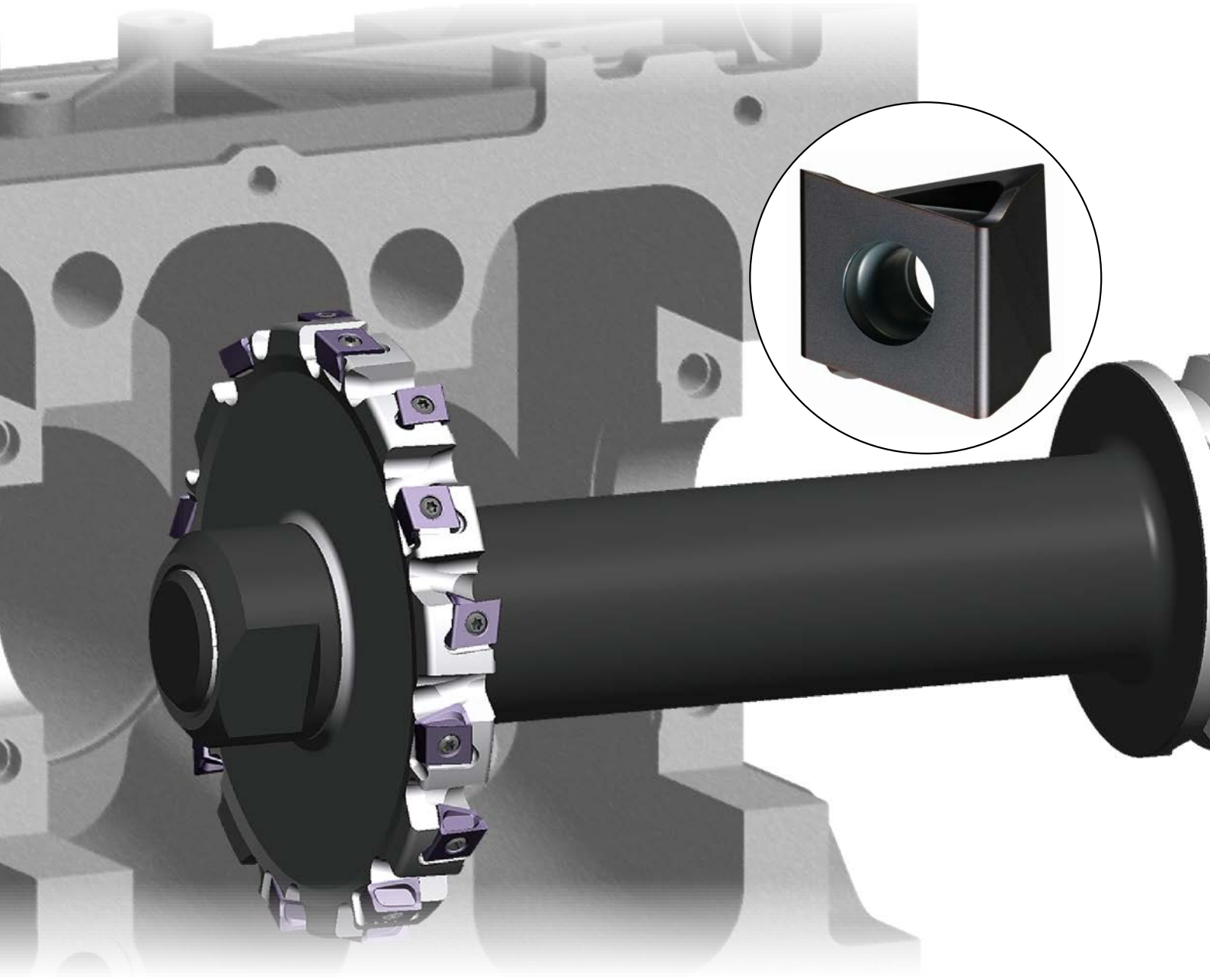


# YAN KENAR VE YÜZEY FREZELEME KESİCİLERİ SERİSİ

YAN KENAR VE YÜZEY İŞLEME İÇİN ÇİFT TARAFLI DİKEY  
MONTAJ EDİLMİŞ, DÜŞÜK KESME DİRENÇLİ UÇLARI İLE  
DCV SERİSİ



*Mplus...*

# DCV3 / DCV4 / DCV5

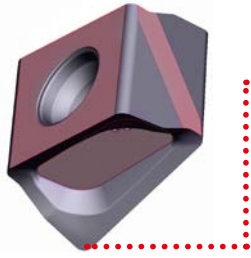
## DEĞİŞTİRİLEBİLİR KESİCİ UÇLAR

### EKONOMİK KESİCİ UÇ TASARIMI

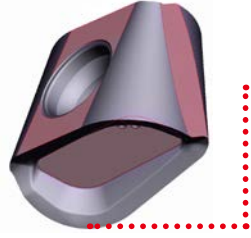
4 kesme kenarlı teğetsel tip kesici uç.

### GÜVENLİ SIKMA

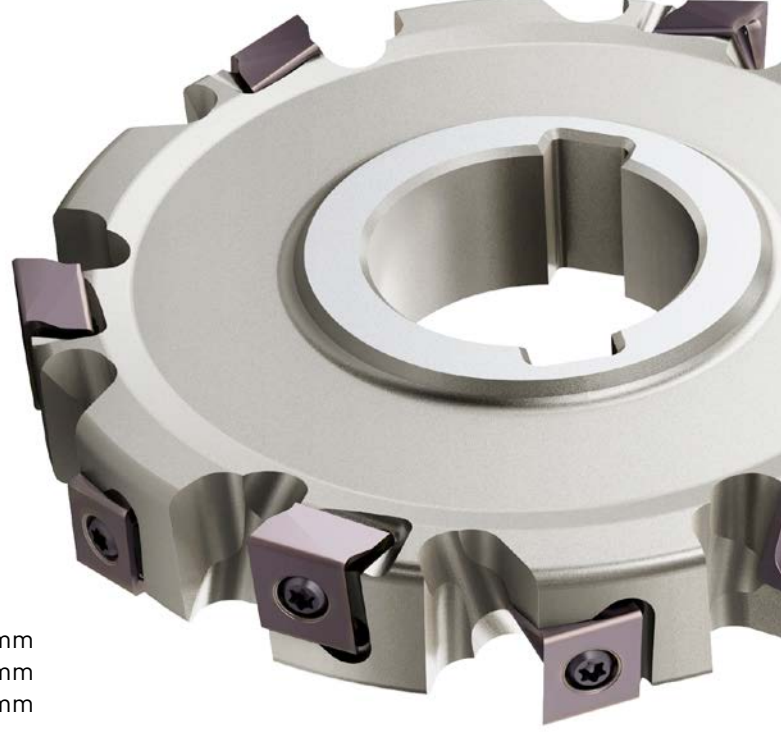
Özel uç yuvası yüzeyleri, bir çok farklı radyus boyutlarında kesici uçların güvenli bir şekilde bağlanmasını sağlar.



Köşe radyusu R 0.4 mm

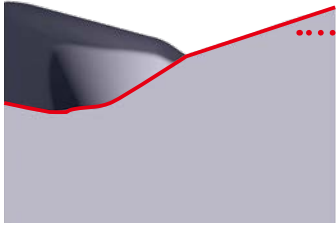


**NEW** DCV3 için köşe radyusu R 4.0 mm  
DCV4 için köşe radyusu R 5.0 mm  
DCV5 için köşe radyusu R 7.0 mm

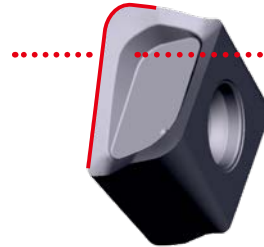


Freze gövdesi ve kesici uçlar: GAMF: +8° GAMP : +3°

### DÜŞÜK KESME DİRENÇLİ KESİCİ UÇ → FAVORİ KESKİNLİK



Dayanıklı Kesme Kenarı  
(Dış bükey Kavisli)

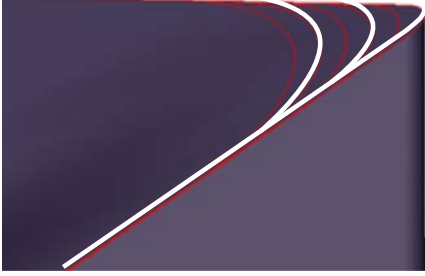


Çift fazlı Helisel Dalma  
Açısı

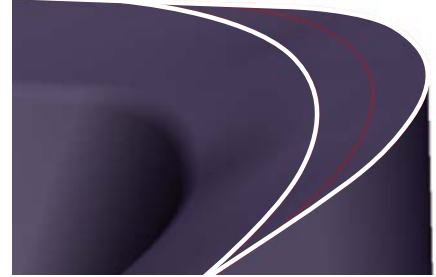
## YÜKSEK HASSASİYETLİ KÖŞE RADYUSU

İŞ PARÇASINDA HATASIZ KÖŞE RADYUSU OLUŞTURMAK İÇİN HASSAS KESİCİ UÇLAR.

R 0.4 – R 3.0 mm

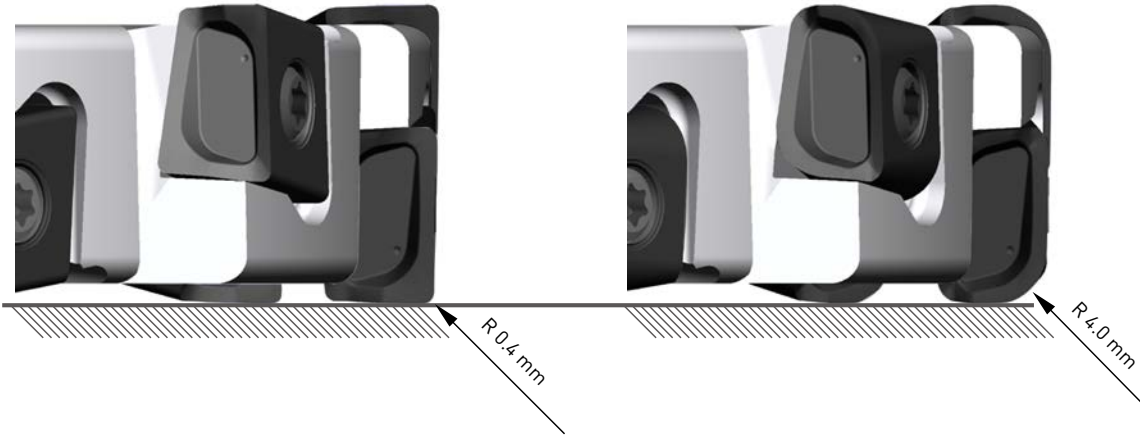


R 3.0 – R 7.0 mm



### İSTİKRARLI GEOMETRİ

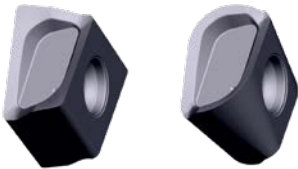
Farklı köşe radyuslu uçlar kullanılsa bile kesme genişliği ve çap değişmez.



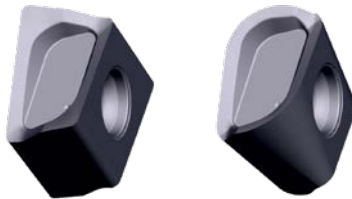
### ÇOK ÇEŞİTLİ KÖŞE RADYUSU MEVCUTTUR

**NEW**

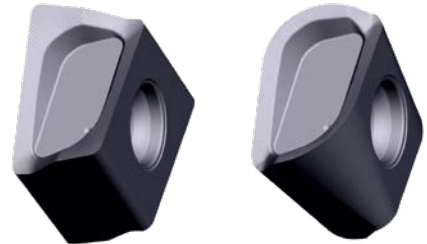
**DCV3** = R 0.4 – R 4.0 mm



**DCV4** = R 0.4 – R 5.0 mm

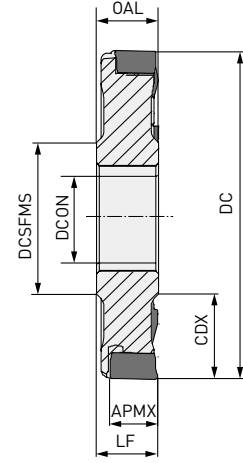
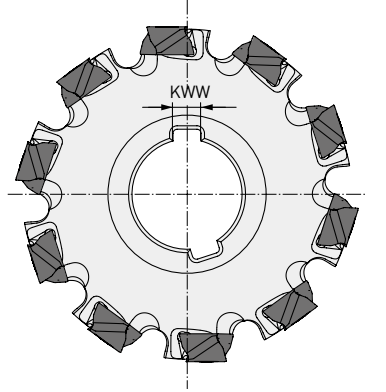
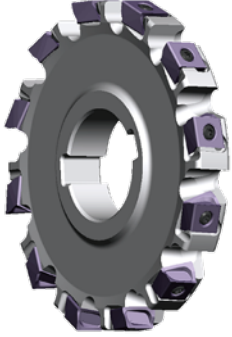


**DCV5** = R 0.4 – R 7.0 mm




**NEW**

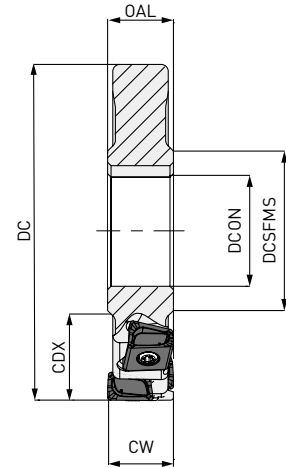
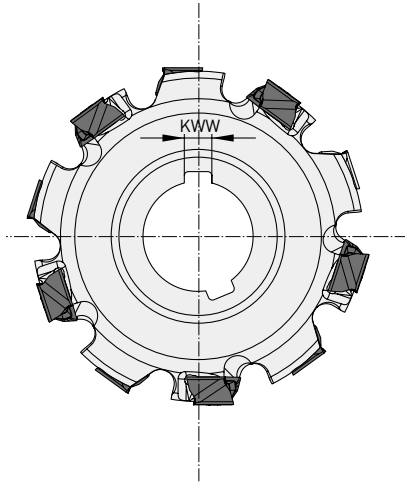
# DCV3

**90°  
KAPR****P****K**

Maks. APMX: 8.6 mm


## YARIM KENARLI

DC	ZNF	LF = OAL	CDX	DCON	DCSFMS	KWW	
80 - 99.9	8		20.0	27	40	7	
100 - 124.9	10	≥12	27.0	32	46	8	LNGU09
125 - 160.0	12		35.0	40	55	10	

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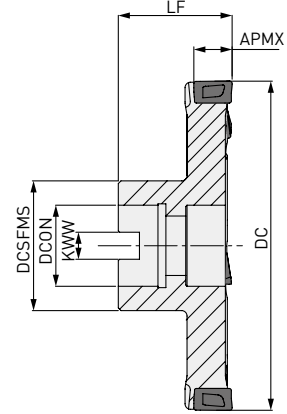
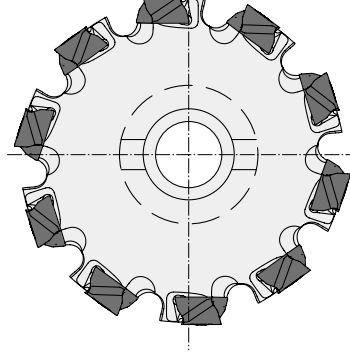
Azami Genişlik CW: 17.2 mm

## TAM KENARLI

DC	ZNF	ZNP	LF = OAL	CW	CDX	DCON	DCSFMS	KWW	
80 - 99.9	4	8		12-17.2	20.0	27	40	7	
100 - 124.9	5	10	≥12	12-17.2	27.0	32	46	8	LNGU09
125 - 160.0	6	12		12-17.2	35.0	40	55	10	


1. Her bir ölçü için birden çok seviyeli tasarımlar mevcuttur. Detayları verilmeyen geometriler için lütfen teknik departmanımız ile iletişime geçiniz. (MMC Hartmetall GmbH - huseyin.sakizlioglu@mmchg.com.tr)

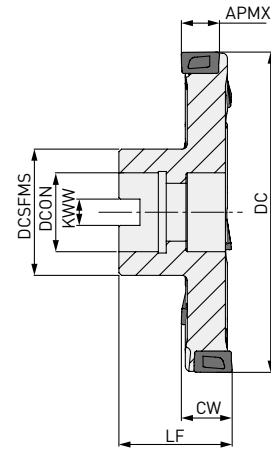
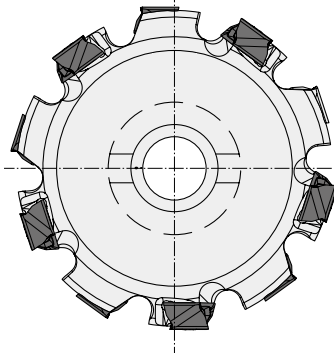
15 

**NEW****Mplus...****DCV3****90°  
KAPR****P****K**

Maks. APMX: 8.6 mm


**YARIM KENARLI MALAFA TİP**

DC	ZEFP	LF	CDX	DCON	DCSFMS	KWW	
80 - 99.9	8	50	20.0	27	40	12.4	LNGU09
100 - 124.9	10	60	27.0	32	46	14.4	
125 - 160.0	12	60	35.0	40	55	16.4	

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Azami Genişlik CW: 17.2 mm

**TAM KENARLI MALAFA TİP**




DC	ZEFP	LF	CW	CDX	DCON	DCSFMS	KWW	
80 - 99.9	8	50	12-17.2	20.0	27	40	12.4	LNGU09
100 - 124.9	10	60	12-17.2	27.0	32	46	14.4	
125 - 160.0	12	60	12-17.2	35.0	40	55	16.4	

1. Her bir ölçü için birden çok seviyeli tasarımlar mevcuttur. Detayları verilmeyen geometriler için lütfen teknik departmanımız ile iletişime geçiniz. (MMC Hartmetall GmbH - huseyin.sakizlioglu@mmchg.com.tr)


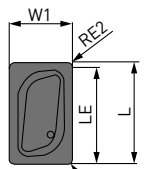
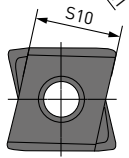
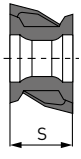
15 

# DCV3

## YEDEK PARÇALAR

Takım Tutucu Tipi	 Uç Vidası	TQ (Nm)	 Anahtar	 Sıkışma Önleyici Yağlayıcı
DCV3 LNGU090600PNEOM	TS304	1.5	TKY08W	MK1KS

## KESİCİ UÇ

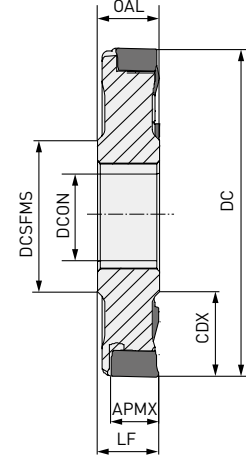
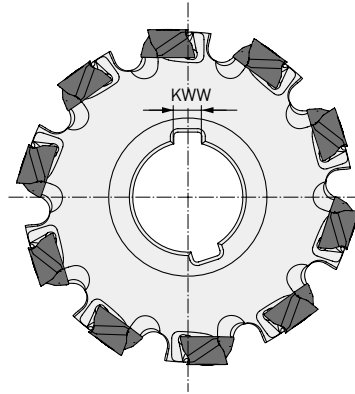
Sipariş Numarası	VP15TF	Kesme yönü	Sınıf	Honlama	L	LE	S	S10	RE1	W1	Biçim	Geometri
<b>NEW</b> LNGU090604PNER-M	●	R	G	E	9	8.6	6	8.5	0.4	6	   	
<b>NEW</b> LNGU090608PNER-M	●	R	G	E	9	8.6	6	8.5	0.8	6		
<b>NEW</b> LNGU090612PNER-M	●	R	G	E	9	8.6	6	8.5	1.2	6		
<b>NEW</b> LNGU090616PNER-M	●	R	G	E	9	8.6	6	8.5	1.6	6		
<b>NEW</b> LNGU090620PNER-M	●	R	G	E	9	8.6	6	8.5	2	6		
<b>NEW</b> LNGU090624PNER-M	●	R	G	E	9	8.6	6	8.5	2.4	6		
<b>NEW</b> LNGU090630PNER-M	●	R	G	E	9	8.6	6	8.5	3	6		
<b>NEW</b> LNGU090640PNER-M	●	R	G	E	9	8.6	6	8.5	4	6		
<b>NEW</b> LNGU090604PNEL-M	●	L	G	E	9	8.6	6	8.5	0.4	6		
<b>NEW</b> LNGU090608PNEL-M	●	L	G	E	9	8.6	6	8.5	0.8	6		
<b>NEW</b> LNGU090612PNEL-M	●	L	G	E	9	8.6	6	8.5	1.2	6		
<b>NEW</b> LNGU090616PNEL-M	●	L	G	E	9	8.6	6	8.5	1.6	6		
<b>NEW</b> LNGU090620PNEL-M	●	L	G	E	9	8.6	6	8.5	2	6		
<b>NEW</b> LNGU090624PNEL-M	●	L	G	E	9	8.6	6	8.5	2.4	6		
<b>NEW</b> LNGU090630PNEL-M	●	L	G	E	9	8.6	6	8.5	3	6		
<b>NEW</b> LNGU090640PNEL-M	●	L	G	E	9	8.6	6	8.5	4	6		

(bir kutuda 10 kesici uç)

# DCV4




P K

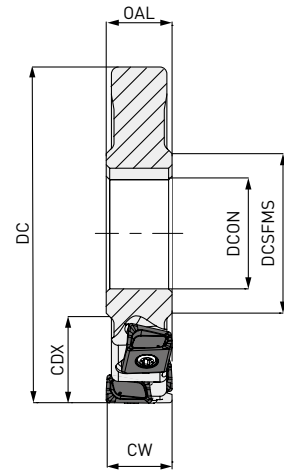
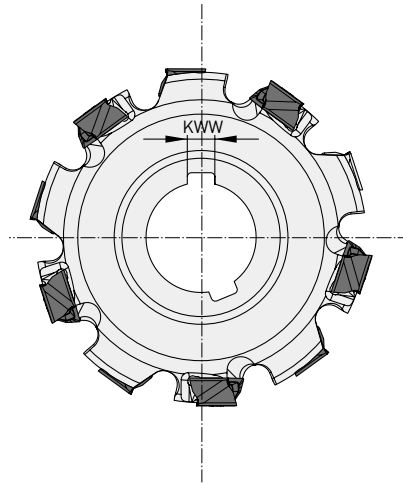


Maks. APMX: RE1 < 3.0 mm 12.2 mm  
RE1 > 3.0 mm 11.4 mm

## YARIM KENARLI


DC	ZEFP	LF = OAL	CDX	DCON	DCSFMS	KWW	
80 - 99.9	8	18	20.0	27	40	7	LNGU13
100 - 124.9	10		27.0	32	46	8	
125 - 159.9	12		35.0	40	55	10	
160 - 200	14		52.5	40	55	10	

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Azami Genişlik CW: 24 mm

## TAM KENARLI

DC	ZEFP	CW	CDX	DCON	DCSFMS	KWW	
80 - 99.9	4	18-24	20.0	27	40	7	LNGU13
100 - 124.9	5	18-24	27.0	32	46	8	
125 - 159.9	6	18-24	35.0	40	55	10	
160 - 200	7	18-24	52.5	40	55	10	

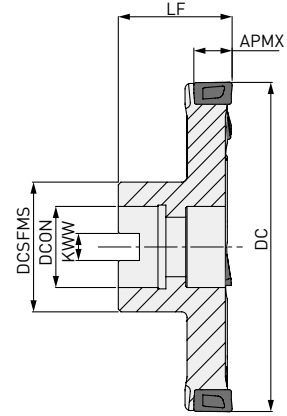
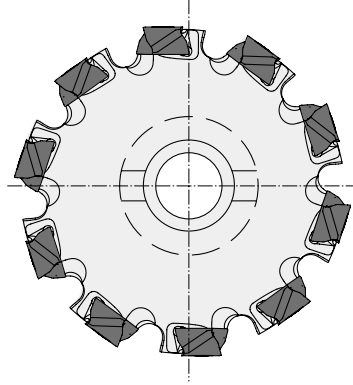
1. Her bir ölçü için birden çok seviyeli tasarımlar mevcuttur. Detayları verilmeyen geometriler için lütfen teknik departmanımız ile iletişime geçiniz. (MMC Hartmetall GmbH - huseyin.sakizlioglu@mmchg.com.tr)

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# DCV4




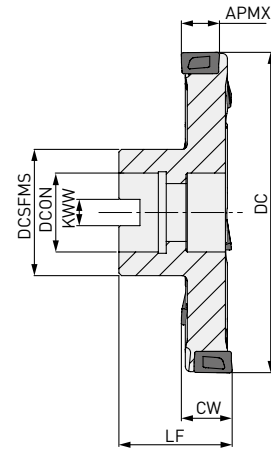
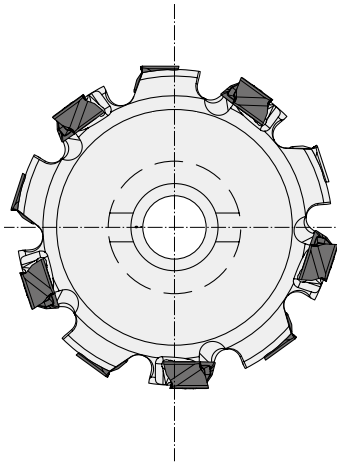
P K



Maks. APMX: RE1 < 3.0 mm 12.2 mm  
RE1 > 3.0 mm 11.4 mm

## YARIM KENARLI MALAFA TİP


DC	ZEFP	LF	CDX	DCON	DCSFMS	KWW	
80 - 99.9	8 - 10	50	20	27	40	12.4	LNGU13
100 - 124.9	10 - 12	60	27	32	46	14.4	
125 - 159.9	12 - 14	60	35	40	55	16.4	
160 - 200	14 - 20	70	52.5	40	55	16.4	



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Azami Genişlik CW: 24 mm

## TAM KENARLI MALAFA TİP

DC	ZEFP	LF	CW	CDX	DCON	DCSFMS	KWW	
80 - 99.9	8 - 10	50	18-24	20	27	40	12.4	LNGU13
100 - 124.9	10 - 12	60	18-24	27	32	46	14.4	
125 - 159.9	12 - 14	60	18-24	35	40	55	16.4	
160 - 200	14 - 20	70	18-24	52.5	40	55	16.4	

1. Her bir ölçü için birden çok seviyeli tasarımlar mevcuttur. Detayları verilmeyen geometriler için lütfen teknik departmanımız ile iletişime geçiniz. [MMC Hartmetall GmbH - huseyin.sakizlioglu@mmchg.com.tr]

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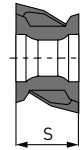
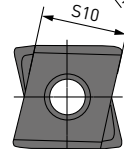
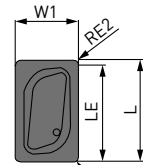
# DCV4

## YEDEK PARÇALAR

Takım Tutucu Tipi	Uç Vidası	TQ (Nm)	Anahtar	Sıkıştırma Önleyici Yağlayıcı
DCV4 LNGU13080PNE00	TS406	3.5	TKY15T	MK1KS

## KESİCİ UÇ

Sipariş Numarası	MP6120 VP15TF	Kesme yönü Sınıf	Honlama	L	LE	S	S10	RE1	RE2	W1	Biçim	Geometri
LNGU130804PNER-M	●	R G E		13.0	12.2	8.0	11.0	0.4	0.8	8.0		
LNGU130804PNEL-M	●	L G E		13.0	12.2	8.0	11.0	0.4	0.8	8.0		
LNGU130808PNER-M	●	R G E		13.0	12.2	8.0	11.0	0.8	0.8	8.0		
LNGU130808PNEL-M	●	L G E		13.0	12.2	8.0	11.0	0.8	0.8	8.0		
LNGU130812PNER-M	●	R G E		13.0	12.2	8.0	11.0	1.2	0.8	8.0		
LNGU130812PNEL-M	●	L G E		13.0	12.2	8.0	11.0	1.2	0.8	8.0		
LNGU130816PNER-M	●	R G E		13.0	12.2	8.0	11.0	1.6	0.8	8.0		
LNGU130816PNEL-M	●	L G E		13.0	12.2	8.0	11.0	1.6	0.8	8.0		
LNGU130820PNER-M	●	R G E		13.0	12.2	8.0	11.0	2.0	0.8	8.0		
LNGU130820PNEL-M	●	L G E		13.0	12.2	8.0	11.0	2.0	0.8	8.0		
LNGU130824PNER-M	●	R G E		13.0	12.2	8.0	11.0	2.4	0.8	8.0		
LNGU130824PNEL-M	●	L G E		13.0	12.2	8.0	11.0	2.4	0.8	8.0		
LNGU130830PNER-M	●	R G E		13.0	11.4	8.0	11.0	3.0	1.6	8.0		
LNGU130830PNEL-M	●	L G E		13.0	11.4	8.0	11.0	3.0	1.6	8.0		
LNGU130840PNER-M	●	R G E		13.0	11.4	8.0	11.0	4.0	1.6	8.0		
LNGU130840PNEL-M	●	L G E		13.0	11.4	8.0	11.0	4.0	1.6	8.0		
LNGU130850PNER-M	●	R G E		13.0	11.4	8.0	11.0	5.0	1.6	8.0		
LNGU130850PNEL-M	●	L G E		13.0	11.4	8.0	11.0	5.0	1.6	8.0		
LNGU130804PNER-R	●	R G E		13.0	12.2	8.0	11.0	0.4	0.8	8.0		
LNGU130804PNEL-R	●	L G E		13.0	12.2	8.0	11.0	0.4	0.8	8.0		
LNGU130808PNER-R	●	R G E		13.0	12.2	8.0	11.0	0.8	0.8	8.0		
LNGU130808PNEL-R	●	L G E		13.0	12.2	8.0	11.0	0.8	0.8	8.0		
LNGU130812PNER-R	●	R G E		13.0	12.2	8.0	11.0	1.2	0.8	8.0		
LNGU130812PNEL-R	●	L G E		13.0	12.2	8.0	11.0	1.2	0.8	8.0		
LNGU130816PNER-R	●	R G E		13.0	12.2	8.0	11.0	1.6	0.8	8.0		
LNGU130816PNEL-R	●	L G E		13.0	12.2	8.0	11.0	1.6	0.8	8.0		
LNGU130820PNER-R	●	R G E		13.0	12.2	8.0	11.0	2.0	0.8	8.0		
LNGU130820PNEL-R	●	L G E		13.0	12.2	8.0	11.0	2.0	0.8	8.0		
LNGU130824PNER-R	●	R G E		13.0	12.2	8.0	11.0	2.4	0.8	8.0		
LNGU130824PNEL-R	●	L G E		13.0	12.2	8.0	11.0	2.4	0.8	8.0		
LNGU130830PNER-R	●	R G E		13.0	11.4	8.0	11.0	3.0	1.6	8.0		
LNGU130830PNEL-R	●	L G E		13.0	11.4	8.0	11.0	3.0	1.6	8.0		
LNGU130840PNER-R	●	R G E		13.0	11.4	8.0	11.0	4.0	1.6	8.0		
LNGU130840PNEL-R	●	L G E		13.0	11.4	8.0	11.0	4.0	1.6	8.0		
LNGU130850PNER-R	●	R G E		13.0	11.4	8.0	11.0	5.0	1.6	8.0		
LNGU130850PNEL-R	●	L G E		13.0	11.4	8.0	11.0	5.0	1.6	8.0		

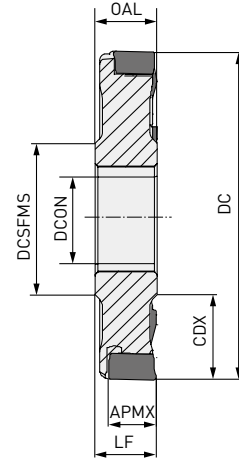
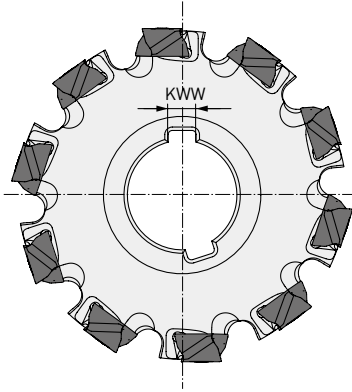


(bir kutuda 10 kesici uç)

# DCV5




P K

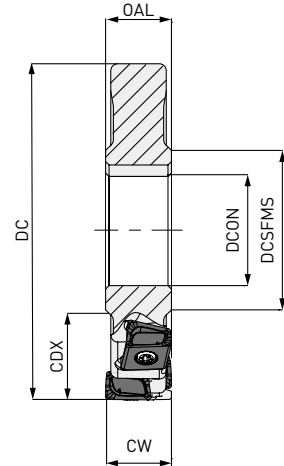
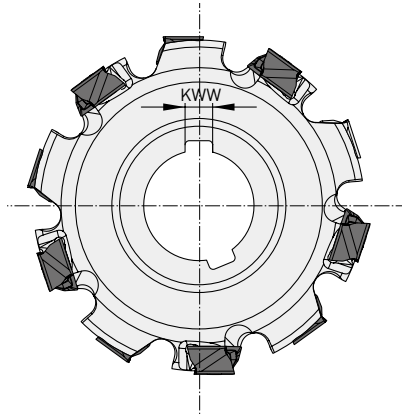


Maks. APMX: RE1 < 3.0 mm 16.2 mm  
RE1 > 3.0 mm 15.4 mm

## YARIM KENARLI


DC	ZEFP	LF = OAL	CDX	DCON	DCSFMS	KWW	
100 - 124.9	8	23	27.0	32	46	8	LNGU17
125 - 159.9	10		35.0	40	55	10	
160 - 199.9	12		52.5	40	55	10	
200 - 250	16		65.0	50	70	12	

15 



Azami Genişlik CW: 32 mm

## TAM KENARLI

DC	ZEFP	CW	CDX	DCON	DCSFMS	KWW	
100 - 124.9	8	23-32	27.0	32	46	8	LNGU17
125 - 159.9	10		35.0	40	55	10	
160 - 199.9	12		52.5	40	55	10	
200 - 250	16		65.0	50	70	12	

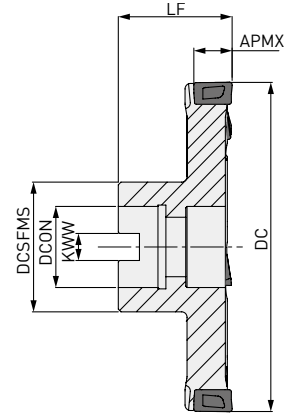
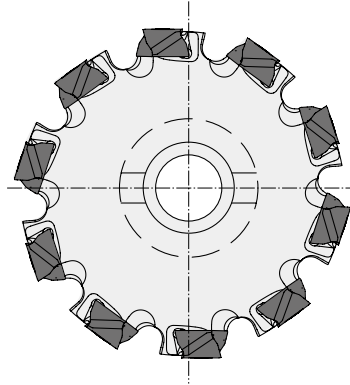
1. Her bir ölçü için birden çok seviyeli tasarımlar mevcuttur. Detayları verilmeyen geometriler için lütfen teknik departmanımız ile iletişime geçiniz. (MMC Hartmetall GmbH - huseyin.sakizlioglu@mmchg.com.tr)

15 

# DCV5




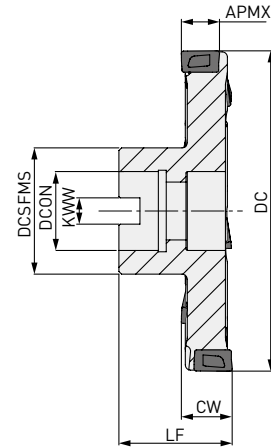
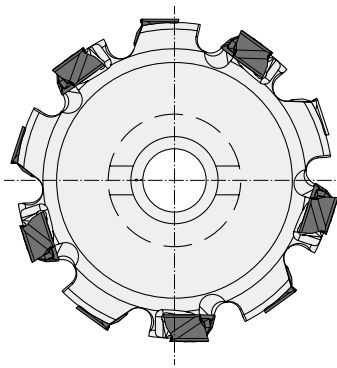
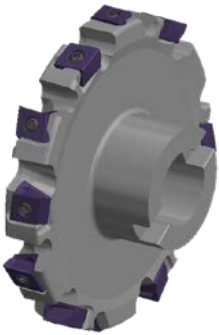
P K



Maks. APMX: RE1 < 3.0 mm 16.2 mm  
RE1 > 3.0 mm 15.4 mm


## YARIM KENARLI MALAFA TİP

DC	ZEFP	LF	CDX	DCON	DCSFMS	KWW	
100 - 124.9	8 - 10	50	27	32	46	14.4	LNGU17
125 - 159.9	10 - 12	60	35	40	55	16.4	
160 - 199.9	12 - 14	60	52.5	40	55	16.4	
200 - 250	14 - 20	70	65	40	70	16.4	



Azami Genişlik CW: 32 mm

## TAM KENARLI MALAFA TİP

DC	ZEFP	LF	CW	CDX	DCON	DCSFMS	KWW	
100 - 124.9	8 - 10	60	23-32	27	32	46	14.4	LNGU17
125 - 159.9	10 - 12	60		35	40	55	16.4	
160 - 199.9	12 - 14	70		52.5	40	55	16.4	
200 - 250.0	14 - 20	70		65	40	70	16.4	

1. Her bir ölçü için birden çok seviyeli tasarımlar mevcuttur. Detayları verilmeyen geometriler için lütfen teknik departmanımız ile iletişime geçiniz. (MMC Hartmetall GmbH - huseyin.sakizlioglu@mmchg.com.tr)

# DCV5

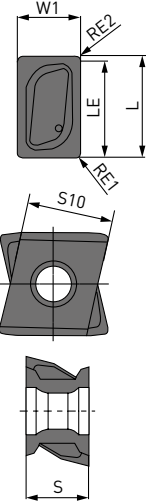
## YEDEK PARÇALAR

Takım Tutucu Tipi	Uç Vidası	TQ (Nm)	Anahtar	Sıkışma Önleyici Yağlayıcı
DCV5 LNGU17100PNEOR	TS53	7.5	TKY25T	MK1KS

## KESİCİ UÇ

Sipariş Numarası	MP6120 VP15TF	Kesme yönü Sınıf	Honlama	L	LE	S	S10	RE1	RE2	W1	D1	Biçim	Geometri
LNGU171004PNER-R	● ●	R	G E	17.0	16.2	10.0	13.0	0.4	0.8	10.0	5.5		
LNGU171004PNEL-R	● ●	L	G E	17.0	16.2	10.0	13.0	0.4	0.8	10.0	5.5		
LNGU171008PNER-R	● ●	R	G E	17.0	16.2	10.0	13.0	0.8	0.8	10.0	5.5		
LNGU171008PNEL-R	● ●	L	G E	17.0	16.2	10.0	13.0	0.8	0.8	10.0	5.5		
LNGU171012PNER-R	● ●	R	G E	17.0	16.2	10.0	13.0	1.2	0.8	10.0	5.5		
LNGU171012PNEL-R	● ●	L	G E	17.0	16.2	10.0	13.0	1.2	0.8	10.0	5.5		
LNGU171016PNER-R	● ●	R	G E	17.0	16.2	10.0	13.0	1.6	0.8	10.0	5.5		
LNGU171016PNEL-R	● ●	L	G E	17.0	16.2	10.0	13.0	1.6	0.8	10.0	5.5		
LNGU171020PNER-R	● ●	R	G E	17.0	16.2	10.0	13.0	2.0	0.8	10.0	5.5		
LNGU171020PNEL-R	● ●	L	G E	17.0	16.2	10.0	13.0	2.0	0.8	10.0	5.5		
LNGU171024PNER-R	● ●	R	G E	17.0	16.2	10.0	13.0	2.4	0.8	10.0	5.5		
LNGU171024PNEL-R	● ●	L	G E	17.0	16.2	10.0	13.0	2.4	0.8	10.0	5.5		
LNGU171030PNER-R	● ●	R	G E	17.0	15.4	10.0	13.0	3.0	1.6	10.0	5.5		
LNGU171030PNEL-R	● ●	L	G E	17.0	15.4	10.0	13.0	3.0	1.6	10.0	5.5		
LNGU171040PNER-R	● ●	R	G E	17.0	15.4	10.0	13.0	4.0	1.6	10.0	5.5		
LNGU171040PNEL-R	● ●	L	G E	17.0	15.4	10.0	13.0	4.0	1.6	10.0	5.5		
LNGU171050PNER-R	● ●	R	G E	17.0	15.4	10.0	13.0	5.0	1.6	10.0	5.5		
LNGU171050PNEL-R	● ●	L	G E	17.0	15.4	10.0	13.0	5.0	1.6	10.0	5.5		
LNGU171060PNER-R	● ●	R	G E	17.0	15.4	10.0	13.0	6.0	1.6	10.0	5.5		
LNGU171060PNEL-R	● ●	L	G E	17.0	15.4	10.0	13.0	6.0	1.6	10.0	5.5		
LNGU171070PNER-R	● ●	R	G E	17.0	15.4	10.0	13.0	7.0	1.6	10.0	5.5		
LNGU171070PNEL-R	● ●	L	G E	17.0	15.4	10.0	13.0	7.0	1.6	10.0	5.5		

(bir kutuda 10 kesici uç)



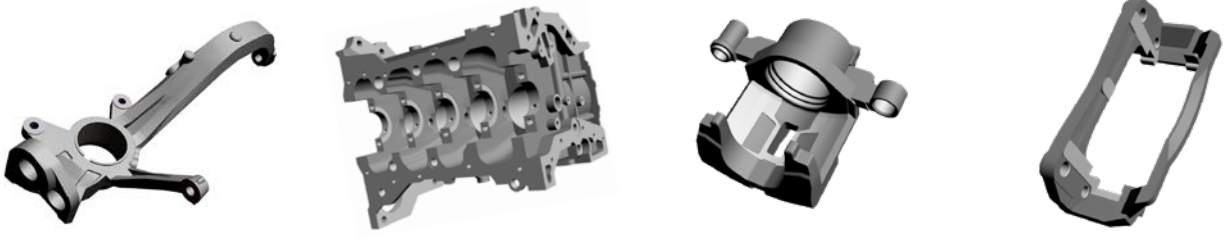
## UYGULAMA ÖRNEKLERİ

Takım	DCV4 Ø 300 mm	DCV4 Ø 160 mm
Kesici Uç (Kalite)	LNGU130804PNER-M (VP15TF)	LNGU130804PNER-M (VP15TF)
	Fren Kaliperi (DIN GGG40.3)	Cylinder Block (DIN GG25)
İş Parçası		
n (dk <sup>-1</sup> )	120	500
Vc (m/dk)	113	201
fz (mm/diş)	0.09-0.24	0.14
Vf (mm/dk)	150-400	500
ap (mm)	1.0-2.0	1.0
Kesme Modu	Kuru Kesme	Kuru Kesme
Makine	İşleme Merkezi	Yatay

Sonuçlar	Geleneksel ürünlerden yaklaşık 2 kat daha uzun takım ömrü. Mükemmel boyutsal hassasiyet ve yüzey kalitesi. Geliştirilmiş işleme verimliliği, takım maliyetlerinde %30 düşüş sağlamıştır	Geleneksel ürünlerden 1,5 kat daha iyi işleme verimliliği. Yaklaşık 2 kat takım ömrü. Minimum sesle istikrarlı kesme ve iyi yüzey kalitesi. Geliştirilmiş işleme verimliliği ve daha uzun takım ömrü.
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1. Yukarıdaki uygulama örnekleri müşterinin uygulama örnekleridir ve önerilen koşullardan farklı olabilir.

# MÜKEMMEL KENAR FREZE SERİSİ



En son teknolojiden, malzemelerden ve kesici geometrisinden yararlanın.

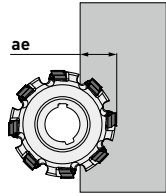
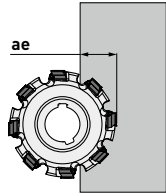
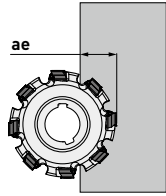
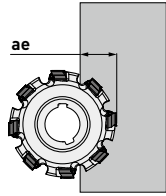
## BİLGİ

	DCV3	DCV4	DCV5
Malzeme	P K	P K	P K
Düşük Kesme Direnci	☉	☉	☉
Dayanıklılık	☉	☉	☉
Kesici Uç Biçimi		Dikey	Dikey
ZNF		Çift Taraflı Kesici Uç	Çift Taraflı Kesici Uç
ZNP	4	4	4
Yarım Kenarlı Maks. Kesme Derinliği APMX	RE ≤ 4.0 mm 8.6 mm RE ≥ 3.0mm 11.4 mm	RE ≤ 3.0 mm 12.2 mm RE ≥ 3.0mm 11.4 mm	RE ≤ 3.0 mm 16.2 mm RE ≥ 3.0 mm 15.4 mm
Tam Kenarlı Max. DC	Ø 300 mm	Ø 400 mm	Ø 660 mm

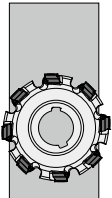
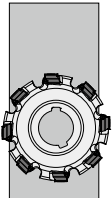
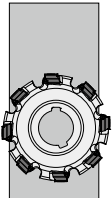
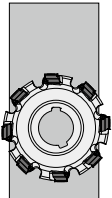
# DCV3 / DCV4 / DCV5

## ÖNERİLEN KESME KOŞULLARI

### KÖŞE FREZELEME

Malzeme	Sertlik	Kalite	Vc	ap	ae	fz	Kesme yöntemi		
P Çelik	≤180HB	MP6120 VP15TF	150 (130-180)	≤APMX	<10%	0.10 (0.08-0.15)			
					<30%				
					≤50%				
					≤2.0			≤50%	0.12 (0.08-0.20)
					≤4.0			<10%	0.12 (0.08-0.20)
					≤4.0			≤50%	0.10 (0.08-0.15)
K Dökme Demir	Çekme Mukavemeti ≤ 350MPa	VP15TF	150 (130-180)	≤APMX	<10%	0.10 (0.08-0.15)			
					≤50%				
					≤2.0			≤50%	0.12 (0.08-0.20)
					≤4.0			<10%	0.12 (0.08-0.20)
					≤APMX			<10%	0.10 (0.08-0.15)
					≤APMX			≤50%	0.10 (0.08-0.12)
K Gri Dökme Demir	Çekme Mukavemeti ≤ 450MPa	VP15TF	130 (110-160)	≤APMX	<10%	0.10 (0.08-0.15)			
					≤50%				
					≤2.0			≤50%	0.12 (0.08-0.20)
					≤4.0			<10%	0.12 (0.08-0.20)
					≤APMX			<10%	0.10 (0.08-0.15)
					≤APMX			≤50%	0.10 (0.08-0.12)
K Duktil Dökme Demir	Çekme Mukavemeti ≤ 800MPa	VP15TF	130 (110-160)	≤APMX	<10%	0.10 (0.08-0.15)			
					≤50%				
					≤2.0			≤50%	0.12 (0.08-0.20)
					≤4.0			<10%	0.12 (0.08-0.20)
					≤APMX			<10%	0.10 (0.08-0.15)
					≤APMX			≤50%	0.10 (0.08-0.12)

### YÜZEY FREZELEME

Malzeme	Sertlik	Kalite	Vc	ap	fz	Kesme yöntemi		
P Çelik	≤180HB	MP6120 VP15TF	150 (130-180)	≤APMX	0.10 (0.08-0.15)			
							≤2.0	0.12 (0.08-0.20)
							≤4.0	0.10 (0.08-0.15)
K Dökme Demir	Çekme Mukavemeti ≤ 350MPa	VP15TF	150 (130-180)	≤APMX	<10%	0.10 (0.08-0.15)		
					≤50%			
					≤2.0			0.12 (0.08-0.20)
K Gri Dökme Demir	Çekme Mukavemeti ≤ 450MPa	VP15TF	150 (130-180)	≤APMX	<10%	0.10 (0.08-0.15)		
					≤50%			
					≤2.0			0.12 (0.08-0.20)
K Duktil Dökme Demir	Çekme Mukavemeti ≤ 800MPa	VP15TF	130 (110-160)	≤APMX	<10%	0.10 (0.08-0.15)		
					≤50%			
					≤2.0			0.12 (0.08-0.20)



#### GERMANY

MMC HARTMETALL GMBH  
Comeniusstr. 2 . 40670 Meerbusch  
Phone +49 2159 91890 . Fax +49 2159 918966  
Email admin@mmchg.de

#### U.K.

MMC HARDMETAL U.K. LTD.  
Mitsubishi House . Galena Close . Tamworth . Staffs. B77 4AS  
Phone +44 1827 312312 . Fax +44 1827 312314  
Email sales@mitsubishicarbide.co.uk

#### SPAIN

MITSUBISHI MATERIALS ESPAÑA, S.A.  
Calle Emperador 2 . 46136 Museros/Valencia  
Phone +34 96 1441711 . Fax +34 96 1443786  
Email comercial@mmevalencia.es

#### FRANCE

MMC METAL FRANCE S.A.R.L.  
6, Rue Jacques Monod . 91400 Orsay  
Phone +33 1 69 35 53 53 . Fax +33 1 69 35 53 50  
Email mmfsales@mmc-metal-france.fr

#### POLAND

MMC HARDMETAL POLAND SP. Z O.O  
Al. Armii Krajowej 61 . 50-541 Wrocław  
Phone +48 71335 1620 . Fax +48 71335 1621  
Email sales@mitsubishicarbide.com.pl

#### RUSSIA

MMC HARDMETAL OOO LTD.  
Electrozavodskaya St. 24 . build. 3 . Moscow . 107023  
Phone +7 495 725 58 85 . Fax +7 495 981 39 79  
Email info@mmc-carbide.ru

#### ITALY

MMC ITALIA S.R.L.  
Viale Certosa 144 . 20156 Milano  
Phone +39 0293 77031 . Fax +39 0293 589093  
Email info@mmc-italia.it

#### TURKEY

MMC HARTMETALL GMBH ALMANYA - İZMİR MERKEZ ŞUBESİ  
Adalet Mahallesi Anadolu Caddesi No: 41-1 . 15001 35530 Bayraklı /İzmir  
Phone +90 232 5015000 . Fax +90 232 5015007  
Email info@mmchg.com.tr

[www.mitsubishicarbide.com](http://www.mitsubishicarbide.com) | [www.mmc-hardmetal.com](http://www.mmc-hardmetal.com)


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Sipariş Kodu: MP104TR   
Yayın Tarihi: 2022.04 (0), Basım yeri Almanya