

VFR

SERTLIĐİ YÜKSEK ÇELİKLERİN İŐLENMESİ İÇİN
YENİ NESİL PARMAK FREZE SERİSİ



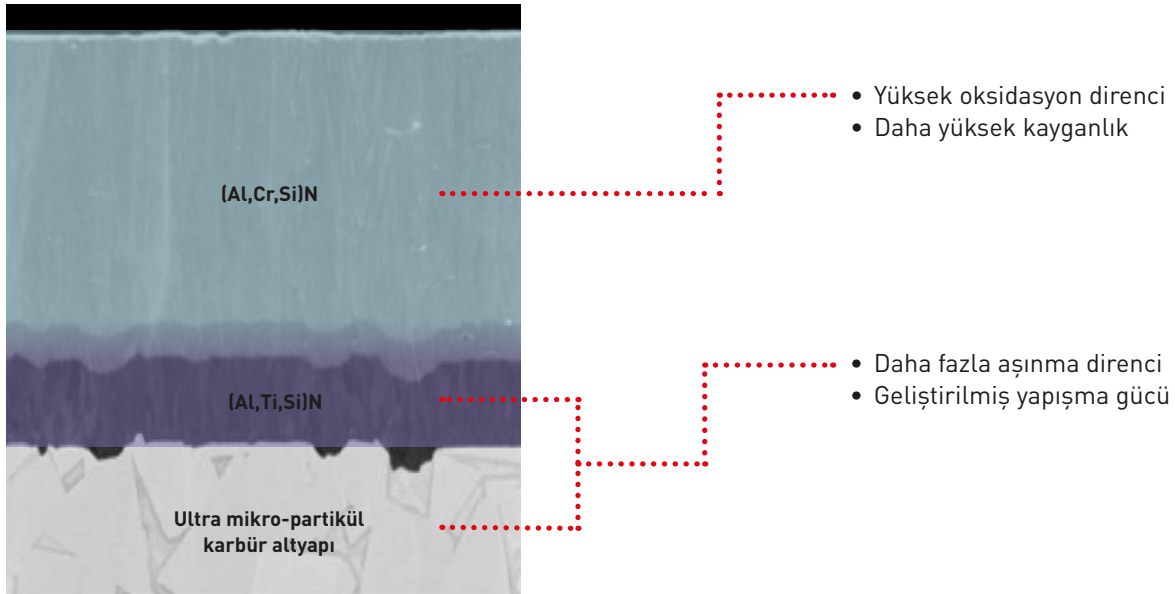
VFR



SERTLIĐİ YÜKSEK ÇELİKLERİN FREZELENMESİ İÇİN PARMAK FREZE SERİSİ

YENİ KAPLAMA TEKNOLOJİSİ

Yeni geliştirilen [AlCrSi]N çok katlı PVD kaplama daha yüksek oksidasyon direnci, daha iyi kayganlık, daha yüksek aşınma direnci ve yapışma kuvveti sunuyor.
70 HRC'ye kadar çok sert malzemelerin frezelenmesi için idealdir.



VFR4MB

YÜKSEK İLERLEME İLE FİNİŞ İŞLEME SIRASINDA DAHA YÜKSEK VERİMLİLİK

İŞLEME SÜRELERİ KISALIRKEN İYİ YÜZEY FİNİŞİ ELDE EDER

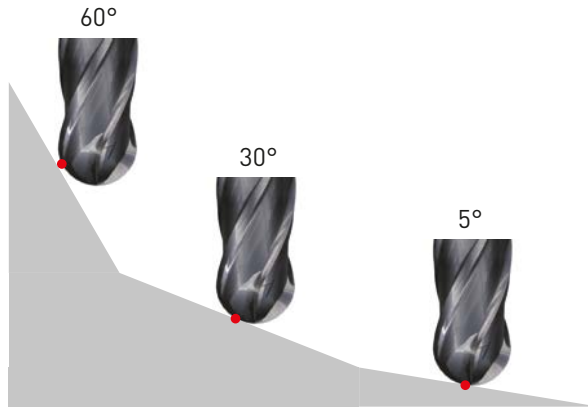


ÇOK YÖNLÜ 4 KANAL TASARIMI

4 kanalın tamamı merkezden dış çapa doğru uzanır. Bu da istenen her kesme açısında yüksek hızı mümkün kılar ve farklı kesme koşullarının hesaplanması ihtiyacını ortadan kaldırır.

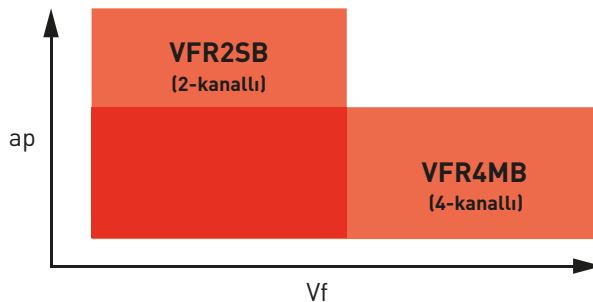


EĞİM AÇISI



2 VE 4 KANALLI GEOMETRİLERİN DOĞRU KULLANIMI

2 kanallı geometriler genellikle daha büyük talaş cebine sahiptir ve yüksek miktarda talaş ortaya çıkartan derin kesme sırasında kaba işlemeyi daha iyi yapar. 4 kanallı geometriler kesme derinliğinin az olduğu işlerde kullanıldığında finiş işleminin verimliliği artırır ve aşınmayı azaltır. Ayrıca, 4 kanallı geometri kullanmak daha sert metalleri daha düşük kesme derinliğinde işlerken avantajlıdır.

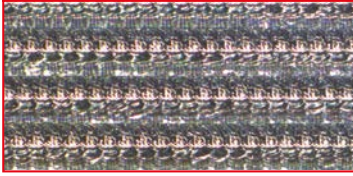


VFR4MB

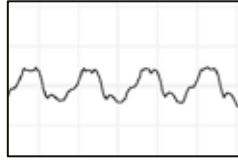
KESME PERFORMANSI

YÜZEY FİNİŞ KARŞILAŞTIRMASI - İŞLENEN MALZEME HS 6-5-3 (62HRC)

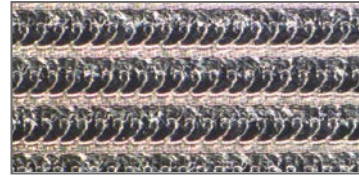
Yüksek verimlilikte işleme sırasında 4 kanallı tipin üstünlüğü vardır ancak, aynı 2 kanallı tip ile aynı ilerlemede kullanılırsa, finiş yüzeyin kalitesi daha iyi hale gelir.



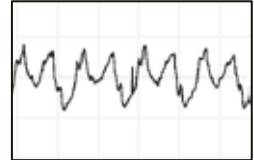
VFR4MB



Ra: 0.27 / Rz: 1.01



2 kanallı geleneksel ürün

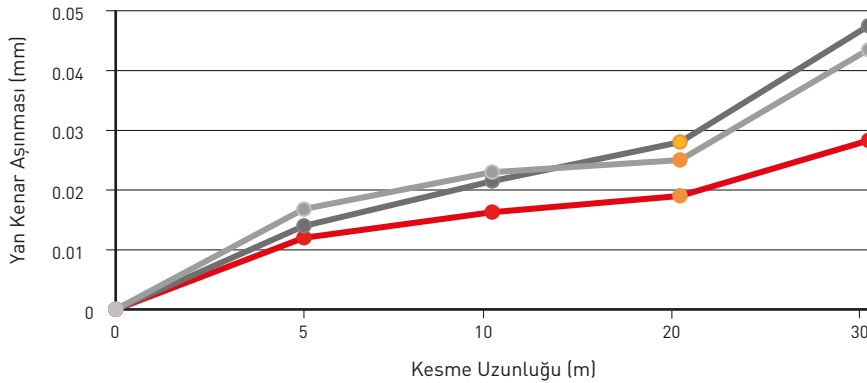


Ra: 0.32 / Rz: 1.62

İş parçası malzemesi	HS 6-5-3 (62HRC)
Takım	VFR4MBR0400 / DC=8 mm
n (dak ⁻¹)	12000
f (mm/dak)	3600
ap (mm)	0.2
ae (mm)	0.8
Takım serbest boy uzunluğu (mm)	20
Kesme türü	Basıncılı Hava püskürtme Aşağı (tırmanma) Kesme

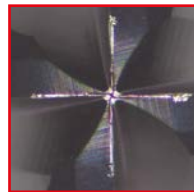
AŞINMA DİRENCİ YÜZEY KARŞILAŞTIRMASI - İŞLENEN MALZEME PMHS7-7-7-11 (69HRC)

IMPACT MIRACLE REVOLUTION parmak frezeler, yüksek sertlikteki iş parçası malzemelerini işlerken dahi mükemmel aşınma direnci sergiler.

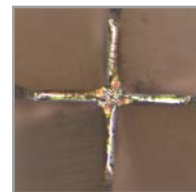


İş parçası malzemesi	PMHS7-7-7-11 (69HRC)
Takım	VFR4MBR0100 / DC=2mm
n (dak ⁻¹)	16000
f (mm/dak)	1200
ap (mm)	0.06
ae (mm)	0.2
Takım serbest boy uzunluğu (mm)	17
Kesme türü	Basıncılı Hava püskürtme Aşağı (tırmanma) Kesme
Tezgah	Dikey MC

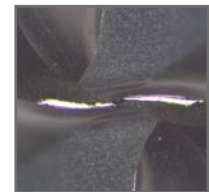
20 m boyunda kesme sonrasında



VFR4MB



Klasik A



Klasik B

VFR2XLB

FİNİŞ İŞLEME İÇİN İDEALDİR

Arkaya doğru konik oluşu ve güçlü, kusursuz küre uçu kesici kenar geometrisi sayesinde dikey duvarların hassas şekilde işlenmesine olanak tanır.



KÜRE UCU OPTİMİZASTONU

Finiş işleme için ideal merkez kanal geometrisi.

DALMA AÇISINI OPTİMİZASTONU

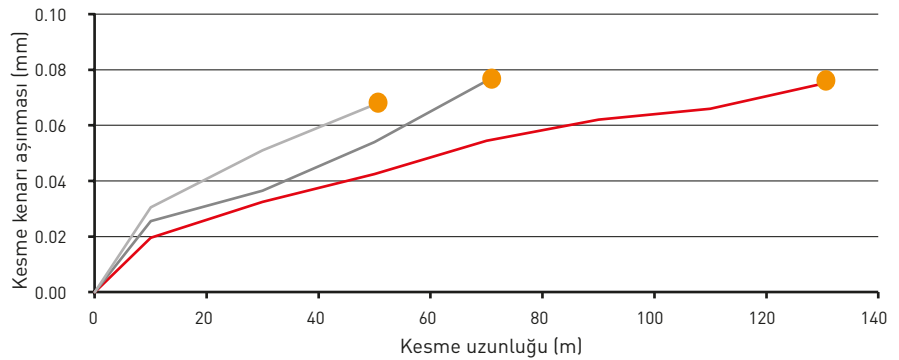
Optimum geometri keskin bir kenar ile iyi kırılma direncini kombine ederek kusursuz finiş yüzey kaliteleri sağlar.

GÜÇLÜ ARKAYA DOĞRU KONİKLİK

Dikey duvarları işlerken titreşimi ve titreme pürüzlülüğünü azaltır.

KESME PERFORMANSI

1.3344 (62HRC) İşleme de – Aşınma Direncinin Karşılaştırılması
Yüksek hassasiyetle işleme için büyük ölçüde geliştirilmiş aşınma direnci.



İş parçası malzemesi	1.3344 (62HRC)
Takım	VFR2XLB R0100N120
n (dak ⁻¹)	1600
f (mm/dak)	1600
fz (mm/diş)	0.05
ap (mm)	0.05 x 10
ae (mm)	0.1 x 10
Takım serbest boy uzunluğu (mm)	18
Kesme türü	Basınçlı Hava püskürtme
Tezgah	Dikey MC (HSK-E32)



VFR2XLB










Klasik A



Klasik B

VFR

ÜRÜNLER

Ürün Kodu	Şekil	DC	P	H	M	S	N	
KÜRE UÇLU PARMAK FREZELER								
NEW VFR4MB	Küre uçlu, orta kesme boyu, 4 kanallı		1-12	○	◎			7
VFR2XLB	Küre uçlu, 2 kanallı, Uzun boyunlu		0.2-6	○	◎			9
VFR2SSB	Küre uçlu, kısa kesme boyu, 2 ağızlı, kısa şaftlı		1-12	○	◎			15
VFR2SB	Küre uçlu, 2 ağızlı kesme kenarıkısa parmak freze		0.2-20	○	◎			17
VFR2SBF	Finiş işleme için küre uçlu iki ağızlı kesme kenarı kısa parmak freze		1-6	○	◎			21
KÖŞE RADYUSLU PARMAK FREZELER								
VFRPSRB	Köşe Radyuslu, kesme boyu kısa uzun boyunlu		0.5-12	○	◎			23

VFR4MB

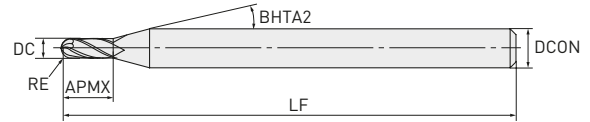


KÜRE UÇLU, ORTA KESME BOYU, 4 KANALLI

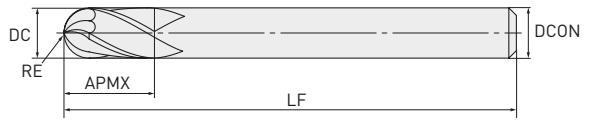
H



1



2



RE

±0.010



DCON = 6 8 ≤ DCON ≤ 10 DCON = 12

0	0	0
- 0.008	- 0.009	- 0.011

- Kesme kenarı merkeze doğru uzanan 4 kanallı geometri, takım ömrünü uzatır ve yüksek verimlilikte işleme alanak verir.

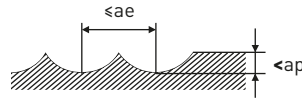
Sipariş Numarası	Stok	RE	DC	APMX	LF	BHTA2	DCON	ZEFP	Tip
VFR4MBR0050	●	0.5	1	2.5	50	15	6	4	1
VFR4MBR0100	●	1	2	6	60	15	6	4	1
VFR4MBR0150	●	1.5	3	8	70	15	6	4	1
VFR4MBR0200	●	2	4	8	70	15	6	4	1
VFR4MBR0250	●	2.5	5	12	80	15	6	4	1
VFR4MBR0300	●	3	6	12	80	—	6	4	2
VFR4MBR0400	●	4	8	14	90	—	8	4	2
VFR4MBR0500	●	5	10	18	100	—	10	4	2
VFR4MBR0600	●	6	12	22	110	—	12	4	2



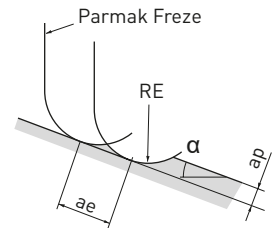
VFR4MB

ÖNERİLEN KESME ŞARTLARI

Malzeme	RE	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		ap	ae
		n	f	n	f		
Sertleştirilmiş Çelik (45-55 HRC)	0.5	40000	8000	40000	3800	0.06	0.10
	1.0	40000	9600	40000	5600	0.11	0.20
	1.5	40000	12000	32000	5600	0.13	0.30
	2.0	32000	11000	24000	4700	0.15	0.40
	2.5	25000	9000	19000	3800	0.20	0.50
	3.0	21000	8400	15000	3400	0.25	0.60
	4.0	16000	6400	12000	2600	0.30	0.80
	5.0	13000	5200	9600	2200	0.50	1.00
	6.0	9000	3600	7200	1700	0.50	1.20
H Sertleştirilmiş Çelik (55-65 HRC)	0.5	40000	5600	40000	3100	0.05	0.10
	1.0	40000	8000	28000	3100	0.10	0.20
	1.5	32000	7700	19000	2900	0.12	0.30
	2.0	24000	6200	14000	2500	0.13	0.40
	2.5	19000	5300	12000	2200	0.15	0.50
	3.0	16000	4800	9600	2000	0.20	0.60
	4.0	12000	3600	7200	1600	0.20	0.80
	5.0	10000	3200	5800	1300	0.20	1.00
	6.0	7000	2200	4300	940	0.30	1.20
Sertleştirilmiş Çelik (65-70 HRC)	0.5	40000	4700	32000	1700	0.03	0.10
	1.0	24000	5000	16000	1200	0.06	0.20
	1.5	16000	4200	11000	1100	0.07	0.30
	2.0	12000	3100	8000	1000	0.08	0.40
	2.5	9600	2700	6000	780	0.08	0.50
	3.0	8000	2300	5000	780	0.09	0.60
	4.0	6000	1900	4000	620	0.09	0.80
	5.0	4800	1500	3000	550	0.10	1.00
	6.0	3600	1100	2200	400	0.10	1.20



1. Kesme derinliği düşükse, devir ve ilerleme hızı artırılabilir. Özellikle yüzey kalitesinin önemli olduğu durumlarda lütfen ilerleme hızını düşürün.
2. Makinenin veya iş parçasının bağlama rijitliği çok düşükse veya gürültü ve gıcırdama mevcutsa, devir, ilerleme hızı ve kesme derinliğini uygun şekilde ayarlayın.
3. α işlenecek yüzeyin eğim açısıdır.



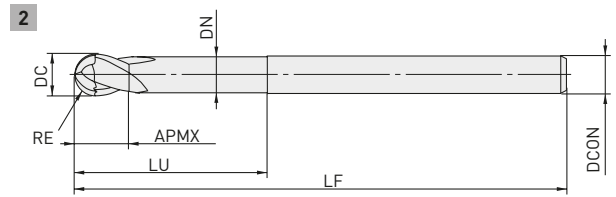
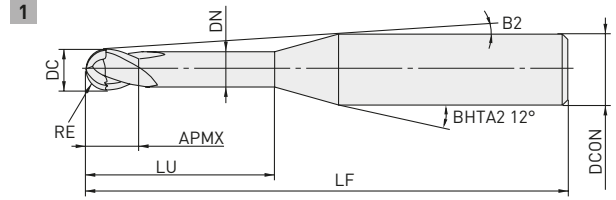
ae: Yanal Kayma

VFR2XLB



KÜRE UÇLU, 2 KANALLI, UZUN BOYUNLU

H



RE ≤ 3

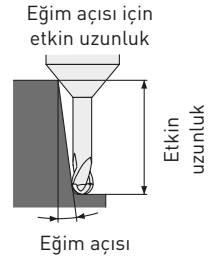
±0.005



4 ≤ DCON ≤ 6

0

- 0.005



- Arkaya doğru konik ve güçlü kusursuz küre uçlu kesici kenar geometrisi dikey duvarların hassas bir şekilde işlenmesine olanak tanır.

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	LF	DCON	B2	ZEFP	Tıp	Eğim açısı için etkin uzunluk			
												0.5°	1°	2°	3°
VFR2XLB0010N005	●	0.1	0.2	0.15	0.5	0.18	50	4	11.5°	2	1	0.5	0.5	0.6	0.7
VFR2XLB0010N010	●	0.1	0.2	0.15	1	0.18	50	4	10.9°	2	1	1	1.1	1.2	1.3
VFR2XLB0015N010	●	0.15	0.3	0.24	1	0.28	50	4	10.9°	2	1	1	1.1	1.2	1.3
VFR2XLB0015N015	●	0.15	0.3	0.24	1.5	0.28	50	4	10.4°	2	1	1.6	1.6	1.8	2
VFR2XLB0015N020	●	0.15	0.3	0.24	2	0.28	50	4	9.9°	2	1	2.1	2.2	2.4	2.6
VFR2XLB0020N010	●	0.2	0.4	0.3	1	0.37	50	4	11°	2	1	1	1.1	1.2	1.3
VFR2XLB0020N015	●	0.2	0.4	0.3	1.5	0.37	50	4	10.4°	2	1	1.5	1.6	1.7	1.9
VFR2XLB0020N020	●	0.2	0.4	0.3	2	0.37	50	4	9.9°	2	1	2.1	2.2	2.3	2.6
VFR2XLB0020N025	●	0.2	0.4	0.3	2.5	0.37	50	4	9.5°	2	1	2.6	2.7	2.9	3.3
VFR2XLB0020N030	●	0.2	0.4	0.3	3	0.37	50	4	9.1°	2	1	3.1	3.2	3.5	3.9
VFR2XLB0020N040	●	0.2	0.4	0.3	4	0.37	50	4	8.4°	2	1	4.2	4.3	4.7	5.2
VFR2XLB0025N015	●	0.25	0.5	0.37	1.5	0.47	50	4	10.4°	2	1	1.5	1.6	1.7	1.9
VFR2XLB0025N020	●	0.25	0.5	0.37	2	0.47	50	4	9.9°	2	1	2.1	2.1	2.3	2.6
VFR2XLB0025N025	●	0.25	0.5	0.37	2.5	0.47	50	4	9.5°	2	1	2.6	2.7	2.9	3.2
VFR2XLB0025N030	●	0.25	0.5	0.37	3	0.47	50	4	9.1°	2	1	3.1	3.2	3.5	3.9
VFR2XLB0025N040	●	0.25	0.5	0.37	4	0.47	50	4	8.3°	2	1	4.1	4.3	4.7	5.2
VFR2XLB0030N020	●	0.3	0.6	0.45	2	0.57	50	4	9.9°	2	1	2.1	2.2	2.4	2.6
VFR2XLB0030N020S06	●	0.3	0.6	0.45	2	0.57	50	6	10.6°	2	1	2.1	2.2	2.4	2.6
VFR2XLB0030N030	●	0.3	0.6	0.45	3	0.57	50	4	9°	2	1	3.1	3.3	3.6	4
VFR2XLB0030N030S06	●	0.3	0.6	0.45	3	0.57	50	6	9.9°	2	1	3.1	3.3	3.6	4

1. VFR2XLB ürünlerindeki kaplamanın rengi, VFR serisindeki diğer frezelerden farklıdır.

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

VFR2XLB – KÜRE UÇLU, 2 KANALLI, UZUN BOYUNLU

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	LF	DCON	B2	ZEPF	Tip	Eğim açısı için etkin uzunluk			
												0.5°	1°	2°	3°
VFR2XLB0030N040	●	0.3	0.6	0.45	4	0.57	50	4	8.2°	2	1	4.2	4.4	4.8	5.3
VFR2XLB0030N050	●	0.3	0.6	0.45	5	0.57	50	4	7.6°	2	1	5.2	5.5	6	6.6
VFR2XLB0030N060	●	0.3	0.6	0.45	6	0.57	50	4	7.1°	2	1	6.3	6.6	7.2	7.9
VFR2XLB0040N030	●	0.4	0.8	0.6	3	0.77	50	4	8.9°	2	1	3.1	3.3	3.6	3.9
VFR2XLB0040N040	●	0.4	0.8	0.6	4	0.77	50	4	8.2°	2	1	4.2	4.4	4.8	5.2
VFR2XLB0040N060	●	0.4	0.8	0.6	6	0.77	50	4	6.9°	2	1	6.3	6.5	7.2	7.9
VFR2XLB0040N080	●	0.4	0.8	0.6	8	0.77	50	4	6°	2	1	8.4	8.7	9.5	10.6
VFR2XLB0050N030	●	0.5	1	0.75	3	0.96	50	4	8.7°	2	1	3.2	3.4	3.7	4.1
VFR2XLB0050N030S06	●	0.5	1	0.75	3	0.96	50	6	9.8°	2	1	3.2	3.4	3.7	4.1
VFR2XLB0050N040	●	0.5	1	0.75	4	0.96	50	4	7.9°	2	1	4.3	4.5	4.9	5.4
VFR2XLB0050N040S06	●	0.5	1	0.75	4	0.96	50	6	9.2°	2	1	4.3	4.5	4.9	5.4
VFR2XLB0050N060	●	0.5	1	0.75	6	0.96	50	4	6.7°	2	1	6.3	6.5	7.2	7.9
VFR2XLB0050N060S06	●	0.5	1	0.75	6	0.96	50	6	8.2°	2	1	6.3	6.5	7.2	7.9
VFR2XLB0050N080	●	0.5	1	0.75	8	0.96	50	4	5.8°	2	1	8.5	8.9	9.7	10.7
VFR2XLB0050N100	●	0.5	1	0.75	10	0.96	50	4	5.1°	2	1	10.6	11.1	12.1	13.4
VFR2XLB0050N120	●	0.5	1	0.75	12	0.96	50	4	4.6°	2	1	12.7	13.2	14.5	16
VFR2XLB0075N060	●	0.75	1.5	1.1	6	1.44	50	4	6.3°	2	1	6.3	6.6	7.2	7.9
VFR2XLB0075N060S06	●	0.75	1.5	1.1	6	1.44	50	6	8°	2	1	6.3	6.6	7.2	7.9
VFR2XLB0075N080	●	0.75	1.5	1.1	8	1.44	50	4	5.4°	2	1	8.4	8.8	9.6	10.6
VFR2XLB0075N080S06	●	0.75	1.5	1.1	8	1.44	50	6	7.2°	2	1	8.4	8.8	9.6	10.6
VFR2XLB0075N100	●	0.75	1.5	1.1	10	1.44	50	4	4.7°	2	1	10.5	11	12	13.2
VFR2XLB0075N120	●	0.75	1.5	1.1	12	1.44	50	4	4.2°	2	1	12.6	13.1	14.4	15.9
VFR2XLB0075N140	●	0.75	1.5	1.1	14	1.44	50	4	3.8°	2	1	14.7	15.3	16.8	18.5
VFR2XLB0075N160	●	0.75	1.5	1.1	16	1.44	60	4	3.4°	2	1	16.8	17.5	19.2	21.2
VFR2XLB0100N060	●	1	2	1.5	6	1.94	50	4	5.8°	2	1	6.3	6.6	7.1	7.8
VFR2XLB0100N060S06	●	1	2	1.5	6	1.94	50	6	7.8°	2	1	6.3	6.6	7.1	7.8
VFR2XLB0100N080	●	1	2	1.5	8	1.94	50	4	4.8°	2	1	8.4	8.8	9.5	10.5
VFR2XLB0100N080S06	●	1	2	1.5	8	1.94	50	6	6.9°	2	1	8.4	8.8	9.5	10.5
VFR2XLB0100N100	●	1	2	1.5	10	1.94	50	4	4.2°	2	1	10.5	10.9	11.9	13.1
VFR2XLB0100N100S06	●	1	2	1.5	10	1.94	50	6	6.2°	2	1	10.5	10.9	11.9	13.1
VFR2XLB0100N120	●	1	2	1.5	12	1.94	50	4	3.6°	2	1	12.6	13.1	14.3	15.8
VFR2XLB0100N120S06	●	1	2	1.5	12	1.94	50	6	5.6°	2	1	12.6	13.1	14.3	15.8
VFR2XLB0100N160	●	1	2	1.5	16	1.94	60	4	2.9°	2	1	16.8	17.5	19.1	*
VFR2XLB0100N160S06	●	1	2	1.5	16	1.94	60	6	4.7°	2	1	16.8	17.5	19.1	21.1
VFR2XLB0100N200	●	1	2	1.5	20	1.94	60	4	2.4°	2	1	20.9	21.8	23.9	*
VFR2XLB0100N200S06	●	1	2	1.5	20	1.94	60	6	4°	2	1	20.9	21.8	23.9	26.4
VFR2XLB0125N100	●	1.25	2.5	1.9	10	2.4	60	4	3.5°	2	1	10.4	10.8	11.8	12.9
VFR2XLB0125N150	●	1.25	2.5	1.9	15	2.4	60	4	2.5°	2	1	15.6	16.3	17.8	*
VFR2XLB0150N100	●	1.5	3	2.3	10	2.9	60	6	5.5°	2	1	10.4	10.8	11.7	12.9
VFR2XLB0150N120	●	1.5	3	2.3	12	2.9	60	6	4.9°	2	1	12.5	13	14.1	15.5
VFR2XLB0150N160	●	1.5	3	2.3	16	2.9	70	6	4°	2	1	16.7	17.3	18.9	20.8
VFR2XLB0150N200	●	1.5	3	2.3	20	2.9	70	6	3.4°	2	1	20.8	21.7	23.7	26.1
VFR2XLB0150N250	●	1.5	3	2.3	25	2.9	70	6	2.8°	2	1	26.1	27.2	29.7	*
VFR2XLB0150N300	●	1.5	3	2.3	30	2.9	70	6	2.5°	2	1	31.3	32.6	35.7	*

1. VFR2XLB ürünlerindeki kaplamanın rengi, VFR serisindeki diğer frezelerden farklıdır.

* Temassız

VFR2XLB – KÜRE UÇLU, 2 KANALLI, UZUN BOYUNLU

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	LF	DCON	B2	ZEFP	Tip	Eğim açısı için etkin uzunluk			
												0.5°	1°	2°	3°
VFR2XLB0200N100	●	2	4	3	10	3.9	70	6	4.5°	2	1	10.4	10.8	11.6	12.7
VFR2XLB0200N120	●	2	4	3	12	3.9	70	6	3.9°	2	1	12.5	12.9	14	15.4
VFR2XLB0200N160	●	2	4	3	16	3.9	70	6	3.1°	2	1	16.6	17.3	18.8	20.7
VFR2XLB0200N200	●	2	4	3	20	3.9	70	6	2.6°	2	1	20.8	21.7	23.6	*
VFR2XLB0200N250	●	2	4	3	25	3.9	70	6	2.1°	2	1	26	27.1	29.6	*
VFR2XLB0200N300	●	2	4	3	30	3.9	70	6	1.8°	2	1	31.2	32.6	*	*
VFR2XLB0250N200	●	2.5	5	3.8	20	4.9	70	6	1.5°	2	1	20.8	21.6	*	*
VFR2XLB0250N250	●	2.5	5	3.8	25	4.9	70	6	1.2°	2	1	26	27.1	*	*
VFR2XLB0300N180	●	3	6	6	18	5.85	80	6	—	2	2	*	*	*	*
VFR2XLB0300N300	●	3	6	6	30	5.85	80	6	—	2	2	*	*	*	*

1. VFR2XLB ürünlerindeki kaplamanın rengi, VFR serisindeki diğer frezelerden farklıdır.



* Temassız

VFR2XLB

ÖNERİLEN KESME ŞARTLARI

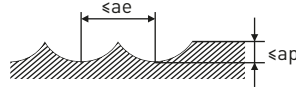
Malzeme	RE	LU	n	f	ap	ae
H Sertleştirilmiş çelik (45-55 HRC)	0.1	0.5	40000	300	0.003	0.01
	0.1	1	40000	300	0.002	0.01
	0.15	1	40000	500	0.007	0.015
	0.15	1.5	40000	500	0.005	0.015
	0.15	2	40000	500	0.003	0.015
	0.2	1	40000	1400	0.015	0.02
	0.2	1.5	40000	1000	0.01	0.02
	0.2	2	40000	1000	0.01	0.02
	0.2	2.5	40000	700	0.005	0.02
	0.2	3	40000	700	0.005	0.02
	0.2	4	40000	600	0.004	0.02
	0.25	1.5	40000	2000	0.02	0.025
	0.25	2	40000	2000	0.02	0.025
	0.25	2.5	40000	1500	0.015	0.025
	0.25	3	40000	1200	0.015	0.025
	0.25	4	36000	900	0.1	0.025
	0.3	2	40000	2800	0.03	0.03
	0.3	3	40000	2800	0.03	0.03
	0.3	4	35000	2000	0.02	0.03
	0.3	5	30000	1000	0.01	0.03
	0.3	6	30000	800	0.008	0.03
	0.4	3	40000	3000	0.04	0.04
	0.4	4	40000	3000	0.02	0.04
	0.4	6	30000	1600	0.02	0.04
	0.4	8	25000	1000	0.01	0.04
	0.5	3	40000	4000	0.05	0.05
	0.5	4	40000	4000	0.05	0.05
	0.5	6	35000	2000	0.03	0.05
	0.5	8	30000	1600	0.02	0.05
	0.5	10	20000	1000	0.01	0.05
	0.5	12	20000	1000	0.01	0.05
	0.75	6	40000	5000	0.07	0.075
	0.75	8	40000	5000	0.07	0.075
	0.75	10	40000	4500	0.06	0.075
	0.75	12	32000	3400	0.04	0.075
	0.75	14	16000	1500	0.04	0.075
	0.75	16	13000	1200	0.03	0.075
	1	6	40000	6000	0.1	0.1
	1	8	40000	5000	0.1	0.1
	1	10	40000	5000	0.08	0.1
1	12	40000	5000	0.08	0.1	
1	16	32000	3500	0.05	0.1	
1	20	10000	1000	0.04	0.1	
1.25	10	36000	5000	0.12	0.25	
1.25	15	36000	4600	0.08	0.25	
1.5	10	32000	5100	0.15	0.3	
1.5	12	32000	5100	0.13	0.3	

VFR2XLB

Malzeme	RE	LU	n	f	ap	ae
H Sertleştirilmiş çelik (45-55 HRC)	1.5	16	32000	4500	0.1	0.3
	1.5	20	27000	3800	0.1	0.3
	1.5	25	21000	2700	0.08	0.3
	1.5	30	9000	1000	0.08	0.3
	2	10	24000	4800	0.2	0.4
	2	12	24000	4800	0.2	0.4
	2	16	24000	3800	0.15	0.4
	2	20	24000	3800	0.15	0.4
	2	25	24000	3800	0.15	0.4
	2	30	24000	3000	0.1	0.4
	2.5	20	19000	3400	0.2	0.5
	2.5	25	19000	3400	0.2	0.5
	3	18	16000	3500	0.25	0.6
	3	30	16000	3500	0.2	0.6
H Sertleştirilmiş çelik (55-70 HRC)	0.1	0.5	40000	300	0.002	0.01
	0.1	1	40000	300	0.002	0.01
	0.15	1	40000	500	0.005	0.015
	0.15	1.5	40000	500	0.003	0.015
	0.15	2	40000	500	0.002	0.015
	0.2	1	40000	1400	0.01	0.02
	0.2	1.5	40000	1000	0.006	0.02
	0.2	2	40000	1000	0.006	0.02
	0.2	2.5	40000	700	0.003	0.02
	0.2	3	40000	700	0.003	0.02
	0.2	4	40000	500	0.003	0.02
	0.25	1.5	40000	2000	0.015	0.025
	0.25	2	40000	2000	0.015	0.025
	0.25	2.5	40000	1500	0.01	0.025
	0.25	3	40000	1200	0.01	0.025
	0.25	4	36000	900	0.007	0.025
	0.3	2	40000	2800	0.02	0.03
	0.3	3	40000	2800	0.02	0.03
	0.3	4	35000	2000	0.015	0.03
	0.3	5	30000	1000	0.007	0.03
	0.3	6	30000	800	0.005	0.03
	0.4	3	40000	3000	0.03	0.04
	0.4	4	40000	3000	0.015	0.04
	0.4	6	30000	1600	0.01	0.04
	0.4	8	25000	1000	0.007	0.04
	0.5	3	40000	4000	0.04	0.05
	0.5	4	40000	4000	0.04	0.05
	0.5	6	35000	2000	0.02	0.05
	0.5	8	30000	1600	0.01	0.05
	0.5	10	20000	1000	0.01	0.05
	0.5	12	20000	800	0.008	0.05
	0.75	6	40000	4000	0.06	0.075
0.75	8	40000	3500	0.06	0.075	
0.75	10	40000	2400	0.06	0.075	
0.75	12	32000	2000	0.04	0.075	
0.75	14	16000	1200	0.03	0.075	

VFR2XLB

Malzeme	RE	LU	n	f	ap	ae
H Sertleştirilmiş çelik (55-70 HRC)	0.75	16	13000	1200	0.02	0.075
	1	6	40000	3400	0.1	0.1
	1	8	40000	3000	0.1	0.1
	1	10	40000	3000	0.07	0.1
	1	12	40000	2600	0.05	0.1
	1	16	32000	1700	0.03	0.1
	1	20	10000	1000	0.03	0.1
	1.25	10	36000	2600	0.11	0.25
	1.25	15	36000	2000	0.075	0.25
	1.5	10	32000	2200	0.15	0.3
	1.5	12	32000	2200	0.13	0.3
	1.5	16	32000	1800	0.1	0.3
	1.5	20	27000	1600	0.06	0.3
	1.5	25	21000	1200	0.06	0.3
	1.5	30	9000	700	0.05	0.3
	2	10	24000	2200	0.2	0.4
	2	12	24000	2200	0.2	0.4
	2	16	24000	1500	0.15	0.4
	2	20	24000	1500	0.15	0.4
	2	25	24000	1100	0.1	0.4
	2	30	24000	1100	0.08	0.4
	2.5	20	19000	1400	0.2	0.5
	2.5	25	19000	1400	0.2	0.5
	3	18	16000	1000	0.2	0.6
	3	30	16000	1000	0.2	0.6



- İşlenen yüzeyin eğim açısı büyük olduğunda veya yüksek kesme yükü ile işleme yapıldığında; (köşelerde olduğu gibi), devir ve ilerleme hızını düşürün.
- Kesme derinliği düşükse, devir ve ilerleme hızı artırılabilir.
- Kesme koşulları, takım serbest boyu, kesme derinliği ve işleme tezgahının durumuna bağlı olarak farklılıklar gösterebilir. Lütfen yukarıdaki tabloyu tavsiye edilen başlangıç noktası olarak kullanın.

VFR2SSB



KÜRE UÇLU, KISA KESME BOYU, 2 AĞIZLI, KISA ŞAFTLI

H



RE ≤ 6

±0.005



4 ≤ DCON ≤ 6 8 ≤ DCON ≤ 10 DCON = 12

0

0

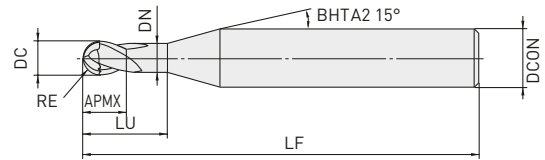
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- 0.005

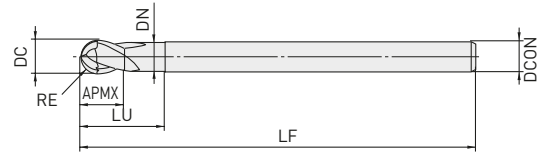
- 0.006

- 0.008

1



2

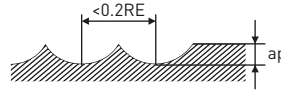


Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	LF	DCON	ZEFP	Tip
VFR2SSBR0050S04	●	0.5	1	1	2	0.94	40	4	2	1
VFR2SSBR0050	●	0.5	1	1	2	0.94	40	6	2	1
VFR2SSBR0075S04	●	0.75	1.5	1.5	3	1.44	40	4	2	1
VFR2SSBR0075	●	0.75	1.5	1.5	3	1.44	40	6	2	1
VFR2SSBR0100	●	1	2	2	4	1.9	45	6	2	1
VFR2SSBR0150	●	1.5	3	3	6	2.9	45	6	2	1
VFR2SSBR0200	●	2	4	4	8	3.9	45	6	2	1
VFR2SSBR0250	●	2.5	5	5	10	4.9	50	6	2	1
VFR2SSBR0300	●	3	6	6	12	5.85	50	6	2	2
VFR2SSBR0400	●	4	8	8	14	7.85	60	8	2	2
VFR2SSBR0500	●	5	10	10	18	9.7	70	10	2	2
VFR2SSBR0600	●	6	12	12	22	11.7	75	12	2	2

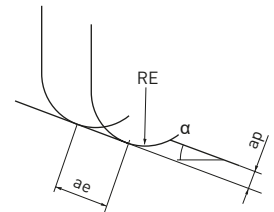
VFR2SSB

ÖNERİLEN KESME ŞARTLARI

Malzeme	RE	Eğim açısı $\alpha < 15^\circ$		Eğim açısı $\alpha > 15^\circ$		ap	ae
		n	f	n	f		
H Sertleştirilmiş çelik (45-55 HRC)	R 0.5	40000	8000	40000	3200	0.06	0.10
	R 0.75	40000	9600	40000	4000	0.09	0.15
	R 1	40000	9600	39000	4700	0.11	0.20
	R 1.5	40000	12000	27000	4300	0.13	0.30
	R 2	32000	10880	20000	3600	0.15	0.40
	R 2.5	25000	9000	16000	2900	0.20	0.50
	R 3	21000	8400	13000	2600	0.25	0.60
	R 4	16000	6400	10000	2000	0.30	0.80
	R 5	13000	5200	8000	1700	0.50	1.00
	R 6	9000	3600	6000	1300	0.50	1.20
Sertleştirilmiş çelik (55-62HRC)	R 0.5	40000	5600	40000	2400	0.05	0.10
	R 0.75	40000	7200	32000	2500	0.075	0.15
	R 1	40000	8000	24000	2400	0.1	0.20
	R 1.5	32000	7700	16000	2200	0.12	0.30
	R 2	24000	6200	12000	1900	0.13	0.40
	R 2.5	19000	5300	9600	1700	0.15	0.50
	R 3	16000	4800	8000	1600	0.2	0.60
	R 4	12000	3600	6000	1200	0.2	0.80
	R 5	10000	3200	4800	960	0.2	1.00
	R 6	7000	2200	3600	720	0.3	1.20
H Sertleştirilmiş çelik (62-70HRC)	R 0.5	40000	3600	32000	1300	0.04	0.10
	R 0.75	32000	4500	21000	1200	0.05	0.15
	R 1	24000	3800	16000	1000	0.07	0.20
	R 1.5	16000	3200	11000	880	0.09	0.30
	R 2	12000	2400	8000	800	0.1	0.40
	R 2.5	9600	2100	6000	600	0.1	0.50
	R 3	8000	1700	5000	600	0.11	0.60
	R 4	6000	1400	4000	480	0.11	0.80
	R 5	4800	1100	3000	420	0.12	1.00
	R 6	3600	860	2200	310	0.12	1.20



1. α işlenen yüzeyin eğim açısıdır.
2. Tezgahın veya iş parçasının bağlama rijidliği çok zayıf ise veya anormal ses ve gürültü oluyorsa, devri ve ilerleme hızını orantısal olarak düşürün.

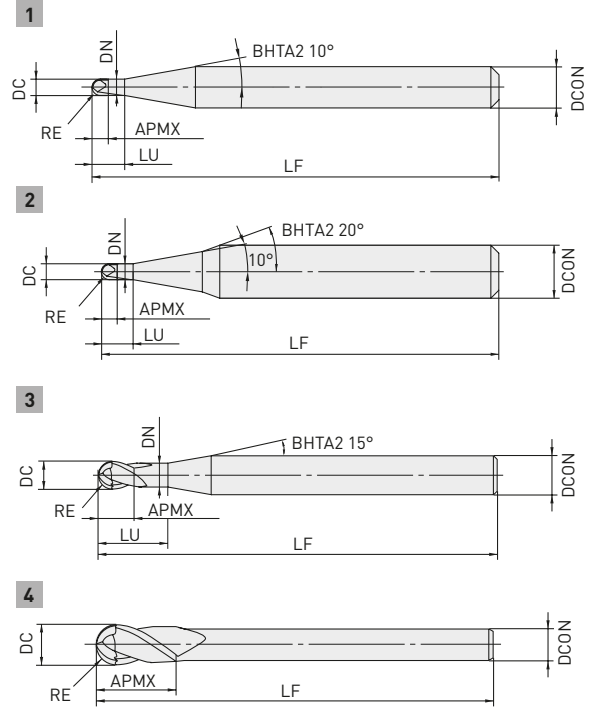


VFR2SB



KÜRE UÇLU, 2 AĞIZLI KESME KENARI KISA PARMAK FREZE

H



RE ≤ 6

RE > 6

±0.005

±0.010



DCON=3

4 ≤ DCON ≤ 6

8 ≤ DCON ≤ 10

DCON=12,16

DCON=20

0

0

0

0

0

-0.004

-0.005

-0.006

-0.008

-0.009

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	LF	DCON	ZEFP	Tip
VFR2SBR0010	●	0.1	0.2	0.2	0.4	0.17	45	4	2	1
VFR2SBR0010S06	●	0.1	0.2	0.2	0.4	0.17	50	6	2	2
VFR2SBR0015	●	0.15	0.3	0.3	0.6	0.27	45	4	2	1
VFR2SBR0015S06	●	0.15	0.3	0.3	0.6	0.27	50	6	2	2
VFR2SBR0020	●	0.2	0.4	0.4	0.8	0.36	45	4	2	1
VFR2SBR0020S06	●	0.2	0.4	0.4	0.8	0.36	50	6	2	2
VFR2SBR0030	●	0.3	0.6	0.6	1.2	0.56	45	4	2	3
VFR2SBR0030S06	●	0.3	0.6	0.6	1.2	0.56	50	6	2	3
VFR2SBR0040	●	0.4	0.8	0.8	1.6	0.76	45	4	2	3
VFR2SBR0040S06	●	0.4	0.8	0.8	1.6	0.76	50	6	2	3
VFR2SBR0050	●	0.5	1	1	2	0.94	45	4	2	3
VFR2SBR0050S06	●	0.5	1	1	2	0.94	50	6	2	3
VFR2SBR0060	●	0.6	1.2	1.2	2.4	1.14	45	4	2	3
VFR2SBR0060S06	●	0.6	1.2	1.2	2.4	1.14	50	6	2	3

VFR2SB – KÜRE UÇLU,2 AĞIZLI KESME KENARI KISA PARMAK FREZE

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	LF	DCON	ZEFP	Tip
VFR2SBR0070	●	0.7	1.4	1.4	2.8	1.34	45	4	2	3
VFR2SBR0070S06	●	0.7	1.4	1.4	2.8	1.34	50	6	2	3
VFR2SBR0075	●	0.75	1.5	1.5	3	1.44	45	4	2	3
VFR2SBR0075S06	●	0.75	1.5	1.5	3	1.44	50	6	2	3
VFR2SBR0080	●	0.8	1.6	1.6	3.2	1.54	45	4	2	3
VFR2SBR0080S06	●	0.8	1.6	1.6	3.2	1.54	50	6	2	3
VFR2SBR0090	●	0.9	1.8	1.8	3.6	1.74	45	4	2	3
VFR2SBR0090S06	●	0.9	1.8	1.8	3.6	1.74	50	6	2	3
VFR2SBR0100	●	1	2	2	4	1.9	50	4	2	3
VFR2SBR0100S06	●	1	2	2	4	1.9	60	6	2	3
VFR2SBR0125S06	●	1.25	2.5	2.5	5	2.4	60	6	2	3
VFR2SBR0150S03	●	1.5	3	3	—	—	60	3	2	4
VFR2SBR0150	●	1.5	3	3	6	2.9	70	6	2	3
VFR2SBR0200S04	●	2	4	4	—	—	60	4	2	4
VFR2SBR0200	●	2	4	4	8	3.9	70	6	2	3
VFR2SBR0250	●	2.5	5	5	10	4.9	80	6	2	3
VFR2SBR0300	●	3	6	12	—	—	80	6	2	4
VFR2SBR0400	●	4	8	14	—	—	90	8	2	4
VFR2SBR0500	●	5	10	18	—	—	100	10	2	4
VFR2SBR0600	●	6	12	22	—	—	110	12	2	4
VFR2SBR0800	●	8	16	30	—	—	140	16	2	4
VFR2SBR1000	●	10	20	38	—	—	160	20	2	4

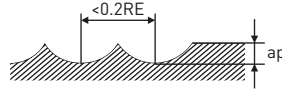
VFR2SB

ÖNERİLEN KESME ŞARTLARI

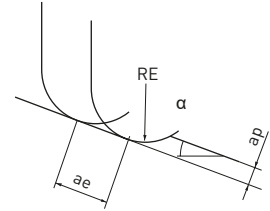
Malzeme	RE	Eğim açısı $\alpha < 15^\circ$		Eğim açısı $\alpha > 15^\circ$		ap	ae
		n	f	n	f		
H Sertleştirilmiş çelik (45-55 HRC)	R 0.1	40000	320	40000	240	0.003	0.02
	R 0.15	40000	640	40000	560	0.01	0.03
	R 0.2	40000	1600	40000	1200	0.02	0.04
	R 0.3	40000	3200	40000	1600	0.03	0.06
	R 0.4	40000	6400	40000	2400	0.05	0.08
	R 0.5	40000	8000	40000	3200	0.06	0.10
	R 0.75	40000	9600	40000	4000	0.09	0.15
	R 1	40000	9600	39000	4700	0.11	0.20
	R 1.25	40000	10400	32000	4500	0.12	0.25
	R 1.5	40000	12000	27000	4300	0.13	0.30
	R 2	32000	10880	20000	3600	0.15	0.40
	R 2.5	25000	9000	16000	2900	0.20	0.50
	R 3	21000	8400	13000	2600	0.25	0.60
	R 4	16000	6400	10000	2000	0.30	0.80
	R 5	13000	5200	8000	1700	0.50	1.00
	R 6	9000	3600	6000	1300	0.50	1.20
	R 8	6000	2400	4000	1000	0.50	1.60
R10	4500	1800	3000	780	0.50	2.00	
H Sertleştirilmiş çelik (55-62HRC)	R 0.1	40000	320	40000	160	0.003	0.02
	R 0.15	40000	640	40000	400	0.007	0.03
	R 0.2	40000	1400	40000	1000	0.015	0.04
	R 0.3	40000	2800	40000	1200	0.025	0.06
	R 0.4	40000	4000	40000	1600	0.04	0.08
	R 0.5	40000	5600	40000	2400	0.05	0.10
	R 0.75	40000	7200	32000	2500	0.075	0.15
	R 1	40000	8000	24000	2400	0.1	0.20
	R 1.25	37000	8100	19000	2300	0.11	0.25
	R 1.5	32000	7700	16000	2200	0.12	0.30
	R 2	24000	6200	12000	1900	0.13	0.40
	R 2.5	19000	5300	9600	1700	0.15	0.50
	R 3	16000	4800	8000	1600	0.2	0.60
	R 4	12000	3600	6000	1200	0.2	0.80
	R 5	10000	3200	4800	960	0.2	1.00
	R 6	7000	2200	3600	720	0.3	1.20
	R 8	5000	1600	2500	500	0.3	1.60
R10	4000	1300	1800	360	0.3	2.00	

VFR2SB

Malzeme	RE	Eğim açısı $\alpha < 15^\circ$		Eğim açısı $\alpha > 15^\circ$		ap	ae
		n	f	n	f		
H Sertleştirilmiş çelik (62-70HRC)	R 0.1	40000	320	40000	160	0.002	0.02
	R 0.15	40000	640	40000	400	0.005	0.03
	R 0.2	40000	1200	40000	1000	0.01	0.04
	R 0.3	40000	2000	40000	1200	0.02	0.06
	R 0.4	40000	2800	40000	1600	0.03	0.08
	R 0.5	40000	3600	32000	1300	0.04	0.10
	R 0.75	32000	4500	21000	1200	0.05	0.15
	R 1	24000	3800	16000	1000	0.07	0.20
	R 1.25	19000	3400	13000	1000	0.08	0.25
	R 1.5	16000	3200	11000	880	0.09	0.30
	R 2	12000	2400	8000	800	0.1	0.40
	R 2.5	9600	2100	6000	600	0.1	0.50
	R 3	8000	1700	5000	600	0.11	0.60
	R 4	6000	1400	4000	480	0.11	0.80
	R 5	4800	1100	3000	420	0.12	1.00
	R 6	3600	860	2200	310	0.12	1.20
	R 8	2500	650	1500	240	0.15	1.60
R10	1800	470	1000	160	0.15	2.00	



1. α işlenen yüzeyin eğim açısıdır.
2. Tezgahın veya iş parçasının bağlama rijidliği çok zayıf ise veya anormal ses ve gürültü oluyorsa, devri ve ilerleme hızını orantısal olarak düşürün.



VFR2SBF



FİNİŞ İŞLEME İÇİN KÜRE UÇLU İKİ AĞIZLI KESME KENARI KISA PARMAK FREZE

P

H



RE ≤ 3

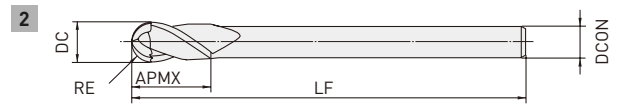
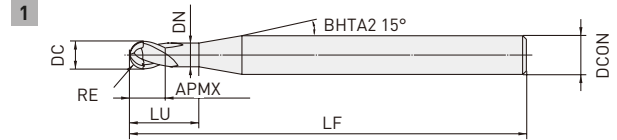
±0.010



4 ≤ DCON ≤ 6

0

- 0.005

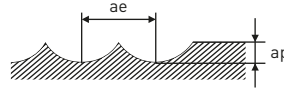


Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	LF	DCON	ZEFP	Tip
VFR2SBFR0050	●	0.5	1	1	2	0.94	45	4	2	1
VFR2SBFR0075	●	0.75	1.5	1.5	3	1.44	45	4	2	1
VFR2SBFR0100	●	1	2	2	4	1.9	60	6	2	1
VFR2SBFR0125	●	1.25	2.5	2.5	5	2.4	60	6	2	1
VFR2SBFR0150	●	1.5	3	3	6	2.9	70	6	2	1
VFR2SBFR0200	●	2	4	4	8	3.9	70	6	2	1
VFR2SBFR0250	●	2.5	5	5	10	4.9	80	6	2	1
VFR2SBFR0300	●	3	6	6	—	—	80	6	2	2

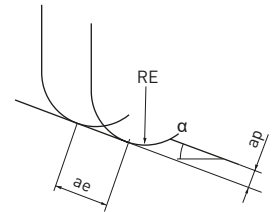
VFR2SBF

ÖNERİLEN KESME ŞARTLARI

Malzeme	RE	Eğim açısı $\alpha < 15^\circ$		Eğim açısı $\alpha > 15^\circ$		ap	ae
		n	f	n	f		
P Önceden sertleştirilmiş çelik (35-45 HRC) Karbon çeliği, alaşımli çelik (280-350HB) Alaşımli çelik (<350HB) Sertleştirilmiş çelik (40-62HRC)	R 0.5	40000	800	40000	800	0.007	0.007
	R 0.75	40000	800	40000	800	0.009	0.009
	R 1.0	35000	1050	35000	1050	0.011	0.011
	R 1.25	35000	1050	35000	1050	0.013	0.013
	R 1.5	35000	1050	35000	1050	0.015	0.015
	R 2.0	25000	1000	25000	1000	0.017	0.017
	R 2.5	25000	1000	25000	1000	0.020	0.020
	R 3.0	25000	1000	25000	1000	0.020	0.020
H Sertliği yüksek çelik (62-70HRC)	R 0.5	40000	560	40000	560	0.005	0.005
	R 0.75	40000	560	40000	560	0.007	0.007
	R 1.0	35000	700	35000	700	0.009	0.009
	R 1.25	35000	700	35000	700	0.011	0.011
	R 1.5	35000	700	35000	700	0.013	0.013
	R 2.0	25000	750	25000	750	0.015	0.015
	R 2.5	25000	750	25000	750	0.015	0.015
	R 3.0	25000	750	25000	750	0.015	0.015



1. Bu takım sadece FINİŞ işlemler için önerilir.
2. İyi talaş tahliyesi için hava veya yağ buğusu püskürtme önerilir.
3. α işlenen yüzeyin eğim açısıdır.
4. Kalıplarda olduğu gibi profil işleme işlemleri için işleme koşulları, iş parçası geometrisine, işleme yöntemlerine ve kesme derinliğine bağlı olarak büyük ölçüde değişebilir. Özellikle iş parçasının köşe kesitlerini işlerken ilerleme hızını düşürün.



VFRPSRB



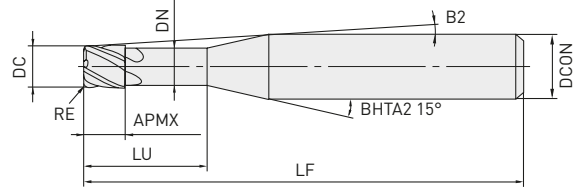
DC≤1 DC≥1.5

KÖŞE RADIUSLU, KISA KESME BOYLU, UZUN BOYUNLU

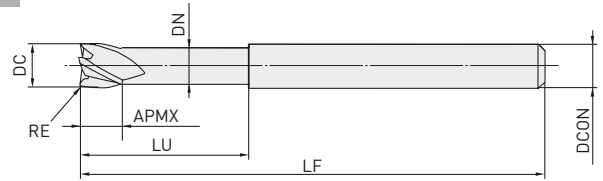
H



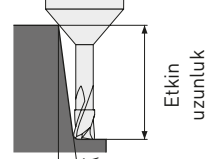
1



2



Eğim açısı için etkin uzunluk



Eğim açısı



0.5<RE ≤6 8<RE

±0.005 ±0.007



0.5<DC ≤6 8<RE

0 0
- 0.01 - 0.015

DCON=6 8<DCON ≤10 12<DCON

0 0 0
- 0.005 - 0.006 - 0.008

- Kalıplar ve lokmalarında pürüzsüz yüzeyler oluşturmak ve yüksek hassasiyetle işlemek için uygundur.

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	LF	DCON	B2	ZEFP	Tip	Eğim açısı için etkin uzunluk			
												30°	1°	2°	3°
VFRPSRBD0050R005N020	●	0.05	0.5	0.5	2	0.47	50	6	12.6	4	1	2.1	2.2	2.3	2.5
VFRPSRBD0050R010N020	●	0.1	0.5	0.5	2	0.47	50	6	12.7	4	1	2.1	2.2	2.3	2.5
VFRPSRBD0060R005N020	●	0.05	0.6	0.6	2	0.57	50	6	12.5	4	1	2.1	2.2	2.4	2.6
VFRPSRBD0060R010N020	●	0.1	0.6	0.6	2	0.57	50	6	12.5	4	1	2.1	2.2	2.3	2.6
VFRPSRBD0060R010N040	●	0.1	0.6	0.6	4	0.57	50	6	10.8	4	1	4.2	4.4	4.7	5.1
VFRPSRBD0060R020N020	●	0.2	0.6	0.6	2	0.57	50	6	12.6	4	1	2.1	2.2	2.2	2.6
VFRPSRBD0080R005N040	●	0.05	0.8	0.8	4	0.77	50	6	10.7	4	1	4.2	4.4	4.7	5.1
VFRPSRBD0080R010N040	●	0.1	0.8	0.8	4	0.77	50	6	10.7	4	1	4.2	4.4	4.7	5.1
VFRPSRBD0080R020N040	●	0.2	0.8	0.8	4	0.77	50	6	10.8	4	1	4.2	4.4	4.7	5.1
VFRPSRBD0080R030N040	●	0.3	0.8	0.8	4	0.77	50	6	10.8	4	1	4.2	4.4	4.7	5
VFRPSRBD0100R005N040	●	0.05	1	1	4	0.96	50	6	10.4	4	1	4.3	4.5	4.9	5.4
VFRPSRBD0100R010N040	●	0.1	1	1	4	0.96	50	6	10.4	4	1	4.3	4.5	4.9	5.4
VFRPSRBD0100R010N060	●	0.1	1	1	6	0.96	50	6	9.1	4	1	6.4	6.7	7.3	7.9
VFRPSRBD0100R020N040	●	0.2	1	1	4	0.96	50	6	10.5	4	1	4.3	4.5	4.7	5.3
VFRPSRBD0100R020N060	●	0.2	1	1	6	0.96	50	6	9.2	4	1	6.4	6.7	7.3	7.8
VFRPSRBD0100R030N040	●	0.3	1	1	4	0.96	50	6	10.5	4	1	4.3	4.5	4.6	5.3
VFRPSRBD0100R040N040	●	0.4	1	1	4	0.96	50	6	10.6	4	1	4.3	4.5	4.5	5.3
VFRPSRBD0150R010N040	●	0.1	1.5	1.5	4	1.42	50	6	10.2	4	1	4.2	4.4	4.8	5.2

VFRPSRB – KÖŞE RADYUSLU, KISA KESME BOYLU, UZUN BOYUNLU

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	LF	DCON	B2	ZEFP	Tip	Eğim açısı için etkin uzunluk			
												30°	1°	2°	3°
VFRPSRBD0150R010N060	●	0.1	1.5	1.5	6	1.42	50	6	8.8	4	1	6.3	6.6	7.1	7.7
VFRPSRBD0150R010N100	●	0.1	1.5	1.5	10	1.42	50	6	6.9	4	1	10.5	10.9	11.7	12.7
VFRPSRBD0150R020N040	●	0.2	1.5	1.5	4	1.42	50	6	10.2	4	1	4.2	4.4	4.6	5.2
VFRPSRBD0150R020N060	●	0.2	1.5	1.5	6	1.42	50	6	8.8	4	1	6.3	6.6	7.1	7.7
VFRPSRBD0150R020N100	●	0.2	1.5	1.5	10	1.42	50	6	7	4	1	10.5	10.9	11.7	12.6
VFRPSRBD0150R030N040	●	0.3	1.5	1.5	4	1.42	50	6	10.3	4	1	4.2	4.4	4.5	5.2
VFRPSRBD0150R030N060	●	0.3	1.5	1.5	6	1.42	50	6	8.9	4	1	6.3	6.6	7.1	7.6
VFRPSRBD0150R030N100	●	0.3	1.5	1.5	10	1.42	50	6	7	4	1	10.5	10.9	11.7	12.6
VFRPSRBD0150R050N040	●	0.5	1.5	1.5	4	1.42	50	6	10.5	4	1	4.2	4.4	4.3	5.1
VFRPSRBD0150R050N060	●	0.5	1.5	1.5	6	1.42	50	6	9	4	1	6.3	6.6	7.1	7.6
VFRPSRBD0150R050N100	●	0.5	1.5	1.5	10	1.42	50	6	7.1	4	1	10.5	10.9	11.7	12.6
VFRPSRBD0200R010N060	●	0.1	2	2	6	1.9	50	6	8.4	4	1	6.3	6.6	7.1	7.6
VFRPSRBD0200R010N100	●	0.1	2	2	10	1.9	50	6	6.5	4	1	10.5	10.9	11.7	12.6
VFRPSRBD0200R010N150	●	0.1	2	2	15	1.9	50	6	5.1	4	1	15.7	16.2	17.4	18.8
VFRPSRBD0200R020N060	●	0.2	2	2	6	1.9	50	6	8.4	4	1	6.3	6.6	7.1	7.6
VFRPSRBD0200R020N100	●	0.2	2	2	10	1.9	50	6	6.5	4	1	10.5	10.9	11.7	12.6
VFRPSRBD0200R020N150	●	0.2	2	2	15	1.9	50	6	5.1	4	1	15.7	16.2	17.4	18.8
VFRPSRBD0200R030N060	●	0.3	2	2	6	1.9	50	6	8.5	4	1	6.3	6.6	7	7.6
VFRPSRBD0200R030N100	●	0.3	2	2	10	1.9	50	6	6.6	4	1	10.5	10.8	11.6	12.6
VFRPSRBD0200R030N150	●	0.3	2	2	15	1.9	50	6	5.1	4	1	15.7	16.2	17.4	18.8
VFRPSRBD0200R030N200	●	0.3	2	2	20	1.9	60	6	4.2	4	1	20.8	21.5	23.1	25
VFRPSRBD0200R050N060	●	0.5	2	2	6	1.9	50	6	8.6	4	1	6.3	6.5	7	7.5
VFRPSRBD0200R050N100	●	0.5	2	2	10	1.9	50	6	6.6	4	1	10.5	10.8	11.6	12.5
VFRPSRBD0200R050N150	●	0.5	2	2	15	1.9	50	6	5.2	4	1	15.6	16.2	17.4	18.7
VFRPSRBD0200R050N200	●	0.5	2	2	20	1.9	60	6	4.2	4	1	20.8	21.5	23.1	24.9
VFRPSRBD0250R030N080	●	0.3	2.5	2.5	8	2.35	50	6	6.9	4	1	8.3	8.6	9.2	10
VFRPSRBD0250R030N150	●	0.3	2.5	2.5	15	2.35	50	6	4.7	4	1	15.6	16.1	17.3	18.7
VFRPSRBD0250R050N080	●	0.5	2.5	2.5	8	2.35	50	6	7	4	1	8.3	8.6	9.2	9.9
VFRPSRBD0250R050N150	●	0.5	2.5	2.5	15	2.35	50	6	4.7	4	1	15.6	16.1	17.3	18.6
VFRPSRBD0250R100N080	●	1	2.5	2.5	8	2.35	50	6	7.3	4	1	8.3	8.6	9.1	9.8
VFRPSRBD0300R010N100	●	0.1	3	3	10	2.85	60	6	5.5	4	1	10.4	10.8	11.6	12.5
VFRPSRBD0300R010N150	●	0.1	3	3	15	2.85	60	6	4.2	4	1	15.6	16.1	17.3	18.7
VFRPSRBD0300R020N100	●	0.2	3	3	10	2.85	60	6	5.5	4	1	10.4	10.8	11.6	12.5
VFRPSRBD0300R020N150	●	0.2	3	3	15	2.85	60	6	4.2	4	1	15.6	16.1	17.3	18.7
VFRPSRBD0300R020N200	●	0.2	3	3	20	2.85	60	6	3.4	4	1	20.7	21.5	23.1	24.9
VFRPSRBD0300R030N100	●	0.3	3	3	10	2.85	60	6	5.6	4	1	10.4	10.8	11.5	12.5
VFRPSRBD0300R030N150	●	0.3	3	3	15	2.85	60	6	4.2	4	1	15.6	16.1	17.3	18.7
VFRPSRBD0300R030N200	●	0.3	3	3	20	2.85	60	6	3.4	4	1	20.7	21.5	23	24.9
VFRPSRBD0300R050N100	●	0.5	3	3	10	2.85	60	6	5.6	4	1	10.4	10.7	11.5	12.4
VFRPSRBD0300R050N150	●	0.5	3	3	15	2.85	60	6	4.2	4	1	15.6	16.1	17.3	18.6
VFRPSRBD0300R050N200	●	0.5	3	3	20	2.85	60	6	3.4	4	1	20.7	21.4	23	24.8
VFRPSRBD0300R100N100	●	1	3	3	10	2.85	60	6	5.8	4	1	10.4	10.7	11.4	12.3
VFRPSRBD0300R100N150	●	1	3	3	15	2.85	60	6	4.3	4	1	15.5	16.1	17.2	18.5
VFRPSRBD0300R100N200	●	1	3	3	20	2.85	60	6	3.5	4	1	20.7	21.4	22.9	24.7
VFRPSRBD0400R010N120	●	0.1	4	4	12	3.85	60	6	3.6	4	1	12.5	12.9	13.9	15
VFRPSRBD0400R010N200	●	0.1	4	4	20	3.85	60	6	2.4	4	1	20.7	21.5	23.1	*
VFRPSRBD0400R020N120	●	0.2	4	4	12	3.85	60	6	3.7	4	1	12.5	12.9	13.9	15
VFRPSRBD0400R020N200	●	0.2	4	4	20	3.85	60	6	2.4	4	1	20.7	21.5	23.1	*
VFRPSRBD0400R030N120	●	0.3	4	4	12	3.85	60	6	3.7	4	1	12.5	12.9	13.8	15
VFRPSRBD0400R030N200	●	0.3	4	4	20	3.85	60	6	2.4	4	1	20.7	21.5	23	*

* Temassız



VFRPSRB - KÖŞE RADYUSLU, KISA KESME BOYLU, UZUN BOYUNLU

Sipariş Numarası	Stok	RE	DC	APMX	LU	DN	LF	DCON	B2	ZEFP	TİP	Eğim açısı için etkin uzunluk			
												30°	1°	2°	3°
VFRPSRBD0400R030N300	●	0.3	4	4	30	3.85	70	6	1.7	4	1	31.1	32.2	*	*
VFRPSRBD0400R050N120	●	0.5	4	4	12	3.85	60	6	3.7	4	1	12.5	12.9	13.8	14.9
VFRPSRBD0400R050N200	●	0.5	4	4	20	3.85	60	6	2.5	4	1	20.7	21.4	23	*
VFRPSRBD0400R050N300	●	0.5	4	4	30	3.85	70	6	1.7	4	1	31.1	32.1	*	*
VFRPSRBD0400R100N120	●	1	4	4	12	3.85	60	6	3.8	4	1	12.4	12.8	13.7	14.8
VFRPSRBD0400R100N200	●	1	4	4	20	3.85	60	6	2.5	4	1	20.7	21.4	22.9	*
VFRPSRBD0400R100N300	●	1	4	4	30	3.85	70	6	1.7	4	1	31.1	32.1	*	*
VFRPSRBD0500R050N150	●	0.5	5	5	15	4.85	60	6	1.7	4	1	15.6	16.1	*	*
VFRPSRBD0500R100N150	●	1	5	5	15	4.85	60	6	1.8	4	1	15.5	16.1	*	*
VFRPSRBD0600R010N180	●	0.1	6	9	18	5.85	70	6	—	4	2	*	*	*	*
VFRPSRBD0600R020N180	●	0.2	6	9	18	5.85	70	6	—	4	2	*	*	*	*
VFRPSRBD0600R030N180	●	0.3	6	9	18	5.85	70	6	—	4	2	*	*	*	*
VFRPSRBD0600R050N180	●	0.5	6	9	18	5.85	70	6	—	4	2	*	*	*	*
VFRPSRBD0600R100N180	●	1	6	9	18	5.85	70	6	—	4	2	*	*	*	*
VFRPSRBD0600R200N180	●	2	6	9	18	5.85	70	6	—	4	2	*	*	*	*
VFRPSRBD0800R020N240	●	0.2	8	12	24	7.85	90	8	—	4	2	*	*	*	*
VFRPSRBD0800R030N240	●	0.3	8	12	24	7.85	90	8	—	4	2	*	*	*	*
VFRPSRBD0800R050N240	●	0.5	8	12	24	7.85	90	8	—	4	2	*	*	*	*
VFRPSRBD0800R100N240	●	1	8	12	24	7.85	90	8	—	4	2	*	*	*	*
VFRPSRBD0800R200N240	●	2	8	12	24	7.85	90	8	—	4	2	*	*	*	*
VFRPSRBD1000R030N300	●	0.3	10	15	30	9.7	100	10	—	4	2	*	*	*	*
VFRPSRBD1000R050N300	●	0.5	10	15	30	9.7	100	10	—	4	2	*	*	*	*
VFRPSRBD1000R100N300	●	1	10	15	30	9.7	100	10	—	4	2	*	*	*	*
VFRPSRBD1000R200N300	●	2	10	15	30	9.7	100	10	—	4	2	*	*	*	*
VFRPSRBD1000R300N300	●	3	10	15	30	9.7	100	10	—	4	2	*	*	*	*
VFRPSRBD1200R050N360	●	0.5	12	18	36	11.7	110	12	—	4	2	*	*	*	*
VFRPSRBD1200R100N360	●	1	12	18	36	11.7	110	12	—	4	2	*	*	*	*
VFRPSRBD1200R200N360	●	2	12	18	36	11.7	110	12	—	4	2	*	*	*	*
VFRPSRBD1200R300N360	●	3	12	18	36	11.7	110	12	—	4	2	*	*	*	*

* Temassız

VFRPSRB

ÖNERİLEN KESME ŞARTLARI

Malzeme	DC	RE	LU	n	f	ap	ae
	0.5	0.05	2	25000	1000	0.005	0.1
	0.5	0.1	2	25000	1000	0.008	0.1
	0.6	0.05	2	21000	1000	0.005	0.1
	0.6	0.1	2	21000	1000	0.008	0.1
	0.6	0.1	4	18000	890	0.006	0.1
	0.6	0.2	2	24000	1100	0.01	0.1
	0.8	0.05	4	16000	760	0.015	0.12
	0.8	0.1	4	16000	760	0.02	0.12
	0.8	0.2	4	20000	950	0.03	0.12
	0.8	0.3	4	20000	950	0.03	0.12
	1	0.05	4	13000	1000	0.015	0.15
	1	0.1	4	13000	1000	0.02	0.15
	1	0.1	6	11000	890	0.015	0.12
	1	0.2	4	16000	1300	0.03	0.15
	1	0.2	6	13000	1000	0.02	0.12
	1	0.3	4	16000	1300	0.03	0.15
	1	0.4	4	16000	1300	0.04	0.15
	1.5	0.1	4	14000	1700	0.025	0.23
	1.5	0.1	6	11000	1400	0.025	0.18
	1.5	0.1	10	11000	1400	0.025	0.18
	1.5	0.2	4	14000	1700	0.05	0.23
	1.5	0.2	6	11000	1400	0.05	0.18
	1.5	0.2	10	11000	1400	0.05	0.18
	1.5	0.3	4	16000	1900	0.075	0.23
	1.5	0.3	6	13000	1500	0.075	0.18
	1.5	0.3	10	13000	1500	0.075	0.18
	1.5	0.5	4	16000	1900	0.08	0.23
	1.5	0.5	6	13000	1500	0.08	0.18
	1.5	0.5	10	13000	1500	0.08	0.18
	2	0.1	6	11000	1700	0.025	0.3
	2	0.1	10	8600	1400	0.025	0.24
	2	0.1	15	6400	1000	0.02	0.18
	2	0.2	6	11000	1700	0.055	0.3
	2	0.2	10	8600	1400	0.055	0.24
	2	0.2	15	6400	1000	0.04	0.18
	2	0.3	6	12000	1900	0.08	0.3
	2	0.3	10	9500	1500	0.08	0.24
	2	0.3	15	7200	1100	0.065	0.18
	2	0.3	20	7200	1100	0.065	0.18
	2	0.5	6	12000	1900	0.085	0.3
	2	0.5	10	9500	1500	0.085	0.24
	2	0.5	15	7200	1100	0.07	0.18
	2	0.5	20	7200	1100	0.07	0.18
	2.5	0.3	8	9500	1900	0.08	0.38
	2.5	0.3	15	7600	1500	0.08	0.3
	2.5	0.5	8	9500	1900	0.09	0.38

H Sertleştirilmiş Çelik (45-55HRC)

VFRPSRB

Malzeme	DC	RE	LU	n	f	ap	ae
	2.5	0.5	15	7600	1500	0.09	0.3
	2.5	1	8	9500	1900	0.15	0.33
	3	0.1	10	8100	1900	0.025	0.6
	3	0.1	15	6500	1600	0.025	0.48
	3	0.2	10	8100	1900	0.055	0.6
	3	0.2	15	6500	1600	0.055	0.48
	3	0.2	20	6500	1600	0.055	0.48
	3	0.3	10	9000	2200	0.085	0.6
	3	0.3	15	7200	1700	0.085	0.48
	3	0.3	20	7200	1700	0.085	0.48
	3	0.5	10	9000	2200	0.09	0.6
	3	0.5	15	7200	1700	0.09	0.48
	3	0.5	20	7200	1700	0.09	0.48
	3	1	10	9000	2200	0.15	0.54
	3	1	15	7200	1700	0.15	0.43
	3	1	20	7200	2000	0.15	0.43
	4	0.1	12	6100	1700	0.25	0.8
	4	0.1	20	4900	1400	0.25	0.6
	4	0.2	12	6100	1700	0.055	0.8
	4	0.2	20	4900	1400	0.055	0.6
	4	0.3	12	6800	1900	0.085	0.8
	4	0.3	20	5400	1500	0.085	0.6
	4	0.3	30	4100	1100	0.065	0.5
	4	0.5	12	6800	1900	0.09	0.8
	4	0.5	20	5400	1500	0.09	0.65
H Sertleştirilmiş Çelik (45-55HRC)	4	0.5	30	4100	1100	0.075	0.5
	4	1	12	6800	1900	0.15	0.7
	4	1	20	5400	1500	0.15	0.55
	4	1	30	4100	1100	0.1	0.4
	5	0.5	15	6400	1800	0.1	1.3
	5	1	15	6400	1800	0.15	1.1
	6	0.1	18	4800	1500	0.03	1.5
	6	0.2	18	4800	1500	0.06	1.5
	6	0.3	18	5300	1700	0.09	1.5
	6	0.5	18	5300	1700	0.1	1.5
	6	1	18	5300	1700	0.15	1.4
	6	2	18	5300	1700	0.3	1.3
	8	0.2	24	3600	1100	0.06	2
	8	0.3	24	4000	1300	0.09	2
	8	0.5	24	4000	1300	0.095	2
	8	1	24	4000	1300	0.15	1.8
	8	2	24	4000	1300	0.3	1.7
	10	0.3	30	3200	1000	0.09	2.5
	10	0.5	30	3200	1000	0.095	2.5
	10	1	30	3200	1000	0.15	2.3
	10	2	30	3200	1000	0.3	2.1
	10	3	30	3200	1000	0.45	1.9
	12	0.5	36	2700	950	0.1	3
	12	1	36	2700	950	0.15	2.7
	12	2	36	2700	950	0.3	2.6
	12	3	36	2700	950	0.45	2.3

VFRPSRB

Malzeme	DC	RE	LU	n	f	ap	ae
	0.5	0.05	2	19000	760	0.004	0.08
	0.5	0.1	2	19000	760	0.006	0.08
	0.6	0.05	2	16000	760	0.004	0.08
	0.6	0.1	2	16000	760	0.006	0.08
	0.6	0.1	4	16000	760	0.005	0.08
	0.6	0.2	2	19000	890	0.008	0.08
	0.8	0.05	4	12000	570	0.01	0.1
	0.8	0.1	4	12000	570	0.015	0.1
	0.8	0.2	4	16000	760	0.025	0.1
	0.8	0.3	4	16000	760	0.025	0.1
	1	0.05	4	9500	760	0.01	0.12
	1	0.1	4	9500	760	0.015	0.12
	1	0.1	6	6400	510	0.01	0.1
	1	0.2	4	9500	760	0.025	0.12
	1	0.2	6	6400	510	0.02	0.1
	1	0.3	4	9500	760	0.025	0.12
	1	0.4	4	9500	760	0.03	0.12
	1.5	0.1	4	11000	920	0.015	0.2
	1.5	0.1	6	9200	730	0.015	0.16
	1.5	0.1	10	9200	730	0.015	0.16
	1.5	0.2	4	11000	920	0.035	0.2
	1.5	0.2	6	9200	730	0.035	0.16
	1.5	0.2	10	9200	730	0.035	0.16
	1.5	0.3	4	13000	1000	0.05	0.2
	1.5	0.3	6	10000	810	0.05	0.16
	1.5	0.3	10	10000	810	0.05	0.16
	1.5	0.5	4	13000	1000	0.055	0.2
	1.5	0.5	6	10000	810	0.055	0.16
	1.5	0.5	10	10000	810	0.055	0.16
	2	0.1	6	8600	1000	0.02	0.28
	2	0.1	10	6900	830	0.02	0.22
	2	0.1	15	5200	620	0.015	0.17
	2	0.2	6	8600	1000	0.035	0.28
	2	0.2	10	6900	830	0.035	0.22
	2	0.2	15	5200	620	0.025	0.17
	2	0.3	6	6900	1100	0.055	0.28
	2	0.3	10	7600	920	0.055	0.22
	2	0.3	15	5700	690	0.045	0.17
	2	0.3	20	5700	690	0.045	0.17
	2	0.5	6	9500	1100	0.06	0.28
	2	0.5	10	7600	920	0.06	0.22
	2	0.5	15	5700	690	0.045	0.17
	2	0.5	20	5700	690	0.045	0.17
	2.5	0.3	8	7600	1400	0.055	0.35
	2.5	0.3	15	6100	1100	0.055	0.28
	2.5	0.5	8	7600	1400	0.06	0.35

H Sertleştirilmiş Çelik (55-65HRC)

VFRPSRB

Malzeme	DC	RE	LU	n	f	ap	ae
	2.5	0.5	15	6100	1100	0.06	0.28
	2.5	1	8	7600	1400	0.09	0.31
	3	0.1	10	6500	1200	0.02	0.55
	3	0.1	15	5200	940	0.02	0.44
	3	0.2	10	6500	1200	0.04	0.55
	3	0.2	15	5200	940	0.04	0.44
	3	0.2	20	5200	940	0.04	0.44
	3	0.3	10	7200	1300	0.055	0.55
	3	0.3	15	5800	1000	0.055	0.44
	3	0.3	20	5800	1000	0.055	0.44
	3	0.5	10	7200	1300	0.06	0.55
	3	0.5	15	5800	1000	0.06	0.44
	3	0.5	20	5800	1000	0.06	0.44
	3	1	10	7200	1300	0.1	0.5
	3	1	15	5800	1000	0.1	0.4
	3	1	20	5800	1000	0.1	0.4
	4	0.1	12	4900	970	0.02	0.74
	4	0.1	20	3900	780	0.02	0.6
	4	0.2	12	4900	970	0.04	0.74
	4	0.2	20	3900	780	0.04	0.6
	4	0.3	12	5400	1100	0.055	0.75
	4	0.3	20	4300	870	0.055	0.6
	4	0.3	30	3200	650	0.045	0.45
	4	0.5	12	5400	1100	0.06	0.75
	4	0.5	20	4300	870	0.06	0.6
	4	0.5	30	4300	650	0.05	0.45
	4	1	12	5400	1100	0.1	0.66
	4	1	20	4300	870	0.1	0.53
	4	1	30	3200	650	0.075	0.4
	5	0.5	15	5100	1000	0.065	1.2
	5	1	15	5100	1000	0.1	1
	6	0.1	18	3800	920	0.02	1.4
	6	0.2	18	3800	920	0.04	1.4
	6	0.3	18	4200	1000	0.06	1.4
	6	0.5	18	4200	1000	0.065	1.4
	6	1	18	4200	1000	0.1	1.2
	6	2	18	4200	1000	0.2	1.1
	8	0.2	24	2900	690	0.04	1.8
	8	0.3	24	3200	760	0.06	1.8
	8	0.5	24	3200	760	0.065	1.8
	8	1	24	3200	760	0.1	1.7
	8	2	24	3200	760	0.2	1.6
	10	0.3	30	2500	610	0.06	2.3
	10	0.5	30	2500	610	0.065	2.3
	10	1	30	2500	610	0.1	2.1
	10	2	30	2500	610	0.2	2
	10	3	30	2500	610	0.3	1.7
	12	0.5	36	2100	510	0.065	2.8
	12	1	36	2100	510	0.1	2.5
	12	2	36	2100	510	0.2	2.4
	12	3	36	2100	510	0.3	2.1

H Sertleştirilmiş Çelik (55-65HRC)

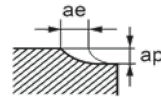
VFRPSRB

Malzeme	DC	RE	LU	n	f	ap	ae
	0.5	0.05	2	13000	510	0.003	0.08
	0.5	0.1	2	13000	510	0.005	0.08
	0.6	0.05	2	11000	510	0.003	0.08
	0.6	0.1	2	11000	510	0.005	0.08
	0.6	0.1	4	11000	510	0.004	0.08
	0.6	0.2	2	16000	760	0.006	0.08
	0.8	0.05	4	7900	380	0.01	0.1
	0.8	0.1	4	7900	380	0.01	0.1
	0.8	0.2	4	12000	570	0.02	0.1
	0.8	0.3	4	12000	570	0.02	0.1
	1	0.05	4	6400	510	0.01	0.12
	1	0.1	4	6400	510	0.015	0.12
	1	0.1	6	6400	510	0.01	0.1
	1	0.2	4	6400	510	0.02	0.12
	1	0.2	6	6400	510	0.015	0.1
	1	0.3	4	6400	510	0.02	0.12
	1	0.4	4	6400	510	0.025	0.12
	1.5	0.1	4	7200	570	0.01	0.2
	1.5	0.1	6	5700	460	0.01	0.16
	1.5	0.1	10	5700	460	0.01	0.16
	1.5	0.2	4	7200	570	0.025	0.2
	1.5	0.2	6	5700	460	0.025	0.16
	1.5	0.2	10	5700	460	0.025	0.16
	1.5	0.3	4	8000	640	0.035	0.2
	1.5	0.3	6	6400	510	0.035	0.16
	1.5	0.3	10	6400	510	0.035	0.16
H Sertleştirilmiş Çelik (65-70HRC)	1.5	0.5	4	8000	640	0.04	0.2
	1.5	0.5	6	6400	510	0.04	0.16
	1.5	0.5	10	6400	510	0.04	0.16
	2	0.1	6	5400	640	0.015	0.28
	2	0.1	10	4300	520	0.015	0.22
	2	0.1	15	3200	390	0.01	0.17
	2	0.2	6	5400	640	0.025	0.28
	2	0.2	10	4300	520	0.025	0.22
	2	0.2	15	3200	390	0.02	0.16
	2	0.3	6	6000	420	0.04	0.27
	2	0.3	10	4800	570	0.04	0.22
	2	0.3	15	3600	430	0.03	0.16
	2	0.3	20	3600	430	0.03	0.16
	2	0.5	6	6000	720	0.04	0.27
	2	0.5	10	4800	570	0.04	0.22
	2	0.5	15	3600	430	0.035	0.16
	2	0.5	20	3600	430	0.035	0.16
	2.5	0.3	8	4800	860	0.04	0.34
	2.5	0.3	15	3800	690	0.04	0.27
	2.5	0.5	8	4800	860	0.04	0.34
	2.5	0.5	15	3800	690	0.04	0.27
	2.5	1	8	4800	860	0.065	0.31
	3	0.1	10	4100	730	0.015	0.55
	3	0.1	15	3200	580	0.015	0.44
	3	0.2	10	4100	730	0.025	0.55

VFRPSRB

Malzeme	DC	RE	LU	n	f	ap	ae
	3	0.2	15	3200	580	0.025	0.44
	3	0.2	20	3200	580	0.025	0.44
	3	0.3	10	4500	810	0.04	0.55
	3	0.3	15	3600	650	0.04	0.44
	3	0.3	20	3600	650	4	0.44
	3	0.5	10	4500	810	0.045	0.55
	3	0.5	15	3600	650	0.045	0.44
	3	0.5	20	3600	650	0.045	0.44
	3	1	10	4500	810	0.07	0.5
	3	1	15	3600	650	0.07	0.4
	3	1	20	3600	650	0.07	0.4
	4	0.1	12	3000	610	0.015	0.73
	4	0.1	20	2400	490	0.015	0.58
	4	0.2	12	3000	610	0.025	0.73
	4	0.2	20	2400	490	0.025	0.58
	4	0.3	12	3400	680	0.04	0.73
	4	0.3	20	2700	540	0.04	0.58
	4	0.3	30	2000	410	0.035	0.44
	4	0.5	12	3400	680	0.045	0.74
	4	0.5	20	2700	540	0.045	0.58
	4	0.5	30	2000	410	0.035	0.44
	4	1	12	3400	680	0.07	0.66
	4	1	20	2700	540	0.07	0.53
	4	1	30	2000	410	0.055	0.4
	5	0.5	15	3200	640	0.045	1.1
	5	1	15	3200	640	0.075	1
	6	0.1	18	2400	570	0.015	1.3
	6	0.2	18	2400	570	0.03	1.3
	6	0.3	18	2700	640	0.045	1.3
	6	0.5	18	2700	640	0.045	1.3
	6	1	18	2700	640	0.075	1.2
	6	2	18	2700	640	0.15	1.1
	8	0.2	24	1800	430	0.03	1.8
	8	0.3	24	2000	480	0.045	1.8
	8	0.5	24	2000	480	0.045	1.8
	8	1	24	2000	480	0.075	1.6
	8	2	24	2000	480	0.15	1.5
	10	0.3	30	1600	380	0.045	2.3
	10	0.5	30	1600	380	0.045	2.3
	10	1	30	1600	380	0.075	2
	10	2	30	1600	380	0.15	1.9
	10	3	30	1600	380	0.2	1.7
	12	0.5	36	1300	320	0.05	2.7
	12	1	36	1300	320	0.075	2.4
	12	2	36	1300	320	0.15	2.3
	12	3	36	1300	320	0.2	2

H Sertleştirilmiş Çelik (65-70HRC)



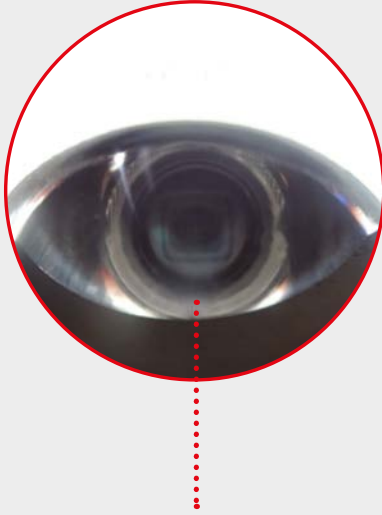
1. İşlenen yüzeyin eğim açısı büyük olduğunda veya yüksek kesme yükü ile işleme yapıldığında; (köşelerde olduğu gibi), devir ve ilerleme hızını düşürün.
2. Kesme derinliği düşükse, devir ve ilerleme hızı artırılabilir.
3. Kesme koşulları, takım serbest boyuna, kesme derinliğine ve işleme tezgahının durumuna bağlı olarak farklılıklar gösterebilir. Lütfen yukarıdaki tabloyu referans başlangıç noktası olarak kullanın.

UYGULAMA ÖRNEKLERİ

Malzeme	1.2344 (52 HRC)
Takım	VFR2SBFR0300
n (dk ⁻¹)	32.000
Vc (m/dk)	603
Vf (mm/dk)	1.280
fz (mm/diş)	0.02
ap (mm)	0.02
ae (mm)	0.02
Takım çıkma uzunluğu (mm)	15
Kesme Modu	Hava püskürtme
Tezgah	Dikey MC (HSK-E25)

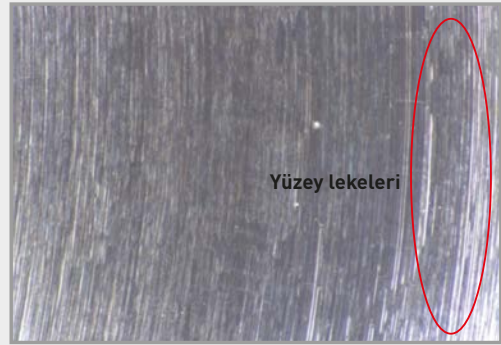
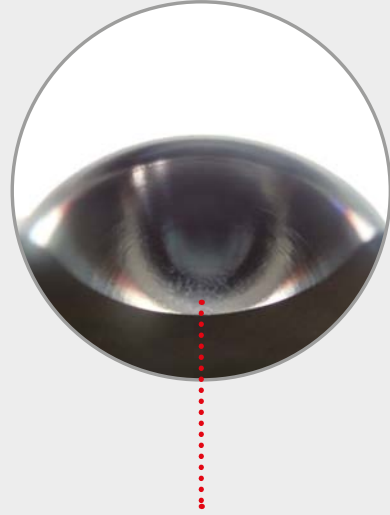
FİNİŞ YÜZEYLERİN KARŞILAŞTIRILMASI

VFR2SBF



İyi yüzey kalitesi

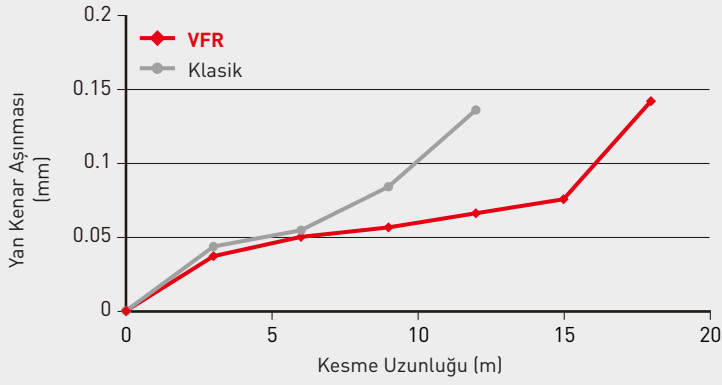
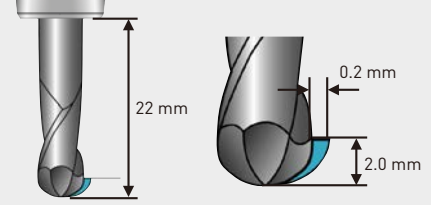
Klasik parmak frezeler



Yetersiz yüzey kalitesi

UYGULAMA ÖRNEKLERİ

Malzeme	1.3343 (64 HRC)
Takım	VFR2SBR0300
n (dk ⁻¹)	5.400
V_f (mm/dk)	540
f_z (mm/diş)	0.05
a_p (mm)	2.0
a_e (mm)	2.0
Takım çıkma uzunluğu (mm)	22
Kesme Modu	Hava püskürtme
Tezgah	Dikey MC (HSK-A63)

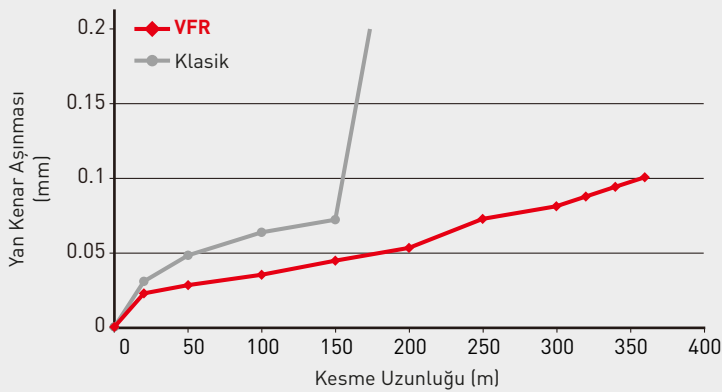
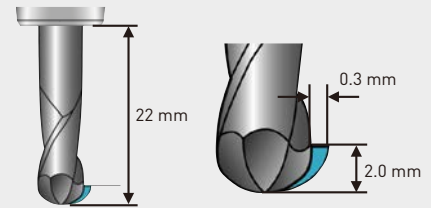


VFR



Klasik

Malzeme	1.2344 (52 HRC)
Takım	VFR2SBR0300
n (dk ⁻¹)	17.000
V_f (mm/dk)	1.700
f_z (mm/diş)	0.05
a_p (mm)	2.0
a_e (mm)	0.3
Takım çıkma uzunluğu (mm)	22
Kesme Modu	Hava püskürtme
Tezgah	Dikey MC (HSK-A63)



VFR



Klasik

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