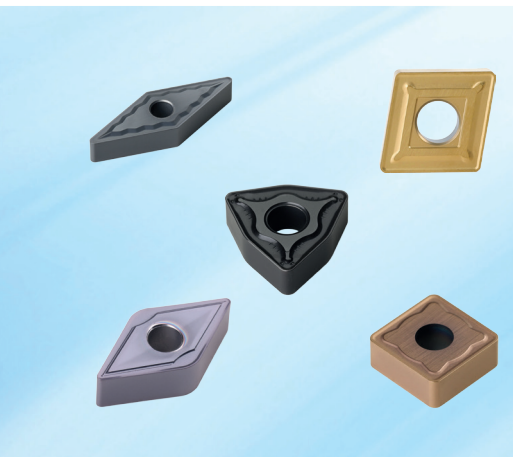
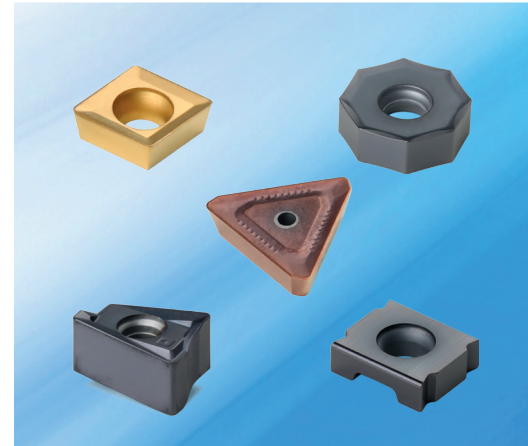
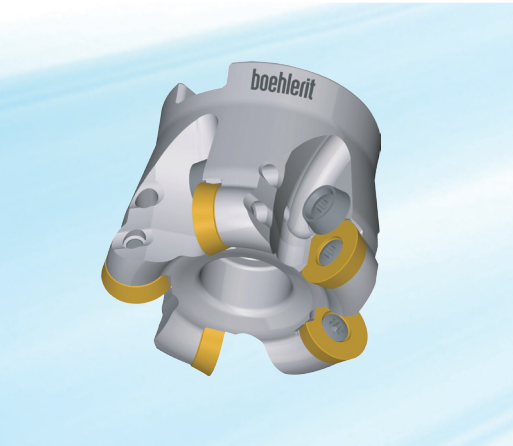
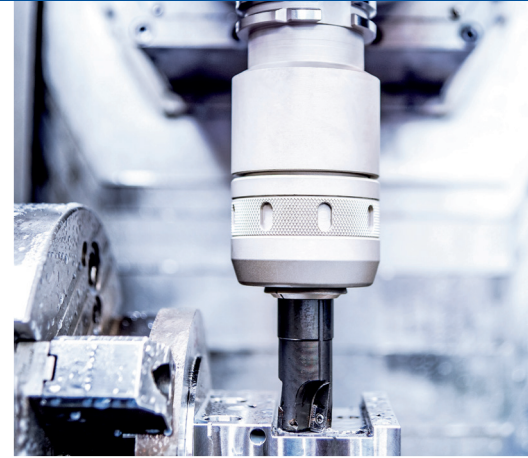
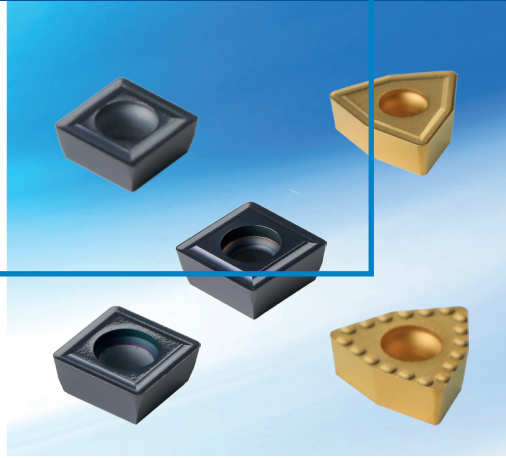
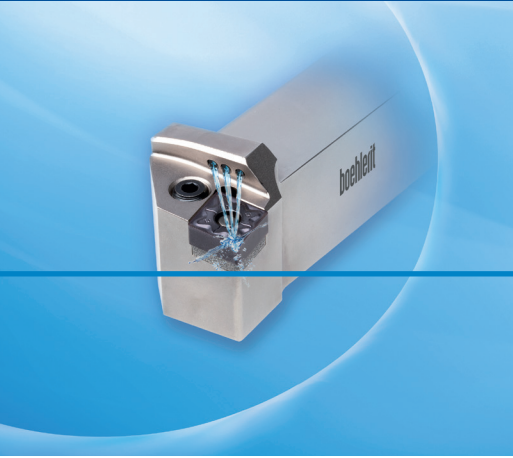


boehlerit

Boehlerit Türkiye Kesici Takımlar Kataloğu Boehlerit Türkiye Cutting Tools Catalogue





Hakkımızda
About Us

Boehlerit Sert Metal, Türkiye'nin İlk Sert Metal Üreticisi

BOEHLERIT Sert Metal ve Takım Sanayi ve Ticaret A.Ş. imalat sanayinin önemli ara mamüllerinden biri olan sert metal ürünlerinin imalatını gerçekleştirmek amacıyla 23 Haziran 1967 yılında Kartal / İstanbul' da kurulmuştur. 2013 Temmuz ayından günümüze Gebze Organize Sanayi Bölgesi'nde yeni üretim tesisinde 11.000 m2 arazi içerisinde ve 7.500 m2 kapalı alan (5.000 m2 üretim, 2.500 m2 ofisler) üzerinde yer alan tesiste yaklaşık 134 personel görev yapmaktadır.



Dünyada sert metal üretimini gerçekleştiren ilk iki firmadan birisi olan Boehlerit GmbH & Co KG / Avusturya iştiraki ile faaliyete geçen BOEHLERIT Sert Metal, en son teknolojiye uygun üretim imkanları ve güçlü servis teşkilatı ile 1967' den beri ülkemizin yanısıra dünyanın önemli endüstri ülkeleri ile uluslararası pazarlarda kalitesini kanıtlamıştır. Boehlerit Sert Metal'in en güçlü ürünleri tornalama ve frezeleme için standart takım ve uçlar kabuk soyma, boru ve krank shaft işleme gibi ağır işlemeye yönelik takım sistemleridir. Uzman olduğu diğer alanlar özel parçalar, talaşsız şekillendirme ve aşınma parçalarıdır. Uzun bir süreden beri Toplam Kalite felsefesini benimseyen BOEHLERIT Sert Metal, müşterilerine sunmuş olduğu ürün ve sağladığı hizmetlerle ilgili olarak ISO 9001:2015 Kalite Sistem Belgesine sahiptir.

Konusunda ülkemizin tek üretici firması olan ve başta otomotiv, medikal, havacılık, kalıp endüstrisi, makina imalat sanayi, demir-çelik endüstrisi ve dökümhaneler, kesici takım endüstrisi, madencilik endüstrisi, tekstil sanayi, seramik ve tuğla endüstrisi, plastik ve ahşap sanayi gibi bir çok alanda ihtiyaç duyulan sert metal ürünlerin imalatını yapmaktadır.

Türkiye'nin ilk sert metal üreticisi konumunda olan şirketimiz 55 yıllık başarılı bir geçmişe sahip olmanın haklı gururunu yaşamaktadır. Sürekli gelişmemizi yurt içi ve yurt dışındaki müşterilerimizin takdir ve desteklerine borçlu olduğumuzun bilincindeyiz.

BOEHLERIT SERT METAL VE TAKIM SANAYİ VE TİCARET A.Ş.

Boehlerit Sert Metal, First Carbide Manufacturer in Turkey

Boehlerit Sert Metal ve Takım Sanayi ve Ticaret A.S. was founded on 23 June 1967 in Kartal/Istanbul in an attempt to manufacture carbide products as one of the important intermediate products of the manufacturing industry. Having been located in Gebze Organized Industrial Zone from July 2013 to present within an estate of 11.000sqm, our new manufacturing plant with an indoor area of 7.500sqm (5.000sqm for manufacturing yard, 2.500sqm for offices), employs approximately 134 personnel.

Having begun to operate as a subsidiary of Boehlerit GmbH & Co KG/Austria, one of the first two manufacturers of carbides in the world, BOEHLERIT Sert Metal proved its quality not only in our country but also in such international markets as Pakistan, Iran, Saudi Arabia, United Arab Emirates, Jordan, Egypt, Tunisia, Hungary, Romania, Austria, USA, China, Canada and Germany since 1967 with its state-of-the-art production facilities and vigorous service organization. Having adopted the philosophy of Total Quality for a long time BOEHLERIT Sert Metal holds a ISO 9001:2015 Quality System Certification corresponding with its products and services offered and provided to its customers.

Being the sole manufacturer in our country in its scope and manufacturing such carbide products as needed in many segments notably as automotive industry, machine manufacturing industry, iron – steel industry and foundries, cutting tool industry, mining industry, textile industry, ceramic and brick industry, plastic and wood industries, as well as many other areas of the world.

Being the first carbide manufacturer in Turkey, our company is taking justified pride of having a 55 year prosperous background. We are well aware that we owe our continuous improvement to our domestic and overseas customers' appreciation and support.

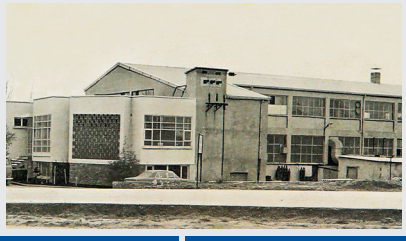
Not confining itself to rendering attentive service to its hundreds of customers in Turkey for 55 years and generating inflow of foreign currency in the country by way of exporting to more than 16 countries, our company would be honored to work with you as well. Our customer portfolio includes all major companies in Turkey manufacturing tubes & pipes, rendering service to the automotive sector and manufacturing machines.

BOEHLERIT SERT METAL VE TAKIM SANAYİ VE TİCARET A.Ş.



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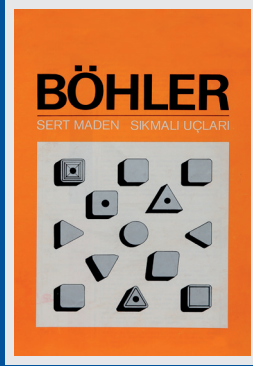
1967 yılında Kartal'da
kurulan ilk fabrikamız



1968 İlk kadın
çalışanlarımız



1972 Üretimimiz



5

ÇÖZÜM ORTAĞI



2022 Gebze Organize Sanayi
Bölgesi modern ve teknolojik
donanımlı fabrikamız



Boehlerit Sert Metal teknolojik
makina parkı



2018 Şirketler Birliği yeni
Kurumsal Tasarım değişikliğimiz

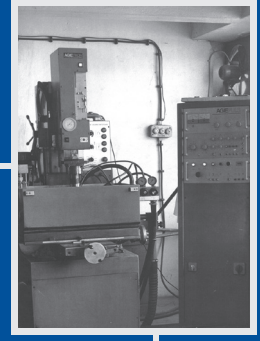
1976 Böhler'in taş kırıcı
matkapları



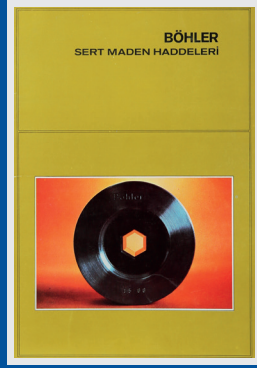
1978 Böhler aracı maden
ocaklarında



1980
İlk Makinalarımız



5
YILLIK



1967-2022 



2017 50. Kuruluş Yıldönümü
Kutlamamız



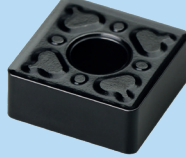
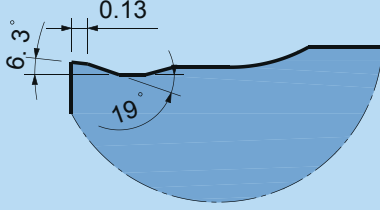
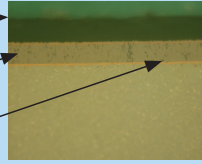
2013 Gebze organize Sanayi Bölgesi
yeni fabrikamızın açılış töreni



Böhler Sert Maden 1988 İkinci
Binamız

Teknolojik avantajlar Technological advantages

Müşteri Faydası Customer Benefits

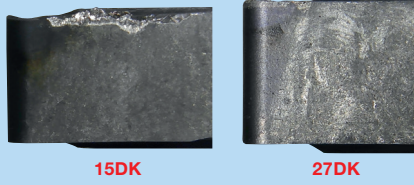
Talaş yüzeyi üzerinde yüksek sıcaklık direncine sahip seramik kaplama Smooth heat-resistant ceramic coating on the rake face.		Serbest yüzey kenarında geç aşınma ve daha az talaş yapışma eğilimi High wear resistance on the clearance and low tendency of built up material.
Özel kenar fazı ile modifiye edilmiş yeni MF1 talaş kırıcı formu Specially designed chipbreaker MF1 with modified chamfer.		Güvenli talaş kırma, titreşimi azaltma, daha rahat talaş atımı Safe chip breaking, vibration suppression low tendency of chip breakage
BTCP15T ve BTCP25T için α AL2O3 Alpha kaplama AL2O3 CVD coating for BTCP15T and BTCP25T	Aluminium oxide (Al₂O₃) Titanium carbonitride (TiCN) Titanium nitride (TiN) 	Güvenli CVD kaplamanın gücü, küçük iş parçaları, düşük kesme hızları ve farklı uygulamalar için uygunluk The strength of the process-safe CVD coating is on small components, low cutting speeds and on many entries on the material.
Kaplama sonrası yüzey iyileştirme operasyonu ile daha parlak yüzeyler Brighter surfaces with surface improvement operation after coating	Kaplama sonrası işlem görmeyen Kaplama sonrası yüzey işlemi gören  Kaplama sonrası yapılan yüzey işlemiyle daha az sürtünme daha rahat talaş kontrolü	Çalışma sırasında daha az sürtünme, rahat talaş akışı ve uzun takım ömrü. Less friction during operation, smooth chip flow and long tool life.

Teknolojik avantajlar Technological advantages

Müşteri Faydası Customer Benefits

Aşınma direnci yüksek yeni PVD kaplama ile serbest yüzey aşınmasına güçlü bir şekilde karşı koyan ısıya dayanıklı ALTIN katmanı ile korunmaktadır.

A wear-resistant PVD coating strongly counteracts flank wear is protected by a heat-resistant ALTIN layer.



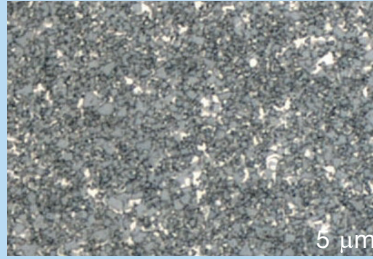
Yüksek aşınma ve sıcaklık direncine sahip kaplama, yüksek kesme hızları ve uzun takım ömrü için geliştirilmiştir.

Due to the wear resistance as well as the temperature resistance this coating is optimal for big cutting speeds and long tool life.

Geniş bir uygulama alanını kapsayacak şekilde ince tenecik yapısına sahip freze kaliteleri için çeşitli karbür alt yapılar kullanılır: kaba işlemekten ince talaşlara, dökümden paslanmaz çelik malzemelere, süper alaşım ve alüminyum malzeme gruplarının farklı freze uygulamaları için geliştirilen toz kaliteleridir.

Substrates

Various carbide substrates are used to produce the range of milling grades fine-tuned to cover an extensive range of applications: from roughing to finishing, from cast to stainless steel materials superalloy and aluminium, from face to step milling.



Farklı toz kaliteleri ile her müşterinin ihtiyaçlarına çözüm sunulmaktadır: Minimum seviyede serbest yüzey aşınması, kesme kenar yüzeyinin kuvvetli oluşu, termal çatlakların oluşmaması ve yüksek krater direnci ile uzun takım ömürleri sağlanmış olur.

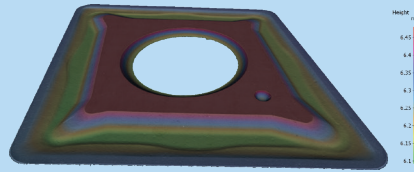
This is how we ensure that every customer requirement is met: be it minimal flank wear, resistance to chipping of the cutting edge, resistance to thermal cracking or crater wear.

Hassas optik ölçüm sistemi:

Ar-Ge desteği aldığımız optik ölçüm sistemi ile sert metal uçların talaş kırıcı geometrileri tespit edilir, mikro ölçümleri yapılarak kalıp tasarımlarına aktarılmış olur.

Precision optical measurement system

The chip breaking geometries of the hard metal inserts are determined with the optical measurement system by R&D support, micro-measurements are made and transferred to the mold designs.



Etkin talaş kırıcı formu ve kenar yüzeyleri ile müşterilerimizin zaman kazancı ve uzun takım ömrü garanti edilmektedir.

Customers' time savings and long tool life are guaranteed with the effective chip breaker form and edge surfaces.

Üretim Takip Sistemi:

Endüstri 4.0 uygulamalarına paralel olarak üretim süreçlerinin optimize edildiği, hızlı üretim ve zamanında terminleme yapabildiğimiz üretim maliyetlerimizin de değerlendirildiği üretim kontrol sistemidir.

Manufacturing Execution System

It is a production control system in which production processes are optimized in parallel with Industry 4.0 applications, our production costs are evaluated, where we can make fast production and timely termination.



Müşterilerimize hızlı teslimat yapılmakta ve süreç bilgisi verilmekte üretim maliyetlerindeki iyileştirmeler yansıtılmaktadır.

Fast delivery is made to our customers, process information is provided and improvements in production costs are reflected.

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Mekanik sıkmalı frezeleme
takım ve uçları
Indexable milling tools
and inserts

Mekanik sıkmalı frezeleme
takım ve uçları
Indexable milling tools
and inserts



Kalite Grade	Kalite (Eski) Grade (Old)	ISO Grade	Uygulama aralığı Application range	Malzeme grupları Material group										Uygulama Application		
				P	M	K	N	S	H	T	M	D				
			05 15 25 35 45 01 10 20 30 40 50	Çelik Steel	Paslanmaz Çelik Stainless	Gri Dökme Demir Grey cast iron	Demir Dış Malzemeler Ferrous metals	Soğuk İş Malzemeleri High temperature materials	Sert Malzemeler Hard materials	Tornalama Turning	Frezeleme Milling	Delik delme Drilling				
BTCP20M	BC2630	HC-P15		■							●					
		HC-M15			□						●					
BTCP25M	BC2688	HC-P25		■							●					
		HC-M25			□						●					
BTCP35M	BC9488	HC-P35		■							●					
		HC-M35			□						●					
BTCM35M	BC7388	HC-M35			■						●					
		HC-S35						■			●					
BTCK15M	BC7510	HC-K15				■					●					
BTCK20M	BC7590	HC-K25				■			□		●					
		HC-P10		■							●					
BTCK25M	BC7588	HC-K30				■					●					
BTCN10M	BC7170	HC-N10					■				●					
		HC-P10		■							●					
BTWN10M	BS710	HW-N10					■				●					
BTCH10M	BC7105	HC-H15		□					■		●					
BTCH30M	BC7303	HC-H25		□					■		●					

Kullanım alanı
Application peak

ISO 513'e göre kullanım alanı
Full range to ISO 513

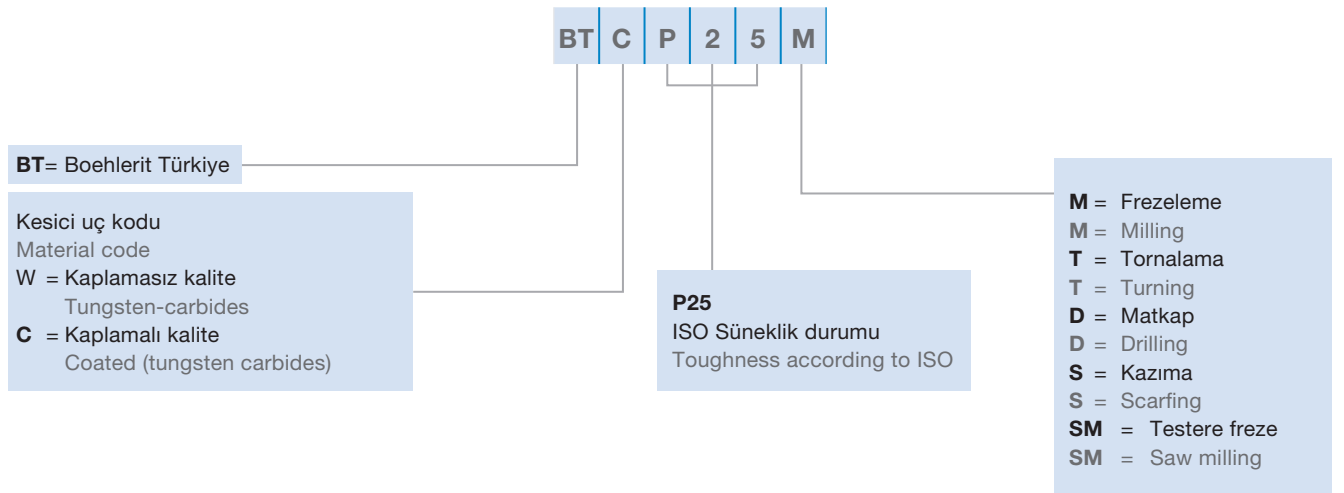
■ Ana uygulama
Main application

□ İlave uygulama
Further applications

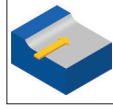
● Standart kalite
Standard grade

Uç kodlama sistemi Designation system

Uç kaliteleri kodlama sistemi Cutting materials designation system

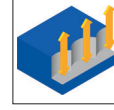


Yüzey frezeleme
Face milling



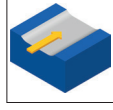
1

Dalma frezeleme
Plunge milling



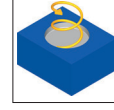
7

Cep frezeleme
Pocket milling



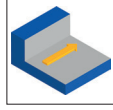
2

Helisel frezeleme
Helical ramping



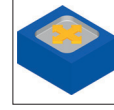
8

Kenar frezeleme
Edge milling



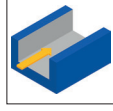
3

Havuz boşaltma
Pocketing



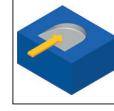
9

Kanal frezeleme
Slot milling



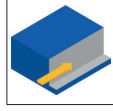
4

Açılı işleme
Linear ramping



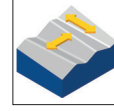
10

Duvar frezeleme
Trimming



5

Kopya frezeleme
Copy milling



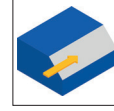
11

Trokoidal frezeleme
Trochoidal milling



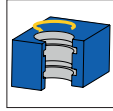
6

Pah frezeleme
Chamfering



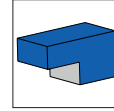
12

İç kanal frezeleme
Internal groove milling



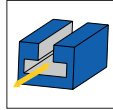
13

Alt yüzey frezeleme
Bottom shouldering



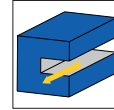
14

T kanal frezeleme
T slotting



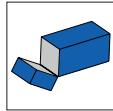
15

Yanal kanal frezeleme
Side slotting



16

Dilimleme
Slitting



17

• **BTCP20M (HC-P15-M15)**

CVD kaplamalı BTCP25M'e alternatif olan sert kalite yüksek aşınma ve sürtünme direncine sahiptir. Yüksek kesme hızlarında yapılan yüzey frezeleme uygulamaları ve kuru işlemler için geliştirilmiş bir kalitedir.

Harder alternative to the BCP25M grade, with HR-CVD coating; high resistance to abrasive wear. Perfectly suited for face milling of steel materials at higher cutting speed under stable conditions and economic dry machining.

• **BTCP25M (HC-P25-M25)**

PVD kaplamalı kalite alaşımlı, alaşımsız ve yüksek alaşımlı çelikler ve paslanmaz çeliklerin kuru ve özellikle sulu olarak orta ve yüksek kesme hızlarında, orta ve büyük talaş kesit ve ilerleme değerlerinde frezelenmesinde yüksek aşınma ve kırılma dayanımına sahip bir kalitedir.

Multi purpose grade for milling unalloyed, low alloyed, high alloyed and stainless steel. The PVD coated grade is especially suitable for high cutting speeds on dry machining / wet machining under stable conditions.

• **BTCP35M (HC-P35-M35)**

PVD kaplamalı 90 freze uygulamaları için geliştirilmiş sünek bir kalitedir. Özellikle kuru çalışma koşullarında düşük ve orta kesme hızlarında zor çalışma koşulları için uygundur.

Universal steel milling grade in combination with 90° approach angle. A PVD layer and a tough carbide grade for milling of the most usual steel qualities. Especially good suitable for dry milling at low to medium cutting speeds under difficult conditions.

• **BTM35M (HC-M35-S35)**

PVD kaplamalı ince tanecik yapısına sahip yüksek aşınma dayanımına sahip frezeleme kalitesi paslanmaz ve östenitik paslanmaz kuru ve ıslak çalışma koşulları için uygundur.

Wear-resistant PVD coating, fine-grain grade for machining stainless and austenitic stainless materials; suitable for wet and dry machining.

• **BTCK15M (HC-K10)**

CVD kaplamaya sahip gri dökme demir, sfero döküm ve temperlenmiş döküm ve alaşımlı döküm malzemelerin frezelenmesi için geliştirilmiş yüksek aşınma direnci ve tokluğa sahip ideal bir kalitedir.

Hard and wear-resistant HR-CVD multilayer coating. Ideal for machining of grey cast iron (GJL), spheroidal graphite cast iron (GJS), tempered cast iron and alloyed cast iron.

• **BTCK20M (HC-K10-P10)**

PVD kaplamaya sahip gri dökme demir, sfero döküm ve temperlenmiş döküm ve alaşımlı döküm malzemelerin finiş operasyonları için geliştirilmiş yüksek aşınma direncine sahip ideal bir kalitedir.

PVD coated highly wear-resistant milling grade Ideal for finishing application of grey cast iron (GJL), spheroidal graphite cast iron (GJS), tempered cast iron and alloyed cast iron.

• **BTCK25M (HC-K25)**

PVD kaplamaya sahip kalite kanal freze uygulamaları için özellikle döküm ve alaşımlı döküm malzemelerin kaba operasyonları için geliştirilmiş yüksek aşınma direncine sahip ideal bir kalitedir.

High wear resistance PVD coated slotting milling grade Ideal for roughing application of grey cast iron (GJL), spheroidal graphite cast iron (GJS), tempered cast iron and alloyed cast iron.

• **BTCN10M (HW-N05-N15)**

Alüminyum ve demir dışı malzemeler için kullanılan yüksek aşınma direncine sahiptir. Çelik, paslanmaz çelik ve döküm malzeme gruplarının finiş uygulamaları için de kullanılabilen PVD kaplamalı bir freze kalitesidir.

Ideal grade for machining aluminium and non-ferrous materials in combination with a very thin PVD layer this grade is also excellent for finishing of steels, stainless steels and cast iron materials.

• **BTWN10M (HW-N05-N15)**

Alüminyum ve demir dışı malzemeler için kullanılan kaplamasız bir freze kalitesidir.

Uncoated milling quality for aluminum and non-ferrous materials.

• **BTCH10M (HC-H05-H20)**

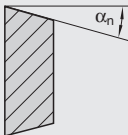
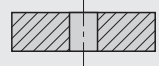
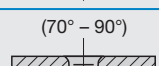
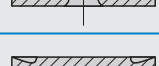
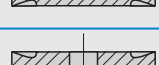
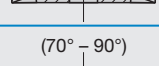
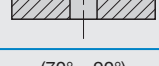
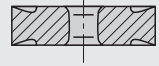
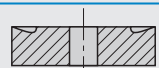
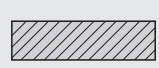
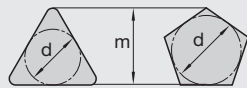
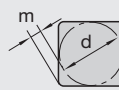
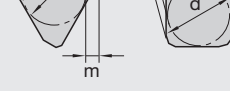
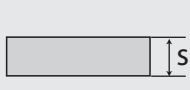
İnce tanecik yapısına sahip PVD kaplamalı bir kalitedir. 58 HRC sertliğe kadar çelik malzemelerin işlenmesi için uygundur.

Grade for the machining of steel materials in the area up to maximum 58 HRC, PVD coated. Standard submicron grade for microcrystalline, wear resistant PVD coating.

• **BTCH30M (HC-H10-H35)**

Yüksek tokluğa ve aşınma dayanımına sahip PVD kaplamalı, farklı malzeme grupları ve uygulamalar için geliştirilmiş universal bir kalitedir.

Universal grade for the machining of the most current materials. Tough submicron carbide grade, breakage and crack resistant and at the same time good wear resistance, wide application range.

S	N	M	X	12																																																																														
Uç şekli Insert shape	Boşluk açısı Clearance angle	Toleranslar Tolerances	Talaş kırıcı, sıkma tipi Chip breaker, fixation	Kesici kenar uzunluğu Cutting edge length																																																																														
A  85°		<table><tr><td></td><td>m</td><td>s</td><td>d</td></tr><tr><td>A</td><td>±0,005</td><td>±0,025</td><td>±0,025</td></tr><tr><td>C</td><td>±0,013</td><td>±0,025</td><td>±0,025</td></tr><tr><td>E</td><td>±0,025</td><td>±0,025</td><td>±0,025</td></tr><tr><td>F</td><td>±0,005</td><td>±0,025</td><td>±0,013</td></tr><tr><td>G</td><td>±0,025</td><td>±0,13</td><td>±0,025</td></tr><tr><td>H</td><td>±0,013</td><td>±0,025</td><td>±0,013</td></tr><tr><td>J</td><td>±0,005</td><td>±0,025</td><td>bkz. see Tab. 4</td></tr><tr><td>K</td><td>±0,013</td><td>±0,025</td><td>bkz. see Tab. 4</td></tr><tr><td>L</td><td>±0,025</td><td>±0,025</td><td>bkz. see Tab. 4</td></tr><tr><td>M</td><td>bkz. see Tab. 5</td><td>±0,13</td><td>bkz. see Tab. 4</td></tr><tr><td>N</td><td>bkz. see Tab. 5</td><td>±0,025</td><td>bkz. see Tab. 4</td></tr><tr><td>U</td><td>bkz. see Tab. 5</td><td>±0,13</td><td>bkz. see Tab. 4</td></tr></table>		m	s	d	A	±0,005	±0,025	±0,025	C	±0,013	±0,025	±0,025	E	±0,025	±0,025	±0,025	F	±0,005	±0,025	±0,013	G	±0,025	±0,13	±0,025	H	±0,013	±0,025	±0,013	J	±0,005	±0,025	bkz. see Tab. 4	K	±0,013	±0,025	bkz. see Tab. 4	L	±0,025	±0,025	bkz. see Tab. 4	M	bkz. see Tab. 5	±0,13	bkz. see Tab. 4	N	bkz. see Tab. 5	±0,025	bkz. see Tab. 4	U	bkz. see Tab. 5	±0,13	bkz. see Tab. 4	A 	<table><tr><td></td><td>l</td></tr><tr><td>06</td><td>6,350</td></tr><tr><td>07</td><td>7,938</td></tr><tr><td>09</td><td>9,525</td></tr><tr><td>11</td><td>11,000</td></tr><tr><td>12</td><td>12,700</td></tr><tr><td>15</td><td>15,875</td></tr><tr><td>16</td><td>16,500</td></tr><tr><td>19</td><td>19,050</td></tr><tr><td>22</td><td>22,000</td></tr><tr><td>25</td><td>25,400</td></tr><tr><td>31</td><td>31,750</td></tr><tr><td>38</td><td>38,100</td></tr></table>		l	06	6,350	07	7,938	09	9,525	11	11,000	12	12,700	15	15,875	16	16,500	19	19,050	22	22,000	25	25,400	31	31,750	38	38,100
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C  80°			C (70° – 90°) 																																																																															
D  55°			F 																																																																															
E  75°	α_n		G 																																																																															
H  120°	A 3°	Tab. 4 <table><tr><td>d</td><td>J, K, L, M</td><td>d</td><td>U</td></tr><tr><td>-den fazla over</td><td>-e kadar up to</td><td></td><td></td></tr><tr><td>3,9</td><td>10,0</td><td>±0,05</td><td>±0,08</td></tr><tr><td>10,0</td><td>15,0</td><td>±0,08</td><td>±0,13</td></tr><tr><td>15,0</td><td>20,0</td><td>±0,10</td><td>±0,18</td></tr><tr><td>20,0</td><td>26,0</td><td>±0,13</td><td>±0,25</td></tr><tr><td>26,0</td><td>32,0</td><td>±0,15</td><td>±0,25</td></tr></table>	d	J, K, L, M	d	U	-den fazla over	-e kadar up to			3,9	10,0	±0,05	±0,08	10,0	15,0	±0,08	±0,13	15,0	20,0	±0,10	±0,18	20,0	26,0	±0,13	±0,25	26,0	32,0	±0,15	±0,25	H (70° – 90°) 																																																			
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L  90°	C 7°	Tab. 5 <table><tr><td>d</td><td>M, N</td><td>m</td><td>U</td></tr><tr><td>-den fazla over</td><td>-e kadar up to</td><td></td><td></td></tr><tr><td>3,9</td><td>10,0</td><td>±0,08</td><td>±0,13</td></tr><tr><td>10,0</td><td>15,0</td><td>±0,13</td><td>±0,20</td></tr><tr><td>15,0</td><td>20,0</td><td>±0,15</td><td>±0,27</td></tr><tr><td>20,0</td><td>26,0</td><td>±0,18</td><td>±0,38</td></tr><tr><td>26,0</td><td>32,0</td><td>±0,20</td><td>±0,38</td></tr></table>	d	M, N	m	U	-den fazla over	-e kadar up to			3,9	10,0	±0,08	±0,13	10,0	15,0	±0,13	±0,20	15,0	20,0	±0,15	±0,27	20,0	26,0	±0,18	±0,38	26,0	32,0	±0,20	±0,38	M 																																																			
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M  86°	D 15°		N 																																																																															
O  135°	E 20°		Q (40° – 60°) 																																																																															
P  108°	F 25°		R 																																																																															
R  –	G 30°		T (40° – 60°) 																																																																															
S  90°	N 0°		U (40° – 60°) 																																																																															
T  60°	P 11°		W (40° – 60°) 																																																																															
V  35°	O																																																																																	
W  80°	Özel olarak verilecek boşluk açısı. Normal clearance angles, which require a special description.		X Resme göre dizayn edilmiş uçlar With special feature according to drawing																																																																															

() Sıkıştırma yuvası için bağlama yuvası açısı
() Cone angle for screw

06

Kalınlık
Thickness



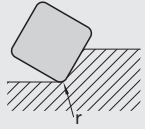
	S
02	2,38
03	3,18
T3	3,97
04	4,76
05	5,56
06	6,35
07	7,94
08	8,00
09	9,52

Ölçüler mm
Dimensions in mm

AN

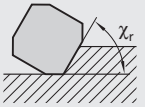
Kesici kenar köşesi
Corner of cutting edge

Radyüslü uçlar için
For radius inserts



	Köşe radiusü Corner radius-r
00	Kenar keskinliği Sharp-edged
02	0,2
04	0,4
08	0,8
12	1,2
16	1,6
20	2,0
	vb. etc.

Uç pahı
For chamfered inserts face milling



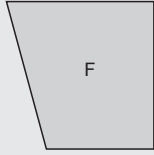
	Yanaşma açısı Approach angle
	χ_r
A	45°
D	60°
E	75°
F	85°
P	90°
Z	Özel Special
	Boşluk açısı Clearance angle of face milling edge α_n
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z	Özel Special

Yuvarlak uçlar metrik
Round insert metric

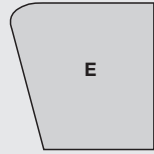
Yuvarlak uçlar inç
Round insert inch

S

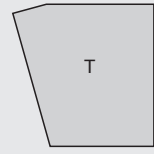
Kesici kenar durumu¹⁾
Cutting edge type¹⁾



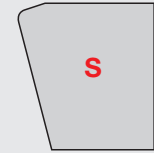
Keskin kenar
Sharp-edged



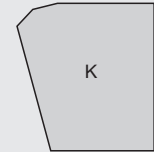
Yuvarlatılmış kenar
Rounded



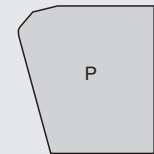
Kenar pah kırılmış
Chamfered



Pahlı yuvarlatılmış kenar*
Chamfered and rounded *



Çift pah kırılmış kenar
Double chamfered

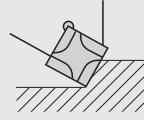


Çift pah kırılmış ve yuvarlatılmış kenar
Double chamfered and rounded

N

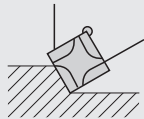
Kesme yönü¹⁾
Direction of cut¹⁾

R



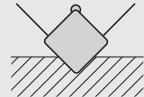
Sağ kesme yönü
Right hand cut only

L



Sol kesme yönü
Left hand cut only

N



Sağ-sol kesme yönü
Right and left hand cut

1) İsteğe bağlı olarak farklı harfler kullanılabilir.
The use of these reference letters is optional

- MP

Boehlerit-Norm
Boehlerit-Standard

Geometri kodu
Geometry code

Örnek:

S N M X 12 06 AN S N-MP

#	1	2	3	4	5	6	7	8	9	10
1	Uç şekli						kare			
2	Boşluk açısı						0°			
3	Toleranslar						m ± 0,013 s ± 0,025 d ± 0,13			
4	Talaş kırıcı geometrisi						Resime göre özel			
5	Kesici kenar boyu						12,7			
6	Kalınlık						6,35			
7	Kesici kenar köşesi						45° Pah			
8	Kesme kenar durumu						Yuvarlatılmış			
9	Kesme yönü						sağ-sol kesme			
10	Talaş kırıcı						TR = geometri			
Example:										
1	Basic form						square			
2	Clearance angle						0°			
3	Tolerances						m ± 0.013 s ± 0.025 d ± 0.13			
4	Fixing cutting face						with special feature according to drawing			
5	Length of cutting edge						12.7			
6	Thickness						6,35			
7	Cutting edge corner						45° chamfer/clearance angle			
8	Cutting edge						*			
9	Direction of cut						right- and lefthand			
10	Internal designation						MP = Geometry			

Uç kodlama sistemi
Indexable insert designation
ISO 1832.2 DIN 4987

N = Ağız Sayısı N = Number of cutting edges	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
 	CPMT 060304-SN-MP	BTCP25M	●	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-SN-MP	BTCP35M	○	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-SN-MK	BTCK20M	○	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-SN-MH	BTCH30M	●	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-EN-FP	BTCP25M	○	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-EN-FM	BTCM35M	●	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-SN-MH	BTCH10M	○	6,50	2,38	6,35	2,80	0,4
	CPMT 09T304-SN-MP	BTCP25M	●	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-SN-MP	BTCP35M	○	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-SN-MK	BTCK20M	○	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-SN-MH	BTCH30M	●	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-EN-FP	BTCP25M	○	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-EN-FM	BTCM35M	●	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-SN-MH	BTCH10M	○	9,65	3,97	9,52	4,40	0,4
	CPMT 09T308-SN-MP	BTCP25M	●	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-SN-MP	BTCP35M	○	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-SN-MK	BTCK20M	○	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-SN-MH	BTCH30M	○	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-EN-FP	BTCP25M	○	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-EN-FM	BTCM35M	○	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-SN-MH	BTCH10M	○	9,65	3,97	9,52	4,40	0,8
	CPMT 120408-SN-MP	BTCP25M	●	12,70	4,76	12,70	4,40	0,8
	CPMT 120408-SN-MP	BTCP35M	○	12,70	4,76	12,70	4,40	0,8
	CPMT 120408-SN-MK	BTCK20M	○	12,70	4,76	12,70	4,40	0,8
	CPMT 120408-SN-MH	BTCH30M	●	12,70	4,76	12,70	4,40	0,8
	CPMT 120408-EN-FP	BTCP25M	○	12,70	4,76	12,70	4,40	0,8
	CPMT 120408-EN-FM	BTCM35M	●	12,70	4,76	12,70	4,40	0,8
	CPMT 120408-SN-MH	BTCH10M	○	12,70	4,76	12,70	4,40	0,8
N = 2								
 	CNHW 1005	BTCP25M	○	10	5	10	4,40	
	CNHW 1005	BTCK20M	○	10	5	10	4,40	
	CNHW 1205	BTCP25M	○	12,70	5	12,70	4,40	
	CNHW 1205	BTCK20M	○	12,70	5	12,70	4,40	
N = 2								
 	LDHT 15T304-R-MP	BTCP25M	●	15	3,97	9,52	4,40	0,4
	LDHT 15T304-R-MP	BTCP35M	○	15	3,97	9,52	4,40	0,4
	LDHT 15T304-R-MK	BTCK20M	○	15	3,97	9,52	4,40	0,4
	LDHT 15T304-R-MM	BTCM35M	○	15	3,97	9,52	4,40	0,4
	LDHT 15T308-SR-MP	BTCP25M	●	15	3,97	9,52	4,40	0,8
	LDHT 15T308-SR-MP	BTCP35M	○	15	3,97	9,52	4,40	0,8
	LDHT 15T308-SR-MK	BTCK20M	●	15	3,97	9,52	4,40	0,8
	LDHT 15T308-SR-MH	BTCH30M	●	15	3,97	9,52	4,40	0,8
	LDHT 15T308-FR-FP	BTCP25M	○	15	3,97	9,52	4,40	0,8
	LDHT 15T308-FR-FM	BTCM35M	○	15	3,97	9,52	4,40	0,8
	LDHT 15T308-FR-FH	BTCH10M	○	15	3,97	9,52	4,40	0,8

Sipariş örneği Order example: 10 Adet Pieces CHNW 1005 BTCP25M

● Stoktan teslim Available from stock
○ İstek üzerine On request

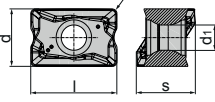
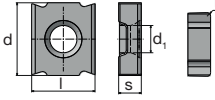
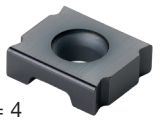
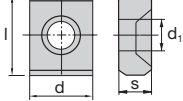
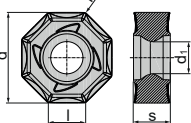
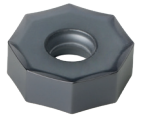
Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

Yeni kalite tanımları için Sayfa 12
Description of new grades page 12

Freze uçları

Milling inserts

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N = Ağız Sayısı N = Number of cutting edges	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
  N = 4	LNMX 151008 PN-R-MP	BTCP25M	●	15	9,52	10	4,50	0,8
	LNMX 151008 PN-R-MP	BTCP35M	○	15	9,52	10	4,50	0,8
	LNMX 151008 PN-R-MK	BTCK15M	●	15	9,52	10	4,50	0,8
	LNMX 151008 PN-R-MK	BTCK20M	○	15	9,52	10	4,50	0,8
	LNMX 151008 PN-R-MM	BTCP35M	●	15	9,52	10	4,50	0,8
  N = 4	LNET 071804	BTCP35M	○	7	1,80	8	4,10	0,4
	LNET 071804	BTCK25M	○	7	1,80	8	4,10	0,4
	LNET 072504	BTCP35M	○	7	2,50	8	4,10	0,4
	LNET 072504	BTCK25M	○	7	2,50	8	4,10	0,4
	LNET 073004	BTCP35M	○	7	3,00	8	4,10	0,4
	LNET 073004	BTCK25M	○	7	3,00	8	4,10	0,4
	LNET 073504	BTCP35M	○	7	3,50	8	4,10	0,4
	LNET 073504	BTCK25M	○	7	3,50	8	4,10	0,4
	LNET 074004	BTCP35M	○	7	4,00	8	4,10	0,4
	LNET 074004	BTCK25M	○	7	4,00	8	4,10	0,4
  N = 4	LNEW 1235	BTCP35M	○	12,70	3,50	9,52	4,40	
	LNEW 1235	BTCK25M	○	12,70	3,50	9,52	4,40	
	LNEW 1240	BTCP35M	○	12,70	4,00	9,52	4,40	
	LNEW 1240	BTCK25M	○	12,70	4,00	9,52	4,40	
	LNEW 1245	BTCP35M	○	12,70	4,50	9,52	4,40	
	LNEW 1245	BTCK25M	○	12,70	4,50	9,52	4,40	
	LNEW 1250	BTCP35M	○	12,70	5,00	9,52	4,40	
	LNEW 1250	BTCK25M	○	12,70	5,00	9,52	4,40	
  N = 16	ONMU 060506 SN-MP	BTCP20M	●	6	16	5	5,45	0,6
	ONMU 060506 SN-MP	BTCP25M	●	6	16	5	5,45	0,6
	ONMU 060506 SN-MP	BTCP35M	●	6	16	5	5,45	0,6
	ONMU 060506 SN-MK	BTCK15M	●	6	16	5	5,45	0,6
	ONMU 060506 SN-MK	BTCK20M	●	6	16	5	5,45	0,6
	ONMU 060506 SN-MM	BTCP35M	●	6	16	5	5,45	0,6
	ONMU 060506 SN-MH	BTCH10M	●	6	16	5	5,45	0,6
	ONMU 060506 SN-MH	BTCH30M	●	6	16	5	5,45	0,6

Sipariş örneği Order example: 10 Adet Pieces ONMU 060506 SN-MH BTCP25M

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 12
Description of new grades page 12

Milling inserts

The technical drawing shows a ring with an outer diameter d and a thickness s . The 3D perspective view shows a dark grey ring with a smooth, polished inner bore.

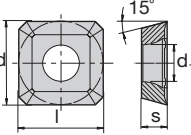
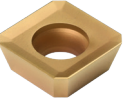
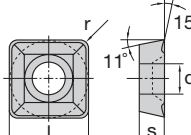
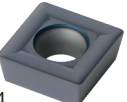
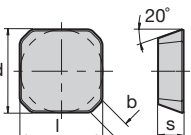
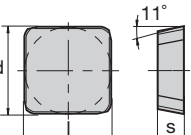
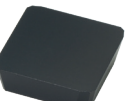
Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

Yeni kalite tanımları için Sayfa 16
Description of new grades page 16

Freze uçları

Milling inserts

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N = Ağız Sayısı N = Number of cutting edges	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
  N = 4	SEHT 1204AF SN-MP	BTCP20M	○	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MP	BTCP25M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MP	BTCP35M	○	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MK	BTCK15M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MK	BTCK20M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MH	BTCH10M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MH	BTCH30M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FP	BTCP25M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FP	BTCP35M	○	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FK	BTCK15M	○	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FK	BTCK20M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FM	BTCP35M	○	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FH	BTCH10M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF-FN 270 G	BTWN10M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF-FN 270 G	BTWN10M	○	12,7	4,76	12,7	5,5	
  N = 4	SPMT 120408-SN-MP	BTCP25M	●	12,70	4,76	12,70	5,2	0,8
	SPMT 120408-SN-MP	BTCP35M	○	12,70	4,76	12,70	5,2	0,8
	SPMT 120408-SN-MK	BTCK20M	○	12,70	4,76	12,70	5,2	0,8
	SPMT 120408-SN-MM	BTCP35M	○	12,70	4,76	12,70	5,2	0,8
  N = 4	SEKN 1204 AF-N	BTCP25M	○	12,7	4,76	12,7		
	SEKN 1204 AF-N	BTCK15M	○	12,7	4,76	12,7		
	SEKN 1204 AZ	BTCP25M	○	12,7	4,76	12,7		
	SEKN 1204 AZ	BTCK15M	○	12,7	4,76	12,7		
  N = 4	SPKN 1203 ED-L	BTCP25M	●	12,7	3,18	12,7		
	SPKN 1203 ED-L	BTCK15M	○	12,7	3,18	12,7		
	SPKN 1203 ED-R	BTCP25M	●	12,7	4,76	12,7		
	SPKN 1203 ED-R	BTCK15M	○	12,7	4,76	12,7		
	SPKN 1204 ED-L	BTCP25M	○	12,7	4,76	12,7		
	SPKN 1204 ED-L	BTCK15M	○	12,7	4,76	12,7		
	SPKN 1204 ED-R	BTCP25M	○	12,7	4,76	12,7		
	SPKN 1204 ED-R	BTCK15M	○	12,7	4,76	12,7		
	SPKN 1504 ED-L	BTCP25M	○	15,88	4,76	15,88		
	SPKN 1504 ED-L	BTCK15M	○	15,88	4,76	15,88		
	SPKN 1504 ED-R	BTCP25M	●	15,88	4,76	15,88		
	SPKN 1504 ED-R	BTCK15M	○	15,88	4,76	15,88		

Sipariş örneği Order example: 10 Adet Pieces SPKN 1504 ED-R BTCK15M

● Stoktan teslim Available from stock
○ İstek üzerine On request

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

Yeni kalite tanımları için Sayfa 12
Description of new grades page 12

N = Ağız Sayısı N = Number of cutting edges	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
 N = 3	TPKN 1603 PD-R	BTCP25M	●	16,50	3,18	9,52		
	TPKN 1603 PD-R	BTCK15M	○	16,50	3,18	9,52		
	TPKN 1603 PD-R	BTM35M	○	16,50	3,18	9,52		
	TPKN 1603 PD-L	BTCP25M	○	16,50	3,18	9,52		
	TPKN 1603 PD-L	BTCK15M	○	16,50	3,18	9,52		
	TPKN 1603 PD-L	BTM35M	○	16,50	3,18	9,52		
	TPKN 1603 PD-TR	BTCP25M	○	16,50	3,18	9,52		
	TPKN 1603 PD-TR	BTCK15M	○	16,50	3,18	9,52		
	TPKN 1603 PD-TL	BTCP25M	○	16,50	3,18	9,52		
	TPKN 1603 PD-TL	BTCK15M	○	16,50	3,18	9,52		
	TPKN 2204 PD-R	BTCP25M		22	4,76	12,70		
	TPKN 2204 PD-R	BTCK15M	○	22	4,76	12,70		
	TPKN 2204 PD-R	BTM35M	○	22	4,76	12,70		
	TPKN 2204 PD-L	BTCP25M	○	22	4,76	12,70		
	TPKN 2204 PD-L	BTCK15M	○	22	4,76	12,70		
	TPKN 2204 PD-L	BTM35M	○	22	4,76	12,70		
	TPKN 2204 PD-TR	BTCP25M	○	22	4,76	12,70		
	TPKN 2204 PD-TR	BTCK15M	○	22	4,76	12,70		
	TPKN 2204 PD-TL	BTCP25M	○	22	4,76	12,70		
	TPKN 2204 PD-TL	BTCK15M	○	22	4,76	12,70		
 N = 3	TPKN 1603 PD-R-D	BTCP25M	●	16,50	3,18	9,52		
	TPKN 1603 PD-R-D	BTCK15M	○	16,50	3,18	9,52		
	TPKN 1603 PD-R-D	BTM35M	○	16,50	3,18	9,52		
	TPKN 1603 PD-L-D	BTCP25M	○	16,50	3,18	9,52		
	TPKN 1603 PD-L-D	BTCK15M	○	16,50	3,18	9,52		
	TPKN 1603 PD-L-D	BTM35M	○	16,50	3,18	9,52		
	TPKN 2204 PD-R-D	BTCP25M	●	22	4,76	12,70		
	TPKN 2204 PD-R-D	BTCK15M	●	22	4,76	12,70		
	TPKN 2204 PD-R-D	BTM35M	●	22	4,76	12,70		
	TPKN 2204 PD-L-D	BTCP25M	○	22	4,76	12,70		
	TPKN 2204 PD-L-D	BTCK15M	○	22	4,76	12,70		
	TPKN 2204 PD-L-D	BTM35M	○	22	4,76	12,70		

Sipariş örneği Order example: 10 Adet Pieces TPKN 2204 PD-L-D BTM35M

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 12
Description of new grades page 12

Frezeleme için önerilen kesme değerleri
Cutting data recommendations for Milling

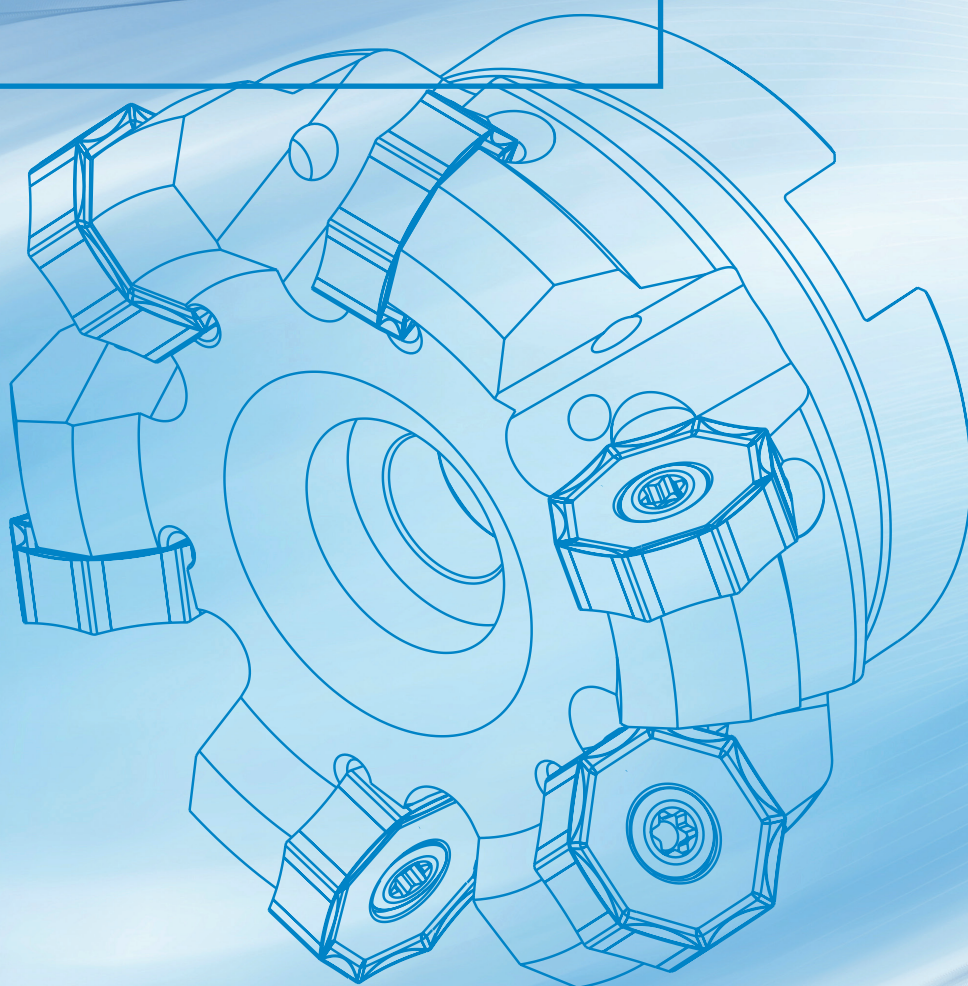
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ISO 513	Malzeme kodu Material code	Sertlik Hardness	Soğutma Cooling			Kesme hızı v _C [m/dak] Cutting data v _C [m/min]				
			MMS/Hava MMS/Air	Kuru Dry	Sulu Wet	BTCP20M BTCP25M	BTCP35M	BTCP35M	BTCK15M BTCK20M	
P	P1		•	•		210 - 290	180 - 260	160 - 200	220 - 280	
	P2		•	•		170 - 250	160 - 200	140 - 180	190 - 240	
	P3		•	•		140 - 190	120 - 160	120 - 160	150 - 190	
	P4		•	•		120 - 160	110 - 150	100 - 140	---	
	P5		•	•		140 - 200	120 - 170	110 - 150	140 - 200	
M	M1		•	•	•	100 - 150	---	120 - 180	---	
	M2		•	•	•	70 - 110	---	80 - 130	---	
K	K1		•	•		200 - 280	---	---	220 - 360	
	K2		•	•		130 - 180	---	---	150 - 190	
	K3		•	•		160 - 210	---	---	170 - 240	
N	N1		•	•	•	---	---	---	---	
	N2		•	•	•	---	---	---	---	
	N3		•	•	•	---	---	---	---	
	N4		•	•	•	---	---	---	---	
S	S1		•	•	•	---	---	70 - 90	---	
	S2		•	•	•	---	---	35 - 45	---	
	S3		•	•	•	---	---	50 - 100	---	
	S4		•	•	•	---	---	30 - 80	---	
H	H1	45 - 54 HRC	•	•		---	---	---	100 - 140	
	H2	55 - 63 HRC	•	•		---	---	---	80 - 120	
	H3	64 - 66 HRC	•	•		---	---	---	---	
	H4	50 - 60 HRC	•	•		---	---	---	90 - 130	

		Kesme hızı v_c [m/dak] Cutting data v_c [m/min]			
	BTCK25M	BTWN10M	BTCN10M	BTCH10M	BTCH10M
	160 - 200	---	---	240 - 350	230 - 300
	140 - 180	---	---	200 - 300	180 - 260
	120 - 150	---	---	170 - 250	160 - 250
	---	---	---	---	---
	130 - 190	---	---	160 - 260	150 - 230
	---	---	---	100 - 150	---
	---	---	---	70 - 110	---
	180 - 260	---	---	240 - 350	280 - 480
	150 - 220	---	---	160 - 280	160 - 300
	160 - 230	---	---	220 - 300	220 - 340
	---	1200 - 2400	1500 - 3000	---	---
	---	240 - 550	310 - 750	---	---
	---	120 - 380	160 - 480	---	---
	---	400 - 500	600 - 800	---	---
	---	---	---	---	---
	---	---	---	---	---
	---	---	---	---	---
	---	---	---	---	---
	---	---	---	110 - 160	100 - 140
	---	---	---	90 - 130	80 - 120
	---	---	---	70 - 110	---
	---	---	---	100 - 150	90 - 130

Frezeleme 45°
Face milling 45°

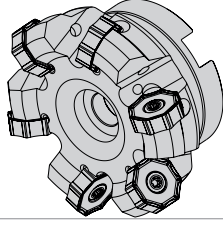
Frezeleme 45°
Face milling 45°



Frezeleme 45°-ONMU

Milling 45°- ONMU

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Uygulama Execution	Yüzey Freze 45° Face milling cutter 45°
	
Freze çapları Diameter range metric	Ø 50 - 125 mm
Uç ölçüsü Insert size	ON.. 06

Teknik Özellikler:

- Verimliliği arttırmak için tasarlanmış 16 kenarlı uçlar
- Yüksek dayanıma sahip negatif freze uçları
- Pozitif uç geometrisi ile yumuşak kesim
- Fazla ağız sayısına sahip takımlar sayesinde yüksek talaş atımı
- Değişken hatve sayesinde düşük vibrasyon ve uzun takım ömrü
- Farklı malzeme grupları için uygun geometri ve kaliteler

Special features:

- 16 cutting edges for increase of productivity
- Negative basic geometry, thus extremely stable
- Effective positiv cutting edge geometry, thus smooth cut
- Numbering of cutting edges for high chip volume
- Big metal removal due to close division of the tools
- Optimal cutting geometry and grades for wide range of material

Uç geometrisi Insert geometry	ON.. 06	
	Talaş derinliği, Cutting depth, [mm] a _p max	İlerleme, Feed, [mm] f _i
MP	0,4 2,0 4,0	0,16 0,20 0,30
MM	0,4 2,0 4,0	0,10 0,15 0,20
MK	0,4 2,0 4,0	0,16 0,25 0,35
MH	0,4 1,0 3,0	0,10 0,12 0,20

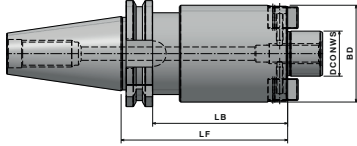
Kesme değerleri için sayfa 22-23 bakınız
Cutting data recommendations page

* Kesme değerleri referans alınmalı, ancak uygulamada ayrıca deneme yapılmalıdır.

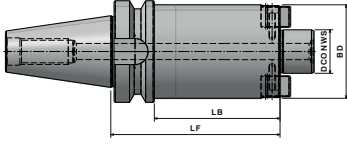
* Recommended cutting data has to be seen as a reference which can be optimised for each application through trials separately.

ONMU frezeler için BT-SK-HSK tutucular
BT-SK-HSK tool holders for ONMU

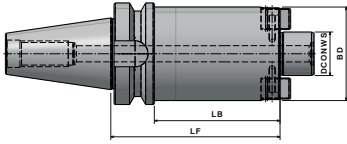
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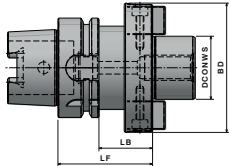
SK40 tutucular Chuck SK40			
ONMU	SK40 SK40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-35/SK40	4600822	●
Ø50-66 mm	WSMH/22-35/SK40	4600823	●
Ø80 mm	WSMH/27-40/SK40	4600824	●
Ø100 mm	WSMH/32-50/SK40	4600825	●
Ø125-160 mm	WSMH/40-50/SK40	4600826	●



BT40 tutucular Chuck BT40			
ONMU	BT40 BT40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-40/BT40	5009952	●
Ø50-63 mm	WSMH/22-40/BT40	5009953	●
Ø80 mm	WSMH/27-40/BT40	5064794	●
Ø100 mm	WSMH/32-50/BT40	5064795	●
Ø125 mm	WSMH/40-50/BT40	5064798	●



BT50 tutucular Chuck BT50			
ONMU	BT50 BT50	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-63/BT50	5064832	●
Ø50-63 mm	WSMH/22-63/BT50	5064834	●
Ø80 mm	WSMH/27-63/BT50	5064835	●
Ø100 mm	WSMH/32-60/BT50	5064836	●
Ø125 mm	WSMH/40-60/BT50	5064820	●

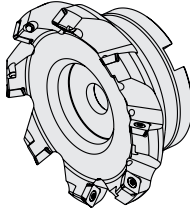


HSK-A63 tutucular Chuck HSK-A63			
ONMU	HSK-A63 HSK-A63	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-50/HSK-A63	4601763	●
Ø50-63 mm	WSMH/22-50/HSK-A63	4601765	●
Ø80 mm	WSMH/27-60/HSK-A63	4601767	●
Ø100 mm	WSMH/32-60/HSK-A63	4601769	●
Ø125 mm	WSMH/40-60/HSK-A63	4601771	●

Frezeleme 45°-SEHT

Milling 45°-SEHT

boehlerit

Uygulama Execution	Yüzey Freze 45° Face milling cutter 45°
	
Freze çapları Diameter range metric	Ø 50 - 100 mm
Uç ölçüsü Insert size	SEHT.. 12

Teknik Özellikler:

- Kolay kesimi sağlayan pozitif geometri
- 4 kesme kenarına sahip uçlar ile daha verimli üretim imkanı
- Ünlü tezgahlarda yüksek talaş kaldırma değeri
- Tüm malzeme grupları için uygun kalite ve geometriler

Special features:

- Positive basic geometry for easy cutting
- 4 cutting edges for increase of productivity
- High metal removal on inefficient universal machines
- Diversity of cutting geometry and grades for wide material range

Uç geometrisi Insert geometry	SEHT ...12	
	Talaş derinliği, Cutting depth, [mm] a _p max	İlerleme, Feed, [mm] f _z
MP	1 4 6	0,16 0,25 0,35
FP	0,5 2 4	0,16 0,25 0,36
FM	1 3 5	0,10 0,15 0,25
MK	1 4 6	0,18 0,25 0,40
FK	0,5 2 4	0,15 0,20 0,30
MH	1 2 3	0,10 0,12 0,20
FH	0,5 1 2	0,05 0,10 0,15
270G	1 4 6	0,08 0,20 0,35

Kesme değerleri için sayfa 22-23 bakınız
Cutting data recommendations page

* Kesme değerleri referans alınmalı, ancak uygulamada ayrıca deneme yapılmalıdır.

* Recommended cutting data has to be seen as a reference which can be optimised for each application through trials separately.

Frezeleme 45°-SEHT

Milling 45°-SEHT

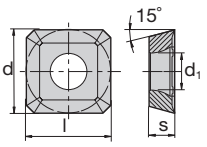
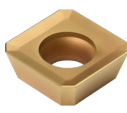
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Ölçüler [mm] Dimensions [mm]

DC	DCX	DCONMS	DCSFMS	LF	APMX	KAPR	z	Ürün kodu Item code	Stok durumu Availability	Yedek parça Spare parts	
50	63	22	50	40	6	45°	4	BTF45 SE12.050 Z04	●	 Sıkma civatası Fixation screw BTAP 5011-6650	 Tork anahtarı Torque wrench T20
63	76	22	50	40	6	45°	5	BTF45 SE12.063 Z05	●		
80	93	27	60	50	6	45°	6	BTF45 SE12.080 Z06	●		
100	113	32	80	50	6	45°	7	BTF45 SE12.100 Z07	●		
100	113	32	80	50	6	45°	8	BTF45 SE12.100 Z08	○		

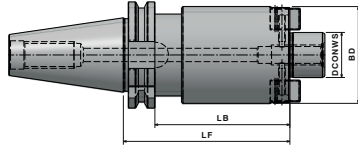
Freze uçları

Milling inserts

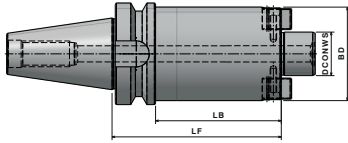
N = Ağız Sayısı N = Number of cutting edges	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
  N = 4	SEHT 1204AF SN-MP	BTCP20M	○	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MP	BTCP25M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MP	BTCP35M	○	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MK	BTCK15M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MK	BTCK20M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MH	BTCH10M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF SN-MH	BTCH30M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FP	BTCP25M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FP	BTCP35M	○	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FK	BTCK15M	○	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FK	BTCK20M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FM	BTCH35M	○	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN-FH	BTCH10M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN 270G	BTWN10M	●	12,7	4,76	12,7	5,5	
	SEHT 1204AF FN 270G	BTCN10M	○	12,7	4,76	12,7	5,5	

Sipariş örneği Order example: 10 Adet Pieces SEHT 1204AF FN 270G BTCN10M

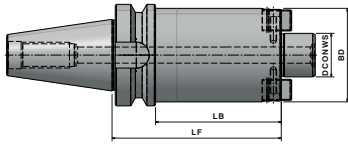
● Stoktan teslim Available from stock
○ İstek üzerine On request



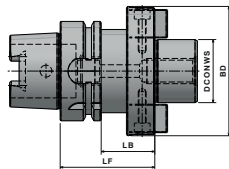
SK40 tutucular Chuck SK40			
SEHT	SK40 SK40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-35/SK40	4600822	●
Ø50-66 mm	WSMH/22-35/SK40	4600823	●
Ø80 mm	WSMH/27-40/SK40	4600824	●
Ø100 mm	WSMH/32-50/SK40	4600825	●
Ø125-160 mm	WSMH/40-50/SK40	4600826	●



BT40 tutucular Chuck BT40			
SEHT	BT40 BT40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-40/BT40	5009952	●
Ø50-63 mm	WSMH/22-40/BT40	5009953	●
Ø80 mm	WSMH/27-40/BT40	5064794	●
Ø100 mm	WSMH/32-50/BT40	5064795	●
Ø125 mm	WSMH/40-50/BT40	5064798	●



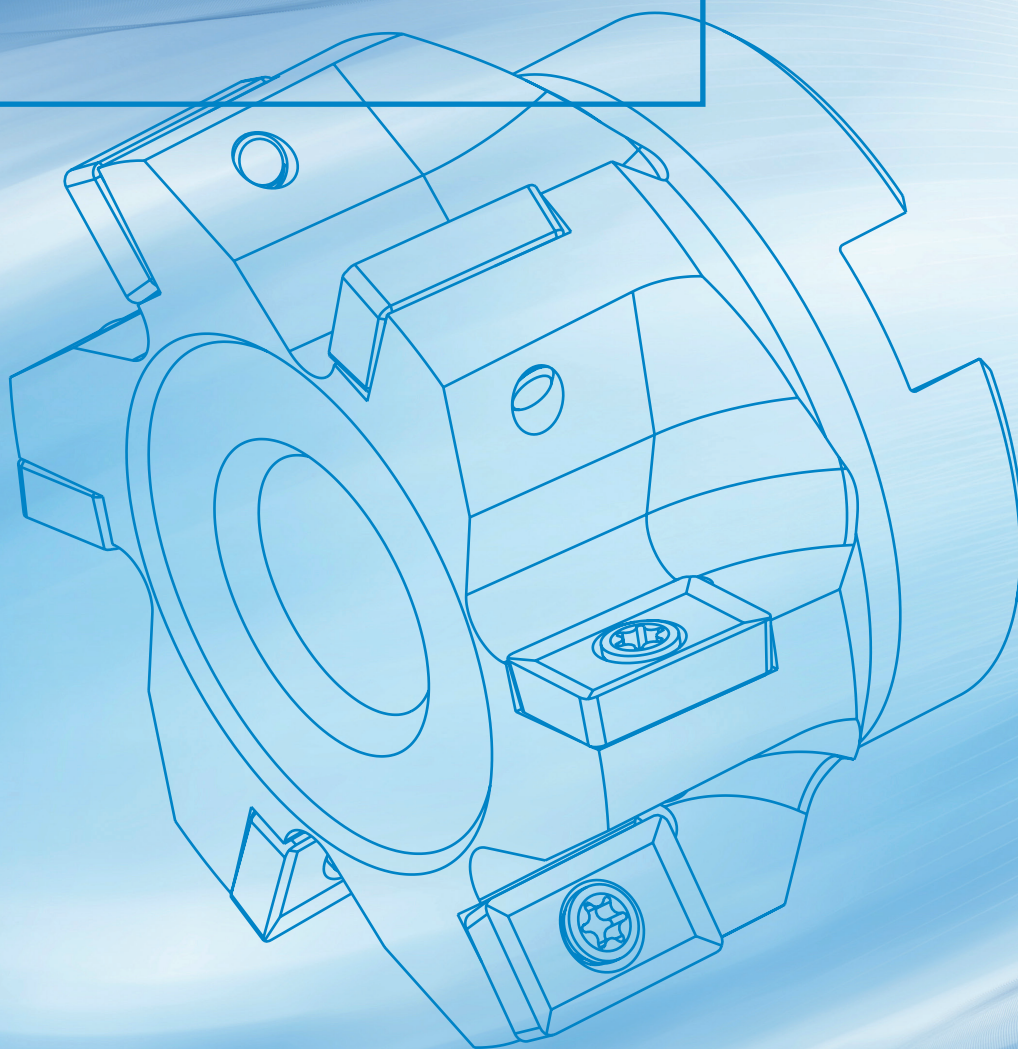
BT50 tutucular Chuck BT50			
SEHT	BT50 BT50	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-63/BT50	5064832	●
Ø50-63 mm	WSMH/22-63/BT50	5064834	●
Ø80 mm	WSMH/27-63/BT50	5064835	●
Ø100 mm	WSMH/32-60/BT50	5064836	●
Ø125 mm	WSMH/40-60/BT50	5064820	●



HSK-A63 tutucular Chuck HSK-A63			
SEHT	HSK-A63 HSK-A63	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-50/HSK-A63	4601763	●
Ø50-63 mm	WSMH/22-50/HSK-A63	4601765	●
Ø80 mm	WSMH/27-60/HSK-A63	4601767	●
Ø100 mm	WSMH/32-60/HSK-A63	4601769	●
Ø125 mm	WSMH/40-60/HSK-A63	4601771	●

Frezeleme 90°
Face milling 90°

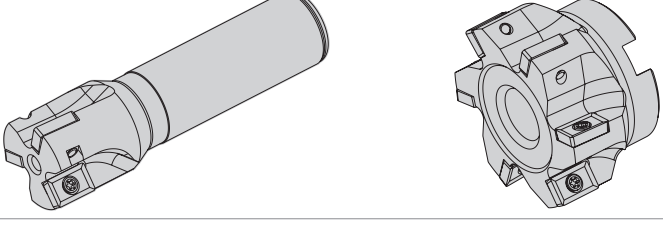
Frezeleme 90°
Face milling 90°



Frezeleme 90°-LDHT

Milling 90°-LDHT

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Uygulama Execution	Yüzey Freze 90° Face milling cutter 90°	
		
Freze çapları Diameter range metric	Ø 25 - 125 mm	
Uç ölçüsü Insert size	LDHT.. 15	

Teknik Özellikler:

- Pozitif uç geometrisi ile rahat kesim imkanı
- Kaba ve finiş uygulamalar için farklı uçlar
- Özel takım boyları sayesinde ile derin işleme
- Farklı malzeme grupları için uygun kalite ve geometriler

Special features:

- Effective positive chip angle for smooth cut
- Different inserts for roughing and finishing applications
- Deep machining with special tool length
- Diversity of cutting geometry and grades for wide material range

Uç geometrisi Insert geometry	LDHT ...15T304		LDHT ...15T308	
	Talaş derinliği, Cutting depth, [mm] a _p max	İlerleme, Feed, [mm] f _z	Talaş derinliği, Cutting depth, [mm] a _p max	İlerleme, Feed, [mm] f _z
MP	1 5 12	0,1 0,15 0,3	1 5 12	0,1 0,15 0,3
FP	1 5 12	0,1 0,15 0,3	1 5 12	0,1 0,15 0,3
MM	1 3 12	0,1 0,15 0,2	1 3 12	0,1 0,15 0,2
FH	1 3 12	0,1 0,15 0,2	1 3 12	0,1 0,15 0,2
MK	1 5 12	0,2 0,30 0,4	1 5 12	0,2 0,30 0,4
FM	1 5 12	0,2 0,30 0,4	1 5 12	0,2 0,30 0,4
MH	1 3 5	0,1 0,15 0,2	1 3 5	0,1 0,15 0,2

Kesme değerleri için sayfa 22-23 bakınız

Cutting data recommendations page

* Kesme değerleri referans alınmalı, ancak uygulamada ayrıca deneme yapılmalıdır.

* Recommended cutting data has to be seen as a reference which can be optimised for each application through trials separately.

Frezeleme 90°-LDHT

Milling 90°-LDHT

boehlerit

Technical drawing of the BTF90 LD15.040 Z04 tool showing dimensions: DCSFMS, DCONMS, LF, DC, APMX, KAPR.

3D isometric view of the BTF90 LD15.040 Z04 tool.

8 small icons showing different tool configurations and applications.

Ölçüler [mm] Dimensions [mm]							Ürün kodu Item code	Stok durumu Availability	Yedek parça Spare parts	
DC	DCONMS	DCSFMS	LF	APMX	KAPR	z				
40	16	32	40	12	90°	4	BTF90 LD15.040 Z04	●	 Sıkma civatası Fixation screw BTAP 4011-5655	 Tork anahtarı Torque wrench T15
50	22	42	40	12	90°	5	BTF90 LD15.050 Z05	●		
63	22	48	40	12	90°	6	BTF90 LD15.063 Z06	●		
80	27	58	50	12	90°	7	BTF90 LD15.080 Z07	●		
100	32	76	50	12	90°	8	BTF90 LD15.100 Z08	●		
125	40	90	63	12	90°	9	BTF90 LD15.125 Z09	○		

Ölçüler [mm] Dimensions [mm]							Ürün kodu Item code	Stok durumu Availability	Yedek parça Spare parts	
DC	DCONMS	OAL	APMX	LF	KAPR	z				
25	25	120	12	45	90°	2	BTE90 LD15.025 Z02	●	 Sıkma civatası Fixation screw BTAP 4011-5655	 Tork anahtarı Torque wrench T15
25	25	150	12	45	90°	2	BTE90 LD15.025 Z02 150	●		
32	25	110	12	45	90°	3	BTE90 LD15.032 Z03	●		
32	32	150	12	45	90°	3	BTE90 LD15.032 Z03 150	●		
40	32	125	12	45	90°	4	BTE90 LD15.040 Z04	○		

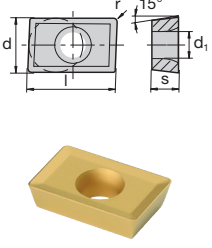
Sipariş örneği Order example: 1 Adet Pieces BTE90 LD15.040 Z04

● Stoktan teslim Available from stock
○ İstek üzerine On request

Frezeleme 90°-LDHT

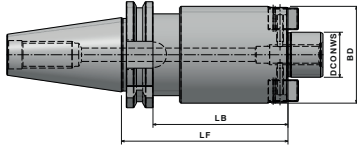
Milling 90°-LDHT

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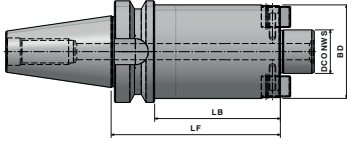
N = Ağız Sayısı N = Number of cutting edges	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d _i	r
 N = 2	LDHT 15T304-R-MP	BTCP25M	●	15	3,97	9,52	4,40	0,4
	LDHT 15T304-R-MP	BTCP35M	○	15	3,97	9,52	4,40	0,4
	LDHT 15T304-R-MK	BTCK20M	○	15	3,97	9,52	4,40	0,4
	LDHT 15T304-R-MM	BTCH35M	○	15	3,97	9,52	4,40	0,4
	LDHT 15T308-SR-MP	BTCP25M	●	15	3,97	9,52	4,40	0,8
	LDHT 15T308-SR-MP	BTCP35M	○	15	3,97	9,52	4,40	0,8
	LDHT 15T308-SR-MK	BTCK20M	●	15	3,97	9,52	4,40	0,8
	LDHT 15T308-SR-MH	BTCH30M	●	15	3,97	9,52	4,40	0,8
	LDHT 15T308-FR-FP	BTCP25M	○	15	3,97	9,52	4,40	0,8
	LDHT 15T308-FR-FM	BTCH35M	○	15	3,97	9,52	4,40	0,8
	LDHT 15T308-FR-FH	BTCH10M	○	15	3,97	9,52	4,40	0,8

Sipariş örneği Order example: 10 Adet Pieces LDHT 15T308-FR-FH BTCH10M

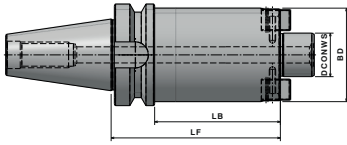
● Stoktan teslim Available from stock
○ İstek üzerine On request



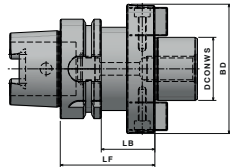
SK40 tutucular Chuck SK40			
ONMU	SK40 SK40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-35/SK40	4600822	●
Ø50-66 mm	WSMH/22-35/SK40	4600823	●
Ø80 mm	WSMH/27-40/SK40	4600824	●
Ø100 mm	WSMH/32-50/SK40	4600825	●
Ø125-160 mm	WSMH/40-50/SK40	4600826	●



BT40 tutucular Chuck BT40			
ONMU	BT40 BT40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-40/BT40	5009952	●
Ø50-63 mm	WSMH/22-40/BT40	5009953	●
Ø80 mm	WSMH/27-40/BT40	5064794	●
Ø100 mm	WSMH/32-50/BT40	5064795	●
Ø125 mm	WSMH/40-50/BT40	5064798	●



BT50 tutucular Chuck BT50			
ONMU	BT50 BT50	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-63/BT50	5064832	●
Ø50-63 mm	WSMH/22-63/BT50	5064834	●
Ø80 mm	WSMH/27-63/BT50	5064835	●
Ø100 mm	WSMH/32-60/BT50	5064836	●
Ø125 mm	WSMH/40-60/BT50	5064820	●

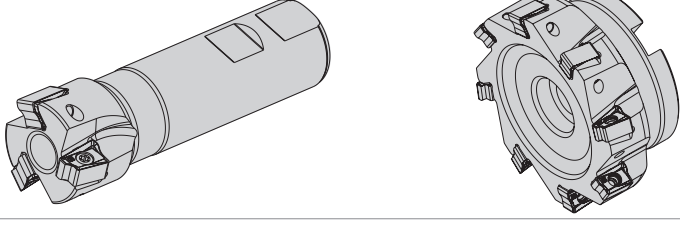


HSK-A63 tutucular Chuck HSK-A63			
ONMU	HSK-A63 HSK-A63	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-50/HSK-A63	4601763	●
Ø50-63 mm	WSMH/22-50/HSK-A63	4601765	●
Ø80 mm	WSMH/27-60/HSK-A63	4601767	●
Ø100 mm	WSMH/32-60/HSK-A63	4601769	●
Ø125 mm	WSMH/40-60/HSK-A63	4601771	●

Frezeleme 90°-LNMX

Milling 90°-LNMX

www.boehlerit.com.tr

Uygulama Execution	Yüzey Freze 90° Face milling cutter 90°	
		
Freze çapları Diameter range metric	Ø 32 - 125 mm	
Uç ölçüsü Insert size	LNMX.. 15	

Teknik Özellikler:

- Negatif uç geometrisi ile yüksek dayanım
- Pozitif talaş açısı ile düzgün kesim imkanı
- 4 kesme kenarlı uçlar ile daha verimli üretim
- Farklı malzeme grupları için uygun kalite ve geometriler

Special features:

- Stable tool system through negative geometry basic design
- Effective positive chip angle for smooth cut
- 4 cutting edges for increase of productivity
- Diversity of cutting geometry and grades for wide material range

Uç geometrisi Insert geometry	LNMX... 15	
	Talaş derinliği, Cutting depth, [mm] a _p max	İlerleme, Feed, [mm] f _t
MP	1 6 8	0,15 0,25 0,35
MM	1 4 6	0,15 0,25 0,30
MK	1 6 10	0,16 0,25 0,35

Kesme değerleri için sayfa 22-23 bakınız

Cutting data recommendations page

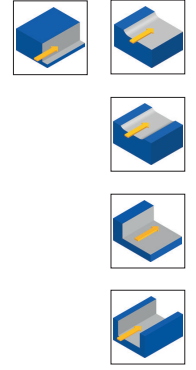
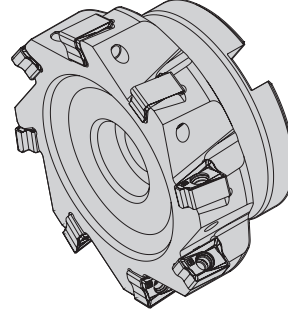
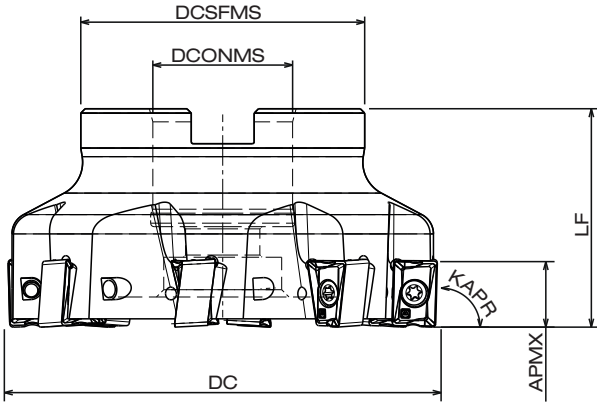
* Kesme değerleri referans alınmalı, ancak uygulamada ayrıca deneme yapılmalıdır.

* Recommended cutting data has to be seen as a reference which can be optimised for each application through trials separately.

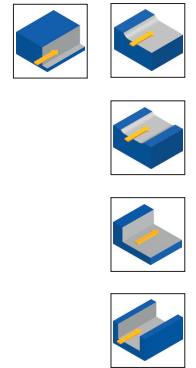
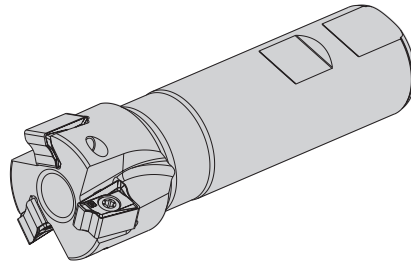
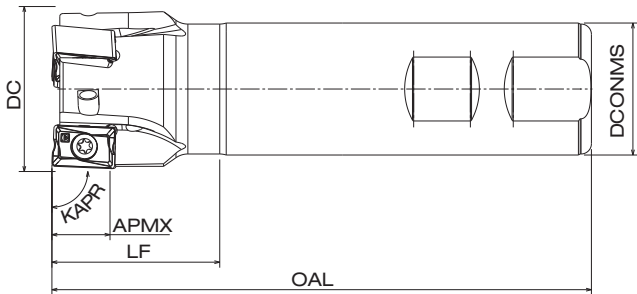
Frezeleme 90°-LNMX

Milling 90°-LNMX

boehlerit



Ölçüler [mm] Dimensions [mm]							Ürün kodu Item code	Stok durumu Availability	Yedek parça Spare parts	
DC	DCONMS	DCSFMS	LF	APMX	KAPR	z				
50	22	42	40	7	90°	3	BTF90 LN15.050 Z03	○	 Sıkma civatası Fixation screw AP 4011-5650	 Tork anahtarı Torque wrench T15
50	22	42	40	7	90°	4	BTF90 LN15.050 Z04	●		
63	22	49	40	7	90°	4	BTF90 LN15.063 Z04	○		
63	22	49	40	7	90°	5	BTF90 LN15.063 Z06	●		
80	27	60	50	7	90°	5	BTF90 LN15.080 Z05	○		
80	27	60	50	7	90°	7	BTF90 LN15.080 Z07	●		
100	32	60	50	7	90°	8	BTF90 LN15.100 Z08	●		
125	40	90	63	7	90°	10	BTF90 LN15.125 Z10	○		



Ölçüler [mm] Dimensions [mm]							Ürün kodu Item code	Stok durumu Availability	Yedek parça Spare parts	
DC	DCONMS	OAL	APMX	LF	KAPR	z				
32	32	125	7	40	90°	2	BTE90 LN15.032 Z02	●	 Sıkma civatası Fixation screw AP 4011-5650	 Tork anahtarı Torque wrench T15
40	32	130	7	40	90°	3	BTE90 LN15.040 Z03	●		

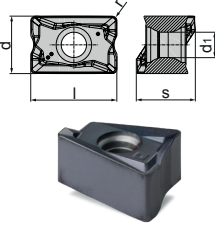
Sipariş örneği Order example: 1 Adet Pieces BTE90 LN15.032 Z02

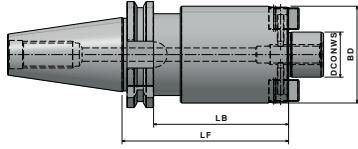
● Stoktan teslim Available from stock
○ İstek üzerine On request

Frezeleme 90°-LNMX

Milling 90°-LNMX

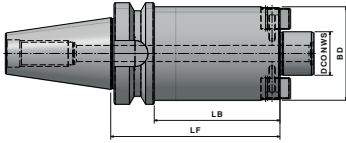
www.boehlerit.com.tr

N = Ağız Sayısı N = Number of cutting edges	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
 N = 4	LNMX 151008 PN-R-MP	BTCP25M	●	15	9,52	10	4,50	0,8
	LNMX 151008 PN-R-MP	BTCP35M	○	15	9,52	10	4,50	0,8
	LNMX 151008 PN-R-MK	BTCK15M	●	15	9,52	10	4,50	0,8
	LNMX 151008 PN-R-MK	BTCK20M	○	15	9,52	10	4,50	0,8
	LNMX 151008 PN-R-MM	BTCK35M	●	15	9,52	10	4,50	0,8



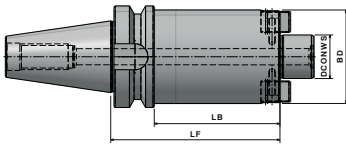
SK40 tutucular
Chuck SK40

ONMU	SK40 SK40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-35/SK40	4600822	●
Ø50-66 mm	WSMH/22-35/SK40	4600823	●
Ø80 mm	WSMH/27-40/SK40	4600824	●
Ø100 mm	WSMH/32-50/SK40	4600825	●
Ø125-160 mm	WSMH/40-50/SK40	4600826	●



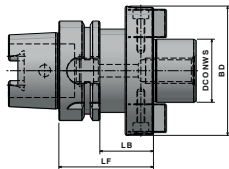
BT40 tutucular
Chuck BT40

ONMU	BT40 BT40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-40/BT40	5009952	●
Ø50-63 mm	WSMH/22-40/BT40	5009953	●
Ø80 mm	WSMH/27-40/BT40	5064794	●
Ø100 mm	WSMH/32-50/BT40	5064795	●
Ø125 mm	WSMH/40-50/BT40	5064798	●



BT50 tutucular
Chuck BT50

ONMU	BT50 BT50	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-63/BT50	5064832	●
Ø50-63 mm	WSMH/22-63/BT50	5064834	●
Ø80 mm	WSMH/27-63/BT50	5064835	●
Ø100 mm	WSMH/32-60/BT50	5064836	●
Ø125 mm	WSMH/40-60/BT50	5064820	●



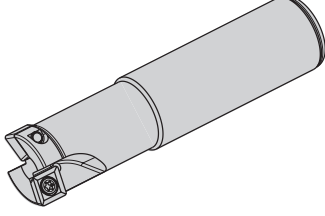
HSK-A63 tutucular
Chuck HSK-A63

ONMU	HSK-A63 HSK-A63	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-50/HSK-A63	4601763	●
Ø50-63 mm	WSMH/22-50/HSK-A63	4601765	●
Ø80 mm	WSMH/27-60/HSK-A63	4601767	●
Ø100 mm	WSMH/32-60/HSK-A63	4601769	●
Ø125 mm	WSMH/40-60/HSK-A63	4601771	●

Frezeleme 90°-CPMT

Milling 90°-CPMT

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Uygulama Execution	Yüzey Freze 90° Face milling cutter 90°
	
Freze çapları Diameter range metric	Ø 10 - 32 mm
Uç ölçüsü Insert size	CPMT.. 06, CPMT.. 09

Teknik Özellikler:

- Kolay kesimi sağlayan pozitif geometri
- 2 kesme kenarına sahip vibrasyon eğilimi düşük uçlar
- 10-32 mm kanal frezeleme işlemlerinde üstün takım performansı
- Yarı ince /kaba talaş işleme işlemleri için uygunluk
- Tüm malzeme grupları için uygun kalite ve geometriler

Special features:

- Positive basic geometry for easy cutting
- 2 cutting edges for smooth cut
- Superior tool performance in 10-32 mm slot milling operations
- Suitable for semi-finishing and roughing operations
- Diversity of cutting geometry and grades for wide material range

Uç geometrisi Insert geometry	CPMT ...06		CPMT ...09	
	Talaş derinliği, Cutting depth, [mm] a _p max	İlerleme, Feed, [mm] f _z	Talaş derinliği, Cutting depth, [mm] a _p max	İlerleme, Feed, [mm] f _z
MP	0,5 1 2	0,16 0,25 0,35	1 2 4	0,16 0,25 0,35
FP	0,5 1 2	0,16 0,25 0,36	1 2 4	0,16 0,25 0,36
FM	0,5 1 2	0,10 0,15 0,25	1 2 4	0,10 0,15 0,25
MK	0,5 1 2	0,18 0,25 0,40	1 2 4	0,18 0,25 0,40
MH	0,2 0,5 1	0,10 0,12 0,20	0,5 1 2	0,10 0,12 0,20

Kesme değerleri için sayfa 22-23 bakınız
Cutting data recommendations page

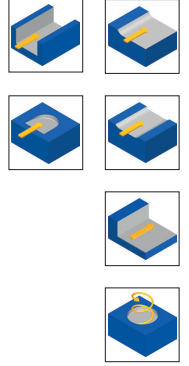
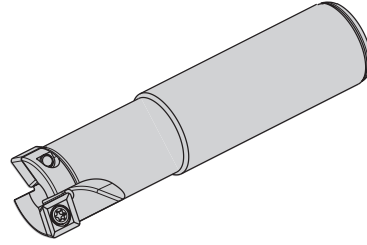
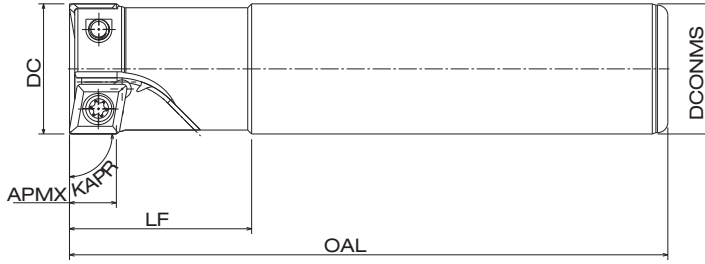
* Kesme değerleri referans alınmalı, ancak uygulamada ayrıca deneme yapılmalıdır.

* Recommended cutting data has to be seen as a reference which can be optimised for each application through trials separately.

Frezeleme 90°-CPMT

Milling 90°-CPMT

boehlerit



Ölçüler [mm] Dimensions [mm]							Ürün kodu Item code	Stok durumu Availability	Yedek parça Spare parts	
DC	DCONMS	OAL	APMX	LF	KAPR	z				
10	12	80	2	30	90°	1	BTE90 CP06.010 Z01	●	Sıkma civatası Fixation screw BTAP 2507-3555	Tork anahtarı Torque wrench T07
12	12	80	2	30	90°	1	BTE90 CP06.012 Z01	●		
16	16	90	2	40	90°	2	BTE90 CP06.016 Z02	○		
16	16	140	2	50	90°	2	BTE90 CP06.016 Z02 140	●		
20	20	105	2	40	90°	2	BTE90 CP06.020 Z02	○		
20	20	140	2	50	90°	2	BTE90 CP06.020 Z02 140	●		
									BTAP 4007	T15
25	25	115	2	45	90°	2	BTE 90-CP09.025 Z02	○		
32	25	120	2	55	90°	3	BTE 90-CP09.032 Z03	○		

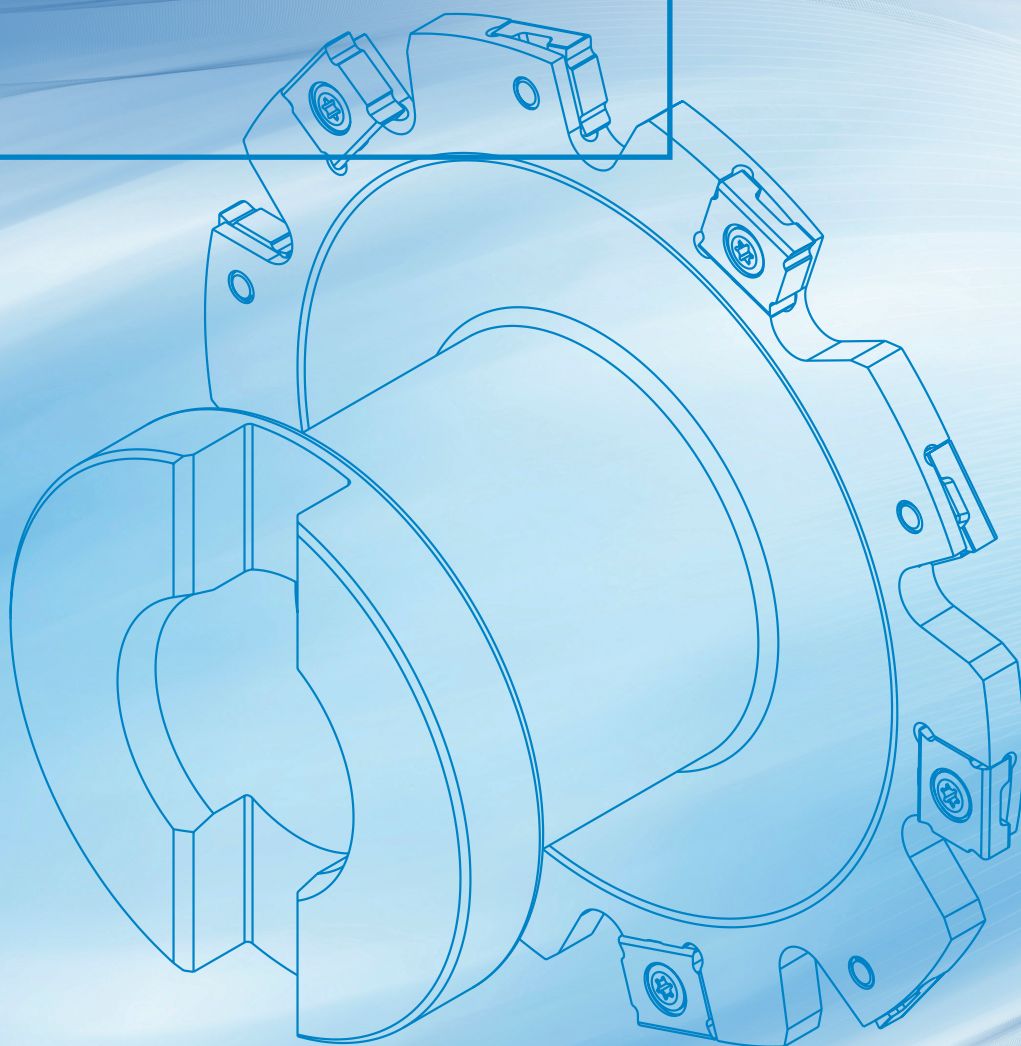
N = Ağız Sayısı N = Number of cutting edges	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d _i	r
	CPMT 060304-SN-MP	BTCP25M	●	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-SN-MP	BTCP35M	○	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-SN-MK	BTCK20M	○	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-SN-MH	BTCH30M	●	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-EN-FP	BTCP25M	○	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-EN-FM	BTCP35M	●	6,50	2,38	6,35	2,80	0,4
	CPMT 060304-SN-MH	BTCH10M	○	6,50	2,38	6,35	2,80	0,4
	CPMT 09T304-SN-MP	BTCP25M	●	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-SN-MP	BTCP35M	○	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-SN-MK	BTCK20M	○	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-SN-MH	BTCH30M	●	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-EN-FP	BTCP25M	○	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-EN-FM	BTCP35M	●	9,65	3,97	9,52	4,40	0,4
	CPMT 09T304-SN-MH	BTCH10M	○	9,65	3,97	9,52	4,40	0,4
	CPMT 09T308-SN-MP	BTCP25M	●	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-SN-MP	BTCP35M	○	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-SN-MK	BTCK20M	○	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-SN-MH	BTCH30M	○	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-EN-FP	BTCP25M	○	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-EN-FM	BTCP35M	○	9,65	3,97	9,52	4,40	0,8
	CPMT 09T308-SN-MH	BTCH10M	○	9,65	3,97	9,52	4,40	0,8

Sipariş örneği Order example: 10 Adet Pieces CPMT 09T308-SN-MH BTCH10M

● Stoktan teslim Available from stock
○ İstek üzerine On request

Kanal frezeleme
Slotting cutters

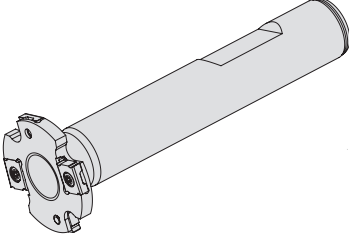
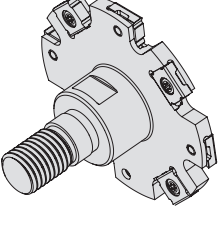
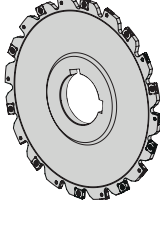
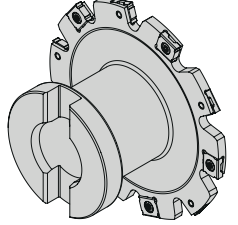
Kanal frezeleme Slotting cutters



Kanal frezeleme

Slotting cutters

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Uygulama Execution	Kanal frezeleme Slotting cutters			
				
Freze çapları Diameter range metric	Ø 32 - 160 mm			
Uç ölçüsü Insert size	LNET..07			

Teknik Özellikler:

- İşleme çapına ve genişliğine göre kullanılabilen farklı kanal uçları
- 4 kesme kenarına sahip ekonomik ve hassas LNET uçlar
- Taşlanmış uçlar ile daha hassas frezeleme
- Pozitif talaş açısı ile düzgün kesim
- Rijit bağlama sistemi ile güvenli çalışma
- Özel uç oturma yuvası sayesinde güçlü takımlar
- Darbeli uygulamalar için yumuşak uç alt yapısı
- Standart kanal genişliği 3 - 4 - 4,5 - 5 - 5,5 - 6 - 6,5 - 7 - 7,5

Special features:

- Different insert thickness depending on machining diameter and width
- Economical and precision 4 cutting edge insert LNET
- High accuracy precision grounded inserts
- Smooth machining with high positive rake angle
- Rigid clamping system for high stability
- Strong cutter body design due to spacial insert pocket
- Tough insert grades for interrupting cutting
- Standart slot width 3 - 4 - 4,5 - 5 - 5,5 - 6 - 6,5 - 7 - 7,5

Malzeme Material	LNET..07	
	Kalite Grade	İlerleme, Feed, [mm] f _t
P	BTM35M	0,05 0,12 0,20
M	BTM35M	0,04 0,08 0,15
K	BTCK25M	0,10 0,15 0,20
N	BTCK25M	0,15 0,25 0,35

Kesme değerleri için sayfa 22-23 bakınız

Cutting data recommendations page

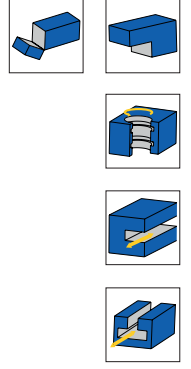
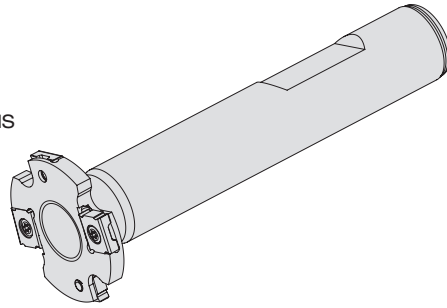
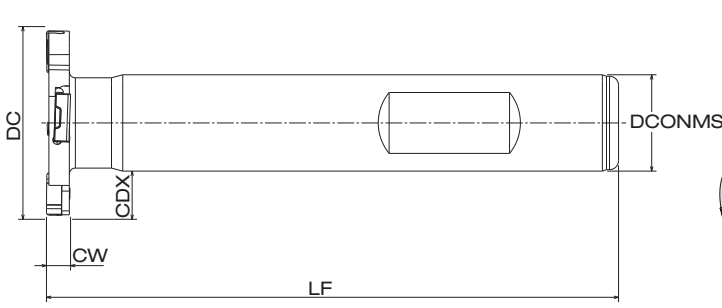
* Kesme değerleri referans alınmalı, ancak uygulamada ayrıca deneme yapılmalıdır.

* Recommended cutting data has to be seen as a reference which can be optimised for each application through trials separately.

Weldon kanal frezeler

Weldon type slotting cutters

boehlerit



Ölçüler [mm] Dimensions [mm]								Ürün kodu Item code	Uç tipi Insert type	Stok durumu Availability	Yedek parça Spare parts	
DC	CW	CDX	ZEFP	CICT	DCONMS	SHANK	LF					
32	3	8,0	2	4	16	W	90	BTDS-032-03-LN07-W16	LNET 071804	o	Sıkma civatası Fixation screw BTAP 25035-3560	Tork anahtarı Torque wrench T06 T06 L
40	3	12,0	3	6	16	W	105	BTDS-040-03-LN07-W16		o		
50	3	15,0	4	8	20	W	110	BTDS-050-03-LN07-W20		o		
63	3	21,5	5	10	20	W	110	BTDS-063-03-LN07-W20		o		
32	4	8,0	2	4	16	W	90	BTDS-032-04-LN07-W16	LNET 072504	o		
32	4,5	8,0	2	4	16	W	90	BTDS-032-045-LN07-W16		o		
40	4	12,0	3	6	16	W	105	BTDS-040-04-LN07-W16		o		
40	4,5	12,0	3	6	16	W	105	BTDS-040-045-LN07-W16		o		
50	4	15,0	4	8	20	W	110	BTDS-050-04-LN07-W20		o		
50	4,5	15,0	4	8	20	W	110	BTDS-050-045-LN07-W20		o		
63	4	21,5	5	10	20	W	110	BTDS-063-04-LN07-W20		o		
63	4,5	21,5	5	10	20	W	110	BTDS-063-045-LN07-W20		o		
32	5	8,0	2	4	16	W	90	BTDS-032-05-LN07-W16	LNET 073004	o		
32	5,5	8,0	2	4	16	W	90	BTDS-032-055-LN07-W16		o		
40	5	12,0	3	6	16	W	105	BTDS-040-05-LN07-W16		o		
40	5,5	12,0	3	6	16	W	105	BTDS-040-055-LN07-W16		o		
50	5	15,0	4	8	20	W	110	BTDS-050-05-LN07-W20		o		
50	5,5	15,0	4	8	20	W	110	BTDS-050-055-LN07-W20		o		
63	5	21,5	5	10	20	W	110	BTDS-063-05-LN07-W20		o		
63	5,5	21,5	5	10	20	W	110	BTDS-063-055-LN07-W20		o		
32	6	8,0	2	4	16	W	90	BTDS-032-06-LN07-W16	LNET 073504	o		
32	6,5	8,0	2	4	16	W	90	BTDS-032-065-LN07-W16		o		
40	6	12,0	3	6	16	W	105	BTDS-040-06-LN07-W16		o		
40	6,5	12,0	3	6	16	W	105	BTDS-040-065-LN07-W16		o		
50	6	15,0	4	8	20	W	110	BTDS-050-06-LN07-W20		o		
50	6,5	15,0	4	8	20	W	110	BTDS-050-065-LN07-W20		o		
63	6	21,5	5	10	20	W	110	BTDS-063-06-LN07-W20		o		
63	6,5	21,5	5	10	20	W	110	BTDS-063-065-LN07-W20		o		
32	7	8,0	2	4	16	W	90	BTDS-032-07-LN07-W16	LNET 074004	o		
32	7,5	8,0	2	4	16	W	90	BTDS-032-075-LN07-W16		o		
40	7	12,0	3	6	16	W	105	BTDS-040-07-LN07-W16		o		
40	7,5	12,0	3	6	16	W	105	BTDS-040-075-LN07-W16		o		
50	7	15,0	4	8	20	W	110	BTDS-050-07-LN07-W20		o		
50	7,5	15,0	4	8	20	W	110	BTDS-050-075-LN07-W20		o		
63	7	21,5	5	10	20	W	110	BTDS-063-07-LN07-W20		o		
63	7,5	21,5	5	10	20	W	110	BTDS-063-075-LN07-W20		o		

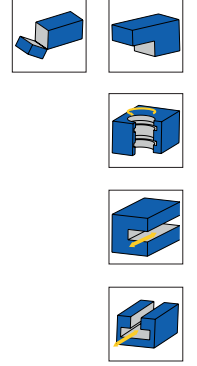
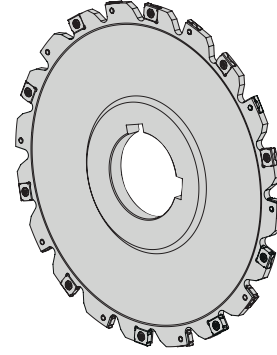
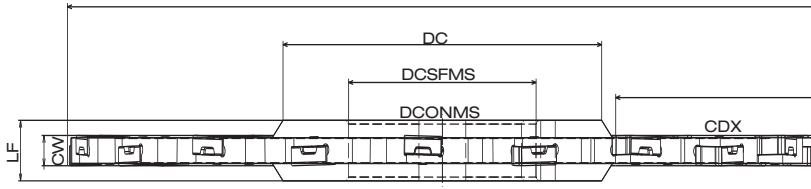
Sipariş örneği Order example: 1 Adet Pieces BTDS-063-075-LN07-W20

● Stoktan teslim Available from stock
○ İstek üzerine On request

Disk kanal frezeler

Disc type slotting cutters

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Ölçüler [mm] Dimensions [mm]								Ürün kodu Item code	Uç tipi Insert type	Stok durumu Availability	Yedek parça Spare parts	
DC	CW	CDX	ZEFP	CICT	DCSFMS	DCONMS	LF					
63	3	15	4	8	32	22	6	BTDS-063-03-LN07-22	LNET 071804	o	 Sıkma civatası Fixation screw BTAP 25035-3560	 Tork anahtarı Torque wrench T06 T06 L
100	3	27	6	12	42	27	8	BTDS-100-03-LN07-27		o		
125	3	37	8	16	48	32	8	BTDS-125-03-LN07-32		o		
63	4	15	4	8	32	22	6	BTDS-063-04-LN07-22	LNET 072504	o		
63	4,5	15	4	8	32	22	6	BTDS-063-045-LN07-22		o		
80	4	22	5	10	34	22	6	BTDS-080-04-LN07-22		o		
80	4,5	22	5	10	34	22	6	BTDS-080-045-LN07-22		o		
100	4	27	6	12	42	27	8	BTDS-100-04-LN07-27		o		
100	4,5	27	6	12	42	27	8	BTDS-100-045-LN07-27		o		
125	4	36	8	16	48	32	8	BTDS-125-04-LN07-32		o		
125	4,5	36	8	16	48	32	8	BTDS-125-045-LN07-32		o		
160	4	49	10	20	56	40	10	BTDS-160-04-LN07-40		o		
160	4,5	49	10	20	56	40	10	BTDS-160-045-LN07-40		o		
63	5	15	4	8	32	22	8	BTDS-063-05-LN07-22	LNET 073004	o		
63	5,5	15	4	8	32	22	8	BTDS-063-055-LN07-22		o		
80	5	22	5	10	34	22	8	BTDS-080-05-LN07-22		o		
80	5,5	22	5	10	34	22	8	BTDS-080-055-LN07-22		o		
100	5	27	6	12	42	27	10	BTDS-100-05-LN07-27		o		
100	5,5	27	6	12	42	27	10	BTDS-100-055-LN07-27		o		
125	5	37	8	16	48	32	10	BTDS-125-05-LN07-32		o		
125	5,5	37	8	16	48	32	10	BTDS-125-055-LN07-32		o		
63	6	15	4	8	32	22	8	BTDS-063-06-LN07-22	LNET 073504	o		
63	6,5	15	4	8	32	22	8	BTDS-063-065-LN07-22		o		
80	6	22	5	10	34	22	8	BTDS-080-06-LN07-22		o		
80	6,5	22	5	10	34	22	8	BTDS-080-065-LN07-22		o		
63	7	15	4	8	32	22	8	BTDS-063-07-LN07-22	LNET 074004	o		
63	7,5	15	4	8	32	22	8	BTDS-063-075-LN07-22		o		
80	7	22	5	10	34	22	8	BTDS-080-07-LN07-22		o		
80	7,5	22	5	10	34	22	8	BTDS-080-075-LN07-22		o		

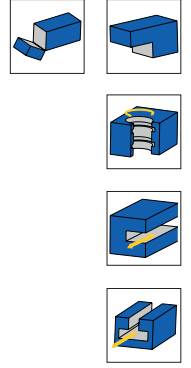
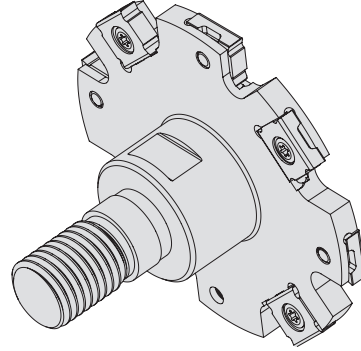
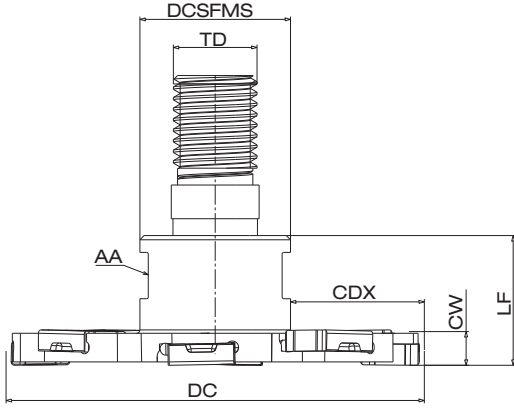
Sipariş örneği Order example: 1 Adet Pieces BTDS-063-075-LN07-W20

● Stoktan teslim Available from stock
○ İstek üzerine On request

Vidalı disk kanal frezeler

Screw type slotting cutters

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Ölçüler [mm] Dimensions [mm]										Ürün kodu Item code	Uç tipi Insert type	Stok Availability	Yedek parça Spare parts
DC	CW	CDX	ZEFP	CICT	DCONMS	TD	LF	A-A	OAL				
32	3	10,5	2	4	13	M08	13	10	31	BTDS-032-03-LN07-M08	LNET 0718	o	Sıkma civatası Fixation screw BTAP 25035-3560
40	3	13,0	3	6	13	M08	23	10	31	BTDS-040-03-LN07-M08		o	
50	3	15,5	4	8	18	M10	28	16	33	BTDS-050-03-LN07-M10		o	
63	3	22,0	5	10	18	M10	35	16	33	BTDS-063-03-LN07-M10		o	
32	4	10,5	2	4	13	M08	13	10	31	BTDS-032-04-LN07-M08	LNET 0725	o	Tork anahtarı Torque wrench T06 T06 L
32	4,5	10,5	2	4	13	M08	13	10	31	BTDS-032-045-LN07-M08		o	
40	4	13,0	3	6	13	M08	23	10	31	BTDS-040-04-LN07-M08		o	
40	4,5	13,0	3	6	13	M08	23	10	31	BTDS-040-045-LN07-M08		o	
50	4	15,5	4	8	18	M10	28	16	33	BTDS-050-04-LN07-M10		o	
50	4,5	15,5	4	8	18	M10	28	16	33	BTDS-050-045-LN07-M10		o	
63	4	22,0	5	10	18	M10	35	16	33	BTDS-063-04-LN07-M10		o	
63	4,5	22,0	5	10	18	M10	35	16	33	BTDS-063-045-LN07-M10		o	
32	5	7,0	2	4	18	M10	13	16	33	BTDS-032-05-LN07-M10	LNET 0730	o	
32	5,5	7,0	2	4	18	M10	13	16	33	BTDS-032-055-LN07-M10		o	
40	5	11,0	3	6	18	M10	23	16	33	BTDS-040-05-LN07-M10		o	
40	5,5	11,0	3	6	18	M10	23	16	33	BTDS-040-055-LN07-M10		o	
50	5	14,5	4	8	21	M12	28	17	35	BTDS-050-05-LN07-M12		o	
50	5,5	14,5	4	8	21	M12	28	17	35	BTDS-050-055-LN07-M12		o	
63	5	21,0	5	10	21	M12	35	17	35	BTDS-063-05-LN07-M12		o	
63	5,5	21,0	5	10	21	M12	35	17	35	BTDS-063-055-LN07-M12		o	
32	6	7,0	2	4	18	M10	13	10	33	BTDS-032-06-LN07-M10	LNET 0735	o	
32	6,5	7,0	2	4	18	M10	13	10	33	BTDS-032-065-LN07-M10		o	
40	6	11,0	3	6	18	M10	23	10	33	BTDS-040-06-LN07-M10		o	
40	6,5	11,0	3	6	18	M10	23	10	33	BTDS-040-065-LN07-M10		o	
50	6	14,5	4	8	21	M12	28	17	35	BTDS-050-06-LN07-M12		o	
50	6,5	14,5	4	8	21	M12	28	17	35	BTDS-050-065-LN07-M12		o	
63	6	21,0	5	10	21	M12	35	17	35	BTDS-063-06-LN07-M12		o	
63	6,5	21,0	5	10	21	M12	35	17	35	BTDS-063-065-LN07-M12		o	

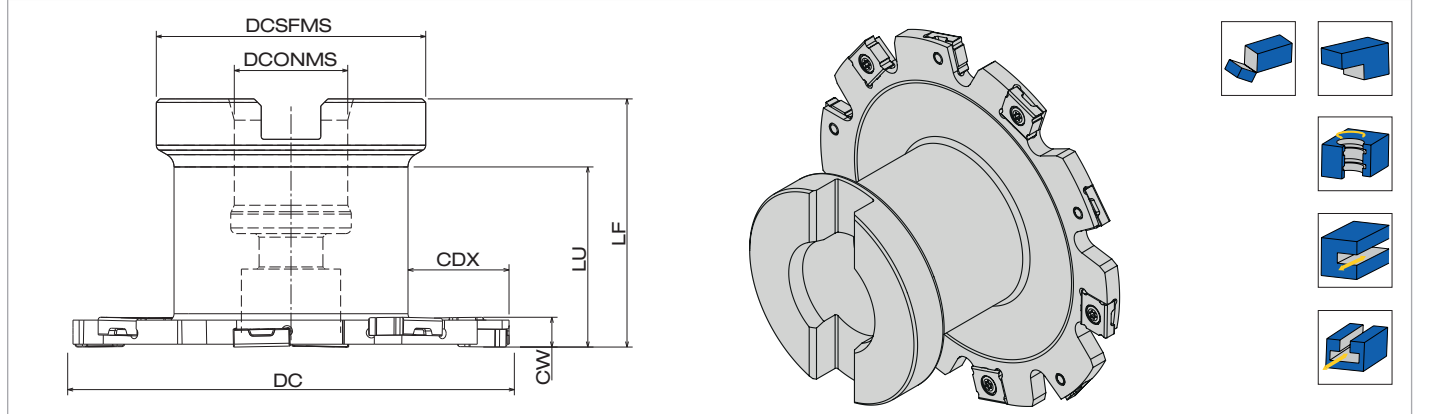
Sipariş örneği Order example: 1 Adet Pieces BTDS-063-075-LN07-W20

● Stoktan teslim Available from stock
○ İstek üzerine On request

Arborlu kanal frezeler

Arbor type slotting cutters

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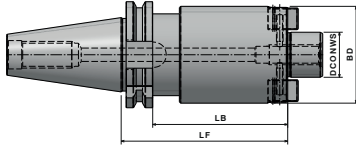
Ölçüler [mm] Dimensions [mm]									Ürün kodu Item code	Uç tipi Insert type	Stok Availability	Yedek parça Spare parts
DC	CW	CDX	ZEFP	CICT	DCSFMS	DCONMS	LU	LF				
63	3	14,5	4	8	38	16	25	35	BTDS-063-03-LN07-A16	LNET 0718	o	
80	3	22,5	5	10	45	22	28	50	BTDS-080-03-LN07-A22		o	
100	3	26	6	12	55	27	28	50	BTDS-100-03-LN07-A27		o	
63	4	14,5	4	8	38	16	25	35	BTDS-063-04-LN07-A16	LNET 0725	o	Sıkma civatası Fixation screw BTAP 25035-3560
63	4,5	14,5	4	8	38	16	25	35	BTDS-063-045-LN07-A16		o	
80	4	22,5	5	10	45	22	28	50	BTDS-080-04-LN07-A22		o	
80	4,5	22,5	5	10	45	22	28	50	BTDS-080-045-LN07-A22		o	
100	4	26	6	12	55	27	28	50	BTDS-100-04-LN07-A27		o	
100	4,5	26	6	12	55	27	28	50	BTDS-100-045-LN07-A27		o	
63	5	14,5	4	8	38	16	25	35	BTDS-063-05-LN07-A16	LNET 0730	o	Tork anahtarı Torque wrench T06 T06 L
63	5,5	14,5	4	8	38	16	25	35	BTDS-063-055-LN07-A16		o	
80	5	22,5	5	10	45	22	28	50	BTDS-080-05-LN07-A22		o	
80	5,5	22,5	5	10	45	22	28	50	BTDS-080-055-LN07-A22		o	
100	5	26	6	12	55	27	28	50	BTDS-100-05-LN07-A27		o	
100	5,5	26	6	12	55	27	28	50	BTDS-100-055-LN07-A27		o	
63	6	14,5	4	8	38	16	25	35	BTDS-063-06-LN07-A16	LNET 0735	o	
63	6,5	14,5	4	8	38	16	25	35	BTDS-063-065-LN07-A16		o	
80	6	22,5	5	10	45	22	28	50	BTDS-080-06-LN07-A22		o	
80	6,5	22,5	5	10	45	22	28	50	BTDS-080-065-LN07-A22		o	
100	6	26	6	12	55	27	28	50	BTDS-100-06-LN07-A27		o	
100	6,5	26	6	12	55	27	28	50	BTDS-100-065-LN07-A27		o	
63	7	14,5	4	8	38	16	25	35	BTDS-063-07-LN07-A16	LNET 0740	o	
63	7,5	14,5	4	8	38	16	25	35	BTDS-063-075-LN07-A16		o	
80	7	22,5	5	10	45	22	28	50	BTDS-080-07-LN07-A22		o	
80	7,5	22,5	5	10	45	22	28	50	BTDS-080-075-LN07-A22		o	
100	7	26	6	12	55	27	28	50	BTDS-100-07-LN07-A27		o	
100	7,5	26	6	12	55	27	28	50	BTDS-100-075-LN07-A27		o	

Kanal freze uçları Slotting inserts

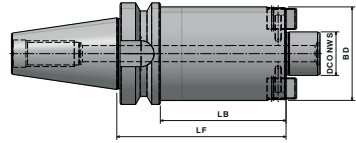
N = Ağız Sayısı N = Number of cutting edges	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	d	s	d _i	r
 N = 4	LNET 071804	BTCK35M	o	7	1,80	8	4,10	0,4
	LNET 071804	BTCK25M	o	7	1,80	8	4,10	0,4
	LNET 072504	BTCK35M	o	7	2,50	8	4,10	0,4
	LNET 072504	BTCK25M	o	7	2,50	8	4,10	0,4
	LNET 073004	BTCK35M	o	7	3,00	8	4,10	0,4
	LNET 073004	BTCK25M	o	7	3,00	8	4,10	0,4
	LNET 073504	BTCK35M	o	7	3,50	8	4,10	0,4
	LNET 073504	BTCK25M	o	7	3,50	8	4,10	0,4
	LNET 074004	BTCK35M	o	7	4,00	8	4,10	0,4
	LNET 074004	BTCK25M	o	7	4,00	8	4,10	0,4

Sipariş örneği Order example: 10 Adet Pieces LNET 074004 BTCK25M

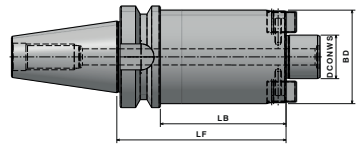
● Stoktan teslim Available from stock
○ İstek üzerine On request



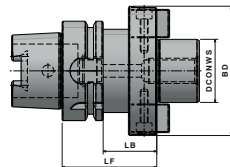
SK40 tutucular Chuck SK40			
LNET	SK40 SK40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-35/SK40	4600822	●
Ø50-66 mm	WSMH/22-35/SK40	4600823	●
Ø80 mm	WSMH/27-40/SK40	4600824	●
Ø100 mm	WSMH/32-50/SK40	4600825	●
Ø125-160 mm	WSMH/40-50/SK40	4600826	●



BT40 tutucular Chuck BT40			
LNET	BT40 BT40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-40/BT40	5009952	●
Ø50-63 mm	WSMH/22-40/BT40	5009953	●
Ø80 mm	WSMH/27-40/BT40	5064794	●
Ø100 mm	WSMH/32-50/BT40	5064795	●
Ø125 mm	WSMH/40-50/BT40	5064798	●



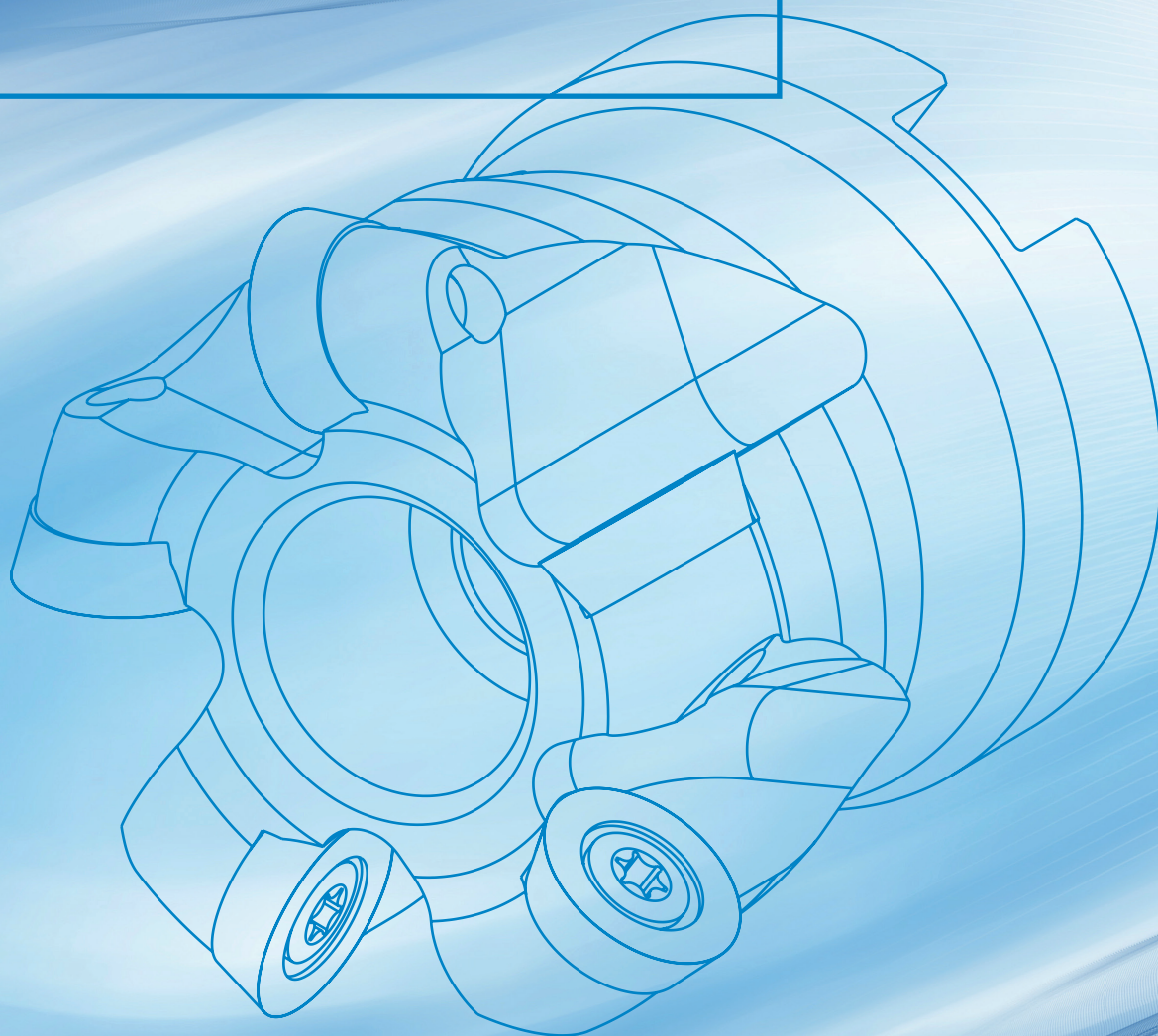
BT50 tutucular Chuck BT50			
LNET	BT50 BT50	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-63/BT50	5064832	●
Ø50-63 mm	WSMH/22-63/BT50	5064834	●
Ø80 mm	WSMH/27-63/BT50	5064835	●
Ø100 mm	WSMH/32-60/BT50	5064836	●
Ø125 mm	WSMH/40-60/BT50	5064820	●



HSK-A63 tutucular Chuck HSK-A63			
LNET	HSK-A63 HSK-A63	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-50/HSK-A63	4601763	●
Ø50-63 mm	WSMH/22-50/HSK-A63	4601765	●
Ø80 mm	WSMH/27-60/HSK-A63	4601767	●
Ø100 mm	WSMH/32-60/HSK-A63	4601769	●
Ø125 mm	WSMH/40-60/HSK-A63	4601771	●

Kopya frezeler
Copy milling

Kopya frezeler
Copy milling



Kopya frezeler

Copy milling cutter

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Uygulama Execution	Kopya frezeler (Malafalı) Copy milling cutter	Kopya frezeler (Vidalı) Copy screw milling cutter
Freze çapları Diameter range	Ø 40 - 100 mm	Ø 20 - 35 mm
Uç ölçüsü Insert size	RD.. 10, RD.. 12, RD.. 16	RD.. 10, RD.. 12, RD.. 16

Teknik Avantajlar:

- Genel işleme ve kalıpcılık endüstrisi için universal takımlar
- Nötr uç oturma yüzeyleri sayesinde hassas çevresel frezeleme imkanı
- Talaş çarpmasına karşı uç kenar koruması
- Farklı talaş derinlikleri ve ilerlemede çalışabilen takım ve uçlar
- Farklı malzeme grupları için uygun geometri ve kaliteler

Special features:

- Universal applicable tool system for general machining and mould construction
- Neutral mounting position of the insert in the tool for an optimal contour precision
- Special protection against chip impact on the insert seat of the insert's cutting edge
- Big assortment depth-feed of inserts and tools
- Optimal cutting geoemetry and grades for wide range of material

Uç geometrisi Insert geometry	RD.. 1003		RD.. 12T3		RD.. 1604	
	Kesme derinliği, Cutting depth _* [mm] a _p max	İlerleme, Feed _* [mm] f _z	Kesme derinliği, Cutting depth _* [mm] a _p max	İlerleme, Feed _* [mm] f _z	Kesme derinliği, Cutting depth _* [mm] a _p max	İlerleme, Feed _* [mm] f _z
RP	0,30 1,5 2,5	0,15 0,30 0,60	0,30 1,8 3,0	0,18 0,30 0,60	0,30 2,40 4,0	0,18 0,30 0,7
MP	0,25 1,5 2,0	0,15 0,30 0,60	0,30 1,8 3,0	0,15 0,30 0,60	0,30 2,40 4,0	0,15 0,30 0,7
RM	0,25 1,5 2,5	0,10 0,30 0,40	0,30 1,8 3,0	0,10 0,20 0,40	0,30 2,40 4,0	0,10 0,20 0,50
MM	0,25 1,0 2,0	0,10 0,30 0,40	0,30 1,8 3,0	0,10 0,20 0,40	0,30 2,40 4,0	0,10 0,20 0,50
RK	0,30 1,5 2,5	0,20 0,30 0,60	0,30 1,8 3,0	0,20 0,30 0,70	0,30 2,40 4,0	0,20 0,30 0,80
MK	0,30 1,5 2,5	0,20 0,30 0,60	0,30 1,8 3,0	0,20 0,30 0,70	0,30 2,40 4,0	0,20 0,30 0,80
RH	0,1 0,25 1	0,10 0,30 0,35	0,1 0,25 1	0,10 0,25 0,35	0,1 0,30 1	0,10 0,30 0,45
MH	0,1 0,25 1	0,10 0,30 0,35	0,1 0,25 1	0,10 0,25 0,35	0,1 0,30 1	0,10 0,30 0,45
MN	0,5 1 2	0,25 0,30 0,80	0,25 1,5 2,0	0,25 0,40 0,80	0,30 2,40 4,0	0,25 0,40 0,80

Kesme değerleri için sayfa 22-23 bakınız
Cutting data recommendations page

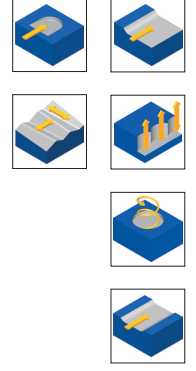
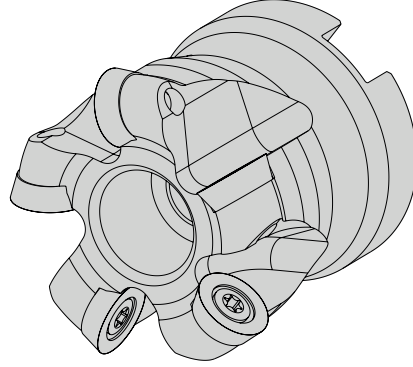
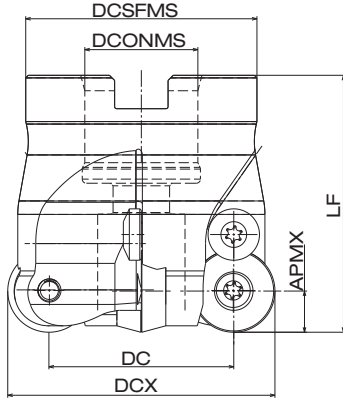
* Kesme değerleri referans alınmalı, ancak uygulamada ayrıca deneme yapılmalıdır.

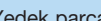
* Recommended cutting data has to be seen as a reference which can be optimised for each application through trials separately.

Kopya frezeler

Copy milling

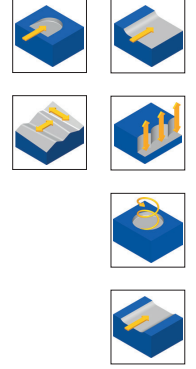
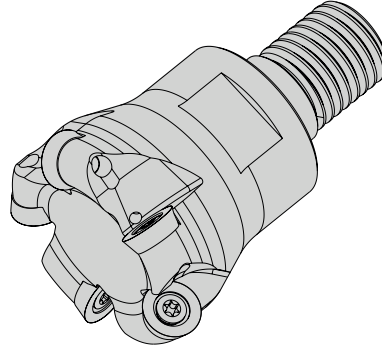
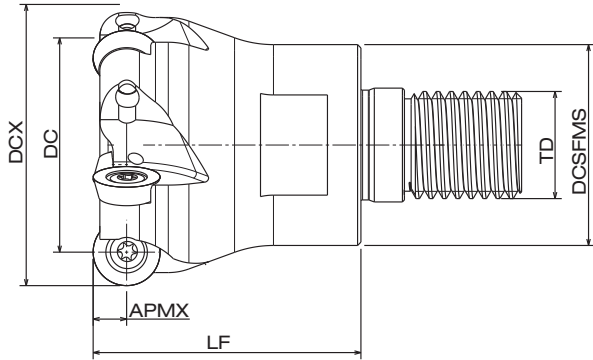
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Ölçüler [mm] Dimensions [mm]						Ürün kodu Item code	Uç tipi Insert type	Stok durumu Availability	Yedek parça Spare parts	
DC	DCONMS	DCSFMS	LF	APMX	z					
40	16	35	40	5	4	BTFR RD10 040 Z04	RD10..03	●	BTAP 3507-5155	T10
50	22	45	35	5	5	BTFR RD10 050 Z05		●		
52	22	45	50	6	5	BTFR RD12 052 Z05	RD12..T3	●	BTAP 3508-5560	T15
63	22	45	50	6	6	BTFR RD12 063 Z06		●		
52	22	45	50	8	4	BTFR RD16 052 Z04	RD16..04	●	BTAP 4510-6660	T20
63	27	57	50	8	5	BTFR RD16 063 Z05		●		
66	27	57	50	8	5	BTFR RD16 066 Z05		●		
80	27	57	50	8	6	BTFR RD16 080 Z06		●		
100	32	70	55	8	6	BTFR RD16 100 Z06		●		

Vidalı tip kopya frezeler

Screw type copy milling



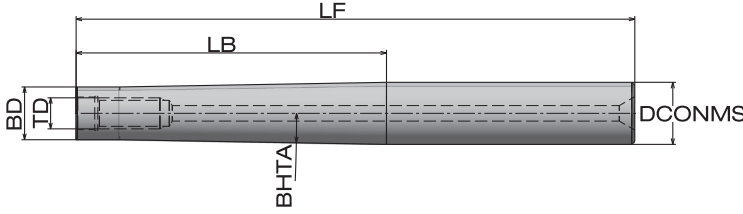
Ölçüler [mm] Dimensions [mm]						Ürün kodu Item code	Uç tipi Insert type	Stok durumu Availability	Yedek parça Spare parts	
DC	DCSFMS	LF	TD	APMX	z					
20	18	30	M10	5	2	BTSR RD10.020 Z2 M10	RD10..03	●	BTAP 4510-6660	T10
25	21	35	M12	5	3	BTSR RD10.025 Z3 M12		●		
35	29	40	M16	5	4	BTSR RD10.035 Z4 M16		●		
42	30	40	M16	5	5	BTSR RD10.042 Z5 M16		○		
32	29	40	M16	6	3	BTSR RD12.032 Z3 M16	RD12..T3	●	BTAP 3508-5560	T15
35	29	40	M16	8	2	BTSR RD16.035 Z2 M16	RD16..04	●	BTAP 4510-6660	T20

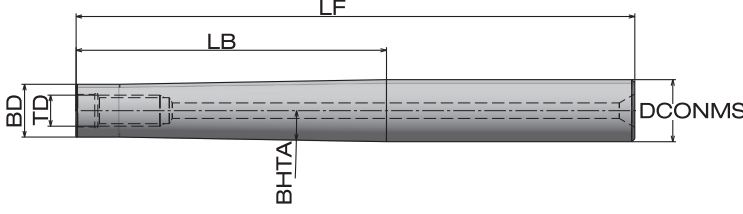
Sipariş örneği Order example: 1 Adet Pieces BTSR RD16.035 Z2 M16

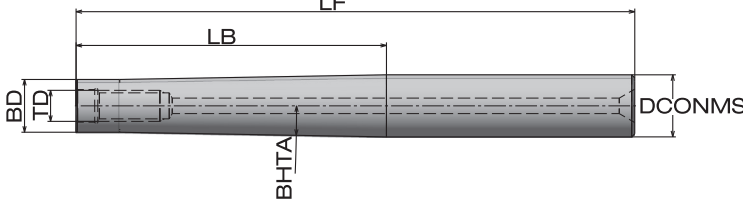
● Stoktan teslim Available from stock
○ İstek üzerine On request

Vidalı tip frezeler için sert metal uzatmalar
Solid carbide extensions for screw on type milling cutter

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TD	BD	DCONMS	BHTA	LB	LF	Bestellbezeichnung Ordering code	Material-Nr. Material-No.	Verfügbarkeit Availability
M10	17,8	20	1,58°	40	100	K 20.040 M10	5088552	●
M10	17,8	20	1,05°	60	120	K 20.060 M10	5088553	●
M10	17,8	20	0,79°	80	140	K 20.080 M10	5088661	●
M10	17,8	20	0,63°	100	160	K 20.100 M10	5088662	●
M10	17,8	20	0,53°	120	180	K 20.120 M10	5088768	●

								
TD	BD	DCONMS	BHTA	LF	LF	Bestellbezeichnung Ordering code	Material-Nr. Material-No.	Verfügbarkeit Availability
M12	23	25	0,591°	80	136	K 25.080 M12	5088769	●
M12	23	25	0,449°	100	156	K 25.100 M12	5088776	●
M12	23	25	0,362°	120	176	K 25.120 M12	5088777	●
M12	23	25	0,303°	140	196	K 25.140 M12	5088779	●
M12	23	25	0,260°	160	216	K 25.160 M12	5088781	●

								
TD	BD	DCONMS	BHTA	LB	LF	Bestellbezeichnung Ordering code	Material-Nr. Material-No.	Verfügbarkeit Availability
M16	29	32	0,828°	100	160	K 32.100 M16	5088789	●
M16	29	32	0,517°	150	210	K 32.150 M16	5088788	●
M16	29	32	0,376°	200	260	K 32.200 M16	5088787	●
M16	29	32	0,295°	250	310	K 32.250 M16	5088786	●
M16	29	32	0,243°	300	360	K 32.300 M16	5088784	●

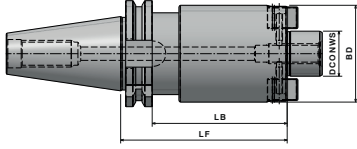
Sipariş örneği Order example: 1 Adet Pieces K 32.200 M16

● Stoktan teslim Available from stock
○ İstek üzerine On request

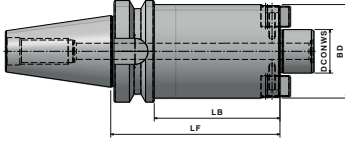
[illegible]

RDHW frezeler için BT-SK-HSK tutucular
BT-SK-HSK tool holders for RDHW

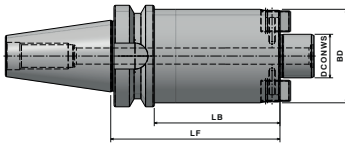
www.boehlerit.com.tr



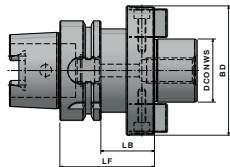
SK40 tutucular Chuck SK40			
ONMU	SK40 SK40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-35/SK40	4600822	●
Ø50-66 mm	WSMH/22-35/SK40	4600823	●
Ø80 mm	WSMH/27-40/SK40	4600824	●
Ø100 mm	WSMH/32-50/SK40	4600825	●
Ø125-160 mm	WSMH/40-50/SK40	4600826	●



BT40 tutucular Chuck BT40			
ONMU	BT40 BT40	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-40/BT40	5009952	●
Ø50-63 mm	WSMH/22-40/BT40	5009953	●
Ø80 mm	WSMH/27-40/BT40	5064794	●
Ø100 mm	WSMH/32-50/BT40	5064795	●
Ø125 mm	WSMH/40-50/BT40	5064798	●



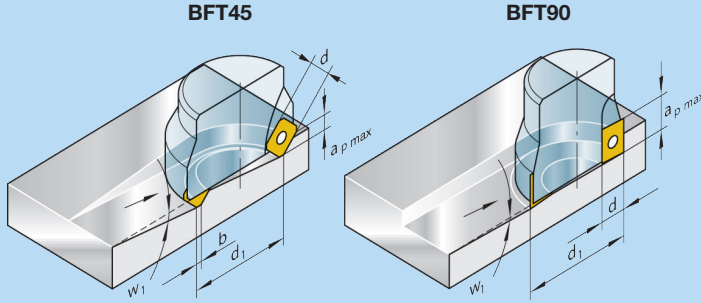
BT50 tutucular Chuck BT50			
ONMU	BT50 BT50	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-63/BT50	5064832	●
Ø50-63 mm	WSMH/22-63/BT50	5064834	●
Ø80 mm	WSMH/27-63/BT50	5064835	●
Ø100 mm	WSMH/32-60/BT50	5064836	●
Ø125 mm	WSMH/40-60/BT50	5064820	●



HSK-A63 tutucular Chuck HSK-A63			
ONMU	HSK-A63 HSK-A63	Ürün no. Product no.	Stok durumu Availability
Ø40 mm	WSMH/16-50/HSK-A63	4601763	●
Ø50-63 mm	WSMH/22-50/HSK-A63	4601765	●
Ø80 mm	WSMH/27-60/HSK-A63	4601767	●
Ø100 mm	WSMH/32-60/HSK-A63	4601769	●
Ø125 mm	WSMH/40-60/HSK-A63	4601771	●

Yüzey frezel Face Milling Cutter

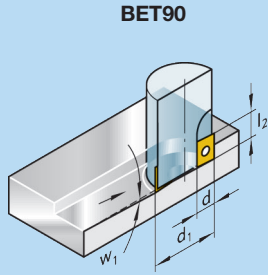
Dalma açısı W_1 max
Bevel angle W_1 max.



	BFT45	BFT90	
d	12,7	6,65	9,52
b	1,4		
$a_{p \max}$	5,5	8	14
d_1	W_1 max		
mm	Derece Degree		
40	8,5	1,0	1,5
50	6,5	0,8	1,1
63	5,0	0,6	0,8
80	3,5	0,5	0,6
100	3,0		0,5
	İç kesme derinliği: internal cutting depth: $0,7 \times a_{p \max}$		

Parmak frezeler End milling cutter

Dalma açısı W_1 max
Bevel angle W_1 max.



	BET90			
	d_1	l_2	d	W_1 max Derece Degree
	16	8	6,65	3,0
	20	8	6,65	2,1
	25	8	6,65	1,5
	25	14	9,52	2,8
	32	14	9,52	2,0
	40	14	9,52	1,5

Formüller
Formulas

Devir Revolutions n (min^{-1}):

$$n = \frac{v_c \cdot 1000}{p \cdot d_1}$$

İlerleme değeri Feed rate

V_f (mm/min):

$$V_f = f_z \cdot Z_{\text{eff}} \cdot n$$

Talaş değeri Chip volume-Q (cm^3/min):

$$Q = \frac{a_e \cdot a_p \cdot V_f}{1000}$$

Kesme hızı Cutting speed

$$v_c \text{ (m/min): } v_c = \frac{n \cdot p \cdot d_1}{1000}$$

Diş başı ilerleme Feed per tooth

$$f_z \text{ (mm): } f_z = \frac{V_f}{Z_{\text{eff}} \cdot n}$$

Sürücü gücü Drive power

$$P_e \text{ (kW): } P_e = \frac{Q}{LF}$$

v_c = Kesme hızı Cutting speed (m/min)

n = Devir (min^{-1}) Revolution (min^{-1})

d_1 = Takım dış çapı-(mm) Cutter diameter (mm)

V_f = İlerleme değeri Feed rate (mm/min)

f_z = Diş başına ilerleme Feed per tooth (mm)

P_e = Sürücü gücü Drive power

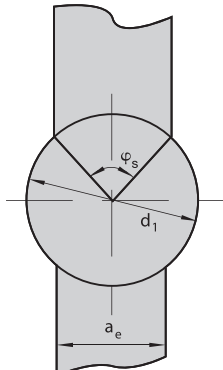
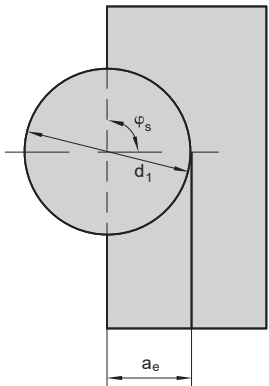
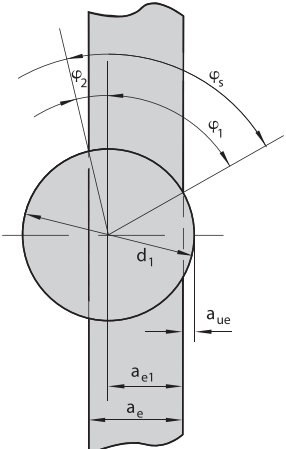
Z_{eff} = Efektif diş sayısı effective number of teeth

Q = Talaş değeri Chip volume (cm^3/min)

a_e = Kesme genişliği Width of cut (mm)

a_p = Kesme derinliği Depth of cut (mm)

LF = Efektif faktör Efficiency factor ($\text{cm}^3/\text{min}/\text{kW}$)

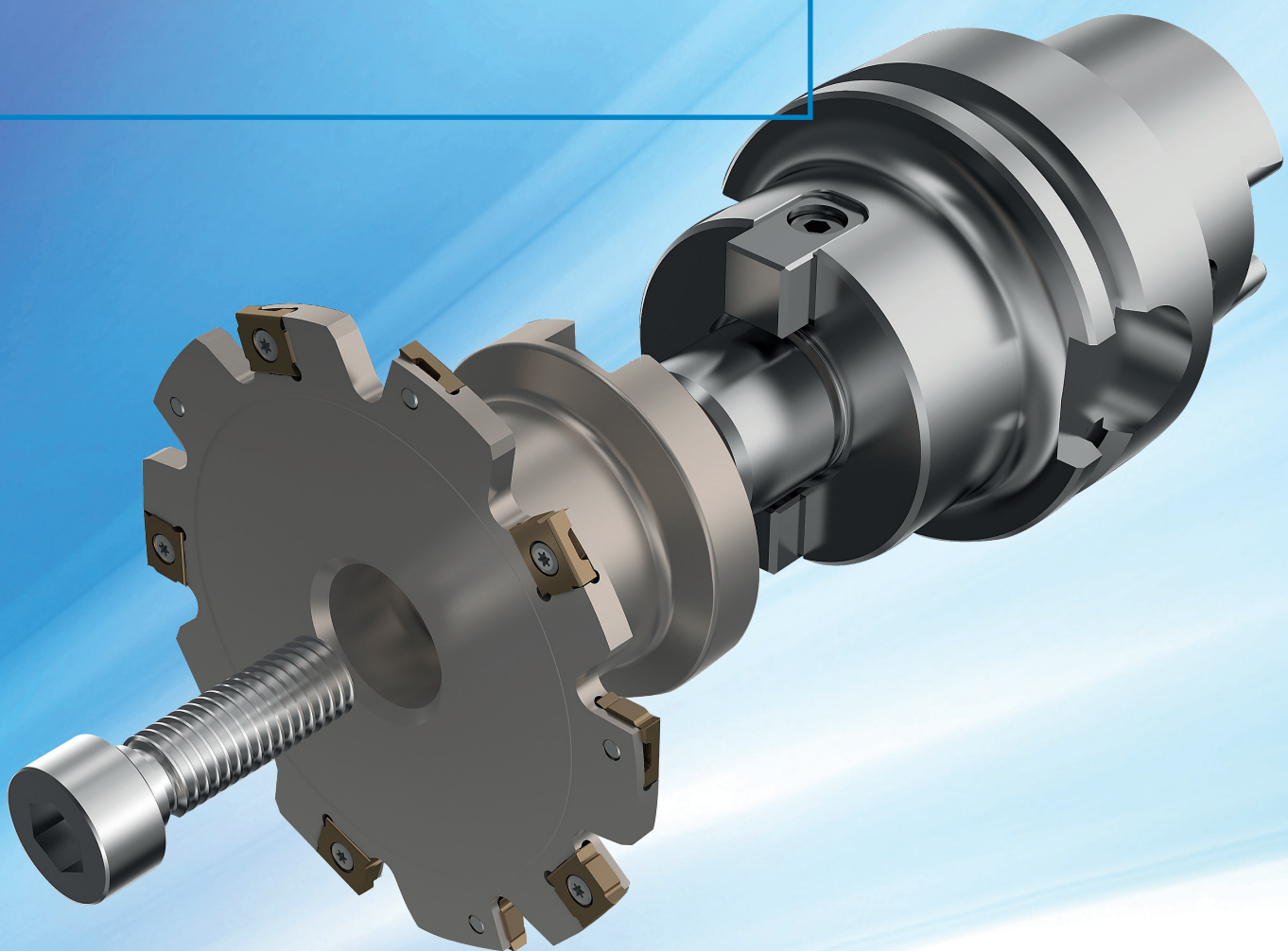
Merkeze olan mesafe Centerline location	
$\varphi_s = 2 \cdot \sin^{-1} \left(\frac{a_e}{d_1} \right)$	
Kenar frezeleme Edge millinging	
$\varphi_s = \sin^{-1} \left(\frac{a_e - \frac{d_1}{2}}{\frac{d_1}{2}} \right) + 90$	
Ayarlı frezeleme Adjusted milling	
$\sin \varphi_1 = \frac{2 \times \left(\frac{d_1}{2} - a_{ue} \right)}{d_1}$ $\sin \varphi_2 = \frac{2 \times (a_e - a_{e1})}{d_1}$ $\sin \varphi_s = \sin \varphi_1 + \sin \varphi_2$	

Çözümler Removal and solutions	Problemler Problem										
	Serbest yüzey aşısı Flank wear	Kater aşınması Crater wear	Kesme kenarının ufak parçacıklar halinde kopması Chipping	Termal çatlaklar Thermal cracks	Yorulma Fatigue	Plastik deformasyon Plastic deformation	Çentik aşınması Notch wear	Kesici kenarda talaş birikimi Built-up edge	Kesici kenarın kırılması Cutting edge failure	Titreşim Vibrations	Kötü yüzey kalitesi Poor surface quality
Daha yüksek aşınma için dirençli bir karbür kalitesi seçiniz Carbide grade with higher wear resistance	•	•				•	•				•
Daha sünek bir karbür kalitesi seçiniz Tougher carbide grade			•	•	•				•		
Kesme hızını arttırınız Increase cutting speed			•					•			
Kesme hızını azaltınız Reduce cutting speed	•	•		•		•					
Diş başına ilerlemeyi arttırınız Increase feed per tooth	•							•		•	
İlerlemeyi azaltınız Reduce feed per tooth			•	•	•	•	•		•		•
Frezenin pozisyonunu değiştiriniz Change cutter position					•					•	
Daha küçük çaplı takım seçiniz Smaller cutter diameter				•							
Rijitliği arttırınız Improve rigidity			•				•		•		
Kaplamalı kalitelerini kullanınız Use coated grade	•	•						•			
Soğutma sıvısı kullanınız Use coolant				•		•					

Ölçüler ve birimler Dimensions and units	Uygulama formülleri Application formulas	
a_e = Kesme derinliği mm Depths of cut in mm	Devir [dev/dak] Revolutions per minute n [rpm]	Ortalama talaş kalınlığı h_m [mm] Medium chip thickness h_m mm]
a_e = Kesme genişliği mm Width of cut in mm	$n = \frac{v_c \times 1000}{\pi \cdot d_1}$	$h_m = f_z \times \frac{a_e}{d_e}$
l = Kesme genişliği mm Machined length in mm	İlerleme hızı v_f [mm/min] Feed rate v_f [mm/min]	Geçerli aralık değeri $\frac{a_e}{d_e} < 0,3$ Valid only up to $\frac{a_e}{d_e} < 0,3$ %30'a kadar veya $\phi = 60^\circ$ aksi halde $h_m = \frac{360 \times f_z \times a_e \times \sin(k)}{\pi \cdot d_e \cdot \phi_s}$
h_m = Ortalama talaş kalınlığı mm Medium chip thickness	$v_f = f_z \cdot n \cdot z$	
v_c = Kesme hızı m/dak Cutting speed in m/mm	Devir başına ilerleme f [mm/U] Feed per revolution f [mm/rev]	Talaş hacmi Q [cm³/min] Chip removal rate Q [cm³/min]
f_z = Diş başına ilerleme mm Feed per tooth in mm	$f = \frac{v_f}{n}$	$Q = \frac{a_e \times a_p \times v_f}{1000}$
d_1 = Takım dış çapı External tool diameter	Diş başına ilerleme f_z [mm/z] Feed per tooth f_z [mm/tooth]	Efektif takım çapı [mm] Effective diameter of cutting
d_e = Efektif takım çapı mm Effective diameter with different inserts and at specified cut depth in mm	$f_z = h_m \times \sqrt{\frac{d_1}{a_e}}$ Geçerli aralık değeri $\frac{a_e}{d_e} < 0,3$ Valid only up to $\frac{a_e}{d_e} < 0,3$ %30'a kadar veya $\phi = 60^\circ$ Respectively 30 % or $\phi 60^\circ$	$d_e = d_1 - d + 2 a_e \sqrt{(d - a_e)}$
d = Uç çapı mm Insert diameter in mm	Giriş açısı k Setting angle	Diş başına ilerleme f_z Feed per tooth
z = Freze ağız sayısı Number of tool cutting edges	90°	f_z
k = Giriş açısı Setting angle	45°	$f_z \cdot 1,414$
ϕ_s = Yanaşma açısı Approach angle	30°	$f_z \cdot 2$
	aksi halde otherwise	$f_z = \frac{h_m \times \pi \times d_e \times \phi_s}{360 \times a_e \times \sin(k)}$

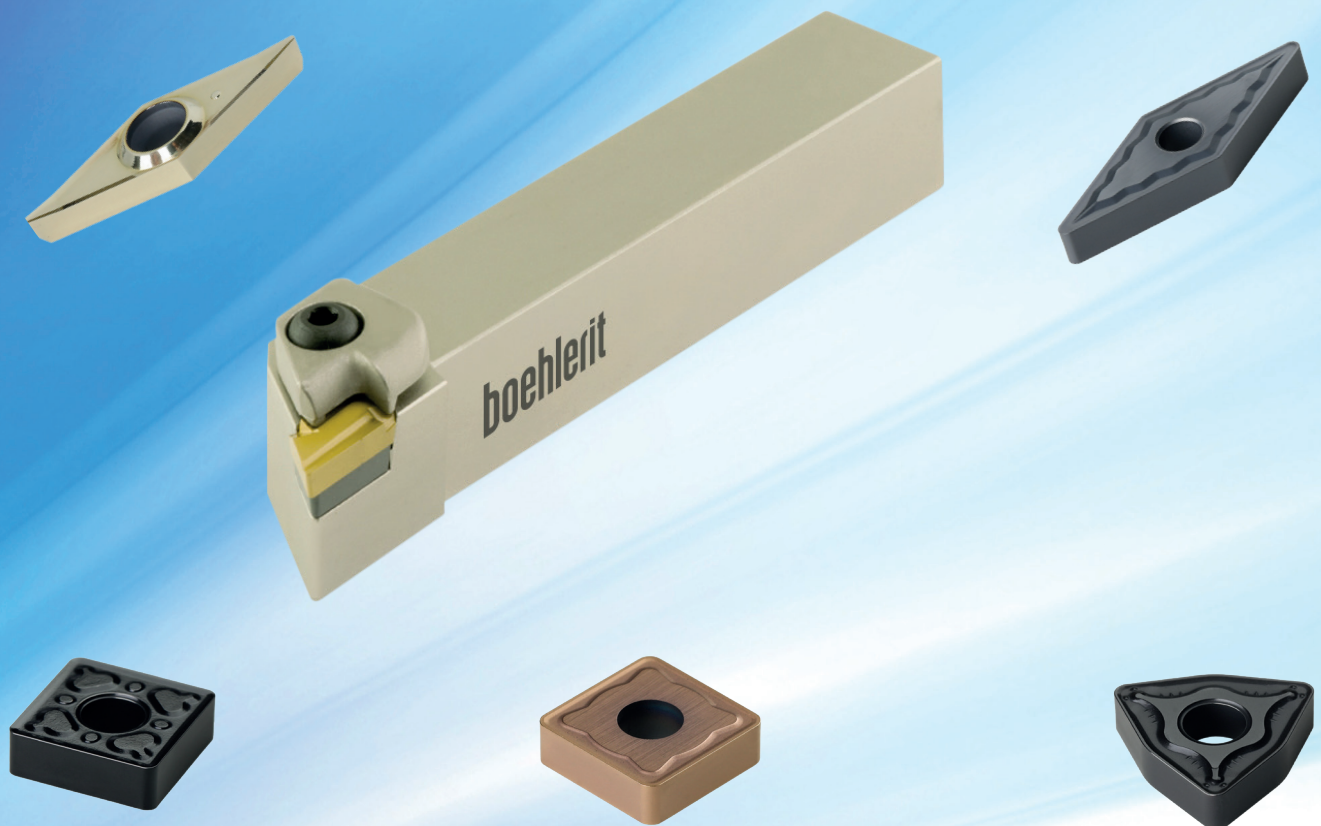
Devir Revolutions n (dak⁻¹): $n = \frac{v_c \cdot 1000}{p \cdot d_1}$	Kesme hızı Cutting speed $v_c \text{ (m/dak): } v_c = \frac{n \cdot p \cdot d_1}{1000}$	v_c = Kesme hızı Cutting speed (m/min) n = Devir (dak⁻¹) Revolution (min⁻¹)
İlerleme değeri Feed rate v_f (mm/dak): $v_f = f_z \cdot z_{\text{eff}} \cdot n$	Diş başı ilerleme Feed per tooth $f_z \text{ (mm): } f_z = \frac{v_f}{z_{\text{eff}} \cdot n}$	d_1 = Takım dış çapı (mm) Cutter diameter (mm) v_f = İlerleme değeri Feed rate (mm/min) f_z = Diş başına ilerleme Feed per tooth (mm) P_e = Sürücü gücü Drive power z_{eff} = Efektif diş sayısı effective number of teeth Q = Talaş hacmi Chip volume (cm³/min) a_e = Kesme genişliği Width of cut (mm) a_p = Kesme derinliği Depth of cut (mm) LF = Etkinlik faktör Efficiency factor (cm³/min/kW)
Talaş değeri Chip volume-Q (cm³/min): $Q = \frac{a_e \cdot a_p \cdot v_f}{1000}$	Sürücü gücü Drive power $P_e \text{ (kW): } P_e = \frac{Q}{LF}$	

Kanal frezeler
Slotting cutters



Tornalama
Turning

Tornalama Turning



Kalite Grade	Kalite (Eski) Grade (Old)	ISO Grade	Uygulama aralığı Application range	Malzeme grupları Material group							Uygulama Application		
				P	M	K	N	S	H	T	M	D	
			01 05 10 15 20 25 30 35 40 45 50	Celik Steel	Paslanmaz Çelik Stainless	Grü Dökme Demir Grey cast iron	Demir Dış Malzemeler Non-ferrous materials	Sıcaklığa dayanıklı alaşımlar High temperature materials	Sert Malzemeler Hard materials	Tornalama Turning	Frezeleme Milling	Delik delme Drilling	
BTCP15T	BC2193	HC-P15								●			
		HC-K15				■				●			
BTCP25T	BC2693	HC-P25								●			
		HC-M25			■					●			
BTCP35T	BC9493	HC-P35								●			
		HC-M35			■					●			
BTM25T	BC2688	HC-M25		■	■								
BTCK10T	BC6193	HC-K10				■				●			
BTCK15T	BC7593	HC-K15				■				●			
BTCS10T	BC7188	HC-S10						■		●			
		HC-M10			■					●			
		HC-P10											
BTCN10T	BC6170	HC-N10					■			●			
		HC-K10				■				●			
BTWN10T	BS610	HW-N10					■						
BTCH10T	BC7105	HC-H10							■	●			
		HC-S10						■		●			
		HC-P10											
		HC-M10			■								

Kullanım alanı
Application peak



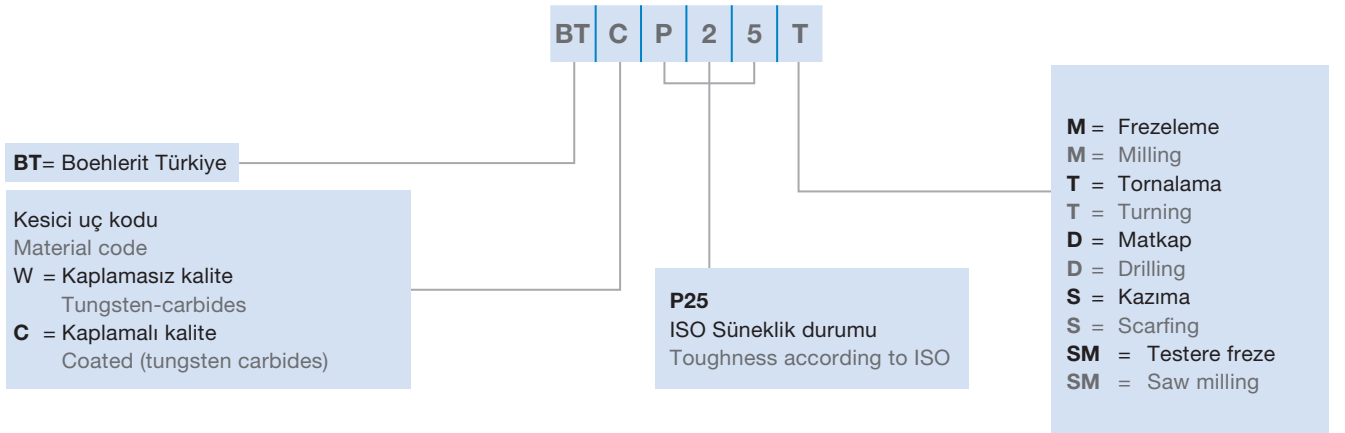
ISO 513'e göre kullanım alanı
Full range to ISO 513

■ Ana uygulama
Main application
□ İlave uygulama
Further applications

● Standart kalite
Standard grade

Uç kodlama sistemi Designation system

Uç kaliteleri kodlama sistemi Cutting materials designation system



• **BTCP15T (HC-P15-K15)**

Çelik, çelik döküm, düşük alaşımlı demir döküm ve sfero dökümün, orta kaba pasolarda yüksek kesme hızında işlenmesinde kullanılır. Yüksek aşınma mukavemetine sahip CVD kaplamalı bir kalitedir.

For turning of steel and steel castings and low alloy and spheroidal cast iron at high cutting speeds with medium depth of cut. Very high wear resistance with CVD coating.

• **BTCP25T (HC-P25-M20)**

Çelik, çelik döküm ve paslanmaz çeliklerin, orta kaba ve kaba pasolarda yüksek kesme hızı ve ilerleme değerlerinde yüksek aşınma mukavemetine sahip CVD kaplamalı üniversal torna kalitesidir.

For the machining of case-hardening steels, heat-treated as well as rust and acid-proof and high-temperature steels. Medium to heavy cuts, coarse feeds as well as high speeds with CVD coating.

• **BTCP35T (HC-P35-M35)**

Çelik, çelik döküm ve paslanmaz çeliklerin, orta kaba ve kaba pasolarda kullanılmaya uygundur. Darbeli ve vuruntulu işlemlerde yüksek aşınma mukavemetine ve tokluğa sahip CVD kaplamalı bir kalitedir.

For the machining of case-hardening steels, heat-treated as well as rust and acid-proof and high-temperature steels. Medium to heavy cuts, coarse feeds and interrupted cut with CVD coating.

• **BTM25T (HC-M15-M30)**

Östenitik paslanmaz çeliklerin orta kesme hızlarında kullanılan PVD kaplı bir torna kalitesidir.

Turning grade with PVD coating for austenitic stainless steels in medium cutting speed area.

• **BTCK10T (HC-K10)**

Kısa talaş veren döküm malzemelerin yüksek kesme hızında tornalanmasında kullanılan CVD kaplamalı bir kalitedir.

The ideal CVD coated grade for cast iron materials and other nonferrous metals at high cutting speeds.

• **BTCK15T (HC-K20)**

Gri dökme demirin (GG) sfero dökme demirin (GGG) ve temper dökme demir malzeme gruplarının yüksek kesme hızları için kullanılan yeni CVD kaplamalı bir kalitedir. Yüksek aşınma mukavemetine sahiptir.

High wear resistance with CVD coated cast iron new turning grade for machining GG and GGG materials.

• **BTCS10T (HC-S10-M10-P10)**

Inconel, hastelloy, nimonic gibi süper alaşımlı zor işlenebilen malzemeler ile titanyum alaşımları için geliştirilmiş PVD kaplamalı bir torna kalitesidir.

Special coated turning grade for machining super alloys such as Inconel, hastelloy, nimonic, Ti alloys with PVD coating.

• **BTCN10T (HC-N10-K10)**

• Alüminyum ve demir demir dışı metallerin işlenmesinde kullanılan PVD ZrN kaplamalı bir torna kalitesidir. Alternatif olarak paslanmaz çeliklerin ve gri dökme demirin finiş uygulamalarında da kullanılır.

The ideal grade for turning aluminium and other non-ferrous metals. Thanks to a very thin PVD ZrN coating it is also excellent for finish machining of stainless steels and grey cast iron.

• **BTWN10T (HW-N10-K10)**

• Kısa talaş veren malzemelerin (özellikle alüminyum malzemelerin) orta pasolarda işlenmesinde kullanılan darbeli işler için uygun olan kaplamasız bir torna kalitesidir.

Turning grade for machining of grey cast iron, aluminium alloys, and non-ferrous metals at medium cutting speeds, even under unfavourable machining conditions.

• **BTCH10T (HC-H10-S10)**

• 45 HRC ve üzeri sert malzemelerin tornalanması için optimize edilmiş PVD kaplamalı bir kalitedir. Düşük kesme hızlarında çelik ve paslanmaz çelik malzeme grubu için de tercih edilebilir.

PVD coated grade optimized for turning hard materials above 45 HRC. Also used for steel and stainless steel material groups at low cutting speeds.

W	Uç şekli Basic form
A	 85°
B	 82°
C	 80°
D	 55°
E	 75°
H	 120°
K	 55°
L	 90°
M	 86°
O	 135°
P	 108°
R	 -
S	 90°
T	 60°
V	 35°
W	 80°

N	Serbest açı Clearance angle
A	 3°
B	 5°
C	 7°
D	 15°
E	 20°
F	 25°
G	 30°
N	 0°
P	 11°
O	 α°
Özel olarak verilebilecek serbest açı Clearance angle requiring special indication	

M

Toleranslar

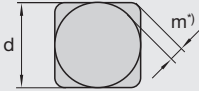
Tolerance classes

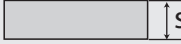
Tolerans limitleri

Limits of tolerance

	m	s	d
A	±0,005 ¹⁾	±0,025	±0,025
C	±0,013	±0,025	±0,025
E	±0,025	±0,025	±0,025
F	±0,005 ¹⁾	±0,025	±0,013
G	±0,025	±0,13	±0,025
H	±0,013	±0,025	±0,013
J	±0,005 ¹⁾	±0,025	±0,05 – ±0,15
K	±0,013 ¹⁾	±0,025	±0,05 – ±0,15
L	±0,025	±0,025	±0,05 – ±0,15
M	±0,08 – ±0,20	±0,13	±0,05 – ±0,15
U	±0,13 – ±0,38	±0,13	±0,08 – ±0,25
	d	m	d
M	6,35	±0,08	±0,05
	9,52	±0,08	±0,05
	12,7	±0,13	±0,08
	15,88	±0,15	±0,10
	19,05	±0,15	±0,10
U	25,4	±0,18	±0,13
	6,35	±0,13	±0,08
	9,52	±0,13	±0,08
	12,7	±0,20	±0,13
	15,88	±0,27	±0,18
	19,05	±0,27	±0,18
	25,4	±0,38	±0,25





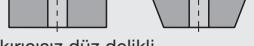
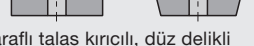
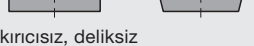
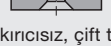
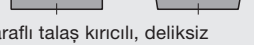
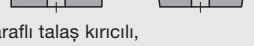
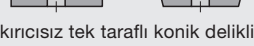
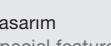


¹⁾ Genellikle bilmiş mekanik sıklıma uçlara uygulanır.

²⁾ "M" ölçümü için hesaplama inç cinsinden hassas yarıçapa dayanır.

³⁾ Generally used for indexable inserts with ground face cutting edges.

⁴⁾ The calculation for the "m" measurement is based on the precise radius in inches.

G	Talaş kırıcı sıkma tipi Type of insert
A	 Talaş kırıcısız düz delikli without chip breaker, with cylindrical fixation hole
F	 Çift taraflı talaş kırıcı, deliksiz Chip breaker at both sides, without fixation hole
G	 Çift taraflı talaş kırıcı, düz delikli Chip breaker at both sides, with cylindrical fixation hole
M	 Tek taraflı talaş kırıcı, düz delikli Chip breaker at one side, with cylindrical fixation hole
N	 Talaş kırıcısız, deliksiz without chip breaker, without fixation hole
Q	 Talaş kırıcısız, çift taraflı konik delikli without chip breaker, with fixation hole conical from both sides
R	 Tek taraflı talaş kırıcı, deliksiz Chip breaker at one side, without fixation hole
T	 Tek taraflı talaş kırıcı, tek taraflı konik delikli Chip breaker at one side, with conical fixation hole
U	 Çift taraflı talaş kırıcı, çift taraflı konik delikli Chip breaker at both sides, with fixation hole conical from both sides
W	 Talaş kırıcısız tek taraflı konik delikli without chip breaker, with conical fixation hole
X	 Özel tasarım with special features to drawing

06

Kesici kenar boyu
Length of cutting edge

A
B



C
E



D



H



K



L



M



O



P



R



S



T



V



W



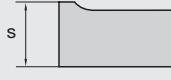
Örnekler:
Examples:

- 06 l = 6,350 mm**
09 l = 9,525 mm
11 l = 11,000 mm
12 l = 12,700 mm
15 l = 15,880 mm
16 l = 16,500 mm
19 l = 19,050 mm
22 l = 22,000 mm
25 l = 25,400 mm
27 l = 27,500 mm
33 l = 33,000 mm

04

Kalınlık
Thickness

s



s



s

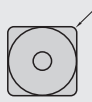


Örnekler:
Examples:

- 01 s = 1,59 mm
T1 s = 1,98 mm
02 s = 2,38 mm
03 s = 3,18 mm
T3 s = 3,97 mm
04 s = 4,76 mm
05 s = 5,56 mm
06 s = 6,35 mm
07 s = 7,94 mm
09 s = 9,52 mm
12 s = 12,70 mm

04

Kesici kenar köşesi
Corner radius

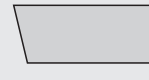


Örnekler:
Examples:

- 00 r = max 0,2 mm
04 r = 0,4 mm ±0,1
08 r = 0,8 mm ±0,1
12 r = 1,2 mm ±0,1
16 r = 1,6 mm ±0,1
20 r = 2,0 mm ±0,1
24 r = 2,4 mm ±0,1
25 r = 2,5 mm ±0,1

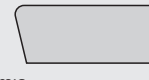
Kesme kenar durumu
Edge condition

F



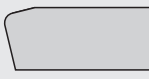
Keskin kesme kanarlı
sharp cutting edges

E



Yuvarlatılmış
kesme kanarlı
Rounded cutting edges

S



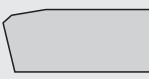
Pahlı ve yuvarlatılmış
kesme kanarlı
Chamfered and rounded
cutting edges

T



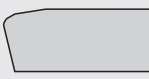
Pahlı kesme kanarlı
Chamfered cutting edges

K



Çift pahlı kesme kanarlı
Double-chamfered
cutting edges

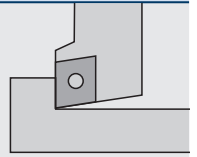
P



Çift pahlı ve yuvarlatılmış
kesme kanarlı
Double-chamfered and
rounded cutting edges

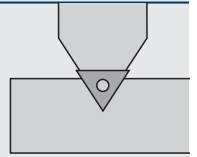
Kesme yönü
Cutting direction

L



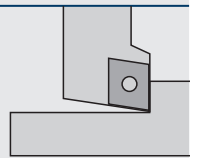
Sol kesme yönlü
The indexable insert can
only be used for cuts to
the left

N



Sağ ve sol kesme yönlü
The indexable insert can
be used for cuts either
to the left or to the right

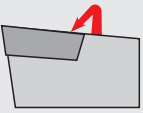
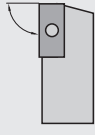
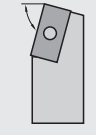
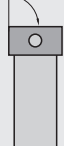
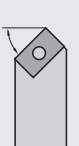
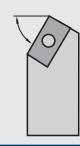
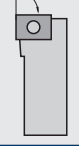
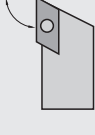
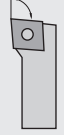
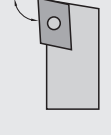
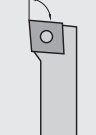
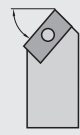
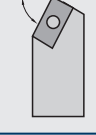
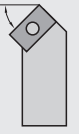
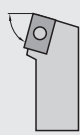
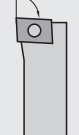
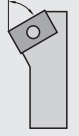
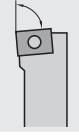
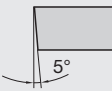
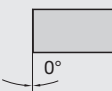
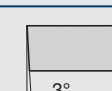
R



Sağ kesme yönlü
The indexable insert can
only be used for cuts to
the right

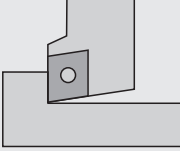
Dış tornalama takımları için ISO kodlama sistemi
ISO indexable insert designation for external turning

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P Sıkma tipi Type of fixation	C Uç tipi Indexable insert shape	L Yanaşma açısı Tool holder shape	N Uç serbest açısı Insert clearance angle
C  Üstten sıkma Fixation from above	A  85° B  82° C  80° D  55° E  75° H  120° K  55° L  90° M  86° O  135° P  108° R  – S  90° T  60° V  35° W  80°	A  90° B  75° C  90° D  45° E  60° F  90° G  90° H  107,5° J  93° K  75° L  95° M  50° N  63° S  45° R  75° U  93° T  60° W  60° V  72,5° Y  85°	A  3° B  5° C  7° D  15° E  20° F  25° G  30° N  0° P  11° O  3° Özel olarak verilebilecek serbest açısı Clearance angle requiring special indication

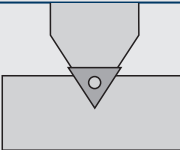
R
Kesme yönü
Cutting direction

L



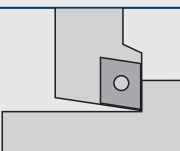
Sol kesme yönü
The tool holder can only be used for cuts to the left

N



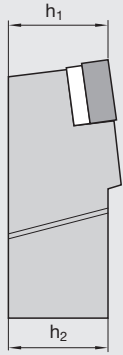
Sağ ve sol kesme yönü
The tool holder can be used for cuts either to the left or to the right

R



Sağ kesme yönü
The tool holder can only be used for cuts to the right

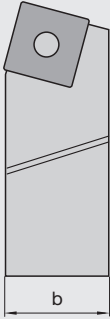
25
Kesme kenar yüksekliği
Cutting height



Kartuşlar ve iç tornalama takımları dışında ve genel olarak mekanik sıkmalı takımlarda (h_1) kesme yüksekliği (h_2) şaft yüksekliğine eşittir.

For clamped tools, the cutting height (h_1) generally corresponds to the shaft height (h_2). The exceptions to this include cartridge toolholders and clamped tools for internal turning.

25
Şaft genişliği
Shank width



M
Şaft boyu
Tool length



Şaft boyu için kodlama l_1
Code letters for the length l_1

A	32 mm
B	40 mm
C	50 mm
D	60 mm
E	70 mm
F	80 mm
G	90 mm
H	100 mm
J	110 mm
K	125 mm
L	140 mm
M	150 mm
N	160 mm
P	170 mm
Q	180 mm
R	200 mm
S	250 mm
T	300 mm
U	350 mm
V	400 mm
W	450 mm
X	Özel boy Special length
Y	500 mm

12
Kesme kenarı uzunluğu
Cutting edge length

A



B



C



E



D



H



K



L



M



O



P



R



S



T



V



W



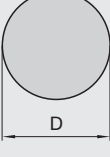
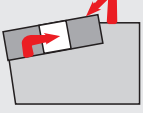
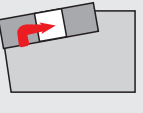
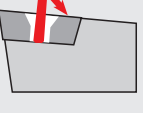
Örnekler:
Examples:

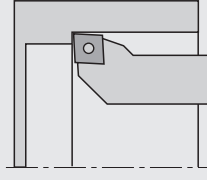
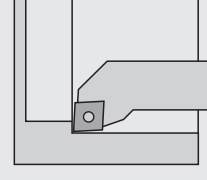
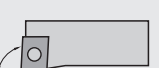
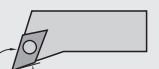
06 $l = 6,350 \text{ mm}$
09 $l = 9,525 \text{ mm}$
11 $l = 11,000 \text{ mm}$
12 $l = 12,700 \text{ mm}$
15 $l = 15,880 \text{ mm}$
16 $l = 16,500 \text{ mm}$
19 $l = 19,050 \text{ mm}$
22 $l = 22,000 \text{ mm}$
25 $l = 25,400 \text{ mm}$
27 $l = 27,500 \text{ mm}$
33 $l = 33,000 \text{ mm}$

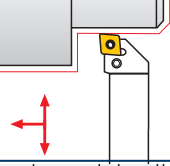
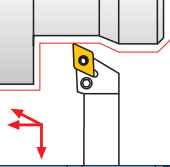
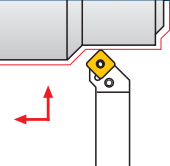
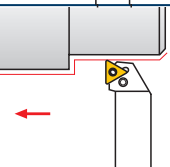
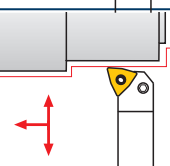
İç tornalama takımları için ISO kodlama sistemi

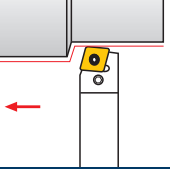
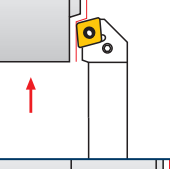
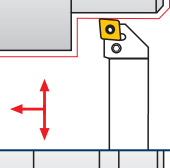
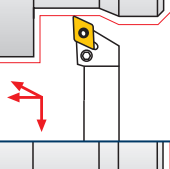
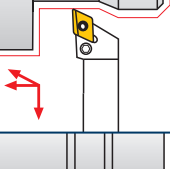
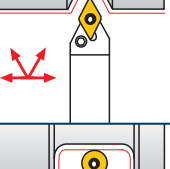
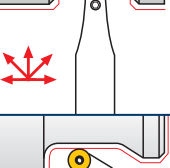
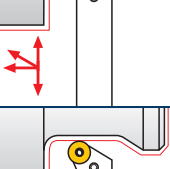
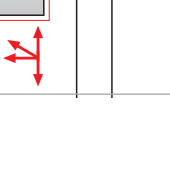
ISO indexable insert designation for internal turning

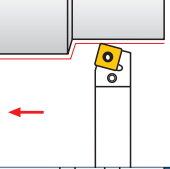
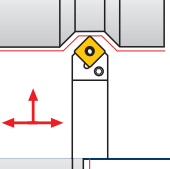
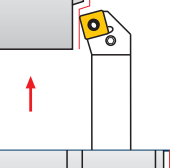
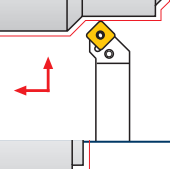
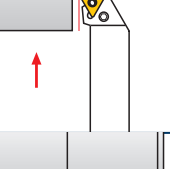
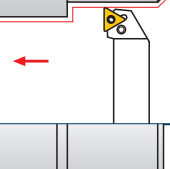
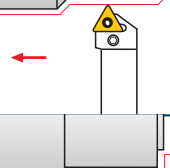
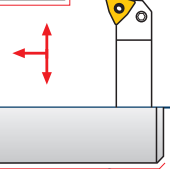
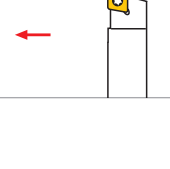
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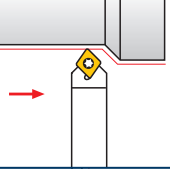
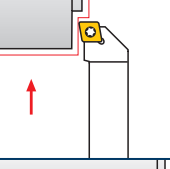
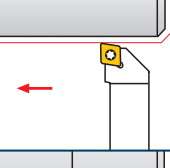
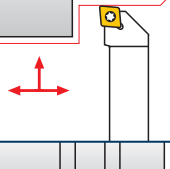
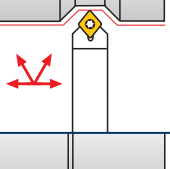
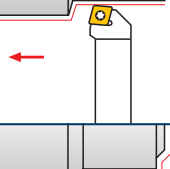
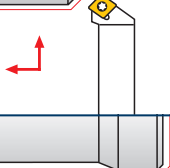
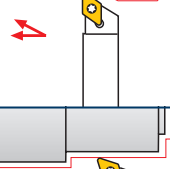
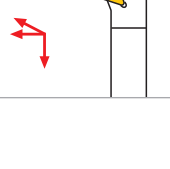
S Takım malzemesi Material used for main body			32 Şaft çapı Shank diameter	T Şaft boyu Tool length	P Sıkma sistemi Type of fixation
Gösterim harfi Identification letter	Takım malzemesi Material used for main body	Konstrüksiyon özellikleri Features of design			
S	Yekpare çelik gövde Solid steel	Standart None			C  Üstten sıkma Fixation from above
A		Soğutma suyu kanallı with internal coolant supply			
B		Vibrasyon gidericili with vibration damping			
D		Soğutma suyu kanallı vibrasyon gidericili with vibration damping and internal coolant supply			M  Üstten ve delikten sıkma Fixation from above and through a hole
C	Çelik başlıklı ve sert metal gövde Hard metal with steel head	Standart None	08 10 12 16 20 25 32 40 50	Tolerans limitleri Code letters for the length	P  Delikten sıkma Fixation through a hole
E		Soğutma suyu kanallı with internal coolant supply			
F		Vibrasyon gidericili with vibration damping			
G		Soğutma suyu kanallı vibrasyon gidericili with vibration damping and internal coolant supply			S  Vida ile delikten sıkma Fixation by screw through a conical hole
H	Ağır metal Heavy metal	Standart None		A 32 mm B 40 mm C 50 mm D 60 mm E 70 mm F 80 mm G 90 mm H 100 mm J 110 mm K 125 mm L 140 mm M 150 mm N 160 mm P 170 mm Q 180 mm R 200 mm S 250 mm T 300 mm U 350 mm V 400 mm W 450 mm X Özel boy Special length Y 500 mm	
J		Soğutma suyu kanallı with internal coolant supply			

C Uç tipi Indexable insert shape	L Yanaşma açısı Tool holder shape	N Uç serbest açısı Insert clearance angle	R Kesme yönü Cutting direction	12 Kesici kenar uzunluğu Cutting edge length
A  85°	F  90°	A  3°	L  Sol kesme yönlü Boring bar suitable for operation to the left only	A 
B  82°	K  75°	B  5°		B 
C  80°	L  95°	C  7°	R  Sağ kesme yönlü Boring bar suitable for operation to the right only	C 
D  55°	S  45°	D  15°		D 
E  75°	U  93°	E  20°		H 
H  120°	Q  107°	F  25°		K 
K  55°		G  30°		L 
L  90°		N  0°		M 
M  86°		P  11°		O 
O  135°		O  α°		P 
P  108°				R 
R  -				S 
S  90°				T 
T  60°				V 
V  35°				W 
W  80°				
		Özel olarak verilebilecek serbest açısı Clearance angle requiring special indication		Örnekler: Examples: 06 l = 6,350 mm 09 l = 9,525 mm 11 l = 11,000 mm 12 l = 12,700 mm 15 l = 15,880 mm 16 l = 16,500 mm 19 l = 19,050 mm 22 l = 22,000 mm 25 l = 25,400 mm 27 l = 27,500 mm 33 l = 33,000 mm

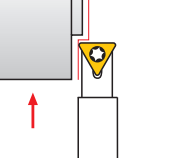
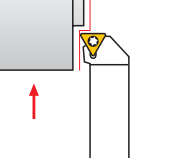
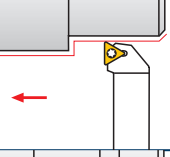
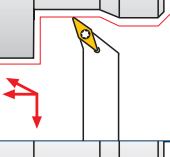
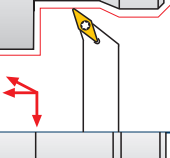
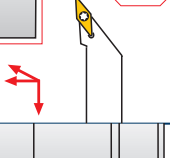
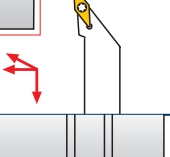
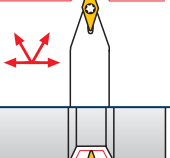
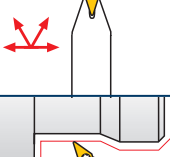
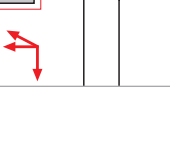
Kesme yönü Cutting direction	Yanaşma açısı Setting angle	Kater Tool	Sipariş kodu Ordering code	Sayfa Pages
	95°	Kater Tool holder	DCLNR/L	104
		Değiştirilebilir uçlar Indexable inserts	CN...	
	93°	Kater Tool holder	DDJNR/L	104
		Değiştirilebilir uçlar Indexable inserts	DN...	
	45°	Kater Tool holder	DSSNR/L	104
		Değiştirilebilir uçlar Indexable inserts	SN...	
	90°	Kater Tool holder	DTJNR/L 16	105
		Değiştirilebilir uçlar Indexable inserts	TN...	
	95°	Kater Tool holder	DWLNR/L	105
		Değiştirilebilir uçlar Indexable inserts	WN...	

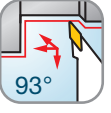
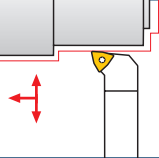
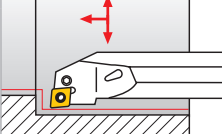
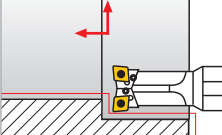
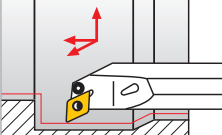
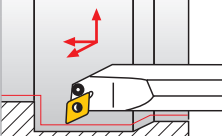
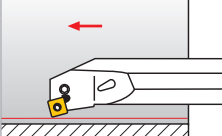
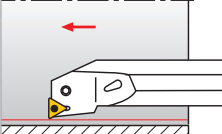
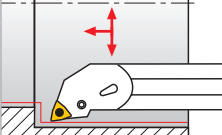
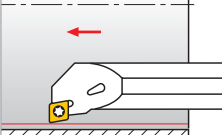
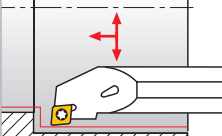
Kesme yönü Cutting direction	Yanaşma açısı Setting angle	Kater Tool	Sipariş kodu Ordering code	Sayfa Pages
	75°	Kater Tool holder	PCBNR/L	106
		Değiştirilebilir uçlar Indexable inserts	CN...	
	75°	Kater Tool holder	PCKNR/L	106
		Değiştirilebilir uçlar Indexable inserts	CN...	
	95°	Kater Tool holder	PCLNR/L	106
		Değiştirilebilir uçlar Indexable inserts	CN...	
	93°	Kater Tool holder	PDJNR/L	107
		Değiştirilebilir uçlar Indexable inserts	DN...	
	93°	Kater Tool holder	PDJNR/L 14	107
		Değiştirilebilir uçlar Indexable inserts	DN... 14...	
	63°	Kater Tool holder	PDNNR/L	107
		Değiştirilebilir uçlar Indexable inserts	DN...	
	-	Kater Tool holder	PRDCN	108
		Değiştirilebilir uçlar Indexable inserts	RC...	
	-	Kater Tool holder	PRGCR/L	108
		Değiştirilebilir uçlar Indexable inserts	RC...	
	-	Kater Tool holder	PRSCR/L	108
		Değiştirilebilir uçlar Indexable inserts	RC...	

Kesme yönü Cutting direction	Yanaşma açısı Setting angle	Kater Tool	Sipariş kodu Ordering code	Sayfa Pages
	75°	Kater Tool holder	PSBNR/L	109
		Değiştirilebilir uçlar Indexable inserts	SN...	
	45°	Kater Tool holder	PSDNN	109
		Değiştirilebilir uçlar Indexable inserts	SN...	
	75°	Kater Tool holder	PSKNR/L	109
		Değiştirilebilir uçlar Indexable inserts	SN...	
	45°	Kater Tool holder	PSSNR/L	110
		Değiştirilebilir uçlar Indexable inserts	SN...	
	90°	Kater Tool holder	PTFNR/L	111
		Değiştirilebilir uçlar Indexable inserts	TN...	
	90°	Kater Tool holder	PTGNR/L	111
		Değiştirilebilir uçlar Indexable inserts	TN...	
	60°	Kater Tool holder	PTTNR/L	111
		Değiştirilebilir uçlar Indexable inserts	TN...	
	95°	Kater Tool holder	PWLNRL/L	112
		Değiştirilebilir uçlar Indexable inserts	WN...	
	90°	Kater Tool holder	SCACR/L	113
		Değiştirilebilir uçlar Indexable inserts	CC...	

Kesme yönü Cutting direction	Yanaşma açısı Setting angle	Kater Tool	Sipariş kodu Ordering code	Sayfa Pages
	45°	Kater Tool holder	SCDCL	113
		Değiştirilebilir uçlar Indexable inserts	CC...	
	90°	Kater Tool holder	SCFCR/L	113
		Değiştirilebilir uçlar Indexable inserts	CC...	
	90°	Kater Tool holder	SCGCR/L	114
		Değiştirilebilir uçlar Indexable inserts	CC...	
	95°	Kater Tool holder	SCLCR/L	114
		Değiştirilebilir uçlar Indexable inserts	CC...	
	50°	Kater Tool holder	SCMCN	114
		Değiştirilebilir uçlar Indexable inserts	CC...	
	75°	Kater Tool holder	SCRCL/L	115
		Değiştirilebilir uçlar Indexable inserts	CC...	
	45°	Kater Tool holder	SCSCR/L	115
		Değiştirilebilir uçlar Indexable inserts	CC...	
	90°	Kater Tool holder	SDACR/L	116
		Değiştirilebilir uçlar Indexable inserts	DC...	
	107,5°	Kater Tool holder	SDHCR/L	116
		Değiştirilebilir uçlar Indexable inserts	DC...	

Kesme yönü Cutting direction	Yanaşma açısı Setting angle	Kater Tool	Sipariş kodu Ordering code	Sayfa Pages
	93°	Kater Tool holder	SDJCR/L	116
		Değiştirilebilir uçlar Indexable inserts	DC...	
	62,5°	Kater Tool holder	SDNCN	117
		Değiştirilebilir uçlar Indexable inserts	DC...	
	-	Kater Tool holder	SRDCN	118
		Değiştirilebilir uçlar Indexable inserts	RC...	
	-	Kater Tool holder	SRGCR/L	118
		Değiştirilebilir uçlar Indexable inserts	RC...	
	75°	Kater Tool holder	SSBCR/L	119
		Değiştirilebilir uçlar Indexable inserts	SC...	
	45°	Kater Tool holder	SSDCN	119
		Değiştirilebilir uçlar Indexable inserts	SC...	
	75°	Kater Tool holder	SSKCR/L	119
		Değiştirilebilir uçlar Indexable inserts	SC...	
	45°	Kater Tool holder	SSSCR/L	120
		Değiştirilebilir uçlar Indexable inserts	SC...	
	90°	Kater Tool holder	STACR/L	121
		Değiştirilebilir uçlar Indexable inserts	TC...	

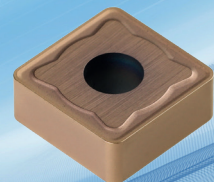
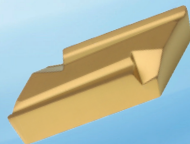
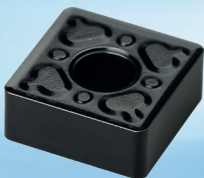
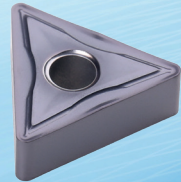
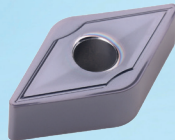
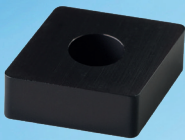
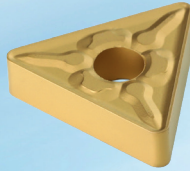
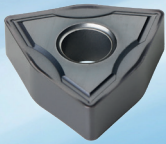
Kesme yönü Cutting direction	Yanaşma açısı Setting angle	Kater Tool	Sipariş kodu Ordering code	Sayfa Pages
	90°	Kater Tool holder	STCCN	121
		Değiştirilebilir uçlar Indexable inserts	TC...	
	90°	Kater Tool holder	STFCR/L	121
		Değiştirilebilir uçlar Indexable inserts	TC...	
	90°	Kater Tool holder	STGCR/L	122
		Değiştirilebilir uçlar Indexable inserts	TC...	
	107,5°	Kater Tool holder	SVHBR/L	123
		Değiştirilebilir uçlar Indexable inserts	VB...	
	107,5°	Kater Tool holder	SVHCR/L	123
		Değiştirilebilir uçlar Indexable inserts	VC...	
	93°	Kater Tool holder	SVJBR/L	124
		Değiştirilebilir uçlar Indexable inserts	VB...	
	93°	Kater Tool holder	SVJCR/L	124
		Değiştirilebilir uçlar Indexable inserts	VC...	
	72,5°	Kater Tool holder	SVVBN	125
		Değiştirilebilir uçlar Indexable inserts	VC...	
	72,5°	Kater Tool holder	SVVCN	125
		Değiştirilebilir uçlar Indexable inserts	VC...	
	100°	Kater Tool holder	SVZCR/L	125
		Değiştirilebilir uçlar Indexable inserts	VC...	

Kesme yönü Cutting direction	Yanaşma açısı Setting angle	Kater Tool	Sipariş kodu Ordering code	Sayfa Pages
	93°	Kater Tool holder	CKJNR/L	126
		Değiştirilebilir uçlar Indexable inserts	KNUX...	
	95°	Kater Tool holder	SWLCR/L	127
		Değiştirilebilir uçlar Indexable inserts	WC...	
	95°	Kater Tool holder	PCLNR/L	128
		Değiştirilebilir uçlar Indexable inserts	CN...	
	95°	Kater Tool holder	S40S29629/S50S29529	128
		Değiştirilebilir uçlar Indexable inserts	CN...	
	93°	Kater Tool holder	PDUNR/L	129
		Değiştirilebilir uçlar Indexable inserts	DN...	
	93°	Kater Tool holder	PDUNR/L 14	129
		Değiştirilebilir uçlar Indexable inserts	DN...	
	75°	Kater Tool holder	PSKNR/L	130
		Değiştirilebilir uçlar Indexable inserts	SN...	
	90°	Kater Tool holder	PTFNR/L	130
		Değiştirilebilir uçlar Indexable inserts	TN...	
	95°	Kater Tool holder	PWLNR/L	131
		Değiştirilebilir uçlar Indexable inserts	WN...	
	90°	Kater Tool holder	SCFCR/L	132
		Değiştirilebilir uçlar Indexable inserts	CC...	
	90°	Kater Tool holder	SCLCR/L	132
		Değiştirilebilir uçlar Indexable inserts	CC...	

Kesme yönü Cutting direction	Yanaşma açısı Setting angle	Kater Tool	Sipariş kodu Ordering code	Sayfa Pages
	107,5°	Kater Tool holder	SDQCR/L	133
		Değiştirilebilir uçlar Indexable inserts	DC...	
	93°	Kater Tool holder	SDUCR/L	133
		Değiştirilebilir uçlar Indexable inserts	DC...	
	90°	Kater Tool holder	STFCR/L	134
		Değiştirilebilir uçlar Indexable inserts	TC...	
	95°	Kater Tool holder	SVLCR/L	134
		Değiştirilebilir uçlar Indexable inserts	...	
	5°	Kater Tool holder	SVOCR/L	134
		Değiştirilebilir uçlar Indexable inserts	...	
	107,5°	Kater Tool holder	SVQCR/L	135
		Değiştirilebilir uçlar Indexable inserts	VC...	
	93°	Kater Tool holder	SVUBR/L	135
		Değiştirilebilir uçlar Indexable inserts	VB...	
	93°	Kater Tool holder	SVUCR/L	135
		Değiştirilebilir uçlar Indexable inserts	VC...	
	95°	Kater Tool holder	SWLCR/L	136
		Değiştirilebilir uçlar Indexable inserts	WC...	
	92°	Kater Tool holder	S74P	137
		Değiştirilebilir uçlar Indexable inserts	S74P	
	93°	Kater Tool holder	CKUNRL	138
		Değiştirilebilir uçlar Indexable inserts	KNUX	

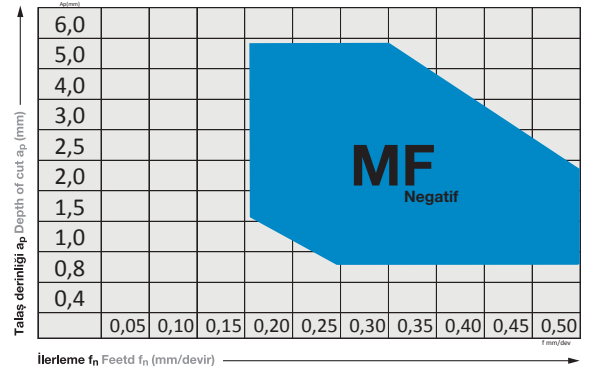
Torna uçları
Turning inserts

Torna uçları
Turning inserts



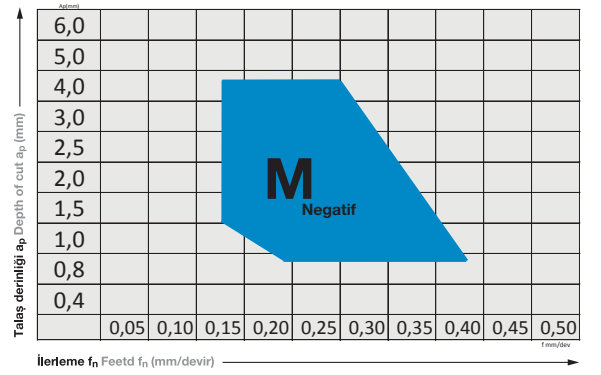
Talaş kırıcı geometrileri (Negatif) Chip groove geometries (Negative)

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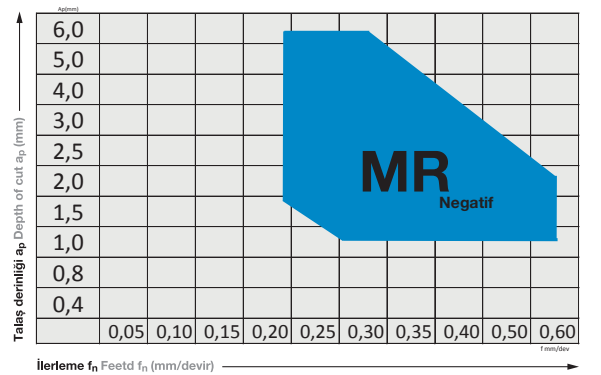
Orta ve ince talaş kırıcı geometrisi-MF
ISO-P-M ve D sıkma sistemine uygun mekanik sıkmalı negatif torna uçları

Medium and finishing chip breaker-MF
For negative indexable inserts suitable for ISO P-M and D clamping systems



Üniversal talaş kırıcı geometrisi-M
Universal geometry-M

ISO-P-M ve D sıkma sistemine uygun mekanik sıkmalı negatif torna uçları
For negative indexable inserts suitable for ISO P-M and D clamping systems

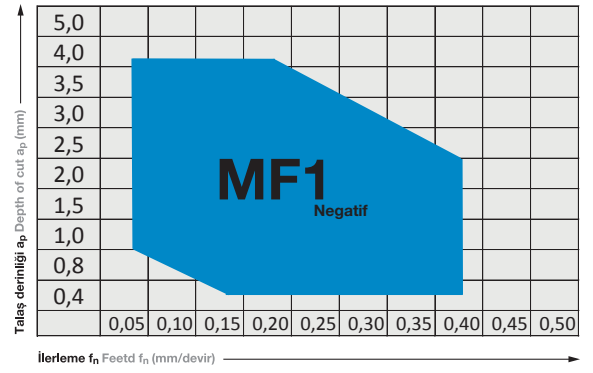


Orta ve kaba talaş kırıcı geometrisi-MR
Medium and roughing chip breaker-MR

ISO-P-M ve D sıkma sistemine uygun mekanik sıkmalı negatif torna uçları
For negative indexable inserts suitable for ISO P-M and D clamping systems

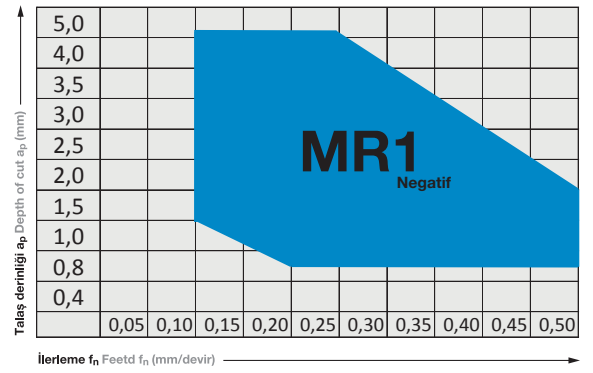
Talaş kırıcı geometrileri (Negatif) Chip groove geometries (Negative)

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Orta ve ince talaş kırıcı geometrisi-MF1
Medium and finishing chip breaker-MF1

ISO-P-M ve D sıkma sistemine uygun mekanik sıkmalı negatif torna uçları
For negative indexable inserts suitable for ISO P-M and D clamping systems



Orta ve kaba talaş kırıcı geometrisi-MR1
Medium and roughing chip breaker-MR1

ISO-P-M ve D sıkma sistemine uygun mekanik sıkmalı negatif torna uçları
For negative indexable inserts suitable for ISO P-M and D clamping systems

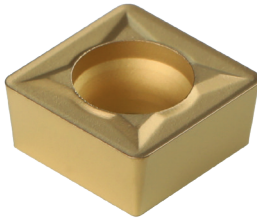
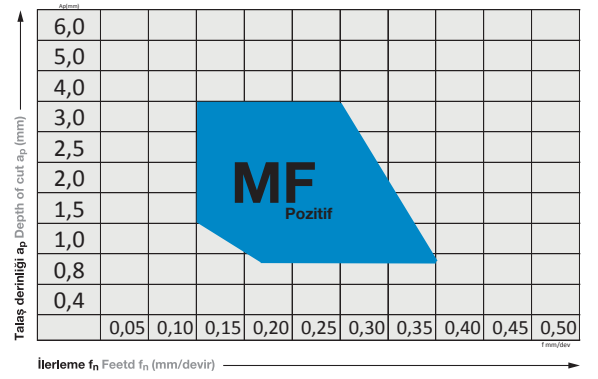
Talaş kırıcı geometrileri (Pozitif) Chip groove geometries (Positive)

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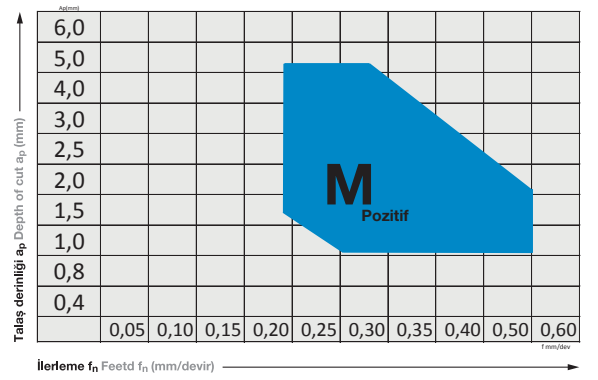
Orta ve ince talaş kırıcı geometrisi-MF
Medium and finishing chip breaker-MF

ISO-S sıkma sistemine uygun mekanik sıkmalı pozitif torna uçları
For positive indexable inserts suitable for ISO S clamping systems



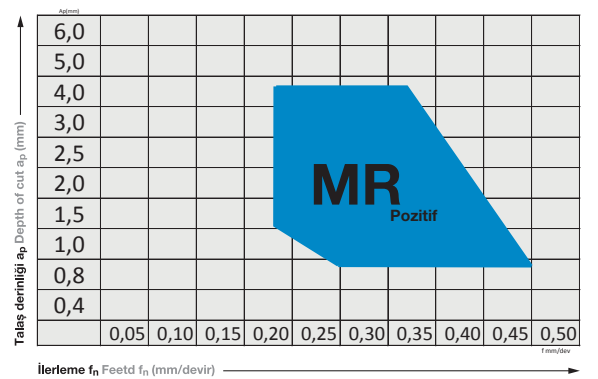
Üniversal talaş kırıcı geometrisi-M
Universal geometry-M

ISO-S sıkma sistemine uygun mekanik sıkmalı pozitif torna uçları
For positive indexable inserts suitable for ISO S clamping systems



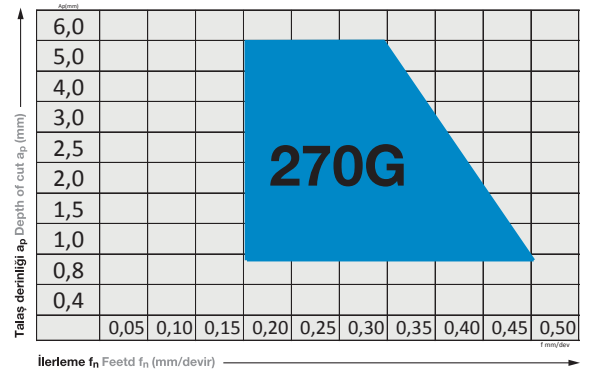
Orta ve kaba talaş kırıcı geometrisi-MR
Medium and roughing chip breaker-MR

ISO-S sıkma sistemine uygun mekanik sıkmalı pozitif torna uçları
For positive indexable inserts suitable for ISO S clamping systems



Talaş kırıcı geometrileri (Alüminyum) Chip groove geometries (Aluminium)

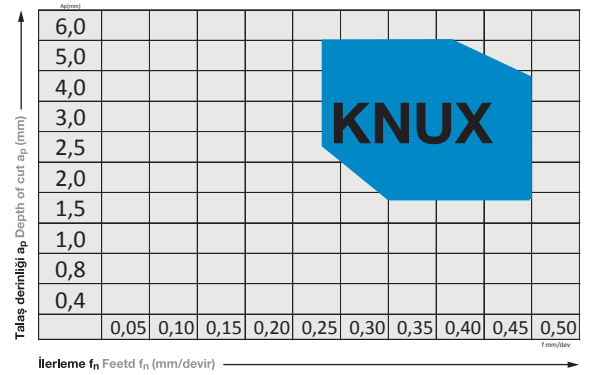
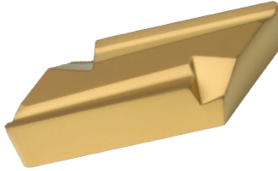
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Alüminyum işleme geometrisi-270G
Geometry for aluminium machining-270G

ISO-S sıkma sistemine uygun mekanik sıkmalı pozitif torna uçları
For positive indexable inserts suitable for ISO S clamping systems

Talaş kırıcı geometrileri (KNUX) Chip groove geometries (KNUX)



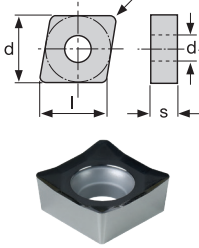
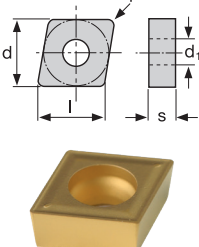
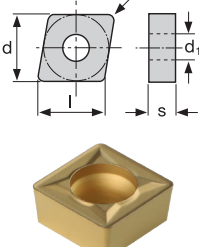
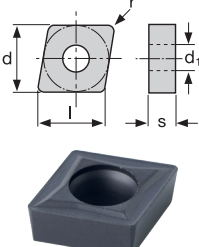
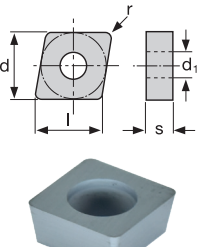
Üniversal kopya talaş kırıcı geometrisi-KNUX
Universal copying chip breaker-KNUX

ISO-P-M ve D sıkma sistemine uygun mekanik sıkmalı negatif torna uçları
For negative indexable inserts suitable for ISO P-M and D clamping systems

Torna uçları

Turning inserts

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	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
	CCGT 060202-270 G	BTWN10T	●	6,40	6,35	2,38	2,80	0,2
	CCGT 060204-270 G	BTWN10T	●	6,40	6,35	2,38	2,80	0,2
	CCGT 060204-270 G	BTCN10T	○	6,40	6,35	2,38	2,80	0,2
	CCGT 09T302-270 G	BTWN10T	●	9,70	9,52	3,97	4,40	0,2
	CCGT 09T304-270 G	BTWN10T	●	9,70	9,52	3,97	4,40	0,2
	CCGT 09T304-270 G	BTCN10T	○	9,70	9,52	3,97	4,40	0,2
	CCGT 09T308-270 G	BTWN10T	●	9,70	9,52	3,97	4,40	0,2
	CCGT 09T308-270 G	BTCN10T	○	9,70	9,52	3,97	4,40	0,2
	CCGT 120404-270 G	BTWN10T	●	12,90	12,70	4,76	5,50	0,4
	CCGT 120408-270 G	BTWN10T	●	12,90	12,70	4,76	5,50	0,4
	CCGT 120408-270 G	BTCN10T	○	12,90	12,70	4,76	5,50	0,4
	CCMT 060204-MF	BTCH10T	●	6,40	6,35	2,38	2,80	0,4
	CCMT 060204-MF	BTCP15T	○	6,40	6,35	2,38	2,80	0,4
	CCMT 060204-MF	BTCP25T	●	6,40	6,35	2,38	2,80	0,4
	CCMT 060204-MF	BTCK10T	○	6,40	6,35	2,38	2,80	0,4
	CCMT 060204-MF	BTCK15T	○	6,40	6,35	2,38	2,80	0,4
	CCMT 060204-MF	BTCS10T	○	6,40	6,35	2,38	2,80	0,4
	CCMT 060204-MF	BTCM25T	○	6,40	6,35	2,38	2,80	0,4
	CCMT 09T304-MF	BTCH10T	●	9,70	9,52	3,97	4,40	0,4
	CCMT 09T304-MF	BTCP15T	○	9,70	9,52	3,97	4,40	0,4
	CCMT 09T304-MF	BTCP25T	●	9,70	9,52	3,97	4,40	0,4
	CCMT 09T304-MF	BTCK10T	○	9,70	9,52	3,97	4,40	0,4
	CCMT 09T304-MF	BTCK15T	○	9,70	9,52	3,97	4,40	0,4
	CCMT 09T304-MF	BTCS10T	○	9,70	9,52	3,97	4,40	0,4
	CCMT 09T304-MF	BTCM25T	○	9,70	9,52	3,97	4,40	0,4
	CCMT 09T308-M	BTCH10T	●	9,70	9,52	3,97	4,40	0,8
	CCMT 09T308-M	BTCP15T	○	9,70	9,52	3,97	4,40	0,8
	CCMT 09T308-M	BTCP25T	●	9,70	9,52	3,97	4,40	0,8
	CCMT 09T308-M	BTCK10T	○	9,70	9,52	3,97	4,40	0,8
	CCMT 09T308-M	BTCK15T	●	9,70	9,52	3,97	4,40	0,8
	CCMT 09T308-M	BTCS10T	○	9,70	9,52	3,97	4,40	0,8
	CCMT 09T308-M	BTCM25T	○	9,70	9,52	3,97	4,40	0,8
	CCMT 120408-MR	BTCH10T	○	12,90	12,70	4,76	5,50	0,8
	CCMT 120408-MR	BTCP15T	○	12,90	12,70	4,76	5,50	0,8
	CCMT 120408-MR	BTCP25T	●	12,90	12,70	4,76	5,50	0,8
	CCMT 120408-MR	BTCK10T	○	12,90	12,70	4,76	5,50	0,8
	CCMT 120408-MR	BTCK15T	○	12,90	12,70	4,76	5,50	0,8
	CCMT 120408-MR	BTCS10T	○	12,90	12,70	4,76	5,50	0,8
	CCMT 120408-MR	BTCM25T	○	12,90	12,70	4,76	5,50	0,8
	CCMW 060204	BTCH10T	○	6,40	6,35	2,38	2,80	0,4
	CCMW 09T304	BTCH10T	○	9,70	9,52	3,97	4,40	0,4
	CCMW 120408	BTCH10T	○	12,90	12,70	4,76	5,50	0,8

	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
	CNMA 120408	BTCK15T	●	12,90	12,70	4,76	5,16	0,8
	CNMA 120408	BTCK10T	○	12,90	12,70	4,76	5,16	0,8
	CNMA 120408	BTCH10T	○	12,90	12,70	4,76	5,16	0,8
	CNMA 120412	BTCK15T	●	12,90	12,70	4,76	5,16	1,2
	CNMA 120412	BTCK10T	○	12,90	12,70	4,76	5,16	1,2
	CNMA 120412	BTCH10T	○	12,90	12,70	4,76	5,16	1,2
	CNMG 120408-M	BTCH10T	○	12,90	12,70	4,76	5,16	0,8
	CNMG 120408-M	BTCP25T	○	12,90	12,70	4,76	5,16	0,8
	CNMG 120408-M	BTCK15T	●	12,90	12,70	4,76	5,16	0,8
	CNMG 120408-M	BTCS10T	●	12,90	12,70	4,76	5,16	0,8
	CNMG 120408-MR	BTCP15T	○	12,90	12,70	4,76	5,16	0,8
	CNMG 120408-MR	BTCP25T	●	12,90	12,70	4,76	5,16	0,8
	CNMG 120408-MR	BTCP35T	●	12,90	12,70	4,76	5,16	0,8
	CNMG 120408-MR	BTCK10T	●	12,90	12,70	4,76	5,16	0,8
	CNMG 120408-MR	BTCK15T	●	12,90	12,70	4,76	5,16	0,8
	CNMG 120408-MR	BTCS10T	●	12,90	12,70	4,76	5,16	0,8
	CNMG 120408-MR	BTCM25T	●	12,90	12,70	4,76	5,16	0,8
	CNMG 120412-MR	BTCH10T	○	12,90	12,70	4,76	5,16	1,2
	CNMG 120412-MR	BTCP15T	○	12,90	12,70	4,76	5,16	1,2
	CNMG 120412-MR	BTCP25T	●	12,90	12,70	4,76	5,16	1,2
	CNMG 120412-MR	BTCP35T	○	12,90	12,70	4,76	5,16	1,2
	CNMG 120412-MR	BTCK10T	●	12,90	12,70	4,76	5,16	1,2
	CNMG 120412-MR	BTCK15T	●	12,90	12,70	4,76	5,16	1,2
	CNMG 120412-MR	BTCS10T	●	12,90	12,70	4,76	5,16	1,2
	CNMG 120412-MR	BTCM25T	○	12,90	12,70	4,76	5,16	1,2
	CNMG 190612-R	BTCP15T	○	19,30	19,05	6,35	7,95	1,2
	CNMG 190612-R	BTCP25T	●	19,30	19,05	6,35	7,95	1,2
	CNMG 190612-R	BTCP35T	○	19,30	19,05	6,35	7,95	1,2
	CNMG 190612-R	BTCS10T	●	19,30	19,05	6,35	7,95	1,2

Sipariş örneği Order example: 10 Adet Pieces CNMG 190612-R BTCS10T

Örjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

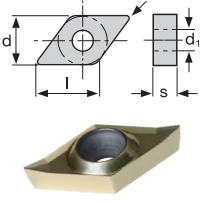
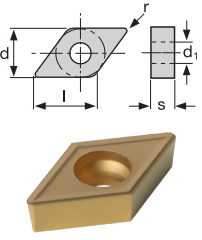
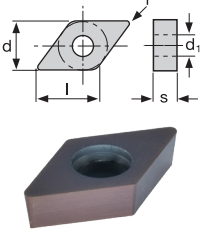
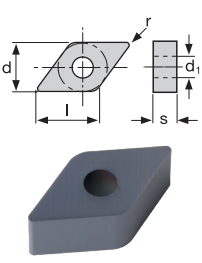
● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 66
Description of new grades page 66

Torna uçları

Turning inserts

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	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
	DCGT 070202-270 G	BTWN10T	○	7,75	2,38	6,35	3,75	0,2
	DCGT 070202-270 G	BTNC10T	○	7,75	2,38	6,35	3,75	0,2
	DCGT 070204-270 G	BTWN10T	●	7,75	2,38	6,35	3,75	0,4
	DCGT 070204-270 G	BTNC10T	○	7,75	2,38	6,35	3,75	0,4
	DCGT 11T302-270 G	BTWN10T	○	11,60	3,97	9,52	4,40	0,2
	DCGT 11T302-270 G	BTNC10T	○	11,60	3,97	9,52	4,40	0,2
	DCGT 11T304-270 G	BTWN10T	●	11,60	3,97	9,52	4,40	0,4
	DCGT 11T304-270 G	BTNC10T	○	11,60	3,97	9,52	4,40	0,4
	DCGT 11T308-270 G	BTWN10T	●	11,60	3,97	9,52	4,40	0,8
	DCGT 11T308-270 G	BTNC10T	○	11,60	3,97	9,52	4,40	0,8
	DCMT 11T304-MF	BTCH10T	○	11,60	3,97	9,52	4,40	0,4
	DCMT 11T304-MF	BTCP15T	●	11,60	3,97	9,52	4,40	0,4
	DCMT 11T304-MF	BTCP25T	●	11,60	3,97	9,52	4,40	0,4
	DCMT 11T304-MF	BTCP15T	○	11,60	3,97	9,52	4,40	0,4
	DCMT 11T304-MF	BTCK15T	○	11,60	3,97	9,52	4,40	0,4
	DCMT 11T304-MF	BTCS10T	●	11,60	3,97	9,52	4,40	0,4
	DCMT 11T304-MF	BTCM25T	●	11,60	3,97	9,52	4,40	0,4
	DCMT 11T308-MF	BTCH10T	●	11,60	3,97	9,52	4,40	0,8
	DCMT 11T308-MF	BTCP15T	○	11,60	3,97	9,52	4,40	0,8
	DCMT 11T308-MF	BTCP25T	●	11,60	3,97	9,52	4,40	0,8
	DCMT 11T308-MF	BTCK10T	○	11,60	3,97	9,52	4,40	0,8
	DCMT 11T308-MF	BTCK15T	○	11,60	3,97	9,52	4,40	0,8
	DCMT 11T308-MF	BTCS10T	●	11,60	3,97	9,52	4,40	0,8
	DCMT 11T308-MF	BTCM25T	●	11,60	3,97	9,52	4,40	0,8
	DCMW 11T304	BTCH10T	○	11,60	3,97	9,52	4,40	0,4
	DCMW 11T308	BTCH10T	○	11,60	3,97	9,52	4,40	0,8
	DNMA 150608	BTCH10T	○	15,50	6,35	12,70	5,16	0,8
	DNMA 150608	BTCK10T	○	15,50	6,35	12,70	5,16	0,8
	DNMA 150608	BTCK15T	○	15,50	6,35	12,70	5,16	0,8

Sipariş örneği Order example: 10 Adet Pieces DNMA 150608 BTCK15T

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 66
Description of new grades page 66

	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
	DNMG 150604-MF	BTCH10T	○	15,50	6,35	12,70	5,16	0,4
	DNMG 150604-MF	BTCP15T	○	15,50	6,35	12,70	5,16	0,4
	DNMG 150604-MF	BTCP25T	●	15,50	6,35	12,70	5,16	0,4
	DNMG 150604-MF	BTCK10T	○	15,50	6,35	12,70	5,16	0,4
	DNMG 150604-MF	BTCK15T	●	15,50	6,35	12,70	5,16	0,4
	DNMG 150604-MF	BTCS10T	●	15,50	6,35	12,70	5,16	0,4
	DNMG 150604-MF	BTCM25T	○	15,50	6,35	12,70	5,16	0,4
	DNMG 150608-MF	BTCH10T	○	15,50	6,35	12,70	5,16	0,8
	DNMG 150608-MF	BTCP25T	○	15,50	6,35	12,70	5,16	0,8
	DNMG 150608-MF1	BTCH10T	●	15,50	6,35	12,70	5,16	0,8
	DNMG 150608-MF1	BTCP15T	●	15,50	6,35	12,70	5,16	0,8
	DNMG 150608-MF1	BTCP25T	●	15,50	6,35	12,70	5,16	0,8
	DNMG 150608-MF1	BTCP35T	●	15,50	6,35	12,70	5,16	0,8
	DNMG 150608-MF1	BTCK10T	●	15,50	6,35	12,70	5,16	0,8
	DNMG 150608-MF1	BTCK15T	●	15,50	6,35	12,70	5,16	0,8
	DNMG 150608-MF1	BTCS10T	●	15,50	6,35	12,70	5,16	0,8
	DNMG 150608-MF1	BTCM25T	●	15,50	6,35	12,70	5,16	0,8
	DNMG 150612-MR	BTCH10T	●	15,50	6,35	12,70	5,16	1,2
	DNMG 150612-MR	BTCP15T	○	15,50	6,35	12,70	5,16	1,2
	DNMG 150612-MR	BTCP25T	●	15,50	6,35	12,70	5,16	1,2
	DNMG 150612-MR	BTCP35T	○	15,50	6,35	12,70	5,16	1,2
	DNMG 150612-MR	BTCK10T	○	15,50	6,35	12,70	5,16	1,2
	DNMG 150612-MR	BTCK15T	●	15,50	6,35	12,70	5,16	1,2
	DNMG 150612-MR	BTCS10T	●	15,50	6,35	12,70	5,16	1,2
	DNMG 150612-MR	BTCM25T	○	15,50	6,35	12,70	5,16	1,2
	KNUX 160405 R11	BTCH10T	●	16	4,76	9,52		0,5
	KNUX 160405 R11	BTCP15T	●	16	4,76	9,52		0,5
	KNUX 160405 L11	BTCH10T	●	16	4,76	9,52		0,5
	KNUX 160405 L11	BTCP15T	●	16	4,76	9,52		0,5
	KNUX 160405 R12	BTCH10T	○	16	4,76	9,52		0,5
	KNUX 160405 R12	BTCP15T	○	16	4,76	9,52		0,5
	KNUX 160405 L12	BTCH10T	○	16	4,76	9,52		0,5
	KNUX 160405 L12	BTCP15T	○	16	4,76	9,52		0,5
	KNUX 160410 R11	BTCH10T	○	16	4,76	9,52		1,0
	KNUX 160410 R11	BTCP15T	○	16	4,76	9,52		1,0
	KNUX 160410 L11	BTCH10T	○	16	4,76	9,52		1,0
	KNUX 160410 L11	BTCP15T	○	16	4,76	9,52		1,0
	KNUX 160410 R12	BTCH10T	○	16	4,76	9,52		1,0
	KNUX 160410 R12	BTCP15T	○	16	4,76	9,52		1,0
	KNUX 160410 L12	BTCH10T	○	16	4,76	9,52		1,0
	KNUX 160410 L12	BTCP15T	○	16	4,76	9,52		1,0

Sipariş örneği Order example: 10 Adet Pieces KNUX 160410 L12 BTCP15T

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

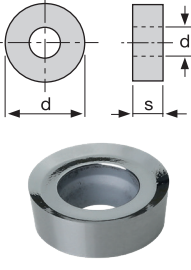
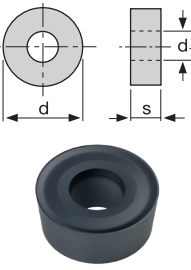
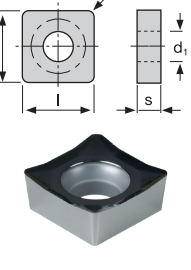
● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 66
Description of new grades page 66

Torna uçları

Turning inserts

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	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
	RCGT 0602MO-270 G	BTWN10T	○		6	2,38	2,80	
	RCGT 0602MO-270 G	BTCN10T	○		6	2,38	2,80	
	RCGT 0803MO-270 G	BTWN10T	●		8	3,18	3,40	
	RCGT 0803MO-270 G	BTCN10T	○		8	3,18	3,40	
	RCGT 1003MO-270 G	BTWN10T	●		12	4,76	4	
	RCGT 1003MO-270 G	BTCN10T	○		12	4,76	4	
	RCMX 1003MO	BTCP15T	○		3,18	10	3,60	
	RCMX 1003MO	BTCP25T	●		3,18	10	3,60	
	RCMX 1003MO	BTCP35T	○		3,18	10	3,60	
	RCMX 1003MO	BTCS10T	●		3,18	10	3,60	
	RCMX 1204MO	BTCP15T	○		4,76	12	4,20	
	RCMX 1204MO	BTCP25T	●		4,76	12	4,20	
	RCMX 1204MO	BTCP35T	○		4,76	12	4,20	
	RCMX 1204MO	BTCS10T	●		4,76	12	4,20	
	RCMX 1606MO	BTCP15T	○		6,35	16	5,20	
	RCMX 1606MO	BTCP25T	●		6,35	16	5,20	
	RCMX 1606MO	BTCP35T	○		6,35	16	5,20	
	RCMX 1606MO	BTCS10T	●		6,35	16	5,20	
	RCMX 2006MO	BTCP15T	○		6,35	20	6,50	
	RCMX 2006MO	BTCP25T	○		6,35	20	6,50	
	RCMX 2006MO	BTCP35T	○		6,35	20	6,50	
	RCMX 2006MO	BTCS10T	○		6,35	20	6,50	
	RCMX 2507MO	BTCP15T	○		7,90	25	7,20	
	RCMX 2507MO	BTCP25T	○		7,90	25	7,20	
	RCMX 2507MO	BTCP35T	○		7,90	25	7,20	
	RCMX 2507MO	BTCS10T	○		7,90	25	7,20	
	RCMX 3209MO	BTCP15T	○		9,52	32	9,50	
	RCMX 3209MO	BTCP25T	○		9,52	32	9,50	
	RCMX 3209MO	BTCP35T	○		9,52	32	9,50	
	RCMX 3209MO	BTCS10T	○		9,52	32	9,50	
	SCGT 09T304-270G	BTWN10T	○	9,52	3,97	9,52	4,40	0,4
	SCGT 09T304-270G	BTCN10T	○	9,52	3,97	9,52	4,40	0,4
	SCGT 09T308-270G	BTWN10T	○	9,52	3,97	9,52	4,40	0,8
	SCGT 09T308-270G	BTCN10T	○	9,52	3,97	9,52	4,40	0,8
	SCGT 120408-270G	BTWN10T	○	9,52	3,97	9,52	4,40	0,8
	SCGT 120408-270G	BTCN10T	○	9,52	3,97	9,52	4,40	0,8

Sipariş örneği Order example: 10 Adet Pieces SCGT 120408-270G BTCN10T

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 66
Description of new grades page 66

	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
	SCMT 09T304-MR	BTCS10T	●	9,52	3,97	9,52	4,40	0,4
	SCMT 09T304-MR	BTCP15T	●	9,52	3,97	9,52	4,40	0,4
	SCMT 09T304-MR	BTCP25T	○	9,52	3,97	9,52	4,40	0,4
	SCMT 09T304-MR	BTCK15T	○	9,52	3,97	9,52	4,40	0,4
	SCMT 09T308-MR	BTCS10T	●	9,52	3,97	9,52	4,40	0,8
	SCMT 09T308-MR	BTCP15T	●	9,52	3,97	9,52	4,40	0,8
	SCMT 09T308-MR	BTCP25T	○	9,52	3,97	9,52	4,40	0,8
	SCMT 09T308-MR	BTCK15T	○	9,52	3,97	9,52	4,40	0,8
	SCMT 120408-MF	BTCS10T	●	12,70	4,76	12,70	5,50	0,8
	SCMT 120408-MF	BTCP15T	○	12,70	4,76	12,70	5,50	0,8
	SCMT 120408-MF	BTCP25T	○	12,70	4,76	12,70	5,50	0,8
	SCMT 120408-MF	BTCK15T	○	12,70	4,76	12,70	5,50	0,8
	SCMW 09T304	BTCH10T	○	9,52	3,97	9,52	4,40	0,4
	SCMW 09T308	BTCH10T	○	9,52	3,97	9,52	4,40	0,8
	SNMA 120408	BTCH10T	○	12,70	4,76	12,70	5,16	0,8
	SNMA 120408	BTCK10T	●	12,70	4,76	12,70	5,16	0,8
	SNMA 120408	BTCK15T	○	12,70	4,76	12,70	5,16	0,8
	SNMA 120412	BTCH10T	○	12,70	4,76	12,70	5,16	1,2
	SNMA 120412	BTCK10T	○	12,70	4,76	12,70	5,16	1,2
	SNMA 120412	BTCK15T	●	12,70	4,76	12,70	5,16	1,2
	SNMG 120408-MF	BTCH10T	○	12,70	4,76	12,70	5,16	0,8
	SNMG 120408-MF	BTCP15T	○	12,70	4,76	12,70	5,16	0,8
	SNMG 120408-MF	BTCP25T	●	12,70	4,76	12,70	5,16	0,8
	SNMG 120408-MF	BTCP35T	●	12,70	4,76	12,70	5,16	0,8
	SNMG 120408-MF	BTCK10T	●	12,70	4,76	12,70	5,16	0,8
	SNMG 120408-MF	BTCK15T	●	12,70	4,76	12,70	5,16	0,8
	SNMG 120408-MF	BTCS10T	●	12,70	4,76	12,70	5,16	0,8
	SNMG 120408-MF	BTCM25T	●	12,70	4,76	12,70	5,16	0,8

Sipariş örneği Order example: 10 Adet Pieces SNMG 120408-MF BTCM25T

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

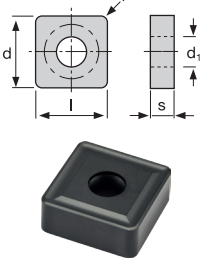
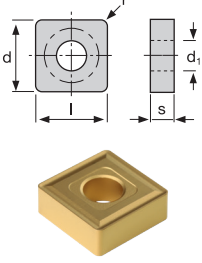
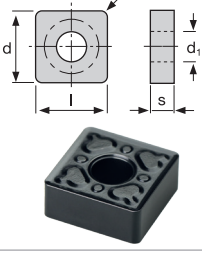
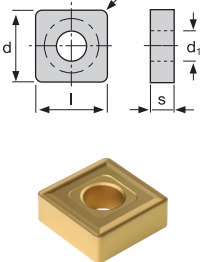
● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 66
Description of new grades page 66

Torna uçları

Turning inserts

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	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
	SNMG 120412-M	BTCH10T	○	12,70	4,76	12,70	5,16	1,2
	SNMG 120412-M	BTCP25T	●	12,70	4,76	12,70	5,16	1,2
	SNMG 120412-M	BTCK15T	○	12,70	4,76	12,70	5,16	1,2
	SNMG 120412-M	BTCS10T	●	12,70	4,76	12,70	5,16	1,2
	SNMG 120412-MR	BTCH10T	○	12,70	4,76	12,70	5,16	1,2
	SNMG 120412-MR	BTCP15T	○	12,70	4,76	12,70	5,16	1,2
	SNMG 120412-MR	BTCP25T	●	12,70	4,76	12,70	5,16	1,2
	SNMG 120412-MR	BTCP35T	●	12,70	4,76	12,70	5,16	1,2
	SNMG 120412-MR	BTCK10T	●	12,70	4,76	12,70	5,16	1,2
	SNMG 120412-MR	BTCK15T	●	12,70	4,76	12,70	5,16	1,2
	SNMG 120412-MR	BTCS10T	●	12,70	4,76	12,70	5,16	1,2
	SNMG 120412-MR	BTCS10T	○	12,70	4,76	12,70	5,16	1,2
	SNMG 150612-MR	BTCS10T	●	15,87	6,35	15,87	?	1,2
	SNMG 150612-MR	BTCP15T	●	15,87	6,35	15,87	?	1,2
	SNMG 150612-MR	BTCP25T	●	15,87	6,35	15,87	?	1,2
	SNMG 150612-MR	BTCP35T	●	15,87	6,35	15,87	?	1,2
	SNMG 150612-MR	BTCK15T	●	15,87	6,35	15,87	?	1,2
	SNMG 150612-MR	BTCK15T	●	15,87	6,35	15,87	?	1,2
	SNMG 190616-MR	BTCS10T	○	19,05	6,35	19,05	7,93	1,6
	SNMG 190616-MR	BTCP15T	○	19,05	6,35	19,05	7,93	1,6
	SNMG 190616-MR	BTCP25T	○	19,05	6,35	19,05	7,93	1,6
	SNMG 190616-MR	BTCP35T	○	19,05	6,35	19,05	7,93	1,6
	SNMG 190616-MR	BTCK15T	○	19,05	6,35	19,05	7,93	1,6
	SNMG 190616-MR	BTCK15T	○	19,05	6,35	19,05	7,93	1,6
	SNMG 190616-MR	BTCS10T	○	19,05	6,35	19,05	7,93	1,6
	SNMG 190612-MR	BTCS10T	○	19,05	6,35	19,05	7,93	1,2
	SNMG 190612-MR	BTCP15T	○	19,05	6,35	19,05	7,93	1,2
	SNMG 190612-MR	BTCP25T	●	19,05	6,35	19,05	7,93	1,2
	SNMG 190612-MR	BTCP35T	○	19,05	6,35	19,05	7,93	1,2
	SNMG 190612-MR	BTCK15T	○	19,05	6,35	19,05	7,93	1,2
	SNMG 190612-MR	BTCK15T	○	19,05	6,35	19,05	7,93	1,2
	SNMG 190612-MR	BTCS10T	○	19,05	6,35	19,05	7,93	1,2

Sipariş örneği Order example: 10 Adet Pieces SNMG 190612-MR BTCS10T

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 66
Description of new grades page 66

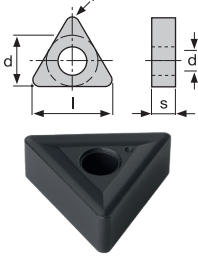
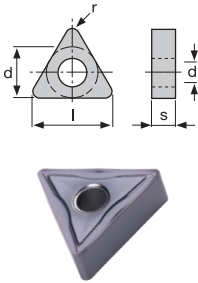
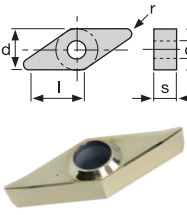
	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
	TCGT 110204-270 G	BTWN10T	○	11	2,38	6,35	2,80	0,4
	TCGT 110204-270 G	BTCN10T	○	11	2,38	6,35	2,80	0,4
	TCGT 16T304-270 G	BTWN10T	●	11	2,38	6,35	2,80	0,4
	TCGT 16T304-270 G	BTCN10T	○	11	2,38	6,35	2,80	0,4
	TCGT 16T308-270 G	BTWN10T	●	16,50	3,97	9,52	4,40	0,8
	TCGT 16T308-270 G	BTCN10T	○	16,50	3,97	9,52	4,40	0,8
	TCMT 110204-MF	BTCS10T	●	11	2,38	6,35	2,80	0,4
	TCMT 110204-MF	BTCP15T	○	11	2,38	6,35	2,80	0,4
	TCMT 110204-MF	BTCP25T	○	11	2,38	6,35	2,80	0,4
	TCMT 110204-MF	BTCK10T	○	11	2,38	6,35	2,80	0,4
	TCMT 110204-MF	BTCK15T	○	11	2,38	6,35	2,80	0,4
	TCMT 16T304-MF	BTCS10T	●	16,50	3,97	9,52	4,40	0,4
	TCMT 16T304-MF	BTCP15T	○	16,50	3,97	9,52	4,40	0,4
	TCMT 16T304-MF	BTCP25T	○	16,50	3,97	9,52	4,40	0,4
	TCMT 16T304-MF	BTCK10T	○	16,50	3,97	9,52	4,40	0,4
	TCMT 16T304-MF	BTCK15T	○	16,50	3,97	9,52	4,40	0,4
	TCMW 110204	BTCH10T	○	11	2,38	6,35	2,80	0,4
	TCMW 16T304	BTCH10T	○	16,50	3,97	9,52	4,40	0,4
	TCMW 16T308	BTCH10T	○	16,50	3,97	9,52	4,40	0,8
	TNMA 160408	BTCK10T	○	16,50	4,76	9,52	3,81	0,8
	TNMA 160408	BTCK15T	●	16,50	4,76	9,52	3,81	0,8
	TNMA 160412	BTCK10T	○	16,50	4,76	9,52	3,81	1,2
	TNMA 160412	BTCK15T	○	16,50	4,76	9,52	3,81	1,2

Sipariş örneği Order example: 10 Adet Pieces TNMA 160412 BTCK15T

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 66
Description of new grades page 66

	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
	TNMG 160404-MF	BTCH10T	○	16,50	4,76	9,52	3,81	0,4
	TNMG 160404-MF	BTCP15T	○	16,50	4,76	9,52	3,81	0,4
	TNMG 160404-MF	BTCP25T	●	16,50	4,76	9,52	3,81	0,4
	TNMG 160404-MF	BTCP35T	○	16,50	4,76	9,52	3,81	0,4
	TNMG 160404-MF	BTCK10T	○	16,50	4,76	9,52	3,81	0,4
	TNMG 160404-MF	BTCK15T	○	16,50	4,76	9,52	3,81	0,4
	TNMG 160404-MF	BTCS10T	●	16,50	4,76	9,52	3,81	0,4
	TNMG 160404-MF	BTCM25T	○	16,50	4,76	9,52	3,81	0,4
	TNMG 160408-MF	BTCH10T	○	16,50	4,76	9,52	3,81	0,8
	TNMG 160408-MF	BTCP25T	●	16,50	4,76	9,52	3,81	0,8
	TNMG 160408-MF	BTCK15T	○	16,50	4,76	9,52	3,81	0,8
	TNMG 160408-MF	BTCS10T	●	16,50	4,76	9,52	3,81	0,8
	TNMG 160412-MF	BTCH10T	○	16,50	4,76	9,52	3,81	1,2
	TNMG 160412-MF	BTCP25T	○	16,50	4,76	9,52	3,81	1,2
	TNMG 160412-MF	BTCP35T	○	16,50	4,76	9,52	3,81	1,2
	TNMG 160412-MF	BTCK10T	○	16,50	4,76	9,52	3,81	1,2
	TNMG 160412-MF	BTCK15T	○	16,50	4,76	9,52	3,81	1,2
	TNMG 160412-MF	BTCS10T	●	16,50	4,76	9,52	3,81	1,2
	TNMG 160412-MF	BTCM25T	○	16,50	4,76	9,52	3,81	1,2
	TNMG 160408-MF1	BTCH10T	●	16,50	4,76	9,52	3,81	0,8
	TNMG 160408-MF1	BTCP15T	●	16,50	4,76	9,52	3,81	0,8
	TNMG 160408-MF1	BTCP25T	●	16,50	4,76	9,52	3,81	0,8
	TNMG 160408-MF1	BTCP35T	●	16,50	4,76	9,52	3,81	0,8
	TNMG 160408-MF1	BTCK10T	●	16,50	4,76	9,52	3,81	0,8
	TNMG 160408-MF1	BTCK15T	●	16,50	4,76	9,52	3,81	0,8
	TNMG 160408-MF1	BTCS10T	●	16,50	4,76	9,52	3,81	0,8
	TNMG 160408-MF1	BTCM25T	●	16,50	4,76	9,52	3,81	0,8
	VCGT 110302-270G	BTWN10T	●	11,10	3,18	6,35	2,80	0,2
	VCGT 110302-270G	BTCN10T	○	11,10	3,18	6,35	2,80	0,2
	VCGT 110304-270G	BTWN10T	●	11,10	3,18	6,35	2,80	0,4
	VCGT 110304-270G	BTCN10T	○	11,10	3,18	6,35	2,80	0,4
	VCGT 160402-270G	BTWN10T	○	16,60	4,76	9,52	4,40	0,2
	VCGT 160402-270G	BTCN10T	○	16,60	4,76	9,52	4,40	0,2
	VCGT 160404-270G	BTWN10T	●	16,60	4,76	9,52	4,40	0,4
	VCGT 160404-270G	BTCN10T	●	16,60	4,76	9,52	4,40	0,4
	VCGT 160408-270G	BTWN10T	●	16,60	4,76	9,52	4,40	0,8
	VCGT 160408-270G	BTCN10T	●	16,60	4,76	9,52	4,40	0,8
	VCGT 160412-270G	BTWN10T	○	16,60	4,76	9,52	4,40	1,2
	VCGT 160412-270G	BTCN10T	○	16,60	4,76	9,52	4,40	1,2
	VCGT 220516-270G	BTWN10T	○	22,10	5,56	12,70	5,50	1,6
	VCGT 220516-270G	BTCN10T	○	22,10	5,56	12,70	5,50	1,6
	VCGT 220530-270G	BTWN10T	○	22,10	5,56	12,70	5,50	3,0
	VCGT 220530-270G	BTCN10T	○	22,10	5,56	12,70	5,50	3,0

Sipariş örneği Order example: 10 Adet Pieces VCGT 220530-270G BTCN10T

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 66
Description of new grades page 66

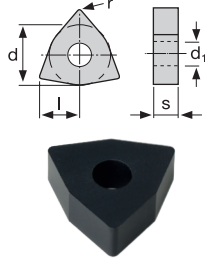
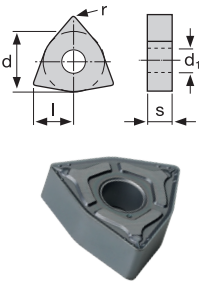
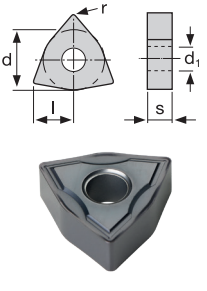
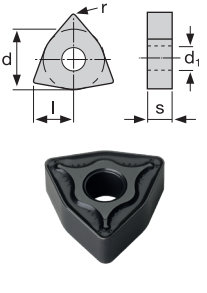
	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
	VBMT 160404-MF	BTCS10T	●	16,60	4,76	9,52	4,40	0,4
	VBMT 160404-MF	BTCP15T	●	16,60	4,76	9,52	4,40	0,4
	VBMT 160404-MF	BTCP25T	○	16,60	4,76	9,52	4,40	0,4
	VBMT 160408-MF	BTCH10T	○	16,60	4,76	9,52	4,40	0,8
	VBMT 160408-MF	BTCP15T	●	16,60	4,76	9,52	4,40	0,8
	VBMT 160408-MF	BTCP25T	○	16,60	4,76	9,52	4,40	0,8
	VBMT 160408-MF	BTCK15T	○	16,60	4,76	9,52	4,40	0,8
	VBMT 160408-MF	BTCS10T	●	16,60	4,76	9,52	4,40	0,8
	VCMT 160404-MF	BTCS10T	●	16,60	4,76	9,52	4,40	0,4
	VCMT 160404-MF	BTCP15T	●	16,60	4,76	9,52	4,40	0,4
	VCMT 160404-MF	BTCP25T	○	16,60	4,76	9,52	4,40	0,4
	VCMT 160408-MF	BTCH10T	○	16,60	4,76	9,52	4,40	0,8
	VCMT 160408-MF	BTCP15T	○	16,60	4,76	9,52	4,40	0,8
	VCMT 160408-MF	BTCP25T	●	16,60	4,76	9,52	4,40	0,8
	VCMT 160408-MF	BTCK15T	○	16,60	4,76	9,52	4,40	0,8
	VCMT 160408-MF	BTCS10T	●	16,60	4,76	9,52	4,40	0,8
	VCMW 160404	BTCH10T	○	16,60	4,76	9,52	4,40	0,4
	VCMW 160408	BTCH10T	○	16,60	4,76	9,52	4,40	0,8
	VNMG 160408-MR	BTCP15T	○	16,60	4,76	9,52	4,40	0,8
	VNMG 160408-MR	BTCP25T	○	16,60	4,76	9,52	4,40	0,8
	VNMG 160408-MR	BTCP35T	○	16,60	4,76	9,52	4,40	0,8
	VNMG 160408-MR	BTCS10T	●	16,60	4,76	9,52	4,40	0,8
	VNMG 160412-M	BTCP15T	○	16,60	4,76	9,52	4,40	1,2
	VNMG 160412-M	BTCP25T	○	16,60	4,76	9,52	4,40	1,2
	VNMG 160412-M	BTCP35T	○	16,60	4,76	9,52	4,40	1,2
	VNMG 160412-M	BTCS10T	●	16,60	4,76	9,52	4,40	1,2

Sipariş örneği Order example: 10 Adet Pieces VNMG 160412-M BTCS10T

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 66
Description of new grades page 66

	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
	WNMA 080408	BTCH10T	○	8,60	4,76	12,70	5,16	0,8
	WNMA 080408	BTCK10T	○	8,60	4,76	12,70	5,16	0,8
	WNMA 080408	BTCK15T	●	8,60	4,76	12,70	5,16	0,8
	WNMA 080412	BTCH10T	○	8,60	4,76	12,70	5,16	1,2
	WNMA 080412	BTCK10T	○	8,60	4,76	12,70	5,16	1,2
	WNMA 080412	BTCK15T	●	8,60	4,76	12,70	5,16	1,2
	WNMG 080408-MF	BTCP15T	○	8,60	4,76	12,70	5,16	0,8
	WNMG 080408-MF	BTCK15T	●	8,60	4,76	12,70	5,16	0,8
	WNMG 080408-MF	BTCS10T	○	8,60	4,76	12,70	5,16	0,8
	WNMG 080408-MF1	BTCH10T	●	8,60	4,76	12,70	5,16	0,8
	WNMG 080408-MF1	BTCP15T	●	8,60	4,76	12,70	5,16	0,8
	WNMG 080408-MF1	BTCP25T	●	8,60	4,76	12,70	5,16	0,8
	WNMG 080408-MF1	BTCP35T	●	8,60	4,76	12,70	5,16	0,8
	WNMG 080408-MF1	BTCS10T	●	8,60	4,76	12,70	5,16	0,8
	WNMG 080408-MF1	BTCS25T	●	8,60	4,76	12,70	5,16	0,8
	WNMG 080412-MR1	BTCH10T	●	8,60	4,76	12,70	5,16	1,2
	WNMG 080412-MR1	BTCP15T	●	8,60	4,76	12,70	5,16	1,2
	WNMG 080412-MR1	BTCP25T	●	8,60	4,76	12,70	5,16	1,2
	WNMG 080412-MR1	BTCP35T	●	8,60	4,76	12,70	5,16	1,2
	WNMG 080412-MR1	BTCK10T	●	8,60	4,76	12,70	5,16	1,2
	WNMG 080412-MR1	BTCK15T	●	8,60	4,76	12,70	5,16	1,2
	WNMG 080412-MR1	BTCS10T	●	8,60	4,76	12,70	5,16	1,2
	WNMG 080412-MR1	BTCS25T	●	8,60	4,76	12,70	5,16	1,2

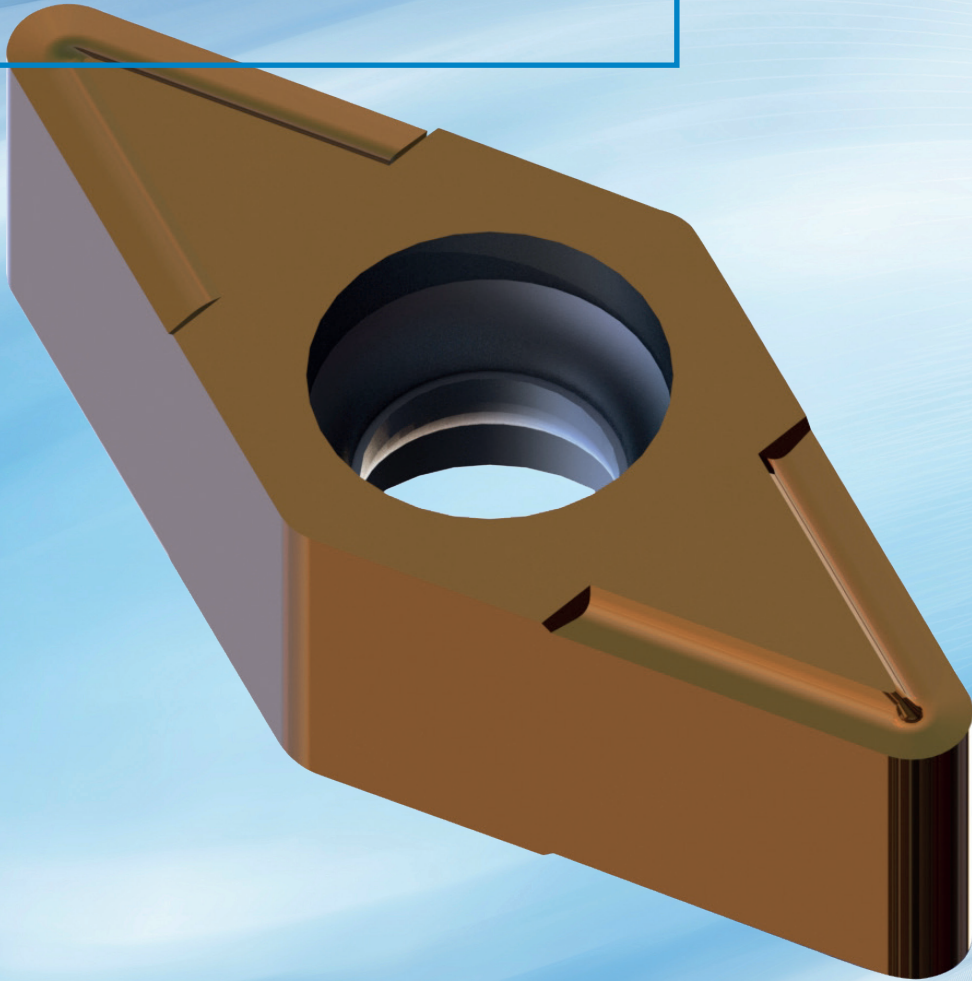
Sipariş örneği Order example: 10 Adet Pieces WNMG 080412-MR1 BTCS25T

Orjinal uçların rengi katalog görüntüsünden farklı olabilir!
Colours of the original indexable inserts may deviate from the illustration!

● Stoktan teslim Available from stock
○ İstek üzerine On request

Yeni kalite tanımları için Sayfa 66
Description of new grades page 66

Özel torna uçları
Special turning inserts



Tornalama için önerilen kesme değerleri
Cutting data recommendations for turning

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ISO 513	Malzeme kodu Material code	Sertlik Hardness	Soğutma Cooling		Kesme hızı v_C [m/dak] Cutting data v_C [m/min]				
			Kuru Dry	Sulu Wet	BTCP15T	BTCP25T	BTCP35T	BTCP25T	
P	P1		•	•	180 - 300	180 - 260	160 - 200	180 - 220	
	P2		•	•	160 - 280	160 - 240	140 - 180	---	
	P3		•	•	140 - 260	120 - 220	120 - 160	---	
	P4		•	•	120 - 240	110 - 200	100 - 140	---	
	P5		•	•	100 - 220	90 - 180	110 - 150	---	
M	M1		•	•	---	100 - 150	120 - 180	140 - 200	
	M2		•	•	---	70 - 110	80 - 130	80 - 130	
K	K1		•	•	200 - 280	---	---	---	
	K2		•	•	130 - 180	---	---	---	
	K3		•	•	160 - 210	---	---	---	
N	N1		•	•	---	---	---	---	
	N2		•	•	---	---	---	---	
	N3		•	•	---	---	---	---	
	N4		•	•	---	---	---	---	
S	S1		•	•	---	---	---	---	
	S2		•	•	---	---	---	---	
	S3		•	•	---	---	---	---	
	S4		•	•	---	---	---	---	
H	H1	45 - 54 HRC	•	•	---	---	---	---	
	H2	55 - 63 HRC	•	•	---	---	---	---	
	H3	64 - 66 HRC	•	•	---	---	---	---	
	H4	50 - 60 HRC	•	•	---	---	---	---	

		Kesme hızı v_c [m/dak] Cutting data v_c [m/min]				
	BTCK10T	BTCK15T	BTCS10T	BTCN10T	BTWN10T	BTCH10T
	---	---	160 - 200	---	---	240 - 320
	---	---	140 - 180	---	---	220 - 300
	---	---	120 - 150	---	---	200 - 250
	---	---	130 - 170	---	---	200 - 230
	---	---	120 - 190	---	---	180 - 220
	---	---	120 - 180	---	---	100 - 150
	---	---	70 - 110	---	---	70 - 110
	210 - 350	200 - 320	---	---	---	---
	150 - 300	140 - 280	---	---	---	---
	140 - 260	130 - 240	---	---	---	---
	---	---	---	400 - 2000	300 - 1800	---
	---	---	---	160 - 1200	140 - 1000	---
	---	---	---	140 - 900	120 - 700	---
	---	---	---	120 - 700	100 - 600	---
	---	---	70 - 90	---	---	70 - 90
	---	---	35 - 45	---	---	35 - 45
	---	---	50 - 100	---	---	50 - 100
	---	---	30 - 80	---	---	30 - 80
	---	---	---	---	---	100 - 160
	---	---	---	---	---	90 - 130
	---	---	---	---	---	70 - 110
	---	---	---	---	---	100 - 150

Torna Katerleri
Tool Holder

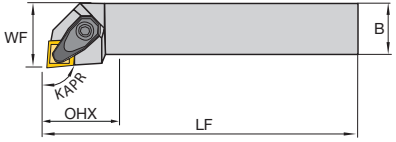
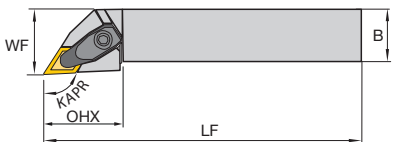
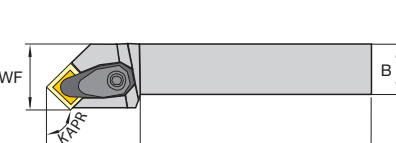
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Torna Katerleri Tool Holder



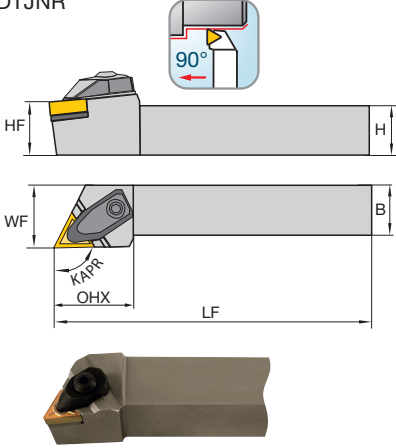
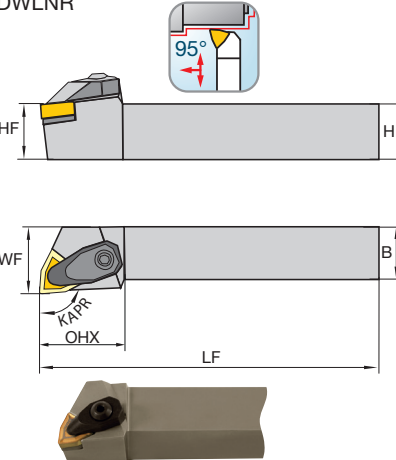
D-Sıkma sistemli, dış çap işleme takımları
Tool holders type D, external machining

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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF	H	B	WF	LF		
DCLN-R/L    	DCLNR/L 2020 K12	5009529 / 5009531	20	20	20	25	125	CN... 1204..	89
	DCLNR/L 2525 M12	5009454 / 5009455	25	25	25	25	125		
DDJN-R/L    	DDJNR/L 2020 K15	5009527 / 5009528	20	20	20	25	125	DN... 1506..	90-91
	DDJNR/L 2525 M15	5009452 / 5009453	25	25	25	25	125		
DSSN-R/L    	DSSNR/L 2020 K12	5009462 / 5009463	20	20	20	25	125	SN... 1204..	93-94
	DSSNR/L 2525 M12	5009456 / 5009457	25	25	25	25	125		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Sipariş örneği: 1 Adet DCLNR 2020 K12
Order example: 1 piece DCLNR 2020 K12

	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF	H	B	WF	LF		
DTJNR 	DTJNR/L 2020 K16	5009460 / 5009461	20	20	25	25	125	TN... 1604..	95-96
	DTJNR/L 2525 M16	5009285 / 5009451	25	25	25	25	125		
DWLNR 	DWLNR/L 2020 K08	5009459 / 5009458	20	20	25	25	125	WN... 0804..	98
	DWLNR/L 2525 M08	5009284 / 5009283	25	25	25	25	125		

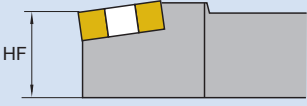
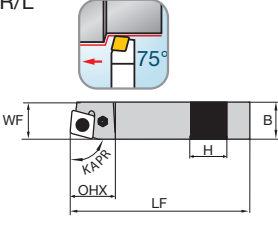
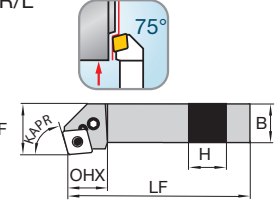
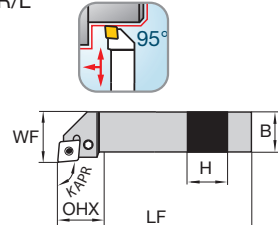
Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts	Sipariş kodu Ordering code								
									
	Baskı pabucu Clampset	Pabuç yayı Spring M6210	Baskı vidası Clamp screw V6020	Anahtar Key V01-A0030	Altık vidası Shim screw	Altık Shim			
DCLNR/L 2020 K12	5013589	DT01N	5013609	5013595	5013610	5013607	VD0408	5013600	S8012P
DCLNR/L 2525 M12	5013589	DT01N	5013609	5013595	5013610	5013607	VD0408	5013600	S8012P
DDJNR/L 2020 K15	5013591	DT02N	5013609	5013595	5013610	5013607	VD0408	5013601	S5515P
DDJNR/L 2525 M15	5013591	DT02N	5013609	5013595	5013610	5013607	VD0408	5013601	S5515P
DSSNR/L 2020 K12	5013589	DT01N	5013609	5013595	5013610	5013607	VD0408	5013604	S9012P
DSSNR/L 2525 M12	5013589	DT01N	5013609	5013595	5013610	5013607	VD0408	5013604	S9012P
DTJNR/L 2020 K16	5013594	DT03N	5013609	5013595	5013610	5013608	VD0308	5013602	S6016D
DTJNR/L 2525 M16	5013594	DT03N	5013609	5013595	5013610	5013608	VD0308	5013602	S6016D
DWLNR/L 2020 K08	5013589	DT01N	5013609	5013595	5013610	5030344	VD0408B	5013603	S8008P
DWLNR/L 2525 M08	5013589	DT01N	5013609	5013595	5013610	5030344	VD0408B	5013603	S8008P

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

P-Sıkma sistemli, dış çap işleme takımları
Tool holders type D, external machining

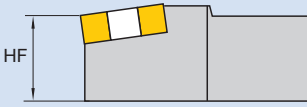
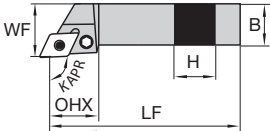
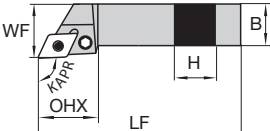
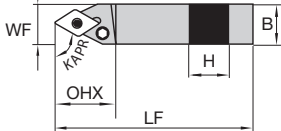
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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF	H	B	WF	LF		
PCBN-R/L  	PCBNR/L 2525M12	6406213 / 6406210	25	25	150	27,7	22	CN.. 12..	89
	PCBNR/L 2525M16	6406214 / 6406211	25	25	150	31,7	22	CN.. 16..	
	PCBNR/L 3232P19	6406216 / 6406212	32	32	170	37,9	27	CN.. 19..	89
PCKN-R/L  	PCKNR/L 2525M12	6406219 / 6406217	25	25	150	28	32	CN.. 12..	89
	PCKNR/L 2525M16	5110664 / 5110665	25	25	150	28	32	CN.. 16..	
	PCKNR/L 3232P19	6406220 / 6406218	32	32	170	36	40	CN.. 19..	89
PCLN-R/L  	PCLNR/L 1616H09	6406232 / 6406221	16	16	100	23	20	CN.. 09..	
	PCLNR/L 1616H12	6406233 / 6406222	16	16	100	26,1	20	CN.. 12..	89
	PCLNR/L 2020K12	6406234 / 6406223	20	20	125	27,4	25		
	PCLNR/L 2525M12	6406235 / 6406224	25	25	150	28	32		
	PCLNR/L 3225P12	6406238 / 6406227	32	25	170	32,6	32		
	PCLNR/L 2525M16	6406236 / 6406225	25	25	150	28	32	CN.. 16..	
	PCLNR/L 3232P16	6406239 / 6406229	32	32	170	32,6	40		
	PCLNR/L 2525M19	6406237 / 6406226	25	25	150	38	32	CN.. 19..	89
	PCLNR/L 3232P19	6406240 / 6406230	32	32	170	38	40		
	PCLNR/L 3225P19	6406228	32	25	170	38	40		
	PCLNR/L 4040S19	6406241 / 6406231	40	40	250	38	50		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
 Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Levye Lever	 Sıkıştırma vidası Fixation screw	 Altlık yayı Shim pin	 Montaj pimi Assembly punch	 Anahtar Key
09	1616	B01-C0931	D02-09120	A03-06170	E01-05405	V10-10000	V01-A0025
12	1616-3225	B01-C1231	D02-12130	A03-08210	E01-07205	V10-20000	V01-A0030
16	2525-3232	B01-C1547	D02-15173	A03-08235	E01-09008	V10-40000	V01-A0030
19	2525-4040	B01-C1847	D02-19210	A03-10270	E01-11011	V10-30000	V01-A0040

Sipariş örneği: 1 Adet PCBNR 2525M12
 Order example: 1 piece PCBNR 2525M12

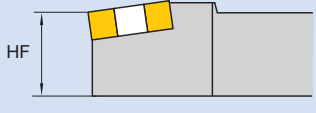
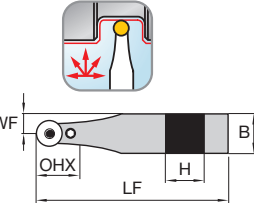
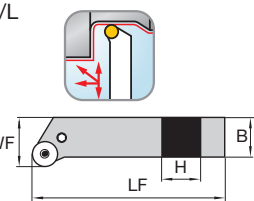
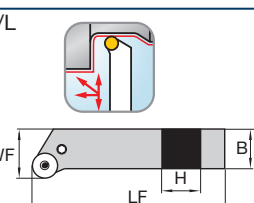
	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF	H	B	WF	LF		
PDJN-R/L   	PDJNR/L 1616H11	6406255 / 6406244	16	16	100	30	20	DN.. 11..	91
	PDJNR/L 2020K11	6406256 / 6406245	20	20	125	30	25	DN.. 15..	
	PDJNR/L 2525M11	6406259 / 6406248	25	25	150	30	32		
	PDJNR/L 2020K15	6406258 / 6406247	20	20	125	34,7	25		
	PDJNR/L 2525M15	6406261 / 6406250	25	25	150	34,7	32		
	PDJNR/L 3225P15	6406263 / 6406252	32	25	170	34,7	32		
	PDJNR/L 3232P15	6406264 / 6406253	32	32	170	34,7	40		
PDJN-R/L   	PDJNR/L 2020K14	6406257 / 6406246	20	20	125	34,7	25	DN.. 14..	91
	PDJNR/L 2525M14	6406260 / 6406249	25	25	150	34,7	32	DN.. 14..	
	PDJNR/L 3225P14	6406262 / 6406251	32	25	170	34,7	32		
	PDJNL 4025R14	6406254	40	25	200	34,7	32		
	PDNN-R/L   	PDNNR/L 2525M11	6406270 / 6406266	25	25	150	30	12,5	DN.. 11..
PDNNR/L 2525M15		6406271 / 6406267	25	25	150	36,5	12,5	DN.. 15..	
PDNNR/L 3225P15		6406272 / 6406268	32	25	170	36,5	12,5		
PDNNR/L 4025P15		6406273 / 6406269	40	25	170	36,5	12,5		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Levye Lever	 Sıkıştırma vidası Fixation screw	 Altlık yayı Shim pin	 Montaj pimi Assembly punch	 Anahtar Key
11	1616-2525	B01-D1131	D02-10120	A03-06170	E01-05405	V10-10000	V01-A0025
14	2020-4025	B01-D1331	D02-15145	A03-08210	E01-07205	V10-20000	V01-A0030
15 ¹⁾	2020-4025	B01-D1448	D02-15145	A03-08210	E01-07205	V10-20000	V01-A0030
15 ²⁾	2020-4025	B01-D1447	D02-15145	A03-08210	E01-07205	V10-20000	V01-A0030
15 ³⁾	2020-4025	B01-D1432	D02-15145	A03-08210	E01-07205	V10-20000	V01-A0030
15 ⁴⁾	2020-4025	B01-D1431	D02-15145	A03-08210	E01-07205	V10-20000	V01-A0030

P-Sıkma sistemli, dış çap işleme takımları
Tool holders type D, external machining

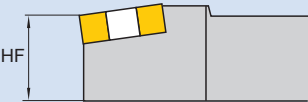
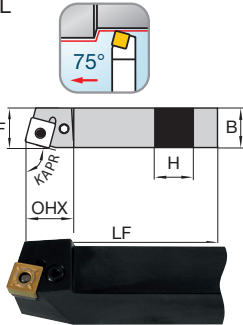
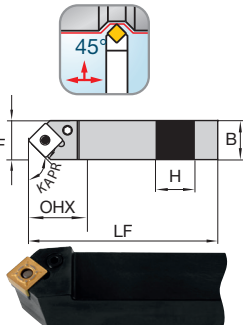
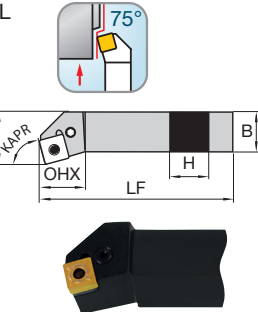
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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
PRDC-N  	PRDCN 2020M10	6406279	20	20	150	22	10	RCMX 10..	92
	PRDCN 2525M10	6406280	25	25	150	22	12,5	RCMX 12..	92
	PRDCN 2525M12	6406281	25	25	150	24	12,5	RCMX 16..	92
	PRDCN 3225P12	6406282	32	25	170	24	12,5	RCMX 20..	92
	PRDCN 3225P16	6406283	32	25	170	28	12,5	RCMX 25..	92
	PRDCN 3232P20	6406284	32	32	170	32	16		
	PRDCN 4040S25	6406285	40	40	250	42	20		
PRGC-R/L  	PRGCR/L 2525M12	6406292 / 6406286	25	25	150		32	RCMX 12..	92
	PRGCR/L 3225P12	6406293 / 6406287	32	25	170		32	RCMX 16..	92
	PRGCR/L 3225P16	6406294 / 6406288	32	25	170		32	RCMX 20..	92
	PRGCR/L 3232P16	6406295 / 6406289	32	32	170		40	RCMX 25..	92
	PRGCR/L 3232P20	6406296 / 6406290	32	32	170		40		
	PRGCR/L 4040S25	6406297 / 6406291	40	40	250		50		
PRSC-R/L  	PRSCR/L 2020K10	6406302	20	20	125		25	RC.. 10..	92
	PRSCR/L 2020K12	6406303	20	20	125		25	RC.. 12..	92
	PCLNR/L 2525M10	6406304 / 6406298	25	25	150		32	RC.. 10..	92
	PCLNR/L 2525M12	6406299	25	25	150		32	RC.. 12..	92
	PRSCR/L 2525M16	6406305 / 6406300	25	25	150		32	RC.. 16..	92
	PRSCR/L 3225P12	6406306 / 6406301	32	25	170		32	RC.. 12..	92
	PRSCR/L 3225P16	6406307	32	25	170		32	RC.. 16..	92
	PRSCR/L 3232P20	6406308	32	32	170		40	RC.. 20..	92

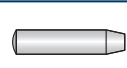
Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
 Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Levye Lever	 Sıkıştırma vidası Fixation screw	 Altlık yayı Shim pin	 Montaj pimi Assembly punch	 Anahtar Key
10	2020-2525	B05-R0831	D05-10118	A03-05140	E01-05405	V10-10000	V01-A0020
12	2525-3225	B05-R0931	D05-12133	A03-06170	E01-05405	V10-10000	V01-A0025
16	2525-3225	B05-R1347	D05-17178	A03-06210	E01-07409	V10-20000	V01-A0025
20	3232	B05-R1747	D05-19189	A03-08235	E01-09008	V10-40000	V01-A0030
25	4040	B05-R2263	D05-23235	A03-10305	E01-11011	V10-30000	V01-A0040

Sipariş örneği: 1 Adet PRDCN 2020M10
 Order example: 1 piece PRDCN 2020M10

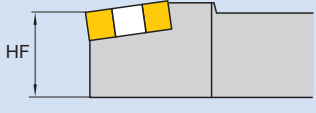
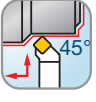
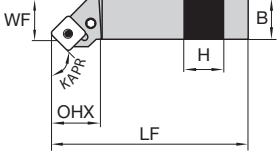
	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
	PSBNR/L 2020K12	6406318 / 6406310	20	20	125	27,5	17	SN.. 12..	93-94
	PSBNR/L 2525M12	6406319 / 6406311	25	25	150	27,5	22		
	PSBNR/L 3225P12	6406320 / 6406312	32	25	170	32	22		
	PSBNR/L 3232P15	6406321 / 6406313	32	32	170	32	27	SN.. 15..	94
	PSBNR/L 3232P19	6406322 / 6406314	32	32	170	39,2	27	SN.. 19..	94
	PSBNR/L 4040S19	6406323 / 6406315	40	40	250	38,5	35	SN.. 25..	
	PSBNR/L 4040S25	6406324 / 6406316	40	40	250	47,5	35		
	PSBNR/L 5050T25	6406325 / 6406317	50	50	300	49	43		
	PSDNN 1616H09	6406326	16	16	100	21	8,3	SN.. 09..	
	PSDNN 2020K12	6406327	20	20	125	27,6	10,3	SN.. 12..	93-94
	PSDNN 2525M12	6406328	25	25	150	27,6	12,8	SN.. 19..	94
	PSDNN 3225P19	6406329	32	25	170	40,4	13		
	PSDNN 3232P19	6406330	32	32	170	40,4	12,5		
	PSKNR/L 1616H09	6406338 / 6406331	16	16	100	18,7	20	SN.. 09..	
	PSKNR/L 2020K12	6406339 / 6406332	20	20	125	22,7	25	SN.. 12..	93-94
	PSKNR/L 2525M12	6406340 / 6406333	25	25	150	22,7	32		
	PSKNR/L 3225P12	6406342 / 6406335	32	25	170	32	32		
	PSKNR/L 2525M15	6406341 / 6406334	25	25	150	22,7	32	SN.. 15..	94
	PSKNR/L 3232P19	6406343 / 6406336	32	32	170	33,7	40	SN.. 19..	94
	PSKNR/L 4040S19	6406344 / 6406337	40	40	250	37,6	50		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Levye Lever	 Sıkıştırma vidası Fixation screw	 Altlık yayı Shim pin	 Montaj pimi Assembly punch	 Anahtar Key
09	1616	B01-S0931	D02-09120	A03-05095	E01-05405	V10-10000	V01-A0025
12	2020-3225	B01-S1231	D02-12130	A03-08210	E01-07205	V10-20000	V01-A0030
15	2525-3232	B01-S1547	D02-15173	A03-08235	E01-09008	V10-40000	V01-A0030
19	3232-4040	B01-S1847	D02-19210	A03-10270	E01-11011	V10-30000	V01-A0040
25	4040-5050	B01-S2463	D02-23250	A03-12360	E01-15212	V10-50000	V01-A0050

P-Sıkma sistemli, dış çap işleme takımları
Tool holders type D, external machining

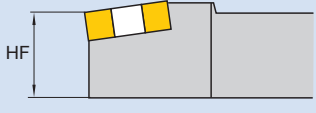
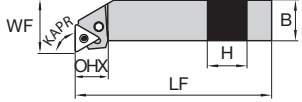
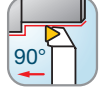
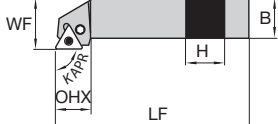
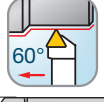
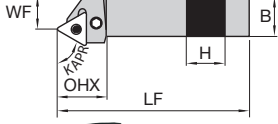
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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
PSSNR-R/L   	PSSNR/L 1616H09	6406352 / 6406345	16	16	100	21,2	20	SN.. 09..	93-94
	PSSNR/L 2020K12	6406353 / 6406346	20	20	125	29,3	25	SN.. 12..	
	PSSNR/L 2525M12	6406354 / 6406347	25	25	150	29,3	32	SN.. 15..	
	PSSNR/L 3225P12	6406356 / 6406349	32	25	170	32	32	SN.. 19..	94
	PSSNR/L 2525M15	6406355 / 6406348	25	25	150	29,3	32	SN.. 19..	94
	PSSNR/L 3232P19	6406357 / 6406350	32	32	170	40,2	40	SN.. 19..	94
	PSSNR/L 4040S19	6406358 / 6406351	40	40	250	39,5	50	SN.. 19..	94

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
 Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering Code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Levye Lever	 Sıkıştırma vidası Fixation screw	 Altlık yayı Shim pin	 Montaj pimi Assembly punch	 Anahtar Key
09	1616	B01-S0931	D02-09120	A03-05096	E01-05405	V10-10000	V01-A0025
12	2020-3225	B01-S1231	D02-12130	A03-08210	E01-07205	V10-20000	V01-A0030
15	2525	B01-S1547	D02-15173	A03-08235	E01-09008	V10-40000	V01-A0030
19	3232-4040	B01-S1847	D02-19210	A03-10270	E01-11011	V10-30000	V01-A0040

Sipariş örneği: 1 Adet PSSNR 1616H09
 Order example: 1 piece PSSNR 1616H09

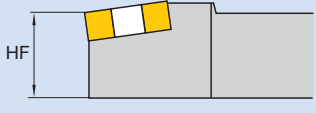
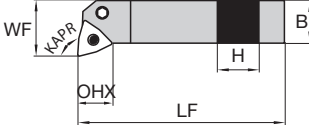
	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
  	PTFNR/L 1616H16	6406364 / 6406359	16	16	100	19,7	20	TN.. 16..	95-96
	PTFNR/L 2020K16	6406365 / 6406360	20	20	125	20,2	25		
	PTFNR/L 2525M16	6406366 / 6406361	25	25	150	20,2	32		
	PTFNR/L 2525M22	6406367 / 6406362	25	25	150	25,2	32	TN.. 22..	
	PTFNR/L 3225P22	6406368 / 6406363	32	25	170	25,2	32		
  	PTGNR/L 1616H16	6406376 / 6406369	16	16	100	20	20	TN.. 16..	95-96
	PTGNR/L 2020K16	6406377 / 6406370	20	20	125	20	25		
	PTGNR/L 2525M16	6406378 / 6406371	25	25	150	22,2	32		
	PTGNR/L 3225P16	6406380 / 6406373	32	25	170	22,2	32		
	PTGNR/L 2525M22	6406379 / 6406372	25	25	150	25,2	32	TN.. 22..	
  	PTTNR/L 2020K16	6406417 / 6406415	20	20	125	25,9	17	TN.. 16..	95-96
	PTTNR/L 2525M22	6406418 / 6406416	25	25	150	31,9	22	TN.. 22..	

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering Code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Levyeye Lever	 Sıkıştırma vidası Fixation screw	 Altlık yayı Shim pin	 Montaj pimi Assembly punch	 Anahtar Key
16	1616-3225	B01-T1527	D02-09120	A03-06170	E01-05405	V10-10000	V01-A0025
22	2525-3232	B01-T2031	D02-12130	A03-08210	E01-07205	V10-20000	V01-A0030

P-Sıkma sistemli, dış çap işleme takımları
Tool holders type D, external machining

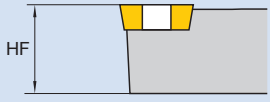
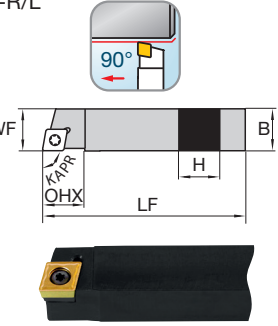
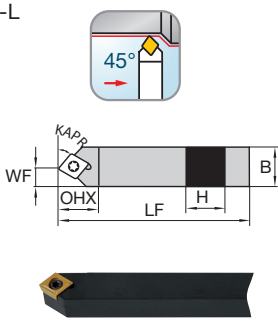
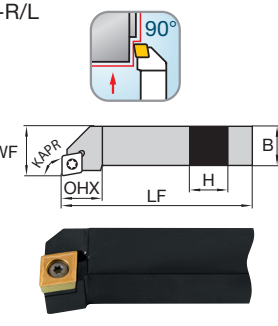
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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
PWLN-R/L   	PWLN-R/L 1616H06	6406425 / 6406419	16	16	100	20	20	WN.. 06..	98
	PWLN-R/L 2020K06	6406426 / 6406420	20	20	125	25	25		
	PWLN-R/L 2525M06	6406428 / 6406422	25	25	150	25	32		
	PWLN-R/L 2020K08	6406427 / 6406421	20	20	125	25	25	WN.. 08..	
	PWLN-R/L 2525M08	6406429 / 6406423	25	25	150	25	32		

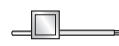
Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Levye Lever	 Sıkıştırma vidası Fixation screw	 Altlık yayı Shim pin	 Montaj pimi Assembly punch	 Anahtar Key
06	1616-2525	B01-W0627	D02-09120	A03-06170	E01-05807	V10-10000	V01-A0025
08	2020-3225	B01-W0831	D02-12130	A03-08210	E01-07205	V10-20000	V01-A0030

Sipariş örneği: 1 Adet PWLN-R 1616H06
Order example: 1 piece PWLN-R 1616H06

	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
SCAC-R/L 	SCACR/L 0808D06	6406571 / 6406562	8	8	60	9	8	CC.. 06..	88
	SCACR/L 0808K06	6406572 / 6406563	8	8	125	9	8		
	SCACR/L 1010E06	6406573 / 6406564	10	10	70	9	10		
	SCACR/L 1010M06	6406574 / 6406565	10	10	150	9	10	CC.. 09..	88
	SCACR/L 1212F09	6406575 / 6406566	12	12	80	13	12		
	SCACR/L 1212M09	6406576 / 6406567	12	12	150	13	12		
	SCACR/L 1414M09	6406577 / 6406568	14	14	150	13	14		
	SCACR/L 1616H09	6406578 / 6406569	16	16	100	13	16	CC.. 12..	88
	SCACR/L 2020K12	6406579 / 6406570	20	20	125	17	20		
SCDC-L 	SCDCL 0808K06	6406580	8	8	125	13	4	CC.. 06..	88
	SCDCL 1010M06	6406581	10	10	150	13	5	CC.. 09..	88
	SCDCL 1212M09	6406582	12	12	150	18	6		
	SCDCL 1414M09	6406583	14	14	150	18	7		
SCFC-R/L 	SCFCR/L 0808D06	6406589 / 6406584	8	8	60	10	8	CC.. 06..	88
	SCFCR/L 1010E06	6406590 / 6406585	10	10	70	10	10	CC.. 09..	88
	SCFCR/L 1212F09	6406591 / 6406586	12	12	80	13	12		
	SCFCR/L 1616H09	6406592 / 6406587	16	16	100	13	16	CC.. 12..	88
	SCFCR/L 2020K12	6406593 / 6406588	20	20	125	17	20		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code				
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Altlık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key	
06	0808-1010	-	-	A02-25059	V02-T0800	
09	1212-1414	-	-	A02-35082	V02-T1500	
09	1616-2020	B09-C0923	E09-F5035	A02-35096	V05-T1534	
12	1616-2020	B09-C1231	E09-F6045	A02-45102	V05-T1534	

S-Sıkma sistemli, dış çap işleme takımları
Tool holders type D, external machining

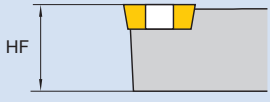
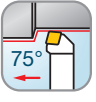
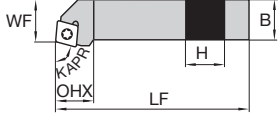
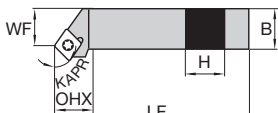
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HF	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
SCGC-R/L	SCGCR/L 2020K12	6406595 / 6406594	20	20	125	17	25	CC.. 12..	88
SCLC-R/L	SCLCR/L 0808D06	6406614 / 6406605	8	8	60	9	8	CC.. 06..	88
	SCLCR 1010E06	6406615	10	10	70	9	12	CC.. 09..	88
	SCLCR/L 1212F09	6406616 / 6406607	12	12	80	15	16		
	SCLCR/L 1616H09	6406617 / 6406608	16	16	100	17	20		
	SCLCR/L 2020K09	6406619 / 6406610	20	20	125	17	25	CC.. 12..	88
	SCLCR/L 1616H12	6406618 / 6406609	16	16	100	20	20		
	SCLCR/L 2020K12	6406620 / 6406611	20	20	125	20	25		
	SCLCR/L 2525M12	6406621 / 6406612	25	25	150	20	32		
	SCLCR/L 3225P12	6406622 / 6406613	32	25	170	20	32		
SCMC-N	SCMCN 1616H12	6406623	16	16	100	25	8	CC.. 12..	88
	SCMCN 2020K12	6406624	20	20	125	25	10		
	SCMCN 2525M12	6406625	25	25	150	25	12,5		
	SCMCN 3225P12	6406626	32	25	170	25	12,5		

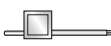
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Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering Code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	Altık Shim	Altık vidası Shim screw	Sıkıştırma vidası Fixation screw	Anahtar Key		
06	0808-1010	-	-	A02-25059	V02-T0800		
09	1212	-	-	A02-35082	V02-T1500		
09	1616-2020	B09-C0923	E09-F5035	A02-35096	V05-T1534		
12	1616-3225	B09-C1231	E09-F6045	A02-45102	V05-T1534		

Sipariş örneği: 1 Adet SCGCR 2020K12
Order example: 1 piece SCGCR 2020K12

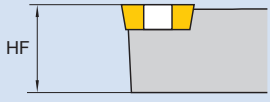
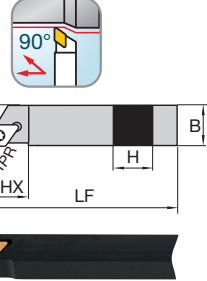
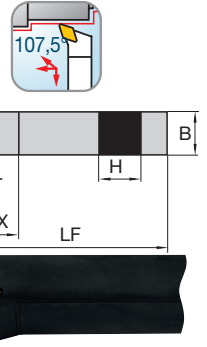
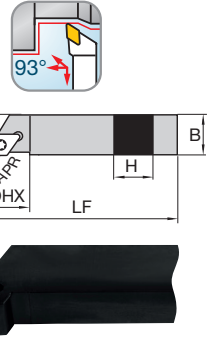
	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
SCRC-R/L   	SCRCR/L 0808D06	6406647 / 6406638	8	8	60	10	9	CC.. 06..	88
	SCRCR/L 1010E06	6406648 / 6406639	10	10	70	10	11		
	SCRCR/L 1212F09	6406649 / 6406640	12	12	80	16	13	CC.. 09..	88
	SCRCR/L 1616H09	6406650 / 6406641	16	16	100	17	17		
	SCRCR/L 2020K09	6406652 / 6406643	20	20	125	17	22		
	SCRCR/L 1616H12	6406651 / 6406642	16	16	100	20	17	CC.. 12..	88
	SCRCR/L 2020K12	6406653 / 6406644	20	20	125	20	22		
	SCRCR/L 2525M12	6406654 / 6406645	25	25	150	20	27		
SCSC-R/L   									
	SCSCR/L 1616H12	6406660 / 6406656	16	16	100	20	20	CC.. 12..	88
	SCSCR/L 2020K12	6406661 / 6406657	20	20	125	20	25		
	SCSCR/L 2525M12	6406662 / 6406658	25	25	150	20	32		
	SCSCR/L 3225P12	6406663 / 6406659	32	25	170	20	32		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

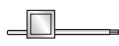
Yedek parçalar Spare parts		Sipariş kodu Ordering Code				
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Altlık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key	
06	0808-1010	-	-	A02-25059	V02-T0800	
09	1212	-	-	A02-35082	V02-T1500	
09	1616-2020	B09-C0923	E09-F5035	A02-35096	V05-T1534	
12	1616-3225	B09-C1231	E09-F6045	A02-45102	V05-T1534	

S-Sıkma sistemli, dış çap işleme takımları
Tool holders type D, external machining

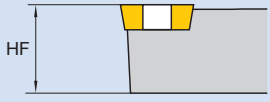
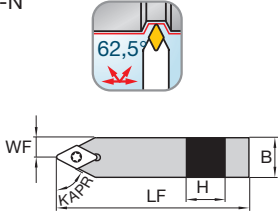
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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
SDAC-R/L 	SDACR/L 0808K07	6406673 / 6406668	8	8	125	14	8	DC.. 07..	90
	SDACR/L 1010M07	6406674 / 6406669	10	10	150	14	10		
	SDACR/L 1010X07-D	6424956 / 6424954	10	10	150	15	10		
	SDACR/L 1212M07	6406675 / 6406670	12	12	150	14	12		
	SDACR/L 1212M11	6406676 / 6406671	12	12	150	21	12	DC.. 11..	90
	SDACR/L 1212X07-D	6424957 / 6424955	12	12	150	15	12		
	SDACR/L 1414M11	6406677 / 6406672	14	14	150	21	14		
SDHC-R/L 	SDHCR/L 1010E07	6406683 / 6406678	10	10	70	5,5	12	DC.. 07..	90
	SDHCR/L 1212F07	6406684 / 6406679	12	12	80	12	16		
	SDHCR/L 1616H11	6406685 / 6406680	16	16	100	10,4	20	DC.. 11..	90
	SDHCR/L 2020K11	6406686 / 6406681	20	20	125	14	25		
	SDHCR/L 2525M11	6406687 / 6406682	25	25	150	20	32		
SDJC-R/L 	SDJCR/L 0808D07	6406717 / 6406708	8	8	60	13	10	DC.. 07..	90
	SDJCR/L 1010E07	6406718 / 6406709	10	10	70	13	12		
	SDJCR/L 1010X07-D	6424962 / 6424958	10	10	115	15	10		
	SDJCR/L 1212F07	6406719 / 6406710	12	12	80	14,5	16		
	SDJCR/L 1212X07-D	6424963 / 6424959	12	12	130	15	12	DC.. 11..	90
	SDJCR/L 1212F11	6406720 / 6406711	12	12	80	22	16		
	SDJCR/L 1212X11-D	6424964 / 6424960	12	12	130	15	12		
	SDJCR/L 1616H11	6406721 / 6406712	16	16	100	20	20		
	SDJCR/L 1616X11-D	6424965 / 6424961	16	16	130	20	16		
	SDJCR/L 2020K11	6406722 / 6406713	20	20	125	20,5	25		
	SDJCR/L 2525M11	6406723 / 6406714	25	25	150	21,5	32		
	SDJCR/L 3225P11	6406725 / 6406716	32	25	150	21,25	32		
	SDJCR/L 2525M15	6406724 / 6406715	25	25	150	26	32	DC.. 15..	

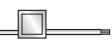
Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code				
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Altlık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key	
07	0808-1212	-	-	A02-25059	V02-T0800	
11	1212-1414	-	-	A02-35082	V02-T1500	
11	1616-3225	B09-D1131	E09-F5035	A02-35096	V05-T1534	
15	2525	B02-D1431	E02-60045	A02-45102	V05-T1534	

Sipariş örneği: 1 Adet SDACR 0808K07
Order example: 1 piece SDACR 0808K07

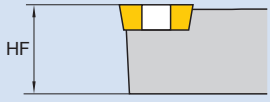
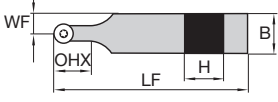
	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)				Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	WF		
SDNC-N  	SDNCN 0808D07	6406734	8	8	60	4	DC.. 07..	90
	SDNCN 0808K07	6406735	8	8	125	4		
	SDNCN 1010E07	6406736	10	10	70	5		
	SDNCN 1010M07	6406737	10	10	150	5		
	SDNCN 1212F07	6406738	12	12	80	6		
	SDNCN 1212M07	6406740	12	12	150	6		
	SDNCN 1212F11	6406739	12	12	80	6	DC.. 11..	90
	SDNCN 1212M11	6406741	12	12	150	6		
	SDNCN 1414M11	6406742	14	14	150	7		
	SDNCN 1616H11	6406743	16	16	100	8		
	SDNCN 2020K11	6406744	20	20	125	10		
	SDNCN 2525M11	6406745	25	25	150	12,5		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare partst		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Altlık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key		
07	0808-1212	-	-	A02-25059	V02-T0800		
11	1212-1414	-	-	A02-35082	V02-T1500		
11	1616-2525	B09-D1131	E09-F5035	A02-35096	V05-T1534		

S-Sıkma sistemli, dış çap işleme takımları
Tool holders type D, external machining

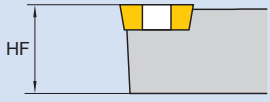
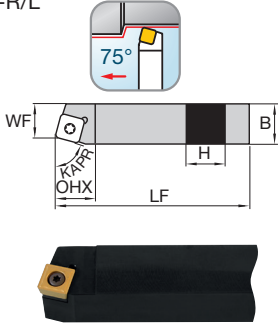
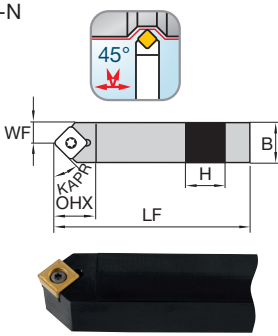
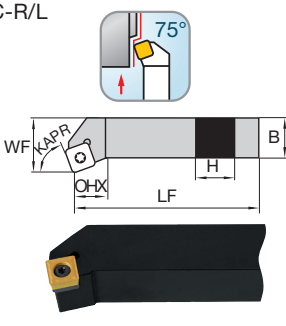
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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
SRDC-N   	SRDCN 1212F06	6406989	12	12	80	12,4	6	RCGT 06..	92
	SRDCN 1616H06	6406990	16	16	100	12,4	8	RCMT 06..	92
	SRDCN 2020K06	6406994	20	20	125	12,4	10		
	SRDCN 2525M06	6406997	25	25	150	12,4	12,5		
	SRDCN 1616H08	6406991	16	16	100	16,4	8	RCGT 08..	92
	SRDCN 2020K08	6406995	20	20	125	16,4	10		
	SRDCN 2525M08	6406998	25	25	150	16,4	12,5		
	SRDCN 1616H10	6406992	16	16	100	20,3	8	RCGT 10..	92
	SRDCN 2020K10	6406996	20	20	125	20,3	10		
	SRDCN 2525M10	6406999	25	25	150	20,3	12,5		
SRGC-R/L   	SRGCR/L 1212F06	6407010 / 6407000	12	12	80	10	16	RCGT 06..	92
	SRGCR/L 1616H06	6407011 / 6407001	16	16	100	10	20	RCMT 06..	92
	SRGCR/L 2020K06	6407014 / 6407004	20	20	125	11,5	25		
	SRGCR/L 2525M06	6407017 / 6407007	25	25	150	15	32		
	SRGCR/L 1616H08	6407012 / 6407002	16	16	100	11	20	RCGT 08..	92
	SRGCR/L 2020K08	6407015 / 6407005	20	20	125	12	25		
	SRGCR/L 2525M08	6407018 / 6407008	25	25	150	16,4	32		
	SRGCR/L 1616H10	6407013 / 6407003	16	16	100	12	20	RCGT 10..	92
	SRGCR/L 2020K10	6407016 / 6407006	20	20	125	13,5	25		
	SRGCR/L 2525M10	6407019 / 6407009	25	25	150	17	32		

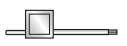
Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code				
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altılık Shim	 Altılık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key	
06	1212-2525	-	-	A02-25059	V02-T0800	
08	1616-2525	-	-	A13-30073	V02-T1500	
10	1616-2525	B09-R1025	E09-F5035	A13-35110	V05-T1534	

Sipariş örneği: 1 Adet SRDCN 1212F06
Order example: 1 piece SRDCN 1212F06

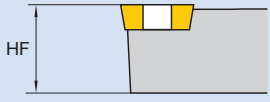
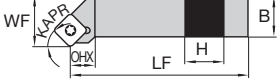
	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
SSBC-R/L 	SSBCR/L 1616H09	6407024 / 6407020	16	16	100	20	13	SC.. 09..	93
	SSBCR/L 2020K09	6407025 / 6407021	20	20	125	20	17	SC.. 12..	93
	SSBCR/L 2020K12	6407026 / 6407022	20	20	125	20	17		
	SSBCR/L 2525M12	6407027 / 6407023	25	25	150	20	22		
SSDC-N 	SSDCN 1212F09	6407028	12	12	80	16	6	SC.. 09..	93
	SSDCN 1616H09	6407029	16	16	100	20	8	SC.. 12..	93
	SSDCN 2020K09	6407030	20	20	125	20	10		
	SSDCN 1616H12	6407031	16	16	100	25	8	SC.. 09..	93
	SSDCN 2020K12	6407032	20	20	125	25	10	SC.. 12..	93
	SSDCN 2525M12	6407033	25	25	150	25	12,5		
SSKC-R/L 	SSKCR/L 1616H09	6407039 / 6407034	16	16	100	22	20	SC.. 09..	93
	SSKCR/L 2020K09	6407041 / 6407036	20	20	125	22	25	SC.. 12..	93
	SSKCR/L 1616H12	6407040 / 6407035	16	16	100	23	20		
	SSKCR/L 2020K12	6407042 / 6407037	20	20	125	23	25	SC.. 12..	93
	SSKCR/L 2525M12	6407043 / 6407038	25	25	150	23	32		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

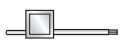
Yedek parçalar Spare parts		Sipariş kodu Ordering code				
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Altlık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key	
09	1212	—	—	A02-35082	V02-T1500	
09	1616–2020	B09-S0923	E09-F5035	A02-35096	V05-T1534	
12	1616–2525	B09-S1231	E09-F6045	A02-45102	V05-T1534	

S-Sıkma sistemli, dış çap işleme takımları
Tool holders type D, external machining

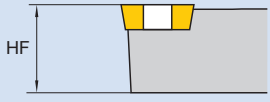
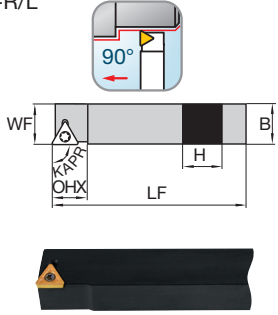
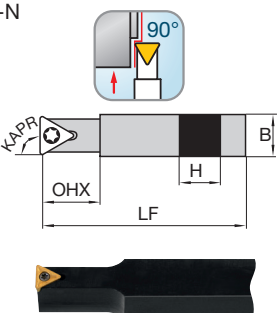
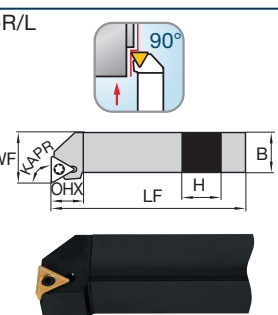
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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
SSSC-R/L   	SSSCR/L 1212F09	6407051 / 6407044	12	12	80	18	16	SC.. 09..	93
	SSSCR/L 1616H09	6407052 / 6407045	16	16	100	20	20		
	SSSCR/L 2020K09	6407054 / 6407047	20	20	125	20	25		
	SSSCR/L 1616H12	6407053 / 6407046	16	16	100	25	20	SC.. 12..	93
	SSSCR/L 2020K12	6407055 / 6407048	20	20	125	25	25		
	SSSCR/L 2525M12	6407056 / 6407049	25	25	150	25	32		
	SSSCR/L 3225P12	6407057 / 6407050	32	25	170	25	32		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
 Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altlık Shim	 Altlık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key		
09	1212	—	—	A02-35082	V02-T1500		
09	1616–2020	B09-S0923	E09-F5035	A02-35096	V05-T1534		
12	1616–3225	B09-S1231	E09-F6045	A02-45102	V05-T1534		

Sipariş örneği: 1 Adet SSSCR 1212F09
 Order example: 1 piece SSSCR 1212F09

	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
STACR/L 	STACR/L 1212K11	6407061 / 6407058	12	12	125	15	12	TC.. 11..	95
	STACR/L 1414K11	6407062 / 6407059	14	14	125	15	14		
	STACR/L 1616K11	6407063 / 6407060	16	16	125	15	16		
STCCN 	STCCN 1010K11	6407074	10	10	125	15	–	TC.. 11..	95
	STCCN 1212K11	6407075	12	12	125	15	–		
	STCCN 1414K11	6407076	14	14	125	21	–		
	STCCN 1616K11	6407077	16	16	125	24	–		
STFCR/L 	STFCR/L 1212F11	6407104 / 6407100	12	12	80	15	16	TC.. 11..	95
	STFCR/L 1616H16	6407105 / 6407101	16	16	100	20	20	TC.. 16..	95
	STFCR/L 2020K16	6407106 / 6407102	20	20	125	20	25		
	STFCR/L 2525M16	6407107 / 6407103	25	25	150	20	32		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code				
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size	 Altılık Shim	 Altılık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key	
11	1010–1616	–	–	A02-25059	V02-T0800	
16	1616–2525	B09-T1631	E09-F5035	A02-35096	V05-T1534	

S-Sıkma sistemli, dış çap işleme takımları

Tool holders type D, external machining

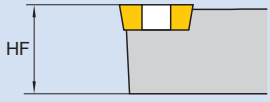
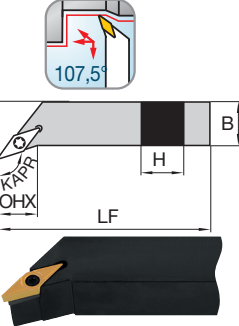
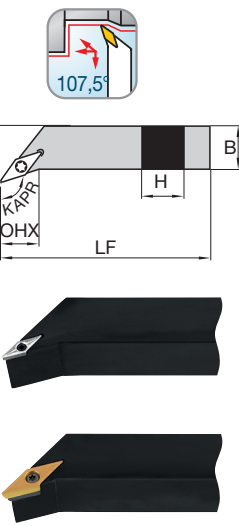
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Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code						
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Shank size							
		Altılık Shim	Altılık vidası Shim screw	Sıkıştırma vidası Fixation screw	Anahtar Key			
		11	1212	–	–	A02-25059	V02-T0800	
		16	1616 – 2525	B09-T1631	E09-F5035	A02-35096	V05-T1534	

Sipariş örneği: 1 Adet STGCR 1212F11
Order example: 1 piece STGCR 1212 F11

	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
SVHB-R/L 	SVHBR/L 2020K16	6407118 / 6407116	20	20	125	17	25	VB.. 16..	97
	SVHBR/L 2525M16	6407119 / 6407117	25	25	150	26	32		
SVHC-R/L 	SVHCR/L 1212F11	6407130 / 6407120	12	12	80	11,4	16	VC.. 11..	96
	SVHCR/L 1616H11	6407131 / 6407121	16	16	100	11,4	20		
	SVHCR/L 2020K11	6407132 / 6407122	20	20	125	14,6	25		
	SVHCR/L 2525M11	6407135 / 6407125	25	25	150	20,9	32	VC.. 16..	96
	SVHCR/L 2020K16	6407133 / 6407123	20	20	125	13,2	25		
	SVHCR/L 2525M16	6407136 / 6407126	25	25	150	19,6	32		
	SVHCR/L 3225P16	6407138 / 6407128	32	25	170	19,6	32	VC.. 22..	96
	SVHCR/L 2020K22	6407134 / 6407124	20	20	125	13,2	25		
	SVHCR/L 2525M22	6407137 / 6407127	25	25	150	19,6	32		
	SVHCR/L 3225P22	6407139 / 6407129	32	25	170	19,6	32		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts			Sipariş kodu Ordering code				
Kesme kenar uzunluğu Cutting edge length	Kullanılan uç Indexable insert	Şaft ölçüleri Shank size	Altık Shim	Altık vidası Shim screw	Sıkıştırma vidası Fixation screw	Anahtar Key	
11	VC...	1212-2525	-	-	A02-25059	V02-T0800	
16	VC...	2020-3225	B09-V1602	E09-F5035	A02-35096	V05-T1534	
r = 0,4-0,8	VB...	2020-2525	B02-V1431	E02-F5035	A02-35096	V05-T1534	
16	VC...	2020-3225	B09-V1606	E09-F5035	A02-35096	V05-T1534	
r = 1,2	VB...	2020-2525	B02-V1431	E02-F5035	A02-35096	V05-T1534	
22	VC...	2020-3225	B09-V2222	E09-F6045	A02-45102	V05-T1534	

S-Sıkma sistemli, dış çap işleme takımları
Tool holders type D, external machining

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HF	HF	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
				HF H	B	LF	OHX	WF		
SVJBR-R/L		SVJBR/L 2020K16	6407143 / 6407140	20	20	125	34	25	VB.. 16..	97
		SVJBR/L 2525M16	6407144 / 6407141	25	25	150	34	32		
		SVJBR/L 3225P16	6407145 / 6407142	32	25	170	34	32		
SVJCR-R/L		SVJCR/L 1010X11-D	6424969 / 6424966	10	10	115	21,5	10	VC.. 11..	96
		SVJCR/L 1212F11	6407153 / 6407146	12	12	80	21,5	16		
		SVJCR/L 1212X11-D	6424970 / 6424967	12	12	130	21,5	12		
		SVJCR/L 1616H11	6407154 / 6407147	16	16	100	21,5	20	VC.. 11..	96
		SVJCR/L 1616X11-D	6424971 / 6424968	16	16	130	21,5	16		
		SVJCR/L 2020K11	6407155 / 6407148	20	20	125	23	25		
		SVJCR/L 2525M11	6407157 / 6407150	25	25	150	25,5	32	VC.. 16..	97
		SVJCR/L 2020K16	6407156 / 6407149	20	20	125	29,5	25		
		SVJCR/L 2525M16	6407158 / 6407151	25	25	150	32,5	32		
		SVJCR/L 3225P16	6407159 / 6407152	32	25	170	32,5	32		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
 Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts			Sipariş kodu Ordering code			
Kesme kenar uzunluğu Cutting edge length	Kullanılan uç Indexable insert	Şaft ölçüleri Shank size	Altık Shim	Altık vidası Shim screw	Sıkıştırma vidası Fixation screw	Anahtar Key
11	VC...	1212-2525	-	-	A02-25059	V02-T0800
16	VC...	2020-3225	B09-V1602	E09-F5035	A02-35096	V05-T1534
r = 0,4-0,8	VB...	2020-3225	B02-V1431	E02-F5035	A02-35096	V05-T1534
16	VC...	2020-3225	B09-V1606	E09-F5035	A02-35096	V05-T1534
r = 1,2	VB...	2020-3225	B02-V1431	E02-F5035	A02-35096	V05-T1534

Sipariş örneği: 1 Adet SVJBR 2020K16
 Order example: 1 piece SVJBR 2020K16

HF	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
SVVB-N	SVVBN 2020K16	6407166	20	20	125	32	10	VB.. 16..	97
	SVVBN 2525M16	6407167	25	25	150	40	12,5		
	SVVBN 3225P16	6407168	32	25	170	40	12,5		
SVVC-N SVVO-N	SVVCN 1212F11	6407169	12	12	80	19	6	VC.. 11..	96
	SVVCN 1616H11	6407170	16	16	100	25	8		
	SVVCN 2020K11	6407171	20	20	125	32	10		
	SVVCN 2525M11	6407173	25	25	150	40	12,5		
	SVVCN 2020K16	6407172	20	20	125	32	10	VC.. 16..04	97
	SVVCN 2525M16	6407174	25	25	150	40	12,5	VC.. 16..08	
	SVVCN 3225P16	6407175	32	25	170	40	12,5	VC.. 16..12	
SVZC-R/L	SVZCR/L 2525M16	6407180 / 6407179	25	25	150	28,5	32	VC.. 16..04 VC.. 16..08 VC.. 16..12	97

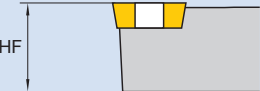
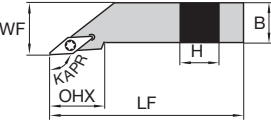
Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts			Sipariş kodu Ordering code				
Kesme kenar uzunluğu Cutting edge length	Kullanılan uç Indexable insert	Şaft ölçüleri Shank size	Altık Shim	Altık vidası Shim screw	Sıkıştırma vidası Fixation screw	Anahtar Key	
11	VC...	1212-2525	-	-	A02-25059	V02-T0800	
16	VC...	2020-3225	B09-V1602	E09-F5035	A02-35096	V05-T1534	
r = 0,4-0,8	VB...	2020-3225	B02-V1431	E02-F5035	A02-35096	V05-T1534	
16	VC...	2020-3225	B09-V1606	E09-F5035	A02-35096	V05-T1534	
r = 1,2	VB...	2020-3225	B02-V1431	E02-F5035	A02-35096	V05-T1534	

C-Sıkma sistemli, dış çap işleme takımları

Tool holders type C, external machining

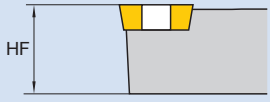
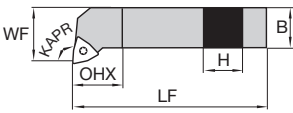
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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)				Kullanılan uçlar Suitable inserts	Sayfa Page
			HF $\bar{H}$	B	LF	WF		
	CKJNR/L 2020 K16		20	20	125	25	KNUX	91
	CKJNR/L 2525 K16		25	25	150	32		
	CKJNR/L 3232 K16		32	32	170	40		
  								

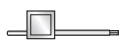
Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code						
								
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter Ø d	Baskı pabucu Wedge clamp	Pabuç vidası Clamp screw	Altlık Shim	Altlık vidası Shim screw	Yay Spring	Pul Stamp	Anahtar Key
CKJNR/L 2020 K16	ACK-01-R ACK-02-L	AKV-06-M6x20	AKS-16-R AKS-16-L	AAV-01-M3x10	AKY-02	ABPL-01	AAL-05-4	
CKJNR/L 2525 K16								
CKJNR/L 3232 K16								

Sipariş örneği: 1 Adet CKJNR 2020 K16
Order example: 1 piece CKJNR 2020 K16

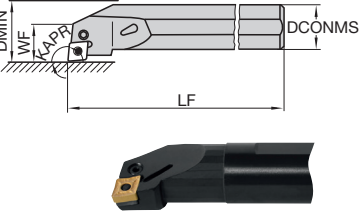
	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)					Kullanılan uçlar Suitable inserts	Sayfa Page
			HF H	B	LF	OHX	WF		
SWLC-R/L   	SWLCR/L 1212F06	6407187 / 6407181	12	12	80	14	16	WC.. 06..	
	SWLCR/L 1616H06	6407188 / 6407182	16	16	100	16	20		
	SWLCR/L 2020K06	6407190 / 6407184	20	20	125	16	25		
	SWLCR/L 1616H08	6407189 / 6407183	16	16	100	17	20	WC.. 08..	
	SWLCR/L 2020K08	6407191 / 6407185	20	20	125	18	25		
	SWLCR/L 2525M08	6407192 / 6407186	25	25	150	21	32		

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code				
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter Ø d	 Altık Shim	 Altık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key	
06	1212	–	–	A02-35082	V02-T1500	
06	1616–2020	B09-W0623	E09-F5035	A02-35082	V05-T1534	
08	1616–2525	B09-W0831	E09-F6045	A02-45102	V05-T1534	

P-Sıkma sistemli, iç çap işleme takımları
Tool holders type P, internal machining

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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)						Kullanılan uçlar Suitable inserts	Sayfa Page
			DCONMS	H	LF	OHX	WF	DMIN		
PCLN-R/L  	A25R-PCLNR/L 12	6401488 / 6401487	25	24	200	–	17	31,5	CN.. 12..	89
	S25T-PCLNR/L 12	6407249 / 6407248	25	23	300	–	17	32		
	A32S-PCLNR/L 12	6401557 / 6401556	32	31	250	–	22	40		
	S32U-PCLNR/L 12	6407282 / 6407281	32	30	350	–	22	40		
	A40T-PCLNR/L 12	6401598 / 6401597	40	39	300	–	27	49		
	S40V-PCLNR/L 12	6407308 / 6407307	40	37	400	–	27	49		
	S50W-PCLNR/L 16	6407329 / 6407328	50	47	450	–	35	62	CN.. 16..	
29629 / 29529  	S40S-29629 12	6407298	40	–	250	80	40	45	CN.. 12..	89
	S50S-29529 12	6407325	50	–	250	100	50	55		

A = Soğutma kanallı çelik gövde Steel shank with coolant hole
S = Çelik gövde Steel shank

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter Ø d	 Altlık Shim	 Levye Lever	 Sıkıştırma vidası Fixation screw	 Altlık yayı Shim pin	 Montaj pimi Assembly punch	 Anahtar Key
12	25–32	B01-C1231	D02-12130	A03-08170	E01-07205	V10-20000	V01-A0030
12	40–50	B01-C1231	D02-12130	A03-08210	E01-07205	V10-20000	V01-A0030
16	50	B01-C1547	D02-15173	A03-08235	E01-09008	V10-40000	V01-A0030

Sipariş örneği: 1 Adet A25R-PCLNR 12
Order example: 1 piece A25R-PCLNR 12

	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)						Kullanılan uçlar Suitable inserts	Sayfa Page
			DCONMS	H	LF	OHX	WF	DMIN		
PDUN-R/L  	A20Q-PDUNR/L 11	6401452 / 6401451	20	19	180	–	16	27	DN.. 11..	90-91
	A25R-PDUNR/L 11	6401490 / 6401489	25	24	200	–	18,5	32		
	A32S-PDUNR/L 11	6401560 / 6401558	32	31	250	–	22	40		
	A32S-PDUNR/L 15	6401561 / 6401559	32	31	250	–	22	40	DN.. 15..	
	A40T-PDUNR/L 15	6401600 / 6401599	40	39	300	–	27	49		
	S40V-PDUNR/L 15	6407310 / 6407309	40	37	400	–	27	49		
	S50W-PDUNR/L 15	6407331 / 6407330	50	47	450	–	35	62		
PDUN-R/L 14  	S32T-PDUNR/L 14	6407270 / 6407269	32	30	300	–	22	40	DNMG 14..	
	S40U-PDUNR/L 14	6407304 / 6407303	40	38	350	–	27	50		

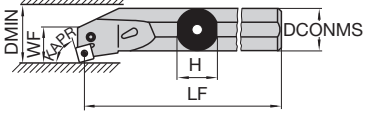
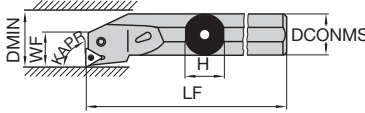
A = Soğutma kanallı çelik gövde Steel shank with coolant hole
S = Çelik gövde Steel shank

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter Ø d	 Altlık Shim	 Levye Lever	 Sıkıştırma vidası Fixation screw	 Altlık yayı Shim pin	 Montaj pimi Assembly punch	 Anahtar Key
11	20	–	D02-11105	A03-06135	–	V10-10000	V01-A0025
11	25–32	B01-D1131	D02-10120	A03-06170	E01-05405	V10-10000	V01-A0025
14	32–40	B01-D1331	D02-15145	A03-08210	E01-07205	V10-20000	V01-A0030
15 ¹⁾	32–50	B01-D1448	D02-15145	A03-08210	E01-07205	V10-20000	V01-A0030
15 ²⁾	32–50	B01-D1447	D02-15145	A03-08210	E01-07205	V10-20000	V01-A0030
15 ³⁾	32–50	B01-D1432	D02-15145	A03-08210	E01-07205	V10-20000	V01-A0030
15 ³⁾	32–50	B01-D1431	D02-15145	A03-08210	E01-07205	V10-20000	V01-A0030

P-Sıkma sistemli, iç çap işleme takımları
Tool holders type P, internal machining

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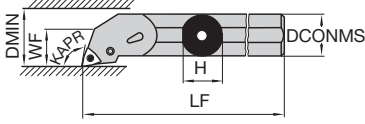
	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)						Kullanılan uçlar Suitable inserts	Sayfa Page
			DCONMS	H	LF	OHX	WF	DMIN		
PSKN-R/L   	A25R-PSKNR/L 12	6401492 / 6401491	25	24	200	–	17	31,5	SN.. 12..	94
	A32S-PSKNR/L 12	6401563 / 6401562	32	31	250	–	22	40		
	A40T-PSKNR/L 12	6401602 / 6401601	40	39	300	–	27	49		
	S50W-PSKNR/L 15	6407333 / 6407332	50	47	450	–	35	62	SN.. 15..	94
PTFN-R/L   	A25R-PTFNR/L 16	6401494 / 6401493	25	24	200	–	17	31,5	TN.. 16..	95-96
	S25T-PTFNR/L 16	6407251 / 6407250	25	23	300	–	17	32		
	A32S-PTFNR/L 16	6401565 / 6401564	32	31	250	–	22	40		
	A40T-PTFNR/L 22	6401604 / 6401603	40	39	300	–	27	49	TN.. 22..	
	S50W-PTFNR/L 22	6407335 / 6407334	50	47	450	–	35	62		

A = Soğutma kanallı çelik gövde Steel shank with coolant hole
S = Çelik gövde Steel shank

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter Ø d	 Altık Shim	 Levye Lever	 Sıkıştırma vidası Fixation screw	 Altık yayı Shim pin	 Montaj pimi Assembly punch	 Anahtar Key
12	25–32	B01-S1231	D02-12130	A03-08170	E01-07205	V10-20000	V01-A0030
12	40	B01-S1231	D02-12130	A03-08210	E01-07210	V10-20000	V01-A0030
15	50	B01-S1547	D02-15173	A03-08235	E01-09008	V10-40000	V01-A0030
							
16	25–32	B01-T1527	D02-09120	A03-06170	E01-05405	V10-10000	V01-A0025
22	40–50	B01-T2031	D02-12130	A03-08210	E01-07205	V10-20000	V01-A0030

Sipariş örneği: 1 Adet A25R-PSKNR 12
Order example: 1 piece A25R-PSKNR 12

	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)						Kullanılan uçlar Suitable inserts	Sayfa Page
			DCONMS	H	LF	OHX	WF	DMIN		
PWLN-R/L   	A16M-PWLN/R/L 06	6401408 / 6401407	16	15,25	150	–	11	21	WN.. 06..	98
	A20Q-PWLN/R/L 06	6401454 / 6401453	20	19	180	–	13	25		
	A25R-PWLN/R/L 06	6401496 / 6401495	25	24	200	–	17	32		
	A32S-PWLN/R/L 08	6401567 / 6401566	32	31	250	–	22	40	WN.. 08..	
	A40T-PWLN/R/L 08	6401606 / 6401605	40	38,5	300	–	27	49		

A = Soğutma kanallı çelik gövde Steel shank with coolant hole

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetridir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter Ø d	 Altlık Shim	 Levye Lever	 Sıkıştırma vidası Fixation screw	 Altlık yayı Shim pin	 Montaj pimi Assembly punch	 Anahtar Key
06	16–20	–	D02-09093	A03-05120	–	–	V01-A0020
06	25	B01-W0627	D02-09120	A03-06170	E01-05405	V10-10000	V01-A0025
08	32–40	B01-W0831	D02-12130	A03-08210	E01-07205	V10-20000	V01-A0030

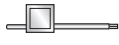
S-Sıkma sistemli, iç çap işleme takımları
Tool holders type S, internal machining

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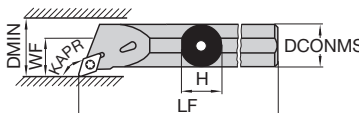
	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)						Kullanılan uçlar Suitable inserts	Sayfa Page
			DCONMS	H	LF	OHX	WF	DMIN		
SCFC-R/L  	A08F-SCFCR/L 06	6401298 / 6401297	8	7,5	80	–	5	11	CC.. 06..	88
	A10H-SCFCR/L 06	6401333 / 6401332	10	9,5	100	–	7	14		
	A12K-SCFCR/L 06	6401358 / 6401357	12	11,5	125	–	9	17		
SCLC-R/L  	A08F-SCLCR/L 06	6401300 / 6401299	8	7,5	80	–	5	11	CC.. 06..	88
	E08H-SCLCR/L 06	6404753 / 6404752	8	7,5	100	–	5	11		
	S08H-SCLCR/L 06	6407199 / 6407198	8	7	100	–	5	11		
	A10H-SCLCR/L 06	6401335 / 6401334	10	9,5	100	–	7	13		
	E10K-SCLCR/L 06	6404765 / 6404764	10	9,5	125	–	7	14		
	S10K-SCLCR/L 06	6407203 / 6407202	10	9	125	–	7	13		
	A12K-SCLCR/L 06	6401360 / 6401359	12	11,5	125	–	9	16		
	E12Q-SCLCR/L 06	6404774 / 6404773	12	11,5	180	–	9	17		
	S12Q-SCLCR/L 06	6407207 / 6407206	12	11	180	–	9	16		
	A16M-SCLCR/L 09	6401410 / 6401409	16	15,5	150	–	11	20	CC.. 09..	88
	E16R-SCLCR/L 09	6404802 / 6404801	16	15,5	200	–	11	21		
	S16R-SCLCR/L 09	6407213 / 6407212	16	15	200	–	11	20		
	A20Q-SCLCR/L 09	6401456 / 6401455	20	19	180	–	13	25		
	E20S-SCLCR/L 09	6404854 / 6404853	20	19	250	–	13	25		
	S20S-SCLCR/L 09	6407229 / 6407228	20	18	250	–	13	25		
	A25R-SCLCR/L 09	6401498 / 6401497	25	24	200	–	17	31,5		
	E25T-SCLCR/L 09	6404886 / 6404885	25	24	300	–	17	31,5		
	S25T-SCLCR/L 09	6407255 / 6407253	25	23	300	–	17	31,5		
	A32S-SCLCR/L 12	6401569 / 6401568	32	31	250	–	22	40	CC.. 12..	88
	A40T-SCLCR/L 12	6401608 / 6401607	40	38,5	300	–	27	49		
	S25T-SCLCR/L 12	6407256 / 6407254	25	23	300	–	17	31,5		

A = Soğutma kanallı çelik gövde Steel shank with coolant hole
S = Çelik gövde Steel shank
E = İçten soğutmalı çelik başlı karbür gövde
Carbide shank with steel head and coolant hole

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

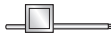
Yedek parçalar Spare parts		Sipariş kodu Ordering code			
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter Ø d	 Altılık Shim	 Altılık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key
06	08–12	–	–	A02-25059	V02-T0800
09	16–20	–	–	A02-35082	V02-T1500
09	25	–	–	A02-35096	V02-T1500
12	32–40	B09-C1231	E09-F6045	A02-45102	V05-T1534

Sipariş örneği: 1 Adet A08F-SCFCR 06
Order example: 1 piece A08F-SCFCR 06

	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)						Kullanılan uçlar Suitable inserts	Sayfa Page
			DCONMS	H	LF	OHX	WF	DMIN		
SDQC-R/L   	A10H-SDQCR/L 07	6410851 / 6410850	10	9	100	-	7	14	DC.. 07..	90
	A12K-SDQCR/L 07	6401362 / 6401361	12	11,5	125	-	9	17		
	A16M-SDQCR/L 07	6401412 / 6401411	16	15,5	150	-	11	21		
	A20Q-SDQCR/L 07	6401458 / 6401457	20	19	180	-	13	25	DC.. 11..	90
	A25R-SDQCR/L 11	6401500 / 6401499	25	24	200	-	17	31,5		
	A32S-SDQCR/L 11	6401571 / 6401570	32	31	250	-	22	40		
	A40T-SDQCR/L 11	6401610 / 6401609	40	38,5	300	-	27	49		

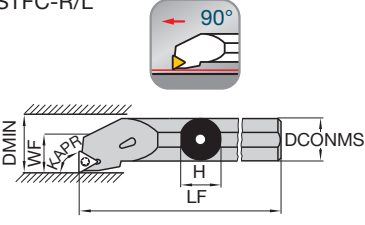
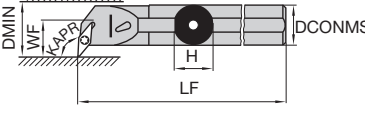
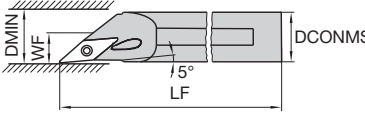
A = Soğutma kanallı çelik gövde Steel shank with coolant hole
S = Çelik gövde Steel shank
E = İçten soğutmalı çelik başlı karbür gövde
Carbide shank with steel head and coolant hole

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

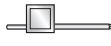
Yedek parçalar Spare parts		Sipariş kodu Ordering code				
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter Ø d	 Altılık Shim	 Altılık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key	
07	12-20	-	-	A02-25059	V02-T0800	
11	20	-	-	A02-35072	V02-T1500	
11	25-40	B09-D1131	E09-F5035	A02-35096	V05-T1534	

S-Sıkma sistemli, iç çap işleme takımları
Tool holders type S, internal machining

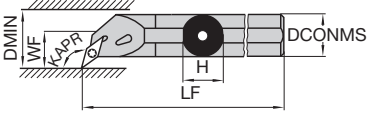
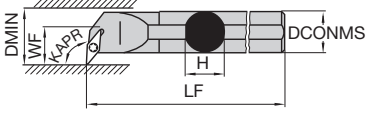
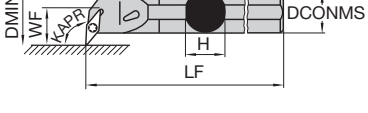
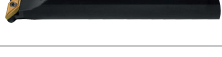
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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)						Kullanılan uçlar Suitable inserts	Sayfa Page
			DCONMS	H	LF	OHX	WF	DMIN		
STFC-R/L  	A12K-STFCR/L 11	6401366 / 6401365	12	11,5	125	–	9	17	TC.. 11..	95
	S12Q-STFCR/L 11	6407211 / 6407210	12	11	180	–	9	17		
	A16M-STFCR/L 11	6401416 / 6401415	16	15,5	150	–	11	21		
	S16R-STFCR/L 11	6407217 / 6407216	16	15	200	–	11	21		
	A20Q-STFCR/L 11	6401464 / 6401463	20	19	180	–	13	25		
	S20S-STFCR/L 11	6407235 / 6407234	20	18	250	–	13	25		
	A25R-STFCR/L 16	6401504 / 6401503	25	24	200	–	17	31,5	TC.. 16..	95
	S25T-STFCR/L 16	6407262 / 6407261	25	23	300	–	17	31,5		
	A32S-STFCR/L 16	6401575 / 6401574	32	31	250	–	22	40		
	S32U-STFCR/L 16	6407291 / 6407290	32	30	350	–	22	40		
SVLC-R/L  	A10H-SVLCR/L 07	6437515 / 6426806	10	–	100	–	7	12,5	VC.. 07..	
	A12K-SVLCR/L 07	6437519 / 6437518	12	–	125	–	9	15,5		
	A16M-SVLCR/L 07	6437523 / 6437522	16	–	150	–	11	19,5		
SVOC-R/L  	A10H-SVOCR/L 07	6437517 / 6437516	10	–	100	–	5,4	11	VC.. 07..	
	A12K-SVOCR/L 07	6437521 / 6437520	12	–	125	–	5,4	11		
	A16M-SVOCR/L 11	6437525 / 6437524	16	–	150	–	11	20	VC.. 11..	96

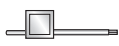
A = Soğutma kanallı çelik gövde Steel shank with coolant hole
S = Çelik gövde Steel shank

Yedek parçalar Spare parts		Sipariş kodu Ordering code				
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter Ø d					
		Altılık Shim	Altılık vidası Shim screw	Sıkıştırma vidası Fixation screw	Anahtar Key	
07	10 -16			A13-20048	V04-T0600	
11	12 -20	–	–	A02-25059	V02-T0800	
16	25 -40	B09-T1631	E09-F5035	A02-35082	V05-T1534	

Sipariş örneği: 1 Adet A12K-STFCR 11
Order example: 1 piece A12K-STFCR 11

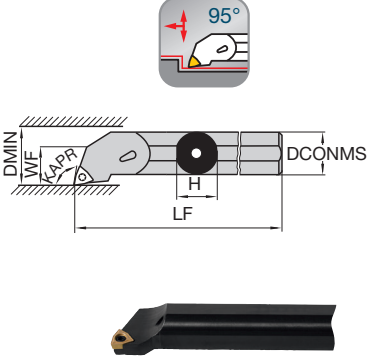
	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)						Kullanılan uçlar Suitable inserts	Sayfa Page
			DCONMS	H	LF	OHX	WF	DMIN		
SVQC-R/L   	A16M-SVQCR/L 11	6401418 / 6401417	16	15,5	150	–	11	21	VC.. 11..	96
	A20Q-SVQCR/L 11	6401466 / 6401465	20	19	180	–	13	25		
	A25R-SVQCR/L 11	6401506 / 6401505	25	24	200	–	17	31,5		
	A32S-SVQCR/L 16	6401577 / 6401576	32	31	250	–	22	40	VC.. 16..	97
	A40T-SVQCR/L 16	6401616 / 6401615	40	38,5	300	–	27	49		
SVUB-R/L   	S32T-SVUBR/L 16	6407276 / 6407275	32	30	300	–	22	40	VB.. 16..	97
SVUC-R/L   	A16M-SVUCR/L 11	6401420 / 6401419	16	15,5	150	–	11	21	VC.. 11..	96
	E16R-SVUCR/L 11	6404806 / 6404805	16	15,5	200	–	11	21		
	A20Q-SVUCR/L 11	6401468 / 6401467	20	19	180	–	13	25		
	E20S-SVUCR/L 11	6404858 / 6404857	20	19	250	–	13	25		
	A25R-SVUCR/L 11	6401508 / 6401507	25	24	200	–	17	31,5		
	E25T-SVUCR/L 11	6404890 / 6404889	25	24	300	–	17	31,5	VC.. 16..	96
	A32S-SVUCR/L 16	6401579 / 6401578	32	31	250	–	22	40		
	A40T-SVUCR/L 16	6401618 / 6401617	40	38,5	300	–	27	49		

A = Soğutma kanallı çelik gövde Steel shank with coolant hole
S = Çelik gövde Steel shank
E = İçten soğutmalı çelik başlı karbür gövde
Carbide shank with steel head and coolant hole

Yedek parçalar Spare parts			Sipariş kodu Ordering code						
Kesme kenar uzunluğu Cutting edge length	Kullanılan uç Indexable insert	Şaft ölçüleri Ø d Shank diameter Ø d	 Altık Shim	 Altık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key			
11	VC...	16–25	–	–	A02-25059	V02-T0800			
16	VC...	32–40	B09-V1602	E09-F5035	A02-35096	V05-T1534			
r = 0,4–0,8	VB...	32	B02-V1431	E02-F5035	A02-35096	V05-T1534			
16	VC...	32–40	B09-V1606	E09-F5035	A02-35096	V05-T1534			
r = 1,2	VB...	32	B02-V1431	E02-F5035	A02-35096	V05-T1534			

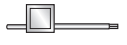
S-Sıkma sistemli, iç çap işleme takımları
Tool holders type S, internal machining

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	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)						Kullanılan uçlar Suitable inserts	Sayfa Page
			DCONMS	H	LF	OHX	WF	DMIN		
SWLC-R/L 	A16M-SWLCR/L 06	6401422 / 6401421	16	15,5	150	–	11	21	WC.. 06T3..	
	E16R-SWLCR/L 06	6404808 / 6404807	16	15	200	–	11	21	WCGT 06T3..	
	S16R-SWLCR/L 06	6407223 / 6407222	16	15	200	–	11	21	WC.. 06T3..	
	A20Q-SWLCR/L 06	6401470 / 6401469	20	19	180	–	13	25		
	E20S-SWLCR/L 06	6404860 / 6404859	20	19	250	–	13	25		
	S20S-SWLCR/L 06	6407241 / 6407240	20	18	250	–	13	25		
	A25R-SWLCR/L 06	6401510 / 6401509	25	24	200	–	17	31,5		
	E25T-SWLCR/L 06	6404892 / 6404891	25	24	300	–	17	31,5		
	S25T-SWLCR/L 06	6407268 / 6407267	25	23	300	–	17	31,5		
	A32S-SWLCR/L 08	6401581 / 6401580	32	31	250	–	22	40	WC.. 08..	
	S32U-SWLCR/L 08	6407297 / 6407296	32	30	350	–	22	40		
	A40T-SWLCR/L 08	6401620 / 6401619	40	38,5	300	–	27	49		
	S40V-SWLCR/L 08	6407324 / 6407323	40	37	400	–	27	49		

A = Soğutma kanallı çelik gövde Steel shank with coolant hole
S = Çelik gövde Steel shank
E = İçten soğutmalı çelik başlı karbür gövde
Carbide shank with steel head and coolant hole

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

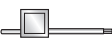
Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter Ø d	 Altlık Shim	 Altlık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key		
06	16–25	–	–	A02-35082	V02-T1500		
08	32–40	B09-W0831	E09-F6045	A02-45102	V05-T1534		

Sipariş örneği: 1 Adet A16M-SWLCR 06
Order example: 1 piece A16M-SWLCR 06

	Sipariş kodu Ordering code	Ürün numarası Ident number	Ölçüler (mm) Dimension (mm)						Kullanılan uçlar Suitable inserts	Sayfa Page
			DCONMS	H	LF	OHX	WF	DMIN		
S74P  	S74P-16R/LTP 11	6407343 / 6407342	16	14	180	-	10,7	20	TPMR 11..	
	S74P-20R/LTP 11	6407345 / 6407344	20	18	250	-	13,8	27		
	S74P-25R/LTP 16	6407347 / 6407346	25	23	300	-	17,7	34	TPMR 16..	
	S74P-32R/LTP 16	6407349 / 6407348	32	30	350	-	22,2	43		
	S74P-40RTP 16	6407350	40	37	350	-	27,7	58		

S = Çelik gövde Steel shank

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code					
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter	 Altlık Shim	 Altlık vidası Shim screw	 Sıkıştırma vidası Fixation screw	 Anahtar Key		
11	16-20	-	-	33.01.05	V02-T1000		
16	25-40	-	-				
		-	-				
		33.03.04	33.04.04	33.01.06	V02-T2000		

Sipariş örneği: 1 Adet S74P-16RTR 11
Order example: 1 piece S74P-16RTP11

C-Sıkma sistemli, iç çap işleme takımları

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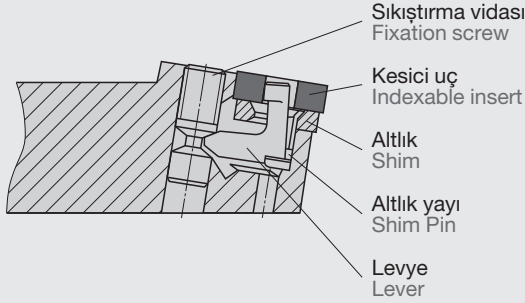
[illegible]

Fotoğrafta sağ kesme yönlü takım gösterilmiştir. Sol kesme yönlü takım simetriğidir.
Righthand version as shown, lefthand version mirrorlike.

Yedek parçalar Spare parts		Sipariş kodu Ordering code						
Kesme kenar uzunluğu Cutting edge length	Şaft ölçüleri Ø d Shank diameter Ø d							
		Baskı pabucu Wedge clamp	Pabuç vidası Clamp screw	Altlık Shim	Altlık vidası Shim screw	Yay Spring	Pul Stamp	Anahtar Key
		S25S CKUNR/L 16	ACK-01-R	AKV-06-M6x20	AKS-16-R	AAV-01-M3x10	AKY-02	ABPL-01
S32T CKUNR/L 16	ACK-02-L	AKS-16-L						

Sipariş örneği: 1 Adet S74P-16RTR 11
Order example: 1 piece S74P-16RTP11

Tornalama takımları için sıkma sistemleri
Tool holder - clamping system



P - Levyeli sıkma sistemi

DIN 4988'e göre imal edilen bütün uçlarla kullanılabilir.

Kullanılan yedek parça sayısı azdır.

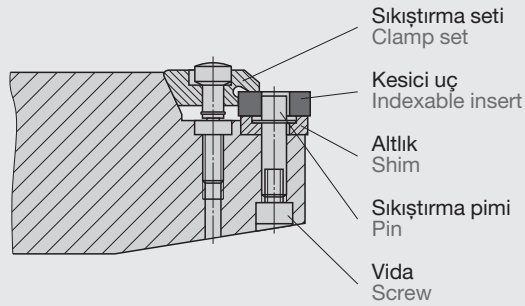
Talaş akışını engellemeyen konstrüksiyon yapısından dolayı, talaş birikmesi problemi yaşanmaz.

Uç değiştirilmesinde mükemmel kolaylık sağlar.

Kesici ucun hızlı ve emniyetli bir şekilde bağlanmasını sağlar.

P - Lever clamping system

- Suitable for all indexable inserts in compliance with DIN 4988
- Few spare parts, no loose parts
- Unimpeded chip removal as there is no troublesome build-up
- Perfect insert removal thanks to forced release mechanism
- Fast and secure clamping of indexable insert

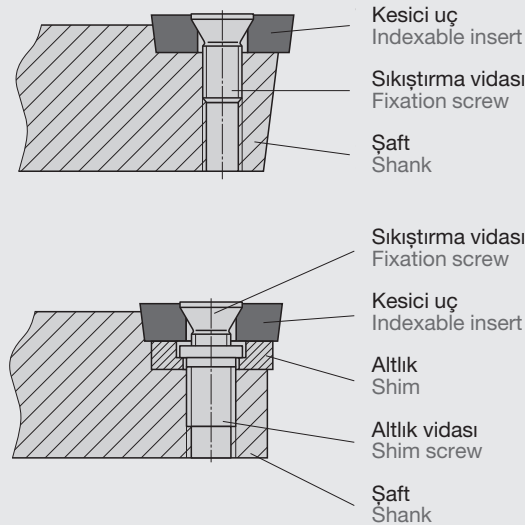


M ya da D - Sıkma sistemi

- Kesici ucun hızlı ve emniyetli bir şekilde bağlanmasını sağlar.
- İyi bir kesici mukavemeti sağlar.
- Özellikle kopya tornalama işlemlerine çok uygundur.
- Özel tasarımı sayesinde optimum bir talaş akışı sağlar.

M or D - Wedge clamp system

- Fast and secure clamping using wedges and clamps
- Insert is free around the primary and secondary cutting edges
- Especially well-suited to copy machining
- Specially shaped clamping wedge provides ideal chip flow



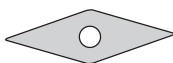
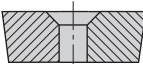
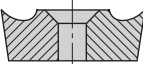
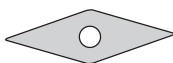
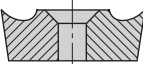
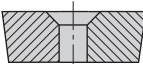
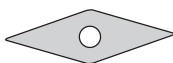
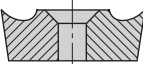
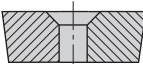
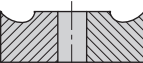
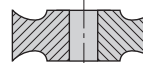
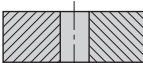
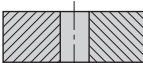
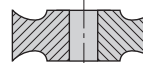
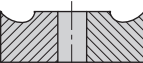
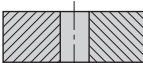
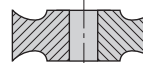
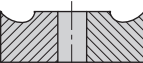
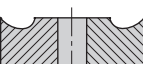
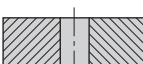
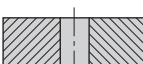
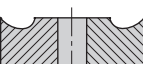
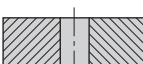
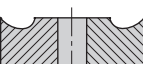
S - Vidalı sıkma sistemi

- Kolay ve emniyetlidir, kesici uç sökme avantajına sahiptir.
- Talaş akışını engellemez.
- Maksimum üç yedek parça mevcuttur.

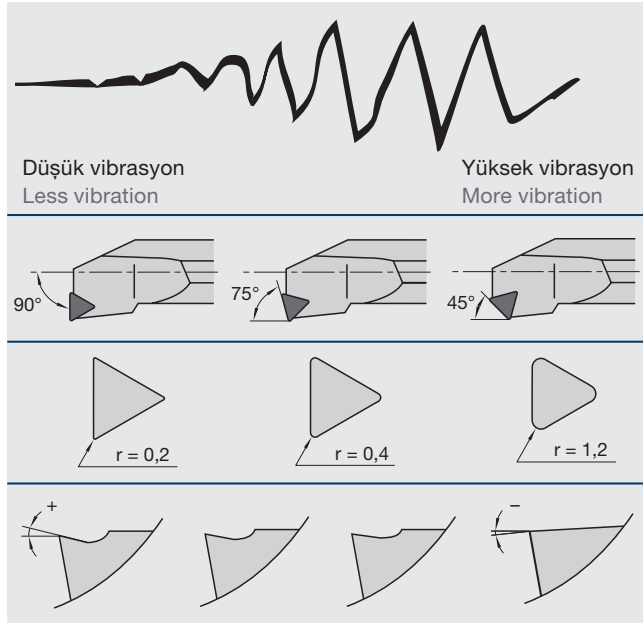
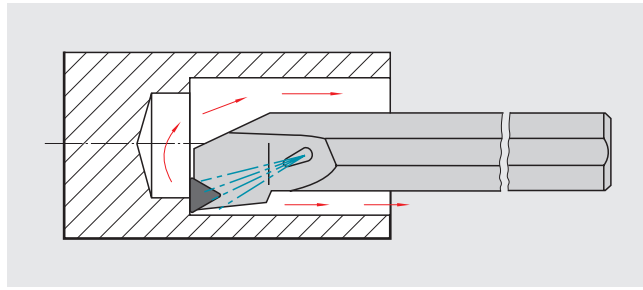
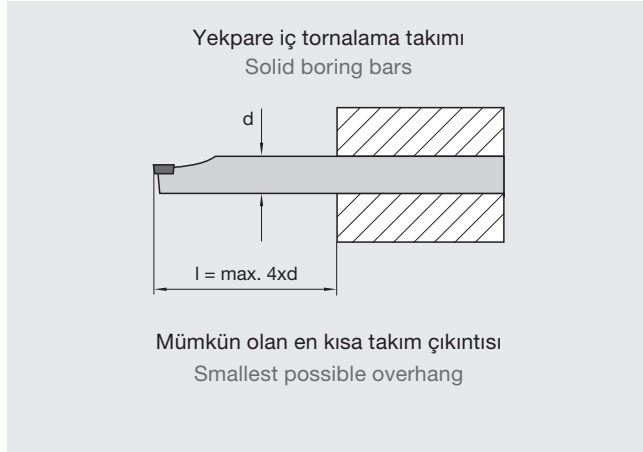
S-screw clamp system

- Simple and secure fixing of the indexable insert using a tapered positioning screw
- Flow of chips is not obstructed
- Maximum of 3 replacement parts

Tornalama takımları için sıkma sisteminin seçilmesi

P-Tipi takımlar P-type tool holders		<table><tr><th>İşlem tipi Process type</th><th>Dış External</th><th>İç Internal</th></tr><tr><td>Kaba Roughing</td><td>Çok iyi Very good</td><td>Çok iyi Very good</td></tr><tr><td>Finiş Finishing</td><td>İyi Good</td><td>İyi Good</td></tr><tr><td>Sert metal uç şekli Shape of the indexable insert</td><td></td><td></td></tr><tr><td>Sert metal uç tipi Type of the indexable insert</td><td></td><td></td></tr></table>	İşlem tipi Process type	Dış External	İç Internal	Kaba Roughing	Çok iyi Very good	Çok iyi Very good	Finiş Finishing	İyi Good	İyi Good	Sert metal uç şekli Shape of the indexable insert	  		Sert metal uç tipi Type of the indexable insert	  	
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İç çap tornalama işlemlerinde takımların seçilmesi
Selection of tools for internal machining



Genel tavsiyeler

- Mümkün olan en büyük şaft seçilmelidir.
- Takımın dışarıya olan çıkıntısı mümkün olduğunca küçük olmalıdır.
- İç tornalama takımlarında doğru ve kuvvetli bağlama sistemi kullanılmalıdır.
- Kesme sıvısının ya da basınçlı havanın kullanılması, özellikle derin delik veya kör deliklerin tornalanmasında, gerek talaşların atılmasında gerekse yüzey kalitesinde olumlu etkiler sağlar.

General recommendations

- Use the largest possible shank diameter.
- Use the smallest possible overhang.
- Use the correct, stable clamping method for the boring bar.
- Cooling lubricant (or compressed air) can improve chip transport and the surface quality, particularly with deep bores.

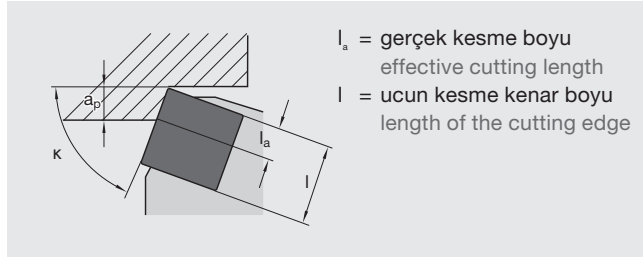
Vibrasyona hassas işler için iç tornalama takımları seçileceği zaman göz önünde bulundurulması gereken faktörler:

- Ayar açısı (ya da giriş açısı) mümkün olduğunca 90°'ye yakın olmalı ve 75°'den aşağıda olmamalıdır.
- Pozitif takımlar (S sıkma sistemi takımlar) ve uçları kullanılmalıdır.
- Küçük köşe yarıçapı seçilmelidir.
- Kaplamasız kaliteler genelde keskin kesme kenarlarına sahiptirler ve bu yüzden düşük kesme kuvvetleri oluşturur.

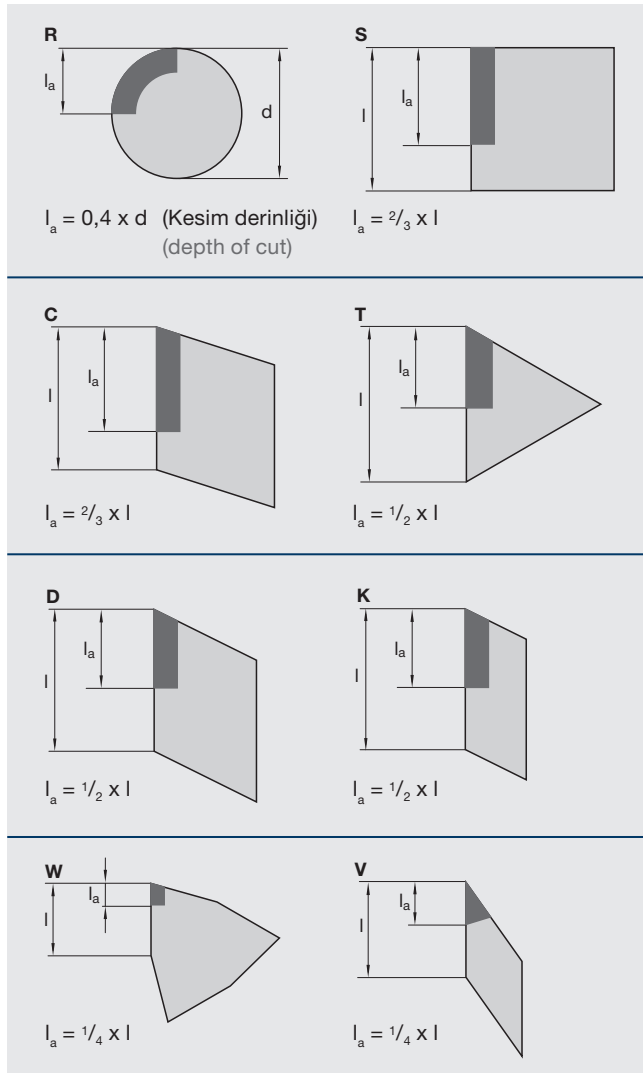
Factors to consider when selecting boring bars for work susceptible to vibration:

- The approach angle should be as close as possible to 90° and not be below 75°.
- Select a small corner radius.
- Use positive holders (S-clamp holder) and indexable inserts.
- Uncoated grades generally have sharper cutting edges and therefore generate less cutting force.

Kesici uç büyüklüğünün seçilmesi
Selection of indexable insert size



Ayar açısı Angle of approach K	Kesme derinliği (a_p) mm Depth of cut (a_p) mm										
	1	2	3	4	5	6	7	8	9	10	15
	Ucun kesici kenarının gireceği gerçek kesme boyu (l_a) mm Required effective length of the cutting edge (l_a) mm										
90	1	2	3	4	5	6	7	8	9	10	15
105 75	1,1	2,1	3,1	4,1	5,2	6,2	7,3	8,3	9,3	11	16
120 60	1,2	2,3	3,5	4,7	5,8	7	8,2	9,3	11	12	18
135 45	1,4	2,9	4,3	5,7	7,1	8,5	10	12	13	15	22
150 30	2	4	6	8	10	12	14	16	18	20	30
165 15	4	8	12	16	20	24	27	31	35	39	58



Kesme derinliği

- En büyük kesme derinliği (a_p) belirlenmeli.
- Kesme derinliği (a_p) ve ayar açısı (K)'na bağlı olarak gerçek kesme boyu (l_a)'na karar verilmelidir.
- Ucun, minimum gerçek kesme boyunu bulmak için soldaki tablodan yararlanabilirsiniz.

Depth of cut

- Determine the largest depth of cut (a_p).
- Determine the effective length of cutting edge (l_a) required.
- The setting angle (K) and the depth of cut (a_p) should be taken into consideration.
- The smallest length of cutting edge (l_a) required can be found in the table to the left.

Gerçek kesme boyu

Uç açısının, kesme kanarına büyük bir etkisi vardır. Mekanik sıkımlı her uç maksimum kesme derinliğinde çalışabilecek maksimum gerçek kesme boyuna sahiptir. Yandaki tabloda, uç tipine bağlı olarak kaba tornalama işlemlerinde güvenle çalışabilecek gerçek kesme boyları (l_a) verilmiştir.

Eğer kesme derinliği, gerçek kesme boyundan büyükse; ya daha büyük bir uç seçmeli ya da kesme derinliği azaltılmalıdır.

Ağır çalışma koşullarında daha güvenli çalışabilmek için ya daha büyük ya da daha kalın uçlar seçilmelidir.

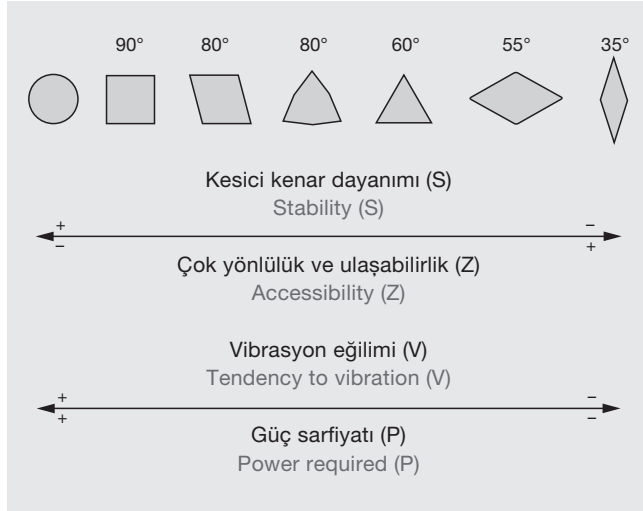
The effective length of the cutting edge

The point angle of an indexable insert has a great influence on the stability of the cutting edges. Every indexable insert has a maximum effective cutting edge length. The maximum values given in the table are designed for working safety when rough cutting with a continuous cut.

If the effective length of the cutting edges is lower than the depth of cut, a larger indexable insert should be used or the depth of cut should be reduced.

For additional safety during difficult cutting jobs, a larger or thicker indexable insert should be used. When turning against a shoulder, the depth of cut can be increased considerably. So that no problems arise here, a larger indexable insert should be used or an additional face turning operation should be performed.

Kesici uç şeklinin seçimi
Selection of indexable insert shape



Mekanik sıkı malı uç şekli

Yandaki şemada yuvarlak şekilden, 35° uç açılına kadar kullanımı en yaygın olan uçlar gösterilmiştir.

Şema üzerindeki okun gösterdiği gibi kesici kenar dayanımı (S) geniş uç açılı uçlara gidildikçe artar, derin noktalara ulaşabilirlik (Z) ise şema üzerinde de görüldüğü gibi sağa gidildikçe artar.

Vibrasyon eğilimi (V), uç açısı büyüdükçe artmaktadır. Ancak uç açısı küçüldükçe güç sarfiyatı azalmaktadır.

Profil veya konik iş parçalarının tornalanmasında. max. kopyalama açısı aşılmamalıdır. Bu tip operasyonlarda iş parçası ile uç kenarı arasında min. 2° lik bir serbest açısı sağlanmalıdır.

Indexable insert shape

The diagram shows the most common indexable insert shapes from round tips right down to 35° indexable inserts.

The arrow on the scale shows that the stability of the cutting edge (S) grows with increasing point angle, Whereas the accessibility (Z) becomes improved by smaller point angles.

Tendency to vibration (V) and power requirement (P) rise with larger point angles.

When turning shapes the maximum copy angle must not be exceeded for inward copying. The angle between the secondary cutting edge and the workpiece shape produced should be at least 2°.

Kesici uç şeklinin seçimi
Selection of indexable insert shape

Köşe radyüsü (r) mm Corner radius (r) mm	0,4	0,8	1,2	1,6	2,4
Tavsiye edilen maks. ilerleme değeri (f _n) mm/U Recommended max. feed rate (f _n) mm/rev	0,25–0,35	0,4–0,7	0,5–1,0	0,7–1,3	1,0–1,8

Köşe radyüsü ve ilerleme

Kesici ucun köşe radyüsü iş üzerinde anahtar rolü oynamaktadır. Özellikle;

- Kaba tornalama sırasında dayanım;
- Finitiş operasyonlarında yüzey kalitesi; üzerinde önemli etkileri vardır.

Kaba tornalama

- Kesme kenarı dayanımı yüksek olmalıdır. Bu yüzden mümkün olan en büyük uç radyüsü seçilmelidir.
- Büyük uç radyüsü, yüksek ilerleme değerlerinde çalışmaya olanak tanır.
- Eğer vibrasyon riski var ise uç radyüsü küçültülmelidir.

$$f_n \text{ Kaba} = 0,5 \times \text{Köşe radyüsü}$$

Uç radyüsüne göre max. ilerleme değerleri

Kaba tornalamada kullanılan uç radyüsleri genellikle 1,2 ve 1,6 mm'dir.

Bu tabloda tavsiye edilen max. ilerleme değerleri, uç radyüsünün 2/3'sine göre hazırlanmıştır.

Daha yüksek ilerleme değerlerinin uygulanabildiği durumlar aşağıdaki gibidir;

- En az 60° uç açısına ve iyi bir kesme kenarı dayanımına sahip uçların kullanılması halinde;
- Tek taraflı talaş kırıcı uçların kullanılması durumunda;
- 90°'den daha küçük ayar açısının kullanıldığı işlemlerde;
- Normal kesme hızlarında rahatça talaş kaldıracan malzemelerin işlenmesinde;

Corner radius and feed

The corner radius of the indexable insert is a key factor with regard to:

- Stability during rough cutting.
- Surface quality during finishing.

Roughing

- Use the largest possible corner radius to ensure the greatest degree of stability for the cutting edge.
- A large corner radius permits a greater feed rate.
- Use a smaller corner radius if there is a risk of vibration.

When selecting the feed rate for rough turning work, the maximum feed rates given above must not be exceeded in any circumstances. The basic rule is:

$$f_n \text{ Roughing} = 0,5 \times \text{Corner radius}$$

Maximum feed rate for various corner radii

The most frequently used radii for rough machining are between 1.2 - 1.6 mm.

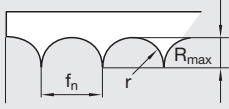
The table is based on the max. recommended feed rate of 2/3 of the corner radius.

Greater feed rates are possible in the following cases:

- Indexable inserts have a stable cutting edge and a point angle of at least 60°.
- Single-sided indexable inserts.
- Indexable inserts which are used with a setting angle less than 90°.
- Working easily machineable workpiece materials at moderate cutting speeds.

Finif işlemler
Finishing

Maksimum yüzey pürüzlülüğü değerin teorik hesabı (R_{max})
Theoretical maximum roughness height (R_{max})



$$R_{max} = \frac{f_n^2}{8r} \cdot 1000 \text{ (}\mu\text{m)}$$

R_{max} = Yüzey pürüzlülüğü
Roughness height
 r = Köşe radyüsü (mm)
Corner radius (mm)
 f_n = İlerleme (mm/U)
Feed (mm/revolution)

İlerleme Feed:

$$f_n = \sqrt{\frac{R_{max} \times 8r}{1000}}$$

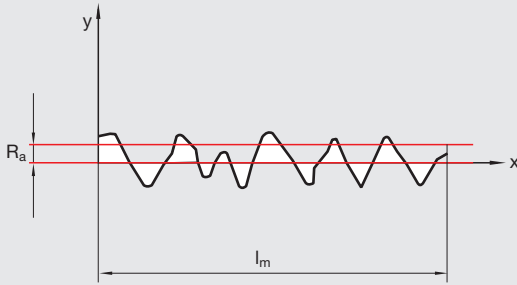
Bir iş parçasının istenen yüzey kalitesi ve toleranslarda üretilmesi büyük ölçüde uç radyusu ve ilerleme değerine bağlıdır.

Genel tavsiyeler:

- Yüzey kalitesi yüksek kesme hızı ve pozitif talaş açılı uçlar ile artırılabilir.
- Vibrasyon riski var ise daha küçük radyüslü uçlar seçilmelidir.
- Kaplamasız uçlar kullanıldığında ki kesme kenarları, kaplamalı uçlara göre daha keskindir yüzey kalitesi artacaktır.

The surface quality and accuracy of the tolerance is greatly influenced by the interaction of the feed rate and corner radius. The stability of the clamping system and the machine are other decisive factors.

Ortalama yüzey pürüzlülüğü (R_a)
Mean roughness figure (R_a)



General recommendation

- The surface quality can be improved by using higher cutting speeds and positive rake angles.
- Use a smaller corner radius if there is a risk of vibration.
- Especially high quality surfaces can be achieved using uncoated hard metals (sharper cutting edges than coated grades).

Finiş işlemler
Finishing

R_{max}	$R_a = CLA = AA$		RMS		Yüzey pürüzlülüğü değeri Value for roughness
μm	μm	$\mu inch$	μm	$\mu inch$	
1,6	0,30	11,8	0,33	13,1	
1,8	0,35	13,8	0,39	15,3	
2,0	0,40	15,7	0,44	17,4	N5
2,2	0,44	17,5	0,49	19,4	
2,4	0,49	19,2	0,54	21,3	
2,6	0,53	20,8	0,59	23,1	
2,8	0,58	22,7	0,64	25,2	
3,0	0,63	24,6	0,70	27,3	
3,5	0,71	27,8	0,79	30,9	
4,0	0,80	31,4	0,89	34,8	N6
4,5	0,90	35,2	1,00	39,1	
5,0	0,99	38,8	1,10	43,1	
6,0	1,20	47,2	1,30	52,4	
7,0	1,40	55,1	1,50	61,2	
8,0	1,60	63,0	1,80	70,0	N7
9,0	1,80	71,0	2,00	78,8	
10,0	2,00	97,0	2,20	87,7	
15,0	3,20	126,0	3,10	140,0	N8
20,0	4,40	173,0	4,90	192,0	
25,0	5,80	238,0	6,40	264,0	
27,0	6,30	247,0	7,00	274,0	N9
30,0	7,40	292,0	8,20	324,0	
35,0	8,80	346,0	9,80	384,0	
40,0	10,70	422,0	11,90	468,0	
45,0	12,50	485,0	13,90	538,0	N10

Prosedür:

Dönüşüm tablosundan uygun R_{max} değerine ait ilerleme ve uç radyüsü değeri bulunur.

Bu tablo farklı ölçüm sistemlerine göre hazırlanmıştır.

R_{max} ve R_a arasındaki bağlantının matematiksel hesabı için kullanılamaz.

Procedure:

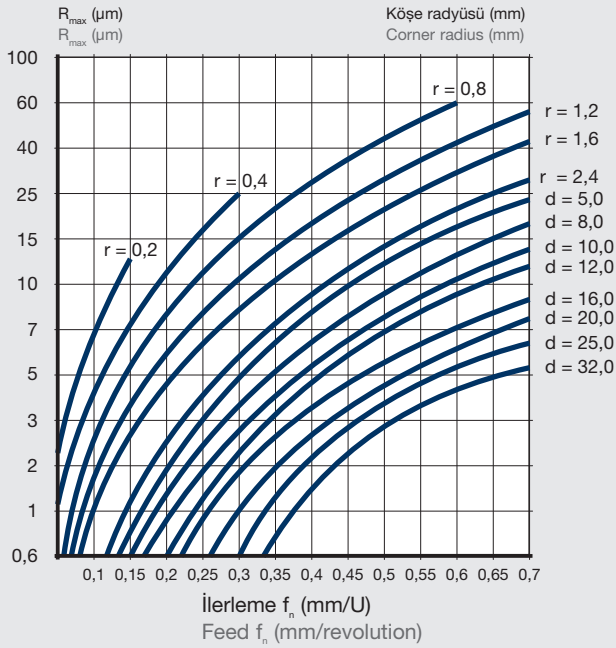
Conversion table for various measurement systems.

This cannot be used to calculate a mathematical relationship between the R_{max} roughness height and the figure for R_a .

Look up the appropriate R_{max} value in the conversion table. Then read off the correct combination of corner radius and feed rate.

Aşağıdaki tablo, ilerleme ve uç radyüslerine bağlı olarak bulunan R_{max} değerlerini göstermektedir.

The diagram shows theoretical R_{max} values for specific feed/corner radius combinations.



Tornalama için formüller
Formulas for turning

Birimler Units		
Gösterim (Kod) Code	Tanımlama Description	Birim Unit
D_m	İşlem çapı Machining diameter	mm
v_c	Kesme hızı Cutting speed	m/min
n	Devir sayısı No. of spindle revolutions	min ⁻¹ r.p.m.
T_c	İşleme zamanı Working time	min
Q	Kaldırılan talaşın hacmi Metal removal volume	cm ³ /min
l_m	İşleme uzunluğu Working length	mm
P_c	Net güç gereksinimi Net power consumption	kW
$k_{c0,4}$	0,4 mm talaş kalınlığındaki spesifik kesme kuvveti Specific cutting force for chip thickness of 0.4 mm	N/mm ²
f_n	İlerleme Feed per revolution	mm/U mm/rev
κ_r	Yanaşma (giriş) açısı Approach angle	Derece degrees
R_{max}	Profil derinliği Profile depth	µm
r_ϵ	Köşe radyüsü Indexable insert corner radius	mm
a_p	Kesme derinliği Cutting depth	mm

Formüller Formulas		
	Kesme hızı (m/dak) Cutting speed (m/min)	$v_c = \frac{D_m \cdot \pi \cdot n}{1000}$
	Devir sayısı (dev/dak) No. of spindle revolutions r.p.m.	$n = \frac{v_c \cdot 1000}{D_m \cdot \pi}$
	Talaş hacmi (cm ³ /dak) Metal removal volume (cm ³ /min)	$Q = v_c \cdot a_p \cdot f_n$
	Güç gereksinimi (kW) Power consumption (kW)	$P_c = \frac{Q \cdot k_{c0,4}}{60 \cdot 1000} \left[\frac{0,4}{f_n \cdot \sin \kappa_r} \right]^{0,29}$
	İşleme zamanı (min) Working time (min)	$T_c = \frac{l_m}{f_n \cdot n}$
	Profil derinliği (µm) Profile depth (µm)	$R_{max} = \frac{f_n^2}{r_\epsilon} \cdot 125$

Tornalama işlemlerinde karşılaşılan problemler ve çözümleri
Options against turning problems

Çözüm Option	Problem Problem											
	Serbest yüzey aşınması Wear of free areas	Krater aşınması Extreme crater wear	Talaş birikmesi Formation of built-up edge	Kesme kenarında talaş birikmesi Chips in cutting edge	Kesme kenarında çentiklenme Notch sensibility	Sert metal uç kırılması Broken indexable insert	Termal çatlaklar Heat cracks	Plastik deformasyon Plastic deformation	Darbeli işlem Interrupted cut	İş parçası yüzey hassasiyetinin bozulması Poor workpiece surface	Uzun ve dolanan talaş Band/snarl chips	Çok dar talaş oluşumu Chip shape too narrow (blueing)
Sert metal aşınma dayanımı T/C wear resistance	↑				↑			↑				
Sert metal sünekliği T/C roughness				↑		↑	↑		↑			
Kesme hızı Cutting speed	↓	↓	↑		↓			↓	↑	↑		
İlerleme Feed	↔	↓	↓					↓	↓	↓	↑	↓
Kesme derinliği Depth of cut					↔				↑		↔	↔
Talaş açısı Chip angle		↑	↑	↓		↓			↔			
Talaş açısı geometrisi Chip breaker geometry				↔		↔					↔	↔
Kesme kenar durumu Condition of cutting edge				↔					↔			
Köşe radyüsü Corner radius						↑			↑	↑		
Yanaşma açısı Approach angle				↓								
Stabilite Stability				↑								
Soğutma Cooling		↑	↑				↑	↑		↑		
↑ Yükseltin increase ↓ Azaltın reduce ↔ Optimize edin optimize												

Takma uęlu matkaplar
Indexable drills

boehlerit

Takma uęlu matkaplar Indexable drills



Kodlama Designation	BT	ID	2	130	20	T2	5
No	1	2	3	4	5	6	7

1

BT : Boehlerit Türkiye
Boehlerit Turkey

2

ID : Takma Uçlu Matkap
Indexable Drill

3

2 : Delme Derinliği
Drilling Depth

4

130 : Matkap Çapı
Tool Diameter

5

20 : Şaft Çapı / Weldon Ölçüsü
Shank Diameter / Weldon Dimension

6

T2 : Ağız Sayısı
Number of Teeth

7

05 : Uç Ölçüsü
Insert Size



Şaft tipi: Weldon
Shank type: Weldon

Flanş
Flange

Matkap Tipi: 2xD - 3xD - 4xD - 5xD
Drill Type: 2xD - 3xD - 4xD - 5xD

Matkap Çapı: ø13 - 40 mm
Drill Diameter: ø13 - 40 mm

Matkap Boyu
Drill Length

Delme Derinliği
Drilling Depth

Uçlar: SPGX 05-06-07-09-11
Inserts: SPGX 05-06-07-09-11

Kalite: BTCK10D - BTCK30D
Grade: BTCK10D - BTCK30D

Teknik Avantajlar:

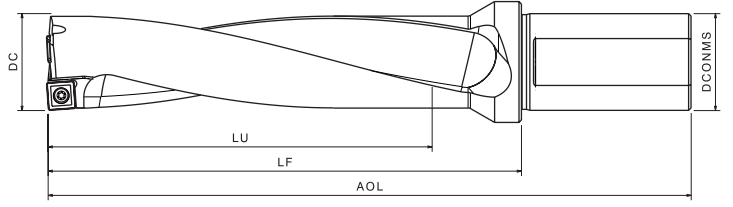
- Yüksek Kesme hızları ve ilerleme değeri
- Yüksek talaş kaldırma oranı ve üretkenlik
- 4 kesme kenarına sahip değiştirilebilir ekonomik uçlar
- Maksimum işlem güvenilirliği
- Tüm malzeme grupları için uygunluk
- İdeal talaş tahliye kanalı ile rahat talaş atımı
- Yüzey kalitesi ve delik çapı hassasiyeti
- Ni kaplama ile uzun takım ömrü
- 2xD-3xD-4xD-5xD delme derinlikleri
- Yumuşak ve sert malzemeler için farklı uç kaliteleri

Technical Advantages:

- High cutting speed and feed rate
- High chip volume and productivity
- Economic indexable inserts with 4 cutting edges
- Maximum safety
- Availability for wide range of material
- Optimum chip removal channel for easy chip transport
- Surface quality and bore precision
- Long tool life with Ni coating
- 2xD-3xD-4xD-5xD depth of drill
- Different grades for soft and hard material

Takma uçlu matkaplar Indexable drills
Delme derinliği 2 x çap Drilling depth 2 x diameter

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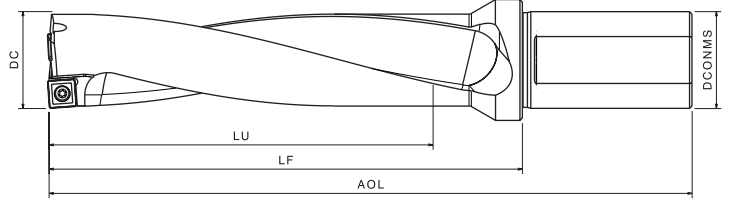
Ø Toleransı +/- 0,2 mm'dir

Ürün kodu Product code		Ölçüler (mm) Dimensions in (mm)					Kullanılan Uç Suitable insert	BTCK10D	BTCK30D	Stok Durumu Availability	Yedek parça Spare parts	
		DC	DCONMS	LU	LF	AOL						
2 X D	BTID 2130-20T2-05	13,0	20	26	48	98	SPGX 050204	●	●	●	 BTAP 25035-3560  T-06	
	BTID 2135-20T2-05	13,5	20	26	48	98		●	●	●		
	BTID 2140-20T2-05	14,0	20	28	50	100		●	●	●		
	BTID 2145-20T2-05	14,5	20	28	50	100		●	●	●		
	BTID 2150-20T2-05	15,0	20	30	52	105		●	●	●		
	BTID 2155-20T2-05	15,5	20	30	52	102		●	●	●		
	BTID 2160-25T2-06	16,0	25	32	54	110	SPGX 060204	●	●	●	 BTAP 2205-3160  T-07	
	BTID 2165-25T2-06	16,5	25	32	54	110		●	●	●		
	BTID 2170-25T2-06	17,0	25	34	56	112		●	●	●		
	BTID 2175-25T2-06	17,5	25	34	56	112		●	●	●		
	BTID 2180-25T2-06	18,0	25	36	58	114		●	●	●		
	BTID 2185-25T2-06	18,5	25	36	58	114		●	●	●		
	BTID 2185-25T2-06	19,0	25	38	60	116		●	●	●		
	BTID 2195-25T2-06	19,5	25	38	60	116		●	●	●		
	BTID 2200-25T2-06	20,0	25	40	62	118		●	●	●		
	BTID 2205-25T2-06	20,5	25	40	62	118		●	●	●		
	BTID 2210-25T2-06	21,0	25	42	64	120		●	●	●		
	BTID 2220-25T2-07	22,0	25	44	66	122	SPGX 07T308	●	●	●	 BTAP 2505-3560  T-08	
	BTID 2230-25T2-07	23,0	25	46	68	124		●	●	●		
	BTID 2235-25T2-07	23,5	25	47	68	124		●	●	●		
	BTID 2240-25T2-07	24,0	25	48	70	126		●	●	●		
	BTID 2245-25T2-07	24,5	25	49	70	126		●	●	●		
	BTID 2250-25T2-07	25,0	25	50	72	128		●	●	●		
	BTID 2260-25T2-07	26,0	25	52	74	130		●	●	●		
	BTID 2265-25T2-07	26,5	25	53	74	130		●	●	●		
	BTID 2270-25T2-07	27,0	25	54	76	132		●	●	●		
	BTID 2280-25T2-09	28,0	25	56	78	134	SPGX 090408	●	●	●	 BTAP 3509-5360  T-15	
	BTID 2285-25T2-09	28,5	25	57	79	135		●	●	●		
	BTID 2290-25T2-09	29,0	25	58	80	136		●	●	●		
	BTID 2300-32T2-09	30,0	32	60	87	147		●	●	●		
	BTID 2310-32T2-09	31,0	32	62	89	149		●	●	●		
	BTID 2320-32T2-09	32,0	32	64	91	151		●	●	●		
	BTID 2330-32T2-09	33,0	32	66	93	153		●	●	●		
	BTID 2340-32T2-11	34,0	32	68	95	155	SPGX 110408	●	●	●	 BTAP 4011-5650  T-15	
	BTID 2350-32T2-11	35,0	32	70	97	157		●	●	●		
	BTID 2360-32T2-11	36,0	32	72	99	159		●	●	●		
	BTID 2370-32T2-11	37,0	32	74	101	161		●	●	●		
BTID 2380-32T2-11	38,0	32	76	103	163	●		●	●			
BTID 2390-32T2-11	39,0	32	78	105	165	●		●	●			
BTID 2395-32T2-11	39,5	32	79	105	165	●		●	●			
BTID 2400-32T2-11	40,0	32	80	107	167	●		●	●			

● Stoktan teslim Available from stock
○ 6-8 hafta 6-8 weeks

Takma uçlu matkaplar Indexable drills
Delme derinliği 3 x çap Drilling depth 3 x diameter

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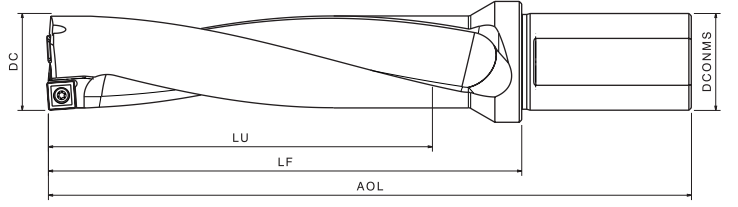


Ø Toleransı +/- 0,2 mm'dir

Ürün kodu Product code		Ölçüler (mm) Dimensions in (mm)					Kullanılan Uç Suitable insert	BTCK10D	BTCK30D	Stok Durumu Availability	Yedek parça Spare parts
		DC	DCONMS	LU	LF	AOL					
3 X D	BTID 3130-20T2-05	13,0	20	39	61	111	SPGX 050204	●	●	●	 BTAP 25035-3560  T-06
	BTID 3135-20T2-05	13,5	20	39	61	111		●	●	●	
	BTID 3140-20T2-05	14,0	20	42	64	114		●	●	●	
	BTID 3145-20T2-05	14,5	20	42	64	114		●	●	●	
	BTID 3150-20T2-05	15,0	20	45	67	117		●	●	●	
	BTID 3155-20T2-05	15,5	20	45	67	117		●	●	●	
	BTID 3160-25T2-06	16,0	25	48	70	126	SPGX 060204	●	●	●	 BTAP 2205-3160  T-07
	BTID 3165-25T2-06	16,5	25	50	70	126		●	●	●	
	BTID 3170-25T2-06	17,0	25	51	73	129		●	●	●	
	BTID 3175-25T2-06	17,5	25	51	73	129		●	●	●	
	BTID 3180-25T2-06	18,0	25	54	76	132		●	●	●	
	BTID 3185-25T2-06	18,5	25	54	76	132		●	●	●	
	BTID 3190-25T2-06	19,0	25	57	79	135		●	●	●	
	BTID 3195-25T2-06	19,5	25	57	79	135		●	●	●	
	BTID 3200-25T2-06	20,0	25	60	82	138		●	●	●	
	BTID 3205-25T2-06	20,5	25	60	82	138		●	●	●	
	BTID 3210-25T2-06	21,0	25	63	85	141		●	●	●	
	BTID 3220-25T2-07	22,0	25	66	88	144	SPGX 07T308	●	●	●	 BTAP 2505-3560  T-08
	BTID 3225-25T2-07	22,5	25	66	88	144		●	●	●	
	BTID 3230-25T2-07	23,0	25	69	91	147		●	●	●	
	BTID 3235-25T2-07	23,5	25	71	91	147		●	●	●	
	BTID 3240-25T2-07	24,0	25	72	94	150		●	●	●	
	BTID 3245-25T2-07	24,5	25	72	94	150		●	●	●	
	BTID 3250-25T2-07	25,0	25	75	97	153		●	●	●	
	BTID 3260-25T2-07	26,0	25	78	100	156		●	●	●	
	BTID 3265-25T2-07	26,5	25	78	100	156		●	●	●	
	BTID 3270-25T2-07	27,0	25	81	103	159					
	BTID 3280-25T2-09	28,0	25	84	106	162	SPGX 090408	●	●	●	 BTAP 3509-5360  T-15
	BTID 3290-25T2-09	29,0	25	87	109	165		●	●	●	
	BTID 3295-25T2-09	29,5	25	87	109	169		●	●	●	
	BTID 3300-32T2-09	30,0	32	90	117	177		●	●	●	
	BTID 3310-32T2-09	31,0	32	93	120	180		●	●	●	
	BTID 3320-32T2-09	32,0	32	96	123	183		●	●	●	
	BTID 3330-32T2-09	33,0	32	99	126	186		●	●	●	
	BTID 3340-32T2-11	34,0	32	102	129	189	SPGX 110408	●	●	●	 BTAP 4011-5650  T-15
	BTID 3350-32T2-11	35,0	32	105	132	192		●	●	●	
	BTID 3360-32T2-11	36,0	32	108	135	195		●	●	●	
	BTID 3370-32T2-11	37,0	32	111	138	198		●	●	●	
BTID 3380-32T2-11	38,0	32	114	141	201	●		●	●		
BTID 3390-32T2-11	39,0	32	117	144	204	●		●	●		
BTID 3395-32T2-11	39,5	32	117	144	204	●		●	●		
BTID 3400-32T2-11	40,0	32	120	147	207	●		●	●		

Takma uçlu matkaplar Indexable drills
Delme derinliği 4 x çap Drilling depth 4 x diameter

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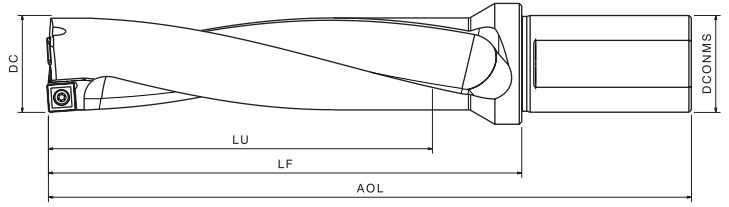
Ø Toleransı +/- 0,2 mm'dir

Ürün kodu Product code		Ölçüler (mm) Dimensions in (mm)					Kullanılan Uç Suitable insert	BTCK10D	BTCK30D	Stok Durumu Availability	Yedek parça Spare parts
		DC	DCONMS	LU	LF	AOL					
4 X D	BTID 4130-20T2-05	13,0	20	52	74	124	SPGX 050204	●	●	●	 BTAP 25035-3560  T-06
	BTID 4135-20T2-05	13,5	20	52	74	124		●	●	●	
	BTID 4140-20T2-05	14,0	20	56	78	128		●	●	●	
	BTID 4145-20T2-05	14,5	20	56	78	128		●	●	●	
	BTID 4150-20T2-05	15,0	20	60	82	132		●	●	●	
	BTID 4155-20T2-05	15,5	20	60	82	132		●	●	●	
	BTID 4160-25T2-06	16,0	25	64	86	142	SPGX 060204	●	●	●	 BTAP 2205-3160  T-07
	BTID 4165-25T2-06	16,5	25	64	86	142		●	●	●	
	BTID 4170-25T2-06	17,0	25	68	89	145		●	●	●	
	BTID 4175-25T2-06	17,5	25	68	89	145		●	●	●	
	BTID 4180-25T2-06	18,0	25	72	94	150		●	●	●	
	BTID 4185-25T2-06	18,5	25	72	94	150		●	●	●	
	BTID 4190-25T2-06	19,0	25	76	98	154		●	●	●	
	BTID 4195-25T2-06	19,5	25	76	98	154		●	●	●	
	BTID 4200-25T2-06	20,0	25	80	102	158		●	●	●	
	BTID 4205-25T2-06	20,5	25	80	102	158		●	●	●	
	BTID 4210-25T2-06	21,0	25	84	106	162		●	●	●	
	BTID 4220-25T2-07	22,0	25	88	110	166	SPGX 07T308	●	●	●	 BTAP 2505-3560  T-08
	BTID 4225-25T2-07	22,5	25	88	110	166		●	●	●	
	BTID 4230-25T2-07	23,0	25	92	114	170		●	●	●	
	BTID 4235-25T2-07	23,5	25	92	114	170		●	●	●	
	BTID 4240-25T2-07	24,0	25	96	118	174		●	●	●	
	BTID 4245-25T2-07	24,5	25	96	118	174		●	●	●	
	BTID 4250-25T2-07	25,0	25	100	122	178		●	●	●	
	BTID 4260-25T2-07	26,0	25	104	126	182		●	●	●	
	BTID 4265-25T2-07	26,5	25	104	126	182		●	●	●	
	BTID 4270-25T2-07	27,0	25	108	130	186		●	●	●	
	BTID 4280-25T2-09	28,0	25	112	134	190	SPGX 090408	●	●	●	 BTAP 3509-5360  T-15
	BTID 4290-25T2-09	29,0	25	116	138	194		●	●	●	
	BTID 4295-25T2-09	29,5	25	116	138	194		●	●	●	
	BTID 4300-32T2-09	30,0	32	120	147	207		●	●	●	
	BTID 4310-32T2-09	31,0	32	124	151	211		●	●	●	
	BTID 4320-32T2-09	32,0	32	128	155	215		●	●	●	
	BTID 4330-32T2-09	33,0	32	132	159	219		●	●	●	
	BTID 4340-32T2-11	34,0	32	136	163	223	SPGX 110408	●	●	●	 BTAP 4011-5650  T-15
	BTID 4350-32T2-11	35,0	32	140	167	227		●	●	●	
	BTID 4360-32T2-11	36,0	32	144	171	231		●	●	●	
	BTID 4370-32T2-11	37,0	32	148	175	235		●	●	●	
BTID 4380-32T2-11	38,0	32	152	179	239	●		●	●		
BTID 4390-32T2-11	39,0	32	156	183	243	●		●	●		
BTID 4395-32T2-11	39,5	32	156	183	243	●		●	●		
BTID 4400-32T2-11	40,0	32	160	187	247	●		●	●		

- Stoktan teslim Available from stock
- 6-8 hafta 6-8 weeks

Takma uçlu matkaplar Indexable drills
Delme derinliği 5 x çap Drilling depth 5 x diameter

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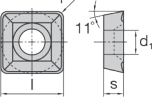
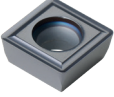


Ø Toleransı +/- 0,2 mm'dir

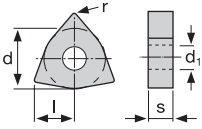
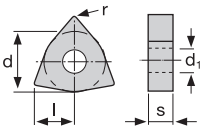
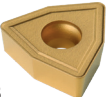
Ürün kodu Product code		Ölçüler (mm) Dimensions in (mm)					Kullanılan Uç Suitable insert	BTCK10D	BTCK30D	Stok Durumu Availability	Yedek parça Spare parts
		DC	DCONMS	LU	LF	AOL					
5 X D	BTID 5140-20T2-05	14,0	20	70	92	142	SPGX 050204	●	●	○	 BTAP 25035-3560  T-06
	BTID 5145-20T2-05	14,5	20	70	92	142		●	●	○	
	BTID 5150-20T2-05	15,0	20	75	97	147		●	●	○	
	BTID 5155-20T2-05	15,5	20	75	97	147		●	●	○	
								●	●	○	
	BTID 5160-25T2-06	16,0	25	80	102	158	SPGX 060204	●	●	○	 BTAP 2205-3160  T-07
	BTID 5165-25T2-06	16,5	25	80	102	158		●	●	○	
	BTID 5170-25T2-06	17,0	25	85	107	163		●	●	○	
	BTID 5175-25T2-06	17,5	25	85	107	163		●	●	○	
	BTID 5180-25T2-06	18,0	25	90	112	168		●	●	○	
	BTID 5185-25T2-06	18,5	25	90	112	168		●	●	○	
	BTID 5190-25T2-06	19,0	25	95	117	173		●	●	○	
	BTID 5195-25T2-06	19,5	25	95	117	173		●	●	○	
	BTID 5200-25T2-06	20,0	25	100	122	178		●	●	○	
	BTID 5205-25T2-06	20,5	25	100	122	178		●	●	○	
	BTID 5210-25T2-06	21,0	25	105	127	183		●	●	○	
	BTID 5220-32T2-07	22,0	32	110	137	197	SPGX 07T308	●	●	○	 BTAP 2505-3560  T-08
	BTID 5225-32T2-07	22,5	32	110	137	197		●	●	○	
	BTID 5230-32T2-07	23,0	32	115	142	202		●	●	○	
	BTID 5235-32T2-07	23,5	32	115	142	202		●	●	○	
	BTID 5240-32T2-07	24,0	32	120	147	207		●	●	○	
	BTID 5245-32T2-07	24,5	32	120	147	207		●	●	○	
	BTID 5250-32T2-07	25,0	32	125	152	212		●	●	○	
	BTID 5260-32T2-07	26,0	32	130	157	217		●	●	○	
	BTID 5265-32T2-07	26,5	32	130	157	217		●	●	○	
	BTID 5270-32T2-07	27,0	32	135	162	222		●	●	○	
	BTID 5280-32T2-09	28,0	32	140	167	227	SPGX 090408	●	●	○	 BTAP 3509-5360  T-15
	BTID 5290-32T2-09	29,0	32	145	172	232		●	●	○	
	BTID 5295-32T2-09	29,5	32	145	172	232		●	●	○	
	BTID 5300-32T2-09	30,0	32	150	177	237		●	●	○	
	BTID 5310-32T2-09	31,0	32	155	182	242		●	●	○	
	BTID 5320-32T2-09	32,0	32	160	187	247		●	●	○	
	BTID 5330-32T2-09	33,0	32	165	192	252		●	●	○	
	BTID 5340-32T2-11	34,0	32	170	197	257	SPGX 110408	●	●	○	 BTAP 4011-5650  T-15
	BTID 5350-32T2-11	35,0	32	175	202	262		●	●	○	
	BTID 5360-32T2-11	36,0	32	180	207	267		●	●	○	
	BTID 5370-32T2-11	37,0	32	185	212	272		●	●	○	
	BTID 5380-32T2-11	38,0	32	190	217	277		●	●	○	
	BTID 5390-32T2-11	39,0	32	195	222	282		●	●	○	
	BTID 5395-32T2-11	39,5	32	195	222	282		●	●	○	
	BTID 5400-32T2-11	40,0	32	200	227	287		●	●	○	

Matkap uçları Drill inserts

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N = Ağız Sayısı N = Number of cutting edges	Ürün Kodu Item code	Kalite Cutting materials	Matkap çap aralığı Drilling diameter	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]			
					l	s	d ₁	r
  N=4	SPGX 050204	BTCK10D	Ø 13 - 15,5	●	5	2,38	3	0,4
	SPGX 050204	BTCK30D		●	5	2,38	3	0,4
	SPGX 060204	BTCK10D	Ø 16 - 21	●	6	2,38	3,60	0,80
	SPGX 060204	BTCK30D		●	6	2,38	3,60	0,80
	SPGX 07T308	BTCK10D	Ø 22 - 27	●	7,94	3,97	4,10	0,80
	SPGX 07T308	BTCK30D		●	7,94	3,97	4,10	0,80
	SPGX 090408	BTCK10D	Ø 28 - 33	●	9,80	4,30	5,85	0,80
	SPGX 090408	BTCK30D		●	9,80	4,30	5,85	0,80
	SPGX 110408	BTCK10D	Ø 34 - 40	●	11,50	4,80	5,85	0,80
	SPGX 110408	BTCK30D		●	11,50	4,80	5,85	0,80

Matkap uçları Drilling inserts

N = Ağız Sayısı N = Number of cutting edges	Ürün Kodu Item code	Kalite Cutting materials	Stok Durumu Availability	Ölçüler [mm] Dimensions [mm]				
				l	s	d	d ₁	r
  N=3	WCMX 050308 R-510	BTCK10D	○	5,07	3,18	7,94	3,2	0,8
	WCMX 050308 R-510	BTCK30D	○	5,07	3,18	7,94	3,2	0,8
	WCMX 05T308 R-510	BTCK10D	○	5,07	3,97	9,52	3,7	0,8
	WCMX 05T308 R-510	BTCK30D	○	5,07	3,97	9,52	3,7	0,8
	WCMX 06T308 R-510	BTCK10D	●	6,14	3,97	9,52	3,7	0,8
	WCMX 06T308 R-510	BTCK30D	●	6,14	3,97	9,52	3,7	0,8
	WCMX 080412 R-510	BTCK10D	○	8,14	4,76	12,7	4,3	1,2
	WCMX 080412 R-510	BTCK30D	●	8,14	4,76	12,7	4,3	1,2
  N=3	WCMX 050308 R-530	BTCK10D	●	5,07	3,18	7,94	3,2	0,8
	WCMX 050308 R-530	BTCK30D	●	5,07	3,18	7,94	3,2	0,8
	WCMX 05T308 R-530	BTCK10D	○	5,07	3,97	9,52	3,7	0,8
	WCMX 05T308 R-530	BTCK30D	○	5,07	3,97	9,52	3,7	0,8
	WCMX 06T308 R-530	BTCK10D	○	6,14	3,97	9,52	3,7	0,8
	WCMX 06T308 R-530	BTCK30D	○	6,14	3,97	9,52	3,7	0,8
	WCMX 080412 R-530	BTCK10D	○	8,14	4,76	12,7	4,3	1,2
	WCMX 080412 R-530	BTCK30D	●	8,14	4,76	12,7	4,3	1,2

BTCK30D

Paslanmaz çelikler, krom nikel kobalt alaşımlı çelikler, asit ve ısıtım işlem çelikleri, titanyum alaşımları ile plastik malzemelerin orta kesme hızlarında, orta / yüksek ilerleme değerlerinde çok yüksek aşınma ve kırılma dayanımına sahip sünek kaplamalı bir kalitedir.

Highly wear-resistant coated grade for machining stainless steel, chrome - nickel - cobalt alloy steel, heat-treatable steel, titanium alloys and plastics at medium cutting speeds

BTCK10D

Alaşımlı alaşımsız takım çeliklerinin, yüksek dayanımlı malzemeleri, demir dışı metallerin ve dökme demirlerin yüksek kesme hızlarında, küçük ve orta ilerleme değerlerinde yüksek bir aşınma dayanımına ve kesme kenarı mukavemetine sahip kaplamalı bir kalitedir.

Highly wear-resistant coated grade with high cutting edge stability for fine machining of alloyed and unalloyed tool steels, high-strength materials, non-ferrous metals and cast iron at high cutting speeds.

Tavsiye edilen kesme deęerleri
Recommended cutting parameters

boehlerit

ISO	Malzeme Material	Vc (m/dak) Vc (m/min)	Diř bařına ilerleme (mm) Feed per tooth in mm				
			Ø 13,0 - Ø 15,0	Ø 15,5 - Ø 21,5	Ø 22,0 - Ø 27,5	Ø 28,0 - Ø 33,0	Ø 34,0 - Ø 41,0
P	Düşük karbonlu çelikler Low carbon steel	180-250	0,05-0,08	0,06-0,10	0,06-0,12	0,07-0,13	0,08-0,15
	İmalat çelikleri Plain carbon steel	160-220	0,06-0,12	0,08-0,15	0,10-0,18	0,12-0,22	0,12-0,24
	Düşük karbonlu çelikler Low carbon steel	150-220	0,06-0,12	0,08-0,14	0,10-0,10	0,12-0,22	0,12-0,23
	Yüksek alařımlı çelikler High alloy steel	130-180	0,06-0,10	0,08-0,15	0,10-0,20	0,12-0,23	0,12-0,24
M	Paslanmaz çelik Stainless stell	170-240	0,05-0,10	0,06-0,12	0,08-0,15	0,09-0,16	0,10-0,17
K	Gri dökme demir Grey cast iron	180-250	0,06-0,12	0,08-0,16	0,12-0,20	0,15-0,25	0,16-0,18
	Sfero dökme demir Nodular cast iron	130-200	0,06-0,10	0,08-0,15	0,10-0,18	0,12-0,20	0,15-0,23
M	Alüminyum malzemeler Aluminium	330-380	0,06-0,14	0,08-0,15	0,10-0,20	0,12-0,22	0,14-0,23

Uygulama Örneęi
Application Example

İř Parçası Work Piece	: Konstrüksiyon Plakası Structural Plate
Malzeme Material	: ST52-3
Çap Diameter	: 22 x 3D
Takım Tool	: BTID 3220-25T2-07
Uç Insert	: SPGX 07T308 BTCK30D
Vc Cutting Speed in m / min	: 150 m/dak m/min
n Speed in min	: 2200 dev/dak rev/min
fz Feed Per Tooth in mm	: 0,05 mm
Müşteri Kazanımı Customer's Benefit	: Toplam 450 adet delik açılmıştır. Total 450 holes were drilled.



Sertlik - mukayese tablosu
Hardness-comparison table

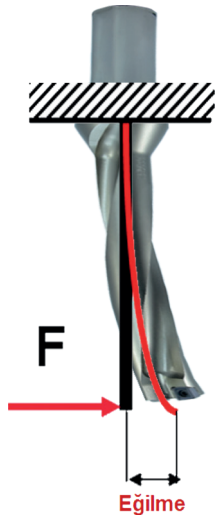
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Gerilme direnci Rm Tensile strength Rm N/mm ²	Vickers sertlik Vickers hardness HV	Brinell sertlik Brinell hardness HB	Rockwell C Sertlik Rockwell hardness HRC
255	80	76	
270	85	80,7	
285	90	85,5	
305	95	90,2	
320	100	95	
335	105	99,8	
350	110	105	
370	115	109	
385	120	114	
400	125	119	
415	130	124	
430	135	128	
450	140	133	
465	145	138	
480	150	143	
495	155	147	
510	160	152	
530	165	156	
545	170	162	
560	175	166	
575	180	171	
595	185	176	
610	190	181	
625	195	185	
640	200	190	
660	205	195	
675	210	199	
690	215	204	
705	220	209	
720	225	214	
740	230	219	
755	235	223	
770	240	228	20,3
785	245	233	21,3
800	250	238	22,2
820	255	242	23,1
835	260	247	24
850	265	252	24,8
865	270	257	25,6
880	275	261	26,4
900	280	266	27,1
915	285	271	27,8
930	290	276	28,5
950	295	280	29,2
965	300	285	29,8
995	310	295	31
1030	320	304	32,2
1060	330	314	33,3
1095	340	323	34,4

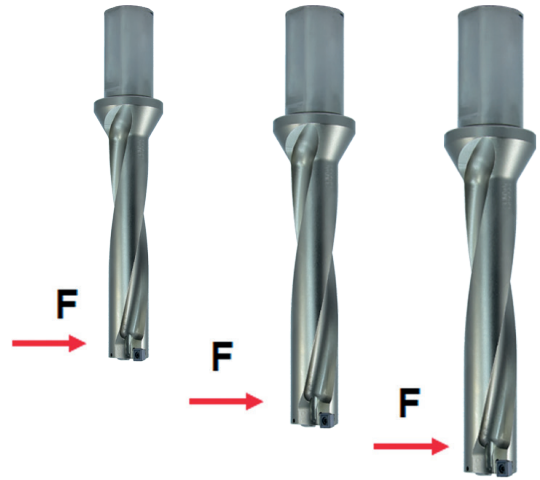
Gerilme direnci Rm Tensile strength Rm N/mm ²	Vickers sertlik Vickers hardness HV	Brinell sertlik Brinell hardness HB	Rockwell C Sertlik Rockwell hardness HRC
1125	350	333	35,5
1155	360	342	36,6
1190	370	352	37,7
1220	380	361	38,8
1155	390	371	39,8
1290	400	380	40,8
1320	410	390	41,8
1350	420	399	42,7
1385	430	409	43,6
1420	440	418	44,5
1455	450	428	45,3
1485	460	437	46,1
1520	470	447	46,9
1555	480	(456)	47,7
1595	490	(466)	48,4
1630	500	(475)	49,1
1665	510	(485)	49,8
1700	520	(494)	50,5
1740	530	(504)	51,1
1775	540	(513)	51,7
1810	550	(523)	52,3
1845	560	(532)	53,0
1880	570	(542)	53,6
1920	580	(551)	54,1
1955	590	(561)	54,7
1995	600	(570)	55,2
2030	610	(580)	55,7
2070	620	(589)	56,3
2105	630	(599)	56,8
2145	640	(608)	57,3
2180	650	(618)	57,8
	660		58,3
	670		58,8
	680		59,2
	690		59,7
	700		60,1
	720		61
	740		61,8
	760		62,5
	780		63,3
	800		64
	820		64,7
	840		65,3
	860		65,9
	880		66,4
	900		67
	920		67,5
	940		68

Gerilme direnci: Tensile strength	N/mm ²	Rm
Vickers sertlik: Vickers hardness	Diamantpiramit 136, Test Kuveti F ≥ 98 N Diamond pyramid 136, Test force F ≥ 98 N	HV
Brinell sertlik: Brinell hardness	0,102 x F/D2 = 30 N/mm ²	HB
Hesaplama: Calculated from: HB = 0,95 x HV	Test kuvveti N, D = konik çapı mm F = Test force in N, D= Cone diameter in mm	
Rockwell C Sertlik: Hardness Rockwell C	Diamantkonik 120°, Toplam test kuvveti 1471 ± 9 N Diamond cone 120°, Total test force 1471 ± 9 N	HRC

Balans Balance



Uzunluk Length	Eğilme Bending
2xD	1a
3xD	4a
4xD	8a
5xD	16a



Daha uzun matkaplar, matkap gövdesi rijitliğin azalması nedeniyle daha büyük delik toleransına sebep olur.

In order of unstable conditions long type of drill causes big hole tolerances.

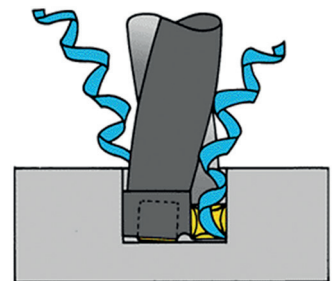
Talaş oluşumu Chip Formation

Talaş oluşumu aşağıdakilere bağlıdır Chip Formation by following conditions

- Kesme hızı Cutting speed
- İlerleme değeri Feed rate
- Malzeme Workpiece
- Soğutma sıvısı iletimi ve basınç Coolant system
- Uç geometrisi Insert geometry
- Matkap geometrisi (talaş boşaltma kanalları) Tool geometry (Chip transport channel)

Talaş akışı aşağıdakilere bağlıdır For stable chip transport

- Talaş akışı kanallarının şekli Chip transport channel shape
- Soğutma Coolant
- Kesme koşulları Cutting parameters



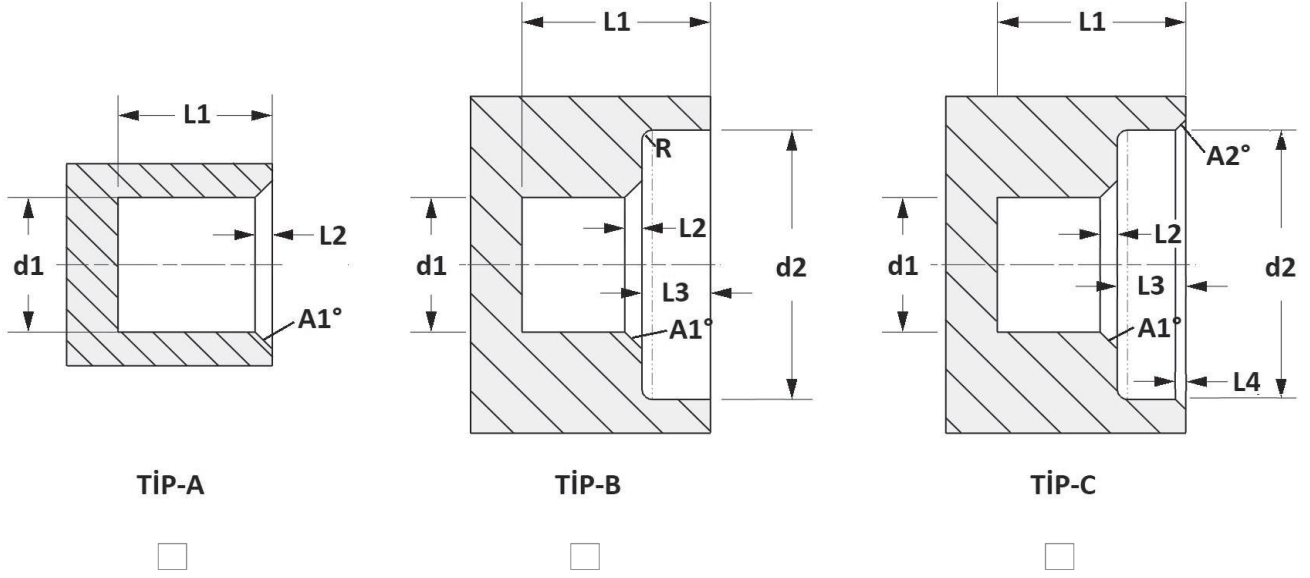
Delme işlemi için yöntemler Methods for drilling

Doğru matkap seçimi için kriterler For right choice drilling

- Çap, delik derinliği Diameter, depth of hole
- Delik kalitesi, tolerans Hole surface, tolerance
- İlerleme oranı, kesme verileri Feed rate, cutting parameter
- Tezgah; devir, stabilite, soğutma, salgı, güç, moment Machine, rpm, stability, coolant, bending, power, moment
- Güvenlik Security
- Tezgah ve takım maliyeti Machine and tool cost
- İş parçası malzemesi Workpiece material
- Delme koşulları (giriş yüzeyi, bağlama vs) Drilling conditions (enter surface, fixing etc.)

Yeni delme işlemi için yöntemler

- Tevsiye edilen minimum ilerleme oranı ile başlayın. bir kaç mm delin, talaş şeklini ve delik çapını değerlendirin.
Please start with recommended minimum feed rate, check the chip shape and hole diameter after several mm drilling.
- Üretkenliği arttırmak için ilerleme oranını gerektiği kadar 0,01 mm aralıklarla arttırın.
Increase feed rate 0,01 mm for more productivity.
- Deliği delin ve güç ile yükü değerlendirin. Ani değişiklikler talaş tıkanıklığını gösterir. Şimdi daha kısa talaşlar oluşturmak için ilerleme oranını arttırın.
Check the machine power during the drilling. Sudden changes indicate chip transport increase feed rate for short chip.
- Eğer matkap veya iş parçasının eğilme riski varsa aşırı yüksek ilerleme oranlarından kaçının. İlerleme kuvvetlerindeki ani değişiklikler uçlara veya gövdelere zarar verebilir..
In case of any bending risk for the tool and workpiece, please avoid high feed rate. Different feed rate might be damaged the tool and insert.



Tezgah adı / modeli Machine name / model :	İçten su verme Internal coolant : ☐ Evet / Yes ☐ Hayır / No
Tutucu tipi Holder type :	Kesme sıvı basıncı Coolant pressure : bar

İşlenecek malzeme Material to be cut :	Takım tam boyu Tool hangout length :
---	---

Gerekli Ölçüler / Necessary Dimensions
--

d1 =
d2 =
L1 =
L2 =
L3 =
L4 =
R =
A1° =
A2° =

Özel İstekler / Special Requests

Lütfen işlenecek bölgeye ait teknik resmi bu dosyaya ekleyiniz.
Please attach the technical drawing of the section that will be machined to this file.

ISO 513	BZG	Almanya Germany	Almanya Germany	Avrupa Europe	Avrupa Europe	İtalya Italy	
		W-Nr. Mat.-No.	DIN	W.-Nr. EN	DIN EN	UNI	
P - Çelik / P - steel	P1	1.0037	St 37-2		S25GT	Fe360B	
		1.0044	St 44-2		S 235 JR	Fe430B	
		1.0050	St 50-2		E 295	Fe490	
		1.0060	St 60-2		E 335	Fe590	
		1.0301	C10		C10	C10	
		1.0401	C 15		C15	C15, C16, 1C15	
		1.0402	C 22		C22	C20, C21	
		1.0406	C25			C25	
		1.0420	GS-38				
		1.0501	C 35		C35	C35, 1C35	
		1.0503	C 45		C45	C45, 1C45	
		1.0511	C40			C40	
		1.0528	C30			C30	
		1.0535	C 55		C55	C55, 1C55	
		1.0540	C50			C50	
		1.0570	St 52-3		S 355 JR G3	Fe510B	
		1.0601	C 60		C60	C60, 1C60	
		1.0711	9S20		10S20	9S20	
		1.0715	9 SMn 28		11SMn30	9SMn28	
		1.0718	9 SMnPb 28		11SMnPb30	CF9SMnPb28	
		1.0722	10 SPb 20		10SPb20	CF10SPb20	
		1.0726	35 S 20		35S20	35S20	
		1.0736	9 SMn 36		11SMn37	9SMn36, CF9SMn36	
		1.0737	9 SMnPb 36		11SMnPb37	9SMnPb36, CF9SMnPb36	
		1.1013	RFe100				
		1.1014	RFe80				
		1.1015	RFe60				
		1.1141	Ck 15		C15E	C16	
		1.1157	40 Mn 4		40Mn4		
		1.1158	Ck 25		C25E		
		1.1167	36 Mn 5		36Mn5		
		1.1170	28 Mn 6		28Mn6	C28Mn	
		1.1183	Cf 35		C35G	C36, C38	
		1.1191	Ck 45		C45E	C45	
		1.1203	Ck 55		C55E	C50	
		1.1213	Cf 53		C53G	C53	
		1.1221	Ck 60		C60E	C60	
		1.1231	Ck67			C67	
		1.1248	Ck75			C75	
		1.1249	Cf70				
		1.1274	Ck 101		C101E, C100S	C100	
		1.1545	C 105 W 1		C105U	C100KU	
		1.1663	C 125 W		C125W, C125U		
		1.2067	100 Cr 6		99Cr6, 102Cr6		
	P2	1.0904	55 Si 7		56Si7		

	İspanya Spain	Fransa France	Amerika U.S.A.	Marka Adı Brand Name
	UNE	AFNOR	AISI/SAE	AISI / SAE
		E 24-2	1013	
		E 28-2	1021	
		A 50-2	A 570 (50)	
		A 60-2	A 572 (65)	
		C10	1010	
	F.111	C18RR, XC18	J 409 Grade 1015	
	1C22, F112	AF42C20, XC25, 1C22	1020	
		AF 50 C 30	1025	
			A 27	
	F.113	C35, 1C35, AF55, C35	1035	
	F.114	1C45, AF 65 C 45	1045	
		AF 60 C 40	1040	
			1030	
	F.115	C54, 1C55, AF 70 C 55	1055	
			1050	
			1024	
	F.115	C60, 1C60, AF70C55	1060	
			1212	
	F.2111 - 11SMn28	S250	1213	
	F.2112 - 11SMnPb28	S250Pb	12L13, 12L14, J 403 Grade 12L14, J 1397 Grade 12L14	
	10SPb20	10PbF2		
	F.210G	35MF6	J 403 Grade 1141	
	F.2113 - 12 SMn 35	S300	J 403 Grade 1213, J 403 Grade 1215, J 1392 Grade 1213	
	F.2114 - 12 SMnPb 35	S300Pb	J 403 Grade 12L14, J 1397 Grade 12L14	
	F.1511 - C 16 k, F.1110 - C 15 k	XC12	1015	
		35M5	1035, 1041	
	F.1120 - C 25 k, C25K (F1120)	2C25	1025	
	F.1203 - 36 Mn5	40M5	1335	
	28Mn6	20M5	1027	
	0	XC38H1TS	1035	
	F1140-C45k, F1142-C48k	C45RR, XC42H1, XC45, 2C45, XC48, XC48H1	1045	
	F.1150 - C 55 k	XC55H1, 2C55, XC54	1055	
		XC48H1TS	1050, 1055	
	F.511, F.512	C60RR, XC60, 2C60	1060	
		XC 68	1070	
			1074	
		C100RR, C100, XC100, E 100	1095	
	F515, F516	C105E2U, Y1105	W110	
	F.5123 C120	Y2120	W112	
	F.5230 100 Cr6, F.1310 - 100 Cr6, F.131	100Cr6RR, 100C6, Y100C6	L3, 52100, L1	
	F.1440 - 56 Si 7	55S7	9255	

ISO 513	BZG	Almanya Germany	Almanya Germany	Avrupa Europe	Avrupa Europe	İtalya Italy	
		W-Nr. Mat.-No.	DIN	W.-Nr. EN	DIN EN	UNI	
P - Çelik / P - steel	P2	1.2080	X 210 Cr 12		X210Cr12	X205Cr12KU	
		1.2311	40CrMnMo7		40CrMnNiMo8-6		
		1.2312	40CrMnMoS8-6		40CrMnNiMoS8-6-4		
		1.2365	32CrMoV12-28			30CrMoV12-27 KU	
		1.2419	105 WCr 6		107WCr5, 105WCr6, 100WCr6	107WCr5KU	
		1.2542	45 WCrV 7		45WCrV8, 45WCrV7	45WCrV8KU	
		1.2714	56NiCrMoV7		55NiCrMoV7		
		1.2738	40CrMnNiMo8-6-4				
		1.2767	45NiCrMo16			40NiCrMoV16 KU	
		1.2833	100 V 1		100V1	102V2KU	
		1.3505	100 Cr 6		100Cr6	100Cr6	
		1.3536	100CrMo7-3				
		1.5415	15 Mo 3		16Mo3	16Mo3 (KG KW)	
		1.5423	16 Mo 5		16Mo5	16Mo5KG, 16Mo5KW	
		1.5622	14 Ni 6		14Ni6	14Ni6KG, 14Ni6KT	
		1.5662	X 8 Ni 9		X8Ni9	X10Ni9, X12Ni09	
		1.5680	12 Ni 19		X12Ni5, 12Ni19		
		1.5710	36 NiCr 6		36NiCr6		
		1.5732	14 NiCr 10		14NiCr10	16NiCr11	
		1.5752	14 NiCr 14		15NiCr13		
		1.5919	15CrNi6		15CrNi6	16CrNi4	
		1.6511	36 CrNiMo 4		36CrNiMo4	38NiCrMo7 (KB)	
		1.6523	21NiCrMo2, 20NiCrMo2-2		21NiCrMo2	20NiCrMo2	
		1.6546	40 NiCrMo 22		40NiCrMo2-2, 40NiCrMo2KD	40NiCrMo2 (KB)	
		1.6580	30CrNiMo8		30CrNiMo8	30CrNiMo8	
		1.6582	34 CrNiMo 6		34CrNiMo6	35NiCrMo6KB	
		1.6587	18CrNiMo7-6		17CrNiMo6, 18CrNiMo7-6	18NiCrMo7	
		1.6657	14 NiCrMo 134		14NiCrMo13-4	15NiCrMo13	
		1.6773	36NiCrMo16			36NiCrMo16	
		1.7005	45Cr2			45Cr2	
		1.7015	15 Cr 3		15Cr2KD		
		1.7033	34 Cr 4		34Cr4	34Cr4(KB)	
		1.7034	37Cr4			36CrMn4	
		1.7035	41 Cr 4		41Cr4	41Cr4, 41Cr4KB	
		1.7043	38Cr4			38Cr4	
		1.7045	42 Cr 4		42Cr4	41Cr4	
		1.7108	60SiCr7			60SiCr8	
		1.7131	16 MnCr 5		16MnCr5	16MnCr5	
		1.7147	20MnCr5			20MnCr5	
		1.7176	55 Cr 3		55Cr3	55Cr3	
		1.7218	25 CrMo 4		25CrMo4	25CrMo4 (KB)	
		1.7220	34 CrMo 4		34CrMo4	34CrMo4KB, 35CrMo4, 35CrMo4F	

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	UNE	AFNOR	AISI/SAE	AISI / SAE
	F.5212 X210 Cr12	X200Cr12, Z200Cr12	D3	
				M200
		32CDV12-28	H10	W320
	F.5233 105 WCr5, F.523	105WC13		
	F.5241 45 WCrSi 8, F.524, F524145WCrSi 8	45WCrV8, 45WCrV20	S1	
				W500
				M238
		Y35NCD16		
		C105E2UV1, Y1105V, 100V2	W210	
	F.5230 100 Cr6, F.1310-100 Cr 6, F.131	Y100C6, 100C6, 100Cr6	L3, 52100	
	F.2601-16 Mo 3	15D3, 15Mo3	ASTM A20, GR	
	F.2602-16Mo5		4520	
	F.2641-15Ni6	16N6, 15N6, 15Ni6	ASTM A350 LF5	
	F.2645-X8 Ni09	Z8N9, 9Ni490	ASTM A353	
		Z18N5, 5Ni390	2515, 2517	
		35NC6	3135	
	F.1540-15NiCr11	14NC11	3415	
		14NC11, 12NC15, 14NC12, 13NiCr14	3310, 3415, 9314	
		16 NC 6	4320	
	F.1280-35NiCrMo4	40NCD3, 36CrNiMo4, 35NCD5	9840	
	F1552-20NiCrMo2, F1534-20NiCrMo3	20NCD2, 22NCD2	J 1268 Grade 8620H, 8620	
	F1204-40NiCrMo2, F1205- 40NiCrMo2DF	40NCD2	8740	
		30CrNiMo8, 30NCD8		
	F1272-40NiCrMo7, 34CrNiMo6	35NCD6, 34CrNiMo6, 34CrNiMo8	4340	
	F.1560-14 NiCrMo13, F.156	18NCD6	4320	
	F1560-14NiCrMo13, F.1569- 14NiCrMo131	16NCD13		
		12C3, 15Cr2, 18C3	5132	
	F.8221-35 Cr 4, F.224	32C4, 34Cr4	5132	
		38 4	5135	
	38Cr4, 38Cr41, 42Cr4, F.1202-42Cr4	42C4, 41Cr4	5140	
	F1201, F1202, F1206, F.1202-42Cr4	42C4, 42C4TS	5140, 5140H	
		#NV	9262	
	F.1515-16 MnCr5, F.151	16MC5, 16MC4, 16MnCr5	J 1268 Grade 4118H, C5115	
		20 MC 5	5120	
	F.1431-55 Cr3, F.143	55Cr3, 55C3	5155	
	F8372-AM26CrMo4, F8330- AM25CrMo4, F1256-30CrMo4-1, F.222	25CD4, 25CrMo4	4130	
	F8331-AM34CrMo4, F8231-34CrMo4, F1250-35CrMo4, F1254-35CrMo4DF, F.125	35CD4, 34CrMo4, 35CD4 / 34CrMo5	4135, 4137, J 1268 Grade 4135H	

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		W-Nr. Mat.-No.	DIN	W.-Nr. EN	DIN EN	UNI	
P - Çelik / P - steel	P2	1.7223	41 CrMo 4		41CrMo4	41CrMo4	
		1.7225	42 CrMo 4		42CrMo4	38CrMo4KB, 42CrMo4, G40CrMo4	
		1.7228	50CrMo4		50CrMo4	50CrMo4	
		1.7243	18CrMo4			18CrMo4	
		1.7262	15 CrMo 5		15CrMo5		
		1.7335	13 CrMo 4 4		13CrMo4-5	14CrMo3, 16CrMo3	
		1.7361	32 CrMo 12		32CrMo12	32CrMo12	
		1.7380	10 CrMo 9 10		10CrMo9-10	12CrMo9 (KW KG), G14CrMo9, 10	
		1.7715	14 MoV 6 3		14MoV6-3		
		1.8159	50 CrV 4, 51CrV4			50CrV4	
		1.8507	34CrAlMo5		34CrAlMo5-10	34CrAlMo7	
		1.8509	41 CrAlMo 7		41CrAlMo7	41CrAlMo7	
		1.8515	31CrMo12		31CrMo12	31CrMo12	
		1.8519	31CrMoV9		31CrMoV9	31CrMoV10	
		1.8523	39 CrMoV 13 9		39CrMoV13-9		
	P3	1.1269	Ck85			C85	
		1.2085	X33CrS16			35CrMo8 KU	
		1.2316	X36CrMo17			X37CrMoV5-1 KU	
		1.2343	X38CrMoV5-1			X37CrMoV5-1 KU	
		1.2344	X 40 CrMoV 5 1		X40CrMoV5-1	X40CrMoV511KU	
		1.2363	X 100 CrMoV 5 1		X100CrMoV5-1	X100CrMoV51KU	
		1.2379	X153CrMoV12				
		1.2436	X 210 CrW 12		X210CrW12-1, X210CrW12	X215CrW121KU	
		1.2567	X30WCrV5-3		X30WCrV5-3	X30WCrV5-3 KU	
		1.2581	X 30 WCrV 9 3		X30WCrV9-3	X30WCrV9-3 KU	
		1.2601	X 165 CrMoV 12		X165CrMoV12	X165CrMoV12KU	
		1.3243	S 6-5-2-5		HS6-5-2-5	HS6-5-2-5	
		1.3255	S 18-1-2-5		HS18-1-2-5	HS18-1-1-5	
		1.3343	S 6-5-2		HS6-5-2	HS6-5-2-5	
		1.3348	S 2-9-2		HS2-9-2	HS2-9-2	
		1.3355	S 18-0-1		HS18-0-1	HS18-0-1	
		1.3401	X 120 Mn 12		X120Mn12	G-X120Mn12	
		1.5021	48Si7			48Si7	
		1.5026	55Si7			55Si7	
		1.5027	60Si7			60Si7	
		1.7701	51CrMoV4			51CrMoV4	
	P4	1.4000	X 7 Cr 13		X6Cr13	X6Cr13	
		1.4001	X 7 Cr 14		X7Cr14	X6Cr13	
		1.4002	X6CrAl13		X6CrAl13	X6CrAl13	
		1.4005	X12CrS13			X12CrS13	
		1.4006	X 10 Cr 13, X 12 Cr 13		X12Cr13, X10Cr13	X12Cr13, X10Cr13	
			X6Cr17		X6Cr17	X8Cr17	

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	UNE	AFNOR	AISI/SAE	AISI / SAE
	F8332-AM42CrMo4, F8232-42CrMo4, F1252-40CrMo4	42CD4TS	4140	
	F8332-AM42CrMo4, F8232-42CrMo4, F1252-40CrMo4	42CD4, 42CrMo4	4140	
		50CrMo4	4150	
	F.1551-12CrMo4	12CD4		
	F.2631-14CrMo45	15CD3.05, 15CD4.05	A387 Grade 12Cl2, ASTM A182	
	F.124.A	30CD12		
	TU.H	12CD9.10, 10CrMo9-10, 10CrMo9-11	A387 Grade 22, A387 Grade 22Cl2, ASTM A182	
	F.2621-13 MoCrV6			
	F.1430-51CrV4	50CV4, 51CrV4, 50CrV4	6150	
		30 CAD 6.12	A355Cl-D	
	F.1740-41CrAlMo7	40CAD6.12	Nitralloy 135	
		30 CD 12	A/B	
		-		
		40CDV12		
		C90	1086	
				M314
				M303, M303HH
		Z38CDV5	H11	W300
	F.5318 X40 CrMoV5	X40CrMoV5, Z40CDV5	H13, P20	
	F.5227 X100 CrMoV5	X100CrMoV5, Z100CDV5	A2, D2	
			D2	K110
	F.5213 X210 CrW12, F.521	X210CrW12-1, Z210CW12-01, Z 210 CW 12	D6	
		Z32WCV5	H14	
	F.5323 X30 WCrV9	X30WCrV9, Z30WCV9	O1, H21	
	F.5211 X160 CrMoV12			
	F.5613 6-5-2-5	Z85WDKCV06- 05-05-04-02, Z90WDKCV06- 05-05-04-02	S7, M35	
	F.5530 18-1-1-5	Z80WKCV18- 05-04-01	T4	
	F.5603 6-5-2	Z85WDCV06- 05-04-02	M2	
	F.5607 2-9-2	Z100DCWV09- 04-02-02	M7	
	F.5520 18-0-1	Z80WCV18-04-01	T1	
	F.82551-AM-X 120 Mn 12	Z120M12, Z120Mn12		
		55S7, 56SC7	9255	
		60Si7	9260	
	F.3110-X6 Cr13	Z6013, Z6Cr13, Z8C12	403, 13/6	
	F.8401-AM-X12 Cr13	Z3014, Z8C13FF	403, 410S, 429	
		Z 8 CA 12	405	
		Z 11 CF 13	416	
	F.3401-X12 Cr13	Z12C13, Z12Cr13, Z10C13	410	N100
	F.3113-X8 Cr17	Z8C17, Z6Cr17	430	N200

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		W-Nr. Mat.-No.	DIN	W.-Nr. EN	DIN EN	UNI	
P - Çelik / P - steel	P4	1.4021	X20Cr13			X20Cr13	
		1.4028	X30Cr13		X20Cr13	X30Cr13	
		1.4034	X 46 Cr 13		X46Cr13	X40Cr14	
		1.4057	X 20 CrNi 17 2		X19CrNi17-2, X17CrNi16-2	X16CrNi16	
		1.4104	X 12 CrMoS 17		X14CrMoS17	X10CrS17	
		1.4113	X 6 CrMo 17 1		X6CrMo17-1	X8CrMo17	
		1.4125	X105CrMo17		X105CrMo17	#NV	
		1.4313	X 4 CrNi 13 4		X3CrNiMo13-4	GX6CrNi13 04	
		1.4510	X3CrTi17				
		1.4512	X2CrTi12		X5CrTi12	X6CrTi12	
		1.4542	X5CrNiCuNb16-4				
		1.4545	X5CrNiCu15-5				
		1.4568	X7CrNiAl17-7				
		1.4718	X 45 CrSi 9 3		X45CrSi9-3-1	X45CrSi8	
		1.4724	X 10 CrAl 13, X 10 CrAlSi 13		X10CrAlSi13, X10CrAl13	X10CrAl12	
		1.4742	X 10 CrAl 18, X 10 CrAlSi 18		X10CrAl18, X10CrAlSi18	X8Cr17	
		1.4747	X 80 CrNiSi 20		X80CrNiSi20		
		1.4762	X 10 CrAl 24, X 10 CrAlSi 25		X10CrAl24, X10CrAlSi25	X16Cr26	
	P5	1.1118	GS-24Mn6				
		1.1120	GS-20Mn5				
		1.4027	G-X 20 Cr 14		GX20Cr14		
		1.5419	GS-22Mo4				
		1.5633	GS-24Ni8				
		1.5681	GS-10Ni19				
		1.6309	GS-20MnMoNi5-5				
		1.6571	GS-34CrNiMo6				
		1.6748	GS-40NiCrMo6-5-6				
		1.6750	GS-20NiCrMo3-7				
		1.6760	GS-22NiMoCr5-6				
		1.7231	G42CrMo4				
		1.7357	GS-17CrMo5-5				
		1.7379	GS-18CrMo9-10				

Manyetik çelik, konstrüksiyon çeliği, çelik döküm, sementasyon çeliği, nitrasyon çeliği, düşük karbonlu çelikler, yüksek alaşımlı çelikler, rulman çeliği, yay çeliği, paslanmaz çelikler (ferritik/martensitik)
Magnetic steel, construction steel, steel castings, cementation steel, nitriding steel, free cutting steel, heat treatable steel, bearing steel, spring steel, alloyed steel, stainless steel ferritic/ martensitic

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	UNE	AFNOR	AISI/SAE	AISI / SAE
		Z 20 C 13	420	N320
		Z 20 C 13	420	
	F.3405-X46 Cr13	Z40C14, Z40Cr14, Z38C13M, Z44C14	420	T651
	F.3427-X15 CrNi16, F.313, F3427-X19CrNi172	Z15CN16.02	431	N350
	F3117-X10CrS17, F3413-X14CrMoS17	Z10CF17	430F, J 405 Grade 51435	N310
	F3116-X6CrMo171	Z8CD17.01	434	
		Z 100 CD 17	440C	N695
		Z5CN13.4, Z4CND13.4M, Z6CN13-4, Z8CD17-01	CA6. 13/4	
		Z 3 CT 12	409	
		Z 7 CNU 15-05	630	N700
				N701
	F.3220-X 4 ScrSi 09-03	Z45CS9	HNV3	H700
	F.13152-X 10 CrAl13	Z10C13, Z13C13	405	
	F.3153-X 10 CrAl 18	Z10CAS18, Z12CAS18	430	
	F.3222-X 80CrSiNi20-02	Z80CSN20.02	HNV6	
	F.3154-X 10 CrAl24	Z10CAS24, Z12CAS25	446	H100
		Z 20 C13M		,
			A757	
			A 217	

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			W-Nr. Mat.-No.	DIN	W.-Nr. EN Mat.-No. EN	DIN EN	UNI	
M - Rostfreier Stahl / M - stainless steel	Austenitisch, ferritisch + austenitisch Austenitic stainless steel, ferritic + austenitic steel (duplex)	M1	1.4301	X 5 CrNi 18 10		X5CrNi18-10+F3:F21A3F3: F23F3:F24A3F3:F23F3: FF3:F24	X5CrNi18 10	
			1.4303	X4CrNi18-12			X8CrNi1812	
			1.4305	X 10 CrNiS 18 9		X8CrNiS18-9	X10CrNiS 18.09	
			1.4306	X 2 CrNi 19 11		X2CrNi19-11	"X3CrNi18 11, X2CrNi18 11, GX2CrNi19 10"	
			1.4308	G-X 6 CrNi 18 9		GX5CrNi19-10		
			1.4311	X 2 CrNiN 18 10		X2CrNiN18-10	X2CrNiN18 11	
			1.4319	X3CrNiN17-8			X10CrNi1809	
			1.4401	X 5 CrNiMo 17 12 2		X5CrNiMo17-12-2, X4CrNiMo17-12-2, X5CrNiMo18-10	X5CrNiMo17 12	
			1.4404	X2CrNiMo17-12-2		X3CrNiMo17-12-2	X2CrNiMo1712	
			1.4408	G-X 6 CrNiMo 18 10		GX5CrNiMo19-11-2		
			1.4429	X 2 CrNiMoN 17 13 3		X2CrNiMoN17-13-3	X2CrNiMoN17 13	
			1.4435	X 2 CrNiMo 18 14 3, X 2 CrNiMo 18 12		X2CrNiMo18-14-3	X2CrNiMo17 13	
			1.4438	X 2 CrNiMo 18 16 4		X2CrNiMo18-15-4	X2CrNiMo18 16	
			1.4460	X 4 CrNiMoN 27 5 2		X3CrNiMoN27-5-2	X 3 CrNiMo 27 5 2	
			1.4541	X 6 CrNiTi 18 10		X6CrNiTi18-10	X6CrNiTi18 11	
			1.4550	X 6 CrNiNb 18 10		X6CrNiNb18-10	X6CrNiNb18 11	
			1.4558	X 2 NiCrAlTi 32 20		X2NiCrAlTi32-20		
			1.4563	X 1 NiCrMoCu 31 27 4		X1NiCrMoCu31-27-4		
			1.4571	X 6 CrNiMoTi 17 12 2		X6CrNiMoTi17-12-2	X6CrNiMoTi1712	
			1.4565, 1.4581	G-X 5 CrNiMiNb 18 10				
			1.4583	X 10 CrNiMoNb 18 12		X10CrNiMoNb18-12	X6CrNiMoNb	
			1.4828	X 15 CrNiSi 20 12		X15CrNiSi20-12	X16CrNi23 14	
			1.4841	X15CrNiSi25-20			X22CrNiSi2520	
			1.4878	X 12 CrNiTi 18 9		X12CrNiTi18-9, X10CrNiTi18-10	X6CrNiTi1811	
			1.4864	X 12 NiCrSi 36 16		X12NiCrSi36-16, X12NiCrSi35-16		
			1.4958	X 5 NiCrAlTi31-20		X5NiCrAlTi31-20		
			1.4977			X 40 CoCrNi 20 20		
		M2	1.4362	X2CrNiN23-4 (Ally 2304)				
			1.4462	X2CrNiMoN22-5-3		X2CrNiMoN22-5-3	X2CrNiMoN22-5-3	
			1.4501	X2CrNiMoCuWN25-7-4			X2CrNiMoCu WN25-7-4	
			1.4871	X 53 CrMnNiN 21 9		X53CrMnNiN21-9	X53CrMnNiN21 9	
			1.4310	X 12 CrNi 17 7		X9CrNi18-8, X10CrNi18-8	X12CrNi17 07	

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	UNE	AFNOR	AISI/SAE	AISI / SAE
	F.3451-X5 CrNi18-10, F.314, F.3504-X6CrNi19 10, F3504-X5CrNi1810"	Z6CN18.09	304	A500
			305	
	F.3508-X10CrNiS18-09	Z10CNF18.09	303	A506
	F.3503-X 2CrNi19-10, F3503-X 2CrNi18-10	Z1CN18-12, Z2CN18-10, Z3CN19.10M, Z3CN18-10, Z3CN19-11, Z3CN19-11FF	304L	A600
		Z6CN18.10M	---	
	F3541-X2CrNi1810	Z2CN18.10	304LN	
			302	
	F.3543-X5CrNiMo17-12, F.3543-X6 CrNiMo17- 12-03, F3543-X5CrNiMo17-122"	Z6CND17.11	316	A120
				A200
	F.8414-AM-X7 CrNiMo20 10			
	F3543- X2CrNiMoN17133	Z2CND17.13	316LN	
	F.3533-X2 CrNiMo 17- 12-03, F.3534-X6 CrNiMo 17- 12-03"	Z2CND17.13, Z3CND17-12-03, Z3CND18-14-03		A220
	F3539-X2CrNiMo18164	Z2CND19.15	317L	
	F3309-X8CrNiMo27-05, F3552-X8CrNiMo266	Z3CND25-07Az, Z5CND27-05Az	S32900	
	F.3553-X7 CrNiTi 18-11, F.3523-X 6 CrNiTi 18-11, 09 Ch 18N10T, F3523-X6CrNiTi1810	Z6CNT18.10	321	
	F.3552-X 7 CrNiNb 18-11, F.3524-X 67 CrNiNb 18-11, F3524-X6CrNiNb1810	Z6CNNb18.10	347	
			N08800 Incoloy 800	
			N08028 Alloy 28	
	F.3552-X 6 CrNiMoTi17-12-03, F3535- X6CrNiMoTi17122	Z6NDT17.12	316Ti	A300
		Z6CNDNb	318	
	F3312-X15CrNiSi20-12	Z15CNS20.12	309	
				H525
	F.3523-X 6CrNiTi 18 11	Z6CNT18.12B	321	
	F.3313-X12 CrNi 36-16	Z12NCS35.16	330	
		Z 42 CNKDOWNb		
			S32304	Duplex
		Z 2 CND 22.05 Az	S31803	Duplex, A903
				Super Duplex
	F.3217-X53 CrMnNiN 21-09	Z52CMN21.09	EV8	
	F.3517-X12CrNi17 07	Z12CN17.07, Z12CN18.07, Z11CN17-08, Z11CN18-08, Z12CN18-09	301	

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K - Dökme demirler / K - cast iron materials	K1	0.6010	GG-10, GG 10	EN-JL 1010	EN-GJL-100	G10	
		0.6015	GG-15, GG 15	EN-JL 1020	EN-GJL-150	G15	
		0.6020	GG-20, GG 20	EN-JL 1030	EN-GJL-200	G20	
		0.6025	GG-25, GG 25	EN-JL 1040	EN-GJL-250	G25	
		0.6030	GG-30, GG 30	EN-JL 1050	EN-GJL-300	G30	
		0.6035	GG-35, GG 35	EN-JL 1060	EN-GJL-350	G35	
		0.6040	GG-40, GG 40		EN-GJL-400		
		0.6660	GGL-NiCr 20 2				
			GG-26Cr, GG 26Cr		EN-GJL-260 Cr		
	K2		GGV 45		EN-GJV-450		
		0.7040	GGG-40	EN-JS 1040	EN-GJS-400-15	GS400-12	
		0.7050	GGG-50	EN-JS 1050	EN-GJS-500-7	GS500-7	
		0.7060	GGG-60	EN-JS 1060	EN-GJS-600-3, EN-GJS-600-3U	GS600-3	
		0.7070	GGG-70	EN-JS 1070	EN-GJS-700-2, EN-GJS-700-2U	GS700-2	
		0.7080	GGG-80	EN-JS 1080	EN-GJS-800-2		
		5.3400	ADI 800		EN-GJS-800-10		
		0.7090	GGG90	EN-JS1090			
		5.3403	ADI 1000		EN-GJS-1050-6		
		5.3404	ADI 1200		EN-GJS-1200-3		
		5.3405	ADI 1400		EN-GJS-1400-1		
	K3	0.8035	GTW-35, GTW-35-04	EN-GJMW-350-4	GTW-35-04, EN-GJMW-350-4		
		0.8040	GTW-40-05, GTW-40		EN-GJMW-400-5, GTW-40-05		
		0.8045	GTW-45-07, GTW-45		EN-GJMW-450-7		
		0.8135	GTS-35-10, GTS-35		EN-GJMB 350-10		
		0.8145	GTS-45-06, GTS-45		EN-GJMB 450-6, GTS-45-06		
		0.8155	GTS-55-04, GTS-55		EN-GJMB 550-4, GTS-55-04		
		0.8165	GTS 65-02, GTS-65		EN-GJMB 650-2, GTS-65-02		
		0.8170	GTS 70-02, GTS-70		EN-GJMB 700-2, GTS-70-02		
		---	GJV-300	---	---		
		---	GJV-400	---	---		
		---	GJV-500	---	---		

	Ispanya Spain	Fransa France	Amerika U.S.A.	Marka Adi Brand Name
	UNE	AFNOR	AISI/SAE	AISI / SAE
	FG 10	Ft10D, FGL100	ASTM A-48-76	
	FG 15	Ft15D, FGL150	NO 20B	
	FG 20	Ft20D, FGL200	NO 30B	
	FG 25	Ft25D, FGL250	NO 35B	
	FG 30	Ft30D, FGL300	NO 40B	
	FG 35	Ft35D, FGL350	NO 55B	
		Ft40D, FGL400		
		L-NC 20 2		
		FGS 400-12	60/40/18	
		FGS 500-7	70/50/05	
		FGS 600-3	80/55/06	
		FGS 700-2	"100/70/03 120/90/02"	
		MB 35-7		
		MB 40-10		
		MB 45-7		
		MN 35-10	32510	
		MP 50-5	40010	
		MP 60-3	50005	
			60004	
		MP 70-2	70003	

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		W-Nr. Mat.-No.	DIN	W.-Nr. EN	DIN EN	UNI	
N- Demir dışı malzemeler / N- non ferrous materials	N1	3.0205	Al99			9001/1	
		3.0255	Al99.5	EN AW-1050A	Al99.5	4507	
		3.0305	Al99.9				
		3.0505	AlMn0.5Mg0.5				
		3.0615	AlMgSiPb				
		3.0915	AlFeSi			8011	
		3.1255	AlCuSiMn			9002/3	
		3.1325	AlCuMg1			9002/2	
		3.1355	AlCuMg2		EN AW-2024	9002/4	
		3.1371	G-AlCu4TiMg	EN AC-21000	G-AlCu4TiMg		
		3.1645	AlCuMgPb			9002/8	
		3.1655	AlCuBiPb	EN AW-2011	AlCu6BiPb	6362	
		3.1734	Y-Legierung		AlCu4Mg1.5Ni2,	3045	
	N2	3.2134	G-AlSi5Cu1Mg				
		3.2371	G-AlSi7Mg	EN AC-42100	G-AlSi7Mg,	7257	
		3.2373	G-AlSi9Mg	EN AC-43300	G-AlSi9Mg,	3051	
		3.2381	G-AlSi10Mg	EN AC-43000	G-AlSi10Mg,	3051	
		3.2382	GD-AlSi10Mg	EN AC-43400	AlSi10Mg(Fe)	3051	
		3.2383	G-AlSi10MgCu	EN AC-43200	G-AlSi10MgCu,		
		3.2581	G-AlSi12	EN AC-44200	G-AlSi12,	4514	
		3.2582	GD-AlSi12	EN AC-44300	GD-AlSi12,	4514, G-AlSi13	
		3.2583	G-AlSi12 (Cu)	EN AC-47000	G-AlSi12 (Cu)	3048	
		3.3241	G-AlMg3Si				
		3.3261	G-AlMg5Si				
		3.3315	AlMg1	EN AW-5005A	AlMg1C	5764	
		3.3525	AlMg2Mn0.3				
		3.3527	AlMg2Mn0.8				
		3.3541	G-AlMg3				
		3.3545	AlMg4Mn			9005/4	
		3.3555	AlMg5				
		3.3561	G-AlMg5	EN AC-51300	G-AlMg5	3058	
		3.4345	AlZnMgCu0.5	EN AW-7022	AlZnMgCu0.5		
	N3	3.3211					
		3.4335	AlZn4.5Mg1			9007/1	
		3.4365	AlZn5,5MgCu			7075	
		2.0060	E-Cu57				
		2.0065	E-Cu58			5649	
		2.0240	CuZn15	CW502L	CuZn15		
		2.0250	CuZn20				
		2.0265	CuZn30	CW505L	CuZn30		
		2.0280	CuZn33				
		2.0321	CuZn37	CW508L	CuZn37	P-CuZn37	
		2.0360	CuZn40				
		2.0410	CuZn44Pb2			CuZn43Pb2Al	
		2.0550	CuZn40Al2			CuZn37Mn3Al2PbSi	

	İspanya Spain	Fransa France	Amerika U.S.A.	Marka Adı Brand Name
	UNE	AFNOR	AISI/SAE	AISI / SAE
		1200 (A4)	1200	
	L-3051	A5	1050A	
		3105		
		6012		
		8011		
		2014	2014	
		2017 A (AU4G)	2017A	
		2024 (AU4G1)	2024, AA2024	
	L-2140	A-U5GT	B26	
		2030 (AU4PB)	2030	
	L-3182	A-U5PbBi	2011	
	L-2150	A-U4NT		
	L-2651	A-S7G0.3	B25	
		A7-S10G	A13560	
	L-2560, L-2561	A-S10G	A13600	
	L-2560, L-2561	A-S10G	A413.2	
		A-S9GU	A360.2	
	L-2520, L-2521	A-S13	A413.2	
	L-2520, 21	A-S13, A-S12	A413.0	
	L-2530	A-S12U	413.1	
	L-3350	A-G0, 6	5005A, 5005	
		5251	5251	
		5049	5049	
		5086 (AG4MC)	5086	
	L-3320	A-G6	5056A, 514.1"	
		A-Z5GU0.6		
			6061-T6	
		7020 (AZ5G)	7020	
		7075	7075-T6, AA7075	
			C1100	
		CuA1	C11000	
		CuZn15	C23000	Mittelrotombak,
		CuZn30	C26000	Cartridge Messing,
		CuZn37	C27400	Stimmenmessing,
			C28000	
			C38000	
			C67410	

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		W-Nr. Mat.-No.	DIN	W.-Nr. EN	DIN EN	UNI	
N- Demir dışı malzemeler / N- non ferrous materials Saf alüminyum, alüminyum dövme alaşımları, saf bakır, bakır dövme alaşımları, bakır çinko alaşımları, bakır alaşımları, grafitler Pure aluminium, aluminium wrought alloys, pure copper, copper wrought alloys, copper-zinc alloys, copper alloys, graphite	N3	2.0592	GK-CuZn35Al1,	CC765S	CuZn35Mn2Al1Fe1-C		
		2.0596	GK-CuZn34Al2,	CC764S	CuZn34Mn3Al2Fe1-C		
		2.0855	CuNi2Si			CuNi2Si	
		2.0882	CuNi30Mn1Fe				
		2.0940	CuAl10Fe			5274	
		2.0978	CuAl11Ni6Fe6			CuAl11Fe6Ni6	
		2.0966	CuAl10Ni5Fe4	CW307G	CuAl10Ni5Fe4		
		2.0975	G-CuAl11Ni,	CC333G	G-CuAl11Ni	G-CuAl11Fe4Ni4	
		2.1016	CuSn4				
		2.1020	CuSn6			CuSn7	
		2.1030	CuSn8				
		2.1050	G-CuSn10Zn	CC480K	CuSn10-C		
		2.1052	G-CuSn12, GZ-CuSn12, GC-CuSn12	CC483K	CuSn12-C		
		2.1086	G-CuSn10Zn			7013	
		2.1090	G-CuSn7ZnPb, GZ-CuSn7ZnPb, GC-CuSn7ZnPb	CC493K	CuSn7Zn4Pb7-C		
		2.1096	G-CuSn5ZnPb	CC491K	CuSn5Zn5Pb5-C		
		2.1098	G-CuSn2ZnPb	CC490K	CuSn3Zn8Pb5-C		
		2.1176	G-CuPb10Sn, GZ-CuPb10Sn, GC-CuPb10Sn	CC495K	CuSn10Pb10-C		
		2.1182	G-CuPb15Sn, GZ-CuPb15Sn, GC-CuPb15Sn	CC496K	CuSn7Pb15-C		
		2.1188	G-CuPb20Sn	CC497K	CuSn5Pb20-C		
		2.1247	CuBe2			Classe IV	
		2.1285	CuCo2Be			Classe III	
		2.1293	CuCrZr	CW106C	CuCr1Zr	CuCrZr	
		2.1525	CuSi3Mn			CuSi3Mn1	
			CuAl6.5Fe2.5Sn0.25				
			CuAl13Fe4.5				
Graphit	N4						

	İspanya Spain	Fransa France	Amerika U.S.A.	Marka Adı Brand Name
	UNE	AFNOR	AISI/SAE	AISI / SAE
			C86500	
			C86200	
			C64700	
			C95400	
		CuAl9Ni5Fe3Mn, U-A10N	C63000	
		CuAl11Ni5Fe	B-148-52	
		CuSn6P	C51900	
			C90700	
		"A53-707, CuSn12"	Amcoloy 712, B505	
		U-E12P7U-E8Z2	C90500	
		CuSn7Pb6Zn4	C93200	Rotguss 7
		CuPb5Sn5Zn5	C83600	Rotguss 5
				Alloy 5A
		CuPb10Sn10	C93700	
			C93800	
		CuPb20Sn5	C94100	
			C17200	
			C17510	
			C18200	
			C65500	
			AMPCO 8	AMPCO 8
			AMPCO 6	AMPCO 6
			AMPCO 21	AMPCO 21
			AMPCO 26	AMPCO 26

ISO 513	BZG	Almanya Germany	Almanya Germany	Avrupa Europe	Avrupa Europe	İtalya Italy	
		W-Nr. Mat.-No.	DIN	W.-Nr. EN	DIN EN	UNI	
S- Süper alaşımlı malzemeler / S- Supper alloys	S1	3.7024			Ti99.5		
		3.7025	Ti 1		Ti 99.8		
		3.7034			Ti99.7		
	S2	3.7115.1	TiAl 5 Sn 2		TiAl5Sn2.5		
		3.7124	TiCu2		TiCu2		
		3.7164	TiAl 6 V 4		TiAl6V4		
		3.7165	TiAl6V4				
		3.7174	TiAl6V4Sn2				
	S3	1.3912	Ni36		D 1		
		1.3926	RNi12		FeNi48		
	S4	2.4360	NiCu30Fe		NiCu30		
		2.4375	NiCu30Al		NiCu30Al3Ti		
		2.4630	NiCr20Ti				
		2.4632 / 2.4969	NiCr20Co18Ti				
		2.4642	NiCr30Fe				
		2.4654					
		2.4665	NiCr22Fe18Mo				
		2.4668	NiCr19NbMo		NiCr19Fe19Nb5Mo3		
		2.4669	NiCr15Fe7TiAl		NiCr15Fe7Ti2Al		
		2.4698					
		2.4858	NiCr21Mo		NiFe30Cr21Mo3		
		2.4819			NiMo16Cr15W		
		2.4856	NiCr22Mo9Nb		NiCr22Mo9Nb		
		2.4858	NiCr21Mo				
		2.4952 /2.4631	NiCr20TiAl				

ISO 513	BZG	Almanya Germany	Almanya Germany	Avrupa Europe	Avrupa Europe	İtalya Italy	
		W-Nr. Mat.-No.	DIN	W.-Nr. EN Mat.-No. EN	DIN EN	UNI	
H - Sertleştirilmiş malzemeler, sertleştirilmiş dökme demir H- hardened materials hardened cast iron	H1	1.2343 52HRC	X38CrMoV5-1			X37CrMoV5-1 KU	
		1.2767 54HRC	45NiCrMo16			40NiCrMoV16 KU	
	H2	1.2714 60HRC	56NiCrMoV7		55NiCrMoV7		
		1.2842 58HRC	90MnCrV8				
	H3	1.2080 64HRC	X 210 Cr 12		X210Cr12	X205Cr12KU	
		1.2436 63HRC	X 210 CrW 12		X210CrW12-1, X210CrW12	X215CrW121KU	
	H4	0.9620 52HRC	G-X260NiCr42	GX260NiCr42			
		0.9650 53HRC	G-X260Cr27	GX260Cr27			

	İspanya Spain	Fransa France	Amerika U.S.A.	Marka Adı Brand Name
	UNE	AFNOR	AISI/SAE	AISI / SAE
	Ti-PO1	T-35	R2050	TitaniumGrade1
			R54620	
	Ti-P11	T-U2		
	Ti-P63	T-A6V	"4911, 4928, 4935, 4954, 4965, 4967, 6AL4V"	TitaniumGrade5
		T-A6V		
				Invar 36, Alloy 36
				Nilo 48, Alloy 48
		NU30	Monel 400	Monel 400
			AMS 4676, Monel K500	Monel K500
		NC 20 T	Nitronic 75, Nimonic 90/120	Nimonic® 75, Alloy 75
				Nimonic® 90, Alloy 90
			Inconel 690	Inconel 690, Alloy 690
			Waspaloy	
			Alloy X	Hastelloy X
		NC 19 FeNb	Inconel 718	Inconel® 718, Alloy 718, Udimet 630
		NC 15 FeTNb	5542G, Inconel X-750	Inconel X-750, Alloy X-750
			Hastelloy C	
		NC 21 FeDU		Incoloy 825
		NC17D	B 574, B 575, B 619, B 622, B 626	Hastelloy® C-276, Alloy C276, Nicrofer 5716 hMoW
		NC 22 FeDNB	Incoloy 825	Inconel® 625, Alloy 625
		NC 21 FeDU	--	Inconel® 825, Alloy 825, Nicrofer® 4221
		NC 20 TA		Alloy 80 A, Nicrofer 7520 Ti

	İspanya Spain	Fransa France	Amerika U.S.A.	Marka Adı Brand Name
	UNE	AFNOR	AISI/SAE	AISI / SAE
		Z38CDV5	H11	45 - 54 HRC
		Y35NCD16		
		T61206	L6	54 - 62 HRC
		T31502	O2	
	F.5212 X210 Cr12	X200Cr12, Z200C12	D3	62 - 66 HRC
	F.5213 X210 CrW12, F.521	X210CrW12-1, Z210CW12-01, Z 210 CW 12	D6	
			Ni-Hard 2	50 - 60 HRC
			A532111A 25% CR	

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