

RRD

YUVARLAK KESİCİ UÇLU TİP FREZELER
ÇOK YÖNLÜ PERFORMANS VE UZUN TAKIM ÖMRÜ



*M*plus...

RRD

ÜRÜN ÖZELLİKLERİ



- Kalıp ve kalıp lokmalarını işlemek için yuvarlak kesici uçlu kesiciler
- 60 HRC'ye kadar işleme için çok yönlü kesici uç kalite aralığı
- Çok çeşitli kesiciler mevcuttur, malafa delikli, vida şaftlı, silindirik şaftlı ve weldon şaftlı tipler
- Çok çeşitli uç boyutları, R2.5, 3.5, 5.0, 6.0 ve 8.0

RRD

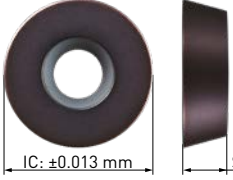
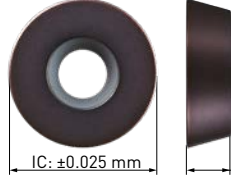
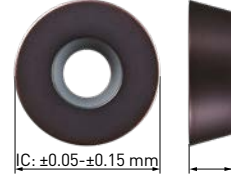
YUVARLAK KESİCİ UÇLU FREZELER

RRD FREZELER

SİLİNDİRİK ŞAFTLI TİP	WELDON ŞAFTLI TİP	VİDA ŞAFTLI TİP	MALAFİ DELİKLİ TİP
			

ÖZELLİKLER

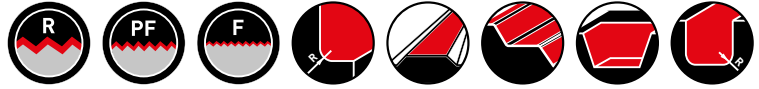
3 farklı toleransa sahip tüm uygulamalara uyacak şekilde kesici uçlar.

RDHX	RDZX	RDMX
- Taşlanmış (Tolerans) - Yüksek hassasiyet için - Finiş öncesi ve finiş için	- Hassas sinterlenmiş (Tolerans) - Üniversal kullanım için - Uzun takım ömrüne sahip ekonomik kesici uç	- Sinterlenmiş (Tolerans) - Üniversal kullanım için - Kaba işleme ve finişe yakın işleme için
 IC: ± 0.013 mm S1: ± 0.025 mm	 IC: ± 0.025 mm S1: ± 0.025 mm	 IC: $\pm 0.05 - \pm 0.15$ mm S1: ± 0.13 mm

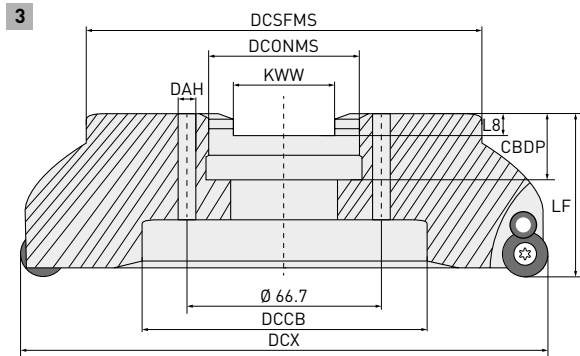
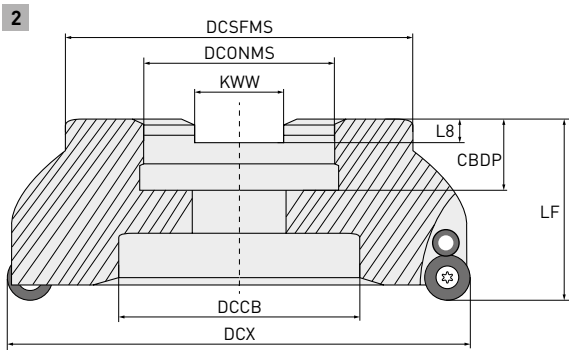
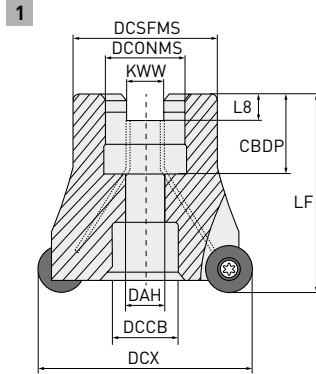
KALİTEYE GENEL BAKIŞ

	P	Kaplama Karbür					Kaplamasız Karbür	K	Kaplama Karbür		Kaplamasız Karbür	H	Kaplama Karbür		
Aşınma direnci ↑	P01	VP05HT	VP10H	VP15TF	VP20M	F7030	UT120T	K01			UT120T	H01	VP05HT	VP10H	VP15TF
Tokluk ↓	P10							K10	VP15TF			H10			
	P20							K20				H20			
	P30							K30				H30			
	P40														

RRD N



P K H



Yalnız sağ kesici

MALAFİ DELİKLİ TİP (Nötür)

Sipariş No.	Stok	APMX	DCX	DC	LF	DCONMS	CBDP	DAH	DCSFMS	KWW	L8	DCCB	ZEFP	Tip	
RRD050N-042A06R	●	5	42	32	44	16	18	9	33	8.4	5.7	15	6	1	RDH/M/Z
RRD050N-052A07R	●	5	52	42	50	22	20	11	44	10.4	6.3	18	7	1	1003M0
RRD060N-042A05R	●	6	42	30	42	16	18	9	33	8.4	5.7	15	5	1	RDH/M/Z
RRD060N-050A05R	●	6	50	38	50	22	20	11	44	10.4	6.3	18	5	1	12T3M0
RRD060N-052A05R	●	6	52	40	50	22	20	11	44	10.4	6.3	18	5	1	
RRD060N-063A06R	●	6	63	51	50	22	20	11	44	10.4	6.3	18	6	1	
RRD080N-050A04R	●	8	50	34	50	22	20	11	44	10.4	6.3	18	4	1	
RRD080N-052A04R	●	8	52	36	50	22	20	11	4	10.4	6.3	18	4	1	
RRD080N-052A05R	●	8	52	36	50	22	20	11	4	10.4	6.3	18	5	1	
RRD080N-063A05R	●	8	63	47	50	22	20	11	4	10.4	6.3	18	5	1	
RRD080N-066A05R	●	8	66	50	50	27	22	13.5	53	12.4	7.2	20	5	1	RDH/M/Z
RRD080N-080A06R	●	8	80	64	52	27	22	13.5	64	12.4	7.2	20	6	1	1604M0
RRD080N-100A07R	●	8	100	84	52	32	29	—	72	14.4	8	46	7	—	2
RRD080N-125B08R	●	8	125	109	52	40	30	—	82	16.4	9	58	8	—	2
RRD080N-160C09R	□	8	160	144	52	40	29	14	90	16.4	9	92	9	—	3

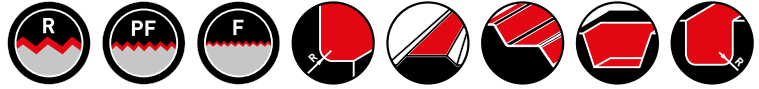
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RRD N

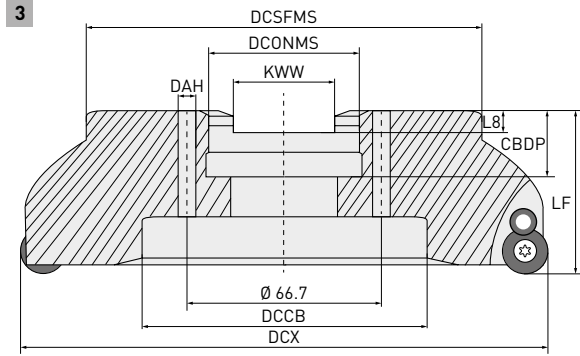
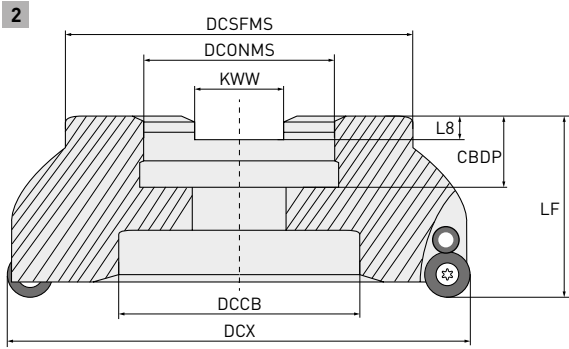
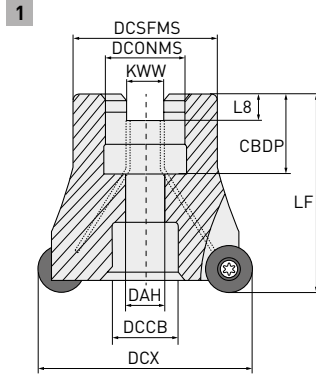
YEDEK PARÇALAR

Sipariş No.	RE					
		Altık	Altık Vidası	Uç sıkma Vidası	Kesici Uç Sıkma Vidası	Anahtar
RRD050N-	042A06R	5			—	
	052A07R					
RRD060N-	042A05R	6	—	B-TS35	TS1001	TKY15F
	050A05R					
	052A05R					
	063A06R					
RRD080N-	050A04R	8	KS-12	214	—	TKY20F
	052A04R					
	052A05R					
	063A05R					
	066A05R					
	080A06R					
	100A07R					
	125B08R					
	160C09R					

RRD P



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Yalnız sağ kesici

MALAFİ DELİKLİ TİP

Sipariş No.	Stok	APMX	DCX	DC	LF	DCONMS	CBDP	DAH	DCSFMS	KWW	L8	DCCB	ZEP	Tip	
RRD060P-050A05R	●	6	50	38	50	22	20	11	44	10.4	6.3	18	5	1	
RRD060P-052A05R	●	6	52	40	50	22	20	11	44	10.4	6.3	18	5	1	
RRD060P-063A06R	●	6	63	51	50	22	20	11	44	10.4	6.3	18	6	1	
RRD060P-066A06R	●	6	66	54	52	27	22	13.5	53	12.4	7.2	20	6	1	
RRD060P-080A07R	●	6	80	68	50	27	22	13.5	64	12.4	7.2	20	7	1	
RRD080P-050A04R	●	8	50	34	50	22	20	11	44	10.4	6.3	18	4	1	
RRD080P-063A05R	●	8	63	47	50	22	20	11	44	10.4	6.3	18	5	1	
RRD080P-066A05R	●	8	66	50	50	27	22	13.5	53	12.4	7.2	20	5	1	
RRD080P-080A06R	●	8	80	64	52	27	22	13.5	64	12.4	7.2	20	6	1	
RRD080P-100A07R	●	8	100	84	52	32	29	—	72	14.4	8	46	7	—	2
RRD080P-125B08R	●	8	125	109	52	40	30	—	82	16.4	9	58	8	—	2
RRD080P-160C09R	●	8	160	144	52	40	29	14	90	16.4	9	92	9	—	3

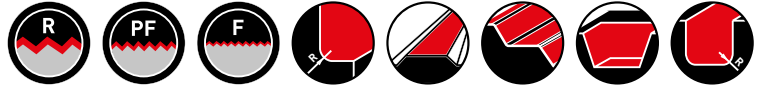
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RRD P

YEDEK PARÇALAR

Sipariş No.	RE					
		Altık	Altık Vidası	Uç sıkma Vidası	Kesici Uç Sıkma Vidası	Anahtar
RRD060P-	050A05R	6	—	B-TS35	TS1001	TKY15F
	052A05R					
	063A06R					
	066A06R					
	080A07R					
RRD080P-	050A04R	8	KS-12	B-TS45	214	TKY20F
	063A05R					
	066A05R					
	080A06R					
	100A07R					
	125B08R					
	160C09R					

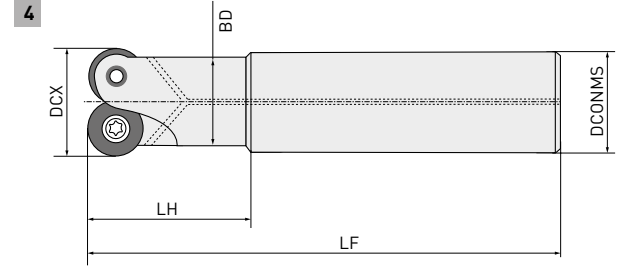
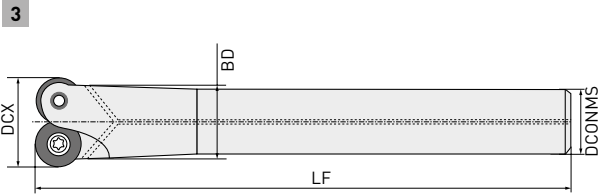
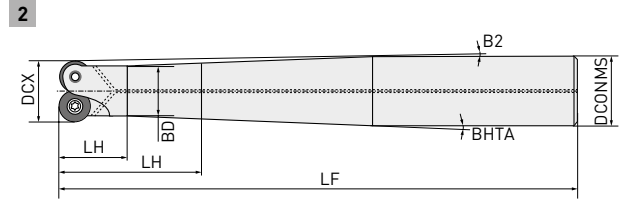
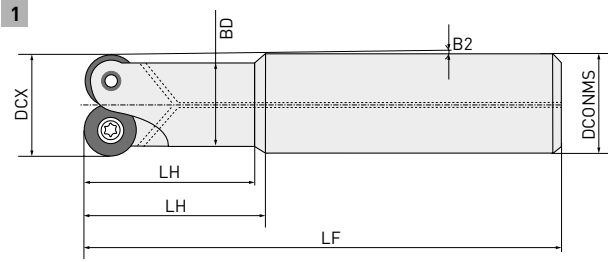
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Yalnız sağ kesici.

SİLİNDİRİK ŞAFTLI TİP

Sipariş No.	Stok	APMX	DCX	DCONMS	LF	LU	LH	BD	B2	BHTA	ZEFP	Tip	
RRD025R102S10Z	●	2.5	10	10	75	—	23	—	—	0.89	2	4	RDH/Z 0501M0
RRD025R123S12Z	●	2.5	12	12	75	—	23	11	—	—	3	4	
RRD025R154S16Z	●	2.5	15	16	80	22	22.5	14	1.4	45	4	1	
RRD035R122S10Z	●	3.5	12	10	75	23	—	11	—	—	2	3	RDH/M/Z 07T1M0
RRD035R122S12Z	●	3.5	12	12	75	—	23	11	—	—	2	4	
RRD035R122S16Z	□	3.5	12	16	88	15	18.4	11	4	8.37	2	2	
RRD035R122S16ZL	●	3.5	12	16	128	15	22.4	11	2.36	3.87	2	2	
RRD035R122S16ZM	●	3.5	12	16	109	15	22.4	11	2.36	3.87	2	2	RDH/M/Z 0702M0
RRD035R152S16Z	□	3.5	15	16	88	18	27.6	14	1	6.52	2	2	
RRD035R152S16ZM	●	3.5	15	16	108	18	41.4	14	0.59	2.69	2	2	
RRD035R152S20Z	●	3.5	15	20	130	20	35.6	14	2.12	4.04	2	2	
RRD035R152S20ZM	●	3.5	15	20	150	20	41.7	14	1.64	2.9	2	2	RDH/M/Z 1003M0
RRD035R152S25Z	□	3.5	15	25	176	20	36.8	14	2.64	3.8	2	2	
RRD035R153S12Z	□	3.5	15	12	75	17	—	12.8	—	—	3	3	
RRD035R153S16Z	□	3.5	15	16	78	29.5	30	14	1.08	45	3	1	RDH/M/Z 1003M0
RRD050R202S20Z	●	5	20	20	90	—	31	18	—	—	2	4	
RRD050R202S20ZM	●	5	20	20	110	—	51	18	—	—	2	4	
RRD050R202S25Z	●	5	20	25	136	68.5	69.5	18	2.13	45	2	1	
RRD050R202S25ZL	●	5	20	25	176	108.5	109.5	18	1.34	45	2	1	RDH/M/Z 1003M0
RRD050R202S25ZM	●	5	20	25	156	88.5	89.5	18	1.64	45	2	1	

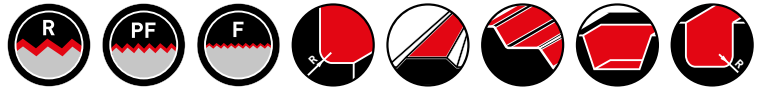
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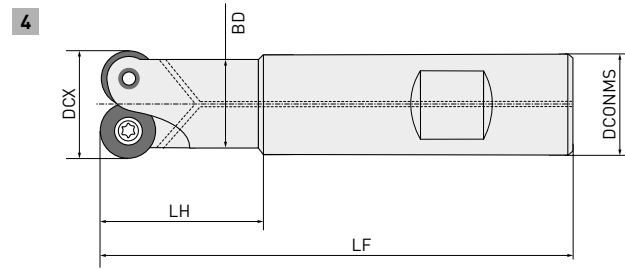
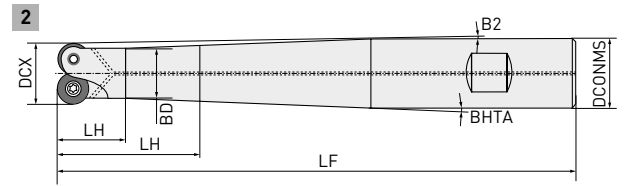
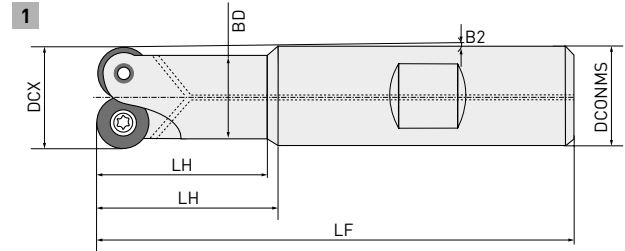
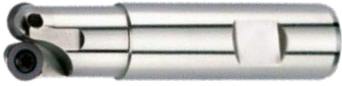
YEDEK PARÇALAR

Sipariş No.	RE					
		Altılık	Altılık Vidası	Uç sıkma Vidası	Kesici Uç Sıkma Vidası	Anahtar
RRD025R-	102S10Z	2.5	—	B-TS20	—	TKY06F
	123S12Z					
	54S16Z					
RRD035R-	122S10Z	3.5	—	B-TS253	—	TKY07F
	122S12Z					
	122S16Z					
	122S16ZL					
	122S16ZM	3.5	—	TS25	—	TKY08F
	152S16Z					
	152S16ZM					
	152S20Z					
	152S20ZM					
	152S25Z					
RRD050R-	153S12Z	5	—	B-TS35	—	TKY15F
	153S16Z					
	202S20Z	5	—	B-TS35	—	TKY15F
	202S20ZM					
	202S25Z					
	202S25ZL					
	202S25ZM					

RRD



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Yalnız sağ kesici.

WELDON ŞAFTLI TİP

Sipariş No.	Stok	APMX	DCX	DCONMS	LF	LU	LH	BD	B2	BHTA	ZEFP	Tip	
RRD035R122S16W	●	3.5	12	16	88	15	18.4	11	4	8.37	2	●	2
RRD035R122S16WL	●	3.5	12	16	128	15	22.4	11	2.36	3.87	2	●	2
RRD035R122S16WM	□	3.5	12	16	108	15	22.4	11	2	3.87	2	●	2
RRD035R152S16W	□	3.5	15	16	88	18	27.6	12.8	1	6.52	2	●	2
RRD035R152S16WM	□	3.5	15	16	108	18	41.38	12.8	0.59	2.69	2	●	2
RRD035R152S20W	□	3.5	15	20	130	20	35.58	12.8	2.12	4.04	2	●	2
RRD035R152S20WM	□	3.5	15	20	150	20	41.7	12.8	1.64	2.9	2	●	2
RRD035R152S25W	□	3.5	15	25	176	20	36.8	12.8	3.8	2.65	2	●	2
RRD035R153S16W	□	3.5	15	16	78	28.4	29.5	12.8	1.08	45	3	●	1
RRD050R202S20W	●	5	20	20	90	—	31	18	—	—	2	●	4
RRD050R202S20WM	●	5	20	20	110	—	51	18	—	—	2	●	4
RRD050R202S25W	●	5	20	25	136	23	37	18	2.13	4.09	2	●	2
RRD050R202S25WL	□	5	20	25	176	47.6	23	18	1.34	2.25	2	●	2
RRD050R202S25WM	□	5	20	25	156	42.7	23	18	1.64	2.9	2	●	2

RDH/M/Z
07T1M0RDH/M/Z
0702M0

RDH/M/Z 07T1M0

RDH/M/Z
1003M0

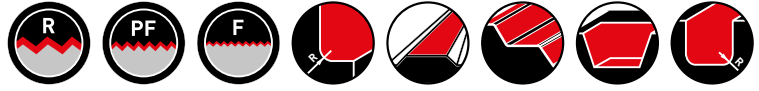
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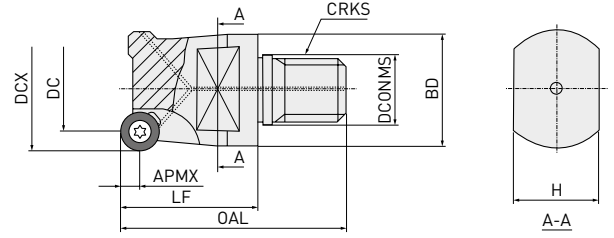
YEDEK PARÇALAR

Sipariş No.	RE					
		Altlık	Altlık Vidası	Uç sıkma Vidası	Kesici Uç Sıkma Vidası	Anahtar
RRD035R-	122S16W					
	122S16WL	—	—	B-TS253	—	TKY07F
	122S16WM					
	152S16W					
	152S16WM	3.5				
	152S20W			TS25		TKY08F
	152S20WM	—	—		—	
	152S25W					
	153S16W			TS253		
	202S20W					
RRD050R-	202S20WM					
	202S25W	5		B-TS35	—	TKY15F
	202S25WL					
	202S25WM					

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Yalnız sağ kesici.

VİDA ŞAFTLI TİP

Sipariş No.	Stok	APMX	DCX	DC	OAL	LF	DCONMS	DCSFMS	CRKS	H	ZEFP		
RRD025R102M5	□	2.5	10	5	35	20	5.5	9.9	M5	6	2	●	RDH/Z 0501M0
RRD025R123M8	●	2.5	12	7	38	20	8.5	13.5	M8	9	3	●	
RRD025R154M8	●	2.5	15	10	38	20	8.5	13.5	M8	10	4	●	
RRD025R205M10	●	2.5	20	15	44	25	10.5	18	M10	15	5	●	
RRD035R122M8	●	3.5	12	5	46	28	8.5	13.5	M8	9	2	●	RDH/M/Z 07T1M0
RRD035R153M8	●	3.5	15	8	46	28	8.5	13.5	M8	10	3	●	
RRD035R204M10	●	3.5	20	13	47	28	10.5	18	M10	15	4	●	
RRD035R255M12	●	3.5	25	18	50	28	12.5	21	M12	17	5	●	
RRD035R306M16	●	3.5	30	23	51	28	17	29	M16	22	6	●	RDH/M/Z 0702M0
RRD035R357M16	●	3.5	35	28	51	28	17	29	M16	22	7	●	
RRD035R152M8	●	3.5	15	8	46	28	8.5	13.5	M8	10	2	●	
RRD035R153M8X	●	3.5	15	8	43	28	8.5	13.5	M8	10	3	●	
RRD050R202M10	●	5	20	10	47	28	10.5	18	M10	15	2	●	RDH/M/Z 1003M0
RRD050R252M12	●	5	25	15	54	32	12.5	21	M12	17	2	●	
RRD050R253M12	●	5	25	15	54	32	12.5	21	M12	17	3	●	
RRD050R304M12	●	5	30	20	54	32	12.5	21	M12	17	4	●	
RRD050R304M16	●	5	30	20	55	32	17	29	M16	22	4	●	RDH/M/Z 12T3M0
RRD050R355M16	●	5	35	25	65	42	17	29	M16	22	5	●	
RRD050R426M16	●	5	42	32	65	42	17	29	M16	22	6	●	
RRD060R242M12	●	6	24	12	54	32	12.5	21	M12	17	2	●	
RRD060R353M16	●	6	35	23	65	42	17	29	M16	22	3	●	RDH/M/Z 1604M0
RRD060R354M16	●	6	35	23	65	42	17	29	M16	22	4	●	
RRD060R424M16	●	6	42	30	55	32	17	29	M16	24	4	●	
RRD060R425M16	●	6	42	30	65	42	17	29	M16	22	5	●	
RRD080R322M16	●	8	32	16	65	42	17	29	M16	22	2	●	RDH/M/Z 1604M0

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RRD

YEDEK PARÇALAR

Sipariş No.	RE						
		Altlık	Altlık Vidası	Uç sıkma Vidası	Kesici Uç Sıkma Vidası	Anahtar	
RRD025R-	102M5	2.5	—	—	B-TS20	—	TKY06F
	123M8						
	154M8						
	205M10						
RRD035R-	122M8	3.5	—	—	B-TS253	—	TKY07F
	153M8				TS253		
	204M10						
	255M12						
	306M16						
	357M16				TS25		
	152M8						
	153M8X						
RRD050R-	202M10	5	—	—	B-TS35	—	TKY15F
	252M12						
	253M12						
	304M12						
	304M16						
	355M16						
	426M16						
RRD060R-	242M12	6	—	—	B-TS35	—	TKY15F
	353M16						
	354M16						
	424M16						
	425M16						
RRD080R-	322M16	8	—	—	214	—	TKY20F

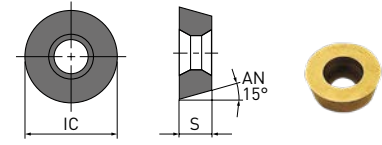
KESİCİ UÇLAR

P	Çelik	●	●	●	●	●	●
K	Dökme Demir		✱	✱	●	●	✱
H	Sertleştirilmiş Çelik	●			●	●	

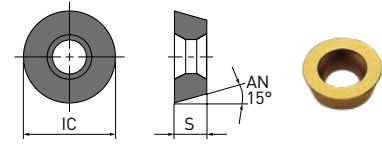
Kesme Koşulları:

●: Düz Kesme ●: Genel Kesme ✱: Darbeli Kesme

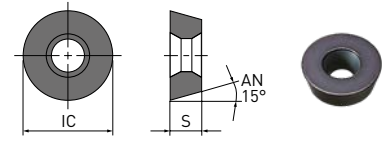
Sipariş No.	Sınıf	Honlama	F7030	VP15TF	VP20M	VP10H	VP05HT	UTi20T	IC	S
RDHX0501M0E	H	E	●	●		●	●		5	1.5
RDHX0501M0S	H	S	●	●		●			5	1.5
RDHX07T1M0E	H	E	●	●		●	●		7	1.98
RDHX07T1M0S	H	S	●	●		●	●		7	1.98
RDHX0702M0E	H	E	●	●		●	●		7	2.38
RDHX0702M0S	H	S	●	●		●			7	2.38
RDHX1003M0E	H	E	●	●		●	●		10	3.18
RDHX1003M0S	H	S	●	●		●	●		10	3.18
RDHX12T3M0E	H	E	●	●		●	●		12	3.97
RDHX12T3M0S	H	S	●	●		●			12	3.97
RDHX1604M0E	H	E	●	●		●	●		16	4.76
RDHX1604M0S	H	S	●	●		●			16	4.76
RDMX07T1M0E	M	E					●		7	1.98
RDMX07T1M0T	M	T	●		●	●			7	1.98
RDMX0702M0E	M	E					●		7	2.38
RDMX0702M0T	M	T	●		●	●		□	7	2.38
RDMX1003M0E	M	E					●		10	3.18
RDMX1003M0S	M	S		●		●			10	3.18
RDMX1003M0T	M	T	●		●	●		●	10	3.18
RDMX12T3M0E	M	E					●		12	3.97
RDMX12T3M0S	M	S		●		●			12	3.97
RDMX12T3M0T	M	T	●		●	●		●	12	3.97
RDMX1604M0E	M	E					●		16	4.76
RDMX1604M0S	M	S		●		●			16	4.76
RDMX1604M0T	M	T	●		●	●		●	16	4.76
RDZX0501M0E	Z	E		●					5	1.50
RDZX07T1M0E	Z	E		●					7	1.98
RDZX0702M0E	Z	E		●					7	2.38
RDZX1003M0E	Z	E		●					10	3.18
RDZX1003M0S	Z	S	●	●					10	3.18
RDZX12T3M0E	Z	E		●					12	3.97
RDZX12T3M0S	Z	S	●	●					12	3.97
RDZX1604M0E	Z	E		●					16	4.76
RDZX1604M0S	Z	S	●	●					16	4.76



IC: ±0.013 mm S: ±0.025 mm



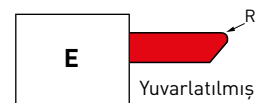
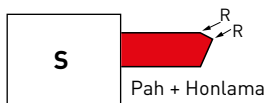
IC: ±0.05-±0.15 mm S: ±0.15 mm



IC: ±0.025 mm S: ±0.025 mm

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KESME KENARI YAPISI



● Kaba işleme için

● Kaba ve Finiş işleme için

● Finiş işleme için

RRD

ÖNERİLEN KESME KOŞULLARI

KABA İŞLEME İÇİN KESME KOŞULLARI (ae = %50 Ø)

İş parçası Malzemesi	Sertlik	Kalite	Vc	Ø 10 – 15 mm		Ø 20 mm		Ø 24 – 25 mm		Ø 30 – 42 mm		Ø 50 – 80 mm		Ø 100 – 160 mm		
				ap	fz	ap	fz	ap	fz	ap	fz	ap	fz	ap	fz	
P	Yumuşak Çelik	<180HB	F7030 VP15TF	(250 – 320)	-0.2	0.25	-0.5	0.45	-1.0	0.35	-1.0	0.40	-1.0	0.50	-1.5	0.60
				(240 – 300)	0.2–0.3	0.20	0.5–1.0	0.25	1.0–2.0	0.30	1.5–2.0	0.32	1.0–1.5	0.40	1.5–2.5	0.45
				(200 – 280)	0.3–0.5	0.12	1.0–1.5	0.15	2.0–2.5	0.20	2.0–3.0	0.25	1.5–3.0	0.35	2.5–5.0	0.35
	Karbon Çeliği Alaşımlı Çelik	180 – 350HB	F7030 VP15TF	(220 – 300)	-0.2	0.20	-0.5	0.40	-1.0	0.30	-1.0	0.40	-1.0	0.50	-1.5	0.55
				(200 – 290)	0.2–0.3	0.15	0.5–1.0	0.20	1.0–1.5	0.25	1.5–2.0	0.30	1.0–1.5	0.38	1.5–2.5	0.40
				(160 – 250)	0.3–0.5	0.10	1.0–1.5	0.10	1.5–2.0	0.22	2.0–3.0	0.22	1.5–3.0	0.30	2.5–4.5	0.32
K	Dökme Demir	Kopma Mukavemeti <450 MPa	VP15TF VP20M VP10H	(200 – 250)	-0.1	0.15	-0.5	0.18	-1.0	0.20	-1.0	0.25	-1.0	0.30	-1.5	0.35
				(180 – 230)	0.1–0.2	0.10	0.5–1.0	0.10	1.0–1.5	0.15	1.5–2.0	0.18	1.0–1.5	0.25	1.5–2.5	0.22
				(160 – 200)	0.2–0.25	0.10	1.0–1.5	0.10	1.5–2.0	0.12	2.0–3.0	0.15	1.5–3.0	0.18	2.5–4.5	0.20
H	Sertleştirilmiş Çelik	-52HRC -58HRC -60HRC	VP15TF VP10H VP05HT	(140 – 200)	-0.1	0.12	-0.1	0.14	-0.1	0.15	-0.1	0.18	-0.1	0.18	-0.1	0.20
				(110 – 180)	0.1–0.15	0.10	0.1–0.20	0.12	0.1–0.30	0.12	0.1–0.30	0.14	0.1–0.30	0.14	0.1–0.30	0.15
				(100 – 170)	0.1–0.15	0.10	0.1–0.20	0.10	0.1–0.30	0.10	0.1–0.30	0.12	0.1–0.30	0.12	0.1–0.30	0.12
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1. Takımın tam kesme genişliği kullanıldığında lütfen kesme koşullarını %20 oranında düşürün.
2. Takım boyu uzun kullanıldığında lütfen ilerleme oranını %20 düşürün.

FİNİŞ İŞLEME İÇİN KESME KOŞULLARI (ae = %20 Ø)

İş parçası Malzemesi	Sertlik	Kalite	Vc	Ø 10 – 15 mm		Ø 20 mm		Ø 24 – 25 mm		Ø 30 – 42 mm		Ø 50 – 80 mm		Ø 100 – 160 mm		
				ap	fz	ap	fz	ap	fz	ap	fz	ap	fz	ap	fz	
P	Yumuşak Çelik	<180HB	F7030 VP15TF	(260 – 360)	-0.1	0.15	-0.15	0.20	-0.15	0.25	-0.15	0.30	-0.15	0.32	-0.3	0.35
				(240 – 320)	0.1–0.2	0.15	0.1–0.2	0.15	0.1–0.2	0.18	0.1–0.3	0.20	0.1–0.3	0.22	0.2–0.3	0.25
				(220 – 280)	0.2–0.24	0.10	0.1–0.30	0.15	0.1–0.30	0.18	0.1–0.30	0.20	0.2–0.30	0.20	0.3–0.40	0.20
	Karbon Çeliği Alaşımlı Çelik	180 – 350HB	F7030 VP15TF	(250 – 350)	-0.1	0.12	-0.1	0.15	-0.1	0.18	-0.1	0.25	-0.1	0.28	-0.15	0.30
				(230 – 310)	0.1–0.15	0.12	0.1–0.30	0.15	0.1–0.30	0.15	0.1–0.30	0.20	0.1–0.3	0.22	0.15–0.3	0.25
				(210 – 270)	0.15–0.2	0.10	0.15–0.30	0.12	0.15–0.30	0.15	0.15–0.30	0.15	0.2–0.3	0.18	0.2–0.3	0.18
K	Dökme Demir	Kopma Mukavemeti <450 MPa	VP15TF VP20M VP10H	(200 – 300)	-0.1	0.15	-0.1	0.18	-0.1	0.20	-0.1	0.22	-0.1	0.25	-0.15	0.30
				(200 – 280)	0.1–0.2	0.10	0.1–0.30	0.10	0.1–0.3	0.15	0.1–0.3	0.15	0.1–0.3	0.20	0.15–0.3	0.22
				(180 – 240)	0.2–0.25	0.10	0.2–0.40	0.10	0.2–0.4	0.12	0.2–0.4	0.12	0.2–0.4	0.15	0.2–0.4	0.18
H	Sertleştirilmiş Çelik	-52HRC -58HRC -60HRC	VP15TF VP10H VP05HT	(150 – 200)	-0.1	0.15	-0.1	0.14	-0.1	0.15	-0.1	0.18	-0.1	0.18	-0.1	0.20
				(120 – 180)	0.1–0.15	0.10	0.1–0.20	0.12	0.1–0.30	0.12	0.1–0.30	0.14	0.1–0.30	0.14	0.1–0.30	0.15
				(100 – 180)	0.1–0.15	0.10	0.1–0.20	0.10	0.1–0.30	0.10	0.1–0.30	0.12	0.1–0.30	0.12	0.1–0.30	0.12
1/1																

1/1

1. Takımın tam kesme genişliği kullanıldığında lütfen kesme koşullarını %20 oranında düşürün.
2. Takım boyu uzun kullanıldığında lütfen ilerleme oranını %20 düşürün.

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