme	BH13
Takım	MP2SDBR0500
n (dk ⁻¹)	5.000
Vc (m/dk)	157
Vf (mm/dk)	1.000
fz (mm/diş)	0.1
ap (mm)	5.0
ae (mm)	3.0
Takım çıkma uzunluğu (mm)	50
Kesme Modu	Aşağı kesme
Soğutma Sıvısı	Hava püskürtme
Tezgah	Dikey MC (BT50)



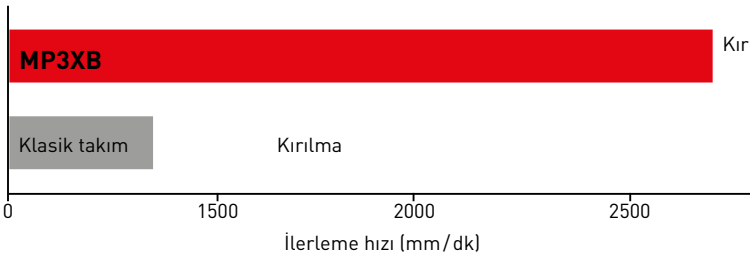
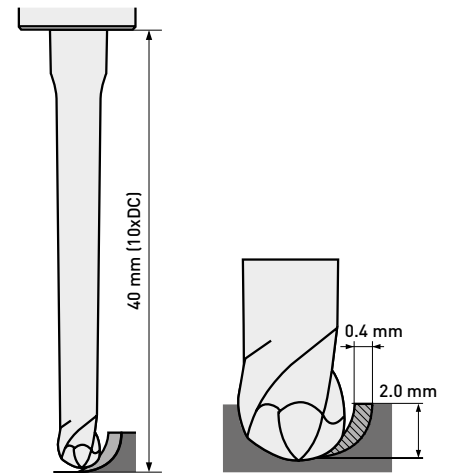
Kenar ufalanması yok



KENAR UFALANMASI DİRENCİ (EFEKTİF TAKIM BOYU 40 MM)

Takım serbest boyunun uzun olduğu kaba işlemlerde dahi devam eden takım formu .

Malzeme	BH13
Takım	MP3XBR0200N040T10
n (dk ⁻¹)	7.500
Vc (m/dk)	94
Vf (mm/dk)	2.600
fz (mm/diş)	0.12
ap (mm)	2
ae (mm)	0.4
Takım çıkma uzunluğu (mm)	40
Kesme Modu	Aşağı kesme
Soğutma Sıvısı	Hava püskürtme
Tezgah	Dikey MC (BT50)



Kırılma Yok

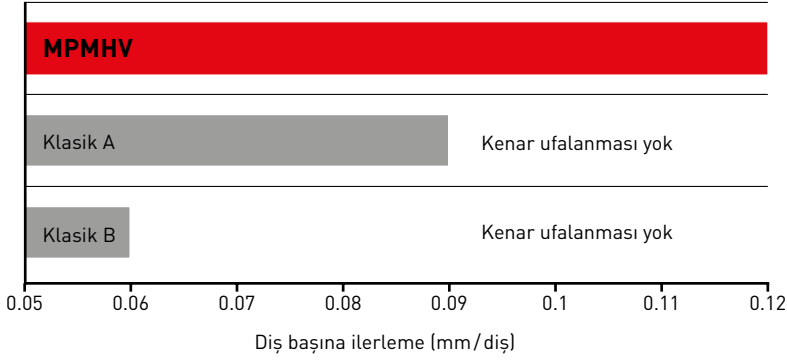
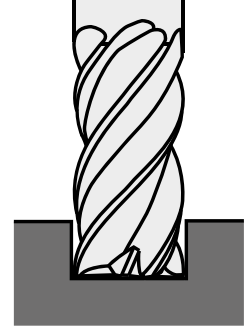


UYGULAMA ÖRNEKLERİ

İLERLEME HIZI KARŞILAŞTIRMASI

Klasik parmak frezelere göre iki kat yüksek ilerleme hızı.

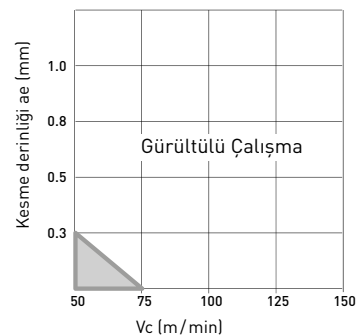
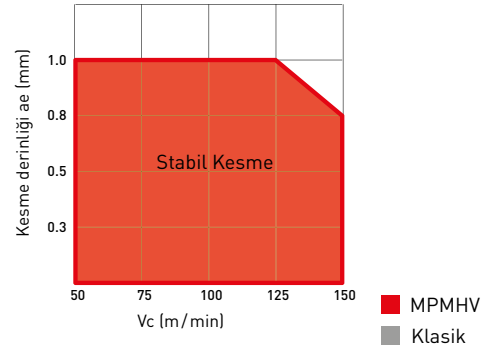
Malzeme	304S15
Takım	MPMHVD1000
n (dk ⁻¹)	2.300
Vc (m/dk)	72.3
Vf (mm/dk)	- 1.104
fz (mm/diş)	- 0.12
ap (mm)	10
ae (mm)	10
Takım çıkma uzunluğu (mm)	4 x DC
Kesme Modu	Aşağıya kesme
Soğutma Sıvısı	Suda çözünür soğutma sıvısı
Tezgah	Dikey M/C (BT50)



GÜRÜLTÜLÜ ÇALIŞMAYI ÖNLEYEN TEKNOLOJİ

Mükemmel titreşim kontrol teknolojisi

Malzeme	304S15
Takım	MPMHVD1000
n (dk ⁻¹)	Tablo
Vc (m/dk)	Tablo
Vf (mm/dk)	640-2.240
fz (mm/diş)	0.1
ap (mm)	20
ae (mm)	Tablo
Takım çıkma uzunluğu (mm)	20
Kesme Modu	Aşağı kesme
Soğutma Sıvısı	Emülsiyon
Tezgah	Yatay M/C (BT40)

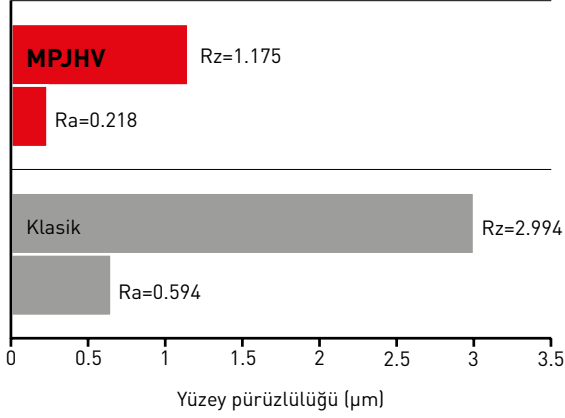
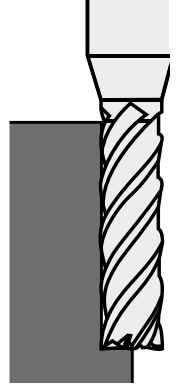


UYGULAMA ÖRNEKLERİ

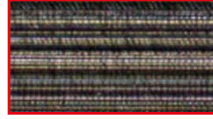
YÜZEY PÜRÜZLÜLÜĞÜ KARŞILAŞTIRMASI

Değişken açılı helis kanalları sayesinde, gürültüsüz çalışma ve iyi yüzey kalitesi.

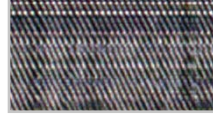
Malzeme	304S15
Takım	MPJHVD0100AP04
n (dk ⁻¹)	15.900
Vc (m/dk)	50
Vf (mm/dk)	357
fz (mm/diş)	0.004
ap (mm)	3.2
ae (mm)	0.003
Takım çıkma uzunluğu (mm)	13
Kesme Modu	Aşağıya kesme
Soğutma Sıvısı	Emülsiyon
Tezgah	Dikey M/C



İşlenmiş yüzey fotoğrafı (Rz).



MPJHV



Klasik teknoloji

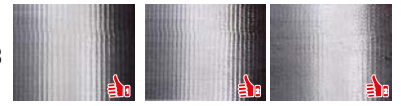
SUS304'DE TİTREŞİM DİRENCİ KARŞILAŞTIRMASI

Malzeme	304S15
Takım	MPMHVRBD1000R100
n (dk ⁻¹)	Tablo
Vc (m/dk)	Tablo
Vf (mm/dk)	960 - 1600
fz (mm/diş)	0.1
ap (mm)	20
ae (mm)	0.8
Takım çıkma uzunluğu (mm)	—
Kesme Modu	—
Soğutma Sıvısı	Su Bazlı
Tezgah	Dik işlem M/C (BT40)

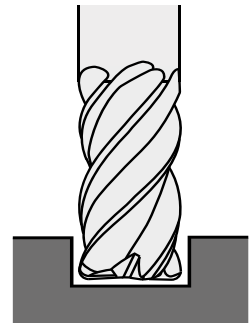
n (min⁻¹) 2400 3200 4000

Vc (m/min) 75 100 125

MPMHVRB



Geleneksel



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