

 MITSUBISHI MATERIALS

DELME TAKIMLARI

 DIA  EDGE

NEW

MITSUBISHI MATERIALS

YENİ GENEL KATALOĞUNU C009-2022/2023 YAYIMLAMISHTIR

HEDEFLENDİĞİ GİBİ, SAĞLAM, KULLANIŞLI.

Bu katalog kullanıcılara Mitsubishi Materials'ın geniş ürün portföyünde, hedeflendiği üzere ürün bilgilerine hızlı ve kolay erişim olanağı sunmaktadır.

Aşağıda set halindeki 5 adet küçük ve pratik olan kataloglarımız isimleriyle belirtilmiştir.

- TORNALAMA TAKIMLARI
- DELME TAKIMLARI
- YEKPARE KARBÜR FREZELEME TAKIMLARI
- TAKMA UÇLU FREZELEME TAKIMLARI
- MPLUS



YENİ TASARIM

KOLAY KULLANIM

DAHA YÜKSEK ESNEKLİK

ÖZEL UYGULAMA ALANLARI

Hazırlanan katalog koruyucusu kolay saklama olanağı sunarak, kataloğun 2 yıllık kullanımı süresince yayınlanacak olan tüm ürün haberleri ve broşürleri için gerekli saklama alanı sağlayacaktır. 2 yıllık dönem boyunca yayınlanacak her yeni ürün broşürü eskisinin yerini alacaktır, bu yüzden eskileri kaldırmanızı öneririz.

NOTLAR:

- Bu duyuruyla eski kataloglar ve Ürün Haberleri Broşürleri geçerliliğini yitirecektir.
- Ürün Haber Katalogları Nisan ve Ekim aylarında olmak üzere senede 2 kere yayınlanmaktadır.
- Yeni Genel Kataloglar 5 'li set halinde sipariş edilebilir. **Sipariş No: C009TR**



DİJİTAL VERSİYON

Kataloğun dijital versiyonu için lütfen QR kodunu okutun ya da www.mhg-mediastore.net adresini ziyaret ediniz.

DELME TAKIMLARI

PERFORMANS - PARAMETRELERİN YENİDEN TANIMLANMASI

Modern imalat endüstrisi hızlı hareket ediyor, bu nedenle Mitsubishi sürekli olarak pazarın ön safında olabilmeyi hedeflemektedir.

Ortaklarla ve müşteriler ile sürekli olarak fikir alışverişi yaparak her durum için çözümler sunuyoruz.

Mitsubishi Material'ın, 6xD'ye kadar delik derinlikleri için değiştirilebilir uçlu MVX matkapları ve derin delikler için MPS1' matkapları , tüm delme uygulamaları için bireysel çözümler üretir.



MÜŞTERİLERİMİZLE BİRLİKTE DAHA İYİ BİR GELECEK YARATMAK

En son teknolojileri bir araya getiren ve onları kullanan herkesi heyecanlandıran yeni takım markamız DIAEDGE'in duyurusu.

Hedefimiz, takımlarımızla değer sunmanın yanı sıra müşterilerimizle birlikte düşünmek, ilham almak ve yeni zorlukları üstlenmeye devam etmek.



MITSUBISHI MATERIALS

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DELME TAKIMLARI



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M124 MAS
M189 MCA
M193 MCAH
M188 MCC
M192 MCCH
M190 MCT
M191 MCW

M130 MHS
M079 MICRO-MGS
M020 MINI-DWAE
M018 MINI-MFE
M036 MINI-MVS
M040 MINI-MWS
M082 MMS
M100 MNS
M062 MPS
M044 MPS1
M008 MSE
M074 MSL

M011 MSP
M160 MVX
M168 MVX (KESİCİ UÇ)
M141 STAW
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M150 TAW
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M179 VAPDM
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M183 VSD



Bugünden itibaren gri ile işaretlenmiş (MPS, MSL) ürünlerin gelecekteki tüm siparişlerini MPS1 serisi ile değiştirmeniz lütfen. Çünkü üretimi kademeli olarak durdurulacak ve Mart 2023'te sonlanacaktır.

ÜRÜN KODU TANIMLAMASI

MATKAP UÇLARININ ÜRÜN KODU

M
DELME

MV

S

0300

X

S

Matkap Ucu Ürün Adı	Soğutma Tipi	Çap	L/D	Şaft Çapı Tipi
DLE : DLE Matkap Uçları DSA : DSAS Matkap Uçları DWA : DWAE Matkap Uçları MPS1 : MPS1 Matkap Uçları MV : MVS Matkap Uçları MW : MWS Matkap Uçları MF : MFE Matkap Uçları MG : MGS Matkap Uçları MSL : MSL Matkap Uçları MP : MPS Matkap Uçları MA : MAE/MAS Matkap Uçları MS : MSE Matkap Uçları MM : MMS Matkap Uçları MN : MNS Matkap Uçları MH : MHS Matkap Uçları MC : MC Matkap Uçları	E : Dıştan Soğutma S : İçten Soğutma	Dış. 0050 → ϕ 0.5 0300 → ϕ 3.0	S : 2D M : 3D L : 5D (MAE / MAS Tipi Matkap Uçları 6D'dir) L8C : 8D L10C : 10D L12C : 12D L15C : 15D L20C : 20D L25C : 25D L30C : 30D L40C : 40D X : 12D X8DB : 8D X10DB : 10D X15DB : 15D X20DB : 20D X25DB : 25D X30DB : 30D	A : Matkap ucu ile aynı çapa sahip şaft B : Sabit çaplı şaft C : Silindirik şaftlı tip S*** : Şaft Çapı

* Özel durumlar kısmen dahil edilmiştir.

VA

PD

S

D0050

Matkap Ucu Ürün Adı	Uygulamalar	Helis kanal Uzunluğu	Çap
VA : Violet kaplamalı hassas matkap uçları (Yüksek Kalite, Yüksek Hız Çeliği) V : Violet matkap uçları	SD : Genel amaçlı düz matkap uçları PD : Yüksek hassasiyetli delme için	S : Kısa M : Orta	Örneğin. D0300 → ϕ 3.0 D0050 → ϕ 0.5

* Özel durumlar kısmen dahil edilmiştir.



Bugünden itibaren gri ile işaretlenmiş (MPS, MSL) ürünlerin gelecekteki tüm siparişlerini MPS1 serisi ile değiştirin lütfen. Çünkü üretimi kademeli olarak durdurulacak ve Mart 2023'te sonlanacaktır.

SEMBOL AÇIKLAMALARI

Takım malzemesi



Ultra mikro graynli karbür

Ultra mikro graynli karbür alt yapı malzemesi kullanılmıştır.



Yüksek kalite yüksek alaşımlı HSS

Yüksek kalite yüksek alaşımlı HSS alt yapı malzemesi kullanılmıştır.



Kobalt yüksek hız çeliği

Kobalt yüksek hız çeliği alt yapı malzemesi kullanılmıştır.



Yüksek hız çeliği

Yüksek hız çeliği alt yapı malzemesi kullanılmıştır.

Öz inceltme



X öz inceltme

X öz inceltme delme noktasında kullanılır.



Z öz inceltme

Z öz inceltme delme noktasında kullanılır.



XR öz inceltme

XR öz inceltme delme noktasında kullanılır.



N öz inceltme

N öz inceltme delme noktasında kullanılır.

Tolerans



Matkap Çapı Toleransı



Şaft Çapı Toleransı

Soğutma Deliği



Soğutma Delikli

İŞ PARÇASI MALZEME ÇEŞİTLERİ

İlk önerilen



Önerilmeyen



Kaplama



MIRACLE Kaplama

Orijinal MIRACLE (Al,Ti)N kaplama. Ayrıca kuru kesme için uygundur.



PVD Kaplama

Büyük ölçüde küçük çaplı matkaplar için özel üretilmiş, geliştirilmiş aşınma direncine sahip DP102A PVD kaplı sementede edilmiş karbür kalitesidir.



PVD Kaplama

Geniş bir iş parçası malzemesi yelpazesinde çelik, dökme demir bazlı malzemeler ve alüminyum alaşımlarında olağanüstü aşınma direnci sergiler.



PVD Kaplama

Paslanmaz çelik için ideal ultra mikro tanecikli sementede edilmiş karbür ve üstün ısı direncine ve yağlama kapasitesi özelliklerine sahip PVD kaplama.



PVD Kaplama

DP9020, hem yüksek aşınma hem de kırılma direncini birleştirerek ,daha uzun takım ömrü elde eder.



VIOLET Kaplama

TiN kaplamalı ürünlerden 2—3 kat daha fazla takım ömrü sağlar.



CVD Elmas Kaplama

Benzersiz çok katlı mikro taneli elmas kristal kontrol teknolojisi, aşınma direncini ve kayganlığı önemli ölçüde artırır.

Açı ve kesme kenarı



Uç açısı

Uçtaki delme noktası açısını gösterir.

MATKAP UCU SEÇME TABLOSU

M
DELME

Takım malzemesi	Ölçü Aralığı	Delik Derinliği (L/D)	Ürün Kodu	Soğutma	Kaplama	Çalışma Malzemesi						Şekil	Sayfa Numarası	
						P	M	K	N	S	H		Boyutlar	Kesme Koşulları
						Karbon Çeligi, Alaşimli Çelik	Paslanmaz Çelik	Dökme Demir	Hafif Alaşım	Isıya Dirençli Alaşım	Sertleştirilmiş Çelik			
Yekpare Karbür	φ0.1 - φ0.99	5 - 12	MSE	Dıştan	VP	○	○	○	○	○			M008	M009
	φ1.0 - φ16.0	-	DLE	Dıştan	DP1 DP1A	○	○	○					M012	M016
	φ0.75 - φ2.95	2	MINI-MFE	Dıştan	DP1A	○	○	○	○				M018	M019
	φ1.0 - φ2.9	2,4	MINI-DWAE	Dıştan	DP1A	○	○	○					M020	M027
	φ3.0 - φ14.0	2,4	DWAE	Dıştan	DP1A	○	○	○					M021	M027
	φ1.0 - φ2.9	*2 - 30	MINI-MVS	İçten	DP1	○	○	○	○	○			M036	M038
	φ0.5 - φ0.99	1 - 12	MINI-MWS	İçten	VP	○	○	○	○	○			M040	M042
	φ3.0 - φ20.0	3 - 40	MPS1	İçten	DP1	○	○	○					M044	M059
	φ3.0 - φ20.0	3 - 40	MPS	İçten	VP	○	○	○		○			M062	M077
	φ3.0 - φ14.0	20 - 30	MSL	İçten	VP	○	○	○		○			M074	M077
	φ0.95 - φ12.0	1 - 30	MHS	İçten	VP	○	○			○	○		M130	M138
	φ3.0 - φ20.0	3, 5	MMS	İçten	DP7		○						M082	M094
	φ3.0 - φ12.0	3	DSAS	İçten	DP9					○			M096	M099
	φ0.7 - φ3.0	- 80	MICRO-MGS	İçten	-	○	○	○	○				M079	M080

*2=Pilot delik matkabı. Tolerans değeri +0,014'tür ve delik derinliği 2 DC'dir.



Bugünden itibaren gri ile işaretlenmiş (MPS, MSL) ürünlerin gelecekteki tüm siparişlerini MPS1 serisi ile değiştirin lütfen. Çünkü üretimi kademeli olarak durdurulacak ve Mart 2023'te sonlanacaktır.

Takım malzemesi	Ölçü Aralığı	Delik Derinliği (L/D)	Ürün Kodu	Soğutma	Kaplama	Çalışma Malzemesi						Şekil	Sayfa Numarası	
						P	M	K	N	S	H		Boyutlar	Kesme Koşulları
						Karbon Çeliği, Alaşımli Çelik	Paslanmaz Çelik	Dökme Demir	Hafif Alaşım	Isıya Dirençli Alaşım	Sertleştirilmiş Çelik			
Yekpare Karbür	φ3.0 -φ16.0	3	MAE	Dıştan	-			○	○				M124	M129
	φ3.0 -φ16.0	3, 6	MAS	İçten	-			○	○				M124	M129
	φ3.0 -φ20.0	3-30	MNS	İçten	-				○				M100	M120
	φ4.76 -φ11.14	3	MCC	Dıştan		CFRP için							M188	M188
	φ6.38 -φ9.55	5	MCA	İçten		CFRP + Al için							M189	M189
	φ6.38 -φ9.55	5	MCT	İçten	-	CFRP + Ti için							M190	M190
	φ6.38 -φ9.55	5	MCW	İçten		CFRP ve Yüksek hassasiyetli istiflenmiş malzemeler için							M191	M191
	φ2.5 -φ9.55	2-15	MCCH	Dıştan	-	CFRP için							M192	Ei Aletin de manuel kullanım için
	φ2.5 -φ9.55	3-15	MCAH	Dıştan	-	CFRP + Al için							M193	Ei Aletin de manuel kullanım için
Yüksek Hız Çeliği	φ0.5 -φ13.0	2-3	VAPDS	Dıştan		○	○	○					M174	M178
	φ0.5 -φ32.0	3-6	VAPDM	Dıştan		○	○	○					M179	M182
	φ0.5 -φ13.0	3-6	VSD	Dıştan		○	○						M183	M184
	φ2.0 -φ32.0	2-3	VAPDSCB	Dıştan		○	○	○	○				M185	M187
Değiştirilebilir Takma uçlu	φ10.0 -φ18.4	1.5-8	STAW	İçten		○	○	○					M141	M146
	φ18.5 -φ30.4	3-8	TAW	İçten		○	○	○					M150	M157
	φ17.0 -φ63.0	2-6	MVX	İçten	-	○	○	○	○		○		M160	M169

© : 1. Öneri / ○: 2. Öneri

M

DELME

MATKAP UCU SERİLERİ

1. Öneri

P M K N S H

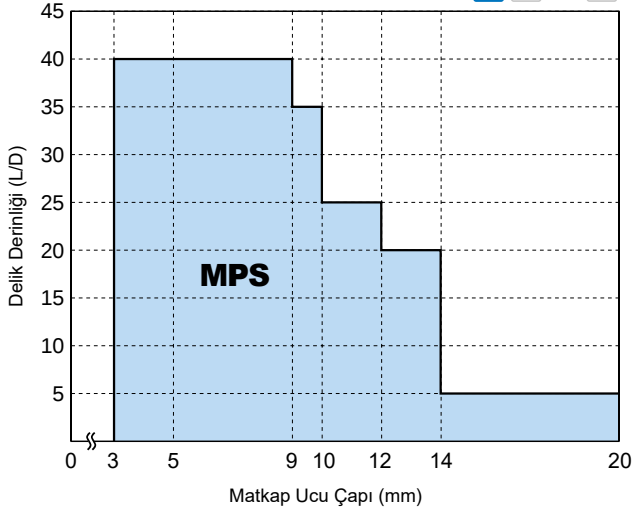
2. öneri

P M K N S H

■YEKPARE KARBÜR

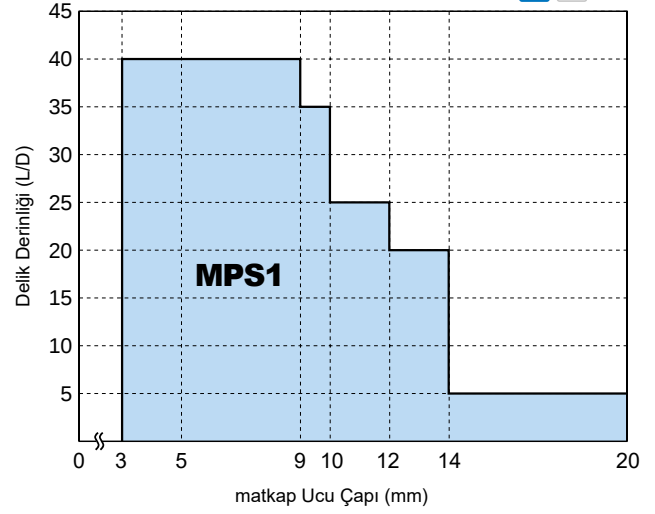
MPS (Çift zırlı tip)

P M K S



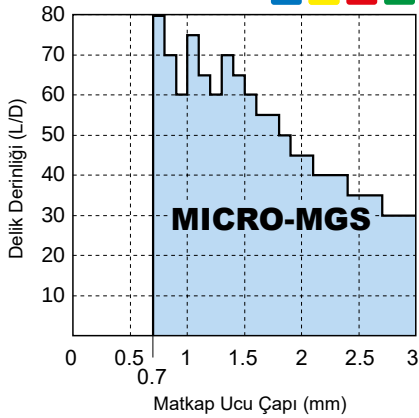
MPS1 (Çift Zırlı tip)

P M K



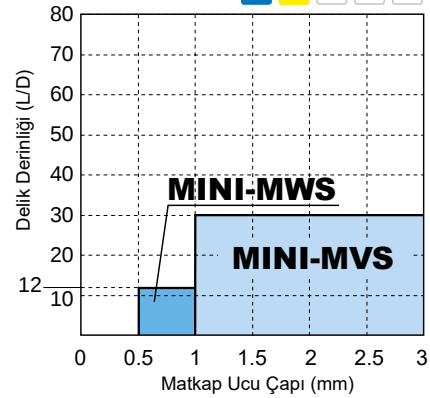
MICRO-MGS

P M K N



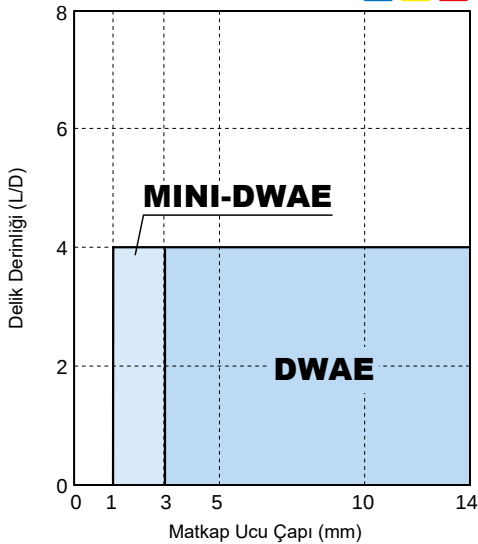
MINI-MVS, MINI-MWS

P M K N S



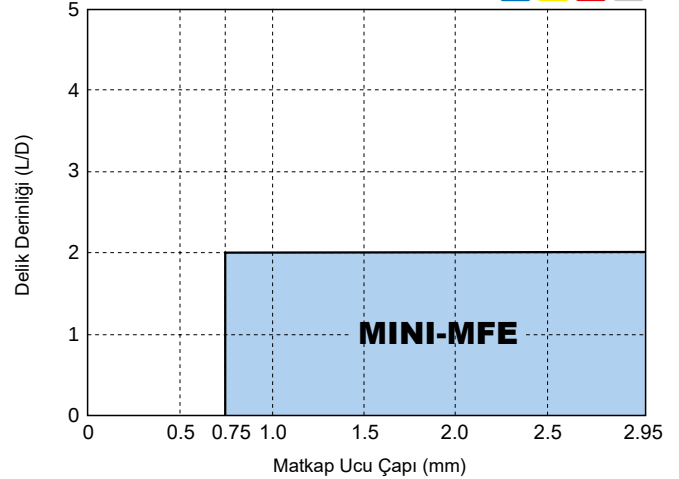
MINI-DWAE, DWAE

P M K



MINI-MFE

P M K N



1. Öneri

P M K N S H

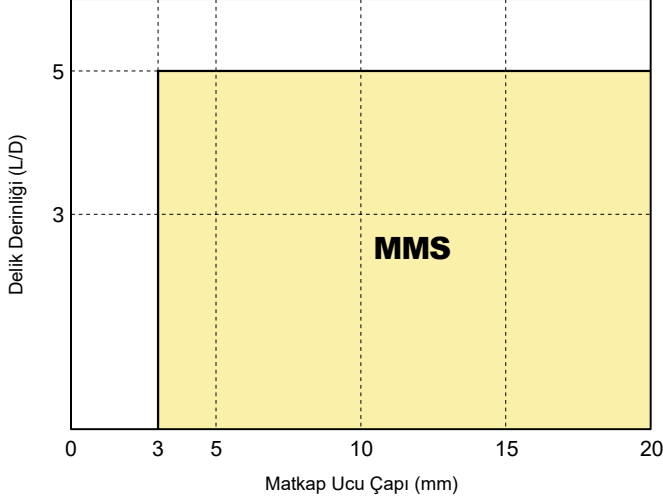
2. öneri

P M K N S H

■YEKPARE KARBÜR

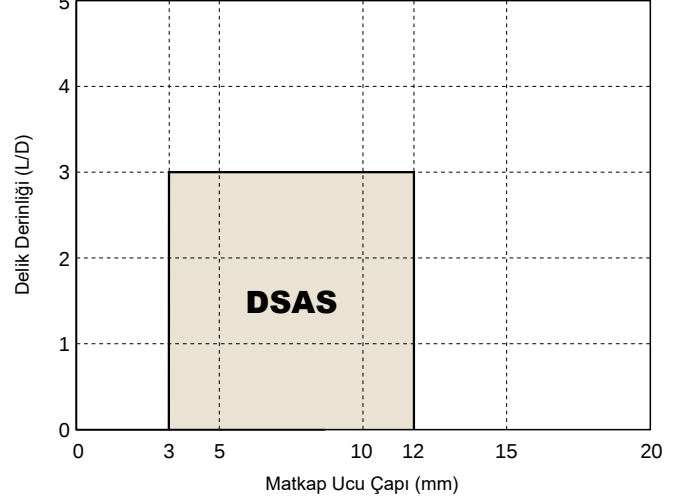
MMS (Paslanmaz çelik için)

M



DSAS (Isıya Dirençli Alaşımların İşlenmesi için)

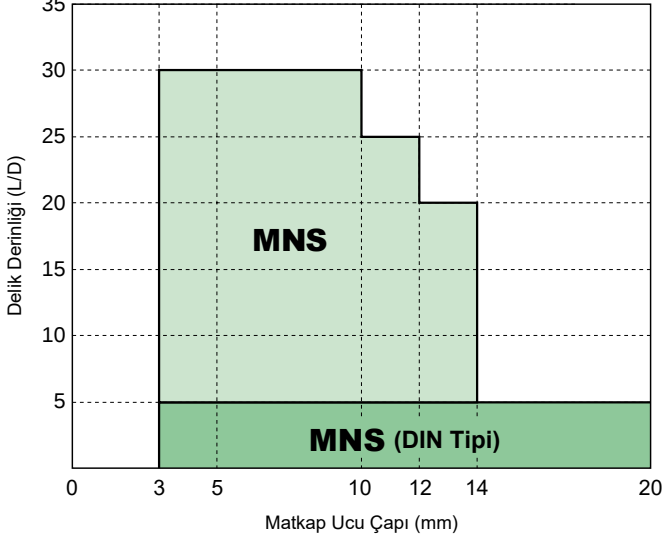
S



M
DELME

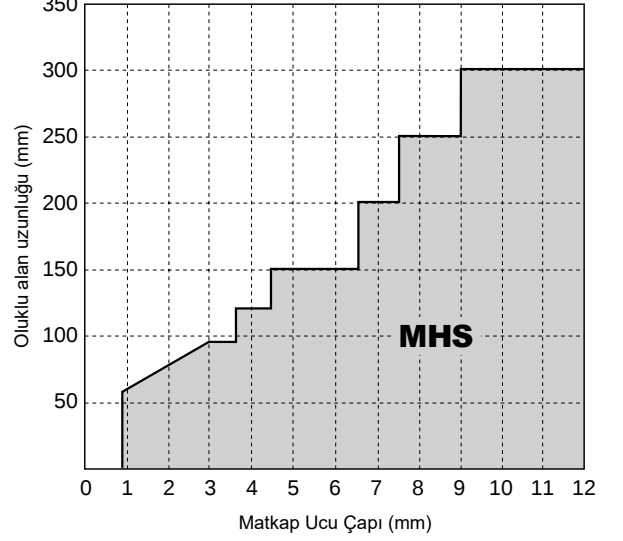
MNS (Alüminyum alaşımları için)

N



MHS (Lokma ve kalıp işleme için)

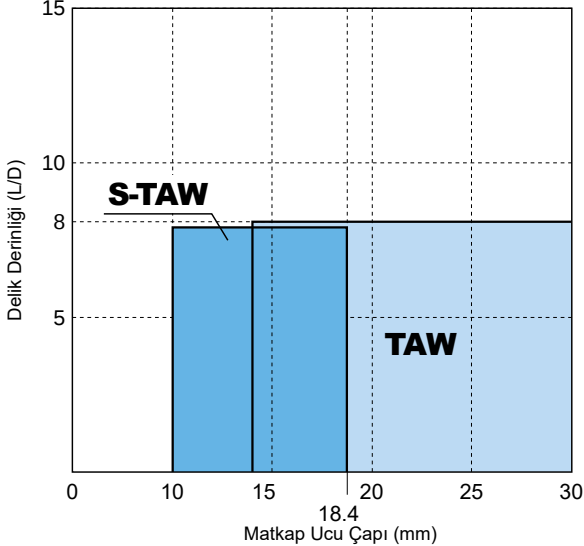
P M S H



■DEĞİŞTİRİLEBİLİR UÇLU TİP

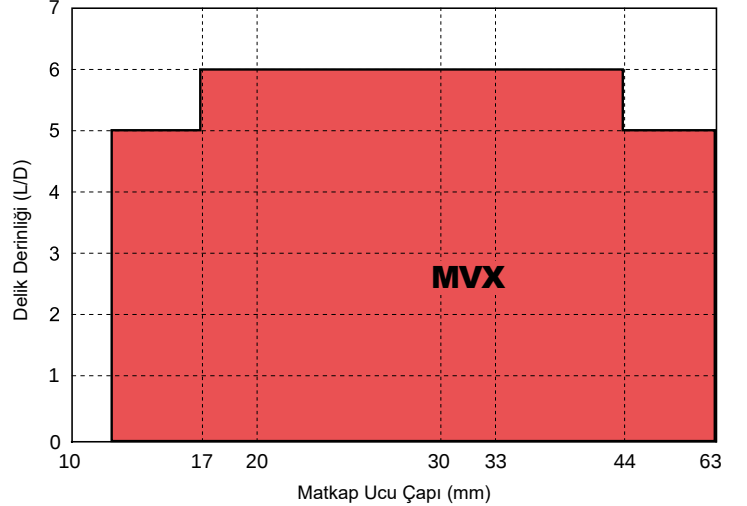
S-TAW, TAW

P M K



MVX

P M K N H



DELME (YEKPARE KARBÜR)

MSE

- Talaş sıkışmasını önlemek için geniş helis kanalı.
- Stabil, küçük çaplı işleme.



P

M

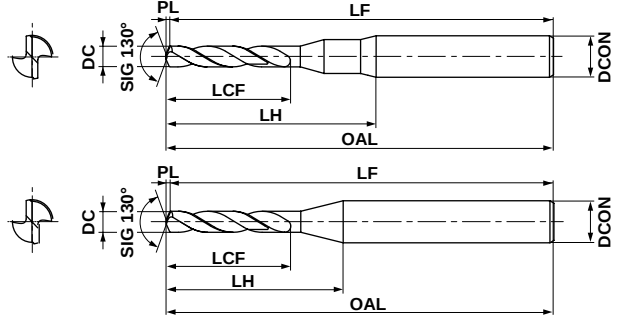
K

N

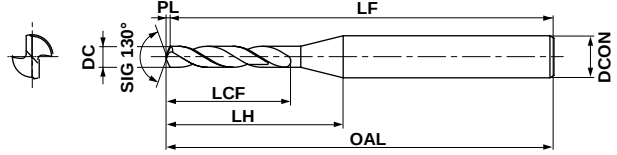
S

H

Dıştan Soğutma



Tip1



Tip2



$0.10 \leq DC \leq 0.99$

0
 -0.009

DCON=3

0
 -0.006

● MSE matkap uçları, ısıtmalı tutucularla kullanıma uygundur.

DC (mm)	VP20MF	VP15TF	Sipariş Numarası	Boyutlar (mm)						Tip
				LCF	LH	OAL	LF	PL	DCON	
0.10	●		MSE0010SB	1.2	9.7	38.0	38	0.02	3	1
0.11	●		MSE0011SB	1.2	9.7	38.0	38	0.03	3	1
0.12	●		MSE0012SB	1.4	9.7	38.0	38	0.03	3	1
0.13	●		MSE0013SB	1.4	9.7	38.0	38	0.03	3	1
0.14	●		MSE0014SB	2.0	9.7	38.0	38	0.03	3	1
0.15	●		MSE0015SB	2.0	9.7	38.0	38	0.03	3	1
0.16	●		MSE0016SB	2.0	9.7	38.0	38	0.04	3	1
0.17	●		MSE0017SB	2.0	9.7	38.0	38	0.04	3	1
0.18	●		MSE0018SB	2.0	9.7	38.0	38	0.04	3	1
0.19	●		MSE0019SB	2.0	9.7	38.0	38	0.04	3	1
0.20	●		MSE0020SB	2.6	9.8	38.1	38	0.05	3	1
0.21	●		MSE0021SB	2.6	9.8	38.1	38	0.05	3	1
0.22	●		MSE0022SB	2.6	9.8	38.1	38	0.05	3	1
0.23	●		MSE0023SB	2.6	9.8	38.1	38	0.05	3	1
0.24	●		MSE0024SB	3.1	9.8	38.1	38	0.06	3	1
0.25	●		MSE0025SB	3.1	9.8	38.1	38	0.06	3	1
0.26	●		MSE0026SB	3.1	9.8	38.1	38	0.06	3	1
0.27	●		MSE0027SB	3.1	9.8	38.1	38	0.06	3	1
0.28	●		MSE0028SB	3.1	9.8	38.1	38	0.07	3	1
0.29	●		MSE0029SB	3.1	9.8	38.1	38	0.07	3	1
0.30	●		MSE0030SB	5.1	10.3	38.1	38	0.07	3	2
0.31	●		MSE0031SB	5.1	10.3	38.1	38	0.07	3	2
0.32	●		MSE0032SB	5.1	10.3	38.1	38	0.07	3	2
0.33	●		MSE0033SB	5.1	10.3	38.1	38	0.08	3	2
0.34	●		MSE0034SB	6.1	11.3	38.1	38	0.08	3	2
0.35	●		MSE0035SB	6.1	11.2	38.1	38	0.08	3	2
0.36	●		MSE0036SB	6.1	11.2	38.1	38	0.08	3	2
0.37	●		MSE0037SB	6.1	11.2	38.1	38	0.09	3	2
0.38	●		MSE0038SB	6.1	11.2	38.1	38	0.09	3	2
0.39	●		MSE0039SB	6.1	11.2	38.1	38	0.09	3	2
0.40	●		MSE0040SB	7.1	12.2	38.1	38	0.09	3	2
0.41	●		MSE0041SB	7.1	12.1	38.1	38	0.10	3	2
0.42	●		MSE0042SB	7.1	12.1	38.1	38	0.10	3	2
0.43	●		MSE0043SB	7.1	12.1	38.1	38	0.10	3	2

DC (mm)	VP20MF	VP15TF	Sipariş Numarası	Boyutlar (mm)						Tip
				LCF	LH	OAL	LF	PL	DCON	
0.44	●		MSE0044SB	7.1	12.1	38.1	38	0.10	3	2
0.45	●		MSE0045SB	7.1	12.1	38.1	38	0.10	3	2
0.46	●		MSE0046SB	7.1	12.0	38.1	38	0.11	3	2
0.47	●		MSE0047SB	7.1	12.0	38.1	38	0.11	3	2
0.48	●		MSE0048SB	7.1	12.0	38.1	38	0.11	3	2
0.49	●		MSE0049SB	7.1	12.0	38.1	38	0.11	3	2
0.50	●		MSE0050SB	7.1	12.0	38.1	38	0.12	3	2
0.51	●		MSE0051SB	7.1	11.9	38.1	38	0.12	3	2
0.52	●		MSE0052SB	7.1	11.9	38.1	38	0.12	3	2
0.53	●		MSE0053SB	7.1	11.9	38.1	38	0.12	3	2
0.54	●		MSE0054SB	7.1	11.9	38.1	38	0.13	3	2
0.55	●		MSE0055SB	7.1	11.9	38.1	38	0.13	3	2
0.56	●		MSE0056SB	7.1	11.9	38.1	38	0.13	3	2
0.57	●		MSE0057SB	7.1	11.8	38.1	38	0.13	3	2
0.58	●		MSE0058SB	7.1	11.8	38.1	38	0.14	3	2
0.59	●		MSE0059SB	7.1	11.8	38.1	38	0.14	3	2
0.60	●		MSE0060SB	7.1	11.8	38.1	38	0.14	3	2
0.61	●		MSE0061SB	7.1	11.8	38.1	38	0.14	3	2
0.62	●		MSE0062SB	7.1	11.7	38.1	38	0.14	3	2
0.63	●		MSE0063SB	7.2	11.8	38.2	38	0.15	3	2
0.64	●		MSE0064SB	7.2	11.8	38.2	38	0.15	3	2
0.65	●		MSE0065SB	7.2	11.8	38.2	38	0.15	3	2
0.66	●		MSE0066SB	7.2	11.8	38.2	38	0.15	3	2
0.67	●		MSE0067SB	7.2	11.7	38.2	38	0.16	3	2
0.68	●		MSE0068SB	7.2	11.7	38.2	38	0.16	3	2
0.69	●		MSE0069SB	7.2	11.7	38.2	38	0.16	3	2
0.70	●		MSE0070SB	8.2	12.7	38.2	38	0.16	3	2
0.71	●		MSE0071SB	8.2	12.7	38.2	38	0.17	3	2
0.72	●		MSE0072SB	8.2	12.7	38.2	38	0.17	3	2
0.73	●		MSE0073SB	8.2	12.6	38.2	38	0.17	3	2
0.74	●		MSE0074SB	8.2	12.6	38.2	38	0.17	3	2
0.75	●		MSE0075SB	8.2	12.6	38.2	38	0.17	3	2
0.76	●		MSE0076SB	8.2	12.6	38.2	38	0.18	3	2
0.77	●		MSE0077SB	8.2	12.6	38.2	38	0.18	3	2

Not 1) Lütfen bu katalogta olmayan herhangi bir geometri için bizimle iletişim kurun (ör. farklı çaplar ve uzunluklar sipariş verilebilir).

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

DC (mm)	VP20MF	VP15TF	Sipariş Numarası	Boyutlar (mm)						Tip
				LCF	LH	OAL	LF	PL	DCON	
0.78	●	●	MSE0078SB	8.2	12.5	38.2	38	0.18	3	2
0.79	●	●	MSE0079SB	8.2	12.5	38.2	38	0.18	3	2
0.80	●	●	MSE0080SB	10.2	14.5	38.2	38	0.19	3	2
0.81	●	●	MSE0081SB	10.2	14.5	38.2	38	0.19	3	2
0.82	●	●	MSE0082SB	10.2	14.5	38.2	38	0.19	3	2
0.83	●	●	MSE0083SB	10.2	14.5	38.2	38	0.19	3	2
0.84	●	●	MSE0084SB	10.2	14.4	38.2	38	0.20	3	2
0.85	●	●	MSE0085SB	10.2	14.4	38.2	38	0.20	3	2
0.86	●	●	MSE0086SB	10.2	14.4	38.2	38	0.20	3	2
0.87	●	●	MSE0087SB	10.2	14.4	38.2	38	0.20	3	2
0.88	●	●	MSE0088SB	10.2	14.4	38.2	38	0.21	3	2

DC (mm)	VP20MF	VP15TF	Sipariş Numarası	Boyutlar (mm)						Tip
				LCF	LH	OAL	LF	PL	DCON	
0.89	●	●	MSE0089SB	10.2	14.3	38.2	38	0.21	3	2
0.90	●	●	MSE0090SB	10.2	14.3	38.2	38	0.21	3	2
0.91	●	●	MSE0091SB	10.2	14.3	38.2	38	0.21	3	2
0.92	●	●	MSE0092SB	10.2	14.3	38.2	38	0.21	3	2
0.93	●	●	MSE0093SB	10.2	14.3	38.2	38	0.22	3	2
0.94	●	●	MSE0094SB	10.2	14.2	38.2	38	0.22	3	2
0.95	●	●	MSE0095SB	10.2	14.2	38.2	38	0.22	3	2
0.96	●	●	MSE0096SB	10.2	14.2	38.2	38	0.22	3	2
0.97	●	●	MSE0097SB	10.2	14.2	38.2	38	0.23	3	2
0.98	●	●	MSE0098SB	10.2	14.2	38.2	38	0.23	3	2
0.99	●	●	MSE0099SB	10.2	14.2	38.2	38	0.23	3	2

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi	P											
	Yumuşak Çelik (≤180HB)						Karbon çelik, Alaşımli çelik (180—280HB)					
	Ck10						Ck45, 41CrMo4					
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)		Adım (mm)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)		Adım (mm)	İlerleme hızı (mm/dak)
0.10	6	20000	0.002 (0.001—0.003)		0.02	40	6	20000	0.002 (0.001—0.003)		0.02	40
0.12	8	20000	0.002 (0.001—0.003)		0.02	40	8	20000	0.002 (0.001—0.003)		0.02	40
0.16	10	20000	0.002 (0.001—0.003)		0.02	40	10	20000	0.002 (0.001—0.003)		0.02	40
0.20	13	20000	0.003 (0.002—0.004)		0.04	60	13	20000	0.003 (0.002—0.004)		0.04	60
0.25	16	20000	0.003 (0.002—0.004)		0.04	60	16	20000	0.003 (0.002—0.004)		0.04	60
0.32	20	20000	0.004 (0.003—0.005)		0.05	80	20	20000	0.004 (0.003—0.005)		0.05	80
0.40	25	20000	0.004 (0.003—0.005)		0.05	80	25	20000	0.004 (0.003—0.005)		0.05	80
0.50	31	20000	0.006 (0.005—0.007)		0.10	120	31	20000	0.006 (0.005—0.007)		0.10	120
0.63	40	20000	0.008 (0.006—0.010)		0.10	160	40	20000	0.008 (0.006—0.010)		0.10	160
0.80	50	20000	0.020 (0.015—0.025)		0.30	400	50	20000	0.015 (0.012—0.018)		0.30	300
0.99	62	20000	0.040 (0.030—0.050)		0.30	800	62	20000	0.020 (0.015—0.025)		0.30	400

Çalışma Malzemesi	P											
	Karbon çelik, Alaşım çelik (280—350HB)						Önceden Sertleştirilmiş Çelik (35—45HRC)					
	36CrNiMo4						X36CrMo17					
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)		Adım (mm)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)		Adım (mm)	İlerleme hızı (mm/dak)
0.10	6	20000	0.002	(0.001—0.003)	0.02	40	6	20000	0.002	(0.001—0.003)	0.02	40
0.12	8	20000	0.002	(0.001—0.003)	0.02	40	8	20000	0.002	(0.001—0.003)	0.02	40
0.16	10	20000	0.002	(0.001—0.003)	0.02	40	10	20000	0.002	(0.001—0.003)	0.02	40
0.20	13	20000	0.003	(0.002—0.004)	0.04	60	13	20000	0.003	(0.002—0.004)	0.04	60
0.25	16	20000	0.003	(0.002—0.004)	0.04	60	16	20000	0.003	(0.002—0.004)	0.04	60
0.32	20	20000	0.004	(0.003—0.005)	0.05	80	20	20000	0.004	(0.003—0.005)	0.05	80
0.40	25	20000	0.004	(0.003—0.005)	0.05	80	25	20000	0.004	(0.003—0.005)	0.05	80
0.50	31	20000	0.006	(0.005—0.007)	0.10	120	31	20000	0.006	(0.005—0.007)	0.10	120
0.63	40	20000	0.008	(0.006—0.010)	0.10	160	40	20000	0.008	(0.006—0.010)	0.10	160
0.80	50	20000	0.015	(0.012—0.018)	0.30	300	50	20000	0.015	(0.012—0.018)	0.30	300
0.99	62	20000	0.020	(0.015—0.025)	0.30	400	62	20000	0.020	(0.015—0.025)	0.30	400

Not 1) $\phi 0.3$ mm'ye kadar delikleri delerken, punta matkap ucu kullanılması önerilir.

Not 2) Tezgahın ve iş parçası rijidliğine bağlı olarak kesme koşullarını değiştirin.

Not 3) Derinliği DCx5 üzerindeki delikleri işlerken, yukarıda belirtilen gagalama mesafesini düşürün.

Not 4) Yukarıdaki kesme koşullarını kullanarak delme için suda çözünebilir soğutma sıvısı kullanımı (20 kat seyreltilmiş) önerilir.

Sıvı yağ veya buhuru kullanılırsa devirleri düşürün.

Not 5) Yukarıdaki tablolarda "—" ile işaretli çalışma malzemelerini Dıştan soğutma suyu ile delmek zordur.

DELME (YEKPARE KARBÜR)

MSE

- Talaş sıkışmasını önlemek için geniş helis kanalı.
- Stabil, küçük çaplı işleme.

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi	M					K				
	Ostenitli Paslanmaz Çelik (≤200HB) X5CrNi1810, X5CrNiMo17-12-2					Gri Dökme Demir (≤350 MPa) GG30				
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Adım (mm)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Adım (mm)	İlerleme hızı (mm/dak)
0.10	6	20000	0.002 (0.001—0.003)	0.02	40	6	20000	0.002 (0.001—0.003)	0.02	40
0.12	8	20000	0.002 (0.001—0.003)	0.02	40	8	20000	0.002 (0.001—0.003)	0.02	40
0.16	10	20000	0.002 (0.001—0.003)	0.02	40	10	20000	0.002 (0.001—0.003)	0.02	40
0.20	11	18000	0.003 (0.002—0.004)	0.04	54	13	20000	0.003 (0.002—0.004)	0.04	60
0.25	14	18000	0.003 (0.002—0.004)	0.04	54	16	20000	0.003 (0.002—0.004)	0.04	60
0.32	15	15000	0.004 (0.003—0.005)	0.05	60	20	20000	0.004 (0.003—0.005)	0.05	80
0.40	19	15000	0.004 (0.003—0.005)	0.05	60	25	20000	0.004 (0.003—0.005)	0.05	80
0.50	16	10000	0.006 (0.005—0.007)	0.10	60	31	20000	0.006 (0.005—0.007)	0.10	120
0.63	20	10000	0.008 (0.006—0.010)	0.10	80	40	20000	0.008 (0.006—0.010)	0.10	160
0.80	15	6000	0.015 (0.012—0.018)	0.20	90	50	20000	0.020 (0.015—0.025)	0.30	400
0.99	19	6000	0.020 (0.015—0.025)	0.20	120	62	20000	0.040 (0.030—0.050)	0.30	800

Çalışma Malzemesi	N					S				
	Alüminyum Alaşım (Si<%5)					Isıya Dirençli Alaşım Inconel718				
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Adım (mm)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Adım (mm)	İlerleme hızı (mm/dak)
0.10	6	20000	0.002 (0.001—0.003)	0.05	40	2	7000	0.001 (0.0005—0.001)	0.02	7
0.12	8	20000	0.003 (0.002—0.004)	0.05	60	3	7000	0.001 (0.0005—0.001)	0.02	7
0.16	10	20000	0.004 (0.003—0.005)	0.05	80	4	7000	0.001 (0.0005—0.001)	0.02	7
0.20	13	20000	0.006 (0.005—0.007)	0.10	120	3	5000	0.002 (0.001—0.002)	0.04	10
0.25	16	20000	0.008 (0.006—0.010)	0.10	160	4	5000	0.002 (0.001—0.002)	0.04	10
0.32	20	20000	0.010 (0.008—0.012)	0.30	200	4	4000	0.002 (0.001—0.002)	0.05	8
0.40	25	20000	0.020 (0.015—0.025)	0.30	400	5	4000	0.002 (0.001—0.002)	0.05	8
0.50	31	20000	0.030 (0.025—0.035)	0.50	600	5	3000	0.003 (0.001—0.003)	0.10	9
0.63	40	20000	0.040 (0.035—0.045)	0.50	800	6	3000	0.004 (0.002—0.004)	0.10	12
0.80	50	20000	0.050 (0.045—0.055)	0.80	1000	5	1800	0.006 (0.004—0.006)	0.20	10.8
0.99	62	20000	0.060 (0.055—0.065)	0.80	1200	6	1800	0.010 (0.008—0.010)	0.20	18

Not 1) $\phi 0.3$ mm'ye kadar delikleri delerken, punta matkap ucu kullanılması önerilir.

Not 2) Tezgahın ve iş parçası rijidliğine bağlı olarak kesme koşullarını değiştirin.

Not 3) Derinliği DCx5 üzerindeki delikleri işlerken, yukarıda belirtilen gagalama mesafesini düşürün.

Not 4) Yukarıdaki kesme koşullarını kullanarak delme için suda çözünebilir soğutma sıvısı kullanımı (20 kat seyreltilmiş) önerilir.

Sıvı yağ veya buhuru kullanılırsa devirleri düşürün.

Not 5) Yukarıdaki tablolarda "—" ile işaretli çalışma malzemelerini Dıştan soğutma suyu ile delmek zordur.

MSP

PUNTA MATKAB UCU



KARBÜR

P

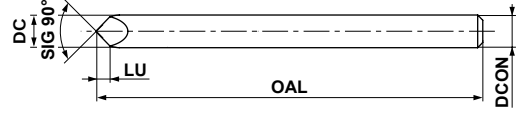
M

K

N

S

H



M

DELME

Sipariş Numarası	Kalite	Stok	Boyutlar (mm)				Çap Aralığı (mm)
			DC	LU	OAL	DCON	
MSP0300SB	VP15TF	●	3.0	1.5	38.0	3.0	0.1—3.0

ÖNERİLEN KESME KOŞULLARI

Delik Çap Aralığı (mm)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)
0.1—3.0	10000	0.0005 (0.00025—0.001)	5

● : Avrupa standart stok.



Dıştan Soğutma

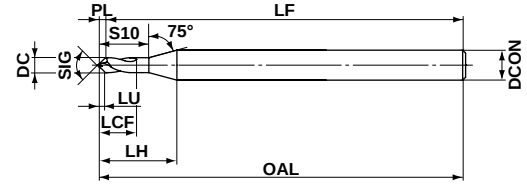
■ Uç Açısı SIG 60°, 90°

M

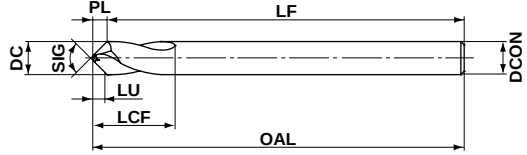
DELME



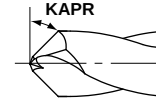
■ Uç Açısı SIG 120°, 145°



Tip1



Tip2



DCON=3	3 < DCON ≤ 6	6 < DCON ≤ 10	10 < DCON ≤ 16
$\begin{smallmatrix} 0 \\ -0.010 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.012 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.015 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.018 \end{smallmatrix}$

DC (mm)	SIG	DP1020	DP102A	Sipariş Numarası	Boyutlar (mm)									Tip
					LU	LCF	LH	S10	OAL	LF	PL	KAPR	DCON	
NEW 3.0	60°	●		DLE0300S030P060	2.0	9	—	—	45	42.9	2.1	60°	3	2
NEW 4.0	60°	●		DLE0400S040P060	2.7	12	—	—	50	47.2	2.8	60°	4	2
NEW 5.0	60°	●		DLE0500S050P060	3.4	14	—	—	60	56.5	3.5	60°	5	2
NEW 6.0	60°	●		DLE0600S060P060	4.0	15	—	—	66	61.8	4.2	60°	6	2
NEW 7.0	60°	●		DLE0700S070P060	4.7	18	—	—	74	69.1	4.9	60°	7	2
NEW 8.0	60°	●		DLE0800S080P060	5.4	20	—	—	74	68.4	5.6	60°	8	2
NEW 10.0	60°	●		DLE1000S100P060	6.8	24	—	—	84	77.0	7.0	60°	10	2
NEW 12.0	60°	●		DLE1200S120P060	8.1	28	—	—	95	86.6	8.4	60°	12	2
NEW 1.0	90°	●		DLE0100S030P090	0.35	2	6.7	3.0	45	44.6	0.4	45°	3	1
NEW 1.5	90°	●		DLE0150S030P090	0.55	3	7.3	4.5	45	44.4	0.6	45°	3	1
NEW 2.0	90°	●		DLE0200S030P090	0.8	4	7.9	6.1	45	44.1	0.9	45°	3	1
NEW 2.5	90°	●		DLE0250S030P090	1.0	5	7.9	7.1	45	43.9	1.1	45°	3	1
3.0	90°	●		DLE0300S030P090	1.2	9	—	—	45	43.7	1.3	45°	3	2
4.0	90°	●		DLE0400S040P090	1.6	12	—	—	50	48.3	1.7	45°	4	2
5.0	90°	●		DLE0500S050P090	2.0	14	—	—	60	57.9	2.1	45°	5	2
6.0	90°	●		DLE0600S060P090	2.4	15	—	—	66	63.4	2.6	45°	6	2
7.0	90°	●		DLE0700S070P090	2.8	18	—	—	74	71.0	3.0	45°	7	2
8.0	90°	●		DLE0800S080P090	3.2	20	—	—	74	70.6	3.4	45°	8	2
10.0	90°	●		DLE1000S100P090	4.1	24	—	—	84	79.7	4.3	45°	10	2
12.0	90°	●		DLE1200S120P090	4.9	28	—	—	95	89.9	5.1	45°	12	2
16.0	90°	●		DLE1600S160P090	6.6	35	—	—	113	106.2	6.8	45°	16	2

Not 1) İki kademeli uç açılarının bulunduğu merkez bölgesinde kabaca DC/4 kısmında delik yüzeyi 60° ve 90° olmayacaktır. Ayrıca bu kısımda kenara pah açma mümkün değildir.

Not 2) Merkezleme çapı, matkap çapı (işlem çapı) DC'den daha düşük olmalı ve kullanılabilir uzunluk LU, bir kılavuz olarak belirtilmelidir.

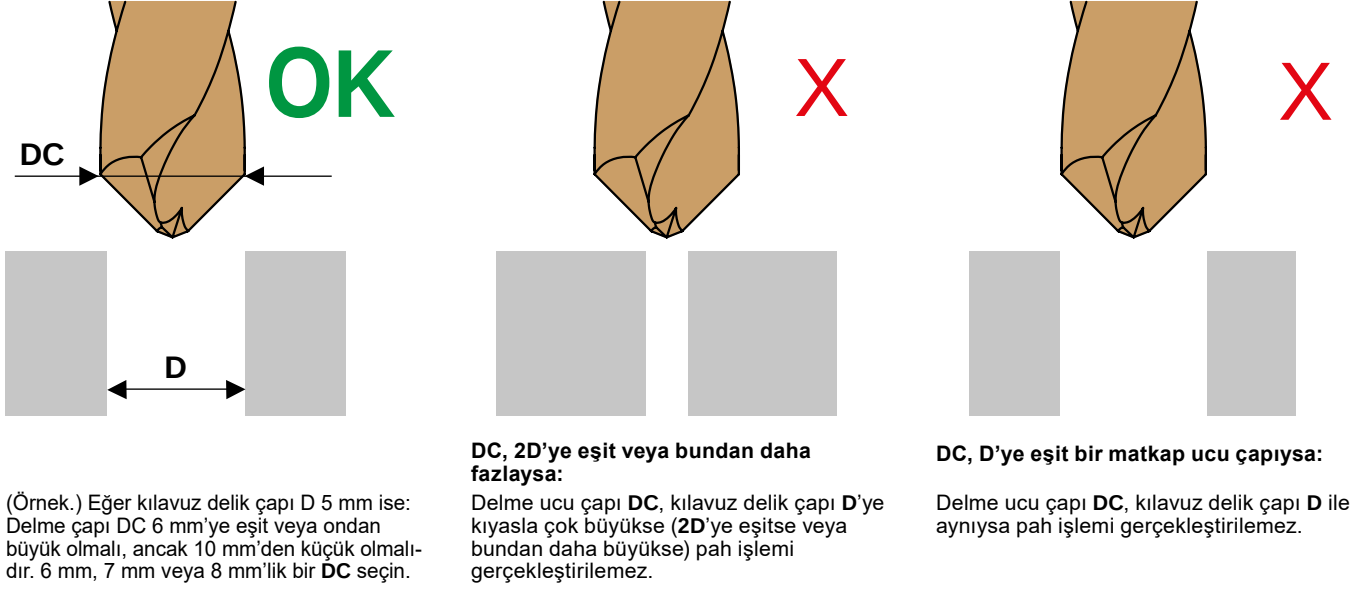
● : Avrupa standart stok. ★ : Japonya standart stok.

DC (mm)	SIG	DP1020	DP102A	Sipariş Numarası	Boyutlar (mm)								Tip		
					LU	LCF	LH	S10	OAL	LF	PL	KAPR		DCON	
NEW	3.0	120°	●		DLE0300S030P120	0.8	9	—	—	45	44.1	0.9	30°	3	2
NEW	4.0	120°	●		DLE0400S040P120	1.1	12	—	—	50	48.8	1.2	30°	4	2
NEW	5.0	120°	●		DLE0500S050P120	1.3	14	—	—	60	58.6	1.4	30°	5	2
NEW	6.0	120°	●		DLE0600S060P120	1.6	15	—	—	66	64.3	1.7	30°	6	2
NEW	7.0	120°	●		DLE0700S070P120	1.9	18	—	—	74	72.0	2.0	30°	7	2
NEW	8.0	120°	●		DLE0800S080P120	2.2	20	—	—	74	71.7	2.3	30°	8	2
NEW	10.0	120°	●		DLE1000S100P120	2.8	24	—	—	84	81.1	2.9	30°	10	2
NEW	12.0	120°	●		DLE1200S120P120	3.3	28	—	—	95	91.5	3.5	30°	12	2
NEW	3.0	145°	●		DLE0300S030P145	0.4	9	—	—	45	44.5	0.5	17.5°	3	2
NEW	4.0	145°	●		DLE0400S040P145	0.5	12	—	—	50	49.4	0.6	17.5°	4	2
NEW	5.0	145°	●		DLE0500S050P145	0.7	14	—	—	60	59.2	0.8	17.5°	5	2
NEW	6.0	145°	●		DLE0600S060P145	0.8	15	—	—	66	65.1	0.9	17.5°	6	2
NEW	7.0	145°	●		DLE0700S070P145	1.0	18	—	—	74	72.9	1.1	17.5°	7	2
NEW	8.0	145°	●		DLE0800S080P145	1.1	20	—	—	74	72.7	1.3	17.5°	8	2
NEW	10.0	145°	●		DLE1000S100P145	1.4	24	—	—	84	82.4	1.6	17.5°	10	2
NEW	12.0	145°	●		DLE1200S120P145	1.7	28	—	—	95	93.1	1.9	17.5°	12	2

Not 1) Merkezleme çapı, matkap çapı (işlem çapı) DC'den daha düşük olmalı ve kullanılabilir uzunluk LU, bir kılavuz olarak belirtilmelidir.

PAH AÇMA İŞLEMİNDE**MATKAP ÇAPI SEÇİMİ**

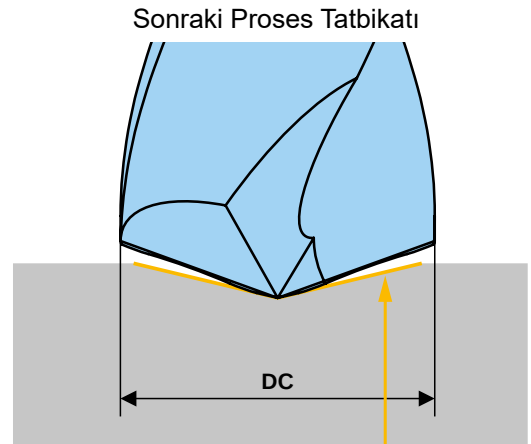
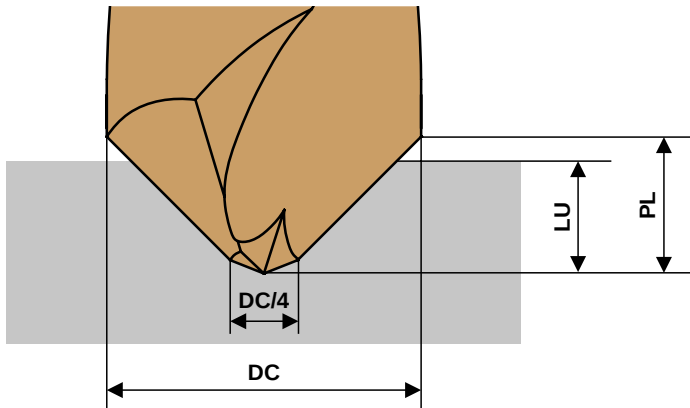
Kılavuz delik çapı D 'ye göre matkap çapını (kesme çapı) DC aralığında olacak şekilde seçin $D < DC < 2D$

**MERKEZLEME İŞLEMİNDE**

Merkezleme çapı, matkap ucu çapı (işlem çapı) DC 'den daha düşük olmalı ve kullanılabilir uzunluk LU , bir rehber olarak alınmalıdır.

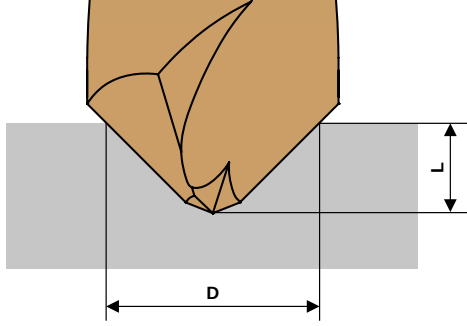
İki kademeli uç açıları ile oluşturulan deliklerin (tam çapın yaklaşık %25'i) merkez bölgesinde 60° ve 90° açılar olmayacaktır. Ayrıca bu kısımda kenara pah açma mümkün değildir.

Merkez ile ilk temas yapılması isteniyorsa, nihai deliğin uç açısından daha büyük bir merkezleme matkap ucu seçin.



Merkezleme uç açısı SIG145°

Takım Çapına Göre Delme Derinliği (L) Tablosu



(mm)

DC	SIG 90°			
	Min.		Max.	
	D	L	D	L
1.0	0.5	0.18	0.8	0.33
1.5	0.8	0.29	1.3	0.54
2.0	1.0	0.35	1.9	0.8
2.5	1.3	0.47	2.4	1.0
3.0	1.5	0.5	2.8	1.2
4.0	2.0	0.7	3.8	1.6
5.0	2.5	0.9	4.7	2.0
6.0	3.0	1.1	5.7	2.4
7.0	3.5	1.2	6.6	2.8
8.0	4.0	1.4	7.6	3.2
10.0	5.0	1.8	9.7	4.1
12.0	6.0	2.1	11.6	4.9
16.0	8.0	2.8	15.5	6.6

M
DELME

(mm)

DC	SIG 60°				SIG 120°				SIG 145°			
	Min.		Max.		Min.		Max.		Min.		Max.	
	D	L	D	L	D	L	D	L	D	L	D	L
3.0	1.5	0.8	2.9	2.0	1.5	0.4	2.8	0.8	1.5	0.2	2.5	0.4
4.0	2.0	1.1	3.9	2.7	2.0	0.6	3.8	1.1	2.0	0.3	3.2	0.5
5.0	2.5	1.3	4.9	3.4	2.5	0.7	4.5	1.3	2.5	0.4	4.4	0.7
6.0	3.0	1.6	5.8	4.0	3.0	0.9	5.5	1.6	3.0	0.5	5.1	0.8
7.0	3.5	1.9	6.8	4.7	3.5	1.0	6.6	1.9	3.5	0.6	6.3	1.0
8.0	4.0	2.1	7.8	5.4	4.0	1.2	7.6	2.2	4.0	0.6	7.0	1.1
10.0	5.0	2.7	9.8	6.8	5.0	1.4	9.7	2.8	5.0	0.8	8.9	1.4
12.0	6.0	3.2	11.6	8.1	6.0	1.7	11.4	3.3	6.0	0.9	10.8	1.7

Uç Açısı SIG 60°

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi	P					
	Yumuşak Çelik ($\leq 180\text{HB}$)		Karbon çelik, Alaşımlı çelik (180—280HB)		Karbon çelik, Alaşımlı çelik (280—350HB)	
	DIN C10E vs.		DIN Ck45, 41CrMo4 vs.		DIN 40CrNiMoA vs.	
Matkap Ucu Çapı DC (mm)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)
3.0	7900	0.05 (0.03—0.07)	6800	0.05 (0.03—0.07)	6300	0.04 (0.02—0.06)
4.0	5900	0.05 (0.03—0.07)	5100	0.05 (0.03—0.07)	4700	0.04 (0.02—0.06)
5.0	5000	0.06 (0.04—0.08)	4400	0.06 (0.04—0.08)	4100	0.05 (0.03—0.07)
6.0	4200	0.06 (0.04—0.08)	3700	0.06 (0.04—0.08)	3400	0.05 (0.03—0.07)
7.0	3600	0.07 (0.04—0.09)	3100	0.07 (0.04—0.09)	2900	0.05 (0.03—0.07)
8.0	3100	0.07 (0.04—0.09)	2700	0.07 (0.04—0.09)	2500	0.05 (0.03—0.07)
10.0	2700	0.08 (0.04—0.10)	2300	0.08 (0.04—0.10)	2200	0.06 (0.03—0.08)
12.0	2200	0.08 (0.04—0.10)	1900	0.08 (0.04—0.10)	1800	0.06 (0.03—0.08)

Çalışma Malzemesi	M		K			
	Ostenitli Paslanmaz Çelik ($\leq 200\text{HB}$)		Gri Dökme Demir ($\leq 350\text{MPa}$)		Duktıl Dökme Demir ($\leq 450\text{MPa}$)	
	DIN X5CrNi189, X5CrNiMo1810 vs.		DIN GG30 vs.		DIN GGG40.3 vs.	
Matkap Ucu Çapı DC (mm)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)
3.0	1500	0.03 (0.01—0.05)	7900	0.05 (0.03—0.07)	5800	0.05 (0.03—0.07)
4.0	1100	0.03 (0.01—0.05)	5900	0.05 (0.03—0.07)	4300	0.05 (0.03—0.07)
5.0	1200	0.04 (0.02—0.06)	5000	0.06 (0.04—0.08)	3800	0.06 (0.04—0.08)
6.0	1000	0.04 (0.02—0.06)	4200	0.06 (0.04—0.08)	3100	0.06 (0.04—0.08)
7.0	900	0.04 (0.02—0.06)	3600	0.07 (0.04—0.09)	2700	0.06 (0.04—0.08)
8.0	790	0.04 (0.02—0.06)	3100	0.07 (0.04—0.09)	2300	0.06 (0.04—0.08)
10.0	630	0.04 (0.02—0.06)	2700	0.08 (0.04—0.10)	1900	0.07 (0.04—0.09)
12.0	530	0.04 (0.02—0.06)	2200	0.08 (0.04—0.10)	1500	0.07 (0.04—0.09)

Not 1) İhtiyaç olan merkez deliğinden daha büyük (DC), ama 2 x DC'den daha küçük bir takım kullanın.

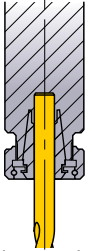
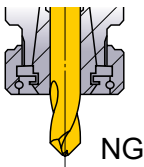
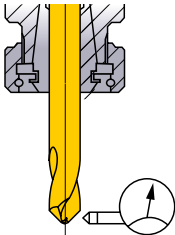
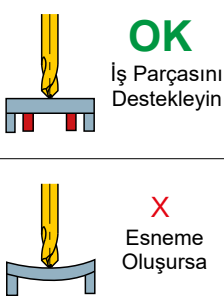
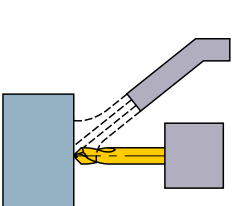
Not 2) Kavisli veya eğimli yüzeylerde merkezleme için, lütfen ilerleme hızını düşürün.

Not 3) V-kanalı açma ve Pah kırmada, lütfen kesme koşullarını düşürün.

Not 4) Tırlama titreşimi veya anormal gürültü üretildiğinde, lütfen bekleme süresini kısaltın veya devri düşürün.

Not 5) Merkezleme yaparken, LU (kullanılabilir uzunluğu) aşmayın.

■ ÇALIŞMA KILAVUZU

Matkap Ucunu Bağlama	Matkap Ucu Uzunluğu	Montaj Toleransı	İnce İş Parçası	Soğutma Metodu
 Bilyalı tip pens başlığı matkap ucunu emniyetli sabit şekilde tutar.	 NG Helis kısmından bağlamayın.	 Salgı ≤ 0.03 mm	 OK İş Parçasını Destekleyin X Esneme Oluşursa	 Uçta ve merkezde olmak üzere iki soğutma suyu pozisyonu idealdir.

Uç açısı SIG 90°, 120° ve 145°

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi	P					
	Yumuşak Çelik ($\leq 180\text{HB}$)		Karbon çelik, Alaşımli çelik (180—280HB)		Karbon çelik, Alaşımli çelik (280—350HB)	
	DIN C10E vs.		DIN Ck45, 41CrMo4 vs.		DIN 40CrNiMoA vs.	
Matkap Ucu Çapı DC (mm)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)
1.0	9500	0.02 (0.01—0.03)	6300	0.02 (0.01—0.03)	4700	0.02 (0.01—0.03)
1.5	9500	0.02 (0.01—0.03)	7400	0.02 (0.01—0.03)	6300	0.02 (0.01—0.03)
2.0	9500	0.04 (0.03—0.05)	7900	0.04 (0.03—0.05)	7100	0.04 (0.03—0.05)
2.5	9500	0.04 (0.03—0.05)	8200	0.04 (0.03—0.05)	7600	0.04 (0.03—0.05)
3.0	7900	0.06 (0.04—0.08)	6800	0.06 (0.04—0.08)	6300	0.05 (0.03—0.07)
4.0	5900	0.06 (0.04—0.08)	5100	0.06 (0.04—0.08)	4700	0.05 (0.03—0.07)
5.0	5000	0.07 (0.05—0.09)	4400	0.07 (0.05—0.09)	4100	0.06 (0.04—0.08)
6.0	4200	0.07 (0.05—0.09)	3700	0.07 (0.05—0.09)	3400	0.06 (0.04—0.08)
7.0	3600	0.08 (0.05—0.10)	3100	0.08 (0.05—0.10)	2900	0.06 (0.04—0.08)
8.0	3100	0.08 (0.05—0.10)	2700	0.08 (0.05—0.10)	2500	0.06 (0.04—0.08)
10.0	2700	0.09 (0.05—0.11)	2300	0.09 (0.05—0.11)	2200	0.07 (0.04—0.09)
12.0	2200	0.09 (0.05—0.11)	1900	0.09 (0.05—0.11)	1800	0.07 (0.04—0.09)
16.0	1700	0.12 (0.10—0.14)	1500	0.12 (0.10—0.14)	1400	0.08 (0.06—0.10)

Çalışma Malzemesi	M		K			
	Ostenitli Paslanmaz Çelik ($\leq 200\text{HB}$)		Gri Dökme Demir ($\leq 350\text{MPa}$)		Duktil Dökme Demir ($\leq 450\text{MPa}$)	
	DIN X5CrNi189, X5CrNiMo1810 vs.		DIN GG30 vs.		DIN GGG40.3 vs.	
Matkap Ucu Çapı DC (mm)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)
1.0	6300	0.01 (0.005—0.015)	9500	0.02 (0.01—0.03)	3100	0.02 (0.01—0.03)
1.5	4200	0.01 (0.005—0.015)	9500	0.02 (0.01—0.03)	5300	0.02 (0.01—0.03)
2.0	3100	0.04 (0.03—0.05)	9500	0.04 (0.03—0.05)	6300	0.04 (0.03—0.05)
2.5	2500	0.04 (0.03—0.05)	9500	0.04 (0.03—0.05)	7000	0.04 (0.03—0.05)
3.0	2100	0.04 (0.02—0.06)	7900	0.06 (0.04—0.08)	5800	0.06 (0.04—0.08)
4.0	1600	0.04 (0.02—0.06)	5900	0.06 (0.04—0.08)	4300	0.06 (0.04—0.08)
5.0	1200	0.06 (0.04—0.08)	5000	0.07 (0.05—0.09)	3800	0.07 (0.05—0.09)
6.0	1000	0.06 (0.04—0.08)	4200	0.07 (0.05—0.09)	3100	0.07 (0.05—0.09)
7.0	900	0.06 (0.04—0.08)	3600	0.08 (0.05—0.10)	2700	0.07 (0.05—0.09)
8.0	790	0.06 (0.04—0.08)	3100	0.08 (0.05—0.10)	2300	0.07 (0.05—0.09)
10.0	630	0.06 (0.04—0.08)	2700	0.09 (0.05—0.11)	1900	0.08 (0.05—0.10)
12.0	530	0.06 (0.04—0.08)	2200	0.09 (0.05—0.11)	1500	0.08 (0.05—0.10)
16.0	390	0.08 (0.06—0.10)	1700	0.12 (0.10—0.14)	1100	0.11 (0.09—0.13)

Not 1) İhtiyaç olan merkez deliğinden daha büyük (DC), ama 2 x DC'den daha küçük bir takım kullanın.

Not 2) Kavisli veya eğimli yüzeylerde merkezleme için, lütfen ilerleme hızını düşürün.

Not 3) V-kanalı açma ve Pah kırmada, lütfen kesme koşullarını düşürün.

Not 4) Tırlama titreşimi veya anormal gürültü üretildiğinde, lütfen bekleme süresini kısaltın veya devri düşürün.

Not 5) Merkezleme yaparken, LU (kullanılabilir uzunluğu) aşmayın.

P

M

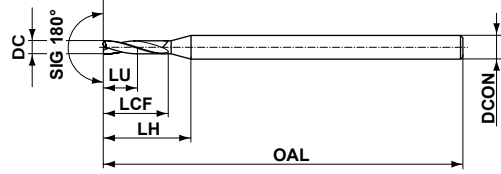
K

N

S

H

Dıştan Soğutma



Tip1

M

DELME



$0.75 \leq DC \leq 2.95$	
0 -0.014	
DCON=3	DCON=4
0 -0.006	0 -0.008

DC (mm)	Delik Derinliği (L/D)	DP102A	Sipariş Numarası	Boyutlar (mm)					Tip
				LU	LCF	LH	OAL	DCON	
0.75	2	★	MFE0075X02S030	1.5	3.0	7.7	45	3	1
0.80	2	★	MFE0080X02S030	1.6	3.2	7.8	45	3	1
0.85	2	★	MFE0085X02S030	1.7	3.4	7.9	45	3	1
0.90	2	★	MFE0090X02S030	1.8	3.6	8.0	45	3	1
0.95	2	★	MFE0095X02S030	1.9	3.8	8.1	45	3	1
1.00	2	★	MFE0100X02S030	2.0	4.0	8.2	45	3	1
1.05	2	★	MFE0105X02S030	2.1	4.2	8.3	45	3	1
1.10	2	★	MFE0110X02S030	2.2	4.4	8.4	45	3	1
1.15	2	★	MFE0115X02S030	2.3	4.6	8.6	45	3	1
1.20	2	★	MFE0120X02S030	2.4	4.8	8.7	45	3	1
1.25	2	★	MFE0125X02S030	2.5	5.0	8.8	45	3	1
1.30	2	★	MFE0130X02S030	2.6	5.2	8.9	45	3	1
1.35	2	★	MFE0135X02S030	2.7	5.4	9.0	45	3	1
1.40	2	★	MFE0140X02S030	2.8	5.6	9.1	45	3	1
1.45	2	★	MFE0145X02S030	2.9	5.8	9.2	45	3	1
1.50	2	★	MFE0150X02S030	3.0	6.0	9.3	45	3	1
1.55	2	★	MFE0155X02S030	3.1	6.2	9.4	45	3	1
1.60	2	★	MFE0160X02S030	3.2	6.4	9.5	45	3	1
1.65	2	★	MFE0165X02S030	3.3	6.6	9.6	45	3	1
1.70	2	★	MFE0170X02S030	3.4	6.8	9.7	45	3	1
1.75	2	★	MFE0175X02S030	3.5	7.0	9.8	45	3	1
1.80	2	★	MFE0180X02S030	3.6	7.2	9.9	45	3	1
1.85	2	★	MFE0185X02S030	3.7	7.4	10.0	45	3	1
1.90	2	★	MFE0190X02S030	3.8	7.6	10.2	45	3	1
1.95	2	★	MFE0195X02S030	3.9	7.8	10.3	45	3	1
2.00	2	★	MFE0200X02S040	4.0	8.0	12.2	50	4	1
2.05	2	★	MFE0205X02S040	4.1	8.2	12.3	50	4	1
2.10	2	★	MFE0210X02S040	4.2	8.4	12.4	50	4	1
2.15	2	★	MFE0215X02S040	4.3	8.6	12.6	50	4	1
2.20	2	★	MFE0220X02S040	4.4	8.8	12.7	50	4	1
2.25	2	★	MFE0225X02S040	4.5	9.0	12.8	50	4	1
2.30	2	★	MFE0230X02S040	4.6	9.2	12.9	50	4	1
2.35	2	★	MFE0235X02S040	4.7	9.4	13.0	50	4	1
2.40	2	★	MFE0240X02S040	4.8	9.6	13.1	50	4	1
2.45	2	★	MFE0245X02S040	4.9	9.8	13.2	50	4	1
2.50	2	★	MFE0250X02S040	5.0	10.0	13.3	50	4	1
2.55	2	★	MFE0255X02S040	5.1	10.2	13.4	50	4	1
2.60	2	★	MFE0260X02S040	5.2	10.4	13.5	50	4	1
2.65	2	★	MFE0265X02S040	5.3	10.6	13.6	50	4	1
2.70	2	★	MFE0270X02S040	5.4	10.8	13.7	50	4	1
2.75	2	★	MFE0275X02S040	5.5	11.0	13.8	50	4	1
2.80	2	★	MFE0280X02S040	5.6	11.2	13.9	50	4	1
2.85	2	★	MFE0285X02S040	5.7	11.4	14.0	50	4	1
2.90	2	★	MFE0290X02S040	5.8	11.6	14.2	50	4	1
2.95	2	★	MFE0295X02S040	5.9	11.8	14.3	50	4	1

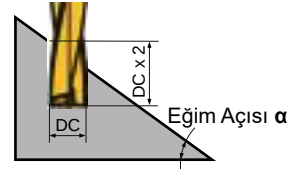
★ : Japonya standart stok.

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi		P					
		Yumuşak Çelik ($\leq 180\text{HB}$)		Karbon çelik, Alaşımlı çelik (180–280HB)		Karbon çelik, Alaşımlı çelik (280–350HB)	
		C10E vs.		DIN Ck45, 41CrMo4 vs.		DIN 40CrNiMoA vs.	
Matkap Ucu Çapı DC (mm)	L/D	Devir (dak ⁻¹)	$\alpha=0^\circ$ İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	$\alpha=0^\circ$ İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	$\alpha=0^\circ$ İlerleme oranı (Min.—Maks.) (mm/dev)
0.75	≤ 2	23300	0.030 (0.010–0.050)	19000	0.030 (0.010–0.050)	16900	0.030 (0.010–0.050)
1.0	≤ 2	17500	0.030 (0.010–0.050)	14300	0.030 (0.010–0.050)	12700	0.030 (0.010–0.050)
1.5	≤ 2	12200	0.035 (0.015–0.055)	10000	0.035 (0.015–0.055)	8400	0.035 (0.015–0.055)
2.0	≤ 2	9500	0.040 (0.020–0.060)	7900	0.040 (0.020–0.060)	6700	0.040 (0.020–0.060)
2.5	≤ 2	7900	0.050 (0.030–0.070)	6600	0.050 (0.030–0.070)	5700	0.050 (0.030–0.070)
2.95	≤ 2	7900	0.060 (0.040–0.080)	7900	0.060 (0.040–0.080)	6800	0.060 (0.040–0.080)

Çalışma Malzemesi		M		K			
		Ostenitli Paslanmaz Çelik ($\leq 200\text{HB}$)		Gri Dökme Demir ($\leq 350\text{MPa}$)		Duktıl Dökme Demir ($\leq 450\text{MPa}$)	
		DIN X5CrNi189, X5CrNiMo1810 vs.		DIN GG30 vs.		DIN GGG40.3 vs.	
Matkap Ucu Çapı DC (mm)	L/D	Devir (dak ⁻¹)	$\alpha=0^\circ$ İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	$\alpha=0^\circ$ İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	$\alpha=0^\circ$ İlerleme oranı (Min.—Maks.) (mm/dev)
0.75	≤ 2	10600	0.007 (0.003–0.011)	23300	0.030 (0.010–0.050)	16900	0.010 (0.005–0.015)
1.0	≤ 2	7900	0.007 (0.003–0.011)	17500	0.030 (0.010–0.050)	12700	0.010 (0.005–0.015)
1.5	≤ 2	5300	0.010 (0.005–0.015)	12200	0.035 (0.015–0.055)	10000	0.020 (0.010–0.030)
2.0	≤ 2	4700	0.015 (0.010–0.020)	9500	0.040 (0.020–0.060)	8700	0.030 (0.015–0.045)
2.5	≤ 2	3800	0.015 (0.010–0.020)	7900	0.050 (0.030–0.070)	7300	0.045 (0.025–0.065)
2.95	≤ 2	3100	0.020 (0.010–0.030)	7900	0.060 (0.040–0.080)	6800	0.050 (0.040–0.060)

Çalışma Malzemesi		N	
		Alüminyum Alaşım (Si<%5)	
		JIS A6061, A7075 vs.	
Matkap Ucu Çapı DC (mm)	L/D	Devir (dak ⁻¹)	$\alpha=0^\circ$ İlerleme oranı (Min.—Maks.) (mm/dev)
0.75	≤ 2	42400	0.020 (0.010–0.030)
1.0	≤ 2	31800	0.020 (0.010–0.030)
1.5	≤ 2	21200	0.020 (0.010–0.030)
2.0	≤ 2	17500	0.050 (0.030–0.070)
2.5	≤ 2	14000	0.060 (0.040–0.090)
2.95	≤ 2	11600	0.060 (0.040–0.090)



Not 1) Önerilen delik derinliği $DC \times 2$ 'dir. Bu, açılı yüzeylerde işleme sırasında çalışılan malzemenin en üst yüzeyinden olan derinliktir. (Şemaya bakın)

Not 2) Yukarıdaki kesme tablosunda düz bir yüzey üzerinde delik açıldığı kabul edilir.

Açılı yüzeylerde delik delmek için ilerleme hızını eğim açısına uygun şekilde ayarlayın.

Eğim açısı $\alpha \leq 30^\circ$ veya daha az olduğunda ilerleme hızını %70 veya daha düşük olarak ayarlayın.

Eğim açısı $\alpha > 30^\circ$ veya daha büyük olduğunda ilerleme hızını %50 veya daha düşük olarak ayarlayın.

Not 3) Bu ürün, delik delme amaçlı bir takımdır. Çaprazlama ilerleme ile işleme ya da helisel işleme için kullanılamaz.



P

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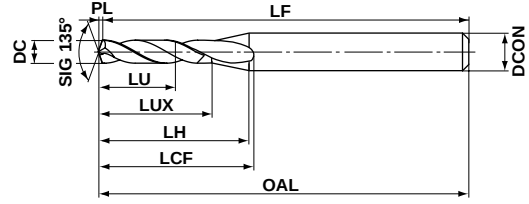
Dıştan Soğutma



DC<2.0



DC≥2.0



Tip1

DELME



h6

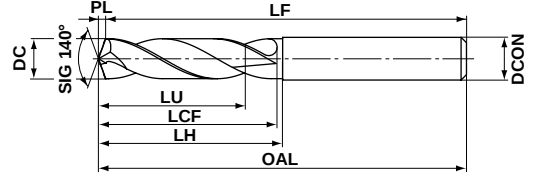
DC≤3	
0 -0.014	
DCON=3	DCON=4
0 -0.006	0 -0.008

DC (mm)	Delik Derinliği (L/D)	DP102A	Sipariş Numarası	Boyutlar (mm)								Tip
				LU	LUX	LCF	LH	OAL	LF	PL	DCON	
1.0	2	●	DWAE0100X02S030	2.2	5.0	7.7	8.7	45.0	44.8	0.2	3	1
1.0	4	●	DWAE0100X04S030	4.2	7.0	9.9	10.7	45.0	44.8	0.2	3	1
1.1	2	★	DWAE0110X02S030	2.4	5.4	8.1	8.9	45.0	44.8	0.2	3	1
1.1	4	★	DWAE0110X04S030	4.6	7.6	10.5	11.1	45.0	44.8	0.2	3	1
1.2	2	★	DWAE0120X02S030	2.6	5.8	8.5	9.2	45.0	44.8	0.2	3	1
1.2	4	★	DWAE0120X04S030	5.0	8.2	11.1	11.6	45.0	44.8	0.2	3	1
1.3	2	★	DWAE0130X02S030	2.9	6.3	9.0	9.5	45.0	44.7	0.3	3	1
1.3	4	★	DWAE0130X04S030	5.5	8.9	11.9	12.1	45.0	44.7	0.3	3	1
1.4	2	★	DWAE0140X02S030	3.1	6.7	9.4	9.7	45.0	44.7	0.3	3	1
1.4	4	★	DWAE0140X04S030	5.9	9.5	12.5	12.5	45.0	44.7	0.3	3	1
1.5	2	●	DWAE0150X02S030	3.3	7.1	9.8	9.9	45.0	44.7	0.3	3	1
1.5	4	●	DWAE0150X04S030	6.3	10.1	13.1	12.9	45.0	44.7	0.3	3	1
1.6	2	★	DWAE0160X02S030	3.5	7.5	10.2	10.1	45.0	44.7	0.3	3	1
1.6	4	★	DWAE0160X04S030	6.7	10.7	13.7	13.3	45.0	44.7	0.3	3	1
1.7	2	★	DWAE0170X02S030	3.8	8.0	10.7	10.4	45.0	44.6	0.4	3	1
1.7	4	★	DWAE0170X04S030	7.2	11.4	14.4	13.8	45.0	44.6	0.4	3	1
1.8	2	★	DWAE0180X02S030	4.0	8.4	11.1	10.6	45.0	44.6	0.4	3	1
1.8	4	★	DWAE0180X04S030	7.6	12.0	15.1	14.2	45.0	44.6	0.4	3	1
1.9	2	★	DWAE0190X02S030	4.2	8.8	11.5	10.9	45.0	44.6	0.4	3	1
1.9	4	★	DWAE0190X04S030	8.0	12.6	15.7	14.7	45.0	44.6	0.4	3	1
2.0	2	●	DWAE0200X02S040	4.4	9.2	12.8	12.9	50.0	49.6	0.4	4	1
2.0	4	●	DWAE0200X04S040	8.4	13.2	17.2	16.9	50.0	49.6	0.4	4	1
2.1	2	★	DWAE0210X02S040	4.6	9.6	13.2	13.1	50.0	49.6	0.4	4	1
2.1	4	★	DWAE0210X04S040	8.8	13.8	17.8	17.3	50.0	49.6	0.4	4	1
2.2	2	★	DWAE0220X02S040	4.9	10.1	13.7	13.5	50.0	49.5	0.5	4	1
2.2	4	★	DWAE0220X04S040	9.3	14.5	18.5	17.9	50.0	49.5	0.5	4	1
2.3	2	★	DWAE0230X02S040	5.1	10.5	14.1	13.7	50.0	49.5	0.5	4	1
2.3	4	★	DWAE0230X04S040	9.7	15.1	19.2	18.3	50.0	49.5	0.5	4	1
2.4	2	★	DWAE0240X02S040	5.3	10.9	14.5	13.9	50.0	49.5	0.5	4	1
2.4	4	★	DWAE0240X04S040	10.1	15.7	19.8	18.7	50.0	49.5	0.5	4	1
2.5	2	●	DWAE0250X02S040	5.5	11.3	14.9	14.1	50.0	49.5	0.5	4	1
2.5	4	●	DWAE0250X04S040	10.5	16.3	20.4	19.1	50.0	49.5	0.5	4	1
2.6	2	★	DWAE0260X02S040	5.7	11.7	15.3	14.3	50.0	49.5	0.5	4	1
2.6	4	★	DWAE0260X04S040	10.9	16.9	21.0	19.5	50.0	49.5	0.5	4	1
2.7	2	★	DWAE0270X02S040	6.0	12.2	15.8	14.6	50.0	49.4	0.6	4	1
2.7	4	★	DWAE0270X04S040	11.4	17.6	21.7	20.0	50.0	49.4	0.6	4	1
2.8	2	★	DWAE0280X02S040	6.2	12.6	16.2	14.8	50.0	49.4	0.6	4	1
2.8	4	★	DWAE0280X04S040	11.8	18.2	22.4	20.4	50.0	49.4	0.6	4	1
2.9	2	★	DWAE0290X02S040	6.4	13.0	16.6	15.1	50.0	49.4	0.6	4	1
2.9	4	★	DWAE0290X04S040	12.2	18.8	23.0	20.9	50.0	49.4	0.6	4	1

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

P M K N S H

Dıştan Soğutma



Tip1

M

DELME



DC=3	3<DC≤6	6<DC≤10	10<DC≤14
0 -0.014	0 -0.018	0 -0.022	0 -0.027
DCON=3	3<DCON≤6	6<DCON≤10	10<DCON≤14
0 -0.006	0 -0.008	0 -0.009	0 -0.011



DC (mm)	Delik Derinliği (L/D)	DP102A	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
3.0	2	●	DWAE0300X02S030	6.5	12.5	14.5	45.5	45	0.5	3	1
3.0	4	●	DWAE0300X04S030	12.5	21.5	23.5	55.5	55	0.5	3	1
3.1	2	●	DWAE0310X02S040	6.8	12.6	14.6	55.6	55	0.6	4	1
3.1	4	●	DWAE0310X04S040	13.0	21.6	23.6	60.6	60	0.6	4	1
3.2	2	●	DWAE0320X02S040	7.0	13.6	15.6	55.6	55	0.6	4	1
3.2	4	●	DWAE0320X04S040	13.4	22.6	24.6	60.6	60	0.6	4	1
3.3	2	●	DWAE0330X02S040	7.2	13.6	15.6	55.6	55	0.6	4	1
3.3	4	●	DWAE0330X04S040	13.8	23.6	25.6	60.6	60	0.6	4	1
3.4	2	●	DWAE0340X02S040	7.4	13.6	15.6	55.6	55	0.6	4	1
3.4	4	●	DWAE0340X04S040	14.2	23.6	25.6	60.6	60	0.6	4	1
3.5	2	●	DWAE0350X02S040	7.6	14.6	16.6	55.6	55	0.6	4	1
3.5	4	●	DWAE0350X04S040	14.6	24.6	26.6	60.6	60	0.6	4	1
3.6	2	●	DWAE0360X02S040	7.9	14.7	16.7	55.7	55	0.7	4	1
3.6	4	●	DWAE0360X04S040	15.1	25.7	27.7	60.7	60	0.7	4	1
3.7	2	●	DWAE0370X02S040	8.1	14.7	16.7	55.7	55	0.7	4	1
3.7	4	●	DWAE0370X04S040	15.5	25.7	27.7	60.7	60	0.7	4	1
3.8	2	●	DWAE0380X02S040	8.3	15.7	17.7	55.7	55	0.7	4	1
3.8	4	●	DWAE0380X04S040	15.9	26.7	28.7	60.7	60	0.7	4	1
3.9	2	●	DWAE0390X02S040	8.5	15.7	17.7	55.7	55	0.7	4	1
3.9	4	●	DWAE0390X04S040	16.3	27.7	29.7	60.7	60	0.7	4	1
4.0	2	●	DWAE0400X02S040	8.7	15.7	17.7	55.7	55	0.7	4	1
4.0	4	●	DWAE0400X04S040	16.7	27.7	29.7	60.7	60	0.7	4	1
4.1	2	●	DWAE0410X02S050	8.9	16.7	18.7	62.7	62	0.7	5	1
4.1	4	●	DWAE0410X04S050	17.1	28.7	30.7	80.7	80	0.7	5	1
4.2	2	●	DWAE0420X02S050	9.2	16.8	18.8	62.8	62	0.8	5	1
4.2	4	●	DWAE0420X04S050	17.6	29.8	31.8	80.8	80	0.8	5	1
4.3	2	●	DWAE0430X02S050	9.4	17.8	19.8	62.8	62	0.8	5	1
4.3	4	●	DWAE0430X04S050	18.0	30.8	32.8	80.8	80	0.8	5	1
4.4	2	●	DWAE0440X02S050	9.6	17.8	19.8	62.8	62	0.8	5	1
4.4	4	●	DWAE0440X04S050	18.4	30.8	32.8	80.8	80	0.8	5	1

DC (mm)	Delik Derinliği (L/D)	DP102A	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
4.5	2	●	DWAE0450X02S050	9.8	17.8	19.8	62.8	62	0.8	5	1
4.5	4	●	DWAE0450X04S050	18.8	31.8	33.8	80.8	80	0.8	5	1
4.6	2	●	DWAE0460X02S050	10.0	18.8	20.8	62.8	62	0.8	5	1
4.6	4	●	DWAE0460X04S050	19.2	32.8	34.8	80.8	80	0.8	5	1
4.7	2	●	DWAE0470X02S050	10.3	18.9	20.9	62.9	62	0.9	5	1
4.7	4	●	DWAE0470X04S050	19.7	32.9	34.9	80.9	80	0.9	5	1
4.8	2	●	DWAE0480X02S050	10.5	18.9	20.9	62.9	62	0.9	5	1
4.8	4	●	DWAE0480X04S050	20.1	33.9	35.9	80.9	80	0.9	5	1
4.9	2	●	DWAE0490X02S050	10.7	19.9	21.9	62.9	62	0.9	5	1
4.9	4	●	DWAE0490X04S050	20.5	34.9	36.9	80.9	80	0.9	5	1
5.0	2	●	DWAE0500X02S050	10.9	19.9	21.9	62.9	62	0.9	5	1
5.0	4	●	DWAE0500X04S050	20.9	34.9	36.9	80.9	80	0.9	5	1
5.1	2	★	DWAE0510X02S060	11.1	21.9	23.9	66.9	66	0.9	6	1
5.1	4	★	DWAE0510X04S060	21.3	35.9	37.9	80.9	80	0.9	6	1
5.2	2	●	DWAE0520X02S060	11.3	21.9	23.9	66.9	66	0.9	6	1
5.2	4	●	DWAE0520X04S060	21.7	36.9	38.9	80.9	80	0.9	6	1
5.3	2	★	DWAE0530X02S060	11.6	22.0	24.0	67.0	66	1.0	6	1
5.3	4	★	DWAE0530X04S060	22.2	37.0	39.0	81.0	80	1.0	6	1
5.4	2	●	DWAE0540X02S060	11.8	22.0	24.0	67.0	66	1.0	6	1
5.4	4	●	DWAE0540X04S060	22.6	38.0	40.0	81.0	80	1.0	6	1
5.5	2	★	DWAE0550X02S060	12.0	22.0	24.0	67.0	66	1.0	6	1
5.5	4	★	DWAE0550X04S060	23.0	39.0	41.0	81.0	80	1.0	6	1
5.6	2	●	DWAE0560X02S060	12.2	24.0	26.0	67.0	66	1.0	6	1
5.6	4	●	DWAE0560X04S060	23.4	39.0	41.0	81.0	80	1.0	6	1
5.7	2	★	DWAE0570X02S060	12.4	24.0	26.0	67.0	66	1.0	6	1
5.7	4	★	DWAE0570X04S060	23.8	39.0	41.0	81.0	80	1.0	6	1
5.8	2	●	DWAE0580X02S060	12.7	24.1	26.1	67.1	66	1.1	6	1
5.8	4	●	DWAE0580X04S060	24.3	41.1	43.1	81.1	80	1.1	6	1
5.9	2	★	DWAE0590X02S060	12.9	24.1	26.1	67.1	66	1.1	6	1
5.9	4	★	DWAE0590X04S060	24.7	41.1	43.1	81.1	80	1.1	6	1
6.0	2	●	DWAE0600X02S060	13.1	24.1	26.1	67.1	66	1.1	6	1
6.0	4	●	DWAE0600X04S060	25.1	42.1	44.1	81.1	80	1.1	6	1
6.1	2	★	DWAE0610X02S070	13.3	26.1	28.1	75.1	74	1.1	7	1
6.1	4	★	DWAE0610X04S070	25.5	44.1	46.1	84.1	83	1.1	7	1
6.2	2	●	DWAE0620X02S070	13.5	26.1	28.1	75.1	74	1.1	7	1
6.2	4	●	DWAE0620X04S070	25.9	44.1	46.1	84.1	83	1.1	7	1
6.3	2	★	DWAE0630X02S070	13.7	26.1	28.1	75.1	74	1.1	7	1
6.3	4	★	DWAE0630X04S070	26.3	44.1	46.1	84.1	83	1.1	7	1
6.4	2	●	DWAE0640X02S070	14.0	26.2	28.2	75.2	74	1.2	7	1
6.4	4	●	DWAE0640X04S070	26.8	44.2	46.2	84.2	83	1.2	7	1
6.5	2	★	DWAE0650X02S070	14.2	26.2	28.2	75.2	74	1.2	7	1
6.5	4	★	DWAE0650X04S070	27.2	44.2	46.2	84.2	83	1.2	7	1

DC (mm)	Delik Derinliği (L/D)	DP102A	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
6.6	2	●	DWAE0660X02S070	14.4	28.2	30.2	75.2	74	1.2	7	1
6.6	4	●	DWAE0660X04S070	27.6	46.2	48.2	84.2	83	1.2	7	1
6.7	2	★	DWAE0670X02S070	14.6	28.2	30.2	75.2	74	1.2	7	1
6.7	4	★	DWAE0670X04S070	28.0	46.2	48.2	84.2	83	1.2	7	1
6.8	2	●	DWAE0680X02S070	14.8	28.2	30.2	75.2	74	1.2	7	1
6.8	4	●	DWAE0680X04S070	28.4	46.2	48.2	84.2	83	1.2	7	1
6.9	2	★	DWAE0690X02S070	15.1	28.3	30.3	75.3	74	1.3	7	1
6.9	4	★	DWAE0690X04S070	28.9	46.3	48.3	84.3	83	1.3	7	1
7.0	2	●	DWAE0700X02S070	15.3	28.3	30.3	75.3	74	1.3	7	1
7.0	4	●	DWAE0700X04S070	29.3	46.3	48.3	84.3	83	1.3	7	1
7.1	2	★	DWAE0710X02S080	15.5	29.3	31.3	80.3	79	1.3	8	1
7.1	4	★	DWAE0710X04S080	29.7	51.3	53.3	91.3	90	1.3	8	1
7.2	2	●	DWAE0720X02S080	15.7	29.3	31.3	80.3	79	1.3	8	1
7.2	4	●	DWAE0720X04S080	30.1	51.3	53.3	91.3	90	1.3	8	1
7.3	2	★	DWAE0730X02S080	15.9	29.3	31.3	80.3	79	1.3	8	1
7.3	4	★	DWAE0730X04S080	30.5	51.3	53.3	91.3	90	1.3	8	1
7.4	2	●	DWAE0740X02S080	16.1	29.3	31.3	80.3	79	1.3	8	1
7.4	4	●	DWAE0740X04S080	30.9	51.3	53.3	91.3	90	1.3	8	1
7.5	2	★	DWAE0750X02S080	16.4	29.4	31.4	80.4	79	1.4	8	1
7.5	4	★	DWAE0750X04S080	31.4	51.4	53.4	91.4	90	1.4	8	1
7.6	2	●	DWAE0760X02S080	16.6	31.4	33.4	80.4	79	1.4	8	1
7.6	4	●	DWAE0760X04S080	31.8	53.4	55.4	91.4	90	1.4	8	1
7.7	2	★	DWAE0770X02S080	16.8	31.4	33.4	80.4	79	1.4	8	1
7.7	4	★	DWAE0770X04S080	32.2	53.4	55.4	91.4	90	1.4	8	1
7.8	2	●	DWAE0780X02S080	17.0	31.4	33.4	80.4	79	1.4	8	1
7.8	4	●	DWAE0780X04S080	32.6	53.4	55.4	91.4	90	1.4	8	1
7.9	2	★	DWAE0790X02S080	17.2	31.4	33.4	80.4	79	1.4	8	1
7.9	4	★	DWAE0790X04S080	33.0	53.4	55.4	91.4	90	1.4	8	1
8.0	2	●	DWAE0800X02S080	17.5	31.5	33.5	80.5	79	1.5	8	1
8.0	4	●	DWAE0800X04S080	33.5	53.5	55.5	91.5	90	1.5	8	1
8.1	2	★	DWAE0810X02S090	17.7	33.5	35.5	85.5	84	1.5	9	1
8.1	4	★	DWAE0810X04S090	33.9	57.5	59.5	99.5	98	1.5	9	1
8.2	2	●	DWAE0820X02S090	17.9	33.5	35.5	85.5	84	1.5	9	1
8.2	4	●	DWAE0820X04S090	34.3	57.5	59.5	99.5	98	1.5	9	1
8.3	2	★	DWAE0830X02S090	18.1	33.5	35.5	85.5	84	1.5	9	1
8.3	4	★	DWAE0830X04S090	34.7	57.5	59.5	99.5	98	1.5	9	1
8.4	2	●	DWAE0840X02S090	18.3	33.5	35.5	85.5	84	1.5	9	1
8.4	4	●	DWAE0840X04S090	35.1	57.5	59.5	99.5	98	1.5	9	1
8.5	2	★	DWAE0850X02S090	18.5	33.5	35.5	85.5	84	1.5	9	1
8.5	4	★	DWAE0850X04S090	35.5	57.5	59.5	99.5	98	1.5	9	1
8.6	2	●	DWAE0860X02S090	18.8	34.6	36.6	85.6	84	1.6	9	1
8.6	4	●	DWAE0860X04S090	36.0	61.6	63.6	99.6	98	1.6	9	1
8.7	2	★	DWAE0870X02S090	19.0	34.6	36.6	85.6	84	1.6	9	1
8.7	4	★	DWAE0870X04S090	36.4	61.6	63.6	99.6	98	1.6	9	1

DELME (YEKPARE KARBÜR)

DWAE

NEW

KARBÜR

M
DELME

DC (mm)	Delik Derinliği (L/D)	DP102A	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
8.8	2	●	DWAE0880X02S090	19.2	34.6	36.6	85.6	84	1.6	9	1
8.8	4	●	DWAE0880X04S090	36.8	61.6	63.6	99.6	98	1.6	9	1
8.9	2	★	DWAE0890X02S090	19.4	34.6	36.6	85.6	84	1.6	9	1
8.9	4	★	DWAE0890X04S090	37.2	61.6	63.6	99.6	98	1.6	9	1
9.0	2	●	DWAE0900X02S090	19.6	34.6	36.6	85.6	84	1.6	9	1
9.0	4	●	DWAE0900X04S090	37.6	61.6	63.6	99.6	98	1.6	9	1
9.1	2	★	DWAE0910X02S100	19.9	36.7	38.7	90.7	89	1.7	10	1
9.1	4	★	DWAE0910X04S100	38.1	63.7	65.7	106.7	105	1.7	10	1
9.2	2	●	DWAE0920X02S100	20.1	36.7	38.7	90.7	89	1.7	10	1
9.2	4	●	DWAE0920X04S100	38.5	63.7	65.7	106.7	105	1.7	10	1
9.3	2	★	DWAE0930X02S100	20.3	36.7	38.7	90.7	89	1.7	10	1
9.3	4	★	DWAE0930X04S100	38.9	63.7	65.7	106.7	105	1.7	10	1
9.4	2	●	DWAE0940X02S100	20.5	36.7	38.7	90.7	89	1.7	10	1
9.4	4	●	DWAE0940X04S100	39.3	63.7	65.7	106.7	105	1.7	10	1
9.5	2	★	DWAE0950X02S100	20.7	36.7	38.7	90.7	89	1.7	10	1
9.5	4	★	DWAE0950X04S100	39.7	63.7	65.7	106.7	105	1.7	10	1
9.6	2	●	DWAE0960X02S100	20.9	37.7	39.7	90.7	89	1.7	10	1
9.6	4	●	DWAE0960X04S100	40.1	66.7	68.7	106.7	105	1.7	10	1
9.7	2	★	DWAE0970X02S100	21.2	37.8	39.8	90.8	89	1.8	10	1
9.7	4	★	DWAE0970X04S100	40.6	66.8	68.8	106.8	105	1.8	10	1
9.8	2	●	DWAE0980X02S100	21.4	37.8	39.8	90.8	89	1.8	10	1
9.8	4	●	DWAE0980X04S100	41.0	66.8	68.8	106.8	105	1.8	10	1
9.9	2	★	DWAE0990X02S100	21.6	37.8	39.8	90.8	89	1.8	10	1
9.9	4	★	DWAE0990X04S100	41.4	66.8	68.8	106.8	105	1.8	10	1
10.0	2	●	DWAE1000X02S100	21.8	37.8	39.8	90.8	89	1.8	10	1
10.0	4	●	DWAE1000X04S100	41.8	66.8	68.8	106.8	105	1.8	10	1
10.1	2	●	DWAE1010X02S110	22.0	40.8	42.8	101.8	100	1.8	11	1
10.1	4	●	DWAE1010X04S110	42.2	71.8	73.8	115.8	114	1.8	11	1
10.2	2	●	DWAE1020X02S110	22.3	40.9	42.9	101.9	100	1.9	11	1
10.2	4	●	DWAE1020X04S110	42.7	71.9	73.9	115.9	114	1.9	11	1
10.3	2	●	DWAE1030X02S110	22.5	40.9	42.9	101.9	100	1.9	11	1
10.3	4	●	DWAE1030X04S110	43.1	71.9	73.9	115.9	114	1.9	11	1
10.4	2	●	DWAE1040X02S110	22.7	40.9	42.9	101.9	100	1.9	11	1
10.4	4	●	DWAE1040X04S110	43.5	71.9	73.9	115.9	114	1.9	11	1
10.5	2	●	DWAE1050X02S110	22.9	40.9	42.9	101.9	100	1.9	11	1
10.5	4	●	DWAE1050X04S110	43.9	71.9	73.9	115.9	114	1.9	11	1
10.6	2	●	DWAE1060X02S110	23.1	41.9	43.9	101.9	100	1.9	11	1
10.6	4	●	DWAE1060X04S110	44.3	72.9	74.9	115.9	114	1.9	11	1
10.7	2	●	DWAE1070X02S110	23.3	41.9	43.9	101.9	100	1.9	11	1
10.7	4	●	DWAE1070X04S110	44.7	72.9	74.9	115.9	114	1.9	11	1
10.8	2	●	DWAE1080X02S110	23.6	42.0	44.0	102.0	100	2.0	11	1
10.8	4	●	DWAE1080X04S110	45.2	73.0	75.0	116.0	114	2.0	11	1

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

M024

DC (mm)	Delik Derinliği (L/D)	DP102A	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
10.9	2	●	DWAE1090X02S110	23.8	42.0	44.0	102.0	100	2.0	11	1
10.9	4	●	DWAE1090X04S110	45.6	73.0	75.0	116.0	114	2.0	11	1
11.0	2	●	DWAE1100X02S110	24.0	42.0	44.0	102.0	100	2.0	11	1
11.0	4	●	DWAE1100X04S110	46.0	73.0	75.0	116.0	114	2.0	11	1
11.1	2	●	DWAE1110X02S120	24.2	45.0	47.0	102.0	100	2.0	12	1
11.1	4	●	DWAE1110X04S120	46.4	77.0	79.0	123.0	121	2.0	12	1
11.2	2	●	DWAE1120X02S120	24.4	45.0	47.0	102.0	100	2.0	12	1
11.2	4	●	DWAE1120X04S120	46.8	77.0	79.0	123.0	121	2.0	12	1
11.3	2	●	DWAE1130X02S120	24.7	45.1	47.1	102.1	100	2.1	12	1
11.3	4	●	DWAE1130X04S120	47.3	77.1	79.1	123.1	121	2.1	12	1
11.4	2	●	DWAE1140X02S120	24.9	45.1	47.1	102.1	100	2.1	12	1
11.4	4	●	DWAE1140X04S120	47.7	77.1	79.1	123.1	121	2.1	12	1
11.5	2	●	DWAE1150X02S120	25.1	45.1	47.1	102.1	100	2.1	12	1
11.5	4	●	DWAE1150X04S120	48.1	77.1	79.1	123.1	121	2.1	12	1
11.6	2	●	DWAE1160X02S120	25.3	47.1	49.1	102.1	100	2.1	12	1
11.6	4	●	DWAE1160X04S120	48.5	79.1	81.1	123.1	121	2.1	12	1
11.7	2	●	DWAE1170X02S120	25.5	47.1	49.1	102.1	100	2.1	12	1
11.7	4	●	DWAE1170X04S120	48.9	79.1	81.1	123.1	121	2.1	12	1
11.8	2	●	DWAE1180X02S120	25.7	47.1	49.1	102.1	100	2.1	12	1
11.8	4	●	DWAE1180X04S120	49.3	79.1	81.1	123.1	121	2.1	12	1
11.9	2	●	DWAE1190X02S120	26.0	47.2	49.2	102.2	100	2.2	12	1
11.9	4	●	DWAE1190X04S120	49.8	79.2	81.2	123.2	121	2.2	12	1
12.0	2	●	DWAE1200X02S120	26.2	47.2	49.2	102.2	100	2.2	12	1
12.0	4	●	DWAE1200X04S120	50.2	79.2	81.2	123.2	121	2.2	12	1
12.1	2	●	DWAE1210X02S130	26.4	49.2	51.2	102.2	100	2.2	13	1
12.1	4	●	DWAE1210X04S130	50.6	82.2	84.2	139.2	137	2.2	13	1
12.2	2	●	DWAE1220X02S130	26.6	49.2	51.2	102.2	100	2.2	13	1
12.2	4	●	DWAE1220X04S130	51.0	82.2	84.2	139.2	137	2.2	13	1
12.3	2	●	DWAE1230X02S130	26.8	49.2	51.2	102.2	100	2.2	13	1
12.3	4	●	DWAE1230X04S130	51.4	82.2	84.2	139.2	137	2.2	13	1
12.4	2	●	DWAE1240X02S130	27.1	49.3	51.3	102.3	100	2.3	13	1
12.4	4	●	DWAE1240X04S130	51.9	82.3	84.3	139.3	137	2.3	13	1
12.5	2	●	DWAE1250X02S130	27.3	49.3	51.3	102.3	100	2.3	13	1
12.5	4	●	DWAE1250X04S130	52.3	82.3	84.3	139.3	137	2.3	13	1
12.6	2	●	DWAE1260X02S130	27.5	52.3	54.3	102.3	100	2.3	13	1
12.6	4	●	DWAE1260X04S130	52.7	84.3	86.3	139.3	137	2.3	13	1
12.7	2	●	DWAE1270X02S130	27.7	52.3	54.3	102.3	100	2.3	13	1
12.7	4	●	DWAE1270X04S130	53.1	84.3	86.3	139.3	137	2.3	13	1
12.8	2	●	DWAE1280X02S130	27.9	52.3	54.3	102.3	100	2.3	13	1
12.8	4	●	DWAE1280X04S130	53.5	84.3	86.3	139.3	137	2.3	13	1
12.9	2	●	DWAE1290X02S130	28.1	52.3	54.3	102.3	100	2.3	13	1
12.9	4	●	DWAE1290X04S130	53.9	84.3	86.3	139.3	137	2.3	13	1

DELME (YEKPARE KARBÜR)

DWAE

NEW

KARBÜR

M
DELME

DC (mm)	Delik Derinliği (L/D)	DP102A	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
13.0	2	●	DWAE1300X02S130	28.4	52.4	54.4	102.4	100	2.4	13	1
13.0	4	●	DWAE1300X04S130	54.4	84.4	86.4	139.4	137	2.4	13	1
13.1	2	●	DWAE1310X02S140	28.6	55.4	57.4	102.4	100	2.4	14	1
13.1	4	●	DWAE1310X04S140	54.8	92.4	94.4	149.4	147	2.4	14	1
13.2	2	●	DWAE1320X02S140	28.8	55.4	57.4	102.4	100	2.4	14	1
13.2	4	●	DWAE1320X04S140	55.2	92.4	94.4	149.4	147	2.4	14	1
13.3	2	●	DWAE1330X02S140	29.0	55.4	57.4	102.4	100	2.4	14	1
13.3	4	●	DWAE1330X04S140	55.6	92.4	94.4	149.4	147	2.4	14	1
13.4	2	●	DWAE1340X02S140	29.2	55.4	57.4	102.4	100	2.4	14	1
13.4	4	●	DWAE1340X04S140	56.0	92.4	94.4	149.4	147	2.4	14	1
13.5	2	●	DWAE1350X02S140	29.5	55.5	57.5	102.5	100	2.5	14	1
13.5	4	●	DWAE1350X04S140	56.5	92.5	94.5	149.5	147	2.5	14	1
13.6	2	●	DWAE1360X02S140	29.7	57.5	59.5	102.5	100	2.5	14	1
13.6	4	●	DWAE1360X04S140	56.9	97.5	99.5	149.5	147	2.5	14	1
13.7	2	●	DWAE1370X02S140	29.9	57.5	59.5	102.5	100	2.5	14	1
13.7	4	●	DWAE1370X04S140	57.3	97.5	99.5	149.5	147	2.5	14	1
13.8	2	●	DWAE1380X02S140	30.1	57.5	59.5	102.5	100	2.5	14	1
13.8	4	●	DWAE1380X04S140	57.7	97.5	99.5	149.5	147	2.5	14	1
13.9	2	●	DWAE1390X02S140	30.3	57.5	59.5	102.5	100	2.5	14	1
13.9	4	●	DWAE1390X04S140	58.1	97.5	99.5	149.5	147	2.5	14	1
14.0	2	●	DWAE1400X02S140	30.5	57.5	59.5	102.5	100	2.5	14	1
14.0	4	●	DWAE1400X04S140	58.5	97.5	99.5	149.5	147	2.5	14	1

● : Avrupa standart stok.

M026

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi	P							
	Yumuşak Çelikler ($\leq 180\text{HB}$)				Karbon Çelikleri, Alaşımlı Çelikler ($180-250\text{HB}$)			
	EU S275JR, Ck10, vb.				C45, 42CrMo4, vb.			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)
1.0	30	9500	0.03 (0.02—0.04)	285	30	9500	0.03 (0.02—0.04)	285
1.5	30	6300	0.05 (0.03—0.06)	315	30	6300	0.05 (0.03—0.06)	315
2.0	55	8700	0.06 (0.04—0.08)	520	55	8700	0.06 (0.04—0.08)	520
2.5	55	7000	0.08 (0.05—0.10)	560	55	7000	0.08 (0.05—0.10)	560
3.0	65	6800	0.09 (0.07—0.11)	610	60	6300	0.09 (0.07—0.11)	565
4.0	70	5500	0.12 (0.09—0.14)	660	65	5100	0.12 (0.09—0.14)	610
5.0	70	4400	0.15 (0.11—0.18)	660	65	4100	0.15 (0.11—0.18)	615
6.0	80	4200	0.18 (0.14—0.21)	755	75	3900	0.18 (0.14—0.21)	700
7.0	80	3600	0.21 (0.16—0.25)	755	75	3400	0.21 (0.16—0.25)	715
8.0	85	3300	0.23 (0.18—0.28)	760	80	3100	0.23 (0.18—0.28)	715
10.0	90	2800	0.27 (0.21—0.32)	755	85	2700	0.27 (0.21—0.32)	730
12.0	95	2500	0.28 (0.22—0.34)	700	90	2300	0.28 (0.22—0.34)	645
14.0	95	2100	0.29 (0.23—0.35)	610	90	2000	0.29 (0.23—0.35)	580

Çalışma Malzemesi	P				M			
	Karbon Çelikleri, Alaşımlı Çelikler ($280-350\text{HB}$)				Ostenitli Paslanmaz Çelikler ($\leq 200\text{HB}$) Ferritik ve Martensitik Paslanmaz Çelikler ($>200\text{HB}$)			
	40CrNiMo, vb.				X12CrS13, X30Cr13, vs.			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)
1.0	25	7900	0.02 (0.01—0.03)	160	30	9500	0.02 (0.01—0.03)	190
1.5	25	5300	0.04 (0.02—0.05)	210	30	6300	0.04 (0.02—0.05)	250
2.0	50	7900	0.05 (0.03—0.07)	395	35	5500	0.04 (0.02—0.06)	220
2.5	50	6300	0.07 (0.04—0.09)	440	35	4400	0.06 (0.03—0.08)	265
3.0	55	5800	0.08 (0.06—0.09)	465	40	4200	0.07 (0.04—0.10)	295
4.0	60	4700	0.11 (0.08—0.13)	515	40	3100	0.08 (0.05—0.10)	250
5.0	60	3800	0.13 (0.10—0.16)	495	40	2500	0.10 (0.05—0.15)	250
6.0	70	3700	0.16 (0.12—0.19)	590	40	2100	0.11 (0.06—0.15)	230
7.0	70	3100	0.18 (0.14—0.22)	560	40	1800	0.12 (0.06—0.18)	215
8.0	75	2900	0.21 (0.16—0.25)	610	40	1500	0.13 (0.06—0.20)	195
10.0	80	2500	0.24 (0.20—0.28)	600	40	1200	0.14 (0.08—0.20)	170
12.0	85	2200	0.25 (0.20—0.30)	550	40	1000	0.18 (0.10—0.25)	180
14.0	85	1900	0.25 (0.20—0.30)	475	40	900	0.18 (0.10—0.25)	160

Not 1) Yukarıdaki kesme koşulları suda çözünür soğutma sıvısı olduğunda kullanılmalı. Paslanmaz çelikler için, suda çözünmeyen soğutma sıvısı önerilir.
Not 2) Suda çözünmeyen bir soğutma sıvısı kullanırken, yeterli yağlama sağlamak için kesme hızını % 20 düşürün.
Not 3) Talaşların durumunu kontrol edin, uygun değilse gagalama işlemini uygulayın. * Referans gagalama boyu: 0,2 - 1,0 DC arası
Not 4) Kesme koşullarını takım tezgahı ve iş parçası bağlama sağlamlığına ve işleme geometrisine göre ayarlayın, vb.
Not 5) Talaş kanalı uzunluğunu (LU) aşan işleme derinlikleri önerilmemektedir.
Not 6) Matkabı salgısı 0,03 mm için de kalacak şekilde bağlayın.
Not 7) Matkabı talaş kanalı bölümünden bağlamayın.

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi	K							
	Gri Dökme Demir ($\leq 350\text{MPa}$)				Sfero Dökme Demir ($\leq 450\text{MPa}$)			
	GG30,vb.				EN-GJS-450-10,vs.			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)
1.0	30	9500	0.03 (0.02—0.04)	285	25	7900	0.02 (0.01—0.03)	160
1.5	30	6300	0.05 (0.03—0.06)	315	25	5300	0.04 (0.02—0.05)	210
2.0	55	8700	0.06 (0.04—0.08)	520	50	7900	0.05 (0.03—0.07)	395
2.5	55	7000	0.08 (0.05—0.10)	560	50	6300	0.07 (0.04—0.09)	440
3.0	65	6800	0.09 (0.07—0.11)	610	55	5800	0.09 (0.05—0.12)	520
4.0	70	5500	0.12 (0.09—0.14)	660	60	4700	0.12 (0.07—0.17)	565
5.0	70	4400	0.15 (0.11—0.18)	660	60	3800	0.14 (0.08—0.20)	530
6.0	80	4200	0.18 (0.14—0.21)	755	70	3700	0.15 (0.10—0.20)	555
7.0	80	3600	0.21 (0.16—0.25)	755	70	3100	0.18 (0.12—0.23)	560
8.0	85	3300	0.23 (0.18—0.28)	760	75	2900	0.20 (0.15—0.25)	580
10.0	90	2800	0.27 (0.21—0.32)	755	80	2500	0.23 (0.18—0.28)	575
12.0	95	2500	0.28 (0.22—0.34)	700	85	2200	0.25 (0.20—0.30)	550
14.0	95	2100	0.29 (0.23—0.35)	610	85	1900	0.25 (0.20—0.30)	475

Not 1) Yukarıdaki kesme koşulları suda çözünür soğutma sıvısı olduğunda kullanılmalı. Paslanmaz çelikler için, suda çözünmeyen soğutma sıvısı önerilir.
Not 2) Suda çözünemeyen bir soğutma sıvısı kullanırken, yeterli yağlama sağlamak için kesme hızını % 20 düşürün.
Not 3) Talaşların durumunu kontrol edin, uygun değilse gagalama işlemini uygulayın. * Referans gagalama boyu: 0,2 - 1,0 DC arası
Not 4) Kesme koşullarını takım tezgahı ve iş parçası bağlama sağlamlığına ve işleme geometrisine göre ayarlayın,vb.
Not 5) Talaş kanalı uzunluğunu (LU) aşan işleme derinlikleri önerilmemektedir.
Not 6) Matkabı salgısı 0,03 mm için de kalacak şekilde bağlayın.
Not 7) Matkabı talaş kanalı bölümünden bağlamayın.

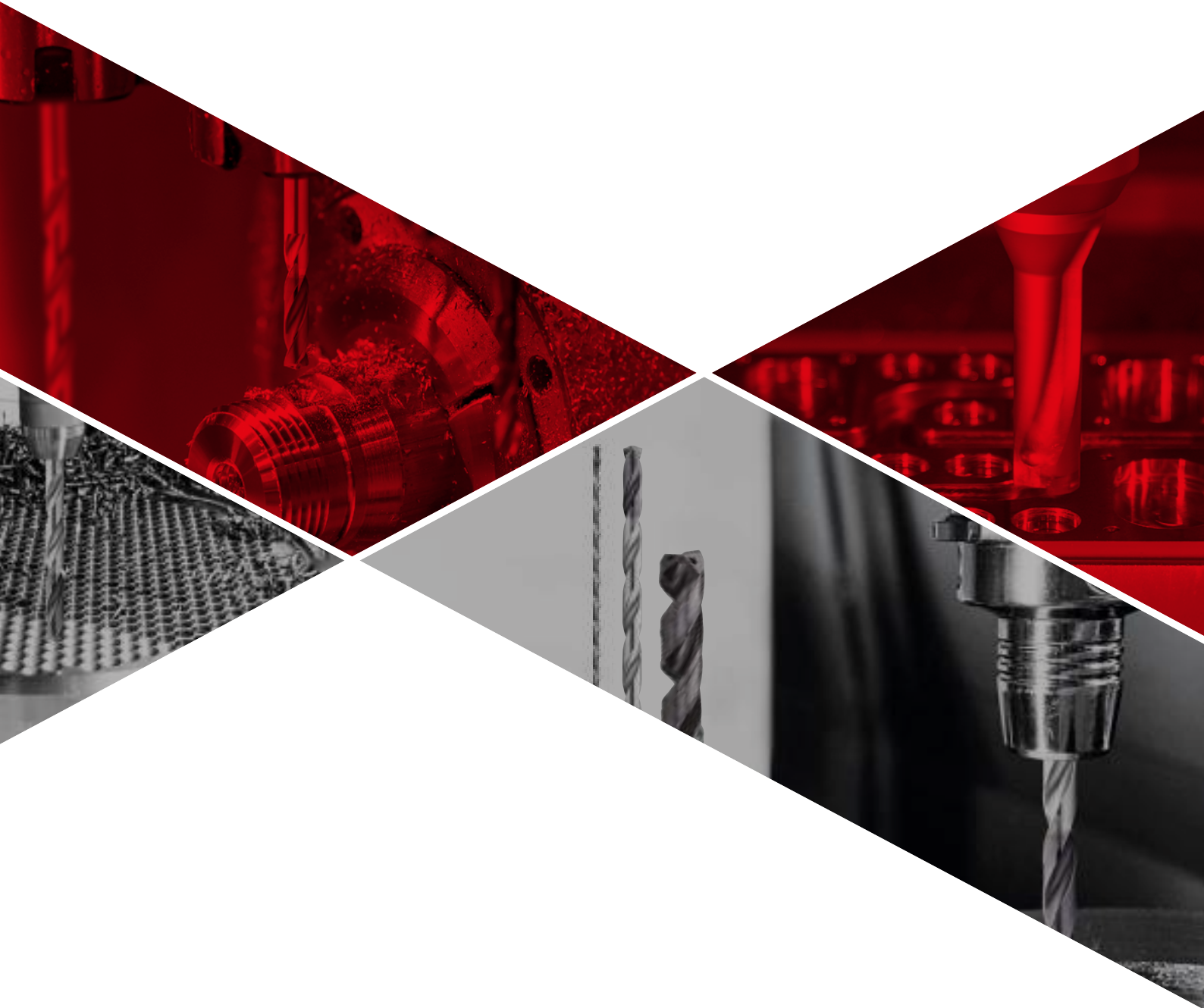
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MATKAP UCU SERİLERİ

M

DELME



DIAEDGE

M
DELME

MÜŞTERİLERİMİZLE BİRLİKTE

DAHA İYİ BİR GELECEK YARATMAK

En son teknolojileri bir araya getiren ve onları kullanan herkesi heyecanlandıran yeni takım markamız DIAEDGE'in duyurusu.

Hedefimiz, takımlarımızla değer sunmanın yanı sıra müşterilerimizle birlikte düşünmek, ilham almak ve yeni zorlukları üstlenmeye devam etmek.



MITSUBISHI MATERIALS

DIA EDGE



 MITSUBISHI MATERIALS

DELME TAKIMLARI

M

DELME



DELME (YEKPARE KARBÜR)

MINI-MVS

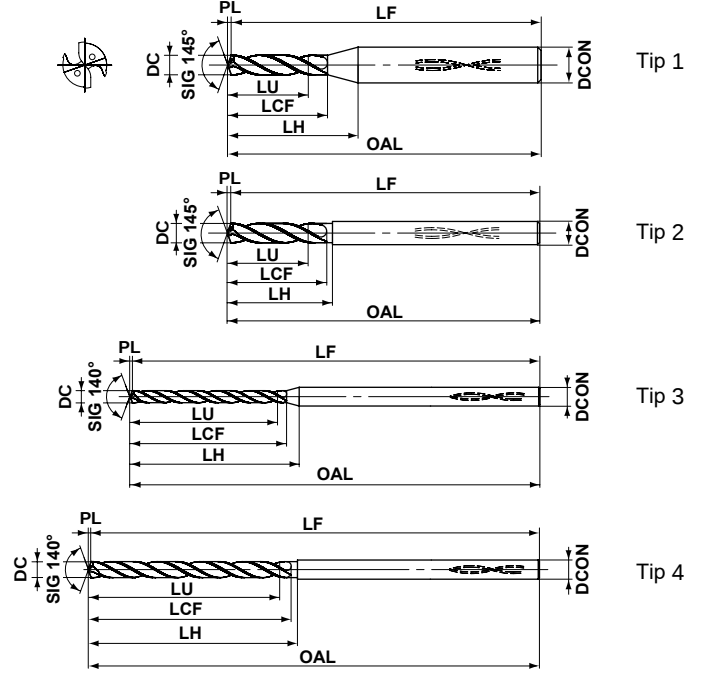
- Düz kesme kenarı sayesinde; talaş tahliyesi ve kesme kenarı mukavemeti arasında iyi bir denge kurar.
- Çift zırlıklı yapı, küçük çaplı delme işlemlerinde optimum denge ve hassasiyet sağlar.



P M K N S H

İçten Soğutma

M
DELME



Sipariş Numarası	1 ≤ DC ≤ 2.9
MVS-X02- (pilot matkap)	+0.014 0
Diğerleri	0 -0.014
Sipariş Numarası	DCON
MVS	0 -0.006

DC (mm)	Delik Derinliği (L/D)	DP1020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
1.0	*2	●	MVS0100X02S030	2.2	5.2	8.9	55.2	55	0.2	3	1
	7	●	MVS0100X07S030	7.2	10.2	14.2	55.2	55	0.2	3	3
	12	●	MVS0100X12S030	12.2	15.2	19.2	55.2	55	0.2	3	3
	20	●	MVS0100X20S030	20.2	24.2	28.2	60.2	60	0.2	3	3
	25	●	MVS0100X25S030	25.2	28.2	32.2	66.2	66	0.2	3	3
	30	●	MVS0100X30S030	30.2	33.2	37.2	72.2	72	0.2	3	3
1.1	*2	●	MVS0110X02S030	2.4	5.6	9.1	55.2	55	0.2	3	1
	7	●	MVS0110X07S030	7.9	11.2	15.2	55.2	55	0.2	3	3
	12	●	MVS0110X12S030	13.4	17.2	21.2	55.2	55	0.2	3	3
	20	●	MVS0110X20S030	22.2	25.2	29.2	60.2	60	0.2	3	3
	25	●	MVS0110X25S030	27.7	31.2	34.2	66.2	66	0.2	3	3
	30	●	MVS0110X30S030	33.2	36.2	40.2	72.2	72	0.2	3	3
1.2	*2	●	MVS0120X02S030	2.6	6.2	9.6	55.2	55	0.2	3	1
	7	●	MVS0120X07S030	8.6	12.2	15.2	55.2	55	0.2	3	3
	12	●	MVS0120X12S030	14.6	18.2	21.2	55.2	55	0.2	3	3
	20	●	MVS0120X20S030	24.2	28.2	31.2	60.2	60	0.2	3	3
	25	●	MVS0120X25S030	30.2	34.2	37.2	66.2	66	0.2	3	3
	30	●	MVS0120X30S030	36.2	40.2	43.2	72.2	72	0.2	3	3
1.3	*2	●	MVS0130X02S030	2.8	6.6	9.8	55.2	55	0.2	3	1
	7	●	MVS0130X07S030	9.3	13.2	16.2	55.2	55	0.2	3	3
	12	●	MVS0130X12S030	15.8	20.2	23.2	55.2	55	0.2	3	3
	20	●	MVS0130X20S030	26.2	30.2	33.2	68.2	68	0.2	3	3
	25	●	MVS0130X25S030	32.7	36.2	40.2	74.2	74	0.2	3	3
	30	●	MVS0130X30S030	39.2	43.2	46.2	82.2	82	0.2	3	3

DC (mm)	Delik Derinliği (L/D)	DP1020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
1.4	*2	●	MVS0140X02S030	3.0	7.2	10.2	55.2	55	0.2	3	1
	7	●	MVS0140X07S030	10.1	14.3	17.3	55.3	55	0.3	3	3
	12	●	MVS0140X12S030	17.1	21.3	24.3	55.3	55	0.3	3	3
	20	●	MVS0140X20S030	28.3	32.3	35.3	68.3	68	0.3	3	3
	25	●	MVS0140X25S030	35.3	39.3	42.3	74.3	74	0.3	3	3
	30	●	MVS0140X30S030	42.3	46.3	49.3	82.3	82	0.3	3	3
1.5	*2	●	MVS0150X02S030	3.2	7.6	10.4	55.2	55	0.2	3	1
	7	●	MVS0150X07S030	10.8	15.3	18.3	55.3	55	0.3	3	3
	12	●	MVS0150X12S030	18.3	23.3	26.3	55.3	55	0.3	3	3
	20	●	MVS0150X20S030	30.3	35.3	37.3	68.3	68	0.3	3	3
	25	●	MVS0150X25S030	37.8	42.3	45.3	74.3	74	0.3	3	3
	30	●	MVS0150X30S030	45.3	50.3	52.3	82.3	82	0.3	3	3
1.6	*2	●	MVS0160X02S030	3.5	8.3	10.9	68.3	68	0.3	3	1
	7	●	MVS0160X07S030	11.5	16.3	19.3	68.3	68	0.3	3	3
	12	●	MVS0160X12S030	19.5	24.3	27.3	68.3	68	0.3	3	3
	20	●	MVS0160X20S030	32.3	37.3	39.3	78.3	78	0.3	3	3
	25	●	MVS0160X25S030	40.3	45.3	47.3	86.3	86	0.3	3	3
	30	●	MVS0160X30S030	48.3	53.3	55.3	95.3	95	0.3	3	3
1.7	*2	●	MVS0170X02S030	3.7	8.7	11.1	68.3	68	0.3	3	1
	7	●	MVS0170X07S030	12.2	17.3	19.3	68.3	68	0.3	3	3
	12	●	MVS0170X12S030	20.7	26.3	28.3	68.3	68	0.3	3	3
	20	●	MVS0170X20S030	34.3	39.3	42.3	78.3	78	0.3	3	3
	25	●	MVS0170X25S030	42.8	48.3	50.3	86.3	86	0.3	3	3
	30	●	MVS0170X30S030	51.3	56.3	59.3	95.3	95	0.3	3	3

*2=Pilot delik matkabı. Tolerans değeri +0,014'tür ve delik derinliği DCx2'dir.

● : Avrupa standart stok.

M036

DC	Delik Derinliği (mm)	DP1020 (L/D)	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
1.8	*2	●	MVS0180X02S030	3.9	9.3	11.5	68.3	68	0.3	3	1
	7	●	MVS0180X07S030	12.9	18.3	20.3	68.3	68	0.3	3	3
	12	●	MVS0180X12S030	21.9	27.3	29.3	68.3	68	0.3	3	3
	20	●	MVS0180X20S030	36.3	41.3	44.3	84.3	84	0.3	3	3
	25	●	MVS0180X25S030	45.3	50.3	53.3	94.3	94	0.3	3	3
	30	●	MVS0180X30S030	54.3	59.3	62.3	102.3	102	0.3	3	3
1.9	*2	●	MVS0190X02S030	4.1	9.7	11.8	68.3	68	0.3	3	1
	7	●	MVS0190X07S030	13.6	19.3	21.3	68.3	68	0.3	3	3
	12	●	MVS0190X12S030	23.1	29.3	31.3	68.3	68	0.3	3	3
	20	●	MVS0190X20S030	38.3	44.3	46.3	84.3	84	0.3	3	3
	25	●	MVS0190X25S030	47.8	53.3	55.3	94.3	94	0.3	3	3
	30	●	MVS0190X30S030	57.3	63.3	65.3	102.3	102	0.3	3	3
2.0	*2	●	MVS0200X02S030	4.3	10.3	12.2	68.3	68	0.3	3	1
	7	●	MVS0200X07S030	14.4	20.4	22.4	68.4	68	0.4	3	3
	12	●	MVS0200X12S030	24.4	30.4	32.4	68.4	68	0.4	3	3
	20	●	MVS0200X20S030	40.4	46.4	48.4	84.4	84	0.4	3	3
	25	●	MVS0200X25S030	50.4	56.4	58.4	94.4	94	0.4	3	3
	30	●	MVS0200X30S030	60.4	66.4	68.4	102.4	102	0.4	3	3
2.1	*2	●	MVS0210X02S030	4.5	10.7	12.4	74.3	74	0.3	3	1
	7	●	MVS0210X07S030	15.1	21.4	23.4	74.4	74	0.4	3	3
	12	●	MVS0210X12S030	25.6	32.4	34.4	74.4	74	0.4	3	3
	20	●	MVS0210X20S030	42.4	48.4	50.4	94.4	94	0.4	3	3
	25	●	MVS0210X25S030	52.9	59.4	60.4	107.4	107	0.4	3	3
	30	●	MVS0210X30S030	63.4	69.4	71.4	118.4	118	0.4	3	3
2.2	*2	●	MVS0220X02S030	4.7	11.3	12.8	74.3	74	0.3	3	1
	7	●	MVS0220X07S030	15.8	22.4	23.4	74.4	74	0.4	3	3
	12	●	MVS0220X12S030	26.8	33.4	34.4	74.4	74	0.4	3	3
	20	●	MVS0220X20S030	44.4	51.4	52.4	94.4	94	0.4	3	3
	25	●	MVS0220X25S030	55.4	62.4	63.4	107.4	107	0.4	3	3
	30	●	MVS0220X30S030	66.4	73.4	74.4	118.4	118	0.4	3	3
2.3	*2	●	MVS0230X02S030	5.0	11.8	13.1	74.4	74	0.4	3	1
	7	●	MVS0230X07S030	16.5	23.4	24.4	74.4	74	0.4	3	3
	12	●	MVS0230X12S030	28.0	35.4	36.4	74.4	74	0.4	3	3
	20	●	MVS0230X20S030	46.4	53.4	54.4	94.4	94	0.4	3	3
	25	●	MVS0230X25S030	57.9	64.4	66.4	107.4	107	0.4	3	3
	30	●	MVS0230X30S030	69.4	76.4	77.4	118.4	118	0.4	3	3
2.4	*2	●	MVS0240X02S030	5.2	12.4	13.5	74.4	74	0.4	3	1
	7	●	MVS0240X07S030	17.2	24.4	25.4	74.4	74	0.4	3	3
	12	●	MVS0240X12S030	29.2	36.4	37.4	74.4	74	0.4	3	3
	20	●	MVS0240X20S030	48.4	55.4	56.4	94.4	94	0.4	3	3
	25	●	MVS0240X25S030	60.4	67.4	68.4	107.4	107	0.4	3	3
	30	●	MVS0240X30S030	72.4	79.4	80.4	118.4	118	0.4	3	3
2.5	*2	●	MVS0250X02S030	5.4	12.8	13.7	74.4	74	0.4	3	1
	7	●	MVS0250X07S030	18.0	25.5	26.5	74.5	74	0.5	3	3
	12	●	MVS0250X12S030	30.5	38.5	39.5	74.5	74	0.5	3	3
	20	●	MVS0250X20S030	50.5	58.5	59.5	94.5	94	0.5	3	3
	25	●	MVS0250X25S030	63.0	70.5	71.5	107.5	107	0.5	3	3
	30	●	MVS0250X30S030	75.5	83.5	84.5	118.5	118	0.5	3	3

DC	Delik Derinliği (mm)	DP1020 (L/D)	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
2.6	*2	●	MVS0260X02S030	5.6	13.4	13.4	81.4	81	0.4	3	2
	7	●	MVS0260X07S030	18.7	26.5	26.5	81.5	81	0.5	3	4
	12	●	MVS0260X12S030	31.7	39.5	39.5	81.5	81	0.5	3	4
	20	●	MVS0260X20S030	52.5	60.5	60.5	103.5	103	0.5	3	4
	25	●	MVS0260X25S030	65.5	73.5	73.5	117.5	117	0.5	3	4
	30	●	MVS0260X30S030	78.5	86.5	86.5	132.5	132	0.5	3	4
2.7	*2	●	MVS0270X02S030	5.8	13.8	13.8	81.4	81	0.4	3	2
	7	●	MVS0270X07S030	19.4	27.5	27.5	81.5	81	0.5	3	4
	12	●	MVS0270X12S030	32.9	41.5	41.5	81.5	81	0.5	3	4
	20	●	MVS0270X20S030	54.5	62.5	62.5	103.5	103	0.5	3	4
	25	●	MVS0270X25S030	68.0	76.5	76.5	117.5	117	0.5	3	4
	30	●	MVS0270X30S030	81.5	89.5	89.5	132.5	132	0.5	3	4
2.8	*2	●	MVS0280X02S030	6.0	14.4	14.4	81.4	81	0.4	3	2
	7	●	MVS0280X07S030	20.1	28.5	28.5	81.5	81	0.5	3	4
	12	●	MVS0280X12S030	34.1	42.5	42.5	81.5	81	0.5	3	4
	20	●	MVS0280X20S030	56.5	64.5	64.5	103.5	103	0.5	3	4
	25	●	MVS0280X25S030	70.5	78.5	78.5	117.5	117	0.5	3	4
	30	●	MVS0280X30S030	84.5	92.5	92.5	132.5	132	0.5	3	4
2.9	*2	●	MVS0290X02S030	6.3	14.9	14.9	81.5	81	0.5	3	2
	7	●	MVS0290X07S030	20.8	29.5	29.5	81.5	81	0.5	3	4
	12	●	MVS0290X12S030	35.3	44.5	44.5	81.5	81	0.5	3	4
	20	●	MVS0290X20S030	58.5	67.5	67.5	103.5	103	0.5	3	4
	25	●	MVS0290X25S030	73.0	81.5	81.5	117.5	117	0.5	3	4
	30	●	MVS0290X30S030	87.5	96.5	96.5	132.5	132	0.5	3	4

*2=Pilot delik matkabı. Tolerans değeri +0,014'tür ve delik derinliği DCx2'dir.

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi		P					
		Yumuşak Çelik ($\leq 180\text{HB}$)		Karbon Çelik, Alaşımlı Çelik (180—280HB)		Karbon Çelik, Alaşımlı Çelik (280—350HB)	
Matkap Ucu Çapı DC (mm)	L/D	Devir (dak ⁻¹)	İlerleme oranı (Min. — Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min. — Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min. — Maks.) (mm/dev)
1.0	2*,7DC	15900	0.04 (0.02—0.05)	15900	0.04 (0.02—0.05)	12700	0.04 (0.02—0.05)
	$\geq 12\text{DC}$	15900	0.02 (0.01—0.03)	12700	0.02 (0.01—0.03)	9500	0.02 (0.01—0.03)
1.5	2*,7DC	10600	0.05 (0.03—0.08)	10600	0.05 (0.03—0.08)	8400	0.05 (0.03—0.08)
	$\geq 12\text{DC}$	10600	0.05 (0.02—0.08)	8400	0.05 (0.03—0.08)	6300	0.05 (0.02—0.08)
2.0	2*,7DC	7900	0.07 (0.04—0.10)	7900	0.07 (0.04—0.10)	6300	0.07 (0.04—0.10)
	$\geq 12\text{DC}$	7900	0.07 (0.04—0.10)	7900	0.07 (0.04—0.10)	7900	0.07 (0.04—0.10)
2.5	2*,7DC	7600	0.09 (0.05—0.13)	7600	0.09 (0.05—0.13)	6300	0.09 (0.05—0.13)
	$\geq 12\text{DC}$	7600	0.09 (0.06—0.13)	6300	0.09 (0.06—0.13)	6300	0.08 (0.05—0.13)

Çalışma Malzemesi		M		K			
		Ostenitli Paslanmaz Çelik ($\leq 200\text{HB}$)		Gri Dökme Demir ($\leq 350\text{ MPa}$)		Duktıl Dökme Demir ($\leq 450\text{ MPa}$)	
Matkap Ucu Çapı DC (mm)	L/D	Devir (dak ⁻¹)	İlerleme oranı (Min. — Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min. — Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min. — Maks.) (mm/dev)
1.0	2*,7DC	9500	0.03 (0.02—0.05)	15900	0.04 (0.02—0.05)	12700	0.04 (0.02—0.05)
	$\geq 12\text{DC}$	9500	0.02 (0.01—0.03)	12700	0.02 (0.01—0.03)	9500	0.02 (0.01—0.03)
1.5	2*,7DC	6300	0.05 (0.03—0.07)	10600	0.05 (0.03—0.08)	8400	0.05 (0.03—0.08)
	$\geq 12\text{DC}$	6300	0.05 (0.02—0.08)	8400	0.05 (0.03—0.08)	6300	0.05 (0.02—0.08)
2.0	2*,7DC	4700	0.06 (0.04—0.08)	7900	0.07 (0.04—0.10)	6300	0.07 (0.04—0.10)
	$\geq 12\text{DC}$	4700	0.07 (0.04—0.10)	7900	0.07 (0.04—0.10)	7900	0.07 (0.04—0.10)
2.5	2*,7DC	5000	0.08 (0.05—0.10)	7600	0.09 (0.05—0.13)	6300	0.09 (0.05—0.13)
	$\geq 12\text{DC}$	3800	0.08 (0.05—0.12)	6300	0.09 (0.06—0.13)	6300	0.08 (0.05—0.12)

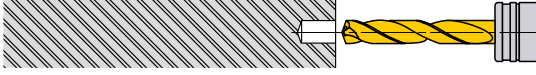
Çalışma Malzemesi		N		S	
		Alüminyum Alaşım (Si<%5)		Isıya Dirençli Alaşım	
Matkap Ucu Çapı DC (mm)	L/D	Devir (dak ⁻¹)	İlerleme oranı (Min. — Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min. — Maks.) (mm/dev)
1.0	2*,7DC	19000	0.05 (0.03—0.08)	3100	0.02 (0.01—0.03)
	$\geq 12\text{DC}$	15900	0.05 (0.03—0.08)	3100	0.02 (0.01—0.03)
1.5	2*,7DC	16900	0.07 (0.05—0.12)	2100	0.03 (0.02—0.04)
	$\geq 12\text{DC}$	14800	0.08 (0.05—0.12)	2100	0.03 (0.02—0.04)
2.0	2*,7DC	14300	0.10 (0.06—0.15)	2300	0.04 (0.03—0.05)
	$\geq 12\text{DC}$	12700	0.11 (0.06—0.15)	2300	0.04 (0.03—0.05)
2.5	2*,7DC	12700	0.13 (0.08—0.20)	1900	0.05 (0.04—0.06)
	$\geq 12\text{DC}$	11400	0.14 (0.08—0.20)	1900	0.05 (0.04—0.06)

*2=Pilot delik delme. Delme boyu DCx2'dir.

■ MINI-MVS UZUN TIP MATKAP UCU İÇİN ÇALIŞMA KILAVUZU (L/D ≥ 10)

DÜZ YÜZEY DELME ● Bir kör delik delme

■ 1. Bir pilot deliği delme



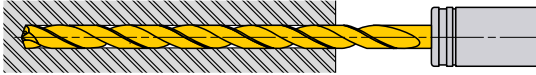
- ① Süper uzun tipten daha büyük (düz) uç açılı bir matkap ucu kullanın. Olası en kısa helis kanallığı kullanın.
- ② Yataklama için yüksek hassasiyetli deliğin delindiğinden emin olun.
- ③ Matkap ucu derinliği : Yaklaşık 1DC veya daha derin.
(Pilot Delik Derinliğini süper uzun tip matkap ucu uzunluğuna göre ayarlayın.)

■ 2. Uzun tip matkap ucu ile kesmeye başlama



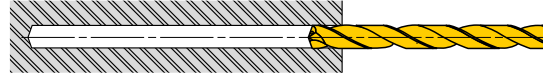
- ① Pilot deliğe düşük devirde nüfuz edin. (Devir 1000dak⁻¹, ilerleme oranı 0.2—0.3mm/dev)
- ② Uzun tip matkap ucunu pilot delik tabanına 0.5—1mm kala durdurun.

■ 3. Derin deliğin delinmesi



- ① Önerilen hızda ve ilerleme oranıyla gagalama yapmadan (düz ilerleme) çevrimi ile kesmeye başlayın.

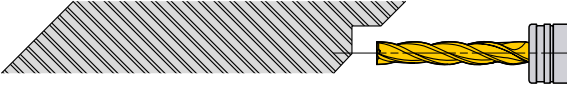
■ 4. Matkap ucunu geriye çekme



- ① Deldikten sonra, kesme devrini delik ucundan yaklaşık 0.5—1mm daha gerisinde düşürün (Devir yaklaşık 1000dak⁻¹)
- ② 3000mm/dak ilerleme hızıyla matkap ucunu pilot Delik Derinliği başlangıç noktasına geri çekin.
- ③ Son olarak, 20—30m/dak kesme hızında ve 0.2—0.3mm/dev ilerleme oranında deliği temizleyin.

DARBELİ DELME ● Üzerinde düzensiz veya açılı yüzler bulunan parçaları delme ve boşa çıkma

■ 1. Spot yüzeyi açma



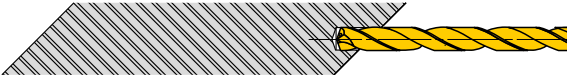
- ① Bir parmak frezeyi veya spot yüzeyi açma özellikli spot matkap ucunu kullanarak düz veya düzensiz bir yüzeyi işleyin. İşlenecek derin delik çapı ile aynı çapta bir düz yüzey yapın.

■ 2. Bir pilot deliği delme



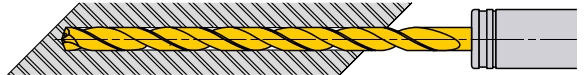
- ① Süper uzun tipten daha büyük (düz) bir uç açılı bir matkap ucu kullanın. Olası en kısa helis kanallığı kullanın.
- ② Yataklama için yüksek hassasiyetli deliğin delindiğinden emin olun.
- ③ Matkap ucu derinliği : Yaklaşık 1DC veya daha uzun.
(Pilot Delik Derinliğini süper uzun tip matkap ucu uzunluğuna göre ayarlayın.)

■ 3. Uzun tip matkap ucu ile kesmeye başlama



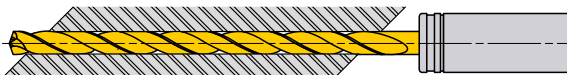
- ① Yataklama deliğine düşük devirde nüfuz edin. (Devir 1000dak⁻¹, ilerleme oranı 0.2—0.3mm/dev)
- ② Uzun tip matkap ucunu pilot delik tabanına 0.5—1mm kala durdurun.

■ 4. Derin deliğin delinmesi



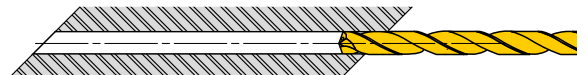
- ① Önerilen hızda ve ilerleme oranıyla gagalama yapmadan (düz ilerle) çevrimi ile kesmeye başlayın.

■ 5. Boşa çıkma



- ① Boşa çıkma işlemi sırasında, kesme kenarı hasar görebilir.
- ② Yüzeye yakın ilerleme oranını düşürün.

■ 6. Matkap ucunu geriye çekme



- ① Son olarak 20—30m/dak kesme hızında ve 0.2—0.3mm/dev ilerleme oranında deliği temizleyin.
- ② 3000mm/dak ilerleme hızında matkap ucunu pilot Delik Derinliği başlangıç noktasına geri çekin.

DELME (YEKPARE KARBÜR)

MINI-MWS

- Stabil derin delik delme için boydan boya soğutma delikli mikro delme uçları.
- Karbon çeliklerinden kesmesi zor malzemelere kadar yüksek doğrulukta ve etkili delme için.



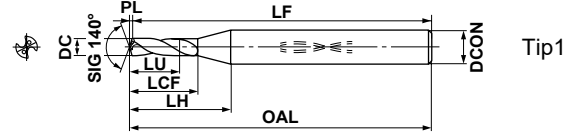
P	M	K	N	S	H
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İçten Soğutma

■ SB Tipi
(Pilot delikler için)



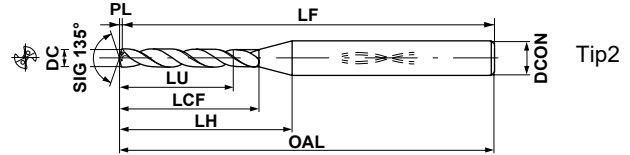
$0.5 \leq DC < 1$
$+0.009$
0
0
-0.006



■ LB/XB Tipi



$0.5 \leq DC < 1$
0
-0.009
0
-0.006



● MWS matkap uçları ısıtmslı tutucular ile kullanıma uygundur.

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
0.50	1	●	MWS0050SB	0.6	2.6	7.3	47.1	47	0.09	3	1
	5	★	MWS0050LB	2.6	8.1	13.1	47.1	47	0.10	3	2
	12	★	MWS0050XB	6.1	16.1	21.1	47.1	47	0.10	3	2
0.51	1	★	MWS0051SB	0.6	2.7	7.3	47.1	47	0.09	3	1
	5	★	MWS0051LB	2.7	8.1	13.1	47.1	47	0.11	3	2
	12	★	MWS0051XB	6.2	16.1	21.1	47.1	47	0.11	3	2
0.52	1	★	MWS0052SB	0.6	2.7	7.3	47.1	47	0.09	3	1
	5	★	MWS0052LB	2.7	8.1	13.1	47.1	47	0.11	3	2
	12	★	MWS0052XB	6.4	16.1	21.1	47.1	47	0.11	3	2
0.53	1	★	MWS0053SB	0.6	2.7	7.3	47.1	47	0.10	3	1
	5	★	MWS0053LB	2.8	8.1	13.1	47.1	47	0.11	3	2
	12	★	MWS0053XB	6.5	16.1	21.1	47.1	47	0.11	3	2
0.54	1	★	MWS0054SB	0.6	2.7	7.3	47.1	47	0.10	3	1
	5	★	MWS0054LB	2.8	8.1	13.1	47.1	47	0.11	3	2
	12	★	MWS0054XB	6.6	16.1	21.1	47.1	47	0.11	3	2
0.55	1	●	MWS0055SB	0.7	2.7	7.3	47.1	47	0.10	3	1
	5	★	MWS0055LB	2.9	8.1	13.1	47.1	47	0.11	3	2
	12	★	MWS0055XB	6.7	16.1	21.1	47.1	47	0.11	3	2
0.56	1	★	MWS0056SB	0.7	3.0	7.6	47.1	47	0.10	3	1
	5	★	MWS0056LB	2.9	8.1	13.1	47.1	47	0.12	3	2
	12	★	MWS0056XB	6.8	16.1	21.1	47.1	47	0.12	3	2
0.57	1	★	MWS0057SB	0.7	3.0	7.5	47.1	47	0.10	3	1
	5	★	MWS0057LB	3.0	8.1	13.1	47.1	47	0.12	3	2
	12	★	MWS0057XB	7.0	16.1	21.1	47.1	47	0.12	3	2

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
0.58	1	★	MWS0058SB	0.7	3.0	7.5	47.1	47	0.11	3	1
	5	★	MWS0058LB	3.0	8.1	13.1	47.1	47	0.12	3	2
	12	★	MWS0058XB	7.1	16.1	21.1	47.1	47	0.12	3	2
0.59	1	★	MWS0059SB	0.7	3.0	7.5	47.1	47	0.11	3	1
	5	★	MWS0059LB	3.1	8.1	12.1	47.1	47	0.12	3	2
	12	★	MWS0059XB	7.2	16.1	20.1	47.1	47	0.12	3	2
0.60	1	●	MWS0060SB	0.7	3.0	7.5	47.1	47	0.11	3	1
	5	★	MWS0060LB	3.1	8.1	12.1	47.1	47	0.12	3	2
	12	★	MWS0060XB	7.3	16.1	20.1	47.1	47	0.12	3	2
0.61	1	★	MWS0061SB	0.7	3.2	7.7	47.1	47	0.11	3	1
	5	★	MWS0061LB	3.2	8.1	12.1	47.1	47	0.13	3	2
	12	★	MWS0061XB	7.5	16.1	20.1	47.1	47	0.13	3	2
0.62	1	★	MWS0062SB	0.7	3.2	7.6	47.1	47	0.11	3	1
	5	★	MWS0062LB	3.2	8.1	12.1	47.1	47	0.13	3	2
	12	★	MWS0062XB	7.6	16.1	20.1	47.1	47	0.13	3	2
0.63	1	★	MWS0063SB	0.7	3.2	7.6	47.1	47	0.11	3	1
	5	★	MWS0063LB	3.3	8.1	12.1	47.1	47	0.13	3	2
	12	★	MWS0063XB	7.7	16.1	20.1	47.1	47	0.13	3	2
0.64	1	★	MWS0064SB	0.8	3.2	7.6	47.1	47	0.12	3	1
	5	★	MWS0064LB	3.3	8.1	12.1	47.1	47	0.13	3	2
	12	★	MWS0064XB	7.8	16.1	20.1	47.1	47	0.13	3	2
0.65	1	●	MWS0065SB	0.8	3.2	7.6	47.1	47	0.12	3	1
	5	★	MWS0065LB	3.4	8.1	12.1	47.1	47	0.13	3	2
	12	★	MWS0065XB	7.9	16.1	20.1	47.1	47	0.13	3	2

Not 1) Lütfen bu katalogta olmayan herhangi bir geometri için bizimle iletişim kurun (ör. farklı çap ve uzunluk).

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

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
0.66	1	★	MWS0066SB	0.8	3.5	7.9	47.1	47	0.12	3	1
	5	★	MWS0066LB	3.4	8.1	12.1	47.1	47	0.14	3	2
	12	★	MWS0066XB	8.1	16.1	20.1	47.1	47	0.14	3	2
0.67	1	★	MWS0067SB	0.8	3.5	7.8	47.1	47	0.12	3	1
	5	★	MWS0067LB	3.5	8.1	12.1	47.1	47	0.14	3	2
	12	★	MWS0067XB	8.2	16.1	20.1	47.1	47	0.14	3	2
0.68	1	★	MWS0068SB	0.8	3.5	7.8	47.1	47	0.12	3	1
	5	★	MWS0068LB	3.5	8.1	12.1	47.1	47	0.14	3	2
	12	★	MWS0068XB	8.3	16.1	20.1	47.1	47	0.14	3	2
0.69	1	★	MWS0069SB	0.8	3.5	7.8	47.1	47	0.13	3	1
	5	★	MWS0069LB	3.6	8.1	12.1	47.1	47	0.14	3	2
	12	★	MWS0069XB	8.4	16.1	20.1	47.1	47	0.14	3	2
0.70	1	●	MWS0070SB	0.8	3.5	7.8	47.1	47	0.13	3	1
	5	★	MWS0070LB	3.6	8.1	12.1	47.1	47	0.14	3	2
	12	★	MWS0070XB	8.5	16.1	20.1	47.1	47	0.14	3	2
0.71	1	★	MWS0071SB	0.8	3.7	8.0	50.1	50	0.13	3	1
	5	★	MWS0071LB	3.7	10.1	14.1	50.1	50	0.15	3	2
	12	★	MWS0071XB	8.7	20.1	24.1	50.1	50	0.15	3	2
0.72	1	★	MWS0072SB	0.9	3.7	8.0	50.1	50	0.13	3	1
	5	★	MWS0072LB	3.8	10.1	14.1	50.1	50	0.15	3	2
	12	★	MWS0072XB	8.8	20.1	24.1	50.1	50	0.15	3	2
0.73	1	★	MWS0073SB	0.9	3.7	7.9	50.1	50	0.13	3	1
	5	★	MWS0073LB	3.8	10.1	14.1	50.1	50	0.15	3	2
	12	★	MWS0073XB	8.9	20.1	24.1	50.1	50	0.15	3	2
0.74	1	★	MWS0074SB	0.9	3.7	7.9	50.1	50	0.13	3	1
	5	★	MWS0074LB	3.9	10.1	14.1	50.1	50	0.15	3	2
	12	★	MWS0074XB	9.0	20.1	24.1	50.1	50	0.15	3	2
0.75	1	●	MWS0075SB	0.9	3.7	7.9	50.1	50	0.14	3	1
	5	★	MWS0075LB	3.9	10.1	14.1	50.1	50	0.16	3	2
	12	★	MWS0075XB	9.2	20.1	24.1	50.1	50	0.16	3	2
0.76	1	★	MWS0076SB	0.9	4.0	8.2	50.1	50	0.14	3	1
	5	★	MWS0076LB	4.0	10.1	14.1	50.1	50	0.16	3	2
	12	★	MWS0076XB	9.3	20.1	24.1	50.1	50	0.16	3	2
0.77	1	★	MWS0077SB	0.9	4.0	8.2	50.1	50	0.14	3	1
	5	★	MWS0077LB	4.0	10.1	14.1	50.1	50	0.16	3	2
	12	★	MWS0077XB	9.4	20.1	24.1	50.1	50	0.16	3	2
0.78	1	★	MWS0078SB	0.9	4.0	8.1	50.1	50	0.14	3	1
	5	★	MWS0078LB	4.1	10.1	14.1	50.1	50	0.16	3	2
	12	★	MWS0078XB	9.5	20.1	24.1	50.1	50	0.16	3	2
0.79	1	★	MWS0079SB	0.9	4.0	8.1	50.1	50	0.14	3	1
	5	★	MWS0079LB	4.1	10.1	14.1	50.1	50	0.16	3	2
	12	★	MWS0079XB	9.6	20.1	24.1	50.1	50	0.16	3	2
0.80	1	●	MWS0080SB	1.0	4.1	8.2	50.2	50	0.15	3	1
	5	★	MWS0080LB	4.2	10.2	14.2	50.2	50	0.17	3	2
	12	★	MWS0080XB	9.8	20.2	24.2	50.2	50	0.17	3	2
0.81	1	★	MWS0081SB	1.0	4.3	8.4	50.2	50	0.15	3	1
	5	★	MWS0081LB	4.2	10.2	14.2	50.2	50	0.17	3	2
	12	★	MWS0081XB	9.9	20.2	24.2	50.2	50	0.17	3	2
0.82	1	★	MWS0082SB	1.0	4.3	8.4	50.2	50	0.15	3	1
	5	★	MWS0082LB	4.3	10.2	14.2	50.2	50	0.17	3	2
	12	★	MWS0082XB	10.0	20.2	24.2	50.2	50	0.17	3	2

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
0.83	1	★	MWS0083SB	1.0	4.3	8.3	50.2	50	0.15	3	1
	5	★	MWS0083LB	4.3	10.2	14.2	50.2	50	0.17	3	2
	12	★	MWS0083XB	10.1	20.2	24.2	50.2	50	0.17	3	2
0.84	1	★	MWS0084SB	1.0	4.3	8.3	50.2	50	0.15	3	1
	5	★	MWS0084LB	4.4	10.2	14.2	50.2	50	0.17	3	2
	12	★	MWS0084XB	10.3	20.2	24.2	50.2	50	0.17	3	2
0.85	1	●	MWS0085SB	1.0	4.3	8.3	50.2	50	0.15	3	1
	5	★	MWS0085LB	4.4	10.2	14.2	50.2	50	0.18	3	2
	12	★	MWS0085XB	10.4	20.2	24.2	50.2	50	0.18	3	2
0.86	1	★	MWS0086SB	1.0	4.6	8.6	50.2	50	0.16	3	1
	5	★	MWS0086LB	4.5	10.2	14.2	50.2	50	0.18	3	2
	12	★	MWS0086XB	10.5	20.2	24.2	50.2	50	0.18	3	2
0.87	1	★	MWS0087SB	1.0	4.6	8.6	50.2	50	0.16	3	1
	5	★	MWS0087LB	4.5	10.2	14.2	50.2	50	0.18	3	2
	12	★	MWS0087XB	10.6	20.2	24.2	50.2	50	0.18	3	2
0.88	1	★	MWS0088SB	1.0	4.6	8.6	50.2	50	0.16	3	1
	5	★	MWS0088LB	4.6	10.2	14.2	50.2	50	0.18	3	2
	12	★	MWS0088XB	10.7	20.2	24.2	50.2	50	0.18	3	2
0.89	1	★	MWS0089SB	1.1	4.6	8.5	50.2	50	0.16	3	1
	5	★	MWS0089LB	4.6	10.2	14.2	50.2	50	0.18	3	2
	12	★	MWS0089XB	10.9	20.2	24.2	50.2	50	0.18	3	2
0.90	1	●	MWS0090SB	1.1	4.6	8.5	50.2	50	0.16	3	1
	5	★	MWS0090LB	4.7	10.2	14.2	50.2	50	0.19	3	2
	12	★	MWS0090XB	11.0	20.2	24.2	50.2	50	0.19	3	2
0.91	1	★	MWS0091SB	1.1	4.8	8.7	50.2	50	0.17	3	1
	5	★	MWS0091LB	4.7	10.2	14.2	50.2	50	0.19	3	2
	12	★	MWS0091XB	11.1	20.2	24.2	50.2	50	0.19	3	2
0.92	1	★	MWS0092SB	1.1	4.8	8.7	50.2	50	0.17	3	1
	5	★	MWS0092LB	4.8	10.2	14.2	50.2	50	0.19	3	2
	12	★	MWS0092XB	11.2	20.2	24.2	50.2	50	0.19	3	2
0.93	1	★	MWS0093SB	1.1	4.8	8.7	50.2	50	0.17	3	1
	5	★	MWS0093LB	4.8	10.2	14.2	50.2	50	0.19	3	2
	12	★	MWS0093XB	11.4	20.2	24.2	50.2	50	0.19	3	2
0.94	1	★	MWS0094SB	1.1	4.8	8.6	50.2	50	0.17	3	1
	5	★	MWS0094LB	4.9	10.2	14.2	50.2	50	0.19	3	2
	12	★	MWS0094XB	11.5	20.2	24.2	50.2	50	0.19	3	2
0.95	1	●	MWS0095SB	1.1	4.8	8.6	50.2	50	0.17	3	1
	5	★	MWS0095LB	5.0	10.2	14.2	50.2	50	0.20	3	2
	12	★	MWS0095XB	11.6	20.2	24.2	50.2	50	0.20	3	2
0.96	1	★	MWS0096SB	1.1	5.1	8.9	50.2	50	0.17	3	1
	5	★	MWS0096LB	5.0	10.2	14.2	50.2	50	0.20	3	2
	12	★	MWS0096XB	11.7	20.2	24.2	50.2	50	0.20	3	2
0.97	1	★	MWS0097SB	1.2	5.1	8.9	50.2	50	0.18	3	1
	5	★	MWS0097LB	5.1	10.2	14.2	50.2	50	0.20	3	2
	12	★	MWS0097XB	11.8	20.2	24.2	50.2	50	0.20	3	2
0.98	1	★	MWS0098SB	1.2	5.1	8.9	50.2	50	0.18	3	1
	5	★	MWS0098LB	5.1	10.2	14.2	50.2	50	0.20	3	2
	12	★	MWS0098XB	12.0	20.2	24.2	50.2	50	0.20	3	2
0.99	1	★	MWS0099SB	1.2	5.1	8.9	50.2	50	0.18	3	1
	5	★	MWS0099LB	5.2	10.2	14.2	50.2	50	0.21	3	2
	12	★	MWS0099XB	12.1	20.2	24.2	50.2	50	0.21	3	2

Not 1) Lütfen bu katalogta olmayan herhangi bir geometri için bizimle iletişim kurun (ör. farklı çap ve uzunluk).

MINI-MWS

ÖNERİLEN KESME KOŞULLARI

■ SB/LB/XB Tip Matkap Ucu (L/D<10)

Çalışma Malzemesi	P				P			
	Yumuşak Çelik ($\leq 180\text{HB}$)				Karbon Çelik, Alaşımli Çelik ($180-280\text{HB}$)			
	Ck10				Ck45, 42CrMo4			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)
0.5	40	25400	0.010 (0.005—0.015)	250	40	25400	0.010 (0.005—0.015)	250
0.63	40	20200	0.014 (0.008—0.020)	280	40	20200	0.014 (0.008—0.020)	280
0.8	45	17900	0.028 (0.016—0.040)	500	45	17900	0.028 (0.016—0.040)	500
1.0	50	15900	0.035 (0.020—0.050)	555	50	15900	0.035 (0.020—0.050)	555

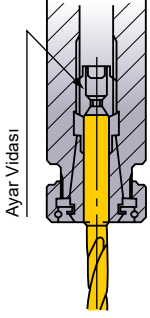
Çalışma Malzemesi	P				M			
	Karbon Çelik, Alaşımli Çelik ($280-350\text{HB}$)				Ostenitli Paslanmaz Çelik ($\leq 200\text{HB}$)			
	36CrNiMo4				X5CrNi1810, X5CrNiMo17-12-2			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)
0.5	30	19000	0.010 (0.005—0.015)	190	20	12700	0.008 (0.005—0.010)	100
0.63	30	15100	0.014 (0.008—0.020)	210	20	10100	0.010 (0.008—0.013)	100
0.8	35	13900	0.028 (0.016—0.040)	385	25	9900	0.020 (0.016—0.026)	195
1.0	40	12700	0.035 (0.020—0.050)	440	30	9500	0.030 (0.020—0.044)	285

Çalışma Malzemesi	K				K			
	Gri Dökme Demir ($\leq 350\text{ MPa}$)				Duktil Dökme Demir ($\leq 450\text{ MPa}$)			
	GG30				GGG45			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)
0.5	40	25400	0.010 (0.005—0.015)	250	30	19000	0.010 (0.005—0.015)	190
0.63	40	20200	0.014 (0.008—0.020)	280	30	15100	0.014 (0.008—0.020)	210
0.8	45	17900	0.028 (0.016—0.040)	500	35	13900	0.028 (0.016—0.040)	385
1.0	50	15900	0.035 (0.020—0.050)	555	40	12700	0.035 (0.020—0.050)	440

Çalışma Malzemesi	N				S			
	Alüminyum Alaşım (Si<%5)				Isıya Dirençli Alaşım			
					Inconel718			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)
0.5	40	25400	0.014 (0.008—0.020)	355	10	6300	0.006 (0.004—0.008)	35
0.63	40	20200	0.020 (0.012—0.030)	400	10	5000	0.008 (0.007—0.010)	40
0.8	45	17900	0.036 (0.024—0.050)	640	10	3900	0.016 (0.013—0.021)	60
1.0	60	19000	0.050 (0.030—0.075)	950	10	3100	0.020 (0.016—0.027)	60

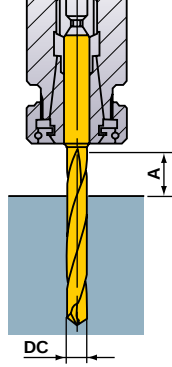
■ ÇALIŞMA KILAVUZU

Matkap Ucu Bağlama



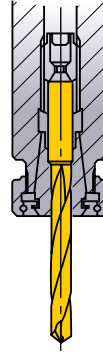
Bilyalı tip pens başlığı matkap ucunu emniyetli sabit şekilde tutar.

Matkap Ucu Uzunluğu



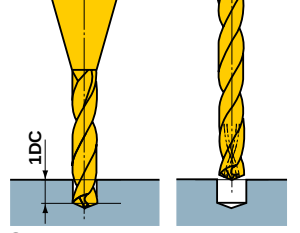
$$A \geq DC \times 2.0$$

Matkap Ucu Takma



Helis kısmından bağlamayın.

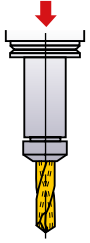
Matkap Ucu Takma



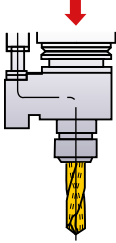
- ① Pilot delik delmek için, SB tipi matkap ucu kullanın.
- ② Yağ delikli bir matkap ucunu kullanırken yataklama için hazırlanan ön delik kullanın. Kesme şartlarına bağlı olarak, gaga lama ilerlemesi önerilir.

Boydan boya Soğutmalı Tip

Tezgah mili içinden Soğutma Tipi

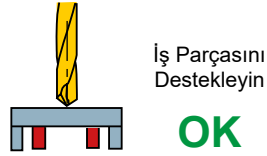


Dışdan pompa ile sağlanan soğutma tipi



Önerilen soğutma suyu basıncı: ≥ 30 bar
En az 15 bar gereklidir.

İnce iş Parçası



Soğutma Suyu Kullanımı

- 1) Küçük çaplı matkap uçlarının yağ deliklerine küçük talaş parçacıkları sıkışabilir. Koruyucu bir önlem olarak daima ince elekli filtre kullanın.
- 2) Kir ve toz parçacıkları eski soğutma suyundaki yağa yapışır ve etkili akışı önler. Düzenli soğutma suyu değişimi önerilir.

■ KULLANIMA İLİŞKİN NOTLAR

- Yağ deliğinde sıkışmayı önlemek için soğutma suyu için lütfen ince elekli filtre (elek $\leq 5\mu m$) kullanın.

DELME (YEKPARE KARBÜR)

MPS1

- Yeni edinilen AlTiCrN bazlı PVD kaplama.
- Hassas ve güvenilir delme için MPS1 çift zırlı tip.



4 Zırlı ve Süper Uzun Matkap Ucu

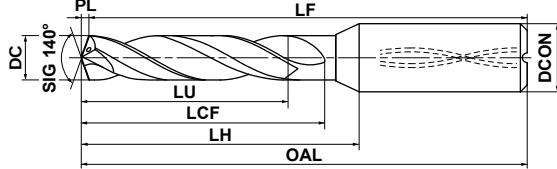
L/D=2 PC L/D=3-5 L/D=8 L/D=10-40

P M K N S H

İçten Soğutma

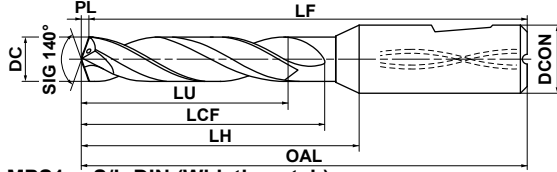


●Tip 1 Konik boyunlu silindirik şanklı tip



MPS1----S/L-DIN-C/L8C-L40C

●Tür 3 Silindirik + eğik kerkik, konik boyunlu şank türü



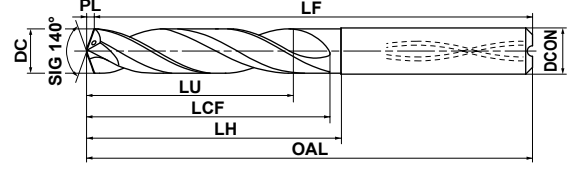
MPS1----S/L-DIN (Whistle notch)

DC (mm)	Delik Derinliği (L/D)	DP1021	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
3.0	3	□	MPS1-0300S-DIN	15.0	19.5	24.5	61.5	61	0.5	6	3
	3	●	MPS1-0300S-DIN-C	15.0	19.5	24.5	61.5	61	0.5	6	1
	5	□	MPS1-0300L-DIN	20.0	24.5	28.5	65.5	65	0.5	6	3
	5	●	MPS1-0300L-DIN-C	20.0	24.5	28.5	65.5	65	0.5	6	1
	2	●	MPS1-0300-PC	6.5	16.5	19.7	55.5	55	0.5	6	1
	8	●	MPS1-0300-L8C	24.6	33.6	39.6	76.6	76	0.6	6	1
	10	□	MPS1-0300-L10C	30.5	37.5	42.5	79.5	79	0.5	6	1
	12	●	MPS1-0300-L12C	36.5	43.5	48.5	85.5	85	0.5	6	1
	15	●	MPS1-0300-L15C	45.5	52.5	57.5	94.5	94	0.5	6	1
	20	●	MPS1-0300-L20C	60.5	67.5	72.5	109.5	109	0.5	6	1
	25	●	MPS1-0300-L25C	75.5	82.5	87.5	124.5	124	0.5	6	1
	30	●	MPS1-0300-L30C	90.5	97.5	102.5	139.5	139	0.5	6	1
3.05	35	□	MPS1-0300-L35C	105.5	113.5	121.5	158.5	158	0.5	6	1
	40	●	MPS1-0300-L40C	120.5	128.5	136.5	173.5	173	0.5	6	1
	3	□	MPS1-0305S-DIN	15.0	19.6	24.6	61.6	61	0.6	6	3
	3	●	MPS1-0305S-DIN-C	15.0	19.6	24.6	61.6	61	0.6	6	1
3.1	5	□	MPS1-0310L-DIN	20.0	24.6	28.6	65.6	65	0.6	6	3
	5	●	MPS1-0310L-DIN-C	20.0	24.6	28.6	65.6	65	0.6	6	1
	2	●	MPS1-0310-PC	6.7	18.5	21.6	55.5	55	0.5	6	1
	8	●	MPS1-0310-L8C	25.4	39.6	45.6	82.6	82	0.6	6	1
	10	□	MPS1-0310-L10C	31.6	44.6	49.6	86.6	86	0.6	6	1
	12	●	MPS1-0310-L12C	37.8	51.6	56.6	93.6	93	0.6	6	1
	15	●	MPS1-0310-L15C	47.1	61.6	66.6	103.6	103	0.6	6	1
	20	●	MPS1-0310-L20C	62.6	79.6	84.6	121.6	121	0.6	6	1
	25	●	MPS1-0310-L25C	78.1	96.6	101.6	138.6	138	0.6	6	1
	30	●	MPS1-0310-L30C	93.6	114.6	119.6	156.6	156	0.6	6	1
	35	□	MPS1-0310-L35C	109.1	123.6	138.6	175.6	175	0.6	6	1
	40	●	MPS1-0310-L40C	124.6	138.6	153.6	190.6	190	0.6	6	1



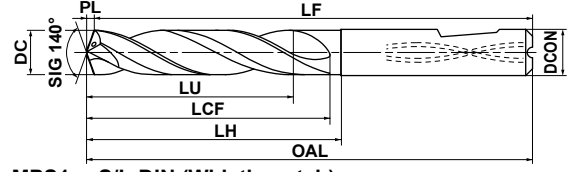
*ø4,9 mm veya küçük soğutma suyu deliği yuvarlak şekilli olacaktır.
*SIG : L/D 3-5 ve 10-40 = 140°, 8 = 135°, PC = 145°

●Tür 2 Silindirik şank tip



MPS1----S/L-DIN-C/L8C-L40C

●Tür 4 Silindirik + eğik kerkik şank tip



MPS1----S/L-DIN (Whistle notch)

DC (mm)	Delik Derinliği (L/D)	DP1021	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
3.2	3	□	MPS1-0320S-DIN	14.8	19.6	24.6	61.6	61	0.6	6	3
	3	●	MPS1-0320S-DIN-C	14.8	19.6	24.6	61.6	61	0.6	6	1
	5	□	MPS1-0320L-DIN	19.8	24.6	28.6	65.6	65	0.6	6	3
	5	●	MPS1-0320L-DIN-C	19.8	24.6	28.6	65.6	65	0.6	6	1
	2	●	MPS1-0320-PC	6.9	18.5	21.5	55.5	55	0.5	6	1
	8	●	MPS1-0320-L8C	26.3	39.7	45.7	82.7	82	0.7	6	1
	10	□	MPS1-0320-L10C	32.6	44.6	49.6	86.6	86	0.6	6	1
	12	●	MPS1-0320-L12C	39.0	51.6	56.6	93.6	93	0.6	6	1
	15	●	MPS1-0320-L15C	48.6	61.6	66.6	103.6	103	0.6	6	1
	20	●	MPS1-0320-L20C	64.6	79.6	84.6	121.6	121	0.6	6	1
	25	●	MPS1-0320-L25C	80.6	96.6	101.6	138.6	138	0.6	6	1
	30	●	MPS1-0320-L30C	96.6	114.6	119.6	156.6	156	0.6	6	1
3.3	35	□	MPS1-0320-L35C	112.6	123.6	138.6	175.6	175	0.6	6	1
	40	●	MPS1-0320-L40C	128.6	138.6	153.6	190.6	190	0.6	6	1
	3	□	MPS1-0330S-DIN	14.7	19.6	24.6	61.6	61	0.6	6	3
	3	●	MPS1-0330S-DIN-C	14.7	19.6	24.6	61.6	61	0.6	6	1
	5	□	MPS1-0330L-DIN	20.2	25.1	28.6	65.6	65	0.6	6	3
	5	●	MPS1-0330L-DIN-C	20.2	25.1	28.6	65.6	65	0.6	6	1
	2	●	MPS1-0330-PC	7.1	18.5	21.4	55.5	55	0.5	6	1
	8	●	MPS1-0330-L8C	27.1	39.7	45.7	82.7	82	0.7	6	1
	10	□	MPS1-0330-L10C	33.6	44.6	49.6	86.6	86	0.6	6	1
	12	●	MPS1-0330-L12C	40.2	51.6	56.6	93.6	93	0.6	6	1
	15	●	MPS1-0330-L15C	50.1	61.6	66.6	103.6	103	0.6	6	1
	20	●	MPS1-0330-L20C	66.6	79.6	84.6	121.6	121	0.6	6	1
3.3	25	●	MPS1-0330-L25C	83.1	96.6	101.6	138.6	138	0.6	6	1
	30	●	MPS1-0330-L30C	99.6	114.6	119.6	156.6	156	0.6	6	1
	35	□	MPS1-0330-L35C	116.1	132.6	138.6	175.6	175	0.6	6	1
	40	●	MPS1-0330-L40C	132.6	148.6	153.6	190.6	190	0.6	6	1

● : Avrupa standart stok. □ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC	Delik Derinliği (mm)	DP1021	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
3.4	3	□	MPS1-0340S-DIN	14.5	19.6	24.6	61.6	61	0.6	6	3
	3	●	MPS1-0340S-DIN-C	14.5	19.6	24.6	61.6	61	0.6	6	1
	5	□	MPS1-0340L-DIN	20.0	25.1	28.6	65.6	65	0.6	6	3
	5	●	MPS1-0340L-DIN-C	20.0	25.1	28.6	65.6	65	0.6	6	1
	2	●	MPS1-0340-PC	7.3	18.5	21.3	55.5	55	0.5	6	1
	8	●	MPS1-0340-L8C	27.9	39.7	45.7	82.7	82	0.7	6	1
	10	□	MPS1-0340-L10C	34.6	44.6	49.6	86.6	86	0.6	6	1
	12	●	MPS1-0340-L12C	41.4	51.6	56.6	93.6	93	0.6	6	1
	15	●	MPS1-0340-L15C	51.6	61.6	66.6	103.6	103	0.6	6	1
	20	●	MPS1-0340-L20C	68.6	79.6	84.6	121.6	121	0.6	6	1
	25	●	MPS1-0340-L25C	85.6	96.6	101.6	138.6	138	0.6	6	1
	30	●	MPS1-0340-L30C	102.6	114.6	119.6	156.6	156	0.6	6	1
	35	□	MPS1-0340-L35C	119.6	132.6	138.6	175.6	175	0.6	6	1
	40	●	MPS1-0340-L40C	136.6	148.6	153.6	190.6	190	0.6	6	1
3.5	3	□	MPS1-0350S-DIN	14.4	19.6	24.6	61.6	61	0.6	6	3
	3	●	MPS1-0350S-DIN-C	14.4	19.6	24.6	61.6	61	0.6	6	1
	5	□	MPS1-0350L-DIN	19.9	25.1	28.6	65.6	65	0.6	6	3
	5	●	MPS1-0350L-DIN-C	19.9	25.1	28.6	65.6	65	0.6	6	1
	2	●	MPS1-0350-PC	7.6	18.6	21.2	55.6	55	0.6	6	1
	8	●	MPS1-0350-L8C	28.7	39.7	45.7	82.7	82	0.7	6	1
	10	□	MPS1-0350-L10C	35.6	44.6	49.6	86.6	86	0.6	6	1
	12	●	MPS1-0350-L12C	42.6	51.6	56.6	93.6	93	0.6	6	1
	15	●	MPS1-0350-L15C	53.1	61.6	66.6	103.6	103	0.6	6	1
	20	●	MPS1-0350-L20C	70.6	79.6	84.6	121.6	121	0.6	6	1
	25	●	MPS1-0350-L25C	88.1	96.6	101.6	138.6	138	0.6	6	1
	30	●	MPS1-0350-L30C	105.6	114.6	119.6	156.6	156	0.6	6	1
	35	□	MPS1-0350-L35C	123.1	132.6	138.6	175.6	175	0.6	6	1
	40	●	MPS1-0350-L40C	140.6	148.6	153.6	190.6	190	0.6	6	1
3.6	3	□	MPS1-0360S-DIN	14.3	19.7	24.7	61.7	61	0.7	6	3
	3	●	MPS1-0360S-DIN-C	14.3	19.7	24.7	61.7	61	0.7	6	1
	5	□	MPS1-0360L-DIN	19.8	25.2	28.7	65.7	65	0.7	6	3
	5	●	MPS1-0360L-DIN-C	19.8	25.2	28.7	65.7	65	0.7	6	1
	2	●	MPS1-0360-PC	7.8	20.6	23.1	55.6	55	0.6	6	1
	8	●	MPS1-0360-L8C	29.5	44.7	50.7	87.7	87	0.7	6	1
	10	□	MPS1-0360-L10C	36.7	50.7	55.7	92.7	92	0.7	6	1
	12	●	MPS1-0360-L12C	43.9	58.7	63.7	100.7	100	0.7	6	1
	15	●	MPS1-0360-L15C	54.7	70.7	75.7	112.7	112	0.7	6	1
	20	●	MPS1-0360-L20C	72.7	90.7	95.7	132.7	132	0.7	6	1
	25	□	MPS1-0360-L25C	90.7	110.7	115.7	152.7	152	0.7	6	1
	30	●	MPS1-0360-L30C	108.7	130.7	135.7	172.7	172	0.7	6	1
	35	□	MPS1-0360-L35C	126.7	143.7	155.7	192.7	192	0.7	6	1
	40	●	MPS1-0360-L40C	144.7	160.7	175.7	212.7	212	0.7	6	1
3.7	3	□	MPS1-0370S-DIN	14.1	19.7	24.7	61.7	61	0.7	6	3
	3	●	MPS1-0370S-DIN-C	14.1	19.7	24.7	61.7	61	0.7	6	1
	5	□	MPS1-0370L-DIN	20.1	25.7	28.7	65.7	65	0.7	6	3
	5	●	MPS1-0370L-DIN-C	20.1	25.7	28.7	65.7	65	0.7	6	1
	2	●	MPS1-0370-PC	8.0	20.6	23.1	55.6	55	0.6	6	1
	8	●	MPS1-0370-L8C	30.4	44.8	50.8	87.8	87	0.8	6	1
	10	□	MPS1-0370-L10C	37.7	50.7	55.7	92.7	92	0.7	6	1
	12	●	MPS1-0370-L12C	45.1	58.7	63.7	100.7	100	0.7	6	1
	15	●	MPS1-0370-L15C	56.2	70.7	75.7	112.7	112	0.7	6	1
	20	●	MPS1-0370-L20C	74.7	90.7	95.7	132.7	132	0.7	6	1
	25	●	MPS1-0370-L25C	93.2	110.7	115.7	152.7	152	0.7	6	1
	30	●	MPS1-0370-L30C	111.7	130.7	135.7	172.7	172	0.7	6	1
	35	□	MPS1-0370-L35C	130.2	143.7	155.7	192.7	192	0.7	6	1
	40	●	MPS1-0370-L40C	148.7	160.7	175.7	212.7	212	0.7	6	1

DC	Delik Derinliği (mm)	DP1021	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
3.8	3	□	MPS1-0380S-DIN	18.0	23.7	28.7	65.7	65	0.7	6	3
	3	●	MPS1-0380S-DIN-C	18.0	23.7	28.7	65.7	65	0.7	6	1
	5	□	MPS1-0380L-DIN	28.0	33.7	36.7	73.7	73	0.7	6	3
	5	●	MPS1-0380L-DIN-C	28.0	33.7	36.7	73.7	73	0.7	6	1
	2	●	MPS1-0380-PC	8.2	20.6	23.0	55.6	55	0.6	6	1
	8	●	MPS1-0380-L8C	31.2	44.8	50.8	87.8	87	0.8	6	1
	10	□	MPS1-0380-L10C	38.7	50.7	55.7	92.7	92	0.7	6	1
	12	●	MPS1-0380-L12C	46.3	58.7	63.7	100.7	100	0.7	6	1
	15	●	MPS1-0380-L15C	57.7	70.7	75.7	112.7	112	0.7	6	1
	20	●	MPS1-0380-L20C	76.7	90.7	95.7	132.7	132	0.7	6	1
	25	●	MPS1-0380-L25C	95.7	110.7	115.7	152.7	152	0.7	6	1
	30	●	MPS1-0380-L30C	114.7	130.7	135.7	172.7	172	0.7	6	1
	35	□	MPS1-0380-L35C	133.7	150.7	155.7	192.7	192	0.7	6	1
	40	●	MPS1-0380-L40C	152.7	170.7	175.7	212.7	212	0.7	6	1
3.9	3	□	MPS1-0390S-DIN	17.9	23.7	28.7	65.7	65	0.7	6	3
	3	●	MPS1-0390S-DIN-C	17.9	23.7	28.7	65.7	65	0.7	6	1
	5	□	MPS1-0390L-DIN	27.9	33.7	36.7	73.7	73	0.7	6	3
	5	●	MPS1-0390L-DIN-C	27.9	33.7	36.7	73.7	73	0.7	6	1
	2	●	MPS1-0390-PC	8.4	20.6	22.9	55.6	55	0.6	6	1
	8	●	MPS1-0390-L8C	32.0	44.8	50.8	87.8	87	0.8	6	1
	10	□	MPS1-0390-L10C	39.7	50.7	55.7	92.7	92	0.7	6	1
	12	●	MPS1-0390-L12C	47.5	58.7	63.7	100.7	100	0.7	6	1
	15	●	MPS1-0390-L15C	59.2	70.7	75.7	112.7	112	0.7	6	1
	20	●	MPS1-0390-L20C	78.7	90.7	95.7	132.7	132	0.7	6	1
	25	□	MPS1-0390-L25C	98.2	110.7	115.7	152.7	152	0.7	6	1
	30	●	MPS1-0390-L30C	117.7	130.7	135.7	172.7	172	0.7	6	1
	35	□	MPS1-0390-L35C	137.2	150.7	155.7	192.7	192	0.7	6	1
	40	●	MPS1-0390-L40C	156.7	170.7	175.7	212.7	212	0.7	6	1
4.0	3	□	MPS1-0400S-DIN	17.7	23.7	28.7	65.7	65	0.7	6	3
	3	●	MPS1-0400S-DIN-C	17.7	23.7	28.7	65.7	65	0.7	6	1
	5	□	MPS1-0400L-DIN	27.7	33.7	36.7	73.7	73	0.7	6	3
	5	●	MPS1-0400L-DIN-C	27.7	33.7	36.7	73.7	73	0.7	6	1
	2	●	MPS1-0400-PC	8.6	20.6	22.8	55.6	55	0.6	6	1
	8	●	MPS1-0400-L8C	32.8	44.8	50.8	87.8	87	0.8	6	1
	10	□	MPS1-0400-L10C	40.7	50.7	55.7	92.7	92	0.7	6	1
	12	●	MPS1-0400-L12C	48.7	58.7	63.7	100.7	100	0.7	6	1
	15	●	MPS1-0400-L15C	60.7	70.7	75.7	112.7	112	0.7	6	1
	20	●	MPS1-0400-L20C	80.7	90.7	95.7	132.7	132	0.7	6	1
	25	●	MPS1-0400-L25C	100.7	110.7	115.7	152.7	152	0.7	6	1
	30	●	MPS1-0400-L30C	120.7	130.7	135.7	172.7	172	0.7	6	1
	35	□	MPS1-0400-L35C	140.7	150.7	155.7	192.7	192	0.7	6	1
	40	●	MPS1-0400-L40C	160.7	170.7	175.7	212.7	212	0.7	6	1
4.05	3	□	MPS1-0405S-DIN	17.7	23.7	28.7	65.7	65	0.7	6	3
	3	●	MPS1-0405S-DIN-C	17.7	23.7	28.7	65.7	65	0.7	6	1
	5	□	MPS1-0405L-DIN	27.7	33.7	36.7	73.7	73	0.7	6	3
	5	●	MPS1-0405L-DIN-C	27.7	33.7	36.7	73.7	73	0.7	6	1

DC (mm)	Delik Derinliği (L/D)	DP1021	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
13.9	3	□	MPS1-1390S-DIN	39.7	60.5	61.5	107.5	105	2.5	14	4
	3	●	MPS1-1390S-DIN-C	39.7	60.5	61.5	107.5	105	2.5	14	2
	5	□	MPS1-1390L-DIN	56.7	77.5	78.5	124.5	122	2.5	14	4
	5	●	MPS1-1390L-DIN-C	56.7	77.5	78.5	124.5	122	2.5	14	2
	2	□	MPS1-1390-PC	30.0	56.2	56.2	109.2	107	2.2	14	2
	8	●	MPS1-1390-L8C	114.1	156.9	159.9	205.9	203	2.9	14	2
	10	□	MPS1-1390-L10C	141.5	184.5	187.5	233.5	231	2.5	14	2
	12	□	MPS1-1390-L12C	169.3	212.5	215.5	261.5	259	2.5	14	2
	15	□	MPS1-1390-L15C	211.0	254.5	257.5	303.5	301	2.5	14	2
	20	□	MPS1-1390-L20C	280.5	324.5	327.5	373.5	371	2.5	14	2
14.0	3	□	MPS1-1400S-DIN	39.5	60.5	61.5	107.5	105	2.5	14	4
	3	●	MPS1-1400S-DIN-C	39.5	60.5	61.5	107.5	105	2.5	14	2
	5	□	MPS1-1400L-DIN	56.5	77.5	78.5	124.5	122	2.5	14	4
	5	●	MPS1-1400L-DIN-C	56.5	77.5	78.5	124.5	122	2.5	14	2
	2	●	MPS1-1400-PC	30.2	56.2	56.2	109.2	107	2.2	14	2
	8	●	MPS1-1400-L8C	114.9	156.9	159.9	205.9	203	2.9	14	2
	10	□	MPS1-1400-L10C	142.5	184.5	187.5	233.5	231	2.5	14	2
	12	●	MPS1-1400-L12C	170.5	212.5	215.5	261.5	259	2.5	14	2
	15	●	MPS1-1400-L15C	212.5	254.5	257.5	303.5	301	2.5	14	2
	20	●	MPS1-1400-L20C	282.5	324.5	327.5	373.5	371	2.5	14	2
14.2	3	□	MPS1-1420S-DIN	43.3	64.6	65.6	114.6	112	2.6	16	4
	3	●	MPS1-1420S-DIN-C	43.3	64.6	65.6	114.6	112	2.6	16	2
	5	□	MPS1-1420L-DIN	61.3	82.6	83.6	132.6	130	2.6	16	4
	5	●	MPS1-1420L-DIN-C	61.3	82.6	83.6	132.6	130	2.6	16	2
14.5	3	□	MPS1-1450S-DIN	42.9	64.6	65.6	114.6	112	2.6	16	4
	3	●	MPS1-1450S-DIN-C	42.9	64.6	65.6	114.6	112	2.6	16	2
	5	□	MPS1-1450L-DIN	60.9	82.6	83.6	132.6	130	2.6	16	4
	5	●	MPS1-1450L-DIN-C	60.9	82.6	83.6	132.6	130	2.6	16	2
15.0	3	□	MPS1-1500S-DIN	42.2	64.7	65.7	114.7	112	2.7	16	4
	3	●	MPS1-1500S-DIN-C	42.2	64.7	65.7	114.7	112	2.7	16	2
	5	□	MPS1-1500L-DIN	60.2	82.7	83.7	132.7	130	2.7	16	4
	5	●	MPS1-1500L-DIN-C	60.2	82.7	83.7	132.7	130	2.7	16	2
15.5	3	□	MPS1-1550S-DIN	41.6	64.8	65.8	114.8	112	2.8	16	4
	3	●	MPS1-1550S-DIN-C	41.6	64.8	65.8	114.8	112	2.8	16	2
	5	□	MPS1-1550L-DIN	59.6	82.8	83.8	132.8	130	2.8	16	4
	5	●	MPS1-1550L-DIN-C	59.6	82.8	83.8	132.8	130	2.8	16	2
16.0	3	□	MPS1-1600S-DIN	40.9	64.9	65.9	114.9	112	2.9	16	4
	3	●	MPS1-1600S-DIN-C	40.9	64.9	65.9	114.9	112	2.9	16	2
	5	□	MPS1-1600L-DIN	58.9	82.9	83.9	132.9	130	2.9	16	4
	5	●	MPS1-1600L-DIN-C	58.9	82.9	83.9	132.9	130	2.9	16	2
16.5	3	□	MPS1-1650S-DIN	48.3	73.0	74.0	123.0	120	3.0	18	4
	3	●	MPS1-1650S-DIN-C	48.3	73.0	74.0	123.0	120	3.0	18	2
	5	□	MPS1-1650L-DIN	68.3	93.0	94.0	143.0	140	3.0	18	4
	5	●	MPS1-1650L-DIN-C	68.3	93.0	94.0	143.0	140	3.0	18	2
17.0	3	□	MPS1-1700S-DIN	47.6	73.1	74.1	123.1	120	3.1	18	4
	3	●	MPS1-1700S-DIN-C	47.6	73.1	74.1	123.1	120	3.1	18	2
	5	□	MPS1-1700L-DIN	67.6	93.1	94.1	143.1	140	3.1	18	4
	5	●	MPS1-1700L-DIN-C	67.6	93.1	94.1	143.1	140	3.1	18	2
17.5	3	□	MPS1-1750S-DIN	46.9	73.2	74.2	123.2	120	3.2	18	4
	3	●	MPS1-1750S-DIN-C	46.9	73.2	74.2	123.2	120	3.2	18	2
	5	□	MPS1-1750L-DIN	66.9	93.2	94.2	143.2	140	3.2	18	4
	5	●	MPS1-1750L-DIN-C	66.9	93.2	94.2	143.2	140	3.2	18	2
18.0	3	□	MPS1-1800S-DIN	46.3	73.3	74.3	123.3	120	3.3	18	4
	3	●	MPS1-1800S-DIN-C	46.3	73.3	74.3	123.3	120	3.3	18	2
	5	□	MPS1-1800L-DIN	66.3	93.3	94.3	143.3	140	3.3	18	4
	5	●	MPS1-1800L-DIN-C	66.3	93.3	94.3	143.3	140	3.3	18	2

DC (mm)	Delik Derinliği (L/D)	DP1021	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
18.5	3	□	MPS1-1850S-DIN	51.6	79.4	80.4	131.4	128	3.4	20	4
	3	●	MPS1-1850S-DIN-C	51.6	79.4	80.4	131.4	128	3.4	20	2
	5	□	MPS1-1850L-DIN	73.6	101.4	102.4	153.4	150	3.4	20	4
	5	●	MPS1-1850L-DIN-C	73.6	101.4	102.4	153.4	150	3.4	20	2
19.0	3	□	MPS1-1900S-DIN	51.0	79.5	80.5	131.5	128	3.5	20	4
	3	●	MPS1-1900S-DIN-C	51.0	79.5	80.5	131.5	128	3.5	20	2
	5	□	MPS1-1900L-DIN	73.0	101.5	102.5	153.5	150	3.5	20	4
	5	●	MPS1-1900L-DIN-C	73.0	101.5	102.5	153.5	150	3.5	20	2
19.5	3	□	MPS1-1950S-DIN	50.3	79.5	80.5	131.5	128	3.5	20	4
	3	●	MPS1-1950S-DIN-C	50.3	79.5	80.5	131.5	128	3.5	20	2
	5	□	MPS1-1950L-DIN	72.3	101.5	102.5	153.5	150	3.5	20	4
	5	●	MPS1-1950L-DIN-C	72.3	101.5	102.5	153.5	150	3.5	20	2
20.0	3	□	MPS1-2000S-DIN	49.6	79.6	80.6	131.6	128	3.6	20	4
	3	●	MPS1-2000S-DIN-C	49.6	79.6	80.6	131.6	128	3.6	20	2
	5	□	MPS1-2000L-DIN	71.6	101.6	102.6	153.6	150	3.6	20	4
	5	●	MPS1-2000L-DIN-C	71.6	101.6	102.6	153.6	150	3.6	20	2

● : Avrupa standart stok. □ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

ÖNERİLEN KESME KOŞULLARI

● MPS1 MATKAP (3xDC – 40xDC)

DC	L x DC		P			M	K		
			Yumuşak Çelik, Karbon Çelik, Alaşımli Çelik			Paslanmaz Çelik	Dökme Demir		
			≤ 180 HB	180–250 HB	280–350 HB		≤ 350 MPa	≤ 450 MPa	≤ 800 MPa
3	3–8	Vc m/dak	100 (60–150)	90 (60–140)	80 (50–110)	40 (20–50)	90 (60–100)	80 (50–90)	60 (40–80)
		f mm/dev	0.15 (0.1–0.2)	0.15 (0.1–0.19)	0.12 (0.1–0.14)	0.08 (0.06–0.12)	0.15 (0.1–0.2)	0.12 (0.08–0.16)	0.09 (0.06–0.12)
	10–25	Vc m/dak	90 (40–110)	90 (40–110)	80 (40–90)	40 (20–60)	90 (40–110)	90 (40–110)	—
		f mm/dev	0.17 (0.1–0.24)	0.17 (0.1–0.24)	0.15 (0.09–0.22)	0.07 (0.05–0.09)	0.19 (0.11–0.26)	0.17 (0.1–0.24)	—
	30–40	Vc m/dak	75 (40–95)	75 (40–85)	65 (40–75)	30 (20–50)	75 (45–95)	30 (20–50)	—
		f mm/dev	0.14 (0.08–0.19)	0.14 (0.08–0.19)	0.15 (0.07–0.18)	0.06 (0.04–0.07)	0.15 (0.09–0.21)	0.14 (0.08–0.19)	—
4	3–8	Vc m/dak	120 (70–170)	100 (70–160)	90 (60–120)	40 (30–50)	100 (70–110)	90 (60–100)	70 (50–90)
		f mm/dev	0.19 (0.12–0.25)	0.18 (0.12–0.24)	0.15 (0.12–0.18)	0.09 (0.07–0.13)	0.21 (0.12–0.3)	0.17 (0.1–0.24)	0.13 (0.08–0.18)
	10–25	Vc m/dak	90 (40–110)	90 (40–110)	80 (40–90)	40 (20–60)	90 (40–110)	90 (40–110)	—
		f mm/dev	0.2 (0.12–0.3)	0.2 (0.12–0.3)	0.18 (0.11–0.27)	0.08 (0.06–0.1)	0.22(0.13–0.33)	0.2 (0.12–0.3)	—
	30–40	Vc m/dak	75 (40–95)	75 (40–85)	65 (40–75)	30 (20–50)	75 (45–95)	30 (20–50)	—
		f mm/dev	0.16 (0.1–0.24)	0.16 (0.1–0.24)	0.18 (0.09–0.22)	0.06 (0.05–0.08)	0.18 (0.1–0.26)	0.16 (0.1–0.24)	—
5	3–8	Vc m/dak	130 (80–190)	110 (80–180)	90 (70–140)	40 (30–50)	110 (80–130)	90 (70–120)	70 (60–100)
		f mm/dev	0.23 (0.15–0.3)	0.22 (0.15–0.29)	0.19 (0.15–0.22)	0.11 (0.08–0.16)	0.25 (0.15–0.35)	0.21 (0.14–0.28)	0.17 (0.12–0.22)
	10–25	Vc m/dak	90 (40–110)	90 (40–110)	80 (40–90)	40 (20–60)	90 (40–110)	90 (40–110)	—
		f mm/dev	0.25 (0.15–0.35)	0.25 (0.15–0.35)	0.22 (0.14–0.32)	0.1 (0.07–0.12)	0.28 (0.17–0.39)	0.25 (0.15–0.35)	—
	30–40	Vc m/dak	75 (40–95)	75 (40–85)	65 (40–75)	30 (20–50)	75 (45–95)	30 (20–50)	—
		f mm/dev	0.2 (0.12–0.28)	0.2 (0.12–0.28)	0.22 (0.11–0.26)	0.08 (0.06–0.1)	0.22 (0.13–0.31)	0.2 (0.12–0.28)	—
6	3–8	Vc m/dak	140 (90–210)	120 (90–190)	100 (80–150)	50 (40–70)	120 (90–140)	100 (80–130)	80 (70–110)
		f mm/dev	0.27 (0.18–0.35)	0.26 (0.18–0.33)	0.22 (0.18–0.25)	0.14 (0.11–0.18)	0.29 (0.18–0.4)	0.25 (0.16–0.34)	0.2 (0.14–0.26)
	10–25	Vc m/dak	110 (70–120)	100 (60–110)	90 (40–110)	50 (20–60)	100 (60–110)	100 (60–110)	—
		f mm/dev	0.27 (0.17–0.37)	0.24 (0.15–0.33)	0.24 (0.15–0.33)	0.12 (0.08–0.16)	0.3 (0.19–0.41)	0.27 (0.17–0.37)	—
	30–40	Vc m/dak	90 (40–110)	80 (40–90)	75 (40–85)	40 (20–60)	90 (60–110)	40 (30–60)	—
		f mm/dev	0.22 (0.14–0.3)	0.22 (0.14–0.3)	0.24 (0.12–0.26)	0.1 (0.06–0.13)	0.24 (0.15–0.33)	0.22 (0.14–0.3)	—
8	3–8	Vc m/dak	160 (100–240)	140 (100–220)	120 (90–170)	50 (40–70)	140 (100–160)	120 (90–150)	100 (80–130)
		f mm/dev	0.3 (0.2–0.4)	0.29 (0.2–0.38)	0.24 (0.2–0.27)	0.15 (0.12–0.2)	0.33 (0.2–0.45)	0.28 (0.18–0.38)	0.23 (0.16–0.3)
	10–25	Vc m/dak	110 (70–120)	100 (60–110)	90 (40–110)	50 (20–60)	100 (60–110)	100 (60–110)	—
		f mm/dev	0.3 (0.2–0.4)	0.3 (0.2–0.4)	0.27 (0.18–0.36)	0.14 (0.1–0.17)	0.33 (0.22–0.44)	0.3 (0.2–0.4)	—
	30–40	Vc m/dak	90 (40–110)	80 (40–90)	75 (40–85)	40 (20–50)	90 (60–100)	40 (30–60)	—
		f mm/dev	0.24 (0.16–0.32)	0.24 (0.16–0.32)	0.27 (0.14–0.29)	0.11 (0.08–0.14)	0.26 (0.18–0.35)	0.24 (0.16–0.32)	—
10	3–8	Vc m/dak	170 (100–250)	150 (100–230)	130 (90–180)	50 (40–70)	150 (100–170)	130 (90–160)	110 (80–140)
		f mm/dev	0.33 (0.2–0.45)	0.32 (0.2–0.43)	0.25 (0.2–0.3)	0.16 (0.12–0.22)	0.35 (0.2–0.5)	0.29 (0.18–0.4)	0.24 (0.16–0.32)
	10–25	Vc m/dak	110 (70–120)	100 (60–110)	90 (40–110)	50 (20–60)	100 (60–110)	100 (60–110)	—
		f mm/dev	0.32 (0.22–0.42)	0.32 (0.22–0.42)	0.29 (0.2–0.38)	0.15 (0.12–0.18)	0.35 (0.24–0.46)	0.32 (0.22–0.42)	—
	30–40	Vc m/dak	90 (40–110)	80 (40–90)	75 (40–95)	40 (20–50)	90 (60–100)	40 (30–60)	—
		f mm/dev	0.26 (0.18–0.34)	0.26 (0.18–0.34)	0.29 (0.16–0.3)	0.12 (0.1–0.14)	0.28 (0.19–0.37)	0.26 (0.18–0.34)	—
12	3–8	Vc m/dak	180 (100–250)	160 (100–230)	140 (90–180)	50 (40–70)	160 (100–170)	140 (90–160)	110 (80–140)
		f mm/dev	0.35 (0.2–0.5)	0.34 (0.2–0.48)	0.27 (0.2–0.34)	0.18 (0.14–0.24)	0.4 (0.2–0.6)	0.31 (0.18–0.44)	0.25 (0.16–0.34)
	10–25	Vc m/dak	130 (90–150)	120 (80–140)	100 (60–110)	60 (25–65)	120 (90–140)	120 (90–140)	—
		f mm/dev	0.34 (0.24–0.44)	0.34 (0.24–0.44)	0.3 (0.22–0.4)	0.17 (0.14–0.19)	0.37 (0.26–0.48)	0.34 (0.24–0.44)	—
	30–40	Vc m/dak	105 (55–125)	95 (55–105)	80 (40–100)	50 (20–60)	105 (65–115)	50 (40–70)	—
		f mm/dev	0.27 (0.19–0.35)	0.27 (0.19–0.35)	0.3 (0.18–0.32)	0.14 (0.11–0.15)	0.3 (0.21–0.38)	0.27 (0.19–0.35)	—
16	3–8	Vc m/dak	180 (100–250)	160 (100–230)	140 (90–180)	50 (40–70)	160 (100–170)	140 (90–160)	110 (80–140)
		f mm/dev	0.38 (0.2–0.55)	0.36 (0.2–0.52)	0.28 (0.2–0.36)	0.19 (0.15–0.26)	0.43 (0.2–0.65)	0.33 (0.18–0.48)	0.27 (0.16–0.38)
	10–25	Vc m/dak	130 (90–150)	120 (80–140)	100 (60–110)	60 (25–65)	120 (90–140)	120 (90–140)	—
		f mm/dev	0.36 (0.26–0.46)	0.36 (0.26–0.46)	0.32 (0.23–0.41)	0.17 (0.14–0.19)	0.4 (0.29–0.48)	0.36 (0.26–0.46)	—
20	3–8	Vc m/dak	180 (100–250)	160 (100–230)	140 (90–180)	50 (40–70)	160 (100–170)	140 (90–160)	110 (80–140)
		f mm/dev	0.4 (0.2–0.6)	0.39 (0.2–0.57)	0.3 (0.2–0.4)	0.21 (0.16–0.28)	0.45 (0.2–0.7)	0.35 (0.18–0.52)	0.28 (0.16–0.4)

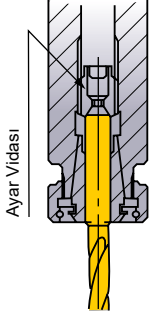
M

DELME

■ MPS1 UZUN TİP MATKAP UCU İÇİN ÇALIŞMA KILAVUZU

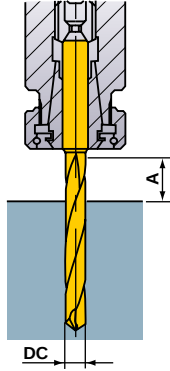
M
DELME

Matkap Tutucusu



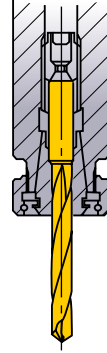
Bilyalı tip pens başlığı matkabı güvenli bir şekilde bağlar.

Serbest Boy



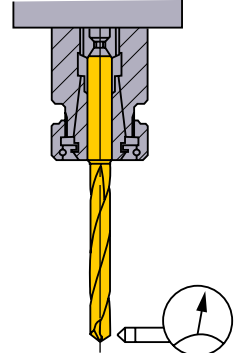
$$A \geq DC \times 1.5$$

Matkap Montajı



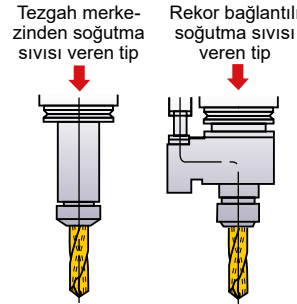
Matkap kanallarından bağlamayınız.

Montaj Toleransı



$$\text{Salgı} \leq 0.03 \text{ mm}$$

Boydan Boya soğutma Sıvısı Veren Tıp



Yaklaşık Soğutma sıvısı basıncı 5—10 bar'dır (< $\phi 5:2$ —30 bar).

Soğutma Suyu Kullanımı

- 1) Küçük talaş parçacıkları küçük çaplı matkapların soğutma deliğinde sıkışabilir. Koruyucu bir önlem olarak her zaman ince elekli filtre kullanın.
- 2) Kir ve toz parçacıkları kullanılan eski soğutma sıvısındaki yağa yapışır ve etkili akışı önler. Düzenli soğutma sıvısı değişimi önerilir.

İnce İş Parçası



OK

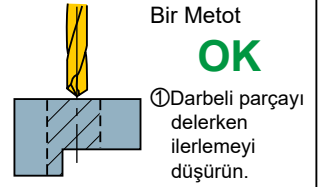
İş Parçasını Destekleyin



X

Esnekleme Oluşursa

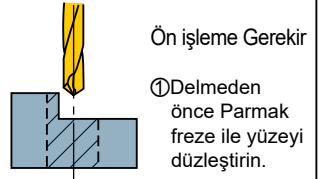
Darbeli Kesme



Bir Metot

OK

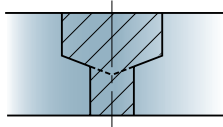
- ① Darbeli parçayı delerken ilerlemeyi düşürün.



Ön işleme Gerekir

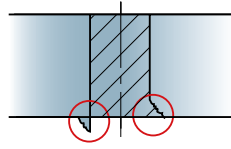
- ① Delmeden önce Parmak freze ile yüzeyi düzleştirin.

Kademeli Delikler



- ①İki işlem uygulayın.
- ②Önce büyük deliği delin.
- *Hem pah hem de spot yüzeyin işlenmesi için özel tasarım bir takım üretilemek üzere sipariş edilebilir.

Çapaklanma ve İş parçasında çentik oluşması

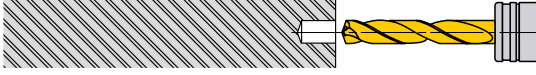


- ①Delme işlemi sonuna doğru ilerlemeyi %50 oranında düşürün.
- ②45° pah yapın.
- ③Ağız açısını değiştirin.

UZUN TIP MATKAP UCU NASIL KULLANILIR

DÜZ YÜZEY DELME ● Bir kör delik delme

1. Bir pilot deliği delme



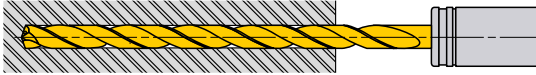
- ① Süper uzun tipten daha büyük (düz) uç açılı bir matkap ucu kullanın. Olası en kısa helis kanallığı kullanın.
- ② Yataklama için yüksek hassasiyetli deliğin delindiğinden emin olun.
- ③ Matkap ucu derinliği : Yaklaşık 1DC veya daha derin.
(Pilot Delik Derinliğini süper uzun tip matkap ucu uzunluğuna göre ayarlayın.)

2. Uzun tip matkap ucu ile kesmeye başlama



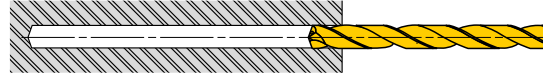
- ① Pilot deliğe düşük devirde nüfuz edin. (Devir 1000dak⁻¹, ilerleme oranı 0.2—0.3mm/dev)
- ② Uzun tip matkap ucunu pilot delik tabanına 0.5—1mm kala durdurun.

3. Derin deliğin delinmesi



- ① Önerilen hızda ve ilerleme oranıyla gagalama yapmadan (düz ilerleme) çevrimi ile kesmeye başlayın.

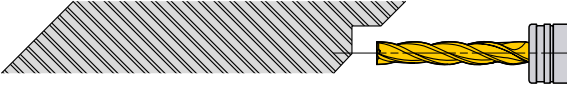
4. Matkap ucunu geriye çekme



- ① Deldikten sonra, kesme devrini delik ucundan yaklaşık 0.5—1mm daha gerisinde düşürün (Devir yaklaşık 1000dak⁻¹)
- ② 3000mm/dak ilerleme hızıyla matkap ucunu pilot Delik Derinliği başlangıç noktasına geri çekin.
- ③ Son olarak, 20—30m/dak kesme hızında ve 0.2—0.3mm/dev ilerleme oranında deliği temizleyin.

DARBELİ DELME ● Üzerinde düzensiz veya açılı yüzler bulunan parçaları delme ve boşa çıkma

1. Spot yüzeyi açma



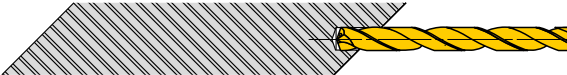
- ① Bir parmak frezeyi veya spot yüzeyi açma özellikli spot matkap ucunu kullanarak düz veya düzensiz bir yüzeyi işleyin. İşlenecek derin delik çapı ile aynı çapta bir düz yüzey yapın.

2. Bir pilot deliği delme



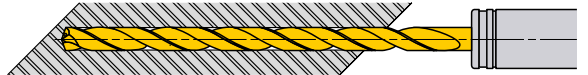
- ① Süper uzun tipten daha büyük (düz) bir uç açılı bir matkap ucu kullanın. Olası en kısa helis kanallığı kullanın.
- ② Yataklama için yüksek hassasiyetli deliğin delindiğinden emin olun.
- ③ Matkap ucu derinliği : Yaklaşık 1DC veya daha uzun.
(Pilot Delik Derinliğini süper uzun tip matkap ucu uzunluğuna göre ayarlayın.)

3. Uzun tip matkap ucu ile kesmeye başlama



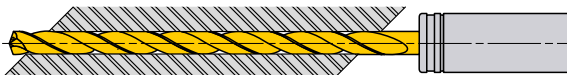
- ① Yataklama deliğine düşük devirde nüfuz edin. (Devir 1000dak⁻¹, ilerleme oranı 0.2—0.3mm/dev)
- ② Uzun tip matkap ucunu pilot delik tabanına 0.5—1mm kala durdurun.

4. Derin deliğin delinmesi



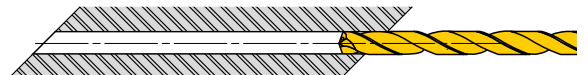
- ① Önerilen hızda ve ilerleme oranıyla gagalama yapmadan (düz ilerle) çevrimi ile kesmeye başlayın.

5. Boşa çıkma



- ① Boşa çıkma işlemi sırasında, kesme kenarı hasar görebilir.
- ② Yüzeye yakın ilerleme oranını düşürün.

6. Matkap ucunu geriye çekme



- ① Son olarak 20—30m/dak kesme hızında ve 0.2—0.3mm/dev ilerleme oranında deliği temizleyin.
- ② 3000mm/dak ilerleme hızında matkap ucunu pilot Delik Derinliği başlangıç noktasına geri çekin.

DELME (YEKPARE KARBÜR)

MPS

- 3—40 L/D'den başlayan Delik Derinliği.
- Doğru ve güvenilir delme için MPS çift zırlı tip.

4 Zırlı ve Süper Uzun Matkap Ucu



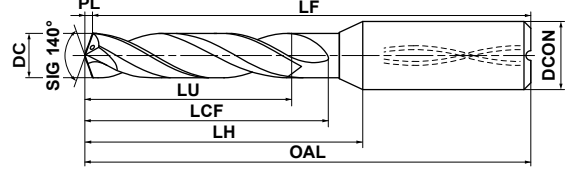
P	M	K	N	S	H
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İçten Soğutma

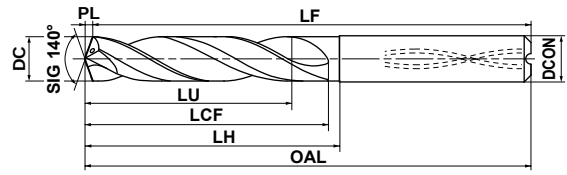
	3≤D1≤6	6<D1≤10	10<D1≤18	18<D1≤20
DIN tip	+0.010 -0.002	+0.010 -0.005	+0.005 -0.013	+0.005 -0.016
Diğerleri	0 -0.012	0 -0.015	0 -0.018	0 -0.021
h6	0 -0.008	0 -0.009	0 -0.011	0 -0.013



●Tip 1 Konik boyunlu silindirik şanklı tip



●Tür 2 Silindirik şank tip



DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
3.0	3	☐	MPS0300S-DIN-C	15.0	19.5	24.5	61.5	61	0.5	6	1
	5	☐	MPS0300L-DIN-C	23.0	27.5	28.5	65.5	65	0.5	6	1
	8	☐	MPS0300-L8C	24.5	33.5	36.5	73.5	73	0.5	6	1
	10	☐	MPS0300-L10C	30.5	39.5	42.5	79.5	79	0.5	6	1
	12	☐	MPS0300-L12C	36.5	45.5	48.5	85.5	85	0.5	6	1
	15	☐	MPS0300-L15C	45.5	54.5	57.5	94.5	94	0.5	6	1
	20	☐	MPS0300-L20C	60.5	69.5	72.5	109.5	109	0.5	6	1
	25	☐	MPS0300-L25C	75.5	84.5	87.5	124.5	124	0.5	6	1
	30	☐	MPS0300-L30C	90.5	99.5	102.5	139.5	139	0.5	6	1
35	☐	MPS0300-L35C	105.5	115.5	121.5	158.5	158	0.5	6	1	
40	☐	MPS0300-L40C	120.5	130.5	136.5	173.5	173	0.5	6	1	
3.05	3	☐	MPS0305S-DIN-C	15.0	19.6	24.6	61.6	61	0.6	6	1
	5	☐	MPS0305L-DIN-C	23.0	27.6	28.6	65.6	65	0.6	6	1
3.1	3	☐	MPS0310S-DIN-C	14.9	19.6	24.6	61.6	61	0.6	6	1
	5	☐	MPS0310L-DIN-C	22.9	27.6	28.6	65.6	65	0.6	6	1
	8	☐	MPS0310-L8C	25.4	39.6	42.6	79.6	79	0.6	6	1
	10	☐	MPS0310-L10C	31.6	46.6	49.6	86.6	86	0.6	6	1
	12	☐	MPS0310-L12C	37.8	53.6	56.6	93.6	93	0.6	6	1
	15	☐	MPS0310-L15C	47.1	63.6	66.6	103.6	103	0.6	6	1
	20	☐	MPS0310-L20C	62.6	81.6	84.6	121.6	121	0.6	6	1
	25	☐	MPS0310-L25C	78.1	98.6	101.6	138.6	138	0.6	6	1
	30	☐	MPS0310-L30C	93.6	116.6	119.6	156.6	156	0.6	6	1
	35	☐	MPS0310-L35C	109.1	125.6	138.6	175.6	175	0.6	6	1
40	☐	MPS0310-L40C	124.6	140.6	153.6	190.6	190	0.6	6	1	
3.2	3	☐	MPS0320S-DIN-C	14.8	19.6	24.6	61.6	61	0.6	6	1
	5	☐	MPS0320L-DIN-C	22.8	27.6	28.6	65.6	65	0.6	6	1
	8	☐	MPS0320-L8C	26.2	39.6	42.6	79.6	79	0.6	6	1
	10	☐	MPS0320-L10C	32.6	46.6	49.6	86.6	86	0.6	6	1
	12	☐	MPS0320-L12C	39.0	53.6	56.6	93.6	93	0.6	6	1
	15	☐	MPS0320-L15C	48.6	63.6	66.6	103.6	103	0.6	6	1
	20	☐	MPS0320-L20C	64.6	81.6	84.6	121.6	121	0.6	6	1
	25	☐	MPS0320-L25C	80.6	98.6	101.6	138.6	138	0.6	6	1
	30	☐	MPS0320-L30C	96.6	116.6	119.6	156.6	156	0.6	6	1
	35	☐	MPS0320-L35C	112.6	125.6	138.6	175.6	175	0.6	6	1
40	☐	MPS0320-L40C	128.6	140.6	153.6	190.6	190	0.6	6	1	

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
3.3	3	☐	MPS0330S-DIN-C	14.7	19.6	24.6	61.6	61	0.6	6	1
	5	☐	MPS0330L-DIN-C	22.7	27.6	28.6	65.6	65	0.6	6	1
	8	☐	MPS0330-L8C	27.0	39.6	42.6	79.6	79	0.6	6	1
	10	☐	MPS0330-L10C	33.6	46.6	49.6	86.6	86	0.6	6	1
	12	☐	MPS0330-L12C	40.2	53.6	56.6	93.6	93	0.6	6	1
	15	☐	MPS0330-L15C	50.1	63.6	66.6	103.6	103	0.6	6	1
	20	☐	MPS0330-L20C	66.6	81.6	84.6	121.6	121	0.6	6	1
	25	☐	MPS0330-L25C	83.1	98.6	101.6	138.6	138	0.6	6	1
	30	☐	MPS0330-L30C	99.6	116.6	119.6	156.6	156	0.6	6	1
35	☐	MPS0330-L35C	116.1	134.6	138.6	175.6	175	0.6	6	1	
40	☐	MPS0330-L40C	132.6	150.6	153.6	190.6	190	0.6	6	1	
3.4	3	☐	MPS0340S-DIN-C	14.5	19.6	24.6	61.6	61	0.6	6	1
	5	☐	MPS0340L-DIN-C	22.5	27.6	28.6	65.6	65	0.6	6	1
	8	☐	MPS0340-L8C	27.8	39.6	42.6	79.6	79	0.6	6	1
	10	☐	MPS0340-L10C	34.6	46.6	49.6	86.6	86	0.6	6	1
	12	☐	MPS0340-L12C	41.4	53.6	56.6	93.6	93	0.6	6	1
	15	☐	MPS0340-L15C	51.6	63.6	66.6	103.6	103	0.6	6	1
	20	☐	MPS0340-L20C	68.6	81.6	84.6	121.6	121	0.6	6	1
	25	☐	MPS0340-L25C	85.6	98.6	101.6	138.6	138	0.6	6	1
	30	☐	MPS0340-L30C	102.6	116.6	119.6	156.6	156	0.6	6	1
35	☐	MPS0340-L35C	119.6	134.6	138.6	175.6	175	0.6	6	1	
40	☐	MPS0340-L40C	136.6	150.6	153.6	190.6	190	0.6	6	1	
3.5	3	☐	MPS0350S-DIN-C	14.4	19.6	24.6	61.6	61	0.6	6	1
	5	☐	MPS0350L-DIN-C	22.4	27.6	28.6	65.6	65	0.6	6	1
	8	☐	MPS0350-L8C	28.6	39.6	42.6	79.6	79	0.6	6	1
	10	☐	MPS0350-L10C	35.6	46.6	49.6	86.6	86	0.6	6	1
	12	☐	MPS0350-L12C	42.6	53.6	56.6	93.6	93	0.6	6	1
	15	☐	MPS0350-L15C	53.1	63.6	66.6	103.6	103	0.6	6	1
	20	☐	MPS0350-L20C	70.6	81.6	84.6	121.6	121	0.6	6	1
	25	☐	MPS0350-L25C	88.1	98.6	101.6	138.6	138	0.6	6	1
	30	☐	MPS0350-L30C	105.6	116.6	119.6	156.6	156	0.6	6	1
35	☐	MPS0350-L35C	123.1	134.6	138.6	175.6	175	0.6	6	1	
40	☐	MPS0350-L40C	140.6	150.6	153.6	190.6	190	0.6	6	1	



Bugünden itibaren gri ile işaretlenmiş (MPS, MSL) ürünlerin gelecekteki tüm siparişlerini MPS1 serisi ile değiştirin lütfen. Çünkü üretimi kademeli olarak durdurulacak ve Mart 2023'te sonlanacaktır.

□ : Stokta bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
7.6	3	☐	MPS0760S-DIN-C	30.0	41.4	42.4	79.4	78	1.4	8	1
	5	☐	MPS0760L-DIN-C	42.0	53.4	54.4	91.4	90	1.4	8	1
	8	☐	MPS0760-L8C	62.2	89.4	92.4	129.4	128	1.4	8	1
	10	☐	MPS0760-L10C	77.4	105.4	108.4	145.4	144	1.4	8	1
	12	☐	MPS0760-L12C	92.6	121.4	124.4	161.4	160	1.4	8	1
	15	☐	MPS0760-L15C	115.4	145.4	148.4	185.4	184	1.4	8	1
	20	☐	MPS0760-L20C	153.4	185.4	188.4	225.4	224	1.4	8	1
	25	☐	MPS0760-L25C	191.4	225.4	228.4	265.4	264	1.4	8	1
	30	☐	MPS0760-L30C	229.4	265.4	268.4	305.4	304	1.4	8	1
	35	☐	MPS0760-L35C	267.4	305.4	307.4	344.4	343	1.4	8	1
	40	☐	MPS0760-L40C	305.4	341.4	342.4	379.4	378	1.4	8	1
7.7	3	☐	MPS0770S-DIN-C	29.9	41.4	42.4	79.4	78	1.4	8	1
	5	☐	MPS0770L-DIN-C	41.9	53.4	54.4	91.4	90	1.4	8	1
	8	☐	MPS0770-L8C	63.0	89.4	92.4	129.4	128	1.4	8	1
	10	☐	MPS0770-L10C	78.4	105.4	108.4	145.4	144	1.4	8	1
	12	☐	MPS0770-L12C	93.8	121.4	124.4	161.4	160	1.4	8	1
	15	☐	MPS0770-L15C	116.9	145.4	148.4	185.4	184	1.4	8	1
	20	☐	MPS0770-L20C	155.4	185.4	188.4	225.4	224	1.4	8	1
	25	☐	MPS0770-L25C	193.9	225.4	228.4	265.4	264	1.4	8	1
	30	☐	MPS0770-L30C	232.4	265.4	268.4	305.4	304	1.4	8	1
	35	☐	MPS0770-L35C	270.9	305.4	307.4	344.4	343	1.4	8	1
	40	☐	MPS0770-L40C	309.4	341.4	342.4	379.4	378	1.4	8	1
7.8	3	☐	MPS0780S-DIN-C	29.7	41.4	42.4	79.4	78	1.4	8	1
	5	☐	MPS0780L-DIN-C	41.7	53.4	54.4	91.4	90	1.4	8	1
	8	☐	MPS0780-L8C	63.8	89.4	92.4	129.4	128	1.4	8	1
	10	☐	MPS0780-L10C	79.4	105.4	108.4	145.4	144	1.4	8	1
	12	☐	MPS0780-L12C	95.0	121.4	124.4	161.4	160	1.4	8	1
	15	☐	MPS0780-L15C	118.4	145.4	148.4	185.4	184	1.4	8	1
	20	☐	MPS0780-L20C	157.4	185.4	188.4	225.4	224	1.4	8	1
	25	☐	MPS0780-L25C	196.4	225.4	228.4	265.4	264	1.4	8	1
	30	☐	MPS0780-L30C	235.4	265.4	268.4	305.4	304	1.4	8	1
	35	☐	MPS0780-L35C	274.4	305.4	307.4	344.4	343	1.4	8	1
	40	☐	MPS0780-L40C	313.4	341.4	342.4	379.4	378	1.4	8	1
7.9	3	☐	MPS0790S-DIN-C	29.6	41.4	42.4	79.4	78	1.4	8	1
	5	☐	MPS0790L-DIN-C	41.6	53.4	54.4	91.4	90	1.4	8	1
	8	☐	MPS0790-L8C	64.6	89.4	92.4	129.4	128	1.4	8	1
	10	☐	MPS0790-L10C	80.4	105.4	108.4	145.4	144	1.4	8	1
	12	☐	MPS0790-L12C	96.2	121.4	124.4	161.4	160	1.4	8	1
	15	☐	MPS0790-L15C	119.9	145.4	148.4	185.4	184	1.4	8	1
	20	☐	MPS0790-L20C	159.4	185.4	188.4	225.4	224	1.4	8	1
	25	☐	MPS0790-L25C	198.9	225.4	228.4	265.4	264	1.4	8	1
	30	☐	MPS0790-L30C	238.4	265.4	268.4	305.4	304	1.4	8	1
	35	☐	MPS0790-L35C	277.9	305.4	307.4	344.4	343	1.4	8	1
	40	☐	MPS0790-L40C	317.4	341.4	342.4	379.4	378	1.4	8	1
8.0	3	☐	MPS0800S-DIN-C	29.5	41.5	42.5	79.5	78	1.5	8	2
	5	☐	MPS0800L-DIN-C	41.5	53.5	54.5	91.5	90	1.5	8	2
	8	☐	MPS0800-L8C	65.5	89.5	92.5	129.5	128	1.5	8	2
	10	☐	MPS0800-L10C	81.5	105.5	108.5	145.5	144	1.5	8	2
	12	☐	MPS0800-L12C	97.5	121.5	124.5	161.5	160	1.5	8	2
	15	☐	MPS0800-L15C	121.5	145.5	148.5	185.5	184	1.5	8	2
	20	☐	MPS0800-L20C	161.5	185.5	188.5	225.5	224	1.5	8	2
	25	☐	MPS0800-L25C	201.5	225.5	228.5	265.5	264	1.5	8	2
	30	☐	MPS0800-L30C	241.5	265.5	268.5	305.5	304	1.5	8	2
	35	☐	MPS0800-L35C	281.5	305.5	307.5	344.5	343	1.5	8	2
	40	☐	MPS0800-L40C	321.5	341.5	342.5	379.5	378	1.5	8	2

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
8.05	3	☐	MPS0805S-DIN-C	34.4	46.5	47.5	88.5	87	1.5	10	1
	5	☐	MPS0805L-DIN-C	48.4	60.5	61.5	102.5	101	1.5	10	1
8.1	3	☐	MPS0810S-DIN-C	34.3	46.5	47.5	88.5	87	1.5	10	1
	5	☐	MPS0810L-DIN-C	48.3	60.5	61.5	102.5	101	1.5	10	1
	8	☐	MPS0810L-L8C	66.3	95.5	98.5	139.5	138	1.5	10	1
	10	☐	MPS0810L-L10C	82.5	112.5	115.5	156.5	155	1.5	10	1
	12	☐	MPS0810L-L12C	98.7	129.5	132.5	173.5	172	1.5	10	1
	15	☐	MPS0810L-L15C	123.0	154.5	157.5	198.5	197	1.5	10	1
	20	☐	MPS0810L-L20C	163.5	197.5	200.5	241.5	240	1.5	10	1
	25	☐	MPS0810L-L25C	204.0	239.5	242.5	283.5	282	1.5	10	1
	30	☐	MPS0810L-L30C	244.5	281.5	284.5	325.5	324	1.5	10	1
	35	☐	MPS0810L-L35C	285.0	324.5	326.5	367.5	366	1.5	10	1
	40	☐	MPS0810L-L40C	325.5	366.5	370.5	411.5	410	1.5	10	1
8.2	3	☐	MPS0820S-DIN-C	34.2	46.5	47.5	88.5	87	1.5	10	1
	5	☐	MPS0820L-DIN-C	48.2	60.5	61.5	102.5	101	1.5	10	1
	8	☐	MPS0820-L8C	67.1	95.5	98.5	139.5	138	1.5	10	1
	10	☐	MPS0820-L10C	83.5	112.5	115.5	156.5	155	1.5	10	1
	12	☐	MPS0820-L12C	99.9	129.5	132.5	173.5	172	1.5	10	1
	15	☐	MPS0820-L15C	124.5	154.5	157.5	198.5	197	1.5	10	1
	20	☐	MPS0820-L20C	165.5	197.5	200.5	241.5	240	1.5	10	1
	25	☐	MPS0820-L25C	206.5	239.5	242.5	283.5	282	1.5	10	1
	30	☐	MPS0820-L30C	247.5	281.5	284.5	325.5	324	1.5	10	1
	35	☐	MPS0820-L35C	288.5	324.5	326.5	367.5	366	1.5	10	1
	40	☐	MPS0820-L40C	329.5	366.5	370.5	411.5	410	1.5	10	1
8.3	3	☐	MPS0830S-DIN-C	34.1	46.5	47.5	88.5	87	1.5	10	1
	5	☐	MPS0830L-DIN-C	48.1	60.5	61.5	102.5	101	1.5	10	1
	8	☐	MPS0830-L8C	67.9	95.5	98.5	139.5	138	1.5	10	1
	10	☐	MPS0830-L10C	84.5	112.5	115.5	156.5	155	1.5	10	1
	12	☐	MPS0830-L12C	101.1	129.5	132.5	173.5	172	1.5	10	1
	15	☐	MPS0830-L15C	126.0	154.5	157.5	198.5	197	1.5	10	1
	20	☐	MPS0830-L20C	167.5	197.5	200.5	241.5	240	1.5	10	1
	25	☐	MPS0830-L25C	209.0	239.5	242.5	283.5	282	1.5	10	1
	30	☐	MPS0830-L30C	250.5	281.5	284.5	325.5	324	1.5	10	1
	35	☐	MPS0830-L35C	292.0	324.5	326.5	367.5	366	1.5	10	1
	40	☐	MPS0830-L40C	333.5	366.5	370.5	411.5	410	1.5	10	1
8.4	3	☐	MPS0840S-DIN-C	33.9	46.5	47.5	88.5	87	1.5	10	1
	5	☐	MPS0840L-DIN-C	47.9	60.5	61.5	102.5	101	1.5	10	1
	8	☐	MPS0840-L8C	68.7	95.5	98.5	139.5	138	1.5	10	1
	10	☐	MPS0840-L10C	85.5	112.5	115.5	156.5	155	1.5	10	1
	12	☐	MPS0840-L12C	102.3	129.5	132.5	173.5	172	1.5	10	1
	15	☐	MPS0840-L15C	127.5	154.5	157.5	198.5	197	1.5	10	1
	20	☐	MPS0840-L20C	169.5	197.5	200.5	241.5	240	1.5	10	1
	25	☐	MPS0840-L25C	211.5	239.5	242.5	283.5	282	1.5	10	1
	30	☐	MPS0840-L30C	253.5	281.5	284.5	325.5	324	1.5	10	1
	35	☐	MPS0840-L35C	295.5	324.5	326.5	367.5	366	1.5	10	1
	40	☐	MPS0840-L40C	337.5	366.5	370.5	411.5	410	1.5	10	1
8.5	3	☐	MPS0850S-DIN-C	33.8	46.5	47.5	88.5	87	1.5	10	1
	5	☐	MPS0850L-DIN-C	47.8	60.5	61.5	102.5	101	1.5	10	1
	8	☐	MPS0850-L8C	69.5	95.5	98.5	139.5	138	1.5	10	1
	10	☐	MPS0850-L10C	86.5	112.5	115.5	156.5	155	1.5	10	1
	12	☐	MPS0850-L12C	103.5	129.5	132.5	173.5	172	1.5	10	1
	15	☐	MPS0850-L15C	129.0	154.5	157.5	198.5	197	1.5	10	1
	20	☐	MPS0850-L20C	171.5	197.5	200.5	241.5	240	1.5	10	1
	25	☐	MPS0850-L25C	214.0	239.5	242.5	283.5	282	1.5	10	1
	30	☐	MPS0850-L30C	256.5	281.5	284.5	325.5	324	1.5	10	1
	35	☐	MPS0850-L35C	299.0	324.5	326.5	367.5	366	1.5	10	1
	40	☐	MPS0850-L40C	341.5	366.5	370.5	411.5	410	1.5	10	1

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
8.6	3	☐	MPS0860S-DIN-C	33.7	46.6	47.6	88.6	87	1.6	10	1
	5	☐	MPS0860L-DIN-C	47.7	60.6	61.6	102.6	101	1.6	10	1
	8	☐	MPS0860-L8C	70.4	100.6	103.6	144.6	143	1.6	10	1
	10	☐	MPS0860-L10C	87.6	118.6	121.6	162.6	161	1.6	10	1
	12	☐	MPS0860-L12C	104.8	136.6	139.6	180.6	179	1.6	10	1
	15	☐	MPS0860-L15C	130.6	163.6	166.6	207.6	206	1.6	10	1
	20	☐	MPS0860-L20C	173.6	208.6	211.6	252.6	251	1.6	10	1
	25	☐	MPS0860-L25C	216.6	253.6	256.6	297.6	296	1.6	10	1
	30	☐	MPS0860-L30C	259.6	297.6	300.6	341.6	340	1.6	10	1
	35	☐	MPS0860-L35C	302.6	343.6	345.6	386.6	385	1.6	10	1
8.7	40	☐	MPS0860-L40C	345.6	391.6	394.6	435.6	434	1.6	10	1
	3	☐	MPS0870S-DIN-C	33.5	46.6	47.6	88.6	87	1.6	10	1
	5	☐	MPS0870L-DIN-C	47.5	60.6	61.6	102.6	101	1.6	10	1
	8	☐	MPS0870-L8C	71.2	100.6	103.6	144.6	143	1.6	10	1
	10	☐	MPS0870-L10C	88.6	118.6	121.6	162.6	161	1.6	10	1
	12	☐	MPS0870-L12C	106.0	136.6	139.6	180.6	179	1.6	10	1
	15	☐	MPS0870-L15C	132.1	163.6	166.6	207.6	206	1.6	10	1
	20	☐	MPS0870-L20C	175.6	208.6	211.6	252.6	251	1.6	10	1
	25	☐	MPS0870-L25C	219.1	253.6	256.6	297.6	296	1.6	10	1
	30	☐	MPS0870-L30C	262.6	297.6	300.6	341.6	340	1.6	10	1
8.8	35	☐	MPS0870-L35C	306.1	343.6	345.6	386.6	385	1.6	10	1
	40	☐	MPS0870-L40C	349.6	391.6	394.6	435.6	434	1.6	10	1
	3	☐	MPS0880S-DIN-C	33.4	46.6	47.6	88.6	87	1.6	10	1
	5	☐	MPS0880L-DIN-C	47.4	60.6	61.6	102.6	101	1.6	10	1
	8	☐	MPS0880-L8C	72.0	100.6	103.6	144.6	143	1.6	10	1
	10	☐	MPS0880-L10C	89.6	118.6	121.6	162.6	161	1.6	10	1
	12	☐	MPS0880-L12C	107.2	136.6	139.6	180.6	179	1.6	10	1
	15	☐	MPS0880-L15C	133.6	163.6	166.6	207.6	206	1.6	10	1
	20	☐	MPS0880-L20C	177.6	208.6	211.6	252.6	251	1.6	10	1
	25	☐	MPS0880-L25C	221.6	253.6	256.6	297.6	296	1.6	10	1
8.9	30	☐	MPS0880-L30C	265.6	297.6	300.6	341.6	340	1.6	10	1
	35	☐	MPS0880-L35C	309.6	343.6	345.6	386.6	385	1.6	10	1
	40	☐	MPS0880-L40C	353.6	391.6	394.6	435.6	434	1.6	10	1
	3	☐	MPS0890S-DIN-C	33.3	46.6	47.6	88.6	87	1.6	10	1
	5	☐	MPS0890L-DIN-C	47.3	60.6	61.6	102.6	101	1.6	10	1
	8	☐	MPS0890-L8C	72.8	100.6	103.6	144.6	143	1.6	10	1
	10	☐	MPS0890-L10C	90.6	118.6	121.6	162.6	161	1.6	10	1
	12	☐	MPS0890-L12C	108.4	136.6	139.6	180.6	179	1.6	10	1
	15	☐	MPS0890-L15C	135.1	163.6	166.6	207.6	206	1.6	10	1
	20	☐	MPS0890-L20C	179.6	208.6	211.6	252.6	251	1.6	10	1
9.0	25	☐	MPS0890-L25C	224.1	253.6	256.6	297.6	296	1.6	10	1
	30	☐	MPS0890-L30C	268.6	297.6	300.6	341.6	340	1.6	10	1
	35	☐	MPS0890-L35C	313.1	343.6	345.6	386.6	385	1.6	10	1
	40	☐	MPS0890-L40C	357.6	391.6	394.6	435.6	434	1.6	10	1
	3	☐	MPS0900S-DIN-C	33.1	46.6	47.6	88.6	87	1.6	10	1
	5	☐	MPS0900L-DIN-C	47.1	60.6	61.6	102.6	101	1.6	10	1
	8	☐	MPS0900-L8C	73.6	100.6	103.6	144.6	143	1.6	10	1
	10	☐	MPS0900-L10C	91.6	118.6	121.6	162.6	161	1.6	10	1
	12	☐	MPS0900-L12C	109.6	136.6	139.6	180.6	179	1.6	10	1
	15	☐	MPS0900-L15C	136.6	163.6	166.6	207.6	206	1.6	10	1
9.1	20	☐	MPS0900-L20C	181.6	208.6	211.6	252.6	251	1.6	10	1
	25	☐	MPS0900-L25C	226.6	253.6	256.6	297.6	296	1.6	10	1
	30	☐	MPS0900-L30C	271.6	297.6	300.6	341.6	340	1.6	10	1
	35	☐	MPS0900-L35C	316.6	343.6	345.6	386.6	385	1.6	10	1
	40	☐	MPS0900-L40C	361.6	391.6	394.6	435.6	434	1.6	10	1

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
9.1	3	☐	MPS0910S-DIN-C	33.0	46.7	47.7	88.7	87	1.7	10	1
	5	☐	MPS0910L-DIN-C	47.0	60.7	61.7	102.7	101	1.7	10	1
	8	☐	MPS0910-L8C	74.5	106.7	109.7	150.7	149	1.7	10	1
	10	☐	MPS0910-L10C	92.7	125.7	128.7	169.7	168	1.7	10	1
	12	☐	MPS0910-L12C	110.9	144.7	147.7	188.7	187	1.7	10	1
	15	☐	MPS0910-L15C	138.2	172.7	175.7	216.7	215	1.7	10	1
	20	☐	MPS0910-L20C	183.7	220.7	223.7	264.7	263	1.7	10	1
	25	☐	MPS0910-L25C	229.2	267.7	270.7	311.7	310	1.7	10	1
	30	☐	MPS0910-L30C	274.7	315.7	318.7	359.7	358	1.7	10	1
35	☐	MPS0910-L35C	320.2	362.7	364.7	405.7	404	1.7	10	1	
9.2	3	☐	MPS0920S-DIN-C	32.9	46.7	47.7	88.7	87	1.7	10	1
	5	☐	MPS0920L-DIN-C	46.9	60.7	61.7	102.7	101	1.7	10	1
	8	☐	MPS0920-L8C	75.3	106.7	109.7	150.7	149	1.7	10	1
	10	☐	MPS0920-L10C	93.7	125.7	128.7	169.7	168	1.7	10	1
	12	☐	MPS0920-L12C	112.1	144.7	147.7	188.7	187	1.7	10	1
	15	☐	MPS0920-L15C	139.7	172.7	175.7	216.7	215	1.7	10	1
	20	☐	MPS0920-L20C	185.7	220.7	223.7	264.7	263	1.7	10	1
	25	☐	MPS0920-L25C	231.7	267.7	270.7	311.7	310	1.7	10	1
	30	☐	MPS0920-L30C	277.7	315.7	318.7	359.7	358	1.7	10	1
35	☐	MPS0920-L35C	323.7	362.7	364.7	405.7	404	1.7	10	1	
9.3	3	☐	MPS0930S-DIN-C	32.7	46.7	47.7	88.7	87	1.7	10	1
	5	☐	MPS0930L-DIN-C	46.7	60.7	61.7	102.7	101	1.7	10	1
	8	☐	MPS0930-L8C	76.1	106.7	109.7	150.7	149	1.7	10	1
	10	☐	MPS0930-L10C	94.7	125.7	128.7	169.7	168	1.7	10	1
	12	☐	MPS0930-L12C	113.3	144.7	147.7	188.7	187	1.7	10	1
	15	☐	MPS0930-L15C	141.2	172.7	175.7	216.7	215	1.7	10	1
	20	☐	MPS0930-L20C	187.7	220.7	223.7	264.7	263	1.7	10	1
	25	☐	MPS0930-L25C	234.2	267.7	270.7	311.7	310	1.7	10	1
	30	☐	MPS0930-L30C	280.7	315.7	318.7	359.7	358	1.7	10	1
35	☐	MPS0930-L35C	327.2	362.7	364.7	405.7	404	1.7	10	1	
9.4	3	☐	MPS0940S-DIN-C	32.6	46.7	47.7	88.7	87	1.7	10	1
	5	☐	MPS0940L-DIN-C	46.6	60.7	61.7	102.7	101	1.7	10	1
	8	☐	MPS0940-L8C	76.9	106.7	109.7	150.7	149	1.7	10	1
	10	☐	MPS0940-L10C	95.7	125.7	128.7	169.7	168	1.7	10	1
	12	☐	MPS0940-L12C	114.5	144.7	147.7	188.7	187	1.7	10	1
	15	☐	MPS0940-L15C	142.7	172.7	175.7	216.7	215	1.7	10	1
	20	☐	MPS0940-L20C	189.7	220.7	223.7	264.7	263	1.7	10	1
	25	☐	MPS0940-L25C	236.7	267.7	270.7	311.7	310	1.7	10	1
	30	☐	MPS0940-L30C	283.7	315.7	318.7	359.7	358	1.7	10	1
35	☐	MPS0940-L35C	330.7	362.7	364.7	405.7	404	1.7	10	1	
9.5	3	☐	MPS0950S-DIN-C	32.5	46.7	47.7	88.7	87	1.7	10	1
	5	☐	MPS0950L-DIN-C	46.5	60.7	61.7	102.7	101	1.7	10	1
	8	☐	MPS0950-L8C	77.7	106.7	109.7	150.7	149	1.7	10	1
	10	☐	MPS0950-L10C	96.7	125.7	128.7	169.7	168	1.7	10	1
	12	☐	MPS0950-L12C	115.7	144.7	147.7	188.7	187	1.7	10	1
	15	☐	MPS0950-L15C	144.2	172.7	175.7	216.7	215	1.7	10	1
	20	☐	MPS0950-L20C	191.7	220.7	223.7	264.7	263	1.7	10	1
	25	☐	MPS0950-L25C	239.2	267.7	270.7	311.7	310	1.7	10	1
	30	☐	MPS0950-L30C	286.7	315.7	318.7	359.7	358	1.7	10	1
35	☐	MPS0950-L35C	334.2	362.7	364.7	405.7	404	1.7	10	1	
9.6	3	☐	MPS0960S-DIN-C	32.3	46.7	47.7	88.7	87	1.7	10	1
	5	☐	MPS0960L-DIN-C	46.3	60.7	61.7	102.7	101	1.7	10	1
	8	☐	MPS0960-L8C	78.5	111.7	114.7	155.7	154	1.7	10	1
	10	☐	MPS0960-L10C	97.7	131.7	134.7	175.7	174	1.7	10	1
	12	☐	MPS0960-L12C	116.9	151.7	154.7	195.7	194	1.7	10	1
	15	☐	MPS0960-L15C	145.7	181.7	184.7	225.7	224	1.7	10	1

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
9.6	20	☐	MPS0960-L20C	193.7	231.7	234.7	275.7	274	1.7	10	1
	25	☐	MPS0960-L25C	241.7	281.7	284.7	325.7	324	1.7	10	1
	30	☐	MPS0960-L30C	289.7	331.7	334.7	375.7	374	1.7	10	1
	35	☐	MPS0960-L35C	337.7	381.7	383.7	424.7	423	1.7	10	1
9.7	3	☐	MPS0970S-DIN-C	32.2	46.8	47.8	88.8	87	1.8	10	1
	5	☐	MPS0970L-DIN-C	46.2	60.8	61.8	102.8	101	1.8	10	1
	8	☐	MPS0970-L8C	79.4	111.8	114.8	155.8	154	1.8	10	1
	10	☐	MPS0970-L10C	98.8	131.8	134.8	175.8	174	1.8	10	1
	12	☐	MPS0970-L12C	118.2	151.8	154.8	195.8	194	1.8	10	1
	15	☐	MPS0970-L15C	147.3	181.8	184.8	225.8	224	1.8	10	1
	20	☐	MPS0970-L20C	195.8	231.8	234.8	275.8	274	1.8	10	1
	25	☐	MPS0970-L25C	244.3	281.8	284.8	325.8	324	1.8	10	1
	30	☐	MPS0970-L30C	292.8	331.8	334.8	375.8	374	1.8	10	1
	35	☐	MPS0970-L35C	341.3	381.8	383.8	424.8	423	1.8	10	1
9.8	3	☐	MPS0980S-DIN-C	32.1	46.8	47.8	88.8	87	1.8	10	1
	5	☐	MPS0980L-DIN-C	46.1	60.8	61.8	102.8	101	1.8	10	1
	8	☐	MPS0980-L8C	80.2	111.8	114.8	155.8	154	1.8	10	1
	10	☐	MPS0980-L10C	99.8	131.8	134.8	175.8	174	1.8	10	1
	12	☐	MPS0980-L12C	119.4	151.8	154.8	195.8	194	1.8	10	1
	15	☐	MPS0980-L15C	148.8	181.8	184.8	225.8	224	1.8	10	1
	20	☐	MPS0980-L20C	197.8	231.8	234.8	275.8	274	1.8	10	1
	25	☐	MPS0980-L25C	246.8	281.8	284.8	325.8	324	1.8	10	1
	30	☐	MPS0980-L30C	295.8	331.8	334.8	375.8	374	1.8	10	1
	35	☐	MPS0980-L35C	344.8	381.8	383.8	424.8	423	1.8	10	1
9.9	3	☐	MPS0990S-DIN-C	32.0	46.8	47.8	88.8	87	1.8	10	1
	5	☐	MPS0990L-DIN-C	46.0	60.8	61.8	102.8	101	1.8	10	1
	8	☐	MPS0990-L8C	81.0	111.8	114.8	155.8	154	1.8	10	1
	10	☐	MPS0990-L10C	100.8	131.8	134.8	175.8	174	1.8	10	1
	12	☐	MPS0990-L12C	120.6	151.8	154.8	195.8	194	1.8	10	1
	15	☐	MPS0990-L15C	150.3	181.8	184.8	225.8	224	1.8	10	1
	20	☐	MPS0990-L20C	199.8	231.8	234.8	275.8	274	1.8	10	1
	25	☐	MPS0990-L25C	249.3	281.8	284.8	325.8	324	1.8	10	1
	30	☐	MPS0990-L30C	298.8	331.8	334.8	375.8	374	1.8	10	1
	35	☐	MPS0990-L35C	348.3	381.8	383.8	424.8	423	1.8	10	1
10.0	3	☐	MPS1000S-DIN-C	31.8	46.8	47.8	88.8	87	1.8	10	2
	5	☐	MPS1000L-DIN-C	45.8	60.8	61.8	102.8	101	1.8	10	2
	8	☐	MPS1000-L8C	81.8	111.8	114.8	155.8	154	1.8	10	2
	10	☐	MPS1000-L10C	101.8	131.8	134.8	175.8	174	1.8	10	2
	12	☐	MPS1000-L12C	121.8	151.8	154.8	195.8	194	1.8	10	2
	15	☐	MPS1000-L15C	151.8	181.8	184.8	225.8	224	1.8	10	2
	20	☐	MPS1000-L20C	201.8	231.8	234.8	275.8	274	1.8	10	2
	25	☐	MPS1000-L25C	251.8	281.8	284.8	325.8	324	1.8	10	2
	30	☐	MPS1000-L30C	301.8	331.8	334.8	375.8	374	1.8	10	2
	35	☐	MPS1000-L35C	351.8	381.8	383.8	424.8	423	1.8	10	2
10.05	3	☐	MPS1005S-DIN-C	39.8	54.8	55.8	101.8	100	1.8	12	1
	5	☐	MPS1005L-DIN-C	55.8	70.8	71.8	117.8	116	1.8	12	1
10.1	3	☐	MPS1010S-DIN-C	39.7	54.8	55.8	101.8	100	1.8	12	1
	5	☐	MPS1010L-DIN-C	55.7	70.8	71.8	117.8	116	1.8	12	1
	8	☐	MPS1010-L8C	82.6	117.8	120.8	166.8	165	1.8	12	1
	10	☐	MPS1010-L10C	102.8	138.8	141.8	187.8	186	1.8	12	1
	12	☐	MPS1010-L12C	123.0	159.8	162.8	208.8	207	1.8	12	1
	15	☐	MPS1010-L15C	153.3	190.8	193.8	239.8	238	1.8	12	1
10.1	20	☐	MPS1010-L20C	203.8	243.8	246.8	292.8	291	1.8	12	1
	25	☐	MPS1010-L25C	254.3	295.8	298.8	344.8	343	1.8	12	1

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
10.2	3	☐	MPS1020S-DIN-C	39.6	54.9	55.9	101.9	100	1.9	12	1
	5	☐	MPS1020L-DIN-C	55.6	70.9	71.9	117.9	116	1.9	12	1
	8	☐	MPS1020-L8C	83.5	117.9	120.9	166.9	165	1.9	12	1
	10	☐	MPS1020-L10C	103.9	138.9	141.9	187.9	186	1.9	12	1
	12	☐	MPS1020-L12C	124.3	159.9	162.9	208.9	207	1.9	12	1
	15	☐	MPS1020-L15C	154.9	190.9	193.9	239.9	238	1.9	12	1
	20	☐	MPS1020-L20C	205.9	243.9	246.9	292.9	291	1.9	12	1
	25	☐	MPS1020-L25C	256.9	295.9	298.9	344.9	343	1.9	12	1
10.3	3	☐	MPS1030S-DIN-C	39.4	54.9	55.9	101.9	100	1.9	12	1
	5	☐	MPS1030L-DIN-C	55.4	70.9	71.9	117.9	116	1.9	12	1
	8	☐	MPS1030-L8C	84.3	117.9	120.9	166.9	165	1.9	12	1
	10	☐	MPS1030-L10C	104.9	138.9	141.9	187.9	186	1.9	12	1
	12	☐	MPS1030-L12C	125.5	159.9	162.9	208.9	207	1.9	12	1
	15	☐	MPS1030-L15C	156.4	190.9	193.9	239.9	238	1.9	12	1
	20	☐	MPS1030-L20C	207.9	243.9	246.9	292.9	291	1.9	12	1
	25	☐	MPS1030-L25C	259.4	295.9	298.9	344.9	343	1.9	12	1
10.4	3	☐	MPS1040S-DIN-C	39.3	54.9	55.9	101.9	100	1.9	12	1
	5	☐	MPS1040L-DIN-C	55.3	70.9	71.9	117.9	116	1.9	12	1
	8	☐	MPS1040-L8C	85.1	117.9	120.9	166.9	165	1.9	12	1
	10	☐	MPS1040-L10C	105.9	138.9	141.9	187.9	186	1.9	12	1
	12	☐	MPS1040-L12C	126.7	159.9	162.9	208.9	207	1.9	12	1
	15	☐	MPS1040-L15C	157.9	190.9	193.9	239.9	238	1.9	12	1
	20	☐	MPS1040-L20C	209.9	243.9	246.9	292.9	291	1.9	12	1
	25	☐	MPS1040-L25C	261.9	295.9	298.9	344.9	343	1.9	12	1
10.5	3	☐	MPS1050S-DIN-C	39.2	54.9	55.9	101.9	100	1.9	12	1
	5	☐	MPS1050L-DIN-C	55.2	70.9	71.9	117.9	116	1.9	12	1
	8	☐	MPS1050-L8C	85.9	117.9	120.9	166.9	165	1.9	12	1
	10	☐	MPS1050-L10C	106.9	138.9	141.9	187.9	186	1.9	12	1
	12	☐	MPS1050-L12C	127.9	159.9	162.9	208.9	207	1.9	12	1
	15	☐	MPS1050-L15C	159.4	190.9	193.9	239.9	238	1.9	12	1
	20	☐	MPS1050-L20C	211.9	243.9	246.9	292.9	291	1.9	12	1
	25	☐	MPS1050-L25C	264.4	295.9	298.9	344.9	343	1.9	12	1
10.6	3	☐	MPS1060S-DIN-C	39.0	54.9	55.9	101.9	100	1.9	12	1
	5	☐	MPS1060L-DIN-C	55.0	70.9	71.9	117.9	116	1.9	12	1
	8	☐	MPS1060-L8C	86.7	122.9	125.9	171.9	170	1.9	12	1
	10	☐	MPS1060-L10C	107.9	144.9	147.9	193.9	192	1.9	12	1
	12	☐	MPS1060-L12C	129.1	166.9	169.9	215.9	214	1.9	12	1
	15	☐	MPS1060-L15C	160.9	197.9	202.9	248.9	247	1.9	12	1
	20	☐	MPS1060-L20C	213.9	254.9	257.9	303.9	302	1.9	12	1
	25	☐	MPS1060-L25C	266.9	309.9	312.9	358.9	357	1.9	12	1
10.7	3	☐	MPS1070S-DIN-C	38.9	54.9	55.9	101.9	100	1.9	12	1
	5	☐	MPS1070L-DIN-C	54.9	70.9	71.9	117.9	116	1.9	12	1
	8	☐	MPS1070-L8C	87.5	122.9	125.9	171.9	170	1.9	12	1
	10	☐	MPS1070-L10C	108.9	144.9	147.9	193.9	192	1.9	12	1
	12	☐	MPS1070-L12C	130.3	166.9	169.9	215.9	214	1.9	12	1
	15	☐	MPS1070-L15C	162.4	197.9	202.9	248.9	247	1.9	12	1
	20	☐	MPS1070-L20C	215.9	254.9	257.9	303.9	302	1.9	12	1
	25	☐	MPS1070-L25C	269.4	309.9	312.9	358.9	357	1.9	12	1
10.8	3	☐	MPS1080S-DIN-C	38.8	55.0	56.0	102.0	100	2.0	12	1
	5	☐	MPS1080L-DIN-C	54.8	71.0	72.0	118.0	116	2.0	12	1
	8	☐	MPS1080-L8C	88.4	123.0	126.0	172.0	170	2.0	12	1
	10	☐	MPS1080-L10C	110.0	145.0	148.0	194.0	192	2.0	12	1
	12	☐	MPS1080-L12C	131.6	167.0	170.0	216.0	214	2.0	12	1
	15	☐	MPS1080-L15C	164.0	198.0	203.0	249.0	247	2.0	12	1
	20	☐	MPS1080-L20C	218.0	255.0	258.0	304.0	302	2.0	12	1
	25	☐	MPS1080-L25C	272.0	310.0	313.0	359.0	357	2.0	12	1

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
10.9	3	☐	MPS1090S-DIN-C	38.6	55.0	56.0	102.0	100	2.0	12	1
	5	☐	MPS1090L-DIN-C	54.6	71.0	72.0	118.0	116	2.0	12	1
	8	☐	MPS1090-L8C	89.2	123.0	126.0	172.0	170	2.0	12	1
	10	☐	MPS1090-L10C	111.0	145.0	148.0	194.0	192	2.0	12	1
	12	☐	MPS1090-L12C	132.8	167.0	170.0	216.0	214	2.0	12	1
	15	☐	MPS1090-L15C	165.5	198.0	203.0	249.0	247	2.0	12	1
	20	☐	MPS1090-L20C	220.0	255.0	258.0	304.0	302	2.0	12	1
	25	☐	MPS1090-L25C	274.5	310.0	313.0	359.0	357	2.0	12	1
11.0	3	☐	MPS1100S-DIN-C	38.5	55.0	56.0	102.0	100	2.0	12	1
	5	☐	MPS1100L-DIN-C	54.5	71.0	72.0	118.0	116	2.0	12	1
	8	☐	MPS1100-L8C	90.0	123.0	126.0	172.0	170	2.0	12	1
	10	☐	MPS1100-L10C	112.0	145.0	148.0	194.0	192	2.0	12	1
	12	☐	MPS1100-L12C	134.0	167.0	170.0	216.0	214	2.0	12	1
	15	☐	MPS1100-L15C	167.0	198.0	203.0	249.0	247	2.0	12	1
	20	☐	MPS1100-L20C	222.0	255.0	258.0	304.0	302	2.0	12	1
	25	☐	MPS1100-L25C	277.0	310.0	313.0	359.0	357	2.0	12	1
11.1	3	☐	MPS1110S-DIN-C	38.4	55.0	56.0	102.0	100	2.0	12	1
	5	☐	MPS1110L-DIN-C	54.4	71.0	72.0	118.0	116	2.0	12	1
	8	☐	MPS1110-L8C	90.8	129.0	132.0	178.0	176	2.0	12	1
	10	☐	MPS1110-L10C	113.0	152.0	155.0	201.0	199	2.0	12	1
	12	☐	MPS1110-L12C	135.2	175.0	178.0	224.0	222	2.0	12	1
	15	☐	MPS1110-L15C	168.5	209.0	212.0	258.0	256	2.0	12	1
	20	☐	MPS1110-L20C	224.0	267.0	270.0	316.0	314	2.0	12	1
	25	☐	MPS1110-L25C	279.5	324.0	327.0	373.0	371	2.0	12	1
11.2	3	☐	MPS1120S-DIN-C	38.2	55.0	56.0	102.0	100	2.0	12	1
	5	☐	MPS1120L-DIN-C	54.2	71.0	72.0	118.0	116	2.0	12	1
	8	☐	MPS1120-L8C	91.6	129.0	132.0	178.0	176	2.0	12	1
	10	☐	MPS1120-L10C	114.0	152.0	155.0	201.0	199	2.0	12	1
	12	☐	MPS1120-L12C	136.4	175.0	178.0	224.0	222	2.0	12	1
	15	☐	MPS1120-L15C	170.0	209.0	212.0	258.0	256	2.0	12	1
	20	☐	MPS1120-L20C	226.0	267.0	270.0	316.0	314	2.0	12	1
	25	☐	MPS1120-L25C	282.0	324.0	327.0	373.0	371	2.0	12	1
11.3	3	☐	MPS1130S-DIN-C	38.1	55.1	56.1	102.1	100	2.1	12	1
	5	☐	MPS1130L-DIN-C	54.1	71.1	72.1	118.1	116	2.1	12	1
	8	☐	MPS1130-L8C	92.5	129.1	132.1	178.1	176	2.1	12	1
	10	☐	MPS1130-L10C	115.1	152.1	155.1	201.1	199	2.1	12	1
	12	☐	MPS1130-L12C	137.7	175.1	178.0	224.0	222	2.1	12	1
	15	☐	MPS1130-L15C	171.6	209.1	212.1	258.1	256	2.1	12	1
	20	☐	MPS1130-L20C	228.1	267.1	270.1	316.1	314	2.1	12	1
	25	☐	MPS1130-L25C	284.6	324.1	327.1	373.1	371	2.1	12	1
11.4	3	☐	MPS1140S-DIN-C	38.0	55.1	56.1	102.1	100	2.1	12	1
	5	☐	MPS1140L-DIN-C	54.0	71.1	72.1	118.1	116	2.1	12	1
	8	☐	MPS1140-L8C	93.3	129.1	132.1	178.1	176	2.1	12	1
	10	☐	MPS1140-L10C	116.1	152.1	155.1	201.1	199	2.1	12	1
	12	☐	MPS1140-L12C	138.9	175.1	178.0	224.0	222	2.1	12	1
	15	☐	MPS1140-L15C	173.1	209.1	212.1	258.1	256	2.1	12	1
	20	☐	MPS1140-L20C	230.1	267.1	270.1	316.1	314	2.1	12	1
	25	☐	MPS1140-L25C	287.1	324.1	327.1	373.1	371	2.1	12	1
11.5	3	☐	MPS1150S-DIN-C	37.8	55.1	56.1	102.1	100	2.1	12	1
	5	☐	MPS1150L-DIN-C	53.8	71.1	72.1	118.1	116	2.1	12	1
	8	☐	MPS1150-L8C	94.1	129.1	132.1	178.1	176	2.1	12	1
	10	☐	MPS1150-L10C	117.1	152.1	155.1	201.1	199	2.1	12	1
	12	☐	MPS1150-L12C	140.1	175.1	178.0	224.0	222	2.1	12	1
	15	☐	MPS1150-L15C	174.6	209.1	212.1	258.1	256	2.1	12	1
	20	☐	MPS1150-L20C	232.1	267.1	270.1	316.1	314	2.1	12	1
	25	☐	MPS1150-L25C	289.6	324.1	327.1	373.1	371	2.1	12	1

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
11.6	3	☐	MPS1160S-DIN-C	37.7	55.1	56.1	102.1	100	2.1	12	1
	5	☐	MPS1160L-DIN-C	53.7	71.1	72.1	118.1	116	2.1	12	1
	8	☐	MPS1160-L8C	94.9	134.1	137.1	183.1	181	2.1	12	1
	10	☐	MPS1160-L10C	118.1	158.1	161.1	207.1	205	2.1	12	1
	12	☐	MPS1160-L12C	141.3	182.1	185.1	231.1	229	2.1	12	1
	15	☐	MPS1160-L15C	176.1	218.1	221.1	267.1	265	2.1	12	1
	20	☐	MPS1160-L20C	234.1	278.1	281.1	327.1	325	2.1	12	1
	25	☐	MPS1160-L25C	292.1	338.1	341.1	387.1	385	2.1	12	1
11.7	3	☐	MPS1170S-DIN-C	37.6	55.1	56.1	102.1	100	2.1	12	1
	5	☐	MPS1170L-DIN-C	53.6	71.1	72.1	118.1	116	2.1	12	1
	8	☐	MPS1170-L8C	95.7	134.1	137.1	183.1	181	2.1	12	1
	10	☐	MPS1170-L10C	119.1	158.1	161.1	207.1	205	2.1	12	1
	12	☐	MPS1170-L12C	142.5	182.1	185.1	231.1	229	2.1	12	1
	15	☐	MPS1170-L15C	177.6	218.1	221.1	267.1	265	2.1	12	1
	20	☐	MPS1170-L20C	236.1	278.1	281.1	327.1	325	2.1	12	1
	25	☐	MPS1170-L25C	294.6	338.1	341.1	387.1	385	2.1	12	1
11.8	3	☐	MPS1180S-DIN-C	37.4	55.1	56.1	102.1	100	2.1	12	1
	5	☐	MPS1180L-DIN-C	53.4	71.1	72.1	118.1	116	2.1	12	1
	8	☐	MPS1180-L8C	96.5	134.1	137.1	183.1	181	2.1	12	1
	10	☐	MPS1180-L10C	120.1	158.1	161.1	207.1	205	2.1	12	1
	12	☐	MPS1180-L12C	143.7	182.1	185.1	231.1	229	2.1	12	1
	15	☐	MPS1180-L15C	179.1	218.1	221.1	267.1	265	2.1	12	1
	20	☐	MPS1180-L20C	238.1	278.1	281.1	327.1	325	2.1	12	1
	25	☐	MPS1180-L25C	297.1	338.1	341.1	387.1	385	2.1	12	1
11.9	3	☐	MPS1190S-DIN-C	37.3	55.2	56.2	102.2	100	2.2	12	1
	5	☐	MPS1190L-DIN-C	53.3	71.2	72.2	118.2	116	2.2	12	1
	8	☐	MPS1190-L8C	97.4	134.2	137.2	183.2	181	2.2	12	1
	10	☐	MPS1190-L10C	121.2	158.2	161.2	207.2	205	2.2	12	1
	12	☐	MPS1190-L12C	145.0	182.2	185.2	231.2	229	2.2	12	1
	15	☐	MPS1190-L15C	180.7	218.2	221.2	267.2	265	2.2	12	1
	20	☐	MPS1190-L20C	240.2	278.2	281.2	327.2	325	2.2	12	1
	25	☐	MPS1190-L25C	299.7	338.2	341.2	387.2	385	2.2	12	1
12.0	3	☐	MPS1200S-DIN-C	37.2	55.2	56.2	102.2	100	2.2	12	2
	5	☐	MPS1200L-DIN-C	53.2	71.2	72.2	118.2	116	2.2	12	2
	8	☐	MPS1200-L8C	98.2	134.2	137.2	183.2	181	2.2	12	2
	10	☐	MPS1200-L10C	122.2	158.2	161.2	207.2	205	2.2	12	2
	12	☐	MPS1200-L12C	146.2	182.2	185.2	231.2	229	2.2	12	2
	15	☐	MPS1200-L15C	182.2	218.2	221.2	267.2	265	2.2	12	2
	20	☐	MPS1200-L20C	242.2	278.2	281.2	327.2	325	2.2	12	2
	25	☐	MPS1200-L25C	302.2	338.2	341.2	387.2	385	2.2	12	2
12.05	3	☐	MPS1205S-DIN-C	42.1	60.2	61.2	107.2	105	2.2	14	1
	5	☐	MPS1205L-DIN-C	59.1	77.2	78.2	124.2	122	2.2	14	1
12.1	3	☐	MPS1210S-DIN-C	42.1	60.2	61.2	107.2	105	2.2	14	1
	5	☐	MPS1210L-DIN-C	59.1	77.2	78.2	124.2	122	2.2	14	1
	8	☐	MPS1210-L8C	99.0	140.2	143.2	189.2	187	2.2	14	1
	10	☐	MPS1210-L10C	123.2	165.2	168.2	214.2	212	2.2	14	1
	12	☐	MPS1210-L12C	147.4	190.2	193.2	239.2	237	2.2	14	1
	15	☐	MPS1210-L15C	183.7	227.2	230.2	276.2	274	2.2	14	1
	20	☐	MPS1210-L20C	244.2	290.2	293.2	339.2	337	2.2	14	1
12.2	3	☐	MPS1220S-DIN-C	41.9	60.2	61.2	107.2	105	2.2	14	1
	5	☐	MPS1220L-DIN-C	58.9	77.2	78.2	124.2	122	2.2	14	1
	8	☐	MPS1220-L8C	99.8	140.2	143.2	189.2	187	2.2	14	1
	10	☐	MPS1220-L10C	124.2	165.2	168.2	214.2	212	2.2	14	1
	12	☐	MPS1220-L12C	148.6	190.2	193.2	239.2	237	2.2	14	1
	15	☐	MPS1220-L15C	185.2	227.2	230.2	276.2	274	2.2	14	1
	20	☐	MPS1220-L20C	246.2	290.2	293.2	339.2	337	2.2	14	1

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
12.3	3	☐	MPS1230S-DIN-C	41.8	60.2	61.2	107.2	105	2.2	14	1
	5	☐	MPS1230L-DIN-C	58.8	77.2	78.2	124.2	122	2.2	14	1
	8	☐	MPS1230-L8C	100.6	140.2	143.2	189.2	187	2.2	14	1
	10	☐	MPS1230-L10C	125.2	165.2	168.2	214.2	212	2.2	14	1
	12	☐	MPS1230-L12C	149.8	190.2	193.2	239.2	237	2.2	14	1
	15	☐	MPS1230-L15C	186.7	227.2	230.2	276.2	274	2.2	14	1
	20	☐	MPS1230-L20C	248.2	290.2	293.2	339.2	337	2.2	14	1
12.4	3	☐	MPS1240S-DIN-C	41.7	60.3	61.3	107.3	105	2.3	14	1
	5	☐	MPS1240L-DIN-C	58.7	77.3	78.3	124.3	122	2.3	14	1
	8	☐	MPS1240-L8C	101.5	140.3	143.3	189.3	187	2.3	14	1
	10	☐	MPS1240-L10C	126.3	165.3	168.3	214.3	212	2.3	14	1
	12	☐	MPS1240-L12C	151.1	190.3	193.3	239.3	237	2.3	14	1
	15	☐	MPS1240-L15C	188.3	227.3	230.3	276.3	274	2.3	14	1
	20	☐	MPS1240-L20C	250.3	290.3	293.3	339.3	337	2.3	14	1
12.5	3	☐	MPS1250S-DIN-C	41.5	60.3	61.3	107.3	105	2.3	14	1
	5	☐	MPS1250L-DIN-C	58.5	77.3	78.3	124.3	122	2.3	14	1
	8	☐	MPS1250-L8C	102.3	140.3	143.3	189.3	187	2.3	14	1
	10	☐	MPS1250-L10C	127.3	165.3	168.3	214.3	212	2.3	14	1
	12	☐	MPS1250-L12C	152.3	190.3	193.3	239.3	237	2.3	14	1
	15	☐	MPS1250-L15C	189.8	227.3	230.3	276.3	274	2.3	14	1
	20	☐	MPS1250-L20C	252.3	290.3	293.3	339.3	337	2.3	14	1
12.6	3	☐	MPS1260S-DIN-C	41.4	60.3	61.3	107.3	105	2.3	14	1
	5	☐	MPS1260L-DIN-C	58.4	77.3	78.3	124.3	122	2.3	14	1
	8	☐	MPS1260-L8C	103.1	145.3	148.3	194.3	192	2.3	14	1
	10	☐	MPS1260-L10C	128.3	171.3	174.3	220.3	218	2.3	14	1
	12	☐	MPS1260-L12C	153.5	197.3	200.3	246.3	244	2.3	14	1
	15	☐	MPS1260-L15C	191.3	236.3	239.3	285.3	283	2.3	14	1
	20	☐	MPS1260-L20C	254.3	301.3	304.3	350.3	348	2.3	14	1
12.7	3	☐	MPS1270S-DIN-C	41.3	60.3	61.3	107.3	105	2.3	14	1
	5	☐	MPS1270L-DIN-C	58.3	77.3	78.3	124.3	122	2.3	14	1
	8	☐	MPS1270-L8C	103.9	145.3	148.3	194.3	192	2.3	14	1
	10	☐	MPS1270-L10C	129.3	171.3	174.3	220.3	218	2.3	14	1
	12	☐	MPS1270-L12C	154.7	197.3	200.3	246.3	244	2.3	14	1
	15	☐	MPS1270-L15C	192.8	236.3	239.3	285.3	283	2.3	14	1
	20	☐	MPS1270-L20C	256.3	301.3	304.3	350.3	348	2.3	14	1
12.8	3	☐	MPS1280S-DIN-C	41.1	60.3	61.3	107.3	105	2.3	14	1
	5	☐	MPS1280L-DIN-C	58.1	77.3	78.3	124.3	122	2.3	14	1
	8	☐	MPS1280-L8C	104.7	145.3	148.3	194.3	192	2.3	14	1
	10	☐	MPS1280-L10C	130.3	171.3	174.3	220.3	218	2.3	14	1
	12	☐	MPS1280-L12C	155.9	197.3	200.3	246.3	244	2.3	14	1
	15	☐	MPS1280-L15C	194.3	236.3	239.3	285.3	283	2.3	14	1
	20	☐	MPS1280-L20C	258.3	301.3	304.3	350.3	348	2.3	14	1
12.9	3	☐	MPS1290S-DIN-C	41.0	60.3	61.3	107.3	105	2.3	14	1
	5	☐	MPS1290L-DIN-C	58.0	77.3	78.3	124.3	122	2.3	14	1
	8	☐	MPS1290-L8C	105.5	145.3	148.3	194.3	192	2.3	14	1
	10	☐	MPS1290-L10C	131.3	171.3	174.3	220.3	218	2.3	14	1
	12	☐	MPS1290-L12C	157.1	197.3	200.3	246.3	244	2.3	14	1
	15	☐	MPS1290-L15C	195.8	236.3	239.3	285.3	283	2.3	14	1
	20	☐	MPS1290-L20C	260.3	301.3	304.3	350.3	348	2.3	14	1
13.0	3	☐	MPS1300S-DIN-C	40.9	60.4	61.4	107.4	105	2.4	14	1
	5	☐	MPS1300L-DIN-C	57.9	77.4	78.4	124.4	122	2.4	14	1
	8	☐	MPS1300-L8C	106.4	145.4	148.4	194.4	192	2.4	14	1
	10	☐	MPS1300-L10C	132.4	171.4	174.4	220.4	218	2.4	14	1
	12	☐	MPS1300-L12C	158.4	197.4	200.4	246.4	244	2.4	14	1
	15	☐	MPS1300-L15C	197.4	236.4	239.4	285.4	283	2.4	14	1
	20	☐	MPS1300-L20C	262.4	301.4	304.4	350.4	348	2.4	14	1

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LD	LCF	LH	OAL	LF	PL	DCON	
13.1	3	☐	MPS1310S-DIN-C	40.7	60.4	61.4	107.4	105	2.4	14	1
	5	☐	MPS1310L-DIN-C	57.7	77.4	78.4	124.4	122	2.4	14	1
	8	☐	MPS1310-L8C	107.2	151.4	154.4	200.4	198	2.4	14	1
	10	☐	MPS1310-L10C	133.4	178.4	181.4	227.4	225	2.4	14	1
	12	☐	MPS1310-L12C	159.6	205.4	208.4	254.4	252	2.4	14	1
	15	☐	MPS1310-L15C	198.9	245.4	248.4	294.4	292	2.4	14	1
	20	☐	MPS1310-L20C	264.4	313.4	316.4	362.4	360	2.4	14	1
13.2	3	☐	MPS1320S-DIN-C	40.6	60.4	61.4	107.4	105	2.4	14	1
	5	☐	MPS1320L-DIN-C	57.6	77.4	78.4	124.4	122	2.4	14	1
	8	☐	MPS1320-L8C	108.0	151.4	154.4	200.4	198	2.4	14	1
	10	☐	MPS1320-L10C	134.4	178.4	181.4	227.4	225	2.4	14	1
	12	☐	MPS1320-L12C	160.8	205.4	208.4	254.4	252	2.4	14	1
	15	☐	MPS1320-L15C	200.4	245.4	248.4	294.4	292	2.4	14	1
	20	☐	MPS1320-L20C	266.4	313.4	316.4	362.4	360	2.4	14	1
13.3	3	☐	MPS1330S-DIN-C	40.5	60.4	61.4	107.4	105	2.4	14	1
	5	☐	MPS1330L-DIN-C	57.5	77.4	78.4	124.4	122	2.4	14	1
	8	☐	MPS1330-L8C	108.8	151.4	154.4	200.4	198	2.4	14	1
	10	☐	MPS1330-L10C	135.4	178.4	181.4	227.4	225	2.4	14	1
	12	☐	MPS1330-L12C	162.0	205.4	208.4	254.4	252	2.4	14	1
	15	☐	MPS1330-L15C	201.9	245.4	248.4	294.4	292	2.4	14	1
	20	☐	MPS1330-L20C	268.4	313.4	316.4	362.4	360	2.4	14	1
13.4	3	☐	MPS1340S-DIN-C	40.3	60.4	61.4	107.4	105	2.4	14	1
	5	☐	MPS1340L-DIN-C	57.3	77.4	78.4	124.4	122	2.4	14	1
	8	☐	MPS1340-L8C	109.6	151.4	154.4	200.4	198	2.4	14	1
	10	☐	MPS1340-L10C	136.4	178.4	181.4	227.4	225	2.4	14	1
	12	☐	MPS1340-L12C	163.2	205.4	208.4	254.4	252	2.4	14	1
	15	☐	MPS1340-L15C	203.4	245.4	248.4	294.4	292	2.4	14	1
	20	☐	MPS1340-L20C	270.4	313.4	316.4	362.4	360	2.4	14	1
13.5	3	☐	MPS1350S-DIN-C	40.2	60.5	61.5	107.5	105	2.5	14	1
	5	☐	MPS1350L-DIN-C	57.2	77.5	78.5	124.5	122	2.5	14	1
	8	☐	MPS1350-L8C	110.5	151.5	154.5	200.5	198	2.5	14	1
	10	☐	MPS1350-L10C	137.5	178.5	181.5	227.5	225	2.5	14	1
	12	☐	MPS1350-L12C	164.5	205.5	208.5	254.5	252	2.5	14	1
	15	☐	MPS1350-L15C	205.0	245.5	248.5	294.5	292	2.5	14	1
	20	☐	MPS1350-L20C	272.5	313.5	316.5	362.5	360	2.5	14	1
13.6	3	☐	MPS1360S-DIN-C	40.1	60.5	61.5	107.5	105	2.5	14	1
	5	☐	MPS1360L-DIN-C	57.1	77.5	78.5	124.5	122	2.5	14	1
	8	☐	MPS1360-L8C	111.3	156.5	159.5	205.5	203	2.5	14	1
	10	☐	MPS1360-L10C	138.5	184.5	187.5	233.5	231	2.5	14	1
	12	☐	MPS1360-L12C	165.7	212.5	215.5	261.5	259	2.5	14	1
	15	☐	MPS1360-L15C	206.5	254.5	257.5	303.5	301	2.5	14	1
	20	☐	MPS1360-L20C	274.5	324.5	327.5	373.5	371	2.5	14	1
13.7	3	☐	MPS1370S-DIN-C	39.9	60.5	61.5	107.5	105	2.5	14	1
	5	☐	MPS1370L-DIN-C	56.9	77.5	78.5	124.5	122	2.5	14	1
	8	☐	MPS1370-L8C	112.1	156.5	159.5	205.5	203	2.5	14	1
	10	☐	MPS1370-L10C	139.5	184.5	187.5	233.5	231	2.5	14	1
	12	☐	MPS1370-L12C	166.9	212.5	215.5	261.5	259	2.5	14	1
	15	☐	MPS1370-L15C	208.0	254.5	257.5	303.5	301	2.5	14	1
	20	☐	MPS1370-L20C	276.5	324.5	327.5	373.5	371	2.5	14	1
13.8	3	☐	MPS1380S-DIN-C	39.8	60.5	61.5	107.5	105	2.5	14	1
	5	☐	MPS1380L-DIN-C	56.8	77.5	78.5	124.5	122	2.5	14	1
	8	☐	MPS1380-L8C	112.9	156.5	159.5	205.5	203	2.5	14	1
	10	☐	MPS1380-L10C	140.5	184.5	187.5	233.5	231	2.5	14	1
	12	☐	MPS1380-L12C	168.1	212.5	215.5	261.5	259	2.5	14	1
	15	☐	MPS1380-L15C	209.5	254.5	257.5	303.5	301	2.5	14	1
	20	☐	MPS1380-L20C	278.5	324.5	327.5	373.5	371	2.5	14	1

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
13.9	3	☐	MPS1390S-DIN-C	39.7	60.5	61.5	107.5	105	2.5	14	1
	5	☐	MPS1390L-DIN-C	56.7	77.5	78.5	124.5	122	2.5	14	1
	8	☐	MPS1390-L8C	113.7	156.5	159.5	205.5	203	2.5	14	1
	10	☐	MPS1390-L10C	141.5	184.5	187.5	233.5	231	2.5	14	1
	12	☐	MPS1390-L12C	169.3	212.5	215.5	261.5	259	2.5	14	1
	15	☐	MPS1390-L15C	211.0	254.5	257.5	303.5	301	2.5	14	1
	20	☐	MPS1390-L20C	280.5	324.5	327.5	373.5	371	2.5	14	1
14.0	3	☐	MPS1400S-DIN-C	39.5	60.5	61.5	107.5	105	2.5	14	2
	5	☐	MPS1400L-DIN-C	56.5	77.5	78.5	124.5	122	2.5	14	2
	8	☐	MPS1400-L8C	114.5	156.5	159.5	205.5	203	2.5	14	2
	10	☐	MPS1400-L10C	142.5	184.5	187.5	233.5	231	2.5	14	2
	12	☐	MPS1400-L12C	170.5	212.5	215.5	261.5	259	2.5	14	2
	15	☐	MPS1400-L15C	212.5	254.5	257.5	303.5	301	2.5	14	2
	20	☐	MPS1400-L20C	282.5	324.5	327.5	373.5	371	2.5	14	2
14.1	3	☐	MPS1410S-DIN-C	43.4	64.6	65.6	114.6	112	2.6	16	1
	5	☐	MPS1410L-DIN-C	61.4	82.6	83.6	132.6	130	2.6	16	1
14.2	3	☐	MPS1420S-DIN-C	43.3	64.6	65.6	114.6	112	2.6	16	1
	5	☐	MPS1420L-DIN-C	61.3	82.6	83.6	132.6	130	2.6	16	1
14.3	3	☐	MPS1430S-DIN-C	43.2	64.6	65.6	114.6	112	2.6	16	1
	5	☐	MPS1430L-DIN-C	61.2	82.6	83.6	132.6	130	2.6	16	1
14.4	3	☐	MPS1440S-DIN-C	43.0	64.6	65.6	114.6	112	2.6	16	1
	5	☐	MPS1440L-DIN-C	61.0	82.6	83.6	132.6	130	2.6	16	1
14.5	3	☐	MPS1450S-DIN-C	42.9	64.6	65.6	114.6	112	2.6	16	1
	5	☐	MPS1450L-DIN-C	60.9	82.6	83.6	132.6	130	2.6	16	1
14.6	3	☐	MPS1460S-DIN-C	42.8	64.7	65.7	114.7	112	2.7	16	1
	5	☐	MPS1460L-DIN-C	60.8	82.7	83.7	132.7	130	2.7	16	1
14.7	3	☐	MPS1470S-DIN-C	42.6	64.7	65.7	114.7	112	2.7	16	1
	5	☐	MPS1470L-DIN-C	60.6	82.7	83.7	132.7	130	2.7	16	1
14.8	3	☐	MPS1480S-DIN-C	42.5	64.7	65.7	114.7	112	2.7	16	1
	5	☐	MPS1480L-DIN-C	60.5	82.7	83.7	132.7	130	2.7	16	1
14.9	3	☐	MPS1490S-DIN-C	42.4	64.7	65.7	114.7	112	2.7	16	1
	5	☐	MPS1490L-DIN-C	60.4	82.7	83.7	132.7	130	2.7	16	1
15.0	3	☐	MPS1500S-DIN-C	42.2	64.7	65.7	114.7	112	2.7	16	1
	5	☐	MPS1500L-DIN-C	60.2	82.7	83.7	132.7	130	2.7	16	1
15.1	3	☐	MPS1510S-DIN-C	42.1	64.7	65.7	114.7	112	2.7	16	1
	5	☐	MPS1510L-DIN-C	60.1	82.7	83.7	132.7	130	2.7	16	1
15.2	3	☐	MPS1520S-DIN-C	42.0	64.8	65.8	114.8	112	2.8	16	1
	5	☐	MPS1520L-DIN-C	60.0	82.8	83.8	132.8	130	2.8	16	1
15.3	3	☐	MPS1530S-DIN-C	41.8	64.8	65.8	114.8	112	2.8	16	1
	5	☐	MPS1530L-DIN-C	59.8	82.8	83.8	132.8	130	2.8	16	1
15.4	3	☐	MPS1540S-DIN-C	41.7	64.8	65.8	114.8	112	2.8	16	1
	5	☐	MPS1540L-DIN-C	59.7	82.8	83.8	132.8	130	2.8	16	1
15.5	3	☐	MPS1550S-DIN-C	41.6	64.8	65.8	114.8	112	2.8	16	1
	5	☐	MPS1550L-DIN-C	59.6	82.8	83.8	132.8	130	2.8	16	1
15.6	3	☐	MPS1560S-DIN-C	41.4	64.8	65.8	114.8	112	2.8	16	1
	5	☐	MPS1560L-DIN-C	59.4	82.8	83.8	132.8	130	2.8	16	1
15.7	3	☐	MPS1570S-DIN-C	41.3	64.9	65.9	114.9	112	2.9	16	1
	5	☐	MPS1570L-DIN-C	59.3	82.9	83.9	132.9	130	2.9	16	1
15.8	3	☐	MPS1580S-DIN-C	41.2	64.9	65.9	114.9	112	2.9	16	1
	5	☐	MPS1580L-DIN-C	59.2	82.9	83.9	132.9	130	2.9	16	1
15.9	3	☐	MPS1590S-DIN-C	41.0	64.9	65.9	114.9	112	2.9	16	1
	5	☐	MPS1590L-DIN-C	59.0	82.9	83.9	132.9	130	2.9	16	1
16.0	3	☐	MPS1600S-DIN-C	40.9	64.9	65.9	114.9	112	2.9	16	2
	5	☐	MPS1600L-DIN-C	58.9	82.9	83.9	132.9	130	2.9	16	2
16.1	3	☐	MPS1610S-DIN-C	48.8	72.9	73.9	122.9	120	2.9	18	1
	5	☐	MPS1610L-DIN-C	68.8	92.9	93.9	142.9	140	2.9	18	1

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
16.2	3	☐	MPS1620S-DIN-C	48.6	72.9	73.9	122.9	120	2.9	18	1
	5	☐	MPS1620L-DIN-C	68.6	92.9	93.9	142.9	140	2.9	18	1
16.3	3	☐	MPS1630S-DIN-C	48.5	73.0	74.0	123.0	120	3.0	18	1
	5	☐	MPS1630L-DIN-C	68.5	93.0	94.0	143.0	140	3.0	18	1
16.4	3	☐	MPS1640S-DIN-C	48.4	73.0	74.0	123.0	120	3.0	18	1
	5	☐	MPS1640L-DIN-C	68.4	93.0	94.0	143.0	140	3.0	18	1
16.5	3	☐	MPS1650S-DIN-C	48.3	73.0	74.0	123.0	120	3.0	18	1
	5	☐	MPS1650L-DIN-C	68.3	93.0	94.0	143.0	140	3.0	18	1
16.6	3	☐	MPS1660S-DIN-C	48.1	73.0	74.0	123.0	120	3.0	18	1
	5	☐	MPS1660L-DIN-C	68.1	93.0	94.0	143.0	140	3.0	18	1
16.7	3	☐	MPS1670S-DIN-C	48.0	73.0	74.0	123.0	120	3.0	18	1
	5	☐	MPS1670L-DIN-C	68.0	93.0	94.0	143.0	140	3.0	18	1
16.8	3	☐	MPS1680S-DIN-C	47.9	73.1	74.1	123.1	120	3.1	18	1
	5	☐	MPS1680L-DIN-C	67.9	93.1	94.1	143.1	140	3.1	18	1
16.9	3	☐	MPS1690S-DIN-C	47.7	73.1	74.1	123.1	120	3.1	18	1
	5	☐	MPS1690L-DIN-C	67.7	93.1	94.1	143.1	140	3.1	18	1
17.0	3	☐	MPS1700S-DIN-C	47.6	73.1	74.1	123.1	120	3.1	18	1
	5	☐	MPS1700L-DIN-C	67.6	93.1	94.1	143.1	140	3.1	18	1
17.1	3	☐	MPS1710S-DIN-C	47.5	73.1	74.1	123.1	120	3.1	18	1
	5	☐	MPS1710L-DIN-C	67.5	93.1	94.1	143.1	140	3.1	18	1
17.2	3	☐	MPS1720S-DIN-C	47.3	73.1	74.1	123.1	120	3.1	18	1
	5	☐	MPS1720L-DIN-C	67.3	93.1	94.1	143.1	140	3.1	18	1
17.3	3	☐	MPS1730S-DIN-C	47.2	73.1	74.1	123.1	120	3.1	18	1
	5	☐	MPS1730L-DIN-C	67.2	93.1	94.1	143.1	140	3.1	18	1
17.4	3	☐	MPS1740S-DIN-C	47.1	73.2	74.2	123.2	120	3.2	18	1
	5	☐	MPS1740L-DIN-C	67.1	93.2	94.2	143.2	140	3.2	18	1
17.5	3	☐	MPS1750S-DIN-C	46.9	73.2	74.2	123.2	120	3.2	18	1
	5	☐	MPS1750L-DIN-C	66.9	93.2	94.2	143.2	140	3.2	18	1
17.6	3	☐	MPS1760S-DIN-C	46.8	73.2	74.2	123.2	120	3.2	18	1
	5	☐	MPS1760L-DIN-C	66.8	93.2	94.2	143.2	140	3.2	18	1
17.7	3	☐	MPS1770S-DIN-C	46.7	73.2	74.2	123.2	120	3.2	18	1
	5	☐	MPS1770L-DIN-C	66.7	93.2	94.2	143.2	140	3.2	18	1
17.8	3	☐	MPS1780S-DIN-C	46.5	73.2	74.2	123.2	120	3.2	18	1
	5	☐	MPS1780L-DIN-C	66.5	93.2	94.2	143.2	140	3.2	18	1
17.9	3	☐	MPS1790S-DIN-C	46.4	73.3	74.3	123.3	120	3.3	18	1
	5	☐	MPS1790L-DIN-C	66.4	93.3	94.3	143.3	140	3.3	18	1
18.0	3	☐	MPS1800S-DIN-C	46.3	73.3	74.3	123.3	120	3.3	18	2
	5	☐	MPS1800L-DIN-C	66.3	93.3	94.3	143.3	140	3.3	18	2
18.1	3	☐	MPS1810S-DIN-C	52.1	79.3	80.3	131.3	128	3.3	20	1
	5	☐	MPS1810L-DIN-C	74.1	101.3	102.3	153.3	150	3.3	20	1
18.2	3	☐	MPS1820S-DIN-C	52.0	79.3	80.3	131.3	128	3.3	20	1
	5	☐	MPS1820L-DIN-C	74.0	101.3	102.3	153.3	150	3.3	20	1
18.3	3	☐	MPS1830S-DIN-C	51.9	79.3	80.3	131.3	128	3.3	20	1
	5	☐	MPS1830L-DIN-C	73.9	101.3	102.3	153.3	150	3.3	20	1
18.4	3	☐	MPS1840S-DIN-C	51.7	79.3	80.3	131.3	128	3.3	20	1
	5	☐	MPS1840L-DIN-C	73.7	101.3	102.3	153.3	150	3.3	20	1
18.5	3	☐	MPS1850S-DIN-C	51.6	79.4	80.4	131.4	128	3.4	20	1
	5	☐	MPS1850L-DIN-C	73.6	101.4	102.4	153.4	150	3.4	20	1
18.6	3	☐	MPS1860S-DIN-C	51.5	79.4	80.4	131.4	128	3.4	20	1
	5	☐	MPS1860L-DIN-C	73.5	101.4	102.4	153.4	150	3.4	20	1
18.7	3	☐	MPS1870S-DIN-C	51.4	79.4	80.4	131.4	128	3.4	20	1
	5	☐	MPS1870L-DIN-C	73.4	101.4	102.4	153.4	150	3.4	20	1
18.8	3	☐	MPS1880S-DIN-C	51.2	79.4	80.4	131.4	128	3.4	20	1
	5	☐	MPS1880L-DIN-C	73.2	101.4	102.4	153.4	150	3.4	20	1
18.9	3	☐	MPS1890S-DIN-C	51.1	79.4	80.4	131.4	128	3.4	20	1
	5	☐	MPS1890L-DIN-C	73.1	101.4	102.4	153.4	150	3.4	20	1

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
19.0	3	☐	MPS1900S-DIN-C	51.0	79.5	80.5	131.5	128	3.5	20	1
	5	☐	MPS1900L-DIN-C	73.0	101.5	102.5	153.5	150	3.5	20	1
19.1	3	☐	MPS1910S-DIN-C	50.8	79.5	80.5	131.5	128	3.5	20	1
	5	☐	MPS1910L-DIN-C	72.8	101.5	102.5	153.5	150	3.5	20	1
19.2	3	☐	MPS1920S-DIN-C	50.7	79.5	80.5	131.5	128	3.5	20	1
	5	☐	MPS1920L-DIN-C	72.7	101.5	102.5	153.5	150	3.5	20	1
19.3	3	☐	MPS1930S-DIN-C	50.6	79.5	80.5	131.5	128	3.5	20	1
	5	☐	MPS1930L-DIN-C	72.6	101.5	102.5	153.5	150	3.5	20	1
19.4	3	☐	MPS1940S-DIN-C	50.4	79.5	80.5	131.5	128	3.5	20	1
	5	☐	MPS1940L-DIN-C	72.4	101.5	102.5	153.5	150	3.5	20	1
19.5	3	☐	MPS1950S-DIN-C	50.3	79.5	80.5	131.5	128	3.5	20	1
	5	☐	MPS1950L-DIN-C	72.3	101.5	102.5	153.5	150	3.5	20	1
19.6	3	☐	MPS1960S-DIN-C	50.2	79.6	80.6	131.6	128	3.6	20	1
	5	☐	MPS1960L-DIN-C	72.2	101.6	102.6	153.6	150	3.6	20	1
19.7	3	☐	MPS1970S-DIN-C	50.0	79.6	80.6	131.6	128	3.6	20	1
	5	☐	MPS1970L-DIN-C	72.0	101.6	102.6	153.6	150	3.6	20	1
19.8	3	☐	MPS1980S-DIN-C	49.9	79.6	80.6	131.6	128	3.6	20	1
	5	☐	MPS1980L-DIN-C	71.9	101.6	102.6	153.6	150	3.6	20	1
19.9	3	☐	MPS1990S-DIN-C	49.8	79.6	80.6	131.6	128	3.6	20	1
	5	☐	MPS1990L-DIN-C	71.8	101.6	102.6	153.6	150	3.6	20	1
20.0	3	☐	MPS2000S-DIN-C	49.6	79.6	80.6	131.6	128	3.6	20	2
	5	☐	MPS2000L-DIN-C	71.6	101.6	102.6	153.6	150	3.6	20	2

DELME (YEKPARE KARBÜR)

MSL

- 20–30 L/D'den başlayan Delik Derinliği.
- Doğru ve güvenilir delme için MSL standart zırlı tip.

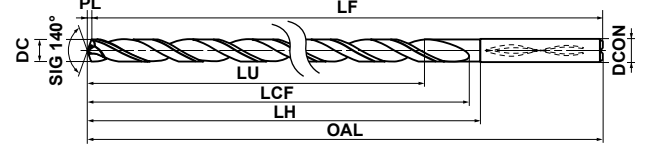


2 Zırlı Süper Uzun Matkap Ucu

P M K N S H

İçten Soğutma

● Silindir şaftlı tip



	3.0 ≤ DC ≤ 6.0	6.0 < DC ≤ 10.0	10.0 < DC ≤ 14.0
h6	0 -0.012	0 -0.015	0 -0.018
h6	0 -0.008	0 -0.009	0 -0.011

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)						
				LU	LCF	LH	OAL	LF	PL	DCON
3.0	20	□	MSL0300-L20C	60.5	69.5	72.5	109.5	109	0.5	6
	25	□	MSL0300-L25C	75.5	84.5	87.5	124.5	124	0.5	6
	30	□	MSL0300-L30C	90.5	99.5	102.5	139.5	139	0.5	6
3.1	20	□	MSL0310-L20C	62.6	81.6	84.6	121.6	121	0.6	6
	25	□	MSL0310-L25C	78.1	98.6	101.6	138.6	138	0.6	6
	30	□	MSL0310-L30C	93.6	116.6	119.6	156.6	156	0.6	6
3.2	20	□	MSL0320-L20C	64.6	81.6	84.6	121.6	121	0.6	6
	25	□	MSL0320-L25C	80.6	98.6	101.6	138.6	138	0.6	6
	30	□	MSL0320-L30C	96.6	116.6	119.6	156.6	156	0.6	6
3.3	20	□	MSL0330-L20C	66.6	81.6	84.6	121.6	121	0.6	6
	25	□	MSL0330-L25C	83.1	98.6	101.6	138.6	138	0.6	6
	30	□	MSL0330-L30C	99.6	116.6	119.6	156.6	156	0.6	6
3.4	20	□	MSL0340-L20C	68.6	81.6	84.6	121.6	121	0.6	6
	25	□	MSL0340-L25C	85.6	98.6	101.6	138.6	138	0.6	6
	30	□	MSL0340-L30C	102.6	116.6	119.6	156.6	156	0.6	6
3.5	20	□	MSL0350-L20C	70.6	81.6	84.6	121.6	121	0.6	6
	25	□	MSL0350-L25C	88.1	98.6	101.6	138.6	138	0.6	6
	30	□	MSL0350-L30C	105.6	116.6	119.6	156.6	156	0.6	6
3.6	20	□	MSL0360-L20C	72.7	92.7	95.7	132.7	132	0.7	6
	25	□	MSL0360-L25C	90.7	112.7	115.7	152.7	152	0.7	6
	30	□	MSL0360-L30C	108.7	132.7	135.7	172.7	172	0.7	6
3.7	20	□	MSL0370-L20C	74.7	92.7	95.7	132.7	132	0.7	6
	25	□	MSL0370-L25C	93.2	112.7	115.7	152.7	152	0.7	6
	30	□	MSL0370-L30C	111.7	132.7	135.7	172.7	172	0.7	6
3.8	20	□	MSL0380-L20C	76.7	92.7	95.7	132.7	132	0.7	6
	25	□	MSL0380-L25C	95.7	112.7	115.7	152.7	152	0.7	6
	30	□	MSL0380-L30C	114.7	132.7	135.7	172.7	172	0.7	6
3.9	20	□	MSL0390-L20C	78.7	92.7	95.7	132.7	132	0.7	6
	25	□	MSL0390-L25C	98.2	112.7	115.7	152.7	152	0.7	6
	30	□	MSL0390-L30C	117.7	132.7	135.7	172.7	172	0.7	6
4.0	20	□	MSL0400-L20C	80.7	92.7	95.7	132.7	132	0.7	6
	25	□	MSL0400-L25C	100.7	112.7	115.7	152.7	152	0.7	6
	30	□	MSL0400-L30C	120.7	132.7	135.7	172.7	172	0.7	6
4.1	20	□	MSL0410-L20C	82.7	104.7	107.7	144.7	144	0.7	6
	25	□	MSL0410-L25C	103.2	126.7	129.7	166.7	166	0.7	6
	30	□	MSL0410-L30C	123.7	149.7	152.7	189.7	189	0.7	6
4.2	20	□	MSL0420-L20C	84.8	104.8	107.8	144.8	144	0.8	6
	25	□	MSL0420-L25C	105.8	126.8	129.8	166.8	166	0.8	6
	30	□	MSL0420-L30C	126.8	149.8	152.8	189.8	189	0.8	6
4.3	20	□	MSL0430-L20C	86.8	104.8	107.8	144.8	144	0.8	6
	25	□	MSL0430-L25C	108.3	126.8	129.8	166.8	166	0.8	6
	30	□	MSL0430-L30C	129.8	149.8	152.8	189.8	189	0.8	6

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)						
				LU	LCF	LH	OAL	LF	PL	DCON
4.4	20	□	MSL0440-L20C	88.8	104.8	107.8	144.8	144	0.8	6
	25	□	MSL0440-L25C	110.8	126.8	129.8	166.8	166	0.8	6
	30	□	MSL0440-L30C	132.8	149.8	152.8	189.8	189	0.8	6
4.5	20	□	MSL0450-L20C	90.8	104.8	107.8	144.8	144	0.8	6
	25	□	MSL0450-L25C	113.3	126.8	129.8	166.8	166	0.8	6
	30	□	MSL0450-L30C	135.8	149.8	152.8	189.8	189	0.8	6
4.6	20	□	MSL0460-L20C	92.8	115.8	118.8	155.8	155	0.8	6
	25	□	MSL0460-L25C	115.8	140.8	143.8	180.8	180	0.8	6
	30	□	MSL0460-L30C	138.8	165.8	168.8	205.8	205	0.8	6
4.7	20	□	MSL0470-L20C	94.9	115.9	118.9	155.9	155	0.9	6
	25	□	MSL0470-L25C	118.4	140.9	143.9	180.9	180	0.9	6
	30	□	MSL0470-L30C	141.9	165.9	168.9	205.9	205	0.9	6
4.8	20	□	MSL0480-L20C	96.9	115.9	118.9	155.9	155	0.9	6
	25	□	MSL0480-L25C	120.9	140.9	143.9	180.9	180	0.9	6
	30	□	MSL0480-L30C	144.9	165.9	168.9	205.9	205	0.9	6
4.9	20	□	MSL0490-L20C	98.9	115.9	118.9	155.9	155	0.9	6
	25	□	MSL0490-L25C	123.4	140.9	143.9	180.9	180	0.9	6
	30	□	MSL0490-L30C	147.9	165.9	168.9	205.9	205	0.9	6
5.0	20	□	MSL0500-L20C	100.9	115.9	118.9	155.9	155	0.9	6
	25	□	MSL0500-L25C	125.9	140.9	143.9	180.9	180	0.9	6
	30	□	MSL0500-L30C	150.9	165.9	168.9	205.9	205	0.9	6
5.1	20	□	MSL0510-L20C	102.9	127.9	130.9	167.9	167	0.9	6
	25	□	MSL0510-L25C	128.4	154.9	157.9	194.9	194	0.9	6
	30	□	MSL0510-L30C	153.9	182.9	185.9	222.9	222	0.9	6
5.2	20	□	MSL0520-L20C	104.9	127.9	130.9	167.9	167	0.9	6
	25	□	MSL0520-L25C	130.9	154.9	157.9	194.9	194	0.9	6
	30	□	MSL0520-L30C	156.9	182.9	185.9	222.9	222	0.9	6
5.3	20	□	MSL0530-L20C	107.0	128.0	131.0	168.0	167	1.0	6
	25	□	MSL0530-L25C	133.5	155.0	158.0	195.0	194	1.0	6
	30	□	MSL0530-L30C	160.0	183.0	186.0	223.0	222	1.0	6
5.4	20	□	MSL0540-L20C	109.0	128.0	131.0	168.0	167	1.0	6
	25	□	MSL0540-L25C	136.0	155.0	158.0	195.0	194	1.0	6
	30	□	MSL0540-L30C	163.0	183.0	186.0	223.0	222	1.0	6
5.5	20	□	MSL0550-L20C	111.0	128.0	131.0	168.0	167	1.0	6
	25	□	MSL0550-L25C	138.5	155.0	158.0	195.0	194	1.0	6
	30	□	MSL0550-L30C	166.0	183.0	186.0	223.0	222	1.0	6
5.6	20	□	MSL0560-L20C	113.0	139.0	142.0	179.0	178	1.0	6
	25	□	MSL0560-L25C	141.0	169.0	172.0	209.0	208	1.0	6
	30	□	MSL0560-L30C	169.0	199.0	202.0	239.0	238	1.0	6
5.7	20	□	MSL0570-L20C	115.0	139.0	142.0	179.0	178	1.0	6
	25	□	MSL0570-L25C	143.5	169.0	172.0	209.0	208	1.0	6
	30	□	MSL0570-L30C	172.0	199.0	202.0	239.0	238	1.0	6



Bugünden itibaren gri ile işaretlenmiş (MPS, MSL) ürünlerin gelecekteki tüm siparişlerini MPS1 serisi ile değiştirin lütfen. Çünkü üretimi kademeli olarak durdurulacak ve Mart 2023'te sonlanacaktır.

□ : Stokta bulundurulmaz, yalnızca siparişe istinaden üretilir.

DELME (YEKPARE KARBÜR)

MSL

2 Zırlı Süper Uzun Matkap Ucu

KARBÜR

M

DELME

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)						
				LU	LCF	LH	OAL	LF	PL	DCON
9.4	20	☐	MSL0940-L20C	189.7	220.7	223.7	264.7	263	1.7	10
	25	☐	MSL0940-L25C	236.7	267.7	270.7	311.7	310	1.7	10
	30	☐	MSL0940-L30C	283.7	315.7	318.7	359.7	358	1.7	10
9.5	20	☐	MSL0950-L20C	191.7	220.7	223.7	264.7	263	1.7	10
	25	☐	MSL0950-L25C	239.2	267.7	270.7	311.7	310	1.7	10
	30	☐	MSL0950-L30C	286.7	315.7	318.7	359.7	358	1.7	10
9.6	20	☐	MSL0960-L20C	193.7	231.7	234.7	275.7	274	1.7	10
	25	☐	MSL0960-L25C	241.7	281.7	284.7	325.7	324	1.7	10
	30	☐	MSL0960-L30C	289.7	331.7	334.7	375.7	374	1.7	10
9.7	20	☐	MSL0970-L20C	195.8	231.8	234.8	275.8	274	1.8	10
	25	☐	MSL0970-L25C	244.3	281.8	284.8	325.8	324	1.8	10
	30	☐	MSL0970-L30C	292.8	331.8	334.8	375.8	374	1.8	10
9.8	20	☐	MSL0980-L20C	197.8	231.8	234.8	275.8	274	1.8	10
	25	☐	MSL0980-L25C	246.8	281.8	284.8	325.8	324	1.8	10
	30	☐	MSL0980-L30C	295.8	331.8	334.8	375.8	374	1.8	10
9.9	20	☐	MSL0990-L20C	199.8	231.8	234.8	275.8	274	1.8	10
	25	☐	MSL0990-L25C	249.3	281.8	284.8	325.8	324	1.8	10
	30	☐	MSL0990-L30C	298.8	331.8	334.8	375.8	374	1.8	10
10.0	20	☐	MSL1000-L20C	201.8	231.8	234.8	275.8	274	1.8	10
	25	☐	MSL1000-L25C	251.8	281.8	284.8	325.8	324	1.8	10
	30	☐	MSL1000-L30C	301.8	331.8	334.8	375.8	374	1.8	10
10.1	20	☐	MSL1010-L20C	203.8	243.8	246.8	292.8	291	1.8	12
	25	☐	MSL1010-L25C	254.3	295.8	298.8	344.8	343	1.8	12
10.2	20	☐	MSL1020-L20C	205.9	243.9	246.9	292.9	291	1.9	12
	25	☐	MSL1020-L25C	256.9	295.9	298.9	344.9	343	1.9	12
10.3	20	☐	MSL1030-L20C	207.9	243.9	246.9	292.9	291	1.9	12
	25	☐	MSL1030-L25C	259.4	295.9	298.9	344.9	343	1.9	12
10.4	20	☐	MSL1040-L20C	209.9	243.9	246.9	292.9	291	1.9	12
	25	☐	MSL1040-L25C	261.9	295.9	298.9	344.9	343	1.9	12
10.5	20	☐	MSL1050-L20C	211.9	243.9	246.9	292.9	291	1.9	12
	25	☐	MSL1050-L25C	264.4	295.9	298.9	344.9	343	1.9	12
10.6	20	☐	MSL1060-L20C	213.9	254.9	257.9	303.9	302	1.9	12
	25	☐	MSL1060-L25C	266.9	309.9	312.9	358.9	357	1.9	12
10.7	20	☐	MSL1070-L20C	215.9	254.9	257.9	303.9	302	1.9	12
	25	☐	MSL1070-L25C	269.4	309.9	312.9	358.9	357	1.9	12
10.8	20	☐	MSL1080-L20C	218.0	255.0	258.0	304.0	302	2.0	12
	25	☐	MSL1080-L25C	272.0	310.0	313.0	359.0	357	2.0	12
10.9	20	☐	MSL1090-L20C	220.0	255.0	258.0	304.0	302	2.0	12
	25	☐	MSL1090-L25C	274.5	310.0	313.0	359.0	357	2.0	12
11.0	20	☐	MSL1100-L20C	222.0	255.0	258.0	304.0	302	2.0	12
	25	☐	MSL1100-L25C	277.0	310.0	313.0	359.0	357	2.0	12
11.1	20	☐	MSL1110-L20C	224.0	267.0	270.0	316.0	314	2.0	12
	25	☐	MSL1110-L25C	279.5	324.0	327.0	373.0	371	2.0	12
11.2	20	☐	MSL1120-L20C	226.0	267.0	270.0	316.0	314	2.0	12
	25	☐	MSL1120-L25C	282.0	324.0	327.0	373.0	371	2.0	12
11.3	20	☐	MSL1130-L20C	228.1	267.1	270.1	316.1	314	2.1	12
	25	☐	MSL1130-L25C	284.6	324.1	327.1	373.1	371	2.1	12
11.4	20	☐	MSL1140-L20C	230.1	267.1	270.1	316.1	314	2.1	12
	25	☐	MSL1140-L25C	287.1	324.1	327.1	373.1	371	2.1	12
11.5	20	☐	MSL1150-L20C	232.1	267.1	270.1	316.1	314	2.1	12
	25	☐	MSL1150-L25C	289.6	324.1	327.1	373.1	371	2.1	12
11.6	20	☐	MSL1160-L20C	234.1	278.1	281.1	327.1	325	2.1	12
	25	☐	MSL1160-L25C	292.1	338.1	341.1	387.1	385	2.1	12

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)						
				LU	LCF	LH	OAL	LF	PL	DCON
11.7	20	☐	MSL1170-L20C	236.1	278.1	281.1	327.1	325	2.1	12
	25	☐	MSL1170-L25C	294.6	338.1	341.1	387.1	385	2.1	12
11.8	20	☐	MSL1180-L20C	238.1	278.1	281.1	327.1	325	2.1	12
	25	☐	MSL1180-L25C	297.1	338.1	341.1	387.1	385	2.1	12
11.9	20	☐	MSL1190-L20C	240.2	278.2	281.2	327.2	325	2.2	12
	25	☐	MSL1190-L25C	299.7	338.2	341.2	387.2	385	2.2	12
12.0	20	☐	MSL1200-L20C	242.2	278.2	281.2	327.2	325	2.2	12
	25	☐	MSL1200-L25C	302.2	338.2	341.2	387.2	385	2.2	12
12.1	20	☐	MSL1210-L20C	244.2	290.2	293.2	339.2	337	2.2	14
12.2	20	☐	MSL1220-L20C	246.2	290.2	293.2	339.2	337	2.2	14
12.3	20	☐	MSL1230-L20C	248.2	290.2	293.2	339.2	337	2.2	14
12.4	20	☐	MSL1240-L20C	250.3	290.3	293.3	339.3	337	2.3	14
12.5	20	☐	MSL1250-L20C	252.3	290.3	293.3	339.3	337	2.3	14
12.6	20	☐	MSL1260-L20C	254.3	301.3	304.3	350.3	348	2.3	14
12.7	20	☐	MSL1270-L20C	256.3	301.3	304.3	350.3	348	2.3	14
12.8	20	☐	MSL1280-L20C	258.3	301.3	304.3	350.3	348	2.3	14
12.9	20	☐	MSL1290-L20C	260.3	301.3	304.3	350.3	348	2.3	14
13.0	20	☐	MSL1300-L20C	262.4	301.4	304.4	350.4	348	2.4	14
13.1	20	☐	MSL1310-L20C	264.4	313.4	316.4	362.4	360	2.4	14
13.2	20	☐	MSL1320-L20C	266.4	313.4	316.4	362.4	360	2.4	14
13.3	20	☐	MSL1330-L20C	268.4	313.4	316.4	362.4	360	2.4	14
13.4	20	☐	MSL1340-L20C	270.4	313.4	316.4	362.4	360	2.4	14
13.5	20	☐	MSL1350-L20C	272.5	313.5	316.5	362.5	360	2.5	14
13.6	20	☐	MSL1360-L20C	274.5	324.5	327.5	373.5	371	2.5	14
13.7	20	☐	MSL1370-L20C	276.5	324.5	327.5	373.5	371	2.5	14
13.8	20	☐	MSL1380-L20C	278.5	324.5	327.5	373.5	371	2.5	14
13.9	20	☐	MSL1390-L20C	280.5	324.5	327.5	373.5	371	2.5	14
14.0	20	☐	MSL1400-L20C	282.5	324.5	327.5	373.5	371	2.5	14

☐ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

ÖNERİLEN KESME KOŞULLARI

● MPS MATKAP UCU (3xDC, 5xDC, 8xDC, 12xDC)

Çalışma Malzemesi	Matkap Ucu Çapı	Ø 3.0—Ø 6.0		Ø 6.0—Ø 10.0		Ø 10.0—Ø 14.0		Ø 14.0—Ø 20.0	
	Koşullar Sertlik	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)
P	Yumuşak Çelik	≤180HB	110 (50—120)	0.20 (0.15—0.25)	130 (80—140)	0.25 (0.20—0.35)	150 (90—170)	0.30 (0.20—0.40)	160 (100—180)
	Karbon Çelik, Alaşımlı Çelik	180—280HB	90 (50—100)	0.20 (0.15—0.25)	110 (70—120)	0.25 (0.20—0.35)	130 (80—140)	0.25 (0.20—0.40)	140 (100—150)
		280—350HB	80 (40—90)	0.20 (0.15—0.30)	90 (60—110)	0.25 (0.15—0.30)	110 (70—130)	0.25 (0.15—0.40)	120 (90—140)
M	Paslanmaz Çelik	≤200HB	50 (20—100)	0.10 (0.05—0.15)	60 (40—120)	0.20 (0.10—0.25)	70 (50—120)	0.25 (0.15—0.30)	80 (60—120)
K	Dökme Demir	Çekme Mukave- meti ≤350MPa	100 (70—120)	0.25 (0.15—0.30)	130 (100—140)	0.30 (0.20—0.35)	150 (110—160)	0.35 (0.25—0.40)	160 (120—170)
	Duktil Dökme Demir	Çekme Mukave- meti ≤450MPa	60 (30—80)	0.20 (0.15—0.25)	70 (40—90)	0.20 (0.15—0.30)	90 (50—110)	0.25 (0.20—0.40)	100 (60—110)
S	Isıya Dirençli Alaşım	—	20 (10—25)	0.10 (0.05—0.15)	25 (15—30)	0.12 (0.05—0.15)	25 (15—30)	0.15 (0.10—0.20)	30 (25—35)

● MPS MATKAP UCU (L/D=15—30), MSL MATKAP UCU (L/D=20—30)

Çalışma Malzemesi	Matkap Ucu Çapı	Ø 3.0—Ø 6.0		Ø 6.0—Ø 10.0		Ø 10.0—Ø 14.0	
	Koşullar Sertlik	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)
P	Yumuşak Çelik	≤180HB	85 (35—100)	0.20 (0.15—0.25)	85 (45—120)	0.25 (0.15—0.35)	90 (55—120)
	Karbon Çelik, Alaşımlı Çelik	180—280HB	80 (40—95)	0.20 (0.15—0.25)	90 (50—120)	0.25 (0.20—0.35)	90 (60—130)
		280—350HB	75 (35—80)	0.15 (0.15—0.20)	80 (45—115)	0.20 (0.15—0.25)	85 (55—115)
M	Paslanmaz Çelik	≤200HB	50 (20—80)	0.10 (0.05—0.15)	60 (20—90)	0.12 (0.05—0.15)	70 (20—90)
K	Dökme Demir	Çekme Mukave- meti ≤350MPa	70 (40—85)	0.25 (0.15—0.30)	75 (50—90)	0.30 (0.20—0.35)	80 (50—95)
	Duktil Dökme Demir	Çekme Mukave- meti ≤450MPa	65 (35—80)	0.20 (0.15—0.25)	70 (45—85)	0.25 (0.15—0.30)	75 (45—90)
S	Isıya Dirençli Alaşım	—	20 (10—25)	0.10 (0.05—0.15)	25 (15—30)	0.12 (0.05—0.15)	25 (15—30)

● MPS MATKAP UCU (L/D=35—40)

Çalışma Malzemesi	Matkap Ucu Çapı	Ø 3.0—Ø 4.0		Ø 5.0—Ø 6.0		Ø 6.0—Ø 9.0	
	Koşullar Sertlik	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)
P	Yumuşak Çelik	≤180HB	60 (50—70)	0.18 (0.13—0.20)	70 (55—80)	0.20 (0.15—0.23)	75 (60—85)
	Karbon Çelik, Alaşımlı Çelik	180—280HB	55 (40—65)	0.15 (0.10—0.18)	65 (45—75)	0.18 (0.13—0.22)	70 (55—80)
		280—350HB	50 (40—60)	0.12 (0.08—0.15)	55 (40—65)	0.17 (0.13—0.20)	60 (40—75)
M	Paslanmaz Çelik	≤200HB	35 (30—45)	0.10 (0.07—0.15)	40 (30—50)	0.12 (0.08—0.15)	45 (30—60)
K	Dökme Demir	Çekme Mukave- meti ≤350MPa	55 (35—70)	0.15 (0.10—0.20)	60 (40—65)	0.20 (0.15—0.23)	60 (45—70)
	Duktil Dökme Demir	Çekme Mukave- meti ≤450MPa	45 (30—60)	0.12 (0.08—0.15)	50 (40—60)	0.17 (0.13—0.20)	55 (40—65)
S	Isıya Dirençli Alaşım	—	15 (10—25)	0.07 (0.05—0.10)	20 (10—25)	0.07 (0.05—0.10)	20 (10—25)

İşleme koşulları büyük ölçüde değişebilir, lütfen yukarıdaki tabloları yalnızca referans başlangıç noktası olarak kullanın ve değerleri koşullara göre ayarlayın.

L/D=10'dan büyük matkap ucu uzunlukları için bir pilot deliğin delinmesi önerilir.



Bugünden itibaren gri ile işaretlenmiş (MPS, MSL) ürünlerin gelecekteki tüm siparişlerini MPS1 serisi ile değiştirin lütfen. Çünkü üretimi kademeli olarak durdurulacak ve Mart 2023'te sonlanacaktır.

MPS/MSL UZUN TİP MATKAP UCU NASIL KULLANILIR

DÜZ YÜZEY DELME ● Bir kör delik delme

1. Bir pilot deliği delme



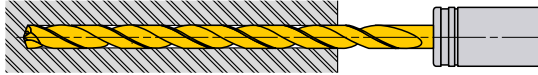
- ① Süper uzun tipten daha büyük (düz) uç açılı bir matkap ucu kullanın. Olası en kısa helis kanallığı kullanın.
- ② Yataklama için yüksek hassasiyetli deliğin delindiğinden emin olun.
- ③ Matkap ucu derinliği : Yaklaşık 1DC veya daha derin.
(Pilot Delik Derinliğini süper uzun tip matkap ucu uzunluğuna göre ayarlayın.)

2. Uzun tip matkap ucu ile kesmeye başlama



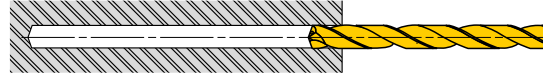
- ① Pilot deliğe düşük devirde nüfuz edin. (Devir 1000dak⁻¹, ilerleme oranı 0.2—0.3mm/dev)
- ② Uzun tip matkap ucunu pilot delik tabanına 0.5—1mm kala durdurun.

3. Derin deliğin delinmesi



- ① Önerilen hızda ve ilerleme oranıyla gagalama yapmadan (düz ilerleme) çevrimi ile kesmeye başlayın.

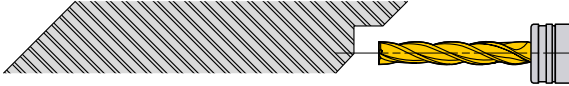
4. Matkap ucunu geriye çekme



- ① Deldikten sonra, kesme devrini delik ucundan yaklaşık 0.5—1mm daha gerisinde düşürün (Devir yaklaşık 1000dak⁻¹)
- ② 3000mm/dak ilerleme hızıyla matkap ucunu pilot Delik Derinliği başlangıç noktasına geri çekin.
- ③ Son olarak, 20—30m/dak kesme hızında ve 0.2—0.3mm/dev ilerleme oranında deliği temizleyin.

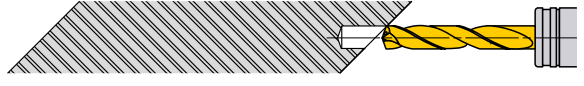
DARBELİ DELME ● Üzerinde düzensiz veya açılı yüzler bulunan parçaları delme ve boşa çıkma

1. Spot yüzeyi açma



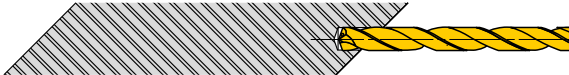
- ① Bir parmak frezeyi veya spot yüzeyi açma özellikli spot matkap ucunu kullanarak düz veya düzensiz bir yüzeyi işleyin. İşlenecek derin delik çapı ile aynı çapta bir düz yüzey yapın.

2. Bir pilot deliği delme



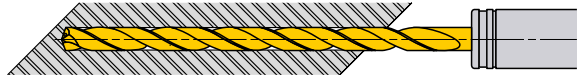
- ① Süper uzun tipten daha büyük (düz) bir uç açılı bir matkap ucu kullanın. Olası en kısa helis kanallığı kullanın.
- ② Yataklama için yüksek hassasiyetli deliğin delindiğinden emin olun.
- ③ Matkap ucu derinliği : Yaklaşık 1DC veya daha uzun.
(Pilot Delik Derinliğini süper uzun tip matkap ucu uzunluğuna göre ayarlayın.)

3. Uzun tip matkap ucu ile kesmeye başlama



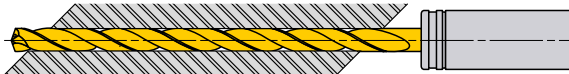
- ① Yataklama deliğine düşük devirde nüfuz edin. (Devir 1000dak⁻¹, ilerleme oranı 0.2—0.3mm/dev)
- ② Uzun tip matkap ucunu pilot delik tabanına 0.5—1mm kala durdurun.

4. Derin deliğin delinmesi



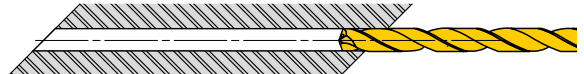
- ① Önerilen hızda ve ilerleme oranıyla gagalama yapmadan (düz ilerle) çevrimi ile kesmeye başlayın.

5. Boşa çıkma



- ① Boşa çıkma işlemi sırasında, kesme kenarı hasar görebilir.
- ② Yüzeye yakın ilerleme oranını düşürün.

6. Matkap ucunu geriye çekme



- ① Son olarak 20—30m/dak kesme hızında ve 0.2—0.3mm/dev ilerleme oranında deliği temizleyin.
- ② 3000mm/dak ilerleme hızında matkap ucunu pilot Delik Derinliği başlangıç noktasına geri çekin.



Bugünden itibaren gri ile işaretlenmiş (MPS, MSL) ürünlerin gelecekteki tüm siparişlerini MPS1 serisi ile değiştirin lütfen. Çünkü üretimi kademeli olarak durdurulacak ve Mart 2023'te sonlanacaktır.

MICRO-MGS

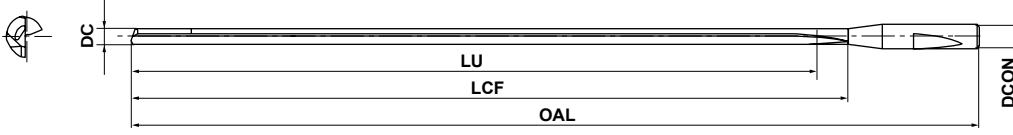
- Mikro derin delik delme mümkündür.
- Mükemmel salgı doğruluğu yüksek hassasiyetli delmeyi sağlar.



KARBÜR

P M K N S H

İçten Soğutma



DC ≤ 3

0
-0.005

- MGS matkap ucu ısıtılmalı tutucular ile kullanım için uygundur.

DC (mm)	Delik Derinliği (L/D)	HT110	Sipariş Numarası	Boyutlar (mm)			
				LU	LCF	OAL	DCON
0.7	50	★	MGS0070L040B	35.0	40	80	3
	80	★	MGS0070L060B	56.0	60	100	3
0.8	45	★	MGS0080L040B	36.0	40	80	3
	70	★	MGS0080L060B	56.0	60	100	3
0.9	40	★	MGS0090L040B	36.0	40	80	3
	60	★	MGS0090L060B	54.0	60	100	3
1.0	35	★	MGS0100L040B	35.0	40	80	3
	55	★	MGS0100L060B	55.0	60	100	3
	75	★	MGS0100L080B	75.0	80	120	3
1.1	30	★	MGS0110L040B	33.0	40	80	3
	50	★	MGS0110L060B	55.0	60	100	3
	65	★	MGS0110L080B	71.5	80	120	3
1.2	30	★	MGS0120L040B	36.0	40	80	3
	45	★	MGS0120L060B	54.0	60	100	3
	60	★	MGS0120L080B	72.0	80	120	3
1.3	40	★	MGS0130L060B	52.0	60	100	3
	55	★	MGS0130L080B	71.5	80	120	3
	70	★	MGS0130L100B	91.0	100	140	3
1.4	35	★	MGS0140L060B	49.0	60	100	3
	50	★	MGS0140L080B	70.0	80	120	3
	65	★	MGS0140L100B	91.0	100	140	3
1.5	35	★	MGS0150L060B	52.5	60	100	3
	50	★	MGS0150L080B	75.0	80	120	3
	60	★	MGS0150L100B	90.0	100	140	3
1.6	30	★	MGS0160L060B	48.0	60	100	3
	45	★	MGS0160L080B	72.0	80	120	3
	55	★	MGS0160L100B	88.0	100	140	3
1.7	30	★	MGS0170L060B	51.0	60	100	3
	40	★	MGS0170L080B	68.0	80	120	3
	55	★	MGS0170L100B	93.5	100	140	3

DC (mm)	Delik Derinliği (L/D)	HT110	Sipariş Numarası	Boyutlar (mm)			
				LU	LCF	OAL	DCON
1.8	30	★	MGS0180L060B	54.0	60	100	3
	40	★	MGS0180L080B	72.0	80	120	3
	50	★	MGS0180L100B	90.0	100	140	3
1.9	25	★	MGS0190L060B	47.5	60	100	3
	35	★	MGS0190L080B	66.5	80	120	3
	45	★	MGS0190L100B	85.5	100	140	3
2.0	25	★	MGS0200L060B	50.0	60	100	3
	35	★	MGS0200L080B	70.0	80	120	3
	45	★	MGS0200L100B	90.0	100	140	3
2.1	35	★	MGS0210L080B	73.5	80	120	3
	40	★	MGS0210L100B	84.0	100	140	3
2.2	30	★	MGS0220L080B	66.0	80	120	3
	40	★	MGS0220L100B	88.0	100	140	3
2.3	30	★	MGS0230L080B	69.0	80	120	3
	40	★	MGS0230L100B	92.0	100	140	3
2.4	30	★	MGS0240L080B	72.0	80	120	3
	35	★	MGS0240L100B	84.0	100	140	3
2.5	25	★	MGS0250L080B	62.5	80	120	3
	35	★	MGS0250L100B	87.5	100	140	3
2.6	25	★	MGS0260L080B	65.0	80	120	3
	35	★	MGS0260L100B	91.0	100	140	3
2.7	25	★	MGS0270L080B	67.5	80	120	3
	30	★	MGS0270L100B	81.0	100	140	3
2.8	25	★	MGS0280L080B	70.0	80	120	3
	30	★	MGS0280L100B	84.0	100	140	3
2.9	20	★	MGS0290L080B	58.0	80	120	3
	30	★	MGS0290L100B	87.0	100	140	3
3.0	20	★	MGS0300L080B	60.0	80	120	3
	30	★	MGS0300L100B	90.0	100	140	3

Not 1) Lütfen kaplamalı tip matkap ucuna ilişkin bize danışın (VP, GP ve UP kaplamalı karbür).

★ : Japonya standart stok.

KESME KOŞULLARI > L080
TEKNİK VERİLER > P001

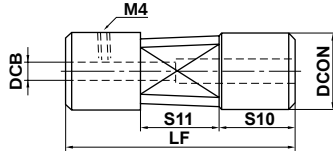
M079

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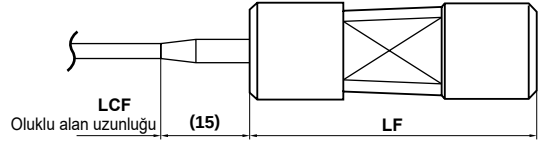
DELME

MICRO-MGS

■ DÖNDÜRÜCÜ



■ DÖNDÜRÜCÜ İLE KULLANMA



Sipariş Numarası	Stok	Boyutlar (mm)					Tespit Vidası	Anahtar
		DCON	DCB	LF	S10	S11		
MGD38	★	12.7	3.0	38.1	12.6	12.7	HSS04004	HKY20F
MGD70	★	12.7	3.0	70.0	25.0	20.0	HSS04004	HKY20F

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi	P				P			
	Yumuşak Çelik ($\leq 180\text{HB}$)				Karbon çelik, Alaşımlı çelik ($180-280\text{HB}$)			
	Ck10				Ck45, 42CrMo4			
Soğutma tipi	Suda çözünabilir kesme yağı				Suda çözünabilir kesme yağı			
Matkap Ucu Çapı (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme Hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme Hızı (mm/dak)
0.8	50	19800	0.01 (0.005—0.016)	195	40	15900	0.01 (0.005—0.016)	155
1.0	50	15900	0.01 (0.007—0.020)	155	40	12700	0.01 (0.007—0.020)	125
1.2	60	15900	0.015 (0.008—0.024)	235	50	13200	0.015 (0.008—0.024)	195
1.6	60	11900	0.02 (0.011—0.032)	235	50	9900	0.02 (0.011—0.032)	195
2.0	60	9500	0.025 (0.013—0.040)	235	50	7900	0.025 (0.013—0.040)	195
2.5	70	8900	0.03 (0.017—0.050)	265	60	7600	0.03 (0.017—0.050)	225
3.0	70	7400	0.04 (0.020—0.060)	295	60	6300	0.04 (0.020—0.060)	250

Çalışma Malzemesi	P				M			
	Karbon çelik, Alaşımlı çelik ($280-350\text{HB}$)				Ostenitli Paslanmaz Çelik ($\leq 200\text{HB}$)			
	36CrNiMo4				X5CrNi1810, X5CrNiMo17-12-2			
Soğutma tipi	Suda çözünabilir kesme yağı				Suda çözünabilir kesme yağı			
Matkap Ucu Çapı (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme Hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme Hızı (mm/dak)
0.8	30	11900	0.005 (0.004—0.005)	55	30	11900	0.01 (0.005—0.016)	115
1.0	30	9500	0.005 (0.005—0.007)	45	30	9500	0.01 (0.007—0.020)	95
1.2	40	10600	0.005 (0.006—0.008)	50	30	7900	0.015 (0.008—0.024)	115
1.6	40	7900	0.01 (0.008—0.011)	75	40	7900	0.02 (0.011—0.032)	155
2.0	40	6300	0.01 (0.010—0.013)	60	40	6300	0.025 (0.013—0.040)	155
2.5	50	6300	0.015 (0.013—0.017)	90	40	5000	0.03 (0.017—0.050)	150
3.0	50	5300	0.015 (0.015—0.020)	75	40	4200	0.04 (0.020—0.060)	165

Çalışma Malzemesi	K				K			
	Gri Dökme Demir ($\leq 350\text{MPa}$)				Duktil Dökme Demir ($\leq 450\text{MPa}$)			
	GG30				GGG45			
Soğutma tipi	Suda çözünmez kesme yağı • Suda çözünabilir kesme yağı				Suda çözünmez kesme yağı • Suda çözünabilir kesme yağı			
Matkap Ucu Çapı (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme Hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme Hızı (mm/dak)
0.8	50	19800	0.01 (0.008—0.016)	195	40	15900	0.005 (0.005—0.008)	75
1.0	50	15900	0.015 (0.010—0.020)	235	40	12700	0.005 (0.007—0.010)	60
1.2	60	15900	0.015 (0.012—0.024)	235	50	13200	0.01 (0.008—0.012)	130
1.6	60	11900	0.02 (0.016—0.032)	235	50	9900	0.01 (0.011—0.016)	95
2.0	60	9500	0.03 (0.020—0.040)	285	50	7900	0.015 (0.013—0.020)	115
2.5	70	8900	0.035 (0.025—0.050)	310	60	7600	0.02 (0.017—0.025)	150
3.0	70	7400	0.045 (0.030—0.060)	330	60	6300	0.025 (0.020—0.030)	155

Not 1) Güvenlik ve başarı için, Yüksek basınçlı soğutma suyu gereklidir. (Minimum soğutma suyu basıncı =1.000PSI)

Not 2) Soğutma suyu filtresi 5 mikrondan az olmalıdır. Soğutma suyu deliklerinin tıkanmasını önlemek için hassas filtreleme gereklidir.

Not 3) Pilot bir delik veya yataklama kovani gereklidir.

★ : Japonya standart stok.

ÖNERİLEN KESME KOŞULLARI

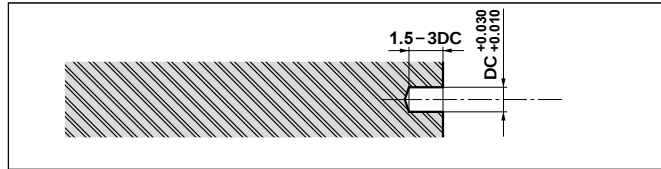
Çalışma Malzemesi	N							
	Alüminyum Alaşım (Si<5%)				Bakır, Bakır alaşım			
Soğutma tipi	Suda çözünmez kesme yağı • Suda çözünbilir kesme yağı				Suda çözünmez kesme yağı • Suda çözünbilir kesme yağı			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme Hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme Hızı (mm/dak)
0.8	50	19800	0.01 (0.008—0.016)	195	40	15900	0.01 (0.008—0.016)	155
1.0	60	19000	0.015 (0.010—0.020)	285	50	15900	0.015 (0.010—0.020)	235
1.2	70	18500	0.015 (0.012—0.024)	275	60	15900	0.015 (0.012—0.024)	235
1.6	80	15900	0.02 (0.016—0.032)	315	70	13900	0.02 (0.016—0.032)	275
2.0	90	14300	0.03 (0.020—0.040)	425	80	12700	0.03 (0.020—0.040)	380
2.5	100	12700	0.035 (0.025—0.050)	440	90	11400	0.035 (0.025—0.050)	395
3.0	100	10600	0.045 (0.030—0.060)	475	100	10600	0.045 (0.030—0.060)	475

Not 1) Güvenlik ve başarı için, Yüksek basınçlı soğutma suyu gereklidir. (Minimum soğutma suyu basıncı =70 bar)

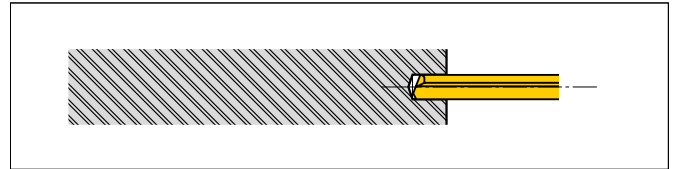
Not 2) Soğutma suyu filtresi 5 mikrondan az olmalıdır. Soğutma suyu deliklerinin tıkanmasını önlemek için hassas filtreleme gereklidir.

Not 3) Pilot bir delik veya yataklama kovani gereklidir.

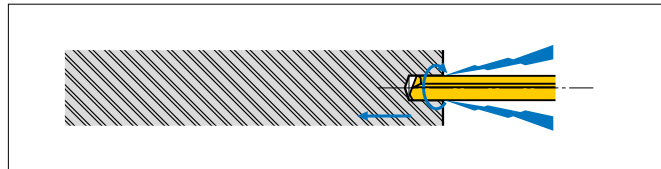
NASIL KULLANILIR



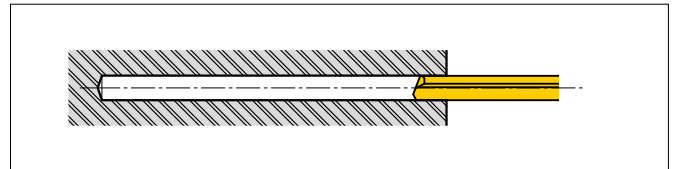
1. Pilot deliğin delinmesi.
(Mitsubishi MWE veya MWS tavsiye edilir.)



2. Döndürmeden veya 300 dev/dak altında tezgah dönüşü ile pilot deliğe nüfuz edin.
MGS gun matkap ucunu pilot delik tabanına 1 mm-2 mm kala durdurun.



3. Soğutma suyunu açın, kesme hızını ve önerilen kesme koşulunu yükseltin ve delmeyi başlatın.



4. Deldikten sonra "Poz 2"ye dönün, soğutma suyunu kapatın ve delme ucu dönüşünü durdurun.

DELME (YEKPARE KARBÜR)

MMS

- Paslanmaz çeliğin delinmesinde yüksek hassasiyet ve verimlilik.
- 4.60mm itibaren matkaplarda üçgen şekilli soğutma sıvısı delikleri.

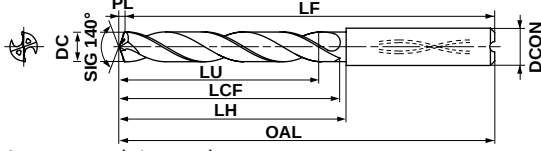


P M K N S H

İçten Soğutma

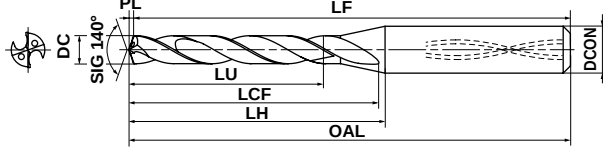


●Tip 1 Silindirik şaftlı tip



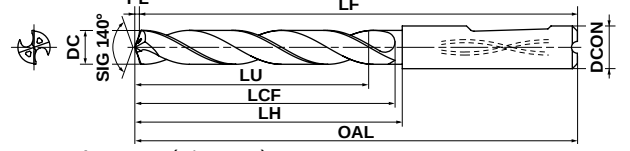
MMS----S/L-DIN-C (L/D 3-5)
MMS----X3/X5DB (L/D 3-5)

●Tip 3 Konik boyunlu silindirik şaftlı tip



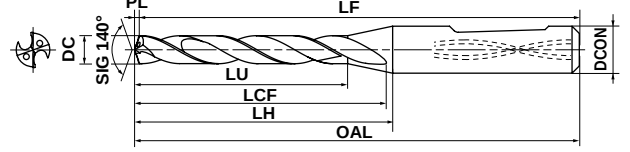
MMS----S/L-DIN-C (L/D 3-5)
MMS----X3/X5DB (L/D 3-5)

●Tip 2 Whistle notch şaftlı tip



MMS----S/L-DIN (L/D 3-5)

●Tip 4 Konik boyunlu Whistle notch şaftlı tip



MMS----S/L-DIN (L/D 3-5)

DC (mm)	Delik Derinliği (L/D)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
3.0	3	□	MMS0300S-DIN	15.0	19.5	24.5	61.5	61	0.5	6	4
	3	●	MMS0300S-DIN-C	15.0	19.5	24.5	61.5	61	0.5	6	3
	5	□	MMS0300L-DIN	23.0	27.5	28.5	65.5	65	0.5	6	4
	5	●	MMS0300L-DIN-C	23.0	27.5	28.5	65.5	65	0.5	6	3
	3	★	MMS0300X3DB	9.5	21.5	23.5	70.5	70	0.5	6	3
	5	★	MMS0300X5DB	15.5	28.5	31.5	78.5	78	0.5	6	3
3.05	3	□	MMS0305S-DIN	15.0	19.6	24.6	61.6	61	0.6	6	4
	3	●	MMS0305S-DIN-C	15.0	19.6	24.6	61.6	61	0.6	6	3
	5	□	MMS0305L-DIN	23.0	27.6	28.6	65.6	65	0.6	6	4
	5	●	MMS0305L-DIN-C	23.0	27.6	28.6	65.6	65	0.6	6	3
3.1	3	□	MMS0310S-DIN	14.9	19.6	24.6	61.6	61	0.6	6	4
	3	●	MMS0310S-DIN-C	14.9	19.6	24.6	61.6	61	0.6	6	3
	5	□	MMS0310L-DIN	22.9	27.6	28.6	65.6	65	0.6	6	4
	5	●	MMS0310L-DIN-C	22.9	27.6	28.6	65.6	65	0.6	6	3
	3	★	MMS0310X3DB	9.9	21.6	23.6	70.6	70	0.6	6	3
	5	★	MMS0310X5DB	16.1	28.6	31.6	78.6	78	0.6	6	3
3.2	3	□	MMS0320S-DIN	14.8	19.6	24.6	61.6	61	0.6	6	4
	3	●	MMS0320S-DIN-C	14.8	19.6	24.6	61.6	61	0.6	6	3
	5	□	MMS0320L-DIN	22.8	27.6	28.6	65.6	65	0.6	6	4
	5	●	MMS0320L-DIN-C	22.8	27.6	28.6	65.6	65	0.6	6	3
	3	★	MMS0320X3DB	10.2	21.6	23.6	70.6	70	0.6	6	3
	5	★	MMS0320X5DB	16.6	28.6	31.6	78.6	78	0.6	6	3
3.3	3	□	MMS0330S-DIN	14.7	19.6	24.6	61.6	61	0.6	6	4
	3	●	MMS0330S-DIN-C	14.7	19.6	24.6	61.6	61	0.6	6	3
	5	□	MMS0330L-DIN	22.7	27.6	28.6	65.6	65	0.6	6	4
	5	●	MMS0330L-DIN-C	22.7	27.6	28.6	65.6	65	0.6	6	3
	3	★	MMS0330X3DB	10.5	21.6	23.6	70.6	70	0.6	6	3
	5	★	MMS0330X5DB	17.1	28.6	31.6	78.6	78	0.6	6	3
3.4	3	□	MMS0340S-DIN	14.5	19.6	24.6	61.6	61	0.6	6	4
	3	●	MMS0340S-DIN-C	14.5	19.6	24.6	61.6	61	0.6	6	3
	5	□	MMS0340L-DIN	22.5	27.6	28.6	65.6	65	0.6	6	4
	5	●	MMS0340L-DIN-C	22.5	27.6	28.6	65.6	65	0.6	6	3

DC (mm)	Delik Derinliği (L/D)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
3.4	3	★	MMS0340X3DB	10.8	21.6	23.6	70.6	70	0.6	6	3
	5	★	MMS0340X5DB	17.6	28.6	31.6	78.6	78	0.6	6	3
3.5	3	□	MMS0350S-DIN	14.4	19.6	24.6	61.6	61	0.6	6	4
	3	●	MMS0350S-DIN-C	14.4	19.6	24.6	61.6	61	0.6	6	3
	5	□	MMS0350L-DIN	22.4	27.6	28.6	65.6	65	0.6	6	4
	5	●	MMS0350L-DIN-C	22.4	27.6	28.6	65.6	65	0.6	6	3
	3	★	MMS0350X3DB	11.1	21.6	23.6	70.6	70	0.6	6	3
	5	★	MMS0350X5DB	18.1	28.6	31.6	78.6	78	0.6	6	3
3.6	3	□	MMS0360S-DIN	14.3	19.7	24.7	61.7	61	0.7	6	4
	3	●	MMS0360S-DIN-C	14.3	19.7	24.7	61.7	61	0.7	6	3
	5	□	MMS0360L-DIN	22.3	27.7	28.7	65.7	65	0.7	6	4
	5	●	MMS0360L-DIN-C	22.3	27.7	28.7	65.7	65	0.7	6	3
	3	★	MMS0360X3DB	11.5	22.7	23.7	70.7	70	0.7	6	3
	5	★	MMS0360X5DB	18.7	30.7	31.7	78.7	78	0.7	6	3
3.7	3	□	MMS0370S-DIN	14.1	19.7	24.7	61.7	61	0.7	6	4
	3	●	MMS0370S-DIN-C	14.1	19.7	24.7	61.7	61	0.7	6	3
	5	□	MMS0370L-DIN	22.1	27.7	28.7	65.7	65	0.7	6	4
	5	●	MMS0370L-DIN-C	22.1	27.7	28.7	65.7	65	0.7	6	3
	3	★	MMS0370X3DB	11.8	22.7	23.7	70.7	70	0.7	6	3
	5	★	MMS0370X5DB	19.2	30.7	31.7	78.7	78	0.7	6	3
3.8	3	□	MMS0380S-DIN	18.0	23.7	28.7	65.7	65	0.7	6	4
	3	●	MMS0380S-DIN-C	18.0	23.7	28.7	65.7	65	0.7	6	3
	5	□	MMS0380L-DIN	30.0	35.7	36.7	73.7	73	0.7	6	4
	5	●	MMS0380L-DIN-C	30.0	35.7	36.7	73.7	73	0.7	6	3
	3	★	MMS0380X3DB	12.1	22.7	23.7	70.7	70	0.7	6	3
	5	★	MMS0380X5DB	19.7	30.7	31.7	78.7	78	0.7	6	3
3.9	3	□	MMS0390S-DIN	17.9	23.7	28.7	65.7	65	0.7	6	4
	3	●	MMS0390S-DIN-C	17.9	23.7	28.7	65.7	65	0.7	6	3
	5	□	MMS0390L-DIN	29.9	35.7	36.7	73.7	73	0.7	6	4
	5	●	MMS0390L-DIN-C	29.9	35.7	36.7	73.7	73	0.7	6	3
	3	★	MMS0390X3DB	12.4	22.7	23.7	70.7	70	0.7	6	3
	5	★	MMS0390X5DB	20.2	30.7	31.7	78.7	78	0.7	6	3

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC (mm)	Delik Derinliği (L/D)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
8.6	3	□	MMS0860S-DIN	33.7	46.6	47.6	88.6	87	1.6	10	2
	3	●	MMS0860S-DIN-C	33.7	46.6	47.6	88.6	87	1.6	10	1
	5	□	MMS0860L-DIN	47.7	60.6	61.6	102.6	101	1.6	10	2
	5	●	MMS0860L-DIN-C	47.7	60.6	61.6	102.6	101	1.6	10	1
	3	★	MMS0860X3DB	27.4	46.6	48.6	102.6	101	1.6	10	1
	5	★	MMS0860X5DB	44.6	64.6	66.6	117.6	116	1.6	10	1
8.7	3	□	MMS0870S-DIN	33.5	46.6	47.6	88.6	87	1.6	10	2
	3	●	MMS0870S-DIN-C	33.5	46.6	47.6	88.6	87	1.6	10	1
	5	□	MMS0870L-DIN	47.5	60.6	61.6	102.6	101	1.6	10	2
	5	●	MMS0870L-DIN-C	47.5	60.6	61.6	102.6	101	1.6	10	1
	3	★	MMS0870X3DB	27.7	46.6	48.6	102.6	101	1.6	10	1
	5	★	MMS0870X5DB	45.1	64.6	66.6	117.6	116	1.6	10	1
8.8	3	□	MMS0880S-DIN	33.4	46.6	47.6	88.6	87	1.6	10	2
	3	●	MMS0880S-DIN-C	33.4	46.6	47.6	88.6	87	1.6	10	1
	5	□	MMS0880L-DIN	47.4	60.6	61.6	102.6	101	1.6	10	2
	5	●	MMS0880L-DIN-C	47.4	60.6	61.6	102.6	101	1.6	10	1
	3	★	MMS0880X3DB	28.0	46.6	48.6	102.6	101	1.6	10	1
	5	★	MMS0880X5DB	45.6	64.6	66.6	117.6	116	1.6	10	1
8.9	3	□	MMS0890S-DIN	33.3	46.6	47.6	88.6	87	1.6	10	2
	3	□	MMS0890S-DIN-C	33.3	46.6	47.6	88.6	87	1.6	10	1
	5	□	MMS0890L-DIN	47.3	60.6	61.6	102.6	101	1.6	10	2
	5	□	MMS0890L-DIN-C	47.3	60.6	61.6	102.6	101	1.6	10	1
	3	★	MMS0890X3DB	28.3	46.6	48.6	102.6	101	1.6	10	1
	5	★	MMS0890X5DB	46.1	64.6	66.6	117.6	116	1.6	10	1
9.0	3	□	MMS0900S-DIN	33.1	46.6	47.6	88.6	87	1.6	10	2
	3	●	MMS0900S-DIN-C	33.1	46.6	47.6	88.6	87	1.6	10	1
	5	□	MMS0900L-DIN	47.1	60.6	61.6	102.6	101	1.6	10	2
	5	●	MMS0900L-DIN-C	47.1	60.6	61.6	102.6	101	1.6	10	1
	3	★	MMS0900X3DB	28.6	46.6	48.6	102.6	101	1.6	10	1
	5	★	MMS0900X5DB	46.6	64.6	66.6	117.6	116	1.6	10	1
9.1	3	□	MMS0910S-DIN	33.0	46.7	47.7	88.7	87	1.7	10	2
	3	□	MMS0910S-DIN-C	33.0	46.7	47.7	88.7	87	1.7	10	1
	5	□	MMS0910L-DIN	47.0	60.7	61.7	102.7	101	1.7	10	2
	5	□	MMS0910L-DIN-C	47.0	60.7	61.7	102.7	101	1.7	10	1
	3	★	MMS0910X3DB	29.0	49.7	51.7	102.7	101	1.7	10	1
	5	★	MMS0910X5DB	47.2	68.7	71.7	122.7	121	1.7	10	1
9.2	3	□	MMS0920S-DIN	32.9	46.7	47.7	88.7	87	1.7	10	2
	3	□	MMS0920S-DIN-C	32.9	46.7	47.7	88.7	87	1.7	10	1
	5	□	MMS0920L-DIN	46.9	60.7	61.7	102.7	101	1.7	10	2
	5	□	MMS0920L-DIN-C	46.9	60.7	61.7	102.7	101	1.7	10	1
	3	★	MMS0920X3DB	29.3	49.7	51.7	102.7	101	1.7	10	1
	5	★	MMS0920X5DB	47.7	68.7	71.7	122.7	121	1.7	10	1
9.3	3	□	MMS0930S-DIN	32.7	46.7	47.7	88.7	87	1.7	10	2
	3	●	MMS0930S-DIN-C	32.7	46.7	47.7	88.7	87	1.7	10	1
	5	□	MMS0930L-DIN	46.7	60.7	61.7	102.7	101	1.7	10	2
	5	●	MMS0930L-DIN-C	46.7	60.7	61.7	102.7	101	1.7	10	1
	3	★	MMS0930X3DB	29.6	49.7	51.7	102.7	101	1.7	10	1
	5	★	MMS0930X5DB	48.2	68.7	71.7	122.7	121	1.7	10	1

DC (mm)	Delik Derinliği (L/D)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
9.4	3	□	MMS0940S-DIN	32.6	46.7	47.7	88.7	87	1.7	10	2
	3	□	MMS0940S-DIN-C	32.6	46.7	47.7	88.7	87	1.7	10	1
	5	□	MMS0940L-DIN	46.6	60.7	61.7	102.7	101	1.7	10	2
	5	□	MMS0940L-DIN-C	46.6	60.7	61.7	102.7	101	1.7	10	1
	3	★	MMS0940X3DB	29.9	49.7	51.7	102.7	101	1.7	10	1
	5	★	MMS0940X5DB	48.7	68.7	71.7	122.7	121	1.7	10	1
9.5	3	□	MMS0950S-DIN	32.5	46.7	47.7	88.7	87	1.7	10	2
	3	●	MMS0950S-DIN-C	32.5	46.7	47.7	88.7	87	1.7	10	1
	5	□	MMS0950L-DIN	46.5	60.7	61.7	102.7	101	1.7	10	2
	5	●	MMS0950L-DIN-C	46.5	60.7	61.7	102.7	101	1.7	10	1
	3	★	MMS0950X3DB	30.2	49.7	51.7	102.7	101	1.7	10	1
	5	★	MMS0950X5DB	49.2	68.7	71.7	122.7	121	1.7	10	1
9.6	3	□	MMS0960S-DIN	32.3	46.7	47.7	88.7	87	1.7	10	2
	3	□	MMS0960S-DIN-C	32.3	46.7	47.7	88.7	87	1.7	10	1
	5	□	MMS0960L-DIN	46.3	60.7	61.7	102.7	101	1.7	10	2
	5	□	MMS0960L-DIN-C	46.3	60.7	61.7	102.7	101	1.7	10	1
	3	★	MMS0960X3DB	30.5	51.7	51.7	102.7	101	1.7	10	1
	5	★	MMS0960X5DB	49.7	71.7	71.7	122.7	121	1.7	10	1
9.7	3	□	MMS0970S-DIN	32.2	46.8	47.8	88.8	87	1.8	10	2
	3	□	MMS0970S-DIN-C	32.2	46.8	47.8	88.8	87	1.8	10	1
	5	□	MMS0970L-DIN	46.2	60.8	61.8	102.8	101	1.8	10	2
	5	□	MMS0970L-DIN-C	46.2	60.8	61.8	102.8	101	1.8	10	1
	3	★	MMS0970X3DB	30.9	51.8	51.8	102.8	101	1.8	10	1
	5	★	MMS0970X5DB	50.3	71.8	71.8	122.8	121	1.8	10	1
9.8	3	□	MMS0980S-DIN	32.1	46.8	47.8	88.8	87	1.8	10	2
	3	●	MMS0980S-DIN-C	32.1	46.8	47.8	88.8	87	1.8	10	1
	5	□	MMS0980L-DIN	46.1	60.8	61.8	102.8	101	1.8	10	2
	5	●	MMS0980L-DIN-C	46.1	60.8	61.8	102.8	101	1.8	10	1
	3	★	MMS0980X3DB	31.2	51.8	51.8	102.8	101	1.8	10	1
	5	★	MMS0980X5DB	50.8	71.8	71.8	122.8	121	1.8	10	1
9.9	3	□	MMS0990S-DIN	32.0	46.8	47.8	88.8	87	1.8	10	2
	3	□	MMS0990S-DIN-C	32.0	46.8	47.8	88.8	87	1.8	10	1
	5	□	MMS0990L-DIN	46.0	60.8	61.8	102.8	101	1.8	10	2
	5	□	MMS0990L-DIN-C	46.0	60.8	61.8	102.8	101	1.8	10	1
	3	★	MMS0990X3DB	31.5	51.8	51.8	102.8	101	1.8	10	1
	5	★	MMS0990X5DB	51.3	71.8	71.8	122.8	121	1.8	10	1
10.0	3	□	MMS1000S-DIN	31.8	46.8	47.8	88.8	87	1.8	10	2
	3	●	MMS1000S-DIN-C	31.8	46.8	47.8	88.8	87	1.8	10	1
	5	□	MMS1000L-DIN	45.8	60.8	61.8	102.8	101	1.8	10	2
	5	●	MMS1000L-DIN-C	45.8	60.8	61.8	102.8	101	1.8	10	1
	3	★	MMS1000X3DB	31.8	51.8	51.8	102.8	101	1.8	10	1
	5	★	MMS1000X5DB	51.8	71.8	71.8	122.8	121	1.8	10	1
10.05	3	□	MMS1005S-DIN	39.8	54.8	55.8	101.8	100	1.8	12	2
	3	●	MMS1005S-DIN-C	39.8	54.8	55.8	101.8	100	1.8	12	1
	5	□	MMS1005L-DIN	55.8	70.8	71.8	117.8	116	1.8	12	2
	5	●	MMS1005L-DIN-C	55.8	70.8	71.8	117.8	116	1.8	12	1

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC	Delik Derinliği (mm)	DP7020 (L/D)	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
10.1	3	□	MMS1010S-DIN	39.7	54.8	55.8	101.8	100	1.8	12	2
	3	□	MMS1010S-DIN-C	39.7	54.8	55.8	101.8	100	1.8	12	1
	5	□	MMS1010L-DIN	55.7	70.8	71.8	117.8	116	1.8	12	2
	5	□	MMS1010L-DIN-C	55.7	70.8	71.8	117.8	116	1.8	12	1
	3	★	MMS1010X3DB	32.1	54.8	56.8	112.8	111	1.8	12	1
	5	★	MMS1010X5DB	52.3	75.8	79.8	135.8	134	1.8	12	1
10.2	3	□	MMS1020S-DIN	39.6	54.9	55.9	101.9	100	1.9	12	2
	3	●	MMS1020S-DIN-C	39.6	54.9	55.9	101.9	100	1.9	12	1
	5	□	MMS1020L-DIN	55.6	70.9	71.9	117.9	116	1.9	12	2
	5	●	MMS1020L-DIN-C	55.6	70.9	71.9	117.9	116	1.9	12	1
	3	★	MMS1020X3DB	32.5	54.9	56.9	112.9	111	1.9	12	1
	5	★	MMS1020X5DB	52.9	75.9	79.9	135.9	134	1.9	12	1
10.3	3	□	MMS1030S-DIN	39.4	54.9	55.9	101.9	100	1.9	12	2
	3	●	MMS1030S-DIN-C	39.4	54.9	55.9	101.9	100	1.9	12	1
	5	□	MMS1030L-DIN	55.4	70.9	71.9	117.9	116	1.9	12	2
	5	●	MMS1030L-DIN-C	55.4	70.9	71.9	117.9	116	1.9	12	1
	3	★	MMS1030X3DB	32.8	54.9	56.9	112.9	111	1.9	12	1
	5	★	MMS1030X5DB	53.4	75.9	79.9	135.9	134	1.9	12	1
10.4	3	□	MMS1040S-DIN	39.3	54.9	55.9	101.9	100	1.9	12	2
	3	●	MMS1040S-DIN-C	39.3	54.9	55.9	101.9	100	1.9	12	1
	5	□	MMS1040L-DIN	55.3	70.9	71.9	117.9	116	1.9	12	2
	5	●	MMS1040L-DIN-C	55.3	70.9	71.9	117.9	116	1.9	12	1
	3	★	MMS1040X3DB	33.1	54.9	56.9	112.9	111	1.9	12	1
	5	★	MMS1040X5DB	53.9	75.9	79.9	135.9	134	1.9	12	1
10.5	3	□	MMS1050S-DIN	39.2	54.9	55.9	101.9	100	1.9	12	2
	3	●	MMS1050S-DIN-C	39.2	54.9	55.9	101.9	100	1.9	12	1
	5	□	MMS1050L-DIN	55.2	70.9	71.9	117.9	116	1.9	12	2
	5	●	MMS1050L-DIN-C	55.2	70.9	71.9	117.9	116	1.9	12	1
	3	★	MMS1050X3DB	33.4	54.9	56.9	112.9	111	1.9	12	1
	5	★	MMS1050X5DB	54.4	75.9	79.9	135.9	134	1.9	12	1
10.6	3	□	MMS1060S-DIN	39.0	54.9	55.9	101.9	100	1.9	12	2
	3	□	MMS1060S-DIN-C	39.0	54.9	55.9	101.9	100	1.9	12	1
	5	□	MMS1060L-DIN	55.0	70.9	71.9	117.9	116	1.9	12	2
	5	□	MMS1060L-DIN-C	55.0	70.9	71.9	117.9	116	1.9	12	1
	3	★	MMS1060X3DB	33.7	56.9	57.9	117.9	116	1.9	12	1
	5	★	MMS1060X5DB	54.9	78.9	79.9	135.9	134	1.9	12	1
10.7	3	□	MMS1070S-DIN	38.9	54.9	55.9	101.9	100	1.9	12	2
	3	●	MMS1070S-DIN-C	38.9	54.9	55.9	101.9	100	1.9	12	1
	5	□	MMS1070L-DIN	54.9	70.9	71.9	117.9	116	1.9	12	2
	5	●	MMS1070L-DIN-C	54.9	70.9	71.9	117.9	116	1.9	12	1
	3	★	MMS1070X3DB	34.0	56.9	57.9	117.9	116	1.9	12	1
	5	★	MMS1070X5DB	55.4	78.9	79.9	135.9	134	1.9	12	1
10.8	3	□	MMS1080S-DIN	38.8	55.0	56.0	102.0	100	2.0	12	2
	3	●	MMS1080S-DIN-C	38.8	55.0	56.0	102.0	100	2.0	12	1
	5	□	MMS1080L-DIN	54.8	71.0	72.0	118.0	116	2.0	12	2
	5	●	MMS1080L-DIN-C	54.8	71.0	72.0	118.0	116	2.0	12	1
	3	★	MMS1080X3DB	34.4	57.0	58.0	118.0	116	2.0	12	1
	5	★	MMS1080X5DB	56.0	79.0	80.0	136.0	134	2.0	12	1

DC	Delik Derinliği (mm)	DP7020 (L/D)	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
10.9	3	□	MMS1090S-DIN	38.6	55.0	56.0	102.0	100	2.0	12	2
	3	□	MMS1090S-DIN-C	38.6	55.0	56.0	102.0	100	2.0	12	1
	5	□	MMS1090L-DIN	54.6	71.0	72.0	118.0	116	2.0	12	2
	5	□	MMS1090L-DIN-C	54.6	71.0	72.0	118.0	116	2.0	12	1
	3	★	MMS1090X3DB	34.7	57.0	58.0	118.0	116	2.0	12	1
	5	★	MMS1090X5DB	56.5	79.0	80.0	136.0	134	2.0	12	1
11.0	3	□	MMS1100S-DIN	38.5	55.0	56.0	102.0	100	2.0	12	2
	3	●	MMS1100S-DIN-C	38.5	55.0	56.0	102.0	100	2.0	12	1
	5	□	MMS1100L-DIN	54.5	71.0	72.0	118.0	116	2.0	12	2
	5	●	MMS1100L-DIN-C	54.5	71.0	72.0	118.0	116	2.0	12	1
	3	★	MMS1100X3DB	35.0	57.0	58.0	118.0	116	2.0	12	1
	5	★	MMS1100X5DB	57.0	79.0	80.0	136.0	134	2.0	12	1
11.1	3	□	MMS1110S-DIN	38.4	55.0	56.0	102.0	100	2.0	12	2
	3	□	MMS1110S-DIN-C	38.4	55.0	56.0	102.0	100	2.0	12	1
	5	□	MMS1110L-DIN	54.4	71.0	72.0	118.0	116	2.0	12	2
	5	□	MMS1110L-DIN-C	54.4	71.0	72.0	118.0	116	2.0	12	1
	3	★	MMS1110X3DB	35.3	60.0	62.0	118.0	116	2.0	12	1
	5	★	MMS1110X5DB	57.5	83.0	86.0	142.0	140	2.0	12	1
11.2	3	□	MMS1120S-DIN	38.2	55.0	56.0	102.0	100	2.0	12	2
	3	●	MMS1120S-DIN-C	38.2	55.0	56.0	102.0	100	2.0	12	1
	5	□	MMS1120L-DIN	54.2	71.0	72.0	118.0	116	2.0	12	2
	5	●	MMS1120L-DIN-C	54.2	71.0	72.0	118.0	116	2.0	12	1
	3	★	MMS1120X3DB	35.6	60.0	62.0	118.0	116	2.0	12	1
	5	★	MMS1120X5DB	58.0	83.0	86.0	142.0	140	2.0	12	1
11.3	3	□	MMS1130S-DIN	38.1	55.1	56.1	102.1	100	2.1	12	2
	3	□	MMS1130S-DIN-C	38.1	55.1	56.1	102.1	100	2.1	12	1
	5	□	MMS1130L-DIN	54.1	71.1	72.1	118.1	116	2.1	12	2
	5	□	MMS1130L-DIN-C	54.1	71.1	72.1	118.1	116	2.1	12	1
	3	★	MMS1130X3DB	36.0	60.1	62.1	118.1	116	2.1	12	1
	5	★	MMS1130X5DB	58.6	83.1	86.1	142.1	140	2.1	12	1
11.4	3	□	MMS1140S-DIN	38.0	55.1	56.1	102.1	100	2.1	12	2
	3	●	MMS1140S-DIN-C	38.0	55.1	56.1	102.1	100	2.1	12	1
	5	□	MMS1140L-DIN	54.0	71.1	72.1	118.1	116	2.1	12	2
	5	●	MMS1140L-DIN-C	54.0	71.1	72.1	118.1	116	2.1	12	1
	3	★	MMS1140X3DB	36.3	60.1	62.1	118.1	116	2.1	12	1
	5	★	MMS1140X5DB	59.1	83.1	86.1	142.1	140	2.1	12	1
11.5	3	□	MMS1150S-DIN	37.8	55.1	56.1	102.1	100	2.1	12	2
	3	●	MMS1150S-DIN-C	37.8	55.1	56.1	102.1	100	2.1	12	1
	5	□	MMS1150L-DIN	53.8	71.1	72.1	118.1	116	2.1	12	2
	5	●	MMS1150L-DIN-C	53.8	71.1	72.1	118.1	116	2.1	12	1
	3	★	MMS1150X3DB	36.6	60.1	62.1	118.1	116	2.1	12	1
	5	★	MMS1150X5DB	59.6	83.1	86.1	142.1	140	2.1	12	1
11.6	3	□	MMS1160S-DIN	37.7	55.1	56.1	102.1	100	2.1	12	2
	3	□	MMS1160S-DIN-C	37.7	55.1	56.1	102.1	100	2.1	12	1
	5	□	MMS1160L-DIN	53.7	71.1	72.1	118.1	116	2.1	12	2
	5	□	MMS1160L-DIN-C	53.7	71.1	72.1	118.1	116	2.1	12	1
	3	★	MMS1160X3DB	36.9	62.1	62.1	118.1	116	2.1	12	1
	5	★	MMS1160X5DB	60.1	86.1	86.1	142.1	140	2.1	12	1

DC	Delik Derinliği (mm)	DP7020 (L/D)	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
11.7	3	□	MMS1170S-DIN	37.6	55.1	56.1	102.1	100	2.1	12	2
	3	●	MMS1170S-DIN-C	37.6	55.1	56.1	102.1	100	2.1	12	1
	5	□	MMS1170L-DIN	53.6	71.1	72.1	118.1	116	2.1	12	2
	5	●	MMS1170L-DIN-C	53.6	71.1	72.1	118.1	116	2.1	12	1
	3	★	MMS1170X3DB	37.2	62.1	62.1	118.1	116	2.1	12	1
	5	★	MMS1170X5DB	60.6	86.1	86.1	142.1	140	2.1	12	1
11.8	3	□	MMS1180S-DIN	37.4	55.1	56.1	102.1	100	2.1	12	2
	3	●	MMS1180S-DIN-C	37.4	55.1	56.1	102.1	100	2.1	12	1
	5	□	MMS1180L-DIN	53.4	71.1	72.1	118.1	116	2.1	12	2
	5	●	MMS1180L-DIN-C	53.4	71.1	72.1	118.1	116	2.1	12	1
	3	★	MMS1180X3DB	37.5	62.1	62.1	118.1	116	2.1	12	1
	5	★	MMS1180X5DB	61.1	86.1	86.1	142.1	140	2.1	12	1
11.9	3	□	MMS1190S-DIN	37.3	55.2	56.2	102.2	100	2.2	12	2
	3	□	MMS1190S-DIN-C	37.3	55.2	56.2	102.2	100	2.2	12	1
	5	□	MMS1190L-DIN	53.3	71.2	72.2	118.2	116	2.2	12	2
	5	□	MMS1190L-DIN-C	53.3	71.2	72.2	118.2	116	2.2	12	1
	3	★	MMS1190X3DB	37.9	62.2	62.2	118.2	116	2.2	12	1
	5	★	MMS1190X5DB	61.7	86.2	86.2	142.2	140	2.2	12	1
12.0	3	□	MMS1200S-DIN	37.2	55.2	56.2	102.2	100	2.2	12	2
	3	●	MMS1200S-DIN-C	37.2	55.2	56.2	102.2	100	2.2	12	1
	5	□	MMS1200L-DIN	53.2	71.2	72.2	118.2	116	2.2	12	2
	5	●	MMS1200L-DIN-C	53.2	71.2	72.2	118.2	116	2.2	12	1
	3	★	MMS1200X3DB	38.2	62.2	62.2	118.2	116	2.2	12	1
	5	★	MMS1200X5DB	62.2	86.2	86.2	142.2	140	2.2	12	1
12.05	3	□	MMS1205S-DIN	42.1	60.2	61.2	107.2	105	2.2	14	2
	3	●	MMS1205S-DIN-C	42.1	60.2	61.2	107.2	105	2.2	14	1
	5	□	MMS1205L-DIN	59.1	77.2	78.2	124.2	122	2.2	14	2
	5	●	MMS1205L-DIN-C	59.1	77.2	78.2	124.2	122	2.2	14	1
12.1	3	□	MMS1210S-DIN	42.1	60.2	61.2	107.2	105	2.2	14	2
	3	□	MMS1210S-DIN-C	42.1	60.2	61.2	107.2	105	2.2	14	1
	5	□	MMS1210L-DIN	59.1	77.2	78.2	124.2	122	2.2	14	2
	5	□	MMS1210L-DIN-C	59.1	77.2	78.2	124.2	122	2.2	14	1
	3	★	MMS1210X3DB	38.5	65.2	68.2	124.2	122	2.2	14	1
12.2	5	★	MMS1210X5DB	62.7	90.2	94.2	150.2	148	2.2	14	1
	3	□	MMS1220S-DIN	41.9	60.2	61.2	107.2	105	2.2	14	2
	3	□	MMS1220S-DIN-C	41.9	60.2	61.2	107.2	105	2.2	14	1
	5	□	MMS1220L-DIN	58.9	77.2	78.2	124.2	122	2.2	14	2
	5	□	MMS1220L-DIN-C	58.9	77.2	78.2	124.2	122	2.2	14	1
12.3	3	★	MMS1220X3DB	38.8	65.2	68.2	124.2	122	2.2	14	1
	5	★	MMS1220X5DB	63.2	90.2	94.2	150.2	148	2.2	14	1
	3	□	MMS1230S-DIN	41.8	60.2	61.2	107.2	105	2.2	14	2
	3	□	MMS1230S-DIN-C	41.8	60.2	61.2	107.2	105	2.2	14	1
	5	□	MMS1230L-DIN	58.8	77.2	78.2	124.2	122	2.2	14	2
12.3	5	□	MMS1230L-DIN-C	58.8	77.2	78.2	124.2	122	2.2	14	1
	3	★	MMS1230X3DB	39.1	65.2	68.2	124.2	122	2.2	14	1
	5	★	MMS1230X5DB	63.7	90.2	94.2	150.2	148	2.2	14	1

DC	Delik Derinliği (mm)	DP7020 (L/D)	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
12.4	3	□	MMS1240S-DIN	41.7	60.3	61.3	107.3	105	2.3	14	2
	3	□	MMS1240S-DIN-C	41.7	60.3	61.3	107.3	105	2.3	14	1
	5	□	MMS1240L-DIN	58.7	77.3	78.3	124.3	122	2.3	14	2
	5	□	MMS1240L-DIN-C	58.7	77.3	78.3	124.3	122	2.3	14	1
	3	★	MMS1240X3DB	39.5	65.3	68.3	124.3	122	2.3	14	1
	5	★	MMS1240X5DB	64.3	90.3	94.3	150.3	148	2.3	14	1
12.5	3	□	MMS1250S-DIN	41.5	60.3	61.3	107.3	105	2.3	14	2
	3	●	MMS1250S-DIN-C	41.5	60.3	61.3	107.3	105	2.3	14	1
	5	□	MMS1250L-DIN	58.5	77.3	78.3	124.3	122	2.3	14	2
	5	●	MMS1250L-DIN-C	58.5	77.3	78.3	124.3	122	2.3	14	1
	3	★	MMS1250X3DB	39.8	65.3	68.3	124.3	122	2.3	14	1
	5	★	MMS1250X5DB	64.8	90.3	94.3	150.3	148	2.3	14	1
12.6	3	□	MMS1260S-DIN	41.4	60.3	61.3	107.3	105	2.3	14	2
	3	●	MMS1260S-DIN-C	41.4	60.3	61.3	107.3	105	2.3	14	1
	5	□	MMS1260L-DIN	58.4	77.3	78.3	124.3	122	2.3	14	2
	5	●	MMS1260L-DIN-C	58.4	77.3	78.3	124.3	122	2.3	14	1
	3	★	MMS1260X3DB	40.1	67.3	68.3	124.3	122	2.3	14	1
	5	★	MMS1260X5DB	65.3	93.3	94.3	150.3	148	2.3	14	1
12.7	3	□	MMS1270S-DIN	41.3	60.3	61.3	107.3	105	2.3	14	2
	3	●	MMS1270S-DIN-C	41.3	60.3	61.3	107.3	105	2.3	14	1
	5	□	MMS1270L-DIN	58.3	77.3	78.3	124.3	122	2.3	14	2
	5	●	MMS1270L-DIN-C	58.3	77.3	78.3	124.3	122	2.3	14	1
	3	★	MMS1270X3DB	40.4	67.3	68.3	124.3	122	2.3	14	1
	5	★	MMS1270X5DB	65.8	93.3	94.3	150.3	148	2.3	14	1
12.8	3	□	MMS1280S-DIN	41.1	60.3	61.3	107.3	105	2.3	14	2
	3	□	MMS1280S-DIN-C	41.1	60.3	61.3	107.3	105	2.3	14	1
	5	□	MMS1280L-DIN	58.1	77.3	78.3	124.3	122	2.3	14	2
	5	□	MMS1280L-DIN-C	58.1	77.3	78.3	124.3	122	2.3	14	1
	3	★	MMS1280X3DB	40.7	67.3	68.3	124.3	122	2.3	14	1
	5	★	MMS1280X5DB	66.3	93.3	94.3	150.3	148	2.3	14	1
12.9	3	□	MMS1290S-DIN	41.0	60.3	61.3	107.3	105	2.3	14	2
	3	□	MMS1290S-DIN-C	41.0	60.3	61.3	107.3	105	2.3	14	1
	5	□	MMS1290L-DIN	58.0	77.3	78.3	124.3	122	2.3	14	2
	5	□	MMS1290L-DIN-C	58.0	77.3	78.3	124.3	122	2.3	14	1
	3	★	MMS1290X3DB	41.0	67.3	68.3	124.3	122	2.3	14	1
	5	★	MMS1290X5DB	66.8	93.3	94.3	150.3	148	2.3	14	1
13.0	3	□	MMS1300S-DIN	40.9	60.4	61.4	107.4	105	2.4	14	2
	3	●	MMS1300S-DIN-C	40.9	60.4	61.4	107.4	105	2.4	14	1
	5	□	MMS1300L-DIN	57.9	77.4	78.4	124.4	122	2.4	14	2
	5	●	MMS1300L-DIN-C	57.9	77.4	78.4	124.4	122	2.4	14	1
	3	★	MMS1300X3DB	41.4	67.4	68.4	124.4	122	2.4	14	1
	5	★	MMS1300X5DB	67.4	93.4	94.4	150.4	148	2.4	14	1
13.1	3	□	MMS1310S-DIN	40.7	60.4	61.4	107.4	105	2.4	14	2
	3	□	MMS1310S-DIN-C	40.7	60.4	61.4	107.4	105	2.4	14	1
	5	□	MMS1310L-DIN	57.7	77.4	78.4	124.4	122	2.4	14	2
	5	□	MMS1310L-DIN-C	57.7	77.4	78.4	124.4	122	2.4	14	1
	3	★	MMS1310X3DB	41.7	70.4	72.4	128.4	126	2.4	14	1
	5	★	MMS1310X5DB	67.9	97.4	100.4	156.4	154	2.4	14	1

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC (mm)	Delik Derinliği (L/D)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
14.8	3	□	MMS1480S-DIN	42.5	64.7	65.7	114.7	112	2.7	16	2
	3	□	MMS1480S-DIN-C	42.5	64.7	65.7	114.7	112	2.7	16	1
	5	□	MMS1480L-DIN	60.5	82.7	83.7	132.7	130	2.7	16	2
	5	□	MMS1480L-DIN-C	60.5	82.7	83.7	132.7	130	2.7	16	1
	3	★	MMS1480X3DB	47.1	77.7	78.7	137.7	135	2.7	16	1
	5	★	MMS1480X5DB	76.7	107.7	108.7	167.7	165	2.7	16	1
14.9	3	□	MMS1490S-DIN	42.4	64.7	65.7	114.7	112	2.7	16	2
	3	□	MMS1490S-DIN-C	42.4	64.7	65.7	114.7	112	2.7	16	1
	5	□	MMS1490L-DIN	60.4	82.7	83.7	132.7	130	2.7	16	2
	5	□	MMS1490L-DIN-C	60.4	82.7	83.7	132.7	130	2.7	16	1
	3	★	MMS1490X3DB	47.4	77.7	78.7	137.7	135	2.7	16	1
	5	★	MMS1490X5DB	77.2	107.7	108.7	167.7	165	2.7	16	1
15.0	3	□	MMS1500S-DIN	42.2	64.7	65.7	114.7	112	2.7	16	2
	3	□	MMS1500S-DIN-C	42.2	64.7	65.7	114.7	112	2.7	16	1
	5	□	MMS1500L-DIN	60.2	82.7	83.7	132.7	130	2.7	16	2
	5	□	MMS1500L-DIN-C	60.2	82.7	83.7	132.7	130	2.7	16	1
	3	★	MMS1500X3DB	47.7	77.7	78.7	137.7	135	2.7	16	1
	5	★	MMS1500X5DB	77.7	107.7	108.7	167.7	165	2.7	16	1
15.1	3	□	MMS1510S-DIN	42.1	64.7	65.7	114.7	112	2.7	16	2
	3	□	MMS1510S-DIN-C	42.1	64.7	65.7	114.7	112	2.7	16	1
	5	□	MMS1510L-DIN	60.1	82.7	83.7	132.7	130	2.7	16	2
	5	□	MMS1510L-DIN-C	60.1	82.7	83.7	132.7	130	2.7	16	1
	3	★	MMS1510X3DB	48.0	80.7	82.7	141.7	139	2.7	16	1
	5	★	MMS1510X5DB	78.2	111.7	114.7	173.7	171	2.7	16	1
15.2	3	□	MMS1520S-DIN	42.0	64.8	65.8	114.8	112	2.8	16	2
	3	□	MMS1520S-DIN-C	42.0	64.8	65.8	114.8	112	2.8	16	1
	5	□	MMS1520L-DIN	60.0	82.8	83.8	132.8	130	2.8	16	2
	5	□	MMS1520L-DIN-C	60.0	82.8	83.8	132.8	130	2.8	16	1
	3	★	MMS1520X3DB	48.4	80.8	82.8	141.8	139	2.8	16	1
	5	★	MMS1520X5DB	78.8	111.8	114.8	173.8	171	2.8	16	1
15.3	3	□	MMS1530S-DIN	41.8	64.8	65.8	114.8	112	2.8	16	2
	3	□	MMS1530S-DIN-C	41.8	64.8	65.8	114.8	112	2.8	16	1
	5	□	MMS1530L-DIN	59.8	82.8	83.8	132.8	130	2.8	16	2
	5	□	MMS1530L-DIN-C	59.8	82.8	83.8	132.8	130	2.8	16	1
	3	★	MMS1530X3DB	48.7	80.8	82.8	141.8	139	2.8	16	1
	5	★	MMS1530X5DB	79.3	111.8	114.8	173.8	171	2.8	16	1
15.4	3	□	MMS1540S-DIN	41.7	64.8	65.8	114.8	112	2.8	16	2
	3	□	MMS1540S-DIN-C	41.7	64.8	65.8	114.8	112	2.8	16	1
	5	□	MMS1540L-DIN	59.7	82.8	83.8	132.8	130	2.8	16	2
	5	□	MMS1540L-DIN-C	59.7	82.8	83.8	132.8	130	2.8	16	1
	3	★	MMS1540X3DB	49.0	80.8	82.8	141.8	139	2.8	16	1
	5	★	MMS1540X5DB	79.8	111.8	114.8	173.8	171	2.8	16	1
15.5	3	□	MMS1550S-DIN	41.6	64.8	65.8	114.8	112	2.8	16	2
	3	□	MMS1550S-DIN-C	41.6	64.8	65.8	114.8	112	2.8	16	1
	5	□	MMS1550L-DIN	59.6	82.8	83.8	132.8	130	2.8	16	2
	5	□	MMS1550L-DIN-C	59.6	82.8	83.8	132.8	130	2.8	16	1
	3	★	MMS1550X3DB	49.3	80.8	82.8	141.8	139	2.8	16	1
	5	★	MMS1550X5DB	80.3	111.8	114.8	173.8	171	2.8	16	1

DC (mm)	Delik Derinliği (L/D)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
15.6	3	□	MMS1560S-DIN	41.4	64.8	65.8	114.8	112	2.8	16	2
	3	□	MMS1560S-DIN-C	41.4	64.8	65.8	114.8	112	2.8	16	1
	5	□	MMS1560L-DIN	59.4	82.8	83.8	132.8	130	2.8	16	2
	5	□	MMS1560L-DIN-C	59.4	82.8	83.8	132.8	130	2.8	16	1
	3	★	MMS1560X3DB	49.6	82.8	82.8	141.8	139	2.8	16	1
	5	★	MMS1560X5DB	80.8	114.8	114.8	173.8	171	2.8	16	1
15.7	3	□	MMS1570S-DIN	41.3	64.9	65.9	114.9	112	2.9	16	2
	3	□	MMS1570S-DIN-C	41.3	64.9	65.9	114.9	112	2.9	16	1
	5	□	MMS1570L-DIN	59.3	82.9	83.9	132.9	130	2.9	16	2
	5	□	MMS1570L-DIN-C	59.3	82.9	83.9	132.9	130	2.9	16	1
	3	★	MMS1570X3DB	50.0	82.9	82.9	141.9	139	2.9	16	1
	5	★	MMS1570X5DB	81.4	114.9	114.9	173.9	171	2.9	16	1
15.8	3	□	MMS1580S-DIN	41.2	64.9	65.9	114.9	112	2.9	16	2
	3	□	MMS1580S-DIN-C	41.2	64.9	65.9	114.9	112	2.9	16	1
	5	□	MMS1580L-DIN	59.2	82.9	83.9	132.9	130	2.9	16	2
	5	□	MMS1580L-DIN-C	59.2	82.9	83.9	132.9	130	2.9	16	1
	3	★	MMS1580X3DB	50.3	82.9	82.9	141.9	139	2.9	16	1
	5	★	MMS1580X5DB	81.9	114.9	114.9	173.9	171	2.9	16	1
15.9	3	□	MMS1590S-DIN	41.0	64.9	65.9	114.9	112	2.9	16	2
	3	□	MMS1590S-DIN-C	41.0	64.9	65.9	114.9	112	2.9	16	1
	5	□	MMS1590L-DIN	59.0	82.9	83.9	132.9	130	2.9	16	2
	5	□	MMS1590L-DIN-C	59.0	82.9	83.9	132.9	130	2.9	16	1
	3	★	MMS1590X3DB	50.6	82.9	82.9	141.9	139	2.9	16	1
	5	★	MMS1590X5DB	82.4	114.9	114.9	173.9	171	2.9	16	1
16.0	3	□	MMS1600S-DIN	40.9	64.9	65.9	114.9	112	2.9	16	2
	3	□	MMS1600S-DIN-C	40.9	64.9	65.9	114.9	112	2.9	16	1
	5	□	MMS1600L-DIN	58.9	82.9	83.9	132.9	130	2.9	16	2
	5	□	MMS1600L-DIN-C	58.9	82.9	83.9	132.9	130	2.9	16	1
	3	★	MMS1600X3DB	50.9	82.9	82.9	141.9	139	2.9	16	1
	5	★	MMS1600X5DB	82.9	114.9	114.9	173.9	171	2.9	16	1
16.1	3	□	MMS1610S-DIN	48.8	72.9	73.9	122.9	120	2.9	18	2
	3	□	MMS1610S-DIN-C	48.8	72.9	73.9	122.9	120	2.9	18	1
	5	□	MMS1610L-DIN	68.8	92.9	93.9	142.9	140	2.9	18	2
	5	□	MMS1610L-DIN-C	68.8	92.9	93.9	142.9	140	2.9	18	1
	3	□	MMS1610X3DB	51.2	85.9	88.9	147.9	145	2.9	18	1
	5	□	MMS1610X5DB	83.4	118.9	122.9	181.9	179	2.9	18	1
16.2	3	□	MMS1620S-DIN	48.6	72.9	73.9	122.9	120	2.9	18	2
	3	□	MMS1620S-DIN-C	48.6	72.9	73.9	122.9	120	2.9	18	1
	5	□	MMS1620L-DIN	68.6	92.9	93.9	142.9	140	2.9	18	2
	5	□	MMS1620L-DIN-C	68.6	92.9	93.9	142.9	140	2.9	18	1
	3	□	MMS1620X3DB	51.5	85.9	88.9	147.9	145	2.9	18	1
	5	□	MMS1620X5DB	83.9	118.9	122.9	181.9	179	2.9	18	1
16.3	3	□	MMS1630S-DIN	48.5	73.0	74.0	123.0	120	3.0	18	2
	3	□	MMS1630S-DIN-C	48.5	73.0	74.0	123.0	120	3.0	18	1
	5	□	MMS1630L-DIN	68.5	93.0	94.0	143.0	140	3.0	18	2
	5	□	MMS1630L-DIN-C	68.5	93.0	94.0	143.0	140	3.0	18	1
	3	□	MMS1630X3DB	51.9	86.0	89.0	148.0	145	3.0	18	1
	5	□	MMS1630X5DB	84.5	119.0	123.0	182.0	179	3.0	18	1

★ : Japonya standart stok. □ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC	Delik Derinliği (mm)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
16.4	3	□	MMS1640S-DIN	48.4	73.0	74.0	123.0	120	3.0	18	2
	3	□	MMS1640S-DIN-C	48.4	73.0	74.0	123.0	120	3.0	18	1
	5	□	MMS1640L-DIN	68.4	93.0	94.0	143.0	140	3.0	18	2
	5	□	MMS1640L-DIN-C	68.4	93.0	94.0	143.0	140	3.0	18	1
	3	□	MMS1640X3DB	52.2	86.0	89.0	148.0	145	3.0	18	1
	5	□	MMS1640X5DB	85.0	119.0	123.0	182.0	179	3.0	18	1
16.5	3	□	MMS1650S-DIN	48.3	73.0	74.0	123.0	120	3.0	18	2
	3	□	MMS1650S-DIN-C	48.3	73.0	74.0	123.0	120	3.0	18	1
	5	□	MMS1650L-DIN	68.3	93.0	94.0	143.0	140	3.0	18	2
	5	□	MMS1650L-DIN-C	68.3	93.0	94.0	143.0	140	3.0	18	1
	3	★	MMS1650X3DB	52.5	86.0	89.0	148.0	145	3.0	18	1
	5	★	MMS1650X5DB	85.5	119.0	123.0	182.0	179	3.0	18	1
16.6	3	□	MMS1660S-DIN	48.1	73.0	74.0	123.0	120	3.0	18	2
	3	□	MMS1660S-DIN-C	48.1	73.0	74.0	123.0	120	3.0	18	1
	5	□	MMS1660L-DIN	68.1	93.0	94.0	143.0	140	3.0	18	2
	5	□	MMS1660L-DIN-C	68.1	93.0	94.0	143.0	140	3.0	18	1
	3	□	MMS1660X3DB	52.8	88.0	89.0	148.0	145	3.0	18	1
	5	□	MMS1660X5DB	86.0	122.0	123.0	182.0	179	3.0	18	1
16.7	3	□	MMS1670S-DIN	48.0	73.0	74.0	123.0	120	3.0	18	2
	3	□	MMS1670S-DIN-C	48.0	73.0	74.0	123.0	120	3.0	18	1
	5	□	MMS1670L-DIN	68.0	93.0	94.0	143.0	140	3.0	18	2
	5	□	MMS1670L-DIN-C	68.0	93.0	94.0	143.0	140	3.0	18	1
	3	□	MMS1670X3DB	53.1	88.0	89.0	148.0	145	3.0	18	1
	5	□	MMS1670X5DB	86.5	122.0	123.0	182.0	179	3.0	18	1
16.8	3	□	MMS1680S-DIN	47.9	73.1	74.1	123.1	120	3.1	18	2
	3	□	MMS1680S-DIN-C	47.9	73.1	74.1	123.1	120	3.1	18	1
	5	□	MMS1680L-DIN	67.9	93.1	94.1	143.1	140	3.1	18	2
	5	□	MMS1680L-DIN-C	67.9	93.1	94.1	143.1	140	3.1	18	1
	3	□	MMS1680X3DB	53.5	88.1	89.1	148.1	145	3.1	18	1
	5	□	MMS1680X5DB	87.1	122.1	123.1	182.1	179	3.1	18	1
16.9	3	□	MMS1690S-DIN	47.7	73.1	74.1	123.1	120	3.1	18	2
	3	□	MMS1690S-DIN-C	47.7	73.1	74.1	123.1	120	3.1	18	1
	5	□	MMS1690L-DIN	67.7	93.1	94.1	143.1	140	3.1	18	2
	5	□	MMS1690L-DIN-C	67.7	93.1	94.1	143.1	140	3.1	18	1
	3	□	MMS1690X3DB	53.8	88.1	89.1	148.1	145	3.1	18	1
	5	□	MMS1690X5DB	87.6	122.1	123.1	182.1	179	3.1	18	1
17.0	3	□	MMS1700S-DIN	47.6	73.1	74.1	123.1	120	3.1	18	2
	3	□	MMS1700S-DIN-C	47.6	73.1	74.1	123.1	120	3.1	18	1
	5	□	MMS1700L-DIN	67.6	93.1	94.1	143.1	140	3.1	18	2
	5	□	MMS1700L-DIN-C	67.6	93.1	94.1	143.1	140	3.1	18	1
	3	★	MMS1700X3DB	54.1	88.1	89.1	148.1	145	3.1	18	1
	5	★	MMS1700X5DB	88.1	122.1	123.1	182.1	179	3.1	18	1
17.1	3	□	MMS1710S-DIN	47.5	73.1	74.1	123.1	120	3.1	18	2
	3	□	MMS1710S-DIN-C	47.5	73.1	74.1	123.1	120	3.1	18	1
	5	□	MMS1710L-DIN	67.5	93.1	94.1	143.1	140	3.1	18	2
	5	□	MMS1710L-DIN-C	67.5	93.1	94.1	143.1	140	3.1	18	1
	3	□	MMS1710X3DB	54.4	91.1	93.1	152.1	149	3.1	18	1
	5	□	MMS1710X5DB	88.6	126.1	129.1	188.1	185	3.1	18	1

DC	Delik Derinliği (mm)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
17.2	3	□	MMS1720S-DIN	47.3	73.1	74.1	123.1	120	3.1	18	2
	3	□	MMS1720S-DIN-C	47.3	73.1	74.1	123.1	120	3.1	18	1
	5	□	MMS1720L-DIN	67.3	93.1	94.1	143.1	140	3.1	18	2
	5	□	MMS1720L-DIN-C	67.3	93.1	94.1	143.1	140	3.1	18	1
	3	□	MMS1720X3DB	54.7	91.1	93.1	152.1	149	3.1	18	1
	5	□	MMS1720X5DB	89.1	126.1	129.1	188.1	185	3.1	18	1
17.3	3	□	MMS1730S-DIN	47.2	73.1	74.1	123.1	120	3.1	18	2
	3	□	MMS1730S-DIN-C	47.2	73.1	74.1	123.1	120	3.1	18	1
	5	□	MMS1730L-DIN	67.2	93.1	94.1	143.1	140	3.1	18	2
	5	□	MMS1730L-DIN-C	67.2	93.1	94.1	143.1	140	3.1	18	1
	3	□	MMS1730X3DB	55.0	91.1	93.1	152.1	149	3.1	18	1
	5	□	MMS1730X5DB	89.6	126.1	129.1	188.1	185	3.1	18	1
17.4	3	□	MMS1740S-DIN	47.1	73.2	74.2	123.2	120	3.2	18	2
	3	□	MMS1740S-DIN-C	47.1	73.2	74.2	123.2	120	3.2	18	1
	5	□	MMS1740L-DIN	67.1	93.2	94.2	143.2	140	3.2	18	2
	5	□	MMS1740L-DIN-C	67.1	93.2	94.2	143.2	140	3.2	18	1
	3	□	MMS1740X3DB	55.4	91.2	93.2	152.2	149	3.2	18	1
	5	□	MMS1740X5DB	90.2	126.2	129.2	188.2	185	3.2	18	1
17.5	3	□	MMS1750S-DIN	46.9	73.2	74.2	123.2	120	3.2	18	2
	3	□	MMS1750S-DIN-C	46.9	73.2	74.2	123.2	120	3.2	18	1
	5	□	MMS1750L-DIN	66.9	93.2	94.2	143.2	140	3.2	18	2
	5	□	MMS1750L-DIN-C	66.9	93.2	94.2	143.2	140	3.2	18	1
	3	★	MMS1750X3DB	55.7	91.2	93.2	152.2	149	3.2	18	1
	5	★	MMS1750X5DB	90.7	126.2	129.2	188.2	185	3.2	18	1
17.6	3	□	MMS1760S-DIN	46.8	73.2	74.2	123.2	120	3.2	18	2
	3	□	MMS1760S-DIN-C	46.8	73.2	74.2	123.2	120	3.2	18	1
	5	□	MMS1760L-DIN	66.8	93.2	94.2	143.2	140	3.2	18	2
	5	□	MMS1760L-DIN-C	66.8	93.2	94.2	143.2	140	3.2	18	1
	3	□	MMS1760X3DB	56.0	93.2	93.2	152.2	149	3.2	18	1
	5	□	MMS1760X5DB	91.2	129.2	129.2	188.2	185	3.2	18	1
17.7	3	□	MMS1770S-DIN	46.7	73.2	74.2	123.2	120	3.2	18	2
	3	□	MMS1770S-DIN-C	46.7	73.2	74.2	123.2	120	3.2	18	1
	5	□	MMS1770L-DIN	66.7	93.2	94.2	143.2	140	3.2	18	2
	5	□	MMS1770L-DIN-C	66.7	93.2	94.2	143.2	140	3.2	18	1
	3	□	MMS1770X3DB	56.3	93.2	93.2	152.2	149	3.2	18	1
	5	□	MMS1770X5DB	91.7	129.2	129.2	188.2	185	3.2	18	1
17.8	3	□	MMS1780S-DIN	46.5	73.2	74.2	123.2	120	3.2	18	2
	3	□	MMS1780S-DIN-C	46.5	73.2	74.2	123.2	120	3.2	18	1
	5	□	MMS1780L-DIN	66.5	93.2	94.2	143.2	140	3.2	18	2
	5	□	MMS1780L-DIN-C	66.5	93.2	94.2	143.2	140	3.2	18	1
	3	□	MMS1780X3DB	56.6	93.2	93.2	152.2	149	3.2	18	1
	5	□	MMS1780X5DB	92.2	129.2	129.2	188.2	185	3.2	18	1
17.9	3	□	MMS1790S-DIN	46.4	73.3	74.3	123.3	120	3.3	18	2
	3	□	MMS1790S-DIN-C	46.4	73.3	74.3	123.3	120	3.3	18	1
	5	□	MMS1790L-DIN	66.4	93.3	94.3	143.3	140	3.3	18	2
	5	□	MMS1790L-DIN-C	66.4	93.3	94.3	143.3	140	3.3	18	1
	3	□	MMS1790X3DB	57.0	93.3	93.3	152.3	149	3.3	18	1
	5	□	MMS1790X5DB	92.8	129.3	129.3	188.3	185	3.3	18	1

DC (mm)	Delik Derinliği (L/D)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
18.0	3	□	MMS1800S-DIN	46.3	73.3	74.3	123.3	120	3.3	18	2
	3	□	MMS1800S-DIN-C	46.3	73.3	74.3	123.3	120	3.3	18	1
	5	□	MMS1800L-DIN	66.3	93.3	94.3	143.3	140	3.3	18	2
	5	□	MMS1800L-DIN-C	66.3	93.3	94.3	143.3	140	3.3	18	1
	3	★	MMS1800X3DB	57.3	93.3	93.3	152.3	149	3.3	18	1
	5	★	MMS1800X5DB	93.3	129.3	129.3	188.3	185	3.3	18	1
18.1	3	□	MMS1810S-DIN	52.1	79.3	80.3	131.3	128	3.3	20	2
	3	□	MMS1810S-DIN-C	52.1	79.3	80.3	131.3	128	3.3	20	1
	5	□	MMS1810L-DIN	74.1	101.3	102.3	153.3	150	3.3	20	2
	5	□	MMS1810L-DIN-C	74.1	101.3	102.3	153.3	150	3.3	20	1
	3	□	MMS1810X3DB	57.6	96.3	99.3	160.3	157	3.3	20	1
	5	□	MMS1810X5DB	93.8	133.3	137.3	198.3	195	3.3	20	1
18.2	3	□	MMS1820S-DIN	52.0	79.3	80.3	131.3	128	3.3	20	2
	3	□	MMS1820S-DIN-C	52.0	79.3	80.3	131.3	128	3.3	20	1
	5	□	MMS1820L-DIN	74.0	101.3	102.3	153.3	150	3.3	20	2
	5	□	MMS1820L-DIN-C	74.0	101.3	102.3	153.3	150	3.3	20	1
	3	□	MMS1820X3DB	57.9	96.3	99.3	160.3	157	3.3	20	1
	5	□	MMS1820X5DB	94.3	133.3	137.3	198.3	195	3.3	20	1
18.3	3	□	MMS1830S-DIN	51.9	79.3	80.3	131.3	128	3.3	20	2
	3	□	MMS1830S-DIN-C	51.9	79.3	80.3	131.3	128	3.3	20	1
	5	□	MMS1830L-DIN	73.9	101.3	102.3	153.3	150	3.3	20	2
	5	□	MMS1830L-DIN-C	73.9	101.3	102.3	153.3	150	3.3	20	1
	3	□	MMS1830X3DB	58.2	96.3	99.3	160.3	157	3.3	20	1
	5	□	MMS1830X5DB	94.8	133.3	137.3	198.3	195	3.3	20	1
18.4	3	□	MMS1840S-DIN	51.7	79.3	80.3	131.3	128	3.3	20	2
	3	□	MMS1840S-DIN-C	51.7	79.3	80.3	131.3	128	3.3	20	1
	5	□	MMS1840L-DIN	73.7	101.3	102.3	153.3	150	3.3	20	2
	5	□	MMS1840L-DIN-C	73.7	101.3	102.3	153.3	150	3.3	20	1
	3	□	MMS1840X3DB	58.5	96.3	99.3	160.3	157	3.3	20	1
	5	□	MMS1840X5DB	95.3	133.3	137.3	198.3	195	3.3	20	1
18.5	3	□	MMS1850S-DIN	51.6	79.4	80.4	131.4	128	3.4	20	2
	3	□	MMS1850S-DIN-C	51.6	79.4	80.4	131.4	128	3.4	20	1
	5	□	MMS1850L-DIN	73.6	101.4	102.4	153.4	150	3.4	20	2
	5	□	MMS1850L-DIN-C	73.6	101.4	102.4	153.4	150	3.4	20	1
	3	★	MMS1850X3DB	58.9	96.4	99.4	160.4	157	3.4	20	1
	5	★	MMS1850X5DB	95.9	133.4	137.4	198.4	195	3.4	20	1
18.6	3	□	MMS1860S-DIN	51.5	79.4	80.4	131.4	128	3.4	20	2
	3	□	MMS1860S-DIN-C	51.5	79.4	80.4	131.4	128	3.4	20	1
	5	□	MMS1860L-DIN	73.5	101.4	102.4	153.4	150	3.4	20	2
	5	□	MMS1860L-DIN-C	73.5	101.4	102.4	153.4	150	3.4	20	1
	3	□	MMS1860X3DB	59.2	98.4	99.4	160.4	157	3.4	20	1
	5	□	MMS1860X5DB	96.4	136.4	137.4	198.4	195	3.4	20	1
18.7	3	□	MMS1870S-DIN	51.4	79.4	80.4	131.4	128	3.4	20	2
	3	□	MMS1870S-DIN-C	51.4	79.4	80.4	131.4	128	3.4	20	1
	5	□	MMS1870L-DIN	73.4	101.4	102.4	153.4	150	3.4	20	2
	5	□	MMS1870L-DIN-C	73.4	101.4	102.4	153.4	150	3.4	20	1
	3	□	MMS1870X3DB	59.5	98.4	99.4	160.4	157	3.4	20	1
	5	□	MMS1870X5DB	96.9	136.4	137.4	198.4	195	3.4	20	1

DC (mm)	Delik Derinliği (L/D)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
18.8	3	□	MMS1880S-DIN	51.2	79.4	80.4	131.4	128	3.4	20	2
	3	□	MMS1880S-DIN-C	51.2	79.4	80.4	131.4	128	3.4	20	1
	5	□	MMS1880L-DIN	73.2	101.4	102.4	153.4	150	3.4	20	2
	5	□	MMS1880L-DIN-C	73.2	101.4	102.4	153.4	150	3.4	20	1
	3	□	MMS1880X3DB	59.8	98.4	99.4	160.4	157	3.4	20	1
	5	□	MMS1880X5DB	97.4	136.4	137.4	198.4	195	3.4	20	1
18.9	3	□	MMS1890S-DIN	51.1	79.4	80.4	131.4	128	3.4	20	2
	3	□	MMS1890S-DIN-C	51.1	79.4	80.4	131.4	128	3.4	20	1
	5	□	MMS1890L-DIN	73.1	101.4	102.4	153.4	150	3.4	20	2
	5	□	MMS1890L-DIN-C	73.1	101.4	102.4	153.4	150	3.4	20	1
	3	□	MMS1890X3DB	60.1	98.4	99.4	160.4	157	3.4	20	1
	5	□	MMS1890X5DB	97.9	136.4	137.4	198.4	195	3.4	20	1
19.0	3	□	MMS1900S-DIN	51.0	79.5	80.5	131.5	128	3.5	20	2
	3	□	MMS1900S-DIN-C	51.0	79.5	80.5	131.5	128	3.5	20	1
	5	□	MMS1900L-DIN	73.0	101.5	102.5	153.5	150	3.5	20	2
	5	□	MMS1900L-DIN-C	73.0	101.5	102.5	153.5	150	3.5	20	1
	3	★	MMS1900X3DB	60.5	98.5	99.5	160.5	157	3.5	20	1
	5	★	MMS1900X5DB	98.5	136.5	137.5	198.5	195	3.5	20	1
19.1	3	□	MMS1910S-DIN	50.8	79.5	80.5	131.5	128	3.5	20	2
	3	□	MMS1910S-DIN-C	50.8	79.5	80.5	131.5	128	3.5	20	1
	5	□	MMS1910L-DIN	72.8	101.5	102.5	153.5	150	3.5	20	2
	5	□	MMS1910L-DIN-C	72.8	101.5	102.5	153.5	150	3.5	20	1
	3	□	MMS1910X3DB	60.8	101.5	103.5	164.5	161	3.5	20	1
	5	□	MMS1910X5DB	99.0	140.5	143.5	204.5	201	3.5	20	1
19.2	3	□	MMS1920S-DIN	50.7	79.5	80.5	131.5	128	3.5	20	2
	3	□	MMS1920S-DIN-C	50.7	79.5	80.5	131.5	128	3.5	20	1
	5	□	MMS1920L-DIN	72.7	101.5	102.5	153.5	150	3.5	20	2
	5	□	MMS1920L-DIN-C	72.7	101.5	102.5	153.5	150	3.5	20	1
	3	□	MMS1920X3DB	61.1	101.5	103.5	164.5	161	3.5	20	1
	5	□	MMS1920X5DB	99.5	140.5	143.5	204.5	201	3.5	20	1
19.3	3	□	MMS1930S-DIN	50.6	79.5	80.5	131.5	128	3.5	20	2
	3	□	MMS1930S-DIN-C	50.6	79.5	80.5	131.5	128	3.5	20	1
	5	□	MMS1930L-DIN	72.6	101.5	102.5	153.5	150	3.5	20	2
	5	□	MMS1930L-DIN-C	72.6	101.5	102.5	153.5	150	3.5	20	1
	3	□	MMS1930X3DB	61.4	101.5	103.5	164.5	161	3.5	20	1
	5	□	MMS1930X5DB	100.0	140.5	143.5	204.5	201	3.5	20	1
19.4	3	□	MMS1940S-DIN	50.4	79.5	80.5	131.5	128	3.5	20	2
	3	□	MMS1940S-DIN-C	50.4	79.5	80.5	131.5	128	3.5	20	1
	5	□	MMS1940L-DIN	72.4	101.5	102.5	153.5	150	3.5	20	2
	5	□	MMS1940L-DIN-C	72.4	101.5	102.5	153.5	150	3.5	20	1
	3	□	MMS1940X3DB	61.7	101.5	103.5	164.5	161	3.5	20	1
	5	□	MMS1940X5DB	100.5	140.5	143.5	204.5	201	3.5	20	1
19.5	3	□	MMS1950S-DIN	50.3	79.5	80.5	131.5	128	3.5	20	2
	3	□	MMS1950S-DIN-C	50.3	79.5	80.5	131.5	128	3.5	20	1
	5	□	MMS1950L-DIN	72.3	101.5	102.5	153.5	150	3.5	20	2
	5	□	MMS1950L-DIN-C	72.3	101.5	102.5	153.5	150	3.5	20	1
	3	★	MMS1950X3DB	62.0	101.5	103.5	164.5	161	3.5	20	1
	5	★	MMS1950X5DB	101.0	140.5	143.5	204.5	201	3.5	20	1

★ : Japonya standart stok. □ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC (mm)	Delik Derinliği (L/D)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
19.6	3	□	MMS1960S-DIN	50.2	79.6	80.6	131.6	128	3.6	20	2
	3	□	MMS1960S-DIN-C	50.2	79.6	80.6	131.6	128	3.6	20	1
	5	□	MMS1960L-DIN	72.2	101.6	102.6	153.6	150	3.6	20	2
	5	□	MMS1960L-DIN-C	72.2	101.6	102.6	153.6	150	3.6	20	1
	3	□	MMS1960X3DB	62.4	103.6	103.6	164.6	161	3.6	20	1
	5	□	MMS1960X5DB	101.6	143.6	143.6	204.6	201	3.6	20	1
19.7	3	□	MMS1970S-DIN	50.0	79.6	80.6	131.6	128	3.6	20	2
	3	□	MMS1970S-DIN-C	50.0	79.6	80.6	131.6	128	3.6	20	1
	5	□	MMS1970L-DIN	72.0	101.6	102.6	153.6	150	3.6	20	2
	5	□	MMS1970L-DIN-C	72.0	101.6	102.6	153.6	150	3.6	20	1
	3	□	MMS1970X3DB	62.7	103.6	103.6	164.6	161	3.6	20	1
	5	□	MMS1970X5DB	102.1	143.6	143.6	204.6	201	3.6	20	1
19.8	3	□	MMS1980S-DIN	49.9	79.6	80.6	131.6	128	3.6	20	2
	3	□	MMS1980S-DIN-C	49.9	79.6	80.6	131.6	128	3.6	20	1
	5	□	MMS1980L-DIN	71.9	101.6	102.6	153.6	150	3.6	20	2
	5	□	MMS1980L-DIN-C	71.9	101.6	102.6	153.6	150	3.6	20	1
	3	□	MMS1980X3DB	63.0	103.6	103.6	164.6	161	3.6	20	1
	5	□	MMS1980X5DB	102.6	143.6	143.6	204.6	201	3.6	20	1

DC (mm)	Delik Derinliği (L/D)	DP7020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
19.9	3	□	MMS1990S-DIN	49.8	79.6	80.6	131.6	128	3.6	20	2
	3	□	MMS1990S-DIN-C	49.8	79.6	80.6	131.6	128	3.6	20	1
	5	□	MMS1990L-DIN	71.8	101.6	102.6	153.6	150	3.6	20	2
	5	□	MMS1990L-DIN-C	71.8	101.6	102.6	153.6	150	3.6	20	1
	3	□	MMS1990X3DB	63.3	103.6	103.6	164.6	161	3.6	20	1
	5	□	MMS1990X5DB	103.1	143.6	143.6	204.6	201	3.6	20	1
20.0	3	□	MMS2000S-DIN	49.6	79.6	80.6	131.6	128	3.6	20	2
	3	□	MMS2000S-DIN-C	49.6	79.6	80.6	131.6	128	3.6	20	1
	5	□	MMS2000L-DIN	71.6	101.6	102.6	153.6	150	3.6	20	2
	5	□	MMS2000L-DIN-C	71.6	101.6	102.6	153.6	150	3.6	20	1
	3	★	MMS2000X3DB	63.6	103.6	103.6	164.6	161	3.6	20	1
	5	★	MMS2000X5DB	103.6	143.6	143.6	204.6	201	3.6	20	1

ÇALIŞMA KILAVUZU

Matkap Ucunu Tutma Bilya sıkıştırılmalı pensli tip takım tutucu Matkap Ucunu güvenli bir şekilde tutar.	Matkap Ucu Uzunluğu $A \geq DC \times 1.5$	Matkap Ucunu Takma Helis kanallarından tutturmayınız.	Takma Toleransı $Salgı \leq 0.03mm$
Boydan boy Soğutma Tipi Soğutma suyu basıncı yaklaşık 5 bar—70 bar'dır	Soğutma Suyu Kullanımı 1) Eski soğutma suyundaki kir ve toz parçacıkları yağ deliğini tıkayabilir ve etkili akışı önleyebilir. Düzenli soğutma suyu değişimi önerilir. 2) Küçük talaş parçacıkları yağ deliğine sıkışır. Koruyucu önlem olarak filtre kullanın. Küçük çaplı matkap uçları kullanırken, ince elekli filtre kullanın.	İnce Çalışma Parçası İş Parçasını Destekleyin Bükülme Olasılığı	Kesintili Kesme Tek Proses OK ① Darbe oluşabilecek parçayı delerken ilerlemeyi düşürün. Önceden işleme gerektirir ① Delmeden önce parmak freze ile yüzeyi düzeltin.

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi	M							
	Ostenitli Paslanmaz Çelik (≤200HB)				Ostenitli Paslanmaz Çelik (>200HB)			
	X5CrNi1810, X5CrNiMo17-12-2				X2CrNiN1810, X2CrNiMoN17-12-2			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min. — Maks.) (mm/dev)	Tabla Hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min. — Maks.) (mm/dev)	Tabla Hızı (mm/dak)
3.2	80	7900	0.13 (0.08—0.18)	1025	60	5900	0.10 (0.05—0.15)	590
4.0	80	6300	0.15 (0.10—0.20)	945	60	4700	0.12 (0.08—0.18)	560
5.0	80	5000	0.15 (0.10—0.20)	750	60	3800	0.12 (0.08—0.18)	455
6.3	80	4000	0.17 (0.12—0.22)	680	60	3000	0.15 (0.10—0.20)	450
8.0	80	3100	0.19 (0.14—0.24)	585	60	2300	0.17 (0.12—0.22)	390
10.0	60	1900	0.20 (0.15—0.25)	380	50	1500	0.18 (0.13—0.23)	270
12.0	60	1500	0.21 (0.16—0.26)	315	50	1300	0.19 (0.14—0.24)	245
16.0	60	1100	0.22 (0.17—0.27)	240	50	900	0.20 (0.15—0.25)	180
20.0	60	900	0.23 (0.18—0.28)	205	50	700	0.21 (0.16—0.26)	145

Çalışma Malzemesi	M							
	İki Fazlı Paslanmaz Çelik (≤280HB)				Ferritik ve Martensitik Paslanmaz Çelik (≤200HB)			
	X3CrNiMoN27-5-2				X10Cr13, X6Cr17			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Tabla Hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Tabla Hızı (mm/dak)
3.2	50	4900	0.10 (0.05—0.15)	490	80	7900	0.13 (0.08—0.18)	1025
4.0	50	3900	0.12 (0.08—0.18)	465	80	6300	0.15 (0.10—0.20)	945
5.0	50	3100	0.12 (0.08—0.18)	370	80	5000	0.15 (0.10—0.20)	750
6.3	50	2500	0.15 (0.10—0.20)	375	80	4000	0.17 (0.12—0.22)	680
8.0	50	1900	0.17 (0.12—0.22)	320	80	3100	0.19 (0.14—0.24)	585
10.0	40	1200	0.18 (0.13—0.23)	215	60	1900	0.20 (0.15—0.25)	380
12.0	40	1000	0.19 (0.14—0.24)	190	60	1500	0.21 (0.16—0.26)	315
16.0	40	700	0.20 (0.15—0.25)	140	60	1100	0.22 (0.17—0.27)	240
20.0	40	600	0.21 (0.16—0.26)	125	60	900	0.23 (0.18—0.28)	205

Çalışma Malzemesi	M							
	Ferritik ve Martensitik Paslanmaz Çelik (>200HB)				Sertleştirilmiş Paslanmaz Çelik (<450HB)			
	X20CrNi17-2, X30Cr13				X5CrNiCuNb164, X7CrNiAl177, 17-4PH, 17-7PH			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Tabla Hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Tabla Hızı (mm/dak)
3.2	60	5900	0.10 (0.05—0.15)	590	50	4900	0.10 (0.05—0.15)	490
4.0	60	4700	0.12 (0.08—0.18)	560	50	3900	0.12 (0.08—0.18)	465
5.0	60	3800	0.12 (0.08—0.18)	455	50	3100	0.12 (0.08—0.18)	370
6.3	60	3000	0.15 (0.10—0.20)	450	50	2500	0.15 (0.10—0.20)	375
8.0	60	2300	0.17 (0.12—0.22)	390	50	1900	0.17 (0.12—0.22)	320
10.0	50	1500	0.18 (0.13—0.23)	270	40	1200	0.18 (0.13—0.23)	215
12.0	50	1300	0.19 (0.14—0.24)	245	40	1000	0.19 (0.14—0.24)	190
16.0	50	900	0.20 (0.15—0.25)	180	40	700	0.20 (0.15—0.25)	140
20.0	50	700	0.21 (0.16—0.26)	145	40	600	0.21 (0.16—0.26)	125

Not 1) Yüksek basınçlı, boydan boya içten soğutma suyu sisteminin kullanılması önerilir.

Not 2) Suda çözünebilen tip su bazlı soğutma sıvısı tavsiye edilir.

Not 3) Su bazlı soğutma sıvısı dışında soğutucu kullanıldığında, devri %10-%20 oranında düşürün.

■ PASLANMAZ ÇELİK KARŞILAŞTIRMA REFERANS LİSTESİ

Çalışma Malzemesi		Almanya		ABD	Japonya
		W-no.	DIN	AISI/SAE	JIS
Ferritik, Martensitik Paslanmaz Çelik	≤200HB	1.4005	X12CrS3	416	SUS416
		1.4006	X10Cr13	410	SUS410
		1.4016	X6Cr17	430	SUS430
		1.4113	X6CrMo17	434	SUS434
		1.4510	X6CrTi17	430Ti	SUS430LX
		1.4512	X6CrTi12	409	—
	>200HB	1.4021	X20Cr13	420	SUS420J1
		1.4057	X20CrNi17-2	431	SUS431
		1.4028	X30Cr13	420	SUS420J2
		1.4125	X10CrMo17	440C	SUS440C
PH Paslanmaz Çelik	<450HB	1.4542	X5CrNiCuNb16 4	630 (17-4PH)	SUS630
		1.4545	—	S15500 (15-5PH)	—
		1.4568	X7CrNiAl17 7	631 (17-7PH)	SUS631
Ostenitik Paslanmaz Çelik	≤200HB	1.4301	X5CrNi18 10	304	SUS304
		1.4303	X5CrNi8-12	305	SUS305
		1.4305	X12CrNiS18-9	303	SUS303
		1.4307	X2CrNi19-11	304L	SUS304L
		1.4401	X5CrNiMo17 12 2	316	SUS316
		1.4311	X2CrNiN18 10	304LN	SUS304LN
	>200HB	1.4404	X2CrNiMo17 12 2	316L	SUS316L
		1.4406	X2CrNiMoN17 12 2	316LN	SUS316LN
		1.4435	X2CrNiMo18 14 3	—	SUS316L
		1.4438	X2CrNiMo18 15 4	317L	SUS317L
		1.4529	X1NiCrMoCuN25 20 7	N08926	—
		1.4541	X6CrNiTi18-10	321	SUS321
		1.4550	X6CrNiNb18-10	347	SUS347
		1.4571	X6CrNiMoTi17 12 2	316Ti	SUS316Ti
Dupleks Çelik	≤280HB	1.4362	X2CrNiN23 4	—	—
		1.4410	X2CrNiMoN25 7 4	S32750	SCS14A
		1.4460	X3CrNiMoN27 5 2	329	SUS329J1
		1.4462	X2CrNiMoN22 5 3	S31803	SUS329J3L



P

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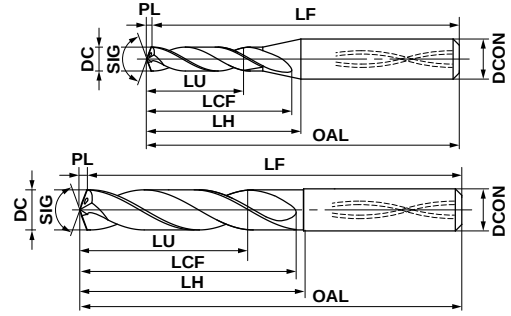
İçten Soğutma



Bakış yönüne göre kaplama rengi farklılık gösterebilir.
Bunun matkabin performansı üzerinde herhangi bir etkisi yoktur.



DC=3	3<DC≤6	6<DC≤10	10<DC≤12
0 -0.018	0 -0.018	0 -0.022	0 -0.027
DCON=6	6<DCON≤10	DCON=12	
0 -0.018	0 -0.009	0 -0.011	



Tip1

Tip2

DC (mm)	Delik Derinliği (L/D)	DP9020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
3.00	3	●	DSAS0300X03S060	9.5	21.5	23.5	70.5	70	0.5	6	1
3.10	3	●	DSAS0310X03S060	9.9	21.6	23.6	70.6	70	0.6	6	1
3.18	3	●	DSAS0318X03S060	10.1	21.6	23.6	70.6	70	0.6	6	1
3.20	3	●	DSAS0320X03S060	10.2	21.6	23.6	70.6	70	0.6	6	1
3.26	3	●	DSAS0326X03S060	10.4	21.6	23.6	70.6	70	0.6	6	1
3.30	3	●	DSAS0330X03S060	10.5	21.6	23.6	70.6	70	0.6	6	1
3.40	3	●	DSAS0340X03S060	10.8	21.6	23.6	70.6	70	0.6	6	1
3.50	3	●	DSAS0350X03S060	11.1	21.6	23.6	70.6	70	0.6	6	1
3.57	3	●	DSAS0357X03S060	11.4	22.7	23.7	70.7	70	0.7	6	1
3.60	3	●	DSAS0360X03S060	11.5	22.7	23.7	70.7	70	0.7	6	1
3.70	3	●	DSAS0370X03S060	11.8	22.7	23.7	70.7	70	0.7	6	1
3.80	3	●	DSAS0380X03S060	12.1	22.7	23.7	70.7	70	0.7	6	1
3.90	3	●	DSAS0390X03S060	12.4	22.7	23.7	70.7	70	0.7	6	1
3.97	3	●	DSAS0397X03S060	12.6	22.7	23.7	70.7	70	0.7	6	1
4.00	3	●	DSAS0400X03S060	12.7	22.7	23.7	70.7	70	0.7	6	1
4.10	3	●	DSAS0410X03S060	13.0	24.7	26.7	73.7	73	0.7	6	1
4.20	3	●	DSAS0420X03S060	13.4	24.8	26.8	73.8	73	0.8	6	1
4.30	3	●	DSAS0430X03S060	13.7	24.8	26.8	73.8	73	0.8	6	1
4.37	3	●	DSAS0437X03S060	13.9	24.8	26.8	73.8	73	0.8	6	1
4.40	3	●	DSAS0440X03S060	14.0	24.8	26.8	73.8	73	0.8	6	1
4.50	3	●	DSAS0450X03S060	14.3	24.8	26.8	73.8	73	0.8	6	1
4.60	3	●	DSAS0460X03S060	14.6	25.8	28.8	75.8	75	0.8	6	1
4.70	3	●	DSAS0470X03S060	15.0	25.9	28.9	75.9	75	0.9	6	1
4.76	3	●	DSAS0476X03S060	15.2	25.9	28.9	75.9	75	0.9	6	1
4.80	3	●	DSAS0480X03S060	15.3	25.9	28.9	75.9	75	0.9	6	1
4.86	3	●	DSAS0486X03S060	15.5	25.9	28.9	75.9	75	0.9	6	1
4.90	3	●	DSAS0490X03S060	15.6	25.9	28.9	75.9	75	0.9	6	1
5.00	3	●	DSAS0500X03S060	15.9	28.9	29.9	81.9	81	0.9	6	2
5.10	3	●	DSAS0510X03S060	16.2	28.9	29.9	81.9	81	0.9	6	2
5.16	3	●	DSAS0516X03S060	16.5	29.0	30.0	82.0	81	1.0	6	2
5.20	3	●	DSAS0520X03S060	16.6	29.0	30.0	82.0	81	1.0	6	2
5.30	3	●	DSAS0530X03S060	16.9	29.0	30.0	82.0	81	1.0	6	2

Not 1) Ø5 mm veya daha küçük matkapların içten soğutma sıvısı delikleri yuvarlaktır.

● : Avrupa standart stok.

DC (mm)	Delik Derinliği (L/D)	DP9020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
5.40	3	●	DSAS0540X03S060	17.2	29.0	30.0	82.0	81	1.0	6	2
5.50	3	●	DSAS0550X03S060	17.5	29.0	30.0	82.0	81	1.0	6	2
5.56	3	●	DSAS0556X03S060	17.8	31.1	31.1	82.1	81	1.1	6	2
5.60	3	●	DSAS0560X03S060	17.9	31.1	31.1	82.1	81	1.1	6	2
5.70	3	●	DSAS0570X03S060	18.2	31.1	31.1	82.1	81	1.1	6	2
5.80	3	●	DSAS0580X03S060	18.5	31.1	31.1	82.1	81	1.1	6	2
5.90	3	●	DSAS0590X03S060	18.8	31.1	31.1	82.1	81	1.1	6	2
5.95	3	●	DSAS0595X03S060	19.0	31.1	31.1	82.1	81	1.1	6	2
6.00	3	●	DSAS0600X03S060	19.1	31.1	31.1	82.1	81	1.1	6	2
6.10	3	●	DSAS0610X03S080	19.5	34.2	37.2	87.2	86	1.2	8	2
6.20	3	●	DSAS0620X03S080	19.8	34.2	37.2	87.2	86	1.2	8	2
6.30	3	●	DSAS0630X03S080	20.1	34.2	37.2	87.2	86	1.2	8	2
6.35	3	●	DSAS0635X03S080	20.3	34.2	37.2	87.2	86	1.2	8	2
6.40	3	●	DSAS0640X03S080	20.4	34.2	37.2	87.2	86	1.2	8	2
6.50	3	●	DSAS0650X03S080	20.7	34.2	37.2	87.2	86	1.2	8	2
6.60	3	●	DSAS0660X03S080	21.1	36.3	38.3	91.3	90	1.3	8	2
6.70	3	●	DSAS0670X03S080	21.4	36.3	38.3	91.3	90	1.3	8	2
6.75	3	●	DSAS0675X03S080	21.6	36.3	38.3	91.3	90	1.3	8	2
6.80	3	●	DSAS0680X03S080	21.7	36.3	38.3	91.3	90	1.3	8	2
6.90	3	●	DSAS0690X03S080	22.0	36.3	38.3	91.3	90	1.3	8	2
6.95	3	●	DSAS0695X03S080	22.2	36.3	38.3	91.3	90	1.3	8	2
7.00	3	●	DSAS0700X03S080	22.3	36.3	38.3	91.3	90	1.3	8	2
7.10	3	●	DSAS0710X03S080	22.7	39.4	40.4	91.4	90	1.4	8	2
7.14	3	●	DSAS0714X03S080	22.8	39.4	40.4	91.4	90	1.4	8	2
7.20	3	●	DSAS0720X03S080	23.0	39.4	40.4	91.4	90	1.4	8	2
7.30	3	●	DSAS0730X03S080	23.3	39.4	40.4	91.4	90	1.4	8	2
7.40	3	●	DSAS0740X03S080	23.6	39.4	40.4	91.4	90	1.4	8	2
7.50	3	●	DSAS0750X03S080	23.9	39.4	40.4	91.4	90	1.4	8	2
7.54	3	●	DSAS0754X03S080	24.0	41.5	41.5	91.5	90	1.5	8	2
7.60	3	●	DSAS0760X03S080	24.3	41.5	41.5	91.5	90	1.5	8	2
7.70	3	●	DSAS0770X03S080	24.6	41.5	41.5	91.5	90	1.5	8	2
7.80	3	●	DSAS0780X03S080	24.9	41.5	41.5	91.5	90	1.5	8	2
7.90	3	●	DSAS0790X03S080	25.2	41.5	41.5	91.5	90	1.5	8	2
7.94	3	●	DSAS0794X03S080	25.3	41.5	41.5	91.5	90	1.5	8	2
8.00	3	●	DSAS0800X03S080	25.5	41.5	41.5	91.5	90	1.5	8	2
8.10	3	●	DSAS0810X03S100	25.8	44.5	47.5	97.5	96	1.5	10	2
8.20	3	●	DSAS0820X03S100	26.1	44.5	47.5	97.5	96	1.5	10	2
8.30	3	●	DSAS0830X03S100	26.4	44.5	47.5	97.5	96	1.5	10	2
8.33	3	●	DSAS0833X03S100	26.5	44.5	47.5	97.5	96	1.5	10	2
8.40	3	●	DSAS0840X03S100	26.7	44.5	47.5	97.5	96	1.5	10	2
8.50	3	●	DSAS0850X03S100	27.0	44.5	47.5	97.5	96	1.5	10	2
8.60	3	●	DSAS0860X03S100	27.4	46.6	48.6	102.6	101	1.6	10	2
8.70	3	●	DSAS0870X03S100	27.7	46.6	48.6	102.6	101	1.6	10	2
8.73	3	●	DSAS0873X03S100	27.8	46.6	48.6	102.6	101	1.6	10	2
8.80	3	●	DSAS0880X03S100	28.0	46.6	48.6	102.6	101	1.6	10	2
8.90	3	●	DSAS0890X03S100	28.3	46.6	48.6	102.6	101	1.6	10	2
9.00	3	●	DSAS0900X03S100	28.6	46.6	48.6	102.6	101	1.6	10	2
9.10	3	●	DSAS0910X03S100	29.1	49.8	50.8	102.8	101	1.8	10	2
9.20	3	●	DSAS0920X03S100	29.4	49.8	50.8	102.8	101	1.8	10	2
9.30	3	●	DSAS0930X03S100	29.7	49.8	50.8	102.8	101	1.8	10	2
9.40	3	●	DSAS0940X03S100	30.0	49.8	50.8	102.8	101	1.8	10	2
9.50	3	●	DSAS0950X03S100	30.3	49.8	50.8	102.8	101	1.8	10	2
9.53	3	●	DSAS0953X03S100	30.4	49.8	50.8	102.8	101	1.8	10	2
9.60	3	●	DSAS0960X03S100	30.6	49.8	50.8	102.8	101	1.8	10	2
9.70	3	●	DSAS0970X03S100	30.9	49.8	50.8	102.8	101	1.8	10	2
9.80	3	●	DSAS0980X03S100	31.2	51.8	51.8	102.8	101	1.8	10	2
9.90	3	●	DSAS0990X03S100	31.5	51.8	51.8	102.8	101	1.8	10	2
9.92	3	●	DSAS0992X03S100	31.6	51.8	51.8	102.8	101	1.8	10	2

DC (mm)	Delik Derinliği (L/D)	DP9020	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
10.00	3	●	DSAS1000X03S100	31.8	51.8	51.8	102.8	101	1.8	10	2
10.10	3	●	DSAS1010X03S120	32.2	54.9	57.9	112.9	111	1.9	12	2
10.20	3	●	DSAS1020X03S120	32.5	54.9	57.9	112.9	111	1.9	12	2
10.30	3	●	DSAS1030X03S120	32.8	54.9	57.9	112.9	111	1.9	12	2
10.32	3	●	DSAS1032X03S120	32.9	54.9	57.9	112.9	111	1.9	12	2
10.40	3	●	DSAS1040X03S120	33.1	54.9	57.9	112.9	111	1.9	12	2
10.50	3	●	DSAS1050X03S120	33.4	54.9	57.9	112.9	111	1.9	12	2
10.60	3	●	DSAS1060X03S120	33.7	54.9	57.9	112.9	111	1.9	12	2
10.70	3	●	DSAS1070X03S120	34.0	54.9	57.9	112.9	111	1.9	12	2
10.72	3	●	DSAS1072X03S120	34.2	57.0	59.0	118.0	116	2.0	12	2
10.80	3	●	DSAS1080X03S120	34.4	57.0	59.0	118.0	116	2.0	12	2
10.90	3	●	DSAS1090X03S120	34.7	57.0	59.0	118.0	116	2.0	12	2
11.00	3	●	DSAS1100X03S120	35.0	57.0	59.0	118.0	116	2.0	12	2
11.10	3	●	DSAS1110X03S120	35.4	60.1	61.1	118.1	116	2.1	12	2
11.11	3	●	DSAS1111X03S120	35.4	60.1	61.1	118.1	116	2.1	12	2
11.20	3	●	DSAS1120X03S120	35.7	60.1	61.1	118.1	116	2.1	12	2
11.30	3	●	DSAS1130X03S120	36.0	60.1	61.1	118.1	116	2.1	12	2
11.40	3	●	DSAS1140X03S120	36.3	60.1	61.1	118.1	116	2.1	12	2
11.50	3	●	DSAS1150X03S120	36.6	60.1	61.1	118.1	116	2.1	12	2
11.51	3	●	DSAS1151X03S120	36.7	62.2	62.2	118.2	116	2.2	12	2
11.60	3	●	DSAS1160X03S120	37.0	62.2	62.2	118.2	116	2.2	12	2
11.70	3	●	DSAS1170X03S120	37.3	62.2	62.2	118.2	116	2.2	12	2
11.80	3	●	DSAS1180X03S120	37.6	62.2	62.2	118.2	116	2.2	12	2
11.90	3	●	DSAS1190X03S120	37.9	62.2	62.2	118.2	116	2.2	12	2
12.00	3	●	DSAS1200X03S120	38.2	62.2	62.2	118.2	116	2.2	12	2

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi		S			
		Isıya Dirençli Alaşımlar		Titanyum Alaşımları	
		Inconel718 vb.		Ti-6Al-4V vb.	
Matkap Ucu Çapı DC (mm)	L/D	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)
3	≤ 3	1000	0.06 (0.04—0.10)	4200	0.08 (0.06—0.12)
4	≤ 3	790	0.06 (0.04—0.10)	3100	0.10 (0.08—0.16)
5	≤ 3	760	0.08 (0.06—0.12)	2500	0.12 (0.08—0.20)
6	≤ 3	790	0.10 (0.08—0.15)	2100	0.14 (0.10—0.20)
8	≤ 3	590	0.10 (0.08—0.15)	1600	0.18 (0.15—0.25)
10	≤ 3	570	0.10 (0.08—0.15)	1300	0.22 (0.18—0.28)
12	≤ 3	530	0.12 (0.08—0.15)	1100	0.24 (0.20—0.30)

Not 1) İstikrarlı delme için fener mili içinden yüksek basınçlı soğutma sıvısı püskürtme önerilir.

Not 2) Emülsiyon tipi suda çözünebilir soğutma sıvısı tavsiye edilir.

Not 3) Suda çözünemeyen soğutma sıvısı kullanırken kesme hızını %10-20 oranında düşürün.

Not 4) Dıştan soğutma sıvısı sistemi kullanarak delme yaparken, talaşların kırılmasını kolaylaştırmak için çapın her (DC) x 0,5 mm derinliğin de gagalama / kademeli ilerleme ile delme tavsiye edilir.

M

DELME

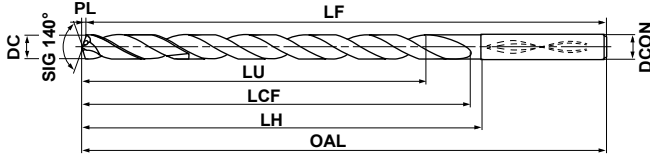


P M K **N** S H

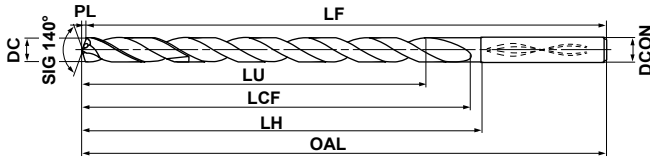
İçten Soğutma



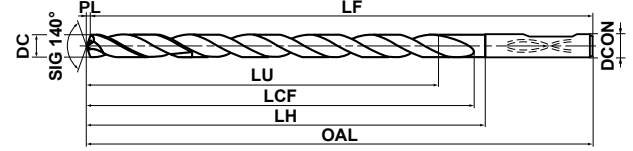
● **Tip 1** MNS---DIN-C, MNS-C, MNS---LB, MNS---DB (Silindirik şaftlı tip)



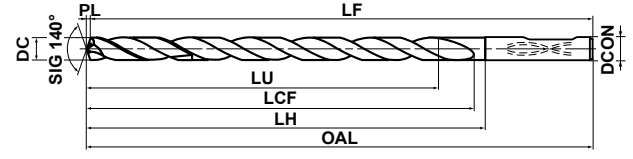
● **Tip 3** MNS---DIN-C, MNS-C, MNS---LB, MNS---DB (Silindirik şaftlı tip)



● **Tip 2** MNS---S/L-DIN (Whistle notch şaftlı tip)



● **Tip 4** MNS---S/L-DIN (Whistle notch şaftlı tip)



● MNS Matkap Ucları ısıtılmalı tip tutucular ile kullanım için uygundur.

DC (mm)	Delik Derinliği (L/D)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
3.0	3	□	MNS0300S-DIN	15.0	19.5	24.5	61.5	61	0.5	6	2
	3	□	MNS0300S-DIN-C	15.0	19.5	24.5	61.5	61	0.5	6	1
	5	□	MNS0300L-DIN	23.0	27.5	28.5	65.5	65	0.5	6	2
	5	●	MNS0300L-DIN-C	23.0	27.5	28.5	65.5	65	0.5	6	1
	8	□	MNS0300-L8C	24.5	33.5	36.5	73.5	73	0.5	6	1
	10	□	MNS0300-L10C	30.5	39.5	42.5	79.5	79	0.5	6	1
	12	●	MNS0300-L12C	36.5	45.5	48.5	85.5	85	0.5	6	1
	15	□	MNS0300-L15C	45.5	54.5	57.5	94.5	94	0.5	6	1
	20	●	MNS0300-L20C	60.5	69.5	72.5	109.5	109	0.5	6	1
	25	□	MNS0300-L25C	75.5	84.5	87.5	124.5	124	0.5	6	1
	30	●	MNS0300-L30C	90.5	99.5	102.5	139.5	139	0.5	6	1
	5	★	MNS0300LB	15.5	33.5	33.5	81.5	81	0.5	3	1
	10	★	MNS0300X10DB	30.5	39.5	42.5	90.5	90	0.5	3	1
	20	★	MNS0300X20DB	60.5	69.5	72.5	120.5	120	0.5	3	1
	30	★	MNS0300X30DB	90.5	99.5	102.5	150.5	150	0.5	3	1
3.1	3	□	MNS0310S-DIN	14.9	19.6	24.6	61.6	61	0.6	6	2
	3	□	MNS0310S-DIN-C	14.9	19.6	24.6	61.6	61	0.6	6	1
	5	□	MNS0310L-DIN	22.9	27.6	28.6	65.6	65	0.6	6	2
	5	□	MNS0310L-DIN-C	22.9	27.6	28.6	65.6	65	0.6	6	1
	8	□	MNS0310-L8C	25.4	39.6	42.6	79.6	79	0.6	6	1
	10	□	MNS0310-L10C	31.6	46.6	49.6	86.6	86	0.6	6	1
	12	□	MNS0310-L12C	37.8	53.6	56.6	93.6	93	0.6	6	1
	15	□	MNS0310-L15C	47.1	63.6	66.6	103.6	103	0.6	6	1
	20	□	MNS0310-L20C	62.6	81.6	84.6	121.6	121	0.6	6	1
	25	□	MNS0310-L25C	78.1	98.6	101.6	138.6	138	0.6	6	1
	30	□	MNS0310-L30C	93.6	116.6	119.6	156.6	156	0.6	6	1
	5	★	MNS0310LB	16.1	39.6	39.6	87.6	87	0.6	4	1
	10	□	MNS0310X10DB	31.6	46.6	49.6	97.6	97	0.6	4	1
	20	□	MNS0310X20DB	62.6	81.6	84.6	132.6	132	0.6	4	1
	30	□	MNS0310X30DB	93.6	116.6	119.6	167.6	167	0.6	4	1

DC (mm)	Delik Derinliği (L/D)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
3.2	3	□	MNS0320S-DIN	14.8	19.6	24.6	61.6	61	0.6	6	2
	3	□	MNS0320S-DIN-C	14.8	19.6	24.6	61.6	61	0.6	6	1
	5	□	MNS0320L-DIN	22.8	27.6	28.6	65.6	65	0.6	6	2
	5	●	MNS0320L-DIN-C	22.8	27.6	28.6	65.6	65	0.6	6	1
	8	□	MNS0320-L8C	26.2	39.6	42.6	79.6	79	0.6	6	1
	10	□	MNS0320-L10C	32.6	46.6	49.6	86.6	86	0.6	6	1
	12	●	MNS0320-L12C	39.0	53.6	56.6	93.6	93	0.6	6	1
	15	□	MNS0320-L15C	48.6	63.6	66.6	103.6	103	0.6	6	1
	20	●	MNS0320-L20C	64.6	81.6	84.6	121.6	121	0.6	6	1
	25	□	MNS0320-L25C	80.6	98.6	101.6	138.6	138	0.6	6	1
	30	●	MNS0320-L30C	96.6	116.6	119.6	156.6	156	0.6	6	1
	5	★	MNS0320LB	16.6	39.6	39.6	87.6	87	0.6	4	1
	10	★	MNS0320X10DB	32.6	46.6	49.6	97.6	97	0.6	4	1
	20	★	MNS0320X20DB	64.6	81.6	84.6	132.6	132	0.6	4	1
	30	★	MNS0320X30DB	96.6	116.6	119.6	167.6	167	0.6	4	1
3.3	3	□	MNS0330S-DIN	14.7	19.6	24.6	61.6	61	0.6	6	2
	3	□	MNS0330S-DIN-C	14.7	19.6	24.6	61.6	61	0.6	6	1
	5	□	MNS0330L-DIN	22.7	27.6	28.6	65.6	65	0.6	6	2
	5	●	MNS0330L-DIN-C	22.7	27.6	28.6	65.6	65	0.6	6	1
	8	□	MNS0330-L8C	27.0	39.6	42.6	79.6	79	0.6	6	1
	10	□	MNS0330-L10C	33.6	46.6	49.6	86.6	86	0.6	6	1
	12	●	MNS0330-L12C	40.2	53.6	56.6	93.6	93	0.6	6	1
	15	□	MNS0330-L15C	50.1	63.6	66.6	103.6	103	0.6	6	1
	20	●	MNS0330-L20C	66.6	81.6	84.6	121.6	121	0.6	6	1
	25	□	MNS0330-L25C	83.1	98.6	101.6	138.6	138	0.6	6	1
	30	●	MNS0330-L30C	99.6	116.6	119.6	156.6	156	0.6	6	1
	5	★	MNS0330LB	17.1	39.6	39.6	87.6	87	0.6	4	1
	10	□	MNS0330X10DB	33.6	46.6	49.6	97.6	97	0.6	4	1
	20	□	MNS0330X20DB	66.6	81.6	84.6	132.6	132	0.6	4	1
	30	□	MNS0330X30DB	99.6	116.6	119.6	167.6	167	0.6	4	1

Not 1) Lütfen bu katalogta olmayan herhangi bir geometri için bizimle iletişim kurun (örn. farklı çap ve uzunluk).

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC	Delik Derinliği (mm)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
8.2	3	□	MNS0820S-DIN	34.2	46.5	47.5	88.5	87	1.5	10	4
	3	□	MNS0820S-DIN-C	34.2	46.5	47.5	88.5	87	1.5	10	3
	5	□	MNS0820L-DIN	48.2	60.5	61.5	102.5	101	1.5	10	4
	5	□	MNS0820L-DIN-C	48.2	60.5	61.5	102.5	101	1.5	10	3
	8	□	MNS0820-L8C	67.1	95.5	98.5	139.5	138	1.5	10	3
	5	★	MNS0820LB	42.5	69.5	73.5	128.5	127	1.5	9	3
	10	□	MNS0820X10DB	83.5	112.5	115.5	170.5	169	1.5	9	3
	20	□	MNS0820X20DB	165.5	197.5	200.5	255.5	254	1.5	9	3
	30	□	MNS0820X30DB	247.5	282.5	285.5	340.5	339	1.5	9	3
8.3	3	□	MNS0830S-DIN	34.1	46.5	47.5	88.5	87	1.5	10	4
	3	□	MNS0830S-DIN-C	34.1	46.5	47.5	88.5	87	1.5	10	3
	5	□	MNS0830L-DIN-C	48.1	60.5	61.5	102.5	101	1.5	10	3
	8	□	MNS0830-L8C	67.9	95.5	98.5	139.5	138	1.5	10	3
	10	□	MNS0830-L10C	84.5	112.5	115.5	156.5	155	1.5	10	3
	12	□	MNS0830-L12C	101.1	129.5	132.5	173.5	172	1.5	10	3
	15	□	MNS0830-L15C	126.0	154.5	157.5	198.5	197	1.5	10	3
	20	□	MNS0830-L20C	167.5	197.5	200.5	241.5	240	1.5	10	3
	25	□	MNS0830-L25C	209.0	239.5	242.5	283.5	282	1.5	10	3
	30	□	MNS0830-L30C	250.5	281.5	284.5	325.5	324	1.5	10	3
	5	★	MNS0830LB	43.0	69.5	73.5	128.5	127	1.5	9	3
	10	□	MNS0830X10DB	84.5	112.5	115.5	170.5	169	1.5	9	3
	20	□	MNS0830X20DB	167.5	197.5	200.5	255.5	254	1.5	9	3
	30	□	MNS0830X30DB	250.5	282.5	285.5	340.5	339	1.5	9	3
8.4	3	□	MNS0840S-DIN	33.9	46.5	47.5	88.5	87	1.5	10	4
	3	□	MNS0840S-DIN-C	33.9	46.5	47.5	88.5	87	1.5	10	3
	5	□	MNS0840L-DIN	47.9	60.5	61.5	102.5	101	1.5	10	4
	5	□	MNS0840L-DIN-C	47.9	60.5	61.5	102.5	101	1.5	10	3
	8	□	MNS0840-L8C	68.7	95.5	98.5	139.5	138	1.5	10	3
	10	□	MNS0840-L10C	85.5	112.5	115.5	156.5	155	1.5	10	3
	12	□	MNS0840-L12C	102.3	129.5	132.5	173.5	172	1.5	10	3
	15	□	MNS0840-L15C	127.5	154.5	157.5	198.5	197	1.5	10	3
	20	□	MNS0840-L20C	169.5	197.5	200.5	241.5	240	1.5	10	3
	25	□	MNS0840-L25C	211.5	239.5	242.5	283.5	282	1.5	10	3
	30	□	MNS0840-L30C	253.5	281.5	284.5	325.5	324	1.5	10	3
	5	★	MNS0840LB	43.5	69.5	73.5	128.5	127	1.5	9	3
	10	□	MNS0840X10DB	85.5	112.5	115.5	170.5	169	1.5	9	3
	20	□	MNS0840X20DB	169.5	197.5	200.5	255.5	254	1.5	9	3
	30	□	MNS0840X30DB	253.5	282.5	285.5	340.5	339	1.5	9	3

DC	Delik Derinliği (mm)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
8.5	3	□	MNS0850S-DIN	33.8	46.5	47.5	88.5	87	1.5	10	4
	3	□	MNS0850S-DIN-C	33.8	46.5	47.5	88.5	87	1.5	10	3
	5	□	MNS0850L-DIN	47.8	60.5	61.5	102.5	101	1.5	10	4
	5	●	MNS0850L-DIN-C	47.8	60.5	61.5	102.5	101	1.5	10	3
	8	□	MNS0850-L8C	69.5	95.5	98.5	139.5	138	1.5	10	3
	10	□	MNS0850-L10C	86.5	112.5	115.5	156.5	155	1.5	10	3
	12	●	MNS0850-L12C	103.5	129.5	132.5	173.5	172	1.5	10	3
	15	□	MNS0850-L15C	129.0	154.5	157.5	198.5	197	1.5	10	3
	20	●	MNS0850-L20C	171.5	197.5	200.5	241.5	240	1.5	10	3
	25	□	MNS0850-L25C	214.0	239.5	242.5	283.5	282	1.5	10	3
	30	●	MNS0850-L30C	256.5	281.5	284.5	325.5	324	1.5	10	3
	5	★	MNS0850LB	44.0	69.5	73.5	128.5	127	1.5	9	3
8.6	10	□	MNS0850X10DB	86.5	112.5	115.5	170.5	169	1.5	9	3
	20	□	MNS0850X20DB	171.5	197.5	200.5	255.5	254	1.5	9	3
	30	□	MNS0850X30DB	256.5	282.5	285.5	340.5	339	1.5	9	3
	3	□	MNS0860S-DIN	33.7	46.6	47.6	88.6	87	1.6	10	4
	3	□	MNS0860S-DIN-C	33.7	46.6	47.6	88.6	87	1.6	10	3
	5	□	MNS0860L-DIN-C	47.7	60.6	61.6	102.6	101	1.6	10	3
	8	□	MNS0860-L8C	70.4	100.6	103.6	144.6	143	1.6	10	3
	10	□	MNS0860-L10C	87.6	118.6	121.6	162.6	161	1.6	10	3
	12	□	MNS0860-L12C	104.8	136.6	139.6	180.6	179	1.6	10	3
	15	□	MNS0860-L15C	130.6	163.6	166.6	207.6	206	1.6	10	3
	20	□	MNS0860-L20C	173.6	208.6	211.6	252.6	251	1.6	10	3
	25	□	MNS0860-L25C	216.6	253.6	256.6	297.6	296	1.6	10	3
8.7	30	□	MNS0860-L30C	259.6	297.6	300.6	341.6	340	1.6	10	3
	5	★	MNS0860LB	44.6	73.6	73.6	128.6	127	1.6	9	3
	10	□	MNS0860X10DB	87.6	118.6	121.6	176.6	175	1.6	9	3
	20	□	MNS0860X20DB	173.6	208.6	211.6	266.6	265	1.6	9	3
	30	□	MNS0860X30DB	259.6	298.6	301.6	356.6	355	1.6	9	3
	3	□	MNS0870S-DIN	33.5	46.6	47.6	88.6	87	1.6	10	4
	3	□	MNS0870S-DIN-C	33.5	46.6	47.6	88.6	87	1.6	10	3
	5	□	MNS0870L-DIN	47.5	60.6	61.6	102.6	101	1.6	10	4
	5	□	MNS0870L-DIN-C	47.5	60.6	61.6	102.6	101	1.6	10	3
	8	□	MNS0870-L8C	71.2	100.6	103.6	144.6	143	1.6	10	3
	10	□	MNS0870-L10C	88.6	118.6	121.6	162.6	161	1.6	10	3
	12	□	MNS0870-L12C	106.0	136.6	139.6	180.6	179	1.6	10	3
	15	□	MNS0870-L15C	132.1	163.6	166.6	207.6	206	1.6	10	3
	20	□	MNS0870-L20C	175.6	208.6	211.6	252.6	251	1.6	10	3
	25	□	MNS0870-L25C	219.1	253.6	256.6	297.6	296	1.6	10	3
	30	□	MNS0870-L30C	262.6	297.6	300.6	341.6	340	1.6	10	3
	5	★	MNS0870LB	45.1	73.6	73.6	128.6	127	1.6	9	3
	10	□	MNS0870X10DB	88.6	118.6	121.6	176.6	175	1.6	9	3
	20	□	MNS0870X20DB	175.6	208.6	211.6	266.6	265	1.6	9	3
	30	□	MNS0870X30DB	262.6	298.6	301.6	356.6	355	1.6	9	3

DC	Delik Derinliği (mm) (L/D)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
8.8	3	□	MNS0880S-DIN	33.4	46.6	47.6	88.6	87	1.6	10	4
	3	□	MNS0880S-DIN-C	33.4	46.6	47.6	88.6	87	1.6	10	3
	5	□	MNS0880L-DIN	47.4	60.6	61.6	102.6	101	1.6	10	4
	5	□	MNS0880L-DIN-C	47.4	60.6	61.6	102.6	101	1.6	10	3
	8	□	MNS0880-L8C	72.0	100.6	103.6	144.6	143	1.6	10	3
	10	□	MNS0880-L10C	89.6	118.6	121.6	162.6	161	1.6	10	3
	12	□	MNS0880-L12C	107.2	136.6	139.6	180.6	179	1.6	10	3
	15	□	MNS0880-L15C	133.6	163.6	166.6	207.6	206	1.6	10	3
	20	□	MNS0880-L20C	177.6	208.6	211.6	252.6	251	1.6	10	3
	25	□	MNS0880-L25C	221.6	253.6	256.6	297.6	296	1.6	10	3
	30	□	MNS0880-L30C	265.6	297.6	300.6	341.6	340	1.6	10	3
	5	★	MNS0880LB	45.6	73.6	73.6	128.6	127	1.6	9	3
	10	□	MNS0880X10DB	89.6	118.6	121.6	176.6	175	1.6	9	3
	20	□	MNS0880X20DB	177.6	208.6	211.6	266.6	265	1.6	9	3
	30	□	MNS0880X30DB	265.6	298.6	301.6	356.6	355	1.6	9	3
8.9	3	□	MNS0890S-DIN	33.3	46.6	47.6	88.6	87	1.6	10	4
	3	□	MNS0890S-DIN-C	33.3	46.6	47.6	88.6	87	1.6	10	3
	5	□	MNS0890L-DIN	47.3	60.6	61.6	102.6	101	1.6	10	4
	5	□	MNS0890L-DIN-C	47.3	60.6	61.6	102.6	101	1.6	10	3
	8	□	MNS0890-L8C	72.8	100.6	103.6	144.6	143	1.6	10	3
	10	□	MNS0890-L10C	90.6	118.6	121.6	162.6	161	1.6	10	3
	12	□	MNS0890-L12C	108.4	136.6	139.6	180.6	179	1.6	10	3
	15	□	MNS0890-L15C	135.1	163.6	166.6	207.6	206	1.6	10	3
	20	□	MNS0890-L20C	179.6	208.6	211.6	252.6	251	1.6	10	3
	25	□	MNS0890-L25C	224.1	253.6	256.6	297.6	296	1.6	10	3
	30	□	MNS0890-L30C	268.6	297.6	300.6	341.6	340	1.6	10	3
	5	★	MNS0890LB	46.1	73.6	73.6	128.6	127	1.6	9	3
	10	□	MNS0890X10DB	90.6	118.6	121.6	176.6	175	1.6	9	3
	20	□	MNS0890X20DB	179.6	208.6	211.6	266.6	265	1.6	9	3
	30	□	MNS0890X30DB	268.6	298.6	301.6	356.6	355	1.6	9	3
9.0	3	□	MNS0900S-DIN	33.1	46.6	47.6	88.6	87	1.6	10	4
	3	□	MNS0900S-DIN-C	33.1	46.6	47.6	88.6	87	1.6	10	3
	5	□	MNS0900L-DIN	47.1	60.6	61.6	102.6	101	1.6	10	4
	5	●	MNS0900L-DIN-C	47.1	60.6	61.6	102.6	101	1.6	10	3
	8	□	MNS0900-L8C	73.6	100.6	103.6	144.6	143	1.6	10	3
	10	□	MNS0900-L10C	91.6	118.6	121.6	162.6	161	1.6	10	3
	12	●	MNS0900-L12C	109.6	136.6	139.6	180.6	179	1.6	10	3
	15	□	MNS0900-L15C	136.6	163.6	166.6	207.6	206	1.6	10	3
	20	●	MNS0900-L20C	181.6	208.6	211.6	252.6	251	1.6	10	3
	25	□	MNS0900-L25C	226.6	253.6	256.6	297.6	296	1.6	10	3
	30	●	MNS0900-L30C	271.6	297.6	300.6	341.6	340	1.6	10	3
	5	★	MNS0900LB	46.6	73.6	73.6	128.6	127	1.6	9	3
	10	★	MNS0900X10DB	91.6	118.6	121.6	176.6	175	1.6	9	3
	20	★	MNS0900X20DB	181.6	208.6	211.6	266.6	265	1.6	9	3
	30	★	MNS0900X30DB	271.6	298.6	301.6	356.6	355	1.6	9	3

DC	Delik Derinliği (mm) (L/D)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
9.1	3	□	MNS0910S-DIN	33.0	46.7	47.7	88.7	87	1.7	10	4
	3	□	MNS0910S-DIN-C	33.0	46.7	47.7	88.7	87	1.7	10	3
	5	□	MNS0910L-DIN	47.0	60.7	61.7	102.7	101	1.7	10	4
	5	□	MNS0910L-DIN-C	47.0	60.7	61.7	102.7	101	1.7	10	3
	8	□	MNS0910-L8C	74.5	106.7	109.7	150.7	149	1.7	10	3
	10	□	MNS0910-L10C	92.7	125.7	128.7	169.7	168	1.7	10	3
	12	□	MNS0910-L12C	110.9	144.7	147.7	188.7	187	1.7	10	3
	15	□	MNS0910-L15C	138.2	172.7	175.7	216.7	215	1.7	10	3
	20	□	MNS0910-L20C	183.7	220.7	223.7	264.7	263	1.7	10	3
	25	□	MNS0910-L25C	229.2	267.7	270.7	311.7	310	1.7	10	3
	30	□	MNS0910-L30C	274.7	315.7	318.7	359.7	358	1.7	10	3
	5	★	MNS0910LB	47.2	77.7	81.7	137.7	136	1.7	10	3
	10	□	MNS0910X10DB	92.7	125.7	128.7	183.7	182	1.7	10	3
	20	□	MNS0910X20DB	183.7	220.7	223.7	278.7	277	1.7	10	3
	30	□	MNS0910X30DB	274.7	315.7	318.7	373.7	372	1.7	10	3
9.2	3	□	MNS0920S-DIN	32.9	46.7	47.7	88.7	87	1.7	10	4
	3	□	MNS0920S-DIN-C	32.9	46.7	47.7	88.7	87	1.7	10	3
	5	□	MNS0920L-DIN	46.9	60.7	61.7	102.7	101	1.7	10	4
	5	□	MNS0920L-DIN-C	46.9	60.7	61.7	102.7	101	1.7	10	3
	8	□	MNS0920-L8C	75.3	106.7	109.7	150.7	149	1.7	10	3
	10	□	MNS0920-L10C	93.7	125.7	128.7	169.7	168	1.7	10	3
	12	□	MNS0920-L12C	112.1	144.7	147.7	188.7	187	1.7	10	3
	15	□	MNS0920-L15C	139.7	172.7	175.7	216.7	215	1.7	10	3
	20	□	MNS0920-L20C	185.7	220.7	223.7	264.7	263	1.7	10	3
	25	□	MNS0920-L25C	231.7	267.7	270.7	311.7	310	1.7	10	3
	30	□	MNS0920-L30C	277.7	315.7	318.7	359.7	358	1.7	10	3
	5	★	MNS0920LB	47.7	77.7	81.7	137.7	136	1.7	10	3
	10	□	MNS0920X10DB	93.7	125.7	128.7	183.7	182	1.7	10	3
	20	□	MNS0920X20DB	185.7	220.7	223.7	278.7	277	1.7	10	3
	30	□	MNS0920X30DB	277.7	315.7	318.7	373.7	372	1.7	10	3
9.3	3	□	MNS0930S-DIN	32.7	46.7	47.7	88.7	87	1.7	10	4
	3	□	MNS0930S-DIN-C	32.7	46.7	47.7	88.7	87	1.7	10	3
	5	□	MNS0930L-DIN	46.7	60.7	61.7	102.7	101	1.7	10	4
	5	□	MNS0930L-DIN-C	46.7	60.7	61.7	102.7	101	1.7	10	3
	8	□	MNS0930-L8C	76.1	106.7	109.7	150.7	149	1.7	10	3
	10	□	MNS0930-L10C	94.7	125.7	128.7	169.7	168	1.7	10	3
	12	□	MNS0930-L12C	113.3	144.7	147.7	188.7	187	1.7	10	3
	15	□	MNS0930-L15C	141.2	172.7	175.7	216.7	215	1.7	10	3
	20	□	MNS0930-L20C	187.7	220.7	223.7	264.7	263	1.7	10	3
	25	□	MNS0930-L25C	234.2	267.7	270.7	311.7	310	1.7	10	3
	30	□	MNS0930-L30C	280.7	315.7	318.7	359.7	358	1.7	10	3
	5	★	MNS0930LB	48.2	77.7	81.7	137.7	136	1.7	10	3
	10	□	MNS0930X10DB	94.7	125.7	128.7	183.7	182	1.7	10	3
	20	□	MNS0930X20DB	187.7	220.7	223.7	278.7	277	1.7	10	3
	30	□	MNS0930X30DB	280.7	315.7	318.7	373.7	372	1.7	10	3

Not 1) Lütfen bu katalogda olmayan herhangi bir geometri için bizimle iletişim kurun (örn. farklı çap ve uzunluk).

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC	Delik Derinliği (mm)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
9.4	3	□	MNS0940S-DIN	32.6	46.7	47.7	88.7	87	1.7	10	4
	3	□	MNS0940S-DIN-C	32.6	46.7	47.7	88.7	87	1.7	10	3
	5	□	MNS0940L-DIN	46.6	60.7	61.7	102.7	101	1.7	10	4
	5	□	MNS0940L-DIN-C	46.6	60.7	61.7	102.7	101	1.7	10	3
	8	□	MNS0940-L8C	76.9	106.7	109.7	150.7	149	1.7	10	3
	10	□	MNS0940-L10C	95.7	125.7	128.7	169.7	168	1.7	10	3
	12	□	MNS0940-L12C	114.5	144.7	147.7	188.7	187	1.7	10	3
	15	□	MNS0940-L15C	142.7	172.7	175.7	216.7	215	1.7	10	3
	20	□	MNS0940-L20C	189.7	220.7	223.7	264.7	263	1.7	10	3
	25	□	MNS0940-L25C	236.7	267.7	270.7	311.7	310	1.7	10	3
	30	□	MNS0940-L30C	283.7	315.7	318.7	359.7	358	1.7	10	3
	5	★	MNS0940LB	48.7	77.7	81.7	137.7	136	1.7	10	3
	10	□	MNS0940X10DB	95.7	125.7	128.7	183.7	182	1.7	10	3
	20	□	MNS0940X20DB	189.7	220.7	223.7	278.7	277	1.7	10	3
	30	□	MNS0940X30DB	283.7	315.7	318.7	373.7	372	1.7	10	3
9.5	3	□	MNS0950S-DIN	32.5	46.7	47.7	88.7	87	1.7	10	4
	3	□	MNS0950S-DIN-C	32.5	46.7	47.7	88.7	87	1.7	10	3
	5	□	MNS0950L-DIN	46.5	60.7	61.7	102.7	101	1.7	10	4
	5	●	MNS0950L-DIN-C	46.5	60.7	61.7	102.7	101	1.7	10	3
	8	□	MNS0950-L8C	77.7	106.7	109.7	150.7	149	1.7	10	3
	10	□	MNS0950-L10C	96.7	125.7	128.7	169.7	168	1.7	10	3
	12	●	MNS0950-L12C	115.7	144.7	147.7	188.7	187	1.7	10	3
	15	□	MNS0950-L15C	144.2	172.7	175.7	216.7	215	1.7	10	3
	20	●	MNS0950-L20C	191.7	220.7	223.7	264.7	263	1.7	10	3
	25	□	MNS0950-L25C	239.2	267.7	270.7	311.7	310	1.7	10	3
	30	●	MNS0950-L30C	286.7	315.7	318.7	359.7	358	1.7	10	3
	5	★	MNS0950LB	49.2	77.7	81.7	137.7	136	1.7	10	3
	10	□	MNS0950X10DB	96.7	125.7	128.7	183.7	182	1.7	10	3
	20	□	MNS0950X20DB	191.7	220.7	223.7	278.7	277	1.7	10	3
	30	□	MNS0950X30DB	286.7	315.7	318.7	373.7	372	1.7	10	3
9.6	3	□	MNS0960S-DIN	32.3	46.7	47.7	88.7	87	1.7	10	4
	3	□	MNS0960S-DIN-C	32.3	46.7	47.7	88.7	87	1.7	10	3
	5	□	MNS0960L-DIN	46.3	60.7	61.7	102.7	101	1.7	10	4
	5	□	MNS0960L-DIN-C	46.3	60.7	61.7	102.7	101	1.7	10	3
	8	□	MNS0960-L8C	78.5	111.7	114.7	155.7	154	1.7	10	3
	10	□	MNS0960-L10C	97.7	131.7	134.7	175.7	174	1.7	10	3
	12	□	MNS0960-L12C	116.9	151.7	154.7	195.7	194	1.7	10	3
	15	□	MNS0960-L15C	145.7	181.7	184.7	225.7	224	1.7	10	3
	20	□	MNS0960-L20C	193.7	231.7	234.7	275.7	274	1.7	10	3
	25	□	MNS0960-L25C	241.7	281.7	284.7	325.7	324	1.7	10	3
	30	□	MNS0960-L30C	289.7	331.7	334.7	375.7	374	1.7	10	3
	5	★	MNS0960LB	49.7	81.7	81.7	137.7	136	1.7	10	3
	10	□	MNS0960X10DB	97.7	131.7	134.7	189.7	188	1.7	10	3
	20	□	MNS0960X20DB	193.7	231.7	234.7	289.7	288	1.7	10	3
	30	□	MNS0960X30DB	289.7	331.7	334.7	389.7	388	1.7	10	3

DC	Delik Derinliği (mm)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
9.7	3	□	MNS0970S-DIN	32.2	46.8	47.8	88.8	87	1.8	10	4
	3	□	MNS0970S-DIN-C	32.2	46.8	47.8	88.8	87	1.8	10	3
	5	□	MNS0970L-DIN	46.2	60.8	61.8	102.8	101	1.8	10	4
	5	□	MNS0970L-DIN-C	46.2	60.8	61.8	102.8	101	1.8	10	3
	8	□	MNS0970-L8C	79.4	111.8	114.8	155.8	154	1.8	10	3
	10	□	MNS0970-L10C	98.8	131.8	134.8	175.8	174	1.8	10	3
	12	□	MNS0970-L12C	118.2	151.8	154.8	195.8	194	1.8	10	3
	15	□	MNS0970-L15C	147.3	181.8	184.8	225.8	224	1.8	10	3
	20	□	MNS0970-L20C	195.8	231.8	234.8	275.8	274	1.8	10	3
	25	□	MNS0970-L25C	244.3	281.8	284.8	325.8	324	1.8	10	3
	30	□	MNS0970-L30C	292.8	331.8	334.8	375.8	374	1.8	10	3
	5	★	MNS0970LB	50.3	81.8	81.8	137.8	136	1.8	10	3
	10	□	MNS0970X10DB	98.8	131.8	134.8	189.8	188	1.8	10	3
	20	□	MNS0970X20DB	195.8	231.8	234.8	289.8	288	1.8	10	3
	30	□	MNS0970X30DB	292.8	331.8	334.8	389.8	388	1.8	10	3
9.8	3	□	MNS0980S-DIN	32.1	46.8	47.8	88.8	87	1.8	10	4
	3	□	MNS0980S-DIN-C	32.1	46.8	47.8	88.8	87	1.8	10	3
	5	□	MNS0980L-DIN	46.1	60.8	61.8	102.8	101	1.8	10	4
	5	□	MNS0980L-DIN-C	46.1	60.8	61.8	102.8	101	1.8	10	3
	8	□	MNS0980-L8C	80.2	111.8	114.8	155.8	154	1.8	10	3
	10	□	MNS0980-L10C	99.8	131.8	134.8	175.8	174	1.8	10	3
	12	□	MNS0980-L12C	119.4	151.8	154.8	195.8	194	1.8	10	3
	15	□	MNS0980-L15C	148.8	181.8	184.8	225.8	224	1.8	10	3
	20	□	MNS0980-L20C	197.8	231.8	234.8	275.8	274	1.8	10	3
	25	□	MNS0980-L25C	246.8	281.8	284.8	325.8	324	1.8	10	3
	30	□	MNS0980-L30C	295.8	331.8	334.8	375.8	374	1.8	10	3
	5	★	MNS0980LB	50.8	81.8	81.8	137.8	136	1.8	10	3
	10	★	MNS0980X10DB	99.8	131.8	134.8	189.8	188	1.8	10	3
	20	★	MNS0980X20DB	197.8	231.8	234.8	289.8	288	1.8	10	3
	30	★	MNS0980X30DB	295.8	331.8	334.8	389.8	388	1.8	10	3
9.9	3	□	MNS0990S-DIN	32.0	46.8	47.8	88.8	87	1.8	10	4
	3	□	MNS0990S-DIN-C	32.0	46.8	47.8	88.8	87	1.8	10	3
	5	□	MNS0990L-DIN	46.0	60.8	61.8	102.8	101	1.8	10	4
	5	□	MNS0990L-DIN-C	46.0	60.8	61.8	102.8	101	1.8	10	3
	8	□	MNS0990-L8C	81.0	111.8	114.8	155.8	154	1.8	10	3
	10	□	MNS0990-L10C	100.8	131.8	134.8	175.8	174	1.8	10	3
	12	□	MNS0990-L12C	120.6	151.8	154.8	195.8	194	1.8	10	3
	15	□	MNS0990-L15C	150.3	181.8	184.8	225.8	224	1.8	10	3
	20	□	MNS0990-L20C	199.8	231.8	234.8	275.8	274	1.8	10	3
	25	□	MNS0990-L25C	249.3	281.8	284.8	325.8	324	1.8	10	3
	30	□	MNS0990-L30C	298.8	331.8	334.8	375.8	374	1.8	10	3
	5	★	MNS0990LB	51.3	81.8	81.8	137.8	136	1.8	10	3
	10	□	MNS0990X10DB	100.8	131.8	134.8	189.8	188	1.8	10	3
	20	□	MNS0990X20DB	199.8	231.8	234.8	289.8	288	1.8	10	3
	30	□	MNS0990X30DB	298.8	331.8	334.8	389.8	388	1.8	10	3

DC	Delik Derinliği (mm)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
11.4	3	□	MNS1140S-DIN	38.0	55.1	56.1	102.1	100	2.1	12	4
	3	□	MNS1140S-DIN-C	38.0	55.1	56.1	102.1	100	2.1	12	3
	5	□	MNS1140L-DIN	54.0	71.1	72.1	118.1	116	2.1	12	4
	5	□	MNS1140L-DIN-C	54.0	71.1	72.1	118.1	116	2.1	12	3
	8	□	MNS1140-L8C	93.3	129.1	132.1	178.1	176	2.1	12	3
	10	□	MNS1140-L10C	116.1	152.1	155.1	201.1	199	2.1	12	3
	12	□	MNS1140-L12C	138.9	175.1	178.1	224.1	222	2.1	12	3
	15	□	MNS1140-L15C	173.1	209.1	212.1	258.1	256	2.1	12	3
	20	□	MNS1140-L20C	230.1	267.1	270.1	316.1	314	2.1	12	3
	25	□	MNS1140-L25C	287.1	324.1	327.1	373.1	371	2.1	12	3
	5	★	MNS1140LB	59.1	94.1	98.1	160.1	158	2.1	12	3
	10	□	MNS1140X10DB	116.1	152.1	155.1	217.1	215	2.1	12	3
	20	□	MNS1140X20DB	230.1	267.1	270.1	332.1	330	2.1	12	3
11.5	3	□	MNS1150S-DIN	37.8	55.1	56.1	102.1	100	2.1	12	4
	3	□	MNS1150S-DIN-C	37.8	55.1	56.1	102.1	100	2.1	12	3
	5	□	MNS1150L-DIN	53.8	71.1	72.1	118.1	116	2.1	12	4
	5	●	MNS1150L-DIN-C	53.8	71.1	72.1	118.1	116	2.1	12	3
	8	□	MNS1150-L8C	94.1	129.1	132.1	178.1	176	2.1	12	3
	10	□	MNS1150-L10C	117.1	152.1	155.1	201.1	199	2.1	12	3
	12	●	MNS1150-L12C	140.1	175.1	178.1	224.1	222	2.1	12	3
	15	□	MNS1150-L15C	174.6	209.1	212.1	258.1	256	2.1	12	3
	20	●	MNS1150-L20C	232.1	267.1	270.1	316.1	314	2.1	12	3
	25	□	MNS1150-L25C	289.6	324.1	327.1	373.1	371	2.1	12	3
	5	★	MNS1150LB	59.6	94.1	98.1	160.1	158	2.1	12	3
	10	□	MNS1150X10DB	117.1	152.1	155.1	217.1	215	2.1	12	3
	20	□	MNS1150X20DB	232.1	267.1	270.1	332.1	330	2.1	12	3
11.6	3	□	MNS1160S-DIN	37.7	55.1	56.1	102.1	100	2.1	12	4
	3	□	MNS1160S-DIN-C	37.7	55.1	56.1	102.1	100	2.1	12	3
	5	□	MNS1160L-DIN	53.7	71.1	72.1	118.1	116	2.1	12	4
	5	□	MNS1160L-DIN-C	53.7	71.1	72.1	118.1	116	2.1	12	3
	8	□	MNS1160-L8C	94.9	134.1	137.1	183.1	181	2.1	12	3
	10	□	MNS1160-L10C	118.1	158.1	161.1	207.1	205	2.1	12	3
	12	□	MNS1160-L12C	141.3	182.1	185.1	231.1	229	2.1	12	3
	15	□	MNS1160-L15C	176.1	218.1	221.1	267.1	265	2.1	12	3
	20	□	MNS1160-L20C	234.1	278.1	281.1	327.1	325	2.1	12	3
	25	□	MNS1160-L25C	292.1	338.1	341.1	387.1	385	2.1	12	3
	5	★	MNS1160LB	60.1	98.1	98.1	160.1	158	2.1	12	3
	10	□	MNS1160X10DB	118.1	158.1	161.1	223.1	221	2.1	12	3
	20	□	MNS1160X20DB	234.1	278.1	281.1	343.1	341	2.1	12	3
11.7	3	□	MNS1170S-DIN	37.6	55.1	56.1	102.1	100	2.1	12	4
	3	□	MNS1170S-DIN-C	37.6	55.1	56.1	102.1	100	2.1	12	3
	5	□	MNS1170L-DIN	53.6	71.1	72.1	118.1	116	2.1	12	4
	5	□	MNS1170L-DIN-C	53.6	71.1	72.1	118.1	116	2.1	12	3
	8	□	MNS1170-L8C	95.7	134.1	137.1	183.1	181	2.1	12	3
	10	□	MNS1170-L10C	119.1	158.1	161.1	207.1	205	2.1	12	3
	12	□	MNS1170-L12C	142.5	182.1	185.1	231.1	229	2.1	12	3

DC	Delik Derinliği (mm)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
11.7	15	□	MNS1170-L15C	177.6	218.1	221.1	267.1	265	2.1	12	3
	20	□	MNS1170-L20C	236.1	278.1	281.1	327.1	325	2.1	12	3
	25	□	MNS1170-L25C	294.6	338.1	341.1	387.1	385	2.1	12	3
	5	★	MNS1170LB	60.6	98.1	98.1	160.1	158	2.1	12	3
	10	□	MNS1170X10DB	119.1	158.1	161.1	223.1	221	2.1	12	3
	20	□	MNS1170X20DB	236.1	278.1	281.1	343.1	341	2.1	12	3
11.8	3	□	MNS1180S-DIN	37.4	55.1	56.1	102.1	100	2.1	12	4
	3	□	MNS1180S-DIN-C	37.4	55.1	56.1	102.1	100	2.1	12	3
	5	□	MNS1180L-DIN	53.4	71.1	72.1	118.1	116	2.1	12	4
	5	□	MNS1180L-DIN-C	53.4	71.1	72.1	118.1	116	2.1	12	3
	8	□	MNS1180-L8C	96.5	134.1	137.1	183.1	181	2.1	12	3
	10	□	MNS1180-L10C	120.1	158.1	161.1	207.1	205	2.1	12	3
	12	□	MNS1180-L12C	143.7	182.1	185.1	231.1	229	2.1	12	3
	15	□	MNS1180-L15C	179.1	218.1	221.1	267.1	265	2.1	12	3
	20	□	MNS1180-L20C	238.1	278.1	281.1	327.1	325	2.1	12	3
	25	□	MNS1180-L25C	297.1	338.1	341.1	387.1	385	2.1	12	3
	5	★	MNS1180LB	61.1	98.1	98.1	160.1	158	2.1	12	3
	10	□	MNS1180X10DB	120.1	158.1	161.1	223.1	221	2.1	12	3
	20	□	MNS1180X20DB	238.1	278.1	281.1	343.1	341	2.1	12	3
11.9	3	□	MNS1190S-DIN	37.3	55.2	56.2	102.2	100	2.2	12	4
	3	□	MNS1190S-DIN-C	37.3	55.2	56.2	102.2	100	2.2	12	3
	5	□	MNS1190L-DIN	53.3	71.2	72.2	118.2	116	2.2	12	4
	5	□	MNS1190L-DIN-C	53.3	71.2	72.2	118.2	116	2.2	12	3
	8	□	MNS1190-L8C	97.4	134.2	137.2	183.2	181	2.2	12	3
	10	□	MNS1190-L10C	121.2	158.2	161.2	207.2	205	2.2	12	3
	12	□	MNS1190-L12C	145.0	182.2	185.2	231.2	229	2.2	12	3
	15	□	MNS1190-L15C	180.7	218.2	221.2	267.2	265	2.2	12	3
	20	□	MNS1190-L20C	240.2	278.2	281.2	327.2	325	2.2	12	3
	25	□	MNS1190-L25C	299.7	338.2	341.2	387.2	385	2.2	12	3
	5	★	MNS1190LB	61.7	98.2	98.2	160.2	158	2.2	12	3
	10	□	MNS1190X10DB	121.2	158.2	161.2	223.2	221	2.2	12	3
	20	□	MNS1190X20DB	240.2	278.2	281.2	343.2	341	2.2	12	3
12.0	3	□	MNS1200S-DIN	37.2	55.2	56.2	102.2	100	2.2	12	4
	3	□	MNS1200S-DIN-C	37.2	55.2	56.2	102.2	100	2.2	12	3
	5	□	MNS1200L-DIN	53.2	71.2	72.2	118.2	116	2.2	12	4
	5	●	MNS1200L-DIN-C	53.2	71.2	72.2	118.2	116	2.2	12	3
	8	□	MNS1200-L8C	98.2	134.2	137.2	183.2	181	2.2	12	3
	10	□	MNS1200-L10C	122.2	158.2	161.2	207.2	205	2.2	12	3
	12	●	MNS1200-L12C	146.2	182.2	185.2	231.2	229	2.2	12	3
	15	□	MNS1200-L15C	182.2	218.2	221.2	267.2	265	2.2	12	3
	20	●	MNS1200-L20C	242.2	278.2	281.2	327.2	325	2.2	12	3
	25	□	MNS1200-L25C	302.2	338.2	341.2	387.2	385	2.2	12	3
	5	★	MNS1200LB	62.2	98.2	98.2	160.2	158	2.2	12	3
	10	★	MNS1200X10DB	122.2	158.2	161.2	223.2	221	2.2	12	3
	20	★	MNS1200X20DB	242.2	278.2	281.2	343.2	341	2.2	12	3

Not 1) Lütfen bu katalogta olmayan herhangi bir geometri için bizimle iletişim kurun (örn. farklı çap ve uzunluk).

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC	Delik Derinliği (mm)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
12.1	3	□	MNS1210S-DIN	42.1	60.2	61.2	107.2	105	2.2	14	4
	3	□	MNS1210S-DIN-C	42.1	60.2	61.2	107.2	105	2.2	14	3
	5	□	MNS1210L-DIN	59.1	77.2	78.2	124.2	122	2.2	14	4
	5	□	MNS1210L-DIN-C	59.1	77.2	78.2	124.2	122	2.2	14	3
	8	□	MNS1210-L8C	99.0	140.2	143.2	189.2	187	2.2	14	3
	10	□	MNS1210-L10C	123.2	165.2	168.2	214.2	212	2.2	14	3
	12	□	MNS1210-L12C	147.4	190.2	193.2	239.2	237	2.2	14	3
	15	□	MNS1210-L15C	183.7	227.2	230.2	276.2	274	2.2	14	3
	20	□	MNS1210-L20C	244.2	290.2	293.2	339.2	337	2.2	14	3
	5	★	MNS1210LB	62.7	102.2	106.2	169.2	167	2.2	13	3
12.2	10	□	MNS1210X10DB	123.2	165.2	168.2	231.2	229	2.2	13	3
	20	□	MNS1210X20DB	244.2	290.2	293.2	356.2	354	2.2	13	3
12.3	3	□	MNS1220S-DIN	41.9	60.2	61.2	107.2	105	2.2	14	4
	3	□	MNS1220S-DIN-C	41.9	60.2	61.2	107.2	105	2.2	14	3
	5	□	MNS1220L-DIN	58.9	77.2	78.2	124.2	122	2.2	14	4
	5	□	MNS1220L-DIN-C	58.9	77.2	78.2	124.2	122	2.2	14	3
	8	□	MNS1220-L8C	99.8	140.2	143.2	189.2	187	2.2	14	3
	10	□	MNS1220-L10C	124.2	165.2	168.2	214.2	212	2.2	14	3
	12	□	MNS1220-L12C	148.6	190.2	193.2	239.2	237	2.2	14	3
	15	□	MNS1220-L15C	185.2	227.2	230.2	276.2	274	2.2	14	3
	20	□	MNS1220-L20C	246.2	290.2	293.2	339.2	337	2.2	14	3
	5	★	MNS1220LB	63.2	102.2	106.2	169.2	167	2.2	13	3
12.4	10	□	MNS1220X10DB	124.2	165.2	168.2	231.2	229	2.2	13	3
	20	□	MNS1220X20DB	246.2	290.2	293.2	356.2	354	2.2	13	3
12.5	3	□	MNS1230S-DIN	41.8	60.2	61.2	107.2	105	2.2	14	4
	3	□	MNS1230S-DIN-C	41.8	60.2	61.2	107.2	105	2.2	14	3
	5	□	MNS1230L-DIN	58.8	77.2	78.2	124.2	122	2.2	14	4
	5	□	MNS1230L-DIN-C	58.8	77.2	78.2	124.2	122	2.2	14	3
	8	□	MNS1230-L8C	100.6	140.2	143.2	189.2	187	2.2	14	3
	10	□	MNS1230-L10C	125.2	165.2	168.2	214.2	212	2.2	14	3
	12	□	MNS1230-L12C	149.8	190.2	193.2	239.2	237	2.2	14	3
	15	□	MNS1230-L15C	186.7	227.2	230.2	276.2	274	2.2	14	3
	20	□	MNS1230-L20C	248.2	290.2	293.2	339.2	337	2.2	14	3
	5	★	MNS1230LB	63.7	102.2	106.2	169.2	167	2.2	13	3
12.6	10	□	MNS1230X10DB	125.2	165.2	168.2	231.2	229	2.2	13	3
	20	□	MNS1230X20DB	248.2	290.2	293.2	356.2	354	2.2	13	3
12.7	3	□	MNS1240S-DIN	41.7	60.3	61.3	107.3	105	2.3	14	4
	3	□	MNS1240S-DIN-C	41.7	60.3	61.3	107.3	105	2.3	14	3
	5	□	MNS1240L-DIN	58.7	77.3	78.3	124.3	122	2.3	14	4
	5	□	MNS1240L-DIN-C	58.7	77.3	78.3	124.3	122	2.3	14	3
	8	□	MNS1240-L8C	101.5	140.3	143.3	189.3	187	2.3	14	3
	10	□	MNS1240-L10C	126.3	165.3	168.3	214.3	212	2.3	14	3
	12	□	MNS1240-L12C	151.1	190.3	193.3	239.3	237	2.3	14	3
	15	□	MNS1240-L15C	188.3	227.3	230.3	276.3	274	2.3	14	3
	20	□	MNS1240-L20C	250.3	290.3	293.3	339.3	337	2.3	14	3
	5	★	MNS1240LB	64.3	102.3	106.3	169.3	167	2.3	13	3
12.8	10	□	MNS1240X10DB	126.3	165.3	168.3	231.3	229	2.3	13	3
	20	□	MNS1240X20DB	250.3	290.3	293.3	356.3	354	2.3	13	3
12.9	3	□	MNS1250S-DIN	41.5	60.3	61.3	107.3	105	2.3	14	4
	3	□	MNS1250S-DIN-C	41.5	60.3	61.3	107.3	105	2.3	14	3
	5	□	MNS1250L-DIN	58.5	77.3	78.3	124.3	122	2.3	14	4
	5	●	MNS1250L-DIN-C	58.5	77.3	78.3	124.3	122	2.3	14	3
	8	□	MNS1250-L8C	102.3	140.3	143.3	189.3	187	2.3	14	3
	10	□	MNS1250-L10C	127.3	165.3	168.3	214.3	212	2.3	14	3
	12	●	MNS1250-L12C	152.3	190.3	193.3	239.3	237	2.3	14	3
	15	□	MNS1250-L15C	189.8	227.3	230.3	276.3	274	2.3	14	3
	20	●	MNS1250-L20C	252.3	290.3	293.3	339.3	337	2.3	14	3
	5	★	MNS1250LB	64.8	102.3	106.3	169.3	167	2.3	13	3
12.10	10	□	MNS1250X10DB	127.3	165.3	168.3	231.3	229	2.3	13	3
	20	□	MNS1250X20DB	252.3	290.3	293.3	356.3	354	2.3	13	3
12.11	3	□	MNS1260S-DIN	41.4	60.3	61.3	107.3	105	2.3	14	4
	3	□	MNS1260S-DIN-C	41.4	60.3	61.3	107.3	105	2.3	14	3
	5	□	MNS1260L-DIN	58.4	77.3	78.3	124.3	122	2.3	14	4
	5	□	MNS1260L-DIN-C	58.4	77.3	78.3	124.3	122	2.3	14	3
	8	□	MNS1260-L8C	103.1	145.3	148.3	194.3	192	2.3	14	3
	10	□	MNS1260-L10C	128.3	171.3	174.3	220.3	218	2.3	14	3
	12	□	MNS1260-L12C	153.5	197.3	200.3	246.3	244	2.3	14	3
	15	□	MNS1260-L15C	191.3	236.3	239.3	285.3	283	2.3	14	3
	20	□	MNS1260-L20C	254.3	301.3	304.3	350.3	348	2.3	14	3
	5	★	MNS1260LB	65.3	106.3	106.3	169.3	167	2.3	13	3
12.12	10	□	MNS1260X10DB	128.3	171.3	174.3	237.3	235	2.3	13	3
	20	□	MNS1260X20DB	254.3	301.3	304.3	367.3	365	2.3	13	3
12.13	3	□	MNS1270S-DIN	41.3	60.3	61.3	107.3	105	2.3	14	4
	3	□	MNS1270S-DIN-C	41.3	60.3	61.3	107.3	105	2.3	14	3
	5	□	MNS1270L-DIN	58.3	77.3	78.3	124.3	122	2.3	14	4
	5	□	MNS1270L-DIN-C	58.3	77.3	78.3	124.3	122	2.3	14	3
	8	□	MNS1270-L8C	103.9	145.3	148.3	194.3	192	2.3	14	3
	10	□	MNS1270-L10C	129.3	171.3	174.3	220.3	218	2.3	14	3
	12	□	MNS1270-L12C	154.7	197.3	200.3	246.3	244	2.3	14	3
	15	□	MNS1270-L15C	192.8	236.3	239.3	285.3	283	2.3	14	3
	20	□	MNS1270-L20C	256.3	301.3	304.3	350.3	348	2.3	14	3
	5	★	MNS1270LB	65.8	106.3	106.3	169.3	167	2.3	13	3
12.14	10	□	MNS1270X10DB	129.3	171.3	174.3	237.3	235	2.3	13	3
	20	□	MNS1270X20DB	256.3	301.3	304.3	367.3	365	2.3	13	3
12.15	3	□	MNS1280S-DIN	41.1	60.3	61.3	107.3	105	2.3	14	4
	3	□	MNS1280S-DIN-C	41.1	60.3	61.3	107.3	105	2.3	14	3
	5	□	MNS1280L-DIN	58.1	77.3	78.3	124.3	122	2.3	14	4
	5	□	MNS1280L-DIN-C	58.1	77.3	78.3	124.3	122	2.3	14	3
	8	□	MNS1280-L8C	104.7	145.3	148.3	194.3	192	2.3	14	3
	10	□	MNS1280-L10C	130.3	171.3	174.3	220.3	218	2.3	14	3
	12	□	MNS1280-L12C	155.9	197.3	200.3	246.3	244	2.3	14	3
	15	□	MNS1280-L15C	194.3	236.3	239.3	285.3	283	2.3	14	3
	20	□	MNS1280-L20C	258.3	301.3	304.3	350.3	348	2.3	14	3
	5	★	MNS1280LB	66.3	106.3	106.3	169.3	167	2.3	13	3
12.16	10	□	MNS1280X10DB	130.3	171.3	174.3	237.3	235	2.3	13	3
	20	□	MNS1280X20DB	258.3	301.3	304.3	367.3	365	2.3	13	3

DC	Delik Derinliği (mm) (L/D)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
12.9	3	□	MNS1290S-DIN	41.0	60.3	61.3	107.3	105	2.3	14	4
	3	□	MNS1290S-DIN-C	41.0	60.3	61.3	107.3	105	2.3	14	3
	5	□	MNS1290L-DIN	58.0	77.3	78.3	124.3	122	2.3	14	4
	5	□	MNS1290L-DIN-C	58.0	77.3	78.3	124.3	122	2.3	14	3
	8	□	MNS1290-L8C	105.5	145.3	148.3	194.3	192	2.3	14	3
	10	□	MNS1290-L10C	131.3	171.3	174.3	220.3	218	2.3	14	3
	12	□	MNS1290-L12C	157.1	197.3	200.3	246.3	244	2.3	14	3
	15	□	MNS1290-L15C	195.8	236.3	239.3	285.3	283	2.3	14	3
	20	□	MNS1290-L20C	260.3	301.3	304.3	350.3	348	2.3	14	3
	5	★	MNS1290LB	66.8	106.3	106.3	169.3	167	2.3	13	3
13.0	10	□	MNS1290X10DB	131.3	171.3	174.3	237.3	235	2.3	13	3
	20	□	MNS1290X20DB	260.3	301.3	304.3	367.3	365	2.3	13	3
	3	□	MNS1300S-DIN	40.9	60.4	61.4	107.4	105	2.4	14	4
	3	□	MNS1300S-DIN-C	40.9	60.4	61.4	107.4	105	2.4	14	3
	5	□	MNS1300L-DIN	57.9	77.4	78.4	124.4	122	2.4	14	4
	5	●	MNS1300L-DIN-C	57.9	77.4	78.4	124.4	122	2.4	14	3
	8	□	MNS1300-L8C	106.4	145.4	148.4	194.4	192	2.4	14	3
	10	□	MNS1300-L10C	132.4	171.4	174.4	220.4	218	2.4	14	3
	12	●	MNS1300-L12C	158.4	197.4	200.4	246.4	244	2.4	14	3
	15	□	MNS1300-L15C	197.4	236.4	239.4	285.4	283	2.4	14	3
13.1	20	●	MNS1300-L20C	262.4	301.4	304.4	350.4	348	2.4	14	3
	5	★	MNS1300LB	67.4	106.4	106.4	169.4	167	2.4	13	3
	10	★	MNS1300X10DB	132.4	171.4	174.4	237.4	235	2.4	13	3
	20	★	MNS1300X20DB	262.4	301.4	304.4	367.4	365	2.4	13	3
	3	□	MNS1310S-DIN	40.7	60.4	61.4	107.4	105	2.4	14	4
	3	□	MNS1310S-DIN-C	40.7	60.4	61.4	107.4	105	2.4	14	3
	5	□	MNS1310L-DIN	57.7	77.4	78.4	124.4	122	2.4	14	4
	5	□	MNS1310L-DIN-C	57.7	77.4	78.4	124.4	122	2.4	14	3
	8	□	MNS1310-L8C	107.2	151.4	154.4	200.4	198	2.4	14	3
	10	□	MNS1310-L10C	133.4	178.4	181.4	227.4	225	2.4	14	3
13.2	12	□	MNS1310-L12C	159.6	205.4	208.4	254.4	252	2.4	14	3
	15	□	MNS1310-L15C	198.9	245.4	248.4	294.4	292	2.4	14	3
	20	□	MNS1310-L20C	264.4	313.4	316.4	362.4	360	2.4	14	3
	5	★	MNS1310LB	67.9	110.4	114.4	178.4	176	2.4	14	3
	10	□	MNS1310X10DB	133.4	178.4	181.4	245.4	243	2.4	14	3
	20	□	MNS1310X20DB	264.4	313.4	316.4	380.4	378	2.4	14	3
	3	□	MNS1320S-DIN	40.6	60.4	61.4	107.4	105	2.4	14	4
	3	□	MNS1320S-DIN-C	40.6	60.4	61.4	107.4	105	2.4	14	3
	5	□	MNS1320L-DIN	57.6	77.4	78.4	124.4	122	2.4	14	4
	5	□	MNS1320L-DIN-C	57.6	77.4	78.4	124.4	122	2.4	14	3
13.3	8	□	MNS1320-L8C	108.0	151.4	154.4	200.4	198	2.4	14	3
	10	□	MNS1320-L10C	134.4	178.4	181.4	227.4	225	2.4	14	3
	12	□	MNS1320-L12C	160.8	205.4	208.4	254.4	252	2.4	14	3
	15	□	MNS1320-L15C	200.4	245.4	248.4	294.4	292	2.4	14	3
	20	□	MNS1320-L20C	266.4	313.4	316.4	362.4	360	2.4	14	3
	5	★	MNS1320LB	68.4	110.4	114.4	178.4	176	2.4	14	3
	10	□	MNS1320X10DB	134.4	178.4	181.4	245.4	243	2.4	14	3
	20	□	MNS1320X20DB	266.4	313.4	316.4	380.4	378	2.4	14	3
	3	□	MNS1330S-DIN	40.5	60.4	61.4	107.4	105	2.4	14	4
	3	□	MNS1330S-DIN-C	40.5	60.4	61.4	107.4	105	2.4	14	3
13.4	5	□	MNS1330L-DIN	57.5	77.4	78.4	124.4	122	2.4	14	4
	5	□	MNS1330L-DIN-C	57.5	77.4	78.4	124.4	122	2.4	14	3
	8	□	MNS1330-L8C	108.8	151.4	154.4	200.4	198	2.4	14	3
	10	□	MNS1330-L10C	135.4	178.4	181.4	227.4	225	2.4	14	3
	12	□	MNS1330-L12C	162.0	205.4	208.4	254.4	252	2.4	14	3
	15	□	MNS1330-L15C	201.9	245.4	248.4	294.4	292	2.4	14	3
	20	□	MNS1330-L20C	268.4	313.4	316.4	362.4	360	2.4	14	3
	5	★	MNS1330LB	68.9	110.4	114.4	178.4	176	2.4	14	3
	10	□	MNS1330X10DB	135.4	178.4	181.4	245.4	243	2.4	14	3
	20	□	MNS1330X20DB	268.4	313.4	316.4	380.4	378	2.4	14	3
13.5	3	□	MNS1340S-DIN	40.3	60.4	61.4	107.4	105	2.4	14	4
	3	□	MNS1340S-DIN-C	40.3	60.4	61.4	107.4	105	2.4	14	3
	5	□	MNS1340L-DIN	57.3	77.4	78.4	124.4	122	2.4	14	4
	5	□	MNS1340L-DIN-C	57.3	77.4	78.4	124.4	122	2.4	14	3
	8	□	MNS1340-L8C	109.6	151.4	154.4	200.4	198	2.4	14	3
	10	□	MNS1340-L10C	136.4	178.4	181.4	227.4	225	2.4	14	3
	12	□	MNS1340-L12C	163.2	205.4	208.4	254.4	252	2.4	14	3
	15	□	MNS1340-L15C	203.4	245.4	248.4	294.4	292	2.4	14	3
	20	□	MNS1340-L20C	270.4	313.4	316.4	362.4	360	2.4	14	3
	5	★	MNS1340LB	69.4	110.4	114.4	178.4	176	2.4	14	3
13.6	10	□	MNS1340X10DB	136.4	178.4	181.4	245.4	243	2.4	14	3
	20	□	MNS1340X20DB	270.4	313.4	316.4	380.4	378	2.4	14	3
	3	□	MNS1350S-DIN	40.2	60.5	61.5	107.5	105	2.5	14	4
	3	□	MNS1350S-DIN-C	40.2	60.5	61.5	107.5	105	2.5	14	3
	5	□	MNS1350L-DIN	57.2	77.5	78.5	124.5	122	2.5	14	4
	5	●	MNS1350L-DIN-C	57.2	77.5	78.5	124.5	122	2.5	14	3
	8	□	MNS1350-L8C	110.5	151.5	154.5	200.5	198	2.5	14	3
	10	□	MNS1350-L10C	137.5	178.5	181.5	227.5	225	2.5	14	3
	12	●	MNS1350-L12C	164.5	205.5	208.5	254.5	252	2.5	14	3
	15	□	MNS1350-L15C	205.0	245.5	248.5	294.5	292	2.5	14	3
13.7	20	●	MNS1350-L20C	272.5	313.5	316.5	362.5	360	2.5	14	3
	5	★	MNS1350LB	70.0	110.5	114.5	178.5	176	2.5	14	3
	10	□	MNS1350X10DB	137.5	178.5	181.5	245.5	243	2.5	14	3
	20	□	MNS1350X20DB	272.5	313.5	316.5	380.5	378	2.5	14	3
	3	□	MNS1360S-DIN	40.1	60.5	61.5	107.5	105	2.5	14	4
	3	□	MNS1360S-DIN-C	40.1	60.5	61.5	107.5	105	2.5	14	3
	5	□	MNS1360L-DIN	57.1	77.5	78.5	124.5	122	2.5	14	4
	5	□	MNS1360L-DIN-C	57.1	77.5	78.5	124.5	122	2.5	14	3
	8	□	MNS1360-L8C	111.3	156.5	159.5	205.5	203	2.5	14	3
	10	□	MNS1360-L10C	138.5	184.5	187.5	233.5	231	2.5	14	3
13.8	12	□	MNS1360-L12C	165.7	212.5	215.5	261.5	259	2.5	14	3
	15	□	MNS1360-L15C	206.5	254.5	257.5	303.5	301	2.5	14	3
	20	□	MNS1360-L20C	274.5	324.5	327.5	373.5	371	2.5	14	3
	5	★	MNS1360LB	70.5	114.5	114.5	178.5	176	2.5	14	3
	10	□	MNS1360X10DB	138.5	184.5	187.5	251.5	249	2.5	14	3
	20	□	MNS1360X20DB	274.5	324.5	327.5	391.5	389	2.5	14	3

Not 1) Lütfen bu katalogda olmayan herhangi bir geometri için bizimle iletişim kurun (örn. farklı çap ve uzunluk).

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC	Delik Derinliği (mm)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
13.7	3	□	MNS1370S-DIN	39.9	60.5	61.5	107.5	105	2.5	14	4
	3	□	MNS1370S-DIN-C	39.9	60.5	61.5	107.5	105	2.5	14	3
	5	□	MNS1370L-DIN	56.9	77.5	78.5	124.5	122	2.5	14	4
	5	□	MNS1370L-DIN-C	56.9	77.5	78.5	124.5	122	2.5	14	3
	8	□	MNS1370-L8C	112.1	156.5	159.5	205.5	203	2.5	14	3
	10	□	MNS1370-L10C	139.5	184.5	187.5	233.5	231	2.5	14	3
	12	□	MNS1370-L12C	166.9	212.5	215.5	261.5	259	2.5	14	3
	15	□	MNS1370-L15C	208.0	254.5	257.5	303.5	301	2.5	14	3
	20	□	MNS1370-L20C	276.5	324.5	327.5	373.5	371	2.5	14	3
	5	★	MNS1370LB	71.0	114.5	114.5	178.5	176	2.5	14	3
13.8	10	□	MNS1370X10DB	139.5	184.5	187.5	251.5	249	2.5	14	3
	20	□	MNS1370X20DB	276.5	324.5	327.5	391.5	389	2.5	14	3
13.9	3	□	MNS1380S-DIN	39.8	60.5	61.5	107.5	105	2.5	14	4
	3	□	MNS1380S-DIN-C	39.8	60.5	61.5	107.5	105	2.5	14	3
	5	□	MNS1380L-DIN	56.8	77.5	78.5	124.5	122	2.5	14	4
	5	□	MNS1380L-DIN-C	56.8	77.5	78.5	124.5	122	2.5	14	3
	8	□	MNS1380-L8C	112.9	156.5	159.5	205.5	203	2.5	14	3
	10	□	MNS1380-L10C	140.5	184.5	187.5	233.5	231	2.5	14	3
	12	□	MNS1380-L12C	168.1	212.5	215.5	261.5	259	2.5	14	3
	15	□	MNS1380-L15C	209.5	254.5	257.5	303.5	301	2.5	14	3
	20	□	MNS1380-L20C	278.5	324.5	327.5	373.5	371	2.5	14	3
	5	★	MNS1380LB	71.5	114.5	114.5	178.5	176	2.5	14	3
14.0	10	□	MNS1380X10DB	140.5	184.5	187.5	251.5	249	2.5	14	3
	20	□	MNS1380X20DB	278.5	324.5	327.5	391.5	389	2.5	14	3
14.1	3	□	MNS1390S-DIN	39.7	60.5	61.5	107.5	105	2.5	14	4
	3	□	MNS1390S-DIN-C	39.7	60.5	61.5	107.5	105	2.5	14	3
	5	□	MNS1390L-DIN	56.7	77.5	78.5	124.5	122	2.5	14	4
	5	□	MNS1390L-DIN-C	56.7	77.5	78.5	124.5	122	2.5	14	3
	8	□	MNS1390-L8C	113.7	156.5	159.5	205.5	203	2.5	14	3
	10	□	MNS1390-L10C	141.5	184.5	187.5	233.5	231	2.5	14	3
	12	□	MNS1390-L12C	169.3	212.5	215.5	261.5	259	2.5	14	3
	15	□	MNS1390-L15C	211.0	254.5	257.5	303.5	301	2.5	14	3
	20	□	MNS1390-L20C	280.5	324.5	327.5	373.5	371	2.5	14	3
	5	★	MNS1390LB	72.0	114.5	114.5	178.5	176	2.5	14	3
14.2	10	□	MNS1390X10DB	141.5	184.5	187.5	251.5	249	2.5	14	3
	20	□	MNS1390X20DB	280.5	324.5	327.5	391.5	389	2.5	14	3
14.3	3	□	MNS1400S-DIN	39.5	60.5	61.5	107.5	105	2.5	14	4
	3	□	MNS1400S-DIN-C	39.5	60.5	61.5	107.5	105	2.5	14	3
	5	□	MNS1400L-DIN	56.5	77.5	78.5	124.5	122	2.5	14	4
	5	●	MNS1400L-DIN-C	56.5	77.5	78.5	124.5	122	2.5	14	3
	8	□	MNS1400-L8C	114.5	156.5	159.5	205.5	203	2.5	14	3
	10	□	MNS1400-L10C	142.5	184.5	187.5	233.5	231	2.5	14	3
	12	●	MNS1400-L12C	170.5	212.5	215.5	261.5	259	2.5	14	3
	15	□	MNS1400-L15C	212.5	254.5	257.5	303.5	301	2.5	14	3
	20	●	MNS1400-L20C	282.5	324.5	327.5	373.5	371	2.5	14	3
	5	★	MNS1400LB	72.5	114.5	114.5	178.5	176	2.5	14	3
14.4	10	★	MNS1400X10DB	142.5	184.5	187.5	251.5	249	2.5	14	3
	20	★	MNS1400X20DB	282.5	324.5	327.5	391.5	389	2.5	14	3
14.5	3	□	MNS1410S-DIN	43.4	64.6	65.6	114.6	112	2.6	16	4
	3	□	MNS1410S-DIN-C	43.4	64.6	65.6	114.6	112	2.6	16	3
	5	□	MNS1410L-DIN	61.4	82.6	83.6	132.6	130	2.6	16	4
	5	□	MNS1410L-DIN-C	61.4	82.6	83.6	132.6	130	2.6	16	3
	3	□	MNS1420S-DIN	43.3	64.6	65.6	114.6	112	2.6	16	4
	3	□	MNS1420S-DIN-C	43.3	64.6	65.6	114.6	112	2.6	16	3
	5	□	MNS1420L-DIN	61.3	82.6	83.6	132.6	130	2.6	16	4
	5	●	MNS1420L-DIN-C	61.3	82.6	83.6	132.6	130	2.6	16	3
	3	□	MNS1430S-DIN	43.2	64.6	65.6	114.6	112	2.6	16	4
	3	□	MNS1430S-DIN-C	43.2	64.6	65.6	114.6	112	2.6	16	3
14.6	5	□	MNS1430L-DIN	61.2	82.6	83.6	132.6	130	2.6	16	4
	5	□	MNS1430L-DIN-C	61.2	82.6	83.6	132.6	130	2.6	16	3
14.7	3	□	MNS1440S-DIN	43.0	64.6	65.6	114.6	112	2.6	16	4
	3	□	MNS1440S-DIN-C	43.0	64.6	65.6	114.6	112	2.6	16	3
	5	□	MNS1440L-DIN	61.0	82.6	83.6	132.6	130	2.6	16	4
	5	□	MNS1440L-DIN-C	61.0	82.6	83.6	132.6	130	2.6	16	3
	3	□	MNS1450S-DIN	42.9	64.6	65.6	114.6	112	2.6	16	4
	3	□	MNS1450S-DIN-C	42.9	64.6	65.6	114.6	112	2.6	16	3
	5	□	MNS1450L-DIN	60.9	82.6	83.6	132.6	130	2.6	16	4
	5	●	MNS1450L-DIN-C	60.9	82.6	83.6	132.6	130	2.6	16	3
	3	□	MNS1460S-DIN	42.8	64.7	65.7	114.7	112	2.7	16	4
	3	□	MNS1460S-DIN-C	42.8	64.7	65.7	114.7	112	2.7	16	3
14.8	5	□	MNS1460L-DIN	60.8	82.7	83.7	132.7	130	2.7	16	4
	5	□	MNS1460L-DIN-C	60.8	82.7	83.7	132.7	130	2.7	16	3
14.9	3	□	MNS1470S-DIN	42.6	64.7	65.7	114.7	112	2.7	16	4
	3	□	MNS1470S-DIN-C	42.6	64.7	65.7	114.7	112	2.7	16	3
	5	□	MNS1470L-DIN	60.6	82.7	83.7	132.7	130	2.7	16	4
	5	□	MNS1470L-DIN-C	60.6	82.7	83.7	132.7	130	2.7	16	3
	3	□	MNS1480S-DIN	42.5	64.7	65.7	114.7	112	2.7	16	4
	3	□	MNS1480S-DIN-C	42.5	64.7	65.7	114.7	112	2.7	16	3
	5	□	MNS1480L-DIN	60.5	82.7	83.7	132.7	130	2.7	16	4
	5	□	MNS1480L-DIN-C	60.5	82.7	83.7	132.7	130	2.7	16	3
	3	□	MNS1490S-DIN	42.4	64.7	65.7	114.7	112	2.7	16	4
	3	□	MNS1490S-DIN-C	42.4	64.7	65.7	114.7	112	2.7	16	3
15.0	5	□	MNS1490L-DIN	60.4	82.7	83.7	132.7	130	2.7	16	4
	5	□	MNS1490L-DIN-C	60.4	82.7	83.7	132.7	130	2.7	16	3
	3	□	MNS1500S-DIN	42.2	64.7	65.7	114.7	112	2.7	16	4
	3	□	MNS1500S-DIN-C	42.2	64.7	65.7	114.7	112	2.7	16	3
	5	□	MNS1500L-DIN	60.2	82.7	83.7	132.7	130	2.7	16	4
	5	●	MNS1500L-DIN-C	60.2	82.7	83.7	132.7	130	2.7	16	3
	3	□	MNS1510S-DIN	42.1	64.7	65.7	114.7	112	2.7	16	4
	3	□	MNS1510S-DIN-C	42.1	64.7	65.7	114.7	112	2.7	16	3
	5	□	MNS1510L-DIN	60.1	82.7	83.7	132.7	130	2.7	16	4
	5	□	MNS1510L-DIN-C	60.1	82.7	83.7	132.7	130	2.7	16	3
15.1	3	□	MNS1520S-DIN	42.0	64.8	65.8	114.8	112	2.8	16	4
	3	□	MNS1520S-DIN-C	42.0	64.8	65.8	114.8	112	2.8	16	3
	5	□	MNS1520L-DIN	60.0	82.8	83.8	132.8	130	2.8	16	4
	5	□	MNS1520L-DIN-C	60.0	82.8	83.8	132.8	130	2.8	16	3

DC (mm)	Delik Derinliği (L/D)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
15.3	3	☐	MNS1530S-DIN	41.8	64.8	65.8	114.8	112	2.8	16	4
	3	☐	MNS1530S-DIN-C	41.8	64.8	65.8	114.8	112	2.8	16	3
	5	☐	MNS1530L-DIN	59.8	82.8	83.8	132.8	130	2.8	16	4
	5	☐	MNS1530L-DIN-C	59.8	82.8	83.8	132.8	130	2.8	16	3
15.4	3	☐	MNS1540S-DIN	41.7	64.8	65.8	114.8	112	2.8	16	4
	3	☐	MNS1540S-DIN-C	41.7	64.8	65.8	114.8	112	2.8	16	3
	5	☐	MNS1540L-DIN	59.7	82.8	83.8	132.8	130	2.8	16	4
	5	☐	MNS1540L-DIN-C	59.7	82.8	83.8	132.8	130	2.8	16	3
15.5	3	☐	MNS1550S-DIN	41.6	64.8	65.8	114.8	112	2.8	16	4
	3	☐	MNS1550S-DIN-C	41.6	64.8	65.8	114.8	112	2.8	16	3
	5	☐	MNS1550L-DIN	59.6	82.8	83.8	132.8	130	2.8	16	4
	5	☒	MNS1550L-DIN-C	59.6	82.8	83.8	132.8	130	2.8	16	3
15.6	3	☐	MNS1560S-DIN	41.4	64.8	65.8	114.8	112	2.8	16	4
	3	☐	MNS1560S-DIN-C	41.4	64.8	65.8	114.8	112	2.8	16	3
	5	☐	MNS1560L-DIN	59.4	82.8	83.8	132.8	130	2.8	16	4
	5	☐	MNS1560L-DIN-C	59.4	82.8	83.8	132.8	130	2.8	16	3
15.7	3	☐	MNS1570S-DIN	41.3	64.9	65.9	114.9	112	2.9	16	4
	3	☐	MNS1570S-DIN-C	41.3	64.9	65.9	114.9	112	2.9	16	3
	5	☐	MNS1570L-DIN	59.3	82.9	83.9	132.9	130	2.9	16	4
	5	☐	MNS1570L-DIN-C	59.3	82.9	83.9	132.9	130	2.9	16	3
15.8	3	☐	MNS1580S-DIN	41.2	64.9	65.9	114.9	112	2.9	16	4
	3	☐	MNS1580S-DIN-C	41.2	64.9	65.9	114.9	112	2.9	16	3
	5	☐	MNS1580L-DIN	59.2	82.9	83.9	132.9	130	2.9	16	4
	5	☐	MNS1580L-DIN-C	59.2	82.9	83.9	132.9	130	2.9	16	3
15.9	3	☐	MNS1590S-DIN	41.0	64.9	65.9	114.9	112	2.9	16	4
	3	☐	MNS1590S-DIN-C	41.0	64.9	65.9	114.9	112	2.9	16	3
	5	☐	MNS1590L-DIN	59.0	82.9	83.9	132.9	130	2.9	16	4
	5	☐	MNS1590L-DIN-C	59.0	82.9	83.9	132.9	130	2.9	16	3
16.0	3	☐	MNS1600S-DIN	40.9	64.9	65.9	114.9	112	2.9	16	4
	3	☐	MNS1600S-DIN-C	40.9	64.9	65.9	114.9	112	2.9	16	3
	5	☐	MNS1600L-DIN	58.9	82.9	83.9	132.9	130	2.9	16	4
	5	☒	MNS1600L-DIN-C	58.9	82.9	83.9	132.9	130	2.9	16	3
16.1	3	☐	MNS1610S-DIN	48.8	72.9	73.9	122.9	120	2.9	18	4
	3	☐	MNS1610S-DIN-C	48.8	72.9	73.9	122.9	120	2.9	18	3
	5	☐	MNS1610L-DIN	68.8	92.9	93.9	142.9	140	2.9	18	4
	5	☐	MNS1610L-DIN-C	68.8	92.9	93.9	142.9	140	2.9	18	3
16.2	3	☐	MNS1620S-DIN	48.6	72.9	73.9	122.9	120	2.9	18	4
	3	☐	MNS1620S-DIN-C	48.6	72.9	73.9	122.9	120	2.9	18	3
	5	☐	MNS1620L-DIN	68.6	92.9	93.9	142.9	140	2.9	18	4
	5	☐	MNS1620L-DIN-C	68.6	92.9	93.9	142.9	140	2.9	18	3
16.3	3	☐	MNS1630S-DIN	48.5	73.0	74.0	123.0	120	3.0	18	4
	3	☐	MNS1630S-DIN-C	48.5	73.0	74.0	123.0	120	3.0	18	3
	5	☐	MNS1630L-DIN	68.5	93.0	94.0	143.0	140	3.0	18	4
	5	☐	MNS1630L-DIN-C	68.5	93.0	94.0	143.0	140	3.0	18	3
16.4	3	☐	MNS1640S-DIN	48.4	73.0	74.0	123.0	120	3.0	18	4
	3	☐	MNS1640S-DIN-C	48.4	73.0	74.0	123.0	120	3.0	18	3
	5	☐	MNS1640L-DIN	68.4	93.0	94.0	143.0	140	3.0	18	4
	5	☐	MNS1640L-DIN-C	68.4	93.0	94.0	143.0	140	3.0	18	3

DC (mm)	Delik Derinliği (L/D)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
16.5	3	☐	MNS1650S-DIN	48.3	73.0	74.0	123.0	120	3.0	18	4
	3	☐	MNS1650S-DIN-C	48.3	73.0	74.0	123.0	120	3.0	18	3
	5	☐	MNS1650L-DIN	68.3	93.0	94.0	143.0	140	3.0	18	4
	5	☒	MNS1650L-DIN-C	68.3	93.0	94.0	143.0	140	3.0	18	3
16.6	3	☐	MNS1660S-DIN	48.1	73.0	74.0	123.0	120	3.0	18	4
	3	☐	MNS1660S-DIN-C	48.1	73.0	74.0	123.0	120	3.0	18	3
	5	☐	MNS1660L-DIN	68.1	93.0	94.0	143.0	140	3.0	18	4
	5	☐	MNS1660L-DIN-C	68.1	93.0	94.0	143.0	140	3.0	18	3
16.7	3	☐	MNS1670S-DIN	48.0	73.0	74.0	123.0	120	3.0	18	4
	3	☐	MNS1670S-DIN-C	48.0	73.0	74.0	123.0	120	3.0	18	3
	5	☐	MNS1670L-DIN	68.0	93.0	94.0	143.0	140	3.0	18	4
	5	☐	MNS1670L-DIN-C	68.0	93.0	94.0	143.0	140	3.0	18	3
16.8	3	☐	MNS1680S-DIN	47.9	73.1	74.1	123.1	120	3.1	18	4
	3	☐	MNS1680S-DIN-C	47.9	73.1	74.1	123.1	120	3.1	18	3
	5	☐	MNS1680L-DIN	67.9	93.1	94.1	143.1	140	3.1	18	4
	5	☐	MNS1680L-DIN-C	67.9	93.1	94.1	143.1	140	3.1	18	3
16.9	3	☐	MNS1690S-DIN	47.7	73.1	74.1	123.1	120	3.1	18	4
	3	☐	MNS1690S-DIN-C	47.7	73.1	74.1	123.1	120	3.1	18	3
	5	☐	MNS1690L-DIN	67.7	93.1	94.1	143.1	140	3.1	18	4
	5	☐	MNS1690L-DIN-C	67.7	93.1	94.1	143.1	140	3.1	18	3
17.0	3	☐	MNS1700S-DIN	47.6	73.1	74.1	123.1	120	3.1	18	4
	3	☐	MNS1700S-DIN-C	47.6	73.1	74.1	123.1	120	3.1	18	3
	5	☐	MNS1700L-DIN	67.6	93.1	94.1	143.1	140	3.1	18	4
	5	☒	MNS1700L-DIN-C	67.6	93.1	94.1	143.1	140	3.1	18	3
17.1	3	☐	MNS1710S-DIN	47.5	73.1	74.1	123.1	120	3.1	18	4
	3	☐	MNS1710S-DIN-C	47.5	73.1	74.1	123.1	120	3.1	18	3
	5	☐	MNS1710L-DIN	67.5	93.1	94.1	143.1	140	3.1	18	4
	5	☐	MNS1710L-DIN-C	67.5	93.1	94.1	143.1	140	3.1	18	3
17.2	3	☐	MNS1720S-DIN	47.3	73.1	74.1	123.1	120	3.1	18	4
	3	☐	MNS1720S-DIN-C	47.3	73.1	74.1	123.1	120	3.1	18	3
	5	☐	MNS1720L-DIN	67.3	93.1	94.1	143.1	140	3.1	18	4
	5	☐	MNS1720L-DIN-C	67.3	93.1	94.1	143.1	140	3.1	18	3
17.3	3	☐	MNS1730S-DIN	47.2	73.1	74.1	123.1	120	3.1	18	4
	3	☐	MNS1730S-DIN-C	47.2	73.1	74.1	123.1	120	3.1	18	3
	5	☐	MNS1730L-DIN	67.2	93.1	94.1	143.1	140	3.1	18	4
	5	☐	MNS1730L-DIN-C	67.2	93.1	94.1	143.1	140	3.1	18	3
17.4	3	☐	MNS1740S-DIN	47.1	73.2	74.2	123.2	120	3.2	18	4
	3	☐	MNS1740S-DIN-C	47.1	73.2	74.2	123.2	120	3.2	18	3
	5	☐	MNS1740L-DIN	67.1	93.2	94.2	143.2	140	3.2	18	4
	5	☐	MNS1740L-DIN-C	67.1	93.2	94.2	143.2	140	3.2	18	3
17.5	3	☐	MNS1750S-DIN	46.9	73.2	74.2	123.2	120	3.2	18	4
	3	☐	MNS1750S-DIN-C	46.9	73.2	74.2	123.2	120	3.2	18	3
	5	☐	MNS1750L-DIN	66.9	93.2	94.2	143.2	140	3.2	18	4
	5	☒	MNS1750L-DIN-C	66.9	93.2	94.2	143.2	140	3.2	18	3
17.6	3	☐	MNS1760S-DIN	46.8	73.2	74.2	123.2	120	3.2	18	4
	3	☐	MNS1760S-DIN-C	46.8	73.2	74.2	123.2	120	3.2	18	3
	5	☐	MNS1760L-DIN	66.8	93.2	94.2	143.2	140	3.2	18	4
	5	☐	MNS1760L-DIN-C	66.8	93.2	94.2	143.2	140	3.2	18	3

Not 1) Lütfen bu katalogda olmayan herhangi bir geometri için bizimle iletişim kurun (örn. farklı çap ve uzunluk).

● : Avrupa standart stok. □ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC (mm)	Delik Derinliği (L/D)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
17.7	3	□	MNS1770S-DIN	46.7	73.2	74.2	123.2	120	3.2	18	4
	3	□	MNS1770S-DIN-C	46.7	73.2	74.2	123.2	120	3.2	18	3
	5	□	MNS1770L-DIN	66.7	93.2	94.2	143.2	140	3.2	18	4
	5	□	MNS1770L-DIN-C	66.7	93.2	94.2	143.2	140	3.2	18	3
17.8	3	□	MNS1780S-DIN	46.5	73.2	74.2	123.2	120	3.2	18	4
	3	□	MNS1780S-DIN-C	46.5	73.2	74.2	123.2	120	3.2	18	3
	5	□	MNS1780L-DIN	66.5	93.2	94.2	143.2	140	3.2	18	4
	5	□	MNS1780L-DIN-C	66.5	93.2	94.2	143.2	140	3.2	18	3
17.9	3	□	MNS1790S-DIN	46.4	73.3	74.3	123.3	120	3.3	18	4
	3	□	MNS1790S-DIN-C	46.4	73.3	74.3	123.3	120	3.3	18	3
	5	□	MNS1790L-DIN	66.4	93.3	94.3	143.3	140	3.3	18	4
	5	□	MNS1790L-DIN-C	66.4	93.3	94.3	143.3	140	3.3	18	3
18.0	3	□	MNS1800S-DIN	46.3	73.3	74.3	123.3	120	3.3	18	4
	3	□	MNS1800S-DIN-C	46.3	73.3	74.3	123.3	120	3.3	18	3
	5	□	MNS1800L-DIN	66.3	93.3	94.3	143.3	140	3.3	18	4
	5	●	MNS1800L-DIN-C	66.3	93.3	94.3	143.3	140	3.3	18	3
18.1	3	□	MNS1810S-DIN	52.1	79.3	80.3	131.3	128	3.3	20	4
	3	□	MNS1810S-DIN-C	52.1	79.3	80.3	131.3	128	3.3	20	3
	5	□	MNS1810L-DIN	74.1	101.3	102.3	153.3	150	3.3	20	4
	5	□	MNS1810L-DIN-C	74.1	101.3	102.3	153.3	150	3.3	20	3
18.2	3	□	MNS1820S-DIN	52.0	79.3	80.3	131.3	128	3.3	20	4
	3	□	MNS1820S-DIN-C	52.0	79.3	80.3	131.3	128	3.3	20	3
	5	□	MNS1820L-DIN	74.0	101.3	102.3	153.3	150	3.3	20	4
	5	□	MNS1820L-DIN-C	74.0	101.3	102.3	153.3	150	3.3	20	3
18.3	3	□	MNS1830S-DIN	51.9	79.3	80.3	131.3	128	3.3	20	4
	3	□	MNS1830S-DIN-C	51.9	79.3	80.3	131.3	128	3.3	20	3
	5	□	MNS1830L-DIN	73.9	101.3	102.3	153.3	150	3.3	20	4
	5	□	MNS1830L-DIN-C	73.9	101.3	102.3	153.3	150	3.3	20	3
18.4	3	□	MNS1840S-DIN	51.7	79.3	80.3	131.3	128	3.3	20	4
	3	□	MNS1840S-DIN-C	51.7	79.3	80.3	131.3	128	3.3	20	3
	5	□	MNS1840L-DIN	73.7	101.3	102.3	153.3	150	3.3	20	4
	5	□	MNS1840L-DIN-C	73.7	101.3	102.3	153.3	150	3.3	20	3
18.5	3	□	MNS1850S-DIN	51.6	79.4	80.4	131.4	128	3.4	20	4
	3	□	MNS1850S-DIN-C	51.6	79.4	80.4	131.4	128	3.4	20	3
	5	□	MNS1850L-DIN	73.6	101.4	102.4	153.4	150	3.4	20	4
	5	●	MNS1850L-DIN-C	73.6	101.4	102.4	153.4	150	3.4	20	3
18.6	3	□	MNS1860S-DIN	51.5	79.4	80.4	131.4	128	3.4	20	4
	3	□	MNS1860S-DIN-C	51.5	79.4	80.4	131.4	128	3.4	20	3
	5	□	MNS1860L-DIN	73.5	101.4	102.4	153.4	150	3.4	20	4
	5	□	MNS1860L-DIN-C	73.5	101.4	102.4	153.4	150	3.4	20	3
18.7	3	□	MNS1870S-DIN	51.4	79.4	80.4	131.4	128	3.4	20	4
	3	□	MNS1870S-DIN-C	51.4	79.4	80.4	131.4	128	3.4	20	3
	5	□	MNS1870L-DIN	73.4	101.4	102.4	153.4	150	3.4	20	4
	5	□	MNS1870L-DIN-C	73.4	101.4	102.4	153.4	150	3.4	20	3
18.8	3	□	MNS1880S-DIN	51.2	79.4	80.4	131.4	128	3.4	20	4
	3	□	MNS1880S-DIN-C	51.2	79.4	80.4	131.4	128	3.4	20	3
	5	□	MNS1880L-DIN	73.2	101.4	102.4	153.4	150	3.4	20	4
	5	□	MNS1880L-DIN-C	73.2	101.4	102.4	153.4	150	3.4	20	3

DC (mm)	Delik Derinliği (L/D)	TF15	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DON	
18.9	3	□	MNS1890S-DIN	51.1	79.4	80.4	131.4	128	3.4	20	4
	3	□	MNS1890S-DIN-C	51.1	79.4	80.4	131.4	128	3.4	20	3
	5	□	MNS1890L-DIN	73.1	101.4	102.4	153.4	150	3.4	20	4
	5	□	MNS1890L-DIN-C	73.1	101.4	102.4	153.4	150	3.4	20	3
19.0	3	□	MNS1900S-DIN	51.0	79.5	80.5	131.5	128	3.5	20	4
	3	□	MNS1900S-DIN-C	51.0	79.5	80.5	131.5	128	3.5	20	3
	5	□	MNS1900L-DIN	73.0	101.5	102.5	153.5	150	3.5	20	4
	5	□	MNS1900L-DIN-C	73.0	101.5	102.5	153.5	150	3.5	20	3
19.1	3	□	MNS1910S-DIN	50.8	79.5	80.5	131.5	128	3.5	20	4
	3	□	MNS1910S-DIN-C	50.8	79.5	80.5	131.5	128	3.5	20	3
	5	□	MNS1910L-DIN	72.8	101.5	102.5	153.5	150	3.5	20	4
	5	□	MNS1910L-DIN-C	72.8	101.5	102.5	153.5	150	3.5	20	3
19.2	3	□	MNS1920S-DIN	50.7	79.5	80.5	131.5	128	3.5	20	4
	3	□	MNS1920S-DIN-C	50.7	79.5	80.5	131.5	128	3.5	20	3
	5	□	MNS1920L-DIN	72.7	101.5	102.5	153.5	150	3.5	20	4
	5	□	MNS1920L-DIN-C	72.7	101.5	102.5	153.5	150	3.5	20	3
19.3	3	□	MNS1930S-DIN	50.6	79.5	80.5	131.5	128	3.5	20	4
	5	□	MNS1930L-DIN	72.6	101.5	102.5	153.5	150	3.5	20	4
	5	□	MNS1930L-DIN-C	72.6	101.5	102.5	153.5	150	3.5	20	3
19.4	3	□	MNS1940S-DIN	50.4	79.5	80.5	131.5	128	3.5	20	4
	3	□	MNS1940S-DIN-C	50.4	79.5	80.5	131.5	128	3.5	20	3
	5	□	MNS1940L-DIN	72.4	101.5	102.5	153.5	150	3.5	20	4
	5	□	MNS1940L-DIN-C	72.4	101.5	102.5	153.5	150	3.5	20	3
19.5	3	□	MNS1950S-DIN	50.3	79.5	80.5	131.5	128	3.5	20	4
	3	□	MNS1950S-DIN-C	50.3	79.5	80.5	131.5	128	3.5	20	3
	5	□	MNS1950L-DIN	72.3	101.5	102.5	153.5	150	3.5	20	4
	5	●	MNS1950L-DIN-C	72.3	101.5	102.5	153.5	150	3.5	20	3
19.6	3	□	MNS1960S-DIN	50.2	79.6	80.6	131.6	128	3.6	20	4
	3	□	MNS1960S-DIN-C	50.2	79.6	80.6	131.6	128	3.6	20	3
	5	□	MNS1960L-DIN	72.2	101.6	102.6	153.6	150	3.6	20	4
	5	□	MNS1960L-DIN-C	72.2	101.6	102.6	153.6	150	3.6	20	3
19.7	3	□	MNS1970S-DIN	50.0	79.6	80.6	131.6	128	3.6	20	4
	3	□	MNS1970S-DIN-C	50.0	79.6	80.6	131.6	128	3.6	20	3
	5	□	MNS1970L-DIN	72.0	101.6	102.6	153.6	150	3.6	20	4
	5	□	MNS1970L-DIN-C	72.0	101.6	102.6	153.6	150	3.6	20	3
19.8	3	□	MNS1980S-DIN	49.9	79.6	80.6	131.6	128	3.6	20	4
	3	□	MNS1980S-DIN-C	49.9	79.6	80.6	131.6	128	3.6	20	3
	5	□	MNS1980L-DIN	71.9	101.6	102.6	153.6	150	3.6	20	4
	5	□	MNS1980L-DIN-C	71.9	101.6	102.6	153.6	150	3.6	20	3
19.9	3	□	MNS1990S-DIN	49.8	79.6	80.6	131.6	128	3.6	20	4
	3	□	MNS1990S-DIN-C	49.8	79.6	80.6	131.6	128	3.6	20	3
	5	□	MNS1990L-DIN	71.8	101.6	102.6	153.6	150	3.6	20	4
	5	□	MNS1990L-DIN-C	71.8	101.6	102.6	153.6	150	3.6	20	3
20.0	3	□	MNS2000S-DIN	49.6	79.6	80.6	131.6	128	3.6	20	4
	3	□	MNS2000S-DIN-C	49.6	79.6	80.6	131.6	128	3.6	20	3
	5	□	MNS2000L-DIN	71.6	101.6	102.6	153.6	150	3.6	20	4
	5	●	MNS2000L-DIN-C	71.6	101.6	102.6	153.6	150	3.6	20	3

ÖNERİLEN KESME KOŞULLARI

■ Delik Derinliği : L/D = 3, 5, 8 (LB, S-DIN, S-DIN-C, L-DIN, L-DIN-C, L8C Tipi Matkap Ucu)

Çalışma malzemesi	N					
	Alüminyum Alaşım (Si<%5)		Alüminyum Alaşım (%5≤Si≤%10)		Alüminyum Alaşım (Si<%10)	
Matkap Ucu Çapı DC (mm)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)
3.2	11900	0.1 (0.11—0.16)	11900	0.15 (0.16—0.21)	11900	0.15 (0.16—0.21)
4.0	9500	0.15 (0.13—0.20)	9500	0.2 (0.20—0.27)	9500	0.2 (0.20—0.27)
5.0	7600	0.2 (0.17—0.25)	7600	0.25 (0.25—0.33)	7600	0.25 (0.25—0.33)
6.3	7500	0.25 (0.21—0.32)	7500	0.35 (0.32—0.42)	7500	0.35 (0.32—0.42)
8.0	5900	0.3 (0.27—0.40)	5900	0.45 (0.40—0.53)	5900	0.45 (0.40—0.53)
10.0	4700	0.4 (0.33—0.50)	4700	0.55 (0.50—0.67)	4700	0.55 (0.50—0.67)
12.0	5300	0.5 (0.40—0.60)	5300	0.7 (0.60—0.80)	5300	0.7 (0.60—0.80)
14.0	4500	0.5 (0.40—0.60)	4500	0.7 (0.60—0.80)	4500	0.7 (0.60—0.80)
16.0	4000	0.5 (0.40—0.60)	4000	0.7 (0.60—0.80)	4000	0.7 (0.60—0.80)
18.0	3500	0.5 (0.40—0.60)	3500	0.7 (0.60—0.80)	3500	0.7 (0.60—0.80)
20.0	3200	0.5 (0.40—0.60)	3200	0.7 (0.60—0.80)	3200	0.7 (0.60—0.80)

Not 1) L/D 10 üzerinde uzunluğa sahip bir Matkap Ucu kullanıldığında, kılavuz olarak hazırlık deliğinin kullanılması gereklidir.

(Hazırlık deliği kullanılmazsa Matkap Ucu kırılması meydana gelebilir.)

Not 2) Pilot deliği delme için, Mitsubishi Materials MNS, MAE-MB veya MAS-MB Matkap Ucu önerilir.

■ Delik Derinliği : L/D = 10, 12, 15, 20, 25, 30 (X10DB, X20DB, X30DB, L10C, L12C, L15C, L20C, L25C, L30C Tipi Matkap Ucu)

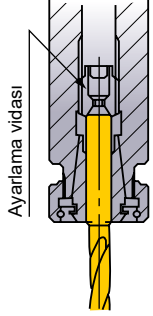
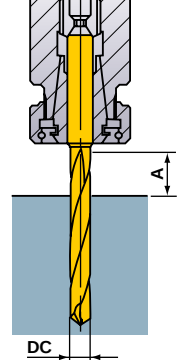
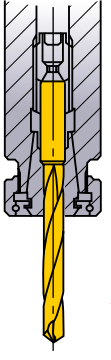
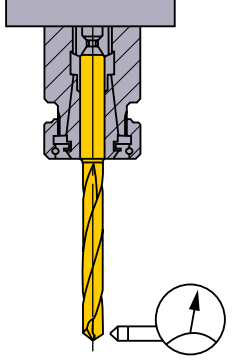
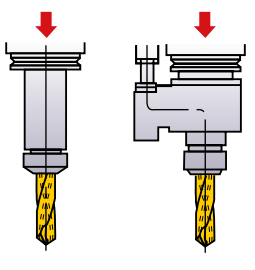
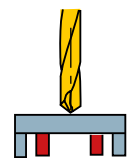
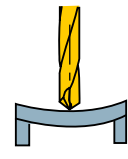
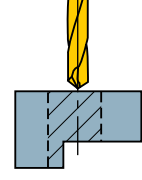
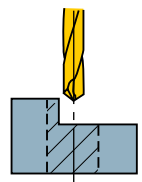
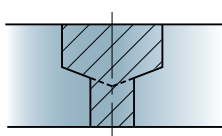
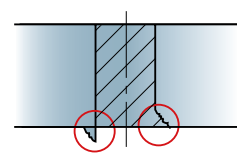
Çalışma malzemesi	N					
	Alüminyum Alaşım (Si<%5)		Alüminyum Alaşım (%5≤Si≤%10)		Alüminyum Alaşım (Si<%10)	
Matkap Ucu Çapı DC (mm)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)
3.2	8900	0.1 (0.11—0.16)	8900	0.15 (0.16—0.21)	8900	0.15 (0.16—0.21)
4.0	7100	0.15 (0.13—0.20)	7100	0.2 (0.20—0.27)	7100	0.2 (0.20—0.27)
5.0	5700	0.2 (0.17—0.25)	5700	0.25 (0.25—0.33)	5700	0.25 (0.25—0.33)
6.3	6000	0.25 (0.21—0.32)	6000	0.35 (0.32—0.42)	6000	0.35 (0.32—0.42)
8.0	4700	0.3 (0.27—0.40)	4700	0.45 (0.40—0.53)	4700	0.45 (0.40—0.53)
10.0	3800	0.4 (0.33—0.50)	3800	0.55 (0.50—0.67)	3800	0.55 (0.50—0.67)
12.0	4200	0.5 (0.40—0.60)	4200	0.7 (0.60—0.80)	4200	0.7 (0.60—0.80)
14.0	3600	0.5 (0.40—0.60)	3600	0.7 (0.60—0.80)	3600	0.7 (0.60—0.80)
16.0	3200	0.5 (0.40—0.60)	3200	0.7 (0.60—0.80)	3200	0.7 (0.60—0.80)
18.0	2800	0.5 (0.40—0.60)	2800	0.7 (0.60—0.80)	2800	0.7 (0.60—0.80)
20.0	2500	0.5 (0.40—0.60)	2500	0.7 (0.60—0.80)	2500	0.7 (0.60—0.80)

Not 1) L/D 10 üzerinde uzunluğa sahip bir Matkap Ucu kullanıldığında, kılavuz olarak hazırlık deliğinin kullanılması gereklidir.

(Hazırlık deliği kullanılmazsa Matkap Ucu kırılması meydana gelebilir.)

Not 2) Pilot deliği delme için, Mitsubishi Materials MNS, MAE-MB veya MAS-MB Matkap Ucu önerilir.

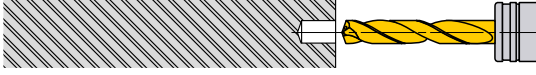
■ MNS MATKAP UCU İÇİN ÇALIŞMA KILAVUZU (L/D 3, 5, 8)

Matkap ucunu tutma  Ayarlama vidası Bilya sıkıştırmalı pensli tutucular matkapı güvenli bir şekilde tutar.	Matkap ucu uzunluğu  $A : \geq DC \times 1.5$	Matkap ucunu takma  Helis kanallarından bağlamayınız.	Takma toleransı  Salgı $\leq 0.03\text{mm}$
Soğutma suyu yöntemi (MNS) Boydan boya fener milli içinden soğutma tipi Harici pompa sirkülasyonlu soğutma tipi  Soğutma suyu basıncı yaklaşık 5 bar—70 bar'dır	Soğutma suyu kullanımı < MNS tipi > 1) Eski soğutma suyundaki kir ve toz parçacıkları yağ deliğini tıkayabilir ve etkili akışı önleyebilir. Düzenli soğutma suyu değişimi önerilir. 2) Küçük talaş parçacıkları yağ deliğine sıkışır. Koruyucu önlem olarak filtre kullanın. Küçük çaplı matkap uçları kullanırken, ince elekli filtre kullanın.	İnce Çalışma Parçası OK İş Parçasını Destekleyin  X Bükülme Olasılığı 	Kesintili Kesme Tek Proses OK ① Darbeli parçayı delerken ilerlemeyi düşürün.  Önceden işleme gerektirir ① Delmeden önce parmak freze ile düzeltin. 
Kademeli delikler  ① İşlemeyi iki sürece ayırın. ② Önce büyük deliği delin. ★Pah ve Havşa yuvası için takımlar sipariş üzerine üretilebilir.	Çapaklanma ve iş parçası kenarında ufalanma  ① Çıkışta ilerleme oranını düşürün. ② Pah ekleyin. ③ Uç açısını değiştirin.		

■ MNS TİPİ UZUN MATKAP UCU İÇİN ÇALIŞMA KILAVUZU (L/D 10, 12, 15, 20, 25, 30)

DÜZ YÜZ DELME ● Bir kör delik delme

■ 1. Bir pilot deliği delme



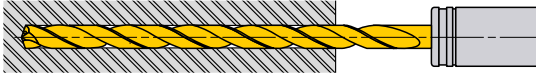
- ① Süper uzun tip matkapdan daha büyük bir uç açılı (düz) bir matkap ucu kullanın. Mitsubishi tipi MNS, MAE-MB veya MAS-MB matkap ucu önerilir.
- ② Yataklama için yüksek hassasiyetli deliğin delindiğinden emin olun.
- ③ Matkap ucu derinliği : Yaklaşık 1DC veya daha derin.
(Süper uzun tipin boyuna göre pilot deliği derinliğini ayarlayın.)

■ 2. Uzun tip matkap ucu ile ilk kesme



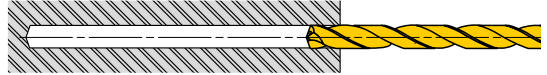
- ① Pilot deliğine düşük devirde nüfuz ettirin.
(Kesme hızı 20m-30m/dak, ilerleme oranı 0.2mm-0.3mm/dev)
- ② Uzun tip matkap ucunu pilot deliği tabanına 1mm-3mm kala durdurun.

■ 3. Derin deliği delme



- ① Önerilen devir ve ilerleme ile gagalama yapmadan (kesintisiz ilerleme) kesmeyi başlatın.

■ 4. Matkap ucunu geriye çekme



- ① Delmeden sonra, delik sonundan yaklaşık 1mm-2mm kadar matkabı geri çekin kesme devrini düşürün. (Yaklaşık 20m-30m/dak kesme hızı)
- ② 3000mm/dak ilerleme hızıyla matkap ucunu pilot Delik Derinliği başlangıç noktasına geri çekin.
- ③ Son olarak, 20m-30m/dak kesme hızıyla ve 0.2mm-0.3mm/dev ilerleme oranında deliği temizleyin.

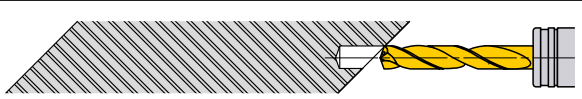
DARBELİ DELME ● Düzensiz yüzeyli veya açılı yüzeyleri delme ve boşa çıkma

■ 1. Havşa yüzeyi açma



- ① Eğimli bir yüzeye derin bir delik açarken, ön deliği açmak için MFE matkabı kullanın.
- ② Ön deliğin yüksek hassasiyetle açıldığından emin olun.
- ③ Delme derinliği: Yakl. DC x 1.

■ 2. Bir pilot deliği delme



- ① Süper uzun matkapdan daha büyük uç açılı (düz) bir matkap ucu kullanın. Mitsubishi tipi MNS, MAE-MB veya MAS-MB matkap ucu önerilir.
- ② Yataklama için yüksek hassasiyetli deliğin delindiğinden emin olun.
- ③ Matkap ucu derinliği: Yaklaşık 1DC veya daha derin.
(Süper uzun tip matkabın boyuna göre pilot deliği derinliğini ayarlayın.)

■ 3. Uzun tip matkap ucu ile ilk kesme



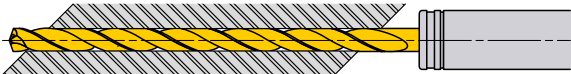
- ① Pilot deliğe düşük devirde nüfuz edin. (Kesme hızı 20m-30m/dak, ilerleme oranı 0.2mm-0.3mm/dev)
- ② Uzun tip matkap ucunu pilot deliğin tabanına 1mm-3mm kala durdurun.

■ 4. Derin deliği delme



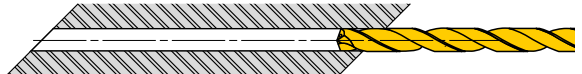
- ① Önerilen devir ve ilerleme ile gagalama yapmadan (kesintisiz ilerleme) kesmeye başlayın.

■ 5. Boşa çıkma



- ① Boşa çıkma işlemi sırasında, kesme kenarı hasar görebilir.
- ② 0.05mm-0.1mm/dev' lik bir ilerleme oranı önerilir.

■ 6. Matkap ucunu geriye çekme



- ① 3000mm/dak ilerleme oranında matkap ucunu pilot Delik Derinliği başlangıç noktasına geri çekin.
- ② Son olarak, 20m-30m/dak kesme hızında ve 0.2mm-0.3mm/dev besleme oranında deliği temizleyin.

This image shows a full page of a document template. At the top left, there is a dark grey header bar containing the word "Not" in a bold, black, sans-serif font. Below this header, the rest of the page is filled with horizontal dashed lines, providing a guide for writing. The lines are evenly spaced and extend across the width of the page.

DELME (YEKPARE KARBÜR)

MAE,MAS

- Alüminyum ve dökme demiri delmek için özelleştirilmiştir.
- Yüksek delik hassasiyeti.
- Ezerek dış açma için ön delik delme.
- Helisel boydan boya soğutma suyu delikleri yüksek hızda işlemeyi sağlar (MAS tipi).



Sadece MAS

KARBÜR

M

DELME

P M **K** N S H

MAE (Dışarıdan soğutma suyu)



MAS (İçeriden soğutma suyu)

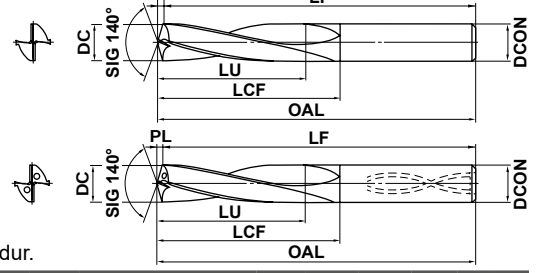


Not 1) $\phi 5.0$ 'ten büyük çaplarda uç yüzünde bir girintiye sahiptir (MAS tipi).

Not 2) MAE/MAS matkap uçları yalnızca ısıtılmalı takım tutucular ile kullanım için uygundur.



DC=3	3<DC≤6	6<DC≤10	10<DC≤16
+0.005 0	+0.005 0	+0.005 0	+0.005 0
0 -0.006	0 -0.008	0 -0.009	0 -0.011



DC (mm)	Delik Derinliği (L/D)	Soğutma suyu (Dah./Har.)	HTT10	Sipariş Numarası	Boyutlar (mm)					
					LU	LCF	OAL	LF	PL	DCON
3.0	3	Har.	★	MAE0300MB	9.5	21.5	61.5	61	0.5	3
	3	Dah.	□	MAS0300MB	9.5	21.5	61.5	61	0.5	3
	6	Dah.	●	MAS0300LB	18.5	30.5	70.5	70	0.5	3
3.1	3	Har.	★	MAE0310MB	9.9	24.6	64.6	64	0.6	4
	3	Dah.	□	MAS0310MB	9.9	24.6	64.6	64	0.6	4
	6	Dah.	★	MAS0310LB	19.2	34.6	74.6	74	0.6	4
3.2	3	Har.	★	MAE0320MB	10.2	24.6	64.6	64	0.6	4
	3	Dah.	□	MAS0320MB	10.2	24.6	64.6	64	0.6	4
	6	Dah.	★	MAS0320LB	19.8	34.6	74.6	74	0.6	4
3.3	3	Har.	★	MAE0330MB	10.5	24.6	64.6	64	0.6	4
	3	Dah.	□	MAS0330MB	10.5	24.6	64.6	64	0.6	4
	6	Dah.	●	MAS0330LB	20.4	34.6	74.6	74	0.6	4
3.4	3	Har.	★	MAE0340MB	10.8	24.6	64.6	64	0.6	4
	3	Dah.	□	MAS0340MB	10.8	24.6	64.6	64	0.6	4
	6	Dah.	★	MAS0340LB	21.0	34.6	74.6	74	0.6	4
3.5	3	Har.	★	MAE0350MB	11.1	24.6	64.6	64	0.6	4
	3	Dah.	□	MAS0350MB	11.1	24.6	64.6	64	0.6	4
	6	Dah.	●	MAS0350LB	21.6	34.6	74.6	74	0.6	4
3.6	3	Har.	★	MAE0360MB	11.5	28.7	68.7	68	0.7	4
	3	Dah.	□	MAS0360MB	11.5	28.7	68.7	68	0.7	4
	6	Dah.	★	MAS0360LB	22.3	40.7	80.7	80	0.7	4
3.65	3	Har.	★	*MAE0365MB	11.7	28.7	68.7	68	0.7	4
	3	Dah.	□	*MAS0365MB	11.7	28.7	68.7	68	0.7	4
	6	Dah.	●	*MAS0365LB	22.6	40.7	80.7	80	0.7	4
3.7	3	Har.	★	MAE0370MB	11.8	28.7	68.7	68	0.7	4
	3	Dah.	□	MAS0370MB	11.8	28.7	68.7	68	0.7	4
	6	Dah.	★	MAS0370LB	22.9	40.7	80.7	80	0.7	4
3.8	3	Har.	★	MAE0380MB	12.1	28.7	68.7	68	0.7	4
	3	Dah.	□	MAS0380MB	12.1	28.7	68.7	68	0.7	4
	6	Dah.	★	MAS0380LB	23.5	40.7	80.7	80	0.7	4
3.9	3	Har.	★	MAE0390MB	12.4	28.7	68.7	68	0.7	4
	3	Dah.	□	MAS0390MB	12.4	28.7	68.7	68	0.7	4
	6	Dah.	★	MAS0390LB	24.1	40.7	80.7	80	0.7	4
4.0	3	Har.	★	MAE0400MB	12.7	28.7	68.7	68	0.7	4
	3	Dah.	□	MAS0400MB	12.7	28.7	68.7	68	0.7	4
	6	Dah.	●	MAS0400LB	24.7	40.7	80.7	80	0.7	4
4.1	3	Har.	★	MAE0410MB	13.0	31.7	71.7	71	0.7	5
	3	Dah.	□	MAS0410MB	13.0	31.7	71.7	71	0.7	5
	6	Dah.	★	MAS0410LB	25.3	44.7	84.7	84	0.7	5

DC (mm)	Delik Derinliği (L/D)	Soğutma suyu (Dah./Har.)	HTT10	Sipariş Numarası	Boyutlar (mm)					
					LU	LCF	OAL	LF	PL	DCON
4.2	3	Har.	★	MAE0420MB	13.4	31.8	71.8	71	0.8	5
	3	Dah.	□	MAS0420MB	13.4	31.8	71.8	71	0.8	5
	6	Dah.	●	MAS0420LB	26.0	44.8	84.8	84	0.8	5
4.3	3	Har.	★	MAE0430MB	13.7	31.8	71.8	71	0.8	5
	3	Dah.	□	MAS0430MB	13.7	31.8	71.8	71	0.8	5
	6	Dah.	★	MAS0430LB	26.6	44.8	84.8	84	0.8	5
4.4	3	Har.	★	MAE0440MB	14.0	31.8	71.8	71	0.8	5
	3	Dah.	□	MAS0440MB	14.0	31.8	71.8	71	0.8	5
	6	Dah.	★	MAS0440LB	27.2	44.8	84.8	84	0.8	5
4.5	3	Har.	★	MAE0450MB	14.3	31.8	71.8	71	0.8	5
	3	Dah.	□	MAS0450MB	14.3	31.8	71.8	71	0.8	5
	6	Dah.	★	MAS0450LB	27.8	44.8	84.8	84	0.8	5
4.6	3	Har.	★	*MAE0460MB	14.6	33.8	73.8	73	0.8	5
	3	Dah.	□	*MAS0460MB	14.6	33.8	73.8	73	0.8	5
	6	Dah.	●	*MAS0460LB	28.4	48.8	88.8	88	0.8	5
4.7	3	Har.	★	MAE0470MB	15.0	33.9	73.9	73	0.9	5
	3	Dah.	□	MAS0470MB	15.0	33.9	73.9	73	0.9	5
	6	Dah.	★	MAS0470LB	29.1	48.9	88.9	88	0.9	5
4.8	3	Har.	★	MAE0480MB	15.3	33.9	73.9	73	0.9	5
	3	Dah.	□	MAS0480MB	15.3	33.9	73.9	73	0.9	5
	6	Dah.	★	MAS0480LB	29.7	48.9	88.9	88	0.9	5
4.9	3	Har.	★	MAE0490MB	15.6	33.9	73.9	73	0.9	5
	3	Dah.	□	MAS0490MB	15.6	33.9	73.9	73	0.9	5
	6	Dah.	★	MAS0490LB	30.3	48.9	88.9	88	0.9	5
5.0	3	Har.	★	MAE0500MB	15.9	33.9	73.9	73	0.9	5
	3	Dah.	●	MAS0500MB	15.9	33.9	73.9	73	0.9	5
	6	Dah.	●	MAS0500LB	30.9	48.9	88.9	88	0.9	5
5.1	3	Har.	★	MAE0510MB	16.2	36.9	76.9	76	0.9	6
	3	Dah.	□	MAS0510MB	16.2	36.9	76.9	76	0.9	6
	6	Dah.	★	MAS0510LB	31.5	52.9	92.9	92	0.9	6
5.2	3	Har.	★	MAE0520MB	16.5	36.9	76.9	76	0.9	6
	3	Dah.	□	MAS0520MB	16.5	36.9	76.9	76	0.9	6
	6	Dah.	●	MAS0520LB	32.1	52.9	92.9	92	0.9	6
5.3	3	Har.	★	MAE0530MB	16.9	37.0	77.0	76	1.0	6
	3	Dah.	□	MAS0530MB	16.9	37.0	77.0	76	1.0	6
	6	Dah.	★	MAS0530LB	32.8	53.0	93.0	92	1.0	6
5.4	3	Har.	★	MAE0540MB	17.2	37.0	77.0	76	1.0	6
	3	Dah.	□	MAS0540MB	17.2	37.0	77.0	76	1.0	6
	6	Dah.	★	MAS0540LB	33.4	53.0	93.0	92	1.0	6

★ : Ovalama dış kılavuzları için standart delik boyutu.

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC (mm)	Delik Derinliği (L/D)	Soğutma suyu (Dah./Har.)	HTİ10	Sipariş Numarası	Boyutlar (mm)					
					LU	LCF	OAL	LF	PL	DON
5.5	3	Har.	★	★ MAE0550MB	17.5	37.0	77.0	76	1.0	6
	3	Dah.	★	★ MAS0550MB	17.5	37.0	77.0	76	1.0	6
	6	Dah.	●	★ MAS0550LB	34.0	53.0	93.0	92	1.0	6
5.6	3	Har.	★	MAE0560MB	17.8	40.0	80.0	79	1.0	6
	3	Dah.	□	MAS0560MB	17.8	40.0	80.0	79	1.0	6
	6	Dah.	★	MAS0560LB	34.6	58.0	98.0	97	1.0	6
5.7	3	Har.	★	MAE0570MB	18.1	40.0	80.0	79	1.0	6
	3	Dah.	□	MAS0570MB	18.1	40.0	80.0	79	1.0	6
	6	Dah.	★	MAS0570LB	35.2	58.0	98.0	97	1.0	6
5.8	3	Har.	★	MAE0580MB	18.5	40.1	80.1	79	1.1	6
	3	Dah.	□	MAS0580MB	18.5	40.1	80.1	79	1.1	6
	6	Dah.	★	MAS0580LB	35.9	58.1	98.1	97	1.1	6
5.9	3	Har.	★	MAE0590MB	18.8	40.1	80.1	79	1.1	6
	3	Dah.	□	MAS0590MB	18.8	40.1	80.1	79	1.1	6
	6	Dah.	★	MAS0590LB	36.5	58.1	98.1	97	1.1	6
6.0	3	Har.	★	MAE0600MB	19.1	40.1	80.1	79	1.1	6
	3	Dah.	●	MAS0600MB	19.1	40.1	80.1	79	1.1	6
	6	Dah.	●	MAS0600LB	37.1	58.1	98.1	97	1.1	6
6.1	3	Har.	★	MAE0610MB	19.4	43.1	85.1	84	1.1	7
	3	Dah.	□	MAS0610MB	19.4	43.1	85.1	84	1.1	7
	6	Dah.	★	MAS0610LB	37.7	63.1	105.1	104	1.1	7
6.2	3	Har.	★	MAE0620MB	19.7	43.1	85.1	84	1.1	7
	3	Dah.	□	MAS0620MB	19.7	43.1	85.1	84	1.1	7
	6	Dah.	★	MAS0620LB	38.3	63.1	105.1	104	1.1	7
6.3	3	Har.	★	MAE0630MB	20.0	43.1	85.1	84	1.1	7
	3	Dah.	□	MAS0630MB	20.0	43.1	85.1	84	1.1	7
	6	Dah.	★	MAS0630LB	38.9	63.1	105.1	104	1.1	7
6.4	3	Har.	★	MAE0640MB	20.4	43.2	85.2	84	1.2	7
	3	Dah.	□	MAS0640MB	20.4	43.2	85.2	84	1.2	7
	6	Dah.	★	MAS0640LB	39.6	63.2	105.2	104	1.2	7
6.5	3	Har.	★	MAE0650MB	20.7	43.2	85.2	84	1.2	7
	3	Dah.	★	MAS0650MB	20.7	43.2	85.2	84	1.2	7
	6	Dah.	●	MAS0650LB	40.2	63.2	105.2	104	1.2	7
6.6	3	Har.	★	MAE0660MB	21.0	43.2	85.2	84	1.2	7
	3	Dah.	□	MAS0660MB	21.0	43.2	85.2	84	1.2	7
	6	Dah.	★	MAS0660LB	40.8	66.2	108.2	107	1.2	7
6.7	3	Har.	★	MAE0670MB	21.3	43.2	85.2	84	1.2	7
	3	Dah.	□	MAS0670MB	21.3	43.2	85.2	84	1.2	7
	6	Dah.	●	MAS0670LB	41.4	66.2	108.2	107	1.2	7
6.8	3	Har.	★	MAE0680MB	21.6	43.2	85.2	84	1.2	7
	3	Dah.	★	MAS0680MB	21.6	43.2	85.2	84	1.2	7
	6	Dah.	●	MAS0680LB	42.0	66.2	108.2	107	1.2	7
6.9	3	Har.	★	MAE0690MB	22.0	43.3	85.3	84	1.3	7
	3	Dah.	□	MAS0690MB	22.0	43.3	85.3	84	1.3	7
	6	Dah.	★	MAS0690LB	42.7	66.3	108.3	107	1.3	7
7.0	3	Har.	★	MAE0700MB	22.3	43.3	85.3	84	1.3	7
	3	Dah.	★	MAS0700MB	22.3	43.3	85.3	84	1.3	7
	6	Dah.	●	MAS0700LB	43.3	66.3	108.3	107	1.3	7

★ : Ovalamalı diş kılavuzları için standart delik boyutu.

DC (mm)	Delik Derinliği (L/D)	Soğutma suyu (Dah./Har.)	HTİ10	Sipariş Numarası	Boyutlar (mm)					
					LU	LCF	OAL	LF	PL	DON
7.1	3	Har.	★	MAE0710MB	22.6	49.3	91.3	90	1.3	8
	3	Dah.	□	MAS0710MB	22.6	49.3	91.3	90	1.3	8
	6	Dah.	★	MAS0710LB	43.9	69.3	111.3	110	1.3	8
7.2	3	Har.	★	MAE0720MB	22.9	49.3	91.3	90	1.3	8
	3	Dah.	□	MAS0720MB	22.9	49.3	91.3	90	1.3	8
	6	Dah.	★	MAS0720LB	44.5	69.3	111.3	110	1.3	8
7.3	3	Har.	★	MAE0730MB	23.2	49.3	91.3	90	1.3	8
	3	Dah.	□	MAS0730MB	23.2	49.3	91.3	90	1.3	8
	6	Dah.	★	MAS0730LB	45.1	69.3	111.3	110	1.3	8
7.35	3	Har.	★	★ MAE0735MB	23.4	49.3	91.3	90	1.3	8
	3	Dah.	★	★ MAS0735MB	23.4	49.3	91.3	90	1.3	8
	6	Dah.	●	★ MAS0735LB	45.4	69.3	111.3	110	1.3	8
7.4	3	Har.	★	MAE0740MB	23.5	49.3	91.3	90	1.3	8
	3	Dah.	□	MAS0740MB	23.5	49.3	91.3	90	1.3	8
	6	Dah.	★	MAS0740LB	45.7	69.3	111.3	110	1.3	8
7.5	3	Har.	★	MAE0750MB	23.9	49.4	91.4	90	1.4	8
	3	Dah.	□	MAS0750MB	23.9	49.4	91.4	90	1.4	8
	6	Dah.	★	MAS0750LB	46.4	69.4	111.4	110	1.4	8
7.6	3	Har.	★	MAE0760MB	24.2	49.4	91.4	90	1.4	8
	3	Dah.	□	MAS0760MB	24.2	49.4	91.4	90	1.4	8
	6	Dah.	★	MAS0760LB	47.0	73.4	115.4	114	1.4	8
7.7	3	Har.	★	MAE0770MB	24.5	49.4	91.4	90	1.4	8
	3	Dah.	□	MAS0770MB	24.5	49.4	91.4	90	1.4	8
	6	Dah.	★	MAS0770LB	47.6	73.4	115.4	114	1.4	8
7.8	3	Har.	★	MAE0780MB	24.8	49.4	91.4	90	1.4	8
	3	Dah.	□	MAS0780MB	24.8	49.4	91.4	90	1.4	8
	6	Dah.	★	MAS0780LB	48.2	73.4	115.4	114	1.4	8
7.9	3	Har.	★	MAE0790MB	25.1	49.4	91.4	90	1.4	8
	3	Dah.	□	MAS0790MB	25.1	49.4	91.4	90	1.4	8
	6	Dah.	★	MAS0790LB	48.8	73.4	115.4	114	1.4	8
8.0	3	Har.	★	MAE0800MB	25.5	49.5	91.5	90	1.5	8
	3	Dah.	●	MAS0800MB	25.5	49.5	91.5	90	1.5	8
	6	Dah.	●	MAS0800LB	49.5	73.5	115.5	114	1.5	8
8.1	3	Har.	★	MAE0810MB	25.8	51.5	95.5	94	1.5	9
	3	Dah.	□	MAS0810MB	25.8	51.5	95.5	94	1.5	9
	6	Dah.	★	MAS0810LB	50.1	76.5	120.5	119	1.5	9
8.2	3	Har.	★	MAE0820MB	26.1	51.5	95.5	94	1.5	9
	3	Dah.	□	MAS0820MB	26.1	51.5	95.5	94	1.5	9
	6	Dah.	★	MAS0820LB	50.7	76.5	120.5	119	1.5	9
8.3	3	Har.	★	MAE0830MB	26.4	51.5	95.5	94	1.5	9
	3	Dah.	□	MAS0830MB	26.4	51.5	95.5	94	1.5	9
	6	Dah.	★	MAS0830LB	51.3	76.5	120.5	119	1.5	9
8.4	3	Har.	★	MAE0840MB	26.7	51.5	95.5	94	1.5	9
	3	Dah.	□	MAS0840MB	26.7	51.5	95.5	94	1.5	9
	6	Dah.	★	MAS0840LB	51.9	76.5	120.5	119	1.5	9
8.5	3	Har.	★	MAE0850MB	27.0	51.5	95.5	94	1.5	9
	3	Dah.	●	MAS0850MB	27.0	51.5	95.5	94	1.5	9
	6	Dah.	★	MAS0850LB	52.5	76.5	120.5	119	1.5	9

DC (mm)	Delik Derinliği (L/D)	Soğutma suyu (Dah./Har.)	HT10	Sipariş Numarası	Boyutlar (mm)					
					LU	LCF	OAL	LF	PL	DON
8.6	3	Har.	★	MAE0860MB	27.4	51.6	95.6	94	1.6	9
	3	Dah.	□	MAS0860MB	27.4	51.6	95.6	94	1.6	9
	6	Dah.	★	MAS0860LB	53.2	78.6	122.6	121	1.6	9
8.7	3	Har.	★	MAE0870MB	27.7	51.6	95.6	94	1.6	9
	3	Dah.	□	MAS0870MB	27.7	51.6	95.6	94	1.6	9
	6	Dah.	★	MAS0870LB	53.8	78.6	122.6	121	1.6	9
8.8	3	Har.	★	MAE0880MB	28.0	51.6	95.6	94	1.6	9
	3	Dah.	□	MAS0880MB	28.0	51.6	95.6	94	1.6	9
	6	Dah.	★	MAS0880LB	54.4	78.6	122.6	121	1.6	9
8.9	3	Har.	★	MAE0890MB	28.3	51.6	95.6	94	1.6	9
	3	Dah.	□	MAS0890MB	28.3	51.6	95.6	94	1.6	9
	6	Dah.	★	MAS0890LB	55.0	78.6	122.6	121	1.6	9
9.0	3	Har.	★	MAE0900MB	28.6	51.6	95.6	94	1.6	9
	3	Dah.	★	MAS0900MB	28.6	51.6	95.6	94	1.6	9
	6	Dah.	●	MAS0900LB	55.6	78.6	122.6	121	1.6	9
9.1	3	Har.	★	MAE0910MB	29.0	54.7	98.7	97	1.7	10
	3	Dah.	□	MAS0910MB	29.0	54.7	98.7	97	1.7	10
	6	Dah.	★	MAS0910LB	56.3	82.7	126.7	125	1.7	10
9.2	3	Har.	★	MAE0920MB	29.3	54.7	98.7	97	1.7	10
	3	Dah.	□	MAS0920MB	29.3	54.7	98.7	97	1.7	10
	6	Dah.	★	MAS0920LB	56.9	82.7	126.7	125	1.7	10
9.21	3	Har.	★	*MAE0921MB	29.3	54.7	98.7	97	1.7	10
	3	Dah.	★	*MAS0921MB	29.3	54.7	98.7	97	1.7	10
	6	Dah.	★	*MAS0921LB	57.0	82.7	126.7	125	1.7	10
9.3	3	Har.	★	MAE0930MB	29.6	54.7	98.7	97	1.7	10
	3	Dah.	□	MAS0930MB	29.6	54.7	98.7	97	1.7	10
	6	Dah.	★	MAS0930LB	57.5	82.7	126.7	125	1.7	10
9.4	3	Har.	★	MAE0940MB	29.9	54.7	98.7	97	1.7	10
	3	Dah.	□	MAS0940MB	29.9	54.7	98.7	97	1.7	10
	6	Dah.	★	MAS0940LB	58.1	82.7	126.7	125	1.7	10
9.5	3	Har.	★	MAE0950MB	30.2	54.7	98.7	97	1.7	10
	3	Dah.	★	MAS0950MB	30.2	54.7	98.7	97	1.7	10
	6	Dah.	●	MAS0950LB	58.7	82.7	126.7	125	1.7	10
9.6	3	Har.	★	MAE0960MB	30.5	54.7	98.7	97	1.7	10
	3	Dah.	□	MAS0960MB	30.5	54.7	98.7	97	1.7	10
	6	Dah.	★	MAS0960LB	59.3	82.7	126.7	125	1.7	10
9.7	3	Har.	★	MAE0970MB	30.9	54.8	98.8	97	1.8	10
	3	Dah.	□	MAS0970MB	30.9	54.8	98.8	97	1.8	10
	6	Dah.	★	MAS0970LB	60.0	82.8	126.8	125	1.8	10
9.8	3	Har.	★	MAE0980MB	31.2	54.8	98.8	97	1.8	10
	3	Dah.	□	MAS0980MB	31.2	54.8	98.8	97	1.8	10
	6	Dah.	★	MAS0980LB	60.6	82.8	126.8	125	1.8	10
9.9	3	Har.	★	MAE0990MB	31.5	54.8	98.8	97	1.8	10
	3	Dah.	□	MAS0990MB	31.5	54.8	98.8	97	1.8	10
	6	Dah.	★	MAS0990LB	61.2	82.8	126.8	125	1.8	10
10.0	3	Har.	★	MAE1000MB	31.8	54.8	98.8	97	1.8	10
	3	Dah.	●	MAS1000MB	31.8	54.8	98.8	97	1.8	10
	6	Dah.	●	MAS1000LB	61.8	82.8	126.8	125	1.8	10

* : Ovalama dış kılavuzları için standart delik boyutu.

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC (mm)	Delik Derinliği (L/D)	Soğutma suyu (Dah./Har.)	HT10	Sipariş Numarası	Boyutlar (mm)					
					LU	LCF	OAL	LF	PL	DON
10.1	3	Har.	□	MAE1010MB	32.1	56.8	102.8	101	1.8	11
	3	Dah.	□	MAS1010MB	32.1	56.8	102.8	101	1.8	11
	6	Dah.	□	MAS1010LB	62.4	90.8	136.8	135	1.8	11
10.2	3	Har.	□	MAE1020MB	32.5	56.9	102.9	101	1.9	11
	3	Dah.	□	MAS1020MB	32.5	56.9	102.9	101	1.9	11
	6	Dah.	□	MAS1020LB	63.1	90.9	136.9	135	1.9	11
10.3	3	Har.	★	MAE1030MB	32.8	56.9	102.9	101	1.9	11
	3	Dah.	★	MAS1030MB	32.8	56.9	102.9	101	1.9	11
	6	Dah.	●	MAS1030LB	63.7	90.9	136.9	135	1.9	11
10.4	3	Har.	□	MAE1040MB	33.1	56.9	102.9	101	1.9	11
	3	Dah.	□	MAS1040MB	33.1	56.9	102.9	101	1.9	11
	6	Dah.	□	MAS1040LB	64.3	90.9	136.9	135	1.9	11
10.5	3	Har.	★	MAE1050MB	33.4	56.9	102.9	101	1.9	11
	3	Dah.	★	MAS1050MB	33.4	56.9	102.9	101	1.9	11
	6	Dah.	●	MAS1050LB	64.9	90.9	136.9	135	1.9	11
10.6	3	Har.	□	MAE1060MB	33.7	56.9	102.9	101	1.9	11
	3	Dah.	□	MAS1060MB	33.7	56.9	102.9	101	1.9	11
	6	Dah.	□	MAS1060LB	65.5	90.9	136.9	135	1.9	11
10.7	3	Har.	□	MAE1070MB	34.0	56.9	102.9	101	1.9	11
	3	Dah.	□	MAS1070MB	34.0	56.9	102.9	101	1.9	11
	6	Dah.	□	MAS1070LB	66.1	90.9	136.9	135	1.9	11
10.8	3	Har.	□	MAE1080MB	34.4	57.0	103.0	101	2.0	11
	3	Dah.	□	MAS1080MB	34.4	57.0	103.0	101	2.0	11
	6	Dah.	□	MAS1080LB	66.8	91.0	137.0	135	2.0	11
10.9	3	Har.	□	MAE1090MB	34.7	57.0	103.0	101	2.0	11
	3	Dah.	□	MAS1090MB	34.7	57.0	103.0	101	2.0	11
	6	Dah.	□	MAS1090LB	67.4	91.0	137.0	135	2.0	11
11.0	3	Har.	★	MAE1100MB	35.0	57.0	103.0	101	2.0	11
	3	Dah.	★	MAS1100MB	35.0	57.0	103.0	101	2.0	11
	6	Dah.	●	MAS1100LB	68.0	91.0	137.0	135	2.0	11
11.08	3	Har.	★	*MAE1108MB	35.2	62.0	108.0	106	2.0	12
	3	Dah.	★	*MAS1108MB	35.2	62.0	108.0	106	2.0	12
	6	Dah.	●	*MAS1108LB	68.5	96.0	142.0	140	2.0	12
11.1	3	Har.	□	MAE1110MB	35.3	62.0	108.0	106	2.0	12
	3	Dah.	□	MAS1110MB	35.3	62.0	108.0	106	2.0	12
	6	Dah.	□	MAS1110LB	68.6	96.0	142.0	140	2.0	12
11.2	3	Har.	□	MAE1120MB	35.6	62.0	108.0	106	2.0	12
	3	Dah.	□	MAS1120MB	35.6	62.0	108.0	106	2.0	12
	6	Dah.	□	MAS1120LB	69.2	96.0	142.0	140	2.0	12
11.3	3	Har.	□	MAE1130MB	36.0	62.1	108.1	106	2.1	12
	3	Dah.	□	MAS1130MB	36.0	62.1	108.1	106	2.1	12
	6	Dah.	□	MAS1130LB	69.9	96.1	142.1	140	2.1	12
11.4	3	Har.	□	MAE1140MB	36.3	62.1	108.1	106	2.1	12
	3	Dah.	□	MAS1140MB	36.3	62.1	108.1	106	2.1	12
	6	Dah.	□	MAS1140LB	70.5	96.1	142.1	140	2.1	12
11.5	3	Har.	□	MAE1150MB	36.6	62.1	108.1	106	2.1	12
	3	Dah.	□	MAS1150MB	36.6	62.1	108.1	106	2.1	12
	6	Dah.	□	MAS1150LB	71.1	96.1	142.1	140	2.1	12

DC (mm)	Delik Derinliği (L/D)	Soğutma suyu (Dah./Har.)	HT10	Sipariş Numarası	Boyutlar (mm)					
					LU	LCF	OAL	LF	PL	DON
11.6	3	Har.	□	MAE1160MB	36.9	62.1	108.1	106	2.1	12
	3	Dah.	□	MAS1160MB	36.9	62.1	108.1	106	2.1	12
	6	Dah.	□	MAS1160LB	71.7	96.1	142.1	140	2.1	12
11.7	3	Har.	□	MAE1170MB	37.2	62.1	108.1	106	2.1	12
	3	Dah.	□	MAS1170MB	37.2	62.1	108.1	106	2.1	12
	6	Dah.	□	MAS1170LB	72.3	96.1	142.1	140	2.1	12
11.8	3	Har.	□	MAE1180MB	37.5	62.1	108.1	106	2.1	12
	3	Dah.	□	MAS1180MB	37.5	62.1	108.1	106	2.1	12
	6	Dah.	□	MAS1180LB	72.9	96.1	142.1	140	2.1	12
11.9	3	Har.	□	MAE1190MB	37.9	62.2	108.2	106	2.2	12
	3	Dah.	□	MAS1190MB	37.9	62.2	108.2	106	2.2	12
	6	Dah.	□	MAS1190LB	73.6	96.2	142.2	140	2.2	12
12.0	3	Har.	★	MAE1200MB	38.2	62.2	108.2	106	2.2	12
	3	Dah.	●	MAS1200MB	38.2	62.2	108.2	106	2.2	12
	6	Dah.	●	MAS1200LB	74.2	96.2	142.2	140	2.2	12
12.1	3	Har.	□	MAE1210MB	38.5	67.2	117.2	115	2.2	13
	3	Dah.	□	MAS1210MB	38.5	67.2	117.2	115	2.2	13
	6	Dah.	□	MAS1210LB	74.8	102.2	152.2	150	2.2	13
12.2	3	Har.	□	MAE1220MB	38.8	67.2	117.2	115	2.2	13
	3	Dah.	□	MAS1220MB	38.8	67.2	117.2	115	2.2	13
	6	Dah.	□	MAS1220LB	75.4	102.2	152.2	150	2.2	13
12.3	3	Har.	□	MAE1230MB	39.1	67.2	117.2	115	2.2	13
	3	Dah.	□	MAS1230MB	39.1	67.2	117.2	115	2.2	13
	6	Dah.	□	MAS1230LB	76.0	102.2	152.2	150	2.2	13
12.4	3	Har.	□	MAE1240MB	39.5	67.3	117.3	115	2.3	13
	3	Dah.	□	MAS1240MB	39.5	67.3	117.3	115	2.3	13
	6	Dah.	□	MAS1240LB	76.7	102.3	152.3	150	2.3	13
12.5	3	Har.	★	MAE1250MB	39.8	67.3	117.3	115	2.3	13
	3	Dah.	●	MAS1250MB	39.8	67.3	117.3	115	2.3	13
	6	Dah.	●	MAS1250LB	77.3	102.3	152.3	150	2.3	13
12.6	3	Har.	□	MAE1260MB	40.1	67.3	117.3	115	2.3	13
	3	Dah.	□	MAS1260MB	40.1	67.3	117.3	115	2.3	13
	6	Dah.	□	MAS1260LB	77.9	102.3	152.3	150	2.3	13
12.7	3	Har.	□	MAE1270MB	40.4	67.3	117.3	115	2.3	13
	3	Dah.	□	MAS1270MB	40.4	67.3	117.3	115	2.3	13
	6	Dah.	□	MAS1270LB	78.5	102.3	152.3	150	2.3	13
12.8	3	Har.	□	MAE1280MB	40.7	67.3	117.3	115	2.3	13
	3	Dah.	□	MAS1280MB	40.7	67.3	117.3	115	2.3	13
	6	Dah.	□	MAS1280LB	79.1	102.3	152.3	150	2.3	13
12.9	3	Har.	□	MAE1290MB	41.0	67.3	117.3	115	2.3	13
	3	Dah.	□	MAS1290MB	41.0	67.3	117.3	115	2.3	13
	6	Dah.	□	MAS1290LB	79.7	102.3	152.3	150	2.3	13
12.96	3	Har.	★	*MAE1296MB	41.3	67.4	117.4	115	2.4	13
	3	Dah.	★	*MAS1296MB	41.3	67.4	117.4	115	2.4	13
	6	Dah.	★	*MAS1296LB	80.2	102.4	152.4	150	2.4	13
13.0	3	Har.	★	MAE1300MB	41.4	67.4	117.4	115	2.4	13
	3	Dah.	★	MAS1300MB	41.4	67.4	117.4	115	2.4	13
	6	Dah.	●	MAS1300LB	80.4	102.4	152.4	150	2.4	13

★ : Ovalama dış kılavuzları için standart delik boyutu.

DC (mm)	Delik Derinliği (L/D)	Soğutma suyu (Dah./Har.)	HT10	Sipariş Numarası	Boyutlar (mm)					
					LU	LCF	OAL	LF	PL	DON
13.1	3	Har.	□	MAE1310MB	41.7	72.4	122.4	120	2.4	14
	3	Dah.	□	MAS1310MB	41.7	72.4	122.4	120	2.4	14
	6	Dah.	□	MAS1310LB	81.0	112.4	162.4	160	2.4	14
13.2	3	Har.	□	MAE1320MB	42.0	72.4	122.4	120	2.4	14
	3	Dah.	□	MAS1320MB	42.0	72.4	122.4	120	2.4	14
	6	Dah.	□	MAS1320LB	81.6	112.4	162.4	160	2.4	14
13.3	3	Har.	□	MAE1330MB	42.3	72.4	122.4	120	2.4	14
	3	Dah.	□	MAS1330MB	42.3	72.4	122.4	120	2.4	14
	6	Dah.	□	MAS1330LB	82.2	112.4	162.4	160	2.4	14
13.4	3	Har.	□	MAE1340MB	42.6	72.4	122.4	120	2.4	14
	3	Dah.	□	MAS1340MB	42.6	72.4	122.4	120	2.4	14
	6	Dah.	□	MAS1340LB	82.8	112.4	162.4	160	2.4	14
13.5	3	Har.	★	MAE1350MB	43.0	72.5	122.5	120	2.5	14
	3	Dah.	★	MAS1350MB	43.0	72.5	122.5	120	2.5	14
	6	Dah.	★	MAS1350LB	83.5	112.5	162.5	160	2.5	14
13.6	3	Har.	□	MAE1360MB	43.3	72.5	122.5	120	2.5	14
	3	Dah.	□	MAS1360MB	43.3	72.5	122.5	120	2.5	14
	6	Dah.	□	MAS1360LB	84.1	112.5	162.5	160	2.5	14
13.7	3	Har.	□	MAE1370MB	43.6	72.5	122.5	120	2.5	14
	3	Dah.	□	MAS1370MB	43.6	72.5	122.5	120	2.5	14
	6	Dah.	□	MAS1370LB	84.7	112.5	162.5	160	2.5	14
13.8	3	Har.	□	MAE1380MB	43.9	72.5	122.5	120	2.5	14
	3	Dah.	□	MAS1380MB	43.9	72.5	122.5	120	2.5	14
	6	Dah.	□	MAS1380LB	85.3	112.5	162.5	160	2.5	14
13.9	3	Har.	□	MAE1390MB	44.2	72.5	122.5	120	2.5	14
	3	Dah.	□	MAS1390MB	44.2	72.5	122.5	120	2.5	14
	6	Dah.	□	MAS1390LB	85.9	112.5	162.5	160	2.5	14
14.0	3	Har.	★	MAE1400MB	44.5	72.5	122.5	120	2.5	14
	3	Dah.	●	MAS1400MB	44.5	72.5	122.5	120	2.5	14
	6	Dah.	●	MAS1400LB	86.5	112.5	162.5	160	2.5	14
14.1	3	Har.	□	MAE1410MB	44.9	74.6	132.6	130	2.6	15
	3	Dah.	□	MAS1410MB	44.9	74.6	132.6	130	2.6	15
	6	Dah.	□	MAS1410LB	87.2	117.6	175.6	173	2.6	15
14.2	3	Har.	□	MAE1420MB	45.2	74.6	132.6	130	2.6	15
	3	Dah.	□	MAS1420MB	45.2	74.6	132.6	130	2.6	15
	6	Dah.	□	MAS1420LB	87.8	117.6	175.6	173	2.6	15
14.3	3	Har.	□	MAE1430MB	45.5	74.6	132.6	130	2.6	15
	3	Dah.	□	MAS1430MB	45.5	74.6	132.6	130	2.6	15
	6	Dah.	□	MAS1430LB	88.4	117.6	175.6	173	2.6	15
14.4	3	Har.	□	MAE1440MB	45.8	74.6	132.6	130	2.6	15
	3	Dah.	□	MAS1440MB	45.8	74.6	132.6	130	2.6	15
	6	Dah.	□	MAS1440LB	89.0	117.6	175.6	173	2.6	15
14.5	3	Har.	□	MAE1450MB	46.1	74.6	132.6	130	2.6	15
	3	Dah.	□	MAS1450MB	46.1	74.6	132.6	130	2.6	15
	6	Dah.	□	MAS1450LB	89.6	117.6	175.6	173	2.6	15
14.6	3	Har.	□	MAE1460MB	46.5	74.7	132.7	130	2.7	15
	3	Dah.	□	MAS1460MB	46.5	74.7	132.7	130	2.7	15
	6	Dah.	□	MAS1460LB	90.3	117.7	175.7	173	2.7	15

MAE,MAS

M

DELME

DC (mm)	Delik Derinliği (L/D)	Soğutma suyu (Dah./Har.)	HT10	Sipariş Numarası	Boyutlar (mm)					
					LU	LCF	OAL	L _F	PL	D _{CON}
14.7	3	Har.	□	MAE1470MB	46.8	74.7	132.7	130	2.7	15
	3	Dah.	□	MAS1470MB	46.8	74.7	132.7	130	2.7	15
	6	Dah.	□	MAS1470LB	90.9	117.7	175.7	173	2.7	15
14.8	3	Har.	□	MAE1480MB	47.1	74.7	132.7	130	2.7	15
	3	Dah.	□	MAS1480MB	47.1	74.7	132.7	130	2.7	15
	6	Dah.	□	MAS1480LB	91.5	117.7	175.7	173	2.7	15
14.9	3	Har.	□	MAE1490MB	47.4	74.7	132.7	130	2.7	15
	3	Dah.	□	MAS1490MB	47.4	74.7	132.7	130	2.7	15
	6	Dah.	□	MAS1490LB	92.1	117.7	175.7	173	2.7	15
14.96	3	Har.	★	*MAE1496MB	47.6	74.7	132.7	130	2.7	15
	3	Dah.	★	*MAS1496MB	47.6	74.7	132.7	130	2.7	15
	6	Dah.	★	*MAS1496LB	92.5	117.7	175.7	173	2.7	15
15.0	3	Har.	★	MAE1500MB	47.7	74.7	132.7	130	2.7	15
	3	Dah.	★	MAS1500MB	47.7	74.7	132.7	130	2.7	15
	6	Dah.	●	MAS1500LB	92.7	117.7	175.7	173	2.7	15
15.1	3	Har.	□	MAE1510MB	48.0	78.7	136.7	134	2.7	16
	3	Dah.	□	MAS1510MB	48.0	78.7	136.7	134	2.7	16
	6	Dah.	□	MAS1510LB	93.3	122.7	180.7	178	2.7	16
15.2	3	Har.	□	MAE1520MB	48.4	78.8	136.8	134	2.8	16
	3	Dah.	□	MAS1520MB	48.4	78.8	136.8	134	2.8	16
	6	Dah.	□	MAS1520LB	94.0	122.8	180.8	178	2.8	16
15.3	3	Har.	□	MAE1530MB	48.7	78.8	136.8	134	2.8	16
	3	Dah.	□	MAS1530MB	48.7	78.8	136.8	134	2.8	16
	6	Dah.	□	MAS1530LB	94.6	122.8	180.8	178	2.8	16
15.4	3	Har.	□	MAE1540MB	49.0	78.8	136.8	134	2.8	16
	3	Dah.	□	MAS1540MB	49.0	78.8	136.8	134	2.8	16
	6	Dah.	□	MAS1540LB	95.2	122.8	180.8	178	2.8	16
15.5	3	Har.	□	MAE1550MB	49.3	78.8	136.8	134	2.8	16
	3	Dah.	□	MAS1550MB	49.3	78.8	136.8	134	2.8	16
	6	Dah.	□	MAS1550LB	95.8	122.8	180.8	178	2.8	16
15.6	3	Har.	□	MAE1560MB	49.6	78.8	136.8	134	2.8	16
	3	Dah.	□	MAS1560MB	49.6	78.8	136.8	134	2.8	16
	6	Dah.	□	MAS1560LB	96.4	122.8	180.8	178	2.8	16
15.7	3	Har.	□	MAE1570MB	50.0	78.9	136.9	134	2.9	16
	3	Dah.	□	MAS1570MB	50.0	78.9	136.9	134	2.9	16
	6	Dah.	□	MAS1570LB	97.1	122.9	180.9	178	2.9	16
15.8	3	Har.	□	MAE1580MB	50.3	78.9	136.9	134	2.9	16
	3	Dah.	□	MAS1580MB	50.3	78.9	136.9	134	2.9	16
	6	Dah.	□	MAS1580LB	97.7	122.9	180.9	178	2.9	16
15.9	3	Har.	□	MAE1590MB	50.6	78.9	136.9	134	2.9	16
	3	Dah.	□	MAS1590MB	50.6	78.9	136.9	134	2.9	16
	6	Dah.	□	MAS1590LB	98.3	122.9	180.9	178	2.9	16
16.0	3	Har.	★	MAE1600MB	50.9	78.9	136.9	134	2.9	16
	3	Dah.	★	MAS1600MB	50.9	78.9	136.9	134	2.9	16
	6	Dah.	●	MAS1600LB	98.9	122.9	180.9	178	2.9	16

★ : Ovalama dış kılavuzları için standart delik boyutu.

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

ÖNERİLEN KESME KOŞULLARI

Tip	Çalışma Malzemesi	Matkap Ucu Çapı $\phi 3.0 - \phi 6.0$		Matkap Ucu Çapı $\phi 6.1 - \phi 10.0$		Matkap Ucu Çapı $\phi 10.1 - \phi 16.0$	
		Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)
MAE	N Alüminyum Alaşım	90 (40–140)	0.15 (0.05–0.3)	100 (50–150)	0.2 (0.1–0.3)	120 (60–170)	0.25 (0.1–0.4)
	Alüminyum Alaşımlı Döküm	100 (60–150)	0.12 (0.05–0.25)	110 (70–160)	0.15 (0.05–0.25)	130 (80–180)	0.2 (0.1–0.3)
	K Gri Dökme Demir	40 (20–60)	0.15 (0.1–0.2)	60 (40–80)	0.2 (0.1–0.3)	80 (60–100)	0.3 (0.2–0.4)
	Duktil Dökme Demir	30 (20–40)	0.1 (0.05–0.15)	40 (20–60)	0.12 (0.05–0.2)	60 (40–80)	0.2 (0.1–0.3)
MAS	N Alüminyum Alaşım	100 (60–150)	0.15 (0.05–0.3)	120 (80–170)	0.2 (0.1–0.3)	150 (100–200)	0.25 (0.1–0.4)
	Alüminyum Alaşımlı Döküm	120 (80–170)	0.12 (0.05–0.25)	150 (100–180)	0.15 (0.05–0.25)	160 (120–200)	0.2 (0.1–0.3)
	K Gri Dökme Demir	60 (40–80)	0.15 (0.1–0.2)	80 (60–110)	0.2 (0.1–0.3)	100 (70–130)	0.3 (0.2–0.4)
	Duktil Dökme Demir	45 (30–60)	0.1 (0.05–0.15)	60 (40–80)	0.12 (0.05–0.2)	80 (60–100)	0.2 (0.1–0.3)

■ DIŞ AÇMA İŞLEMİ İÇİN DELİK VE MATKAP UCU ÇAPLARI

Diş Ölçüsü	Diş Açma			Ovalama Diş Açma		
	Matkap Ucu Çapı (DC)	Delik Çapı Toleransı		Matkap Ucu Çapı (DC)	Delik Çapı Toleransı	
		min	maks		min	maks
M4x0.7	3.3	3.242	3.422	3.65	3.65	3.70
M5x0.8	4.2	4.134	4.334	4.60	4.59	4.66
M6x1.0	5.0	4.917	5.153	5.50	5.48	5.57
M8x1.25	6.8	6.647	6.912	7.35	7.34	7.41
M10x1.5	8.5	8.376	8.676	9.21	9.18	9.28
M12x1.75	10.3	10.106	10.441	11.08	11.05	11.15
M14x2	12.0	11.835	12.210	12.96	12.92	13.04
M16x2	14.0	13.835	14.210	14.96	14.92	15.04

DELME (YEKPARE KARBÜR)

MHS

- Yüksek mukavemet ve benzersiz çift zırh.
- Yüksek sertlikte çelikler için uzun takım ömrü ile galalama yapmaksızın delme, 35HRC-55HRC.



P

M

K

N

S

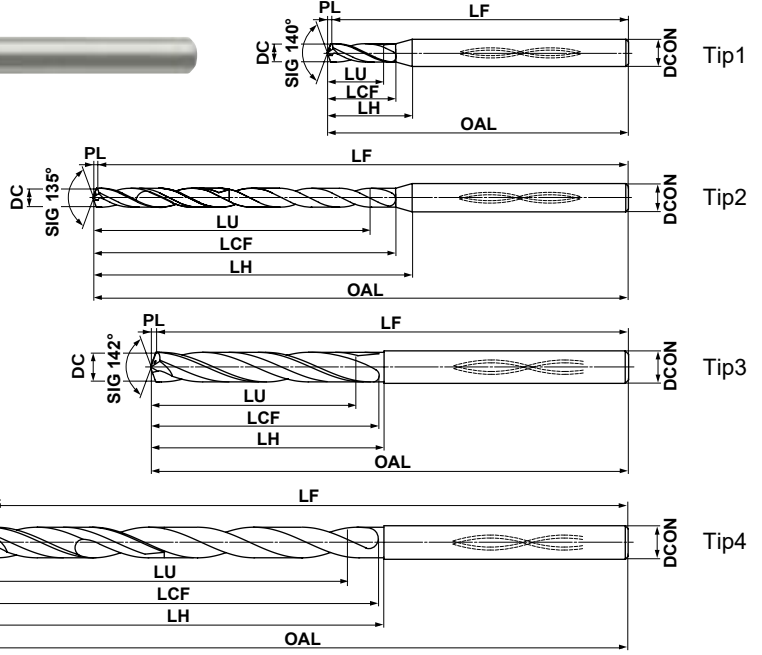
H

İçten Soğutma



DELME

M



DC ≤ 3	3 < DC ≤ 6	6 < DC ≤ 10	10 < DC ≤ 12
+0.010 -0.002	+0.010 -0.002	+0.010 -0.005	+0.010 -0.008
DCON = 3	3 < DCON ≤ 6	6 < DCON ≤ 10	10 < DCON ≤ 12
0 -0.006	0 -0.008	0 -0.009	0 -0.011

- MHS matkap uçları ısıtılmalı takım tutucuları ile kullanım için uygundur.
- Pilot matkap ucu için istenen çapta en kısa tipi kullanın.

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
0.95	3	★	MHS0095L006B	3.0	6.2	10.0	60.2	60	0.17	3	1
	6	★	MHS0095L009B	5.9	9.2	13.0	60.2	60	0.17	3	2
	13	★	MHS0095L015B	12.5	15.2	19.0	60.2	60	0.17	3	2
	23	★	MHS0095L025B	22.0	25.2	29.0	60.2	60	0.17	3	2
	30	★	MHS0095L035B	28.7	35.2	39.0	80.2	80	0.17	3	2
1.00	3	●	MHS0100L006B	3.2	6.2	9.9	60.2	60	0.2	3	1
	6	●	MHS0100L009B	6.2	9.2	12.9	60.2	60	0.2	3	2
	12	★	MHS0100L015B	12.2	15.2	18.9	60.2	60	0.2	3	2
	22	●	MHS0100L025B	22.2	25.2	28.9	60.2	60	0.2	3	2
	30	●	MHS0100L035B	30.2	35.2	38.9	80.2	80	0.2	3	2
1.10	2	●	MHS0110L006B	2.4	6.2	9.7	60.2	60	0.2	3	1
	5	★	MHS0110L009B	5.7	9.2	12.7	60.2	60	0.2	3	2
	11	●	MHS0110L015B	12.3	15.2	18.7	60.2	60	0.2	3	2
	20	●	MHS0110L025B	22.2	25.2	28.7	60.2	60	0.2	3	2
	29	●	MHS0110L035B	32.1	35.2	38.7	80.2	80	0.2	3	2
1.20	2	●	MHS0120L006B	2.6	6.2	9.6	60.2	60	0.2	3	1
	5	★	MHS0120L009B	6.2	9.2	12.6	60.2	60	0.2	3	2
	10	●	MHS0120L015B	12.2	15.2	18.6	60.2	60	0.2	3	2
	18	●	MHS0120L025B	21.8	25.2	28.6	60.2	60	0.2	3	2
	26	●	MHS0120L035B	31.4	35.2	38.6	80.2	80	0.2	3	2
1.30	2	●	MHS0130L007B	2.8	7.2	10.4	60.2	60	0.2	3	1
	5	★	MHS0130L011B	6.8	11.3	14.5	60.3	60	0.3	3	2
	12	●	MHS0130L020B	15.9	20.3	23.5	60.3	60	0.3	3	2
	20	●	MHS0130L030B	26.3	30.3	33.5	80.3	80	0.3	3	2
	30	●	MHS0130L045B	39.3	45.3	48.5	80.3	80	0.3	3	2

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
1.40	2	●	MHS0140L007B	3.1	7.3	10.3	60.3	60	0.3	3	1
	5	★	MHS0140L011B	7.3	11.3	14.3	60.3	60	0.3	3	2
	11	●	MHS0140L020B	15.7	20.3	23.3	60.3	60	0.3	3	2
	18	★	MHS0140L030B	25.5	30.3	33.3	80.3	80	0.3	3	2
	29	★	MHS0140L045B	40.9	45.3	48.3	80.3	80	0.3	3	2
1.45	3	●	MHS0145L008B	4.7	8.3	11.2	60.3	60	0.3	3	1
	6	★	MHS0145L013B	9.0	13.3	16.2	60.3	60	0.3	3	2
	11	★	MHS0145L020B	16.3	20.3	23.2	60.3	60	0.3	3	2
	21	●	MHS0145L035B	30.8	35.3	38.2	80.3	80	0.3	3	2
	30	★	MHS0145L055B	43.8	55.3	58.2	100.3	100	0.3	3	2
1.50	2	●	MHS0150L008B	3.3	8.3	11.1	60.3	60	0.3	3	1
	6	★	MHS0150L013B	9.3	13.3	16.1	60.3	60	0.3	3	2
	10	●	MHS0150L020B	15.3	20.3	23.1	60.3	60	0.3	3	2
	20	●	MHS0150L035B	30.3	35.3	38.1	80.3	80	0.3	3	2
	30	●	MHS0150L055B	45.3	55.3	58.1	100.3	100	0.3	3	2
1.60	2	●	MHS0160L008B	3.5	8.3	10.9	60.3	60	0.3	3	1
	5	★	MHS0160L013B	8.3	13.3	15.9	60.3	60	0.3	3	2
	10	●	MHS0160L020B	16.3	20.3	22.9	60.3	60	0.3	3	2
	19	●	MHS0160L035B	30.7	35.3	37.9	80.3	80	0.3	3	2
	30	●	MHS0160L055B	48.3	55.3	57.9	100.3	100	0.3	3	2
1.70	2	●	MHS0170L008B	3.7	8.3	10.7	60.3	60	0.3	3	1
	5	★	MHS0170L013B	8.9	13.4	15.8	60.4	60	0.4	3	2
	9	●	MHS0170L020B	15.7	20.4	22.8	60.4	60	0.4	3	2
	18	●	MHS0170L035B	31.0	35.4	37.8	80.4	80	0.4	3	2
	29	●	MHS0170L055B	49.7	55.4	57.8	100.4	100	0.4	3	2

Not 1) Lütfen bu katalogta Bulunmayan herhangi bir geometri için bizimle iletişim kurabilirsiniz (örn. farklı çap ve uzunlukta).

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

M130

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
1.80	3	●	MHS0180L010B	5.7	10.3	12.5	60.3	60	0.3	3	1
	5	★	MHS0180L015B	9.4	15.4	17.6	60.4	60	0.4	3	2
	11	●	MHS0180L025B	20.2	25.4	27.6	60.4	60	0.4	3	2
	22	●	MHS0180L045B	40.0	45.4	47.6	80.4	80	0.4	3	2
	30	●	MHS0180L065B	54.4	65.4	67.6	100.4	100	0.4	3	2
1.90	2	●	MHS0190L010B	4.1	10.3	12.4	60.3	60	0.3	3	1
	5	★	MHS0190L015B	9.9	15.4	17.5	60.4	60	0.4	3	2
	10	●	MHS0190L025B	19.4	25.4	27.5	60.4	60	0.4	3	2
	21	●	MHS0190L045B	40.3	45.4	47.5	80.4	80	0.4	3	2
	30	●	MHS0190L065B	57.4	65.4	67.5	100.4	100	0.4	3	2
1.95	2	●	MHS0195L010B	4.3	10.4	12.4	60.4	60	0.4	3	1
	5	★	MHS0195L015B	10.2	15.4	17.4	60.4	60	0.4	3	2
	10	★	MHS0195L025B	19.9	25.4	27.4	60.4	60	0.4	3	2
	20	●	MHS0195L045B	39.4	45.4	47.4	80.4	80	0.4	3	2
	30	★	MHS0195L065B	58.9	65.4	67.4	100.4	100	0.4	3	2
2.00	2	●	MHS0200L010B	4.4	10.4	12.3	60.4	60	0.4	3	1
	5	★	MHS0200L015B	10.4	15.4	17.3	60.4	60	0.4	3	2
	9	●	MHS0200L025B	18.4	25.4	27.3	60.4	60	0.4	3	2
	20	●	MHS0200L045B	40.4	45.4	47.3	80.4	80	0.4	3	2
	30	●	MHS0200L065B	60.4	65.4	67.3	100.4	100	0.4	3	2
2.10	3	●	MHS0210L012B	6.7	12.4	14.1	60.4	60	0.4	3	1
	7	★	MHS0210L020B	15.1	20.4	22.1	60.4	60	0.4	3	2
	11	●	MHS0210L030B	23.5	30.4	32.1	80.4	80	0.4	3	2
	23	●	MHS0210L055B	48.7	55.4	57.1	100.4	100	0.4	3	2
	30	●	MHS0210L075B	63.4	75.4	77.1	120.4	120	0.4	3	2
2.20	2	●	MHS0220L012B	4.8	12.4	13.9	60.4	60	0.4	3	1
	6	★	MHS0220L020B	13.7	20.5	22.0	60.5	60	0.5	3	2
	11	●	MHS0220L030B	24.7	30.5	32.0	80.5	80	0.5	3	2
	22	●	MHS0220L055B	48.9	55.5	57.0	100.5	100	0.5	3	2
	30	●	MHS0220L075B	66.5	75.5	77.0	120.5	120	0.5	3	2
2.30	2	●	MHS0230L012B	5.0	12.4	13.7	60.4	60	0.4	3	1
	6	★	MHS0230L020B	14.3	20.5	21.8	60.5	60	0.5	3	2
	10	●	MHS0230L030B	23.5	30.5	31.8	80.5	80	0.5	3	2
	21	●	MHS0230L055B	48.8	55.5	56.8	100.5	100	0.5	3	2
	30	●	MHS0230L075B	69.5	75.5	76.8	120.5	120	0.5	3	2
2.40	2	●	MHS0240L012B	5.2	12.4	13.5	60.4	60	0.4	3	1
	5	★	MHS0240L020B	12.5	20.5	21.6	60.5	60	0.5	3	2
	9	●	MHS0240L030B	22.1	30.5	31.6	80.5	80	0.5	3	2
	20	●	MHS0240L055B	48.5	55.5	56.6	100.5	100	0.5	3	2
	28	●	MHS0240L075B	67.7	75.5	76.6	120.5	120	0.5	3	2
2.45	2	★	MHS0245L013B	5.3	13.4	14.4	70.4	70	0.4	4	1
	5	★	MHS0245L020B	12.8	20.5	21.5	70.5	70	0.5	4	2
	11	★	MHS0245L035B	27.5	35.5	36.5	90.5	90	0.5	4	2
	24	★	MHS0245L065B	59.3	65.5	66.5	110.5	110	0.5	4	2
	30	★	MHS0245L090B	74.0	90.5	91.5	140.5	140	0.5	4	2
2.50	2	●	MHS0250L013B	5.5	13.5	16.3	70.5	70	0.5	4	1
	5	★	MHS0250L020B	13.0	20.5	23.3	70.5	70	0.5	4	2
	11	●	MHS0250L035B	28.0	35.5	38.3	90.5	90	0.5	4	2
	23	●	MHS0250L065B	58.0	65.5	68.3	110.5	110	0.5	4	2
	30	●	MHS0250L090B	75.5	90.5	93.3	140.5	140	0.5	4	2

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
2.60	2	●	MHS0260L013B	5.7	13.5	16.1	70.5	70	0.5	4	1
	5	★	MHS0260L020B	13.5	20.5	23.1	70.5	70	0.5	4	2
	10	●	MHS0260L035B	26.5	35.5	38.1	90.5	90	0.5	4	2
	22	●	MHS0260L065B	57.7	65.5	68.1	110.5	110	0.5	4	2
	30	●	MHS0260L090B	78.5	90.5	93.1	140.5	140	0.5	4	2
2.70	2	●	MHS0270L013B	5.9	13.5	15.9	70.5	70	0.5	4	1
	4	★	MHS0270L020B	11.4	20.6	23.0	70.6	70	0.6	4	2
	10	●	MHS0270L035B	27.6	35.6	38.0	90.6	90	0.6	4	2
	21	●	MHS0270L065B	57.3	65.6	68.0	110.6	110	0.6	4	2
	30	●	MHS0270L090B	81.6	90.6	93.0	140.6	140	0.6	4	2
2.80	2	●	MHS0280L014B	6.1	14.5	16.7	70.5	70	0.5	4	1
	4	★	MHS0280L020B	11.8	20.6	22.8	70.6	70	0.6	4	2
	9	●	MHS0280L035B	25.8	35.6	37.8	90.6	90	0.6	4	2
	20	●	MHS0280L065B	56.6	65.6	67.8	110.6	110	0.6	4	2
	29	●	MHS0280L090B	81.8	90.6	92.8	140.6	140	0.6	4	2
2.90	2	●	MHS0290L014B	6.3	14.5	16.6	70.5	70	0.5	4	1
	4	★	MHS0290L020B	12.2	20.6	22.7	70.6	70	0.6	4	2
	9	●	MHS0290L035B	26.7	35.6	37.7	90.6	90	0.6	4	2
	19	●	MHS0290L065B	55.7	65.6	67.7	110.6	110	0.6	4	2
	28	●	MHS0290L090B	81.8	90.6	92.7	140.6	140	0.6	4	2
2.95	2	★	MHS0295L014B	6.4	14.5	16.5	70.5	70	0.5	4	1
	4	★	MHS0295L020B	12.4	20.6	22.6	70.6	70	0.6	4	2
	9	★	MHS0295L035B	27.2	35.6	37.6	90.6	90	0.6	4	2
	19	●	MHS0295L065B	56.7	65.6	67.6	110.6	110	0.6	4	2
	28	★	MHS0295L090B	83.2	90.6	92.6	140.6	140	0.6	4	2
3.0	4	●	MHS0300L020B	12.5	19.5	20.5	70.5	70	0.5	4	3
	10	●	MHS0300L040B	30.5	39.5	40.5	90.5	90	0.5	4	4
	17	●	MHS0300L060B	51.5	59.5	60.5	110.5	110	0.5	4	4
	27	●	MHS0300L090B	81.5	89.5	90.5	140.5	140	0.5	4	4
3.1	4	□	MHS0310L020B	12.9	20.0	20.5	70.5	70	0.5	4	3
	10	□	MHS0310L040B	31.6	40.1	40.6	90.6	90	0.6	4	4
	17	□	MHS0310L060B	53.3	60.1	60.6	110.6	110	0.6	4	4
	26	□	MHS0310L090B	81.2	90.1	90.6	140.6	140	0.6	4	4
3.2	4	□	MHS0320L020B	13.4	20.1	20.6	70.6	70	0.6	4	3
	10	□	MHS0320L040B	32.6	40.1	40.6	90.6	90	0.6	4	4
	16	□	MHS0320L060B	51.8	60.1	60.6	110.6	110	0.6	4	4
	25	□	MHS0320L090B	80.6	90.1	90.6	140.6	140	0.6	4	4
3.3	3	□	MHS0330L020B	10.5	20.1	20.6	70.6	70	0.6	4	3
	9	□	MHS0330L040B	30.3	40.1	40.6	90.6	90	0.6	4	4
	16	□	MHS0330L060B	53.4	60.1	60.6	110.6	110	0.6	4	4
	25	□	MHS0330L090B	83.1	90.1	90.6	140.6	140	0.6	4	4
3.4	3	□	MHS0340L020B	10.8	20.1	20.6	70.6	70	0.6	4	3
	9	□	MHS0340L040B	31.2	40.1	40.6	90.6	90	0.6	4	4
	15	□	MHS0340L060B	51.6	60.1	60.6	110.6	110	0.6	4	4
	24	□	MHS0340L090B	82.2	90.1	90.6	140.6	140	0.6	4	4
3.5	3	●	MHS0350L020B	11.1	20.1	20.6	70.6	70	0.6	4	3
	9	●	MHS0350L040B	32.1	40.1	40.6	90.6	90	0.6	4	4
	14	●	MHS0350L060B	49.6	60.1	60.6	110.6	110	0.6	4	4
	23	●	MHS0350L090B	81.1	90.1	90.6	140.6	140	0.6	4	4

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
3.6	3	□	MHS0360L020B	11.4	20.6	20.6	70.6	70	0.6	4	3
	9	□	MHS0360L040B	33.1	40.7	40.7	90.7	90	0.7	4	4
	14	□	MHS0360L060B	51.1	60.7	60.7	110.7	110	0.7	4	4
	22	□	MHS0360L090B	79.9	90.7	90.7	140.7	140	0.7	4	4
	30	□	MHS0360L120B	108.7	120.7	120.7	170.7	170	0.7	4	4
3.7	3	□	MHS0370L020B	11.7	20.6	20.6	70.6	70	0.6	4	3
	8	□	MHS0370L040B	30.3	40.7	40.7	90.7	90	0.7	4	4
	14	□	MHS0370L060B	52.5	60.7	60.7	110.7	110	0.7	4	4
	22	□	MHS0370L090B	82.1	90.7	90.7	140.7	140	0.7	4	4
	30	□	MHS0370L120B	111.7	120.7	120.7	170.7	170	0.7	4	4
3.8	3	★	MHS0380L020B	12.1	20.7	20.7	70.7	70	0.7	4	3
	8	★	MHS0380L040B	31.1	40.7	40.7	90.7	90	0.7	4	4
	13	★	MHS0380L060B	50.1	60.7	60.7	110.7	110	0.7	4	4
	21	★	MHS0380L090B	80.5	90.7	90.7	140.7	140	0.7	4	4
	29	★	MHS0380L120B	110.9	120.7	120.7	170.7	170	0.7	4	4
3.9	3	★	MHS0390L020B	12.4	20.7	20.7	70.7	70	0.7	4	3
	8	★	MHS0390L040B	31.9	40.7	40.7	90.7	90	0.7	4	4
	13	★	MHS0390L060B	51.4	60.7	60.7	110.7	110	0.7	4	4
	21	□	MHS0390L090B	82.6	90.7	90.7	140.7	140	0.7	4	4
	28	□	MHS0390L120B	109.9	120.7	120.7	170.7	170	0.7	4	4
4.0	2	●	MHS0400L020B	8.7	20.7	20.7	70.7	70	0.7	4	3
	7	●	MHS0400L040B	28.7	40.7	40.7	90.7	90	0.7	4	4
	12	●	MHS0400L060B	48.7	60.7	60.7	110.7	110	0.7	4	4
	20	●	MHS0400L090B	80.7	90.7	90.7	140.7	140	0.7	4	4
	27	●	MHS0400L120B	108.7	120.7	120.7	170.7	170	0.7	4	4
4.1	2	□	MHS0410L020B	8.9	19.2	20.7	70.7	70	0.7	6	3
	7	□	MHS0410L040B	29.4	39.2	40.7	90.7	90	0.7	6	4
	12	□	MHS0410L060B	49.9	59.2	60.7	110.7	110	0.7	6	4
	19	□	MHS0410L090B	78.6	89.2	90.7	140.7	140	0.7	6	4
	26	□	MHS0410L120B	107.3	119.2	120.7	170.7	170	0.7	6	4
4.2	2	□	MHS0420L020B	9.1	19.2	20.7	70.7	70	0.7	6	3
	7	□	MHS0420L040B	30.2	39.3	40.8	90.8	90	0.8	6	4
	11	□	MHS0420L060B	47.0	59.3	60.8	110.8	110	0.8	6	4
	19	□	MHS0420L090B	80.6	89.3	90.8	140.8	140	0.8	6	4
	26	□	MHS0420L120B	110.0	119.3	120.8	170.8	170	0.8	6	4
4.3	2	□	MHS0430L020B	9.3	19.2	20.7	70.7	70	0.7	6	3
	6	□	MHS0430L040B	26.6	39.3	40.8	90.8	90	0.8	6	4
	11	□	MHS0430L060B	48.1	59.3	60.8	110.8	110	0.8	6	4
	18	□	MHS0430L090B	78.2	89.3	90.8	140.8	140	0.8	6	4
	25	□	MHS0430L120B	108.3	119.3	120.8	170.8	170	0.8	6	4
4.4	2	★	MHS0440L020B	9.6	19.3	20.8	70.8	70	0.8	6	3
	6	□	MHS0440L040B	27.2	39.3	40.8	90.8	90	0.8	6	4
	11	□	MHS0440L060B	49.2	59.3	60.8	110.8	110	0.8	6	4
	18	□	MHS0440L090B	80.0	89.3	90.8	140.8	140	0.8	6	4
	24	□	MHS0440L120B	106.4	119.3	120.8	170.8	170	0.8	6	4
4.5	2	●	MHS0450L020B	9.8	19.3	20.8	70.8	70	0.8	6	3
	6	●	MHS0450L040B	27.8	39.3	40.8	90.8	90	0.8	6	4
	10	●	MHS0450L060B	45.8	59.3	60.8	110.8	110	0.8	6	4
	17	●	MHS0450L090B	77.3	89.3	90.8	140.8	140	0.8	6	4
	24	●	MHS0450L120B	108.8	119.3	120.8	170.8	170	0.8	6	4

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
4.6	2	□	MHS0460L020B	10.0	19.8	20.8	70.8	70	0.8	6	3
	6	□	MHS0460L040B	28.4	39.8	40.8	90.8	90	0.8	6	4
	10	□	MHS0460L060B	46.8	59.8	60.8	110.8	110	0.8	6	4
	17	□	MHS0460L090B	79.0	89.8	90.8	140.8	140	0.8	6	4
	23	□	MHS0460L120B	106.6	119.8	120.8	170.8	170	0.8	6	4
4.7	30	□	MHS0460L150B	138.8	149.8	150.8	200.8	200	0.8	6	4
4.7	2	□	MHS0470L020B	10.2	19.8	20.8	70.8	70	0.8	6	3
	6	□	MHS0470L040B	29.1	39.9	40.9	90.9	90	0.9	6	4
	10	□	MHS0470L060B	47.9	59.9	60.9	110.9	110	0.9	6	4
	16	□	MHS0470L090B	76.1	89.9	90.9	140.9	140	0.9	6	4
	23	□	MHS0470L120B	109.0	119.9	120.9	170.9	170	0.9	6	4
4.8	29	□	MHS0470L150B	137.2	149.9	150.9	200.9	200	0.9	6	4
4.8	1	★	MHS0480L020B	5.6	19.8	20.8	70.8	70	0.8	6	3
	6	★	MHS0480L040B	29.7	39.9	40.9	90.9	90	0.9	6	4
	10	★	MHS0480L060B	48.9	59.9	60.9	110.9	110	0.9	6	4
	16	★	MHS0480L090B	77.7	89.9	90.9	140.9	140	0.9	6	4
	22	★	MHS0480L120B	106.5	119.9	120.9	170.9	170	0.9	6	4
4.9	29	★	MHS0480L150B	140.1	149.9	150.9	200.9	200	0.9	6	4
4.9	1	□	MHS0490L020B	5.7	19.8	20.8	70.8	70	0.8	6	3
	5	□	MHS0490L040B	25.4	39.9	40.9	90.9	90	0.9	6	4
	10	□	MHS0490L060B	49.9	59.9	60.9	110.9	110	0.9	6	4
	16	□	MHS0490L090B	79.3	89.9	90.9	140.9	140	0.9	6	4
	22	□	MHS0490L120B	108.7	119.9	120.9	170.9	170	0.9	6	4
5.0	28	□	MHS0490L150B	138.1	149.9	150.9	200.9	200	0.9	6	4
5.0	1	●	MHS0500L020B	5.9	19.9	20.9	70.9	70	0.9	6	3
	5	●	MHS0500L040B	25.9	39.9	40.9	90.9	90	0.9	6	4
	9	●	MHS0500L060B	45.9	59.9	60.9	110.9	110	0.9	6	4
	15	●	MHS0500L090B	75.9	89.9	90.9	140.9	140	0.9	6	4
	21	●	MHS0500L120B	105.9	119.9	120.9	170.9	170	0.9	6	4
5.1	27	●	MHS0500L150B	135.9	149.9	150.9	200.9	200	0.9	6	4
5.1	3	□	MHS0510L030B	16.2	30.4	30.9	80.9	80	0.9	6	3
	9	□	MHS0510L060B	46.8	60.4	60.9	110.9	110	0.9	6	4
	15	□	MHS0510L090B	77.4	90.4	90.9	140.9	140	0.9	6	4
	21	□	MHS0510L120B	108.0	120.4	120.9	170.9	170	0.9	6	4
	27	□	MHS0510L150B	138.6	150.4	150.9	200.9	200	0.9	6	4
5.2	3	□	MHS0520L030B	16.5	30.4	30.9	80.9	80	0.9	6	3
	9	□	MHS0520L060B	47.7	60.4	60.9	110.9	110	0.9	6	4
	15	□	MHS0520L090B	78.9	90.4	90.9	140.9	140	0.9	6	4
	20	□	MHS0520L120B	104.9	120.4	120.9	170.9	170	0.9	6	4
	26	□	MHS0520L150B	136.1	150.4	150.9	200.9	200	0.9	6	4
5.3	3	□	MHS0530L030B	16.8	30.4	30.9	80.9	80	0.9	6	3
	9	□	MHS0530L060B	48.7	60.5	61.0	111.0	110	1.0	6	4
	14	★	MHS0530L090B	75.2	90.5	91.0	141.0	140	1.0	6	4
	20	□	MHS0530L120B	107.0	120.5	121.0	171.0	170	1.0	6	4
	26	□	MHS0530L150B	138.8	150.5	151.0	201.0	200	1.0	6	4
5.4	3	□	MHS0540L030B	17.1	30.4	30.9	80.9	80	0.9	6	3
	9	□	MHS0540L060B	49.6	60.5	61.0	111.0	110	1.0	6	4
	14	□	MHS0540L090B	76.6	90.5	91.0	141.0	140	1.0	6	4
	20	□	MHS0540L120B	109.0	120.5	121.0	171.0	170	1.0	6	4
	25	□	MHS0540L150B	136.0	150.5	151.0	201.0	200	1.0	6	4

Not 1) Lütfen bu katalogda Bulunmayan herhangi bir geometri için bizimle iletişim kurabilirsiniz (örn. farklı çap ve uzunlukta).

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
5.5	3	●	MHS0550L030B	17.4	30.4	30.9	80.9	80	0.9	6	3
	8	●	MHS0550L060B	45.0	60.5	61.0	111.0	110	1.0	6	4
	14	●	MHS0550L090B	78.0	90.5	91.0	141.0	140	1.0	6	4
	19	●	MHS0550L120B	105.5	120.5	121.0	171.0	170	1.0	6	4
	25	●	MHS0550L150B	138.5	150.5	151.0	201.0	200	1.0	6	4
5.6	3	□	MHS0560L030B	17.8	31.0	31.0	81.0	80	1.0	6	3
	8	□	MHS0560L060B	45.8	61.0	61.0	111.0	110	1.0	6	4
	14	□	MHS0560L090B	79.4	91.0	91.0	141.0	140	1.0	6	4
	19	□	MHS0560L120B	107.4	121.0	121.0	171.0	170	1.0	6	4
	24	□	MHS0560L150B	135.4	151.0	151.0	201.0	200	1.0	6	4
5.7	3	□	MHS0570L030B	18.1	31.0	31.0	81.0	80	1.0	6	3
	8	□	MHS0570L060B	46.6	61.0	61.0	111.0	110	1.0	6	4
	13	□	MHS0570L090B	75.1	91.0	91.0	141.0	140	1.0	6	4
	19	□	MHS0570L120B	109.3	121.0	121.0	171.0	170	1.0	6	4
	24	□	MHS0570L150B	137.8	151.0	151.0	201.0	200	1.0	6	4
5.8	3	★	MHS0580L030B	18.4	31.0	31.0	81.0	80	1.0	6	3
	8	★	MHS0580L060B	47.5	61.1	61.1	111.1	110	1.1	6	4
	13	★	MHS0580L090B	76.5	91.1	91.1	141.1	140	1.1	6	4
	18	★	MHS0580L120B	105.5	121.1	121.1	171.1	170	1.1	6	4
	23	★	MHS0580L150B	134.5	151.1	151.1	201.1	200	1.1	6	4
5.9	3	□	MHS0590L030B	18.7	31.0	31.0	81.0	80	1.0	6	3
	8	□	MHS0590L060B	48.3	61.1	61.1	111.1	110	1.1	6	4
	13	□	MHS0590L090B	77.8	91.1	91.1	141.1	140	1.1	6	4
	18	□	MHS0590L120B	107.3	121.1	121.1	171.1	170	1.1	6	4
	23	□	MHS0590L150B	136.8	151.1	151.1	201.1	200	1.1	6	4
6.0	2	●	MHS0600L030B	13.0	31.0	31.0	81.0	80	1.0	6	3
	7	●	MHS0600L060B	43.1	61.1	61.1	111.1	110	1.1	6	4
	12	●	MHS0600L090B	73.1	91.1	91.1	141.1	140	1.1	6	4
	17	●	MHS0600L120B	103.1	121.1	121.1	171.1	170	1.1	6	4
	22	●	MHS0600L150B	133.1	151.1	151.1	201.1	200	1.1	6	4
6.1	2	□	MHS0610L030B	13.3	29.6	31.1	81.1	80	1.1	8	3
	7	□	MHS0610L060B	43.8	59.6	61.1	111.1	110	1.1	8	4
	12	□	MHS0610L090B	74.3	89.6	91.1	141.1	140	1.1	8	4
	17	□	MHS0610L120B	104.8	119.6	121.1	171.1	170	1.1	8	4
	22	□	MHS0610L150B	135.3	149.6	151.1	201.1	200	1.1	8	4
6.2	2	□	MHS0620L030B	13.5	29.6	31.1	81.1	80	1.1	8	3
	7	□	MHS0620L060B	44.5	59.6	61.1	111.1	110	1.1	8	4
	12	□	MHS0620L090B	75.5	89.6	91.1	141.1	140	1.1	8	4
	17	□	MHS0620L120B	106.5	119.6	121.1	171.1	170	1.1	8	4
	21	□	MHS0620L150B	131.3	149.6	151.1	201.1	200	1.1	8	4
6.3	2	□	MHS0630L030B	13.7	29.6	31.1	81.1	80	1.1	8	3
	7	□	MHS0630L060B	45.2	59.6	61.1	111.1	110	1.1	8	4
	12	□	MHS0630L090B	76.7	89.6	91.1	141.1	140	1.1	8	4
	16	□	MHS0630L120B	101.9	119.6	121.1	171.1	170	1.1	8	4
	21	□	MHS0630L150B	133.4	149.6	151.1	201.1	200	1.1	8	4
6.4	2	□	MHS0640L030B	13.9	29.6	31.1	81.1	80	1.1	8	3
	7	□	MHS0640L060B	46.0	59.7	61.2	111.2	110	1.2	8	4
	11	□	MHS0640L090B	71.6	89.7	91.2	141.2	140	1.2	8	4
	16	□	MHS0640L120B	103.6	119.7	121.2	171.2	170	1.2	8	4
	21	□	MHS0640L150B	135.6	149.7	151.2	201.2	200	1.2	8	4

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
6.5	2	●	MHS0650L030B	14.1	29.6	31.1	81.1	80	1.1	8	3
	6	●	MHS0650L060B	40.2	59.7	61.2	111.2	110	1.2	8	4
	11	●	MHS0650L090B	72.7	89.7	91.2	141.2	140	1.2	8	4
	16	●	MHS0650L120B	105.2	119.7	121.2	171.2	170	1.2	8	4
	20	●	MHS0650L150B	131.2	149.7	151.2	201.2	200	1.2	8	4
6.6	2	□	MHS0660L030B	14.3	30.1	31.1	81.1	80	1.1	8	3
	6	□	MHS0660L060B	40.8	60.2	61.2	111.2	110	1.2	8	4
	11	□	MHS0660L090B	73.8	90.2	91.2	141.2	140	1.2	8	4
	16	□	MHS0660L120B	106.8	120.2	121.2	171.2	170	1.2	8	4
	20	□	MHS0660L150B	133.2	150.2	151.2	201.2	200	1.2	8	4
6.7	2	□	MHS0670L030B	14.6	30.2	31.2	81.2	80	1.2	8	3
	6	□	MHS0670L060B	41.4	60.2	61.2	111.2	110	1.2	8	4
	11	□	MHS0670L090B	74.9	90.2	91.2	141.2	140	1.2	8	4
	15	□	MHS0670L120B	101.7	120.2	121.2	171.2	170	1.2	8	4
	20	□	MHS0670L150B	135.2	150.2	151.2	201.2	200	1.2	8	4
6.8	2	★	MHS0680L030B	14.8	30.2	31.2	81.2	80	1.2	8	3
	6	★	MHS0680L060B	42.0	60.2	61.2	111.2	110	1.2	8	4
	11	★	MHS0680L090B	76.0	90.2	91.2	141.2	140	1.2	8	4
	15	★	MHS0680L120B	103.2	120.2	121.2	171.2	170	1.2	8	4
	19	★	MHS0680L150B	130.4	150.2	151.2	201.2	200	1.2	8	4
6.9	2	□	MHS0690L030B	15.0	30.2	31.2	81.2	80	1.2	8	3
	6	□	MHS0690L060B	42.7	60.3	61.3	111.3	110	1.3	8	4
	10	□	MHS0690L090B	70.3	90.3	91.3	141.3	140	1.3	8	4
	15	□	MHS0690L120B	104.8	120.3	121.3	171.3	170	1.3	8	4
	19	□	MHS0690L150B	132.4	150.3	151.3	201.3	200	1.3	8	4
7.0	2	●	MHS0700L030B	15.2	30.2	31.2	81.2	80	1.2	8	3
	6	●	MHS0700L060B	43.3	60.3	61.3	111.3	110	1.3	8	4
	10	●	MHS0700L090B	71.3	90.3	91.3	141.3	140	1.3	8	4
	14	●	MHS0700L120B	99.3	120.3	121.3	171.3	170	1.3	8	4
	19	●	MHS0700L150B	134.3	150.3	151.3	201.3	200	1.3	8	4
7.1	2	□	MHS0710L030B	15.4	30.7	31.2	81.2	80	1.2	8	3
	6	□	MHS0710L060B	43.9	60.8	61.3	111.3	110	1.3	8	4
	10	□	MHS0710L090B	72.3	90.8	91.3	141.3	140	1.3	8	4
	14	□	MHS0710L120B	100.7	120.8	121.3	171.3	170	1.3	8	4
	19	□	MHS0710L150B	136.2	150.8	151.3	201.3	200	1.3	8	4
7.2	2	□	MHS0720L030B	15.6	30.7	31.2	81.2	80	1.2	8	3
	6	□	MHS0720L060B	44.5	60.8	61.3	111.3	110	1.3	8	4
	10	□	MHS0720L090B	73.3	90.8	91.3	141.3	140	1.3	8	4
	14	□	MHS0720L120B	102.1	120.8	121.3	171.3	170	1.3	8	4
	18	□	MHS0720L150B	130.9	150.8	151.3	201.3	200	1.3	8	4
7.2	25	□	MHS0720L200B	181.3	200.8	201.3	251.3	250	1.3	8	4

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
7.3	2	□	MHS0730L030B	15.9	30.8	31.3	81.3	80	1.3	8	3
	6	□	MHS0730L060B	45.1	60.8	61.3	111.3	110	1.3	8	4
	10	□	MHS0730L090B	74.3	90.8	91.3	141.3	140	1.3	8	4
	14	□	MHS0730L120B	103.5	120.8	121.3	171.3	170	1.3	8	4
	18	□	MHS0730L150B	132.7	150.8	151.3	201.3	200	1.3	8	4
	25	□	MHS0730L200B	183.8	200.8	201.3	251.3	250	1.3	8	4
7.4	1	□	MHS0740L030B	8.7	30.8	31.3	81.3	80	1.3	8	3
	6	□	MHS0740L060B	45.7	60.8	61.3	111.3	110	1.3	8	4
	10	□	MHS0740L090B	75.3	90.8	91.3	141.3	140	1.3	8	4
	14	□	MHS0740L120B	104.9	120.8	121.3	171.3	170	1.3	8	4
	18	□	MHS0740L150B	134.5	150.8	151.3	201.3	200	1.3	8	4
	24	□	MHS0740L200B	178.9	200.8	201.3	251.3	250	1.3	8	4
7.5	1	●	MHS0750L030B	8.8	30.8	31.3	81.3	80	1.3	8	3
	5	●	MHS0750L060B	38.9	60.9	61.4	111.4	110	1.4	8	4
	9	●	MHS0750L090B	68.9	90.9	91.4	141.4	140	1.4	8	4
	13	●	MHS0750L120B	98.9	120.9	121.4	171.4	170	1.4	8	4
	17	●	MHS0750L150B	128.9	150.9	151.4	201.4	200	1.4	8	4
	24	●	MHS0750L200B	181.4	200.9	201.4	251.4	250	1.4	8	4
7.6	1	□	MHS0760L030B	8.9	31.3	31.3	81.3	80	1.3	8	3
	5	□	MHS0760L060B	39.4	61.4	61.4	111.4	110	1.4	8	4
	9	□	MHS0760L090B	69.8	91.4	91.4	141.4	140	1.4	8	4
	13	□	MHS0760L120B	100.2	121.4	121.4	171.4	170	1.4	8	4
	17	□	MHS0760L150B	130.6	151.4	151.4	201.4	200	1.4	8	4
	24	□	MHS0760L200B	183.8	201.4	201.4	251.4	250	1.4	8	4
7.7	1	□	MHS0770L030B	9.0	31.3	31.3	81.3	80	1.3	8	3
	5	□	MHS0770L060B	39.9	61.4	61.4	111.4	110	1.4	8	4
	9	□	MHS0770L090B	70.7	91.4	91.4	141.4	140	1.4	8	4
	13	□	MHS0770L120B	101.5	121.4	121.4	171.4	170	1.4	8	4
	17	□	MHS0770L150B	132.3	151.4	151.4	201.4	200	1.4	8	4
	23	□	MHS0770L200B	178.5	201.4	201.4	251.4	250	1.4	8	4
7.8	1	★	MHS0780L030B	9.1	31.3	31.3	81.3	80	1.3	8	3
	5	★	MHS0780L060B	40.4	61.4	61.4	111.4	110	1.4	8	4
	9	★	MHS0780L090B	71.6	91.4	91.4	141.4	140	1.4	8	4
	13	★	MHS0780L120B	102.8	121.4	121.4	171.4	170	1.4	8	4
	17	★	MHS0780L150B	134.0	151.4	151.4	201.4	200	1.4	8	4
	23	★	MHS0780L200B	180.8	201.4	201.4	251.4	250	1.4	8	4
7.9	1	□	MHS0790L030B	9.3	31.4	31.4	81.4	80	1.4	8	3
	5	□	MHS0790L060B	40.9	61.4	61.4	111.4	110	1.4	8	4
	9	□	MHS0790L090B	72.5	91.4	91.4	141.4	140	1.4	8	4
	13	□	MHS0790L120B	104.1	121.4	121.4	171.4	170	1.4	8	4
	16	□	MHS0790L150B	127.8	151.4	151.4	201.4	200	1.4	8	4
	23	□	MHS0790L200B	183.1	201.4	201.4	251.4	250	1.4	8	4
7.9	29	□	MHS0790L250B	230.5	251.4	251.4	301.4	300	1.4	8	4

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
8.0	1	●	MHS0800L030B	9.4	31.4	31.4	81.4	80	1.4	8	3
	5	●	MHS0800L060B	41.5	61.5	61.5	111.5	110	1.5	8	4
	9	●	MHS0800L090B	73.5	91.5	91.5	141.5	140	1.5	8	4
	12	●	MHS0800L120B	97.5	121.5	121.5	171.5	170	1.5	8	4
	16	●	MHS0800L150B	129.5	151.5	151.5	201.5	200	1.5	8	4
	22	●	MHS0800L200B	177.5	201.5	201.5	251.5	250	1.5	8	4
8.1	29	●	MHS0800L250B	233.5	251.5	251.5	301.5	300	1.5	8	4
	2	□	MHS0810L040B	17.6	39.9	41.4	101.4	100	1.4	10	3
	8	□	MHS0810L090B	66.3	90.0	91.5	151.5	150	1.5	10	4
	12	□	MHS0810L120B	98.7	120.0	121.5	181.5	180	1.5	10	4
	16	□	MHS0810L150B	131.1	150.0	151.5	211.5	210	1.5	10	4
	22	□	MHS0810L200B	179.7	200.0	201.5	261.5	260	1.5	10	4
8.2	28	□	MHS0810L250B	228.3	250.0	251.5	311.5	310	1.5	10	4
	2	□	MHS0820L040B	17.8	39.9	41.4	101.4	100	1.4	10	3
	8	□	MHS0820L090B	67.1	90.0	91.5	151.5	150	1.5	10	4
	12	□	MHS0820L120B	99.9	120.0	121.5	181.5	180	1.5	10	4
	16	□	MHS0820L150B	132.7	150.0	151.5	211.5	210	1.5	10	4
	22	□	MHS0820L200B	181.9	200.0	201.5	261.5	260	1.5	10	4
8.3	28	□	MHS0820L250B	231.1	250.0	251.5	311.5	310	1.5	10	4
	2	□	MHS0830L040B	18.0	39.9	41.4	101.4	100	1.4	10	3
	8	□	MHS0830L090B	67.9	90.0	91.5	151.5	150	1.5	10	4
	12	□	MHS0830L120B	101.1	120.0	121.5	181.5	180	1.5	10	4
	15	□	MHS0830L150B	126.0	150.0	151.5	211.5	210	1.5	10	4
	21	□	MHS0830L200B	175.8	200.0	201.5	261.5	260	1.5	10	4
8.4	27	□	MHS0830L250B	225.6	250.0	251.5	311.5	310	1.5	10	4
	2	□	MHS0840L040B	18.2	39.9	41.4	101.4	100	1.4	10	3
	8	□	MHS0840L090B	68.7	90.0	91.5	151.5	150	1.5	10	4
	12	□	MHS0840L120B	102.3	120.0	121.5	181.5	180	1.5	10	4
	15	□	MHS0840L150B	127.5	150.0	151.5	211.5	210	1.5	10	4
	21	□	MHS0840L200B	177.9	200.0	201.5	261.5	260	1.5	10	4
8.5	27	□	MHS0840L250B	228.3	250.0	251.5	311.5	310	1.5	10	4
	2	●	MHS0850L040B	18.5	40.0	41.5	101.5	100	1.5	10	3
	8	●	MHS0850L090B	69.5	90.0	91.5	151.5	150	1.5	10	4
	11	●	MHS0850L120B	95.0	120.0	121.5	181.5	180	1.5	10	4
	15	●	MHS0850L150B	129.0	150.0	151.5	211.5	210	1.5	10	4
	21	●	MHS0850L200B	180.0	200.0	201.5	261.5	260	1.5	10	4
8.6	27	●	MHS0850L250B	231.0	250.0	251.5	311.5	310	1.5	10	4
	2	□	MHS0860L040B	18.7	40.5	41.5	101.5	100	1.5	10	3
	8	□	MHS0860L090B	70.4	90.6	91.6	151.6	150	1.6	10	4
	11	□	MHS0860L120B	96.2	120.6	121.6	181.6	180	1.6	10	4
	15	□	MHS0860L150B	130.6	150.6	151.6	211.6	210	1.6	10	4
	21	□	MHS0860L200B	182.2	200.6	201.6	261.6	260	1.6	10	4
8.7	26	□	MHS0860L250B	225.2	250.6	251.6	311.6	310	1.6	10	4
	2	□	MHS0870L040B	18.9	40.5	41.5	101.5	100	1.5	10	3
	8	□	MHS0870L090B	71.2	90.6	91.6	151.6	150	1.6	10	4
	11	□	MHS0870L120B	97.3	120.6	121.6	181.6	180	1.6	10	4
	15	□	MHS0870L150B	132.1	150.6	151.6	211.6	210	1.6	10	4
	20	□	MHS0870L200B	175.6	200.6	201.6	261.6	260	1.6	10	4
8.7	26	□	MHS0870L250B	227.8	250.6	251.6	311.6	310	1.6	10	4

Not 1) Lütfen bu katalogda Bulunmayan herhangi bir geometri için bizimle iletişim kurabilirsiniz (örn. farklı çap ve uzunlukta).

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
8.8	2	★	MHS0880L040B	19.1	40.5	41.5	101.5	100	1.5	10	3
	8	★	MHS0880L090B	72.0	90.6	91.6	151.6	150	1.6	10	4
	11	★	MHS0880L120B	98.4	120.6	121.6	181.6	180	1.6	10	4
	14	★	MHS0880L150B	124.8	150.6	151.6	211.6	210	1.6	10	4
	20	★	MHS0880L200B	177.6	200.6	201.6	261.6	260	1.6	10	4
	26	★	MHS0880L250B	230.4	250.6	251.6	311.6	310	1.6	10	4
8.9	2	□	MHS0890L040B	19.3	40.5	41.5	101.5	100	1.5	10	3
	7	□	MHS0890L090B	63.9	90.6	91.6	151.6	150	1.6	10	4
	11	□	MHS0890L120B	99.5	120.6	121.6	181.6	180	1.6	10	4
	14	□	MHS0890L150B	126.2	150.6	151.6	211.6	210	1.6	10	4
	20	□	MHS0890L200B	179.6	200.6	201.6	261.6	260	1.6	10	4
	25	□	MHS0890L250B	224.1	250.6	251.6	311.6	310	1.6	10	4
9.0	2	●	MHS0900L040B	19.5	40.5	41.5	101.5	100	1.5	10	3
	7	●	MHS0900L090B	64.6	90.6	91.6	151.6	150	1.6	10	4
	11	●	MHS0900L120B	100.6	120.6	121.6	181.6	180	1.6	10	4
	14	●	MHS0900L150B	127.6	150.6	151.6	211.6	210	1.6	10	4
	20	●	MHS0900L200B	181.6	200.6	201.6	261.6	260	1.6	10	4
	25	●	MHS0900L250B	226.6	250.6	251.6	311.6	310	1.6	10	4
9.1	2	□	MHS0910L040B	19.8	41.1	41.6	101.6	100	1.6	10	3
	7	□	MHS0910L090B	65.4	91.2	91.7	151.7	150	1.7	10	4
	11	□	MHS0910L120B	101.8	121.2	121.7	181.7	180	1.7	10	4
	14	□	MHS0910L150B	129.1	151.2	151.7	211.7	210	1.7	10	4
	19	□	MHS0910L200B	174.6	201.2	201.7	261.7	260	1.7	10	4
	25	□	MHS0910L250B	229.2	251.2	251.7	311.7	310	1.7	10	4
9.2	2	□	MHS0920L040B	20.0	41.1	41.6	101.6	100	1.6	10	3
	7	□	MHS0920L090B	66.1	91.2	91.7	151.7	150	1.7	10	4
	10	□	MHS0920L120B	93.7	121.2	121.7	181.7	180	1.7	10	4
	14	□	MHS0920L150B	130.5	151.2	151.7	211.7	210	1.7	10	4
	19	□	MHS0920L200B	176.5	201.2	201.7	261.7	260	1.7	10	4
	25	□	MHS0920L250B	231.7	251.2	251.7	311.7	310	1.7	10	4
9.3	2	□	MHS0930L040B	20.2	41.1	41.6	101.6	100	1.6	10	3
	7	□	MHS0930L090B	66.8	91.2	91.7	151.7	150	1.7	10	4
	10	□	MHS0930L120B	94.7	121.2	121.7	181.7	180	1.7	10	4
	14	□	MHS0930L150B	131.9	151.2	151.7	211.7	210	1.7	10	4
	19	□	MHS0930L200B	178.4	201.2	201.7	261.7	260	1.7	10	4
	24	□	MHS0930L250B	224.9	251.2	251.7	311.7	310	1.7	10	4
9.4	2	□	MHS0940L040B	20.4	41.1	41.6	101.6	100	1.6	10	3
	7	□	MHS0940L090B	67.5	91.2	91.7	151.7	150	1.7	10	4
	10	□	MHS0940L120B	95.7	121.2	121.7	181.7	180	1.7	10	4
	13	□	MHS0940L150B	123.9	151.2	151.7	211.7	210	1.7	10	4
	19	□	MHS0940L200B	180.3	201.2	201.7	261.7	260	1.7	10	4
	24	□	MHS0940L250B	227.3	251.2	251.7	311.7	310	1.7	10	4
9.5	2	★	MHS0950L040B	20.6	41.1	41.6	101.6	100	1.6	10	3
	7	★	MHS0950L090B	68.2	91.2	91.7	151.7	150	1.7	10	4
	10	★	MHS0950L120B	96.7	121.2	121.7	181.7	180	1.7	10	4
	13	★	MHS0950L150B	125.2	151.2	151.7	211.7	210	1.7	10	4
	18	★	MHS0950L200B	172.7	201.2	201.7	261.7	260	1.7	10	4
	24	★	MHS0950L250B	229.7	251.2	251.7	311.7	310	1.7	10	4
9.6	2	□	MHS0960L040B	20.9	41.7	41.7	101.7	100	1.7	10	3
	7	□	MHS0960L090B	68.9	91.7	91.7	151.7	150	1.7	10	4
	10	□	MHS0960L120B	97.7	121.7	121.7	181.7	180	1.7	10	4
	13	□	MHS0960L150B	126.5	151.7	151.7	211.7	210	1.7	10	4
	18	□	MHS0960L200B	174.5	201.7	201.7	261.7	260	1.7	10	4
	24	□	MHS0960L250B	232.1	251.7	251.7	311.7	310	1.7	10	4
9.7	2	□	MHS0970L040B	21.1	41.7	41.7	101.7	100	1.7	10	3
	7	□	MHS0970L090B	69.7	91.8	91.8	151.8	150	1.8	10	4
	10	□	MHS0970L120B	98.8	121.8	121.8	181.8	180	1.8	10	4
	13	□	MHS0970L150B	127.9	151.8	151.8	211.8	210	1.8	10	4
	18	□	MHS0970L200B	176.4	201.8	201.8	261.8	260	1.8	10	4
	23	□	MHS0970L250B	224.9	251.8	251.8	311.8	310	1.8	10	4
9.8	2	★	MHS0980L040B	21.3	41.7	41.7	101.7	100	1.7	10	3
	7	★	MHS0980L090B	70.4	91.8	91.8	151.8	150	1.8	10	4
	10	★	MHS0980L120B	99.8	121.8	121.8	181.8	180	1.8	10	4
	13	★	MHS0980L150B	129.2	151.8	151.8	211.8	210	1.8	10	4
	18	★	MHS0980L200B	178.2	201.8	201.8	261.8	260	1.8	10	4
	23	★	MHS0980L250B	227.2	251.8	251.8	311.8	310	1.8	10	4
9.9	2	□	MHS0990L040B	21.5	41.7	41.7	101.7	100	1.7	10	3
	7	□	MHS0990L090B	71.1	91.8	91.8	151.8	150	1.8	10	4
	10	□	MHS0990L120B	100.8	121.8	121.8	181.8	180	1.8	10	4
	13	□	MHS0990L150B	130.5	151.8	151.8	211.8	210	1.8	10	4
	18	□	MHS0990L200B	180.0	201.8	201.8	261.8	260	1.8	10	4
	23	□	MHS0990L250B	229.5	251.8	251.8	311.8	310	1.8	10	4
10.0	2	●	MHS1000L040B	11.7	41.7	41.7	101.7	100	1.7	10	3
	6	●	MHS1000L090B	61.8	91.8	91.8	151.8	150	1.8	10	4
	9	●	MHS1000L120B	91.8	121.8	121.8	181.8	180	1.8	10	4
	12	●	MHS1000L150B	121.8	151.8	151.8	211.8	210	1.8	10	4
	17	●	MHS1000L200B	171.8	201.8	201.8	261.8	260	1.8	10	4
	22	●	MHS1000L250B	221.8	251.8	251.8	311.8	310	1.8	10	4
10.1	2	□	MHS1010L040B	11.8	40.2	41.7	101.7	100	1.7	12	3
	6	□	MHS1010L090B	62.4	90.3	91.8	151.8	150	1.8	12	4
	9	□	MHS1010L120B	92.7	120.3	121.8	181.8	180	1.8	12	4
	12	□	MHS1010L150B	123.0	150.3	151.8	211.8	210	1.8	12	4
	17	□	MHS1010L200B	173.5	200.3	201.8	261.8	260	1.8	12	4
	22	□	MHS1010L250B	224.0	250.3	251.8	311.8	310	1.8	12	4
10.2	27	□	MHS1010L300B	274.5	300.3	301.8	361.8	360	1.8	12	4

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
9.5	2	★	MHS0950L040B	20.6	41.1	41.6	101.6	100	1.6	10	3
	7	★	MHS0950L090B	68.2	91.2	91.7	151.7	150	1.7	10	4
	10	★	MHS0950L120B	96.7	121.2	121.7	181.7	180	1.7	10	4
	13	★	MHS0950L150B	125.2	151.2	151.7	211.7	210	1.7	10	4
	18	★	MHS0950L200B	172.7	201.2	201.7	261.7	260	1.7	10	4
	24	★	MHS0950L250B	229.7	251.2	251.7	311.7	310	1.7	10	4
	29	★	MHS0950L300B	277.2	301.2	301.7	361.7	360	1.7	10	4
9.6	2	□	MHS0960L040B	20.9	41.7	41.7	101.7	100	1.7	10	3
	7	□	MHS0960L090B	68.9	91.7	91.7	151.7	150	1.7	10	4
	10	□	MHS0960L120B	97.7	121.7	121.7	181.7	180	1.7	10	4
	13	□	MHS0960L150B	126.5	151.7	151.7	211.7	210	1.7	10	4
	18	□	MHS0960L200B	174.5	201.7	201.7	261.7	260	1.7	10	4
	24	□	MHS0960L250B	232.1	251.7	251.7	311.7	310	1.7	10	4
	29	□	MHS0960L300B	280.1	301.7	301.7	361.7	360	1.7	10	4
9.7	2	□	MHS0970L040B	21.1	41.7	41.7	101.7	100	1.7	10	3
	7	□	MHS0970L090B	69.7	91.8	91.8	151.8	150	1.8	10	4
	10	□	MHS0970L120B	98.8	121.8	121.8	181.8	180	1.8	10	4
	13	□	MHS0970L150B	127.9	151.8	151.8	211.8	210	1.8	10	4
	18	□	MHS0970L200B	176.4	201.8	201.8	261.8	260	1.8	10	4
	23	□	MHS0970L250B	224.9	251.8	251.8	311.8	310	1.8	10	4
	28	□	MHS0970L300B	273.4	301.8	301.8	361.8	360	1.8	10	4
9.8	2	★	MHS0980L040B	21.3	41.7	41.7	101.7	100	1.7	10	3
	7	★	MHS0980L090B	70.4	91.8	91.8	151.8	150	1.8	10	4
	10	★	MHS0980L120B	99.8	121.8	121.8	181.8	180	1.8	10	4
	13	★	MHS0980L150B	129.2	151.8	151.8	211.8	210	1.8	10	4
	18	★	MHS0980L200B	178.2	201.8	201.8	261.8	260	1.8	10	4
	23	★	MHS0980L250B	227.2	251.8	251.8	311.8	310	1.8	10	4
	28	★	MHS0980L300B	276.2	301.8	301.8	361.8	360	1.8	10	4
9.9	2	□	MHS0990L040B	21.5	41.7	41.7	101.7	100	1.7	10	3
	7	□	MHS0990L090B	71.1	91.8	91.8	151.8	150	1.8	10	4
	10	□	MHS0990L120B	100.8	121.8	121.8	181.8	180	1.8	10	4
	13	□	MHS0990L150B	130.5	151.8	151.8	211.8	210	1.8	10	4
	18	□	MHS0990L200B	180.0	201.8	201.8	261.8	260	1.8	10	4
	23	□	MHS0990L250B	229.5	251.8	251.8	311.8	310	1.8	10	4
	28	□	MHS0990L300B	279.0	301.8	301.8	361.8	360	1.8	10	4
10.0	1	●	MHS1000L040B	11.7	41.7	41.7	101.7	100	1.7	10	3
	6	●	MHS1000L090B	61.8	91.8	91.8	151.8	150	1.8	10	4
	9	●	MHS1000L120B	91.8	121.8	121.8	181.8	180	1.8	10	4
	12	●	MHS1000L150B	121.8	151.8	151.8	211.8	210	1.8	10	4
	17	●	MHS1000L200B	171.8	201.8	201.8	261.8	260	1.8	10	4
	22	●	MHS1000L250B	221.8	251.8	251.8	311.8	310	1.8	10	4
	27	●	MHS1000L300B	271.8	301.8	301.8	361.8	360	1.8	10	4
10.1	1	□	MHS1010L040B	11.8	40.2	41.7	101.7	100	1.7	12	3
	6	□	MHS1010L090B	62.4	90.3	91.8	151.8	150	1.8	12	4
	9	□	MHS1010L120B	92.7	120.3	121.8	181.8	180	1.8	12	4
	12	□	MHS1010L150B	123.0	150.3	151.8	211.8	210	1.8	12	4
	17	□	MHS1010L200B	173.5	200.3	201.8	261.8	260	1.8	12	4
	22	□	MHS1010L250B	224.0	250.3	251.8	311.8	310	1.8	12	4
	27	□	MHS1010L300B	274.5	300.3	301.8	361.8	360	1.8	12	4

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
10.2	1	□	MHS1020L040B	12.0	40.3	41.8	101.8	100	1.8	12	3
	6	□	MHS1020L090B	63.1	90.4	91.9	151.9	150	1.9	12	4
	9	□	MHS1020L120B	93.7	120.4	121.9	181.9	180	1.9	12	4
	12	□	MHS1020L150B	124.3	150.4	151.9	211.9	210	1.9	12	4
	17	□	MHS1020L200B	175.3	200.4	201.9	261.9	260	1.9	12	4
	22	□	MHS1020L250B	226.3	250.4	251.9	311.9	310	1.9	12	4
	27	□	MHS1020L300B	277.3	300.4	301.9	361.9	360	1.9	12	4
10.3	1	□	MHS1030L040B	12.1	40.3	41.8	101.8	100	1.8	12	3
	6	□	MHS1030L090B	63.7	90.4	91.9	151.9	150	1.9	12	4
	9	□	MHS1030L120B	94.6	120.4	121.9	181.9	180	1.9	12	4
	12	□	MHS1030L150B	125.5	150.4	151.9	211.9	210	1.9	12	4
	17	□	MHS1030L200B	177.0	200.4	201.9	261.9	260	1.9	12	4
	22	□	MHS1030L250B	228.5	250.4	251.9	311.9	310	1.9	12	4
	26	□	MHS1030L300B	269.7	300.4	301.9	361.9	360	1.9	12	4
10.4	1	□	MHS1040L040B	12.2	40.3	41.8	101.8	100	1.8	12	3
	6	□	MHS1040L090B	64.3	90.4	91.9	151.9	150	1.9	12	4
	9	□	MHS1040L120B	95.5	120.4	121.9	181.9	180	1.9	12	4
	12	□	MHS1040L150B	126.7	150.4	151.9	211.9	210	1.9	12	4
	17	□	MHS1040L200B	178.7	200.4	201.9	261.9	260	1.9	12	4
	21	□	MHS1040L250B	220.3	250.4	251.9	311.9	310	1.9	12	4
	26	□	MHS1040L300B	272.3	300.4	301.9	361.9	360	1.9	12	4
10.5	1	★	MHS1050L040B	12.3	40.3	41.8	101.8	100	1.8	12	3
	6	★	MHS1050L090B	64.9	90.4	91.9	151.9	150	1.9	12	4
	9	★	MHS1050L120B	96.4	120.4	121.9	181.9	180	1.9	12	4
	12	★	MHS1050L150B	127.9	150.4	151.9	211.9	210	1.9	12	4
	16	★	MHS1050L200B	169.9	200.4	201.9	261.9	260	1.9	12	4
	21	★	MHS1050L250B	222.4	250.4	251.9	311.9	310	1.9	12	4
	26	★	MHS1050L300B	274.9	300.4	301.9	361.9	360	1.9	12	4
10.6	1	□	MHS1060L040B	12.4	40.8	41.8	101.8	100	1.8	12	3
	6	□	MHS1060L090B	65.5	90.9	91.9	151.9	150	1.9	12	4
	9	□	MHS1060L120B	97.3	120.9	121.9	181.9	180	1.9	12	4
	12	□	MHS1060L150B	129.1	150.9	151.9	211.9	210	1.9	12	4
	16	□	MHS1060L200B	171.5	200.9	201.9	261.9	260	1.9	12	4
	21	□	MHS1060L250B	224.5	250.9	251.9	311.9	310	1.9	12	4
	26	□	MHS1060L300B	277.5	300.9	301.9	361.9	360	1.9	12	4
10.7	1	□	MHS1070L040B	12.5	40.8	41.8	101.8	100	1.8	12	3
	6	□	MHS1070L090B	66.1	90.9	91.9	151.9	150	1.9	12	4
	9	□	MHS1070L120B	98.2	120.9	121.9	181.9	180	1.9	12	4
	11	□	MHS1070L150B	119.6	150.9	151.9	211.9	210	1.9	12	4
	16	□	MHS1070L200B	173.1	200.9	201.9	261.9	260	1.9	12	4
	21	□	MHS1070L250B	226.6	250.9	251.9	311.9	310	1.9	12	4
	25	□	MHS1070L300B	269.4	300.9	301.9	361.9	360	1.9	12	4
10.8	1	★	MHS1080L040B	12.7	40.9	41.9	101.9	100	1.9	12	3
	6	★	MHS1080L090B	66.8	91.0	92.0	152.0	150	2.0	12	4
	9	★	MHS1080L120B	99.2	121.0	122.0	182.0	180	2.0	12	4
	11	★	MHS1080L150B	120.8	151.0	152.0	212.0	210	2.0	12	4
	16	★	MHS1080L200B	174.8	201.0	202.0	262.0	260	2.0	12	4
	21	★	MHS1080L250B	228.8	251.0	252.0	312.0	310	2.0	12	4
	25	★	MHS1080L300B	272.0	301.0	302.0	362.0	360	2.0	12	4

DC	Delik Derinliği (mm)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
10.9	1	□	MHS1090L040B	12.8	40.9	41.9	101.9	100	1.9	12	3
	6	□	MHS1090L090B	67.4	91.0	92.0	152.0	150	2.0	12	4
	8	□	MHS1090L120B	89.2	121.0	122.0	182.0	180	2.0	12	4
	11	□	MHS1090L150B	121.9	151.0	152.0	212.0	210	2.0	12	4
	16	□	MHS1090L200B	176.4	201.0	202.0	262.0	260	2.0	12	4
	20	□	MHS1090L250B	220.0	251.0	252.0	312.0	310	2.0	12	4
	25	□	MHS1090L300B	274.5	301.0	302.0	362.0	360	2.0	12	4
11.0	1	●	MHS1100L040B	12.9	40.9	41.9	101.9	100	1.9	12	3
	6	●	MHS1100L090B	68.0	91.0	92.0	152.0	150	2.0	12	4
	8	●	MHS1100L120B	90.0	121.0	122.0	182.0	180	2.0	12	4
	11	●	MHS1100L150B	123.0	151.0	152.0	212.0	210	2.0	12	4
	16	●	MHS1100L200B	178.0	201.0	202.0	262.0	260	2.0	12	4
	20	●	MHS1100L250B	222.0	251.0	252.0	312.0	310	2.0	12	4
	25	●	MHS1100L300B	277.0	301.0	302.0	362.0	360	2.0	12	4
11.1	1	□	MHS1110L040B	13.0	41.4	41.9	101.9	100	1.9	12	3
	6	□	MHS1110L090B	68.6	91.5	92.0	152.0	150	2.0	12	4
	8	□	MHS1110L120B	90.8	121.5	122.0	182.0	180	2.0	12	4
	11	□	MHS1110L150B	124.1	151.5	152.0	212.0	210	2.0	12	4
	15	□	MHS1110L200B	168.5	201.5	202.0	262.0	260	2.0	12	4
	20	□	MHS1110L250B	224.0	251.5	252.0	312.0	310	2.0	12	4
	24	□	MHS1110L300B	268.4	301.5	302.0	362.0	360	2.0	12	4
11.2	1	□	MHS1120L040B	13.1	41.4	41.9	101.9	100	1.9	12	3
	5	□	MHS1120L090B	58.0	91.5	92.0	152.0	150	2.0	12	4
	8	□	MHS1120L120B	91.6	121.5	122.0	182.0	180	2.0	12	4
	11	□	MHS1120L150B	125.2	151.5	152.0	212.0	210	2.0	12	4
	15	□	MHS1120L200B	170.0	201.5	202.0	262.0	260	2.0	12	4
	20	□	MHS1120L250B	226.0	251.5	252.0	312.0	310	2.0	12	4
	24	□	MHS1120L300B	270.8	301.5	302.0	362.0	360	2.0	12	4
11.3	1	□	MHS1130L040B	13.2	41.4	41.9	101.9	100	1.9	12	3
	5	□	MHS1130L090B	58.6	91.6	92.1	152.1	150	2.1	12	4
	8	□	MHS1130L120B	92.5	121.6	122.1	182.1	180	2.1	12	4
	11	□	MHS1130L150B	126.4	151.6	152.1	212.1	210	2.1	12	4
	15	□	MHS1130L200B	171.6	201.6	202.1	262.1	260	2.1	12	4
	20	□	MHS1130L250B	228.1	251.6	252.1	312.1	310	2.1	12	4
	24	□	MHS1130L300B	273.3	301.6	302.1	362.1	360	2.1	12	4
11.4	1	□	MHS1140L040B	13.4	41.5	42.0	102.0	100	2.0	12	3
	5	□	MHS1140L090B	59.1	91.6	92.1	152.1	150	2.1	12	4
	8	□	MHS1140L120B	93.3	121.6	122.1	182.1	180	2.1	12	4
	11	□	MHS1140L150B	127.5	151.6	152.1	212.1	210	2.1	12	4
	15	□	MHS1140L200B	173.1	201.6	202.1	262.1	260	2.1	12	4
	19	□	MHS1140L250B	218.7	251.6	252.1	312.1	310	2.1	12	4
	24	□	MHS1140L300B	275.7	301.6	302.1	362.1	360	2.1	12	4
11.5	1	★	MHS1150L040B	13.5	41.5	42.0	102.0	100	2.0	12	3
	5	★	MHS1150L090B	59.6	91.6	92.1	152.1	150	2.1	12	4
	8	★	MHS1150L120B	94.1	121.6	122.1	182.1	180	2.1	12	4
	10	★	MHS1150L150B	117.1	151.6	152.1	212.1	210	2.1	12	4
	15	★	MHS1150L200B	174.6	201.6	202.1	262.1	260	2.1	12	4
	19	★	MHS1150L250B	220.6	251.6	252.1	312.1	310	2.1	12	4
	24	★	MHS1150L300B	278.1	301.6	302.1	362.1	360	2.1	12	4

Not 1) Lütfen bu katalogda Bulunmayan herhangi bir geometri için bizimle iletişim kurabilirsiniz (örn. farklı çap ve uzunlukta).

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

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

DC (mm)	Delik Derinliği (L/D)	VP15TF	Sipariş Numarası	Boyutlar (mm)							Tip
				LU	LCF	LH	OAL	LF	PL	DCON	
11.6	1	□	MHS1160L040B	13.6	42.0	42.0	102.0	100	2.0	12	3
	5	□	MHS1160L090B	60.1	92.1	92.1	152.1	150	2.1	12	4
	8	□	MHS1160L120B	94.9	122.1	122.1	182.1	180	2.1	12	4
	10	□	MHS1160L150B	118.1	152.1	152.1	212.1	210	2.1	12	4
	15	□	MHS1160L200B	176.1	202.1	202.1	262.1	260	2.1	12	4
	19	□	MHS1160L250B	222.5	252.1	252.1	312.1	310	2.1	12	4
	23	□	MHS1160L300B	268.9	302.1	302.1	362.1	360	2.1	12	4
11.7	1	□	MHS1170L040B	13.7	42.0	42.0	102.0	100	2.0	12	3
	5	□	MHS1170L090B	60.6	92.1	92.1	152.1	150	2.1	12	4
	8	□	MHS1170L120B	95.7	122.1	122.1	182.1	180	2.1	12	4
	10	□	MHS1170L150B	119.1	152.1	152.1	212.1	210	2.1	12	4
	15	□	MHS1170L200B	177.6	202.1	202.1	262.1	260	2.1	12	4
	19	□	MHS1170L250B	224.4	252.1	252.1	312.1	310	2.1	12	4
	23	□	MHS1170L300B	271.2	302.1	302.1	362.1	360	2.1	12	4
11.8	1	★	MHS1180L040B	13.8	42.0	42.0	102.0	100	2.0	12	3
	5	★	MHS1180L090B	61.1	92.1	92.1	152.1	150	2.1	12	4
	8	★	MHS1180L120B	96.5	122.1	122.1	182.1	180	2.1	12	4
	10	★	MHS1180L150B	120.1	152.1	152.1	212.1	210	2.1	12	4
	14	★	MHS1180L200B	167.3	202.1	202.1	262.1	260	2.1	12	4
	19	★	MHS1180L250B	226.3	252.1	252.1	312.1	310	2.1	12	4
	23	★	MHS1180L300B	273.5	302.1	302.1	362.1	360	2.1	12	4
11.9	1	□	MHS1190L040B	13.9	42.0	42.0	102.0	100	2.0	12	3
	5	□	MHS1190L090B	61.7	92.2	92.2	152.2	150	2.2	12	4
	8	□	MHS1190L120B	97.4	122.2	122.2	182.2	180	2.2	12	4
	10	□	MHS1190L150B	121.2	152.2	152.2	212.2	210	2.2	12	4
	14	□	MHS1190L200B	168.8	202.2	202.2	262.2	260	2.2	12	4
	19	□	MHS1190L250B	228.3	252.2	252.2	312.2	310	2.2	12	4
	23	□	MHS1190L300B	275.9	302.2	302.2	362.2	360	2.2	12	4
12.0	1	●	MHS1200L040B	14.1	42.1	42.1	102.1	100	2.1	12	3
	5	●	MHS1200L090B	62.2	92.2	92.2	152.2	150	2.2	12	4
	7	●	MHS1200L120B	86.2	122.2	122.2	182.2	180	2.2	12	4
	10	●	MHS1200L150B	122.2	152.2	152.2	212.2	210	2.2	12	4
	14	●	MHS1200L200B	170.2	202.2	202.2	262.2	260	2.2	12	4
	18	●	MHS1200L250B	218.2	252.2	252.2	312.2	310	2.2	12	4
	22	●	MHS1200L300B	266.2	302.2	302.2	362.2	360	2.2	12	4

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi	P				M			
	Yumuşak Çelik ($\leq 180\text{HB}$), Karbon çelik, Alaşımlı çelik ($180-280\text{HB}$) Ck10, Ck45, 42CrMo4				Feritik, Martensitik Paslanmaz Çelik ($>200\text{HB}$) X20CrNi17-2, X30Cr13			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak^{-1})	İlerleme oranı (Min.—Maks.) (mm/dev)	Tabla Hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak^{-1})	İlerleme oranı (Min.—Maks.) (mm/dev)	Tabla Hızı (mm/dak)
1.0	40	12700	0.030 (0.020—0.040)	380	20	6400	0.030 (0.020—0.040)	190
1.2	50	13300	0.035 (0.025—0.050)	465	30	8000	0.035 (0.025—0.050)	280
1.6	60	11900	0.050 (0.030—0.065)	595	40	8000	0.050 (0.030—0.065)	400
2.0	70	11100	0.060 (0.040—0.080)	665	50	8000	0.060 (0.040—0.080)	480
2.5	80	10200	0.075 (0.050—0.100)	765	60	7600	0.075 (0.050—0.100)	570
3.2	80	8000	0.100 (0.070—0.130)	800	60	6000	0.100 (0.070—0.130)	600
4.0	80	6400	0.100 (0.090—0.110)	640	60	4800	0.090 (0.080—0.090)	430
5.0	80	5100	0.130 (0.110—0.140)	665	60	3800	0.110 (0.100—0.120)	420
6.3	80	4000	0.160 (0.140—0.180)	640	60	3000	0.140 (0.130—0.150)	420
8.0	80	3200	0.200 (0.180—0.230)	640	60	2400	0.170 (0.160—0.190)	410
10.0	80	2600	0.250 (0.220—0.280)	650	60	1900	0.220 (0.200—0.230)	420
12.0	80	2100	0.300 (0.270—0.340)	630	60	1600	0.260 (0.240—0.280)	415

Çalışma Malzemesi	P				H		M	
	Önceden sertleştirilmiş çelik ($35-45\text{HRC}$) Alaşımlı takım çeliği ($\leq 350\text{HB}$) NAK, X36CrMo17, X210Cr12, 55NiCrMoV6				Sertleştirilmiş çelik ($40-55\text{HRC}$) PH Paslanmaz Çelik ($<450\text{HB}$) X20CrNi17-2, X30Cr13 X5CrNiCuNb164, X7CrNiAl17-7			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak^{-1})	İlerleme oranı (Min.—Maks.) (mm/dev)	Tabla Hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak^{-1})	İlerleme oranı (Min.—Maks.) (mm/dev)	Tabla Hızı (mm/dak)
1.0	20	6400	0.025 (0.020—0.030)	160	40	12700	0.020 (0.015—0.025)	255
1.2	30	8000	0.030 (0.020—0.035)	240	40	10600	0.025 (0.020—0.030)	265
1.6	40	8000	0.040 (0.030—0.045)	320	50	10000	0.035 (0.025—0.040)	350
2.0	50	8000	0.045 (0.035—0.060)	360	50	8000	0.040 (0.030—0.050)	320
2.5	60	7600	0.060 (0.045—0.075)	455	60	7600	0.050 (0.040—0.065)	380
3.2	60	6000	0.080 (0.060—0.090)	480	60	6000	0.060 (0.050—0.080)	360
4.0	60	4800	0.080 (0.070—0.100)	385	60	4800	0.080 (0.060—0.100)	385
5.0	60	3800	0.110 (0.090—0.130)	420	60	3800	0.100 (0.080—0.130)	380
6.3	60	3000	0.130 (0.110—0.160)	390	60	3000	0.110 (0.090—0.130)	330
8.0	60	2400	0.170 (0.140—0.200)	410	60	2400	0.140 (0.120—0.160)	335
10.0	60	1900	0.210 (0.170—0.250)	400	60	1900	0.170 (0.140—0.200)	325
12.0	60	1600	0.250 (0.210—0.300)	400	60	1600	0.210 (0.170—0.240)	335

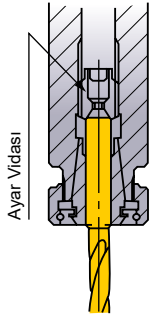
Çalışma Malzemesi	H		S	
	Sertleştirilmiş çelik ($40-55\text{HRC}$) Isıya Dirençli Alaşım X40CrMoV51, 55NiCrMoV7, Inconel718			
Matkap Ucu Çapı DC (mm)	Kesme Hızı (m/dak)	Devir (dak^{-1})	İlerleme oranı (Min.—Maks.) (mm/dev)	Tabla Hızı (mm/dak)
1.0	10	3200	0.015 (0.015—0.020)	50
1.2	10	2700	0.020 (0.015—0.025)	55
1.6	10	2000	0.025 (0.020—0.030)	50
2.0	20	3200	0.035 (0.025—0.040)	110
2.5	20	2600	0.040 (0.030—0.050)	105
3.2	20	2000	0.050 (0.040—0.070)	100
4.0	30	2400	0.070 (0.050—0.080)	170
5.0	30	1900	0.080 (0.060—0.100)	150
6.3	30	1500	0.090 (0.080—0.110)	135
8.0	40	1600	0.120 (0.100—0.130)	190
10.0	40	1300	0.150 (0.130—0.170)	195
12.0	40	1100	0.180 (0.150—0.200)	200

Not 1) Delme boyu L/D 10 nun üzerinde matkap ucu kullanıldığında, yataklama için bir pilot deliğin kullanılması gereklidir. (Ön delik kullanılmazsa matkap ucu kırılması meydana gelebilir.)

Not 2) Pilot matkap ucu olarak ilgili boyutta en kısa helis kanallı matkap ucunu kullanın.

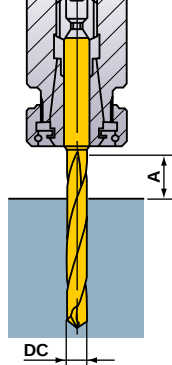
■ ÇALIŞMA KILAVUZU

Matkap Ucunu Bağlama



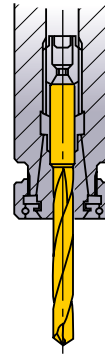
Bilya baskılı pens başlığı ile pens, matkap ucunu sabit şekilde tutar.

Matkap Ucu Uzunluğu



$$A \geq DC \times 2$$

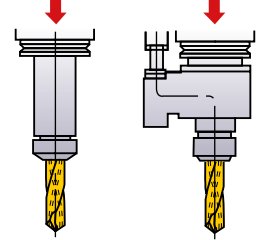
Matkap Ucu Montajı



Helis kanallardan bağlamayın.

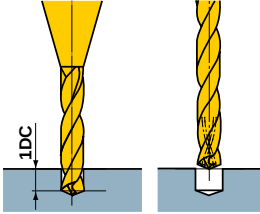
Boydan boyda Soğutma Tipi

Tezgah mili boyunca soğutma Suyu Tipi Devirdaim pompası ile Soğutma Suyu Tipi



Soğutma suyu basıncı yaklaşık 15 bar – 70 bar'dır
Önerilen soğutma suyu basıncı: ≥ 30 bar

Matkap Ucunun Kurulumu

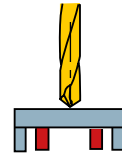


- 1) En kısa helisli matkap ucunu MHS'yi kullanarak yaklaşık 1DC (DC: matkap çapı) pilot delik hazırlayın.
- 2) Yataklama olarak pilot deliği kullanın ve soğutma delikli matkap ucu ile işleyin. Uygulamaya bağlı olarak, gagalama işlemini yürütün.

Soğutmayı Yönetme

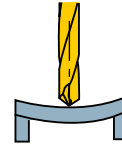
- 1) Eski soğutma suyundaki kir ve toz parçacıkları yağ deliğini tıkayabilir ve etkili akışı önleyebilir. Soğutma suyunun düzenli değişimi önerilir.
- 2) Küçük talaş parçacıkları yağ deliğine sıkışır. Korumacı önlem olarak filtre kullanın. Küçük çaplı matkap ucu kullanırken, ince gözenekli filtre kullanın.

İnce Çalışma Parçası



OK

İş Parçasını Destekleyin



X

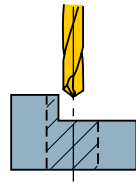
Bükülme Olasılığı

Kesintili Kesme

Bir İşlem

OK

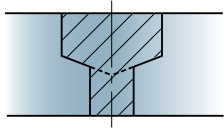
① Darbeyi oluşturan bölümü delerken ilerlemeyi düşürün.



Ön işleme Gerekir

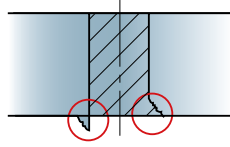
② Delmeden önce parmak freze ile yüzey düzeltme işlemini gerçekleştirin.

Kademeli Delikler



- ① İşlemeyi iki prosese ayırın.
 - ② Önce büyük çapı delin.
- ★ Pah ve spot yüzey için takım-lar sipariş üzerine üretilebilir.

Çapaklanma ve Çalışma Parçası Yongalama

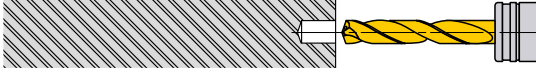


- ① Çıkışa yakın ilerleme oranını düşürün.
- ② Uç açısını değiştirin.

■ MHS UZUN TİP MATKAP UCU İÇİN ÇALIŞMA KILAVUZU (L/D ≥ 10)

DÜZ YÜZEY DELME ● Bir kör delik delme

■ 1. Bir pilot deliği delme



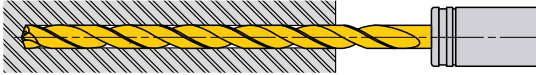
- ① Süper uzun tipten daha büyük (düz) uç açılı bir matkap ucu kullanın. Olası en kısa helis kanallıyı kullanın.
- ② Yataklama için yüksek hassasiyetli deliğin delindiğinden emin olun.
- ③ Matkap ucu derinliği : Yaklaşık 1DC veya daha derin.
(Pilot Delik Derinliğini süper uzun tip matkap ucu uzunluğuna göre ayarlayın.)

■ 2. Uzun tip matkap ucu ile kesmeye başlama



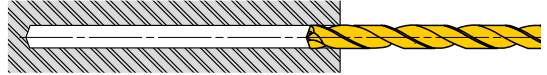
- ① Pilot deliğe düşük devirde nüfuz edin.
(Devir 1000dak⁻¹, ilerleme oranı 0.2—0.3mm/dev)
- ② Uzun tip matkap ucunu pilot delik tabanına 0.5—1mm kala durdurun.

■ 3. Derin deliğin delinmesi



- ① Önerilen hızda ve ilerleme oranıyla gagalama yapmadan (düz ilerleme) çevrimi ile kesmeye başlayın.

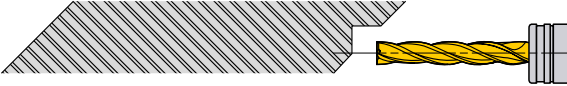
■ 4. Matkap ucunu geriye çekme



- ① Deldikten sonra, kesme devrini delik ucundan yaklaşık 0.5—1mm daha gerisinde düşürün (Devir yaklaşık 1000dak⁻¹)
- ② 3000mm/dak ilerleme hızıyla matkap ucunu pilot Delik Derinliği başlangıç noktasına geri çekin.
- ③ Son olarak, 20—30m/dak kesme hızında ve 0.2—0.3mm/dev ilerleme oranında deliği temizleyin.

DARBELİ DELME ● Üzerinde düzensiz veya açılı yüzler bulunan parçaları delme ve boşa çıkma

■ 1. Spot yüzeyi açma



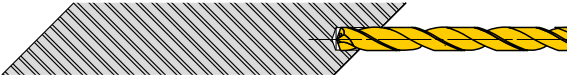
- ① Bir parmak frezeyi veya spot yüzeyi açma özellikli spot matkap ucunu kullanarak düz veya düzensiz bir yüzeyi işleyin. İşlenecek derin delik çapı ile aynı çapta bir düz yüzey yapın.

■ 2. Bir pilot deliği delme



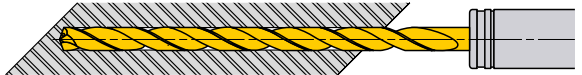
- ① Süper uzun tipten daha büyük (düz) bir uç açılı bir matkap ucu kullanın. Olası en kısa helis kanallıyı kullanın.
- ② Yataklama için yüksek hassasiyetli deliğin delindiğinden emin olun.
- ③ Matkap ucu derinliği : Yaklaşık 1DC veya daha uzun.
(Pilot Delik Derinliğini süper uzun tip matkap ucu uzunluğuna göre ayarlayın.)

■ 3. Uzun tip matkap ucu ile kesmeye başlama



- ① Yataklama deliğine düşük devirde nüfuz edin.
(Devir 1000dak⁻¹, ilerleme oranı 0.2—0.3mm/dev)
- ② Uzun tip matkap ucunu pilot delik tabanına 0.5—1mm kala durdurun.

■ 4. Derin deliğin delinmesi



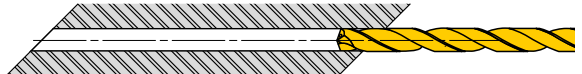
- ① Önerilen hızda ve ilerleme oranıyla gagalama yapmadan (düz ilerle) çevrimi ile kesmeye başlayın.

■ 5. Boşa çıkma



- ① Boşa çıkma işlemi sırasında, kesme kenarı hasar görebilir.
- ② Yüzeye yakın ilerleme oranını düşürün.

■ 6. Matkap ucunu geriye çekme



- ① Son olarak 20—30m/dak kesme hızında ve 0.2—0.3mm/dev ilerleme oranında deliği temizleyin.
- ② 3000mm/dak ilerleme hızında matkap ucunu pilot Delik Derinliği başlangıç noktasına geri çekin.

DELME (DEĞİŞTİRİLEBİLİR UÇLU TİP)

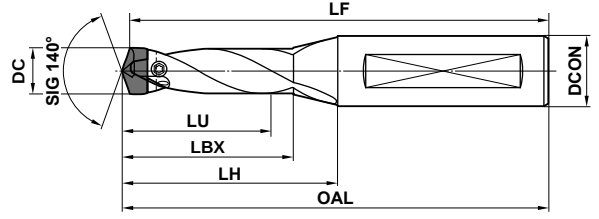
STAW

- İyi talaş kontrolü için dalgalı kesme kenarı tasarımı.
- Son derece sağlam bağlama sistemi, küçük delik delmede istikrar ve güvenilirlik sunar.



KARBÜR

P M K N S H



UÇ TUTUCULARI

DC (mm)	Delik Derinliği (LD)	Tutucu		Boyutlar (mm)						F Anahtar	Kesici Uç		
		Sipariş Numarası	Stok	LU	LBX	LH	OAL	LF	DCON		DC (mm)	Sipariş Numarası	Stok VP15TF
10.0 10.4	1.5	STAWSS1000S16	●	16.8	23.8	33.8	81.8	80	16	TIP06F	10.0	* STAWN1000TH STAWK1000TG	●
	3	STAWSN1000S16	●	31.8	38.8	48.8	96.8	95	16	TIP06F	10.1	STAWN1010TH STAWK1010TG	●
	5	STAWMN1000S16	●	51.8	58.8	68.8	116.8	115	16	TIP06F	10.2	STAWN1020TH STAWK1020TG	●
	8	STAWLN1000S16	●	81.8	88.8	98.8	146.8	145	16	TIP06F	10.3	STAWN1030TH STAWK1030TG	●
10.5 10.9	1.5	STAWSS1050S16	●	17.7	23.9	33.9	81.9	80	16	TIP06F	10.4	STAWN1040TH STAWK1040TG	●
	3	STAWSN1050S16	●	33.4	38.9	48.9	96.9	95	16	TIP06F	10.5	* STAWN1050TH STAWK1050TG	●
	5	STAWMN1050S16	●	54.4	58.9	68.9	116.9	115	16	TIP06F	10.6	STAWN1060TH STAWK1060TG	●
	8	STAWLN1050S16	●	85.9	88.9	98.9	146.9	145	16	TIP06F	10.7	STAWN1070TH STAWK1070TG	●
11.0 11.4	1.5	STAWSS1100S16	●	18.5	27.0	38.0	86.0	84	16	TIP06F	10.8	STAWN1080TH STAWK1080TG	●
	3	STAWSN1100S16	●	35.0	43.0	54.0	102.0	100	16	TIP06F	10.9	STAWN1090TH STAWK1090TG	●
	5	STAWMN1100S16	●	57.0	68.0	79.0	127.0	125	16	TIP06F	11.0	* STAWN1100TH STAWK1100TG	●
	8	STAWLN1100S16	●	90.0	98.0	109.0	157.0	155	16	TIP06F	11.1	STAWN1110TH STAWK1110TG	●
11.5 11.9	1.5	STAWSS1150S16	●	19.4	27.1	38.1	86.1	84	16	TIP06F	11.2	STAWN1120TH STAWK1120TG	●
	3	STAWSN1150S16	●	36.6	43.1	54.1	102.1	100	16	TIP06F	11.3	STAWN1130TH STAWK1130TG	●
	5	STAWMN1150S16	●	59.6	68.1	79.1	127.1	125	16	TIP06F	11.4	STAWN1140TH STAWK1140TG	●
	8	STAWLN1150S16	●	94.1	98.1	109.1	157.1	155	16	TIP06F	11.5	* STAWN1150TH STAWK1150TG	●
12.0 12.4	1.5	STAWSS1200S16	●	20.2	29.2	41.2	89.2	87	16	TIP06F	11.6	STAWN1160TH STAWK1160TG	●
	3	STAWSN1200S16	●	38.2	47.2	59.2	107.2	105	16	TIP06F	11.7	STAWN1170TH STAWK1170TG	●
	5	STAWMN1200S16	●	62.2	72.2	84.2	132.2	130	16	TIP06F	11.8	STAWN1180TH STAWK1180TG	●
	8	STAWLN1200S16	●	98.2	107.2	119.2	167.2	165	16	TIP06F	11.9	STAWN1190TH STAWK1190TG	●
12.0 12.4	1.5	STAWSS1200S16	●	20.2	29.2	41.2	89.2	87	16	TIP06F	12.0	* STAWN1200TH STAWK1200TG	●
	3	STAWSN1200S16	●	38.2	47.2	59.2	107.2	105	16	TIP06F	12.1	STAWN1210TH STAWK1210TG	●
	5	STAWMN1200S16	●	62.2	72.2	84.2	132.2	130	16	TIP06F	12.2	STAWN1220TH STAWK1220TG	●
	8	STAWLN1200S16	●	98.2	107.2	119.2	167.2	165	16	TIP06F	12.3	STAWN1230TH STAWK1230TG	●
12.0 12.4	1.5	STAWSS1200S16	●	20.2	29.2	41.2	89.2	87	16	TIP06F	12.4	STAWN1240TH STAWK1240TG	●
	3	STAWSN1200S16	●	38.2	47.2	59.2	107.2	105	16	TIP06F	12.4	STAWN1240TH STAWK1240TG	●
	5	STAWMN1200S16	●	62.2	72.2	84.2	132.2	130	16	TIP06F	12.4	STAWN1240TH STAWK1240TG	●
	8	STAWLN1200S16	●	98.2	107.2	119.2	167.2	165	16	TIP06F	12.4	STAWN1240TH STAWK1240TG	●

Not 1) Yukarıdaki boyutlar (*), kesici uçların montajından sonraki boyutlardır.

Not 2) Lütfen bu katalogta olmayan herhangi bir geometri için bizimle iletişim kurun (ör. farklı çap ve uzunluk).

- : Avrupa standart stok.
- (Not: bir kutuda 1 kesici uç)

KESİCİ UÇ AÇIKLAMASI > M144
KESME KOŞULLARI > M146
KULLANIM NOTU > M147

YEDEK PARÇALAR > N001
TEKNİK VERİLER > P001

M141

DELME (DEĞİŞTİRİLEBİLİR UÇLU TİP)

STAW

KARBÜR

M
DELME

DC (mm)	Delik Derinliği (L/D)	Tutucu		Boyutlar (mm)						F W Anahtar	Kesici Uç		
		Sipariş Numarası	Stok	LD	LBX	LH	OAL	LF	DCON		DC (mm)	Sipariş Numarası	Stok VP15TF
12.5 12.9	1.5	STAWSS1250S16	●	21.1	29.3	41.3	89.3	87	16	TIP06F	12.5	* STAWN1250TH STAWK1250TG	●
	3	STAWSN1250S16	●	39.8	47.3	59.3	107.3	105	16	TIP06F	12.6	STAWN1260TH STAWK1260TG	●
	5	STAWMN1250S16	●	64.8	72.3	84.3	132.3	130	16	TIP06F	12.7	STAWN1270TH STAWK1270TG	●
	8	STAWLN1250S16	●	102.3	107.3	119.3	167.3	165	16	TIP06F	12.8	STAWN1280TH STAWK1280TG	●
											12.9	STAWN1290TH STAWK1290TG	●
13.0 13.4	1.5	STAWSS1300S16	●	21.9	32.4	45.4	93.4	91	16	TIP08W	13.0	* STAWN1300TH STAWK1300TG	●
	3	STAWSN1300S16	●	41.4	51.4	64.4	112.4	110	16	TIP08W	13.1	STAWN1310TH STAWK1310TG	●
	5	STAWMN1300S16	●	67.4	76.4	89.4	137.4	135	16	TIP08W	13.2	STAWN1320TH STAWK1320TG	●
	8	STAWLN1300S16	●	106.4	116.4	129.4	177.4	175	16	TIP08W	13.3	STAWN1330TH STAWK1330TG	●
											13.4	STAWN1340TH STAWK1340TG	●
13.5 13.9	1.5	STAWSS1350S16	●	22.8	32.5	45.5	93.5	91	16	TIP08W	13.5	* STAWN1350TH STAWK1350TG	●
	3	STAWSN1350S16	●	43.0	51.5	64.5	112.5	110	16	TIP08W	13.6	STAWN1360TH STAWK1360TG	●
	5	STAWMN1350S16	●	70.0	76.5	89.5	137.5	135	16	TIP08W	13.7	STAWN1370TH STAWK1370TG	●
	8	STAWLN1350S16	●	110.5	116.5	129.5	177.5	175	16	TIP08W	13.8	STAWN1380TH STAWK1380TG	●
											13.9	STAWN1390TH STAWK1390TG	●
14.0 14.4	1.5	STAWSS1400S16	●	23.5	33.5	47.5	95.5	93	16	TIP08W	14.0	* STAWN1400TH STAWK1400TG	●
	3	STAWSN1400S16	●	44.5	55.5	69.5	117.5	115	16	TIP08W	14.1	STAWN1410TH STAWK1410TG	●
	5	STAWMN1400S16	●	72.5	85.5	99.5	147.5	145	16	TIP08W	14.2	STAWN1420TH STAWK1420TG	●
	8	STAWLN1400S16	●	114.5	124.5	139.5	187.5	185	16	TIP08W	14.3	STAWN1430TH STAWK1430TG	●
											14.4	STAWN1440TH STAWK1440TG	●
14.5 14.9	1.5	STAWSS1450S16	●	24.4	33.6	47.6	95.6	93	16	TIP08W	14.5	* STAWN1450TH STAWK1450TG	●
	3	STAWSN1450S16	●	46.1	55.6	69.6	117.6	115	16	TIP08W	14.6	STAWN1460TH STAWK1460TG	●
	5	STAWMN1450S16	●	75.1	85.6	99.6	147.6	145	16	TIP08W	14.7	STAWN1470TH STAWK1470TG	●
	8	STAWLN1450S16	●	118.6	124.6	139.6	187.6	185	16	TIP08W	14.8	STAWN1480TH STAWK1480TG	●
											14.9	STAWN1490TH STAWK1490TG	●
15.0 15.4	1.5	STAWSS1500S20	●	25.2	35.7	50.7	100.7	98	20	TIP08W	15.0	* STAWN1500TH STAWK1500TG	●
	3	STAWSN1500S20	●	47.7	62.7	77.7	127.7	125	20	TIP08W	15.1	STAWN1510TH STAWK1510TG	●
	5	STAWMN1500S20	●	77.7	92.7	107.7	157.7	155	20	TIP08W	15.2	STAWN1520TH STAWK1520TG	●
	8	STAWLN1500S20	●	122.7	132.7	150.7	200.7	198	20	TIP08W	15.3	STAWN1530TH STAWK1530TG	●
											15.4	STAWN1540TH STAWK1540TG	●

Not 1) Yukarıdaki boyutlar (★), kesici uçların montajından sonraki boyutlardır.

Not 2) Lütfen bu katalogta olmayan herhangi bir geometri için bizimle iletişim kurun (ör. farklı çap ve uzunluk).

● : Avrupa standart stok. (Not: bir kutuda 1 kesici uç)

DC (mm)	Delik Derinliği (L/D)	Tutucu		Boyutlar (mm)						W  Anahtar	Kesici Uç		
		Sipariş Numarası	Stok	LU	LBX	LH	OAL	LF	DON		DC (mm)	Sipariş Numarası	Stok VP15TF
15.5 16.4	1.5	STAWSS1600S20	●	26.1	36.8	52.8	102.8	100	20	TIP10W	15.5	* STAWN1550T STAWK1550TG	●
											15.6	STAWN1560T STAWK1560TG	●
											15.7	STAWN1570T STAWK1570TG	●
	3	STAWSN1600S20	●	49.3	62.8	82.8	132.8	130	20	TIP10W	15.8	STAWN1580T STAWK1580TG	●
											15.9	STAWN1590T STAWK1590TG	●
											16.0	STAWN1600T STAWK1600TG	●
	5	STAWMN1600S20	●	80.3	92.8	117.8	167.8	165	20	TIP10W	16.1	STAWN1610T STAWK1610TG	●
											16.2	STAWN1620T STAWK1620TG	●
											16.3	STAWN1630T STAWK1630TG	●
	8	STAWLN1600S20	●	126.8	140.8	160.8	210.8	208	20	TIP10W	16.4	STAWN1640T STAWK1640TG	●
											16.5	* STAWN1650T STAWK1650TG	●
											16.6	STAWN1660T STAWK1660TG	●
	3	STAWSN1700S20	●	52.5	64.0	88.0	138.0	135	20	TIP10W	16.7	STAWN1670T STAWK1670TG	●
											16.8	STAWN1680T STAWK1680TG	●
											16.9	STAWN1690T STAWK1690TG	●
	5	STAWMN1700S20	●	85.5	98.0	123.0	173.0	170	20	TIP10W	17.0	STAWN1700T STAWK1700TG	●
											17.1	STAWN1710T STAWK1710TG	●
											17.2	STAWN1720T STAWK1720TG	●
	8	STAWLN1700S20	●	135.0	149.0	169.0	219.0	216	20	TIP10W	17.3	STAWN1730T STAWK1730TG	●
											17.4	STAWN1740T STAWK1740TG	●
											17.5	* STAWN1750T STAWK1750TG	●
17.5 18.4	1.5	STAWSS1800S20	●	29.5	40.2	58.2	108.2	105	20	TIP10W	17.6	STAWN1760T STAWK1760TG	●
											17.7	STAWN1770T STAWK1770TG	●
											17.8	STAWN1780T STAWK1780TG	●
	3	STAWSN1800S20	●	55.7	67.2	93.2	143.2	140	20	TIP10W	17.9	STAWN1790T STAWK1790TG	●
											18.0	STAWN1800T STAWK1800TG	●
											18.1	STAWN1810T STAWK1810TG	●
	5	STAWMN1800S20	●	90.7	103.2	128.2	178.2	175	20	TIP10W	18.2	STAWN1820T STAWK1820TG	●
											18.3	STAWN1830T STAWK1830TG	●
											18.4	STAWN1840T STAWK1840TG	●
	8	STAWLN1800S20	●	143.2	157.2	177.2	227.2	224	20	TIP10W	18.5	STAWN1850T STAWK1850TG	●
											18.6	STAWN1860T STAWK1860TG	●
											18.7	STAWN1870T STAWK1870TG	●
	3	STAWSN1900S20	●	61.9	73.8	101.8	151.8	148	20	TIP10W	18.8	STAWN1880T STAWK1880TG	●
											18.9	STAWN1890T STAWK1890TG	●
											19.0	STAWN1900T STAWK1900TG	●

KESİCİ UÇ AÇIKLAMASI > M144

KESME KOŞULLARI > M146

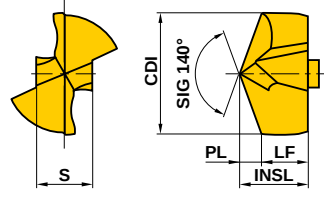
KULLANIM NOTU > M147

YEDEK PARÇALAR > N001

TEKNİK VERİLER > P001

STAW

KESİCİ UÇLAR

M
DELME

Sipariş Numarası	Kaplama		Boyutlar (mm)					Geçerli Tutucu
	VP15TF		CDI	INSL	LF	PL	S	
STAWN1000TH	●		10.0	5.6	3.8	1.8	4.6	STAWSS1000S16 STAWSN1000S16 STAWMN1000S16 STAWLN1000S16
STAWN1010TH	●		10.1	5.6	3.8	1.8	4.6	
STAWN1020TH	●		10.2	5.7	3.8	1.9	4.6	
STAWN1030TH	●		10.3	5.7	3.8	1.9	4.6	
STAWN1040TH	●		10.4	5.7	3.8	1.9	4.6	
STAWN1050TH	●		10.5	5.9	4.0	1.9	4.8	STAWSS1050S16 STAWSN1050S16 STAWMN1050S16 STAWLN1050S16
STAWN1060TH	●		10.6	5.9	4.0	1.9	4.8	
STAWN1070TH	●		10.7	5.9	4.0	1.9	4.8	
STAWN1080TH	●		10.8	6.0	4.0	2.0	4.8	
STAWN1090TH	●		10.9	6.0	4.0	2.0	4.8	
STAWN1100TH	●		11.0	6.2	4.2	2.0	5.1	STAWSS1100S16 STAWSN1100S16 STAWMN1100S16 STAWLN1100S16
STAWN1110TH	●		11.1	6.2	4.2	2.0	5.1	
STAWN1120TH	●		11.2	6.2	4.2	2.0	5.1	
STAWN1130TH	●		11.3	6.3	4.2	2.1	5.1	
STAWN1140TH	●		11.4	6.3	4.2	2.1	5.1	
STAWN1150TH	●		11.5	6.5	4.4	2.1	5.3	STAWSS1150S16 STAWSN1150S16 STAWMN1150S16 STAWLN1150S16
STAWN1160TH	●		11.6	6.5	4.4	2.1	5.3	
STAWN1170TH	●		11.7	6.5	4.4	2.1	5.3	
STAWN1180TH	●		11.8	6.5	4.4	2.1	5.3	
STAWN1190TH	●		11.9	6.6	4.4	2.2	5.3	
STAWN1200TH	●		12.0	6.8	4.6	2.2	5.5	STAWSS1200S16 STAWSN1200S16 STAWMN1200S16 STAWLN1200S16
STAWN1210TH	●		12.1	6.8	4.6	2.2	5.5	
STAWN1220TH	●		12.2	6.8	4.6	2.2	5.5	
STAWN1230TH	●		12.3	6.8	4.6	2.2	5.5	
STAWN1240TH	●		12.4	6.9	4.6	2.3	5.5	
STAWN1250TH	●		12.5	7.1	4.8	2.3	5.8	STAWSS1250S16 STAWSN1250S16 STAWMN1250S16 STAWLN1250S16
STAWN1260TH	●		12.6	7.1	4.8	2.3	5.8	
STAWN1270TH	●		12.7	7.1	4.8	2.3	5.8	
STAWN1280TH	●		12.8	7.1	4.8	2.3	5.8	
STAWN1290TH	●		12.9	7.1	4.8	2.3	5.8	
STAWN1300TH	●		13.0	7.3	4.9	2.4	6.0	STAWSS1300S16 STAWSN1300S16 STAWMN1300S16 STAWLN1300S16
STAWN1310TH	●		13.1	7.3	4.9	2.4	6.0	
STAWN1320TH	●		13.2	7.3	4.9	2.4	6.0	
STAWN1330TH	●		13.3	7.3	4.9	2.4	6.0	
STAWN1340TH	●		13.4	7.3	4.9	2.4	6.0	
STAWN1350TH	●		13.5	7.6	5.1	2.5	6.2	STAWSS1350S16 STAWSN1350S16 STAWMN1350S16 STAWLN1350S16
STAWN1360TH	●		13.6	7.6	5.1	2.5	6.2	
STAWN1370TH	●		13.7	7.6	5.1	2.5	6.2	
STAWN1380TH	●		13.8	7.6	5.1	2.5	6.2	
STAWN1390TH	●		13.9	7.6	5.1	2.5	6.2	

● : Avrupa standart stok. (Not: bir kutuda 1 kesici uç)

Sipariş Numarası	Kaplama		Boyutlar (mm)					Geçerli Tutucu
	VP	15TF	CDI	INSL	LF	PL	S	
STAWN1400TH	●		14.0	7.8	5.3	2.5	6.4	STAWSS1400S16 STAWSN1400S16 STAWMN1400S16 STAWLN1400S16
STAWN1410TH	●		14.1	7.9	5.3	2.6	6.4	
STAWN1420TH	●		14.2	7.9	5.3	2.6	6.4	
STAWN1430TH	●		14.3	7.9	5.3	2.6	6.4	
STAWN1440TH	●		14.4	7.9	5.3	2.6	6.4	
STAWN1450TH	●		14.5	8.1	5.5	2.6	6.7	STAWSS1450S16 STAWSN1450S16 STAWMN1450S16 STAWLN1450S16
STAWN1460TH	●		14.6	8.2	5.5	2.7	6.7	
STAWN1470TH	●		14.7	8.2	5.5	2.7	6.7	
STAWN1480TH	●		14.8	8.2	5.5	2.7	6.7	
STAWN1490TH	●		14.9	8.2	5.5	2.7	6.7	
STAWN1500TH	●		15.0	8.4	5.7	2.7	6.9	STAWSS1500S20 STAWSN1500S20 STAWMN1500S20 STAWLN1500S20
STAWN1510TH	●		15.1	8.4	5.7	2.7	6.9	
STAWN1520TH	●		15.2	8.5	5.7	2.8	6.9	
STAWN1530TH	●		15.3	8.5	5.7	2.8	6.9	
STAWN1540TH	●		15.4	8.5	5.7	2.8	6.9	
STAWN1550T	●		15.5	8.7	5.9	2.8	7.1	STAWSS1600S20 STAWSN1600S20 STAWMN1600S20 STAWLN1600S20
STAWN1560T	●		15.6	8.7	5.9	2.8	7.1	
STAWN1570T	●		15.7	8.8	5.9	2.9	7.1	
STAWN1580T	●		15.8	8.8	5.9	2.9	7.1	
STAWN1590T	●		15.9	8.8	5.9	2.9	7.1	
STAWN1600T	●		16.0	8.8	5.9	2.9	7.1	
STAWN1610T	●		16.1	8.8	5.9	2.9	7.1	
STAWN1620T	●		16.2	8.8	5.9	2.9	7.1	
STAWN1630T	●		16.3	8.9	5.9	3.0	7.1	
STAWN1640T	●		16.4	8.9	5.9	3.0	7.1	
STAWN1650T	●		16.5	9.3	6.3	3.0	7.6	STAWSS1700S20 STAWSN1700S20 STAWMN1700S20 STAWLN1700S20
STAWN1660T	●		16.6	9.3	6.3	3.0	7.6	
STAWN1670T	●		16.7	9.3	6.3	3.0	7.6	
STAWN1680T	●		16.8	9.4	6.3	3.1	7.6	
STAWN1690T	●		16.9	9.4	6.3	3.1	7.6	
STAWN1700T	●		17.0	9.4	6.3	3.1	7.6	
STAWN1710T	●		17.1	9.4	6.3	3.1	7.6	
STAWN1720T	●		17.2	9.4	6.3	3.1	7.6	
STAWN1730T	●		17.3	9.4	6.3	3.1	7.6	
STAWN1740T	●		17.4	9.5	6.3	3.2	7.6	
STAWN1750T	●		17.5	9.9	6.7	3.2	8.1	STAWSS1800S20 STAWSN1800S20 STAWMN1800S20 STAWLN1800S20
STAWN1760T	●		17.6	9.9	6.7	3.2	8.1	
STAWN1770T	●		17.7	9.9	6.7	3.2	8.1	
STAWN1780T	●		17.8	9.9	6.7	3.2	8.1	
STAWN1790T	●		17.9	10.0	6.7	3.3	8.1	
STAWN1800T	●		18.0	10.0	6.7	3.3	8.1	
STAWN1810T	●		18.1	10.0	6.7	3.3	8.1	
STAWN1820T	●		18.2	10.0	6.7	3.3	8.1	
STAWN1830T	●		18.3	10.0	6.7	3.3	8.1	
STAWN1840T	●		18.4	10.0	6.7	3.3	8.1	

HONLAMA GENİŞLİĞİ

Standart dışında honlamalı bir kesici uç gerekliyse, lütfen aşağıdaki sembolleri kullanarak sipariş edin.

(Kesici Uç Sipariş Numarası)

S T A W N 1 0 0 0 T

STAW Ürün Adı

N : Genel Kullanım
K : Dökme Demir İçin

Kesici Uç Çapı

Honlama Sembolü

Honlama Tipi

(Honlama Standardı)

Honlama Tipi	Honlama Genişliği (mm)
F	0
G	0.02—0.05
H	0.05—0.10
- (Standart)	0.10—0.15
K	0.15—0.20
S	0.20—0.25
M	0.25—0.30

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi	Delme Ucu Çapı	Koşullar Sertlik	Ø10.0—Ø12.9		Ø13.0—Ø13.9		Ø14.0—Ø15.4		Ø15.5—Ø18.4	
			Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)
P	Yumuşak Çelik	≤180HB	80 (60—100)	0.20 (0.15—0.25)	90 (70—110)	0.25 (0.20—0.30)	100 (80—120)	0.30 (0.25—0.35)	100 (80—120)	0.35 (0.25—0.40)
	Karbon Çelik Alaşımlı Çelik	180—280HB	80 (60—100)	0.20 (0.15—0.25)	90 (70—110)	0.25 (0.20—0.30)	100 (80—120)	0.30 (0.25—0.35)	100 (80—120)	0.35 (0.25—0.40)
		280—350HB	70 (60—90)	0.20 (0.15—0.25)	80 (60—100)	0.25 (0.20—0.30)	90 (70—110)	0.25 (0.20—0.30)	90 (70—110)	0.30 (0.20—0.35)
M	Paslanmaz Çelik	≤200HB	40 (30—50)	0.13 (0.10—0.16)	50 (40—60)	0.15 (0.12—0.18)	60 (50—70)	0.17 (0.14—0.20)	60 (50—70)	0.17 (0.14—0.20)
K	Dökme Demir	Çekme Mukavemeti ≤350MPa	80 (60—100)	0.20 (0.15—0.25)	90 (70—110)	0.25 (0.20—0.30)	100 (80—120)	0.30 (0.25—0.35)	120 (80—140)	0.45 (0.35—0.55)
	Duktil Dökme Demir	Çekme Mukavemeti ≤450MPa	70 (60—90)	0.20 (0.15—0.25)	80 (60—100)	0.25 (0.20—0.30)	90 (70—110)	0.30 (0.25—0.35)	100 (80—120)	0.35 (0.25—0.40)

Not 1) Matkabı DCx1.5 derinlikteki bir delik için kullanırken, ilerleme hızını yaklaşık %20 arttırmak mümkündür.

Not 2) DCx8 tip tutucu kullanırken kesme hızını yaklaşık %20 düşürün.

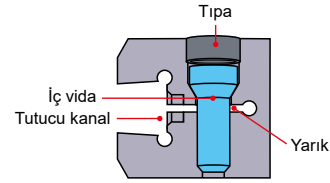
Not 3) DCx8 tip tutucuyu kullanırken bir pilot kılavuz deliği açılması tavsiye edilir.

Not 4) Paslanmaz çelik için, lütfen içten soğutma suyu kullanın. (Buğu ve MQL önerilmez).

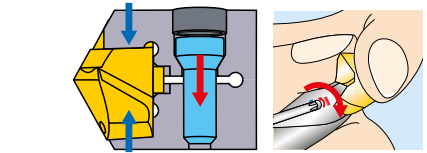
KULLANIMA İLİŞKİN NOTLAR

■ KESİCİ UÇ MONTAJI

1. Kesici ucu tutucuya takmadan önce, tutucu yuvasında veya yarığında yabancı nesne veya kir olmadığından emin olun. Gerekirse basınçlı hava kullanarak temizleyin.
2. Tutucunun ucunu açmak için iç vidayı gevşetmek üzere sağlanan anahtar kullanın, ardından kesici ucu şekil 1'de gösterildiği gibi tutucu yuvasına yerleştirin.
★Sıkarken anahtarın iç vida kafasının tabanıyla sıkıca temas ettiğinden emin olun.
3. Kesici uç tutucu yuvasında ayarlandıktan sonra, kelepçeyi sabitlemek ve kesici ucu konumlandırmak için kesici ucu şekil 2'de gösterildiği gibi cebe hafifçe iterken iç vidayı sıkın.
★Sıkarken anahtarın iç vida kafasının tabanıyla sıkıca temas ettiğinden emin olun.



Şek. 1

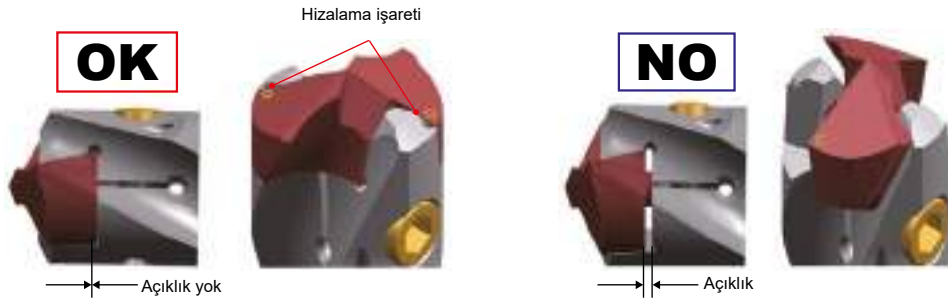


Şek. 2

Bağlama vidasını aşağıdaki torka göre sıkın.

Delme Ucu Çapı (mm)	Tork
	N•m
10 —12.9	1
13 —15.4	2
15.5 —18.4	2.5

4. Kesici uç ve tutucu yuvasının tabanı arasında boşluk olmadığını kontrol edin.



Not 1) Kesici uçların zayıf veya yanlış bağlanması düşük delme performansına ve/veya delme ucu kırılmasına neden olabilir. Bu nedenle hem gövde hem de kesici uçtaki hizalama işaretlerinin ayarlama sırasında hizalandığından emin olun. İşleme sırasında, güvenlik korumaları ve gözlüklerini kullanın.

YEDEK PARÇALAR

Geçerli Tutucu	Paket Sipariş Numarası (Dahili vida ve tıpa)		
		İç vida	Tıpa
STAWSS/SN/MN/LN1000S16	WS203107TPS-35LH	WS203107TPS	WS35LH
STAWSS/SN/MN/LN1050S16	WS203107TPS-35LH	WS203107TPS	WS35LH
STAWSS/SN/MN/LN1100S16	WS203108TPS-35LH	WS203108TPS	WS35LH
STAWSS/SN/MN/LN1150S16	WS203108TPS-35LH	WS203108TPS	WS35LH
STAWSS/SN/MN/LN1200S16	WS203108TPS-35LH	WS203108TPS	WS35LH
STAWSS/SN/MN/LN1250S16	WS203108TPS-35LH	WS203108TPS	WS35LH
STAWSS/SN/MN/LN1300S16	WS253909TPS-45LH	WS253909TPS	WS45LH
STAWSS/SN/MN/LN1350S16	WS253909TPS-45LH	WS253909TPS	WS45LH
STAWSS/SN/MN/LN1400S16	WS253909TPS-45LH	WS253909TPS	WS45LH
STAWSS/SN/MN/LN1450S16	WS253909TPS-45LH	WS253909TPS	WS45LH
STAWSS/SN/MN/LN1500S20	WS253909TPS-45LH	WS253909TPS	WS45LH
STAWSS/SN/MN/LN1600S20	WS304912TPS-55LH	WS304912TPS	WS55LH
STAWSS/SN/MN/LN1700S20	WS304912TPS-55LH	WS304912TPS	WS55LH
STAWSS/SN/MN/LN1800S20	WS304912TPS-55LH	WS304912TPS	WS55LH

Not 1) Paketlenmiş parçalar iç vida, tıpa ve çalışma kılavuzudur. Lütfen parçaları çalışma kılavuzuna göre değiştirin.

DELME (DEĞİŞTİRİLEBİLİR UÇLU TİP)

TAW

- İyi talaş kontrolü için dalgalı kesme kenarı tasarımı.
- Doğru kesici uç konumu için testere diş geometrisi.
- Kolay kesici uç değişimi.



P

M

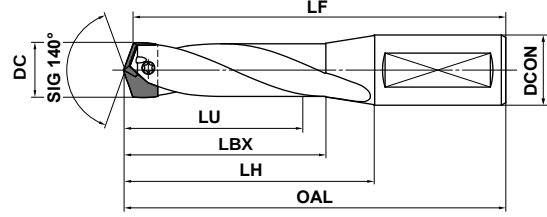
K

N

S

H

(Genel Kullanım)



UÇ TUTUCULAR

DC (mm)	Delik Derinliği (L/D)	Tutucu		Boyutlar (mm)						Bağlama Vidası	Anahtar	Levha	Sıkıştırma Öneriyici Yağ	Kesici Uç			
		Sipariş Numarası	Stok	LU	LBX	LH	OAL	LF	DCON					DC (mm)	Sipariş Numarası	Stok	
18.5 19.4	3	TAWSN1900S25	●	58.9	71.4	102.4	158.4	155.0	25	WS304517T	TKY10T	WPT4405	MK1KS	18.5	*TAWNH1850T	●	□
															TAWKH1850TG		
														18.6	TAWNH1860T	●	□
															TAWKH1860TG		
	5	TAWMN1900S25	●	95.9	110.4	137.4	193.4	190.0	25	WS304517T	TKY10T	WPT4405	MK1KS	18.7	TAWNH1870T	●	□
															TAWKH1870TG		
														18.8	TAWNH1880T	●	□
															TAWKH1880TG		
	8	TAWLN1900S25	●	151.4	165.4	188.4	244.4	241.0	25	WS304517T	TKY10T	WPT4405	MK1KS	18.9	TAWNH1890T	●	□
															TAWKH1890TG		
														19.0	TAWNH1900T	●	□
															TAWKH1900TG		
19.5 20.4	3	TAWSN2000S25	●	62.0	75.5	102.5	158.5	155.0	25	WS304518T	TKY10T	WPT4405	MK1KS	19.1	TAWNH1910T	●	□
															TAWKH1910TG		
														19.2	TAWNH1920T	●	□
															TAWKH1920TG		
	5	TAWMN2000S25	●	101.0	116.5	142.5	198.5	195.0	25	WS304518T	TKY10T	WPT4405	MK1KS	19.3	TAWNH1930T	●	□
															TAWKH1930TG		
														19.4	TAWNH1940T	●	□
															TAWKH1940TG		
	8	TAWLN2000S25	●	159.5	173.5	196.5	252.5	249.0	25	WS304518T	TKY10T	WPT4405	MK1KS	19.5	*TAWNH1950T	●	□
															TAWKH1950TG		
														19.6	TAWNH1960T	●	□
															TAWKH1960TG		
														19.7	TAWNH1970T	●	□
															TAWKH1970TG		
														19.8	TAWNH1980T	●	□
															TAWKH1980TG		
														19.9	TAWNH1990T	●	□
															TAWKH1990TG		
														20.0	TAWNH2000T	●	□
															TAWKH2000TG		
														20.1	TAWNH2010T	□	□
															TAWKH2010TG		
														20.2	TAWNH2020T	□	□
															TAWKH2020TG		
														20.3	TAWNH2030T	□	□
															TAWKH2030TG		
														20.4	TAWNH2040T	□	□
															TAWKH2040TG		

Not 1) Yukarıdaki boyutlar (*) uçları takarken kullanılır.

Not 2) Lütfen bu katalogta olmayan herhangi bir geometri için bizimle iletişim kurun (ör. farklı çap ve uzunluk).

● : Avrupa standart stok. □ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.
(Not: bir kutuda 1 kesici uç)

DC (mm)	Delik Derinliği (L/D)	Tutucu		Boyutlar (mm)										Kesici Uç			
		Sipariş Numarası	Stok	LU	LBX	LH	OAL	LF	DCON					DC (mm)	Sipariş Numarası	Stok	
20.5 21.4	3	TAWSN2100S25	●	65.2	78.7	102.7	158.7	155.0	25	WS304518T	TKY10T	WPT4405	MK1KS	20.5	*TAWNH2050T TAWKH2050TG	●	□
														20.6	TAWNH2060T TAWKH2060TG	□	□
														20.7	TAWNH2070T TAWKH2070TG	□	□
	5	TAWMN2100S25	●	106.2	121.7	142.7	198.7	195.0	25	WS304518T	TKY10T	WPT4405	MK1KS	20.8	TAWNH2080T TAWKH2080TG	□	□
														20.9	TAWNH2090T TAWKH2090TG	□	□
														21.0	TAWNH2100T TAWKH2100TG	●	□
	8	TAWLN2100S25	●	167.7	181.7	205.7	261.7	258.0	25	WS304518T	TKY10T	WPT4405	MK1KS	21.1	TAWNH2110T TAWKH2110TG	□	□
														21.2	TAWNH2120T TAWKH2120TG	□	□
														21.3	TAWNH2130T TAWKH2130TG	□	□
21.5 22.4	3	TAWSN2200S25	●	68.4	83.2	108.2	164.2	160.3	25	WS355520T	TKY15T	WPT4405	MK1KS	21.4	TAWNH2140T TAWKH2140TG	□	□
														21.5	*TAWNH2150T TAWKH2150TG	●	□
														21.6	TAWNH2160T TAWKH2160TG	□	□
	5	TAWMN2200S25	●	111.4	128.2	148.2	204.2	200.3	25	WS355520T	TKY15T	WPT4405	MK1KS	21.7	TAWNH2170T TAWKH2170TG	□	□
														21.8	TAWNH2180T TAWKH2180TG	□	□
														21.9	TAWNH2190T TAWKH2190TG	□	□
	8	TAWLN2200S25	●	175.9	189.9	213.9	269.9	266.0	25	WS355520T	TKY15T	WPT4405	MK1KS	22.0	TAWNH2200T TAWKH2200TG	●	□
														22.1	TAWNH2210T TAWKH2210TG	□	□
														22.2	TAWNH2220T TAWKH2220TG	□	□
22.5 23.4	3	TAWSN2300S25	●	71.6	86.4	108.4	164.4	160.3	25	WS355521T	TKY15T	WPT4405	MK1KS	22.3	TAWNH2230T TAWKH2230TG	□	□
														22.4	TAWNH2240T TAWKH2240TG	□	□
														22.5	*TAWNH2250T TAWKH2250TG	●	□
	5	TAWMN2300S25	●	116.6	133.4	158.4	214.4	210.3	25	WS355521T	TKY15T	WPT4405	MK1KS	22.6	TAWNH2260T TAWKH2260TG	□	□
														22.7	TAWNH2270T TAWKH2270TG	□	□
														22.8	TAWNH2280T TAWKH2280TG	□	□
	8	TAWLN2300S25	●	184.1	198.1	227.1	283.1	279.0	25	WS355521T	TKY15T	WPT4405	MK1KS	22.9	TAWNH2290T TAWKH2290TG	□	□
														23.0	TAWNH2300T TAWKH2300TG	●	□
														23.1	TAWNH2310T TAWKH2310TG	□	□
														23.2	TAWNH2320T TAWKH2320TG	□	□
														23.3	TAWNH2330T TAWKH2330TG	□	□
														23.4	TAWNH2340T TAWKH2340TG	□	□

KESİCİ UÇ AÇIKLAMASI > M155

KESME KOŞULLARI > M157

KULLANIM NOTU > M158

YEDEK PARÇALAR > N001

TEKNİK VERİLER > P001

TAW

DELME

M

Not 1) Yukarıdaki boyutlar (*****), kesici uçların montajından sonraki boyutlardır .
Not 2) Lütfen bu katalogda olmayan herhangi bir geometri için bizimle iletişim kurun (ör. farklı çap ve uzunluk).

● : Avrupa standart stok. □ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.
(Not: bir kutuda 1 kesici uç)

DC (mm)	Delik Derinliği (L/D)	Tutucu		Boyutlar (mm)										Kesici Uç				
		Sipariş Numarası	Stok	LU	LBX	LH	OAL	LF	DCON	Bağlama Vidası	Anahtar	Levha	Sıkıştırma Örneleyici Yağı	DC (mm)	Sipariş Numarası	Stok		
																VP15TF	VP10H	
26.5 27.4	3	TAWSN2700S32	●	84.3	99.4	120.4	180.4	175.6	32	WS406024T	TKY25T	WPT4405	MK1KS	26.5	★TAWNH2650T	●	□	
															TAWKH2650TG			
															26.6	TAWNH2660T	□	□
															TAWKH2660TG			
															26.7	TAWNH2670T	□	□
															TAWKH2670TG			
															26.8	TAWNH2680T	□	□
															TAWKH2680TG			
															26.9	TAWNH2690T	□	□
		5	TAWMN2700S32	●	137.3	156.4	180.4	240.4	235.6	32	WS406024T	TKY25T	WPT4405	MK1KS	27.0	TAWKH2690TG		
																TAWNH2700T	●	□
																TAWKH2700TG		
															27.1	TAWNH2710T	□	□
															TAWKH2710TG			
															27.2	TAWNH2720T	□	□
															TAWKH2720TG			
															27.3	TAWNH2730T	□	□
															TAWKH2730TG			
	8	TAWLN2700S32	●	216.8	231.4	261.4	321.4	316.6	32	WS406024T	TKY25T	WPT4405	MK1KS	27.4	TAWNH2740T	□	□	
															TAWKH2740TG			
27.5 28.4	3	TAWSN2800S32	●	87.5	102.2	125.2	185.2	180.2	32	WS508026T	TKY27T	WPT4405	MK1KS	27.5	★TAWNH2750T	●	□	
															TAWKH2750TG			
															27.6	TAWNH2760T	□	□
															TAWKH2760TG			
															27.7	TAWNH2770T	□	□
															TAWKH2770TG			
															27.8	TAWNH2780T	□	□
															TAWKH2780TG			
															27.9	TAWNH2790T	□	□
		5	TAWMN2800S32	●	142.5	162.2	185.2	245.2	240.2	32	WS508026T	TKY27T	WPT4405	MK1KS	28.0	TAWKH2790TG		
																TAWNH2800T	●	□
																TAWKH2800TG		
															28.1	TAWNH2810T	□	□
															TAWKH2810TG			
															28.2	TAWNH2820T	□	□
															TAWKH2820TG			
															28.3	TAWNH2830T	□	□
															TAWKH2830TG			
	8	TAWLN2800S32	●	225.0	239.2	269.2	329.2	324.2	32	WS508026T	TKY27T	WPT4405	MK1KS	28.4	TAWNH2840T	□	□	
															TAWKH2840TG			
28.5 29.4	3	TAWSN2900S32	●	90.7	105.4	130.4	190.4	185.2	32	WS508027T	TKY27T	WPT4405	MK1KS	28.5	★TAWNH2850T	●	□	
															TAWKH2850TG			
															28.6	TAWNH2860T	□	□
															TAWKH2860TG			
															28.7	TAWNH2870T	□	□
															TAWKH2870TG			
															28.8	TAWNH2880T	□	□
															TAWKH2880TG			
															28.9	TAWNH2890T	□	□
		5	TAWMN2900S32	●	147.7	167.4	190.4	250.4	245.2	32	WS508027T	TKY27T	WPT4405	MK1KS	29.0	TAWKH2890TG		
																TAWNH2900T	●	□
																TAWKH2900TG		
															29.1	TAWNH2910T	□	□
															TAWKH2910TG			
															29.2	TAWNH2920T	□	□
															TAWKH2920TG			
															29.3	TAWNH2930T	□	□
															TAWKH2930TG			
	8	TAWLN2900S32	●	233.2	247.4	277.4	337.4	332.2	32	WS508027T	TKY27T	WPT4405	MK1KS	29.4	TAWNH2940T	□	□	
															TAWKH2940TG			

KESİCİ UÇ AÇIKLAMASI > M155

KESME KOŞULLARI > M157

KULLANIM NOTU > M158

YEDEK PARÇALAR > N001

TEKNİK VERİLER > P001

DELME (DEĞİŞTİRİLEBİLİR UÇLU TİP)

KARBÜR

TAW

M

DELME

DC (mm)	Delik Derinliği (L/D)	Tutucu		Boyutlar (mm)										Kesici Uç			
		Sipariş Numarası	Stok	LU	LBX	LH	OAL	LF	DCON					DC (mm)	Sipariş Numarası	Stok	
29.5 30.4	3	TAWSN3000S32	●	93.9	109.6	130.6	190.6	185.2	32	WS508027T	TKY27T	WPT4405	MK1KS	29.5	*TAWNH2950T TAWKH2950TG	●	□
														29.6	TAWNH2960T TAWKH2960TG	□	□
														29.7	TAWNH2970T TAWKH2970TG	□	□
														29.8	TAWNH2980T TAWKH2980TG	□	□
	5	TAWMN3000S32	●	152.9	172.6	200.6	260.6	255.2	32	WS508027T	TKY27T	WPT4405	MK1KS	29.9	TAWNH2990T TAWKH2990TG	□	□
														30.0	TAWNH3000T TAWKH3000TG	●	□
														30.1	TAWNH3010T TAWKH3010TG	□	□
														30.2	TAWNH3020T TAWKH3020TG	□	□
	8	TAWLN3000S32	●	241.4	255.6	290.6	350.6	345.2	32	WS508027T	TKY27T	WPT4405	MK1KS	30.3	TAWNH3030T TAWKH3030TG	□	□
														30.4	TAWNH3040T TAWKH3040TG	□	□

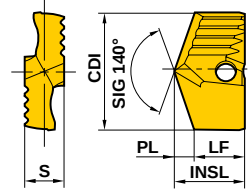
Not 1) Yukarıdaki boyutlar (*), kesici uçların montajından sonraki boyutlardır .

Not 2) Lütfen bu katalogta olmayan herhangi bir geometri için bizimle iletişim kurun (ör. farklı çap ve uzunluk).

● : Avrupa standart stok. □ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.
(Not: bir kutuda 1 kesici uç)

KESİCİ UÇLAR

H Tipi



Sipariş Numarası	Stok		Boyutlar (mm)					Geçerli Tutucu
	VP15TF	VP10H	CDI	INSL	LF	PL	S	
TAWNH1850T	●	□	18.5	12.7	9.3	3.4	7.0	TAWSN 1900S25
TAWNH1860T	●	□	18.6	12.7	9.3	3.4	7.0	
TAWNH1870T	●	□	18.7	12.7	9.3	3.4	7.0	
TAWNH1880T	●	□	18.8	12.7	9.3	3.4	7.0	
TAWNH1890T	●	□	18.9	12.7	9.3	3.4	7.0	
TAWNH1900T	●	□	19.0	12.7	9.2	3.5	7.0	TAWMN 1900S25
TAWNH1910T	●	□	19.1	12.7	9.2	3.5	7.0	TAWLN 1900S25
TAWNH1920T	●	□	19.2	12.7	9.2	3.5	7.0	TAWSN 2000S25
TAWNH1930T	●	□	19.3	12.7	9.2	3.5	7.0	
TAWNH1940T	●	□	19.4	12.7	9.2	3.5	7.0	
TAWNH1950T	●	□	19.5	12.6	9.1	3.5	7.0	
TAWNH1960T	●	□	19.6	12.7	9.1	3.6	7.0	
TAWNH1970T	●	□	19.7	12.7	9.1	3.6	7.0	TAWMN 2000S25
TAWNH1980T	●	□	19.8	12.7	9.1	3.6	7.0	
TAWNH1990T	●	□	19.9	12.7	9.1	3.6	7.0	
TAWNH2000T	●	□	20.0	12.6	9.0	3.6	7.0	
TAWNH2010T	□	□	20.1	12.7	9.0	3.7	7.0	
TAWNH2020T	□	□	20.2	12.7	9.0	3.7	7.0	TAWLN 2100S25
TAWNH2030T	□	□	20.3	12.7	9.0	3.7	7.0	
TAWNH2040T	□	□	20.4	12.7	9.0	3.7	7.0	
TAWNH2050T	●	□	20.5	12.6	8.9	3.7	7.0	
TAWNH2060T	□	□	20.6	12.6	8.9	3.7	7.0	
TAWNH2070T	□	□	20.7	12.7	8.9	3.8	7.0	TAWSN 2100S25
TAWNH2080T	□	□	20.8	12.7	8.9	3.8	7.0	
TAWNH2090T	□	□	20.9	12.7	8.9	3.8	7.0	
TAWNH2100T	●	□	21.0	12.6	8.8	3.8	7.0	
TAWNH2110T	□	□	21.1	12.6	8.8	3.8	7.0	
TAWNH2120T	□	□	21.2	12.7	8.8	3.9	7.0	TAWMN 2200S25
TAWNH2130T	□	□	21.3	12.7	8.8	3.9	7.0	
TAWNH2140T	□	□	21.4	12.7	8.8	3.9	7.0	
TAWNH2150T	●	□	21.5	14.5	10.6	3.9	8.0	
TAWNH2160T	□	□	21.6	14.5	10.6	3.9	8.0	
TAWNH2170T	□	□	21.7	14.5	10.6	3.9	8.0	TAWLN 2200S25
TAWNH2180T	□	□	21.8	14.6	10.6	4.0	8.0	
TAWNH2190T	□	□	21.9	14.6	10.6	4.0	8.0	
TAWNH2200T	●	□	22.0	14.5	10.5	4.0	8.0	
TAWNH2210T	□	□	22.1	14.5	10.5	4.0	8.0	
TAWNH2220T	□	□	22.2	14.5	10.5	4.0	8.0	TAWSN 2300S25
TAWNH2230T	□	□	22.3	14.6	10.5	4.1	8.0	
TAWNH2240T	□	□	22.4	14.6	10.5	4.1	8.0	

Sipariş Numarası	Stok		Boyutlar (mm)					Geçerli Tutucu
	VP15TF	VP10H	CDI	INSL	LF	PL	S	
TAWNH2250T	●	□	22.5	14.5	10.4	4.1	8.0	TAWSN 2300S25
TAWNH2260T	□	□	22.6	14.5	10.4	4.1	8.0	
TAWNH2270T	□	□	22.7	14.5	10.4	4.1	8.0	
TAWNH2280T	□	□	22.8	14.5	10.4	4.1	8.0	
TAWNH2290T	□	□	22.9	14.6	10.4	4.2	8.0	
TAWNH2300T	●	□	23.0	14.5	10.3	4.2	8.0	TAWMN 2300S25
TAWNH2310T	□	□	23.1	14.5	10.3	4.2	8.0	TAWLN 2300S25
TAWNH2320T	□	□	23.2	14.5	10.3	4.2	8.0	TAWSN 2400S32
TAWNH2330T	□	□	23.3	14.5	10.3	4.2	8.0	
TAWNH2340T	□	□	23.4	14.6	10.3	4.3	8.0	
TAWNH2350T	●	□	23.5	14.5	10.2	4.3	8.0	
TAWNH2360T	□	□	23.6	14.5	10.2	4.3	8.0	
TAWNH2370T	□	□	23.7	14.5	10.2	4.3	8.0	TAWMN 2400S32
TAWNH2380T	□	□	23.8	14.5	10.2	4.3	8.0	
TAWNH2390T	□	□	23.9	14.5	10.2	4.3	8.0	
TAWNH2400T	●	□	24.0	14.5	10.1	4.4	8.0	
TAWNH2410T	□	□	24.1	14.5	10.1	4.4	8.0	
TAWNH2420T	□	□	24.2	14.5	10.1	4.4	8.0	TAWLN 2400S32
TAWNH2430T	□	□	24.3	14.5	10.1	4.4	8.0	
TAWNH2440T	□	□	24.4	14.5	10.1	4.4	8.0	
TAWNH2450T	●	□	24.5	16.2	11.7	4.5	9.0	
TAWNH2460T	□	□	24.6	16.2	11.7	4.5	9.0	TAWSN 2500S32
TAWNH2470T	□	□	24.7	16.2	11.7	4.5	9.0	
TAWNH2480T	□	□	24.8	16.2	11.7	4.5	9.0	
TAWNH2490T	□	□	24.9	16.2	11.7	4.5	9.0	
TAWNH2500T	●	□	25.0	16.1	11.6	4.5	9.0	
TAWNH2510T	□	□	25.1	16.2	11.6	4.6	9.0	TAWMN 2500S32
TAWNH2520T	□	□	25.2	16.2	11.6	4.6	9.0	
TAWNH2530T	□	□	25.3	16.2	11.6	4.6	9.0	
TAWNH2540T	□	□	25.4	16.2	11.6	4.6	9.0	
TAWNH2550T	●	□	25.5	16.1	11.5	4.6	9.0	
TAWNH2560T	□	□	25.6	16.2	11.5	4.7	9.0	TAWSN 2600S32
TAWNH2570T	□	□	25.7	16.2	11.5	4.7	9.0	
TAWNH2580T	□	□	25.8	16.2	11.5	4.7	9.0	
TAWNH2590T	□	□	25.9	16.2	11.5	4.7	9.0	
TAWNH2600T	●	□	26.0	16.1	11.4	4.7	9.0	
TAWNH2610T	□	□	26.1	16.1	11.4	4.7	9.0	TAWMN 2600S32
TAWNH2620T	□	□	26.2	16.2	11.4	4.8	9.0	
TAWNH2630T	□	□	26.3	16.2	11.4	4.8	9.0	
TAWNH2640T	□	□	26.4	16.2	11.4	4.8	9.0	

DELME (DEĞİŞTİRİLEBİLİR UÇLU TİP)

TAW

Sipariş Numarası	Stok		Boyutlar (mm)					Geçerli Tutucu
	VP15TF	VP10H	CDI	INSL	LF	PL	S	
TAWNH2650T	●	□	26.5	16.1	11.3	4.8	9.0	TAWSN 2700S32
TAWNH2660T	□	□	26.6	16.1	11.3	4.8	9.0	
TAWNH2670T	□	□	26.7	16.2	11.3	4.9	9.0	
TAWNH2680T	□	□	26.8	16.2	11.3	4.9	9.0	
TAWNH2690T	□	□	26.9	16.2	11.3	4.9	9.0	TAWMN
TAWNH2700T	●	□	27.0	16.1	11.2	4.9	9.0	2700S32
TAWNH2710T	□	□	27.1	16.1	11.2	4.9	9.0	TAWLN
TAWNH2720T	□	□	27.2	16.1	11.2	4.9	9.0	2700S32
TAWNH2730T	□	□	27.3	16.2	11.2	5.0	9.0	TAWSN 2800S32
TAWNH2740T	□	□	27.4	16.2	11.2	5.0	9.0	
TAWNH2750T	●	□	27.5	17.3	12.3	5.0	10.0	
TAWNH2760T	□	□	27.6	17.3	12.3	5.0	10.0	
TAWNH2770T	□	□	27.7	17.3	12.3	5.0	10.0	TAWMN
TAWNH2780T	□	□	27.8	17.4	12.3	5.1	10.0	2800S32
TAWNH2790T	□	□	27.9	17.4	12.3	5.1	10.0	TAWLN
TAWNH2800T	●	□	28.0	17.3	12.2	5.1	10.0	2800S32
TAWNH2810T	□	□	28.1	17.3	12.2	5.1	10.0	2800S32
TAWNH2820T	□	□	28.2	17.3	12.2	5.1	10.0	TAWSN 3000S32
TAWNH2830T	□	□	28.3	17.4	12.2	5.2	10.0	
TAWNH2840T	□	□	28.4	17.4	12.2	5.2	10.0	

Sipariş Numarası	Stok		Boyutlar (mm)					Geçerli Tutucu
	VP15TF	VP10H	CDI	INSL	LF	PL	S	
TAWNH2850T	●	□	28.5	17.3	12.1	5.2	10.0	TAWSN 2900S32
TAWNH2860T	□	□	28.6	17.3	12.1	5.2	10.0	
TAWNH2870T	□	□	28.7	17.3	12.1	5.2	10.0	
TAWNH2880T	□	□	28.8	17.3	12.1	5.2	10.0	
TAWNH2890T	□	□	28.9	17.4	12.1	5.3	10.0	TAWMN
TAWNH2900T	●	□	29.0	17.3	12.0	5.3	10.0	2900S32
TAWNH2910T	□	□	29.1	17.3	12.0	5.3	10.0	TAWLN
TAWNH2920T	□	□	29.2	17.3	12.0	5.3	10.0	2900S32
TAWNH2930T	□	□	29.3	17.3	12.0	5.3	10.0	TAWSN 3000S32
TAWNH2940T	□	□	29.4	17.4	12.0	5.4	10.0	
TAWNH2950T	●	□	29.5	17.3	11.9	5.4	10.0	
TAWNH2960T	□	□	29.6	17.3	11.9	5.4	10.0	
TAWNH2970T	□	□	29.7	17.3	11.9	5.4	10.0	TAWMN
TAWNH2980T	□	□	29.8	17.3	11.9	5.4	10.0	3000S32
TAWNH2990T	□	□	29.9	17.3	11.9	5.4	10.0	TAWLN
TAWNH3000T	●	□	30.0	17.3	11.8	5.5	10.0	3000S32
TAWNH3010T	□	□	30.1	17.3	11.8	5.5	10.0	3000S32
TAWNH3020T	□	□	30.2	17.3	11.8	5.5	10.0	TAWSN 3000S32
TAWNH3030T	□	□	30.3	17.3	11.8	5.5	10.0	
TAWNH3040T	□	□	30.4	17.3	11.8	5.5	10.0	

● : Avrupa standart stok. □ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.
(Not: bir kutuda 1 kesici uç)

KESME KOŞULLARI > M157
KULLANIM NOTU > M158

YEDEK PARÇALAR > N001
TEKNİK VERİLER > P001

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi		Delme Ucu Çapı	Ø 18.5—Ø21.4		Ø 21.5—Ø 24.4	
		Koşullar Sertlik	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)
P	Yumuşak Çelik	≤180HB	90 (70—110)	0.25 (0.20—0.30)	100 (80—120)	0.30 (0.25—0.35)
	Karbon Çelik, Alaşımlı Çelik	180—280HB	80 (60—100)	0.25 (0.20—0.30)	90 (70—110)	0.30 (0.25—0.35)
		280—350HB	70 (50—90)	0.20 (0.15—0.25)	80 (60—100)	0.25 (0.20—0.30)
M	Paslanmaz Çelik	≤200HB	60 (50—70)	0.20 (0.15—0.22)	60 (50—70)	0.20 (0.15—0.22)
K	Dökme Demir	Çekme Mukavemeti ≤350MPa	120 (60—140)	0.25 (0.20—0.30)	130 (80—150)	0.35 (0.25—0.40)
	Duktil Dökme Demir	Çekme Mukavemeti ≤450MPa	80 (60—90)	0.25 (0.20—0.30)	90 (60—100)	0.30 (0.25—0.35)

Çalışma Malzemesi		Delme Ucu Çapı	Ø 24.5—Ø 27.4		Ø 27.5—Ø 30.4	
		Koşullar Sertlik	Kesme Hızı (m/dak)	İlerleme (mm/dev)	Kesme Hızı (m/dak)	İlerleme (mm/dev)
P	Yumuşak Çelik	≤180HB	110 (80—120)	0.30 (0.25—0.35)	110 (80—120)	0.30 (0.25—0.35)
	Karbon Çelik, Alaşımlı Çelik	180—280HB	100 (80—120)	0.30 (0.25—0.35)	100 (80—120)	0.30 (0.25—0.35)
		280—350HB	90 (70—110)	0.25 (0.20—0.30)	90 (70—110)	0.25 (0.20—0.30)
M	Paslanmaz Çelik	≤200HB	70 (60—80)	0.25 (0.20—0.28)	70 (60—80)	0.25 (0.20—0.28)
K	Dökme Demir	Çekme Mukavemeti ≤350MPa	140 (90—160)	0.35 (0.25—0.40)	140 (90—160)	0.40 (0.30—0.45)
	Duktil Dökme Demir	Çekme Mukavemeti ≤450MPa	100 (80—110)	0.30 (0.25—0.35)	100 (80—110)	0.30 (0.25—0.35)

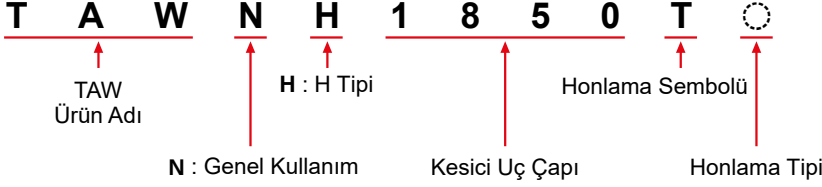
Not 1) Yumuşak çelik ve paslanmaz çelik işlerken H tipi honlama önerilir.

Not 2) Yalnızca rijid tezgah ve bağlama sistemi ile kullanılması önerilir. Paslanmaz çelik işlerken içten soğutma suyu sistemini kullanın.
(İşlemede MQL ve yağ püskürtme kullanılmamalıdır.)

■ HONLAMA GENİŞLİĞİ

Standart dışında honlamaya sahip bir kesici uç gerekirse, lütfen aşağıdaki sembollerini kullanarak sipariş edin.

(Kesici Uç Sipariş Numarası)



(Honlama Standardı)

Honlama Tipi	Honlama Genişliği (mm)
F	0
G	0.02—0.05
H	0.05—0.10
- (Standart)	0.10—0.15
S	0.20—0.25
M	0.25—0.30

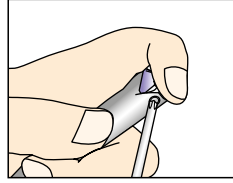
KULLANIMA İLİŞKİN NOTLAR

■ KESİCİ UÇ MONTAJI

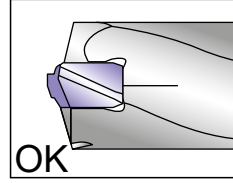
- Kesici ucu takmak için bağlama vidasını çıkarın. (H tipi kesici uç)
- Kesici ucu ve tutucu testere ağızlarını doğru şekilde birbirine geçirin, ardından kesici ucu yuvanın altına kaydırın.
- Kesici ucu gösterildiği gibi hafifçe tutarken sağlanan tork anahtarını kullanarak bağlama vidasını sabitleyin. (Şekil 1)
- Kesici uç ve tutucunun altı arasında boşluk olmadığını kontrol edin. (Şekil 2)

bağlama vidasını aşağıdaki torka göre sıkın.

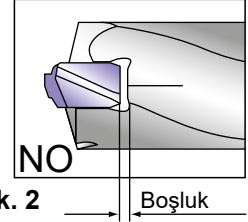
Delme Ucu Çapı	Tork
Ø14—Ø15	2.0N•m
Ø16—Ø18	2.0N•m
Ø19—Ø21	3.5N•m
Ø22—Ø24	5.5N•m
Ø25—Ø27	8.5N•m
Ø28—Ø30	12.0N•m



Şek. 1



Şek. 2



Boşluk

KESİCİ UCU DEĞİŞTİRME

- Yeni bir kesici uç takmadan önce tutucunun testere dişlerini iyice temizleyin. Sağlanan temizleme levhasını kullanarak tutucu testere dişlerindeki ağır kiri giderin.

[illegible]

DELME (DEĞİŞTİRİLEBİLİR UÇLU TİP)

MVX

- Dış CVD kesici uç ve iç PVD kesici uç arasında ideal kombinasyon.
- L/D=6 derinliğinde delme işlemi sağlayan yüksek dayanımlı gövde yapısı.



P

M

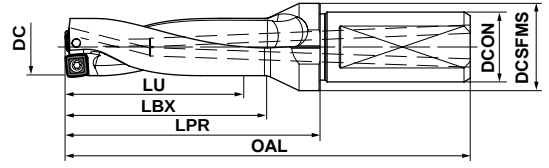
K

N

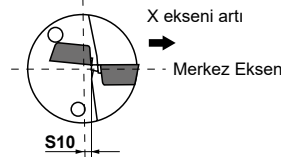
S

H

DELME



Dönüş için maksimum sapma değeri



L/D	İşleme toleransı(kılavuz) (mm)		
	ø14.0-ø33.0	ø33.5-ø47.0	ø48.0-ø63.0
2D, 3D	0 + 0.25	0 + 0.3	0 + 0.3
4D, 5D	0 + 0.35	0 + 0.4	0 + 0.45
6D	0 + 0.45	0 + 0.6	

DC (mm)	Delik Derinliği (L/D)	Sipariş Numarası	Stok	Dişler	Boyutlar (mm)						S10 (mm)	Kesici Uç	Bağlama Vidası	F Anahtar
					LU	LBX	LPR	OAL	DCON	DCSFMS				
NEW 14.0	2	MVX1400X2F20	●	2	28	35	50	93	20	25	0.6	SOX05	TPS20-1	TIP06F
	3	MVX1400X3F20	●	2	42	49	64	107	20	25	0.6	SOX05	TPS20-1	TIP06F
	4	MVX1400X4F20	●	2	56	63	78	121	20	25	0.6	SOX05	TPS20-1	TIP06F
	5	MVX1400X5F20	●	2	70	77	92	135	20	25	0.6	SOX05	TPS20-1	TIP06F
NEW 14.5	2	MVX1450X2F20	●	2	29	36	51	94	20	25	0.5	SOX05	TPS20-1	TIP06F
	3	MVX1450X3F20	●	2	43.5	50.5	65.5	108.5	20	25	0.5	SOX05	TPS20-1	TIP06F
	4	MVX1450X4F20	●	2	58	65	80	123	20	25	0.5	SOX05	TPS20-1	TIP06F
	5	MVX1450X5F20	●	2	72.5	79.5	94.5	137.5	20	25	0.5	SOX05	TPS20-1	TIP06F
NEW 15.0	2	MVX1500X2F20	●	2	30	37	52	95	20	25	0.35	SOX05	TPS20-1	TIP06F
	3	MVX1500X3F20	●	2	45	52	67	110	20	25	0.35	SOX05	TPS20-1	TIP06F
	4	MVX1500X4F20	●	2	60	67	82	125	20	25	0.35	SOX05	TPS20-1	TIP06F
	5	MVX1500X5F20	●	2	75	82	97	140	20	25	0.35	SOX05	TPS20-1	TIP06F
NEW 15.5	2	MVX1550X2F20	●	2	31	38	53	96	20	25	0.3	SOX05	TPS20-1	TIP06F
	3	MVX1550X3F20	●	2	46.5	53.5	68.5	111.5	20	25	0.3	SOX05	TPS20-1	TIP06F
	4	MVX1550X4F20	●	2	62	69	84	127	20	25	0.3	SOX05	TPS20-1	TIP06F
	5	MVX1550X5F20	●	2	77.5	84.5	99.5	142.5	20	25	0.3	SOX05	TPS20-1	TIP06F
NEW 16.0	2	MVX1600X2F20	●	2	32	39	54	97	20	25	0.25	SOX05	TPS20-1	TIP06F
	3	MVX1600X3F20	●	2	48	55	70	113	20	25	0.25	SOX05	TPS20-1	TIP06F
	4	MVX1600X4F20	●	2	64	71	86	129	20	25	0.25	SOX05	TPS20-1	TIP06F
	5	MVX1600X5F20	●	2	80	87	102	145	20	25	0.25	SOX05	TPS20-1	TIP06F
NEW 16.5	2	MVX1650X2F20	●	2	33	40	55	98	20	25	0.25	SOX05	TPS20-1	TIP06F
	3	MVX1650X3F20	●	2	49.5	56.5	71.5	114.5	20	25	0.25	SOX05	TPS20-1	TIP06F
	4	MVX1650X4F20	●	2	66	73	88	131	20	25	0.25	SOX05	TPS20-1	TIP06F
	5	MVX1650X5F20	●	2	82.5	89.5	104.5	147.5	20	25	0.25	SOX05	TPS20-1	TIP06F
17.0	2	MVX1700X2F20	●	2	34	41	56	99	20	25	0.5	SOX06	TPS25	TIP07F
	3	MVX1700X3F20	●	2	51	58	73	116	20	25	0.5	SOX06	TPS25	TIP07F
	4	MVX1700X4F20	●	2	68	75	90	133	20	25	0.5	SOX06	TPS25	TIP07F
	5	MVX1700X5F20	●	2	85	92	107	150	20	25	0.5	SOX06	TPS25	TIP07F
	6	MVX1700X6F20	●	2	102	109	124	167	20	25	0.5	SOX06	TPS25	TIP07F

★ Sıkma Torku (N • m) : TPS20-1=0.6, TPS25=1.0

● : Avrupa standart stok.

DC (mm)	Delik Derinliği (L/D)	Sipariş Numarası	Stok	Dişler	Boyutlar (mm)						S10 (mm)	Kesici Uç		
					LU	LBX	LPR	OAL	DCON	DCSFMS				
17.5	2	MVX1750X2F25	●	2	35	42	62	112	25	32	0.45	SOX06	TPS25	TIP07F
	3	MVX1750X3F25	●	2	52.5	59.5	79.5	129.5	25	32	0.45	SOX06	TPS25	TIP07F
	4	MVX1750X4F25	●	2	70	77	97	147	25	32	0.45	SOX06	TPS25	TIP07F
	5	MVX1750X5F25	●	2	87.5	94.5	114.5	164.5	25	32	0.45	SOX06	TPS25	TIP07F
	6	MVX1750X6F25	●	2	105	112	132	182	25	32	0.45	SOX06	TPS25	TIP07F
18.0	2	MVX1800X2F25	●	2	36	43	63	113	25	32	0.4	SOX06	TPS25	TIP07F
	3	MVX1800X3F25	●	2	54	61	81	131	25	32	0.4	SOX06	TPS25	TIP07F
	4	MVX1800X4F25	●	2	72	79	99	149	25	32	0.4	SOX06	TPS25	TIP07F
	5	MVX1800X5F25	●	2	90	97	117	167	25	32	0.4	SOX06	TPS25	TIP07F
	6	MVX1800X6F25	●	2	108	115	135	185	25	32	0.4	SOX06	TPS25	TIP07F
18.5	2	MVX1850X2F25	●	2	37	44	64	114	25	32	0.35	SOX06	TPS25	TIP07F
	3	MVX1850X3F25	●	2	55.5	62.5	82.5	132.5	25	32	0.35	SOX06	TPS25	TIP07F
	4	MVX1850X4F25	●	2	74	81	101	151	25	32	0.35	SOX06	TPS25	TIP07F
	5	MVX1850X5F25	●	2	92.5	99.5	119.5	169.5	25	32	0.35	SOX06	TPS25	TIP07F
	6	MVX1850X6F25	●	2	111	118	138	188	25	32	0.35	SOX06	TPS25	TIP07F
19.0	2	MVX1900X2F25	●	2	38	45	65	115	25	32	0.3	SOX06	TPS25	TIP07F
	3	MVX1900X3F25	●	2	57	64	84	134	25	32	0.3	SOX06	TPS25	TIP07F
	4	MVX1900X4F25	●	2	76	83	103	153	25	32	0.3	SOX06	TPS25	TIP07F
	5	MVX1900X5F25	●	2	95	102	122	172	25	32	0.3	SOX06	TPS25	TIP07F
	6	MVX1900X6F25	●	2	114	121	141	191	25	32	0.3	SOX06	TPS25	TIP07F
19.5	2	MVX1950X2F25	●	2	39	46	66	116	25	32	0.25	SOX06	TPS25	TIP07F
	3	MVX1950X3F25	●	2	58.5	65.5	85.5	135.5	25	32	0.25	SOX06	TPS25	TIP07F
	4	MVX1950X4F25	●	2	78	85	105	155	25	32	0.25	SOX06	TPS25	TIP07F
	5	MVX1950X5F25	●	2	97.5	104.5	124.5	174.5	25	32	0.25	SOX06	TPS25	TIP07F
	6	MVX1950X6F25	●	2	117	124	144	194	25	32	0.25	SOX06	TPS25	TIP07F
20.0	2	MVX2000X2F25	●	2	40	47	67	117	25	32	0.6	SOX07	TPS3	TIP10W
	3	MVX2000X3F25	●	2	60	67	87	137	25	32	0.6	SOX07	TPS3	TIP10W
	4	MVX2000X4F25	●	2	80	87	107	157	25	32	0.6	SOX07	TPS3	TIP10W
	5	MVX2000X5F25	●	2	100	107	127	177	25	32	0.6	SOX07	TPS3	TIP10W
	6	MVX2000X6F25	●	2	120	127	147	197	25	32	0.6	SOX07	TPS3	TIP10W
20.5	2	MVX2050X2F25	●	2	41	48	68	118	25	32	0.55	SOX07	TPS3	TIP10W
	3	MVX2050X3F25	●	2	61.5	68.5	88.5	138.5	25	32	0.55	SOX07	TPS3	TIP10W
21.0	2	MVX2100X2F25	●	2	42	49	69	119	25	32	0.5	SOX07	TPS3	TIP10W
	3	MVX2100X3F25	●	2	63	70	90	140	25	32	0.5	SOX07	TPS3	TIP10W
	4	MVX2100X4F25	●	2	84	91	111	161	25	32	0.5	SOX07	TPS3	TIP10W
	5	MVX2100X5F25	●	2	105	112	132	182	25	32	0.5	SOX07	TPS3	TIP10W
	6	MVX2100X6F25	●	2	126	133	153	203	25	32	0.5	SOX07	TPS3	TIP10W
21.5	2	MVX2150X2F25	●	2	43	50	70	120	25	32	0.45	SOX07	TPS3	TIP10W
	3	MVX2150X3F25	●	2	64.5	71.5	91.5	141.5	25	32	0.45	SOX07	TPS3	TIP10W
22.0	2	MVX2200X2F25	●	2	44	51	71	121	25	32	0.4	SOX07	TPS3	TIP10W
	3	MVX2200X3F25	●	2	66	73	93	143	25	32	0.4	SOX07	TPS3	TIP10W
	4	MVX2200X4F25	●	2	88	95	115	165	25	32	0.4	SOX07	TPS3	TIP10W
	5	MVX2200X5F25	●	2	110	117	137	187	25	32	0.4	SOX07	TPS3	TIP10W
	6	MVX2200X6F25	●	2	132	139	159	209	25	32	0.4	SOX07	TPS3	TIP10W
22.5	2	MVX2250X2F25	●	2	45	52	72	122	25	32	0.35	SOX07	TPS3	TIP10W
	3	MVX2250X3F25	●	2	67.5	74.5	94.5	144.5	25	32	0.35	SOX07	TPS3	TIP10W

★ Sıkma Torku (N • m) : TPS25=1.0, TPS3=2.0

KESİCİ UÇ AÇIKLAMASI > M168
 KESME KOŞULLARI > M169
 TAM UYUMLU AYAR BURCU > M172

KULLANIM NOTU > M173
 YEDEK PARÇALAR > N001
 TEKNİK VERİLER > P001

DELME (DEĞİŞTİRİLEBİLİR UÇLU TİP)

MVX

KARBÜR

M

DELME

DC (mm)	Delik Derinliği (L/D)	Sipariş Numarası	Stok	Dişler	Boyutlar (mm)						S10 (mm)	Kesici Uç		
					LU	LBX	LPR	OAL	DCON	DCSFMS				
23.0	2	MVX2300X2F25	●	2	46	53	73	123	25	32	0.8	SOX08	TPS351	TIP10W
	3	MVX2300X3F25	●	2	69	76	96	146	25	32	0.8	SOX08	TPS351	TIP10W
	4	MVX2300X4F25	●	2	92	99	119	169	25	32	0.8	SOX08	TPS351	TIP10W
	5	MVX2300X5F25	●	2	115	122	142	192	25	32	0.8	SOX08	TPS351	TIP10W
	6	MVX2300X6F25	●	2	138	145	165	215	25	32	0.8	SOX08	TPS351	TIP10W
23.5	2	MVX2350X2F25	●	2	47	54	74	124	25	32	0.75	SOX08	TPS351	TIP10W
	3	MVX2350X3F25	●	2	70.5	77.5	97.5	147.5	25	32	0.75	SOX08	TPS351	TIP10W
24.0	2	MVX2400X2F25	●	2	48	55	75	125	25	32	0.7	SOX08	TPS351	TIP10W
	3	MVX2400X3F25	●	2	72	79	99	149	25	32	0.7	SOX08	TPS351	TIP10W
	4	MVX2400X4F25	●	2	96	103	123	173	25	32	0.7	SOX08	TPS351	TIP10W
	5	MVX2400X5F25	●	2	120	127	147	197	25	32	0.7	SOX08	TPS351	TIP10W
	6	MVX2400X6F25	●	2	144	151	171	221	25	32	0.7	SOX08	TPS351	TIP10W
24.5	2	MVX2450X2F25	●	2	49	56	76	126	25	32	0.65	SOX08	TPS351	TIP10W
	3	MVX2450X3F25	●	2	73.5	80.5	100.5	150.5	25	32	0.65	SOX08	TPS351	TIP10W
25.0	2	MVX2500X2F25	●	2	50	57	77	127	25	32	0.6	SOX08	TPS351	TIP10W
	3	MVX2500X3F25	●	2	75	82	102	152	25	32	0.6	SOX08	TPS351	TIP10W
	4	MVX2500X4F25	●	2	100	107	127	177	25	32	0.6	SOX08	TPS351	TIP10W
	5	MVX2500X5F25	●	2	125	132	152	202	25	32	0.6	SOX08	TPS351	TIP10W
	6	MVX2500X6F25	●	2	150	157	177	227	25	32	0.6	SOX08	TPS351	TIP10W
25.5	2	MVX2550X2F25	●	2	51	58	78	128	25	32	0.6	SOX08	TPS351	TIP10W
	3	MVX2550X3F25	●	2	76.5	83.5	103.5	153.5	25	32	0.6	SOX08	TPS351	TIP10W
26.0	2	MVX2600X2F32	●	2	52	59	79	134	32	42	0.5	SOX08	TPS351	TIP10W
	3	MVX2600X3F32	●	2	78	85	105	160	32	42	0.5	SOX08	TPS351	TIP10W
	4	MVX2600X4F32	●	2	104	111	131	186	32	42	0.5	SOX08	TPS351	TIP10W
	5	MVX2600X5F32	●	2	130	137	157	212	32	42	0.5	SOX08	TPS351	TIP10W
	6	MVX2600X6F32	●	2	156	163	183	238	32	42	0.5	SOX08	TPS351	TIP10W
26.5	2	MVX2650X2F32	●	2	53	60	80	135	32	42	0.5	SOX08	TPS351	TIP10W
	3	MVX2650X3F32	●	2	79.5	86.5	106.5	161.5	32	42	0.5	SOX08	TPS351	TIP10W
27.0	2	MVX2700X2F32	●	2	54	61	81	136	32	42	0.45	SOX08	TPS351	TIP10W
	3	MVX2700X3F32	●	2	81	88	108	163	32	42	0.45	SOX08	TPS351	TIP10W
	4	MVX2700X4F32	●	2	108	115	135	190	32	42	0.45	SOX08	TPS351	TIP10W
	5	MVX2700X5F32	●	2	135	142	162	217	32	42	0.45	SOX08	TPS351	TIP10W
	6	MVX2700X6F32	●	2	162	169	189	244	32	42	0.45	SOX08	TPS351	TIP10W
27.5	2	MVX2750X2F32	●	2	55	62	82	137	32	42	0.4	SOX08	TPS351	TIP10W
	3	MVX2750X3F32	●	2	82.5	89.5	109.5	164.5	32	42	0.4	SOX08	TPS351	TIP10W
28.0	2	MVX2800X2F32	●	2	56	63	83	138	32	42	0.85	SOX09	TPS4	TIP15W
	3	MVX2800X3F32	●	2	84	91	111	166	32	42	0.85	SOX09	TPS4	TIP15W
	4	MVX2800X4F32	●	2	112	119	139	194	32	42	0.85	SOX09	TPS4	TIP15W
	5	MVX2800X5F32	●	2	140	147	167	222	32	42	0.85	SOX09	TPS4	TIP15W
	6	MVX2800X6F32	●	2	168	175	195	250	32	42	0.85	SOX09	TPS4	TIP15W
28.5	2	MVX2850X2F32	●	2	57	64	84	139	32	42	0.8	SOX09	TPS4	TIP15W
	3	MVX2850X3F32	●	2	85.5	92.5	112.5	167.5	32	42	0.8	SOX09	TPS4	TIP15W
29.0	2	MVX2900X2F32	●	2	58	65	85	140	32	42	0.75	SOX09	TPS4	TIP15W
	3	MVX2900X3F32	●	2	87	94	114	169	32	42	0.75	SOX09	TPS4	TIP15W
	4	MVX2900X4F32	●	2	116	123	143	198	32	42	0.75	SOX09	TPS4	TIP15W
	5	MVX2900X5F32	●	2	145	152	172	227	32	42	0.75	SOX09	TPS4	TIP15W
	6	MVX2900X6F32	●	2	174	181	201	256	32	42	0.75	SOX09	TPS4	TIP15W
29.5	2	MVX2950X2F32	●	2	59	66	86	141	32	42	0.7	SOX09	TPS4	TIP15W
	3	MVX2950X3F32	●	2	88.5	95.5	115.5	170.5	32	42	0.7	SOX09	TPS4	TIP15W

* Sıkma Torku (N • m) : TPS351=2.5, TPS4=3.5

● : Avrupa standart stok.

DC (mm)	Delik Derinliği (L/D)	Sipariş Numarası	Stok	Dişler	Boyutlar (mm)						S10 (mm)	Kesici Uç		
					LU	LBX	LPR	OAL	DCON	DCSFMS				
30.0	2	MVX3000X2F32	●	2	60	67	87	142	32	42	0.65	SOX09	TPS4	TIP15W
	3	MVX3000X3F32	●	2	90	97	117	172	32	42	0.65	SOX09	TPS4	TIP15W
	4	MVX3000X4F32	●	2	120	127	147	202	32	42	0.65	SOX09	TPS4	TIP15W
	5	MVX3000X5F32	●	2	150	157	177	232	32	42	0.65	SOX09	TPS4	TIP15W
	6	MVX3000X6F32	●	2	180	187	207	262	32	42	0.65	SOX09	TPS4	TIP15W
30.5	3	MVX3050X3F32	●	2	91.5	98.5	118.5	173.5	32	42	0.6	SOX09	TPS4	TIP15W
31.0	2	MVX3100X2F32	●	2	62	69	89	144	32	42	0.55	SOX09	TPS4	TIP15W
	3	MVX3100X3F32	●	2	93	100	120	175	32	42	0.55	SOX09	TPS4	TIP15W
	4	MVX3100X4F32	●	2	124	131	151	206	32	42	0.55	SOX09	TPS4	TIP15W
	2	MVX3100X2F40	●	2	62	69	89	154	40	50	0.55	SOX09	TPS4	TIP15W
	3	MVX3100X3F40	●	2	93	100	120	185	40	50	0.55	SOX09	TPS4	TIP15W
	4	MVX3100X4F40	●	2	124	131	151	216	40	50	0.55	SOX09	TPS4	TIP15W
	5	MVX3100X5F40	●	2	155	162	182	247	40	50	0.55	SOX09	TPS4	TIP15W
31.5	3	MVX3150X3F40	●	2	94.5	101.5	121.5	186.5	40	50	0.55	SOX09	TPS4	TIP15W
32.0	2	MVX3200X2F32	●	2	64	71	91	146	32	42	0.45	SOX09	TPS4	TIP15W
	3	MVX3200X3F32	●	2	96	103	123	178	32	42	0.45	SOX09	TPS4	TIP15W
	4	MVX3200X4F32	●	2	128	135	155	210	32	42	0.45	SOX09	TPS4	TIP15W
	2	MVX3200X2F40	●	2	64	71	91	156	40	50	0.45	SOX09	TPS4	TIP15W
	3	MVX3200X3F40	●	2	96	103	123	188	40	50	0.45	SOX09	TPS4	TIP15W
	4	MVX3200X4F40	●	2	128	135	155	220	40	50	0.45	SOX09	TPS4	TIP15W
	5	MVX3200X5F40	●	2	160	167	187	252	40	50	0.45	SOX09	TPS4	TIP15W
32.5	3	MVX3250X3F40	●	2	97.5	104.5	124.5	189.5	40	50	0.45	SOX09	TPS4	TIP15W
33.0	2	MVX3300X2F32	●	2	66	73	93	148	32	42	0.4	SOX09	TPS4	TIP15W
	3	MVX3300X3F32	●	2	99	106	126	181	32	42	0.4	SOX09	TPS4	TIP15W
	4	MVX3300X4F32	●	2	132	139	159	214	32	42	0.4	SOX09	TPS4	TIP15W
	2	MVX3300X2F40	●	2	66	73	93	158	40	50	0.4	SOX09	TPS4	TIP15W
	3	MVX3300X3F40	●	2	99	106	126	191	40	50	0.4	SOX09	TPS4	TIP15W
	4	MVX3300X4F40	●	2	132	139	159	224	40	50	0.4	SOX09	TPS4	TIP15W
	5	MVX3300X5F40	●	2	165	172	192	257	40	50	0.4	SOX09	TPS4	TIP15W
33.5	3	MVX3350X3F40	●	2	100.5	107.5	127.5	192.5	40	50	1.15	SOX11	TPS43	TIP15W
34.0	2	MVX3400X2F40	●	2	68	75	105	170	40	50	1.11	SOX11	TPS43	TIP15W
	3	MVX3400X3F40	●	2	102	109	139	204	40	50	1.11	SOX11	TPS43	TIP15W
	4	MVX3400X4F40	●	2	136	143	173	238	40	50	1.11	SOX11	TPS43	TIP15W
	5	MVX3400X5F40	●	2	170	177	207	272	40	50	1.11	SOX11	TPS43	TIP15W
	6	MVX3400X6F40	●	2	204	211	241	306	40	50	1.1	SOX11	TPS43	TIP15W
34.5	3	MVX3450X3F40	●	2	103.5	110.5	140.5	205.5	40	50	1.08	SOX11	TPS43	TIP15W
35.0	2	MVX3500X2F40	●	2	70	77	107	172	40	50	1.03	SOX11	TPS43	TIP15W
	3	MVX3500X3F40	●	2	105	112	142	207	40	50	1.03	SOX11	TPS43	TIP15W
	4	MVX3500X4F40	●	2	140	147	177	242	40	50	1.03	SOX11	TPS43	TIP15W
	5	MVX3500X5F40	●	2	175	182	212	277	40	50	1.03	SOX11	TPS43	TIP15W
	6	MVX3500X6F40	●	2	210	217	247	312	40	50	1.02	SOX11	TPS43	TIP15W
35.5	3	MVX3550X3F40	●	2	106.5	113.5	143.5	208.5	40	50	0.99	SOX11	TPS43	TIP15W
36.0	2	MVX3600X2F40	●	2	72	79	109	174	40	50	0.95	SOX11	TPS43	TIP15W
	3	MVX3600X3F40	●	2	108	115	145	210	40	50	0.95	SOX11	TPS43	TIP15W
	4	MVX3600X4F40	●	2	144	151	181	246	40	50	0.95	SOX11	TPS43	TIP15W
	5	MVX3600X5F40	●	2	180	187	217	282	40	50	0.95	SOX11	TPS43	TIP15W
	6	MVX3600X6F40	●	2	216	223	253	318	40	50	0.94	SOX11	TPS43	TIP15W

★ Sıkma Torku (N • m) : TPS4=3.5, TPS43=3.5

KESİCİ UÇ AÇIKLAMASI > M168
 KESME KOŞULLARI > M169
 TAM UYUMLU AYAR BURCU > M172

KULLANIM NOTU > M173
 YEDEK PARÇALAR > N001
 TEKNİK VERİLER > P001

DELME (DEĞİŞTİRİLEBİLİR UÇLU TİP)

MVX

DC (mm)	Delik Derinliği (L/D)	Sipariş Numarası	Stok	Dişler	Boyutlar (mm)						S10 (mm)	Kesici Uç		
					LU	LBX	LPR	OAL	DCON	DCSFMS				
37.0	2	MVX3700X2F40	●	2	74	81	111	176	40	50	0.87	SOX11	TPS43	TIP15W
	3	MVX3700X3F40	●	2	111	118	148	213	40	50	0.87	SOX11	TPS43	TIP15W
	4	MVX3700X4F40	●	2	148	155	185	250	40	50	0.87	SOX11	TPS43	TIP15W
	5	MVX3700X5F40	●	2	185	192	222	287	40	50	0.87	SOX11	TPS43	TIP15W
	6	MVX3700X6F40	●	2	222	229	259	324	40	50	0.86	SOX11	TPS43	TIP15W
38.0	2	MVX3800X2F40	●	2	76	83	113	178	40	50	0.79	SOX11	TPS43	TIP15W
	3	MVX3800X3F40	●	2	114	121	151	216	40	50	0.79	SOX11	TPS43	TIP15W
	4	MVX3800X4F40	●	2	152	159	189	254	40	50	0.79	SOX11	TPS43	TIP15W
	5	MVX3800X5F40	●	2	190	197	227	292	40	50	0.79	SOX11	TPS43	TIP15W
	6	MVX3800X6F40	●	2	228	235	265	330	40	50	0.78	SOX11	TPS43	TIP15W
39.0	2	MVX3900X2F40	●	2	78	85	115	180	40	50	0.71	SOX11	TPS43	TIP15W
	3	MVX3900X3F40	●	2	117	124	154	219	40	50	0.71	SOX11	TPS43	TIP15W
	4	MVX3900X4F40	●	2	156	163	193	258	40	50	0.71	SOX11	TPS43	TIP15W
	5	MVX3900X5F40	●	2	195	202	232	297	40	50	0.71	SOX11	TPS43	TIP15W
	6	MVX3900X6F40	●	2	234	241	271	336	40	50	0.7	SOX11	TPS43	TIP15W
40.0	2	MVX4000X2F40	●	2	80	87	117	182	40	50	1.46	SOX13	TPS43	TIP15W
	3	MVX4000X3F40	●	2	120	127	157	222	40	50	1.46	SOX13	TPS43	TIP15W
	4	MVX4000X4F40	●	2	160	167	197	262	40	50	1.46	SOX13	TPS43	TIP15W
	5	MVX4000X5F40	●	2	200	207	237	302	40	50	1.46	SOX13	TPS43	TIP15W
	6	MVX4000X6F40	●	2	240	247	277	342	40	50	1.45	SOX13	TPS43	TIP15W
41.0	2	MVX4100X2F40	●	2	82	89	119	184	40	50	1.36	SOX13	TPS43	TIP15W
	3	MVX4100X3F40	●	2	123	130	160	225	40	50	1.36	SOX13	TPS43	TIP15W
	4	MVX4100X4F40	●	2	164	171	201	266	40	50	1.36	SOX13	TPS43	TIP15W
	5	MVX4100X5F40	●	2	205	212	242	307	40	50	1.36	SOX13	TPS43	TIP15W
	6	MVX4100X6F40	●	2	246	253	283	348	40	50	1.35	SOX13	TPS43	TIP15W
42.0	2	MVX4200X2F40	●	2	84	91	121	186	40	50	1.27	SOX13	TPS43	TIP15W
	3	MVX4200X3F40	●	2	126	133	163	228	40	50	1.27	SOX13	TPS43	TIP15W
	4	MVX4200X4F40	●	2	168	175	205	270	40	63	1.27	SOX13	TPS43	TIP15W
	5	MVX4200X5F40	●	2	210	217	247	312	40	63	1.27	SOX13	TPS43	TIP15W
	6	MVX4200X6F40	●	2	252	259	289	354	40	63	1.27	SOX13	TPS43	TIP15W
	4	MVX4200X4F50	★	2	168	175	205	280	50	63	1.27	SOX13	TPS43	TIP15W
	5	MVX4200X5F50	★	2	210	217	247	322	50	63	1.27	SOX13	TPS43	TIP15W
	6	MVX4200X6F50	★	2	252	259	289	364	50	63	1.26	SOX13	TPS43	TIP15W
43.0	2	MVX4300X2F40	●	2	86	93	123	188	40	50	1.18	SOX13	TPS43	TIP15W
	3	MVX4300X3F40	●	2	129	136	166	231	40	50	1.18	SOX13	TPS43	TIP15W
	4	MVX4300X4F40	●	2	172	179	209	274	40	63	1.18	SOX13	TPS43	TIP15W
	5	MVX4300X5F40	●	2	215	222	252	317	40	63	1.18	SOX13	TPS43	TIP15W
	6	MVX4300X6F40	●	2	258	265	295	360	40	63	1.17	SOX13	TPS43	TIP15W
	4	MVX4300X4F50	★	2	172	179	209	284	50	63	1.18	SOX13	TPS43	TIP15W
	5	MVX4300X5F50	★	2	215	222	252	327	50	63	1.18	SOX13	TPS43	TIP15W
	6	MVX4300X6F50	★	2	258	265	295	370	50	63	1.17	SOX13	TPS43	TIP15W
44.0	2	MVX4400X2F40	●	2	88	95	125	190	40	50	1.08	SOX13	TPS43	TIP15W
	3	MVX4400X3F40	●	2	132	139	169	234	40	50	1.08	SOX13	TPS43	TIP15W
	4	MVX4400X4F40	●	2	176	183	213	278	40	63	1.08	SOX13	TPS43	TIP15W
	5	MVX4400X5F40	●	2	220	227	257	322	40	63	1.08	SOX13	TPS43	TIP15W
	4	MVX4400X4F50	★	2	176	183	213	288	50	63	1.08	SOX13	TPS43	TIP15W
	5	MVX4400X5F50	★	2	220	227	257	332	50	63	1.08	SOX13	TPS43	TIP15W

★ Sikma Torku (N • m) : TPS43=3.5

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

DC (mm)	Delik Derinliği (L/D)	Sipariş Numarası	Stok	Dişler	Boyutlar (mm)						S10 (mm)	Kesici Uç		
					LU	LBX	LPR	OAL	DCON	DCSFMS				
45.0	2	MVX4500X2F40	●	2	90	97	127	192	40	50	0.99	SOX13	TPS43	TIP15W
	3	MVX4500X3F40	●	2	135	142	172	237	40	50	0.99	SOX13	TPS43	TIP15W
	4	MVX4500X4F40	●	2	180	187	217	282	40	63	0.99	SOX13	TPS43	TIP15W
	5	MVX4500X5F40	●	2	225	232	262	327	40	63	0.99	SOX13	TPS43	TIP15W
	4	MVX4500X4F50	★	2	180	187	217	292	50	63	0.99	SOX13	TPS43	TIP15W
	5	MVX4500X5F50	★	2	225	232	262	337	50	63	0.99	SOX13	TPS43	TIP15W
46.0	2	MVX4600X2F40	●	2	92	99	129	194	40	50	0.89	SOX13	TPS43	TIP15W
	3	MVX4600X3F40	●	2	138	145	175	240	40	50	0.89	SOX13	TPS43	TIP15W
	4	MVX4600X4F40	●	2	184	191	221	286	40	63	0.89	SOX13	TPS43	TIP15W
	5	MVX4600X5F40	●	2	230	237	267	332	40	63	0.89	SOX13	TPS43	TIP15W
	4	MVX4600X4F50	★	2	184	191	221	296	50	63	0.89	SOX13	TPS43	TIP15W
	5	MVX4600X5F50	★	2	230	237	267	342	50	63	0.89	SOX13	TPS43	TIP15W
47.0	2	MVX4700X2F40	●	2	94	101	141	206	40	63	1.9	SOX16	TPS54	TIP25D
	3	MVX4700X3F40	●	2	141	148	188	253	40	63	1.9	SOX16	TPS54	TIP25D
	4	MVX4700X4F40	●	2	188	195	235	300	40	63	1.9	SOX16	TPS54	TIP25D
	5	MVX4700X5F40	●	2	235	242	282	347	40	63	1.9	SOX16	TPS54	TIP25D
	4	MVX4700X4F50	★	2	188	195	235	310	50	63	1.9	SOX16	TPS54	TIP25D
	5	MVX4700X5F50	★	2	235	242	282	357	50	63	1.9	SOX16	TPS54	TIP25D
48.0	2	MVX4800X2F40	●	2	96	103	143	208	40	63	1.8	SOX16	TPS54	TIP25D
	3	MVX4800X3F40	●	2	144	151	191	256	40	63	1.8	SOX16	TPS54	TIP25D
	4	MVX4800X4F40	●	2	192	199	239	304	40	63	1.8	SOX16	TPS54	TIP25D
	5	MVX4800X5F40	●	2	240	247	287	352	40	63	1.8	SOX16	TPS54	TIP25D
	4	MVX4800X4F50	★	2	192	199	239	314	50	63	1.8	SOX16	TPS54	TIP25D
	5	MVX4800X5F50	★	2	240	247	287	362	50	63	1.8	SOX16	TPS54	TIP25D
49.0	2	MVX4900X2F40	●	2	98	105	145	210	40	63	1.7	SOX16	TPS54	TIP25D
	3	MVX4900X3F40	●	2	147	154	194	259	40	63	1.7	SOX16	TPS54	TIP25D
	4	MVX4900X4F40	●	2	196	203	243	308	40	63	1.7	SOX16	TPS54	TIP25D
	5	MVX4900X5F40	●	2	245	252	292	357	40	63	1.7	SOX16	TPS54	TIP25D
	4	MVX4900X4F50	★	2	196	203	243	318	50	63	1.7	SOX16	TPS54	TIP25D
	5	MVX4900X5F50	★	2	245	252	292	367	50	63	1.7	SOX16	TPS54	TIP25D
50.0	2	MVX5000X2F40	●	2	100	107	147	212	40	63	1.6	SOX16	TPS54	TIP25D
	3	MVX5000X3F40	●	2	150	157	197	262	40	63	1.6	SOX16	TPS54	TIP25D
	4	MVX5000X4F40	●	2	200	207	247	312	40	63	1.6	SOX16	TPS54	TIP25D
	5	MVX5000X5F40	●	2	250	257	297	362	40	63	1.6	SOX16	TPS54	TIP25D
	4	MVX5000X4F50	★	2	200	207	247	322	50	63	1.6	SOX16	TPS54	TIP25D
	5	MVX5000X5F50	★	2	250	257	297	372	50	63	1.6	SOX16	TPS54	TIP25D
51.0	2	MVX5100X2F40	●	2	102	109	149	214	40	63	1.5	SOX16	TPS54	TIP25D
	3	MVX5100X3F40	●	2	153	160	200	265	40	63	1.5	SOX16	TPS54	TIP25D
	4	MVX5100X4F40	●	2	204	211	251	316	40	63	1.5	SOX16	TPS54	TIP25D
	5	MVX5100X5F40	●	2	255	262	302	367	40	63	1.5	SOX16	TPS54	TIP25D
	4	MVX5100X4F50	★	2	204	211	251	326	50	63	1.5	SOX16	TPS54	TIP25D
	5	MVX5100X5F50	★	2	255	262	302	377	50	63	1.5	SOX16	TPS54	TIP25D
52.0	2	MVX5200X2F40	●	2	104	111	151	216	40	63	1.39	SOX16	TPS54	TIP25D
	3	MVX5200X3F40	●	2	156	163	203	268	40	63	1.39	SOX16	TPS54	TIP25D
	4	MVX5200X4F40	●	2	208	215	255	320	40	63	1.39	SOX16	TPS54	TIP25D
	5	MVX5200X5F40	●	2	260	267	307	372	40	63	1.39	SOX16	TPS54	TIP25D
	4	MVX5200X4F50	★	2	208	215	255	330	50	63	1.39	SOX16	TPS54	TIP25D
	5	MVX5200X5F50	★	2	260	267	307	382	50	63	1.39	SOX16	TPS54	TIP25D

★ Sıkma Torku (N • m) : TPS43=3.5, TPS54=7.5

KESİCİ UÇ AÇIKLAMASI > M168
 KESME KOŞULLARI > M169
 TAM UYUMLU AYAR BURCU > M172

KULLANIM NOTU > M173
 YEDEK PARÇALAR > N001
 TEKNİK VERİLER > P001

DELME (DEĞİŞTİRİLEBİLİR UÇLU TİP)

MVX

KARBÜR

M

DELME

DC (mm)	Delik Derinliği (L/D)	Sipariş Numarası	Stok	Dişler	Boyutlar (mm)						S10 (mm)	Kesici Uç		
					LU	LBX	LPR	OAL	DCON	DCSFMS				
53.0	2	MVX5300X2F40	●	2	106	113	153	218	40	63	1.29	SOX16	TPS54	TIP25D
	3	MVX5300X3F40	●	2	159	166	206	271	40	63	1.29	SOX16	TPS54	TIP25D
	4	MVX5300X4F40	●	2	212	219	259	324	40	63	1.29	SOX16	TPS54	TIP25D
	5	MVX5300X5F40	●	2	265	272	312	377	40	63	1.29	SOX16	TPS54	TIP25D
	4	MVX5300X4F50	★	2	212	219	259	334	50	63	1.29	SOX16	TPS54	TIP25D
	5	MVX5300X5F50	★	2	265	272	312	387	50	63	1.29	SOX16	TPS54	TIP25D
54.0	2	MVX5400X2F40	●	2	108	115	155	220	40	63	1.19	SOX16	TPS54	TIP25D
	3	MVX5400X3F40	●	2	162	169	209	274	40	63	1.19	SOX16	TPS54	TIP25D
	4	MVX5400X4F40	●	2	216	223	263	328	40	63	1.19	SOX16	TPS54	TIP25D
	5	MVX5400X5F40	●	2	270	277	317	382	40	63	1.19	SOX16	TPS54	TIP25D
	4	MVX5400X4F50	★	2	216	223	263	338	50	63	1.19	SOX16	TPS54	TIP25D
	5	MVX5400X5F50	★	2	270	277	317	392	50	63	1.19	SOX16	TPS54	TIP25D
55.0	2	MVX5500X2F40	●	2	110	117	157	222	40	63	1.08	SOX16	TPS54	TIP25D
	3	MVX5500X3F40	●	2	165	172	212	277	40	63	1.08	SOX16	TPS54	TIP25D
	4	MVX5500X4F40	●	2	220	227	267	332	40	63	1.08	SOX16	TPS54	TIP25D
	5	MVX5500X5F40	●	2	275	282	322	387	40	63	1.08	SOX16	TPS54	TIP25D
	4	MVX5500X4F50	★	2	220	227	267	342	50	63	1.08	SOX16	TPS54	TIP25D
	5	MVX5500X5F50	●	2	275	282	322	397	50	63	1.08	SOX16	TPS54	TIP25D
56.0	2	MVX5600X2F40	●	2	112	119	159	224	40	63	0.98	SOX16	TPS54	TIP25D
	3	MVX5600X3F40	●	2	168	175	215	280	40	63	0.98	SOX16	TPS54	TIP25D
	4	MVX5600X4F40	●	2	224	231	271	336	40	63	0.98	SOX16	TPS54	TIP25D
	5	MVX5600X5F40	●	2	280	287	327	392	40	63	0.98	SOX16	TPS54	TIP25D
	4	MVX5600X4F50	★	2	224	231	271	346	50	63	0.98	SOX16	TPS54	TIP25D
	5	MVX5600X5F50	★	2	280	287	327	402	50	63	0.98	SOX16	TPS54	TIP25D
57.0	2	MVX5700X2F40	●	2	114	121	161	226	40	68	1.47	SOX18	TPS54	TIP25D
	3	MVX5700X3F40	●	2	171	178	218	283	40	68	1.47	SOX18	TPS54	TIP25D
	4	MVX5700X4F40	●	2	228	235	275	340	40	68	1.47	SOX18	TPS54	TIP25D
	5	MVX5700X5F40	●	2	285	292	332	397	40	68	1.47	SOX18	TPS54	TIP25D
	4	MVX5700X4F50	★	2	228	235	275	350	50	68	1.47	SOX18	TPS54	TIP25D
	5	MVX5700X5F50	★	2	285	292	332	407	50	68	1.47	SOX18	TPS54	TIP25D
58.0	2	MVX5800X2F40	●	2	116	123	163	228	40	68	1.37	SOX18	TPS54	TIP25D
	3	MVX5800X3F40	●	2	174	181	221	286	40	68	1.37	SOX18	TPS54	TIP25D
	4	MVX5800X4F40	●	2	232	239	279	344	40	68	1.37	SOX18	TPS54	TIP25D
	5	MVX5800X5F40	●	2	290	297	337	402	40	68	1.37	SOX18	TPS54	TIP25D
	4	MVX5800X4F50	★	2	232	239	279	354	50	68	1.37	SOX18	TPS54	TIP25D
	5	MVX5800X5F50	★	2	290	297	337	412	50	68	1.37	SOX18	TPS54	TIP25D
59.0	2	MVX5900X2F40	●	2	118	125	165	230	40	68	1.26	SOX18	TPS54	TIP25D
	3	MVX5900X3F40	●	2	177	184	224	289	40	68	1.26	SOX18	TPS54	TIP25D
	4	MVX5900X4F40	●	2	236	243	283	348	40	68	1.26	SOX18	TPS54	TIP25D
	5	MVX5900X5F40	●	2	295	302	342	407	40	68	1.26	SOX18	TPS54	TIP25D
	4	MVX5900X4F50	★	2	236	243	283	358	50	68	1.26	SOX18	TPS54	TIP25D
	5	MVX5900X5F50	★	2	295	302	342	417	50	68	1.26	SOX18	TPS54	TIP25D
60.0	2	MVX6000X2F40	●	2	120	127	167	232	40	68	1.16	SOX18	TPS54	TIP25D
	3	MVX6000X3F40	●	2	180	187	227	292	40	68	1.16	SOX18	TPS54	TIP25D
	4	MVX6000X4F40	●	2	240	247	287	352	40	68	1.16	SOX18	TPS54	TIP25D
	5	MVX6000X5F40	●	2	300	307	347	412	40	68	1.16	SOX18	TPS54	TIP25D
	4	MVX6000X4F50	★	2	240	247	287	362	50	68	1.16	SOX18	TPS54	TIP25D
	5	MVX6000X5F50	★	2	300	307	347	422	50	68	1.16	SOX18	TPS54	TIP25D

★ Sıkma Torku (N • m) : TPS54=7.5

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

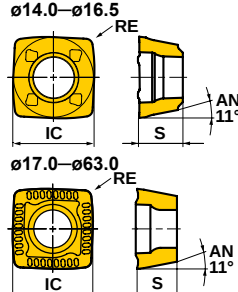
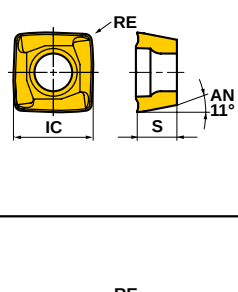
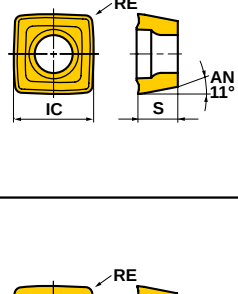
DC (mm)	Delik Derinliği (L/D)	Sipariş Numarası	Stok	Dişler	Boyutlar (mm)						S10 (mm)	Kesici Uç		
					LU	LBX	LPR	OAL	DCON	DCSFMS				
61.0	2	MVX6100X2F40	●	2	122	129	169	234	40	68	1.05	SOX18	TPS54	TIP25D
	3	MVX6100X3F40	●	2	183	190	230	295	40	68	1.05	SOX18	TPS54	TIP25D
	4	MVX6100X4F40	●	2	244	251	291	356	40	68	1.05	SOX18	TPS54	TIP25D
	5	MVX6100X5F40	●	2	305	312	352	417	40	68	1.05	SOX18	TPS54	TIP25D
	4	MVX6100X4F50	★	2	244	251	291	366	50	68	1.05	SOX18	TPS54	TIP25D
	5	MVX6100X5F50	★	2	305	312	352	427	50	68	1.05	SOX18	TPS54	TIP25D
62.0	2	MVX6200X2F40	●	2	124	131	171	236	40	68	0.95	SOX18	TPS54	TIP25D
	3	MVX6200X3F40	●	2	186	193	233	298	40	68	0.95	SOX18	TPS54	TIP25D
	4	MVX6200X4F40	●	2	248	255	295	360	40	68	0.95	SOX18	TPS54	TIP25D
	5	MVX6200X5F40	●	2	310	317	357	422	40	68	0.95	SOX18	TPS54	TIP25D
	4	MVX6200X4F50	★	2	248	255	295	370	50	68	0.95	SOX18	TPS54	TIP25D
	5	MVX6200X5F50	★	2	310	317	357	432	50	68	0.95	SOX18	TPS54	TIP25D
63.0	2	MVX6300X2F40	●	2	126	133	173	238	40	68	0.85	SOX18	TPS54	TIP25D
	3	MVX6300X3F40	●	2	189	196	236	301	40	68	0.85	SOX18	TPS54	TIP25D
	4	MVX6300X4F40	●	2	252	259	299	364	40	68	0.85	SOX18	TPS54	TIP25D
	5	MVX6300X5F40	●	2	315	322	362	427	40	68	0.85	SOX18	TPS54	TIP25D
	4	MVX6300X4F50	★	2	252	259	299	374	50	68	0.85	SOX18	TPS54	TIP25D
	5	MVX6300X5F50	★	2	315	322	362	437	50	68	0.85	SOX18	TPS54	TIP25D

★ Sıkma Torku (N • m) : TPS54=7.5

DELME (DEĞİŞTİRİLEBİLİR UÇLU TİP)

MVX

KESİCİ UÇLAR

Şekil	Delme Ucu Çapı	Kesici Uç Numarası	Boyutlar (mm)			Kaplama				Karbür		Geometri
			IC	S	RE	VP15TF	MC1020	MC5020	DP8020	TF15		
UM  Genel amaçlı İç kenar veya Dış Kenar için	Ø14.0—Ø16.5	SOMX052704-UM	5.0	2.7	0.4	●	●	●				
	Ø17.0—Ø19.5	SOMX063005-UM	6.0	3.0	0.5	●	●	●				
	Ø20.0—Ø22.5	SOMX073505-UM	7.0	3.5	0.5	●	●	●				
	Ø23.0—Ø27.5	SOMX084005-UM	8.3	4.0	0.5	●	●	●				
	Ø28.0—Ø33.0	SOMX094506-UM	9.7	4.5	0.6	●	●	●				
	Ø33.5—Ø39.0	SOMX115506-UM	11.6	5.5	0.6	●	●	●				
	Ø40.0—Ø46.0	SOMX136008-UM	13.8	6.0	0.8	●	●	●				
	Ø47.0—Ø56.0	SOMX166508-UM	16.5	6.5	0.8	●	●	●				
US  Paslanmaz çelik (iç kenar için)	Ø17.0—Ø19.5	SOMX063005-US	6.0	3.0	0.5	●						
	Ø20.0—Ø22.5	SOMX073505-US	7.0	3.5	0.5	●						
	Ø23.0—Ø27.5	SOMX084005-US	8.0	4.0	0.5	●						
	Ø28.0—Ø33.0	SOMX094506-US	9.0	4.5	0.6	●						
	Ø33.5—Ø39.0	SOMX115506-US	11.6	5.5	0.6	●						
	Ø40.0—Ø46.0	SOMX136008-US	13.8	6.0	0.8	●						
	Ø47.0—Ø56.0	SOMX166508-US	16.5	6.5	0.8	●						
	Ø57.0—Ø63.0	SOMX187008-US	18.2	7.0	0.8	●						
UH  Güçlü Kesme Kenarlı Tip ve İç kenar Kenar için	Ø17.0—Ø19.5	SOMX062905-UH	6.0	2.9	0.5				●			
	Ø20.0—Ø22.5	SOMX073405-UH	7.0	3.4	0.5				●			
	Ø23.0—Ø27.5	SOMX083905-UH	8.3	3.9	0.5				●			
	Ø28.0—Ø33.0	SOMX094406-UH	9.7	4.4	0.6				●			
	Ø33.5—Ø39.0	SOMX115406-UH	11.6	5.4	0.6				●			
	Ø40.0—Ø46.0	SOMX135908-UH	13.8	5.9	0.8				●			
	Ø47.0—Ø56.0	SOMX166408-UH	16.5	6.4	0.8				●			
	Ø57.0—Ø63.0	SOMX186908-UH	18.2	6.9	0.8				●			
UN  Alüminyum Alaşımları İç kenar veya Dış Kenar için	Ø17.0—Ø19.5	SOGX063005-UN	6.0	3.0	0.5					●		
	Ø20.0—Ø22.5	SOGX073505-UN	7.0	3.5	0.5					●		
	Ø23.0—Ø27.5	SOGX084005-UN	8.3	4.0	0.5					●		
	Ø28.0—Ø33.0	SOGX094506-UN	9.7	4.5	0.6					●		
	Ø33.5—Ø39.0	SOGX115506-UN	11.6	5.5	0.6					●		
	Ø40.0—Ø46.0	SOGX136008-UN	13.8	6.0	0.8					●		
	Ø47.0—Ø56.0	SOGX166508-UN	16.5	6.5	0.8					●		
	Ø57.0—Ø63.0	SOGX187008-UN	18.2	7.0	0.8					●		

Not 1) MC1020 ve MC5020 kaliteli kesici uçlar özellikle Dış kenarda kullanılmak üzere üretilmiştir. DP8020 kaliteli kesici uçlar özellikle İç kenarda kullanılmak üzere üretilmiştir.

KESİCİ UÇ ÖNERİLERİ

	1. Öneri		Dış kesici uç kırılıyorsa	
	Dış Kesici Uç	İç Kesici Uç	Dış Kesici Uç	İç Kesici Uç
P Yumuşak Çelikler, Alaşımlı Çelik	MC1020 	VP15TF 	VP15TF 	VP15TF 
	UM Kırıcı	UM Kırıcı	UM Kırıcı	UM Kırıcı
M Paslanmaz Çelikler	MC1020 	VP15TF 	VP15TF 	VP15TF 
	UM Kırıcı	US Kırıcı	UM Kırıcı	US Kırıcı
K Dökme Demir	MC5020 	VP15TF 	VP15TF 	VP15TF 
	UM Kırıcı	UM Kırıcı	UM Kırıcı	UM Kırıcı

	1. Öneri		Dış kesici uç kırılıyorsa	
	Dış Kesici Uç	İç Kesici Uç	Dış Kesici Uç	İç Kesici Uç
H Sertleştirilmiş Çelikler	MC1020 	DP8020 	VP15TF 	DP8020 
	UM Kırıcı	UH Kırıcı	UM Kırıcı	UH Kırıcı
N Alüminyum Alaşımları	TF15 	TF15 		
	UN Kırıcı	UN Kırıcı		

ÖNERİLEN KESME KOŞULLARI

	Çalışma malzemesi	Sertlik	Vc (m/dak)	İç Kırıcı	Ø14—Ø16.5		
					fr (mm/dev)		
					L/D=2, 3	4	5
P	Yumuşak Çelik (C15, Ck15)	≤180HB	200 (180—235)	UM	0.05 (0.04—0.06)	0.05 (0.04—0.06)	0.05 (0.04—0.06)
				UH	—	—	—
	Karbon Çelik, Alaşımli Çelik (Ck45, 41CrMo4)	180—280HB	140 (115—180)	UM	0.08 (0.06—0.14)	0.08 (0.06—0.09)	0.08 (0.06—0.09)
				UH	—	—	—
	Karbon Çelik, Alaşımli Çelik (100Cr6)	280—350HB	100 (75—140)	UM	0.08 (0.06—0.14)	0.08 (0.06—0.09)	0.08 (0.06—0.09)
				UH	—	—	—
	Alaşımli Takım Çeliği (X210Cr12)	≤350HB	135 (100—170)	UM	0.08 (0.06—0.14)	0.08 (0.06—0.09)	0.08 (0.06—0.09)
				UH	—	—	—
M	Ostenitli Paslanmaz Çelik (X5CrNi18-10, X5CrNiMo17-12-2)	≤200HB	130 (80—180)	US	—	—	—
				UM	0.06 (0.04—0.08)	0.05 (0.04—0.06)	0.05 (0.04—0.06)
	Ostenitli Paslanmaz Çelik (X2CrNi18-9, X5CrNiMo17-11-2)	>200HB	130 (80—180)	US	—	—	—
				UM	0.06 (0.04—0.08)	0.05 (0.04—0.06)	0.05 (0.04—0.06)
	Ferritik ve Martensitik Paslanmaz Çelik (X12Cr13, X6Cr17)	≤200HB	120 (80—165)	US	—	—	—
				UM	0.06 (0.04—0.08)	0.05 (0.04—0.06)	0.05 (0.04—0.06)
	Ferritik ve Martensitik Paslanmaz Çelik (X17CrNi16-2, X30Cr13)	>200HB	120 (80—165)	US	—	—	—
				UM	0.06 (0.04—0.08)	0.05 (0.04—0.06)	0.05 (0.04—0.06)
K	Gri Dökme Demir (GG25, GG30)	≤350MPa	160 (130—195)	UM	0.10 (0.06—0.14)	0.08 (0.06—0.10)	0.08 (0.06—0.10)
	Duktil Dökme Demir (GG40)	≤450MPa	100 (80—135)	UM	0.10 (0.06—0.14)	0.08 (0.06—0.10)	0.08 (0.06—0.10)
	Duktil Dökme Demir (GGG70)	≤800HB	100 (70—125)	UM	0.08 (0.06—0.12)	0.07 (0.06—0.08)	0.07 (0.06—0.08)
N	Alüminyum Alaşım (A6061, A7075)	Si<5%	200 (100-350)	UN	—	—	—
	Alüminyum Alaşım (AC4B)	5%≤Si≤10%	150 (100-200)	UN	—	—	—
	Alüminyum Alaşım (ADC12, A390)	Si>10%	150 (100-200)	UN	—	—	—
H	Sertleştirilmiş Çelik (X40CrMoV51, 55NiCrMoV6)	38 - 45HRC	50 (30-80)	UH	—	—	—

Not 1) Dış kesici uç olarak VP15TF kullanıldığında kesme hızını %30 oranında düşürün.
Not 2) Yalnızca dıştan soğutma suyu kullanıldığında önerilen maksimum derinlik L/D=3'tür.
Not 3) Paslanmaz çelik delindiğinde içten boydan boya soğutma suyu fazlasıyla gereklidir.

KULLANIM NOTU	> M173
YEDEK PARÇALAR	> N001
TEKNİK VERİLER	> P001

DELME (DEĞİŞTİRİLEBİLİR UÇLU TİP)

MVX

ÖNERİLEN KESME KOŞULLARI

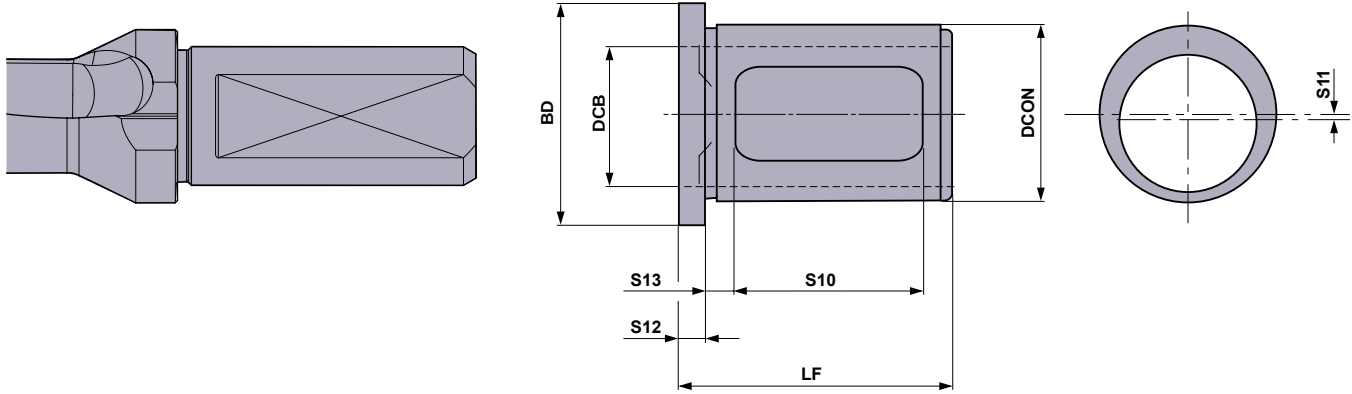
Çalışma malzemesi		Sertlik	Vc (m/dak)	İç Kırıcı	Ø17—Ø19.5				
					fr (mm/dev)				
					L/D=2, 3	4	5	6	
P	Yumuşak Çelik (C15, Ck15)	≤180HB	200 (180—235)	UM	0.05 (0.04—0.06)	0.05 (0.04—0.06)	0.05 (0.04—0.06)	0.04 (0.04—0.05)	
				UH					
	Karbon Çelik, Alaşımli Çelik (Ck45, 41CrMo4)	180—280HB	140 (115—180)	UM	0.08 (0.06—0.14)	0.08 (0.06—0.09)	0.08 (0.06—0.09)	0.05 (0.04—0.06)	
				UH					
	Karbon Çelik, Alaşımli Çelik (100Cr6)	280—350HB	100 (75—140)	UM	0.08 (0.06—0.14)	0.08 (0.06—0.09)	0.08 (0.06—0.09)	0.05 (0.04—0.06)	
				UH					
	Alaşımli Takım Çeliği (X210Cr12)	≤350HB	135 (100—170)	UM	0.08 (0.06—0.14)	0.08 (0.06—0.09)	0.08 (0.06—0.09)	0.05 (0.04—0.06)	
				UH					
M	Ostenitli Paslanmaz Çelik (X5CrNi18-10, X5CrNiMo17-12-2)	≤200HB	130 (80—180)	US	0.08 (0.06—0.12)	0.06 (0.04—0.08)	0.06 (0.04—0.08)	0.05 (0.04—0.06)	
				UM	0.06 (0.04—0.08)	0.05 (0.04—0.06)	0.05 (0.04—0.06)	0.04 (0.04—0.05)	
	Ostenitli Paslanmaz Çelik (X2CrNiN18-9, X5CrNiMoN17-11-2)	>200HB	130 (80—180)	US	0.08 (0.06—0.12)	0.06 (0.04—0.08)	0.06 (0.04—0.08)	0.05 (0.04—0.06)	
				UM	0.06 (0.04—0.08)	0.05 (0.04—0.06)	0.05 (0.04—0.06)	0.04 (0.04—0.05)	
	Ferritik ve Martensitik Paslanmaz Çelik (X12Cr13, X6Cr17)	≤200HB	120 (80—165)	US	0.08 (0.06—0.12)	0.06 (0.04—0.08)	0.06 (0.04—0.08)	0.05 (0.04—0.06)	
				UM	0.06 (0.04—0.08)	0.05 (0.04—0.06)	0.05 (0.04—0.06)	0.04 (0.04—0.05)	
	Ferritik ve Martensitik Paslanmaz Çelik (X17CrNi16-2, X30Cr13)	>200HB	120 (80—165)	US	0.08 (0.06—0.12)	0.06 (0.04—0.08)	0.06 (0.04—0.08)	0.05 (0.04—0.06)	
				UM	0.06 (0.04—0.08)	0.05 (0.04—0.06)	0.05 (0.04—0.06)	0.04 (0.04—0.05)	
K	Gri Dökme Demir (GG25, GG30)	≤350MPa	160 (130—195)	UM	0.11 (0.08—0.14)	0.09 (0.08—0.10)	0.09 (0.08—0.10)	0.05 (0.04—0.06)	
	Duktil Dökme Demir (GG40)	≤450MPa	100 (80—135)	UM	0.11 (0.08—0.14)	0.09 (0.08—0.10)	0.09 (0.08—0.10)	0.05 (0.04—0.06)	
	Duktil Dökme Demir (GGG70)	≤800HB	100 (70—125)	UM	0.11 (0.08—0.14)	0.09 (0.08—0.10)	0.09 (0.08—0.10)	0.05 (0.04—0.06)	
N	Alüminyum Alaşım (A6061, A7075)	Si<5%	200 (100-350)	UN	0.12 (0.05—0.18)	0.12 (0.05—0.18)	0.12 (0.05—0.18)	0.08 (0.05—0.12)	
	Alüminyum Alaşım (AC4B)	5%≤Si≤10%	150 (100-200)	UN	0.12 (0.05—0.18)	0.12 (0.05—0.18)	0.12 (0.05—0.18)	0.08 (0.05—0.12)	
	Alüminyum Alaşım (ADC12, A390)	Si>10%	150 (100-200)	UN	0.12 (0.05—0.18)	0.12 (0.05—0.18)	0.12 (0.05—0.18)	0.08 (0.05—0.12)	
H	Sertleştirilmiş Çelik (X40CrMoV51, 55NiCrMoV6)	38 - 45HRC	50 (30-80)	UH	0.08 (0.04—0.12)	0.06 (0.04—0.09)	—	—	

Not 1) Dış kesici uç olarak VP15TF kullanıldığında kesme hızını %30 oranında düşürün.
 Not 2) Yalnızca dıştan soğutma suyu kullanıldığında önerilen maksimum derinlik L/D=3'tür.
 Not 3) Paslanmaz çelik delindiğinde içten boydan boya soğutma suyu fazlasıyla gereklidir.

	$\phi 20-\phi 23.5$				$\phi 24-\phi 29.5$				$\phi 30-\phi 63$			
	fr (mm/dev)				fr (mm/dev)				fr (mm/dev)			
	L/D=2, 3	4	5	6	L/D=2, 3	4	5	6	L/D=2, 3	4	5	6
	0.06 (0.04-0.08)	0.06 (0.04-0.07)	0.06 (0.04-0.07)	0.04 (0.04-0.05)	0.07 (0.04-0.08)	0.06 (0.04-0.07)	0.06 (0.04-0.07)	0.05 (0.04-0.06)	0.08 (0.06-0.10)	0.07 (0.06-0.08)	0.07 (0.06-0.08)	0.06 (0.06-0.07)
	0.10 (0.06-0.18)	0.09 (0.06-0.12)	0.09 (0.06-0.12)	0.07 (0.06-0.08)	0.12 (0.08-0.18)	0.10 (0.08-0.12)	0.10 (0.08-0.12)	0.09 (0.08-0.10)	0.14 (0.08-0.20)	0.12 (0.08-0.16)	0.12 (0.08-0.16)	0.11 (0.10-0.12)
	0.10 (0.06-0.18)	0.09 (0.06-0.12)	0.09 (0.06-0.12)	0.07 (0.06-0.08)	0.12 (0.08-0.18)	0.10 (0.08-0.12)	0.10 (0.08-0.12)	0.09 (0.08-0.10)	0.14 (0.08-0.20)	0.12 (0.08-0.16)	0.12 (0.08-0.16)	0.11 (0.10-0.12)
	0.10 (0.06-0.18)	0.09 (0.06-0.12)	0.09 (0.06-0.12)	0.07 (0.06-0.08)	0.12 (0.08-0.18)	0.10 (0.08-0.12)	0.10 (0.08-0.12)	0.09 (0.08-0.10)	0.14 (0.08-0.20)	0.12 (0.08-0.16)	0.12 (0.08-0.16)	0.10 (0.08-0.12)
	0.10 (0.06-0.14)	0.07 (0.06-0.08)	0.07 (0.06-0.08)	0.06 (0.06-0.07)	0.10 (0.06-0.14)	0.08 (0.06-0.10)	0.08 (0.06-0.10)	0.07 (0.06-0.08)	0.10 (0.06-0.14)	0.09 (0.06-0.12)	0.09 (0.06-0.12)	0.07 (0.06-0.10)
	0.08 (0.06-0.12)	0.07 (0.06-0.08)	0.07 (0.06-0.08)	0.06 (0.06-0.07)	0.09 (0.06-0.12)	0.07 (0.06-0.09)	0.07 (0.06-0.09)	0.06 (0.06-0.08)	0.09 (0.06-0.12)	0.08 (0.06-0.10)	0.08 (0.06-0.10)	0.07 (0.06-0.08)
	0.10 (0.06-0.14)	0.07 (0.06-0.08)	0.07 (0.06-0.08)	0.06 (0.06-0.07)	0.10 (0.06-0.14)	0.08 (0.06-0.10)	0.08 (0.06-0.10)	0.07 (0.06-0.08)	0.10 (0.06-0.14)	0.09 (0.06-0.12)	0.09 (0.06-0.12)	0.07 (0.06-0.10)
	0.08 (0.06-0.12)	0.07 (0.06-0.08)	0.07 (0.06-0.08)	0.06 (0.06-0.07)	0.09 (0.06-0.12)	0.07 (0.06-0.09)	0.07 (0.06-0.09)	0.06 (0.06-0.08)	0.09 (0.06-0.12)	0.08 (0.06-0.10)	0.08 (0.06-0.10)	0.07 (0.06-0.08)
	0.10 (0.06-0.14)	0.07 (0.06-0.08)	0.07 (0.06-0.08)	0.06 (0.06-0.07)	0.10 (0.06-0.14)	0.08 (0.06-0.10)	0.08 (0.06-0.10)	0.07 (0.06-0.08)	0.10 (0.06-0.14)	0.09 (0.06-0.12)	0.09 (0.06-0.12)	0.07 (0.06-0.10)
	0.08 (0.06-0.12)	0.07 (0.06-0.08)	0.07 (0.06-0.08)	0.06 (0.06-0.07)	0.09 (0.06-0.12)	0.07 (0.06-0.09)	0.07 (0.06-0.09)	0.06 (0.06-0.08)	0.09 (0.06-0.12)	0.08 (0.06-0.10)	0.08 (0.06-0.10)	0.07 (0.06-0.08)
	0.14 (0.10-0.18)	0.10 (0.10-0.12)	0.10 (0.10-0.12)	0.07 (0.06-0.08)	0.15 (0.10-0.20)	0.11 (0.10-0.13)	0.11 (0.10-0.13)	0.09 (0.08-0.10)	0.15 (0.10-0.20)	0.12 (0.10-0.13)	0.12 (0.10-0.13)	0.11 (0.10-0.12)
	0.13 (0.10-0.16)	0.10 (0.10-0.11)	0.10 (0.10-0.11)	0.07 (0.06-0.08)	0.14 (0.10-0.18)	0.11 (0.10-0.12)	0.11 (0.10-0.12)	0.09 (0.08-0.10)	0.15 (0.10-0.20)	0.12 (0.10-0.13)	0.12 (0.10-0.13)	0.11 (0.10-0.12)
	0.13 (0.10-0.16)	0.10 (0.10-0.11)	0.10 (0.10-0.11)	0.07 (0.06-0.08)	0.14 (0.10-0.18)	0.11 (0.10-0.12)	0.11 (0.10-0.12)	0.09 (0.08-0.10)	0.15 (0.10-0.20)	0.12 (0.10-0.13)	0.12 (0.10-0.13)	0.11 (0.10-0.12)
	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.08 (0.05-0.12)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.08 (0.05-0.12)	0.12 (0.05-0.20)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.08 (0.05-0.12)
	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.08 (0.05-0.12)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.08 (0.05-0.12)	0.12 (0.05-0.20)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.08 (0.05-0.12)
	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.08 (0.05-0.12)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.08 (0.05-0.12)	0.12 (0.05-0.20)	0.12 (0.05-0.18)	0.12 (0.05-0.18)	0.08 (0.05-0.12)
	0.09 (0.06-0.14)	0.07 (0.06-0.09)	—	—	0.09 (0.06-0.14)	0.07 (0.06-0.09)	—	—	0.11 (0.06-0.16)	0.09 (0.06-0.12)	—	—

TAM UYUMLU AYAR BURCU [JFS]

- Kesme çapının artırılmasını sağlamak için matkap ucunun şaftı için bir burç.



Set Sipariş Numarası	Bireysel Sipariş Numarası	Stok	Boyutlar (mm)							★Artış (S11×2)	MVX Tip Matkapla uyumlu
			BD	DCON	DCB	LF	S10	S12	S13		
JFS-1	JFS2520-10	●	33	25	20	43	30	5	5	0.1	MVX1700 X ØF20
	JFS2520-20	●	33	25	20	43	30	5	5	0.2	
	JFS2520-30	●	33	25	20	43	30	5	5	0.3	
	JFS2520-40	●	33	25	20	43	30	5	5	0.4	
	JFS2520-50	●	33	25	20	43	30	5	5	0.5	
JFS-2	JFS3225-10	●	40	32	25	50	34	5	5	0.1	MVX1750 X ØF25 MVX2550 X ØF25
	JFS3225-20	●	40	32	25	50	34	5	5	0.2	
	JFS3225-30	●	40	32	25	50	34	5	5	0.3	
	JFS3225-40	●	40	32	25	50	34	5	5	0.4	
	JFS3225-50	●	40	32	25	50	34	5	5	0.5	
JFS-3	JFS4032-10	●	48	40	32	55	40	5	5	0.1	MVX2600 X ØF32 MVX3000 X ØF32
	JFS4032-20	●	48	40	32	55	40	5	5	0.2	
	JFS4032-30	●	48	40	32	55	40	5	5	0.3	
	JFS4032-40	●	48	40	32	55	40	5	5	0.4	
	JFS4032-50	●	48	40	32	55	40	5	5	0.5	
JFS-4	JFS5040-10	★	68	50	40	65	50	5	5	0.1	MVX3100 X ØF40 MVX6300 X ØF40
	JFS5040-20	★	68	50	40	65	50	5	5	0.2	
	JFS5040-30	★	68	50	40	65	50	5	5	0.3	
	JFS5040-40	★	68	50	40	65	50	5	5	0.4	
	JFS5040-50	★	68	50	40	65	50	5	5	0.5	

ø50mm şaft çapına uygun yoktur

★ Artış : Kesme çapındaki artışın büyüklüğü.

TAM UYUMLU AYAR BURCUNU SEÇME KILAVUZU

İstenilen = (Matkap ϕ + JFS Artışı) + 0.1 mm

(Ör.) İstenen çap 20.3 mm (Standart ölçüden büyüklük 0.1 mm olarak alınır).

$$\phi 20.3 = (\text{MVX2000 X } \phi F25 + \text{JFS3225-20}) + 0.1$$

20 mm Matkap

JFS'yi kullanarak,
0.2 mm bir artış olur.

Standart
ölçüden büyüklük

Not 1) Ölçü dışılık kullanılan kesme koşulları nedeniyle değişebilir, lütfen kılavuz olarak yukarıyı kullanın.

<Seçilen Takım>

Delme Ucu : MVX2000 X ØF25
Tam Uyumlu Burç [JFS]
: JFS3225-20

TAM UYUMLU BURCU SİPARİŞ ETME

● Satın Alma Yöntemi 1

Aşırı boyut kullanılan kesme koşulları nedeniyle değişebilir. Bu nedenle set olarak satın alınması önerilir. Bir sipariş verirken, lütfen Set sipariş numarasını kullanın. (5 manşon/set)

● Satın Alma Yöntemi 2

Ayrı ayrı sipariş etmek mümkündür. Bir sipariş verirken, lütfen bireysel sipariş numarasını kullanın.

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

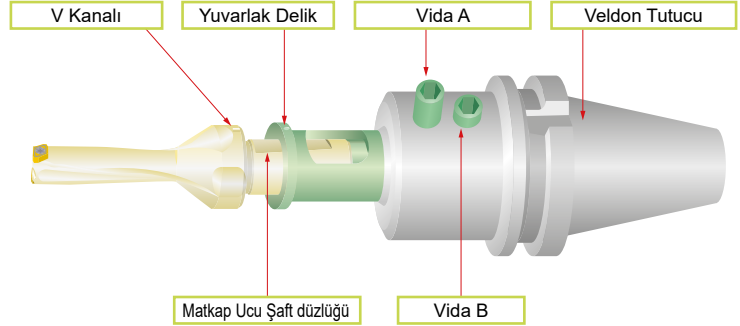
TAM UYUMLU MANŞONU UYGULAMA

1. Matkabı takarken yandan kilitli tutucuya yerleştirin, matkap flanşının dış çevresel kenarındaki V şeklinli çentiğini burç flanşı dış çevresel kenarındaki yuvarlak delik ile hizalayın ve yandan vidalı takım tutucuya matkabı bağlayın. (eğer matkabin V çentiği yoksa burcun yuvarlak deliği ile matkap gövdesi üzerindeki düzlüğü aynı hizaya getirin.)

2. Matkabı bağlamak için yandan kilitli tutucunun A vidasını burcun açık penceresine doğrudan takın. B vidasını sıkarken manşona zarar vermeyecek bir radde de sıkın.

(Not)

- Burç çapı ile ince ayarlamalar yapılamaz.
- Pensli takım tutucular ile kullanılamaz.

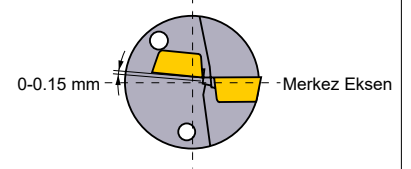


MVX TİPİ DELME UCUNUN UYGULANMASI

●Tornada Kullanma

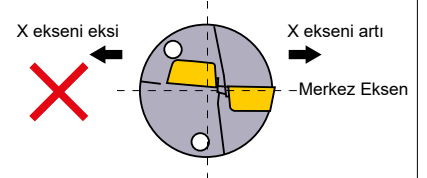
(1) Dış kesici uç ve tezgah X eksenini paralel ayarlanmalıdır. Matkap merkez iç kesici ucu matkap merkezi ve buna uygun tezgah fener mili merkezinden 0-0.15 mm düşük tasarlanmıştır.

*İç kesici ucun merkez yüksekliği tezgah X ekseninden daha yüksekse, iç kesici uç kırılabilir.

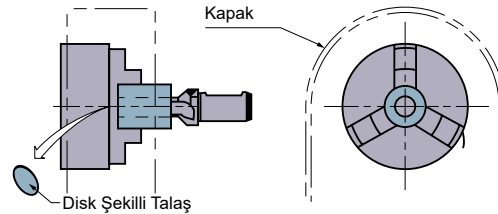


(2) Matkab ofset ayarları ile delik çapını ayarlamak için, lütfen X eksenini artı yönünde ayarlayın (delik çapını büyütün). Lütfen her bir tutucunun maksimum ayarlama oranı için tutucu boyutu listesine bakın.

*X eksenini eksi yönüne ayarlamak önerilmez (delik çapını düşürme yönü) çünkü tutucu delik ile temas edebilir.



(3) Tornada delik delme sırasında, çalışma parçasından çıkan matkap ucu tarafından üretilen disk yüksek hızda fırlayabilir. Yaralanma veya hasar tehlikesini azaltmak için önemle bir koruyucu önerilir.



VIOLET MATKAPLAR

VAPDS

Kısa delme boyu, Yüksek hassasiyet



DC<2

DC≥2

P

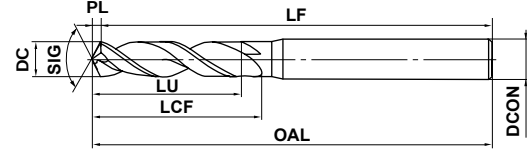
M

K

N

S

H



$$\star LU = LCF - 2DC \text{ (Maks } 3 \times DC)$$



$0.5 \leq DC \leq 3$	$3 < DC \leq 6$	$6 < DC \leq 10$	$10 < DC \leq 13$
0 -0.014	0 -0.018	0 -0.022	0 -0.027

★ 2.0mm çapın altında 0,1 aralıklılar hariç tüm matkaplar
0-0.009mm toleransa sahiptir.

● Yeni geliştirilen Violet kaplama ile fazlasıyla verimli delme ve uzun takım ömrü elde edilmiştir.

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
0.50	VAPDSD0050	3.2	50.2	50	0.15	3	●
0.51	VAPDSD0051	3.2	50.2	50	0.15	3	★
0.52	VAPDSD0052	3.2	50.2	50	0.16	3	★
0.53	VAPDSD0053	3.2	50.2	50	0.16	3	★
0.54	VAPDSD0054	3.2	50.2	50	0.16	3	★
0.55	VAPDSD0055	3.2	50.2	50	0.17	3	★
0.56	VAPDSD0056	4.2	50.2	50	0.17	3	★
0.57	VAPDSD0057	4.2	50.2	50	0.17	3	★
0.58	VAPDSD0058	4.2	50.2	50	0.17	3	★
0.59	VAPDSD0059	4.2	50.2	50	0.18	3	★
0.60	VAPDSD0060	5.2	50.2	50	0.18	3	★
0.61	VAPDSD0061	5.2	50.2	50	0.18	3	★
0.62	VAPDSD0062	5.2	50.2	50	0.19	3	★
0.63	VAPDSD0063	5.2	50.2	50	0.19	3	★
0.64	VAPDSD0064	5.2	50.2	50	0.19	3	★
0.65	VAPDSD0065	5.2	50.2	50	0.20	3	★
0.66	VAPDSD0066	5.2	50.2	50	0.20	3	★
0.67	VAPDSD0067	5.2	50.2	50	0.20	3	★
0.68	VAPDSD0068	5.2	50.2	50	0.20	3	★
0.69	VAPDSD0069	5.2	50.2	50	0.21	3	★
0.70	VAPDSD0070	5.2	50.2	50	0.21	3	★
0.71	VAPDSD0071	5.2	50.2	50	0.21	3	★
0.72	VAPDSD0072	5.2	50.2	50	0.22	3	★
0.73	VAPDSD0073	5.2	50.2	50	0.22	3	★
0.74	VAPDSD0074	5.2	50.2	50	0.22	3	★
0.75	VAPDSD0075	5.2	50.2	50	0.23	3	★
0.76	VAPDSD0076	5.2	50.2	50	0.23	3	★
0.77	VAPDSD0077	5.2	50.2	50	0.23	3	★
0.78	VAPDSD0078	5.2	50.2	50	0.23	3	★
0.79	VAPDSD0079	5.2	50.2	50	0.24	3	★
0.80	VAPDSD0080	5.2	50.2	50	0.24	3	★
0.81	VAPDSD0081	5.2	50.2	50	0.24	3	★
0.82	VAPDSD0082	5.3	50.3	50	0.25	3	★

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
0.83	VAPDSD0083	5.3	50.3	50	0.25	3	★
0.84	VAPDSD0084	5.3	50.3	50	0.25	3	★
0.85	VAPDSD0085	5.3	50.3	50	0.26	3	★
0.86	VAPDSD0086	6.3	50.3	50	0.26	3	★
0.87	VAPDSD0087	6.3	50.3	50	0.26	3	★
0.88	VAPDSD0088	6.3	50.3	50	0.26	3	★
0.89	VAPDSD0089	6.3	50.3	50	0.27	3	★
0.90	VAPDSD0090	6.3	50.3	50	0.27	3	★
0.91	VAPDSD0091	6.3	50.3	50	0.27	3	★
0.92	VAPDSD0092	6.3	50.3	50	0.28	3	★
0.93	VAPDSD0093	6.3	50.3	50	0.28	3	★
0.94	VAPDSD0094	6.3	50.3	50	0.28	3	★
0.95	VAPDSD0095	6.3	50.3	50	0.29	3	★
0.96	VAPDSD0096	6.3	50.3	50	0.29	3	★
0.97	VAPDSD0097	6.3	50.3	50	0.29	3	★
0.98	VAPDSD0098	6.3	50.3	50	0.29	3	★
0.99	VAPDSD0099	6.3	50.3	50	0.30	3	★
1.00	VAPDSD0100	6.3	50.3	50	0.3	3	●
1.01	VAPDSD0101	6.3	50.3	50	0.3	3	★
1.02	VAPDSD0102	6.3	50.3	50	0.3	3	★
1.03	VAPDSD0103	6.3	50.3	50	0.3	3	★
1.04	VAPDSD0104	6.3	50.3	50	0.3	3	★
1.05	VAPDSD0105	6.3	50.3	50	0.3	3	★
1.06	VAPDSD0106	6.3	50.3	50	0.3	3	★
1.07	VAPDSD0107	8.3	55.3	55	0.3	3	★
1.08	VAPDSD0108	8.3	55.3	55	0.3	3	★
1.09	VAPDSD0109	8.3	55.3	55	0.3	3	★
1.10	VAPDSD0110	8.3	55.3	55	0.3	3	★
1.11	VAPDSD0111	8.3	55.3	55	0.3	3	★
1.12	VAPDSD0112	8.3	55.3	55	0.3	3	★
1.13	VAPDSD0113	8.3	55.3	55	0.3	3	★
1.14	VAPDSD0114	8.3	55.3	55	0.3	3	★
1.15	VAPDSD0115	8.4	55.4	55	0.4	3	★

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

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
1.16	VAPDSD0116	8.4	55.4	55	0.4	3	★
1.17	VAPDSD0117	8.4	55.4	55	0.4	3	★
1.18	VAPDSD0118	8.4	55.4	55	0.4	3	★
1.19	VAPDSD0119	8.4	55.4	55	0.4	3	★
1.20	VAPDSD0120	8.4	55.4	55	0.4	3	★
1.21	VAPDSD0121	8.4	55.4	55	0.4	3	★
1.22	VAPDSD0122	8.4	55.4	55	0.4	3	★
1.23	VAPDSD0123	8.4	55.4	55	0.4	3	★
1.24	VAPDSD0124	8.4	55.4	55	0.4	3	★
1.25	VAPDSD0125	8.4	55.4	55	0.4	3	★
1.26	VAPDSD0126	8.4	55.4	55	0.4	3	★
1.27	VAPDSD0127	8.4	55.4	55	0.4	3	★
1.28	VAPDSD0128	8.4	55.4	55	0.4	3	★
1.29	VAPDSD0129	8.4	55.4	55	0.4	3	★
1.30	VAPDSD0130	9.4	55.4	55	0.4	3	★
1.31	VAPDSD0131	9.4	55.4	55	0.4	3	★
1.32	VAPDSD0132	9.4	55.4	55	0.4	3	★
1.33	VAPDSD0133	9.4	55.4	55	0.4	3	★
1.34	VAPDSD0134	9.4	55.4	55	0.4	3	★
1.35	VAPDSD0135	9.4	55.4	55	0.4	3	★
1.36	VAPDSD0136	9.4	55.4	55	0.4	3	★
1.37	VAPDSD0137	9.4	55.4	55	0.4	3	★
1.38	VAPDSD0138	9.4	55.4	55	0.4	3	★
1.39	VAPDSD0139	9.4	55.4	55	0.4	3	★
1.40	VAPDSD0140	9.4	55.4	55	0.4	3	★
1.41	VAPDSD0141	9.4	55.4	55	0.4	3	★
1.42	VAPDSD0142	9.4	55.4	55	0.4	3	★
1.43	VAPDSD0143	9.4	55.4	55	0.4	3	★
1.44	VAPDSD0144	9.4	55.4	55	0.4	3	★
1.45	VAPDSD0145	9.4	55.4	55	0.4	3	★
1.46	VAPDSD0146	9.4	55.4	55	0.4	3	★
1.47	VAPDSD0147	9.4	55.4	55	0.4	3	★
1.48	VAPDSD0148	9.4	55.4	55	0.4	3	★
1.49	VAPDSD0149	9.5	55.5	55	0.5	3	★
1.50	VAPDSD0150	9.5	55.5	55	0.5	3	●
1.51	VAPDSD0151	11.5	55.5	55	0.5	3	★
1.52	VAPDSD0152	11.5	55.5	55	0.5	3	★
1.53	VAPDSD0153	11.5	55.5	55	0.5	3	★
1.54	VAPDSD0154	11.5	55.5	55	0.5	3	★
1.55	VAPDSD0155	11.5	55.5	55	0.5	3	★
1.56	VAPDSD0156	11.5	55.5	55	0.5	3	★
1.57	VAPDSD0157	11.5	55.5	55	0.5	3	★
1.58	VAPDSD0158	11.5	55.5	55	0.5	3	★
1.59	VAPDSD0159	11.5	55.5	55	0.5	3	★
1.60	VAPDSD0160	11.5	55.5	55	0.5	3	★
1.61	VAPDSD0161	11.5	55.5	55	0.5	3	★
1.62	VAPDSD0162	11.5	55.5	55	0.5	3	★
1.63	VAPDSD0163	11.5	55.5	55	0.5	3	★
1.64	VAPDSD0164	11.5	55.5	55	0.5	3	★
1.65	VAPDSD0165	11.5	55.5	55	0.5	3	★

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
1.66	VAPDSD0166	11.5	55.5	55	0.5	3	★
1.67	VAPDSD0167	11.5	55.5	55	0.5	3	★
1.68	VAPDSD0168	11.5	55.5	55	0.5	3	★
1.69	VAPDSD0169	11.5	55.5	55	0.5	3	★
1.70	VAPDSD0170	11.5	55.5	55	0.5	3	★
1.71	VAPDSD0171	11.5	55.5	55	0.5	3	★
1.72	VAPDSD0172	11.5	55.5	55	0.5	3	★
1.73	VAPDSD0173	11.5	55.5	55	0.5	3	★
1.74	VAPDSD0174	11.5	55.5	55	0.5	3	★
1.75	VAPDSD0175	11.5	55.5	55	0.5	3	★
1.76	VAPDSD0176	11.5	55.5	55	0.5	3	★
1.77	VAPDSD0177	11.5	55.5	55	0.5	3	★
1.78	VAPDSD0178	11.5	55.5	55	0.5	3	★
1.79	VAPDSD0179	11.5	55.5	55	0.5	3	★
1.80	VAPDSD0180	11.5	55.5	55	0.5	3	★
1.81	VAPDSD0181	11.5	55.5	55	0.5	3	★
1.82	VAPDSD0182	11.6	55.6	55	0.6	3	★
1.83	VAPDSD0183	11.6	55.6	55	0.6	3	★
1.84	VAPDSD0184	11.6	55.6	55	0.6	3	★
1.85	VAPDSD0185	11.6	55.6	55	0.6	3	★
1.86	VAPDSD0186	11.6	55.6	55	0.6	3	★
1.87	VAPDSD0187	11.6	55.6	55	0.6	3	★
1.88	VAPDSD0188	11.6	55.6	55	0.6	3	★
1.89	VAPDSD0189	11.6	55.6	55	0.6	3	★
1.90	VAPDSD0190	12.6	55.6	55	0.6	3	★
1.91	VAPDSD0191	12.6	60.6	60	0.6	3	★
1.92	VAPDSD0192	12.6	60.6	60	0.6	3	★
1.93	VAPDSD0193	12.6	60.6	60	0.6	3	★
1.94	VAPDSD0194	12.6	60.6	60	0.6	3	★
1.95	VAPDSD0195	12.6	60.6	60	0.6	3	★
1.96	VAPDSD0196	12.6	60.6	60	0.6	3	★
1.97	VAPDSD0197	12.6	60.6	60	0.6	3	★
1.98	VAPDSD0198	12.6	60.6	60	0.6	3	★
1.99	VAPDSD0199	12.6	60.6	60	0.6	3	★
2.00	VAPDSD0200	12.4	60.4	60	0.4	3	●
2.05	VAPDSD0205	12.4	60.4	60	0.4	3	★
2.10	VAPDSD0210	12.4	60.4	60	0.4	3	★
2.15	VAPDSD0215	12.5	60.5	60	0.5	3	★
2.20	VAPDSD0220	12.5	60.5	60	0.5	3	★
2.25	VAPDSD0225	12.5	60.5	60	0.5	3	★
2.30	VAPDSD0230	13.5	60.5	60	0.5	3	★
2.35	VAPDSD0235	13.5	60.5	60	0.5	3	★
2.40	VAPDSD0240	13.5	60.5	60	0.5	3	★
2.45	VAPDSD0245	13.5	60.5	60	0.5	3	★
2.50	VAPDSD0250	13.5	60.5	60	0.5	3	●
2.55	VAPDSD0255	13.5	60.5	60	0.5	3	★
2.60	VAPDSD0260	15.5	60.5	60	0.5	3	★
2.65	VAPDSD0265	15.6	60.6	60	0.6	3	★
2.70	VAPDSD0270	15.6	60.6	60	0.6	3	★
2.75	VAPDSD0275	15.6	60.6	60	0.6	3	★

VIOLET MATKAPLAR

VAPDS

Kısa delme boyu, Yüksek hassasiyet

HSS

M

DELME

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
2.80	VAPDSD0280	15.6	60.6	60	0.6	3	★
2.85	VAPDSD0285	15.6	60.6	60	0.6	3	★
2.90	VAPDSD0290	15.6	60.6	60	0.6	3	★
2.95	VAPDSD0295	15.6	60.6	60	0.6	3	★
3.00	VAPDSD0300	15.6	60.6	60	0.6	3	●
3.05	VAPDSD0305	17.6	70.6	70	0.6	4	★
3.10	VAPDSD0310	17.6	70.6	70	0.6	4	★
3.15	VAPDSD0315	17.7	70.7	70	0.7	4	★
3.20	VAPDSD0320	17.7	70.7	70	0.7	4	★
3.25	VAPDSD0325	17.7	70.7	70	0.7	4	★
3.30	VAPDSD0330	19.7	70.7	70	0.7	4	★
3.35	VAPDSD0335	19.7	70.7	70	0.7	4	★
3.40	VAPDSD0340	19.7	70.7	70	0.7	4	★
3.45	VAPDSD0345	19.7	70.7	70	0.7	4	★
3.50	VAPDSD0350	19.7	70.7	70	0.7	4	●
3.55	VAPDSD0355	19.7	70.7	70	0.7	4	★
3.60	VAPDSD0360	21.8	70.8	70	0.8	4	★
3.65	VAPDSD0365	21.8	70.8	70	0.8	4	★
3.70	VAPDSD0370	21.8	70.8	70	0.8	4	★
3.75	VAPDSD0375	21.8	70.8	70	0.8	4	★
3.80	VAPDSD0380	21.8	70.8	70	0.8	4	★
3.85	VAPDSD0385	21.8	70.8	70	0.8	4	★
3.90	VAPDSD0390	21.8	70.8	70	0.8	4	★
3.95	VAPDSD0395	21.8	70.8	70	0.8	4	★
4.00	VAPDSD0400	21.8	70.8	70	0.8	4	●
4.05	VAPDSD0405	21.8	80.8	80	0.8	6	★
4.10	VAPDSD0410	21.9	80.9	80	0.9	6	★
4.15	VAPDSD0415	21.9	80.9	80	0.9	6	★
4.20	VAPDSD0420	21.9	80.9	80	0.9	6	★
4.25	VAPDSD0425	21.9	80.9	80	0.9	6	★
4.30	VAPDSD0430	23.9	80.9	80	0.9	6	★
4.35	VAPDSD0435	23.9	80.9	80	0.9	6	★
4.40	VAPDSD0440	23.9	80.9	80	0.9	6	★
4.45	VAPDSD0445	23.9	80.9	80	0.9	6	★
4.50	VAPDSD0450	23.9	80.9	80	0.9	6	●
4.55	VAPDSD0455	23.9	80.9	80	0.9	6	★
4.60	VAPDSD0460	26.0	81.0	80	1.0	6	★
4.65	VAPDSD0465	26.0	81.0	80	1.0	6	★
4.70	VAPDSD0470	26.0	81.0	80	1.0	6	★
4.75	VAPDSD0475	26.0	81.0	80	1.0	6	★
4.80	VAPDSD0480	26.0	81.0	80	1.0	6	★
4.85	VAPDSD0485	26.0	81.0	80	1.0	6	★
4.90	VAPDSD0490	26.0	81.0	80	1.0	6	★
4.95	VAPDSD0495	26.0	81.0	80	1.0	6	★
5.00	VAPDSD0500	26.0	81.0	80	1.0	6	●
5.05	VAPDSD0505	26.1	81.1	80	1.1	6	★
5.10	VAPDSD0510	26.1	81.1	80	1.1	6	★
5.15	VAPDSD0515	26.1	81.1	80	1.1	6	★
5.20	VAPDSD0520	26.1	81.1	80	1.1	6	★
5.25	VAPDSD0525	26.1	81.1	80	1.1	6	★

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
5.30	VAPDSD0530	26.1	81.1	80	1.1	6	★
5.35	VAPDSD0535	28.1	81.1	80	1.1	6	★
5.40	VAPDSD0540	28.1	81.1	80	1.1	6	★
5.45	VAPDSD0545	28.1	81.1	80	1.1	6	★
5.50	VAPDSD0550	28.1	81.1	80	1.1	6	●
5.55	VAPDSD0555	28.2	81.2	80	1.2	6	★
5.60	VAPDSD0560	28.2	81.2	80	1.2	6	★
5.65	VAPDSD0565	28.2	81.2	80	1.2	6	★
5.70	VAPDSD0570	28.2	81.2	80	1.2	6	★
5.75	VAPDSD0575	28.2	81.2	80	1.2	6	★
5.80	VAPDSD0580	28.2	81.2	80	1.2	6	★
5.85	VAPDSD0585	28.2	81.2	80	1.2	6	★
5.90	VAPDSD0590	28.2	81.2	80	1.2	6	★
5.95	VAPDSD0595	28.2	81.2	80	1.2	6	★
6.00	VAPDSD0600	28.2	81.2	80	1.2	6	●
6.05	VAPDSD0605	31.3	81.3	80	1.3	8	★
6.10	VAPDSD0610	31.3	81.3	80	1.3	8	★
6.15	VAPDSD0615	31.3	81.3	80	1.3	8	★
6.20	VAPDSD0620	31.3	81.3	80	1.3	8	★
6.25	VAPDSD0625	31.3	81.3	80	1.3	8	★
6.30	VAPDSD0630	31.3	81.3	80	1.3	8	★
6.35	VAPDSD0635	31.3	81.3	80	1.3	8	★
6.40	VAPDSD0640	31.3	81.3	80	1.3	8	★
6.45	VAPDSD0645	31.3	81.3	80	1.3	8	★
6.50	VAPDSD0650	31.4	81.4	80	1.4	8	●
6.55	VAPDSD0655	31.4	81.4	80	1.4	8	★
6.60	VAPDSD0660	31.4	81.4	80	1.4	8	★
6.65	VAPDSD0665	31.4	81.4	80	1.4	8	★
6.70	VAPDSD0670	31.4	81.4	80	1.4	8	★
6.75	VAPDSD0675	33.4	81.4	80	1.4	8	★
6.80	VAPDSD0680	33.4	81.4	80	1.4	8	★
6.85	VAPDSD0685	33.4	81.4	80	1.4	8	★
6.90	VAPDSD0690	33.4	81.4	80	1.4	8	★
6.95	VAPDSD0695	33.4	81.4	80	1.4	8	★
7.00	VAPDSD0700	33.5	81.5	80	1.5	8	●
7.05	VAPDSD0705	33.5	81.5	80	1.5	8	★
7.10	VAPDSD0710	33.5	81.5	80	1.5	8	★
7.15	VAPDSD0715	33.5	81.5	80	1.5	8	★
7.20	VAPDSD0720	33.5	81.5	80	1.5	8	★
7.25	VAPDSD0725	33.5	81.5	80	1.5	8	★
7.30	VAPDSD0730	33.5	81.5	80	1.5	8	★
7.35	VAPDSD0735	33.5	81.5	80	1.5	8	★
7.40	VAPDSD0740	33.5	81.5	80	1.5	8	★
7.45	VAPDSD0745	33.5	81.5	80	1.5	8	★
7.50	VAPDSD0750	33.6	81.6	80	1.6	8	●
7.55	VAPDSD0755	36.6	86.6	85	1.6	8	★
7.60	VAPDSD0760	36.6	86.6	85	1.6	8	★
7.65	VAPDSD0765	36.6	86.6	85	1.6	8	★
7.70	VAPDSD0770	36.6	86.6	85	1.6	8	★
7.75	VAPDSD0775	36.6	86.6	85	1.6	8	★

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

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
7.80	VAPDSD0780	36.6	86.6	85	1.6	8	★
7.85	VAPDSD0785	36.6	86.6	85	1.6	8	★
7.90	VAPDSD0790	36.6	86.6	85	1.6	8	★
7.95	VAPDSD0795	36.7	86.7	85	1.7	8	★
8.00	VAPDSD0800	36.7	86.7	85	1.7	8	●
8.05	VAPDSD0805	36.7	91.7	90	1.7	10	★
8.10	VAPDSD0810	36.7	91.7	90	1.7	10	★
8.15	VAPDSD0815	36.7	91.7	90	1.7	10	★
8.20	VAPDSD0820	36.7	91.7	90	1.7	10	★
8.25	VAPDSD0825	36.7	91.7	90	1.7	10	★
8.30	VAPDSD0830	36.7	91.7	90	1.7	10	★
8.35	VAPDSD0835	36.7	91.7	90	1.7	10	★
8.40	VAPDSD0840	36.7	91.7	90	1.7	10	★
8.45	VAPDSD0845	36.8	91.8	90	1.8	10	★
8.50	VAPDSD0850	36.8	91.8	90	1.8	10	●
8.55	VAPDSD0855	39.8	94.8	93	1.8	10	★
8.60	VAPDSD0860	39.8	94.8	93	1.8	10	★
8.65	VAPDSD0865	39.8	94.8	93	1.8	10	★
8.70	VAPDSD0870	39.8	94.8	93	1.8	10	★
8.75	VAPDSD0875	39.8	94.8	93	1.8	10	★
8.80	VAPDSD0880	39.8	94.8	93	1.8	10	★
8.85	VAPDSD0885	39.8	94.8	93	1.8	10	★
8.90	VAPDSD0890	39.8	94.8	93	1.8	10	★
8.95	VAPDSD0895	39.9	94.9	93	1.9	10	★
9.00	VAPDSD0900	39.9	94.9	93	1.9	10	●
9.10	VAPDSD0910	39.9	94.9	93	1.9	10	★
9.20	VAPDSD0920	39.9	94.9	93	1.9	10	★
9.30	VAPDSD0930	39.9	94.9	93	1.9	10	★
9.40	VAPDSD0940	40.0	95.0	93	2.0	10	★
9.50	VAPDSD0950	40.0	95.0	93	2.0	10	●
9.60	VAPDSD0960	43.0	98.0	96	2.0	10	★
9.70	VAPDSD0970	43.0	98.0	96	2.0	10	★
9.80	VAPDSD0980	43.0	98.0	96	2.0	10	★
9.90	VAPDSD0990	43.1	98.1	96	2.1	10	★
10.00	VAPDSD1000	43.1	98.1	96	2.1	10	●
10.10	VAPDSD1010	43.1	103.1	101	2.1	12	★
10.20	VAPDSD1020	43.1	103.1	101	2.1	12	★
10.30	VAPDSD1030	43.1	103.1	101	2.1	12	★
10.40	VAPDSD1040	43.2	103.2	101	2.2	12	★
10.50	VAPDSD1050	43.2	103.2	101	2.2	12	●
10.60	VAPDSD1060	43.2	103.2	101	2.2	12	★
10.70	VAPDSD1070	47.2	107.2	105	2.2	12	★
10.80	VAPDSD1080	47.2	107.2	105	2.2	12	★
10.90	VAPDSD1090	47.3	107.3	105	2.3	12	★
11.00	VAPDSD1100	47.3	107.3	105	2.3	12	●
11.10	VAPDSD1110	47.3	107.3	105	2.3	12	★
11.20	VAPDSD1120	47.3	107.3	105	2.3	12	★
11.30	VAPDSD1130	47.3	107.3	105	2.3	12	★
11.40	VAPDSD1140	47.4	107.4	105	2.4	12	★
11.50	VAPDSD1150	47.4	107.4	105	2.4	12	★

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
11.60	VAPDSD1160	47.4	107.4	105	2.4	12	★
11.70	VAPDSD1170	47.4	107.4	105	2.4	12	★
11.80	VAPDSD1180	47.4	107.4	105	2.4	12	★
11.90	VAPDSD1190	51.5	111.5	109	2.5	12	★
12.00	VAPDSD1200	51.5	111.5	109	2.5	12	●
12.10	VAPDSD1210	51.5	111.5	109	2.5	12	★
12.20	VAPDSD1220	51.5	111.5	109	2.5	12	★
12.30	VAPDSD1230	51.6	111.6	109	2.6	12	★
12.40	VAPDSD1240	51.6	111.6	109	2.6	12	★
12.50	VAPDSD1250	51.6	111.6	109	2.6	12	●
12.60	VAPDSD1260	51.6	111.6	109	2.6	12	★
12.70	VAPDSD1270	51.6	111.6	109	2.6	12	★
12.80	VAPDSD1280	51.7	111.7	109	2.7	12	★
12.90	VAPDSD1290	51.7	111.7	109	2.7	12	★
13.00	VAPDSD1300	51.7	111.7	109	2.7	12	★

ÖNERİLEN KESME KOŞULLARI

Çalışma malzemesi	P		P	K	P	M	P	M
	Yapı çeliği		Karbon çelik Ck55 Aleşimli çelik 070M55 Dökme demir		Aleşimli takım çeliği X210Cr12 (Düşük sertlikte malzemeler) Feritik paslanmaz çelik X10CrAl18, X10CrAl13 Martensitik paslanmaz çelik X20Cr13, X10CrAl13		Aleşimli takım çeliği X40CrMoV51 (–40HRC) Çökelimli sertleştirilmiş paslanmaz çelik X7CrNiAl177	
Matkap Çapı DC (mm)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)
0.5	18000	0.02	16000	0.02	9000	0.02	8200	0.02
1.0	12000	0.05	10000	0.05	6300	0.05	5500	0.04
2.0	6400	0.09	5500	0.09	3200	0.09	2900	0.05
3.0	4300	0.13	3700	0.13	2100	0.13	1900	0.06
4.0	3200	0.15	2800	0.15	1600	0.15	1400	0.08
5.0	2600	0.18	2200	0.18	1300	0.18	1100	0.10
6.0	2100	0.19	1800	0.19	1100	0.20	950	0.11
8.0	1600	0.24	1400	0.24	800	0.22	720	0.13
10.0	1300	0.28	1100	0.28	640	0.25	570	0.15
12.0	1100	0.34	930	0.34	530	0.30	480	0.17
13.0	980	0.36	860	0.36	490	0.32	440	0.19

Not 1) Lütfen iş parçası bağlama sistemi rijid değilse veya tezgahın sınırlamaları var ise devri ve ilerleme oranını düşürün.

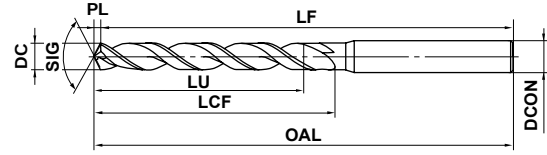
Not 2) Lütfen pensli tip matkap tutucu veya frezeleme tutucusu kullanın.

Not 3) Nitelikli kesme sıvısı kullanın.

Not 4) 4 x matkap çapı derinliğinden büyük derinlikler için, lütfen gagalama ilerlemesi yapın.

Not 5) Yukarıda bahsedilen kesme koşulları, suda çözünbilir kesme sıvısı kullanıldığında standarttır.

Lütfen suda çözünmeyen kesme sıvısı kullanıldığında devirleri düşürün.



$$\star LU = LCF - 2DC \text{ (Maks } 5 \times DC)$$



$0.5 \leq DC \leq 3$	$3 < DC \leq 6$	$6 < DC \leq 10$	$10 < DC \leq 18$	$18 < DC \leq 30$	$30 < DC \leq 32$
0	0	0	0	0	0
-0.014	-0.018	-0.022	-0.027	-0.033	-0.039

- Yeni geliştirilen Violet kaplama ile fazlasıyla verimli delme ve uzun takım ömrü elde edilmiştir.

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
0.50	VAPDMD0050	6.2	50.2	50	0.15	3	●
0.55	VAPDMD0055	6.2	50.2	50	0.17	3	★
0.60	VAPDMD0060	8.2	50.2	50	0.18	3	★
0.65	VAPDMD0065	8.2	50.2	50	0.20	3	★
0.70	VAPDMD0070	10.2	50.2	50	0.21	3	★
0.75	VAPDMD0075	10.2	50.2	50	0.23	3	★
0.80	VAPDMD0080	10.2	50.2	50	0.24	3	★
0.85	VAPDMD0085	10.3	50.3	50	0.26	3	★
0.90	VAPDMD0090	12.3	50.3	50	0.27	3	★
0.95	VAPDMD0095	12.3	50.3	50	0.29	3	★
1.00	VAPDMD0100	12.3	60.3	60	0.3	3	●
1.05	VAPDMD0105	12.3	60.3	60	0.3	3	★
1.10	VAPDMD0110	16.3	60.3	60	0.3	3	★
1.15	VAPDMD0115	16.4	60.4	60	0.4	3	★
1.20	VAPDMD0120	16.4	60.4	60	0.4	3	★
1.25	VAPDMD0125	16.4	60.4	60	0.4	3	★
1.30	VAPDMD0130	16.4	60.4	60	0.4	3	★
1.35	VAPDMD0135	18.4	60.4	60	0.4	3	★
1.40	VAPDMD0140	18.4	60.4	60	0.4	3	★
1.45	VAPDMD0145	18.4	60.4	60	0.4	3	★
1.50	VAPDMD0150	18.5	60.5	60	0.5	3	●
1.55	VAPDMD0155	20.5	60.5	60	0.5	3	★
1.60	VAPDMD0160	20.5	60.5	60	0.5	3	★
1.65	VAPDMD0165	20.5	60.5	60	0.5	3	★
1.70	VAPDMD0170	20.5	60.5	60	0.5	3	★
1.75	VAPDMD0175	20.5	60.5	60	0.5	3	★
1.80	VAPDMD0180	22.5	60.5	60	0.5	3	★
1.85	VAPDMD0185	22.6	60.6	60	0.6	3	★
1.90	VAPDMD0190	22.6	60.6	60	0.6	3	★
1.95	VAPDMD0195	23.6	60.6	60	0.6	3	★
2.00	VAPDMD0200	23.4	70.4	70	0.4	3	●
2.05	VAPDMD0205	23.4	70.4	70	0.4	3	★
2.10	VAPDMD0210	23.4	70.4	70	0.4	3	★

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
2.15	VAPDMD0215	23.5	70.5	70	0.5	3	★
2.20	VAPDMD0220	26.5	70.5	70	0.5	3	★
2.25	VAPDMD0225	26.5	70.5	70	0.5	3	★
2.30	VAPDMD0230	26.5	70.5	70	0.5	3	★
2.35	VAPDMD0235	26.5	70.5	70	0.5	3	★
2.40	VAPDMD0240	29.5	70.5	70	0.5	3	★
2.45	VAPDMD0245	29.5	70.5	70	0.5	3	★
2.50	VAPDMD0250	29.5	70.5	70	0.5	3	●
2.55	VAPDMD0255	29.5	70.5	70	0.5	3	★
2.60	VAPDMD0260	29.5	70.5	70	0.5	3	★
2.65	VAPDMD0265	29.6	70.6	70	0.6	3	★
2.70	VAPDMD0270	32.6	70.6	70	0.6	3	★
2.75	VAPDMD0275	32.6	70.6	70	0.6	3	★
2.80	VAPDMD0280	32.6	70.6	70	0.6	3	★
2.85	VAPDMD0285	32.6	70.6	70	0.6	3	★
2.90	VAPDMD0290	32.6	70.6	70	0.6	3	★
2.95	VAPDMD0295	32.6	70.6	70	0.6	3	★
3.00	VAPDMD0300	32.6	70.6	70	0.6	3	●
3.05	VAPDMD0305	35.6	85.6	85	0.6	4	★
3.10	VAPDMD0310	35.6	85.6	85	0.6	4	★
3.15	VAPDMD0315	35.7	85.7	85	0.7	4	★
3.20	VAPDMD0320	35.7	85.7	85	0.7	4	★
3.25	VAPDMD0325	35.7	85.7	85	0.7	4	★
3.30	VAPDMD0330	35.7	85.7	85	0.7	4	★
3.35	VAPDMD0335	35.7	85.7	85	0.7	4	★
3.40	VAPDMD0340	38.7	85.7	85	0.7	4	★
3.45	VAPDMD0345	38.7	85.7	85	0.7	4	★
3.50	VAPDMD0350	38.7	85.7	85	0.7	4	●
3.55	VAPDMD0355	38.7	85.7	85	0.7	4	★
3.60	VAPDMD0360	38.8	85.8	85	0.8	4	★
3.65	VAPDMD0365	38.8	85.8	85	0.8	4	★
3.70	VAPDMD0370	38.8	85.8	85	0.8	4	★
3.75	VAPDMD0375	42.8	85.8	85	0.8	4	★

VIOLET MATKAPLAR

VAPDM

Orta delme boyu, Yüksek hassasiyet

HSS

M

DELME

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
3.80	VAPDMD0380	42.8	85.8	85	0.8	4	★
3.85	VAPDMD0385	42.8	85.8	85	0.8	4	★
3.90	VAPDMD0390	42.8	85.8	85	0.8	4	★
3.95	VAPDMD0395	42.8	85.8	85	0.8	4	★
4.00	VAPDMD0400	42.8	85.8	85	0.8	4	●
4.05	VAPDMD0405	42.8	100.8	100	0.8	6	★
4.10	VAPDMD0410	42.9	100.9	100	0.9	6	★
4.15	VAPDMD0415	42.9	100.9	100	0.9	6	★
4.20	VAPDMD0420	42.9	100.9	100	0.9	6	★
4.25	VAPDMD0425	46.9	100.9	100	0.9	6	★
4.30	VAPDMD0430	46.9	100.9	100	0.9	6	★
4.35	VAPDMD0435	46.9	100.9	100	0.9	6	★
4.40	VAPDMD0440	46.9	100.9	100	0.9	6	★
4.45	VAPDMD0445	46.9	100.9	100	0.9	6	★
4.50	VAPDMD0450	46.9	100.9	100	0.9	6	●
4.55	VAPDMD0455	46.9	100.9	100	0.9	6	★
4.60	VAPDMD0460	47.0	101.0	100	1.0	6	★
4.65	VAPDMD0465	47.0	101.0	100	1.0	6	★
4.70	VAPDMD0470	47.0	101.0	100	1.0	6	★
4.75	VAPDMD0475	47.0	101.0	100	1.0	6	★
4.80	VAPDMD0480	52.0	101.0	100	1.0	6	★
4.85	VAPDMD0485	52.0	101.0	100	1.0	6	★
4.90	VAPDMD0490	52.0	101.0	100	1.0	6	★
4.95	VAPDMD0495	52.0	101.0	100	1.0	6	★
5.00	VAPDMD0500	52.0	101.0	100	1.0	6	●
5.05	VAPDMD0505	52.1	101.1	100	1.1	6	★
5.10	VAPDMD0510	52.1	101.1	100	1.1	6	★
5.15	VAPDMD0515	52.1	101.1	100	1.1	6	★
5.20	VAPDMD0520	52.1	101.1	100	1.1	6	★
5.25	VAPDMD0525	52.1	101.1	100	1.1	6	★
5.30	VAPDMD0530	52.1	101.1	100	1.1	6	★
5.35	VAPDMD0535	57.1	107.1	106	1.1	6	★
5.40	VAPDMD0540	57.1	107.1	106	1.1	6	★
5.45	VAPDMD0545	57.1	107.1	106	1.1	6	★
5.50	VAPDMD0550	57.1	107.1	106	1.1	6	●
5.55	VAPDMD0555	57.2	107.2	106	1.2	6	★
5.60	VAPDMD0560	57.2	107.2	106	1.2	6	★
5.65	VAPDMD0565	57.2	107.2	106	1.2	6	★
5.70	VAPDMD0570	57.2	107.2	106	1.2	6	★
5.75	VAPDMD0575	57.2	107.2	106	1.2	6	★
5.80	VAPDMD0580	57.2	107.2	106	1.2	6	★
5.85	VAPDMD0585	57.2	107.2	106	1.2	6	★
5.90	VAPDMD0590	57.2	107.2	106	1.2	6	★
5.95	VAPDMD0595	57.2	107.2	106	1.2	6	★
6.00	VAPDMD0600	57.2	107.2	106	1.2	6	●
6.05	VAPDMD0605	63.3	113.3	112	1.3	8	★
6.10	VAPDMD0610	63.3	113.3	112	1.3	8	★
6.15	VAPDMD0615	63.3	113.3	112	1.3	8	★
6.20	VAPDMD0620	63.3	113.3	112	1.3	8	★
6.25	VAPDMD0625	63.3	113.3	112	1.3	8	★

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
6.30	VAPDMD0630	63.3	113.3	112	1.3	8	★
6.35	VAPDMD0635	63.3	113.3	112	1.3	8	★
6.40	VAPDMD0640	63.3	113.3	112	1.3	8	★
6.45	VAPDMD0645	63.3	113.3	112	1.3	8	★
6.50	VAPDMD0650	63.4	113.4	112	1.4	8	●
6.55	VAPDMD0655	63.4	113.4	112	1.4	8	★
6.60	VAPDMD0660	63.4	113.4	112	1.4	8	★
6.65	VAPDMD0665	63.4	113.4	112	1.4	8	★
6.70	VAPDMD0670	63.4	113.4	112	1.4	8	★
6.75	VAPDMD0675	68.4	118.4	117	1.4	8	★
6.80	VAPDMD0680	68.4	118.4	117	1.4	8	★
6.85	VAPDMD0685	68.4	118.4	117	1.4	8	★
6.90	VAPDMD0690	68.4	118.4	117	1.4	8	★
6.95	VAPDMD0695	68.4	118.4	117	1.4	8	★
7.00	VAPDMD0700	68.5	118.5	117	1.5	8	●
7.05	VAPDMD0705	68.5	118.5	117	1.5	8	★
7.10	VAPDMD0710	68.5	118.5	117	1.5	8	★
7.15	VAPDMD0715	68.5	118.5	117	1.5	8	★
7.20	VAPDMD0720	68.5	118.5	117	1.5	8	★
7.25	VAPDMD0725	68.5	118.5	117	1.5	8	★
7.30	VAPDMD0730	68.5	118.5	117	1.5	8	★
7.35	VAPDMD0735	68.5	118.5	117	1.5	8	★
7.40	VAPDMD0740	68.5	118.5	117	1.5	8	★
7.45	VAPDMD0745	68.5	118.5	117	1.5	8	★
7.50	VAPDMD0750	68.6	118.6	117	1.6	8	●
7.55	VAPDMD0755	74.6	124.6	123	1.6	8	★
7.60	VAPDMD0760	74.6	124.6	123	1.6	8	★
7.65	VAPDMD0765	74.6	124.6	123	1.6	8	★
7.70	VAPDMD0770	74.6	124.6	123	1.6	8	★
7.75	VAPDMD0775	74.6	124.6	123	1.6	8	★
7.80	VAPDMD0780	74.6	124.6	123	1.6	8	★
7.85	VAPDMD0785	74.6	124.6	123	1.6	8	★
7.90	VAPDMD0790	74.6	124.6	123	1.6	8	★
7.95	VAPDMD0795	74.7	124.7	123	1.7	8	★
8.00	VAPDMD0800	74.7	124.7	123	1.7	8	●
8.05	VAPDMD0805	74.7	129.7	128	1.7	10	★
8.10	VAPDMD0810	74.7	129.7	128	1.7	10	★
8.15	VAPDMD0815	74.7	129.7	128	1.7	10	★
8.20	VAPDMD0820	74.7	129.7	128	1.7	10	★
8.25	VAPDMD0825	74.7	129.7	128	1.7	10	★
8.30	VAPDMD0830	74.7	129.7	128	1.7	10	★
8.35	VAPDMD0835	74.7	129.7	128	1.7	10	★
8.40	VAPDMD0840	74.7	129.7	128	1.7	10	★
8.45	VAPDMD0845	74.8	129.8	128	1.8	10	★
8.50	VAPDMD0850	74.8	129.8	128	1.8	10	●
8.55	VAPDMD0855	80.8	135.8	134	1.8	10	★
8.60	VAPDMD0860	80.8	135.8	134	1.8	10	★
8.65	VAPDMD0865	80.8	135.8	134	1.8	10	★
8.70	VAPDMD0870	80.8	135.8	134	1.8	10	★
8.75	VAPDMD0875	80.8	135.8	134	1.8	10	★

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

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
8.80	VAPDMD0880	80.8	135.8	134	1.8	10	★
8.85	VAPDMD0885	80.8	135.8	134	1.8	10	★
8.90	VAPDMD0890	80.8	135.8	134	1.8	10	★
8.95	VAPDMD0895	80.9	135.9	134	1.9	10	★
9.00	VAPDMD0900	80.9	135.9	134	1.9	10	●
9.10	VAPDMD0910	80.9	135.9	134	1.9	10	★
9.20	VAPDMD0920	80.9	135.9	134	1.9	10	★
9.30	VAPDMD0930	80.9	135.9	134	1.9	10	★
9.40	VAPDMD0940	81.0	136.0	134	2.0	10	★
9.50	VAPDMD0950	81.0	136.0	134	2.0	10	●
9.60	VAPDMD0960	87.0	142.0	140	2.0	10	★
9.70	VAPDMD0970	87.0	142.0	140	2.0	10	★
9.80	VAPDMD0980	87.0	142.0	140	2.0	10	★
9.90	VAPDMD0990	87.1	142.1	140	2.1	10	★
10.00	VAPDMD1000	87.1	142.1	140	2.1	10	●
10.10	VAPDMD1010	87.1	147.1	145	2.1	12	★
10.20	VAPDMD1020	87.1	147.1	145	2.1	12	★
10.30	VAPDMD1030	87.1	147.1	145	2.1	12	★
10.40	VAPDMD1040	87.2	147.2	145	2.2	12	★
10.50	VAPDMD1050	87.2	147.2	145	2.2	12	●
10.60	VAPDMD1060	87.2	147.2	145	2.2	12	★
10.70	VAPDMD1070	94.2	154.2	152	2.2	12	★
10.80	VAPDMD1080	94.2	154.2	152	2.2	12	★
10.90	VAPDMD1090	94.3	154.3	152	2.3	12	★
11.00	VAPDMD1100	94.3	154.3	152	2.3	12	●
11.10	VAPDMD1110	94.3	154.3	152	2.3	12	★
11.20	VAPDMD1120	94.3	154.3	152	2.3	12	★
11.30	VAPDMD1130	94.3	154.3	152	2.3	12	★
11.40	VAPDMD1140	94.4	154.4	152	2.4	12	★
11.50	VAPDMD1150	94.4	154.4	152	2.4	12	●
11.60	VAPDMD1160	94.4	154.4	152	2.4	12	★
11.70	VAPDMD1170	94.4	154.4	152	2.4	12	★
11.80	VAPDMD1180	94.4	154.4	152	2.4	12	★
11.90	VAPDMD1190	101.5	161.5	159	2.5	12	★
12.00	VAPDMD1200	101.5	161.5	159	2.5	12	●
12.10	VAPDMD1210	101.5	161.5	159	2.5	12	★
12.20	VAPDMD1220	101.5	161.5	159	2.5	12	★
12.30	VAPDMD1230	101.6	161.6	159	2.6	12	★
12.40	VAPDMD1240	101.6	161.6	159	2.6	12	★
12.50	VAPDMD1250	101.6	161.6	159	2.6	12	●
12.60	VAPDMD1260	101.6	161.6	159	2.6	12	★
12.70	VAPDMD1270	101.6	161.6	159	2.6	12	★
12.80	VAPDMD1280	101.7	161.7	159	2.7	12	★
12.90	VAPDMD1290	101.7	161.7	159	2.7	12	★
13.00	VAPDMD1300	101.7	161.7	159	2.7	12	●
13.50	VAPDMD1350	102.8	162.8	160	2.8	16	●
14.00	VAPDMD1400	102.9	162.9	160	2.9	16	●
14.10	VAPDMD1410	107.9	167.9	165	2.9	16	★
14.20	VAPDMD1420	107.9	167.9	165	2.9	16	★
14.50	VAPDMD1450	108.0	168.0	165	3.0	16	●
15.00	VAPDMD1500	108.1	168.1	165	3.1	16	●

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
15.50	VAPDMD1550	113.2	173.2	170	3.2	16	★
15.60	VAPDMD1560	113.2	173.2	170	3.2	16	★
15.70	VAPDMD1570	113.3	173.3	170	3.3	16	★
16.00	VAPDMD1600	113.3	173.3	170	3.3	16	●
16.50	VAPDMD1650	113.4	178.4	175	3.4	20	●
17.00	VAPDMD1700	113.5	178.5	175	3.5	20	●
17.50	VAPDMD1750	118.6	183.6	180	3.6	20	●
17.60	VAPDMD1760	118.7	183.7	180	3.7	20	★
17.70	VAPDMD1770	118.7	183.7	180	3.7	20	★
18.00	VAPDMD1800	118.7	183.7	180	3.7	20	●
18.50	VAPDMD1850	123.8	188.8	185	3.8	20	★
19.00	VAPDMD1900	123.9	188.9	185	3.9	20	★
19.50	VAPDMD1950	124.0	189.0	185	4.0	20	★
19.60	VAPDMD1960	124.1	189.1	185	4.1	20	★
19.70	VAPDMD1970	124.1	189.1	185	4.1	20	★
20.00	VAPDMD2000	124.1	189.1	185	4.1	20	★
20.50	VAPDMD2050	129.3	204.3	200	4.3	25	●
21.00	VAPDMD2100	129.4	204.4	200	4.4	25	●
21.10	VAPDMD2110	129.4	204.4	200	4.4	25	★
21.20	VAPDMD2120	129.4	204.4	200	4.4	25	★
21.50	VAPDMD2150	129.5	204.5	200	4.5	25	★
22.00	VAPDMD2200	129.6	204.6	200	4.6	25	●
22.50	VAPDMD2250	134.7	209.7	205	4.7	25	★
23.00	VAPDMD2300	134.8	209.8	205	4.8	25	●
23.50	VAPDMD2350	134.9	209.9	205	4.9	25	★
24.00	VAPDMD2400	140.0	215.0	210	5.0	25	★
24.50	VAPDMD2450	140.1	215.1	210	5.1	25	★
25.00	VAPDMD2500	140.2	215.2	210	5.2	25	★
25.50	VAPDMD2550	145.3	225.3	220	5.3	32	●
26.00	VAPDMD2600	145.4	225.4	220	5.4	32	★
26.50	VAPDMD2650	145.5	225.5	220	5.5	32	★
27.00	VAPDMD2700	145.6	225.6	220	5.6	32	★
28.00	VAPDMD2800	145.8	225.8	220	5.8	32	★
29.00	VAPDMD2900	151.0	231.0	225	6.0	32	★
30.00	VAPDMD3000	151.2	231.2	225	6.2	32	★
31.00	VAPDMD3100	156.4	236.4	230	6.4	32	★
32.00	VAPDMD3200	161.6	241.6	235	6.6	32	★

ÖNERİLEN KESME KOŞULLARI (Standart delme derinliği : matkap çapının 5 katına kadar)

Çalışma malzemesi	P		P	K	P	M	P	M
	Yapı çeliği		Karbon çelik Ck55 Aleşimli çelik 070M55 Dökme demir		Aleşimli takım çeliği X210Cr12 (Düşük sertlikte malzemeler) Feritik paslanmaz çelik X10CrAl18, X10CrAl13 Martensitik paslanmaz çelik X20Cr13, X10CrAl13		Aleşimli takım çeliği X40CrMoV51 (–40HRC) Çökelimli sertleştirilen paslanmaz çelik X7CrNiAl177	
Matkap Çapı DC (mm)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)
0.5	17000	0.01	12800	0.01	8000	0.01	6600	0.01
1.0	11000	0.05	8300	0.05	5000	0.05	4100	0.04
2.0	6400	0.09	4800	0.09	2900	0.06	2400	0.05
3.0	4300	0.13	3200	0.13	1900	0.10	1600	0.06
4.0	3200	0.15	2400	0.15	1400	0.10	1200	0.08
5.0	2600	0.18	1900	0.18	1100	0.13	950	0.10
6.0	2100	0.19	1600	0.20	950	0.15	800	0.11
8.0	1600	0.24	1200	0.22	720	0.18	600	0.13
10.0	1300	0.28	950	0.25	570	0.21	480	0.15
12.0	1100	0.34	800	0.30	480	0.25	400	0.17
14.0	910	0.39	680	0.35	410	0.30	340	0.21
15.0	850	0.40	640	0.36	380	0.31	320	0.22
16.0	800	0.42	600	0.38	360	0.32	300	0.23
18.0	710	0.44	530	0.40	320	0.34	270	0.24
20.0	570	0.44	450	0.40	250	0.34	220	0.24
22.0	520	0.46	410	0.42	230	0.36	200	0.25
24.0	480	0.48	370	0.44	210	0.37	190	0.26
26.0	440	0.51	340	0.46	200	0.39	170	0.28
28.0	410	0.53	320	0.48	180	0.41	160	0.29
30.0	380	0.55	300	0.50	170	0.43	150	0.30
32.0	360	0.55	280	0.50	160	0.43	140	0.30

Not 1) Lütfen iş parçası bağlama sistemi rijid değilse veya tezgahın sınırlamaları var ise devri ve ilerleme oranını düşürün.

Not 2) Lütfen pensli matkap tutucusu veya frezeleme tutucusu kullanın.

Not 3) Nitelikli kesme sıvısı kullanın.

Not 4) 4 x matkap çapı derinliğinden büyük derinlikler için , lütfen gagalama ilerlemesi yapın.

Not 5) Yukarıda bahsedilen kesme koşulları, suda çözünbilir kesme sıvısı kullanıldığında standarttır.

Lütfen suda çözünmeyen kesme sıvısı kullanıldığında devirleri düşürün.

P

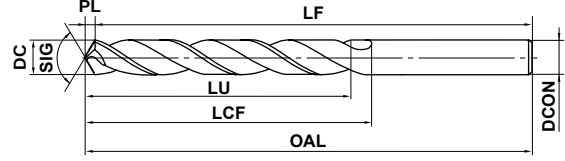
M

K

N

S

H



$$*LU = LCF - 2DC$$



0.5≤DC≤1	1≤DC≤3	3<DC≤6	6<DC≤10	10<DC≤13
0 -0.010	0 -0.014	0 -0.018	0 -0.022	0 -0.027

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
0.5	VSDD0050	6.2	27.2	27	0.18	0.5	★
0.6	VSDD0060	7.2	30.2	30	0.21	0.6	●
0.7	VSDD0070	9.2	32.2	32	0.21	0.7	●
0.8	VSDD0080	10.2	34.2	34	0.24	0.8	●
0.9	VSDD0090	11.3	36.3	36	0.27	0.9	●
1.0	VSDD0100	12.3	40.3	40	0.3	1.0	●
1.1	VSDD0110	14.3	42.3	42	0.3	1.1	●
1.2	VSDD0120	16.4	42.4	42	0.4	1.2	●
1.3	VSDD0130	16.4	45.4	45	0.4	1.3	●
1.4	VSDD0140	18.4	48.4	48	0.4	1.4	●
1.5	VSDD0150	18.5	48.5	48	0.5	1.5	●
1.6	VSDD0160	20.5	50.5	50	0.5	1.6	●
1.7	VSDD0170	20.5	50.5	50	0.5	1.7	★
1.8	VSDD0180	22.5	52.5	52	0.5	1.8	●
1.9	VSDD0190	22.6	52.6	52	0.6	1.9	●
2.0	VSDD0200	23.6	55.6	55	0.6	2.0	●
2.1	VSDD0210	23.6	55.6	55	0.6	2.1	●
2.2	VSDD0220	26.7	58.7	58	0.7	2.2	●
2.3	VSDD0230	26.7	58.7	58	0.7	2.3	★
2.4	VSDD0240	29.7	61.7	61	0.7	2.4	★
2.5	VSDD0250	29.8	61.8	61	0.8	2.5	●
2.6	VSDD0260	29.8	64.8	64	0.8	2.6	★
2.7	VSDD0270	32.8	64.8	64	0.8	2.7	★
2.8	VSDD0280	32.8	67.8	67	0.8	2.8	●
2.9	VSDD0290	32.9	71.9	71	0.9	2.9	★
3.0	VSDD0300	32.9	71.9	71	0.9	3.0	●
3.1	VSDD0310	35.9	71.9	71	0.9	3.1	●
3.2	VSDD0320	36.0	72.0	71	1.0	3.2	●
3.3	VSDD0330	36.0	74.0	73	1.0	3.3	●
3.4	VSDD0340	39.0	74.0	73	1.0	3.4	●
3.5	VSDD0350	39.1	74.1	73	1.1	3.5	●
3.6	VSDD0360	39.1	77.1	76	1.1	3.6	★
3.7	VSDD0370	39.1	77.1	76	1.1	3.7	★
3.8	VSDD0380	43.1	77.1	76	1.1	3.8	★
3.9	VSDD0390	43.2	80.2	79	1.2	3.9	★
4.0	VSDD0400	43.2	84.2	83	1.2	4.0	●
4.1	VSDD0410	43.2	84.2	83	1.2	4.1	●
4.2	VSDD0420	43.3	84.3	83	1.3	4.2	●
4.3	VSDD0430	47.3	84.3	83	1.3	4.3	●
4.4	VSDD0440	47.3	87.3	86	1.3	4.4	★

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
4.5	VSDD0450	47.4	87.4	86	1.4	4.5	●
4.6	VSDD0460	47.4	87.4	86	1.4	4.6	★
4.7	VSDD0470	47.4	90.4	89	1.4	4.7	★
4.8	VSDD0480	52.4	90.4	89	1.4	4.8	●
4.9	VSDD0490	52.5	93.5	92	1.5	4.9	★
5.0	VSDD0500	52.5	93.5	92	1.5	5.0	●
5.1	VSDD0510	52.5	93.5	92	1.5	5.1	●
5.2	VSDD0520	52.6	96.6	95	1.6	5.2	●
5.3	VSDD0530	52.6	96.6	95	1.6	5.3	★
5.4	VSDD0540	57.6	96.6	95	1.6	5.4	★
5.5	VSDD0550	57.7	96.7	95	1.7	5.5	●
5.6	VSDD0560	57.7	99.7	98	1.7	5.6	★
5.7	VSDD0570	57.7	99.7	98	1.7	5.7	★
5.8	VSDD0580	57.7	99.7	98	1.7	5.8	★
5.9	VSDD0590	57.8	99.8	98	1.8	5.9	●
6.0	VSDD0600	57.8	103.8	102	1.8	6.0	●
6.1	VSDD0610	63.8	103.8	102	1.8	6.1	★
6.2	VSDD0620	63.9	103.9	102	1.9	6.2	●
6.3	VSDD0630	63.9	103.9	102	1.9	6.3	●
6.4	VSDD0640	63.9	106.9	105	1.9	6.4	★
6.5	VSDD0650	64.0	107.0	105	2.0	6.5	●
6.6	VSDD0660	64.0	107.0	105	2.0	6.6	★
6.7	VSDD0670	64.0	107.0	105	2.0	6.7	★
6.8	VSDD0680	69.0	107.0	105	2.0	6.8	●
6.9	VSDD0690	69.1	107.1	105	2.1	6.9	★
7.0	VSDD0700	69.1	107.1	105	2.1	7.0	●
7.1	VSDD0710	69.1	110.1	108	2.1	7.1	★
7.2	VSDD0720	69.2	110.2	108	2.2	7.2	★
7.3	VSDD0730	69.2	110.2	108	2.2	7.3	●
7.4	VSDD0740	69.2	113.2	111	2.2	7.4	★
7.5	VSDD0750	69.3	113.3	111	2.3	7.5	★
7.6	VSDD0760	75.3	113.3	111	2.3	7.6	★
7.7	VSDD0770	75.3	116.3	114	2.3	7.7	★
7.8	VSDD0780	75.3	116.3	114	2.3	7.8	★
7.9	VSDD0790	75.4	116.4	114	2.4	7.9	●
8.0	VSDD0800	75.4	116.4	114	2.4	8.0	●
8.1	VSDD0810	75.4	119.4	117	2.4	8.1	★
8.2	VSDD0820	75.5	119.5	117	2.5	8.2	★
8.3	VSDD0830	75.5	119.5	117	2.5	8.3	★
8.4	VSDD0840	75.5	123.5	121	2.5	8.4	★

Not 1) ø0,5-ø1.9mm arası : 5 adet/kutu , ø2mm'nin üstü : 1 adet/kutu bulunmaktadır.

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

KESME KOŞULLARI > M184

TEKNİK VERİLER > P001

M183

M
DELME

VIOLET MATKAPLAR

VSD

Düz şank

HSS

M
DELME

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
8.5	VSDD0850	75.6	123.6	121	2.6	8.5	●
8.6	VSDD0860	81.6	123.6	121	2.6	8.6	●
8.7	VSDD0870	81.6	123.6	121	2.6	8.7	●
8.8	VSDD0880	81.6	126.6	124	2.6	8.8	★
8.9	VSDD0890	81.7	126.7	124	2.7	8.9	★
9.0	VSDD0900	81.7	126.7	124	2.7	9.0	●
9.1	VSDD0910	81.7	126.7	124	2.7	9.1	★
9.2	VSDD0920	81.8	129.8	127	2.8	9.2	★
9.3	VSDD0930	81.8	129.8	127	2.8	9.3	★
9.4	VSDD0940	81.8	129.8	127	2.8	9.4	★
9.5	VSDD0950	81.9	129.9	127	2.9	9.5	●
9.6	VSDD0960	87.9	132.9	130	2.9	9.6	★
9.7	VSDD0970	87.9	132.9	130	2.9	9.7	★
9.8	VSDD0980	87.9	132.9	130	2.9	9.8	★
9.9	VSDD0990	88.0	133.0	130	3.0	9.9	★
10.0	VSDD1000	88.0	133.0	130	3.0	10.0	●
10.1	VSDD1010	88.0	136.0	133	3.0	10.1	★
10.2	VSDD1020	88.1	136.1	133	3.1	10.2	●
10.3	VSDD1030	88.1	136.1	133	3.1	10.3	●
10.4	VSDD1040	88.1	136.1	133	3.1	10.4	★
10.5	VSDD1050	88.2	140.2	137	3.2	10.5	●
10.6	VSDD1060	88.2	140.2	137	3.2	10.6	★
10.7	VSDD1070	95.2	140.2	137	3.2	10.7	★

DC (mm)	Sipariş Numarası	Boyutlar (mm)					Stok
		LCF	OAL	LF	PL	DCON	
10.8	VSDD1080	95.2	143.2	140	3.2	10.8	★
10.9	VSDD1090	95.3	143.3	140	3.3	10.9	★
11.0	VSDD1100	95.3	143.3	140	3.3	11.0	●
11.1	VSDD1110	95.3	143.3	140	3.3	11.1	★
11.2	VSDD1120	95.4	146.4	143	3.4	11.2	★
11.3	VSDD1130	95.4	146.4	143	3.4	11.3	★
11.4	VSDD1140	95.4	146.4	143	3.4	11.4	★
11.5	VSDD1150	95.5	146.5	143	3.5	11.5	★
11.6	VSDD1160	95.5	149.5	146	3.5	11.6	★
11.7	VSDD1170	95.5	149.5	146	3.5	11.7	★
11.8	VSDD1180	95.5	149.5	146	3.5	11.8	★
11.9	VSDD1190	102.6	149.6	146	3.6	11.9	★
12.0	VSDD1200	102.6	152.6	149	3.6	12.0	●
12.1	VSDD1210	102.6	152.6	149	3.6	12.1	★
12.2	VSDD1220	102.7	152.7	149	3.7	12.2	★
12.3	VSDD1230	102.7	152.7	149	3.7	12.3	★
12.4	VSDD1240	102.7	155.7	152	3.7	12.4	★
12.5	VSDD1250	102.8	155.8	152	3.8	12.5	★
12.6	VSDD1260	102.8	155.8	152	3.8	12.6	★
12.7	VSDD1270	102.8	155.8	152	3.8	12.7	★
12.8	VSDD1280	102.8	155.8	152	3.8	12.8	★
12.9	VSDD1290	102.9	155.9	152	3.9	12.9	★
13.0	VSDD1300	102.9	155.9	152	3.9	13.0	●

ÖNERİLEN KESME KOŞULLARI

Çalışma Malzemesi	P		M		P		M	
	Yapı çeliği		Karbon çelik Ck55		Paslanmaz çelik X20Cr13		Paslanmaz çelik X5CrNi1810 Takım çeliği X210Cr12 (Düşük sertlikteki malzemeler) Isıl işlem görmüş çelik X40CrMoV51 (-40HRC)	
Kesme hızı	40m/dak		30m/dak		20m/dak		10-14m/dak	
Matkap Çapı DC (mm)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)
0.5	15000	0.01	11250	0.01	7500	0.01	5620	0.01
1.0	10000	0.02	7500	0.02	5000	0.02	3750	0.02
1.5	8200	0.03	6150	0.03	4100	0.03	2800	0.03
2.0	6370	0.05	4780	0.05	3180	0.05	2200	0.04
3.0	4250	0.10	3180	0.10	2120	0.07	1400	0.06
4.0	3180	0.13	2390	0.13	1590	0.09	1100	0.08
5.0	2550	0.15	1910	0.15	1270	0.11	860	0.10
6.0	2120	0.18	1590	0.18	1060	0.13	720	0.11
7.0	1820	0.20	1360	0.20	910	0.14	610	0.12
8.0	1590	0.22	1190	0.21	800	0.15	540	0.13
9.0	1420	0.24	1060	0.22	710	0.17	480	0.14
10.0	1270	0.26	960	0.23	640	0.18	430	0.15
11.0	1160	0.28	870	0.24	580	0.19	390	0.16
12.0	1060	0.30	800	0.25	530	0.20	360	0.17
13.0	980	0.30	730	0.26	490	0.20	330	0.17

Not 1) Lütfen iş parçası Bağlama sistemi rijid değilse devirleri düşürün.

Not 2) Yukarıda bahsedilen kesme koşulları, suda çözünabilir kesme sıvısı kullanıldığında standarttır.

Lütfen suda çözünmeyen kesme sıvısı kullanıldığında devirleri düşürün.

VAPDSCB

Kısa helis boyu, Yüksek hassasiyet, Havşa açmak için

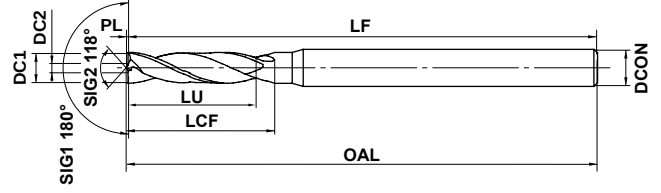


HSS

P M K N S H



DC≤3	3<DC≤6	6<DC≤10	10<DC≤18	18<DC≤30	30<DC≤32
0 -0.014	0 -0.018	0 -0.022	0 -0.027	0 -0.033	0 -0.039



$$\star LU = LCF - 2DC \text{ (Maks } 3 \times DC)$$

- Benzersiz geometrisi ile havşa açma işleminde yüksek verimlilik sağlar.
Düz havşa açılmış yüzey, mükemmel talaş kırma özelliği.

M
DELME

DC1 (mm)	Sipariş Numarası	Boyutlar (mm)						Stok
		DC2	LCF	OAL	LF	PL	DCN	
2.0	VAPDSCBD0200	0.7	12	60.2	60	0.2	3	★
2.1	VAPDSCBD0210	0.7	12	60.2	60	0.2	3	★
2.2	VAPDSCBD0220	0.7	12	60.2	60	0.2	3	★
2.3	VAPDSCBD0230	0.7	13	60.2	60	0.2	3	★
2.4	VAPDSCBD0240	0.7	13	60.2	60	0.2	3	★
2.5	VAPDSCBD0250	0.7	13	60.2	60	0.2	3	★
2.6	VAPDSCBD0260	0.8	15	60.2	60	0.2	3	★
2.7	VAPDSCBD0270	0.8	15	60.2	60	0.2	3	★
2.8	VAPDSCBD0280	0.8	15	60.2	60	0.2	3	★
2.9	VAPDSCBD0290	0.8	15	60.2	60	0.2	3	★
3.0	VAPDSCBD0300	0.8	15	60.2	60	0.2	3	★
3.1	VAPDSCBD0310	0.8	17	70.2	70	0.2	4	★
3.2	VAPDSCBD0320	0.8	17	70.2	70	0.2	4	★
3.3	VAPDSCBD0330	0.8	19	70.2	70	0.2	4	★
3.4	VAPDSCBD0340	0.8	19	70.2	70	0.2	4	★
3.5	VAPDSCBD0350	0.8	19	70.2	70	0.2	4	★
3.6	VAPDSCBD0360	1.0	21	70.2	70	0.2	4	★
3.7	VAPDSCBD0370	1.0	21	70.2	70	0.2	4	★
3.8	VAPDSCBD0380	1.0	21	70.2	70	0.2	4	★
3.9	VAPDSCBD0390	1.0	21	70.2	70	0.2	4	★
4.0	VAPDSCBD0400	1.0	21	70.3	70	0.3	4	★
4.1	VAPDSCBD0410	1.0	21	80.3	80	0.3	6	★
4.2	VAPDSCBD0420	1.0	21	80.3	80	0.3	6	★
4.3	VAPDSCBD0430	1.0	23	80.3	80	0.3	6	★
4.4	VAPDSCBD0440	1.0	23	80.3	80	0.3	6	★
4.5	VAPDSCBD0450	1.0	23	80.3	80	0.3	6	★
4.6	VAPDSCBD0460	1.4	25	80.3	80	0.3	6	★
4.7	VAPDSCBD0470	1.4	25	80.3	80	0.3	6	★
4.8	VAPDSCBD0480	1.4	25	80.3	80	0.3	6	★
4.9	VAPDSCBD0490	1.4	25	80.3	80	0.3	6	★
5.0	VAPDSCBD0500	1.4	25	80.4	80	0.4	6	★
5.1	VAPDSCBD0510	1.4	25	80.4	80	0.4	6	★
5.2	VAPDSCBD0520	1.4	25	80.4	80	0.4	6	★
5.3	VAPDSCBD0530	1.4	25	80.4	80	0.4	6	★
5.4	VAPDSCBD0540	1.4	27	80.4	80	0.4	6	★
5.5	VAPDSCBD0550	1.4	27	80.4	80	0.4	6	★
5.6	VAPDSCBD0560	1.4	27	80.4	80	0.4	6	★
5.7	VAPDSCBD0570	1.4	27	80.4	80	0.4	6	★
5.8	VAPDSCBD0580	1.4	27	80.4	80	0.4	6	★
5.9	VAPDSCBD0590	1.4	27	80.4	80	0.4	6	★

DC1 (mm)	Sipariş Numarası	Boyutlar (mm)						Stok
		DC2	LCF	OAL	LF	PL	DCN	
6.0	VAPDSCBD0600	1.4	27	80.4	80	0.4	6	★
6.1	VAPDSCBD0610	1.4	30	80.4	80	0.4	8	★
6.2	VAPDSCBD0620	1.4	30	80.4	80	0.4	8	★
6.3	VAPDSCBD0630	1.4	30	80.4	80	0.4	8	★
6.4	VAPDSCBD0640	1.4	30	80.4	80	0.4	8	★
6.5	VAPDSCBD0650	1.4	30	80.4	80	0.4	8	★
6.6	VAPDSCBD0660	1.8	30	80.4	80	0.4	8	★
6.7	VAPDSCBD0670	1.8	30	80.4	80	0.4	8	★
6.8	VAPDSCBD0680	1.8	32	80.4	80	0.4	8	★
6.9	VAPDSCBD0690	1.8	32	80.4	80	0.4	8	★
7.0	VAPDSCBD0700	1.8	32	80.6	80	0.6	8	★
7.1	VAPDSCBD0710	1.8	32	80.6	80	0.6	8	★
7.2	VAPDSCBD0720	1.8	32	80.6	80	0.6	8	★
7.3	VAPDSCBD0730	1.8	32	80.6	80	0.6	8	★
7.4	VAPDSCBD0740	1.8	32	80.6	80	0.6	8	★
7.5	VAPDSCBD0750	1.8	32	80.6	80	0.6	8	★
7.6	VAPDSCBD0760	2.0	35	85.6	85	0.6	8	★
7.7	VAPDSCBD0770	2.0	35	85.6	85	0.6	8	★
7.8	VAPDSCBD0780	2.0	35	85.6	85	0.6	8	★
7.9	VAPDSCBD0790	2.0	35	85.6	85	0.6	8	★
8.0	VAPDSCBD0800	2.0	35	85.6	85	0.6	8	★
8.1	VAPDSCBD0810	2.0	35	90.6	90	0.6	10	★
8.5	VAPDSCBD0850	2.0	35	90.6	90	0.6	10	★
8.6	VAPDSCBD0860	2.8	38	93.6	93	0.6	10	★
8.8	VAPDSCBD0880	2.8	38	93.6	93	0.6	10	★
9.0	VAPDSCBD0900	2.8	38	93.8	93	0.8	10	★
9.1	VAPDSCBD0910	2.8	38	93.8	93	0.8	10	★
9.5	VAPDSCBD0950	2.8	38	93.8	93	0.8	10	★
9.6	VAPDSCBD0960	3.2	41	96.8	96	0.8	10	★
9.8	VAPDSCBD0980	3.2	41	96.8	96	0.8	10	★
10.0	VAPDSCBD1000	3.2	41	96.9	96	0.9	10	★
10.1	VAPDSCBD1010	3.2	41	101.9	101	0.9	12	★
10.3	VAPDSCBD1030	3.2	41	101.9	101	0.9	12	★
10.5	VAPDSCBD1050	3.2	41	101.9	101	0.9	12	★
10.8	VAPDSCBD1080	3.7	45	105.9	105	0.9	12	★
11.0	VAPDSCBD1100	3.7	45	105.9	105	0.9	12	★
11.1	VAPDSCBD1110	3.7	45	105.9	105	0.9	12	★
11.5	VAPDSCBD1150	3.7	45	105.9	105	0.9	12	★
11.8	VAPDSCBD1180	3.7	45	105.9	105	0.9	12	★
12.0	VAPDSCBD1200	3.7	49	109.9	109	0.9	12	★

★ : Japonya standart stok.

KESME KOŞULLARI > M187
TEKNİK VERİLER > P001

M185

VIOLET MATKAPLAR

VAPDSCB

Kısa helis boyu, Havşa açmak için Yüksek hassasiyet.

HSS

M

DELME

DC1 (mm)	Sipariş Numarası	Boyutlar (mm)						Stok
		DC2	LCF	OAL	LF	PL	DCON	
12.5	VAPDSCBD1250	3.7	49	109.9	109	0.9	12	★
13.0	VAPDSCBD1300	4.2	49	110.1	109	1.1	12	★
13.5	VAPDSCBD1350	4.2	51	122.1	121	1.1	16	★
13.8	VAPDSCBD1380	4.2	51	122.1	121	1.1	16	★
14.0	VAPDSCBD1400	4.2	51	122.1	121	1.1	16	★
14.1	VAPDSCBD1410	5.5	58	124.1	123	1.1	16	★
14.2	VAPDSCBD1420	5.5	58	124.1	123	1.1	16	★
14.5	VAPDSCBD1450	5.5	58	124.1	123	1.1	16	★
14.8	VAPDSCBD1480	5.5	58	124.1	123	1.1	16	★
15.0	VAPDSCBD1500	5.5	58	124.3	123	1.3	16	★
15.5	VAPDSCBD1550	5.5	60	126.3	125	1.3	16	★
15.7	VAPDSCBD1570	5.5	60	126.3	125	1.3	16	★
15.8	VAPDSCBD1580	5.5	60	126.3	125	1.3	16	★
16.0	VAPDSCBD1600	5.5	60	126.3	125	1.3	16	★
17.0	VAPDSCBD1700	5.5	62	133.3	132	1.3	20	★
17.5	VAPDSCBD1750	5.5	63	134.6	133	1.6	20	★
17.6	VAPDSCBD1760	6.5	63	134.6	133	1.6	20	★
17.7	VAPDSCBD1770	6.5	63	134.6	133	1.6	20	★
17.8	VAPDSCBD1780	6.5	63	134.6	133	1.6	20	★
18.0	VAPDSCBD1800	6.5	63	134.6	133	1.6	20	★
18.1	VAPDSCBD1810	6.5	65	136.6	135	1.6	20	★
19.0	VAPDSCBD1900	6.5	65	136.6	135	1.6	20	★
19.8	VAPDSCBD1980	7.5	67	138.6	137	1.6	20	★
20.0	VAPDSCBD2000	7.5	67	138.8	137	1.8	20	★
20.1	VAPDSCBD2010	7.5	67	138.8	137	1.8	20	★
21.0	VAPDSCBD2100	7.5	75	166.8	165	1.8	25	★
22.0	VAPDSCBD2200	7.5	75	166.8	165	1.8	25	★
23.0	VAPDSCBD2300	7.5	80	171.8	170	1.8	25	★
24.0	VAPDSCBD2400	8.5	80	172.2	170	2.2	25	★
25.0	VAPDSCBD2500	8.5	85	182.2	180	2.2	25	★
26.0	VAPDSCBD2600	9.0	85	182.2	180	2.2	32	★
27.0	VAPDSCBD2700	9.0	95	192.2	190	2.2	32	★
28.0	VAPDSCBD2800	10.0	95	192.6	190	2.6	32	★
29.0	VAPDSCBD2900	10.0	100	197.6	195	2.6	32	★
30.0	VAPDSCBD3000	11.0	100	197.6	195	2.6	32	★
31.0	VAPDSCBD3100	11.0	105	202.6	200	2.6	32	★
32.0	VAPDSCBD3200	13.0	105	202.6	200	2.6	32	★

★ : Japonya standart stok.

KESME KOŞULLARI ÖNERİLERİ

Çalışma Malzemesi	P		N		P		K		P		M		P		M	
	Yapı çeliği, Alüminyum alaşım		Karbon çelik Ck55, Alaşımlı çelik 070M55, Duktıl Dökme Demir		Alaşımlı takım çeliği X210Cr12 (Düşük sertlikte malzemeler) Feritik paslanmaz çelik X10CrAl18, X10CrAl13 Martensitik paslanmaz çelik X20Cr13, X10CrAl13		Alaşımlı takım çeliği, X40CrMoV51 (-40HRC) Sertleştirilmiş paslanmaz çelik, X7CrNiAl177		Devir (dak ⁻¹)		İlerleme oranı (mm/dev)		Devir (dak ⁻¹)		İlerleme oranı (mm/dev)	
Matkap Çapı DC (mm)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)	Devir (dak ⁻¹)	İlerleme oranı (mm/dev)
2.0	5600	0.07	4800	0.07	3200	0.07	2800	0.04								
3.0	3700	0.10	3200	0.10	2100	0.10	1900	0.05								
4.0	2800	0.12	2400	0.12	1600	0.12	1400	0.06								
5.0	2200	0.14	1900	0.14	1300	0.14	1150	0.07								
6.0	1850	0.15	1600	0.15	1050	0.15	950	0.08								
8.0	1400	0.20	1200	0.20	800	0.20	720	0.10								
10.0	1100	0.23	960	0.23	640	0.21	570	0.11								
12.0	950	0.26	800	0.26	530	0.24	470	0.12								
14.0	800	0.27	680	0.27	450	0.25	410	0.13								
16.0	700	0.28	500	0.28	360	0.26	300	0.14								
18.0	620	0.29	450	0.29	320	0.27	260	0.15								
20.0	560	0.30	400	0.30	290	0.27	240	0.15								
22.0	510	0.32	360	0.32	260	0.29	220	0.16								
24.0	460	0.33	330	0.33	240	0.30	200	0.16								
26.0	430	0.35	310	0.35	220	0.31	180	0.17								
28.0	400	0.36	290	0.36	210	0.33	170	0.18								
30.0	370	0.37	270	0.37	190	0.34	160	0.18								
32.0	350	0.38	250	0.38	180	0.35	150	0.19								

Not 1) Yukarıdaki kesme koşulları pilot delik olmaksızın DCx3 delik derinliklerini delmek içindir.

DCx1 delik derinliklerinden küçük delikler delinirken, deviri (RPM) %20 oranında arttırmak mümkündür.

Not 2) Ön delik olmaksızın delme önerilir.

Ön delik varsa, talaşlar kırılmayabilir. Talaşın kırılması gerekiyorsa gagalama ilerlemesi kullanın.

Not 3) Meyilli yüzeye havşa açmak için, karbür parmak freze önerilir.

Not 4) Ostenitli paslanmaz çeliğin işlenmesinde (X5CrNi1810), devirleri %30 - 60 oranında ve ilerleme oranını %40 - 60 oranında düşürün.

Not 5) Lütfen pensli matkap tutucusu kullanın.

Not 6) Lütfen iş parçasının bağlama sistemi kurulumu ve tezgahın rijidliği zayıf ise, delme durumuna bağlı olarak devri ve ilerleme oranını düşürün.

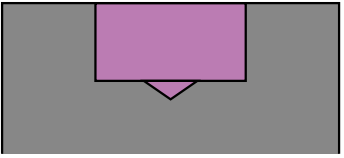
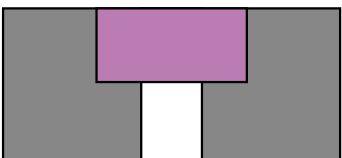
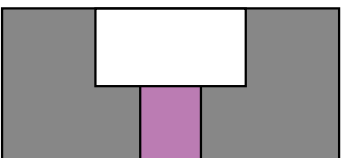
Not 7) Yeterli kesme sıvısı kullanın.

Not 8) Yukarıda bahsedilen kesme koşulları, suda çözünabilir kesme sıvısı kullanıldığında standarttır.

Lütfen suda çözünmeyen kesme sıvısı kullanıldığında devirleri düşürün.

KESME TEKNİĞİ ÖNERİSİ

■ VAPDSCB talaş sıkışmasını önleyerek yüksek verimli işleme sağlar.

Genel kesme tekniği		VAPDSCB kesme tekniği	
①Cıvata deliği delme	Talaş geometrisi	①Havşa açma	Talaş geometrisi
			
②Havşa açma	Karşık yongalar	②Cıvata deliği delme	İyi
			

Not 1) VAPDSCB havşa açma işleminde, pilot deliği delerken, takımın çevresini saran kesintisiz talaşlar üretebilir.



P

M

K

N

S

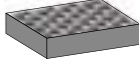
H

CFRP



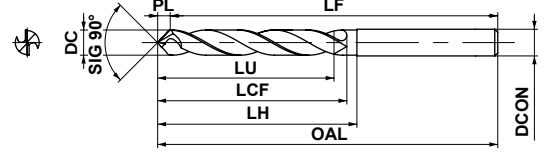
CNC Tezgah

X



CFRP

Dıştan Soğutma



3<DC≤6	6<DC≤10	10<DC≤18	18<DC≤20
0 -0.018	0 -0.022	0 -0.027	0 -0.033
DCON=6	6<DCON≤10	10<DCON≤12	
0 -0.008	0 -0.009	0 -0.011	



Delik Çapı		Matkap Ucu Çapı		Delik Derinliği	Sipariş Numarası	Kalite	Boyutlar (mm)						
* AWG	inç	DC (mm)	inç	(L/D)		DD2105	LU	LCF	LH	OAL	LF	PL	DCON
—	3/16	4.76	.1875	3	MCC0476X03S060	★	16.7	40	40	80	77.6	2.4	6
—	1/4	6.38	.251	3	MCC0638X03S080	★	22.3	50	50	90	86.8	3.2	8
—	5/16	7.96	.3125	3	MCC0796X03S080	★	27.9	50	50	90	86.0	4.0	8
—	3/8	9.55	.375	3	MCC0955X03S100	★	33.5	50	50	100	95.2	4.8	10
—	7/16	11.14	.4375	3	MCC1114X03S120	★	39.0	60	60	110	104.4	5.6	12

★AWG : American Tel Mastarı

ÖNERİLEN KESME KOŞULLARI

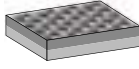
Çalışma malzemesi		X			
		CFRP			
Matkap Ucu Çapı DC (mm)	Matkap Ucu Çapı DC (inç)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min. — Maks.) (mm/dev)	İlerleme hızı (mm/dak)
4.76	.1875	100	6700	0.08 (0.05—0.12)	540
6.38	.251	100	5000	0.1 (0.05—0.12)	500
7.96	.3125	100	4000	0.1 (0.05—0.12)	400
9.55	.375	100	3400	0.1 (0.05—0.12)	340
11.14	.4375	100	2900	0.1 (0.05—0.12)	290

★ : Japonya standart stok. □ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

P M K **N** S H CFRP+Al

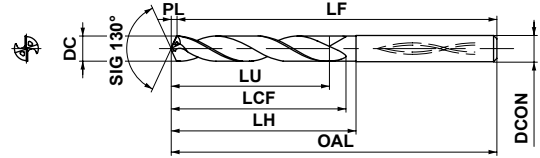


CNC Tezgah



CFRP+Al

İçten Soğutma



$6 < DC \leq 10$
0
-0.022
$6 < DCON \leq 10$
0
-0.009



Delik Çapı		Matkap Ucu Çapı		Delik Derinliği	Sipariş Numarası	Kalite	Boyutlar (mm)						
AWG	inç	DC (mm)	inç	(L/D)		DD2110	LU	LCF	LH	OAL	LF	PL	DCON
—	1/4	6.38	.251	5	MCA0638X05S070	□	33.4	51	51	91	89.5	1.5	7
—	3/8	9.55	.375	5	MCA0955X05S100	□	50.0	77	77	118	115.8	2.2	10

*AWG : American Tel Mastarı

ÖNERİLEN KESME KOŞULLARI

Çalışma malzemesi		X				N			
		CFRP				Alüminyum Alaşım (Si<5%) ASTM A6061, ASTM A7075 etc			
Matkap Ucu Çapı DC (mm)	Matkap Ucu Çapı DC (inç)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)
6.38	.251	100	5000	0.15 (0.10—0.20)	750	100	5000	0.03 (0.02—0.04)	150
9.55	.375	100	3400	0.15 (0.10—0.20)	680	100	3400	0.03 (0.02—0.04)	100

Not 1) Her bir iş parçası malzemesi için kesme koşullarını parçalara ayırmanızı öneririz.



P

M

K

N

S

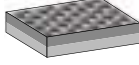
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CFRP+Ti



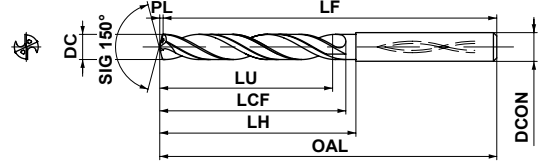
CNC Tezgah

X



CFRP+Ti

İçten Soğutma



6<DC≤10

0
-0.022

6<DCON≤10

0
-0.009

Delik Çapı		Matkap Ucu Çapı		Delik Derinliği	Sipariş Numarası	Kalite	Boyutlar (mm)						
AWG*	inç	DC (mm)	inç	(L/D)		TF15	LU	LCF	LH	OAL	LF	PL	DCON
—	1/4	6.38	.251	5	MCT0638X05S070	☐	32.8	47	47	96	95.1	0.9	7
—	3/8	9.55	.375	5	MCT0955X05S100	☐	49.1	71	71	122	120.7	1.3	10

*AWG : American Tel Mastarı

ÖNERİLEN KESME KOŞULLARI

Çalışma malzemesi		X				S				
		CFRP				Titanyum alaşım Ti-6Al-4V vs.				
Matkap Ucu Çapı DC (mm)	Matkap Ucu Çapı DC (inç)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kademeli işleme (mm)
6.38	.251	100	5000	0.15 (0.10—0.20)	750	15	750	0.02 (0.01—0.03)	15	1
9.55	.375	100	3400	0.15 (0.10—0.20)	680	15	500	0.02 (0.01—0.03)	10	1

Not 1) Bu koşullar içten hava veya sisli soğutma kullanıldığında geçerlidir.

Not 2) Her bir iş parçası malzemesi için kesme koşullarını parçalara ayırmanızı öneririz.

□ : Stokda bulundurulmaz, yalnızca siparişe istinaden üretilir.

P

M

K

N

S

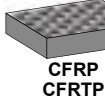
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CFRP
CFRTP

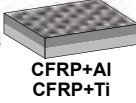
CFRP+Al
CFRP+Ti


CNC Tezgah

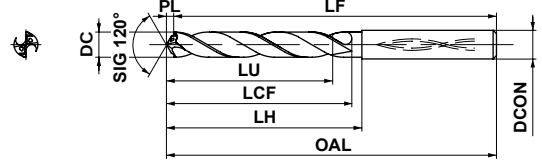
X


CFRP
CFRTP

veya


CFRP+Al
CFRP+Ti

İçten Soğutma



$6 < DC \leq 10$
0
-0.022
$6 < DCON \leq 10$
0
-0.009



Delik Çapı	Matkap Ucu Çapı		Delik Derinliği	Sipariş Numarası	Kalite		Boyutlar (mm)							
	AWG*	inç	DC (mm)	inç	(L/D)	HT10	DD2110	LU	LCF	LH	OAL	LF	PL	DCON
—	1/4	6.38	.251	5	MCW0638X05S070	☐	☐	33.7	52	52	92	90.2	1.8	7
—	3/8	9.55	.375	5	MCW0955X05S100	☐	☐	50.6	73	73	119	116.2	2.8	10

*AWG : American Tel Mastarı

ÖNERİLEN KESME KOŞULLARI

Çalışma malzemesi		X			
		CFRP			
Matkap Ucu Çapı DC (mm)	Matkap Ucu Çapı DC (inç)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)
6.38	.251	100	5000	0.15 (0.10—0.20)	750
9.55	.375	100	3400	0.15 (0.10—0.20)	680

Çalışma malzemesi		N					S				
		Alüminyum Alaşım (Si<5%) A6061, A7075 vs.					Titanyum alaşım Ti-6Al-4V vs.				
Matkap Ucu Çapı DC (mm)	Matkap Ucu Çapı DC (inç)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kademeli işleme (mm)	Kesme Hızı (m/dak)	Devir (dak ⁻¹)	İlerleme oranı (Min.—Maks.) (mm/dev)	İlerleme hızı (mm/dak)	Kademeli işleme (mm)
6.38	.251	100	5000	0.15 (0.10—0.20)	750	3	15	750	0.02 (0.01—0.03)	15	1
9.55	.375	100	3400	0.15 (0.10—0.20)	500	3	15	500	0.02 (0.01—0.03)	10	1

Not 1) Bu koşullar içten hava veya sisli soğutma kullanıldığında geçerlidir.

Not 2) Her bir iş parçası malzemesi için kesme koşullarını parçalara ayırmanızı öneririz.



P

M

K

N

S

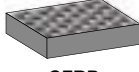
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CFRP



El aleti

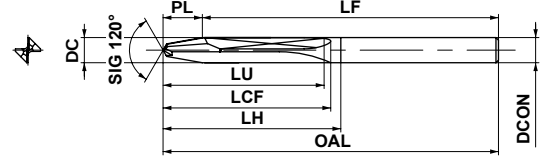
X



CFRP

M

DELME



1≤DC≤3	3<DC≤6	6<DC≤10
0 -0.014	0 -0.018	0 -0.022
DCON=3	3<DCON≤6	6<DCON≤10
0 -0.006	0 -0.008	0 -0.009



Delik Çapı		Matkap Ucu Çapı		Delik Derinliği	Sipariş Numarası	Kalite	Boyutlar (mm)						
AWG*	inç	DC (mm)	inç	(L/D)		DT2030	LU	LCF	LH	OAL	LF	PL	DCON
#40	—	2.5	.0985	15	MCCH0250X15S030	★	42.1	48	50	100	95.4	4.6	3
#30	—	3.26	.1285	10	MCCH0326X10S040	★	38.6	48	50	100	94.0	6.0	4
#20	—	4.1	.1615	8	MCCH0410X08S050	★	40.3	48	50	100	92.5	7.5	5
#11	—	4.86	.1915	5	MCCH0486X05S050	★	33.2	48	50	100	91.1	8.9	5
—	1/4	6.38	.251	3	MCCH0638X03S070	★	30.8	48	50	100	88.3	11.7	7
—	3/8	9.55	.375	2	MCCH0955X02S100	★	36.6	48	50	100	82.5	17.5	10

★AWG : Amerikan Tel Mastarı

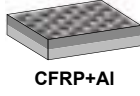
Not 1) Kesme koşulları için lütfen el aleti kılavuzunu kontrol edin.

★ : Japonya standart stok.

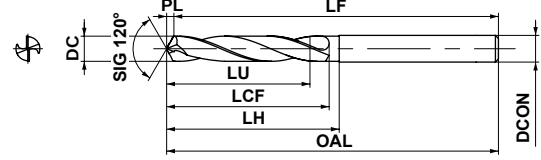
P M K **N** S H CFRP+AI



×



CFRP+AI



M

DELME



1≤DC≤3	3<DC≤6	6<DC≤10
0 -0.014	0 -0.018	0 -0.022
DCON=3	3<DCON≤6	6<DCON≤10
0 -0.006	0 -0.008	0 -0.009



Delik Çapı		Matkap Ucu Çapı		Delik Derinliği	Sipariş Numarası	Kalite	Boyutlar (mm)						
AWG *	inç	DC (mm)	inç	(L/D)		DT2030	LU	LCF	LH	OAL	LF	PL	DCON
#40	—	2.5	.0985	15	MCAH0250X15S030	★	38.2	50	50	100	99.3	0.7	3
#30	—	3.26	.1285	15	MCAH0326X15S040	★	49.8	50	50	100	99.1	0.9	4
#20	—	4.1	.1615	10	MCAH0410X10S050	★	42.2	50	50	100	98.8	1.2	5
#11	—	4.86	.1915	8	MCAH0486X08S050	★	40.3	50	50	100	98.6	1.4	5
—	1/4	6.38	.251	5	MCAH0638X05S070	★	33.7	50	50	100	98.2	1.8	7
—	3/8	9.55	.375	3	MCAH0955X03S100	★	31.5	50	50	100	97.2	2.8	10

★AWG : Amerikan Tel Mastarı

Not 1) Kesme koşulları için lütfen el aletinizin kılavuzunu kontrol edin.

[illegible]

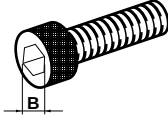
YEDEK PARÇALAR

TANIMLAMA	N002
YEDEK PARÇALAR	
BAĞLAMA VİDASI	N003
TESPİT CIVATASI	N009
AYAR VİDASI/SOMUNU	N010
ALTLIK	N011
ALTLIK PİMİ VE SIKMA LEVYESİ	N014
KİLİT PİMİ	N015
BASKI PABUCU	N015
KIRICI PARÇASI	N017
SIKIŞMA ÖNLEYİCİ YAĞLAYICI	N018



TANIMLAMA

■ BAĞLAMA VİDASININ TANIMLAMASI (Metrik kaba dişli sağ vida)



H SC 060 05

Uzunluk

Vida Çapı

Örnek	
Sembol	L
05	5
10	10
20	20
30	30

Örnek	
Sembol	d
050	M5
060	M6

● Altgen Delik Boyutları

Çap	Adım	B Boyutları			
		HBH	HFC	HSC	HS
M2	0.4	—	—	1.5	0.9
M2.5	0.45	—	—	2	1.3
M3	0.5	2	2	2.5	1.5
M4	0.7	2.5	2.5	3	2
M5	0.8	3	3	4	2.5
M6	1	4	4	5	3
M8	1.25	5	5	6	4
M10	1.5	6	6	8	5

Vida Kafası

Altgen Anahtar

Düz tornavida

Yıldız Tornavida

Sembol	Geometri
H	
S	
C	

BH

BHA

FC

SC

PM

FM

SD

SP

SR

SS

CHUUBURASHI CO.

UNBRAKO CO.

CHUUBURASHI CO.

JIS Standardı

Mantar

Kafalı

Düz Kafalı

Soket

Kafalı

Tava Kafalı

Düz Kafalı

Tespit Vidası

(Kesik Nokta)

Tespit Vidası

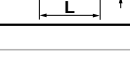
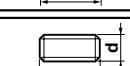
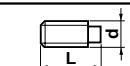
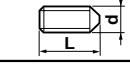
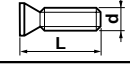
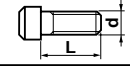
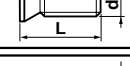
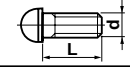
(Konik Nokta)

Tespit Vidası

(Dilli Nokta)

Tespit Vidası

(Düz Nokta)



■ ANAHTARIN TANIMLAMASI

HKY 15 R

Sembol	Anahtar
HKY	Altgen Anahtar
TKY	Torx Anahtarı
RKY	R Anahtarı
TIP	Torx plus Anahtar

Altgen Anahtar	
Sembol	B
15	1.5
20	2
25	2.5
30	3
35	3.5
40	4
50	5
60	6

Torx Anahtarı		
Sembol	B	Boyut
06	1.7	T6
08	2.3	T8
10	2.7	T10
15	3.3	T15
20	3.8	T20
25	4.4	T25
27	5.0	T27
30	5.5	T30

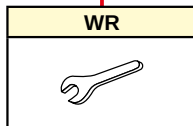
Torx plus Anahtar		
Sembol	B	Boyut
06	1.8	6IP
07	2.1	7IP
08	2.4	8IP
10	2.8	10IP
15	3.4	15IP

R	Standart L Anahtar	
L	Uzun L Anahtar	
T	T Anahtarı	
F	Bayrak Anahtar	
FS	Bayrak Anahtar	
W	Bayrak Anahtar	
D	Tornavida	
DS	Tornavida	
S	Anahtarı	

IMX 10 - WR

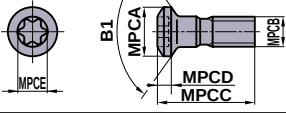
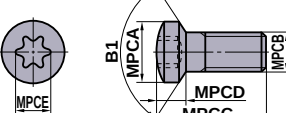
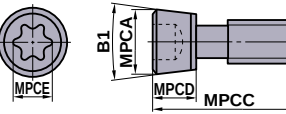
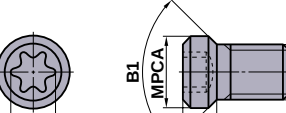
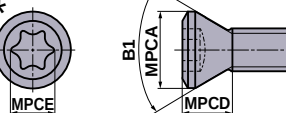
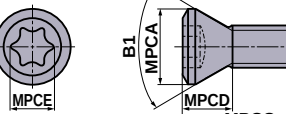
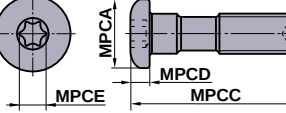
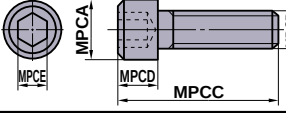
Sembol	Anahtar
IMX	iMX Seri için anahtar

Altgen Anahtar	
Sembol	B
10	8
12	10
16	13
20	16
25	20



YEDEK PARÇALAR

BAĞLAMA VİDASI

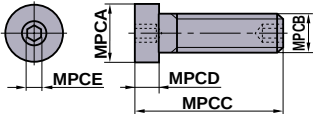
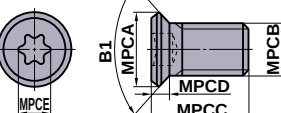
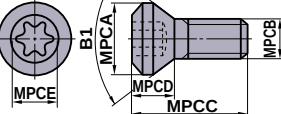
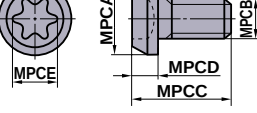
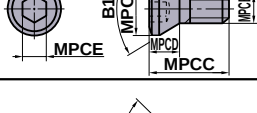
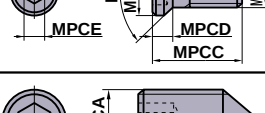
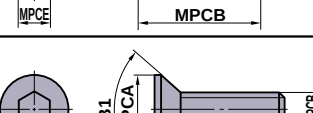
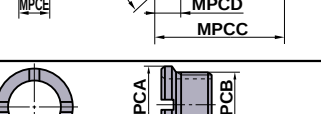
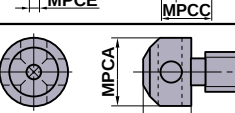
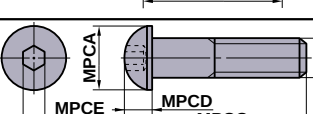
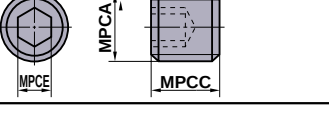
Geometri	Sipariş Numarası	Boyutlar (mm)					Açı	MPCCS (N•m)	TQ (N•m)	Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	B1			
	AJS3010T10	5	M3×0.5	10	1.5	2.8	120°	T10	2.5	Profil Tutucu (⊕C032) AJX (⊕K180) AJX (⊕K180)
	AJS4012T15	7	M4×0.7	12	2.2	3.4	120°	T15	3.5	
	AJS5014T25	8	M5×0.8	14	2.7	4.5	120°	T25	7.5	
	BRS103	5	M3×0.5	9.9	2.9	3.4	120°	T15	3.5	
	BRS105	8	M5×0.8	13.8	3.8	4.5	120°	T25	7.5	
	CAS51T	7.9	M5×0.8	19	5	4.5	10°	T25	8.5	
	CS200T	3.2	M2×0.4	5	1.6	1.8	90°	T6	0.6	F Tipi Delik İşleme Barası (⊕E027) Frezeleme Takımları Serisi (⊕K001) BRP (⊕K190) DCCC (⊕K200) MMT Tipi Delik İşleme Barası (⊕G026) BRP (⊕K190) DCCC (⊕K200) AL Tipi Tutucu (⊕C034) AHX640S (⊕K041) PMR (⊕K236)
	CS250T	3.7	M2.5×0.45	6	1.8	2.4	90°	T8	1.0	
	* CS250560T	3.9	M2.5×0.45	5.2	2.5	2.4	60°	T8	1.0	
	CS300590T	4.1	M3×0.5	5.5	2.1	2.4	90°	T8	1.0	
	CS300790TS	4.7	M3×0.5	7	2.3	2.8	90°	T10	2.0	
	CS300890T	4.1	M3×0.5	8	2.1	2.4	90°	T8	1.0	
	CS350690T	4.8	M3.5×0.6	6.5	2.4	2.8	90°	T10	2.5	
	* CS350760T	5.5	M3.5×0.6	7	4.0	3.4	60°	T15	3.5	
	CS350790T	4.8	M3.5×0.6	7	2.4	2.8	90°	T10	3.5	
	* CS350860T	5.5	M3.5×0.6	8.4	4.0	3.4	60°	T15	3.5	
	CS350990T	4.8	M3.5×0.6	9	2.4	2.8	90°	T10	2.5	
	CS400990T	6.0	M4×0.7	9	2.8	3.4	90°	T15	3.5	
	CS401160T	5.7	M4×0.7	11	4.5	3.4	60°	T15	3.5	
	CS401990T	6.0	M4×0.7	19	3.0	3.9	90°	T20	3.5	
	CS451190T	6.3	M4.5×0.75	11	2.9	3.9	90°	T20	5.0	
	* CS501160T	7.0	M5×0.8	11	3.6	3.9	60°	T20	5.0	
	CS501290T	7.0	M5×0.8	11	3.5	4.5	90°	T25	7.5	
	* CS5015060T	7.2	M5×0.8	15	2.4	3.9	60°	T20	5.0	
	CS502190T	8.5	M5×0.8	21	4.0	5.1	90°	T27	7.5	
	CS6016060T	8.5	M6×1.0	16	4.5	4.5	60°	T25	7.5	
	CSF401260T	7.2	M4×0.5	12	5.2	3.9	60°	T20	5.0	PMR (⊕K236)
	DC0520T	8.5	M5×0.8	22.5	2.5	3.4	—	T15	3.5	ÇİFT KELEPÇE Tutucu (⊕C008) ÇİFT KELEPÇELİ ANTI VİBRASYON (⊕E015) HSK Takım Tutucu (⊕H001)
	DC0621T	10.5	M6×1.0	25	4	3.9	—	T20	5.0	
	DKS4	5.6	M4×0.7	18	3.5	3	—	—	3.3	
	DKS5	7.6	M5×0.8	19	4.5	4	—	—	7.0	

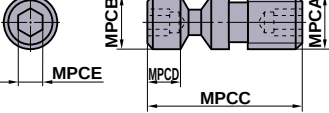
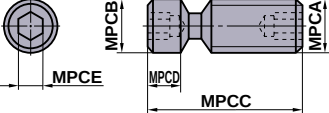
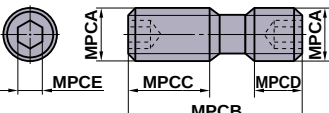
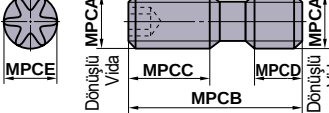
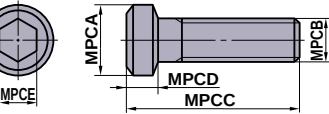
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BAĞLAMA VİDASI

Geometri	Sipariş Numarası	Boyutlar (mm)					Açı	MPCos	TQ (N.m)	Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE				
	EGS06019	9	M6×1	22.5	3.5	3	—	—	3.3	
	EGS08024	11	M8×1.25	28.5	4.5	4	—	—	7.0	
	FC400890T	5.6	M4×0.7	7.5	1.3	2.8	90°	T10	2.5	AL Tipi Tutucu (C035) AL Tipi Delik İşleme Barası (E041)
	GY05016S	8.7	M5×0.8	16	3.5	3.9	90°	T20	5.0	GY Serisi (F004)
	GY06013M	12	M6×1	18	5	5.6	—	T30	6.0	GY Serisi (F004)
	HFF06015	10	M6×1	15	6	5	80°	—	8.2	
	HS4L	5.4	M4×0.7	14	2.3	2.5	80°	—	3.8	
	HS5S	6.8	M5×0.8	9	2.8	3	80°	—	3.3	
	HS5L	6.8	M5×0.8	15	2.8	3	80°	—	6.6	
	HSP05008C	M5×0.8	8	—	—	2.5	—	—	2.5	MP Tipi Tutucu (C019)
	HY-A1	4.4	M3×0.5	7	2.1	2	82°	—	1.5	
	HY-V1	5.5	M3×0.5	7	2.5	2	82°	—	1.5	
	HY2	5.5	M3×0.5	10	2.5	2	82°	—	1.5	
	HY3	7	M3.5×0.6	12	2.9	2	82°	—	1.5	
	HY4	9.3	M5×0.8	16	3.6	3	82°	—	3.3	
	JSS6	6.9	M6×0.75	4.5	1.5	0.8	—	—	—	
	JSS7	8	M7×0.75	4.4	1.5	1	—	—	—	
	KS1	7	M4×0.7	14	5	—	—	—	—	
	KS2	10	M6×1	18	7	—	—	—	—	
	KS2S	10	M6×1	18	7	—	—	—	—	
	KS12	10	M6×1	26	4	4	—	—	7.0	
	LLR1	M5×0.8	—	3.5	—	2.5	—	—	—	
	LLR2	M6×1	—	5	—	3	—	—	—	

Geometri	Sipariş Numarası	Boyutlar (mm)					Açı B1	MPCDS	TQ (N.m)	Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE				
  LLCS103, LLCS105 LLCS112, LLCS125 LLCS205	☆ LLCS103	M3×0.5	4	11	4.6	2	—	—	1.5	) P Tipi Delik İşleme Barası (⊕E037) HSK Takım Tutucu (⊕H001)
	* LLCS105	M5×0.8	M5×0.8	10	1.5	2	—	—	1.5	
	LLCS106	M6×1	6	16.5	3.5	2.5	—	—	2.2	
	* LLCS106S	M6×1	6	13.4	0.7	2.5	—	—	2.2	
	LLCS108	M8×1.25	8	21	6.5	3	—	—	3.3	
	* LLCS108S	M8×1.25	8	16.5	2	3	—	—	3.3	
	LLCS110	M10×1.5	10	29	8	4	—	—	7.0	
	LLCS112	M12×1	11.9	36.2	9	5	—	—	8.0	
	LLCS125	M5×0.8	M5×0.8	12	2	2	—	—	1.5	
	LLCS205	M5×0.8	M5×0.8	16	4	2	—	—	1.5	
	LLCS206	M6×1	6	26	13	2.5	—	—	2.2	
	LLCS208	M8×1.25	8	24	6.5	3	—	—	3.3	
	LLCS306	M6×1	6	21	4	2.5	—	—	2.2	
	LLCS308	M8×1.25	8	42	27.5	3	—	—	3.3	
	LLCS310	M10×1	10	29	8	4	—	—	7.0	
	LLCS410	M10×1	10	30	6.6	4	—	—	7.0	
	LLCS508	M8×1	8	24	6.5	3	—	—	3.3	
	* LLCS508S	M8×1	8	20.5	3	3	—	—	3.3	
 Sol Dönüşlü Vida Sağ Dönüşlü Vida	LS1	M6×1	22	8	8	3	—	—	5.0	Frezeleme Takımları Serisi (⊕K001)
	LS2	M8×1	29	13	10	4	—	—	8.2	
	LS3	M8×1	32	13	13	4	—	—	8.2	
	* LS4	M6×1	15	8	4	3	—	—	5.0	
	* LS5	M6×1	18	8	5	3	—	—	5.0	
	* LS6	M8×1	24	13	5	4	—	—	8.2	
	* LS7	M8×1	27	13	8	4	—	—	8.2	
	* LS8	M6×0.75	18	7	7	3	—	—	5.0	
	* LS9	M6×0.75	22	8	8	3	—	—	5.0	
	* LS10	M7×0.75	16	6	6	4	—	—	8.2	
	* LS11	M8×1	16	6	6	4	—	—	7.8	
	* LS12	M8×1	24	7	7	4	—	—	7.8	
	* LS13	M8×1	34	12	12	4	—	—	7.8	
	* LS14	M7×0.75	24	10	10	4	—	—	7.8	
	* LS16	M7×0.75	23	11	8	4	—	—	7.8	
	* LS18	M7×0.75	14	6	4	4	—	—	7.8	
	* LS20	M10×1.5	26	9	9	5	—	—	9.0	
	* LS21	M10×1.5	32	12	12	5	—	—	9.0	
	LS24	M8×1.25	24	8.5	8.5	4	—	—	7.8	
	LS25	M8×1	28.5	12.0	10.5	4	—	—	8.2	
 Sol Dönüşlü Vida Sağ Dönüşlü Vida	LS10T	M7×0.75	14	6	5	4.5	—	T25	8.0	ÇİFT KELEPÇE Tutucu (⊕C009)
	LS14T	M7×0.75	24	10	10	4.5	—	T25	8.0	
	LS15T	M7×0.75	18	7	7	4.5	—	T25	8.0	
	LS19T	M6×0.75	11	4	4	3.4	—	T15	5.0	
	LS10TS	M7×0.75	13	6	4	4.5	—	T25	8.5	
	LS0622T	M6×0.75	22	8	8	3.4	—	T15	6.0	
	LS24H	M8×1.25	24	8.5	8.5	4	—	—	8.2	
 Sol Dönüşlü Vida Sağ Dönüşlü Vida	MGS6	10	M6×1	26	4	5	—	—	9.0	APX3000 (⊕K133)
	MHT1	11	M8×1	18.5	3.5	4	—	—	8.7	

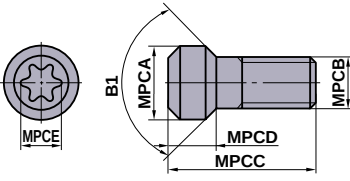
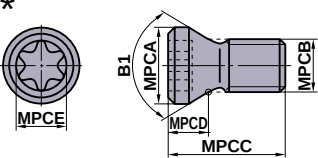
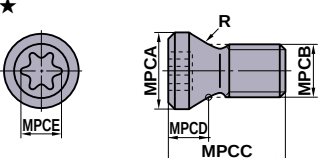
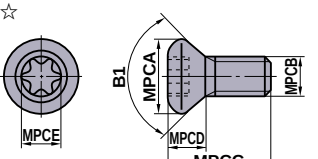
YEDEK PARÇALAR

BAĞLAMA VİDASI

Geometri	Sipariş Numarası	Boyutlar (mm)					Açı	MPCD	TQ (N.m)	Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE				
	NS251 NS401	3.6 5.8	M2.5×0.45 M4×0.7	7 6	— —	2.2 3.6	60° 60°	— —	0.7 3.5	BTVH (⌀D016) CSVH (⌀D027) CTAH-S (⌀D020)
	NS402W NS403W NS404W	5.85 5.85 5.8	M4×0.7 M4×0.7 M4×0.7	10 12 10	— — —	2.2 2.2 2.2	60° 60° 90°	— — —	0.7 0.7 0.7	CTAH (⌀D020) CTBH (⌀D022)
	NS501W NS502W	8 8	M5×0.8 M5×0.8	16 20	— —	2.5 2.5	120° 120°	— —	2.2 2.2	KÜÇÜK TAKIMLAR (⌀D001)
	RN-S6 RN-S7	9.5 11	M6×0.75 M7×0.75	20.3 24.7	4.6 5.2	3.9 4.5	61° 61°	T20 T25	5.0 7.5	
	RS3008T RS3510T RS4015T RS5020T RS6025T RS8030T	4.3 5 6 8.1 9.5 12	M3×0.35 M3.5×0.35 M4×0.5 M5×0.5 M6×0.75 M8×0.75	8.6 10 14 16.4 21.5 25	2 2.3 2.7 3.6 4.2 5	2.4 2.8 3.4 3.9 4.5 5.6	61° 61° 61° 61° 61° 61°	T8 T10 T15 T20 T25 T30	1.5 2.5 3.3 5.0 7.5 10.0	SRF (⌀K212) SUF (⌀K216)
	S1 S3 S4 S5	3.5 4.5 5.3 6.8	M2×0.4 M3×0.5 M4×0.7 M5×0.8	5.5 7.7 8 9	2.2 2.4 1.8 2.4	1.5 2 2.5 3	92° 92° 62° 62°	— — — —	0.6 1.5 2.2 3.3	
	SD32 SD40 SD50 SD63	12 12 16 16	M8×1.25 M8×1.25 M10×1.5 M10×1.5	28 36 46 61	7.2 7.2 8.2 8.2	6 6 8 8	50° 50° 50° 50°	— — — —	9.5 9.5 1.0 1.0	
	SETS51 SETS61	6.8 8	M5×0.8 M6×1	14.8 20	1.5 1.8	3.4 3.9	— —	T15 T20	3.5 5.0	MMTE Tipi Tutucu (⌀G019) MMTI Tipi Delik İşleme Barası (⌀G026) HSK Takım Tutucu (⌀H001)
	SLCS105 SLCS106	10 12	M5×0.8 M6×1	25 32	6.3 6.2	4 4	90° 90°	— —	7.0 7.0	WP Tipi Tutucu (⌀C017)
	SPS1	8.5	M5×0.8	16	4	4.5	70°	T25	5.0	
	SRS5	6.7	M5×0.8	16	3.5	3.9	—	T20	5.0	
	STS1	6.8	M3×0.5	7	2.2	2.8	90°	T10	2.5	

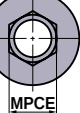
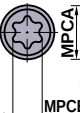
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YEDEK PARÇALAR

Geometri	Sipariş Numarası	Boyutlar (mm)					Açı	MPCD	TQ (N.m)	Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE				
	* TS16	2.5	M1.6×0.35	3.2	1.6	1.8	60°	T6	0.6	MICRO-DEX (E018)
	TS2	2.7	M2×0.4	4.6	1.4	1.8	60°	T6	0.6	
	* TS2A	2.7	M2×0.4	4.5	1.2	1.8	60°	T6	0.6	AQX (K172)
	TS2C	2.7	M2×0.4	3.8	1.4	1.8	60°	T6	0.6	
	☆ TS2D	3.8	M2×0.4	5.3	1.9	1.8	82°	T6	0.6	ÇUKUR ÇUBUĞU (E007)
	TS21	2.7	M2×0.4	3.4	1.4	1.8	60°	T6	0.6	F Tipi Delik İşleme Barası (E029)
	* TS22	3.0	M2.2×0.45	5	1.2	1.8	60°	T6	0.6	S Tipi Delik İşleme Barası (E030)
	* TS25	3.3	M2.5×0.45	5.5	1.7	2.4	60°	T8	1.0	AQX (K172) AJX (K180)
	☆ TS25D	4.4	M2.5×0.45	6.2	2.2	2.4	82°	T8	1.0	MMTİ Tipi Delik İşleme Barası (G026)
	* TS25H	3.6	M2.5×0.45	5.5	2	2.4	60°	T8	1.0	SRM2 (K220)
	TS202	2.7	M2×0.4	5.5	1.8	1.8	60°	T6	0.6	
	TS253	3.3	M2.5×0.45	4.5	1.7	2.4	60°	T8	1.0	Frezeleme Takımları Serisi (K001)
	TS254	3.3	M2.5×0.45	7	1.7	2.4	60°	T8	1.0	KÜÇÜK TAKIMLAR (D001) PMF (K234)
	* TS255	3.5	M2.5×0.45	7.5	1.6	2.4	60°	T8	1.0	Profil Tutucu (C032)
	TS3	3.9	M3×0.5	6	2	2.4	60°	T8	1.0	TSMP (K232)
	TS304	3.9	M3×0.5	10.5	2.0	2.4	60°	T8	1.5	
	TS3D	5.0	M3×0.5	6	2.3	2.8	82°	T10	2.5	ÇUKUR ÇUBUĞU (E007)
	* TS3SB	4.4	M3×0.5	8	2	2.4	80°	T8	1.5	AXD4000 (K155)
	TS3SBS	4.4	M3×0.5	6.5	2	2.4	80°	T8	1.5	AXD4000 (K155)
	☆ TS31D	4.8	M3×0.5	7.2	2.2	2.8	82°	T10	2.5	ÇUKUR ÇUBUĞU (E007)
	* TS32	3.9	M3×0.5	7.5	2	2.4	60°	T8	2.0	SRM2 (K220)
	* TS33	3.9	M3×0.5	6.7	2	2.4	60°	T8	1.5	AQX (K172) AJX (K180)
	TS35	4.8	M3.5×0.6	6.5	2.4	2.8	60°	T10	2.5	
	* TS35D	5.3	M3.5×0.6	12	2.8	3.4	60°	T15	3.5	HSK Takım Tutucu (H001)
	* TS35R	5.7	M3.5×0.6	10	2.1	3.4	—	T15	3.5	AHX440S (K034) AHX475S (K038)
	TS351	4.8	M3.5×0.6	7.2	2.4	2.8	60°	T10	2.5	AJX (K180) SRM2 (K220)
	TS352	4.8	M3.5×0.6	10	3	2.8	60°	T10	2.5	VFX5 (K192)
	TS4S	5.4	M4×0.7	7	2.4	3.4	80°	T15	3.5	
	* TS4SL	5.4	M4×0.7	8	2.4	3.4	80°	T15	4.0	
	* TS4SB	5.8	M4×0.7	9	2.7	3.4	80°	T15	3.5	AXD7000 (K166)
	* TS4SBL	5.8	M4×0.7	10.5	2.7	3.4	80°	T15	3.5	GY SERİSİ (F004) AXD7000 (K166)
	TS4	5.4	M4×0.7	8	2.6	3.4	60°	T15	3.5	CE/CF/CGSP (K230) TSMP (K232)
	TS4D	5.6	M4×0.7	7.7	2.5	3.4	82°	T15	3.5	ÇUKUR ÇUBUĞU (E007)
	TS42	5.4	M4×0.7	6	2.6	3.4	60°	T15	3.5	
	TS43	5.4	M4×0.7	10	2.6	3.4	60°	T15	3.5	AJX (K180) BRP (K190) SRM2 (K220)
	TS44	5.4	M4×0.7	12	2.6	3.4	60°	T15	3.5	
	TS406	5.4	M4×0.7	15.5	2.6	3.4	60°	T15	3.5	
	TS407	5.4	M4×0.7	9	2.6	3.4	60°	T15	3.5	AQX (K172) AJX (K180)
	TS450	5.9	M4.5×0.75	13	3.6	3.9	60°	T20	5.0	VFX6 (K196)
	TS5S	6.8	M5×0.8	9	2.9	4.5	80°	T25	7.5	
	* TS5SL	6.8	M5×0.8	12	2.9	4.5	80°	T25	7.5	
	TS5	6.8	M5×0.8	9	3.2	4.5	60°	T25	7.5	SP Tutucu (C024) CE/CF/CGSP (K230) TSMP (K232)
	TS5L	6.8	M5×0.8	15	2.9	4.5	80°	T25	7.5	
	* TS5R	6.9	M5×0.8	12	3.5	3.9	—	T20	5.0	WWX400 (K056) WJX (K072)
	TS52	6.8	M5×0.8	8	3.2	4.5	60°	T25	7.5	CE/CF/CGSP (K230)
	TS53	6.8	M5×0.8	16	3.2	4.5	60°	T25	7.5	
	TS54	6.8	M5×0.8	12	3.2	4.5	60°	T25	7.5	AJX (K180)
	TS55	6.8	M5×0.8	10.5	3.2	4.5	60°	T25	7.5	GY SERİSİ (F004) AQX (K172) SPX (K203) SRM2 (K220)
	* TS6S	8.5	M6×1.0	13	4.4	5.6	60°	T30	10.0	AQX (K172) SRM2 (K220)
	* TS6	8.5	M6×1.0	16	4.4	5.6	60°	T30	10.0	SRM2 (K220)

YEDEK PARÇALAR

BAĞLAMA VİDASI

Geometri	Sipariş Numarası	Boyutlar (mm)					Açı	MPD	TQ (N.m)	Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	B1	MPD	TQ (N.m)	
 	TPS20	2.7	M2×0.4	3.5	1.3	1.8	60°	6IP	0.5	MOVX (OK160)
	TPS20-1	2.65	M2×0.4	4.7	2.4	1.8	60°	6IP	0.6	
	TPS22	3.0	M2.2×0.45	4.7	1.6	2.1	60°	7IP	0.5	
	TPS22S	3.0	M2.2×0.45	4.2	1.6	2.1	60°	7IP	0.5	
	TPS25	3.3	M2.5×0.45	5.5	1.7	2.1	60°	7IP	1.0	
	TPS25-1	3.3	M2.5×0.45	6.5	1.7	2.1	60°	7IP	1.0	
	TPS27F1	3.7	M2.7×0.35	6.5	1.8	2.1	60°	7IP	1.0	
	TPS27F2	3.7	M2.7×0.35	8.0	1.8	2.1	60°	7IP	1.0	
	TPS3	3.9	M3×0.5	6.7	1.4	2.82	60°	10IP	1.0	
	* TPS3R	4.6	M3×0.5	8.5	1.4	2.82	—	10IP	2.0	
	TPS3SB	4.4	M3×0.5	8	2.0	2.82	80°	10IP	3.0	
	TPS35	5.3	M3.5×0.6	11.5	2.8	3.4	60°	15IP	3.5	
	TPS351	4.8	M3.5×0.6	7.2	1.4	2.82	60°	10IP	2.5	
	TPS351B	5.1	M3.5×0.6	7.2	1.4	2.82	60°	10IP	2.5	
	TPS4	5.3	M4×0.7	8	2.6	3.4	60°	15IP	3.5	
	TPS40F1	5.3	M4×0.5	10.5	2.8	3.4	60°	15IP	3.0	
	TPS43	5.3	M4×0.7	10	2.6	3.4	60°	15IP	4.0	
	* TPS4R	6.4	M4×0.7	10.6	2.9	3.4	—	15IP	3.5	
	TSR05008S	3.5	M5×0.8	8	—	2.8	—	T10	—	
	TSR06011S	4	M6×1.0	11	—	3.9	—	T20	—	
	TSS04005	—	M4×0.7	5	—	2.4	—	T8	—	PMF (OK234)
	TSS04505S	—	M4.5×0.7	5	—	3.5	—	T10	3.5	FMAX (OK051)
	TSS05006	—	M5×0.8	6	—	2.8	—	T10	—	
	TSS06010	—	M6×1	10	—	3.9	—	T20	—	
	WCS503507H	6.3	M5×0.5	7	3.3	3.5	—	—	5.0	ASX445 (OK026) ASX400 (OK068) PMR (OK236)
	WCS604010H	7.8	M6×0.75	10	4.1	4.0	—	—	7.0	PMR (OK236)
	WS203107TPS	3.1	M2×0.25	7.3	1.7	1.8	60°	6IP	1.0	STAW (OK141)
	WS203108TPS	3.1	M2×0.25	8.3	1.9	1.8	60°	6IP	1.0	
	WS253909TPS	3.9	M2.5×0.35	9.5	2.4	2.4	60°	8IP	2.0	
	WS304912TPS	4.9	M3×0.35	12	3.25	2.82	60°	10IP	2.5	
	WS254012T	4	M2.5×0.45	11.5	2.2	2.4	80°	T8	2.0	TAW (OK150)
	WS254013T	4	M2.5×0.45	12.5	2.2	2.4	80°	T8	2.0	
	WS254014T	4	M2.5×0.45	13.5	2.2	2.4	80°	T8	2.0	
	WS254015T	4	M2.5×0.45	14.5	2.2	2.4	80°	T8	2.0	
	WS254016T	4	M2.5×0.45	15.5	2.2	2.4	80°	T8	2.0	
	WS304517T	4.5	M3×0.5	16.5	3.4	2.8	60°	T10	3.5	
	WS304518T	4.5	M3×0.5	17.5	3.4	2.8	60°	T10	3.5	
	WS355520T	5.5	M3.5×0.6	19.5	3.9	3.4	60°	T15	5.5	
	WS355521T	5.5	M3.5×0.6	20.5	3.9	3.4	60°	T15	5.5	
	WS406023T	6	M4×0.7	22.0	4.4	4.5	60°	T25	8.5	
	WS406024T	6	M4×0.7	23.0	4.4	4.5	60°	T25	8.5	
	WS508026T	8	M5×0.8	25.0	5.2	5.1	60°	T27	12.0	
	WS508027T	8	M5×0.8	26.0	5.2	5.1	60°	T27	12.0	

TESPİT CIVATASI

Geometri	Sipariş Numarası	Boyutlar (mm)					Açı	MPCD	TQ (N.m)	Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE				
	BOES101	15	M10×1.5	45	10	8	60°	—	10.0	
	* HSC08025H	13	M8×1.25	33	8	5	—	—	24	VPX200/300 (K086,K100) ARP (K238)
	HSC05030	8.5	M5×0.8	35	5	4	—	—	10	APX3000/4000 (K133,K140)
	* HSC08030H	13	M8×1.25	38	8	5	—	—	24	WSX445 (K016)
	HSC08045	13	M8×1.25	53	8	5	—	—	24	VPX200/300 (K086,K100)
	HSC08040	13	M8×1.25	48	8	5	—	—	24	WSX445 (K016)
	HSC08050	13	M8×1.25	58	8	5	—	—	24	VPX200/300 (K086,K100)
	* HSC10030H	16	M10×1.5	40	10	6	—	—	40	APX3000/4000 (K133,K140) AJX (K180) WSX445 (K016)
	HSC10035	16	M10×1.5	45	10	6	—	—	44	VFX5 (K192) VFX6 (K196)
	HSC10050	16	M10×1.5	60	10	8	—	—	44	APX3000/4000 (K133,K140) VPX200/300 (K086,K100)
	HSC10055	16	M10×1.5	65	10	8	—	—	44	VFX5 (K192)
	HSC10060	16	M10×1.5	70	10	8	—	—	44	VPX200/300 (K086,K100)
	HSC10070	16	M10×1.5	80	10	8	—	—	44	VPX200/300 (K086,K100) ASPX (K028)
	HSC12035	18	M12×1.75	47	12	10	—	—	80	WSX445 (K016)
	* HSC12035H	18	M12×1.75	47	12	10	—	—	80	APX3000/4000 (K133,K140) AJX (K180)
	HSC12040	18	M12×1.75	52	12	10	—	—	80	
	HSC12045	18	M12×1.75	57	12	10	—	—	80	WSX445 (K016)
	HSC12060	18	M12×1.75	72	12	10	—	—	80	VPX200/300 (K086,K100)
	HSC12070	18	M12×1.75	82	12	10	—	—	80	APX3000/4000 (K133,K140) AJX (K180) WSX445 (K016)
	HSC16040	24	M16×2	56	16	14	—	—	150	WSX445 (K016)
	* HSC16040H	24	M16×2	56	16	14	—	—	150	APX3000/4000 (K133,K140) AJX (K180)
	HSC16055	24	M16×2	71	16	14	—	—	150	VPX200/300 (K086,K100)
	HSC16065	24	M16×2	81	16	14	—	—	150	VPX200/300 (K086,K100)
	HSC16080	24	M16×2	96	16	14	—	—	150	
	HSC20040	30	M20×2.5	60	20	17	—	—	320	
	HSC20090	30	M20×2.5	110	20	17	—	—	320	
	HSCX12030H	24	M12×1.75	37	7	8	—	—	40	FMAX (K051)
	HSCX16035H	30	M16×2	44	9	12	—	—	100	
	HSCX20035H	36	M20×2.5	46	11	14	—	—	180	
	HFF08033H	11	M8×1.25	33	5	5	90°	—	8.2	WJX09 (K072)
	HFF08043H	11	M8×1.25	43	5	5	90°	—	8.2	AXD4000 (K155)
	MBA16033H	40	M16×2	43	10	14	—	—	150	AHX640 (φ100 için) (K041) WSX445 (K016)
	MBA20040H	50	M20×2.5	54	14	17	—	—	320	APX4000 (K140) AHX475S (K038) AHX640S (K041) AXD4000 (K155) AXD7000 (K166) AJX (K180)

* Soğutma delikli.

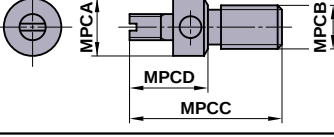
Geometri	Sipariş Numarası	Boyutlar (mm)						TQ (N.m)	Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF		
	HDS08030	M8×0.75	M8×1.25	30	13.5	11.5	4	8.2	BRP (K190)
	HDS10031	M10×1.0	M10×1.5	31	14	12	5	9.0	PMF (K234)

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YEDEK PARÇALAR

YEDEK PARÇALAR

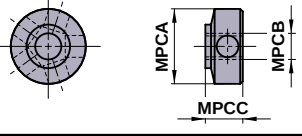
BÜYÜK AYAR VİDASI

Geometri	Sipariş Numarası	Boyutlar (mm)					Açı	MPCCS	TQ (N•m)	Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	B1			
	KSS2	6.6	M5×0.8	17.5	9	—	—	—	—	FMAX (K051)

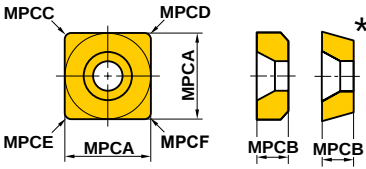
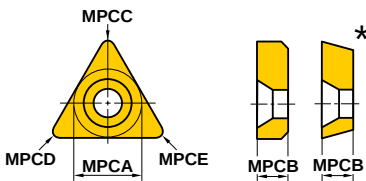
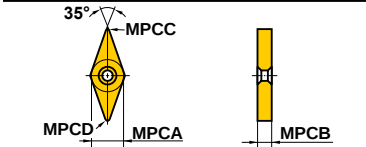
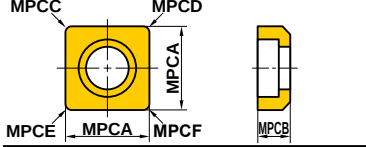
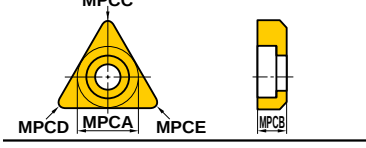
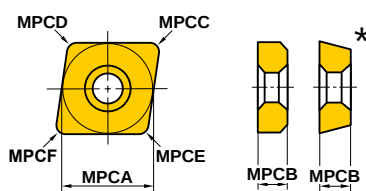
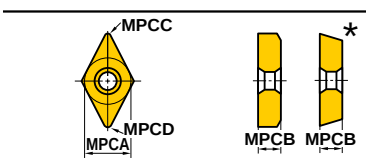
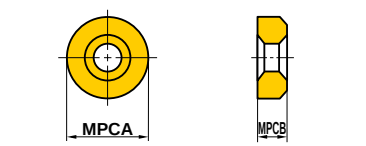
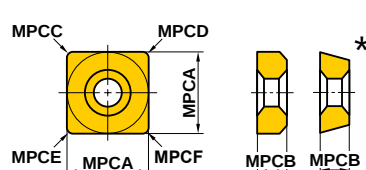
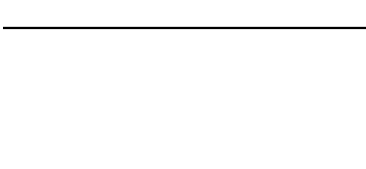
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YEDEK PARÇALAR

MİKRO AYAR SOMUNU

Geometri	Sipariş Numarası	Boyutlar (mm)					Açı	MPCCS	TQ (N•m)	Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	B1			
	KSN3	8.6	M3×0.35	4.3	—	—	—	—	—	FMAX (K051)

ALTLIK

Geometri	Sipariş Numarası	Boyutlar (mm)						Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	CS32	9.52	3.18	0.8	0.8	1.2	1.2	
	CS42	12.70	3.18	0.8	0.8	1.2	1.6	
	CS43	12.70	4.76	0.8	0.8	1.2	1.6	
	* PS31	8.28	2.38	0.2	0.2	0.6	0.6	
	* PS42	11.46	3.18	0.2	0.2	0.6	1.0	
	CT22	6.35	3.18	0.4	0.8	1.2	—	
	CT32	9.52	3.18	0.4	0.8	1.2	—	
	* PT21	5.11	2.38	0.2	0.2	0.6	—	
	* PT32	8.28	3.18	0.2	0.2	0.6	—	
	* PT42	10.85	3.18	0.3	0.3	0.7	—	
	BPT322	7.8	3.18	—	—	—	—	
	DCSVN32	9.52	3.18	0.8	1.2	—	—	ÇİFT KELEPÇE Tutucu (☯C019) ÇİFT KELEPÇELİ ANTI VİBRASYON (☯E017)
	ESS42	12.70	3.18	0.8	0.8	1.2	1.6	
	EST32	9.52	3.18	0.4	0.8	1.2	—	
	EST43	12.70	4.76	0.4	0.8	1.2	—	
	LLSCN3T3	9.52	3.97	0.4	0.4	0.8	0.8	LL Tipi Tutucu (☯C008)
	LLSCN33	9.52	4.76	0.4	0.4	0.8	0.8	LL Tipi Tutucu (☯C008)
	LLSCN42	12.70	3.18	0.8	0.8	1.2	1.2	ÇİFT KELEPÇELİ ANTI VİBRASYON (☯E015)
	LLSCN53	15.87	4.76	1.2	1.2	1.6	1.6	P Tipi Delik İşleme Barası (☯E038)
	LLSCN63	19.05	4.76	1.2	1.2	1.6	1.6	HSK Takım Tutucu (☯H001)
	* LLSCP42	12.70	3.18	0.8	0.8	1.2	1.2	ÇİFT KELEPÇELİ ANTI VİBRASYON (☯E015)
	* LLSDP63	19.05	4.76	1.2	1.2	1.6	1.6	P Tipi Delik İşleme Barası (☯E038)
								HSK Takım Tutucu (☯H001)
	LLSDN32	9.52	3.18	0.8	1.2	—	—	ÇİFT KELEPÇE Tutucu (☯C010)
	LLSDN42	12.70	3.18	0.8	1.2	—	—	LL Tipi Tutucu (☯C010)
	LLSDN43	12.70	4.76	0.8	1.2	—	—	ÇİFT KELEPÇELİ ANTI VİBRASYON (☯E015)
	LLSDN53	15.87	4.76	1.2	1.6	—	—	P Tipi Delik İşleme Barası (☯E038)
	* LLSDP42	12.70	3.18	0.8	1.2	—	—	HSK Takım Tutucu (☯H001)
								ÇİFT KELEPÇELİ ANTI VİBRASYON (☯E015)
	LLSRN103	8.3	3.18	—	—	—	—	LL Tipi Tutucu (☯C026)
	LLSRN123	9.8	3.18	—	—	—	—	HSK Takım Tutucu (☯H001)
	LLSRN164	13.6	4.76	—	—	—	—	
	LLSRN204	17.3	4.76	—	—	—	—	
	LLSRN256	22.0	6.35	—	—	—	—	
	LLSRN326	28.0	6.35	—	—	—	—	
	LLSSN32	9.52	3.18	0.8	0.8	1.2	1.2	
	LLSSN33	9.52	4.76	0.8	0.8	1.2	1.2	ÇİFT KELEPÇELİ ANTI VİBRASYON (☯E016)
	LLSSN42	12.70	3.18	0.8	0.8	1.2	1.6	P Tipi Delik İşleme Barası (☯E037)
	LLSSN53	15.87	4.76	1.2	1.2	1.6	1.6	
	LLSSN63	19.05	4.76	1.2	1.2	1.6	2.0	
	LLSSN84	25.40	6.35	1.6	1.6	2.4	2.4	
	* LLSSP42	12.70	3.18	0.8	0.8	1.2	1.6	ÇİFT KELEPÇELİ ANTI VİBRASYON (☯E016)

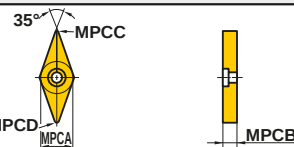
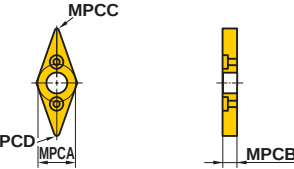
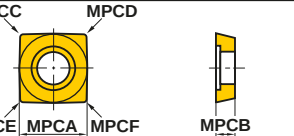
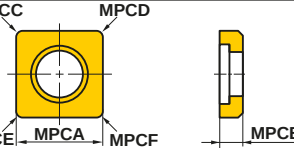
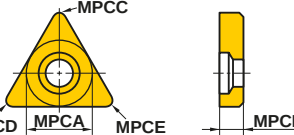
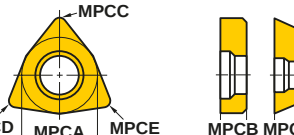
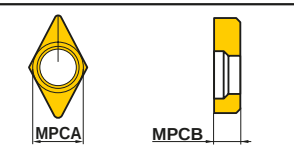
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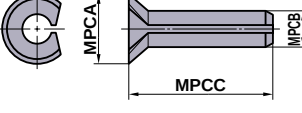
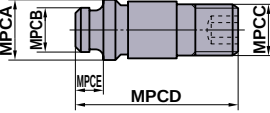
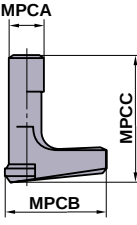
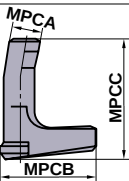
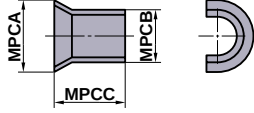
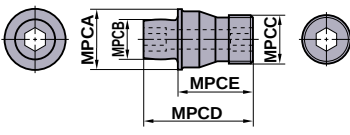
ALTLIK

Geometri	Sipariş Numarası	Boyutlar (mm)						Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	LLSTE32	7.6	3.18	0.4	0.4	0.4	—	LL Tipi Tutucu (☺C016) ÇİFT KELEPÇELİ ANTI VİBRASYON (☺E016) P Tipi Delik İşleme Barası (☺E037)
	LLSTN32	9.52	3.18	0.4	0.8	1.2	—	
	LLSTN33	9.52	4.76	0.4	0.8	1.2	—	
	LLSTN42	12.70	3.18	0.4	0.8	1.2	—	
	LLSTN53	15.87	4.76	0.8	1.2	1.6	—	
	* LLSTP32	9.52	3.18	0.4	0.8	1.2	—	
	* LLSTP42	12.70	3.18	0.4	0.8	1.2	—	
	LLSWN32	9.52	3.18	0.4	0.8	1.2	—	LL Tipi Tutucu (☺C022) ÇİFT KELEPÇE Tutucu (☺C022) ÇİFT KELEPÇELİ ANTI VİBRASYON (☺E017)
	LLSWN3T3	9.52	3.97	0.4	0.8	1.2	—	
	LLSWN42	12.70	3.18	0.4	0.8	1.2	—	
	* LLSWP32	9.52	3.18	0.4	0.8	1.2	—	
	* LLSWP42	12.70	3.18	0.4	0.8	1.2	—	
	MHS532R/L	9.4	15.7	4.5	0.8	0.8	—	
	MHS533R/L	9.4	15.7	4.5	1.2	1.2	—	
	MHS534R/L	9.4	15.7	4.5	1.6	1.6	—	
	MHS543R/L	9.4	15.7	6.5	1.2	1.2	—	
	MLCP42	12.58	3.18	1.2	1.2	1.2	1.2	P Tipi Delik İşleme Barası (☺E038)
	MLDP42	12.56	3.18	1.2	1.2	—	—	P Tipi Delik İşleme Barası (☺E038)
	MLSP42	12.63	3.18	1.2	1.2	1.2	1.2	P Tipi Delik İşleme Barası (☺E037)
	MLTP32	9.50	3.18	1.2	1.2	1.2	—	P Tipi Delik İşleme Barası (☺E037)
	MSCN63	18.8	4.76	1.6	1.6	1.6	1.6	ÇİFT KELEPÇE Tutucu (☺C009) (Ağır Kesme için)
	MSSN63	18.8	4.76	1.6	1.6	1.6	1.6	ÇİFT KELEPÇE Tutucu (☺C012) (Ağır Kesme için)
	CT32T1	9.525	15.03	3.18	—	—	—	
	* PT32T1R	8.28	13.34	3.18	—	—	—	
	* PT32T2R	8.28	13.19	3.18	—	—	—	

Geometri	Sipariş Numarası	Boyutlar (mm)						Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	PV321	9.52	3.18	0.4	0.4	—	—	MP Tipi Tutucu (☺C019)
	PV322	9.52	3.18	0.8	0.8	—	—	
	PV323	9.52	3.18	1.2	1.2	—	—	
	SPSVN32	8.06	3.18	0.3	0.3	—	—	SP Tipi Tutucu (☺C030) HSK Takım Tutucu (☺H001)
	STASX400N	11.00	3.00	0.4	0.4	0.4	0.4	ASX400 (☺K068)
	STASX445N	10.76	3.00	—	—	—	—	ASX445 (☺K026)
	STBS500N	12.7	3.18	0.8	0.8	0.8	0.8	
	WPSTN33	9.3	4.76	0.8	0.4	1.2	—	WP Tipi Tutucu (☺C017)
	WPSTN43	12.50	4.76	0.8	0.4	1.2	—	
	* WPSWC43	12.50	4.76	0.4	0.8	1.2	—	WP Tipi Tutucu (☺C023)
	WPSWN43	12.50	4.76	0.4	0.8	1.2	—	
	SPSTDN32	8.687	3.175	—	—	—	—	

YEDEK PARÇALAR

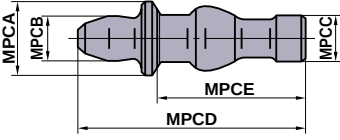
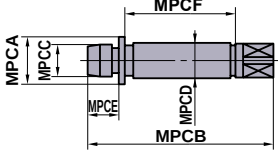
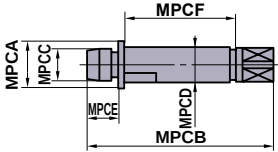
ALTLIK PİMİ VE BAĞLAMA LEVYESİ

Geometri	Sipariş Numarası	Boyutlar (mm)					Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	
	BCP141	3.0	1.4	5.6	—	—	SP Tipi Tutucu (☯C030) F Tipi Delik İşleme Barası (☯E028) HSK Takım Tutucu (☯H013)
	BCP201	4.3	2	7.4	—	—	
	BCP202	4.3	2	6.4	—	—	
	BCP251	4.8	2.5	7.4	—	—	
	BCP252	4.8	2.5	6.4	—	—	
	BCP301	5.3	3	7.4	—	—	
	CCP33	6.5	3.66	M5×0.8	18.5	3	WP Tutucu (☯C017)
	CCP34	7.5	5.0	M6×1.0	18.5	3	
	CCP44	7.5	5.0	M5×0.8	14.2	3	
	LLCL12S	2.1	9.3	5.6	—	—	LL Tipi Tutucu (☯C016) P Tipi Delik İşleme Barası (☯E037) HSK Takım Tutucu (☯H001)
	LLCL13	3.6	10	12.5	—	—	
	LLCL13S	3.6	10	7.8	—	—	
	LLCL14	4.7	13.4	13.2	—	—	
	LLCL14S	4.7	13.6	12.2	—	—	
	LLCL15	6.0	19	17	—	—	
	LLCL16	7.5	20.8	21	—	—	
	LLCL18	8.6	25.4	25.2	—	—	
	LLCL23	3.6	12.0	11.5	—	—	
	LLCL23S	3.6	11.6	9.5	—	—	
	LLCL24	4.7	16.2	14.8	—	—	
	LLCL25	6.0	17.1	17	—	—	
	LLCL110	3.0	10.7	11.6	—	—	
	LLCL112	3.5	13	13.5	—	—	
	LLCL116	4.5	18.5	18	—	—	
	LLCL120	5.6	20.3	19	—	—	
	LLCL125	6	24	24	—	—	
	LLCL132	8	30	27	—	—	
	LLP13	5.55	4.85	5.3	—	—	LL Tipi Tutucu (☯C008) ÇİFT KELEPÇE Tutucu (☯C008) ÇİFT KELEPÇELİ ANTI VİBRASYON (☯E015) P Tipi Delik İşleme Barası (☯E037) HSK Takım Tutucu (☯H001)
	LLP14	7.25	6.55	5.8	—	—	
	LLP15	8.8	8.05	8.6	—	—	
	LLP16	10.85	9.85	11.1	—	—	
	LLP18	15.35	13.05	12.0	—	—	
	LLP23	5.55	4.85	6.8	—	—	
	LLP24	7.25	6.55	9.1	—	—	
	MP6	11.9	7.8	M10×1	22.1	15	ÇİFT KELEPÇE Tutucu (☯C009) (Ağır Kesme için)

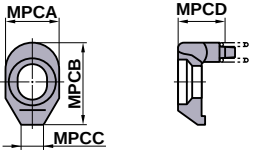
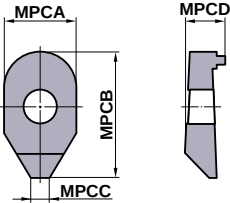
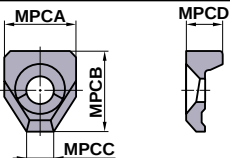
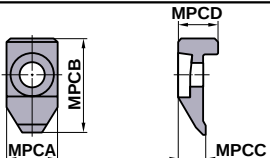
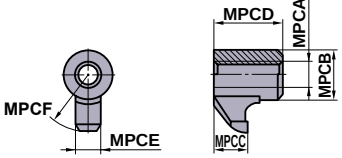
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YEDEK PARÇALAR

KİLİTLE PİMİ

Geometri	Sipariş Numarası	Boyutlar (mm)						Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	P11S	6	3.7	4	17	11.1	—	MP Tipi Tutucu (C019)
	P21S	7.5	4.9	4.5	17.2	11.5	—	
	P221US	4	18	2.11	3.5	3.3	7.7	
	P333WS	5.75	24	3.64	5.0	4.9	11.3	
	P434W	7.75	30	5.03	7.0	4.9	16.8	

BASKI PABUCU

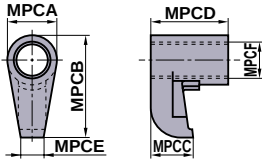
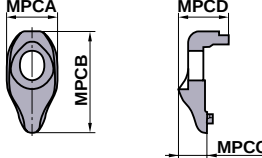
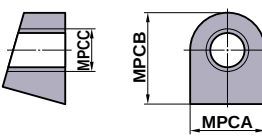
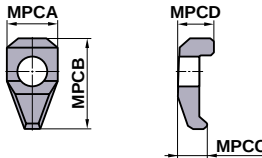
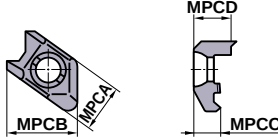
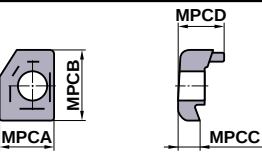
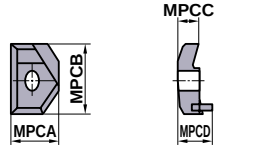
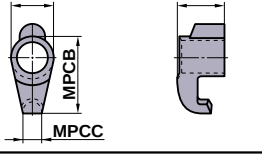
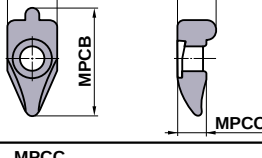
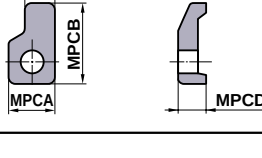
Geometri	Sipariş Numarası	Boyutlar (mm)						Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	AMS3	7	12	3	3.3	—	—	Profil Tutucu (C032) AJX (K180)
	AMS4	9	13.5	3	3.8	—	—	
	AMS5	10	15	3.5	5	—	—	
	CA142	8	15	4	7	—	—	
	CA150	9	16	4.5	7	—	—	
	CA151	10	17	5	7	—	—	
	CA152	10	19	5	7	—	—	
	CA153	10	24	5	7	—	—	
	CA161	13	20	6	8	—	—	
	CA162	13	24	6	8	—	—	
	CA163	13	27	6	8	—	—	
	CA181	16	30	8	10	—	—	
	CA183	16	37	8	10	—	—	
	CCK13	15	18.5	6	9	—	—	WP Tipi Tutucu (C017)
	CCK14	19	22	8	9.5	—	—	
	CCTC1	13	25	7	10.2	—	—	
	CK231	M6×1	8	4	7.5	4.5	9.5	
	CK232	M6×1	8	4.5	8	4.5	11.5	
	CK341	M8×1	11	5.5	13.5	6	13.5	
	CK342	M8×1	11	6	14	6	16.5	

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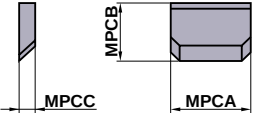
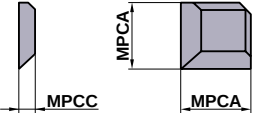
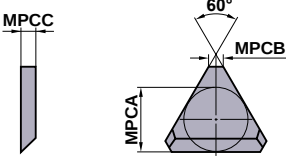
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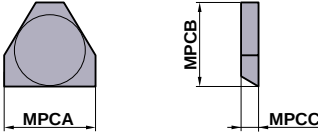
YEDEK PARÇALAR

BASKI PABUCU

Geometri	Sipariş Numarası	Boyutlar (mm)						Takım Tutucu
		MPCA	MPCB	MPCC	MPCD	MPCE	MPCF	
	CKW6	10.9	22.5	9.2	16.8	5	M8×1	ÇİFT KELEPÇE Tutucu (☉C009) (Ağır Kesme için)
	DCK2211	11	22	6.57	11.1	—	—	ÇİFT KELEPÇE Tutucu (☉C008)
	DCK2613	13	26.5	7.35	12.9	—	—	ÇİFT KELEPÇELİ ANTI VİBRASYON (☉E015)
	DCK3113	13	31	9	14.5	—	—	HSK Takım Tutucu (☉H001)
	KGC1	12.0	15.0	M7×0.75	—	—	—	
	LK1	8	14.3	4.5	5.9	—	—	
	MHK5NR/L	15.5	23.5	8.1	12.1	—	—	
	MTK1R/L	13	17.5	5	12	—	—	MG Tipi Tutucu (☉F124) MT Tipi Tutucu (☉G024) HSK Takım Tutucu (☉H001)
	MTK2R/L	18	28	7	14	—	—	
	SETK51	6.8	14.5	2.9	8	—	—	MMTE Tipi Tutucu (☉G019)
	SETK61	8.9	18.1	4.1	8.6	—	—	MMTI Tipi Tutucu (☉G026) HSK Takım Tutucu (☉H001)
	SRK1R	9.4	21	5.5	7.5	—	—	
	UCR	12	24	8	7	—	—	

KIRICI PARÇA

Geometri	Sipariş Numarası	Boyutlar (mm)					Takım Tutucu
		MPCA	MPCB	MPCC	IC	LBB	
	CBS3	9.4	8.0	1.5	9.525	1.5	
	CBS4	12.6	9.2	2.5	12.70	3.5	
	CBS4N	12.6	10.2	2.5	12.70	2.5	
	CBS4F	12.6	11.2	2.5	12.70	1.5	
	CBS6	18.9	14.6	2.5	19.05	4.5	
	CBS6F	18.9	17.6	2.5	19.05	1.5	
	CBS3D	8.0	—	1.5	9.525	1.5	
	CBS4D	10.2	—	2.5	12.70	2.5	
	CBT2N	5.67	1.4	1.5	6.35	1.0	F Tipi Delik İşleme Barası (⊕E028) ★ Pozitif kesici uçlar için, kırıcı genişliği listedeki rakamlardan 0.5mm daha büyüktür.
	CBT3	7.20	1.4	2.5	9.525	3.5	
	CBT3N	7.87	1.4	2.5	9.525	2.5	
	CBT3F	8.53	1.4	2.5	9.525	1.5	
	CBT4N	11.07	1.4	2.5	12.70	2.5	
	CBT4F	11.73	1.4	2.5	12.70	1.5	

Geometri	Sipariş Numarası	Boyutlar (mm)			MPCD (mm)	Takım Tutucu
		MPCA	MPCB	MPCC		
	CBT3106	11.5	10.6	2.0	2.5—3.0	
	CBT3113	11.5	11.3	2.0	1.5—2.0	
	CBT3120	11.5	12	2.0	0.75—1.25	

N

YEDEK PARÇALAR

SIKIŞMA ÖNLEYİCİ YAĞLAYICI

SIKIŞMA ÖNLEYİCİ YAĞ

Şekil	Sipariş Numarası	Stok	Hacim (g)
	MK1K	★	20
	MK1KS	★	3

N

YEDEK PARÇALAR

★ : Japonya standart stok.

[illegible]

TEKNİK BİLGİ

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DELMEDE SORUN GİDERME	P006
MATKAP UCU AŞINMASI VE KESME KENARI HASARI	P007
DELME UCU ÖZELLİKLERİ VE TANIMLANMASI	P008
DELME FORMÜLLERİ	P011
METALİK MALZEMELER ÇAPRAZ KARŞILAŞTIRMA LİSTESİ	P012
YÜZEY PÜRÜZLÜLÜĞÜ	P016
SERTLİK KARŞILAŞTIRMA TABLOSU	P017
TOLERANS UYUMLULUK TABLOSU (DELİK).....	P018
TOLERANS UYUMLULUK TABLOSU (MİL)	P020
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ALTİGEN SOKET KAFALI CIVATALAR İÇİN DELİK ÖLÇÜLERİ	P023
ULUSLARARASI BİRİMLER SİSTEMİ	P024



ISO13399 UYUMLULUĞU

ISO13399'a Uygun Özellik Sembolleri Listesi

Alfabetik

Kaynak: ISO13399 standardı

URL : <https://www.iso.org/search/x/query/13399>

TEKNİK BİLGİ

P

ISO13399 Özellik Sembolleri	İçerik
ADJLX	Maksimum ayar limiti
ADJRG	Ayar aralığı
ALF	Radyal boşluk açısı
ALP	Aksiyal boşluk açısı
AN	Ana boşluk açısı
ANN	Küçük boşluk açısı
APMX	Maksimum kesme derinliği
AS	Silici kenar boşluk açısı
ASP	Ayar vidası çıkıntısı
AZ	Maksimum dalma derinliği
B	Şaft genişliği
BBD	Tasarın balansı
BCH	Köşe pah uzunluğu
BD	Gövde çapı
BDX	Maks. gövde çapı
BHCC	Cıvata deliği döngü sayısı
BHTA	Gövde yarı konik açısı
BMC	Gövde malzeme kodu
BS	Silici kenar uzunluğu
BSR	Silici kenar yarıçapı
CASC	Kartuş ölçü kodu
CB	Talaş kırıcı yüzey sayısı
CBDP	Bağlantı deliği derinliği
CBMD	Talaş kırıcı üreticiler simgesi
CBP	Talaş kırıcı özelliği
CCMS	Makine kenar bağlantı kodu
CCWS	İş parçası kenar bağlantı kodu
CCP	Köşe pah özelliği
CDI	Kesici uç kesme çapı
CDX	Maksimum kesme derinliği
CEATC	Takım kesme kenarı açısı tip kodu
CECC	Kesme kenarı durum kodu
CEDC	Kesme kenarı sayısı
CF	Spot pah
CHW	Köşe pah genişliği
CICT	Kesme kalemi sayısı
CNC	Köşe sayısı
CND	Soğutma suyu giriş çapı
CNSC	Soğutma suyu giriş stili kodu
CNT	Soğutma suyu girişi vida ölçüsü
CP	Soğutma suyu basıncı
CRE	Spot yarıçapı
CRKS	Bağlama vidası dış ölçüsü
CSP	Soğutma suyu besleme özelliği
CTP	Kaplama özelliği
CTX	Kesme noktası dönüşü X yönü
CTY	Kesme noktası dönüşü Y yönü
CUTDIA	İş parçası maksimum dilimleme çapı
CUB	Temel bağlantı ünitesi
CW	Kesme genişliği
CWX	Maksimum kesme genişliği
CXD	Soğutma suyu çıkış çapı

ISO13399 Özellik Sembolleri	İçerik
CXSC	Soğutma suyu çıkış stil kodu
CZC	Bağlantı ölçü kodu
D1	Sabitleme deliği çapı
DAH	Giriş deliği çapı
DAXN	Eksenel kanal minimum dış çapı
DAXX	Eksiyel kanal maksimum dış çapı
DBC	Cıvata dairesel çapı
DC	Kesme çapı
DCB	Bağlantı deliği çapı
DCBN	Bağlantı deliği minimum çapı
DCBX	Bağlantı deliği maksimum çapı
DCC	Tasarım konfigürasyon stil kodu
DCCB	Bağlantı deliği havşa çapı
DCIN	Kesme çapı iç
DCINN	Kesme çapı iç minimumu
DCINX	Kesme çapı iç maksimumu
DCN	Minimum kesme çapı
DCON	Bağlantı çapı
DCONMS	Bağlantı çapı makine kenarı
DCONWS	Bağlantı çapı iş parçası kenarı
DCSC	Kesme çapı ölçü kodu
DCSFMS	Bağlantı temas yüzeyi çapı
DCX	Maksimum kesme çapı
DF	Flanş çapı
DHUB	Göbek çapı
DMIN	Minimum delik çapı
DMM	Şaft çapı
DN	Boyun çapı
DRVA	Tahrik açısı
EPSR	Kesici uç yerleşim açısı
FHA	Kanal helis açısı
FHCSA	Tespit deliği açısı
FHCSD	Sabitleme deliği havşa çapı
FLGT	Flanş kalınlığı
FMT	Form tipi
FXHLP	Sabitleme deliği özelliği
GAMF	Radyal eğim açısı
GAMN	Normal eğim açısı
GAMO	Dalma açısı dik
GAMP	Dalma açısı aksial
GAN	Kesici uç eğim açısı
H	Şaft yüksekliği
HA	Teorik dış yüksekliği
HAND	EI
HBH	Kafa taban ofset yüksekliği
HBKL	Arka başlık ofset uzunluğu
HBKW	Kafa arka ofset genişliği
HBL	Alt başlık ofset uzunluğu
HC	Gerçek dış yüksekliği
HF	Foksiyonel yükseklik
HHUB	Göbek yüksekliği
HTB	Gövde yüksekliği
IC	İç teğet çember çapı
IFS	Kesici uç montaj stil kodu
IIC	Kesici uç arayüz kodu
INSL	Kesici uç uzunluğu
KAPR	Takımın kesme kenarı açısı
KCH	Köşe pah açısı

ISO13399 Özellik Sembolleri	İçerik
KRINS	Temel kesme kenarı açısı
KWW	Kama kanal genişliği
KYP	Kama kanalı özelliği
L	Kesme kenarı uzunluğu
LAMS	Eğim Açısı
LB	Gövde yüksekliği
LBB	Talaş kırıcı genişliği
LBX	Maksimum gövde yüksekliği
LCCB	Bağlantı deliği havşa derinliği
LCF	Talaş yuvası uzunluğu
LDRED	Düştürülmüş gövde çapı boyu
LE	Efektif kesme kenarı uzunluğu
LF	Fonksiyonel yükseklik
LFA	If üzerinde bir ölçü
LH	Kafa yüksekliği
LPR	Çıkıntı yüksekliği
LS	Şaft uzunluğu
LSC	Bağlama uzunluğu
LSCN	Minimum bağlama uzunluğu
LSCX	Maksimum bağlama uzunluğu
LTA	LTA boyu (MCS'ten CRP'ye uzunluk)
LU	Kullanılabilir uzunluk
LUX	Maksimum kullanılabilir uzunluk
M	m-boyutu
M2	Nominal ikinci içe çizilmiş açığa sahip iç teğet çemberi ile bir kesici ucun köşesi arasındaki mesafe
MHA	Montaj deliği açısı
MHD	Montaj deliği uzaklığı
MHH	Montaj deliği yüksekliği
MIID	Mastar kesici uç tanımlaması
MTP	Sıkma tipi kodu
NCE	Kesme ucu sayısı
NOF	Kanal sayısı
NOI	Kesici uç indeks sayısı
NT	Diş sayısı
OAH	Toplam yükseklik
OAL	Toplam uzunluk
OAW	Toplam genişlik
PDPT	Kesici uç profil derinliği
PDX	Profil uzaklığı ex
PDY	Profil uzaklığı ey
PFS	Profil stili kodu
PL	Nokta uzunluğu
PNA	Profile birlikte aç
PRFRAD	Profil radyusu
PSIR	Takım giriş açısı
PSIRL	Temel sol yön kesme kenarı açısı
PSIRR	Temel sağ yön kesme kenarı açısı
RAL	Sol yön boşluk açısı
RAR	Sağ yön boşluk açısı
RCP	Yuvarlatılmış köşe özelliği
RE	Köşe radyusu
REL	Sol yön köşe radyusu
RER	Sağ yön köşe radyusu
RMPX	Maksimum rampalama açısı
RPMX	Maksimum dönüş hızı
S	Kesici uç kalınlığı
S1	Kesici uç kalınlığı
SC	Kesici uç toplamı kalınlığı
SDL	Adım çapı uzunluğu
SIG	Uç açısı

ISO13399 Özellik Sembolleri	İçerik
SSC	Kesici uç yuvası kodu
SX	Şaft kesiti şekil kodu
TC	Kesici uç tolerans grubu
TCE	Uç kesme kenarı kodu
TCTR	Vida tolerans sınıfı
TD	Vida çapı
THFT	Vida form tipi
THL	Vida çekme boyu
THLGTH	Vida boyu
THSC	Takım tutucu şekil kodu
THUB	Göbek kalınlığı
TP	Vida Adımı
TPI	İnç başına vida
TPIN	İnç başına minimum vida
TPIX	İnç başına maksimum vida
TPN	Minimum vida adımı
TPT	Vida profili tipi
TPX	Maksimum vida adımı
TQ	Tork
TSYC	Takım stili kodu
TTP	Vida Tipi
ULDR	Kullanılabilir uzunluk çapı oranı
UST	Birim sistemi
W1	Kesici uç genişliği
WEP	Silici kenar özelliği
WF	Foksiyonel genişlik
WF2	Bir tornalama takımının alın oturma yüzeyi ile kesme referans noktası arasındaki mesafe
WFS	İkinci derece işlevsel genişlik
WT	Ürün ağırlığı
ZEFF	Yüzey etkili kesme kenarı sayısı
ZEFP	Etkin çevresel kesme kenarı sayısı
ZNC	Kesme kenarı merkez sayısı
ZNF	Yüzeye bağlanmış kesici uç sayısı
ZNP	Çevresel bağlanmış kesici uç sayısı

ISO13399'a Uygun Referans Sembolleri Listesi

ISO13399 Referans Semboller	İçerik
CIP	İşleme Koordinat sistemi
CRP	Kesme Referans Noktası
CSW	İş Parçası kenarında koordinat sistemi
MCS	Montaj Koordinat Sistemi
PCS	Temel Koordinat Sistemi

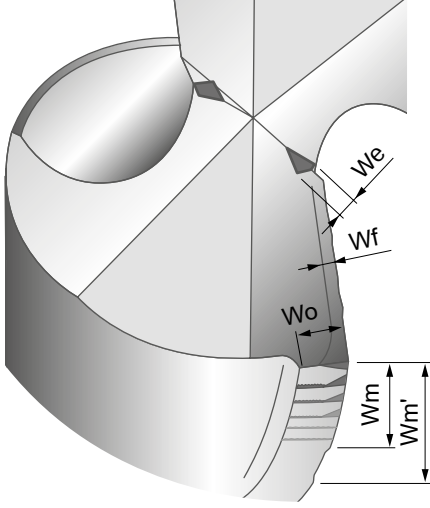
DELME İÇİN SORUN GİDERME

Çözüm			Kesme Koşulları										Takımın Şekli ve Tasarımı						Tezgah, Takım Motajı				
			Kesme hızı	İlerleme	İlk kesmede daha düşük ilerleme	Çıkışta daha düşük ilerleme	Gagalama	Ön deliğin hassasiyetini ve derinliğini artırın	Soğutma			Uç genişliği	Honlama genişliği	Öz kalınlığı	Helis kanal uzunluğunu kısaltın	Ağız yüksekliğini azaltın	İçden soğutma suyu tip matkap ucu kullanın	Matkap ucunu X tipi inceltmeyle değiştirin	Takım montaj hassasiyetini artırın	Takım serbest boyunu kısaltın	Düz iş parçası yüzeyi	İş bağlama rijidliğini artırın	Tezgah boşluklarını giderin ve rijidliği artırın
									Yağ oranını artırın	Hacmi artırın	Soğutma suyu basıncını artırın												
Sorun			Yukarı ↗	Aşağı ↘								Yukarı ↗	Aşağı ↘										
Takım Ömrünün Gerilemesi	Matkap ucunun kırılması	Matkap ucu rijidliğinin yetersizliği											↗										
		Uygunsuz kesme koşulları		↘																			
		Takım tutucuda büyük sapma																	●				
		Eğimli iş parçası yüzeyi																		●			
Çevresel kesme kenarında ve zemin boyunca büyük aşınma	Uygunsuz kesme koşulları	Uygunsuz kesme koşulları	↘																				
		Kesme noktasında sıcaklık artışı						●	●							●							
		Düşük salgı hassasiyeti																	●				
Çevresel kesme kenarında uflanma	Uygunsuz kesme koşulları	Uygunsuz kesme koşulları		↘			●																
		Takım tutucuda büyük sapma																	●				
		Anormal ses, titreşim											↘							●		●	
Radyal kesme kenarında uflanma	Radyal kesme kenarı çok geniş	Radyal kesme kenarı çok geniş										↘											
		Zayıf giriş			●																		
		Anormal ses, titreşim											↘						●			●	
Delik Hassasiyetinin Gerilemesi	Büyük delik çapı	Yetersiz matkap ucu rijidliği											↗	●	●								
		Uygunsuz matkap ucu geometrisi														●							
	Küçük delik çapı	Kesme noktasında sıcaklık artışı							●	●						●							
		uygunsuz kesme koşulları	↘																				
	Düşük delik düzgünlüğü	Uygunsuz matkap ucu geometrisi														●							
		Yetersiz matkap ucu rijidliği											↗	●	●					●		●	
	Yetersiz delik pozisyonu hassasiyeti, dairesellik ve finiş yüzey	Büyük takım tutucu sapması																					
		Düşük yatakla özellikleri							●														
Yetersiz matkap ucu rijidliği												↗	●	●									
Zayıf giriş																	●						
Çapaklar	Delik çıkışında çapaklanma	Uygunsuz kesme koşulları				●							↘										
Yetersiz Talaş Dağılımı	Uzun talaşlar	Uygunsuz kesme koşulları		↗				●															
		Düşük talaş atımı								●	●					●							
	Talaş sıkışması	Uygunsuz kesme koşulları	↘	↘				●					↘										
		Düşük talaş atımı								●	●		↘				●						

MATKAP AŞINMASI VE KESME KENARI HASARI

■ MATKAP AŞINMA ŞARTLARI

Aşağıdaki tablo matkabın kesme kenarının aşınmasını açıklayan basit bir çizimi gösterir. Aşınmanın nevi ve miktarı kullanılan iş parçası malzemelerine ve kesme koşullarına göre değişir. Ancak genellikle, çevresel aşınma en büyüğüdür ve matkap delme ucunun takım ömrünü belirler. Tekrar taşlarken, yanak aşınma noktasındaki aşınma miktarının tamamen taşlanması gerekir. Bu nedenle, büyük aşınma varsa, kesme kenarını yenilemek için daha fazla malzemenin taşlanması gerekir.



We : Radyal kesme kenarı aşınma genişliği

Wf : Kesme kenarı aşınması (Kesme kenarının ortası)

Wo : Dış köşe aşınması genişliği

Wm : Zırh aşınma genişliği

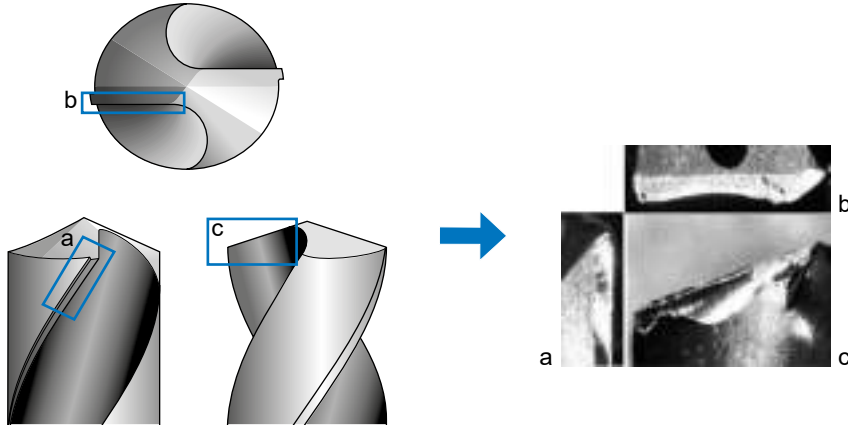
Wm' : Zırh aşınma genişliği (öndeki kenar)

P

TEKNİK BİLGİ

■ KESME KENARI HASARI

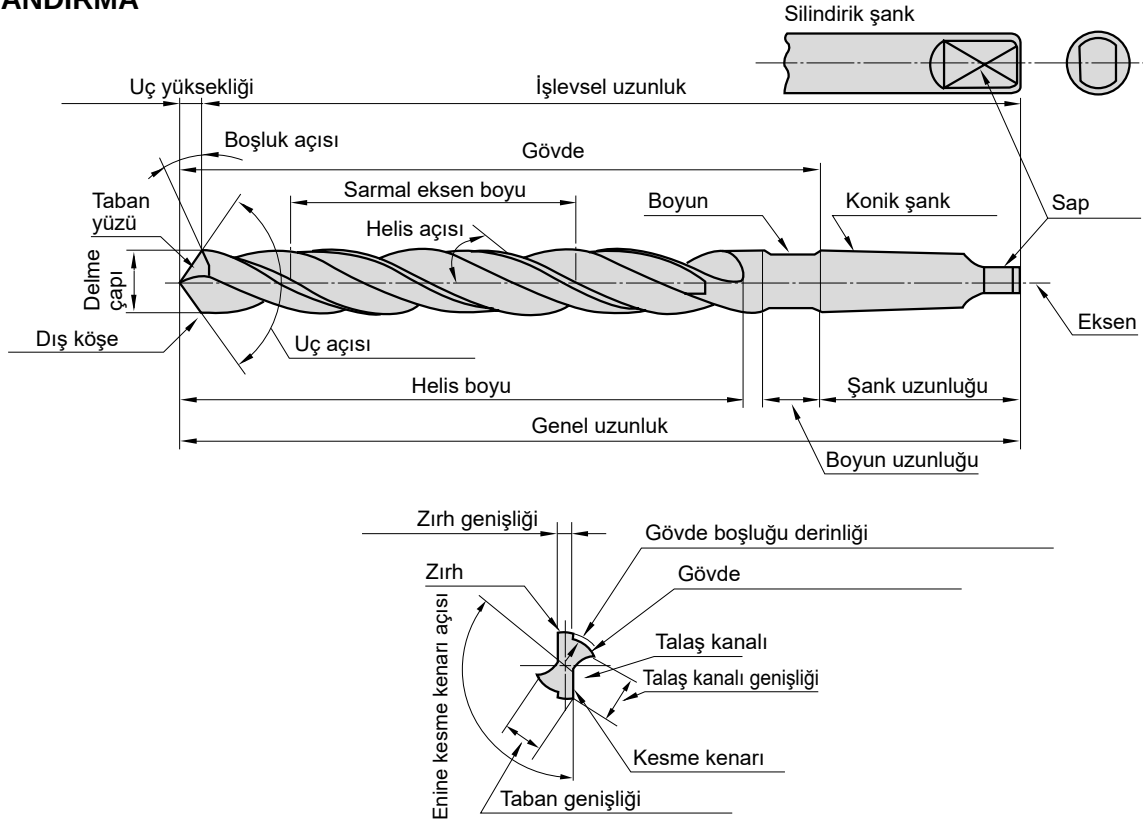
Delme esnasında, matkabın kesme kenarında çentiklenme, dökülme, kırılma ve anormal bozulmalar görülebilir. Bu gibi durumlarda, bozulmalara yakından bakmak, nedenini araştırmak ve karşı önlemler almak önemlidir.



Kesme kenarı hasarı

DELME UCU ÖZELLİKLERİ VE SPESİFİKASYON

ADLANDIRMA



ŞEKİL TANIMLANMASI VE KESME ÖZELLİKLERİ

Helis Açısı	Matkap ucunun eğim açısına karşılık gelen, delme ucunun aksiyal eksenine göre kanal eğimidir. Delme ucunun eğim açısı, kesme kenarının konumuna göre değişir ve çevre merkezine yaklaştıkça büyük ölçüde azalır. Sertliği Yüksek malzeme Küçük $\leftarrow$ Eğim açısı $\rightarrow$ Büyük Yumuşak malzeme (Alüminyum, vs.)
Helis Kanal Uzunluğu	Deliğin derinliği, burç uzunluğu ve tekrar bileme hesabı ile belirlenir. Takım ömrü üzerindeki etkisi büyük olduğundan, olabildiğince minimuma indirmek gereklidir.
Uç açısı	Standart uç açısı 118°'dir ve farklı uygulamalar için uygun açı değişiklikleri yapılabilir. İyi işlenebilirlik özellikli yumuşak malzeme Küçük $\leftarrow$ Uç açısı $\rightarrow$ Büyük Sert malzeme ve yüksek verimli işleme için
Öz kalınlığı	Sertliği ve bir matkabin talaş kırma performansını belirleyen önemli bir öğedir. Öz kalınlığı uygulamalara göre ayarlanır. Küçük kesme direnci Düşük sertlik İyi talaş eğme performansı İşlenebilir malzeme } İnce $\leftarrow$ Öz kalınlığı $\rightarrow$ Kalın Büyük kesme direnci Yüksek rijidlik Düşük talaş eğme performansı Sertliği yüksek malzeme, boydan boya delik delme, vs.
Zırh	Delici uç matkabin çapını belirler ve delme sırasında delme ucuna yataklama işlevi gösterir. Zırh genişliği delinmiş bir delikte sürtünme dikkate alınarak belirlenir. Düşük yataklama Küçük $\leftarrow$ Zırh genişliği $\rightarrow$ Büyük İyi yataklama performansı
Çap Arka konikliği	Delik içindeki sürtünmeyi düşürmek için, helis kanalın ucundan şanka kadar bölümü hafifçe konikleştirilir. Koniğin derecesi genellikle helis kanalı uzunluğuna göre arka çap düşüklüğü miktarı ile temsil edilir, bu da yaklaşık 0.04—0.1 mm'dir. Yüksek verimli delme ve kapalı deliklerin delinmesi için daha büyük değerlerde olabilir.

■ KESME KENARI GEOMETRİSİ VE ETKİSİ

Aşağıdaki tabloda gösterildiği gibi, farklı uygulamalar için en uygun kesme kenarı geometrisini seçmek mümkündür. En uygun kesme kenarı geometrisi seçildiğinde, daha yüksek işleme verimliliği ve daha yüksek delik hassasiyeti sağlanabilir.

● Kesme Kenarı Şekilleri

Taşılama adı	Şekil	Özellikler ve etkisi	Uygulama
Konik		Kesici ağız konikdir ve boşluk açısı matkabin merkezine doğru artar.	Genel Kullanım
Düz		- Kesici ağız düzdür. - Kolay taşılama.	Temel olarak küçük çaplı matkaplar içindir.
Üç kesici ağız açısı		- Enine kesme kenarı olmadığından, bunun sonucu yüksek merkezci kuvvet ve küçük miktarda daha büyük delik çapı oluşur. - Özel bir taşılama makinası gerektirir. - Üç kenarlı yüzey taşılaması.	Yüksek delik hassasiyeti ve pozisyon doğruluğu gerektiren delme işlemleri için.
Spiral uç		- Delme ucu merkezinin yakınındaki boşluk açısını arttırmak için, konik taşılama düzensiz helis ile birleştirilmiştir. - S tipi enine kesme kenarı ile yüksek merkezci kuvvet ve işleme hassasiyeti.	Yüksek doğruluk gerektiren delme işlemi için.
Radyal ağız		- Kesme kenarı yükünü dağıtmak amacıyla radyal taşlanmıştır. - Yüksek işleme doğruluğu ve finiş yüzey pürüzlülüğü. - Boydan boya deliklerde, küçük çapaklar oluşabilir. - Özel bir taşılama makinesi gerektirir.	- Dökme Demir, Alüminyum Alaşım - Dökme demir plakalar için. - Çelik
Merkez Noktalı delme		Bu geometri daha iyi eş merkezlilik ve iş parçasından çıkarken darbeye azalma için iki aşamalı bir uç açısına sahiptir.	İnce sac levhalar için.

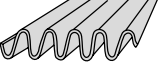
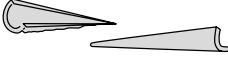
■ ÖZ KALINLIĞI İNCELTME

Bir matkap kesme kenarı eğim açısı merkeze doğru düşer ve enine kesme kenarında negatif bir açığa dönüşür. Delme sırasında, matkap merkezi, iş parçasını sıkıştırır, kesme direncinin %50-70'sini oluşturur. Öz inceltme matkabin kesme direncini azaltmada, kesme kenarında kesilen talaşların çabuk boşaltılmasında ve daha iyi koparmada çok etkilidir.

Şekil	X tipi	XR tipi	S tipi	N tipi
Özellikler	Baskı yükü büyük oranda azalır ve koparma performansı iyileşir. Bu şekil, öz ince olduğunda etkilidir.	Koparma performansı X tipinden hafif derecede daha düşüktür, ancak kesme kenarı serttir ve geçerli çalışma aralığı geniştir.	Kesme kolaydır. Genellikle bu şekil kullanılır.	Öz nispeten kalın olduğunda etkilidir.
Başlıca Uygulamalar	Genel delme ve derin delik delme.	Uzun ömür. Genel delme ve paslanmaz çeliği delme.	Çelik, dökme demir ve demir içermeyen metaller için genel delme.	Derin delik delme.

DELME UCU ÖZELLİKLERİ VE SPESİFİKASYON

■ DELME TALAŞLARI

Talaş Tipleri	Şekil	Özellikler ve Kolay Eğrilme
Konik Spiral		Kesme kenarında kesilen fan şekilli talaşlar helis kanalı ile eğrilir. Küçük ilerleme oranında duktıl malzeme delinirken bu tip talaşlar üretilir. Talaş birkaç devirden sonra kırılırsa, talaş kırma performansı başarılıdır.
Uzun Adımlı		Uzun adımlı talaşlar bükülmeksizin çıkar ve delme ucunun çevresine kolayca sarılır.
Fan		Bu, helis kanalı ve delinmiş deliğin duvarı ile kırılan bir talaştır. İlerleme oranı yüksek olduğunda oluşur.
Segment		Talaşın , yetersiz duktilliği nedeniyle delinmiş deliğin duvarına doğru uzun adımlı şekilde büyümesinden hemen önce kırılmış konik bir spiral talaştır. Mükemmel talaş atımı ve talaş tahliyesi.
Zigzag		Helis kanalının şekli ve malzemenin özellikleri nedeniyle bombelenen ve katlanan bir talaştır. Helis kanalında kolayca talaş paketlenmesine neden olur.
İğne		Titreşimle kırılan veya kırılğan malzeme küçük bir yarıçap ile kıvrıldığında kırılan talaşlardır. Kırma performansı karşılaştırmalı olarak başarılıdır, ancak bu talaşlar fazlasıyla dolu hale gelebilir.

DELME FORMÜLLERİ

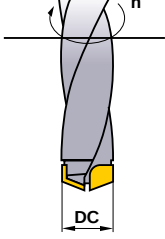
■ KESME HIZI (Vc)

$$V_c = \frac{\pi \cdot DC \cdot n}{1000} \text{ (m/dak)}$$

Vc (m/dak) : Kesme Hızı
 π (3.14) : Pi

DC (mm) : Delme Çapı
n (dak⁻¹) : Fener Mili Devir Hızı

*mm'den mtr'ye çevirmek için 1.000'e bölün.



(Örnek) Devir hızı 1350 dak⁻¹ ve matkap çapı 12 mm olduğunda kesme hızı nedir?

(Cevap) $\pi=3.14$, DC=12, n=1350'yi formülde yerine koyun

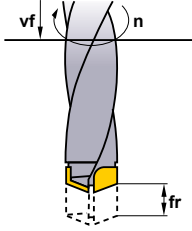
$$V_c = \frac{\pi \cdot DC \cdot n}{1000} = \frac{3.14 \times 12 \times 1350}{1000} = 50.9 \text{ m/dak}$$

Kesme hızı 50.9 m/dak'dır.

■ ANA MİL İLERLEMESİ (Vf)

$$V_f = fr \cdot n \text{ (mm/dak)}$$

Vf (mm/dak) : Ana Milin İlerleme Hızı (Z eksen)
fr (mm/dev) : Devir başına ilerleme
n (dak⁻¹) : Fener Mili Devir Hızı



(Örnek) Devir başına ilerleme 0.2 mm/dev ve devir 1350 dak⁻¹ olduğunda ilerleme hızı (Vf) nedir?

(Cevap) fr=0.2, n=1350'yi formülde yerine koyun

$$V_f = fr \cdot n = 0.2 \times 1350 = 270 \text{ mm/dak}$$

İlerleme hızı 270 mm/dak'dır.

■ DELME SÜRESİ (Tc)

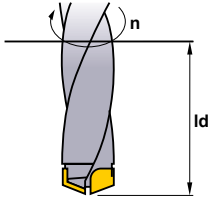
$$T_c = \frac{L_d \cdot i}{n \cdot fr}$$

Tc (dak) : Delme Süresi
n (dak⁻¹) : Devir
Ld (mm) : Delik Derinliği
fr (mm/dev) : Devir başına ilerleme
i : Delik Sayısı

(Soru) 50 m/dak kesme hızı ve 0.15 mm/dev ilerleme alışımı çelik 30 mm uzunlukta bir deliği delmek için gereken delme süresi nedir?

(Cevap) Devir $n = \frac{50 \times 1000}{15 \times 3.14} = 1061.57 \text{ dak}^{-1}$

$$T_c = \frac{30 \times 1}{1061.57 \times 0.15} = 0.188$$
$$= 0.188 \times 60 \approx 11.3 \text{ sn}$$



: Fener Mili Devri

METALİK MALZEMELER ÇAPRAZ REFERANS LİSTESİ

■ KARBON ÇELİKLERİ

Almanya		İngiltere		Fransa	İtalya	İspanya	İsveç	Japonya	ABD	Çin
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.0038	RSt.37-2	4360 40 C	—	E 24-2 Ne	—	—	1311	STKM 12A STKM 12C	A570.36	15
1.0401	C15	080M15	—	CC12	C15, C16	F.111	1350	—	1015	15
1.0402	C22	050A20	2C	CC20	C20, C21	F.112	1450	—	1020	20
1.0715	9SMn28	230M07	1A	S250	CF9SMn28	F.2111 11SMn28	1912	SUM22	1213	Y15
1.0718	9SMnPb28	—	—	S250Pb	CF9SMnPb28	11SMnPb28	1914	SUM22L	12L13	—
1.0722	10SPb20	—	—	10PbF2	CF10Pb20	10SPb20	—	—	—	—
1.0736	9SMn36	240M07	1B	S300	CF9SMn36	12SMn35	—	—	1215	Y13
1.0737	9SMnPb36	—	—	S300Pb	CF9SMnPb36	12SMnP35	1926	—	12L14	—
1.1141	Ck15	080M15	32C	XC12	C16	C15K	1370	S15C	1015	15
1.1158	Ck25	—	—	—	—	—	—	S25C	1025	25
1.8900	StE380	4360 55 E	—	—	FeE390KG	—	2145	—	A572-60	—
1.0501	C35	060A35	—	CC35	C35	F.113	1550	—	1035	35
1.0503	C45	080M46	—	CC45	C45	F.114	1650	—	1045	45
1.0726	35S20	212M36	8M	35MF4	—	F210G	1957	—	1140	—
1.1157	40Mn4	150M36	15	35M5	—	—	—	—	1039	40Mn
1.1167	36Mn5	—	—	40M5	—	36Mn5	2120	SMn438(H)	1335	35Mn2
1.1170	28Mn6	150M28	14A	20M5	C28Mn	—	—	SCMn1	1330	30Mn
1.1183	Cf35	060A35	—	XC38TS	C36	—	1572	S35C	1035	35Mn
1.1191	Ck45	080M46	—	XC42	C45	C45K	1672	S45C	1045	Ck45
1.1213	Cf53	060A52	—	XC48TS	C53	—	1674	S50C	1050	50
1.0535	C55	070M55	9	—	C55	—	1655	—	1055	55
1.0601	C60	080A62	43D	CC55	C60	—	—	—	1060	60
1.1203	Ck55	070M55	—	XC55	C50	C55K	—	S55C	1055	55
1.1221	Ck60	080A62	43D	XC60	C60	—	1678	S58C	1060	60Mn
1.1274	Ck101	060A96	—	XC100	—	F.5117	1870	—	1095	—
1.1545	C105W1	BW1A	—	Y105	C36KU	F.5118	1880	SK3	W1	—
1.1545	C105W1	BW2	—	Y120	C120KU	F.515	2900	SUP4	W210	—

■ ALAŞIMLI ÇELİKLER

Almanya		İngiltere		Fransa	İtalya	İspanya	İsveç	Japonya	ABD	Çin
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.0144	St.44.2	4360 43 C	—	E28-3	—	—	1412	SM400A, SM400B SM400C	A573-81	—
1.0570	St52-3	4360 50 B	—	E36-3	Fe52BFN Fe52CFN	—	2132	SM490A, SM490B SM490C	—	—
1.0841	St52-3	150M19	—	20MC5	Fe52	F.431	2172	—	5120	—
1.0904	55Si7	250A53	45	55S7	55Si8	56Si7	2085	—	9255	55Si2Mn
1.0961	60SiCr7	—	—	60SC7	60SiCr8	60SiCr8	—	—	9262	—
1.3505	100Cr6	534A99	31	100C6	100Cr6	F.131	2258	SUJ2	ASTM 52100	Gr15, 45G
1.5415	15Mo3	1501-240	—	15D3	16Mo3KW	16Mo3	2912	—	ASTM A204Gr.A	—
1.5423	16Mo5	1503-245-420	—	—	16Mo5	16Mo5	—	—	4520	—
1.5622	14Ni6	—	—	16N6	14Ni6	15Ni6	—	—	ASTM A350LF5	—
1.5662	X8Ni9	1501-509-510	—	—	X10Ni9	XBNI09	—	—	ASTM A353	—
1.5710	36NiCr6	640A35	111A	35NC6	—	—	—	SNC236	3135	—
1.5732	14NiCr10	—	—	14NC11	16NiCr11	15NiCr11	—	SNC415(H)	3415	—
1.5752	14NiCr14	655M13	36A	12NC15	—	—	—	SNC815(H)	3415, 3310	—
1.6523	21NiCrMo2	805M20	362	20NCD2	20NiCrMo2	20NiCrMo2	2506	SNM220(H)	8620	—
1.6546	40NiCrMo22	311-Type 7	—	—	40NiCrMo2(KB)	40NiCrMo2	—	SNM240	8740	—
1.6587	17CrNiMo6	820A16	—	18NCD6	—	14NiCrMo13	—	—	—	—
1.7015	15Cr3	523M15	—	12C3	—	—	—	SCr415(H)	5015	15Cr

Almanya		İngiltere		Fransa	İtalya	İspanya	İsveç	Japonya	ABD	Çin
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.7045	42Cr4	–	–	–	–	42Cr4	2245	SCr440	5140	40Cr
1.7176	55Cr3	527A60	48	55C3	–	–	–	SUP9(A)	5155	20CrMn
1.7262	15CrMo5	–	–	12CD4	–	12CrMo4	2216	SCM415(H)	–	–
1.7335	13CrMo4 4	1501-620Gr27	–	15CD3.5 15CD4.5	14CrMo45	14CrMo45	–	–	ASTM A182 F11, F12	–
1.7380	10CrMo910	1501-622 Gr31, 45	–	12CD9 12CD10	12CrMo9 12CrMo10	TU.H	2218	–	ASTM A182 F.22	–
1.7715	14MoV63	1503-660-440	–	–	–	13MoCrV6	–	–	–	–
1.8523	39CrMoV13 9	897M39	40C	–	36CrMoV12	–	–	–	–	–
1.6511	36CrNiMo4	816M40	110	40NCD3	38NiCrMo4(KB)	35NiCrMo4	–	–	9840	–
1.6582	34CrNiMo6	817M40	24	35NCD6	35NiCrMo6(KB)	–	2541	–	4340	40CrNiMoA
1.7033	34Cr4	530A32	18B	32C4	34Cr4(KB)	35Cr4	–	SCr430(H)	5132	35Cr
1.7035	41Cr4	530M40	18	42C4	41Cr4	42Cr4	–	SCr440(H)	5140	40Cr
1.7131	16MnCr5	(527M20)	–	16MC5	16MnCr5	16MnCr5	2511	–	5115	18CrMn
1.7218	25CrMo4	1717CDS110 708M20	–	25CD4	25CrMo4(KB)	55Cr3	2225	SCM420 SCM430	4130	30CrMn
1.7220	34CrMo4	708A37	19B	35CD4	35CrMo4	34CrMo4	2234	SCM432 SCCRM3	4137 4135	35CrMo
1.7223	41CrMo4	708M40	19A	42CD4TS	41CrMo4	42CrMo4	2244	SCM 440	4140 4142	40CrMoA
1.7225	42CrMo4	708M40	19A	42CD4	42CrMo4	42CrMo4	2244	SCM440(H)	4140	42CrMo 42CrMnMo
1.7361	32CrMo12	722M24	40B	30CD12	32CrMo12	F.124.A	2240	–	–	–
1.8159	50CrV4	735A50	47	50CV4	50CrV4	51CrV4	2230	SUP10	6150	50CrVA
1.8509	41CrAlMo7	905M39	41B	40CAD6 40CAD2	41CrAlMo7	41CrAlMo7	2940	–	–	–
1.2067	100Cr6	BL3	–	Y100C6	–	100Cr6	–	–	L3	CrV, 9SiCr
1.2419	105WCr6	–	–	105WC13	100WCr6 107WCr5KU	105WCr5	2140	SKS31 SKS2, SKS3	–	CrWMo
1.2713	55NiCrMoV6	BH224/5	–	55NCDV7	–	F.520.S	–	SKT4	L6	5CrNiMo
1.5662	X8Ni9	1501-509	–	–	X10Ni9	XBNi09	–	–	ASTM A353	–
1.5680	12Ni19	–	–	Z18N5	–	–	–	–	2515	–
1.6657	14NiCrMo134	832M13	36C	–	15NiCrMo13	14NiCrMo131	–	–	–	–
1.2080	X210Cr12	BD3	–	Z200C12	X210Cr13KU X250Cr12KU	X210Cr12	–	SKD1	D3 ASTM D3	Cr12
1.2601	X153CrMoV12	BD2	–	–	X160CrMoV12	–	–	SKD11	D2	Cr12MoV
1.2363	X100CrMoV5	BA2	–	Z100CDV5	X100CrMoV5	F.5227	2260	SKD12	A2	Cr5Mo1V
1.2344	X40CrMoV51 X40CrMoV51	BH13	–	Z40CDV5	X35CrMoV05KU X40CrMoV51KU	X40CrMoV5	2242	SKD61	H13 ASTM H13	40CrMoV5
1.2436	X210CrW12	–	–	–	X215CrW121KU	X210CrW12	2312	SKD2	–	–
1.2542	45WCrV7	BS1	–	–	45WCrV8KU	45WCrSi8	2710	–	S1	–
1.2581	X30WCrV93	BH21	–	Z30WCV9	X28W09KU	X30WCrV9	–	SKD5	H21	30WCrV9
1.2601	X165CrMoV12	–	–	–	X165CrMoV12KU	X160CrMoV12	2310	–	–	–
1.2833	100V1	BW2	–	Y1105V	–	–	–	SKS43	W210	V
1.3255	S 18-1-2-5	BT4	–	Z80WKCV	X78WCo1805KU	HS18-1-1-5	–	SKH3	T4	W18Cr4VCo5
1.3355	S 18-0-1	BT1	–	Z80WCV	X75W18KU	HS18-0-1	–	SKH2	T1	–
1.3401	G-X120Mn12	Z120M12	–	Z120M12	XG120Mn12	X120MN12	–	SCMnH/1	–	–
1.4718	X45CrSi93	401S45	52	Z45CS9	X45CrSi8	F.322	–	SUH1	HW3	X45CrSi93
1.3343	S6-5-2	4959BA2	–	Z40CSD10	15NiCrMo13	–	2715	SUH3	D3	–
1.3343	S6/5/2	BM2	–	Z85WDCV	HS6-5-2-2	F.5603	2722	SKH9, SKH51	M2	–
1.3348	S 2-9-2	–	–	–	HS2-9-2	HS2-9-2	2782	–	M7	–
1.3243	S6/5/2/5	BM35	–	6-5-2-5	HS6-5-2-5	F.5613	2723	SKH55	M35	–

METALİK MALZEMELER ÇAPRAZ REFERANS LİSTESİ

■ PASLANMAZ ÇELİKLER (FERRİTİK, MARTENSİTİK)

Almanya		İngiltere		Fransa	İtalya	İspanya	İsveç	Japonya	ABD	Çin
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.4000	X7Cr13	403S17	–	Z6C13	X6Cr13	F.3110	2301	SUS403	403	0Cr13 1Cr12
1.4001	X7Cr14	–	–	–	–	F.8401	–	–	–	–
1.4005	X12CrS13	416S21	–	Z11CF13	X12CrS13	F.3411	2380	SUS416	416	–
1.4006	X10Cr13	410S21	56A	Z10C14	X12Cr13	F.3401	2302	SUS410	410	1Cr13
1.4016	X8Cr17	430S15	60	Z8C17	X8Cr17	F.3113	2320	SUS430	430	1Cr17
1.4027	G-X20Cr14	420C29	56B	Z20C13M	–	–	–	SCS2	–	–
1.4034	X46Cr13	420S45	56D	Z40CM Z38C13M	X40Cr14	F.3405	2304	SUS420J2	–	4Cr13
1.4003	–	405S17	–	Z8CA12	X6CrAl13	–	–	–	405	–
1.4021	–	420S37	–	Z8CA12	X20Cr13	–	2303	–	420	–
1.4057	X22CrNi17	431S29	57	Z15CNI6.02	X16CrNi16	F.3427	2321	SUS431	431	1Cr17Ni2
1.4104	X12CrMoS17	–	–	Z10CF17	X10CrS17	F.3117	2383	SUS430F	430F	Y1Cr17
1.4113	X6CrMo17	434S17	–	Z8CD17.01	X8CrMo17	–	2325	SUS434	434	1Cr17Mo
1.4313	X5CrNi134	425C11	–	Z4CND13.4M	(G)X6CrNi304	–	2385	SCS5	CA6-NM	–
1.4724	X10CrA113	403S17	–	Z10C13	X10CrA112	F.311	–	SUS405	405	0Cr13Al
1.4742	X10CrA118	430S15	60	Z10CAS18	X8Cr17	F.3113	–	SUS430	430	Cr17
1.4747	X80CrNiSi20	443S65	59	Z80CSN20.02	X80CrSiNi20	F.320B	–	SUH4	HNv6	–
1.4762	X10CrA124	–	–	Z10CAS24	X16Cr26	–	2322	SUH446	446	2Cr25N
1.4871	X53CrMnNiN219	349S54	–	Z52CMN21.09	X53CrMnNiN219	–	–	SUH35	EV8	5Cr2Mn9Ni4N
1.4521	X1CrMoTi182	–	–	–	–	–	2326	–	S44400	–
1.4922	X20CrMoV12-1	–	–	–	X20CrMoNi1201	–	2317	–	–	–
1.4542	–	–	–	Z7CNU17-04	–	–	–	–	630	–

■ PASLANMAZ ÇELİKLER (OSTENİTLİ)

Almanya		İngiltere		Fransa	İtalya	İspanya	İsveç	Japonya	ABD	Çin
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.4306	X2CrNi1911	304S11	–	Z2CN18.10	X2CrNi18.11	–	2352	SUS304L	304L	0Cr19Ni10
1.4350	X5CrNi189	304S11	58E	Z6CN18.09	X5CrNi1810	F.3551 F.3541 F.3504	2332	SUS304	304	0Cr18Ni9
1.4305	X12CrNiS188	303S21	58M	Z10CNF18.09	X10CrNiS18.09	F.3508	2346	SUS303	303	1Cr18Ni9MoZr
–	–	304C12	–	Z3CN19.10	–	–	2333	SUS304L	–	–
1.4306	X2CrNi189	304S12	–	Z2CrNi1810	X2CrNi18.11	F.3503	2352	SCS19	304L	–
1.4310	X12CrNi177	–	–	Z12CN17.07	X12CrNi1707	F.3517	2331	SUS301	301	Cr17Ni7
1.4311	X2CrNiN1810	304S62	–	Z2CN18.10	–	–	2371	SUS304LN	304LN	–
1.4401	X5CrNiMo1810	316S16	58J	Z6CND17.11	X5CrNiMo1712	F.3543	2347	SUS316	316	0Cr17Ni11Mo2
1.4308	G-X6CrNi189	304C15	–	Z6CN18.10M	–	–	–	SCS13	–	–
1.4408	G-X6CrNiMo1810	316C16	–	–	–	F.8414	–	SCS14	–	–
1.4581	G-X5CrNiMoNb1810	318C17	–	Z4CNDNb1812M	XG8CrNiMo1811	–	–	SCS22	–	–
1.4429	X2CrNiMoN1813	–	–	Z2CND17.13	–	–	2375	SUS316LN	316LN	0Cr17Ni13Mo
1.4404	–	316S13	–	Z2CND17.12	X2CrNiMo1712	–	2348	–	316L	–
1.4435	X2CrNiMo1812	316S13	–	Z2CND17.12	X2CrNiMo1712	–	2353	SCS16 SUS316L	316L	0Cr27Ni12Mo3
1.4436	–	316S13	–	Z6CND18-12-03	X8CrNiMo1713	–	2343, 2347	–	316	–
1.4438	X2CrNiMo1816	317S12	–	Z2CND19.15	X2CrNiMo1816	–	2367	SUS317L	317L	00Cr19Ni13Mo
1.4539	X1NiCrMo	–	–	Z6CNT18.10	–	–	2562	–	UNS V 0890A	–
1.4541	X10CrNiTi189	321S12	58B	Z6CNT18.10	X6CrNiTi1811	F.3553 F.3523	2337	SUS321	321	1Cr18Ni9Ti
1.4550	X10CrNiNb189	347S17	58F	Z6CNNb18.10	X6CrNiNb1811	F.3552 F.3524	2338	SUS347	347	1Cr18Ni11Nb
1.4571	X10CrNiMoTi1810	320S17	58J	Z6CNDT17.12	X6CrNiMoTi1712	F.3535	2350	–	316Ti	Cr18Ni12Mo2T
1.4583	X10CrNiMoNb1812	–	–	Z6CNDNb1713B	X6CrNiMoNb1713	–	–	–	318	Cr17Ni12Mo3Mb

Almanya		İngiltere		Fransa	İtalya	İspanya	İsveç	Japonya	ABD	Çin
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.4828	X15CrNiSi2012	309S24	—	Z15CNS20.12	X6CrNi2520	—	—	SUH309	309	1Cr23Ni13
1.4845	X12CrNi2521	310S24	—	Z12CN2520	X6CrNi2520	F.331	2361	SUH310	310S	OCr25Ni20
1.4406	X10CrNi18.08	—	58C	Z1NCUDU25.20	—	F.8414	2370	SCS17	308	—
1.4418	X4CrNiMo165	—	—	Z6CND16-04-01	—	—	—	—	—	—
1.4568	—	316S111	—	Z8CNA17-07	X2CrNiMo1712	—	—	—	17-7PH	—
1.4504	—	—	—	—	—	—	—	—	—	—
1.4563	—	—	—	Z1NCUDU31-27-03 Z1CNDU20-18-06AZ	—	—	2584 2378	—	NO8028 S31254	—
1.4878	X12CrNiTi189	321S32	58B, 58C	Z6CNT18.12B	X6CrNiTi18.11	F.3523	—	SUS321	321	1Cr18Ni9Ti

■ ISIYA DİRENÇLİ ÇELİKLER

Almanya		İngiltere		Fransa	İtalya	İspanya	İsveç	Japonya	ABD	Çin
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
1.4864	X12NiCrSi3616	—	—	Z12NCS35.16	—	—	—	SUH330	330	—
1.4865	G-X40NiCrSi3818	330C11	—	—	XG50NiCr3919	—	—	SCH15	HT, HT 50	—

■ GRİ DÖKME DEMİR

Almanya		İngiltere		Fransa	İtalya	İspanya	İsveç	Japonya	ABD	Çin
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
—	—	—	—	—	—	—	0100	—	—	—
—	GG 10	—	—	Ft 10 D	—	—	0110	FC100	No 20 B	—
0.6015	GG 15	Grade 150	—	Ft 15 D	G15	FG15	0115	FC150	No 25 B	HT150
0.6020	GG 20	Grade 220	—	Ft 20 D	G20	—	0120	FC200	No 30 B	HT200
0.6025	GG 25	Grade 260	—	Ft 25 D	G25	FG25	0125	FC250	No 35 B	HT250
—	—	—	—	—	—	—	—	—	No 40 B	—
0.6030	GG 30	Grade 300	—	Ft 30 D	G30	FG30	0130	FC300	No 45 B	HT300
0.6035	GG 35	Grade 350	—	Ft 35 D	G35	FG35	0135	FC350	No 50 B	HT350
0.6040	GG 40	Grade 400	—	Ft 40 D	—	—	0140	—	No 55 B	HT400
0.6660	GGL NiCr202	L-NiCuCr202	—	L-NC 202	—	—	0523	—	A436 Type 2	—

■ DUKTİL DÖKME DEMİR

Almanya		İngiltere		Fransa	İtalya	İspanya	İsveç	Japonya	ABD	Çin
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
0.7040	GGG 40	SNG 420/12	—	FCS 400-12	GS 370-17	FGE 38-17	07 17-02	FCD400	60-40-18	QT400-18
—	GGG 40.3	SNG 370/17	—	FGS 370-17	—	—	07 17-12	—	—	—
0.7033	GGG 35.3	—	—	—	—	—	07 17-15	—	—	—
0.7050	GGG 50	SNG 500/7	—	FGS 500-7	GS 500	FGE 50-7	07 27-02	FCD500	80-55-06	QT500-7
0.7660	GGG NiCr202	Grade S6	—	S-NC202	—	—	07 76	—	A43D2	—
—	GGG NiMn137	L-NiMn 137	—	L-MN 137	—	—	07 72	—	—	—
—	GGG 60	SNG 600/3	—	FGS 600-3	—	—	07 32-03	FCD600	—	QT600-3
0.7070	GGG 70	SNG 700/2	—	FGS 700-2	GS 700-2	FGS 70-2	07 37-01	FCD700	100-70-03	QT700-18

■ DÖVÜLEBİLİR DÖKME DEMİR

Almanya		İngiltere		Fransa	İtalya	İspanya	İsveç	Japonya	ABD	Çin
W-nr.	DIN	BS	EN	AFNOR	UNI	UNE	SS	JIS	AISI/SAE	GB
—	—	8 290/6	—	MN 32-8	—	—	08 14	FCMB310	—	—
—	GTS-35	B 340/12	—	MN 35-10	—	—	08 15	FCMW330	32510	—
0.8145	GTS-45	P 440/7	—	Mn 450	GMN45	—	08 52	FCMW370	40010	—
0.8155	GTS-55	P 510/4	—	MP 50-5	GMN55	—	08 54	FCMP490	50005	—
—	GTS-65	P 570/3	—	MP 60-3	—	—	08 58	FCMP540	70003	—
0.8165	GTS-65-02	P 570/3	—	Mn 650-3	GMN 65	—	08 56	FCMP590	A220-70003	—
—	GTS-70-02	P 690/2	—	Mn 700-2	GMN 70	—	08 62	FCMP690	A220-80002	—

YÜZEY PÜRÜZLÜLÜĞÜ

YÜZEY PÜRÜZLÜLÜĞÜ

(JIS B 0601-1994'den)

Tip	Kod	Belirleme	Belirleme Örneği (Şekli)
Aritmetik Ortalama Pürüzlülük	Ra	Ra aşağıdaki formül ile elde edilen değeri belirtir ve bu örneklenen parçanın uzunlamasına büyük boyundan Y eksenini ve ortalama hat doğrultusunda X eksenini alarak, ortalama çizginin yönünde pürüzlülük eğrisinden yalnızca referans uzunluk örneklediğinde mikrometre (μm) olarak ifade edilir ve pürüzlülük eğrisi $y=f(x)$ ile ifade edilir: $Ra = \frac{1}{l} \int_0^l f(x) dx$	
Maksimum Yükseklik	Rz	Rz referans uzunlukta yalnızca ortalama çizginin yönündeki pürüzlülük eğrisinden örneklenir, bu örneklenen bölümdeki üst profil tepe çizgisi ve alt profil çukur çizgisi arasındaki mesafe pürüzlülük eğrisini uzunlamasına büyük yönde ölçülür ve edinilen değer mikrometre (μm) olarak ifade edilir. Not) Rz bulunurken, istisnai derecede yüksek tepeye veya düşük çukura sahip olmayan, kusur olarak kabul edilebilen bir bölüm örneklem uzunluğu olarak seçilir. $Rz = R_p + R_v$	
On Noktalı Ortalama Pürüzlülük	RzJIS	RzJIS yalnızca referans uzunluğu ortalama çizgisinin yönünde pürüzlülük eğrisinden örneklediğinde olacaktır, bu örneklenen bölümün ortalama çizgisinin dikey büyük yönünde ölçülen en yüksek beş profil tepenin yüksekliklerinin (Yp) ve en derin beş profil çukur derinliklerinin (Yv) mutlak değerlerinin ortalama değerinin toplamıdır ve bu toplam mikrometre (μm) olarak ifade edilir. $Rz_{JIS} = \frac{(Y_{p1} + Y_{p2} + Y_{p3} + Y_{p4} + Y_{p5}) + (Y_{v1} + Y_{v2} + Y_{v3} + Y_{v4} + Y_{v5})}{5}$	$Y_{p1}, Y_{p2}, Y_{p3}, Y_{p4}, Y_{p5}$: l referans uzunluğuna karşılık gelen örneklenen bölümün en yüksek beş profil tepe yükseklikleri. $Y_{v1}, Y_{v2}, Y_{v3}, Y_{v4}, Y_{v5}$: l referans uzunluğuna karşılık gelen örneklenen bölümün en derin beş profil çukur yükseklikleri.

ARİTMETİK ORTALAMA (Ra) VE GELENEKSEL TANIMI (REFANS VERİ) ARASINDAKİ İLİŞKİ

Aritmetik Ortalama Pürüzlülük Ra		Maks. Yükseklik Rz	On Noktalı Ortalama Pürüzlülük RzJIS	Örneklem Uzunluğu Rz • RzJIS l (mm)	Genel Finitiş İşareti
Standart Seri	Limit Değeri λ_c (mm)	Standart Seri			
0.012 a	0.08	0.05s	0.05z	0.08	
0.025 a	0.25	0.1 s	0.1 z		
0.05 a		0.2 s	0.2 z	0.25	▽▽▽▽
0.1 a		0.4 s	0.4 z		
0.2 a	0.8	0.8 s	0.8 z	0.8	▽▽▽
0.4 a		1.6 s	1.6 z		
0.8 a		3.2 s	3.2 z		
1.6 a		6.3 s	6.3 z		
3.2 a	2.5	12.5 s	12.5 z	2.5	▽▽
6.3 a		25 s	25 z		
12.5 a		50 s	50 z		
25 a	8	100 s	100 z	8	▽
50 a		200 s	200 z		
100 a	—	400 s	400 z	—	—

*Üçü arasındaki bağıntı kolaylık için gösterilmiştir ve tam değildir.

*Ra: Rz ve RzJIS'nin değerlendirme uzunluğu sırasıyla limit değeri ve örneklem uzunluğunun 5 ile çarpılmasıdır.

SERTLİK KARŞILAŞTIRMA TABLOSU

ÇELİĞİN SERTLİK DÖNÜŞÜM SAYILARI

Brinell Sertliği (HB), 10 mm Bilye, Yük: 3000kgf		Vicker Sertlik (HV)	Rockwell Sertliği				Shore Sertliği (HS)	Çekme I Muka- vemeti (Yaklaşık) MPa	Brinell Sertliği (HB), 10 mm Bilye, Yük: 3000kgf		Vicker Sertlik (HV)	Rockwell Sertliği				Shore Sertliği (HS)	Çekme I Muka- vemeti (Yaklaşık) MPa
Standart Bilye	Tungsten Karbür Bilye		A Ölçeği, Yük: 60kgf, Elmas Nokta (HRA)	B Ölçeği, Yük: 100kgf, 1/16" Bilye (HRB)	C Ölçeği, Yük: 150kgf, Elmas Nokta (HRC)	D Ölçeği, Yük: 100kgf, Elmas Nokta (HRD)			Standart Bilye	Tungsten Karbür Bilye		A Ölçeği, Yük: 60kgf, Elmas Nokta (HRA)	B Ölçeği, Yük: 100kgf, 1/16" Bilye (HRB)	C Ölçeği, Yük: 150kgf, Elmas Nokta (HRC)	D Ölçeği, Yük: 100kgf, Elmas Nokta (HRD)		
—	—	940	85.6	—	68.0	76.9	97	—	429	429	455	73.4	—	45.7	59.7	61	1510
—	—	920	85.3	—	67.5	76.5	96	—	415	415	440	72.8	—	44.5	58.8	59	1460
—	—	900	85.0	—	67.0	76.1	95	—	401	401	425	72.0	—	43.1	57.8	58	1390
—	(767)	880	84.7	—	66.4	75.7	93	—	388	388	410	71.4	—	41.8	56.8	56	1330
—	(757)	860	84.4	—	65.9	75.3	92	—	375	375	396	70.6	—	40.4	55.7	54	1270
—	(745)	840	84.1	—	65.3	74.8	91	—	363	363	383	70.0	—	39.1	54.6	52	1220
—	(733)	820	83.8	—	64.7	74.3	90	—	352	352	372	69.3	(110.0)	37.9	53.8	51	1180
—	(722)	800	83.4	—	64.0	73.8	88	—	341	341	360	68.7	(109.0)	36.6	52.8	50	1130
—	(712)	—	—	—	—	—	—	—	331	331	350	68.1	(108.5)	35.5	51.9	48	1095
—	(710)	780	83.0	—	63.3	73.3	87	—	321	321	339	67.5	(108.0)	34.3	51.0	47	1060
—	(698)	760	82.6	—	62.5	72.6	86	—	—	—	—	—	—	—	—	—	—
—	(684)	740	82.2	—	61.8	72.1	—	—	311	311	328	66.9	(107.5)	33.1	50.0	46	1025
—	(682)	737	82.2	—	61.7	72.0	84	—	302	302	319	66.3	(107.0)	32.1	49.3	45	1005
—	(670)	720	81.8	—	61.0	71.5	83	—	293	293	309	65.7	(106.0)	30.9	48.3	43	970
—	(656)	700	81.3	—	60.1	70.8	—	—	285	285	301	65.3	(105.5)	29.9	47.6	—	950
—	(653)	697	81.2	—	60.0	70.7	81	—	277	277	292	64.6	(104.5)	28.8	46.7	41	925
—	(647)	690	81.1	—	59.7	70.5	—	—	269	269	284	64.1	(104.0)	27.6	45.9	40	895
—	(638)	680	80.8	—	59.2	70.1	80	—	262	262	276	63.6	(103.0)	26.6	45.0	39	875
—	630	670	80.6	—	58.8	69.8	—	—	255	255	269	63.0	(102.0)	25.4	44.2	38	850
—	627	667	80.5	—	58.7	69.7	79	—	248	248	261	62.5	(101.0)	24.2	43.2	37	825
—	—	677	80.7	—	59.1	70.0	—	—	241	241	253	61.8	100	22.8	42.0	36	800
—	601	640	79.8	—	57.3	68.7	77	—	235	235	247	61.4	99.0	21.7	41.4	35	785
—	—	640	79.8	—	57.3	68.7	—	—	229	229	241	60.8	98.2	20.5	40.5	34	765
—	578	615	79.1	—	56.0	67.7	75	—	223	223	234	—	97.3	(18.8)	—	—	—
—	—	607	78.8	—	55.6	67.4	—	—	217	217	228	—	96.4	(17.5)	—	33	725
—	555	591	78.4	—	54.7	66.7	73	2055	212	212	222	—	95.5	(16.0)	—	—	705
—	—	579	78.0	—	54.0	66.1	—	2015	207	207	218	—	94.6	(15.2)	—	32	690
—	534	569	77.8	—	53.5	65.8	71	1985	201	201	212	—	93.8	(13.8)	—	31	675
—	—	533	77.1	—	52.5	65.0	—	1915	197	197	207	—	92.8	(12.7)	—	30	655
—	514	547	76.9	—	52.1	64.7	70	1890	192	192	202	—	91.9	(11.5)	—	29	640
(495)	—	539	76.7	—	51.6	64.3	—	1855	187	187	196	—	90.7	(10.0)	—	—	620
—	495	528	76.3	—	51.0	63.8	68	1820	174	174	182	—	87.8	(6.4)	—	—	585
(477)	—	516	75.9	—	50.3	63.2	—	1780	170	170	178	—	86.8	(5.4)	—	26	570
—	—	508	75.6	—	49.6	62.7	—	1740	167	167	175	—	86.0	(4.4)	—	—	560
(461)	—	495	75.1	—	48.8	61.9	—	1680	143	143	150	—	78.7	—	—	22	490
—	477	508	75.6	—	49.6	62.7	66	1740	137	137	143	—	76.4	—	—	21	460
—	—	491	74.9	—	48.5	61.7	—	1670	149	149	156	—	80.8	—	—	23	505
—	461	491	74.9	—	48.5	61.7	65	1670	126	126	132	—	72.0	—	—	20	435
444	—	474	74.3	—	47.2	61.0	—	1595	131	131	137	—	74.0	—	—	—	450
—	—	472	74.2	—	47.1	60.8	—	1585	126	126	132	—	72.0	—	—	20	435
—	444	472	74.2	—	47.1	60.8	63	1585	121	121	127	—	69.8	—	—	19	415
—	—	472	74.2	—	47.1	60.8	—	1585	116	116	122	—	67.6	—	—	18	400
—	—	472	74.2	—	47.1	60.8	—	1585	111	111	117	—	65.7	—	—	15	385

Not 1) Yukarıdaki liste yaklaşık metrik değerlerde çekme mukavemeti ve önerilen aralık boyunca Brinell sertliği ile ilgili olarak AMS Metal El Kitabı'nınla aynıdır.

Not 2) 1MPa=1N/mm²

Not 3) () içinde yer alan rakamlar nadiren kullanılır ve referans için eklenmiştir. Bu liste JIS Çelik El Kitabı I'den alınmıştır.

P

TEKNİK BİLGİ

GEÇME TOLERANS TABLOSU (DELİK)

Standart Ölçülerin Sınıflandırılması (mm)		Deliklerin Geometrik Tolerans Bölgesinin Sınıfı															
>	≤	B10	C9	C10	D8	D9	D10	E7	E8	E9	F6	F7	F8	G6	G7	H6	H7
—	3	+180 +140	+85 +60	+100 +60	+34 +20	+45 +20	+60 +20	+24 +14	+28 +14	+39 +14	+12 +6	+16 +6	+20 +6	+8 +2	+12 +2	+6 0	+10 0
3	6	+188 +140	+100 +70	+118 +70	+48 +30	+60 +30	+78 +30	+32 +20	+38 +20	+50 +20	+18 +10	+22 +10	+28 +10	+12 +4	+16 +4	+8 0	+12 0
6	10	+208 +150	+116 +80	+138 +80	+62 +40	+76 +40	+98 +40	+40 +25	+47 +25	+61 +25	+22 +13	+28 +13	+35 +13	+14 +5	+20 +5	+9 0	+15 0
10	14	+220 +150	+138 +95	+165 +95	+77 +50	+93 +50	+120 +50	+50 +32	+59 +32	+75 +32	+27 +16	+34 +16	+43 +16	+17 +6	+24 +6	+11 0	+18 0
14	18																
18	24	+244 +160	+162 +110	+194 +110	+98 +65	+117 +65	+149 +65	+61 +40	+73 +40	+92 +40	+33 +20	+41 +20	+53 +20	+20 +7	+28 +7	+13 0	+21 0
24	30																
30	40	+270 +170	+182 +120	+220 +120	+119 +80	+142 +80	+180 +80	+75 +50	+89 +50	+112 +50	+41 +25	+50 +25	+64 +25	+25 +9	+34 +9	+16 0	+25 0
40	50	+280 +180	+192 +130	+230 +130													
50	65	+310 +190	+214 +140	+260 +140	+146 +100	+174 +100	+220 +100	+90 +60	+106 +60	+134 +60	+49 +30	+60 +30	+76 +30	+29 +10	+40 +10	+19 0	+30 0
65	80	+320 +200	+224 +150	+270 +150													
80	100	+360 +220	+257 +170	+310 +170	+174 +120	+207 +120	+260 +120	+107 +72	+126 +72	+159 +72	+58 +36	+71 +36	+90 +36	+34 +12	+47 +12	+22 0	+35 0
100	120	+380 +240	+267 +180	+320 +180													
120	140	+420 +260	+300 +200	+360 +200													
140	160	+440 +280	+310 +210	+370 +210	+208 +145	+245 +145	+305 +145	+125 +85	+148 +85	+185 +85	+68 +43	+83 +43	+106 +43	+39 +14	+54 +14	+25 0	+40 0
160	180	+470 +310	+330 +230	+390 +230													
180	200	+525 +340	+355 +240	+425 +240													
200	225	+565 +380	+375 +260	+445 +260	+242 +170	+285 +170	+355 +170	+146 +100	+172 +100	+215 +100	+79 +50	+96 +50	+122 +50	+44 +15	+61 +15	+29 0	+46 0
225	250	+605 +420	+395 +280	+465 +280													
250	280	+690 +480	+430 +300	+510 +300	+271 +190	+320 +190	+400 +190	+162 +110	+191 +110	+240 +110	+88 +56	+108 +56	+137 +56	+49 +17	+69 +17	+32 0	+52 0
280	315	+750 +540	+460 +330	+540 +330													
315	355	+830 +600	+500 +360	+590 +360	+299 +210	+350 +210	+440 +210	+182 +125	+214 +125	+265 +125	+98 +62	+119 +62	+151 +62	+54 +18	+75 +18	+36 0	+57 0
355	400	+910 +680	+540 +400	+630 +400													
400	450	+1010 +760	+595 +440	+690 +440	+327 +230	+385 +230	+480 +230	+198 +135	+232 +135	+290 +135	+108 +68	+131 +68	+165 +68	+60 +20	+83 +20	+40 0	+63 0
450	500	+1090 +840	+635 +480	+730 +480													

Not 1) İlgili kutuların üst bölümünde gösterilen değerler üst boyutsal toleransken, alt bölümde gösterilen değerler alt boyutsal toleranstır.

P

TEKNİK BİLGİ

Birimler: μm

Deliklerin Geometrik Tolerans Bölgesinin Sınıfı

H8	H9	H10	JS6	JS7	K6	K7	M6	M7	N6	N7	P6	P7	R7	S7	T7	U7	X7
+14 0	+25 0	+40 0	±3	±5	0 -6	0 -10	-2 -8	-2 -12	-4 -10	-4 -14	-6 -12	-6 -16	-10 -20	-14 -24	—	-18 -28	-20 -30
+18 0	+30 0	+48 0	±4	±6	+2 -6	+3 -9	-1 -9	0 -12	-5 -13	-4 -16	-9 -17	-8 -20	-11 -23	-15 -27	—	-19 -31	-24 -36
+22 0	+36 0	+58 0	±4.5	±7	+2 -7	+5 -10	-3 -12	0 -15	-7 -16	-4 -19	-12 -21	-9 -24	-13 -28	-17 -32	—	-22 -37	-28 -43
+27 0	+43 0	+70 0	±5.5	±9	+2 -9	+6 -12	-4 -15	0 -18	-9 -20	-5 -23	-15 -26	-11 -29	-16 -34	-21 -39	— —	-26 -44	-33 -51 -38 -56
+33 0	+52 0	+84 0	±6.5	±10	+2 -11	+6 -15	-4 -17	0 -21	-11 -24	-7 -28	-18 -31	-14 -35	-20 -41	-27 -48	— -33 -54	-33 -40 -61	-46 -56 -67 -77
+39 0	+62 0	+100 0	±8	±12	+3 -13	+7 -18	-4 -20	0 -25	-12 -28	-8 -33	-21 -37	-17 -42	-25 -50	-34 -59	—39 -64 -45 -70	-51 -76 -61 -86	—
+46 0	+74 0	+120 0	±9.5	±15	+4 -15	+9 -21	-5 -24	0 -30	-14 -33	-9 -39	-26 -45	-21 -51	-30 -60 -32 -62	-42 -72 -48 -78	-55 -85 -64 -94	-76 -106 -91 -121	—
+54 0	+87 0	+140 0	±11	±17	+4 -18	+10 -25	-6 -28	0 -35	-16 -38	-10 -45	-30 -52	-24 -59	-38 -73 -41 -76	-58 -93 -66 -101	-78 -113 -91 -126	-111 -146 -131 -166	—
+63 0	+100 0	+160 0	±12.5	±20	+4 -21	+12 -28	-8 -33	0 -40	-20 -45	-12 -52	-36 -61	-28 -68	-48 -88 -50 -90 -53 -93	-77 -117 -85 -125 -93 -133	-107 -147 -119 -159 -131 -171	—	—
+72 0	+115 0	+185 0	±14.5	±23	+5 -24	+13 -33	-8 -37	0 -46	-22 -51	-14 -60	-41 -70	-33 -79	-60 -106 -63 -109 -67 -113	-105 -151 -113 -159 -123 -169	—	—	—
+81 0	+130 0	+210 0	±16	±26	+5 -27	+16 -36	-9 -41	0 -52	-25 -57	-14 -66	-47 -79	-36 -88	-74 -126 -78 -130	—	—	—	—
+89 0	+140 0	+230 0	±18	±28	+7 -29	+17 -40	-10 -46	0 -57	-26 -62	-16 -73	-51 -87	-41 -98	-87 -144 -93 -150	—	—	—	—
+97 0	+155 0	+250 0	±20	±31	+8 -32	+18 -45	-10 -50	0 -63	-27 -67	-17 -80	-55 -95	-45 -108	-103 -166 -109 -172	—	—	—	—

P
TEKNİK BİLGİ

GEÇME TOLERANS TABLOSU (ŞAFT)

Standart Ölçülerin Sınıflandırılması (mm)		Şaftların Geometrik Tolerans Bölgesinin Sınıfı														
>	≤	b9	c9	d8	d9	e7	e8	e9	f6	f7	f8	g5	g6	h5	h6	h7
—	3	−140 −165	−60 −85	−20 −34	−20 −45	−14 −24	−14 −28	−14 −39	−6 −12	−6 −16	−6 −20	−2 −6	−2 −8	0 −4	0 −6	0 −10
3	6	−140 −170	−70 −100	−30 −48	−30 −60	−20 −32	−20 −38	−20 −50	−10 −18	−10 −22	−10 −28	−4 −9	−4 −12	0 −5	0 −8	0 −12
6	10	−150 −186	−80 −116	−40 −62	−40 −76	−25 −40	−25 −47	−25 −61	−13 −22	−13 −28	−13 −35	−5 −11	−5 −14	0 −6	0 −9	0 −15
10	14	−150 −193	−95 −138	−50 −77	−50 −93	−32 −50	−32 −59	−32 −75	−16 −27	−16 −34	−16 −43	−6 −14	−6 −17	0 −8	0 −11	0 −18
14	18															
18	24	−160 −212	−110 −162	−65 −98	−65 −117	−40 −61	−40 −73	−40 −92	−20 −33	−20 −41	−20 −53	−7 −16	−7 −20	0 −9	0 −13	0 −21
24	30															
30	40	−170 −232	−120 −182	−80 −119	−80 −142	−50 −75	−50 −89	−50 −112	−25 −41	−25 −50	−25 −64	−9 −20	−9 −25	0 −11	0 −16	0 −25
40	50	−180 −242	−130 −192													
50	65	−190 −264	−140 −214	−100 −146	−100 −174	−60 −90	−60 −106	−60 −134	−30 −49	−30 −60	−30 −76	−10 −23	−10 −29	0 −13	0 −19	0 −30
65	80	−200 −274	−150 −224													
80	100	−220 −307	−170 −257	−120 −174	−120 −207	−72 −107	−72 −126	−72 −159	−36 −58	−36 −71	−36 −90	−12 −27	−12 −34	0 −15	0 −22	0 −35
100	120	−240 −327	−180 −267													
120	140	−260 −360	−200 −300													
140	160	−280 −380	−210 −310	−145 −208	−145 −245	−85 −125	−85 −148	−85 −185	−43 −68	−43 −83	−43 −106	−14 −32	−14 −39	0 −18	0 −25	0 −40
160	180	−310 −410	−230 −330													
180	200	−340 −455	−240 −355													
200	225	−380 −495	−260 −375	−170 −242	−170 −285	−100 −146	−100 −172	−100 −215	−50 −79	−50 −96	−50 −122	−15 −35	−15 −44	0 −20	0 −29	0 −46
225	250	−420 −535	−280 −395													
250	280	−480 −610	−300 −430	−190 −271	−190 −320	−110 −162	−110 −191	−110 −240	−56 −88	−56 −108	−56 −137	−17 −40	−17 −49	0 −23	0 −32	0 −52
280	315	−540 −670	−330 −460													
315	355	−600 −740	−360 −500	−210 −299	−210 −350	−125 −182	−125 −214	−125 −265	−62 −98	−62 −119	−62 −151	−18 −43	−18 −54	0 −25	0 −36	0 −57
355	400	−680 −820	−400 −540													
400	450	−760 −915	−440 −595	−230 −327	−230 −385	−135 −198	−135 −232	−135 −290	−68 −108	−68 −131	−68 −165	−20 −47	−20 −60	0 −27	0 −40	0 −63
450	500	−840 −995	−480 −635													

Not 1) İlgili kutuların üst bölümünde gösterilen değerler üst boyutsal toleransken, alt bölümde gösterilen değerler alt boyutsal toleranstır.

Şaftların Geometrik Tolerans Bölgesinin Sınıfı

h8	h9	js5	js6	js7	k5	k6	m5	m6	n6	p6	r6	s6	t6	u6	x6
0 - 14	0 - 25	±2	±3	±5	+4 0	+6 0	+6 +2	+8 +2	+10 +4	+12 +6	+16 +10	+20 +14	—	+24 +18	+26 +20
0 - 18	0 - 30	±2.5	±4	±6	+6 +1	+9 +1	+9 +4	+12 +4	+16 +8	+20 +12	+23 +15	+27 +19	—	+31 +23	+36 +28
0 - 22	0 - 36	±3	±4.5	±7	+7 +1	+10 +1	+12 +6	+15 +6	+19 +10	+24 +15	+28 +19	+32 +23	—	+37 +28	+43 +34
0 - 27	0 - 43	±4	±5.5	±9	+9 +1	+12 +1	+15 +7	+18 +7	+23 +12	+29 +18	+34 +23	+39 +28	—	+44 +33	+51 +40 +56 +45
0 - 33	0 - 52	±4.5	±6.5	±10	+11 +2	+15 +2	+17 +8	+21 +8	+28 +15	+35 +22	+41 +28	+48 +35	— +54 +41	+54 +61 +48	+67 +54 +77 +64
0 - 39	0 - 62	±5.5	±8	±12	+13 +2	+18 +2	+20 +9	+25 +9	+33 +17	+42 +26	+50 +34	+59 +43	+64 +48 +70 +54	+76 +60 +86 +70	—
0 - 46	0 - 74	±6.5	±9.5	±15	+15 +2	+21 +2	+24 +11	+30 +11	+39 +20	+51 +32	+60 +41 +62 +43	+72 +53 +78 +59	+85 +66 +94 +75	+106 +87 +121 +102	—
0 - 54	0 - 87	±7.5	±11	±17	+18 +3	+25 +3	+28 +13	+35 +13	+45 +23	+59 +37	+73 +51 +76 +54	+93 +71 +101 +79	+113 +91 +126 +104	+146 +124 +166 +144	—
0 - 63	0 - 100	±9	±12.5	±20	+21 +3	+28 +3	+33 +15	+40 +15	+52 +27	+68 +43	+88 +63 +90 +65 +93 +68	+117 +92 +125 +100 +133 +108	+147 +122 +159 +134 +171 +146	—	—
0 - 72	0 - 115	±10	±14.5	±23	+24 +4	+33 +4	+37 +17	+46 +17	+60 +31	+79 +50	+106 +77 +109 +80 +113 +84	+151 +122 +159 +130 +169 +140	—	—	—
0 - 81	0 - 130	±11.5	±16	±26	+27 +4	+36 +4	+43 +20	+52 +20	+66 +34	+88 +56	+126 +94 +130 +98	—	—	—	—
0 - 89	0 - 140	±12.5	±18	±28	+29 +4	+40 +4	+46 +21	+57 +21	+73 +37	+98 +62	+144 +108 +150 +114	—	—	—	—
0 - 97	0 - 155	±13.5	±20	±31	+32 +5	+45 +5	+50 +23	+63 +23	+80 +40	+108 +68	+166 +126 +172 +132	—	—	—	—

DİŞ AÇMA İÇİN MATKAP ÇAPLARI

● Metrik Kaba Vida Dişi

Nominal	Matkap Çapı	
	HSS	Karbür
M1 ×0.25	0.75	0.75
M1.1×0.25	0.85	0.85
M1.2×0.25	0.95	0.95
M1.4×0.3	1.10	1.10
M1.6×0.35	1.25	1.30
M1.7×0.35	1.35	1.40
M1.8×0.35	1.45	1.50
M2 ×0.4	1.60	1.65
M2.2×0.45	1.75	1.80
M2.3×0.4	1.90	1.95
M2.5×0.45	2.10	2.15
M2.6×0.45	2.15	2.20
M3 ×0.5	2.50	2.55
M3.5×0.6	2.90	2.95
M4 ×0.7	3.3	3.4
M4.5×0.75	3.8	3.9
M5 ×0.8	4.2	4.3
M6 ×1.0	5.0	5.1
M7 ×1.0	6.0	6.1
M8 ×1.25	6.8	6.9
M9 ×1.25	7.8	7.9
M10 ×1.5	8.5	8.7
M11 ×1.5	9.5	9.7
M12 ×1.75	10.3	10.5
M14 ×2.0	12.0	12.2
M16 ×2.0	14.0	14.2
M18 ×2.5	15.5	15.7
M20 ×2.5	17.5	17.7
M22 ×2.5	19.5	19.7
M24 ×3.0	21.0	—
M27 ×3.0	24.0	—
M30 ×3.5	26.5	—
M33 ×3.5	29.5	—
M36 ×4.0	32.0	—
M39 ×4.0	35.0	—
M42 ×4.5	37.5	—
M45 ×4.5	40.5	—
M48 ×5.0	43.0	—

● Metrik İnce Vida Dişi

Nominal	Matkap Çapı	
	HSS	Karbür
M1 ×0.2	0.80	0.80
M1.1×0.2	0.90	0.90
M1.2×0.2	1.00	1.00
M1.4×0.2	1.20	1.20
M1.6×0.2	1.40	1.40
M1.8×0.2	1.60	1.60
M2 ×0.25	1.75	1.75
M2.2×0.25	1.95	2.00
M2.5×0.35	2.20	2.20
M3 ×0.35	2.70	2.70
M3.5×0.35	3.20	3.20
M4 ×0.5	3.50	3.55
M4.5×0.5	4.00	4.05
M5 ×0.5	4.50	4.55
M5.5×0.5	5.00	5.05
M6 ×0.75	5.30	5.35
M7 ×0.75	6.30	6.35
M8 ×1.0	7.00	7.10
M8 ×0.75	7.30	7.35
M9 ×1.0	8.00	8.10
M9 ×0.75	8.30	8.35
M10 ×1.25	8.80	8.90
M10 ×1.0	9.00	9.10
M10 ×0.75	9.30	9.35
M11 ×1.0	10.0	10.1
M11 ×0.75	10.3	10.3
M12 ×1.5	10.5	10.7
M12 ×1.25	10.8	10.9
M12 ×1.0	11.0	11.1
M14 ×1.5	12.5	12.7
M14 ×1.0	13.0	13.1
M15 ×1.5	13.5	13.7
M15 ×1.0	14.0	14.1
M16 ×1.5	14.5	14.7
M16 ×1.0	15.0	15.1
M17 ×1.5	15.5	15.7
M17 ×1.0	16.0	16.1
M18 ×2.0	16.0	16.3
M18 ×1.5	16.5	16.7
M18 ×1.0	17.0	17.1

Nominal	Matkap Çapı	
	HSS	Karbür
M20 ×2.0	18.0	18.3
M20 ×1.5	18.5	18.7
M20 ×1.0	19.0	19.1
M22 ×2.0	20.0	—
M22 ×1.5	20.5	—
M22 ×1.0	21.0	—
M24 ×2.0	22.0	—
M24 ×1.5	22.5	—
M24 ×1.0	23.0	—
M25 ×2.0	23.0	—
M25 ×1.5	23.5	—
M25 ×1.0	24.0	—
M26 ×1.5	24.5	—
M27 ×2.0	25.0	—
M27 ×1.5	25.5	—
M27 ×1.0	26.0	—
M28 ×2.0	26.0	—
M28 ×1.5	26.5	—
M28 ×1.0	27.0	—
M30 ×3.0	27.0	—
M30 ×2.0	28.0	—
M30 ×1.5	28.5	—
M30 ×1.0	29.0	—
M32 ×2.0	30.0	—
M32 ×1.5	30.5	—
M33 ×3.0	30.0	—
M33 ×2.0	31.0	—
M33 ×1.5	31.5	—
M35 ×1.5	33.5	—
M36 ×3.0	33.0	—
M36 ×2.0	34.0	—
M36 ×1.5	34.5	—
M38 ×1.5	36.5	—
M39 ×3.0	36.0	—
M39 ×2.0	37.0	—
M39 ×1.5	37.5	—
M40 ×3.0	37.0	—
M40 ×2.0	38.0	—
M40 ×1.5	38.5	—
M42 ×4.0	38.0	—

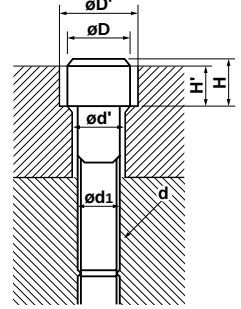
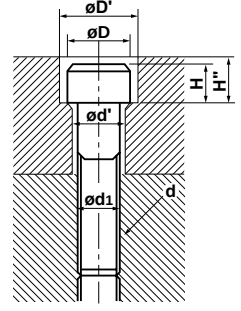
Nominal	Matkap Çapı	
	HSS	Karbür
M42 ×3.0	39.0	—
M42 ×2.0	40.0	—
M42 ×1.5	40.5	—
M45 ×4.0	41.0	—
M45 ×3.0	42.0	—
M45 ×2.0	43.0	—
M45 ×1.5	43.5	—
M48 ×4.0	44.0	—
M48 ×3.0	45.0	—
M48 ×2.0	46.0	—
M48 ×1.5	46.5	—
M50 ×3.0	47.0	—
M50 ×2.0	48.0	—
M50 ×1.5	48.5	—

Not 1) Delme koşulları nedeniyle delinmiş bir deliğin doğruluğu değişebildiğinden, delik boyutları ölçülmelidir ve diş açma deliği için uygunsuz bulunursa, delme ucu çapı buna göre düzeltilmelidir.

ALTİGEN SOKET BAŞLI CIVATA DELİĞİ ÖLÇÜLERİ

ALTİGEN SOKET BAŞLI VİDA VE CIVATA DELİĞİ İÇİN HAVŞA AÇMA BOYUTLARI Birim : mm

d dışın nominal ölçüleri	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
d ₁	3	4	5	6	8	10	12	14	16	18	20	22	24	27	30
d'	3.4	4.5	5.5	6.6	9	11	14	16	18	20	22	24	26	30	33
D	5.5	7	8.5	10	13	16	18	21	24	27	30	33	36	40	45
D'	6.5	8	9.5	11	14	17.5	20	23	26	29	32	35	39	43	48
H	3	4	5	6	8	10	12	14	16	18	20	22	24	27	30
H'	2.7	3.6	4.6	5.5	7.4	9.2	11	12.8	14.5	16.5	18.5	20.5	22.5	25	28
H''	3.3	4.4	5.4	6.5	8.6	10.8	13	15.2	17.5	19.5	21.5	23.5	25.5	29	32



P

TEKNİK BİLGİ

ULUSLARARASI BİRİMLER SİSTEMİ

■ SI BİRİMLERİNE DAHA KOLAY DÖNÜŞTÜRMEK İÇİN BİRİM ÇEVİRİM TABLOSU (Kalin harfler SI birimini belirtir)

● Basınç

Pa	kPa	MPa	bar	kgf/cm ²	atm	mmHgO	mmHg veya Tor
1	1×10 ⁻³	1×10 ⁻⁶	1×10 ⁻⁵	1.01972×10 ⁻⁵	9.86923×10 ⁻⁶	1.01972×10 ⁻¹	7.50062×10 ⁻³
1×10 ³	1	1×10 ⁻³	1×10 ⁻²	1.01972×10 ⁻²	9.86923×10 ⁻³	1.01972×10 ²	7.50062
1×10 ⁶	1×10 ³	1	1×10	1.01972×10	9.86923	1.01972×10 ⁵	7.50062×10 ³
1×10 ⁵	1×10 ²	1×10 ⁻¹	1	1.01972	9.86923×10 ⁻¹	1.01972×10 ⁴	7.50062×10 ²
9.80665×10 ⁴	9.80665×10	9.80665×10 ⁻²	9.80665×10 ⁻¹	1	9.67841×10 ⁻¹	1×10 ⁴	7.35559×10 ²
1.01325×10 ⁵	1.01325×10 ²	1.01325×10 ⁻¹	1.01325	1.03323	1	1.03323×10 ⁴	7.60000×10 ²
9.80665	9.80665×10 ⁻³	9.80665×10 ⁻⁶	9.80665×10 ⁻⁵	1×10 ⁻⁴	9.67841×10 ⁻⁵	1	7.35559×10 ⁻²
1.33322×10 ²	1.33322×10 ⁻¹	1.33322×10 ⁻⁴	1.33322×10 ⁻³	1.35951×10 ⁻³	1.31579×10 ⁻³	1.35951×10	1

Not 1) 1Pa=1N/m²

● Kuvvet

N	din	kgf
1	1×10 ⁵	1.01972×10 ⁻¹
1×10 ⁻⁵	1	1.01972×10 ⁻⁶
9.80665	9.80665×10 ⁵	1

● Gerilim

Pa	MPa veya N/mm ²	kgf/mm ²	kgf/cm ²
1	1×10 ⁻⁶	1.01972×10 ⁻⁷	1.01972×10 ⁻⁵
1×10 ⁶	1	1.01972×10 ⁻¹	1.01972×10
9.80665×10 ⁶	9.80665	1	1×10 ²
9.80665×10 ⁴	9.80665×10 ⁻²	1×10 ⁻²	1

Not 1) 1Pa=1N/m²

● İş / Enerji / Isı Miktarı

J	kW•s	kgf•m	kcal
1	2.77778×10 ⁻⁷	1.01972×10 ⁻¹	2.38889×10 ⁻⁴
3.600 ×10 ⁶	1	3.67098×10 ⁵	8.6000 ×10 ²
9.80665	2.72407×10 ⁻⁶	1	2.34270×10 ⁻³
4.18605×10 ³	1.16279×10 ⁻³	4.26858×10 ²	1

Not 1) 1J=1W•s, 1J=1N•m
1cal=4.18605J
(Ağırlık ve ölçüler yasası ile)

● Güç (Üretim / Tahrik Gücü Oranı) / Isı Akışı Oranı

W	kgf•m/s	PS	kcal/s
1	1.01972×10 ⁻¹	1.35962×10 ⁻³	8.6000 ×10 ⁻¹
9.80665	1	1.33333×10 ⁻²	8.43371
7.355 ×10 ²	7.5 ×10	1	6.32529×10 ²
1.16279	1.18572×10 ⁻¹	1.58095×10 ⁻³	1

Not 1) 1W=1J/s, PS:Fransız beygir gücü
1PS=0.7355 kW
1cal=4.18605J
(Ağırlık ve ölçüler yasası ile)

[illegible]

İNDEKS

TAKIM NUMARASI İÇİN İNDEKS

A.....	2
B.....	2
C.....	2
D.....	2
E.....	2
F.....	2
G.....	2
H.....	2
J.....	2
K.....	2
L.....	2
M.....	3
N.....	3
P.....	3
R.....	3
S.....	3
T.....	4
U.....	4
V.....	4
W.....	4



TAKIM NUMARASI İÇİN İNDEKS

Sipariş Numarası	ÜRÜN ADI	Sayfa	Sipariş Numarası	ÜRÜN ADI	Sayfa
A			G		
AJS0000T00	Bağlama vidası	N003	GY05016S	Bağlama vidası	N004
AMS0	Bağlama pabucu	N015	GY06013M	Bağlama vidası	N004
B			H		
BCP000	Altılık pimi	N014	HBH00000	Bağlama vidası	N002
BOES101	Tespit civatası	N009	HBHA00000	Bağlama vidası	N002
BPT322	Altılık	N011	HDS00000	Bağlama vidası	N009
BRS000	Bağlama vidası	N003	HFF06015	Bağlama vidası	N004
C			HFF08000H	Bağlama vidası	N009
CA000	Bağlama pabucu	N015	HKY000D	Tornavida	N002
CAS51T	Tespit vidası	N003	HKY000F	Bayrak anahtar	N002
CBS0	Kırıcı parça	N017	HKY000L	L-anahtarı	N002
CBS00	Kırıcı parça	N017	HKY000R	L-anahtarı	N002
CBT0	Kırıcı parça	N017	HKY000T	T-anahtarı	N002
CBT00	Kırıcı parça	N017	HKY000W	Bayrak anahtar	N002
CBT0000	Kırıcı parça	N017	HS00	Bağlama vidası	N004
CCK00	Bağlama pabucu	N015	HSC00000	Bağlama vidası	N002, N009
CCP00	Altılık pimi	N014	HSC00000H	Tespit civatası	N009
CCTC1	Bağlama pabucu	N015	HSCX00000H	Tespit civatası	N009
CK000	Bağlama pabucu	N015	HSP05008C	Kilit vidası	N004
CKW6	Bağlama pabucu	N016	HSS00000	Bağlama vidası	N002
CS00	Altılık	N011	HY0	Kovan vidası	N004
CSF401260T	Bağlama vidası	N003	HY-A1	Kovan vidası	N004
CS0000T	Bağlama vidası	N003	HY-V1	Kovan vidası	N004
CS0000000T	Bağlama vidası	N003	J		
CS00000000T	Bağlama vidası	N003	JFS0	AYAR BURCU takım (set) numarası	M172
CS00000000TS	Bağlama vidası	N003	JFS0000000	AYAR BURCU (JFS)	M172
CT00	Altılık	N011	JSS0	Altılık vidası	N004
CT32T1	Altılık	N012	K		
D			KGC1	Bağlama pabucu	N016
DCK0000	Bağlama pabucu	N016	KS0	Eksenel vida	N004
DCSVN32	Altılık	N011	KS00	Tespit civatası	N004
DC0000T	Bağlama vidası	N003	KSN0	Bağlama vidası	N010
DKS0	Bağlama vidası	N003	KSN3	Mikro metrik ayar somunu	N010
DLE0000S000P000	DLE tip pilot matkap	M012, M013	KS0S	Önceden ayarlanmış vida	N004
DSAS0000X00S000	DSAS tip matkap	M096—M098	KSS0	Bağlama vidası	N010
DWAE0000X00S000	MINI-DWAE Tip matkap	M020	KSS2	Kaba ayar civatası	N010
DWAE0000X00S000	DWAE tip matkap	M021—M026	L		
E			LK1	Bağlama pabucu	N016
EGS00000	Bağlama vidası	N004	LLCL000	Bağlama kolu	N014
ESS42	Altılık	N011	LLCL000S	Bağlama kolu	N014
EST00	Altılık	N011	LLCS000	Bağlama vidası	N005
F			LLCS0000S	Bağlama vidası	N005
FC400890T	Bağlama vidası	N004	LLP00	Altılık pimi	N014
			LLR0	Radyal vida	N004

Sipariş Numarası	ÜRÜN ADI	Sayfa	Sipariş Numarası	ÜRÜN ADI	Sayfa
LLSCN	Altılık	N011	MNS	MNS tip matkap	M100–M117
LLSCN	Altılık	N011	MNS	MNS tip matkap DIN6537	
LLSCP	Altılık	N011		(Açılı weldon şaftlı tip)	M100–M119
LLSDN	Altılık	N011	MNS	MNS tip matkap DIN6537	
LLSDP42	Altılık	N011		(Silindirik şaftlı tip)	M100–M119
LLSRN	Altılık	N011	MP6	Altılık pimi	N014
LLSSN	Altılık	N011	MPS	MPS tip matkap	M062–M072
LLSSP42	Altılık	N011	MPS	MPS tip matkap	M062–M073
LLSTE32	Altılık	N012	MPS1	MPS1 tip matkap	M044–M058
LLSTN	Altılık	N012	MPS1	MPS1 tip matkap	M044–M058
LLSTP	Altılık	N012	MPS1	MPS1 tip matkap DIN6537	
LLSWN	Altılık	N012		(Açılı weldon şaftlı tip)	M044–M058
LLSWN	Altılık	N012	MPS1	MPS1 tip matkap DIN6537	
LLSWP	Altılık	N012		(Silindirik şaftlı tip)	M044–M058
LS	Bağlama vidası	N005	MSCN63	Altılık	N012
LS	Bağlama vidası	N005	MSE	MSE tip matkap	M008, M009
LS	Bağlama vidası	N005	MSL	MSL tip matkap	M074–M076
LS	Bağlama vidası	N005	MSP0300SB	MSP tip spot matkap	M011
LS10TS	Bağlama vidası	N005	MSSN63	Altılık	N012
LS24H	Bağlama vidası	N005	MTK	Bağlama pabucu	N016
M			MVS	MINI-MVS tip matkap	M036, M037
MAE	MAE tip matkap		MVX	MVX tip matkap	M160–M167
	(Dışdan soğutma sıvısı)	M124–M128	MWS	MINI-MWS tip matkap	M040, M041
MAS	MAS tip matkap		N		
	(İçten soğutma sıvısı)	M124–M128	NS	Bağlama vidası	N006
MBA	Bağlama vidası	N009	NS	Bağlama vidası	N006
MCA	MCA tip matkap	M189	P		
MCAH	MCAH tip matkap	M193	P	Kilit pimi	N015
MCC	MCC tip matkap	M188	PS	Altılık	N011
MCCH	MCCH tip matkap	M192	PT	Altılık	N011
MCT	MCT tip matkap	M190	PT	Altılık	N012
MCW	MCW tip matkap	M191	P	Kilit pimi	N015
MFE	MINI-MFE tip matkap	M018	PV	Altılık	N013
MGS6	Bağlama vidası	N005	P	Kilit pimi	N015
MGS	MICRO-MGS tip matkap	M079	P	Kilit pimi	N015
MHK5NR/L	Bağlama pabucu	N016	R		
MHS	MHS tip matkap	M130–M137	RKY	Anahtar	N002
MHS	Altılık	N012	RN-S	Bağlama vidası	N006
MHT1	Bağlama vidası	N005	RS	Bağlama vidası	N006
MK1K	Sıkışma önleyici yağ	N018	S		
MK1KS	Sıkışma önleyici yağ	N018	S	Bağlama vidası	N006
MLCP42	Altılık	N012	SD	Tespit civatası	N006
MLDP42	Altılık	N012	SETK	Bağlama pabucu	N016
MLSP42	Altılık	N012	SETS	Bağlama vidası	N006
MLTP32	Altılık	N012	SLCS	Bağlama vidası	N006
MMS	MMS tip matkap	M082–M093	SOMX	Kesici uç (MVX tip matkap için)	M168
MMS	MMS tip matkap	M082–M093			
MMS	MMS tip matkap	M082–M093			
MNS	MNS tip matkap	M100–M117			

TAKIM NUMARASI İÇİN İNDEKS

Sipariş Numarası	ÜRÜN ADI	Sayfa	Sipariş Numarası	ÜRÜN ADI	Sayfa
SPSVN32	Altılık	N013	W		
SPS1	Konumlandırma vidası	N006	WCS	Altılık vidası	N008
SRK1R	Bağlama pabucu	N016	WPSTN	Altılık	N013
SRS5	Bağlama vidası	N006	WPSWC43	Altılık	N013
STASX	Altılık	N013	WPSWN43	Altılık	N013
STAWN	STAW tip matkap için	M141–M143	WPT4405	Levha (TAW matkap için)	M150–M154
STAWN	Kesici uç (STAW tip matkap için)	M145	WS	Bağlama vidası	N008
STAWN	Kesici uç (STAW tip matkap için)	M144, M145	WS	Bağlama vidası	N008
STAW	STAW tip matkap	M141–M143			
STBS500N	Altılık	N013			
STS1	Altılık vidası	N006			
T					
TAWN	Kesici uç (TAW tip matkap için)	M155, M156			
TAWN	TAW tipi matkap ucu (Genel kullanım)	M150–M154			
TIP	Anahtar	N002			
TKYD	Tornavida	N002			
TKYF	Bayrak anahtar	N002			
TKYL	Uzun anahtar	N002			
TKYR	L-anahtarı	N002			
TKYT	T-anahtarı	N002			
TKYW	Bayrak anahtar	N002			
TPS	Bağlama vidası	N008			
TPS	Bağlama vidası	N008			
TPS	Bağlama vidası	N008			
TPS	Bağlama vidası	N008			
TPS-1	Bağlama vidası	N008			
TS	Bağlama vidası	N007			
TS	Bağlama vidası	N007			
TS	Bağlama vidası	N007			
TS	Bağlama vidası	N007			
TSR	Bağlama vidası	N008			
TSS	Radyal vida	N008			
TSS	Bağlama vidası	N008			
U					
UCR	Bağlama pabucu	N016			
V					
VAPDM	VIOLET matkap	M179–M181			
VAPDS	VIOLET matkap	M174–M177			
VAPDSCB	VIOLET matkap	M185, M186			
VSD	VIOLET matkap, Düz şaftlı	M183, M184			

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