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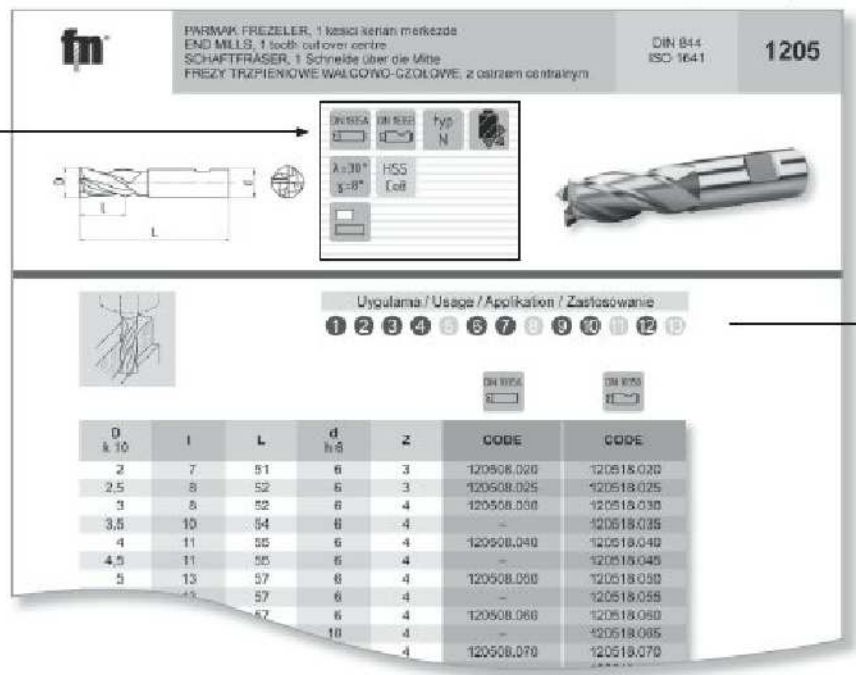
30

Grup Group Gruppen Grupa	Malzeme Material Material	Dayanım Strength Festigkeit Wytrzymałość	Örnek Example Beispiel Przykład
1	İmalat çelikleri, genel yapısal çelikler Free-cutting steels, general construction steels Automatenstähle, allgemeine Baustähle Stale automatowe, stale konstrukcyjne	≤ 600 MPa	DIN 1.0037 DIN 1.0050 11 109 11 500
2	Genel yapısal çelikler General construction steels, steel castings Allgemeine Baustähle, Stahlguss Stale konstrukcyjne, stal stopowe	≤ 850 MPa	DIN 1.0503 DIN 1.0070 12 050 422850
3	Düşük alaşımı yapısal çelikler Tool steels low alloyed Niedriglegierte Werkzeugstähle Stale narzędziowe niskostopowe	≤ 1100 MPa	DIN 1.2711 19 662 422865
4	Islah Çelikleri Heat treatable steels Vergütungsstähle Stale hartowane ulepszane cieplnie	≤ 900 MPa	DIN 1.5710 DIN 1.8159 16 240
5	Yüksek alaşımı takım çelikleri Tool steels high alloyed Hochlegierte Werkzeugstähle Stale narzędziowe wysokostopowe	≤ 1100 MPa	DIN 1.3243 19 436
6	Takım ve ısıl dirençli çelikler Tool and treated steels Werkzeug- und Vergütungsstähle Stale narzędziowe i ulepszane cieplnie	> 1100 MPa	DIN 1.2343 15 241 15 260 19 552
7	Dökme demir Cast iron Temperguss Zeliwa	≤ 240 HB	GG – 15 GG – 20 422415 422420
8	Dökme demir Cast iron Gusseisen Zeliwa	> 240 HB	GG – 30 422430
9	Asit ve korozyona dayanımlı çelikler Corrosion- and acid-proof steels Rost- und säurebeständige Stale nierzewne i kwasoodporne	≤ 850 MPa	DIN 1.4013 17 041
10	Krom-Nikel alaşımları Chrome-nickel alloys Chrom-Nickellegierungen Stopy chromowo-niklowe	≤ 850 MPa	DIN 1.4301 DIN 2.4360 Nimonic Hastelloy B 17 242
11	Bakır-çinko alaşımları, bakır-tin alaşımları Copper-zinc alloys, copper-tin alloys Kupfer-Zink-Legierungen, Kupfer-Zinn-Legierungen Mosiądz, miedź, Brazy	≤ 800 MPa	DIN 2.0402 DIN 2.1080 423035 423018
12	Alüminyum, Silisyumlu döküm alüminyumlar Aluminium, Aluminium cast alloys Si Aluminium, Aluminium-Gu leg. Si Aluminium, stopy aluminium	≤ 500 MPa	DIN 3.3211 424254 424203
13	Titanyum, Titanyum alaşımları Titanium, Titanium alloys Titan, Titanlegierungen Tytan, stopy tytanu	≤ 1200 MPa	DIN 3.7124 DIN 3.7165 DIN 3.7185

FREZE ÇAKILARININ KODLANMASI için sayfa 17-18
CODING OF MILLING CUTTERS on page 17-18
KODIERUNG DER FRÄSER auf der Seite 17-18
SPOSÓB KODOWANIA FREZÓW na stronie 17-18

Standart
Standard
Norm
Norma

SEMBOLLER için sayfa 18–19; 103–109
SYMBOLS on page 18–19; 103–109
SYMBOLS auf der Seite 18–19; 103–109
SYMBOLS na stronie 18–19; 103–109



przez centralnym

DIN 844
ISO 1641

1205



Applikation / Zastosowanie

7 8 9 10 11 12 13

1205A

DM 1205

CODE	CODE
1205.020	120518.020
1205.025	120518.025
1205.030	120518.030
—	120518.035
1205.040	120518.040
—	120518.045
1205.050	120518.050
—	120518.055
1205.060	120518.060
—	120518.065
1205.070	120518.070





Saygıdeğer iş ortaklarımız,

Şirketimiz hakkında genel bilgiler;

ZPS – FRÉZOVACÍ NÁSTROJE a.s. freze çakıları imalatı ve metallerin ısıtılmasını gerçekleştiren bir firmadır.

1992'den bu yana bağımsız bir anonim şirket olarak hizmet vermekteyiz. Fakat kesici takım üretimine 1930'larda Bata sanayii bölgesinde başladık. 1950'lerde takım üretimi ZPS Zlín firmasının bir parçası oldu.

Bugün firmamız 120'nin üzerinde çalışanıyla sektörümüze hizmet vermektedir ve ürün gruplarına göre iki kısma ayrılmaktadır.

Freze çakıları bölümü ve Isıl işlemler bölümü

Zlín şehrinde bulunmaktadır. Şirketimizin merkezide ayrıca bu şehirdedir.

Freze çakıları bölümü Çok geniş bir ürün yelpazesıyla yüksek hız çeliği freze çakıları üretmektedir.

Isıl işlemler bölümü Kendi şirketimizin ihtiyaçlarını karşılamakta ve aynı zamanda başka firmalara da ısıtılma işlemi hizmeti vermektedir.

Verdiğimiz hizmetler başlıca vakumlu ortamda sertleştirme ve iyon nitrürasyondur.

Şirketimiz ISO9001 kalite yönetim sistemiyle sertifikalandırılmıştır.

Tüm kısımlarımızda uzmanlarımız sizlere uygun adımlarla problemlerinizin çözümü için danışmanlık hizmeti vermeye hazırdır.

Standart ürünlerin dışında müşterilerimizin isteklerine göre özel freze çakılarının üretimi sağlayabilmekteyiz. İnanıyoruzki bizim bilgi birikimimiz, tecrübemiz ve üretimdeki kalitemiz sizin güveninizi ve memnuniyetinizi sağlayacaktır.



Dear Business Partners,

Please let us introduce to you our company:

The company **ZPS – FRÉZOVACÍ NÁSTROJE a.s.** is a traditional producer of milling cutters and provides services of heat treatment of metals.

The company exists in its current legal form, as the independent joint-stock company, since 1992. But the tradition of the tools production started in 1930s, when the tools production was founded in the Baťa machine-works. Since 1950s the tools production was part of the ZPS Zlín company.

Today our company employs over 120 people. According to the product, the company is divided into 2 divisions.

Division Milling Cutters and Division Heat Treatment is seated in Zlín, which is also the seat of the company headquarters.

Division Milling Cutters

produces a wide assortment of milling cutters from high-speed steels.

Division Heat Treatment

offers services for the own company purposes and also for external customers. The services are mainly vacuum hardening and ion nitridation.

The quality management system of the company is certified according to the ISO 9001 norm.

In all divisions our experts are ready to consult with you your problems and to offer the most appropriate steps for their solution. Except for the standard assortment we are able to supply the special milling cutters by the order of our customers.

We believe that our knowledge, experience and our products' quality are assurance for your satisfaction!





Sehr geehrte Geschäftspartner,

gestatten Sie uns, Ihnen unsere Firma vorzustellen:

Die Gesellschaft **ZPS – FRÉZOVACÍ NÁSTROJE, a.s.** ist als Hersteller von Fräsern und als Bieter der Dienste im Bereich der Wärmebehandlung der Metalle mit langjähriger Tradition bekannt.

In der bestehenden Rechtsform, d.h. als selbständige Aktiengesellschaft, existiert die Gesellschaft seit dem Jahr 1992. Die Tradition in der Fertigung von Werkzeugen reicht aber bis in dreißiger Jahre des 20. Jahrhunderts, wo die Produktion von Werkzeugen in den Maschinenbaufabrik des Konzerns Bat'a integriert wurde. Seit 50^{er} Jahren wurde die Produktion von Werkzeugen ein Bestandteil der Gesellschaft ZPS–Zlín. In der Gesellschaft werden über 120 Mitarbeiter beschäftigt. Nach dem Sortiment der Produkten ist die Gesellschaft in zwei Divisionen aufgeteilt.

Division Fräser und **Division Wärmebehandlung** mit dem Sitz in Zlín, im Sitz der Gesellschaft.

Die **Division Fräser**

produziert das breite Sortiment von Fräsern aus den Schnellarbeitsstählen.

Die **Division Wärmebehandlung**

bietet die Dienste sowohl für Eigenbedarf, als auch für die externen Kunden. Es geht um Vakuumhärten und Ionen–Nitrieren.

Das System der Qualitätssicherung in der Firma ist nach der Norm ISO 9001 zertifiziert. In allen Divisionen sind unsere Spezialisten bereit, mit Ihnen Ihre Probleme zu konsultieren und die beste Weise bei deren Lösung vorzuschlagen. Neben dem Standardsortiment sind wir im Stande, auf Kundenwunsch auch Sonderfräser zu liefern. Wir sind überzeugt, dass unsere Kenntnisse, Erfahrungen und Qualität unserer Erzeugnisse gewährt die Garantie für Ihre Zufriedenheit.



Szanowni Klienci

Pozwólcie sobie przedstawić naszą firmę:

ZPS– FRÉZOVACÍ NÁSTROJE, a.s. posiada wieloletnie doświadczenie w produkcji frezów do obróbki metali, oraz świadczeniu usług w zakresie cieplnej obróbki metali.

W obecnej formie prawnej, jako spółka akcyjna, firma funkcjonuje od 1992 r. Tradycja produkcji narzędzi sięga korzeniami do lat 30-ych XX wieku, zapoczątkowana w zakładach mechanicznych koncernu Bat'a.

Od lat 50-tych zakład produkcji narzędzi stał się częścią firmy ZPS Zlín.

Obecnie nasza firma zatrudnia ponad 120 osób.

Ze względu na profil produkcji, w naszym Zakładzie wyodrębniono dwa działy:

Dział Frezów i Dział Obróbki Ciepłej, zlokalizowane w Zlinie. Także tu znajduje się siedziba Spółki.

Dział Frezów

produkuje szeroki asortyment frezów ze stali szybko tnących.

Dział Obróbki Ciepłej

realizuje usługi dla własnych celów oraz na potrzeby odbiorców zewnętrznych.

Główne usługi to: hartowanie próżniowe oraz azotowanie jonowe.

Firma pracuje według norm systemu zarządzania jakością ISO9001.

We wszystkich naszych działach pracują eksperci gotowi wspomóc Państwa w rozwiązaniu wszelkich problemów w zakresie obróbki metali, proponując optymalne rozwiązania.

Oprócz oferowanego przez nas asortymentu jesteśmy w stanie dostarczyć frezy wykonane na specjalne zamówienie, zgodne z potrzebami naszych klientów.

Wierzmy, że nasza wiedza, doświadczenie oraz jakość oferowanych narzędzi i rozwiązań są gwarancją Państwa zadowolenia.





CERTIFIKÁT



pro systém managementu dle
EN ISO 9001 : 2008

V souladu s TUV NORD CERT postupy je tento potvrzen, že

ZPS - FRÉZOVACÍ NÁSTROJE a.s.
Tl. T. Bati čp. 5334
760 01 Zlín
Česká republika

má zaveden systém managementu v souladu a výše uvedenou normu pro následující
obor podnikání

**Vývoj a výroba fréz, tepelné zpracování nástrojových ocelí
ve vakuu a nitrace.**

Registrační číslo certifikátu 04 100 848048
Audít. zpráva číslo 624 486/200

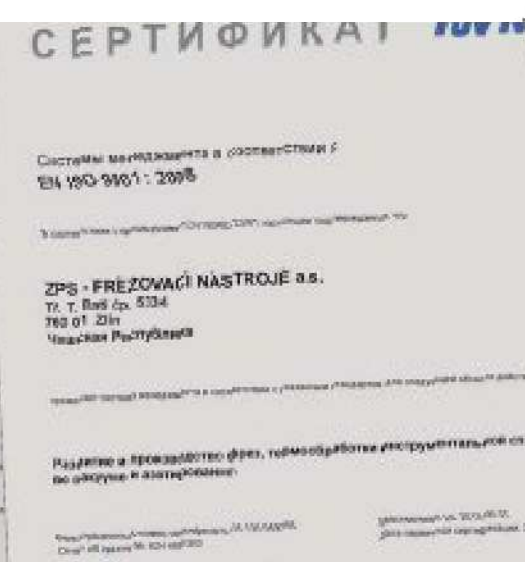
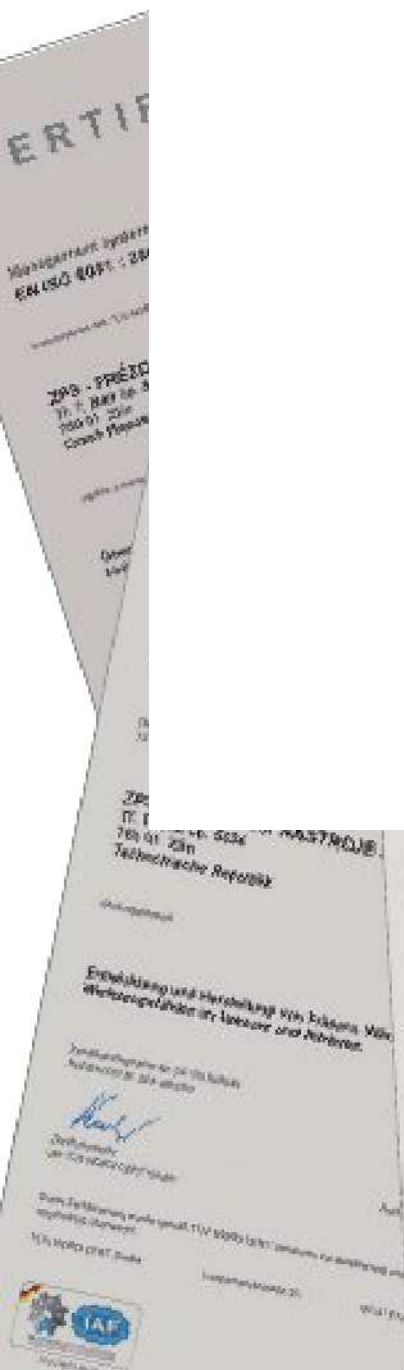
Platný do 2013-06-27
Podle čísla certifikátu 2004-05-17

Certifikát vydala
TUV NORD CERT GmbH

Práva, 2010-06-28

Tato certifikace byla provedena v souladu s TUV NORD CERT certifikačními postupy a je podmíněna prováděním pravidelných
kontrolních auditů.

TUV NORD CERT GmbH Langenackerstrasse 20 42141 Essen www.tuv-nord-cert.com



GPS: 49°13'18,18" N, 17°39'4,75" E



Şirket Merkezi – Bina no. 71,
Bata Sanayii Bölgesi.

Company headquarters – building No. 71,
Baťa Industrial Area.

Sitz der Gesellschaft im 71. Gebäude
des Bata Industrieareals.

Siedziba firmy budynek - nr. 71 strefa
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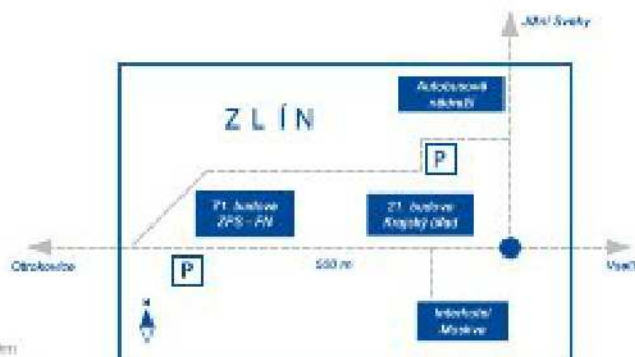
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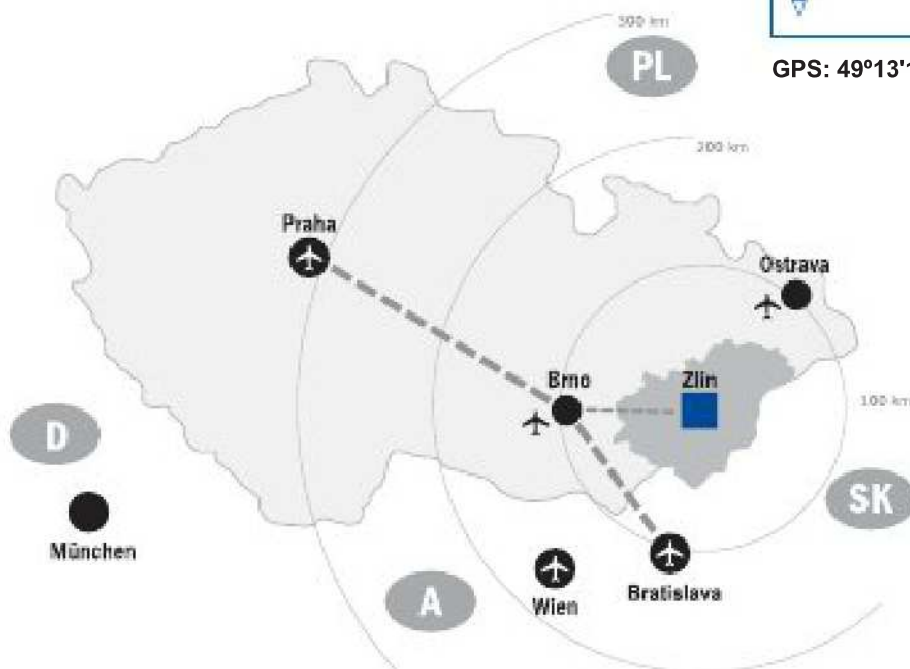
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GPS: 49°13'18,18" N, 17°39'4,75" E





1

SİLİNDİRİK SAPLI PARMAK FREZELER END MILLS WITH STRAIGHT SHANK SCHAFTFRÄSER MIT ZYLINDERSCHAFT FREZY TRZPIENIOWE WALCOWO-CZOŁOWE Z CHWYTEM WALCOWYM

1205 1215	DIN 844 ISO 1641	PARMAK FREZELER, 1 kesici kenarı merkezde END MILLS, 1 tooth cut over centre SCHAFTFRÄSER, 1 Schneide über die Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym		23
1245 1255	DIN 844 ISO 1641	PARMAK FREZELER, NR, 1 kesici kenarı merkezde END MILLS, NR, 1 tooth cut over centre SCHAFTFRÄSER, NR, 1 Schneide über die Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym i rozdzielaczem wióra NR		24
1285 1295	DIN 844 ISO 1641	PARMAK FREZELER, HR, 1 kesici kenarı merkezde END MILLS, HR, 1 tooth cut over centre SCHAFTFRÄSER, HR, 1 Schneide über die Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym i rozdzielaczem wióra HR		25
1285P	DIN 844 ISO 1641	PARMAK FREZELER, HR P, 1 kesici kenarı merkezde END MILLS, HR P, 1 tooth cut over centre SCHAFTFRÄSER, HR P, 1 Schneide über die Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym i rozdzielaczem wióra HR-P		26
1004		PARMAK FREZELER, KISA, 1 kesici kenarı merkezde END MILLS – SHORT, 1 tooth cut over centre SCHAFTFRÄSER – KURZ, 1 Schneide über Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym 1-ostrzowe, KRÓTKIE		27
1014		PARMAK FREZELER, KISA, NR P, 1 kesici kenarı merkezde END MILLS – LONG, 1 tooth cut over centre SCHAFTFRÄSER – LANG, 1 Schneide über Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE z ostrzem centralnym 1-ostrzowe, DŁUGIE		27
1044P	DIN 844 ISO 1641	PARMAK FREZELER, KISA, NR P, 1 kesici kenarı merkezde END MILLS – SHORT, NR P, 1 tooth cut over centre SCHAFTFRÄSER – KURZ, NR P, 1 Schneide über die Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym i rozdzielaczem wióra NR-P, KRÓTKIE		28
1104 1114	DIN 844 ISO 1641 ~ ČSN 222130	PARMAK FREZELER, 1 kesici kenarı merkezde END MILLS, 1 tooth cut over centre SCHAFTFRÄSER, 1 Schneide über Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym		29
1202K		PARMAK FREZELER – EKSTRA KISA END MILLS – EXTRA SHORT SCHAFTFRÄSER – EXTRA KURZ FREZY TRZPIENIOWE WALCOWO-CZOŁOWE – EKSTRA KRÓTKIE		30
1242K		PARMAK FREZELER – EKSTRA KISA, NR END MILLS – EXTRA SHORT, NR SCHAFTFRÄSER – EXTRA KURZ, NR FREZY TRZPIENIOWE WALCOWO-CZOŁOWE Z ROZDZIELACZEM WIÓRA HR – EKSTRA KRÓTKIE		30
1205	DIN 844 ISO 1641	PARMAK FREZELER, 1 kesici kenarı merkezde END MILLS, 1 tooth cut over centre SCHAFTFRÄSER, 1 Schneide über die Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym		31

1215	DIN 844 ISO 1641	PARMAK FREZELER, 1 kesici kenarı merkezde END MILLS, 1 tooth cut over centre SCHAFTFRÄSER, 1 Schneide über die Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym		32
1245 1255	DIN 844 ISO 1641	PARMAK FREZELER, NR, 1 kesici kenarı merkezde END MILLS, NR, 1 tooth cut over centre SCHAFTFRÄSER, NR, 1 Schneide über die Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym i rozdzielaczem wióra NR		33
1245P 1255P	DIN 844 ISO 1641	PARMAK FREZELER, NR, 1 kesici kenarı merkezde END MILLS, NR, 1 tooth cut over centre SCHAFTFRÄSER, NR, 1 Schneide über die Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym i rozdzielaczem wióra NR-P		34
1285 1295	DIN 844 ISO 1641	PARMAK FREZELER, HR, 1 kesici kenarı merkezde END MILLS, HR, 1 tooth cut over centre SCHAFTFRÄSER, HR, 1 Schneide über die Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym i rozdzielaczem wióra HR		35
1285P 1295P	DIN 844 ISO 1641	PARMAK FREZELER, HR P, 1 kesici kenarı merkezde END MILLS, HR P, 1 tooth cut over centre SCHAFTFRÄSER, HR P, 1 Schneide über die Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym i rozdzielaczem wióra HR-P		36
1402	DIN 844 ISO 1641 ~ ČSN 222132	PARMAK FREZELER, KISA END MILLS – SHORT SCHAFTFRÄSER – KURZ FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, bez ostrzy centralnych – KRÓTKIE		37
1412	DIN 844 ISO 1641 ~ ČSN 222132	PARMAK FREZELER, UZUN END MILLS – LONG SCHAFTFRÄSER – LANG FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, bez ostrzy centralnych – DŁUGIE		38
1404	DIN 844 ISO 1641 ~ ČSN 222132	PARMAK FREZELER, KISA, 1 kesici kenarı merkezde END MILLS – SHORT, 1 tooth cut over centre SCHAFTFRÄSER – KURZ, 1 Schneide über Mitte FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym – KRÓTKIE		39
1406	DIN 844 ISO 1641	PARMAK FREZELER, KISA, 2 kesici kenarı merkezde END MILLS – SHORT, 2 teeth cut to centre SCHAFTFRÄSER – KURZ, bis Mitte schneidend FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z dwoma ostrzami centralnymi – KRÓTKIE		40
1604 1614		KÜÇÜK PARMAK FREZELER MINI END MILLS MINIFRÄSER FREZY TRZPIENIOWE WALCOWO-CZOŁOWE – MINI		41

2

YARIK FREZELER
SLOT DRILLS
LANGLOH- UND BOHRNUTENFRÄSER
FREZY TRZPIENIOWE DO ROWKÓW NA WPUSTY



42



43



44



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3

SİLİNDİRİK VE KONİK SAPLI FORM ÇAKILAR
FORM CUTTERS WITH STRAIGHT AND TAPER SHANK
FORMFRÄSER MIT ZYLINDER- UND KEGELSCHAFT
FREZY KSZTAŁTOWE Z CHWYTEM WALCOWYM I STOŻKOWYM



50



51

3142P	DIN 851 ISO 3337	T – YARIK FREZELER, NR P T – SLOT CUTTERS, NR P T – NUTENFRÄSER, NR P FREZY TRZPIENIOWE DO ROWKÓW TEOWYCH z rozdzielnikiem wióra NR-P		51
3200	DIN 850 ~ ČSN 222185	AHŞAP ANAHTAR YUVASI ÇAKILARI WOODRUFF KEYSEAT CUTTERS SCHLITZFRÄSER FÜR WOODRUFFNUTEN FREZY TRZPIENIOWE do rowków na wpusty czółenkowe – WOODRUFFA		52
3201	ČSN 222185	AHŞAP ANAHTAR YUVASI ÇAKILARI WOODRUFF KEYSEAT CUTTERS SCHLITZFRÄSER FÜR WOODRUFFNUTEN FREZY TRZPIENIOWE do rowków na wpusty czółenkowe – WOODRUFFA		53
3302	DIN 1833 A, C ISO 3859 ~ ČSN 222260	KIRLANGIÇ FREZELER DOVETAIL MILLING CUTTERS WINKEL-STIRNFRÄSER FREZY TRZPIENIOWE KĄTOWE		54
3500	DIN 1833 B, D ISO 3859 ~ ČSN 222262	TERS KIRLANGIÇ FREZELER INVERTED DOVETAIL MILLING CUTTERS WINKEL-STIRNFRÄSER FREZY TRZPIENIOWE KĄTOWE		55
3600	DIN 6518	KÖŞE YUVARLAMA FREZE ÇAKILARI CORNER ROUNDING CONCAVE CUTTERS VIERTELROUND-PROFILFRÄSER KONKAV FREZY TRZPIENIOWE ĆWIERCOKRĄGLE WKŁĘŚŁE		56

4

KONİK SAPLI PARMAK FREZELER
END MILLS WITH TAPER SHANK
SCHAFTFRÄSER MIT KEGELSCHAFT
FREZY TRZPIENIOWE WALCOWO-CZOŁOWE Z CHWYTEM STOŻKO

4102 4109	DIN 845 ISO 1641 ČSN 222148*	KONİK SAPLI PARMAK FREZELER – KISA, kaba diş TAPER SHANK END MILLS – SHORT, coarse teeth SCHAFTFRÄSER mit MK – KURZ, grobgezahnt FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym morse'a gruboostrzowe – KRÓTKIE		57
4112 4119	DIN 845 ISO 1641 ČSN 222148*	KONİK SAPLI PARMAK FREZELER – UZUN, kaba diş TAPER SHANK END MILLS – LONG, coarse teeth SCHAFTFRÄSER mit MK – LANG, grobgezahnt FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym morse'a gruboostrzowe – DŁUGIE		58
4202 4209	DIN 845 ISO 1641 ČSN 222142*	KONİK SAPLI PARMAK FREZELER – KISA TAPER SHANK END MILLS – SHORT SCHAFTFRÄSER mit MK – KURZ FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym morse'a – KRÓTKIE		59
4212 4219	DIN 845 ISO 1641 ČSN 222142*	KONİK SAPLI PARMAK FREZELER – UZUN TAPER SHANK END MILLS – LONG SCHAFTFRÄSER mit MK – LANG FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym morse'a – DŁUGIE		60

4222 4229	DIN 845 ISO 1641 ČSN 222142*	KONİK SAPLI PARMAC FREZELER – KISA TAPER SHANK END MILLS – SHORT SCHAFTFRÄSER mit MK – KURZ FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym morse'a i rozdzielaczem wióra – KRÓTKIE		61
4232 4239	DIN 845 ISO 1641 ČSN 222142*	KONİK SAPLI PARMAC FREZELER – UZUN TAPER SHANK END MILLS – LONG SCHAFTFRÄSER mit MK – LANG FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym morse'a i rozdzielaczem wióra – DŁUGIE		62
4242 4252	DIN 845 B, C ISO 1641	KONİK SAPLI PARMAC FREZELER, NR TAPER SHANK END MILLS, NR SCHAFTFRÄSER mit MK, NR FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym morse'a i rozdzielaczem wióra NR		63
4309 4319	ČSN 222146 ~ DIN 845 ~ ISO 1641	KONİK SAPLI PARMAC FREZELER, ince diş TAPER SHANK END MILLS, fine teeth SCHAFTFRÄSER mit MK, feingezahnt FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym morse'a		64
4402 4412	DIN 845 B	KONİK SAPLI PARMAC FREZELER, Titanyum frezelemek için TAPER SHANK END MILLS, for titanium machining SCHAFTFRÄSER mit MK, für Titan Bearbeitung FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym morse'a do obróbki tytanu		
4422 4432	DIN 845 B	KONİK SAPLI PARMAC FREZELER, Titanyum frezelemek için TAPER SHANK END MILLS, for titanium machining SCHAFTFRÄSER mit MK, für Titan Bearbeitung FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym morse'a i rozdzielaczem wióra do obróbki tytanu		66

5 KÜRESEL PARMAC FREZELER DIE SINKING CUTTERS GESENKFRÄSER FREZY KOPIOWE

5104 5104	~ DIN 1889	KÜRESEL PARMAC FREZELER – KISA, 2 ağızlı BALLNOSE ENDMILLS – SHORT, 2 – fluted RADIUSFRÄSER – KURZ, Zweischneider FREZY TRZPIENIOWE Z CZOŁEM KULISTYM, dwuostrzowe – KRÓTKIE		67
5114		KÜRESEL PARMAC FREZELER – UZUN, 2 ağızlı BALLNOSE ENDMILLSS – LONG, 2 – fluted RADIUSFRÄSER – LANG, Zweischneider FREZY TRZPIENIOWE Z CZOŁEM KULISTYM, dwuostrzowe – DŁUGIE		68
5307 5317	PN 222291 ~ DIN 1889 ISO 3940	KÜRESEL PARMAC FREZELER BALLNOSE ENDMILLS, with ball nose RADIUSFRÄSER, mit runder Stirn FREZY TRZPIENIOWE Z CZOŁEM KULISTYM, trzyostrzowe		69
5807	ČSN 222814	KÜRESEL PARMAC FREZELER – KONİK – 4 ağızlı DIE SINKING CUTTERS – TAPERED, 4 – fluted GESENKFRÄSER – KONISCH, Vierschneider FREZY TRZPIENIOWE STOŻKOWE ZBIEŻNE, z ostrzami na czole czterostrzowe		70

6

VALS FREZELER
SHELL END MILLS
WALZENSTIRNFRÄSER MIT BOHRUNG
FREZY WALCOWO-CZOŁOWE NASADZANE

6102V	DIN 1880 ISO 2780/2586	VALS FREZELER, kaba diş SHELL END MILLS, coarse teeth WALZENSTIRNFRÄSER, grobgezahnt FREZY WALCOWO-CZOŁOWE, nasadzane – gruboostrzowe		71
6202 6202V	DIN 1880 ISO 2780/2586 ~ PN 222052	VALS FREZELER SHELL END MILLS WALZENSTIRNFRÄSER FREZY WALCOWO-CZOŁOWE, nasadzane – średnioostrzowe		71-72
6242	DIN 1880 ISO 2780/2586	VALS FREZELER, ince diş SHELL END MILLS, fine teeth WALZENSTIRNFRÄSER, feingezahnt FREZY WALCOWO-CZOŁOWE, nasadzane z rozdzielaczem wióra NR		72
6242V	DIN 1880 ISO 2780/2586	VALS FREZELER, NR SHELL END MILLS, NR WALZENSTIRNFRÄSER, NR FREZY WALCOWO-CZOŁOWE, nasadzane z rozdzielaczem wióra NR		73
6242PV	DIN 1880 ISO 2780/2586	VALS FREZELER, NR P SHELL END MILLS, NR P WALZENSTIRNFRÄSER, NR P FREZY WALCOWO-CZOŁOWE, nasadzane z rozdzielaczem wióra NR P		73
6282	DIN 1880 ISO 2780/2586	VALS FREZELER, HR SHELL END MILLS, HR WALZENSTIRNFRÄSER, HR FREZY WALCOWO-CZOŁOWE, nasadzane z rozdzielaczem wióra HR		74
6302V	DIN 1880 ISO 2780/2586	VALS FREZELER, ince diş SHELL END MILLS, fine teeth WALZENSTIRNFRÄSER, feingezahnt FREZY WALCOWO-CZOŁOWE, nasadzane – drobnoostrzowe		74
6802V	DIN 841	VALS FREZELER SHELL END MILLS WALZENSTIRNFRÄSER FREZY WALCOWO-CZOŁOWE, nasadzane – średnioostrzowe		75
6842V	DIN 841	VALS FREZELER, NR SHELL END MILLS, NR WALZENSTIRNFRÄSER, NR FREZY WALCOWO-CZOŁOWE, nasadzane z rozdzielaczem wióra NR		75
6842PV	DIN 841	VALS FREZELER, NR P SHELL END MILLS, NR P WALZENSTIRNFRÄSER, NR P FREZY WALCOWO-CZOŁOWE, nasadzane z rozdzielaczem wióra NR P		76
6902V	DIN 841	VALS FREZELER, ince diş SHELL END MILLS, fine teeth WALZENSTIRNFRÄSER, feingezahnt FREZY WALCOWO-CZOŁOWE, nasadzane – drobnoostrzowe		76



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78

DIN 1834 A	İNCE KANAL FREZELER, ince diş NARROW SIDE AND FACE MILLING CUTTERS, fine teeth SCHEIBENFRÄSER, SCHMAL, feingezahnt FREZY TARCZOWE PIŁKOWE TRZYSTRONNE NA PRZEMIAN SKOŚNE – droбноostrzowe
DIN 1834 B	İNCE KANAL FREZELER, düz diş NARROW SIDE AND FACE MILLING CUTTERS, straight teeth SCHEIBENFRÄSER, SCHMAL, geradeverzahnt FREZY TARCZOWE PIŁKOWE TRZYSTRONNE O OSTRZACH PROSTYCH
DIN 885 B	KANAL FREZELER, ince diş, düz diş SIDE AND FACE MILLING CUTTERS, fine teeth, straight teeth SCHEIBENFRÄSER, feingezahnt, geradeverzahnt FREZY TARCZOWE TRZYSTRONNE O OSTRZACH PROSTYCH – droбноostrzowe
PN 222161 ~ DIN 885 ~ ISO 2787	KANAL FREZELER SIDE AND FACE MILLING CUTTERS SCHEIBENFRÄSER FREZY TARCZOWE TRZYSTRONNE NA PRZEMIAN SKOŚNE – średnioostrzowe



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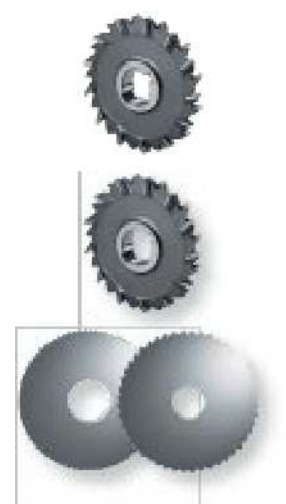


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7303	ČSN 222165 ~ DIN 885 ~ ISO 2787	KANAL FREZELER, ince diş SIDE AND FACE MILLING CUTTERS, fine teeth SCHEIBENFRÄSER, feingezahnt FREZY TARCZOWE TRZYSTRONNE NA PRZEMIAN SKOŚNE – drobnoostrzowe
7323	ČSN 222168	KANAL FREZELER SLOTING CUTTERS NUTENFRÄSER FREZY TARCZOWE DO ROWKÓW
7229	DIN 1837 DIN 1838	METAL KESME TESTERELERİ METAL SLITTING SAWS METALLKREISSÄGEBLÄTTER FREZY PIŁKOWE DO METALU



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89

8 FORM VE AÇISAL FREZELER FORM RELIEVED AND ANGULAR CUTTERS HINTERDREHTE FORMFRÄSER UND WINKELFRÄSER FREZY PROMIENIOWE I KĄTOWE

8100 8100V	~ DIN 856 ISO 3860 ~ ČSN 222210	DIŞ BÜKEY FREZELER HALF CIRCLE MILLING CUTTERS CONVEX HALBRUND-PROFILFRÄSER KONVEX FREZY KRAŻKOWE PÓŁOKRĄGŁE WYPUKŁE
8200 8200V	~ DIN 855 A ISO 3860 ~ ČSN 222230	İÇ BÜKEY FREZELER HALF CIRCLE MILLING CUTTERS, CONCAVE HALBRUND-PROFILFRÄSER, KONKAV FREZY KRAŻKOWE PÓŁOKRĄGŁE WKŁĘSŁE
8241	ČSN 222231 ~ DIN 855 B ~ ISO 3860	İÇ BÜKEY FREZE, çiftleşmiş HALF CIRCLE MILLING CUTTERS, CONCAVE, coupled HALBRUND-PROFILFRÄSER, KONKAV, gekuppelt FREZY KRAŻKOWE PÓŁOKRĄGŁE WKŁĘSŁE, składane
8301	ČSN 222234 ~ DIN 6513 ~ ISO 3860	KÖŞE YUVARLAMA FREZELER, İÇ BÜKEY CORNER ROUNDING MILLING CUTTERS, CONCAVE VIERTELROUND-PROFILFRÄSER, KONKAV FREZY KRAŻKOWE CWIERCOKRĄGŁE
8525	ČSN 222242 ~ DIN 1824 A	TEK AÇILI PRİZMA FREZE SINGLE ANGLE MILLING CUTTERS AUFSTECK-WINKELFRÄSER, EINSEITIG FREZY KRAŻKOWE KĄTOWE JEDNOSTRONNE
8532 8532V	DIN 842 ~ ČSN 222254	TEK AÇILI PRİZMA FREZE SINGLE ANGLE MILLING CUTTERS AUFSTECK-WINKELSTIRNFRÄSER, EINSEITIG FREZY KRAŻKOWE KĄTOWE JEDNOSTRONNE
8570 8570V	DIN 847 ISO 6408 ~ ČSN 222250	ÇİFT AÇILI PRİZMA FREZE, simetrik DOUBLE ANGLE MILLING CUTTERS, symmetrical AUFSTECK-WINKELFRÄSER, DOPPELSEITIG, symmetrisch FREZY KRAŻKOWE KĄTOWE DWUSTRONNE, symetryczne



92
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100-10



100-10



100-10

Kesicilerimizin temel kodlaması sayısal tanımlamayla gerçekleştirilmektedir – 6 rakamdan oluşur.

Kısa kod her katalog sayfasının üst kısmında bulunur ve 4 yada 5 rakamdan oluşur.

Kodun tamamı en fazla 13 rakamdan oluşur (örn. Kanal frezelerde).

The numerical identification of our cutters consists of basic CODE – it contains 6 numbers.

The shortened code is in the header of every catalogue sheet and it consists of 4 or 5 numbers.

The complete code contains maximum of 13 numbers (e.g. at the side and face cutters).

Das numerische Kodezeichen besteht aus dem Grundkode (CODE) – es enthält 6 Ziffern.

Der verkürzte Kode ist im Kopf jedes Katalogblattes angegeben und er besteht aus 4 bis 5 Ziffern.

Das numerische Zeichen enthält maximal 13 Ziffern (z.B. bei den Scheibenfräsern).

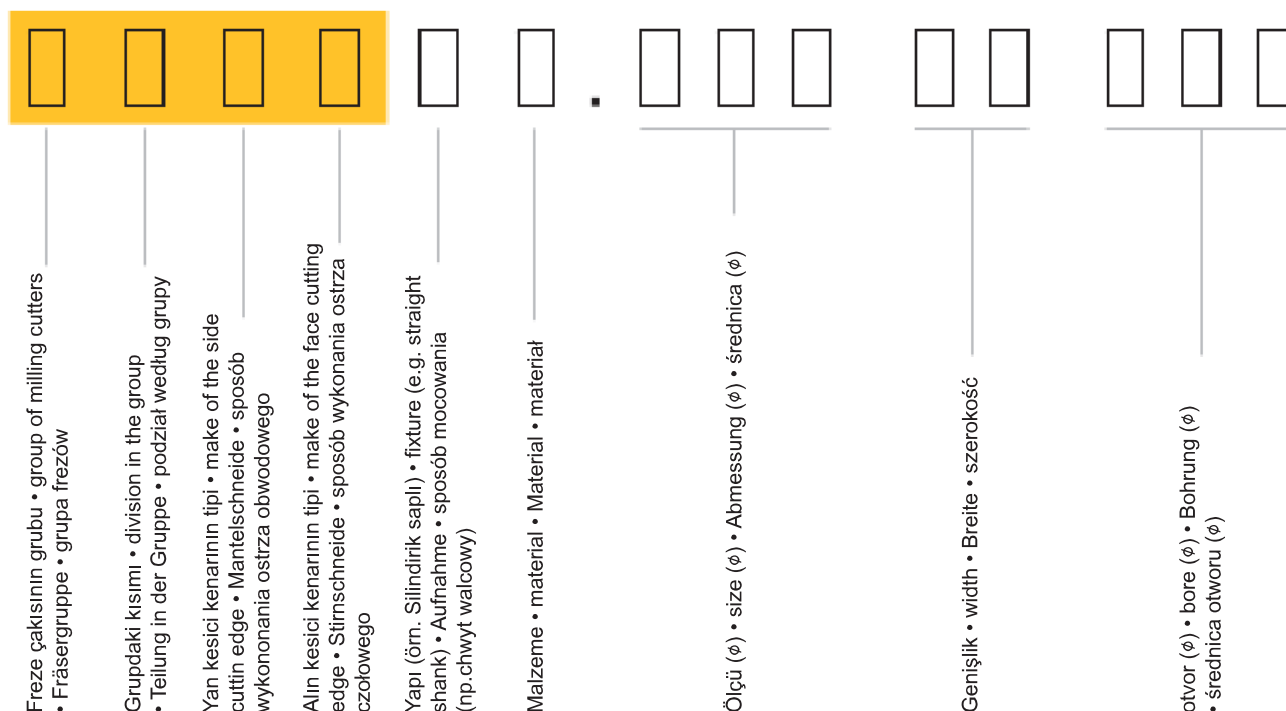
Numeryczny kod identyfikacyjny – kod fabryczny – składa się z 6 cyfr.

Skrócone kody zamieszczone w nagłówkach składają się 4 lub 5 cyfr.

Pełen kod identyfikacyjny zawiera 13 cyfr (np. frezy tarczowe).

Numerik tanımlama • The numerical identification • Der numerische Zeichen • Numeryczny kod identyfikacyjny

CODE



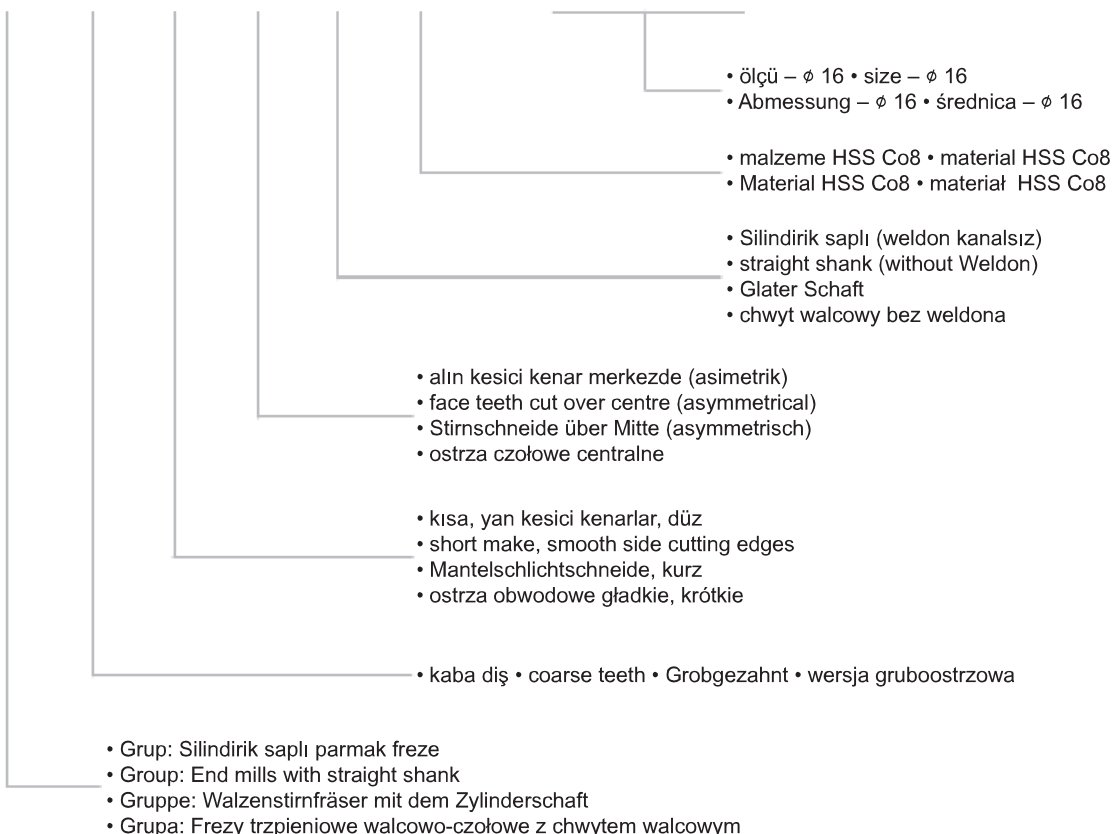
Örneğin: Silindirik saplı 16 mm parmak freze, kaba diş, kısa, düz yan kesicili, alın kesici kenar merkezde (asimetrik) weldon kanalsız, malzeme HSS Co8:

Example: End mill diameter 16 mm with straight shank, coarse teeth, short, with smooth side cutting edges, face teeth cut over centre (asymmetrical), without Weldon, material HSS Co8:

Beispiel: Der Walzenstirnfräser, Durchmesser 16 mm mit dem Zylinderschaft, grobgezahnt, kurz, mit Schlichtschneiden auf dem Umfang, Stirnschneide über Mitte, asymmetrisch, mit glattem Schaft aus dem Material HSS Co8 wird wie folgt bezeichnet:

Przykład: Frez trzpieniowy walcowo-czołowy z ostrzem centralnym o średnicy 16 mm z chwytem walcowym z chwytem gładkim. Wersja krótka gruboostrowa z ostrzami obwodowymi gładkimi, wykonany z HSS Co8:

1 1 0 4 0 8 . 1 6 0



ÇAKILARIN SİPARİŞİ
ORDERING OF THE CUTTERS
BESTELLUNG DER FRÄSER
PRZYKŁAD ZAMÓWIENIA

Örneğin: Silindirik saplı 16 mm parmak freze, kaba diş, kısa, düz yan kesicili, alın kesici kenar merkezde (asimetrik) weldon kanalsız, malzeme HSS Co8, TiAlN kaplı, 50 adet:

Example: End mill diameter 16 mm with straight shank, coarse teeth, short, with smooth side cutting edges, face teeth cut over centre (asymmetrical), without Weldon, material HSS Co8, coated TiAlN, 50 pcs:

Beispiel: Der Walzenstirnfräser, Durchmesser 16 mm mit dem Zylinderschaft, grobgezahnt, kurz, mit der Schlichtschneide auf dem Umfang. Stirnschneide über Mitte (Asymmetrisch) mit glattem Schaft aus dem Material HSS Co8, Beschichtung TiAlN, 50 St:

Przykład: Frez trzpieniowy walcowo-czołowy z ostrzem centralnym o średnicy 16 mm z chwytem walcowym bez weldona. Wersja krótka gruboostrowa o ostrzach obwodowych gładkich, wykonany z HSS Co8 w pokryciu TiAlN, 50 szt.:

1 1 0 4 0 8 . 1 6 0 TiAlN / 50 adet • pcs • St • szt



	Bağlama tipi	Clamping feature	Spannelement	Sposoby mocowania
	DIN 1835 A ya göre düz silindirik saplı	Plain straight shank acc. to DIN 1835 A	Glatter Schaft nach DIN 1835 A	Chwyt walcowy wg. DIN 1835 A
	DIN 1835 B ye göre Weldon kanallı silindirik saplı	Straight shank with clamping flat (Weldon) acc. to DIN 1835 B	Seitliche Mitnahmefläche nach DIN 1835 B	Chwyt walcowy ze spłaszczeniem (weldon) wg. DIN 1835 B
	DIN 228 A ya göre mors konik şaftlı	Morse taper shank acc. to DIN 228 A	Morsekegelschaft nach DIN 228 A	Chwyt stożkowy morse'a wg. DIN 228 A
	DIN 138 e göre standart kamalı, düz delik	Straight bore with standard keyway	Zylindrische Bohrung mit Längsnut nach DIN 138	Otwór montażowy z kanałkiem zabierakowym pod klin
	DIN 138 e göre standart kamalı, düz delik, yarıklı	Straight bore with standard keyway and driving slot	Zylindrische Bohrung mit Längs- und Quernut nach DIN 138	Otwór montażowy z kanałkiem zabierakowym pod klin i kanałkiem poprzecznym
	Kesici malzemesi	Cutting geometry	Schneidgeometrie	Geometria ostrza
	λ = Helis açısı γ = Talaş açısı	λ = Helix angle γ = Rake angle	λ = Drallwinkel γ = Spanwinkel	λ = Kąt lini śrubowej γ = Kąt ostrzy czołowych
	Tip	Type	Typ	Typ
	N Tipi Daha fazla bilgi için sayfa 104'ya bakınız	Type N More information on page 104	Typ N. Mehrere Informationen auf der Seite 104	Typ N. Więcej informacji na stronie 104
	İlerleme yönü	Feed direction	Vorschubrichtung	Kierunek posówu
	Mümkün olan ilerleme yönleri	Feed direction possibility	Mögliche Vorschubrichtungen	Możliwe kierunki posówu
	Takımın kesici köşeleri	Cutting edges of tool	Werkzeug-schneidkanten	Ostrza narzędzia
	Yan ve alın yüzeyde çevresel kesici kenarlar	Cutting edges on the face and perimeter of the side and face cutter	Neben- und Hauptschneide des Scheibenfräasers	Ostrza czołowe i boczne na obwodzie - frezy tarczowe
	Alın yüzeyde kesici kenarlar	Cutting edges on the perimeter of the side and face cutter	Hauptschneide des Scheibenfräasers	Ostrza czołowe na obwodzie - frezy tarczowe
	Açılı yüzey ve alında kesici kenarlar	Cutting edges on the face and perimeter of the angle cutter	Neben- und Hauptschneide des Winkelfräasers	Ostrza czołowe i boczne na obwodzie - frezy kątowe
	Açılı yüzeyde kesici kenarlar	Cutting edges on the perimeter of the angle cutter	Nebenschneide des Winkelfräasers	Ostrza na obwodzie - frezy kątowe
	Çift kesici kenarda çevresel kesici kenarlar	Cutting edges on the perimeter of the double angle cutter	Hauptschneide des Prismenfräasers	Ostrza na obwodzie - frezy kątowe symetryczne



Takım malzemesi	Material of tool	Schneidstoff	Material
	HSS Co8. Daha fazla bilgi için sayfa 105'e bakınız	HSS Co8. Mehrere Informationen auf der Seite 105	HSS Co8. Więcej informacji na stronie 105
Kesici kenarların tipi	Make of face cutting edges	Ausführung der Hauptschneide	Sposób wykonania czoła
	ČSN standartına göre	Acc. to ČSN standard	Nach ČSN Norm
	DIN standartına göre	Acc. to DIN standard	Nach DIN
	DIN standartına göre	Acc. to DIN standard	Nach DIN
Çevresel kesici kenarların tipi	Make of perimeter cutting edges	Ausführung der Nebenschneide	Sposób wykonania ostrzy na obwodzie
	Düz diş	Straight teeth	Geradeverzahnt
	Çapraz diş	Staggered teeth	Kreuzverzahnt
Kaplama	Coating	Beschichtung	Pokrycie
	Kaplamasız	Uncoated	Nicht beschichtet
	TiAlN kaplamalı Daha fazla bilgi için sayfa 107'e bakınız. www.liss.cz , www.platit.com	TiAlN Beschichtung Mehrere Informationen auf der Seite 107. www.liss.cz , www.platit.com	W pokryciu TiAlN Więcej informacji na stronie 107. www.liss.cz , www.platit.com



ZPS - FRÉZOVACÍ NÁSTROJE



typ
N

HSSE
PM



n / Zastosowanie

Kısa / Short / Kurz / Krótki

D k 10	I	L	d h 6	Z	CODE
6	13	57	6	4	120517.060
8	19	69	10	4	120517.080
10	22	72	10	4	120517.100
12	26	83	12	4	120517.120
14	26	83	12	4	120517.140
16	32	92	16	4	120517.160
18	32	92	16	4	120517.180
20	38	104	20	4	120517.200

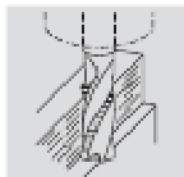
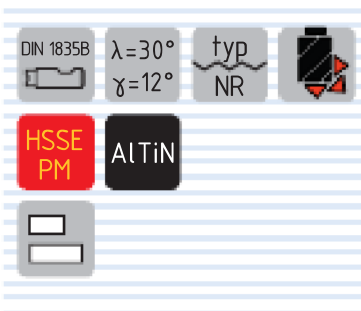
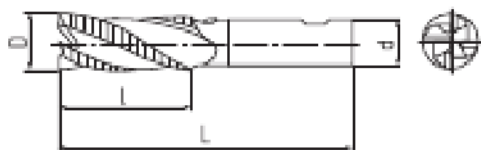
Uzun / Long / Lang / Długi

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10	45	95	10	4	121517.100
12	53	110	12	4	121517.120
14	53	110	12	4	121517.140
16	63	123	16	4	121517.160
18	63	123	16	4	121517.180
20	75	141	20	4	121517.200

1245
1255

DIN 844
ISO 1641

PARMAK FREZELER, NR, 1 kesici kenarı merkezde
END MILLS, NR, 1 tooth cut over centre
SCHAFTFRÄSER, NR, 1 Schneide über die Mitte
FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym
i rozdzielnikiem wióra, NR



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

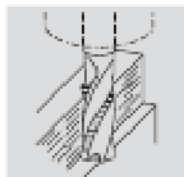
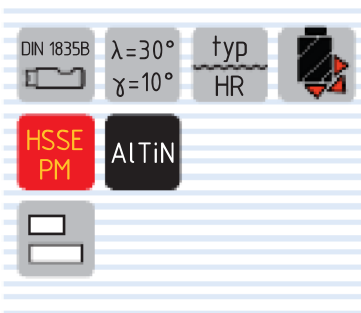
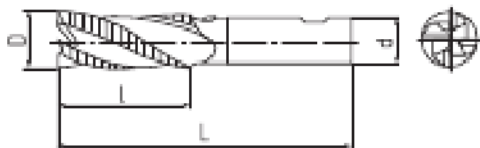
Kısa / Short / Kurz / Krótki

D k 12	I	L	d h 6	Z	CODE
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12	26	83	12	4	124517.120
14	26	83	12	4	124517.140
16	32	92	16	4	124517.160
18	32	92	16	4	124517.180
20	38	104	20	4	124517.200
22	38	104	20	5	124517.220
25	45	121	25	5	124517.250
28	45	121	25	5	124517.280
30	45	121	25	5	124517.300
32	53	133	32	6	124517.320

Uzun / Long / Lang / Długi

D k 12	I	L	d h 6	Z	CODE
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8	38	88	10	4	125517.080
10	45	95	10	4	125517.100
12	53	110	12	4	125517.120
14	53	110	12	4	125517.140
16	63	123	16	4	125517.160
18	63	123	16	4	125517.180
20	75	141	20	4	125517.200
25	90	166	25	5	125517.250
32	106	186	32	6	125517.320

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: 124517.060



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

Kısa / Short / Kurz / Krótki

D k 12	I	L	d h 6	Z	CODE
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8	19	69	10	4	128517.080
10	22	72	10	4	128517.100
12	26	83	12	4	128517.120
14	26	83	12	4	128517.140
16	32	92	16	4	128517.160
18	32	92	16	4	128517.180
20	38	104	20	4	128517.200

Uzun / Long / Lang / Długi

D k 12	I	L	d h 6	Z	CODE
6	24	68	6	4	129517.060
8	38	88	10	4	129517.080
10	45	95	10	4	129517.100
12	53	110	12	4	129517.120
14	53	110	12	4	129517.140
16	63	123	16	4	129517.160
18	63	123	16	4	129517.180
20	75	141	20	4	129517.200

1285PDIN 844
ISO 1641

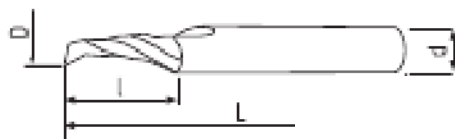
PARMAK FREZELER, HR P, 1 kesici kenarı merkezde
 END MILLS, HR P, 1 tooth cut over centre
 SCHAFTFRÄSER, HR P, 1 Schneide über die Mitte
 FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym
 i rozdzielnikiem wióra, HR-P

typ
HR PHSSE
PM

Zastosowanie

D k 12	I	L	d h 6	Z	CODE
6	13	57	6	4	128517P.060
8	19	69	10	4	128517P.080
10	22	72	10	4	128517P.100
12	26	83	12	4	128517P.120
14	26	83	12	4	128517P.140
16	32	92	16	4	128517P.160
18	32	92	16	4	128517P.180
20	38	104	20	4	128517P.200
22	38	104	20	5	128517P.220
25	45	121	25	5	128517P.250
28	45	121	25	5	128517P.280
30	45	121	25	5	128517P.300
32	53	133	32	6	128517P.320

Sipariş örneği / Example of order / Bestellsbeispiel / Przykład zamówienia: **128517P.060**



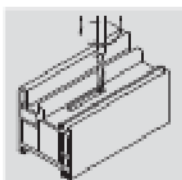
$\lambda=30^\circ$
 $\gamma=20^\circ$

typ
 W

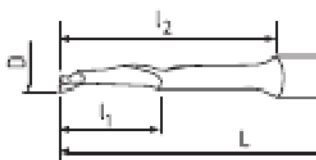


HSS
 Co5

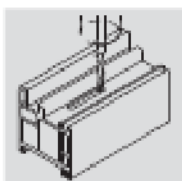
z=1



PARMAK
 END MILL
 SCHAFTFRÄSER
 FREZY TRZPIENIOWE
 1-ostrzowe



z=1



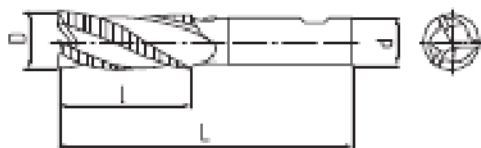
Application / Zastosowanie

3 9 10 11 12 13

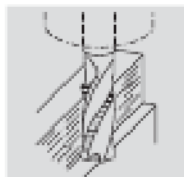
D js 16	L	l ₁	l ₂	d h 6	CODE
4	80	16	45	8	101405.040
5	80	16	45	8	101405.050
6	90	16	45	8	101405.060
8	100	30	70	8	101405.080

1044PDIN 844
ISO 1641

PARMAK FREZELER, KISA, NR P, 1 kesici kenarı merkezde
 END MILLS – SHORT, NR P, 1 tooth cut over centre
 SCHAFTFRÄSER – KURZ, NR P, 1 Schneide über die Mitte
 FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym
 i rozdzielnym wióra NR-P, KRÓTKIE



DIN 1835B

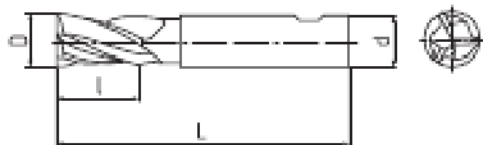

 $\lambda = 35^\circ$
 $\gamma = 12^\circ$
typ
NR PHSS
Co8

Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D k 12	I	L	d h 6	Z	CODE
6	13	57	6	3	104418P.060
8	19	69	10	3	104418P.080
10	22	72	10	3	104418P.100
12	26	83	12	3	104418P.120
14	26	83	12	3	104418P.140
16	32	92	16	3	104418P.160
18	32	92	16	3	104418P.180
20	38	104	20	3	104418P.200
22	38	104	20	3	104418P.220
24	45	121	25	3	104418P.240
25	45	121	25	3	104418P.250
26	45	121	25	3	104418P.260
28	45	121	25	3	104418P.280
30	45	121	25	3	104418P.300
32	53	133	32	3	104418P.320

Sipariş örneği / Example of order / Bestellsbeispiel / Przykład zamówienia: **104418P.060** (+ TiAlN)



DIN 1835B

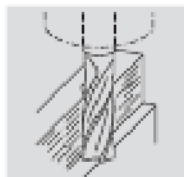


$\lambda = 40^\circ$
 $\gamma = 25^\circ$

typ
W



HSS
Co8



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

Kısa / Short / Kurz / Krótki

D k 10	I	L	d h 6	Z	CODE
6	13	57	6	3	110418.060
7	16	66	10	3	110418.070
8	19	69	10	3	110418.080
9	19	69	10	3	110418.090
10	22	72	10	3	110418.100
12	26	83	12	3	110418.120
14	26	83	12	3	110418.140
16	32	92	16	3	110418.160
18	32	92	16	3	110418.180
20	38	104	20	3	110418.200

Uzun / Long / Lang / Długi

D k 10	I	L	d h 6	Z	CODE
6	24	68	6	3	111418.060
7	30	80	10	3	111418.070
8	38	88	10	3	111418.080
9	38	88	10	3	111418.090
10	45	95	10	3	111418.100
12	53	110	12	3	111418.120
14	53	110	12	3	111418.140
16	63	123	16	3	111418.160
18	63	123	16	3	111418.180
20	75	141	20	3	111418.200

1202K

PARMAK FREZELER – EKSTRA KISA
 END MILLS – EXTRA SHORT
 SCHAFTFRÄSER – EXTRA KURZ
 FREZY TRZPIENIOWE WÁLCOWO-CZOŁOWE – EKSTRA KRÓTKIE



Zastosowanie

D k 10	I	L	d h 6	Z	CODE
30	30	90	20	6	120218K.300030
35	30	90	20	6	120218K.350030
40	32	95	25	8	120218K.400032

1242K

PARMAK FREZELER – EKSTRA KISA, NR
 END MILLS – EXTRA SHORT, NR
 SCHAFTFRÄSER – EXTRA KURZ, NR
 FREZY TRZPIENIOWE WÁLCOWO-CZOŁOWE Z ROZDZIELACZEM
 WIÓRA NR – EKSTRA KRÓTKIE

typ
NR



Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D k 12	I	L	d h 6	Z	CODE
30	30	90	20	6	124218K.300030
35	30	90	20	6	124218K.350030
40	32	95	25	8	124218K.400032

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **120218K.300030** (+ TiAlN)



D ≤ 2,5



typ
N

HSS
Co8



D ≤ 5,5



/ Zastosowanie

9 10 11 12 13



D k 10	I	L	d h 6	Z	CODE	CODE
2	7	51	6	3	120508.020	120518.020
2,5	8	52	6	3	120508.025	120518.025
3	8	52	6	4	120508.030	120518.030
3,5	10	54	6	4	—	120518.035
4	11	55	6	4	120508.040	120518.040
4,5	11	55	6	4	—	120518.045
5	13	57	6	4	120508.050	120518.050
5,5	13	57	6	4	—	120518.055
6	13	57	6	4	120508.060	120518.060
6,5	16	66	10	4	—	120518.065
7	16	66	10	4	120508.070	120518.070
7,5	16	66	10	4	—	120518.075
8	19	69	10	4	120508.080	120518.080
8,5	19	69	10	4	—	120518.085
9	19	69	10	4	120508.090	120518.090
9,5	19	69	10	4	—	120518.095
10	22	72	10	4	120508.100	120518.100
11	22	79	12	4	—	120518.110
12	26	83	12	4	120508.120	120518.120
13	26	83	12	4	120508.130	120518.130
14	26	83	12	4	120508.140	120518.140
15	26	83	12	4	120508.150	120518.150
16	32	92	16	4	120508.160	120518.160
17	32	92	16	4	120508.170	120518.170
18	32	92	16	4	120508.180	120518.180
20	38	104	20	4	120508.200	120518.200
22	38	104	20	5	120508.220	120518.220
24	45	121	25	5	—	120518.240
25	45	121	25	5	120508.250	120518.250
26	45	121	25	5	—	120518.260
28	45	121	25	5	120508.280	120518.280
30	45	121	25	5	120508.300	120518.300
32	53	133	32	6	120508.320	120518.320
35	53	133	32	6	—	120518.350
36	53	133	32	6	—	120518.360
40	63	143	32	6	—	120518.40032



D ≤ 5,5

HSS
Co8typ
N

/ Zastosowanie

D k 10	I	L	d h 6	Z	CODE
3	12	56	6	4	121518.030
3,5	15	59	6	4	121518.035
4	19	63	6	4	121518.040
4,5	19	63	6	4	121518.045
5	24	68	6	4	121518.050
5,5	24	68	6	4	121518.055
6	24	68	6	4	121518.060
7	30	80	10	4	121518.070
8	38	88	10	4	121518.080
9	38	88	10	4	121518.090
10	45	95	10	4	121518.100
11	45	102	12	4	121518.110
12	53	110	12	4	121518.120
14	53	110	12	4	121518.140
16	63	123	16	4	121518.160
18	63	123	16	4	121518.180
20	75	141	20	4	121518.200
22	75	141	20	5	121518.220
24	90	166	25	5	121518.240
25	90	166	25	5	121518.250
26	90	166	25	5	121518.260
28	90	166	25	5	121518.280
30	90	166	25	5	121518.300
32	106	186	32	6	121518.320
36	106	186	32	6	121518.360
40	125	205*	32*	6	121518.40032

*/ ≠ DIN 844

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **121518.060** (+ TiAlN)

typ
 NR

HSS
 Co8



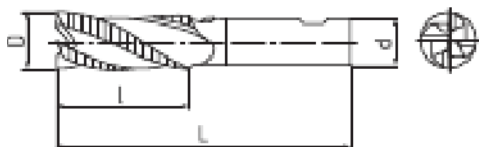
1 / Zastosowanie

Kısa / Short / Kurz / Krótki

Uzun / Long / Lang / Długi

D k 12	I	L	d h 6	Z	CODE
6	13	57	6	4	124518.060
7	16	66	10	4	124518.070
8	19	69	10	4	124518.080
9	19	69	10	4	124518.090
10	22	72	10	4	124518.100
11	22	79	12	4	124518.110
12	26	83	12	4	124518.120
13	26	83	12	4	124518.130
14	26	83	12	4	124518.140
15	26	83	12	4	124518.150
16	32	92	16	4	124518.160
17	32	92	16	4	124518.170
18	32	92	16	4	124518.180
20	38	104	20	4	124518.200
22	38	104	20	5	124518.220
24	45	121	25	5	124518.240
25	45	121	25	5	124518.250
26	45	121	25	5	124518.260
28	45	121	25	5	124518.280
30	45	121	25	5	124518.300
32	53	133	32	6	124518.320

D k 12	I	L	d h 6	Z	CODE
6	24	68	6	4	125518.060
8	38	88	10	4	125518.080
10	45	95	10	4	125518.100
12	53	110	12	4	125518.120
14	53	110	12	4	125518.140
16	63	123	16	4	125518.160
18	63	123	16	4	125518.180
20	75	141	20	4	125518.200
22	75	141	20	5	125518.220
24	90	166	25	5	125518.240
25	90	166	25	5	125518.250
26	90	166	25	5	125518.260
28	90	166	25	5	125518.280
30	90	166	25	5	125518.300
32	106	186	32	6	125518.320

1245P
1255PDIN 844
ISO 1641PARMAK FREZELER, NR P, 1 kesici kenarı merkezde
END MILLS, NR P, 1 tooth cut over centre
SCHAFTFRÄSER, NR P, 1 Schneide über die Mitte
FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym
i rozdzielnikiem wióra NR-Ptyp
NR PHSS
Co8

/ Zastosowanie

Kısa / Short / Kurz / Krótki

Uzun / Long / Lang / Długi

D k 12	I	L	d h 6	Z	CODE
6	13	57	6	4	124518P.060
7	16	66	10	4	124518P.070
8	19	69	10	4	124518P.080
9	19	69	10	4	124518P.090
10	22	72	10	4	124518P.100
11	22	79	12	4	124518P.110
12	26	83	12	4	124518P.120
13	26	83	12	4	124518P.130
14	26	83	12	4	124518P.140
15	26	83	12	4	124518P.150
16	32	92	16	4	124518P.160
17	32	92	16	4	124518P.170
18	32	92	16	4	124518P.180
20	38	104	20	4	124518P.200
22	38	104	20	5	124518P.220
24	45	121	25	5	124518P.240
25	45	121	25	5	124518P.250
26	45	121	25	5	124518P.260
28	45	121	25	5	124518P.280
30	45	121	25	5	124518P.300
32	53	133	32	6	124518P.320

D k 12	I	L	d h 6	Z	CODE
6	24	68	6	4	125518P.060
8	38	88	10	4	125518P.080
10	45	95	10	4	125518P.100
12	53	110	12	4	125518P.120
14	53	110	12	4	125518P.140
16	63	123	16	4	125518P.160
18	63	123	16	4	125518P.180
20	75	141	20	4	125518P.200
22	75	141	20	5	125518P.220
24	90	166	25	5	125518P.240
25	90	166	25	5	125518P.250
26	90	166	25	5	125518P.260
28	90	166	25	5	125518P.280
30	90	166	25	5	125518P.300
32	106	186	32	6	125518P.320

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **124518P.060** (+ TiAlN)

typ
 HR

HSS
 Co8



on / Zastosowanie

Kısa / Short / Kurz / Krótki

Uzun / Long / Lang / Długi

D k 12	I	L	d h 6	Z	CODE
6	13	57	6	4	128518.060
7	16	66	10	4	128518.070
8	19	69	10	4	128518.080
9	19	69	10	4	128518.090
10	22	72	10	4	128518.100
11	22	79	12	4	128518.110
12	26	83	12	4	128518.120
13	26	83	12	4	128518.130
14	26	83	12	4	128518.140
15	26	83	12	4	128518.150
16	32	92	16	4	128518.160
17	32	92	16	4	128518.170
18	32	92	16	4	128518.180
20	38	104	20	4	128518.200
22	38	104	20	5	128518.220
24	45	121	25	5	128518.240
25	45	121	25	5	128518.250
26	45	121	25	5	128518.260
28	45	121	25	5	128518.280
30	45	121	25	5	128518.300
32	53	133	32	6	128518.320

D k 12	I	L	d h 6	Z	CODE
6	24	68	6	4	129518.060
8	38	88	10	4	129518.080
10	45	95	10	4	129518.100
12	53	110	12	4	129518.120
14	53	110	12	4	129518.140
16	63	123	16	4	129518.160
18	63	123	16	4	129518.180
20	75	141	20	4	129518.200
22	75	141	20	5	129518.220
24	90	166	25	5	129518.240
25	90	166	25	5	129518.250
26	90	166	25	5	129518.260
28	90	166	25	5	129518.280
30	90	166	25	5	129518.300
32	106	186	32	6	129518.320

1285P
1295PDIN 844
ISO 1641PARMAK FREZELER, HR P, 1 kesici kenarı merkezde
END MILLS, HR P, 1 tooth cut over centre
SCHAFTFRÄSER, HR P, 1 Schneide über die Mitte
FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z ostrzem centralnym
i rozdzielnikiem wióra HR-Ptyp
HR PHSS
Co8

/ Zastosowanie

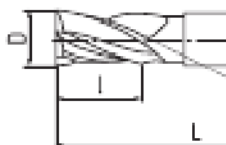
Kısa / Short / Kurz / Krótki

Uzun / Long / Lang / Długi

D k 12	I	L	d h 6	Z	CODE
6	13	57	6	4	128518P.060
7	16	66	10	4	128518P.070
8	19	69	10	4	128518P.080
9	19	69	10	4	128518P.090
10	22	72	10	4	128518P.100
11	22	79	12	4	128518P.110
12	26	83	12	4	128518P.120
13	26	83	12	4	128518P.130
14	26	83	12	4	128518P.140
15	26	83	12	4	128518P.150
16	32	92	16	4	128518P.160
17	32	92	16	4	128518P.170
18	32	92	16	4	128518P.180
20	38	104	20	4	128518P.200
22	38	104	20	5	128518P.220
24	45	121	25	5	128518P.240
25	45	121	25	5	128518P.250
26	45	121	25	5	128518P.260
28	45	121	25	5	128518P.280
30	45	121	25	5	128518P.300
32	53	133	32	6	128518P.320

D k 12	I	L	d h 6	Z	CODE
6	24	68	6	4	129518P.060
8	38	88	10	4	129518P.080
10	45	95	10	4	129518P.100
12	53	110	12	4	129518P.120
14	53	110	12	4	129518P.140
16	63	123	16	4	129518P.160
18	63	123	16	4	129518P.180
20	75	141	20	4	129518P.200
22	75	141	20	5	129518P.220
24	90	166	25	5	129518P.240
25	90	166	25	5	129518P.250
26	90	166	25	5	129518P.260
28	90	166	25	5	129518P.280
30	90	166	25	5	129518P.300
32	106	186	32	6	129518P.320

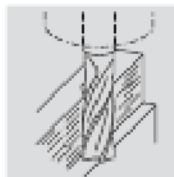
Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **128518P.060** (+ TiAlN)



140205, 140215

HSS
Co8

140208, 140218



140205, 140215

140208, 140218

/ Zastosowanie

HSS
Co5

HSS
Co8

D k 10	I	L	d h 6	Z	~λ	CODE	CODE	CODE	CODE
6	13	57	6	4	40°	–	–	140208.060	140218.060
7	16	66	10	4	40°	140205.070	140215.070	140208.070	140218.070
8	19	69	10	4	40°	140205.080	140215.080	140208.080	140218.080
9	19	69	10	4	40°	140205.090	140215.090	140208.090	140218.090
10	22	72	10	4	40°	140205.100	140215.100	140208.100	140218.100
11	22	79	12	4	40°	140205.110	140215.110	140208.110	140218.110
12	26	83	12	4	40°	140205.120	140215.120	140208.120	140218.120
13	26	83	12	4	40°	140205.130	140215.130	140208.130	140218.130
14	26	83	12	4	40°	140205.140	140215.140	140208.140	140218.140
15	26	83	12	4	40°	140205.150	140215.150	140208.150	140218.150
16	32	92	16	4	40°	140205.160	140215.160	140208.160	140218.160
17	32	92	16	4	40°	–	–	–	140218.170
18	32	92	16	4	40°	140205.180	140215.180	140208.180	140218.180
19	32	92	16	4	40°	–	–	–	140218.190
20	38	104	20	4	40°	140205.200	140215.200	140208.200	140218.200
22	38	104	20	5	35°	–	–	–	140218.220
24	45	121	25	5	35°	–	–	–	140218.240
25	45	121	25	5	35°	–	–	–	140218.250
28	45	121	25	5	35°	–	–	–	140218.280
30	45	121	25	6	35°	–	–	–	140218.300
32	53	133	32	6	35°	–	–	–	140218.320
36	53	133	32	6	35°	–	–	–	140218.360
40	63	143*	32*	6	35°	–	–	–	140218.40032

*/ ≠ DIN 844

typ
NHSS
Co5

141205, 141215

HSS
Co8

141208, 141218



/ Zastosowanie

141205, 141215

141208, 141218

1 2 3 4 5 6 7 8 9 10 11 12 13

HSS
Co5HSS
Co8

D k 10	I	L	d h 6	Z	~λ	CODE	CODE	CODE	CODE
3	12	56	6	4	30°	—	—	141208.030	141218.030
4	19	63	6	4	40°	—	—	141208.040	141218.040
5	24	68	6	4	40°	—	—	141208.050	141218.050
6	24	68	6	4	40°	—	—	141208.060	141218.060
7	30	80	10	4	40°	141205.070	141215.070	141208.070	141218.070
8	38	88	10	4	40°	141205.080	141215.080	141208.080	141218.080
9	38	88	10	4	40°	141205.090	141215.090	141208.090	141218.090
10	45	95	10	4	40°	141205.100	141215.100	141208.100	141218.100
11	45	102	12	4	40°	141205.110	141215.110	141208.110	141218.110
12	53	110	12	4	40°	141205.120	141215.120	141208.120	141218.120
14	53	110	12	4	40°	141205.140	141215.140	141208.140	141218.140
15	53	110	12	4	40°	141205.150	141215.150	141208.150	141218.150
16	63	123	16	4	40°	141205.160	141215.160	141208.160	141218.160
18	63	123	16	4	40°	141205.180	141215.180	141208.180	141218.180
20	75	141	20	4	40°	141205.200	141215.200	141208.200	141218.200
22	75	141	20	5	35°	—	—	—	141218.220
25	90	166	25	5	35°	—	—	—	141218.250
28	90	166	25	5	35°	—	—	—	141218.280
30	90	166	25	6	35°	—	—	—	141218.300
32	106	186	32	6	35°	—	—	—	141218.320
36	106	186	32	6	35°	—	—	—	141218.360
40	125	205	32*	6	35°	—	—	—	141218.40032

*/ ≠ DIN 844



$\lambda = 40^\circ$
 $\gamma = 12^\circ$

typ
 N

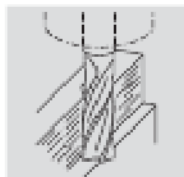
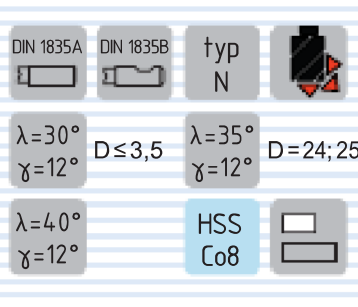
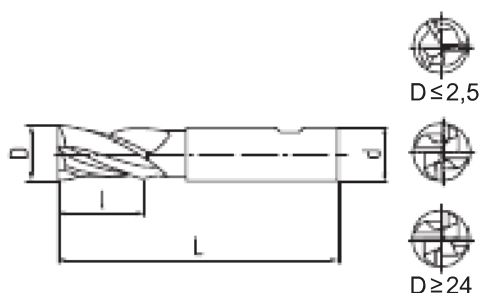


HSS
 Co8



/ Zastosowanie

D k 10	I	L	d h 6	Z	CODE
2	7	51	6	3	140418.020
2,5	8	52	6	3	140418.025
3	8	52	6	3	140418.030
3,5	10	54	6	3	140418.035
4	11	55	6	3	140418.040
4,5	11	55	6	3	140418.045
5	13	57	6	3	140418.050
6	13	57	6	3	140418.060
7	16	66	10	3	140418.070
8	19	69	10	3	140418.080
9	19	69	10	3	140418.090
10	22	72	10	3	140418.100
11	22	79	12	3	140418.110
12	26	83	12	3	140418.120
13	26	83	12	3	140418.130
14	26	83	12	3	140418.140
15	26	83	12	3	140418.150
16	32	92	16	3	140418.160
17	32	92	16	3	140418.170
18	32	92	16	3	140418.180
19	32	92	16	3	140418.190
20	38	104	20	3	140418.200
22	38	104	20	3	140418.220
25	45	121	25	3	140418.250
28	45	121	25	3	140418.280
32	53	133	32	3	140418.320



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

DIN 1835A



DIN 1835B



D k 10	I	L	d h 6	Z	CODE	CODE
2	7	51	6	3	140608.020	140618.020
2,5	8	52	6	3	140608.025	140618.025
3	8	52	6	4	140608.030	140618.030
3,5	10	54	6	4	140608.035	140618.035
4	11	55	6	4	140608.040	140618.040
4,5	11	55	6	4	140608.045	140618.045
5	13	57	6	4	140608.050	140618.050
5,5	13	57	6	4	—	140618.055
6	13	57	6	4	—	140618.060
6,5	16	66	10	4	—	140618.065
7	16	66	10	4	—	140618.070
7,5	16	66	10	4	—	140618.075
8	19	69	10	4	—	140618.080
8,5	19	69	10	4	—	140618.085
9	19	69	10	4	—	140618.090
9,5	19	69	10	4	—	140618.095
10	22	72	10	4	—	140618.100
11	22	79	12	4	—	140618.110
12	26	83	12	4	—	140618.120
13	26	83	12	4	—	140618.130
14	26	83	12	4	—	140618.140
15	26	83	12	4	—	140618.150
16	32	92	16	4	—	140618.160
17	32	92	16	4	—	140618.170
18	32	92	16	4	—	140618.180
19	32	92	16	4	—	140618.190
20	38	104	20	4	—	140618.200
22	38	104	20	4	—	140618.220
24	45	121	25	5	—	140618.240
25	45	121	25	5	—	140618.250

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **140608.020** (+ TiAIN)

D≤2,5

HSS
Co8



typ
N



D≤2,5



astosowanie

Kısa / Short / Kurz / Krótki

D e 8	I	L	d h 6	Z	CODE
1,5	3	34	6	3	160418.015
2	4	35	6	3	160418.020
2,5	5	36	6	3	160418.025
3	5	36	6	3	160418.030
3,5	6	37	6	3	160418.035
4	7	38	6	3	160418.040
4,5	7	38	6	3	160418.045
5	8	39	6	3	160418.050
5,5	8	39	6	3	160418.055
6	8	39	6	3	160418.060

Uzun / Long / Lang / Długi

D e 8	I	L	d h 6	Z	CODE
1,5	5	36	6	3	161418.015
2	7	38	6	3	161418.020
2,5	8	39	6	3	161418.025
3	8	39	6	3	161418.030
3,5	10	41	6	3	161418.035
4	11	42	6	3	161418.040
4,5	11	42	6	3	161418.045
5	13	44	6	3	161418.050
5,5	13	44	6	3	161418.055
6	13	44	6	3	161418.060
6,5	16	48	8	3	161418.065
7	16	48	8	3	161418.070
7,5	16	48	8	3	161418.075
8	19	51	8	3	161418.080
8,5	19	56	10	3	161418.085
9	19	56	10	3	161418.090
9,5	19	56	10	3	161418.095
10	22	59	10	3	161418.100

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **160418.020 (+ TiAlN)**

typ
N

z=2



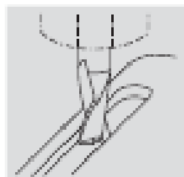
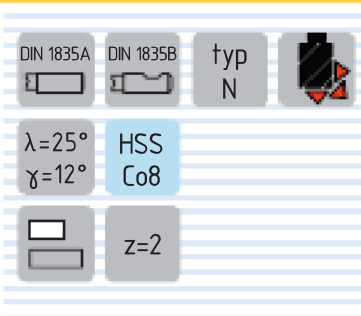
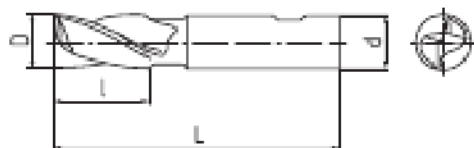
Zastosowanie

D e 8	I	L	d h 6	CODE
2	4	48	6	220417.020
3	5	49	6	220417.030
4	7	51	6	220417.040
5	8	52	6	220417.050
6	8	52	6	220417.060
7	10	60	10	220417.070
8	11	61	10	220417.080
9	11	61	10	220417.090
10	13	63	10	220417.100
12	16	73	12	220417.120
14	16	73	12	220417.140
16	19	79	16	220417.160
18	19	79	16	220417.180
20	22	88	20	220417.200
22	22	88	20	220417.220
25	26	102	25	220417.250
28	26	102	25	220417.280



Zastosowanie

D e 8	I	L	d h 6	CODE
6	8	52	6	230417.060
8	11	61	10	230417.080
10	13	63	10	230417.100
12	16	73	12	230417.120
14	16	73	12	230417.140
16	19	79	16	230417.160
18	19	79	16	230417.180
20	22	88	20	230417.200



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13



D _{e 8}	I	L	d _{h 6}	CODE	CODE
1	2,5	47	6	–	220418.010
1,5	3	47	6	220408.015	220418.015
2	4	48	6	220408.020	220418.020
2,5	5	49	6	220408.025	220418.025
3	5	49	6	220408.030	220418.030
3,5	6	50	6	220408.035	220418.035
4	7	51	6	220408.040	220418.040
4,5	7	51	6	220408.045	220418.045
4,8	8	52	6	–	220418.048
5	8	52	6	220408.050	220418.050
5,5	8	52	6	220408.055	220418.055
5,75	8	52	6	–	220418.0575
6	8	52	6	220408.060	220418.060
6,5	10	60	10	220408.065	220418.065
7	10	60	10	220408.070	220418.070
7,5	10	60	10	220408.075	220418.075
7,75	11	61	10	–	220418.0775
8	11	61	10	220408.080	220418.080
8,5	11	61	10	220408.085	220418.085
9	11	61	10	220408.090	220418.090
9,5	11	61	10	220408.095	220418.095
9,7	13	63	10	–	220418.097
10	13	63	10	220408.100	220418.100
10,5	13	70	12	220408.105	220418.105
11	13	70	12	220408.110	220418.110
11,5	13	70	12	220408.115	220418.115
11,7	13	70	12	–	220418.117

D _{e 8}	I	L	d _{h 6}	CODE	CODE
12	16	73	12	220408.120	220418.120
13	16	73	12	220408.130	220418.130
14	16	73	12	220408.140	220418.140
15	16	73	12	220408.150	220418.150
16	19	79	16	220408.160	220418.160
17	19	79	16	220408.170	220418.170
18	19	79	16	220408.180	220418.180
19	19	79	16	220408.190	220418.190
20	22	88	20	220408.200	220418.200
22	22	88	20	220408.220	220418.220
24	26	102	25	–	220418.240
25	26	102	25	220408.250	220418.250
25	26	96*	20*	220408.25020	220418.25020
26	26	102	25	–	220418.260
28	26	102	25	220408.280	220418.280
28	26	96*	20*	220408.28020	220418.28020
30	26	102	25	220408.300	220418.300
32	32	112	32	–	220418.320
36	32	112	32	–	220418.360
40	38	118*	32*	–	220418.40032

*/ ≠ DIN 327



typ
N

HSS
Co8



z=2



Zastosowanie



D e 8	I	L	d h 6	CODE	CODE
2	7	54	6	—	221418.020
3,5	10	59	6	—	221418.035
4	11	63	6	221408.040	221418.040
4,5	11	63	6	—	221418.045
5	13	68	6	221408.050	221418.050
5,5	13	68	6	—	221418.055
6	13	68	6	221408.060	221418.060
6,5	16	80	10	—	221418.065
7	16	80	10	221408.070	221418.070
8	19	88	10	221408.080	221418.080
8,5	19	88	10	—	221418.085
9	19	88	10	221408.090	221418.090
10	22	95	10	221408.100	221418.100
11	22	102	12	221408.110	221418.110
12	26	110	12	221408.120	221418.120
13	26	110	12	221408.130	221418.130
14	26	110	12	221408.140	221418.140
15	26	110	12	221408.150	221418.150
16	32	123	16	221408.160	221418.160
18	32	123	16	221408.180	221418.180
20	38	141	20	221408.200	221418.200
22	38	141	20	221408.220	221418.220
24	45	166	25	—	221418.240
25	45	166	25	—	221418.250
26	45	166	25	—	221418.260
28	45	166	25	—	221418.280
30	45	166	25	—	221418.300
32	53	186	32	—	221418.320
36	53	186	32	—	221418.360
40	63	196*	32*	—	221418.40032

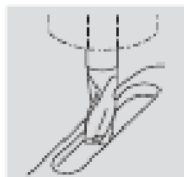
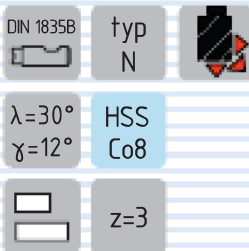
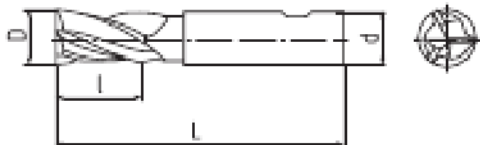
* / ≠ DIN 327

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **221418.040** (+ TiAIN)

2304
2314

DIN 327
(2304)

YARIK FREZELER, KISA, merkezden kesim, 3 ağızlı
SLOT DRILLS, 3-fluted centre cutting
LANGLOCHFRÄSER, Dreischneider mit Zentrumschnitt
FREZY TRZPIENIOWE TRZYOSTRZOWE, z ostrzem centralnym
do rowków na wpusty



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

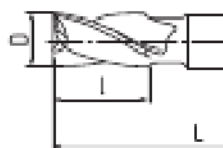
Kısa / Short / Kurz / Krótki

Uzun / Long / Lang / Długi

D e 8	I	L	d h 6	CODE
2	4	48	6	230418.020
3	5	49	6	230418.030
3,5	6	50	6	230418.035
4	7	51	6	230418.040
4,5	7	51	6	230418.045
5	8	52	6	230418.050
5,5	8	52	6	230418.055
6	8	52	6	230418.060
6,5	10	60	10	230418.065
7	10	60	10	230418.070
7,5	10	60	10	230418.075
8	11	61	10	230418.080
9	11	91	10	230418.090
9,5	11	61	10	230418.095
10	13	63	10	230418.100
11	13	70	12	230418.110
12	16	73	12	230418.120
13	16	73	12	230418.130
14	16	73	12	230418.140
15	16	73	12	230418.150
16	19	79	16	230418.160
18	19	79	16	230418.180
20	22	88	20	230418.200
22	22	88	20	230418.220
25	26	102	25	230418.250
28	26	102	25	230418.280
30	26	102	25	230418.300
32	32	112	32	230418.320

D e 8	I	L	d h 6	CODE
3	8	52	6	231418.030
4	11	55	6	231418.040
5	13	57	6	231418.050
6	13	57	6	231418.060
7	16	66	10	231418.070
8	19	69	10	231418.080
10	22	72	10	231418.100
12	26	83	12	231418.120
14	26	83	12	231418.140
16	32	92	16	231418.160
18	32	92	16	231418.180
20	38	104	20	231418.200

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **230418.030** (+ TiAIN)



z=2



Zastosowanie

D
h 10

2,8

3,8

4,8

5,75

6,75

7,75

9,7

11,7

13,7

15,7

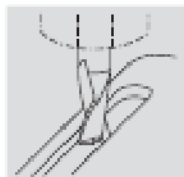
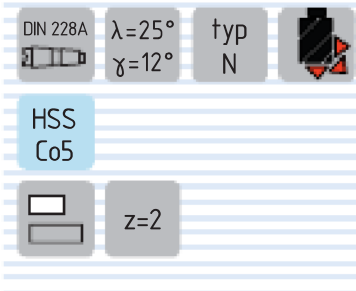
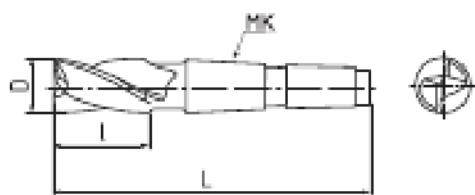
17,7

19,7

21,7

24,7

27,7



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D e 8	I	L	MK	CODE
12	14	85	1	260545.120
14	16	100	2	260545.140
16	18	105	2	260545.160
18	20	110	2	260545.180
20	20	115	2	260545.200
22	22	120	2	260545.220
24	25	140	3	260545.240
25	25	140	3	260545.250
28	28	145	3	260545.280
30	30	150	3	260545.300
32	32	175	4	260545.320
36	34	175	4	260545.360
40	38	180	4	260545.400
45	42	185	4	260545.450
50	45	220	5	260545.500

typ
W

HSS
Co8

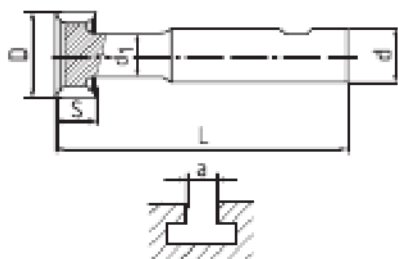


z=2



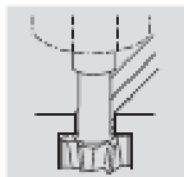
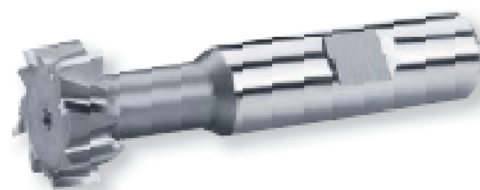
Zastosowanie

D _{e 8}	I	L	d _{h 6}	CODE	D _{e 8}	I	L	d _{h 6}	CODE
2	7	51	6	270618.020	21	38	104	20	270618.210
2,5	8	52	6	270618.025	22	38	104	20	270618.220
3	8	52	6	270618.030	23	38	104	20	270618.230
3,5	10	54	6	270618.035	24	45	121	25	270618.240
4	11	55	6	270618.040	25	45	121	25	270618.250
4,5	11	55	6	270618.045	26	45	121	25	270618.260
5	13	57	6	270618.050	28	45	121	25	270618.280
5,5	13	57	6	270618.055	30	45	121	25	270618.300
6	13	57	6	270618.060	32	53	133	32	270618.320
6,5	16	66	10	270618.065					
7	16	66	10	270618.070					
7,5	16	66	10	270618.075					
8	19	69	10	270618.080					
8,5	19	69	10	270618.085					
9	19	69	10	270618.090					
9,5	19	69	10	270618.095					
10	22	72	10	270618.100					
11	22	79	12	270618.110					
12	26	83	12	270618.120					
13	26	83	12	270618.130					
14	26	83	12	270618.140					
15	26	83	12	270618.150					
16	32	92	16	270618.160					
17	32	92	16	270618.170					
18	32	92	16	270618.180					
19	32	92	16	270618.190					
20	38	104	20	270618.200					



DIN 1835A

DIN 1835B

typ
N $\lambda=10^\circ$
 $\gamma=10^\circ$ HSS
Co5

DIN 1835A

DIN 1835B

D d 11	S d 11	L	d1 h 12	d h 6	Z	a*	CODE	CODE
11	4	53,5	4	10	6	5	310205.110	310215.110
12,5	6	57	5	10	6	6	310205.125	310215.125
16	8	62	7	10	6	8	310205.160	310215.160
18	8	70	8	12	6	10	310205.180	310215.180
19**	9	71	8	12	6	> 8	310205.190	310215.190
21	9	74	10	12	6	12	310205.210	310215.210
22**	10	75	10	12	6	> 10	310205.220	310215.220
25	11	82	12	16	8	14	310205.250	310215.250
28**	12	85	13	16	8	> 13	310205.280	310215.280
32	14	90	15	16	8	18	310205.320	310215.320
36**	16	103	17	25	8	> 17	310205.360	310215.360
40	18	108	19	25	10	22	310205.400	310215.400
45**	20	113	21	25	10	> 21	310205.450	310215.450
50	22	124	25	32	10	28	310205.500	310215.500
60	28	139	30	32	10	36	310205.600	310215.600

*/ DIN 650, ISO 299, ČSN 02 1030

**/ ≠ DIN 851



typ
N

HSS



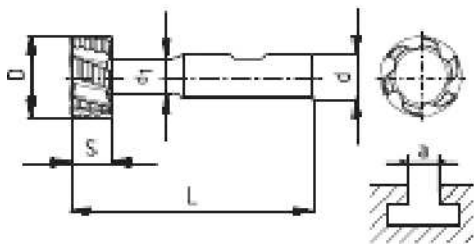
CODE

*/ DIN 650, ISO 299, ČSN 02 1030

T-YARIK FREZELER, NR P
T – SLOT CUTTERS, NR P
T – NUTENFRÄSER, NR P
FREZY TRZPIENIOWE DO ROWKÓW TEOWYCH
z rozdzielaczem wióra NR-P

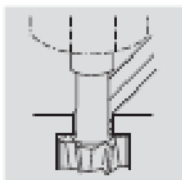
DIN 851
ISO 3337

3142P



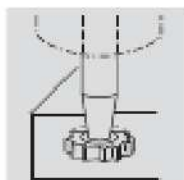
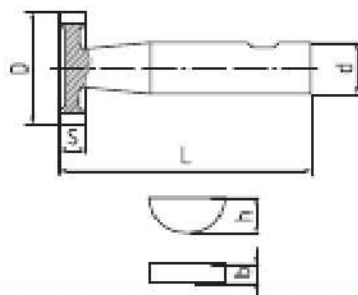
typ
NR P

HSS
Co5



D d 11	S d 11	L	d1 h 12	d h 6	Z	a*	CODE
21	9	74	10	12	6	12	314215P.210
25	11	82	12	16	6	14	314215P.250
32	14	90	15	16	6	18	314215P.320
40	18	108	19	25	8	22	314215P.400

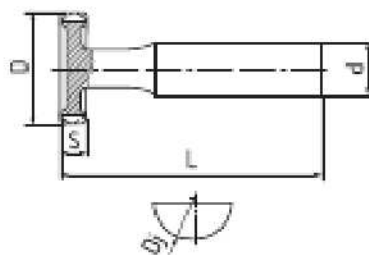
*/ DIN 650, ISO 299, ČSN 02 1030



D h 12	S e 8	L	d h 6	Z	bxh DIN 6888	CODE	CODE
4,5	1	50	6	6	1x1,4	320005.045010	320015.045010
7,5	1,5	50	6	6	1,5x2,6	320005.075015	320015.075015
7,5	2	50	6	6	2x2,6	320005.075020	320015.075020
10,5	2	50	6	6	2x3,7	320005.105020	320015.105020
10,5	2,5	50	6	6	2,5x3,7	320005.105025	320015.105025
10,5	3	50	6	6	3x3,7	320005.105030	320015.105030
13,5*	2	56	10	6	—	320005.135020	320015.135020
13,5	3	56	10	6	3x5	320005.135030	320015.135030
13,5	4	56	10	6	4x5	320005.135040	320015.135040
16,5	3	56	10	6	3x6,5	320005.165030	320015.165030
16,5	4	56	10	6	4x6,5	320005.165040	320015.165040
16,5	5	56	10	6	5x6,5	320005.165050	320015.165050
19,5*	3	63	10	8	—	320005.195030	320015.195030
19,5	4	63	10	8	4x7,5	320005.195040	320015.195040
19,5	5	63	10	8	5x7,5	320005.195050	320015.195050
19,5	6	63	10	8	6x7,5	320005.195060	320015.195060
22,5*	4	63	10	8	—	320005.225040	320015.225040
22,5	5	63	10	8	5x9	320005.225050	320015.225050
22,5	6	63	10	8	6x9	320005.225060	320015.225060
22,5	8	63	10	8	8x9	320005.225080	320015.225080
25,5*	5	63	10	10	—	320005.255050	320015.255050
25,5	6	63	10	10	6x10	320005.255060	320015.255060
28,5	6	63	10	10	6x11	320005.285060	320015.285060
28,5	8	63	10	10	8x11	320005.285080	320015.285080
28,5	10	71	12	10	10x11	320005.285100	320015.285100
32,5*	6	71	12	10	—	320005.325060	320015.325060
32,5*	7	71	12	10	—	—	320015.325070
32,5	8	71	12	10	8x13	320005.325080	320015.325080
32,5	10	71	12	10	10x13	320005.325100	320015.325100
38,5*	8	71	12	10	—	320005.385080	320015.385080
45,5*	8	71	12	12	—	320005.455080	320015.455080
45,5	10	71	12	12	10x16	320005.455100	320015.455100

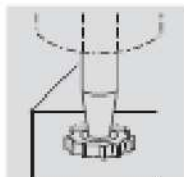
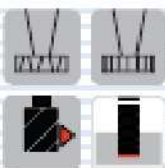
*/ ≠ DIN 850

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **320005.045010** (+ TiAlN)



$\lambda=10^\circ$
 $\gamma=10^\circ$

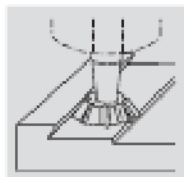
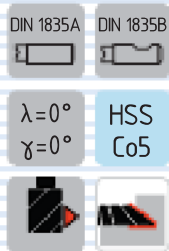
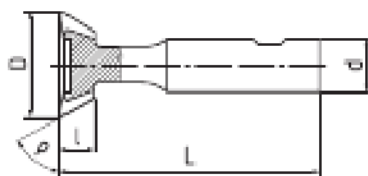
HSS



Dj*	D _{h 11}	S _{e 8}	L	d _{h 8}	Z	CODE	CODE
7	7,5	1,5	48	6	8	—	320100.070015
7	7,5	2	48	6	8	—	320100.070020
10	10,8	1	45	8	8	—	320100.100010
10	10,8	1,6	45	8	8	—	320100.100016
10	10,8	2,5	45	8	8	—	320100.100025
10	10,8	3	45	8	8	—	320100.100030
13	14	3	45	8	8	—	320100.130030
13	14	4	50	10	8	320100.130040	—
16	17,2	1,6	50	10	8	—	320100.160016
16	17,2	2	50	10	8	—	320100.160020
16	17,2	3	50	10	8	—	320100.160030
16	17,2	4	50	10	8	320100.160040	—
16	17,2	5	60	12	8	320100.160050	—
19	20,5	4	50	10	8	320100.190040	—
19	20,5	5	60	12	8	320100.190050	—
22	23,7	5	60	12	8	320100.220050	—
22	23,7	6	60	12	8	320100.220060	—
25	27	2	60	12	10	—	320100.250020
25	27	3	60	12	10	—	320100.250030
25	27	6	60	12	10	320100.250060	—
28	30,2	6	60	12	10	320100.280060	—
28	30,2	8	70	16	10	320100.280080	—
32	34,5	6	70	16	10	320100.320060	—
32	34,5	8	70	16	10	320100.320080	—
38	41	8	70	16	10	320100.380080	—
45	48,6	8	70	16	10	320100.450080	—
45	48,6	10	70	16	10	320100.450100	—

*/ ČSN 30 1385

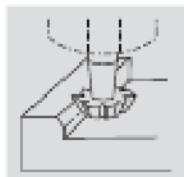
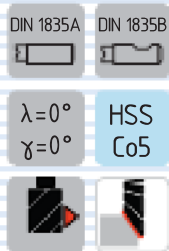
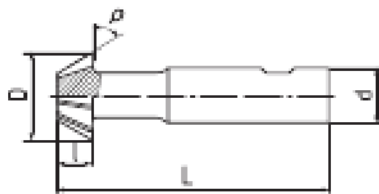
Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **320100.070015** (+ TiAlN)



ρ $\pm 30'$	D js 16	l js 14	L	d h 6	Z	CODE	CODE
45°	16	4	60	12	10	330205.045160	330215.045160
45°	20	5	63	12	10	330205.045200	330215.045200
45°	25	6,3	67	12	10	330205.045250	330215.045250
45°	32	8	71	16	12	—	330215.045320
45°	40	10	80	16	12	—	330215.045400
50°	16	5	60	12	10	330205.050160	330215.050160
50°	20	6,3	63	12	10	330205.050200	330215.050200
50°	25	8	67	12	10	330205.050250	330215.050250
55°	16	5,6	60	12	10	330205.055160	330215.055160
55°	20	7,1	63	12	10	330205.055200	330215.055200
55°	25	9	67	12	10	330205.055250	330215.055250
60°	16	6,3	60	12	10	330205.060160	330215.060160
60°	20	8	63	12	10	330205.060200	330215.060200
60°	25	10	67	12	10	330205.060250	330215.060250
60°	32	12,5	71	16	12	330205.060320	330215.060320
60°	40	16	80	16	12	330205.060400	330215.060400
*65°	16	6,3	60	12	10	—	330215.065160
*65°	25	10	67	12	12	—	330215.065250
*70°	16	7	60	12	10	330205.070160	330215.070160
*70°	20	9	63	12	10	330205.070200	330215.070200
*70°	25	11	67	16	10	330205.070250	330215.070250
*75°	16	8	60	12	10	—	330215.075160
*75°	25	10	67	12	12	—	330215.075250
*80°	16	8	60	12	10	—	330215.080160
*80°	25	10	67	12	12	—	330215.080250
*85°	16	8	60	12	10	—	330215.085160
*85°	25	10	67	12	12	—	330215.085250

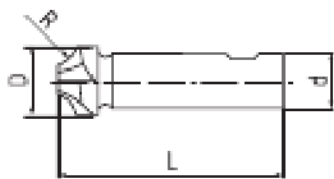
*/ ≠ DIN 1833

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **330205.045160** (+ TiAlN)



ρ ± 30'	D js 16	l js 14	L	d h 6	Z	CODE	CODE
45°	16	4	60	12	10	350005.045160	350015.045160
45°	20	5	63	12	10	350005.045200	350015.045200
45°	25	6,3	67	12	10	350005.045250	350015.045250
45°	32	8	71	16	12	—	350015.045320
50°	16	5	60	12	12	—	350015.050160
50°	20	6,3	63	12	12	—	350015.050200
50°	25	8	67	12	12	—	350015.050250
55°	16	5,6	60	12	10	—	350015.055160
55°	20	7,1	63	12	10	—	350015.055200
55°	25	9	67	12	12	—	350015.055250
60°	16	6,3	60	12	10	350005.060160	350015.060160
60°	20	8	63	12	10	350005.060200	350015.060200
60°	25	10	67	12	10	350005.060250	350015.060250
60°	32	12,5	71	16	12	—	350015.060320
*65°	16	6,3	60	12	10	—	350015.065160
*65°	25	10	67	12	12	—	350015.065250
*70°	16	7	60	12	10	350005.070160	350015.070160
*70°	20	9	63	12	10	350005.070200	350015.070200
*70°	25	11	67	16	10	350005.070250	350015.070250
*75°	16	8	60	12	10	—	350015.075160
*75°	25	10	67	12	12	—	350015.075250

* / ≠ DIN 1833

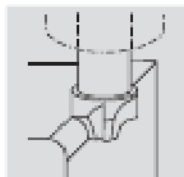


DIN 1835B

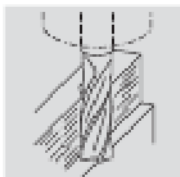
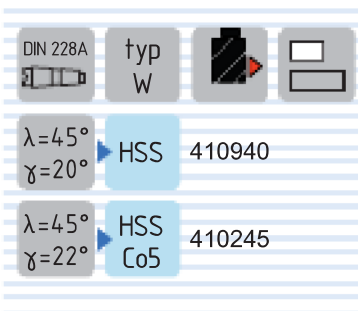
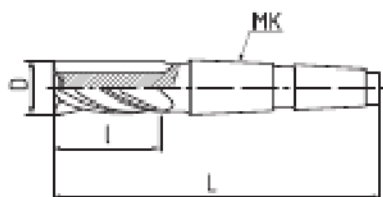
 $\lambda=0^\circ$ $\gamma=9^\circ$

HSS

Co8



R H 11	D	L	d h 6	Z	CODE
1	8	60	10	4	360018.010
1,5	9	60	10	4	360018.015
1,6	9,2	60	10	4	360018.016
2	10	60	10	4	360018.020
2,5	11	60	10	4	360018.025
3	12	60	12	4	360018.030
3,5	13	60	12	4	360018.035
4	14	60	12	4	360018.040
4,5	15	60	12	4	360018.045
5	16	60	12	4	360018.050
5,5	19	67	16	4	360018.055
6	20	67	16	4	360018.060
6,5	21	71	16	4	360018.065
7	22	71	16	4	360018.070
7,5	23	71	16	4	360018.075
8	24	71	16	4	360018.080
8,5	25	85	25	4	360018.085
9	26	85	25	4	360018.090
9,5	27	85	25	4	360018.095
10	28	85	25	4	360018.100
10,5	31	90	25	4	360018.105
11	32	90	25	4	360018.110
12	34	90	25	4	360018.120
12,5	41	100	25	6	360018.125
13	42	100	25	6	360018.130
14	44	100	25	6	360018.140
15	46	100	25	6	360018.150
16	48	100	25	6	360018.160
18	52	112	32	6	360018.180
20	56	112	32	6	360018.200



Uygulama / Usage / Applikation / Zastosowanie													
410940	1	2	3	4	5	6	7	8	9	10	11	12	13
410245	1	2	3	4	5	6	7	8	9	10	11	12	13



D k 10**	I	L	MK	Z	CODE	CODE
10	22	92	1	3	—	410245.100
12	26	111	2	3	—	410245.120
16	32	117	2	3	—	410245.160
20	38	123	2	3	—	410245.200
22	38	123	2	3	—	410245.220
24	45	147	3	3	—	410245.240
25	45	147	3	4	—	410245.250
25	50	154	3	4	410940.250	—
26	45	147	3	4	—	410245.260
28	45	147	3	4	—	410245.280
28	50	154	3	4	410940.280	—
30	45	147	3	4	—	410245.300
30	50	154	3	4	410940.300	—
32	53	178	4	4	410940.320	410245.320
36	53	178	4	4	410940.360	410245.360
40	63	188	4	4	410940.400	410245.400
45	63	188	4	4	410940.450	410245.450
50	70	228	5	5	410940.500	—
50	75	233	5	5	—	410245.500
63	80	241	5	6	410940.630	—
63	90	248	5	6	—	410245.630

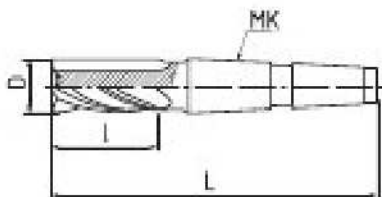
*/ ≠ DIN 845

**/ 410940 – js 14

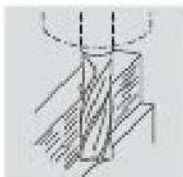
4112
4119

DIN 845
ISO 1641
ČSN 222148*

KONİK SAPLI PARMAK FREZELER- UZUN, kaba diş
TAPER SHANK END MILLS – LONG, coarse teeth
SCHAFTFRÄSER mit MK – LANG, grobgezahnt
FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym
morse'a grubostrzowe – DŁUGIE



DIN 228A	typ		
	W		
$\lambda=45^\circ$ $\gamma=20^\circ$	HSS	411940	
$\lambda=45^\circ$ $\gamma=22^\circ$	HSS Co5	411245	



	Uygulama / Usage / Applikation / Zastosowanie												
411940	1	2	3	4	5	6	7	8	9	10	11	12	13
411245	1	2	3	4	5	6	7	8	9	10	11	12	13

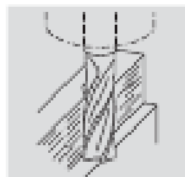
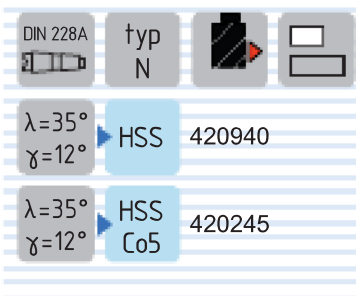
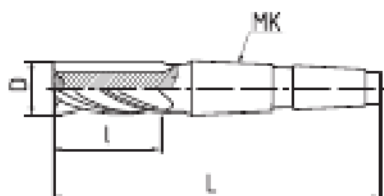


D k 10**	I	L	MK	Z	CODE	CODE
25	80	184	3	4	411940.250	–
25	90	192	3	4	–	411245.250
32	100	229	4	4	411940.320	–
32	106	231	4	4	–	411245.320
40	125	250	4	4	411940.400	411245.400
50	150	308	5	5	411940.500	411245.500
63	180	338	5	6	411940.630	411245.630

*/ ≠ DIN 845

**/ 411940 – js 14

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **411245.250** (+ TiAIN)



Uygulama / Usage / Applikation / Zastosowanie

420940	1	2	3	4	5	6	7	8	9	10	11	12	13
420245	1	2	3	4	5	6	7	8	9	10	11	12	13



D k 10**	I	L	MK	Z	CODE	CODE
10	22	92	1	4	—	420245.100
12	26	111	2	4	—	420245.120
14	26	111	2	4	—	420245.140
16	32	117	2	4	—	420245.160
18	32	117	2	4	—	420245.180
20	38	123	2	4	420940.200	420245.200
22	38	123	2	5	420940.220	420245.220
24	45	147	3	5	—	420245.240
25	45	147	3	5	—	420245.250
25	50	154	3	5	420940.250	—
26	45	147	3	5	—	420245.260
28	45	147	3	5	—	420245.280
28	50	154	3	5	420940.280	—
30	45	147	3	6	—	420245.300
30	50	154	3	6	420940.300	—
32	53	178	4	6	420940.320	420245.320
36	53	178	4	6	420940.360	420245.360
40	63	188	4	6	420940.400	420245.400
45	63	188	4	6	420940.450	420245.450
50	70	228	5	6	420940.500	—
50	75	233	5	6	—	420245.500
56	75	233	5	8	—	420245.560
63	80	241	5	8	420940.630	—
63	90	248	5	8	—	420245.630

*/ ≠ DIN 845

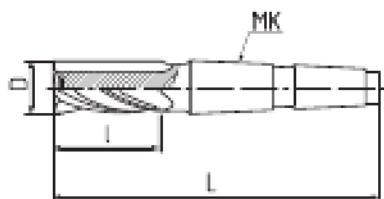
**/ 420940 – js 14

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **420245.100** (+ TiAIN)

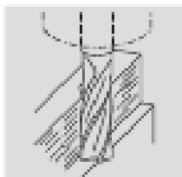
4212
4219

DIN 845
ISO 1641
ČSN 222142*

KONİK SAPLI PARMK FREZELER- UZUN
TAPER SHANK END MILLS – LONG
SCHAFTFRÄSER mit MK – LANG
FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym
morse'a – DŁUGIE



DIN 228A	typ N		
$\lambda=35^\circ$ $\gamma=12^\circ$	HSS	421940	
$\lambda=35^\circ$ $\gamma=12^\circ$	HSS Co5	421245	



	Uygulama / Usage / Applikation / Zastosowanie												
421940	1	2	3	4	5	6	7	8	9	10	11	12	13
421245	1	2	3	4	5	6	7	8	9	10	11	12	13

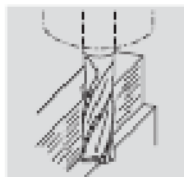
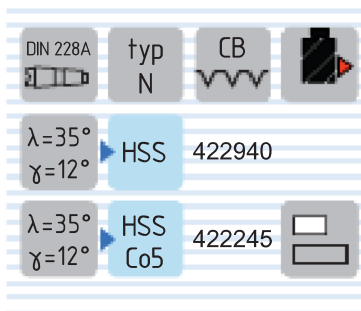
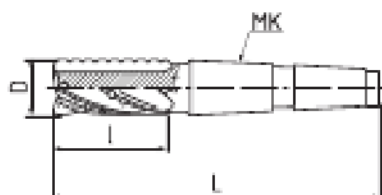


D k 10**	I	L	MK	Z	CODE	CODE
10	45	115	1	4	—	421245.100
12	53	138	2	4	—	421245.120
14	53	138	2	4	—	421245.140
16	63	148	2	4	—	421245.160
18	63	148	2	4	—	421245.180
20	75	160	2	4	—	421245.200
22	75	160	2	5	421940.220	421245.220
24	90	192	3	5	—	421245.240
25	80	184	3	5	421940.250	—
25	90	192	3	5	—	421245.250
26	90	192	3	5	—	421245.260
28	90	192	3	5	—	421245.280
30	90	192	3	6	—	421245.300
32	100	229	4	6	421940.320	—
32	106	231	4	6	—	421245.320
36	106	231	4	6	—	421245.360
40	125	250	4	6	421940.400	421245.400
45	125	250	4	6	—	421245.450
50	110	268	5	6	421940.500110	—
50	150	308	5	6	421940.500	421245.500
56	150	308	5	8	—	421245.560
63	180	338	5	8	421940.630	421245.630

*/ ≠ DIN 845

**/ 421940 – js 14

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **421245.100** (+ TiAIN)



Uygulama / Usage / Applikation / Zastosowanie													
422940	1	2	3	4	5	6	7	8	9	10	11	12	13
422245	1	2	3	4	5	6	7	8	9	10	11	12	13



D k 10**	I	L	MK	Z	CODE	CODE
10	22	92	1	4	—	422245.100
12	26	111	2	4	—	422245.120
14	26	111	2	4	—	422245.140
16	32	117	2	4	—	422245.160
18	32	117	2	4	—	422245.180
20	38	123	2	4	422940.200	422245.200
22	38	123	2	5	422940.220	422245.220
25	45	147	3	5	—	422245.250
25	50	154	3	5	422940.250	—
28	45	147	3	5	—	422245.280
28	50	154	3	5	422940.280	—
30	45	147	3	6	—	422245.300
30	50	154	3	6	422940.300	—
32	53	178	4	6	422940.320	422245.320
36	53	178	4	6	422940.360	422245.360
40	63	188	4	6	422940.400	422245.400
45	63	188	4	6	422940.450	422245.450
50	70	228	5	6	422940.500	—
50	75	233	5	6	—	422245.500
56	75	233	5	8	—	422245.560
63	80	241	5	8	422940.630	—
63	90	248	5	8	—	422245.630

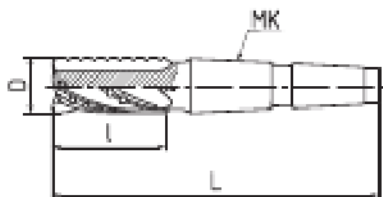
*/ ≠ DIN 845

**/ 422940 – js 14

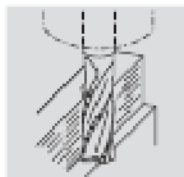
4232
4239

DIN 845
ISO 1641
ČSN 222142*

KONİK SAPLI PARMK FREZELER- UZUN
TAPER SHANK END MILLS – LONG
SCHAFTFRÄSER mit MK – LANG
FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym
morse'a i rozdzielnikiem wióra – DŁUGIE



DIN 228A	typ N	CB	
$\lambda=35^\circ$ $\gamma=12^\circ$	HSS	423940	
$\lambda=35^\circ$ $\gamma=12^\circ$	HSS Co5	423245	



Uygulama / Usage / Applikation / Zastosowanie

423940 1 2 3 4 5 6 7 8 9 10 11 12 13
423245 1 2 3 4 5 6 7 8 9 10 11 12 13

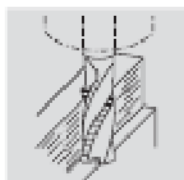
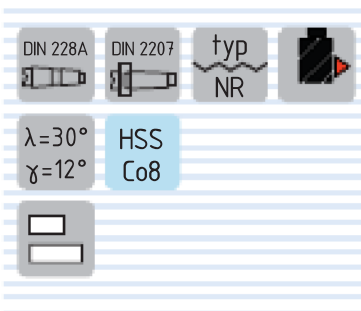
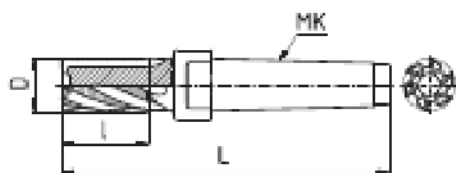


D k 10**	I	L	MK	Z	CODE	CODE
10	45	115	1	4	—	423245.100
12	53	138	2	4	—	423245.120
14	53	138	2	4	—	423245.140
16	63	148	2	4	—	423245.160
18	63	148	2	4	—	423245.180
20	75	160	2	4	—	423245.200
22	75	160	2	5	423940.220	423245.220
25	80	184	3	5	423940.250	—
25	90	192	3	5	—	423245.250
28	90	192	3	5	—	423245.280
30	90	192	3	6	—	423245.300
32	100	229	4	6	423940.320	—
32	106	231	4	6	—	423245.320
36	106	231	4	6	—	423245.360
40	125	250	4	6	423940.400	423245.400
45	125	250	4	6	—	423245.450
50	110	268	5	6	423940.500110	—
50	150	308	5	6	423940.500	423245.500
56	150	308	5	8	—	423245.560
63	180	338	5	8	423940.630	423245.630

*/ ≠ DIN 845

**/ 423940 – js 14

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **423245.100** (+ TiAIN)



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13



Kısa / Short / Kurz / Krótki

D k 12	I	L	MK	Z	CODE	CODE
10	22	92	1	4	424248.100	—
12	26	96	1	4	424248.120	—
14	26	111	2	4	424248.140	—
16	32	117	2	4	424248.160	—
18	32	117	2	4	424248.180	—
20	38	123	2	4	424248.200	—
22	38	123	2	5	424248.220	—
24	45	147	3	5	424248.240	—
25	45	147	3	5	424248.250	—
26	45	147	3	5	424248.260	—
28	45	147	3	5	424248.280	—
30	45	147	3	5	424248.300	—
32	53	201	4	6	—	424248.320
35	53	201	4	6	—	424248.350
36	53	201	4	6	—	424248.360
40	63	211	4	6	—	424248.400
45	63	211	4	6	—	424248.450
50	75	261	5	8	—	424248.500

Uzun / Long / Lang / Długi

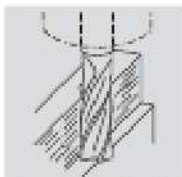
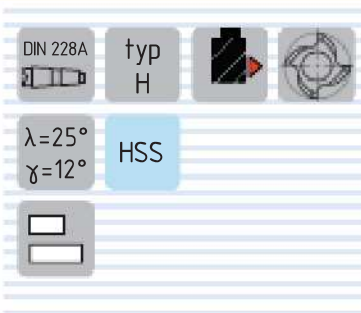
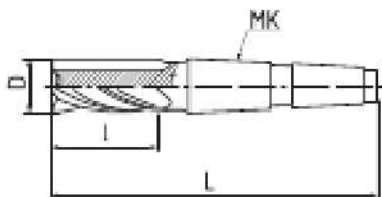
D k 12	I	L	MK	Z	CODE	CODE
20	75	160	2	4	425248.200	—
22	75	160	2	5	425248.220	—
25	90	192	3	5	425248.250	—
28	90	192	3	5	425248.280	—
30	90	192	3	5	425248.300	—
32	106	254	4	6	—	425248.320
36	106	254	4	6	—	425248.360
40	125	273	4	6	—	425248.400
45	125	273	4	6	—	425248.450
50	150	336	5	8	—	425248.500

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **424248.100** (+ TiAIN)

4309
4319

ČSN 222146
~ DIN 845
~ ISO 1641

KONİK SAPLI PARMAK FREZELER, ince diş
TAPER SHANK END MILLS, fine teeth
SCHAFTFRÄSER mit MK, feingezahnt
FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym morse'a



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

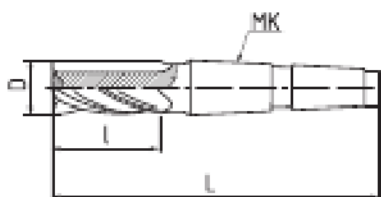
Kısa / Short / Kurz / Krótki

D js 14	I	L	MK	Z	CODE
10	22	92	1	5	430940.100
12	26	111	2	5	430940.120
14	26	111	2	5	430940.140
16	32	117	2	6	430940.160
18	36	120	2	6	430940.180
20	38	123	2	6	430940.200
22	38	123	2	6	430940.220
25	50	154	3	6	430940.250
28	50	154	3	7	430940.280
30	50	154	3	7	430940.300
32	53	178	4	7	430940.320
36	53	178	4	8	430940.360
40	63	188	4	8	430940.400
45	63	188	4	8	430940.450
50	70	228	5	10	430940.500
63	80	241	5	12	430940.630

Uzun / Long / Lang / Długi

D js 14	I	L	MK	Z	CODE
25	80	184	3	6	431940.250
32	100	229	4	7	431940.320
40	125	250	4	8	431940.400
50	110	268	5	10	431940.500110
50	150	308	5	10	431940.500
63	180	338	5	12	431940.630

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **430940.100 (+ TiAIN)**



DIN 228A

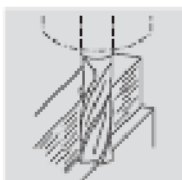


typ
H



$\lambda=35^\circ$
 $\gamma=6^\circ$

HSS
Co8



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

Kısa / Short / Kurz / Krótki

D k 10	I	L	MK	Z	CODE
10	22	92	1	4	440248.100
12	26	96	1	4	440248.120
14	26	111	2	4	440248.140
16	32	117	2	4	440248.160
18	32	117	2	4	440248.180
20	38	123	2	4	440248.200
22	38	123	2	5	440248.220
25	45	147	3	5	440248.250
28	45	147	3	5	440248.280
30	45	147	3	6	440248.300
32	53	178	4	6	440248.320
36	53	178	4	6	440248.360
40	63	188	4	6	440248.400
45	63	188	4	6	440248.450
50	75	233	5	6	440248.500

Uzun / Long / Lang / Długi

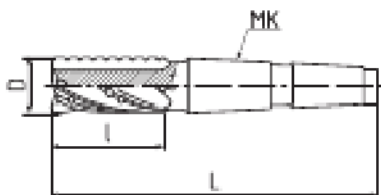
D k 10	I	L	MK	Z	CODE
10	45	115	1	4	441248.100
12	53	123	1	4	441248.120
14	53	138	2	4	441248.140
16	63	148	2	4	441248.160
18	63	148	2	4	441248.180
20	75	160	2	4	441248.200
22	75	160	2	5	441248.220
25	90	192	3	5	441248.250
28	90	192	3	5	441248.280
30	90	192	3	6	441248.300
32	106	231	4	6	441248.320
36	106	231	4	6	441248.360
40	125	250	4	6	441248.400
45	125	250	4	6	441248.450
50	150	308	5	6	441248.500

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **440248.100 (+ TiAlN)**

4422
4432

DIN 845B

KONİK SAPLI PARMAK FREZELER, Titanyum frezelemek için
TAPER SHANK END MILLS, for titanium machining
SCHAFTFRÄSER mit MK, für Titan Bearbeitung
FREZY TRZPIENIOWE WALCOWO-CZOŁOWE, z chwytem stożkowym
morse'a i rozdzielnikiem wióra do obróbki tytanu



DIN 228A



typ

H

CB

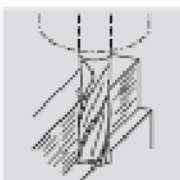


$\lambda=35^\circ$

$\gamma=6^\circ$

HSS

Co8



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

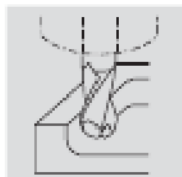
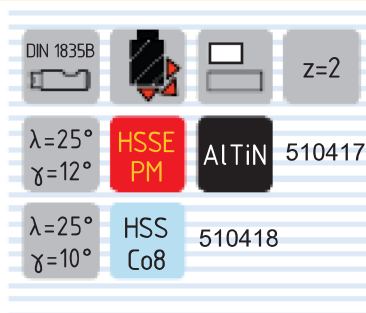
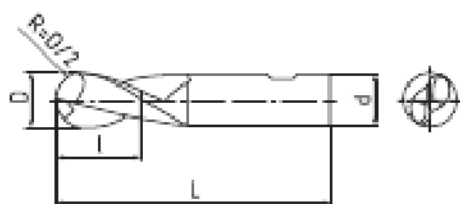
Kısa / Short / Kurz / Krótki

D k 10	I	L	MK	Z	CODE
10	22	92	1	4	442248.100
12	26	96	1	4	442248.120
14	26	111	2	4	442248.140
16	32	117	2	4	442248.160
18	32	117	2	4	442248.180
20	38	123	2	4	442248.200
22	38	123	2	5	442248.220
25	45	147	3	5	442248.250
28	45	147	3	5	442248.280
30	45	147	3	6	442248.300
32	53	178	4	6	442248.320
36	53	178	4	6	442248.360
40	63	188	4	6	442248.400
45	63	188	4	6	442248.450
50	75	233	5	6	442248.500

Uzun / Long / Lang / Długi

D k 10	I	L	MK	Z	CODE
10	45	115	1	4	443248.100
12	53	123	1	4	443248.120
14	53	138	2	4	443248.140
16	63	148	2	4	443248.160
18	63	148	2	4	443248.180
20	75	160	2	4	443248.200
22	75	160	2	5	443248.220
25	90	192	3	5	443248.250
28	90	192	3	5	443248.280
30	90	192	3	6	443248.300
32	106	231	4	6	443248.320
36	106	231	4	6	443248.360
40	125	250	4	6	443248.400
45	125	250	4	6	443248.450
50	150	308	5	6	443248.500

Sipariş örneği / Example of order / Bestellsungsbeispiel / Przykład zamówienia: **442248.100 (+ TiAIN)**

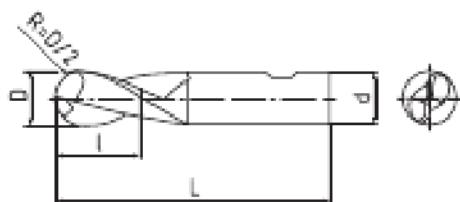


Uygulama / Usage / Applikation / Zastosowanie

HSSE-PM	1	2	3	4	5	6	7	8	9	10	11	12	13
HSS Co8	1	2	3	4	5	6	7	8	9	10	11	12	13



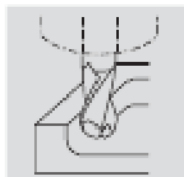
D h 10	I	L	d h 6	CODE	CODE
4	7	51	6	510417.040	510418.040
4,5	7	51	6	–	510418.045
5	8	52	6	510417.050	510418.050
6	8	52	6	510417.060	510418.060
7	10	60	10	510417.070	510418.070
8	11	61	10	510417.080	510418.080
9	11	61	10	510417.090	510418.090
10	13	63	10	510417.100	510418.100
11	13	70	12	–	510418.110
12	16	73	12	510417.120	510418.120
13	16	73	12	–	510418.130
14	16	73	12	510417.140	510418.140
15	16	73	12	–	510418.150
16	19	79	16	510417.160	510418.160
18	19	79	16	510417.180	510418.180
20	22	88	20	510417.200	510418.200
22	22	88	20	–	510418.220
24	26	102	25	–	510418.240
25	26	102	25	–	510418.250
28	26	102	25	–	510418.280
30	26	102	25	–	510418.300
32	32	112	32	–	510418.320



DIN 1835B


 $\lambda = 25^\circ$
 $\gamma = 10^\circ$
HSS
Co8

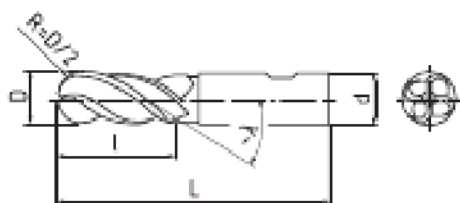
z=2



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D h 10	I	L	d h 6	CODE
4	11	63	6	511418.040
5	13	68	6	511418.050
6	13	68	6	511418.060
7	16	80	10	511418.070
8	19	88	10	511418.080
9	19	88	10	511418.090
10	22	95	10	511418.100
11	22	102	12	511418.110
12	26	110	12	511418.120
13	26	110	12	511418.130
14	26	110	12	511418.140
15	26	110	12	511418.150
16	32	123	16	511418.160
18	32	123	16	511418.180
20	38	141	20	511418.200
22	38	141	20	511418.220
24	45	166	25	511418.240
25	45	166	25	511418.250
28	45	166	25	511418.280
30	45	166	25	511418.300
32	53	186	32	511418.320

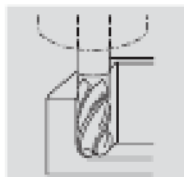


DIN 1835B



$\gamma = 12^\circ$

HSS
Co8



Uygulama / Usage / Applikation / Zastosowanie

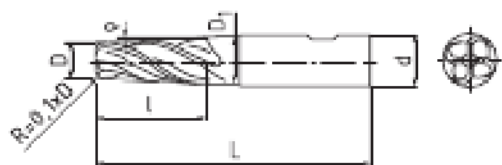
1 2 3 4 5 6 7 8 9 10 11 12 13

Kısa / Short / Kurz / Krótki

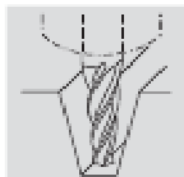
D k 12	I	L	d h 6	Z	~λ	CODE
4	11	55	6	4	15°	530718.040
5	13	57	6	4	15°	530718.050
6	13	57	6	4	25°	530718.060
8	19	69	10	4	25°	530718.080
10	22	72	10	4	35°	530718.100
12	26	83	12	4	35°	530718.120
16	32	92	16	4	35°	530718.160
20	38	104	20	4	35°	530718.200

Uzun / Long / Lang / Długi

D k 12	I	L	d h 6	Z	~λ	CODE
4	19	63	6	4	15°	531718.040
5	24	68	6	4	15°	531718.050
6	24	68	6	4	25°	531718.060
8	38	88	10	4	25°	531718.080
10	45	95	10	4	35°	531718.100
12	53	110	12	4	35°	531718.120
16	63	123	16	4	35°	531718.160
20	75	141	20	4	35°	531718.200



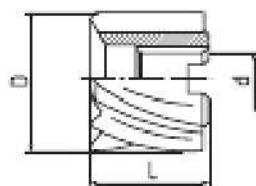
DIN 1835B


 $\lambda = 25^\circ$
 $\gamma = 12^\circ$
HSS
Co8

Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

p	D _{js 14}	D ₁ ~	I	L	d _{h 6}	CODE
1°	5	5,7	20	73	10	580718.0105
1°	8	9,1	32	95	12	580718.0108
1°	12	13,7	50	118	16	580718.0112
1°	20	22,8	80	155	20	580718.0120
2°	5	6,4	20	74	10	580718.0205
2°	8	10,2	32	95	12	580718.0208
2°	12	15,5	50	118	16	580718.0212
2°	20	25,6	80	160	25	580718.0220
3°	5	7,1	20	74	10	580718.0305
3°	8	11,4	32	95	12	580718.0308
3°	12	17,2	50	120	20	580718.0312
3°	20	28,4	80	160	25	580718.0320
5°	5	8,5	20	74	10	580718.0505
5°	8	13,6	32	98	16	580718.0508
5°	12	20,7	50	120	20	580718.0512
5°	20	34	80	165	32	580718.0520
7°	5	9,9	20	80	12	580718.0705
7°	8	15,9	32	98	16	580718.0708
7°	12	24,3	50	130	25	580718.0712
7°	20	39,6	80	165	32	580718.0720
10°	5	12,1	20	80	12	580718.1005
10°	8	19,3	32	100	20	580718.1008
10°	12	29,6	50	130	25	580718.1012
10°	20	48,2	80	165	32	580718.1020

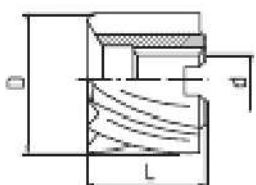


D js 16	L	d H 7	Z	CODE
40	32	16	4	610275V.040
50	36	22	4	610275V.050
63	40	27	5	610275V.063
80	45	27	6	610275V.080
100	50	32	7	610275V.100

VALS FREZELER
SHELL END MILLS
WALZENSTIRNFRÄSER
FREZY WALCOWO-CZOŁOWE NASADZANE, średnioostrowe

DIN 1880
ISO 2780/2586
~ PN 222052

6202



$\lambda=32^\circ$
 $\gamma=12^\circ$

typ
N

HSS

Co5



1

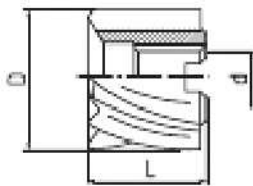
2

3

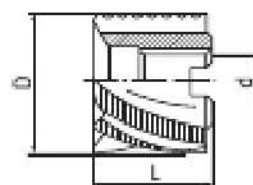
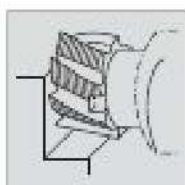
Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	L	d H 7	Z	CODE
40	32	16	6	620275.040
50	36	22	8	620275.050
63	40	27	8	620275.063
80	45	27	10	620275.080
100	50	32	10	620275.100

6202VDIN 1880
ISO 2780/2586VALS FREZELER, ince diş
SHELL END MILLS
WALZENSTIRNFRÄSER
FREZY WALCOWO-CZOŁOWE, nasadzone średnioostrzowe

D js 16	L	d H 7	Z	CODE
40	32	16	8	620278V.040
50	36	22	8	620278V.050
63	40	27	8	620278V.063
80	45	27	10	620278V.080
100	50	32	12	620278V.100
125	56	40	14	620278V.125
160	63	50	16	620278V.160

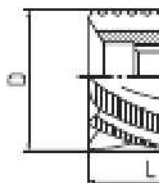
6242DIN 1880
ISO 2780/2586VALS FREZELER, ince diş
SHELL END MILLS, fine teeth
WALZENSTIRNFRÄSER, feingezahnt
FREZY WALCOWO-CZOŁOWE, nasadzone z rozdzielaczem wióra NR $\lambda=30^\circ$
 $\gamma=12^\circ$ typ
NRHSS
Co5

Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	L	d H 7	Z	CODE
40	32	16	6	624275.040
50	36	22	6	624275.050
63	40	27	8	624275.063
80	45	27	8	624275.080
100	50	32	10	624275.100

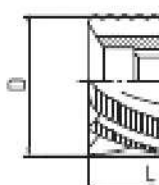
Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **620278V.040** (+ TiAlN)



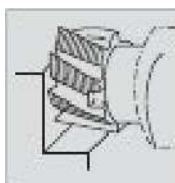
VALS FREZELER, NR P
SHELL END MILLS, NR P
WALZENSTIRNFRÄSER, NR P
FREZY WALCOWO-CZOŁOWE, nasadzane z rozdzielaczem wióra, NR-P

DIN 1880
ISO 2780/2586

6242PV



HSS
Co8

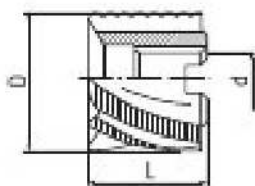


D js 16	L	d H 7	Z	CODE
40	32	16	6	624278PV.040
50	36	22	6	624278PV.050
63	40	27	8	624278PV.063
80	45	27	8	624278PV.080
100	50	32	10	624278PV.100
125	56	40	12	624278PV.125
160	63	50	14	624278PV.160

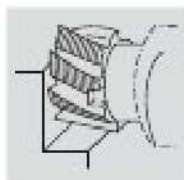
6282

DIN 1880
ISO 2780/2586

VALS FREZELER, HR
SHELL END MILLS, HR
WALZENSTIRNFRÄSER, HR
FREZY WALCOWO-CZOŁOWE, nasadzone z rozdzielnikiem wióra, HR


 $\lambda=30^\circ$
 $\gamma=10^\circ$

 typ
HR

 HSS
Co5


Uygulama / Usage / Applikation / Zastosowanie

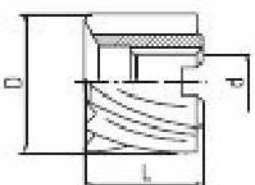
1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	L	d H 7	Z	CODE
40	32	16	8	628275.040
50	36	22	8	628275.050
63	40	27	10	628275.063
80	45	27	10	628275.080
100	50	32	12	628275.100

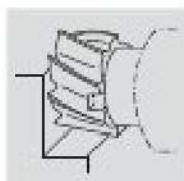
6302V

DIN 1880
ISO 2780/2586

VALS FREZELER, ince diş
SHELL END MILLS, fine teeth
WALZENSTIRNFRÄSER, feingezahnt
FREZY WALCOWO-CZOŁOWE, nasadzone - drobnoostrzowe


 $\lambda=20^\circ$
 $\gamma=8^\circ$

 typ
H

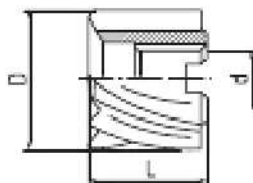
 HSS
Co5


Uygulama / Usage / Applikation / Zastosowanie

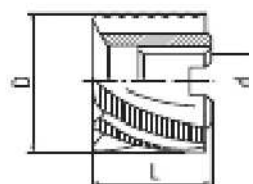
1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	L	d H 7	Z	CODE
40	32	16	10	630275V.040
50	36	22	12	630275V.050
63	40	27	12	630275V.063
80	45	27	14	630275V.080
100	50	32	16	630275V.100
125	56	40	18	630275V.125

 Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **628275.040 (+ TiAIN)**

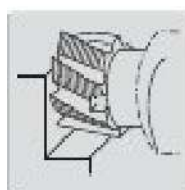
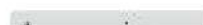


D js 16	L	d H 7	Z	CODE
30	30	13	6	680275V.030030
35	35	16	6	680275V.035035
40	20	16	8	680275V.040020
40	40	16	8	680275V.040040
50	25	22	8	680275V.050025
50	50	22	8	680275V.050050
60	30	27	8	680275V.060030
60	60	27	8	680275V.060060
75	35	27	10	680275V.075035
75	75	27	10	680275V.075075
80	35	27	10	680275V.080035
110	35	32	12	680275V.110035

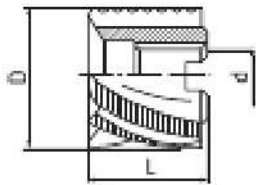


HSS
Co5

typ
NR

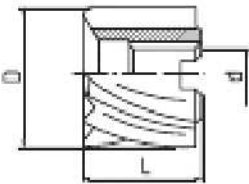


D js 16	L	d H 7	Z	CODE
40	40	16	6	684275V.040040
50	50	22	6	684275V.050050
60	30	27	8	684275V.060030
60	60	27	8	684275V.060060
75	35	27	8	684275V.075035
75	75	27	8	684275V.075075



D js 16	L	d H 7	Z	CODE
40	40	16	6	684275PV.040040
50	50	22	6	684275PV.050050
60	60	27	8	684275PV.060060
75	35	27	8	684275PV.075035
75	75	27	8	684275PV.075075

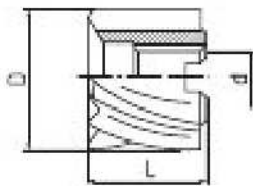
6902V



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	L	d H 7	Z	CODE
30	30	13	8	690275V.030030
35	35	16	10	690275V.035035
40	40	16	10	690275V.040040
50	50	22	12	690275V.050050
60	60	27	12	690275V.060060
75	75	27	14	690275V.075075



$\lambda=45^\circ$
 $\gamma=20^\circ$

typ
W

HSSE

= HSS-E
cast HSS
gegossene HSS
kuty z HSS



Uygulama / Usage / Applikation / Zastosowanie

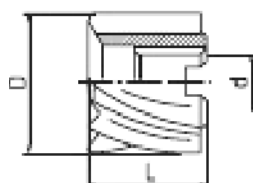
1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	L	d H 7	Z	CODE
40	32	16	4	610973.040
50	36	22	6	610973.050
63	40	27	6	610973.063
80	45	27	6	610973.080
100	50	32	8	610973.100
125	56	40	8	610973.125
160	63	50	10	610973.160

VALS FREZELER
SHELL END MILLS
WALZENSTIRNFRÄSER
FREZY WALCOWO-CZOŁOWE, nasadzone - średniostrzowe

PN 222052
~ DIN 1880
~ ISO 2780/2586

6209

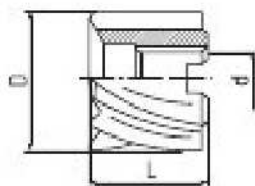


= HSS-E
cast HSS
gegossene HSS
kuty z HSS



1
2
3

D js 16	L	d H 7	Z	CODE
40	32	16	6	620973.040
50	36	22	8	620973.050
63	40	27	8	620973.063
80	45	27	10	620973.080
100	50	32	10	620973.100
125	56	40	12	620973.125
160	63	50	14	620973.160

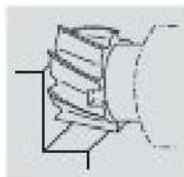


$\lambda=25^\circ$
 $\gamma=12^\circ$

typ
H

HSSE

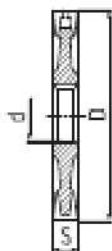
= HSS-E
cast HSS
gegossene HSS
kuty z HSS



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

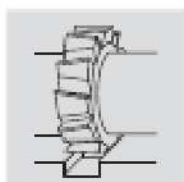
D js 16	L	d H 7	Z	CODE
40	32	16	8	630973.040
50	36	22	10	630973.050
63	40	27	12	630973.063
80	45	27	14	630973.080
100	50	32	16	630973.100
125	56	40	18	630973.125
160	63	50	20	630973.160



$\lambda = 10^\circ$
 $\gamma = 12^\circ$

typ
N

HSS
Co5

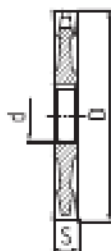


Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	S k 11	d H 7	Z	CODE
50	4	16	12	720275.05004
50	5	16	12	720275.05005
50	6	16	12	720275.05006
50	8	16	12	720275.05008
50	10	16	12	720275.05010
63	4	22	12	720275.06304
63	5	22	12	720275.06305
63	6	22	12	720275.06306
63	8	22	12	720275.06308
63	10	22	12	720275.06310
63	12	22	12	720275.06312
63	14	22	12	720275.06314
63	16	22	12	720275.06316
63	18	22	12	720275.06318
80	4	27	14	720275.08004
80	5	27	14	720275.08005
80	6	27	14	720275.08006
80	8	27	14	720275.08008
80	10	27	14	720275.08010
80	12	27	14	720275.08012
80	14	27	14	720275.08014
80	16	27	14	720275.08016
80	18	27	14	720275.08018
80	20	27	14	720275.08020
100	4	32	14	720275.10004
100	5	32	14	720275.10005
100	6	32	14	720275.10006
100	8	32	14	720275.10008
100	10	32	14	720275.10010
100	12	32	14	720275.10012
100	14	32	14	720275.10014
100	16	32	14	720275.10016

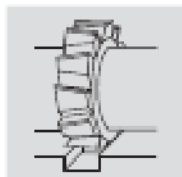
D js 16	S k 11	d H 7	Z	CODE
100	18	32	14	720275.10018
100	20	32	14	720275.10020
100	25	32	14	720275.10025
125	6	32	16	720275.12506
125	8	32	16	720275.12508
125	10	32	16	720275.12510
125	12	32	16	720275.12512
125	14	32	16	720275.12514
125	16	32	16	720275.12516
125	18	32	16	720275.12518
125	20	32	16	720275.12520
125	25	32	16	720275.12525
125	28	32	16	720275.12528
160	6	40	18	720275.16006
160	8	40	18	720275.16008
160	10	40	18	720275.16010
160	12	40	18	720275.16012
160	14	40	18	720275.16014
160	16	40	18	720275.16016
160	18	40	18	720275.16018
160	20	40	18	720275.16020
160	25	40	18	720275.16025
160	32	40	18	720275.16032
200	8	40	24	720275.20008
200	10	40	24	720275.20010
200	12	40	24	720275.20012
200	14	40	24	720275.20014
200	16	40	24	720275.20016
200	18	40	24	720275.20018
200	20	40	24	720275.20020
200	25	40	24	720275.20025
200	32	40	24	720275.20032



$\lambda = 10^\circ$
 $\gamma = 12^\circ$

typ
N

HSS
Co5

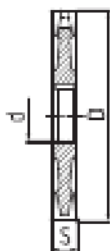


Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	S k 11	d H 7	Z	CODE
63	1,6	22	16	726275.063016
63	2	22	16	726275.063020
63	2,5	22	16	726275.063025
63	3	22	16	726275.063030
63	4	22	16	726275.063040
63	5	22	16	726275.063050
63	6	22	16	726275.063060
80	1,6	27	20	726275.080016
80	2	27	20	726275.080020
80	2,5	27	20	726275.080025
80	3	27	20	726275.080030
80	4	27	20	726275.080040
80	5	27	20	726275.080050
80	6	27	20	726275.080060
100	1,6	32	24	726275.100016
100	2	32	24	726275.100020
100	2,5	32	24	726275.100025
100	3	32	24	726275.100030
100	4	32	24	726275.100040
100	5	32	24	726275.100050
100	6	32	24	726275.100060
100	8	32	24	726275.100080
125	1,6	32	26	726275.125016
125	2	32	26	726275.125020
125	2,5	32	26	726275.125025
125	3	32	26	726275.125030
125	4	32	26	726275.125040

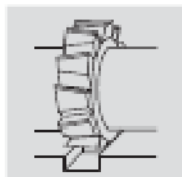
D js 16	S k 11	d H 7	Z	CODE
125	5	32	26	726275.125050
125	6	32	26	726275.125060
125	8	32	26	726275.125080
125	10	32	26	726275.125100
160	2	40	30	726275.160020
160	2,5	40	30	726275.160025
160	3	40	30	726275.160030
160	4	40	30	726275.160040
160	5	40	30	726275.160050
160	6	40	30	726275.160060
160	8	40	30	726275.160080
160	10	40	30	726275.160100
160	12	40	30	726275.160120



$\lambda = 10^\circ$
 $\gamma = 8^\circ$

typ
H

HSS
Co5



Uygulama / Usage / Applikation / Zastosowanie

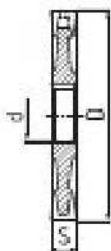
1 2 3 4 5 6 7 8 9 10 11 12 13

HSS
Co5

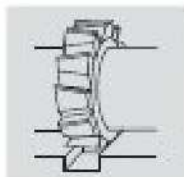
HSS
Co5

D js 16	S k 11	d H 7	Z	CODE
50	4	16	16	730275.05004
50	5	16	16	730275.05005
50	6	16	16	730275.05006
50	8	16	16	730275.05008
50	10	16	16	730275.05010
63	4	22	18	730275.06304
63	5	22	18	730275.06305
63	6	22	18	730275.06306
63	8	22	18	730275.06308
63	10	22	18	730275.06310
63	12	22	18	730275.06312
63	14	22	18	730275.06314
63	16	22	18	730275.06316
80	4	27	20	730275.08004
80	5	27	20	730275.08005
80	6	27	20	730275.08006
80	8	27	20	730275.08008
80	10	27	18	730275.08010
80	12	27	18	730275.08012
80	14	27	18	730275.08014
80	16	27	18	730275.08016
80	18	27	18	730275.08018
80	20	27	18	730275.08020
100	4	32	20	730275.10004
100	5	32	20	730275.10005
100	6	32	20	730275.10006
100	8	32	20	730275.10008

D js 16	S k 11	d H 7	Z	CODE
100	10	32	20	730275.10010
100	12	32	20	730275.10012
100	14	32	20	730275.10014
100	16	32	20	730275.10016
100	18	32	20	730275.10018
100	20	32	20	730275.10020
100	25	32	20	730275.10025
125	5	32	24	730275.12505
125	6	32	24	730275.12506
125	8	32	24	730275.12508
125	10	32	22	730275.12510
125	12	32	22	730275.12512
125	14	32	22	730275.12514
125	16	32	22	730275.12516
125	18	32	22	730275.12518
125	20	32	22	730275.12520
125	25	32	22	730275.12525
125	28	32	22	730275.12528
160	6	40	26	730275.16006
160	8	40	26	730275.16008
160	10	40	26	730275.16010
160	12	40	26	730275.16012
160	14	40	26	730275.16014
160	16	40	26	730275.16016
160	18	40	26	730275.16018
160	20	40	26	730275.16020
160	25	40	26	730275.16025


 $\lambda = 10^\circ$
 $\gamma = 8^\circ$
typ
H
HSS
Co5

HSS



Uygulama / Usage / Applikation / Zastosowanie

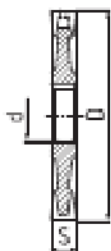
HSS Co5	1	2	3	4	5	6	7	8	9	10	11	12	13
HSS	1	2	3	4	5	6	7	8	9	10	11	12	13

HSS
Co5

D js 16	S k 11	d H 7	Z	CODE
160	32	40	26	730275.16032
200	8	40	32	730275.20008
200	10	40	32	730275.20010
200	12	40	32	730275.20012
200	14	40	32	730275.20014
200	16	40	32	730275.20016
200	18	40	32	730275.20018
200	20	40	32	730275.20020
200	25	40	32	730275.20025
200	32	40	32	730275.20032

HSS

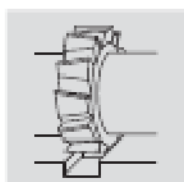
D js 16	S k 11	d H 7	Z	CODE
250	8	40	38	730270.25008
250	10	40	38	730270.25010
250	12	40	38	730270.25012



$\lambda = 10^\circ$
 $\gamma = 10^\circ$

typ
H

HSS
Co8



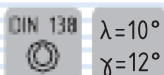
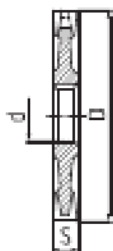
Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

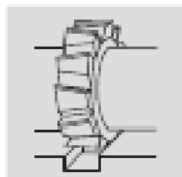
D js 16	S k 11	d H 7	Z	CODE
50	4	16	14	730278.05004
50	5	16	14	730278.05005
50	6	16	14	730278.05006
50	8	16	14	730278.05008
50	10	16	14	730278.05010
63	4	22	16	730278.06304
63	5	22	16	730278.06305
63	6	22	16	730278.06306
63	8	22	16	730278.06308
63	10	22	16	730278.06310
63	12	22	16	730278.06312
63	14	22	16	730278.06314
63	16	22	16	730278.06316
80	4	27	18	730278.08004
80	5	27	18	730278.08005
80	6	27	18	730278.08006
80	8	27	18	730278.08008
80	10	27	18	730278.08010
80	12	27	18	730278.08012
80	14	27	18	730278.08014
80	16	27	18	730278.08016
80	18	27	16	730278.08018
80	20	27	16	730278.08020
100	4	32	20	730278.10004
100	5	32	20	730278.10005
100	6	32	20	730278.10006
100	8	32	20	730278.10008
100	10	32	20	730278.10010
100	12	32	20	730278.10012
100	14	32	20	730278.10014
100	16	32	20	730278.10016
100	18	32	20	730278.10018

D js 16	S k 11	d H 7	Z	CODE
100	20	32	20	730278.10020
100	22	32	18	730278.10022
100	25	32	18	730278.10025
125	5	32	22	730278.12505
125	6	32	22	730278.12506
125	8	32	22	730278.12508
125	10	32	22	730278.12510
125	12	32	22	730278.12512
125	14	32	22	730278.12514
125	16	32	22	730278.12516
125	18	32	22	730278.12518
125	20	32	22	730278.12520
125	22	32	20	730278.12522
125	25	32	20	730278.12525
160	6	40	24	730278.16006
160	8	40	24	730278.16008
160	10	40	24	730278.16010
160	12	40	24	730278.16012
160	14	40	24	730278.16014
160	16	40	24	730278.16016
160	18	40	24	730278.16018
160	20	40	24	730278.16020
160	22	40	22	730278.16022
160	25	40	22	730278.16025
200	8	40	30	730278.20008
200	10	40	30	730278.20010
200	12	40	30	730278.20012
200	14	40	30	730278.20014
200	16	40	30	730278.20016
200	18	40	30	730278.20018
200	20	40	30	730278.20020
200	22	40	28	730278.20022
200	25	40	28	730278.20025

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **730278.05004** (+ TiAlN)



HSS
Co5

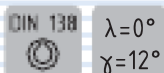


Uygulama / Usage / Applikation / Zastosowanie

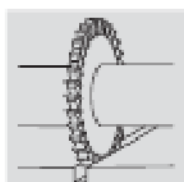
1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	S k 11	d H 7	Z	CODE
50	1,6	16	24	736275.050016
50	2	16	24	736275.050020
50	2,5	16	24	736275.050025
50	3	16	24	736275.050030
63	1,6	22	28	736275.063016
63	2	22	28	736275.063020
63	2,5	22	28	736275.063025
63	3	22	28	736275.063030
63	4	22	28	736275.063040
63	5	22	28	736275.063050
63	6	22	28	736275.063060
80	1,6	27	32	736275.080016
80	2	27	32	736275.080020
80	2,5	27	32	736275.080025
80	3	27	32	736275.080030
80	4	27	32	736275.080040
80	5	27	32	736275.080050
80	6	27	32	736275.080060
100	1,6	32	36	736275.100016
100	2	32	36	736275.100020
100	2,5	32	36	736275.100025
100	3	32	36	736275.100030
100	4	32	36	736275.100040
100	5	32	36	736275.100050
100	6	32	36	736275.100060
100	8	32	28	736275.100080
125	1,6	32	40	736275.125016

D js 16	S k 11	d H 7	Z	CODE
125	2	32	40	736275.125020
125	2,5	32	40	736275.125025
125	3	32	40	736275.125030
125	4	32	40	736275.125040
125	5	32	40	736275.125050
125	6	32	40	736275.125060
125	8	32	32	736275.125080
125	10	32	32	736275.125100
160	2	40	48	736275.160020
160	2,5	40	48	736275.160025
160	3	40	48	736275.160030
160	4	40	48	736275.160040
160	5	40	48	736275.160050
160	6	40	48	736275.160060
160	8	40	36	736275.160080
160	10	40	36	736275.160100
160	12	40	36	736275.160120
200	2	40	52	736275.200020
200	2,5	40	52	736275.200025
200	3	40	52	736275.200030
200	4	40	52	736275.200040
200	5	40	52	736275.200050
200	6	40	52	736275.200060
200	8	40	40	736275.200080
200	10	40	40	736275.200100
200	12	40	40	736275.200120



HSS
Co5



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	S k 11	d H 7	Z	CODE
63	1,6	22	32	737275.063016
63	2	22	32	737275.063020
63	2,5	22	32	737275.063025
63	3	22	32	737275.063030
63	4	22	32	737275.063040
63	5	22	32	737275.063050
80	1,6	27	36	737275.080016
80	2	27	36	737275.080020
80	2,5	27	36	737275.080025
80	3	27	36	737275.080030
80	4	27	36	737275.080040
100	1,6	32	40	737275.100016
100	2	32	40	737275.100020
100	2,5	32	40	737275.100025
100	3	32	40	737275.100030
100	4	32	40	737275.100040
100	5	32	40	737275.100050
125	1,6	32	44	737275.125016
125	2	32	44	737275.125020
125	2,5	32	44	737275.125025
125	3	32	44	737275.125030
125	4	32	44	737275.125040
125	5	32	44	737275.125050
125	6	32	44	737275.125060
160	2	40	52	737275.160020
160	2,5	40	52	737275.160025
160	3	40	52	737275.160030

D js 16	S k 11	d H 7	Z	CODE
160	4	40	52	737275.160040
160	5	40	52	737275.160050
160	6	40	52	737275.160060
160	8	40	40	737275.160080

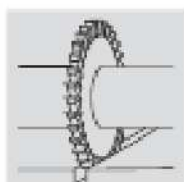
1
2
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5
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8



$\lambda=0^\circ$
 $\gamma=8^\circ$

typ
H

HSS
Co5



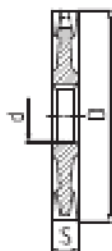
Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	S k 11	d H 7	Z	CODE
50	4	16	16	739275.05004
50	5	16	16	739275.05005
50	6	16	16	739275.05006
50	8	16	16	739275.05008
50	10	16	16	739275.05010
63	4	22	18	739275.06304
63	5	22	18	739275.06305
63	6	22	18	739275.06306
63	8	22	18	739275.06308
63	10	22	18	739275.06310
63	12	22	18	739275.06312
63	14	22	18	739275.06314
63	16	22	18	739275.06316
63	18	22	18	739275.06318
80	4	27	20	739275.08004
80	5	27	20	739275.08005
80	6	27	20	739275.08006
80	8	27	20	739275.08008
80	10	27	20	739275.08010
80	12	27	20	739275.08012
80	14	27	20	739275.08014
80	16	27	20	739275.08016
80	18	27	20	739275.08018
80	20	27	20	739275.08020
100	6	32	24	739275.10006
100	8	32	24	739275.10008
100	10	32	24	739275.10010
100	12	32	24	739275.10012

D js 16	S k 11	d H 7	Z	CODE
100	14	32	24	739275.10014
100	16	32	24	739275.10016
100	18	32	24	739275.10018
100	20	32	24	739275.10020
100	22	32	24	739275.10022
100	25	32	24	739275.10025
125	6	32	24	739275.12506
125	8	32	24	739275.12508
125	10	32	24	739275.12510
125	12	32	24	739275.12512
125	14	32	24	739275.12514
125	16	32	24	739275.12516
125	18	32	24	739275.12518
125	20	32	24	739275.12520
125	25	32	24	739275.12525
160	10	40	24	739275.16010
160	12	40	24	739275.16012
160	14	40	24	739275.16014
160	16	40	24	739275.16016
160	18	40	24	739275.16018
160	20	40	24	739275.16020
200	10	40	32	739275.20010
200	12	40	32	739275.20012
200	14	40	32	739275.20014
200	16	40	32	739275.20016
200	18	40	32	739275.20018
200	20	40	32	739275.20020

Sipariş örneği / Example of order / Bestellsungsbeispiel / Przykład zamówienia: **739275.05004** (+ TiAlN)

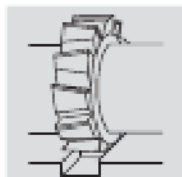


$\lambda = 10^\circ$
 $\gamma = 10^\circ$

typ
N

HSSE

= HSS-E
cast HSS
gegossene HSS
kuty z HSS



Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	S s 10	d H 7	Z	CODE
63	8	22	12	720373.06308
63	10	22	12	720373.06310
63	12	22	12	720373.06312
80	8	27	14	720373.08008
80	10	22	14	720373.0801022
80	10	27	14	720373.08010
80	12	27	14	720373.08012
100	10	27	14	720373.1001027
100	12	22	14	720373.1001222
100	12	27	14	720373.1001227
100	12	32	14	720373.10012
100	14	27	14	720373.1001427
100	14	32	14	720373.10014
100	16	32	14	720373.10016
125	12	32	16	720373.12512
125	14	27	16	720373.1251427
125	14	32	16	720373.12514
125	14	40	16	720373.1251440
125	16	32	16	720373.12516
125	16	40	16	720373.1251640
125	18	40	16	720373.1251840
160	14	40	18	720373.16014
160	16	40	18	720373.16016
160	18	40	18	720373.16018
160	20	40	18	720373.16020

1

2

3

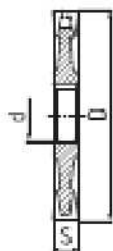
4

5

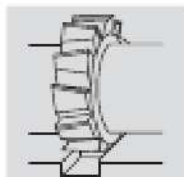
6

7

8


 $\lambda = 10^\circ$
 $\gamma = 10^\circ$
typ
H

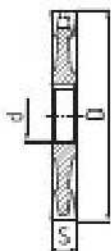
HSSE

 = HSS-E
 cast HSS
 gegossene HSS
 kuty z HSS


Uygulama / Usage / Applikation / Zastosowanie

1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	S s 10	d H 7	Z	CODE
50	4	16	18	730373.05004
50	5	16	18	730373.05005
50	6	16	18	730373.05006
63	4	22	20	730373.06304
63	5	22	20	730373.06305
63	6	22	20	730373.06306
63	8	22	20	730373.06308
63	10	22	20	730373.06310
63	12	22	20	730373.06312
80	6	22	22	730373.08006
80	8	22	22	730373.08008
80	10	22	22	730373.08010
80	12	22	22	730373.08012
100	8	22	24	730373.10008
100	10	22	24	730373.10010
100	14	22	24	730373.10014
100	16	27	24	730373.10016
125	8	32	28	730373.12508
125	12	27	26	730373.12512
125	16	27	26	730373.12516
125	18	32	26	730373.12518
125	20	32	26	730373.12520
160	18	32	28	730373.16018
160	22	40	28	730373.16022

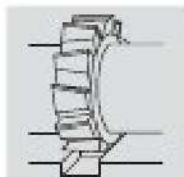


$\lambda=10^\circ$
 $\gamma=10^\circ$

typ
H

HSSE

= HSS-E
cast HSS
gegossene HSS
kuty z HSS

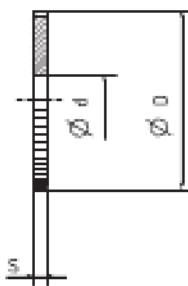


Uygulama / Usage / Applikation / Zastosowanie

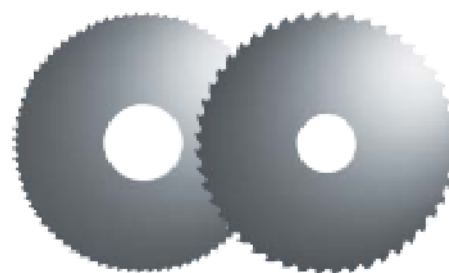
1 2 3 4 5 6 7 8 9 10 11 12 13

D js 16	S e 8	d H 7	Z	CODE
50	4	16	18	732373.05004
63	5	22	20	732373.06305
63	6	22	20	732373.06306
63	8	22	20	732373.06308
80	10	27	22	732373.08010
80	12	27	22	732373.08012
80	14	27	22	732373.08014
100	16	32	24	732373.10016
100	18	32	24	732373.10018
125	22	40	26	732373.12522
125	25	40	26	732373.12525

1
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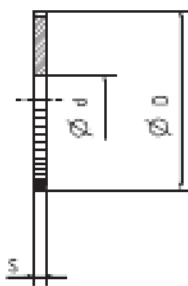
HSS

typ H
DIN 1837
= CODE 722910typ W
DIN 1838
= CODE 722913

DxS	Hole d	CODE 722910	CODE 722913	DxS	Hole d	CODE 722910	CODE 722913	DxS	Hole d	CODE 722910	CODE 722913	DxS	Hole d	CODE 722910	CODE 722913
20x0,15	5	0200015	—	32x1,6	8	0320160	—	63x1	16	0630100	0630100	125x0,6	22	1250060	1250060
20x0,20	5	0200020	—	32x2	8	0320200	—	63x1,2	16	0630120	0630120	125x0,7	22	1250070	1250070
20x0,25	5	0200025	—	32x2,5	8	0320250	—	63x1,5	16	0630150	0630150	125x0,8	22	1250080	1250080
20x0,30	5	0200030	—	32x3	8	0320300	—	63x1,6	16	0630160	0630160	125x0,9	22	1250090	1250090
20x0,40	5	0200040	—	32x4	8	0320400	—	63x2	16	0630200	0630200	125x1	22	1250100	1250100
20x0,50	5	0200050	—	40x0,2	10	0400020	—	63x2,5	16	0630250	0630250	125x1,2	22	1250120	1250120
20x0,60	5	0200060	—	40x0,25	10	0400025	—	63x3	16	0630300	0630300	125x1,5	22	1250150	1250150
20x0,70	5	0200070	—	40x0,3	10	0400030	—	63x3,5	16	0630350	0630350	125x1,6	22	1250160	1250160
20x0,80	5	0200080	—	40x0,4	10	0400040	—	63x4	16	0630400	0630400	125x2	22	1250200	1250200
20x0,90	5	0200090	—	40x0,5	10	0400050	—	63x5	16	0630500	0630500	125x2,5	22	1250250	1250250
20x1,00	5	0200100	—	40x0,6	10	0400060	—	63x6	16	0630600	0630600	125x3	22	1250300	1250300
20x1,20	5	0200120	—	40x0,7	10	0400070	—	80x0,3	22	0800030	0800030	125x3,2	22	1250320	1250320
20x1,50	5	0200150	—	40x0,8	10	0400080	—	80x0,4	22	0800040	0800040	125x3,5	22	1250350	1250350
20x1,60	5	0200160	—	40x0,9	10	0400090	—	80x0,5	22	0800050	0800050	125x4	22	1250400	1250400
20x2,00	5	0200200	—	40x1	10	0400100	—	80x0,6	22	0800060	0800060	125x5	22	1250500	1250500
20x2,50	5	0200250	—	40x1,2	10	0400120	—	80x0,7	22	0800070	0800070	125x6	22	1250600	1250600
20x3,00	5	0200300	—	40x1,5	10	0400150	—	80x0,8	22	0800080	0800080	*150x1	22	1500100	1500100
25x0,15	8	0250015	—	40x1,6	10	0400160	—	80x0,9	22	0800090	0800090	*150x1,2	22	1500120	1500120
25x0,20	8	0250020	—	40x2	10	0400200	—	80x1	22	0800100	0800100	*150x1,5	22	1500150	1500150
25x0,25	8	0250025	—	40x2,5	10	0400250	—	80x1,2	22	0800120	0800120	*150x1,6	22	1500160	1500160
25x0,30	8	0250030	—	40x3	10	0400300	—	80x1,5	22	0800150	0800150	*150x2	22	1500200	1500200
25x0,40	8	0250040	—	50x0,2	13	0500020	0500020	80x1,6	22	0800160	0800160	*150x2,5	22	1500250	1500250
25x0,50	8	0250050	—	50x0,25	13	0500025	0500025	80x2	22	0800200	0800200	*150x3	22	1500300	1500300
25x0,60	8	0250060	—	50x0,3	13	0500030	0500030	80x2,5	22	0800250	0800250	*150x3,5	22	1500350	1500350
25x0,70	8	0250070	—	50x0,4	13	0500040	0500040	80x3	22	0800300	0800300	*150x4	22	1500400	1500400
25x0,80	8	0250080	—	50x0,5	13	0500050	0500050	80x3,5	22	0800350	0800350	*150x4,5	22	1500450	1500450
25x0,90	8	0250090	—	50x0,6	13	0500060	0500060	80x4	22	0800400	0800400	*150x5	22	1500500	1500500
25x1,00	8	0250100	—	50x0,7	13	0500070	0500070	80x5	22	0800500	0800500	*150x6	22	1500600	1500600
25x1,20	8	0250120	—	50x0,8	13	0500080	0500080	80x6	22	0800600	0800600	160x1	32	1600100	1600100
25x1,50	8	0250150	—	50x0,9	13	0500090	0500090	100x0,4	22	1000040	1000040	160x1,2	32	1600120	1600120
25x1,60	8	0250160	—	50x1	13	0500100	0500100	100x0,5	22	1000050	1000050	160x1,5	32	1600150	1600150
25x2,00	8	0250200	—	50x1,2	13	0500120	0500120	100x0,6	22	1000060	1000060	160x1,6	32	1600160	1600160
25x2,50	8	0250250	—	50x1,5	13	0500150	0500150	100x0,7	22	1000070	1000070	160x2	32	1600200	1600200
25x3	8	0250300	—	50x1,6	13	0500160	0500160	100x0,8	22	1000080	1000080	160x2,5	32	1600250	1600250
32x0,15	8	0320015	—	50x2	13	0500200	0500200	100x0,9	22	1000090	1000090	160x3	32	1600300	1600300
32x0,2	8	0320020	—	50x2,5	13	0500250	0500250	100x1	22	1000100	1000100	160x3,5	32	1600350	1600350
32x0,25	8	0320025	—	50x3	13	0500300	0500300	100x1,2	22	1000120	1000120	160x4	32	1600400	1600400
32x0,3	8	0320030	—	50x4	13	0500400	0500400	100x1,5	22	1000150	1000150	160x4,5	32	1600450	1600450
32x0,4	8	0320040	—	50x5	13	0500500	0500500	100x1,6	22	1000160	1000160	160x5	32	1600500	1600500
32x0,5	8	0320050	—	63x0,25	16	0630025	0630025	100x2	22	1000200	1000200	160x6	32	1600600	1600600
32x0,6	8	0320060	—	63x0,3	16	0630030	0630030	100x2,5	22	1000250	1000250	200x1	32	2000100	2000100
32x0,7	8	0320070	—	63x0,4	16	0630040	0630040	100x3	22	1000300	1000300	200x1,2	32	2000120	2000120
32x0,8	8	0320080	—	63x0,5	16	0630050	0630050	100x3,5	22	1000350	1000350	200x1,5	32	2000150	2000150
32x0,9	8	0320090	—	63x0,6	16	0630060	0630060	100x4	22	1000400	1000400	200x1,6	32	2000160	2000160
32x1	8	0320100	—	63x0,7	16	0630070	0630070	100x5	22	1000500	1000500	200x1,8	32	2000180	2000180
32x1,2	8	0320120	—	63x0,8	16	0630080	0630080	100x6	22	1000600	1000600	200x2	32	2000200	2000200
32x1,5	8	0320150	—	63x0,9	16	0630090	0630090	125x0,5	22	1250050	1250050	200x2,5	32	2000250	2000250

*/ ≠ DIN 1837, DIN 1838

Sipariş örneği / Example of order / Bestellsbeispiel / Przykład zamówienia: **722910.0200015 (+ TiAIN)**

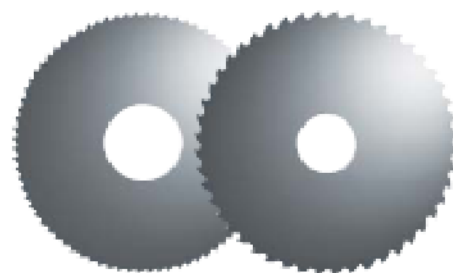


HSS



typ
H DIN 1837
= CODE 722910

typ
W DIN 1838
= CODE 722913



Diş sayısı – Number of teeth – Zähnezahl – Liczba zębów

CODE 722910 ≈ DIN 1837

D (mm)	20	25	32	40	50	63	80	100	125	160	200	250	315
dH7 (mm)	5	8	8	10	13	16	22	22	22	32	32	32	40
B (mm)													
0,20 mm	80	80	100	128	128								
0,25 mm	64	80	100	100	128	160							
0,30 mm	64	80	80	100	128	128	160						
0,40 mm	64	64	80	100	100	128	160						
0,50 mm	48	64	80	80	100	128	128	160					
0,60 mm	48	64	64	80	100	100	128	160	160				
0,80 mm	48	48	64	80	80	100	128	128	160				
1,00 mm	40	48	64	64	80	100	100	128	160	160	200		
1,20 mm	40	48	48	64	80	80	100	128	128	160	200		
1,60 mm	40	40	48	64	64	80	100	100	128	160	200	200	
2,00 mm	32	40	48	48	64	80	80	100	128	128	160	200	
2,50 mm	32	40	40	48	64	64	80	100	100	128	160	160	200
3,00 mm	32	32	40	48	48	64	80	80	100	128	128	160	200
4,00 mm	24	32	40	40	48	64	64	80	100	100	128	160	160
5,00 mm	24	32	32	40	48	48	64	80	80	100	128	128	160
6,00 mm	24	24	32	40	40	48	64	64	80	100	100	128	160

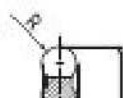
CODE 722913 ≈ DIN 1838

D (mm)	50	63	80	100	125	160	200	250	315				
dH7 (mm)	13	16	22	22	22	32	32	32	40				
B (mm)													
0,50 mm	48	64	64	80									
0,60 mm	48	48	64	80	80								
0,80 mm	40	48	64	64	80								
1,00 mm	40	48	48	64	80	80							
1,20 mm	40	40	48	64	64	80	100						
1,60 mm	32	40	48	48	64	80	80	100					
2,00 mm	32	40	40	48	64	64	80	100					
2,50 mm	32	32	40	48	64	64	80	80	100				
3,00 mm	24	32	40	40	48	64	64	80	100				
4,00 mm	24	32	32	40	48	48	64	80	80				
5,00 mm	24	24	32	40	40	48	64	64	80				
6,00 mm	20	24	32	32	40	48	48	64	80				

8100
8100V

~ DIN 856
ISO 3860
~ ČSN 222210

DIŞ BÜKEY FREZELER
HALF CIRCLE MILLING CUTTERS CONVEX
HALBRUND-PROFILFRÄSER KONVEX
FREZY KRAŻKOWE PÓŁOKRĄGLE WYPUKŁE



$\lambda=0^\circ$
 $\gamma=10^\circ$

HSS 810070

HSS
Co5 810075V



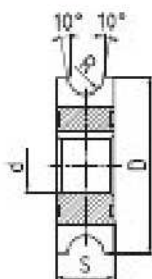
HSS
Co5

R k 11	D js 16	S s 10	d H 7	Z / Z HSS/HSSCo5	CODE	CODE
1	50	2	16	14/16	810070.010	810075V.010
1,25	50	2,5	16	14/16	810070.0125	810075V.0125
1,5*	50	3	16	14/16	810070.015	810075V.015
1,6	50	3,2	16	14	810070.016	—
2	50	4	16	14/16	810070.020	810075V.020
2,5	63	5	22	12	810070.025	810075V.025
3	63	6	22	12	810070.030	810075V.030
3,15*	63	6,3	22	12	810070.0315	—
3,5**	63	7	22	12	810070.035	810075V.035
4	63	8	22	12	810070.040	810075V.040
4,5**	63	9	22	12	810070.045	810075V.045
5	63	10	22	12	810070.050	810075V.050
5,5**	80	11	27	12	810070.055	810075V.055
6	80	12	27	12	810070.060	810075V.060
6,3*	80	12,6	27	12	810070.063	—
6,5**	80	13	27	12	810070.065	—
7**	80	14	27	12	810070.070	—
7,5**	80	15	27	12	810070.075	—
8	80	16	27	12	810070.080	810075V.080
8,5**	100	17	32	12	810070.085	—
9**	100	18	32	12	810070.090	—
9,5**	100	19	32	12	810070.095	—
10	100	20	32	12	810070.100	810075V.100
11**	100	22	32	12	810070.110	—
12	100	24	32	12	810070.120	810075V.120
12,5*	100	25	32	12	810070.125	—
14*/**	125	28	40**	12	810070.140	—
15**	125	30	32	12	810070.150	—
16	125	32	32	12	810070.160	—
18*	125	36	40	12	810070.180	—
20	125	40	32	12	810070.200	—
25*/**	160	50	40	12	810070.250	—

*/ = ČSN

**/ ≠ DIN 856 Talep durumunda üretilir • Available on request • Auf Wunsch lieferbar • Dostępne na zapytanie

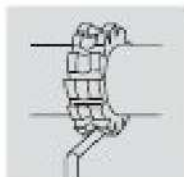
Sipariş örneği / Example of order / Bestellsbeispiel / Przykład zamówienia: **810070.010 (+ TiAIN)**



$\lambda = 0^\circ$
 $\gamma = 10^\circ$

HSS 820070

HSS
Co5 820075V



HSS

HSS
Co5

R H 11	D js 16	S/S HSS/HSSCo5	d H 7	Z/Z HSS/HSSCo5	CODE	CODE
1	50	6/8	16	14	820070.010	820075V.010
1,25	50	6/8	16	14	820070.0125	820075V.0125
1,5**	50	8	16	14	—	820075V.015
1,6	50	8	16	14	820070.016	—
2	50	9	16	14	820070.020	820075V.020
2,5	63	10	22	12/14	820070.025	820075V.025
3	63	12	22	12	820070.030	820075V.030
3,15	63	12	22	12	820070.0315	—
3,5**	63	16	22	12	820070.035	—
4	63	16	22	12	820070.040	820075V.040
4,5**	63	18	22	12	820070.045	—
5	63	20	22	12/10	820070.050	820075V.050
6	80	24	27	12/10	820070.060	820075V.060
6,3	80	24	27	12	820070.063	—
7**	80	24	27	12	820070.070	—
8	80	32	27	12/10	820070.080	820075V.080
9**	100	32	32	12	820070.090	—
10	100	36/40	32	12/10	820070.100	820075V.100
12*	100	40/44	32	12/10	820070.120	820075V.120
12,5*	100	40	32	12	820070.125	—
16*	125	50	32	10	820070.160	—
20*	125	60	32	10	820070.200	820075V.200

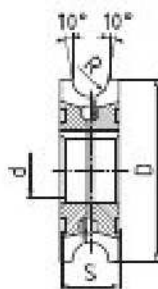
*/ Talep durumunda üretilir

Available on request

Auf Wunsch lieferbar

Dostępne na zapytanie

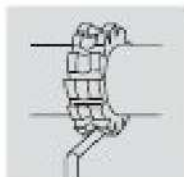
**/ ≠ DIN 855



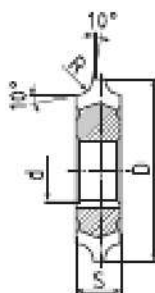
DIN 138

 $\lambda = 0^\circ$
 $\gamma = 10^\circ$

HSSE = HSS-E / cast HSS
gegossene HSS
kuty z HSS



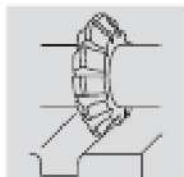
R	tol.	D js 16	S js 16	d H 7	Z	CODE
11	$\pm 0,12$	100	36	32	10	824173.110
12	$\downarrow$	100	38	32	10	824173.120
12,5		100	40	32	10	824173.125
14		125	44	40	10	824173.140
16		125	48	40	10	824173.160
18		125	52	40	10	824173.180
20		125	58	40	10	824173.200
22,5	$\pm 0,2$	160	63	40	12	824173.225
25	$\downarrow$	160	68	40	12	824173.250



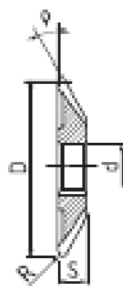
DIN 138

$\lambda=0^\circ$
 $\gamma=10^\circ$

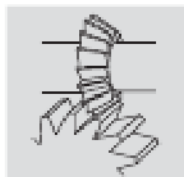
HSS



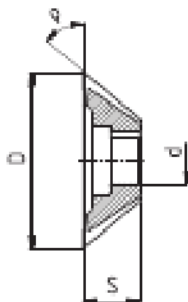
R	tol.	D js 16	S js 16	d H 7	Z	CODE
1	$\pm 0,05$	63	4	22	20	830170.010
1,6	$\downarrow$	63	5	22	18	830170.016
2		63	6	22	16	830170.020
2,5		63	8	22	14	830170.025
3	$\pm 0,08$	63	10	22	12	830170.030
4	$\downarrow$	63	12	22	12	830170.040
5		80	14	27	12	830170.050
6		80	16	27	12	830170.060
8	$\pm 0,12$	80	22	27	12	830170.080
10	$\downarrow$	100	26	32	12	830170.100
12		100	32	32	10	830170.120
14		125	36	40	10	830170.140
16		125	40	40	10	830170.160
18		125	45	40	10	830170.180
20		125	50	40	10	830170.200
25	$\pm 0,2$	160	60	40	12	830170.250



HSS

 $\lambda=0^\circ$
 $\gamma=0^\circ$ 

p $\pm 30'$	R	D js 16	S js 16	d H 7	Z	CODE
20°	1	63	6	16	14	852570.020063
20°	1,5	100	10	27	18	852570.020100
25°	1	63	6	22	14	852570.025063
25°	1	80	10	22	16	852570.025080
25°	1,5	100	14	27	18	852570.025100
25°	2	125	18	27	20	852570.025125
25°	2,5	160	22	32	22	852570.025160
30°	1	63	8	22	14	852570.030063
30°	1,5	100	14	27	18	852570.030100

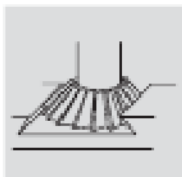


$\lambda=0^\circ$
 $\gamma=2^\circ$



HSS 853270

HSS
Co5 853275V



HSS

HSS
Co5

p ±20'	D js 16	S/S js 14 HSS/HSSCo5	d H 7	Z/Z HSS/HSSCo5	CODE	CODE
45°	40	10/12*	10	14	853270.045040	853275V.045040
45°	50	13/15*	13	16	853270.045050	853275V.045050
45°	63	18	16	18/16	853270.045063	853275V.045063
45°	80	22/23*	22	20/18	853270.045080	853275V.045080
45°	100	28/30*	27	22/20	853270.045100	853275V.045100
45°	125	36	32	24	853270.045125	—
45°	160	45	40	28	853270.045160	—
50°	40	13	10	14	853270.050040	853275V.050040
50°	50	16	13	16	853270.050050	853275V.050050
50°	63	20	16	18/16	853270.050063	853275V.050063
50°	80	25	22	20/18	853270.050080	853275V.050080
50°	100	32	27	22/20	853270.050100	853275V.050100
50°	125	40	32	24	853270.050125	—
50°	160	50	40	28	853270.050160	—
55°	40	13	10	14	853270.055040	—
55°	50	16	13	16	853270.055050	—
55°	63	20	16	18	853270.055063	—
55°	80	25	22	20	853270.055080	—
55°	100	32	27	22	853270.055100	—
55°	125	40	32	24	853270.055125	—
60°	40	13	10	14	853270.060040	853275V.060040
60°	50	16	13	16	853270.060050	853275V.060050
60°	63	20	16	18/16	853270.060063	853275V.060063
60°	80	25	22	20/18	853270.060080	853275V.060080
60°	100	32	27	22/20	853270.060100	853275V.060100
60°	125	40	32	26	853270.060125	—
60°	160	50	40	28	853270.060160	—

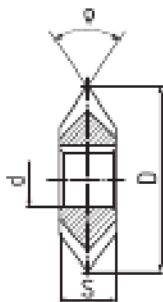
*/ ≠ DIN 842

Sipariş örneği / Example of order / Bestellungsbeispiel / Przykład zamówienia: **853270.045040 (+ TiAlN)**

8570
8570V

DIN 847
ISO 6108
~ ČSN 222250

ÇİFT AÇILI PRİZMA FREZE, simetrik
DOUBLE ANGLE MILLING CUTTERS, symmetrical
AUFSTECK-WINKELFRÄSER, DOPPELSEITIG, symmetrisch
FREZY KRAŻKOWE KĄTOWE DWUSTRONNE, symetryczne

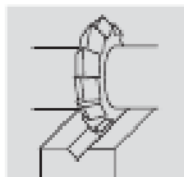


$\lambda=0^\circ$
 $\gamma=0^\circ$



HSS 857070

HSS
Co5 857075V



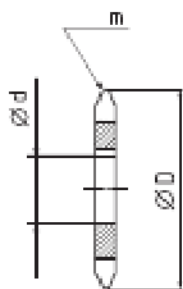
HSS

HSS
Co5

p $\pm 30'$	D js 16	S js 16	d H 7	Z/Z HSS / HSSCo5	CODE	CODE
45°	50	8	16	22/16	857070.045050	857075V.045050
45°	63	10	22	24/16	857070.045063	857075V.045063
45°	80	12	27	26/20	857070.045080	857075V.045080
45°	100	18	32	28/20	857070.045100	857075V.045100
60°	50	10	16	18/16	857070.060050	857075V.060050
60°	63	14	22	20/16	857070.060063	857075V.060063
60°	80	18	27	22/18	857070.060080	857075V.060080
60°	100	25	32	24/20	857070.060100	857075V.060100
90°	50	14	16	16	857070.090050	857075V.090050
90°	63	20	22	18/16	857070.090063	857075V.090063
90°	80	22	27	20/18	857070.090080	857075V.090080
90°	100	32	32	24/20	857070.090100	857075V.090100
*120°	50	14	16	16	857070.120050	—
*120°	63	20	22	16	857070.120063	—
*120°	80	25	27	20	857070.120080	—
*120°	100	36	32	24	857070.120100	—

*/ ≠ DIN 847

Sipariş örneği / Example of order / Bestellsbeispiel / Przykład zamówienia: **857070.045050** (+ TiAlN)



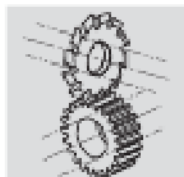
DIN 138

$\lambda=0^\circ$

$\gamma=0^\circ$

HSS

Co5



m	D js 16	d H 7	CODE
0.5	40	16	890075.050(1-8)
0.75	40	16	890075.075(1-8)
1	50	16	890075.100(1-8)
1.25	50	16	890075.125(1-8)
1.5	63	22	890075.150(1-8)
1.75	63	22	890075.175(1-8)
2	63	22	890075.200(1-8)
2.25	63	22	890075.225(1-8)
2.5	63	22	890075.250(1-8)
2.75	70	27	890075.275(1-8)
3	70	27	890075.300(1-8)
3.25	70	27	890075.325(1-8)
3.5	80	27	890075.350(1-8)
3.75	80	27	890075.375(1-8)
4	80	27	890075.400(1-8)
4.25	80	27	890075.425(1-8)
4.5	90	27	890075.450(1-8)
4.75	90	27	890075.475(1-8)
5	90	32	890075.500(1-8)
5.5	90	32	890075.550(1-8)
6	100	32	890075.600(1-8)

Diş sayısı (dişli çark üzerinde) – **Number of teeth** (on the spur wheel)
– **Zähnezahl** (au dem Stirnrad) – **Liczba zębów** (koła zębatego)

	1	2	3	4	5	6	7	8
Z _{oz}	12-13	14-16	17-20	21-25	26-34	35-54	55-134	135-00

10010
10015
10085

DIN 338

SİLİNDİRİK SAPLI MATKAP UCU – JOBBER SERİSİ
PARALLEL SHANK TWIST DRILLS – JOBBER SERIES
KURZE SPIRALBOHRER MIT ZYLINDERSCHAFT
WIERTŁA KRĘTE Z CHWYTEM WALCOWYM



$\phi d \geq 2 \text{ mm}$

$\phi d < 2 \text{ mm}$

ϕd	l_1	l_2	
1	34	12	
1.1	36	14	
1.2	38	16	
1.3	38	16	
1.4	40	18	
1.5	40	18	
1.6	43	20	
1.7	43	20	
1.8	46	22	
1.9	46	22	
2	49	24	
2.1	49	24	
2.2	53	27	
2.3	53	27	
2.4	57	30	
2.5	57	30	
2.6	57	30	
2.7	61	33	
2.8	61	33	
2.9	61	33	
3	61	33	
3.1	65	36	
3.2	65	36	
3.3	65	36	
3.4	70	39	
3.5	70	39	
3.6	70	39	
3.7	70	39	
3.8	75	43	
3.9	75	43	
4	75	43	
4.1	75	43	
4.2	75	43	
4.3	80	47	
4.4	80	47	
4.5	80	47	
4.6	80	47	
4.7	80	47	
4.8	86	52	
4.9	86	52	
5	86	52	
5.1	86	52	

Ø d	l ₁	l ₂		CODE	CODE	CODE
5.2	86	52	10	10010.0520	10015.0520	10085.0520
5.3	86	52	10	10010.0530	10015.0530	10085.0530
5.4	93	57	10	10010.0540	10015.0540	10085.0540
5.5	93	57	10	10010.0550	10015.0550	10085.0550
5.6	93	57	10	10010.0560	10015.0560	10085.0560
5.7	93	57	10	10010.0570	10015.0570	10085.0570
5.8	93	57	10	10010.0580	10015.0580	10085.0580
5.9	93	57	10	10010.0590	10015.0590	10085.0590
6	93	57	10	10010.0600	10015.0600	10085.0600
6.1	101	63	10	10010.0610	10015.0610	10085.0610
6.2	101	63	10	10010.0620	10015.0620	10085.0620
6.3	101	63	10	10010.0630	10015.0630	10085.0630
6.4	101	63	10	10010.0640	10015.0640	10085.0640
6.5	101	63	10	10010.0650	10015.0650	10085.0650
6.6	101	63	10	10010.0660	10015.0660	10085.0660
6.7	101	63	10	10010.0670	10015.0670	10085.0670
6.8	109	69	10	10010.0680	10015.0680	10085.0680
6.9	109	69	10	10010.0690	10015.0690	10085.0690
7	109	69	10	10010.0700	10015.0700	10085.0700
7.1	109	69	10	10010.0710	10015.0710	10085.0710
7.2	109	69	10	10010.0720	10015.0720	10085.0720
7.3	109	69	10	10010.0730	10015.0730	10085.0730
7.4	109	69	10	10010.0740	10015.0740	10085.0740
7.5	109	69	10	10010.0750	10015.0750	10085.0750
7.6	117	75	10	10010.0760	10015.0760	10085.0760
7.7	117	75	10	10010.0770	10015.0770	10085.0770
7.8	117	75	10	10010.0780	10015.0780	10085.0780
7.9	117	75	10	10010.0790	10015.0790	10085.0790
8	117	75	10	10010.0800	10015.0800	10085.0800
8.1	117	75	10	10010.0810	10015.0810	10085.0810
8.2	117	75	10	10010.0820	10015.0820	10085.0820
8.3	117	75	10	10010.0830	10015.0830	10085.0830
8.4	117	75	10	10010.0840	10015.0840	10085.0840
8.5	117	75	10	10010.0850	10015.0850	10085.0850
8.6	125	81	5	10010.0860	10015.0860	10085.0860
8.7	125	81	5	10010.0870	10015.0870	10085.0870
8.8	125	81	5	10010.0880	10015.0880	10085.0880
8.9	125	81	5	10010.0890	10015.0890	10085.0890
9	125	81	5	10010.0900	10015.0900	10085.0900
9.1	125	81	5	10010.0910	10015.0910	10085.0910
9.2	125	81	5	10010.0920	10015.0920	10085.0920
9.3	125	81	5	10010.0930	10015.0930	10085.0930
9.4	125	81	5	10010.0940	10015.0940	10085.0940
9.5	125	81	5	10010.0950	10015.0950	10085.0950
9.6	133	87	5	10010.0960	10015.0960	10085.0960
9.7	133	87	5	10010.0970	10015.0970	10085.0970
9.8	133	87	5	10010.0980	10015.0980	10085.0980
9.9	133	87	5	10010.0990	10015.0990	10085.0990
10	133	87	5	10010.1000	10015.1000	10085.1000
10.1	133	87	5	10010.1010	10015.1010	10085.1010
10.2	133	87	5	10010.1020	10015.1020	10085.1020
10.3	133	87	5	10010.1030	10015.1030	10085.1030
10.4	133	87	5	10010.1040	10015.1040	10085.1040
10.5	133	87	5	10010.1050	10015.1050	10085.1050
10.6	133	87	5	10010.1060	10015.1060	10085.1060
10.7	142	94	5	10010.1070	10015.1070	10085.1070
10.8	142	94	5	10010.1080	10015.1080	10085.1080
10.9	142	94	5	10010.1090	10015.1090	10085.1090
11	142	94	5	10010.1100	10015.1100	10085.1100
11.1	142	94	5	10010.1110	10015.1110	10085.1110