

# D'ANDREA®

TECHNOLOGY FOR HIGH PRECISION

ŞEVKET ÖĞLU®  
MAKİNA TİCARET VE SAN. LTD. ŞTİ.

Made in Italy

2018

# TOOLS

Toolholders  
Держатели  
Oprawki narzędziowe  
Nástrojové držáky  
Takım tutucular



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# HEADS

Boring and facing heads  
Торцовочные и расточные головки  
Głowice do wytaczania i obróbki powierzchni czołowych  
Vyvrtávací hlavy a lícní desky  
Delik açma ve diş yüzey kafaları



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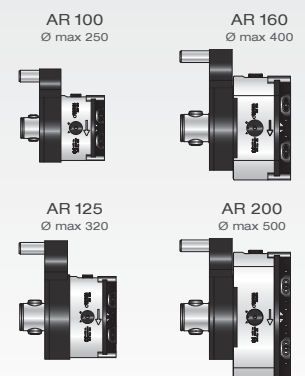
296  
AUTORADIAL



## RD Reductions



Automatic facing heads





## TRM Micrometric Testarossa 2µm

## TRM HSB Balanceable high speed micrometric Testarossa 2µm

## TRC Centesimal Testarossa TRC 14 Ø 14.5 - 18

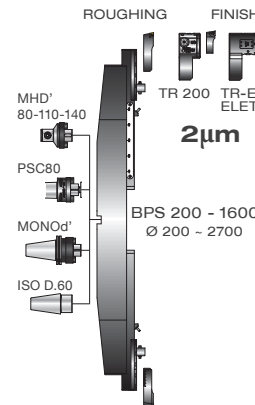
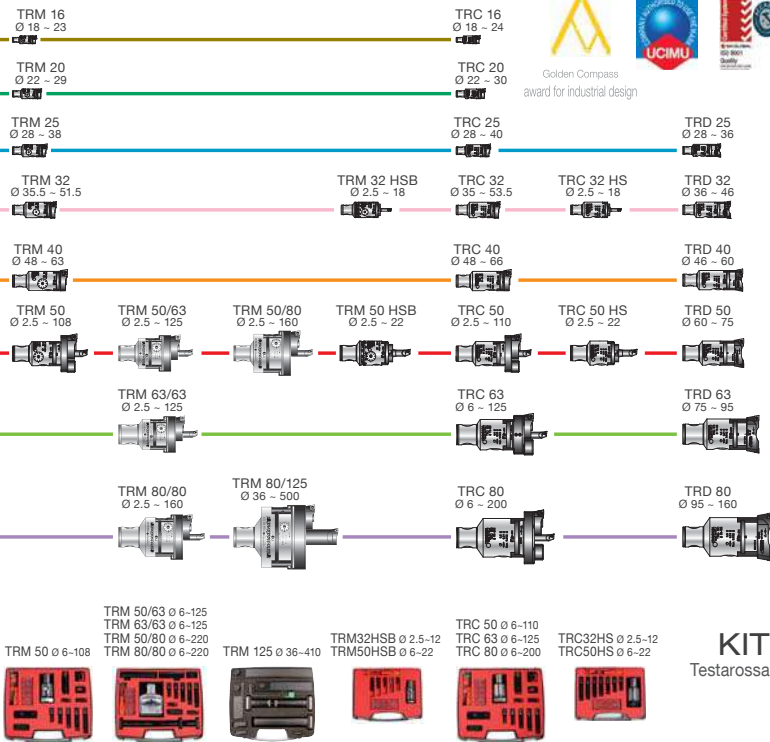
## TRC HS Balanced high speed centesimal Testarossa

## TRD Double-bit centesimal Testarossa for roughing and finishing

## BPS Double-bit cross bars for roughing and finishing large diameters Ø 200 - 2700

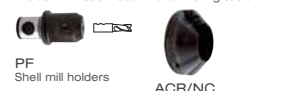
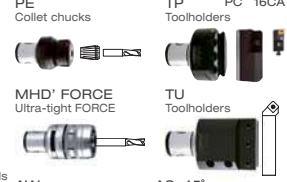
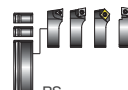
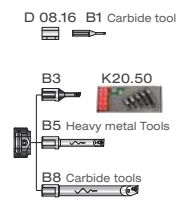
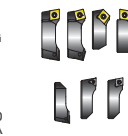
## BIT-HOLDERS TOOLS INSERTS

## CHUCKING TOOLS



### WORKING RANGE

| BPS  | Ø           |
|------|-------------|
| 200  | 200 - 300   |
| 300  | 300 - 400   |
| 400  | 400 - 500   |
| 500  | 500 - 900   |
| 600  | 600 - 1000  |
| 700  | 700 - 1100  |
| 800  | 800 - 1200  |
| 1000 | 1000 - 1800 |
| 1150 | 1500 - 2100 |
| 1600 | 1600 - 2700 |



## MONOforce

High precision heavy duty milling chuck RC 12-20-32



## TOPRUN

High precision balanceable toolholders for high speed



## MONOd'

Monobloc toolholders



## MONOd'CT

Shrink fit chucks



## MCD'

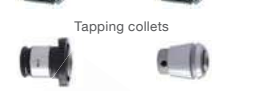
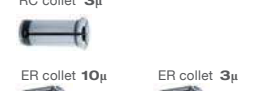
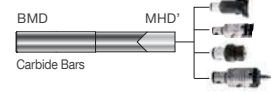
Modular turning system for multitasking machine tools



### KIT



### Accessories



## U-TRONIC

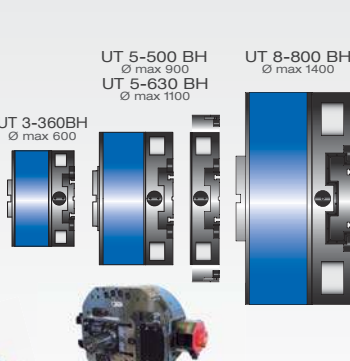
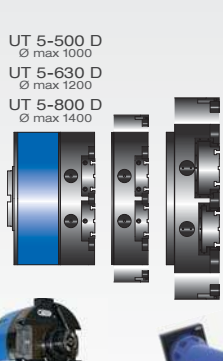
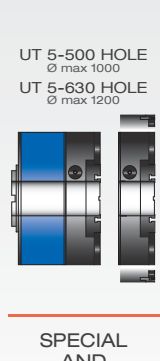
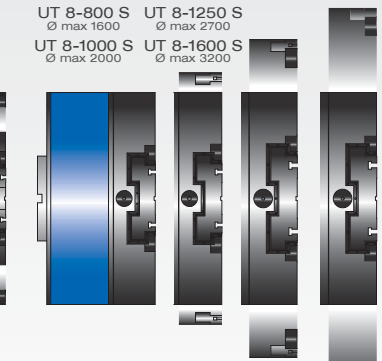
Medium and large sized NC boring and facing heads

### SINGLE SLIDE

### HOLE

### DOUBLE SLIDE

### HIGH SPEED



### SPECIAL AND SYNCHRO







Marino D'Andrea, the founder  
Marino D'Andrea, il fondatore



The first boring and facing head  
La prima testa per sfacciare e alesare



Golden Compass  
award for industrial design



The first D'Andrea logo type (1961)  
Il primo logo tipo di D'Andrea (1961)

- Quality, Experience, Technology, High precision, Innovation, Professional skills are the strongest points that made the firm and the whole D'Andrea production winning on the Italian and the worldwide market.
- Qualità, Esperienza, Tecnologia, Alta precisione, Innovazione, Competenza, sono i punti di forza che hanno reso vincente l'azienda e tutta la produzione D'Andrea sul mercato nazionale ed internazionale.



- A tradition going back over 50 years in the field and a big passion for mechanics have been allowing D'Andrea to go on strengthening its position on domestic and international markets over the years. D'Andrea now has a 30% share of the market for modular systems and a 10% share of the entire toolholders sector (including modular systems), at the top in its sector in Italy. D'Andrea is internationally prominent in the field of large diameters precision boring.

- Una tradizione con più di 50 anni di attività nel settore e una grande passione per la meccanica hanno fatto sì che, nel corso degli anni, D'Andrea consolidasse sempre di più la sua posizione sul mercato nazionale ed internazionale. Attualmente D'Andrea detiene il 30% della quota di mercato dei sistemi modulari e il 10% nell'intero settore dei portautensili (comprensivo anche dei modulari) posizionandosi come leader nazionale. A livello internazionale, D'Andrea detiene la posizione di leadership nell'alesatura di precisione dei grandi diametri.

- D'Andrea S.p.A. is a world leader in the field of accessories for machine tools. Boring and facing heads and toolholders are all made in the factory in Lainate (Milan). Components of toolholders systems are produced in the plant in Castel Del Giudice (Isernia).

- D'Andrea S.p.A. è leader mondiale nel settore degli accessori per macchine utensili. La progettazione e la produzione di teste per alesare e sfacciare e di portautensili avviene interamente nella sede di Lainate (Milano). I componenti dei sistemi di portautensili vengono realizzati nello stabilimento di Castel Del Giudice (Isernia).



D'Andrea headquarters in Lainate (Milan)  
La sede D'Andrea a Lainate (Milano)



The company respects a Quality Certified System  
in compliance with UNI EN ISO 9001

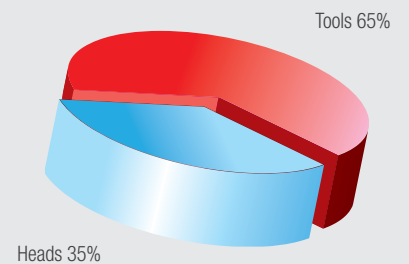
- D'Andrea boasts a functional, modern and productive facility with over 7000 sq.m. of workshops, executive offices, design department and training spaces and it relies on the cooperation of about 110 employees at the Lainate (Milan) plant. The Castel del Giudice (Isernia) plant is over 1300 sq.m. and has around 30 employees.

- D'Andrea vanta una struttura produttiva moderna e funzionale di oltre 7.000 mq di officine, uffici direzionali, ufficio tecnico e spazi per la formazione, che conta sulla collaborazione di circa 110 dipendenti nella sede di Lainate (Milano). Lo stabilimento di Castel Del Giudice (Isernia) è di oltre 1300 mq con circa 30 dipendenti.



Show Room D'Andrea Lainate (Milano)

The manufacturing plant in Castel Del Giudice (Isernia)  
Lo stabilimento di Castel Del Giudice (Isernia)







• D'Andrea is a company with an all around approach to management that takes into account the latest trends and developments on the domestic and international market. At the same time, the company has a widespread distribution network offering the right amount of flexibility, to satisfy the local market requirements.

• D'Andrea è un'azienda che adotta una politica gestionale a 360° che tiene conto delle tendenze ed evoluzioni del mercato nazionale e mondiale. Nello stesso tempo, la presenza di una rete di distribuzione capillare conferisce all'azienda il giusto grado di flessibilità per agire e rispondere efficientemente alle richieste locali del mercato.

• D'Andrea guarantees a customized technical consulting service and a permanent repair service of the products sold over the world.

• D'Andrea garantisce un servizio personalizzato di consulenza tecnica e un servizio permanente di riparazione dei prodotti in ogni parte del mondo.



• D'Andrea combines the attentive technical assistance with an intense training activity for its Italian and foreign distributors. D'Andrea tutors periodically hold training courses in order to show the main technical features and working principles of the whole product range.

• D'Andrea integra l'attento servizio di assistenza tecnica con un'intensa attività di formazione rivolta ai propri distributori, italiani e stranieri. Tecnici specializzati tengono periodicamente corsi di aggiornamento allo scopo di illustrare le caratteristiche tecniche e i principi di funzionamento dell'intera gamma di prodotti.





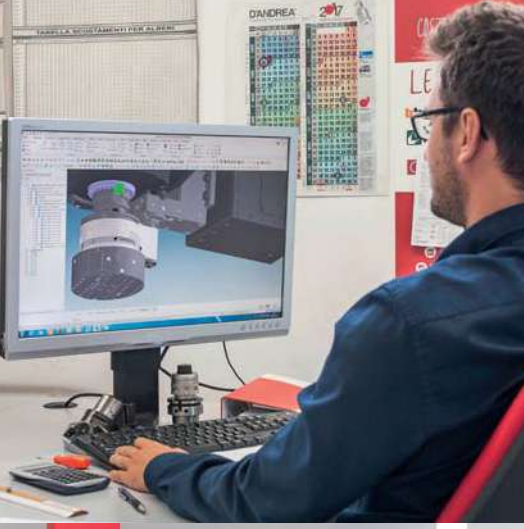
- The Sales Department manages business all over the world.

- L'Ufficio Commerciale gestisce le vendite in tutto il mondo.



- D'Andrea gained a position of prominence world-wide thanks to its unequalled know-how. The company invests massively in Research and Development to keep up with the times. A team of highly skilled design engineers is continually researching advanced technological solutions, developing new products according to market requirements and executing special designs based on specific customer requests.

- D'Andrea ha acquisito una fama mondiale per il suo know how senza pari. Per mantenersi al passo coi tempi l'azienda investe ingenti risorse nel comparto Ricerca e Sviluppo. Un efficiente team di progettisti è continuamente alla ricerca di soluzioni tecnologiche avanzate, sviluppa nuovi prodotti assecondando le richieste del mercato ed è in grado di eseguire progetti speciali su richiesta specifica del cliente.



- The company understands customers' specific needs and responds with the most appropriate solutions.

- L'azienda comprende le specifiche esigenze del cliente ed è in grado di soddisfarle con le soluzioni più adatte.





MODULHARD'



PSC Linea



MONOforce



TOPRUN



MONOd'



MONOd' CT



MCD'

TOOLS

the power of precision

ŞEVKET OĞLU®  
MAKİNA TİCARET VE SAN. LTD. ŞTİ.



**GB** High precision modular toolholders that allow boring, milling, drilling, and tapping operations to be carried out with extreme flexibility and rigidity.

**RU** Модульные держатели высокой точности, которые позволяют выполнить с чрезвычайной гибкостью и жесткостью расточные, фрезерные, сверлильные операции и операции по нарезанию резьбы.

**PL** Modułowe uchwyty narzędziowe o wysokiej precyzji, pozwalające na wykonywanie czynności wytaczania, frezowania, wiercenia oraz gwintowania, z zachowaniem bardzo wysokiej elastyczności i sztywności układu narzędziowego.

**CZ** Модульные держатели высокой точности, которые позволяют выполнить с чрезвычайной гибкостью и жесткостью расточные, фрезерные, сверлильные операции и операции по нарезанию резьбы.

**TR** Delme, delik açma, frezeleme ve diş açma işlemlerinin benzersiz bir esneklik ve sağlamlıkla yapılabilmesini sağlayan yüksek hassasiyetli modüler takım tutucular.

**GB** High precision ultra-tight toolholder with 12, 20 and 32 mm diameter tool arbor.

**RU** Высокоточные сверхжесткие держатели с диаметрами для крепления инструмента 12, 20 и 32мм.

**PL** Wysokiej precyzji uchwyt o dużej sile zacisku do mocowania narzędzi na chwytach 12, 20, 32mm i pośrednich.

**CZ** Vysoce přesný a velmi pevný nástrojový držák s nástrojovým vřetenem o průměru 12, 20 a 32 mm.

**TR** 12, 20 ve 32 mm çapında malafalı yüksek hassasiyetli ultra sıkı takım tutucu.

**GB** High precision balanceable monoblock toolholder for high-speed machining.

**RU** Моноблочные балансируемые держатели сверхвысокой точности для высокоскоростной обработки.

**PL** Wysokiej precyzji wyrównawczony, monolityczny uchwyt narzędziowy do pracy z urządzeniami o wysokich prędkościach.

**CZ** Vysoce přesné vyrovnávané monoblokové nástrojové držáky pro vysokorychlostní obrábění.

**TR** Yüksek hızda işleme için yüksek hassasiyetli, dengelenebilir monoblok takım tutucu.

**GB** Integrated high quality toolholders, ideal for all types of machine tool equipment with HSK, DIN and BT base arbors.

**RU** Интегральные высококачественные держатели, идеально подходящие для оснастки всех типов станков со стандартным соединением HSK, DIN и BT.

**PL** Wysokiej jakości, zintegrowane uchwyty narzędziowe, idealne dla wszystkich typów narzędzi do obrabiarek za złączami HSK, DIN oraz BT.

**CZ** Integrované kvalitní nástrojové držáky ideální pro všechny typy vybavení obráběcích strojů s základními vřeteny HSK, DIN a BT.

**TR** Yüksek kaliteli takım tutucularla entegredir, HSK, DIN ve BT temel malafalı her çeşit işleme takımı için idealdir.

**GB** High quality shrink fit integral tool holders, ideal for equipping any type of machine tool with basic HSK, PSC, DIN, and BT attachment.

**RU** Неразъемные держатели для инструментов с высококачественным термоусаживаемым клиновым соединением, идеальные для любого типа металлорежущих станков с основным соединением HSK, PSC, DIN и BT.

**PL** Integralne uchwyty narzędziowe z termokurczliwym połączeniem klinowym wysokiej jakości, idealne do każdego typu obrabiarki z podstawowym połączeniem HSK, PSC, DIN i BT.

**CZ** Vysoce kvalitní uložení lisované za tepla integrované s nástrojovými držáky, ideální pro každý typ obráběcího stroje se základním vybavením HSK, PSC, DIN a BT

**TR** Üstün kalitedeki sıkı geçme entegral takım tutucular, temel HSK, PSC, DIN, BT ve eklerine sahip her türlü takım tezgâhı donanımı için idealdir.

**GB** Lathe toolholder program, recommended for the application on MULTI-TASK machines

**RU** Программа для держателей токарных станков которые рекомендуются для применения на станках MULTI-TASK.

**PL** Program tokarskich uchwytów narzędziowych, polecany do zastosowania na urządzeniach wielofunkcyjnych MULTI-TASK.

**CZ** Program soustruhových nástrojových držáků doporučený pro použití na strojích MULTI-TASK.

**TR** Çoklu görev makinelerindeki uygulamalar için önerilen torna tezgâhı programı.

*Made in Italy*



*Modularity  
and high precision*





- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

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- УДЛИНИТЕЛИ, ПЕРЕХОДНИКИ И ПОДВОДНОЙ КАНАЛ ХЛАДАГЕНТА
- PRZEDŁUŻKI REDUKCYJNE I PRZEWODY DOPROWADZAJĄCE CIECZ CHŁODZĄCĄ
- REDUKCE ROZŠÍŘENÍ A PŘÍSLUN CHLADICÍ KAPALINY
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• CHUCKING TOOLS  
• АДАПТОРЫ  
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# D'ANDREA

## MODULHARD'ANDREA

- WHAT IS MHD'?
- ЧТО ТАКОЕ MHD'?
- CZYM JEST MHD'?
- CO JE MHD'?
- MHD NEDIR?



**GB** High precision modular toolholders for machine tools and machining centers that allow boring, milling, drilling, and tapping operations to be carried out with extreme flexibility and rigidity. The cylindrical-conical coupling comes in eleven, sizes, ensuring the interchangeability of all the elements of the system that includes the base arbors HSK, DIN, BT, CAT and Polygon-shank, toolholder extensions, reductions, and adapters. The broad boring program for machining diameters from 2.5 to 2700 mm completes the MHD' line with roughing double-bit heads and centesimal and micrometric Testarossa finishing heads with a 2µm sensitivity adjustment.

**RU** Модульная высокоточная система держателей для станков и обрабатывающих центров позволяющая осуществить с предельной простотой и гибкостью операции растачивания, фрезерования, сверления и нарезания резьб. Благодаря цилиндрико-коническому соединению, имеющемуся в одиннадцати размерах, возможна взаимозаменяемость всех частей системы, включающей стандартные крепления HSK, DIN, BT, CAT и Polygon-shank, удлинители, переходники и адаптеры держателей. Богатая программа расточки для обработки диаметров от 2,5 до 2700 мм, завершает линию MHD' двухрезцовой головкой черновой обработки и чистовыми сотовыми и микрометрическими головками Testarossa с точностью регулировки до 2 мкм.

**PL** Jest to system modułowych, wysoko precyzyjnych oprawek narzędziowych nadający się do wykorzystania na obrabiarkach i centrach obróbkowych przeznaczonych do wykonywania z maksymalną elastycznością i sztywnością wszelkich operacji wytaczania, frezowania, wiercenia i gwintowania. Połączenie cylindryczno – stożkowe, dostępne w jedenastu rozmiarach, gwarantuje wymiennność wszystkich elementów systemu zawierającego podstawowe uchwyty narzędziowe, takie jak: HSK, DIN, BT, CAT i Polygon-shank, przedłużki, elementy redukcyjne i adaptory oprawek narzędziowych. Bogaty program wytaczania umożliwia obróbkę średnic od 2,5 do 2700 mm. Kompletna linia MHD' zawiera dwunożowe głowice do obróbki zgrubnej oraz głowice wykańczające setne i mikrometryczne Testarossa o czułości 2µm.

**CZ** Vysoce přesné modulární nástrojové držáky pro obráběcí stroje a obráběcí centra, které umožňují provádět operace vyvrtávání, frézování, vrtání a závitorezání s extrémní pružností a pevností. Válcová-kónická spojka je v jedenácti velikostech, což zajišťuje zaměnitelnost všech prvků systému, které zahrnují základové hřídele HSK, DIN, BT, CAT a polygonové vřeten, nástavce nástrojových držáků, redukce a adaptéry. Široký program pro vyvrtávání pro frézované průměry od 2,5 to 2700 mm doplňuje řadu MHD o drsníci dvouhrotové hlavy a centezimální a mikrometrické hlavy Testarossa pro dokončování s nastavováním citlivosti až na 2µm.

**TR** Takım tezgahları ve işleme merkezleri için delme, delik açma, frezeleme ve diş açma işlemlerinin benzersiz bir esneklik ve sağlamlıkla yapılabilmesini sağlayan yüksek hassasiyetli modüler alet tutucular. Silindirik-konik kaplin on bir farklı ebatta mevcuttur ve bu özelliği sayesinde HSK, DIN, BT, CAT ve poligon sap, takım tutucu uzatmaları, kısaltmaları ve adaptörleri gibi sistemin tüm parçaları birbiriyle değiştirilebilir. 2,5 - 2700 mm arasında değişen işleme çaplarını kapsayan geniş delik açma programı, çift uçlu kafalar ve yüzde birlik ve mikrometrik Testarossa finiş kafaları (2µm hassasiyetinde ayarla) ile MHD ürün yelpazesini tamamlar.



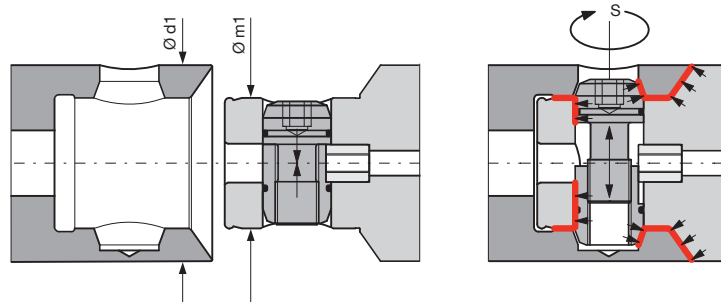
**GB The MHD' coupling** is the heart of the tool system as it ensures utmost rigidity and concentricity during milling and boring operations. This is achieved by the (patented) cylindrical-conical fit and by a radial expanding bolt for clamping and driving.

**RU Держатель MHD'** является преимуществом Modulhard'andrea, так как гарантирует максимальную жесткость и соосность при операциях фрезерования и растачивания благодаря цилиндрико-коническому соединению (запатентовано) и радиальному разжимному штифту для осевого крепления.

**PL Złącze MHD** stanowi serce systemu MODULHARD'ANDREA, gdyż pozwala frezować i wytaczać przy zachowaniu dużej sztywności i współśrodkowości. Wszystko to dzięki walcowo - stożkowemu, opatentowanemu połączeniu oraz dzięki promieniowo rozprężnemu sworzniowi blokującemu oś i momentowi przenoszenia.

**CZ Spojka MHD** je centrem nástrojového systému, neboť zajišťuje nejvyšší pevnost a středovost v průběhu operací frézování a vyvrtávání. To je docíleno pomocí (patentovaného) válcového-kónického lícování a radiálním expanzním šroubem pro uchycování a pohon.

**TR MHD kaplin**, frezeleme ve delik açma işlemleri sırasında en yüksek sağlamlığı ve eş merkezliliği sunduğundan takım sisteminin kalbidir. Bu, patentli silindirik-konik geçme ve sıkıştırma/hareket ettirme için kendinden genişleyen radyal civata sayesinde elde edilir.



| MHD'     | Ø d1 | Ø m1 | S  | Nm        |
|----------|------|------|---------------------------------------------------------------------------------------|-----------|
| MHD' 14  | 14   | 10   | 2,5                                                                                   | 2 - 2,5   |
| MHD' 16  | 16   |      |                                                                                       |           |
| MHD' 20  | 20   | 13   | 3                                                                                     | 4 - 4,5   |
| MHD' 25  | 25   | 16   | 3                                                                                     | 6,5 - 7,5 |
| MHD' 32  | 32   | 20   | 4                                                                                     | 7 - 8     |
| MHD' 40  | 40   | 25   | 5                                                                                     | 16 - 18   |
| MHD' 50  | 50   | 32   | 6                                                                                     | 30 - 35   |
| MHD' 63  | 63   | 42   | 8                                                                                     | 70 - 80   |
| MHD' 80  | 80   |      |                                                                                       |           |
| MHD' 110 | 110  | 76   | 14                                                                                    | 200 - 220 |
| MHD' 140 | 140  |      |                                                                                       |           |

#### - GENERAL INFORMATIONS - ОБЩАЯ ИНФОРМАЦИЯ - DANE OGÓLNE - OBECNÉ VLASTNOSTI - GENEL BİLGİLER

**GB Assembly:** Secure the arbor to a rigid support. Fit the required component (adaptor, extension, boring head etc.) to the arbor ensuring that the radial expanding pin does not project from the cylindrical part. Clamp the component by turning the radial pin clockwise with the exagonal wrench provided or with a torque wrench. **Disassembly:** secure the arbor to a rigid support. Unlock the radial pin by turning it counterclockwise.

**RU Сборка:** Закрепить держатель на основании. Установить нужный элемент (переходник, удлинитель, головка для расточки и т.п.), удостовериться в том, что радиальный штифт не выступает из цилиндрической втулки. Заблокировать, вращая по часовой стрелке радиальный штифт с помощью прилагаемого шестигранного ключа или с помощью торсиометрического ключа. **Разборка:** Закрепить держатель на основании, разблокировать радиальный штифт, вращая против часовой стрелки до упора.

**PL Montaż:** Podstawowy uchwyt narzędziowy umieścić w oprawce. Zamontować żądany element (reduktor, przedłużkę, głowicę do wytaczania itp.), upewniając się że sworzeń promieniowy nie wystaje z piasty cylindrycznej. Zablokować przekręcając sworzeń promieniowy w kierunku zgodnym z ruchem wskazówek zegara (używając w tym celu klucz sześciokątny będący na wyposażeniu lub klucz dynamometryczny). **Demontaż:** Podstawowy uchwyt narzędziowy umieścić w oprawce. Odblokować, przekręcając sworzeń promieniowy w kierunku przeciwnym do ruchu wskazówek zegara.

**CZ Montáž:** Zajistěte hřídel na pevnou podpěru. Upevněte potřebnou součást (adaptér, nástavec, vyvrtávací hlavu atd.) na hřídel a zajistěte, aby radiální expanzní kolík nevystupoval z válcové části. Upněte díl otáčením radiálního kolíku ve směru hodinových ručiček pomocí dodaného šestihránného klíče nebo momentového klíče. **Demontáž:** Zajistěte hřídel na pevnou podpěru. Uvolněte radiální kolík otáčením proti směru hodinových ručiček.

**TR Montaj:** Malafayı sağlam bir desteğe sabitleyin. Gereklî parçayı (adaptör, uzatma, matkap başı vs.), radyal genişlemeli pim silindirik kısımdan uzantı vermeyecek biçimde malafaya sabitleyin. Birlikte verilen altı başlı anahtar veya bir tork anahtarını kullanarak radyal pimi saat yönünde döndürün ve parçayı kenetleyin. **Sökme:** malafayı sağlam bir desteğe sabitleyin. Saatin aksi yönünde döndürerek radyal pimin kilidini açın.



# D'ANDREA

## MODULHARD'ANDREA

- ARBORS EXTENSIONS REDUCTIONS
- ДЕРЖАТЕЛИ, УДЛИННИТЕЛИ, ПЕРЕХОДНИКИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE, PRZEDŁUŻKI, ELEMENTY REDUKCYJNE
- NÁSTAVBY A REDUKCE HŘÍDELÍ
- MALAFALAR UZATMALAR KISALTMALAR

**GB ARBORS.** Arbors are manufactured in accordance with DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A, ISO 26623-1 and are made of carburized steel, hardened and ground to AT3 tolerance. Arbor sizes MHD' 80, 110 and 140 are recommended for heavy milling and for bores deeper than 250 mm and exceeding 125 mm diameter. Special arbors are available on request.

**EXTENSIONS.** Extensions of various lengths are available for each MHD' size, allowing greater flexibility in machining depth.

**REDUCTIONS.** MHD' components of a smaller size can be used by means of adaptor sleeves which allow greater interchangeability and ensure tool rigidity.

**RU ДЕРЖАТЕЛИ.** Держатели производятся в соответствии с нормами DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A, ISO 26623-1 и изготавливаются из углеродистой стали, закаленной и отшлифованной в соответствии с классом точности AT3. Использование держателей размером MHD'80, 110 и 140 рекомендуется для тяжелых фрезерных операций и растачивания отверстий глубиной более 250 мм, имеющих диаметр свыше 125мм. По запросу могут быть изготовлены нестандартные держатели. **УДЛИННИТЕЛИ.** Для каждого размера MHD существуют удлинители различной длины, что позволяет оптимизировать желаемую глубину обработки. **ПЕРЕХОДНИКИ.** Компоненты MHD меньших размеров могут быть использованы с переходными втулками, которые обеспечивают широкую взаимозаменяемость и гарантируют жесткость инструмента.

**PL PODSTAWOWE UCHWYTY NARZĘDZIOWE.** Uchwyty wykonywane są zgodnie z wymaganiami norm DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A, ISO 26623-1 i są produkowane ze stali nawęglonej, hartowanej i szlifowanej z zachowaniem tolerancji AT3. Elementy ze złączem MHD' 80, 110 i 140 są zalecane do ciężkiego frezowania i do głębokiego wytaczania ponad 250 mm, przy średnicach większych niż 125 mm. Istnieje możliwość wykonania specjalnych uchwytów narzędziowych.

**PRZEDŁUŻKI.** Do każdej wielkości modułu MHD produkowane są przedłużki o różnych długościach, które pozwalają osiągnąć wymagane głębokości obróbki.

**ELEMENTY REDUKCYJNE.** Redukcje pozwalają zastosować komponenty z modulem MHD mniejszym o jeden, bądź więcej rozmiarów tak, aby zapewnić większą wymiennność i stabilność narzędzia.

**CZ HŘÍDELE.** Hřídele jsou vyrobeny v souladu s DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A, ISO 26623-1 a jsou vyrobeny z uhlíkové oceli, tvrdené a broušené na toleranci AT3. Velikosti hřídelí MHD 80, 110 a 140 se doporučují pro náročné frézování a pro vrtání hlubší než 250 mm a s průměrem přesahujícím 125 mm. Speciální hřídele jsou k dispozici na vyžádání.

**NÁSTAVCE.** Pro každý rozměr MHD jsou k dispozici nástavce různých délek, což umožňuje větší pružnost při obrábění do hloubky.

**REDUKCE.** Komponenty MHD menších rozměrů je možno použít pomocí pouzder adaptérů, které umožňují větší zaměnitelnost a zajišťují pevnost nástroje.

**TR MALAFALAR.** Malafalar DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A ve ISO 26623-1 standartlarına uygun üretilmektedir ve sertleştirilerek AT3 toleransına getirilmiş karbonlanmış çelikten mamuldür. MHD' 80, 110 ve 140 malafa boyları, 250 mm'den derin delikler ve 125 mm'den geniş çaplar ile ağır frezeleme işleri için önerilir. Özel malafalar isteğe bağlı sunulmaktadır.

**UZATMALAR.** Her bir MHD' boyu için farklı uzunluklarda uzatmalar bulunması, işleme derinliği konusundaki esnekliği artırmaktadır.

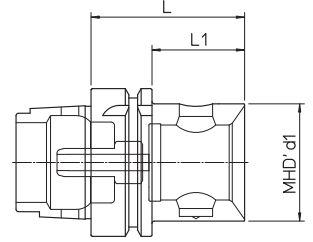
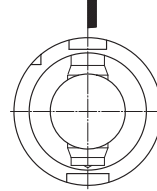
**KISALTMALAR.** Daha küçük boydaki MHD' bileşenleri, parçaların birbiriyle değiştirilebilirliğini artıran ve takımların sağlamlığını temin eden adaptör manşonları aracılığıyla kullanılabilir.



- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

## DIN 69893

### HSK-A



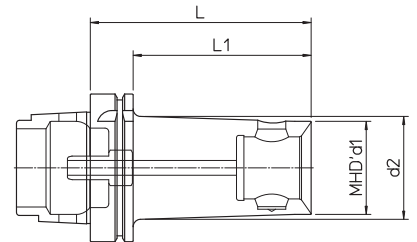
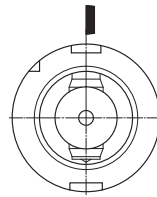
- Supplied with coolant tube
- Имеется соединение для хладагента
- Komplet złączek do cieczy chłodzącej
- Dodávané s chladičím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

- \* Supplied without hole
- \* Поставляется без отверстия
- \* Dostarczane bez otworu
- \* Dodáváno bez otvoru
- \* Su deliksiz tedarik edilmekte

| HSK-A | REF.               | CODE           | MHD' d1 | L  | L1 | kg  |
|-------|--------------------|----------------|---------|----|----|-----|
| 40    | HSK-A40 MHD'32.48  | 416321504020 * | 32      | 48 | 28 | 0.4 |
| 50    | HSK-A50 MHD'50.66  | 416501505020   | 50      | 66 | —  | 0.6 |
| 63    | HSK-A63 MHD'40.60  | 416401506320   | 40      | 60 | 34 | 0.7 |
|       | HSK-A63 MHD'50.66  | 416501506320   | 50      | 66 | 40 | 0.9 |
|       | HSK-A63 MHD'63.75  | 416631506320   | 63      | 75 | —  | 1.1 |
| 80    | HSK-A80 MHD'50.70  | 416501508020   | 50      | 70 | 44 | 1.5 |
|       | HSK-A80 MHD'63.80  | 416631508020   | 63      | 80 | 54 | 1.8 |
|       | HSK-A80 MHD'80.86  | 416801508020   | 80      | 86 | —  | 2.1 |
| 100   | HSK-A100 MHD'50.72 | 416501510020   | 50      | 72 | 43 | 2.4 |
|       | HSK-A100 MHD'63.82 | 416631510020   | 63      | 82 | 53 | 2.7 |
|       | HSK-A100 MHD'80.88 | 416801510020   | 80      | 88 | 59 | 3   |

## DIN 69893

### HSK-A

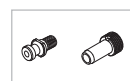


- Supplied with coolant tube
- Имеется соединение для хладагента
- Komplet złączek do cieczy chłodzącej
- Dodávané s chladičím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

| HSK-A | REF.                | CODE         | MHD' d1 | d2 | L   | L1  | kg  |
|-------|---------------------|--------------|---------|----|-----|-----|-----|
| 63    | HSK-A63 MHD'40.120  | 416401506328 | 40      | 46 | 120 | 94  | 1.4 |
|       | HSK-A63 MHD'50.120  | 416501506328 | 50      | —  |     |     | 1.7 |
| 100   | HSK-A100 MHD'50.120 | 416501510028 | 50      | 60 | 150 | 121 | 3.2 |
|       | HSK-A100 MHD'63.150 | 416631510028 | 63      | 70 |     |     | 4.5 |
|       | HSK-A100 MHD'80.180 | 416801510028 | 80      | —  |     |     | 6.5 |

240

248

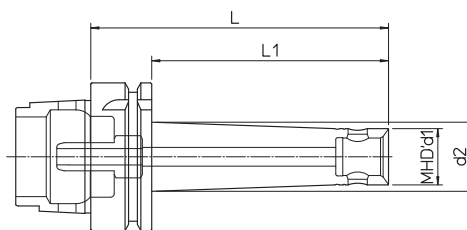
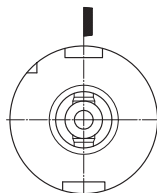


- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

DIN 69893

HSK-A

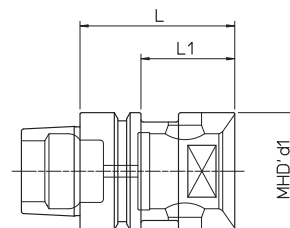
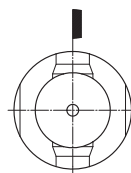
- Supplied with coolant tube
- Имеется соединение для хладагента
- Komplet złączek do cieczy chłodzącej
- Dodávané s chladicím potrubím
- Soğutma sıvısı borusuyla tedarik edilir



| HSK-A | REF.               | CODE         | MHD' d <sub>1</sub> | d <sub>2</sub> | L   | L <sub>1</sub> | kg  |
|-------|--------------------|--------------|---------------------|----------------|-----|----------------|-----|
| 63    | HSK-A63 MHD'16.63  | 416160656320 | 16                  | 17             | 63  | 37             | 0.7 |
|       | HSK-A63 MHD'16.100 | 416161056320 |                     | 19.5           | 100 | 74             | 0.8 |
|       | HSK-A63 MHD'20.63  | 416200656320 | 20                  | -              | 63  | 37             | 0.6 |
|       | HSK-A63 MHD'20.90  | 416200956320 |                     | 22.5           | 90  | 64             | 0.8 |
|       | HSK-A63 MHD'20.125 | 416201256320 |                     | 25             | 125 | 99             | 0.9 |
|       | HSK-A63 MHD'25.63  | 416250656320 | 25                  | -              | 63  | 37             | 0.7 |
|       | HSK-A63 MHD'25.90  | 416250956320 |                     | 27             | 90  | 64             | 0.9 |
|       | HSK-A63 MHD'25.125 | 416251256320 |                     | 29.5           | 125 | 99             | 1   |
|       | HSK-A63 MHD'32.90  | 416320956320 | 32                  | 33.5           | 90  | 64             | 1   |
|       | HSK-A63 MHD'32.125 | 416321256320 |                     | 36             | 125 | 99             | 1.2 |

DIN 69893

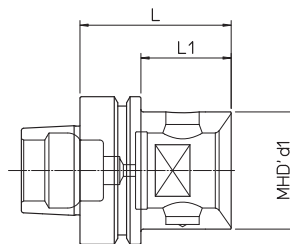
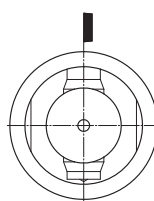
HSK-E



| HSK-E | REF.              | CODE         | MHD' d <sub>1</sub> | L  | L <sub>1</sub> | kg  |
|-------|-------------------|--------------|---------------------|----|----------------|-----|
| 40    | HSK-E40 MHD'32.42 | 416321504025 | 32                  | 42 | 22             | 0.5 |
| 50    | HSK-E50 MHD'50.66 | 416501505025 | 50                  | 66 | -              | 0.6 |
| 63    | HSK-E63 MHD'50.66 | 416501506325 |                     |    | 40             | 0.9 |

DIN 69893

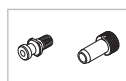
HSK-F



| HSK-F | REF.              | CODE         | MHD' d <sub>1</sub> | L  | L <sub>1</sub> | kg  |
|-------|-------------------|--------------|---------------------|----|----------------|-----|
| 63    | HSK-F63 MHD'50.65 | 416501506326 | 50                  | 65 | 39             | 0.8 |

248

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- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

## PSC-MHD'

### ISO 26623-1

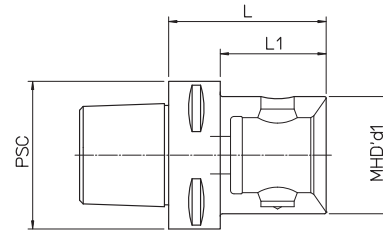


fig.1

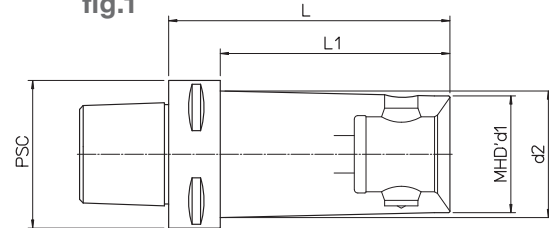
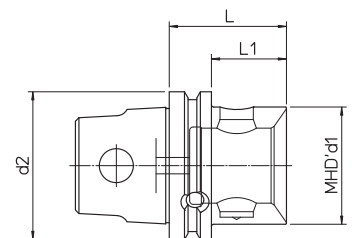


fig.2

| PSC                  | REF.                   | CODE         | MHD' d1 | d2  | L   | L1  | Kg. | fig. |
|----------------------|------------------------|--------------|---------|-----|-----|-----|-----|------|
| 40                   | PSC 40 - MHD' 32.42    | 416322604004 | 32      | -   | 42  | 22  | 0.3 | 1    |
|                      | PSC 40 - MHD' 40.45    | 416402604004 | 40      |     | 45  | -   | 0.4 |      |
| 50                   | PSC 50 - MHD' 50.55    | 416502605005 | 50      |     | 55  | -   | 0.8 |      |
| 63                   | PSC 63 - MHD' 40.50    | 416402606305 | 40      | 44  | 50  | 28  | 0.9 | 2    |
|                      | PSC 63 - MHD' 40.120   | 416402606312 |         |     | 120 | 98  | 1.5 |      |
|                      | PSC 63 - MHD' 50.55    | 416502606305 | 50      | -   | 55  | 33  | 0.8 | 1    |
|                      | PSC 63 - MHD' 50.67    | 416502606306 |         | 67  | 45  | 1.1 |     |      |
|                      | PSC 63 - MHD' 50.120   | 416502606312 |         | 54  | 120 | 98  | 1.9 | 2    |
|                      | PSC 63 - MHD' 63.77    | 416632606307 | 63      | -   | 77  | -   | 1.8 | 1    |
|                      | PSC 80 - MHD' 50.60    | 416502608006 | 50      | -   | 60  | 30  | 2   |      |
| PSC 80 - MHD' 50.120 | 416502608012           | 54           |         | 120 | 90  | 2.8 | 2   |      |
| 80                   | PSC 80 - MHD' 63.70    | 416632608007 | 63      | -   | 70  | 40  | 2.3 | 1    |
|                      | PSC 80 - MHD' 63.150   | 416632608015 |         | 67  | 150 | 120 | 4   | 2    |
|                      | PSC 80 - MHD' 80.75    | 416802608007 | 80      | -   | 75  | -   | 2.6 | 1    |
|                      | PSC 80 - MHD' 80.120   | 416802608012 |         |     | 120 |     | 4.3 |      |
|                      | PSC 100 - MHD' 80.80   | 416802610008 |         |     | 80  | 44  | 3.5 |      |
| 100                  | PSC 100 - MHD' 110.120 | 416912610012 | 110     | -   | 120 | 84  | 5   |      |

## ISO 26622-1

### KM



| KM | REF.               | CODE         | MHD' d1 | d2 | L  | L1 | kg  |
|----|--------------------|--------------|---------|----|----|----|-----|
| 63 | RD KM - MHD' 50.50 | 657095005063 | 50      | 63 | 50 | 32 | 0.8 |
|    | RD KM - MHD' 63.70 | 657096305063 | 63      |    | 70 | -  | 1.2 |

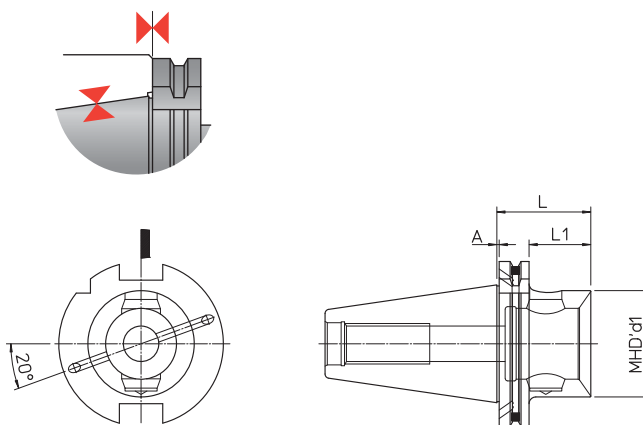
# D'ANDREA

## MODULHARD'ANDREA

### FACE CONTACT

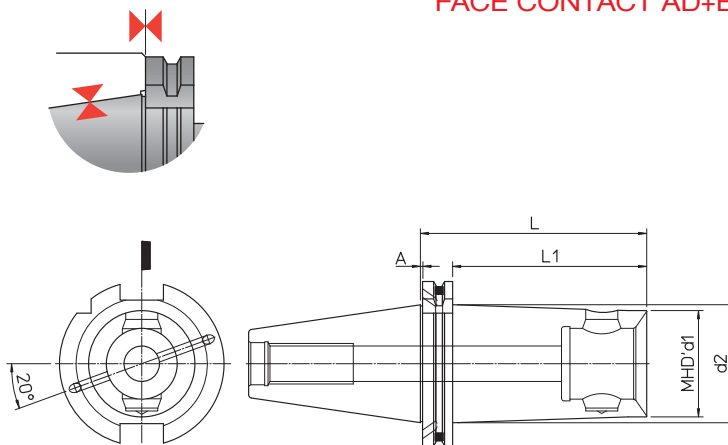
- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

DIN 69871 FC  
FACE CONTACT AD+B



| DIN | REF.                         | CODE          | MHD' d <sub>1</sub> | A   | L  | L <sub>1</sub> | Kg. |
|-----|------------------------------|---------------|---------------------|-----|----|----------------|-----|
| 40  | DIN69871-AD+B40 FC MHD'50.48 | 416500104021F | 50                  | 1   | 48 | 29             | 0.9 |
|     | DIN69871-AD+B40 FC MHD'63.80 | 416630104021F | 63                  |     | 80 | —              | 1.5 |
| 50  | DIN69871-AD+B50 FC MHD'50.48 | 416500105021F | 50                  | 1.5 | 48 | 29             | 2.5 |
|     | DIN69871-AD+B50 FC MHD'63.56 | 416630105021F | 63                  |     | 56 | 37             | 2.8 |
|     | DIN69871-AD+B50 FC MHD'80.62 | 416800105021F | 80                  |     | 62 | 43             | 3.4 |

DIN 69871 FC  
FACE CONTACT AD+B

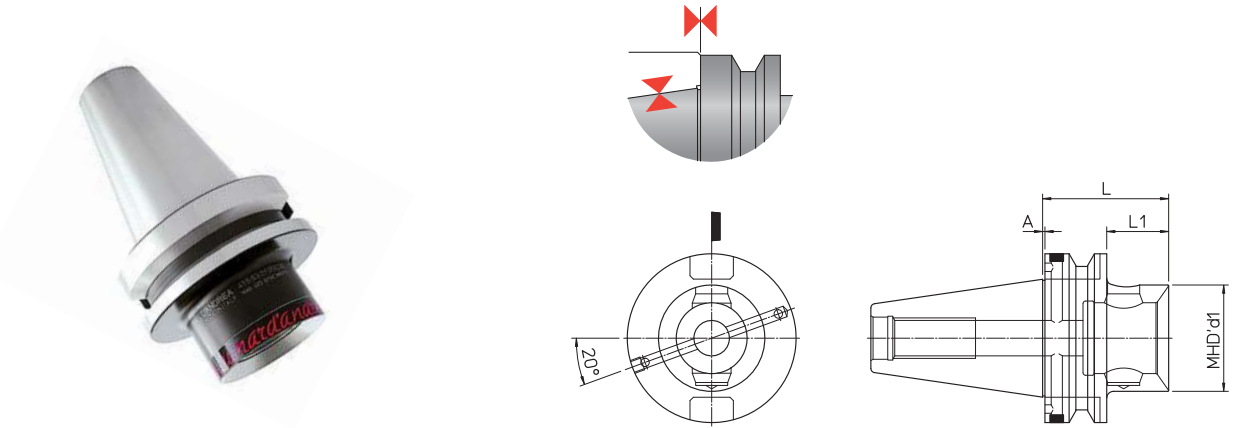


| DIN | REF.                           | CODE          | MHD' d <sub>1</sub> | d <sub>2</sub> | A   | L   | L <sub>1</sub> | Kg. |
|-----|--------------------------------|---------------|---------------------|----------------|-----|-----|----------------|-----|
| 40  | DIN69871-AD+B40 FC MHD'50.120  | 416500104028F | 50                  | —              | 1   | 120 | 101            | 1.7 |
| 50  | DIN69871-AD+B50 FC MHD'50.120  | 416500105028F |                     | 59             | 1.5 | 200 | 181            | 3.5 |
|     | DIN69871-AD+B50 FC MHD'50.200  | 416500105027F |                     | 68             |     | 200 | 181            | 6.1 |
|     | DIN69871-AD+B50 FC MHD'63.150  | 416630105028F | 63                  | 75.5           |     | 150 | 131            | 5.2 |
|     | DIN69871-AD+B50 FC MHD'63.250  | 416630105027F |                     | 80             |     | 250 | 231            | 7.1 |
|     | DIN69871-AD+B50 FC MHD'80.180  | 416800105028F | 80                  | —              |     | 180 | 161            | 6.9 |
|     | DIN69871-AD+B50 FC MHD'80.300  | 416800105027F |                     |                |     | 300 | 281            | 9.2 |
|     | DIN69871-AD+B50 FC MHD'110.150 | 416910105021F |                     |                |     | 110 | 150            | —   |
|     | DIN69871-AD+B50 FC MHD'110.250 | 416910105028F | 250                 |                |     |     | —              | 15  |



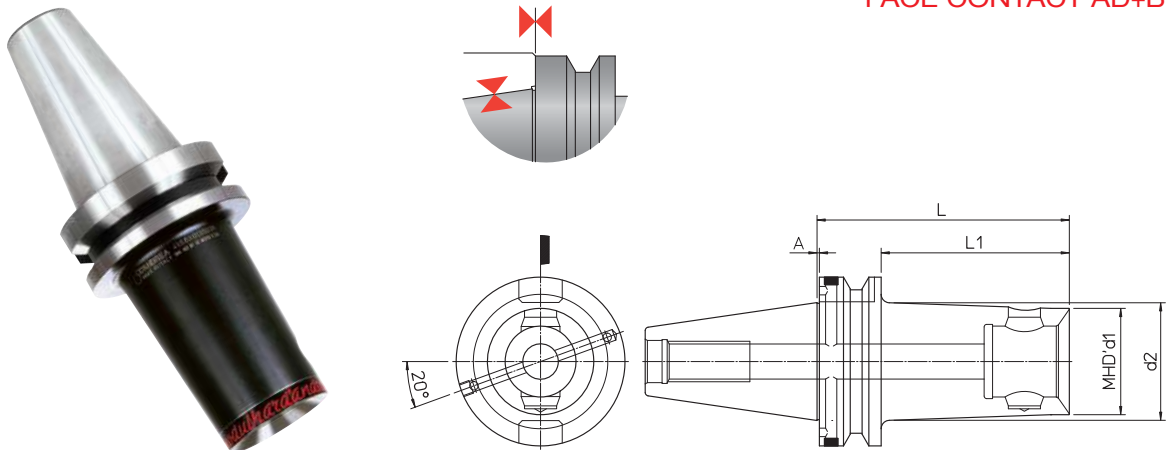
- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

## MAS 403 BT FC FACE CONTACT AD+B



| DIN | REF.                          | CODE          | MHD' d <sub>1</sub> | A   | L  | L <sub>1</sub> | Kg. |
|-----|-------------------------------|---------------|---------------------|-----|----|----------------|-----|
| 40  | MAS403 BT40 FC AD+B MHD'50.48 | 416500104031F | 50                  | 1   | 48 | 21             | 0.9 |
|     | MAS403 BT40 FC AD+B MHD'63.66 | 416630104031F | 63                  |     | 66 | —              | 1.2 |
| 50  | MAS403 BT50 FC AD+B MHD'50.66 | 416500105031F | 50                  | 1.5 | 66 | 28             | 3.2 |
|     | MAS403 BT50 FC AD+B MHD'63.75 | 416630105031F | 63                  |     |    | 37             | 3.7 |
|     | MAS403 BT50 FC AD+B MHD'80.75 | 416800105031F | 80                  |     | 75 | —              | 4   |

## MAS 403 BT FC FACE CONTACT AD+B



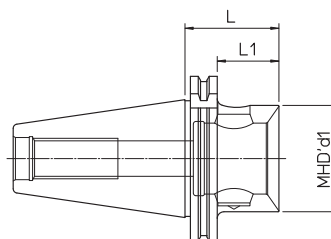
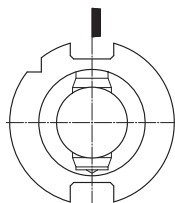
| DIN | REF.                            | CODE          | MHD' d <sub>1</sub> | d <sub>2</sub> | A   | L   | L <sub>1</sub> | Kg. |
|-----|---------------------------------|---------------|---------------------|----------------|-----|-----|----------------|-----|
| 40  | MAS403 BT40 FC AD+B MHD'50.120  | 416500104038F | 50                  | —              | 1   | 120 | 93             | 1.9 |
| 50  | MAS403 BT50 FC AD+B MHD'50.120  | 416500105038F |                     | 57.5           |     |     | 82             | 4.2 |
|     | MAS403 BT50 FC AD+B MHD'50.200  | 416500105037F |                     | 66             |     | 200 | 162            | 4.5 |
|     | MAS403 BT50 FC AD+B MHD'63.150  | 416630105038F | 63                  | 73.5           | 150 | 112 | 5.8            |     |
|     | MAS403 BT50 FC AD+B MHD'63.250  | 416630105037F |                     | 84             | 250 | 212 | 6.1            |     |
|     | MAS403 BT50 FC AD+B MHD'80.180  | 416800105038F | 80                  | —              | 180 | 142 | 7.5            |     |
|     | MAS403 BT50 FC AD+B MHD'80.300  | 416800105037F |                     |                | 300 | 262 | 9.2            |     |
|     | MAS403 BT50 FC AD+B MHD'110.150 | 416910105031F | 110                 |                | 150 | —   | 8.1            |     |
|     | MAS403 BT50 FC AD+B MHD'110.250 | 416910105038F |                     |                | 250 | —   | 15.3           |     |





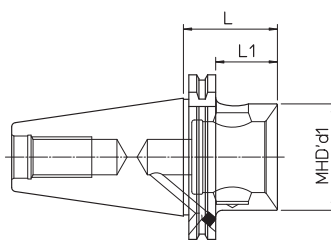
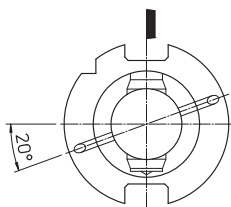
- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

DIN 69871  
AD



| DIN | REF.                     | CODE         | MHD' d <sub>1</sub> | L    | L <sub>1</sub> | kg   |
|-----|--------------------------|--------------|---------------------|------|----------------|------|
| 30  | DIN69871-A30 MHD'32.30   | 416320103020 | 32                  | 30   | 11             | 0.4  |
|     | DIN69871-A30 MHD'40.45.5 | 416400103020 | 40                  | 45.5 | 26.5           | 0.5  |
|     | DIN69871-A30 MHD'50.60   | 416500103020 | 50                  | 60   | —              | 0.6  |
| 40  | DIN69871-A40 MHD'40.45   | 416400104020 | 40                  | 45   | 26             | 0.5  |
|     | DIN69871-A40 MHD'50.48   | 416500104020 | 50                  | 48   | 29             | 0.9  |
|     | DIN69871-A40 MHD'50.56   | 416500104070 |                     | 56   | 37             | 1.1  |
|     | DIN69871-A40 MHD'63.80   | 416630104020 | 63                  | 80   | —              | 1.5  |
| 45  | DIN69871-A45 MHD'50.48   | 416500104520 | 50                  | 48   | 29             | 1.7  |
|     | DIN69871-A45 MHD'63.60   | 416630104520 | 63                  | 60   | 41             | 1.9  |
|     | DIN69871-A45 MHD'80.66   | 416800104520 | 80                  | 66   | —              | 2.2  |
| 50  | DIN69871-A50 MHD'50.48   | 416500105020 | 50                  | 48   | 29             | 2.5  |
|     | DIN69871-A50 MHD'63.48   | 416630105029 | 63                  |      |                | 2.6  |
|     | DIN69871-A50 MHD'63.56   | 416630105020 |                     | 56   | 37             | 2.8  |
|     | DIN69871-A50 MHD'80.48   | 416800105029 | 80                  | 48   | 29             | 3    |
|     | DIN69871-A50 MHD'80.62   | 416800105020 |                     | 62   | 43             | 3.4  |
|     | DIN69871-A50 MHD'110.150 | 416910105020 | 110                 | 150  | —              | 7.6  |
|     | DIN69871-A50 MHD'140.160 | 416940105020 | 140                 | 160  |                | 10   |
| 60  | DIN69871-A60 MHD'50.50   | 416500106020 | 50                  | 50   | 31             | 8.3  |
|     | DIN69871-A60 MHD'63.60   | 416630106020 | 63                  | 60   | 41             | 9.3  |
|     | DIN69871-A60 MHD'80.65   | 416800106020 | 80                  | 65   | 46             | 10.3 |
|     | DIN69871-A60 MHD'110.100 | 416910106020 | 110                 | 100  | 81             | 10.5 |
|     | DIN69871-A60 MHD'110.200 | 416910106028 |                     | 200  | 181            | 18   |
|     | DIN69871-A60 MHD'140.100 | 416940106020 | 140                 | 100  | 81             | 12.8 |
|     | DIN69871-A60 MHD'140.250 | 416940106028 |                     | 250  | 231            | 30   |

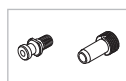
DIN 69871  
B



| DIN | REF.                   | CODE         | MHD' d <sub>1</sub> | L  | L <sub>1</sub> | kg  |
|-----|------------------------|--------------|---------------------|----|----------------|-----|
| 40  | DIN69871-B40 MHD'50.48 | 416500104021 | 50                  | 48 | 29             | 0.9 |
|     | DIN69871-B40 MHD'63.80 | 416630104021 | 63                  | 80 | —              | 1.5 |
| 45  | DIN69871-B45 MHD'50.48 | 416500104521 | 50                  | 48 | 29             | 1.7 |
|     | DIN69871-B45 MHD'63.60 | 416630104521 | 63                  | 60 | 41             | 1.9 |
|     | DIN69871-B45 MHD'80.66 | 416800104521 | 80                  | 66 | —              | 2.2 |
| 50  | DIN69871-B50 MHD'50.48 | 416500105021 | 50                  | 48 | 29             | 2.7 |
|     | DIN69871-B50 MHD'63.56 | 416630105021 | 63                  | 56 | 37             | 2.8 |
|     | DIN69871-B50 MHD'80.62 | 416800105021 | 80                  | 62 | 43             | 3.4 |

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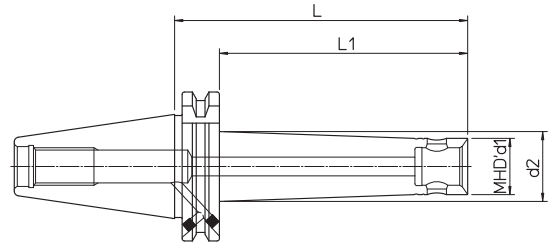
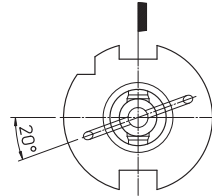
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- MALAFALAR

## DIN 69871

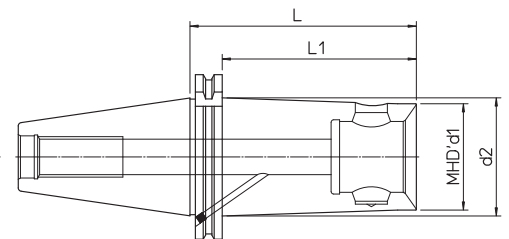
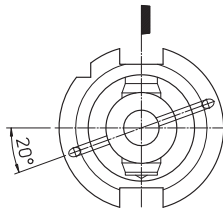
### AD+B



| DIN | REF.                       | CODE         | MHD' d1 | d2   | L   | L1  | kg  |
|-----|----------------------------|--------------|---------|------|-----|-----|-----|
| 40  | DIN69871-AD+B40 MHD'16.40  | 416160414021 | 16      | –    | 40  | 21  | 0.7 |
|     | DIN69871-AD+B40 MHD'16.63  | 416160614021 |         | 17.5 | 63  | 44  | 0.8 |
|     | DIN69871-AD+B40 MHD'16.100 | 416161014021 |         | 20   | 100 | 81  | 0.9 |
|     | DIN69871-AD+B40 MHD'20.50  | 416200514021 | 20      | –    | 50  | 31  | 0.8 |
|     | DIN69871-AD+B40 MHD'20.80  | 416200814021 |         | 22.5 | 80  | 61  | 0.9 |
|     | DIN69871-AD+B40 MHD'20.125 | 416201214021 |         | 25.5 | 125 | 106 | 1   |
|     | DIN69871-AD+B40 MHD'25.50  | 416250514021 | 25      | –    | 50  | 31  | 0.9 |
|     | DIN69871-AD+B40 MHD'25.80  | 416250814021 |         | 27   | 80  | 61  | 1   |
|     | DIN69871-AD+B40 MHD'25.125 | 416251214021 |         | 30   | 125 | 106 | 1.1 |
|     | DIN69871-AD+B40 MHD'32.50  | 416320514021 | 32      | –    | 50  | 31  | 1   |
|     | DIN69871-AD+B40 MHD'32.80  | 416320814021 |         | 33.5 | 80  | 61  | 1.1 |
|     | DIN69871-AD+B40 MHD'32.125 | 416321214021 |         | 36.5 | 125 | 106 | 1.2 |

## DIN 69871

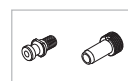
### AD+B



| DIN | REF.                       | CODE         | MHD' d1 | d2   | L   | L1  | kg  |
|-----|----------------------------|--------------|---------|------|-----|-----|-----|
| 40  | DIN69871-AD+B40 MHD'40.120 | 416400104028 | 40      | 44.5 | 120 | 101 | 1.4 |
|     | DIN69871-AD+B40 MHD'50.120 | 416500104028 | 50      | –    |     |     | 1.7 |
| 50  | DIN69871-AD+B50 MHD'50.120 | 416500105028 | 50      | 60   | 150 | 131 | 3.5 |
|     | DIN69871-AD+B50 MHD'63.150 | 416630105028 | 63      | 70   |     |     | 5   |
|     | DIN69871-AD+B50 MHD'80.180 | 416800105028 | 80      | –    |     |     | 7.6 |

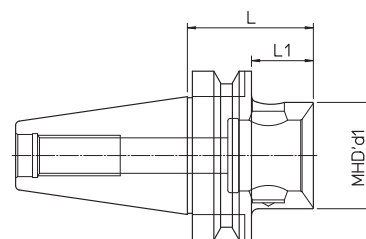
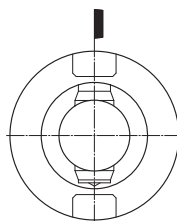
240

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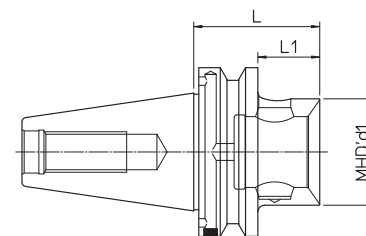
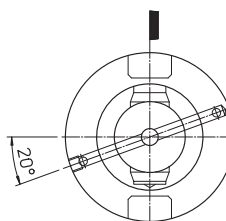
### MAS 403 BT



| BT | REF.                    | CODE         | MHD' d1 | L    | L1   | kg   |
|----|-------------------------|--------------|---------|------|------|------|
| 30 | MAS403 BT30 MHD'32.32   | 416320103030 | 32      | 32   | 10.5 | 0.5  |
|    | MAS403 BT30 MHD'40.35.5 | 416400103030 | 40      | 35.5 | 14   | 0.6  |
|    | MAS403 BT30 MHD'50.60   | 416500103030 | 50      | 60   | —    | 0.7  |
| 35 | MAS403 BT35 MHD'50.60   | 416500103530 |         |      | 36   | 0.8  |
| 40 | MAS403 BT40 MHD'40.45   | 416400104030 | 40      | 45   | 18   | 0.6  |
|    | MAS403 BT40 MHD'50.38.5 | 416500104039 | 50      | 38.5 | 11.5 | 0.8  |
|    | MAS403 BT40 MHD'50.48   | 416500104030 |         | 48   | 21   | 0.9  |
|    | MAS403 BT40 MHD'50.56   | 416500104080 |         | 56   | 29   | 1.1  |
|    | MAS403 BT40 MHD'63.66   | 416630104030 | 63      | 66   | —    | 1.2  |
| 45 | MAS403 BT45 MHD'50.62   | 416500104530 | 50      | 62   | 29   | 1.7  |
|    | MAS403 BT45 MHD'63.70   | 416630104530 | 63      | 70   | 37   | 2.3  |
|    | MAS403 BT45 MHD'80.70   | 416800104530 | 80      |      |      | 2.7  |
| 50 | MAS403 BT50 MHD'50.66   | 416500105030 | 50      | 66   | 28   | 3.3  |
|    | MAS403 BT50 MHD'63.50   | 416630105039 | 63      | 50   | 12   | 3.4  |
|    | MAS403 BT50 MHD'63.75   | 416630105030 |         | 75   | 37   | 3.7  |
|    | MAS403 BT50 MHD'80.50   | 416800105039 | 80      | 50   | 12   | 3.8  |
|    | MAS403 BT50 MHD'80.75   | 416800105030 |         | 75   | 37   | 4    |
|    | MAS403 BT50 MHD'110.140 | 416910105030 | 110     | 140  | —    | 6.8  |
|    | MAS403 BT50 MHD'140.150 | 416940105030 | 140     | 150  |      | 9.2  |
| 60 | MAS403 BT60 MHD'110.110 | 416910106030 | 110     | 110  | 63   | 11.5 |
|    | MAS403 BT60 MHD'110.200 | 416910106038 |         | 200  | 152  | 18.1 |
|    | MAS403 BT60 MHD'140.100 | 416940106030 | 140     | 100  | 52   | 12.9 |
|    | MAS403 BT60 MHD'140.250 | 416940106038 |         | 250  | 202  | 30.1 |

### MAS 403 BT

B



| BT | REF.                   | CODE         | MHD' d1 | L  | L1 | kg  |
|----|------------------------|--------------|---------|----|----|-----|
| 40 | MAS403 BT40B MHD'50.48 | 416500104031 | 50      | 48 | 21 | 0.9 |
|    | MAS403 BT40B MHD'63.66 | 416630104031 | 63      | 66 | —  | 1.2 |
| 50 | MAS403 BT50B MHD'50.66 | 416500105031 | 50      | 66 | 28 | 3.5 |
|    | MAS403 BT50B MHD'63.75 | 416630105031 | 63      | 75 | 37 | 3.7 |
|    | MAS403 BT50B MHD'80.75 | 416800105031 | 80      |    |    | 4   |

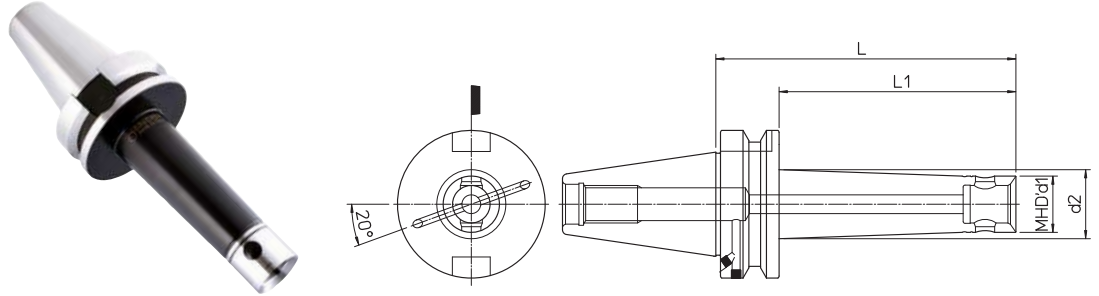




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## MAS 403 BT

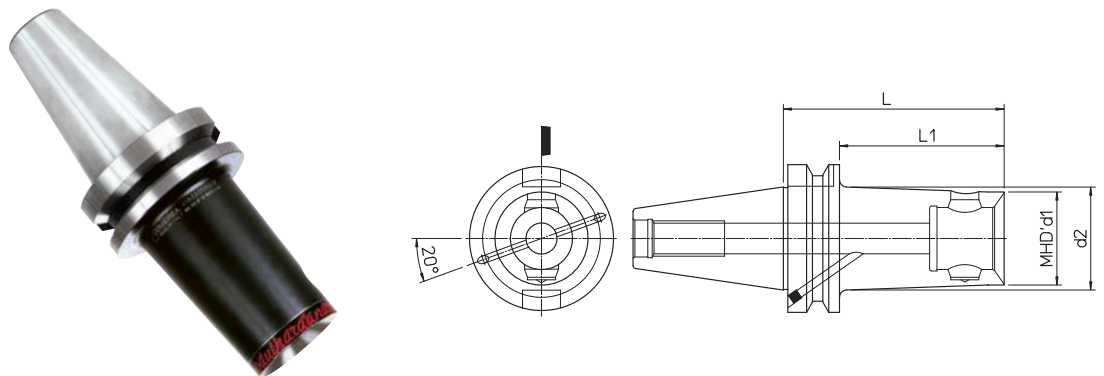
AD+B



| BT | REF.                        | CODE         | MHD' d1 | d2   | L   | L1 | kg  |
|----|-----------------------------|--------------|---------|------|-----|----|-----|
| 40 | MAS403 BT40-AD+B MHD'16.45  | 416160414031 | 16      | –    | 45  | 18 | 0.8 |
|    | MAS403 BT40-AD+B MHD'16.63  | 416160614031 |         | 17   | 63  | 36 | 0.9 |
|    | MAS403 BT40-AD+B MHD'16.100 | 416161014031 |         | 19.5 | 100 | 73 | 1   |
|    | MAS403 BT40-AD+B MHD'20.50  | 416200514031 | 20      | –    | 50  | 23 | 0.9 |
|    | MAS403 BT40-AD+B MHD'20.80  | 416200814031 |         | 22   | 80  | 53 | 1   |
|    | MAS403 BT40-AD+B MHD'20.125 | 416201214031 |         | 25   | 125 | 98 | 1.1 |
|    | MAS403 BT40-AD+B MHD'25.50  | 416250514031 | 25      | –    | 50  | 23 | 1   |
|    | MAS403 BT40-AD+B MHD'25.80  | 416250814031 |         | 26.5 | 80  | 53 | 1.1 |
|    | MAS403 BT40-AD+B MHD'25.125 | 416251214031 |         | 29.5 | 125 | 98 | 1.2 |
|    | MAS403 BT40-AD+B MHD'32.50  | 416320514031 | 32      | –    | 50  | 23 | 1.1 |
|    | MAS403 BT40-AD+B MHD'32.80  | 416320814031 |         | 33   | 80  | 53 | 1.2 |
|    | MAS403 BT40-AD+B MHD'32.125 | 416321214031 |         | 36   | 125 | 98 | 1.4 |

## MAS 403 BT

AD+B



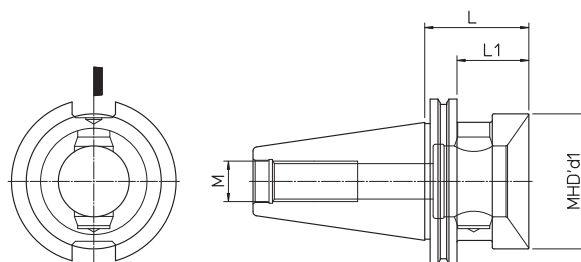
| BT | REF.                        | CODE         | MHD' d1 | d2   | L   | L1  | kg  |
|----|-----------------------------|--------------|---------|------|-----|-----|-----|
| 40 | MAS403 BT40-AD+B MHD'40.120 | 416400104038 | 40      | 44.5 | 120 | 93  | 0.9 |
|    | MAS403 BT40-AD+B MHD'50.120 | 416500104038 | 50      | –    |     |     | 1.9 |
| 50 | MAS403 BT50-AD+B MHD'50.120 | 416500105038 |         | 60   | 150 | 112 | 4.2 |
|    | MAS403 BT50-AD+B MHD'63.150 | 416630105038 | 63      | 70   |     |     | 5.8 |
|    | MAS403 BT50-AD+B MHD'80.180 | 416800105038 | 80      | –    | 180 | 142 | 7.5 |

240

249

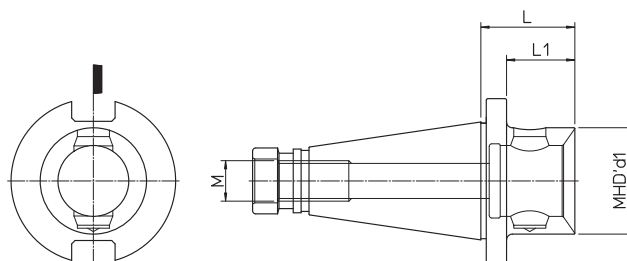
- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

### ANSI/CAT



| ANSI/CAT | REF.                  | CODE         | MHD' d1 | L   | L1 | M   | kg  |
|----------|-----------------------|--------------|---------|-----|----|-----|-----|
| 40       | ANSI/CAT40 MHD'50.66  | 416500104040 | 50      | 66  | 47 | M16 | 1.1 |
|          | ANSI/CAT40 MHD'63.100 | 416630104040 | 63      | 100 | —  |     | 1.9 |
| 45       | ANSI/CAT45 MHD'50.48  | 416500104540 | 50      | 48  | 29 | M20 | 1.7 |
|          | ANSI/CAT45 MHD'63.75  | 416630104540 | 63      | 75  | 56 |     | 2.1 |
|          | ANSI/CAT45 MHD'80.80  | 416800104540 | 80      | 80  | —  |     | 2.7 |
| 50       | ANSI/CAT50 MHD'50.48  | 416500105040 | 50      | 48  | 29 | M24 | 2.4 |
|          | ANSI/CAT50 MHD'63.56  | 416630105040 | 63      | 56  | 37 |     | 2.9 |
|          | ANSI/CAT50 MHD'80.62  | 416800105040 | 80      | 62  | 43 |     | 3.2 |

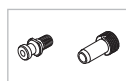
### DIN 2080-A 'OTT'



| ISO | REF.                  | CODE         | MHD' d1 | L  | L1   | M   | kg  |
|-----|-----------------------|--------------|---------|----|------|-----|-----|
| 30  | DIN2080-A30 MHD'50.58 | 416500103000 | 50      | 58 | —    | M12 | 0.6 |
| 40  | DIN2080-A40 MHD'50.48 | 416500104000 | 50      | 48 | 36.5 | M16 | 0.9 |
|     | DIN2080-A40 MHD'63.60 | 416630104000 | 63      | 60 | —    |     | 1.2 |
| 45  | DIN2080-A45 MHD'50.48 | 416500104500 | 50      | 48 | 33   | M20 | 1.6 |
|     | DIN2080-A45 MHD'63.56 | 416630104500 | 63      | 56 | 41   |     | 1.9 |
|     | DIN2080-A45 MHD'80.66 | 416800104500 | 80      | 66 | —    |     | 2.2 |
| 50  | DIN2080-A50 MHD'50.48 | 416500105000 | 50      | 48 | 33   | M24 | 2.6 |
|     | DIN2080-A50 MHD'63.56 | 416630105000 | 63      | 56 | 41   |     | 2.7 |
|     | DIN2080-A50 MHD'80.60 | 416800105000 | 80      | 60 | 45   |     | 3.2 |

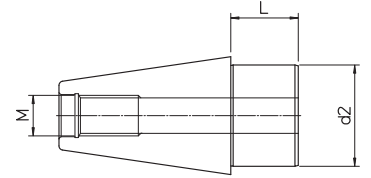
250

240



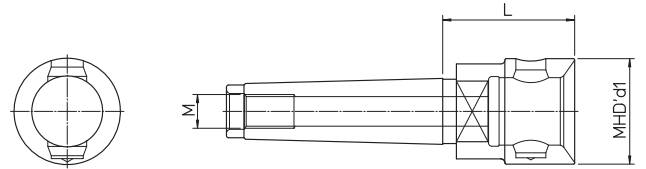
- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

ISO 50 D.60  
ISO 60 D.60



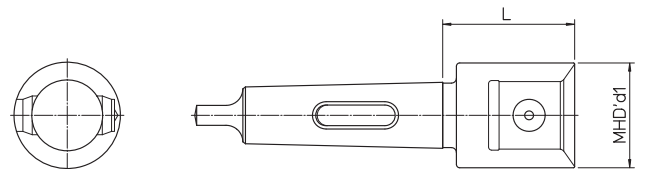
| REF.        | CODE            | d2 | L  | M  | Kg. |
|-------------|-----------------|----|----|----|-----|
| ISO 50 D.60 | 71ISO-50-DC6040 | 60 | 40 | 24 | 4.8 |
| ISO 60 D.60 | 71ISO-60-DC6040 |    |    | 30 | 9.7 |

DIN 228/A 2207



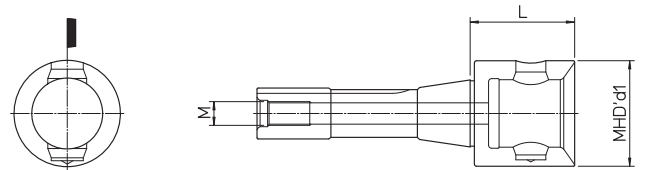
| MORSE | REF.                   | CODE         | MHD' d1 | L  | M   | kg  |
|-------|------------------------|--------------|---------|----|-----|-----|
| 4     | MORSE4-A MHD'50.63     | 416500300400 | 50      | 63 | M16 | 0.9 |
| 4 SIP | MORSE4-A SIP MHD'50.63 | 416500300401 |         |    | M14 |     |

DIN 228/B 1806



| MORSE | REF.               | CODE         | MHD' d1 | L  | kg  |
|-------|--------------------|--------------|---------|----|-----|
| 4     | MORSE4-B MHD'50.56 | 416500200400 | 50      | 56 | 0.9 |
| 5     | MORSE5-B MHD'63.65 | 416630200500 | 63      | 65 | 1.5 |

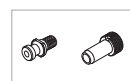
R8



| REF. | CODE         | MHD' d1 | L  | M        | kg  |
|------|--------------|---------|----|----------|-----|
| R 8  | 416500500800 | 50      | 50 | M12x1.75 | 0.8 |

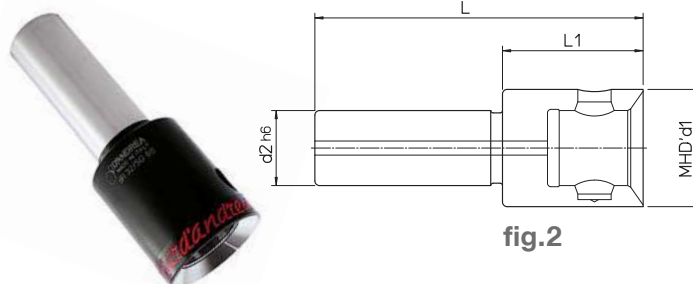
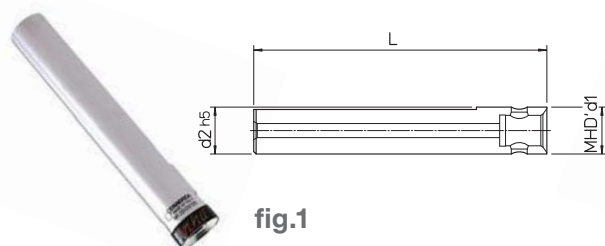
240

251



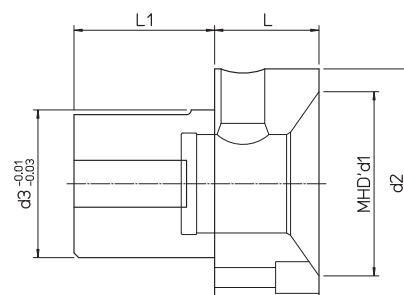
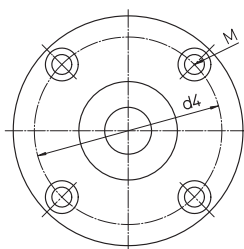
- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

BR



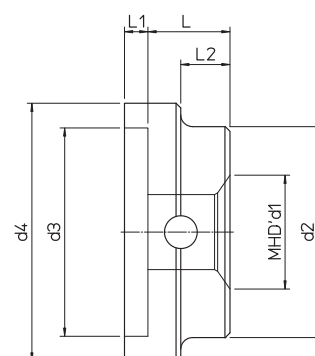
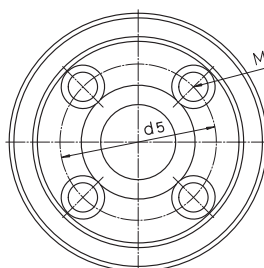
| REF.         | CODE         | MHD' d <sub>1</sub> | L   | L <sub>1</sub> | d <sub>2</sub> | kg   | fig. |
|--------------|--------------|---------------------|-----|----------------|----------------|------|------|
| BR 16/16.100 | 657081601001 | 16                  | 100 | –              | 16             | 0.15 | 1    |
| BR 20/20.125 | 657082001251 | 20                  | 125 | –              | 20             | 0.3  |      |
| BR 25/32.35  | 416320802500 | 32                  | 100 | 35             | 25             | 0.7  | 2    |
| BR 32/50.60  | 416500803200 | 50                  | 140 | 60             | 32             | 1    |      |

MR



| REF.          | CODE         | MHD' d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | d <sub>4</sub> | L   | L <sub>1</sub> | M   | kg  |
|---------------|--------------|---------------------|----------------|----------------|----------------|-----|----------------|-----|-----|
| MR 50/80.80   | 450208001060 | 63 ~ 80             | 80             | 50             | 65             | 45  | 50             | M6  | 1.5 |
| MR 63/98.80   | 450209801060 |                     | 98             | 63             | 80             |     | 60             | M8  | 3.1 |
| MR 80/130.80  | 450213001240 |                     | 130            | 80             | 104.6          |     | 80             | M10 | 6.1 |
| MR 80/130.110 | 450213001340 | 110                 |                |                |                | 105 |                |     | 9   |

DIN 2079

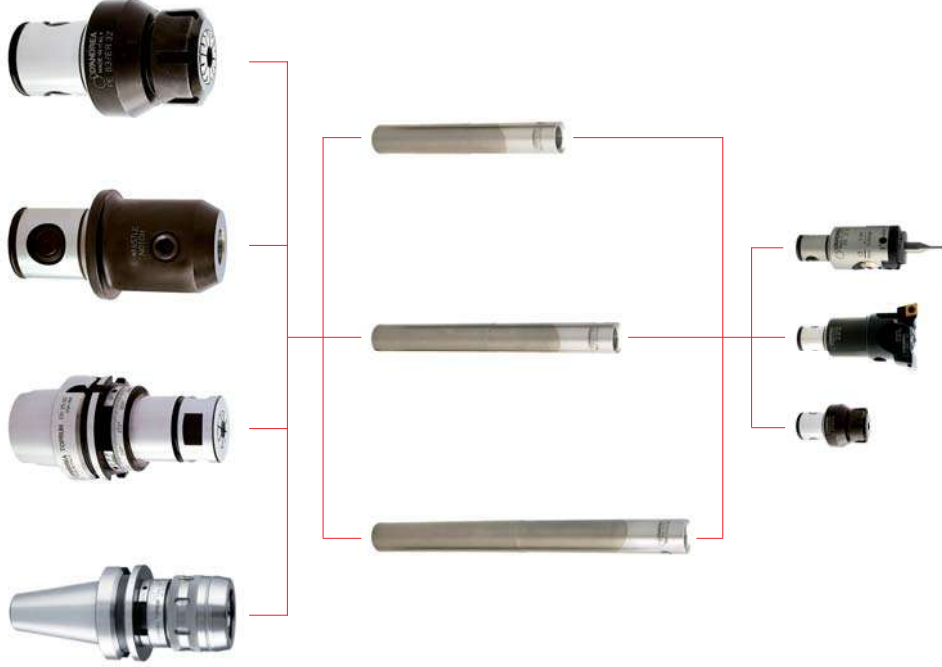


| REF.            | CODE         | MHD' d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | d <sub>4</sub> | d <sub>5</sub> | L   | L <sub>1</sub> | L <sub>2</sub> | M   | kg  |
|-----------------|--------------|---------------------|----------------|----------------|----------------|----------------|-----|----------------|----------------|-----|-----|
| DIN 2079-40.50  | 416502004000 | 50                  | 90             | 88.89          | 110            | 66.7           | 35  | 10             | 21             | M12 | 1.8 |
| DIN 2079-40.63  | 416632004000 | 63                  |                |                |                |                | 47  |                | 31             |     | 2   |
| DIN 2079-50.63  | 416632005000 | 63                  | 135            | 128.57         | 150            | 101.6          | 45  | 12             | 36             | M16 | 5.4 |
| DIN 2079-50.80  | 416802005000 | 80                  |                |                |                |                | 50  |                | 98             |     | 5.3 |
| DIN 2079-50.110 | 416912005000 | 110                 |                |                |                |                | 112 |                | 108            |     | 8.4 |
| DIN 2079-50.140 | 416942005000 | 140                 |                |                |                |                | 122 |                | 108            |     | 9.5 |

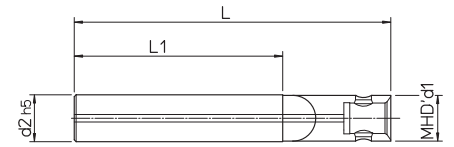


- CARBIDE BARS FOR DEEP-HOLE MACHINING
- ТВЕРДОСПЛАВНЫЕ ОПРАВКИ ДЛЯ ОБРАБОТКИ ГЛУБОКИХ ОТВЕРСТИЙ
- WYTACZADŁA Z TWARDEGO METALU DO GŁĘBOKICH OBRÓBEK
- KARBIDOVÉ TYČE PRO OBRÁBĚNÍ HLUBOKÝCH OTVORŮ
- DERIN DELIKLI İŞLEME İÇİN KARBÜR ÇUBUKLAR

## BMD PROGRAM



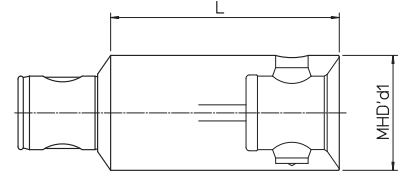
## BMD



| REF.          | CODE         | MHD' d1 | d2 | L   | L1  | kg   |
|---------------|--------------|---------|----|-----|-----|------|
| BMD 16/16.110 | 657081601105 | 16      | 16 | 110 | 70  | 0.3  |
| BMD 16/16.140 | 657081601405 |         |    | 140 | 100 | 0.4  |
| BMD 16/16.170 | 657081601705 |         |    | 170 | 130 | 0.5  |
| BMD 20/20.135 | 657082001355 | 20      | 20 | 135 | 89  | 0.6  |
| BMD 20/20.170 | 657082001705 |         |    | 170 | 124 | 0.75 |
| BMD 20/20.210 | 657082002105 |         |    | 210 | 164 | 0.9  |
| BMD 25/25.160 | 657082501605 | 25      | 25 | 160 | 107 | 1    |
| BMD 25/25.205 | 657082502055 |         |    | 205 | 152 | 1.3  |
| BMD 25/25.255 | 657082502555 |         |    | 255 | 202 | 1.6  |
| BMD 32/32.195 | 657083201955 | 32      | 32 | 195 | 130 | 2.1  |
| BMD 32/32.250 | 657083202505 |         |    | 250 | 185 | 2.8  |
| BMD 32/32.315 | 657083203155 |         |    | 315 | 250 | 3.5  |

- EXTENSIONS
- УДИЛИННИТЕЛИ
- PRZEDŁUŻKI
- NÁSTAVCE
- UZATMALAR

PR

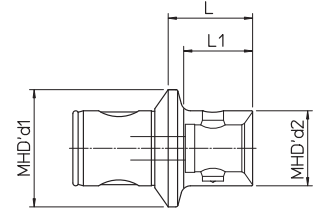


| REF.       | CODE         | MHD' d1 | L   | kg   |
|------------|--------------|---------|-----|------|
| PR 14.25   | 656901400250 | 14      | 25  | 0.02 |
| PR 16.25   | 656901600250 | 16      |     | 0.04 |
| PR 20.32   | 656902000320 | 20      | 32  | 0.07 |
| PR 25.25   | 656902500250 | 25      | 25  | 0.09 |
| PR 25.40   | 656902500400 |         | 40  | 0.15 |
| PR 32.32   | 656903200320 | 32      | 32  | 0.2  |
| PR 32.50   | 656903200500 |         | 50  | 0.3  |
| PR 40.40   | 656904000400 | 40      | 40  | 0.4  |
| PR 40.63   | 656904000630 |         | 63  | 0.6  |
| PR 50.50   | 656905000500 | 50      | 50  | 0.7  |
| PR 50.80   | 656905000800 |         | 80  | 1.1  |
| PR 50.100  | 656905001000 |         | 100 | 1.5  |
| PR 63.63   | 656906300630 | 63      | 63  | 1.4  |
| PR 63.100  | 656906301000 |         | 100 | 2.2  |
| PR 63.125  | 656906301250 |         | 125 | 2.9  |
| PR 80.80   | 656908000800 | 80      | 80  | 3    |
| PR 80.125  | 656908001250 |         | 125 | 4.6  |
| PR 80.160  | 656908001600 |         | 160 | 6.1  |
| PR 110.140 | 656911001400 | 110     | 140 | 13.5 |
| PR 110.200 | 656911002000 |         | 200 | 14.3 |
| PR 140.140 | 656914001400 | 140     | 140 | 24   |
| PR 140.250 | 656914002500 |         | 250 | 28.5 |



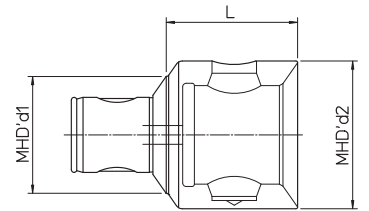
- REDUCTIONS
- ПЕРЕХОДНИКИ
- REDUKCJE
- REDUKCE
- KISALTMALAR

RD



| REF.         | CODE         | MHD' d <sub>1</sub> | MHD' d <sub>2</sub> | L  | L <sub>1</sub> | kg   |
|--------------|--------------|---------------------|---------------------|----|----------------|------|
| RD 16/14.25  | 657001600140 | 16                  | 14                  | 25 | 19.5           | 0.02 |
| RD 20/14.20  | 657002000140 | 20                  |                     | 20 | 14.5           | 0.03 |
| RD 20/16.20  | 657002000160 |                     |                     |    | 16             | 0.05 |
| RD 25/14.20  | 657002500140 | 25                  | 14                  | 20 | 13.5           | 0.06 |
| RD 25/16.20  | 657002500160 |                     |                     |    | 16             | 15   |
| RD 25/20.25  | 657002500200 |                     | 20                  | 25 | 20             | 0.08 |
| RD 32/14.25  | 657003200140 | 32                  | 14                  | 25 | 17.5           | 0.08 |
| RD 32/16.24  | 657003200160 |                     | 16                  | 24 | 18             | 0.10 |
| RD 32/20.25  | 657003200200 |                     | 20                  | 25 | 20             | 0.12 |
| RD 32/25.28  | 657003200250 |                     | 25                  | 28 | 23             | 0.14 |
| RD 40/14.25  | 657004000140 | 40                  | 14                  | 25 | 16.5           | 0.10 |
| RD 40/16.24  | 657004000160 |                     | 16                  | 24 | 17             | 0.18 |
| RD 40/20.26  | 657004000200 |                     | 20                  | 26 | 20             | 0.2  |
| RD 40/25.28  | 657004000250 |                     | 25                  | 28 | 22             | 0.25 |
| RD 40/32.32  | 657004000320 |                     | 32                  | 32 | 27             | 0.3  |
| RD 50/14.25  | 657005000140 | 50                  | 14                  | 25 | 14.5           | 0.25 |
| RD 50/14.40  | 657005000142 |                     |                     | 40 | 29.5           | 0.1  |
| RD 50/16.24  | 657005000160 |                     | 16                  | 24 | 15             | 0.34 |
| RD 50/20.26  | 657005000200 |                     | 20                  | 26 | 18             | 0.37 |
| RD 50/25.28  | 657005000250 |                     | 25                  | 28 | 21             | 0.4  |
| RD 50/32.32  | 657005000320 |                     | 32                  | 32 | 25             | 0.45 |
| RD 50/40.36  | 657005000400 |                     | 40                  | 36 | 30             | 0.5  |
| RD 63/50.40  | 657006300500 | 63                  | 50                  | 40 | 34             | 0.9  |
| RD 80/50.45  | 657008000500 | 80                  |                     | 45 | 36             | 1.2  |
| RD 80/63.60  | 657008000630 |                     | 63                  | 60 | 52             | 1.7  |
| RD 110/80.70 | 657011000800 | 110                 | 80                  | 70 | 52             | 6    |
| RD 140/80.70 | 657014000800 | 140                 |                     |    | 49             | 7.8  |

RD



| REF.        | CODE         | MHD' d1 | MHD' d2 | L  | kg  |
|-------------|--------------|---------|---------|----|-----|
| RD 50/63.56 | 657005000630 | 50      | 63      | 56 | 1.1 |

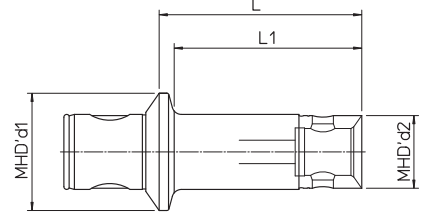


# D'ANDREA

## MODULHARD'ANDREA

- REDUCTIONS
- ПЕРЕХОДНИКИ
- REDUKCJE
- REDUKCE
- KISALTMALAR

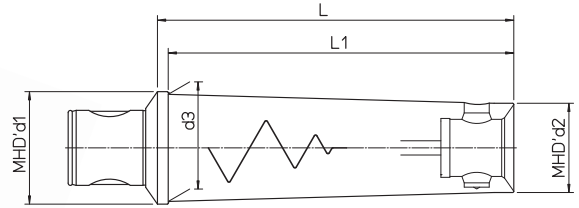
RD



| REF.         | CODE         | MHD' d1 | MHD' d2 | L   | L1  | kg   |
|--------------|--------------|---------|---------|-----|-----|------|
| RD 50/16.40  | 657005000162 | 50      | 16      | 40  | 32  | 0.2  |
| RD 50/16.74  | 657005000163 |         |         | 74  | 65  | 0.25 |
| RD 50/20.70  | 657005000202 |         | 20      | 70  | 62  | 0.3  |
| RD 50/20.93  | 657005000203 |         |         | 93  | 85  | 0.35 |
| RD 50/25.87  | 657005000252 |         | 25      | 87  | 80  | 0.6  |
| RD 50/25.117 | 657005000253 |         |         | 117 | 110 | 0.65 |
| RD 50/32.87  | 657005000322 |         | 32      | 87  | 80  | 0.75 |
| RD 50/32.144 | 657005000323 |         |         | 144 | 137 | 1    |
| RD 50/40.87  | 657005000402 |         | 40      | 87  | 80  | 0.9  |
| RD 50/40.176 | 657005000403 |         |         | 176 | 170 | 1.8  |

- VIBRATION-DAMPING REDUCTIONS
- ВИБРОИЗОЛЯЦИОННЫЕ ПЕРЕХОДНИКИ
- REDUKCJE OGRANICZAJĄCE WIBRACJE
- REDUKCE TLUMÍCÍ VIBRACE
- TITREŞİM SÖNÜMLEYİCİ KISALTMALAR

RAV



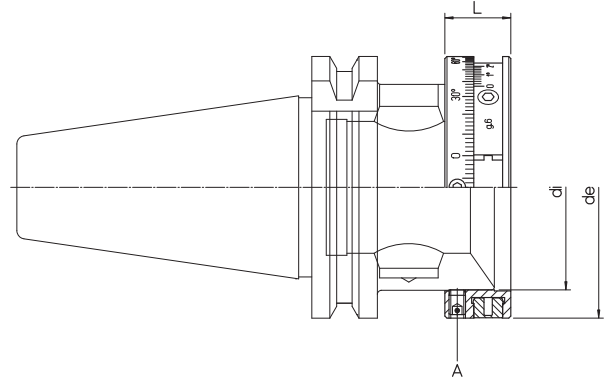
| REF.          | CODE         | MHD' d1 | MHD' d2 | d3   | L   | L1  | kg   |
|---------------|--------------|---------|---------|------|-----|-----|------|
| RAV 50/16.74  | 657005000165 | 50      | 16      | 17.5 | 74  | 65  | 0.4  |
| RAV 50/20.93  | 657005000205 |         | 20      | 21.5 | 93  | 85  | 0.5  |
| RAV 50/25.117 | 657005000255 |         | 25      | 27   | 117 | 110 | 0.8  |
| RAV 50/32.144 | 657005000325 |         | 32      | 35   | 144 | 138 | 1.4  |
| RAV 50/40.176 | 657005000405 |         | 40      | 47   | 176 | 170 | 2.5  |
| RAV 63/50.220 | 657006300505 | 63      | 50      | 60   | 220 | 214 | 5.6  |
| RAV 80/63.280 | 657008000635 | 80      | 63      | 77   | 280 | 272 | 10.6 |





- BALANCING RINGS
- БАЛАНСИРОВОЧНЫЕ КОЛЬЦА
- PIERŚCIEŃ DO WYRÓWNOWAŻANIA
- VYVAŽOVACÍ KROUŽKY
- DENGELEME HALKALARI

BLC



| REF.      | CODE         | MHD' | de   | di (G6) | L  |
|-----------|--------------|------|------|---------|----|
| BLC 42.32 | 381725032001 | 32   | 42   | 31.5    | 14 |
| BLC 50.40 | 381725040001 | 40   | 50   | 39.5    | 15 |
| BLC 63.50 | 381725050001 | 50   | 63.5 | 49.8    | 16 |
| BLC 80.63 | 381725063001 | 63   | 80   | 62.8    | 18 |

**GB** The BLC balancing ring, only by setting the two incorporated graduated counterweights, allows to balance, in an accurate and economical way, the toolholder on which it is mounted. The use of the BLC ring provides the following advantages: improved accuracy and surface finish; considerable extension of tool life; considerable extension of spindle bearings life; drastic reduction of vibrations and noise level in the machining centre.

**ASSEMBLY:** Remove the plastic guard ring; insert the BLC ring and lock the A screws.

**RU** Балансировочные кольца BLC посредством установки двух вмонтированных градуированных противовесов позволяют балансировать точным и экономичным путем держатель, на котором они укреплены. Использование балансировочных колец BLC обеспечивает следующие преимущества: увеличение точности и качества обрабатываемых поверхностей, продление срока службы инструмента, продление срока службы шпинделя обрабатывающего центра, снижение вибрации и уровня шума в обрабатывающих центрах.

**СБОРКА:** Снять пластиковое защитное кольцо, поместить кольцо BLC и затянуть винты A.

**PL** Pierścienie do wyrównoważania BLC, pozwala na wyrównoważenie w sposób dokładny i ekonomiczny oprawki, na którą zostanie zamontowany. Odbija się to przez przestawienie dwóch wbudowanych, skalowanych płytek. Użycie pierścienia BLC daje następujące korzyści: zwiększenie dokładności wykonania i polepszenie jakości powierzchni; zwiększenie żywotności narzędzia; wydłużenie żywotności wrzeciona obrabiarki; redukcję wibracji oraz hałasu powstałych podczas obróbki.

**MONTAŻ:** Wyjąć pierścień z plastikowego zabezpieczenia; nałożyć pierścień BLC, po czym dokręcić śruby A.

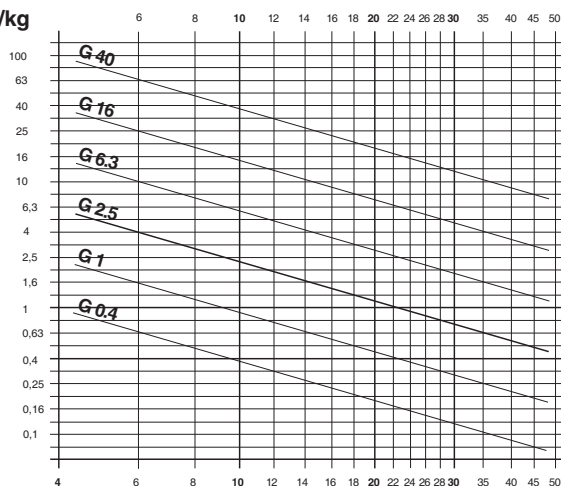
**CZ** Vyvažovací kroužek BLC, pouhým nastavením dvou vložených odstupňovaných protizávaží, umožňuje vyvažovat nástrojový držák, na kterém je nasazen, přesným a úsporným způsobem. Použití kroužku BLC dává následující výhody: lepší přesnost a konečná úprava povrchu, značné prodloužení životnosti nástroje, značné prodloužení životnosti ložisek vřetena, prudké snížení hladiny vibrací a hluku v obráběcím centru.

**MONTÁŽ:** Odstraňte plastový kryt kroužku, nasadte kroužek BLC a utáhněte šrouby A.

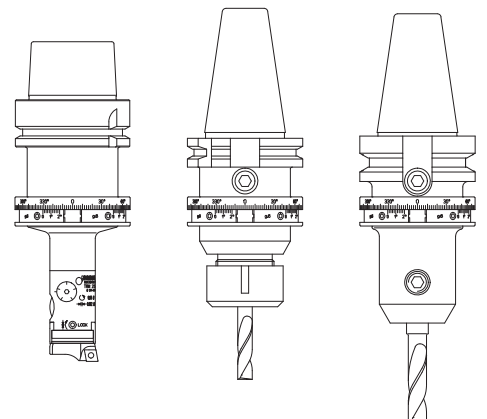
**TR** BLC dengeleme halkası, sadece iki adet kademeli karşı ağırlığın ayarlanması suretiyle, üzerine monte edildiği takım tutucunun doğru ve ekonomik bir şekilde dengelenebilmesini mümkün kılar. BLC dengeleme halkasının kullanılması şu avantajları sunar: gelişmiş doğruluk, hassasiyet ve yüzey bitirme; takımın hizmet ömrünün ciddi biçimde uzatılması, mil yataklarının hizmet ömrünün önemli ölçüde uzatılması; işleme merkezindeki titreşim ve gürültü seviyelerinde ciddi biçimde azalma.

**MONTAJ:** Plastik koruyucu halkayı çıkarın, BLC dengeleme halkasını takın ve A vidalarını kilitleyin.

e = g.mm/kg



RPM x 1000



*testarossadandrea*

TS

TR-E

TRM

TRM HSB

2 µm

2 µm

2 µm

• TS 16/16  
Ø 18 ~ 22

p.38

• TRM 16  
Ø 18 ~ 23

p.62

• TS 20/20  
Ø 22 ~ 28

p.38

• TRM 20  
Ø 22 ~ 29

p.62

• TS 25/25  
Ø 28 ~ 38

p.38

• TRM 25  
Ø 28 ~ 38

p.62

• TS 32/32  
Ø 35.5 ~ 50

p.38

• TR-E 32  
Ø 35.5 ~ 51.5

p.46

• TRM 32  
Ø 35.5 ~ 51.5

p.62

• TRM 32 HSB  
Ø 2.5 ~ 18

p.108

• TS 40/40  
Ø 50 ~ 68

p.38

• TR-E 40  
Ø 48 ~ 64

p.47

• TRM 40  
Ø 48 ~ 63

p.62

• TS 50/50  
Ø 68 ~ 90

p.39

• TS 50/63  
Ø 90 ~ 120

p.39

• TR-E 50  
Ø 2.5 ~ 110

p.48

• TRM 50  
Ø 2.5 ~ 108

p.64

• TRM 50/63  
Ø 2.5 ~ 125

p.68

• TRM 50/80  
Ø 2.5 ~ 160

p.72

• TRM 50 HSB  
Ø 2.5 ~ 22

p.110

• TS 63/63  
Ø 90 ~ 120

p.39

• TR-E 63  
Ø 6 ~ 125

p.52

• TRM 63/63  
Ø 2.5 ~ 125

p.68

• TS 80/80  
Ø 120 ~ 200

p.39

• TR-E 80  
Ø 6 ~ 200

p.56

• TRM 80/80  
Ø 2.5 ~ 160

p.72

• TRM 80/125  
Ø 36 ~ 500

p.76

## BORING SYSTEM

## TRC

## TRC HS TRD

- TRC 14  
Ø 14.5 ~ 18

p.92

- TRC 16  
Ø 18 ~ 24

p.92

- TRC 20  
Ø 22 ~ 30

p.92

- TRC 25  
Ø 28 ~ 40

p.92

- TRD 25  
Ø 28 ~ 36

p.114

- TRC 32  
Ø 35.5 ~ 53.5

p.92

- TRC 32 HS  
Ø 2.5 ~ 18

p.108

- TRD 32  
Ø 36 ~ 46

p.114

- TRC 40  
Ø 48 ~ 66

p.92

- TRD 40  
Ø 46 ~ 60

p.114

- TRC 50  
Ø 2.5 ~ 110

p.94

- TRC 50 HS  
Ø 2.5 ~ 22

p.110

- TRD 50  
Ø 60 ~ 75

p.114

- TRC 63  
Ø 6 ~ 125

p.98

- TRD 63  
Ø 75 ~ 95

p.114

- TRC 80  
Ø 6 ~ 200

p.102

- TRD 80  
Ø 95 ~ 160

p.114

## BPS

- TR-E 200  
p.86

2µm

- TR 200  
p.86

- BPS 200 - 800  
Ø 200 ~ 1200  
p.82-83

- TR-E 200  
p.86

2µm

- TR 200  
p.86

- BPS 1000 - 1600 GD  
Ø 1000 ~ 2700  
p.84-85

- **DOUBLE-BIT HEADS**
- **ДВУХРЕЗЦОВЫЕ ГОЛОВКИ**
- **GŁOWICE DWUNOŻOWE**
- **DVOUHROTOVÉ HLAVY**
- **ÇİFT UÇLU KAFALAR**



- 1**
- Body
  - Корпус
  - Korpus
  - Tělo
  - Gövde
- 2**
- Setting screws
  - Регулировочный винт
  - Śruba regulacyjna
  - Nastavovací šrouby
  - Ayar vidaları

- 3**
- Expanding pin
  - Разжимной радиальный штифт
  - Sworzeń promieniowy rozprężny
  - Rozšiřující kolík
  - Genişletme pimi
- 4**
- Coolant outlets
  - Отверстия для выхода хладагента
  - Otwory wylotowe cieczy chłodzącej
  - Výstupy chladiwa
  - Soğutma sıvısı çıkışları
- 5**
- Bit holders
  - Кассета головки
  - Wytaczak
  - Hrotové držáky
  - Matkap kovanları
- 6**
- Tools clamp screws
  - Зажимные винты инструмента
  - Śruby blokujące narzędzie
  - Upínací šrouby nástroje
  - Takımların sıkma vidaları

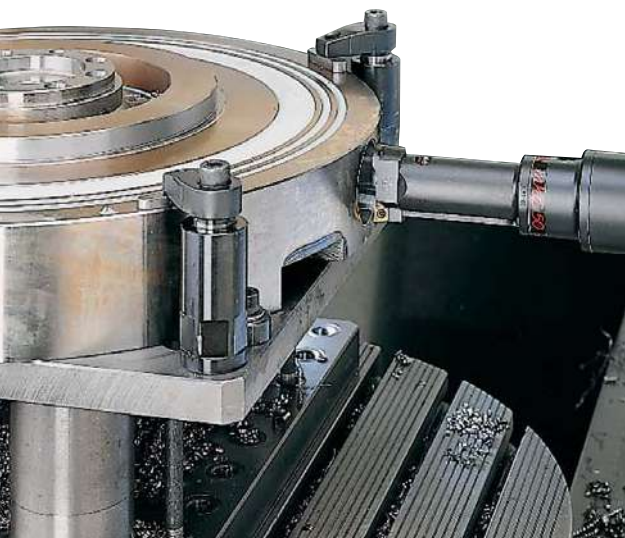
**GB** The double-bit heads are easy and extremely rigid thanks to the extensive area serrated with contacts between the bit holder and upper insert holder and the heads, together with the constant distance between the seat of the clamping screws and the cutter.

**RU** Двухрезцовые головки просты и очень стабильны благодаря зубчатым поверхностям соединения между кассетой головки и самой головкой, а также неизменному расстоянию между зажимным винтом кассеты и режущей кромкой.

**PL** Głowice dwunożowe są bardzo sztywne i proste w budowie. Wysoką sztywność układu uzyskano dzięki szerokim, ząbkowanym powierzchniom styku pomiędzy wytaczakami a samymi głowicami. Dodatkową zaletą jest stała odległość pomiędzy śrubą mocującą końcówkę, a ostrzem skrawającym.

**CZ** Dvuhrotové hlavy jsou volné a extrémně pevné díky rozsáhlé oblasti zoubkované s kontaktem mezi hrotovým držákem a horním držákem vložky a hlavy, současně s konstantní vzdáleností mezi ložem upínacích šroubů a frézou.

**TR** Çift uçlu kafalar, kovan ile üst geçme yuvası ve kafalar arasındaki temas sonucu tırtılanmış geniş alan ve kenetleme vidaları ile kesici yatağı arasındaki sabit mesafe sayesinde son derece sağlam ve kullanımı kolaydır.





- DOUBLE-BIT HEADS
- ДВУХРЕЗЦОВЫЕ ГОЛОВКИ
- GŁOWICE DWUOŻOWE
- DVOUHROTOVÉ HLAVY
- ÇİFT UÇLU KAFALAR

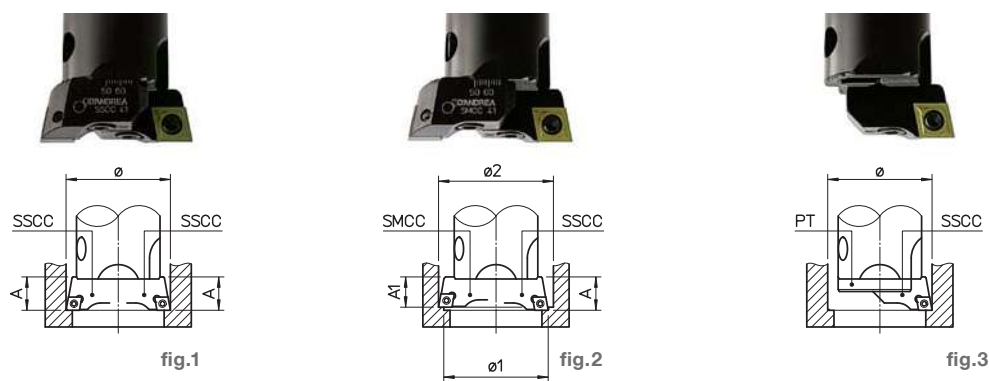
**GB USE.** The radial setting of the cutting edges should be carried out with tool presetting equipment. The boring bars are fitted with two bit holders for roughing operations involving heavy chip removal. The double-bit boring bars may include:

**RU ИСПОЛЬЗОВАНИЕ.** Радиальная настройка режущих кромок должна выполняться на специальном устройстве предварительной настройки. Используются с двумя кассетами для черновых операций с большим количеством снимаемого материала. Двухрезцовые расточные оправки могут состоять из:

**PL ZASTOSOWANIE.** Średnicę ostrzy skrawających należy regulować na stole typu pre-set. Podczas operacji wytaczania zgrubnego z nadatkami najczęściej wykorzystujemy dwa ostrza skrawające. Wytaczaki dwułożowe mogą składać się z:

**CZ POUŽITÍ.** Radiální nastavení frézovacích hran je nutno provést pomocí zařízení na přednastavení nástrojů. Vyvrtávací tyče se připevní pomocí dvou hrotových držáků pro operace hrubování zahrnující odstraňování velkých špon. Dvouhrotové vyvrtávací tyče mohou zahrnovat:

**TR KULLANIM.** Kesme kenarlarının radyal ayarı, alet ön ayarlama ekipmanı ile yapılmalıdır. Delik açma çubukları, ağır talaş giderimi gibi kaba işleme faaliyetleri için iki adet kovanla donatılmıştır. Çift uçlu delik açma çubukları şunları içerebilir:



**fig. 1** **GB** two SSCC bit holders on the same plane and with the two cutting edges set at identical radial distance for high feed rate roughing operations.

**RU** двух кассет SSCC, установленных в одной плоскости, соответственно с двумя режущими кромками, установленными с одинаковым радиальным вылетом, - для черновых операций с большим объемом подачи;

**PL** dwa ostrza SSCC ustawione na tej samej rednicy wytaczania, co umożliwia wytaczanie zgrubne z dużymi posuwami.

**CZ** dva SSCC hrotové držáky v téže rovině a se dvěma frézovacími hranami nastavenými v identické radiální vzdálenosti pro provádění operací hrubování za vysoké rychlosti přířunu.

**TR** aynı düzlem üzerinde bulunan iki SSCC matkap kovani ve iki kesme kenarı, yüksek besleme hızında gerçekleştirilen kaba işleme faaliyetleri için eşit radyal mesafe sunar.

**fig. 2** **GB** an SSCC bit holder and an SMCC bit holder not at the same plane and with the two cutting edges set at different radial distances for high cutting depth roughing operations.

**RU** из кассеты SSCC и ниже – из кассеты SMCC, помещенных на разных уровнях, соответственно с двумя режущими кромками, установленными с разным радиальным вылетом - для черновых операций с большой глубиной резания;

**PL** jeden nóż typu SSCC i drugi nóż obniżony typu SMCC. Noże ustawione na różnych wysokościach i średnicach. Wariant ten umożliwia obróbkę zgrubną z dużą głębokością przejścia.

**CZ** hrotový držák SSCC a hrotový držák SMCC nikoli v téže rovině a se dvěma frézovacími hranami nastavenými v různé radiální vzdálenosti pro provádění operací hrubování s velkou hloubkou frézování.

**TR** aynı düzlem üzerinde bulunmayan bir SSCC matkap kovani ve bir SMCC matkap kovani, yüksek kesme derinliğinin söz konusu olduğu kaba işleme faaliyetleri için farklı radyal mesafeler sunar.

**fig. 3** **GB** the boring bars are fitted with a single bit holder for roughing and finishing operations involving normal chip removal. The serrated surface protection plate PT should always be fitted.

**RU** из одной кассеты, для черновых и чистовых операций с нормальным количеством снимаемого материала. Для защиты зубчатой поверхности необходимо устанавливать пластину PT.

**PL** wykorzystywane jest tylko jedno ostrze do obróbki wykończeniowej lub zgrubnej przy normalnym usuwaniu wiórów. Nie należy zapominać o obowiązkowym montażu płytki PT, zabezpieczającej powierzchnię ząbkowaną.

**CZ** vyvrtávací tyče se připevní pomocí jednoho hrotového držáku pro operace hrubování a finální úpravy zahrnující odstraňování normálních špon. Vždy je nutno připevnit zoubkovanou desku PT pro ochranu povrchu.

**TR** delik açma çubukları, normal talaş giderimi gibi kaba işleme ve bitirme faaliyetleri için tekli kovanla donatılmıştır. Tırtıklı yüzey koruma plakası PT mutlaka takılmalıdır.

## TS 16/16

Ø 18 ~ 22



## TS 20/20

Ø 22 ~ 28



## TS 25/25

Ø 28 ~ 38



## TS 32/32

Ø 35.5 ~ 50



## TS 40/40

Ø 50 ~ 68



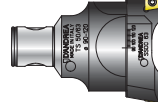
## TS 50/50

Ø 68 ~ 90



## TS 50/63

Ø 90 ~ 120



## TS 63/63

Ø 90 ~ 120



## TS 80/80

Ø 120 ~ 200

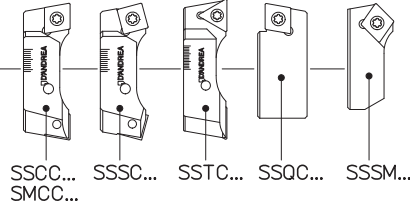
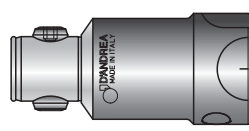


# D'ANDREA

## MODULHARD'ANDREA

**TS 16~40** Ø 18 ~ 68

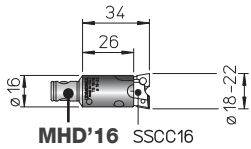
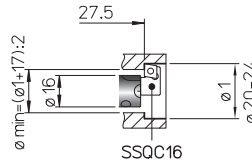
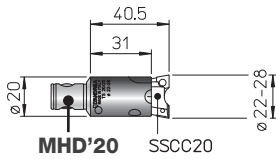
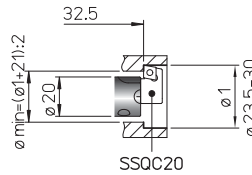
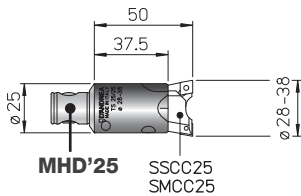
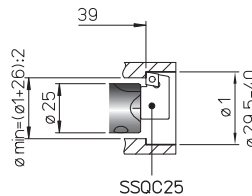
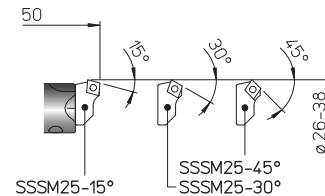
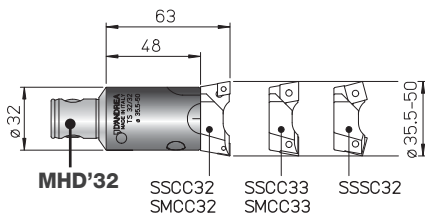
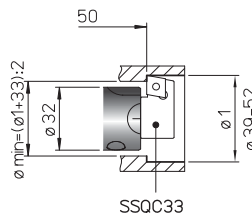
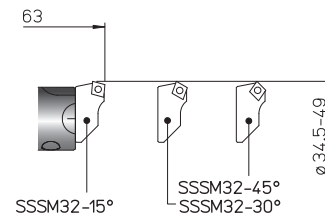
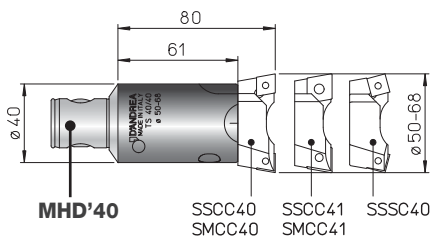
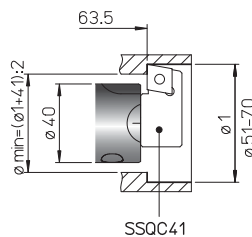
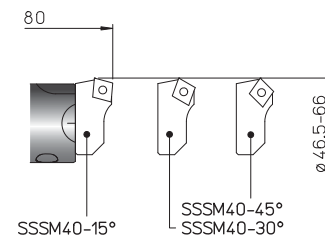
- DOUBLE-BIT HEADS
- ДВУХРЕЗЦОВЫЕ ГОЛОВКИ
- GŁOWICE DWUNOŻOWE
- DVOUHROTOVÉ HLAVY
- ÇİFT UÇLU KAFALAR



p. 37

| REF.     | CODE         | Kg.  |
|----------|--------------|------|
| TS 16/16 | 455501600340 | 0.05 |
| TS 20/20 | 455502000400 | 0.09 |
| TS 25/25 | 455502500500 | 0.2  |
| TS 32/32 | 455503200630 | 0.35 |
| TS 40/40 | 455504000800 | 0.7  |

| REF.     | CODE         | Kg. |
|----------|--------------|-----|
| TS 50/50 | 455305001000 | 1.5 |
| TS 50/63 | 455306300800 | 2   |
| TS 63/63 | 455406301250 | 3   |
| TS 80/80 | 455408001400 | 5.3 |


**MHD'16** SSCC16

**SSQC16**
**TS 16/16**  
Ø 18 ~ 22

**MHD'20** SSCC20

**SSQC20**
**TS 20/20**  
Ø 22 ~ 28

**MHD'25** SSCC25  
SMCC25

**SSQC25**

**SSSM25-15°**
**SSSM25-45°**  
**SSSM25-30°**
**TS 25/25**  
Ø 28 ~ 38

**MHD'32** SSCC32  
SMCC32  
SSCC33  
SMCC33  
SSCC32

**SSQC33**

**SSSM32-15°**
**SSSM32-45°**  
**SSSM32-30°**
**TS 32/32**  
Ø 35.5 ~ 50

**MHD'40** SSCC40  
SMCC40  
SSCC41  
SMCC41  
SSCC40

**SSQC41**

**SSSM40-15°**
**SSSM40-45°**  
**SSSM40-30°**
**TS 40/40**  
Ø 50 ~ 68

118



120



116



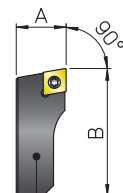
## 39

# D'ANDREA

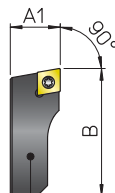
## MODULHARD'ANDREA

- BIT-HOLDERS FOR DOUBLE-BIT ITEMS
- КАССЕТЫ ДЛЯ ДВУХРЕЗЦОВЫХ ГОЛОВОК
- OSTRZA GŁOWIC DWUNOŻOWYCH
- HROTOVÉ DRŽÁKY PRO DVOUHROTOVÉ DÍLY
- ÇİFT UÇLU EKİPMAN İÇİN MATKAP KOVANLARI

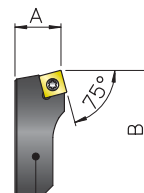
SSCC - SMCC - SSSC



SSC...



SMCC...



SSS...

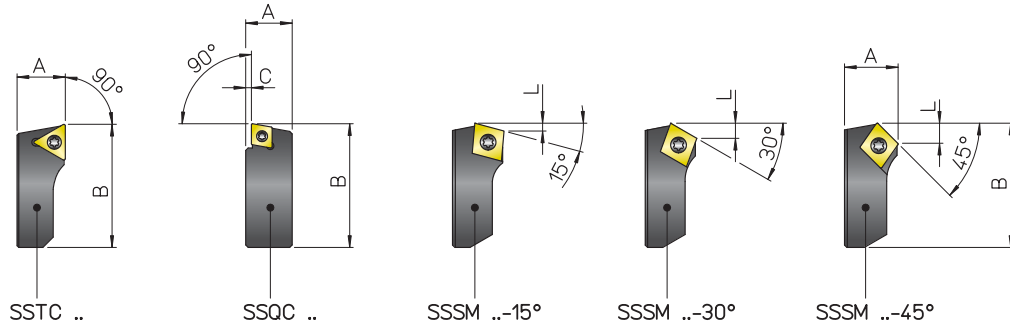
| REF.    | CODE         | A    | A1   | B    |  |  |  |  | Kg.         |        |     |
|---------|--------------|------|------|------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------|--------|-----|
| SSCC 16 | 470500516201 | 8    | -    | 15   | CCMT 0602..                                                                       | -                                                                                  | TS 25                                                                               | TORX T08                                                                            | 0.003       |        |     |
| SSCC 20 | 470500520201 | 9.5  |      | 19   |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.006       |        |     |
| SSCC 25 | 470500525201 | 12.5 |      | 23   |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.01        |        |     |
| SSCC 32 | 470500532201 | 15   |      | 32   |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.02        |        |     |
| SSCC 33 | 470500532204 |      |      |      |                                                                                   |                                                                                    |                                                                                     |                                                                                     |             |        |     |
| SSCC 40 | 470500540201 | 19   | -    | 40   | CCMT 09T3..                                                                       | -                                                                                  | TS 4                                                                                | TORX T15                                                                            | 0.025       |        |     |
| SSCC 41 | 470500540204 |      |      |      |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.06        |        |     |
| SSCC 50 | 470500550204 | 22   | -    | 54   | CCMT 1204..                                                                       | -                                                                                  | TS5                                                                                 | TORX T25                                                                            | 0.1         |        |     |
| SSCC 63 | 470500563201 | 27   |      | 70.5 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.2         |        |     |
| SSCC 80 | 470500580201 | 32   |      | 94.5 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.5         |        |     |
| SSCC 90 | 470500590201 |      |      | 0.7  |                                                                                   |                                                                                    |                                                                                     |                                                                                     |             |        |     |
| SSCN 95 | 470500595201 |      |      | 40   |                                                                                   |                                                                                    |                                                                                     |                                                                                     | CNM. 1906.. | p. 126 |     |
| SMCC 25 | 470500525203 | -    | 12.3 | 23   | CCMT 0602..                                                                       | -                                                                                  | TS 25                                                                               | TORX T08                                                                            | 0.01        |        |     |
| SMCC 32 | 470500532203 |      | 14.8 | 32   |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.02        |        |     |
| SMCC 33 | 470500532205 | -    | 18.7 | 40   | CCMT 09T3..                                                                       | -                                                                                  | TS 4                                                                                | TORX T15                                                                            | 0.025       |        |     |
| SMCC 40 | 470500540203 |      |      |      |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.06        |        |     |
| SMCC 41 | 470500540205 | -    | 21.7 | 54   | CCMT 1204..                                                                       | -                                                                                  | TS 5                                                                                | TORX T25                                                                            | 0.06        |        |     |
| SMCC 50 | 470500550205 |      |      |      |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.1         |        |     |
| SMCC 63 | 470500563203 |      |      |      |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 26.7        | 70.5   | 0.2 |
| SMCC 80 | 470500580203 |      |      |      |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 31.7        | 94.5   | 0.5 |
| SMCC 90 | 470500590203 |      |      |      |                                                                                   |                                                                                    |                                                                                     |                                                                                     |             | 130    | 0.7 |
| SSSC 32 | 470500532202 | 15   | -    | 32   | -                                                                                 | SCMT 09T3..                                                                        | TS 4                                                                                | TORX T15                                                                            | 0.02        |        |     |
| SSSC 40 | 470500540202 | 19   |      | 40   |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.06        |        |     |
| SSSC 50 | 470500550202 | 22   | -    | 54   | -                                                                                 | SCMT 1204..                                                                        | TS 5                                                                                | TORX T25                                                                            | 0.1         |        |     |
| SSSC 63 | 470500563202 | 27   |      | 70.5 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.2         |        |     |
| SSSC 80 | 470500580202 | 32   |      | 94.5 |                                                                                   |                                                                                    |                                                                                     |                                                                                     | 0.5         |        |     |
| SSSC 90 | 470500590202 |      |      | 0.7  |                                                                                   |                                                                                    |                                                                                     |                                                                                     |             |        |     |
| SSSN 95 | 470500595202 | 40   |      | 130  | SNM. 1906..                                                                       | p. 126                                                                             |                                                                                     |                                                                                     | 0.9         |        |     |





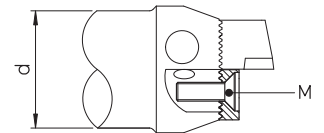
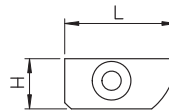
- BIT-HOLDERS FOR DOUBLE-BIT ITEMS
- КАССЕТЫ ДЛЯ ДВУХРЕЗЦОВЫХ ГОЛОВОК
- OSTRZA GŁOWIC DWUNOŻOWYCH
- HROTOVÉ DRŽÁKY PRO DVOUHROTOVÉ DÍLY
- ÇİFT UÇLU EKİPMAN İÇİN MATKAP KOVANLARI

SSTC - SSQC - SSSM



| REF.        | CODE         | A    | B    | C   | L   | △           | □           | ⌢     | ⌢        | Kg.   |
|-------------|--------------|------|------|-----|-----|-------------|-------------|-------|----------|-------|
| SSTC 63     | 470500563206 | 27   | 70.5 |     |     |             |             |       |          | 0.2   |
| SSTC 80     | 470500580206 | 32   | 94.5 | -   | -   | TCMT 2204.. | -           | TS 5  | TORX T25 | 0.5   |
| SSTC 90     | 470500590206 |      | 130  |     |     |             |             |       |          | 0.7   |
| SSQC 16     | 470500516261 | 10   | 16   | 2   |     |             |             |       |          | 0.005 |
| SSQC 20     | 470500520261 | 11   | 19.5 | 1.5 | -   | -           | CCMT 0602.. | TS 25 | TORX T08 | 0.008 |
| SSQC 25     | 470500525261 | 14.5 | 24   | 2.5 |     |             |             |       |          | 0.02  |
| SSQC 33     | 470500533261 | 17   | 32   | 3   | -   | -           | CCMT 09T3.. | TS 4  | TORX T15 | 0.03  |
| SSQC 41     | 470500541261 | 21   | 42   |     |     |             |             |       |          | 0.08  |
| SSQC 50     | 470500550261 | 24.5 | 57   |     |     |             |             |       |          | 0.15  |
| SSQC 63     | 470500563261 | 28.5 | 76   | 3.5 | -   | -           | CCMT 1204.. | TS 5  | TORX T25 | 0.3   |
| SSQC 80     | 470500580261 | 31.5 | 101  |     |     |             |             |       |          | 0.6   |
| SSQC 90     | 470500590261 |      | 122  |     |     |             |             |       |          | 0.8   |
| SSSM 25-15° | 470500525211 |      |      |     | 1.6 |             |             |       |          |       |
| SSSM 25-30° | 470500525213 | 12.5 | 23   | -   | 3   |             |             |       |          | 0.01  |
| SSSM 25-45° | 470500525215 |      |      |     | 4.3 |             |             |       |          |       |
| SSSM 32-15° | 470500532211 |      |      |     | 1.6 |             |             |       |          |       |
| SSSM 32-30° | 470500532213 | 15   | 31   | -   | 3   |             |             |       |          | 0.025 |
| SSSM 32-45° | 470500532215 |      |      |     | 4.3 |             |             |       |          |       |
| SSSM 40-15° | 470500540211 |      |      |     | 2.4 |             |             |       |          |       |
| SSSM 40-30° | 470500540213 | 19   | 39   | -   | 4.6 |             |             |       |          | 0.06  |
| SSSM 40-45° | 470500540215 |      |      |     | 6.5 |             |             |       |          |       |
| SSSM 50-15° | 470500550211 |      |      |     | 3.2 |             |             |       |          |       |
| SSSM 50-30° | 470500550213 | 22   | 53   | -   | 6.2 |             |             |       |          | 0.1   |
| SSSM 50-45° | 470500550215 |      |      |     | 8.8 |             |             |       |          |       |

- COVER PLATES
- РИФЛЕНАЯ ЗАЩИТА
- ZABEZPIECZENIE POWIERZCHNI ZABKOWANEJ
- KRYCÍ DESKY
- KAPAK PLAKALARI

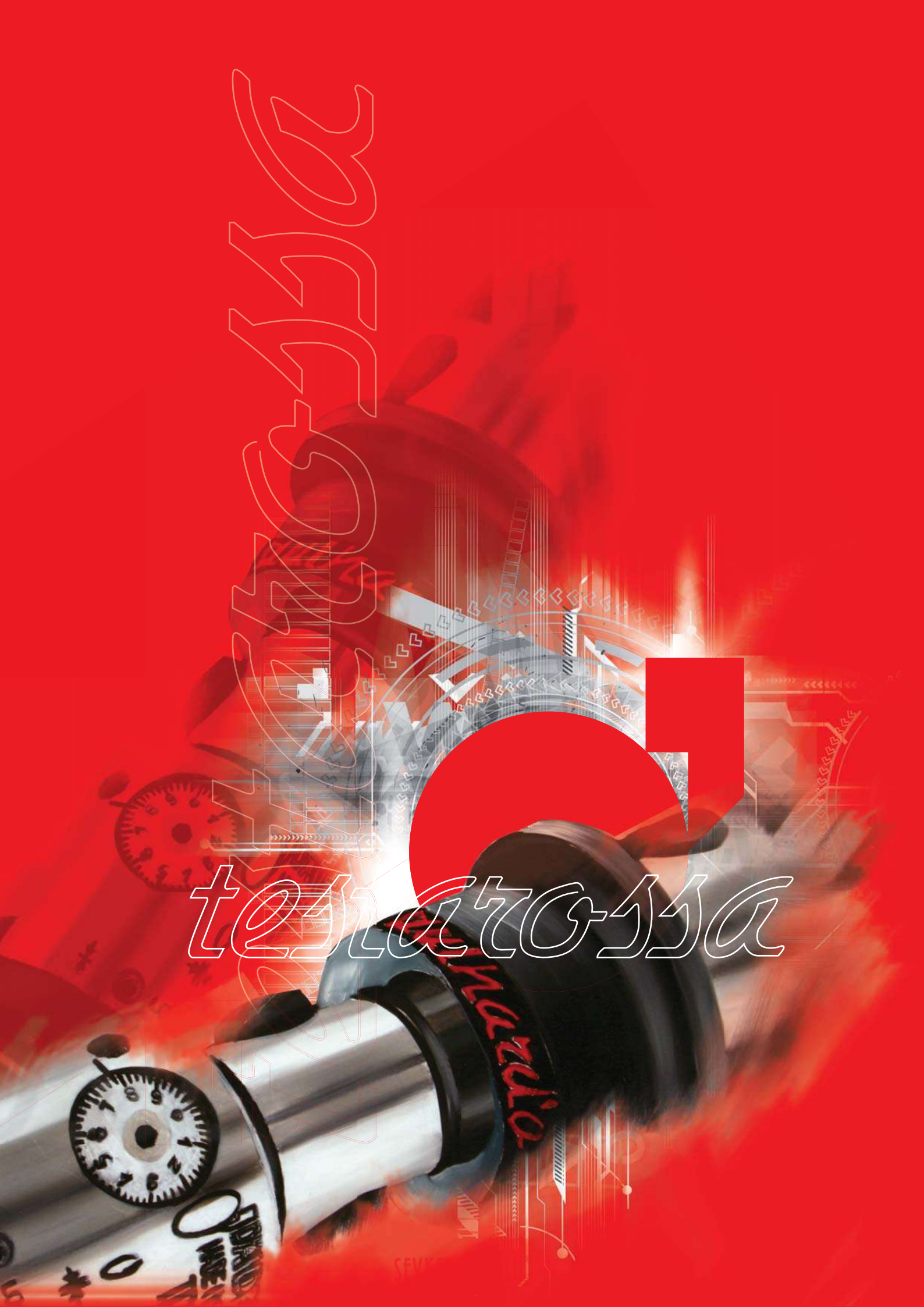


| REF.  | CODE         | d  | H    | L    | M       |
|-------|--------------|----|------|------|---------|
| PT 16 | 384765000160 | 16 | 7    | 14   | M 3x12  |
| PT 20 | 384765000200 | 20 | 8.5  | 17   | M 4x14  |
| PT 25 | 384765000250 | 25 | 10.2 | 21   | M 4x16  |
| PT 32 | 384765000320 | 32 | 13.9 | 28   | M 5x20  |
| PT 40 | 384765000400 | 40 | 17.4 | 35   | M 6x25  |
| PT 50 | 384765000500 | 50 | 21.4 | 47.5 | M 8x25  |
| PT 63 | 384765000630 | 63 | 26.4 | 62   | M 10x30 |
| PT 80 | 384765000800 | 80 | 33.9 | 82.5 | M 12x35 |

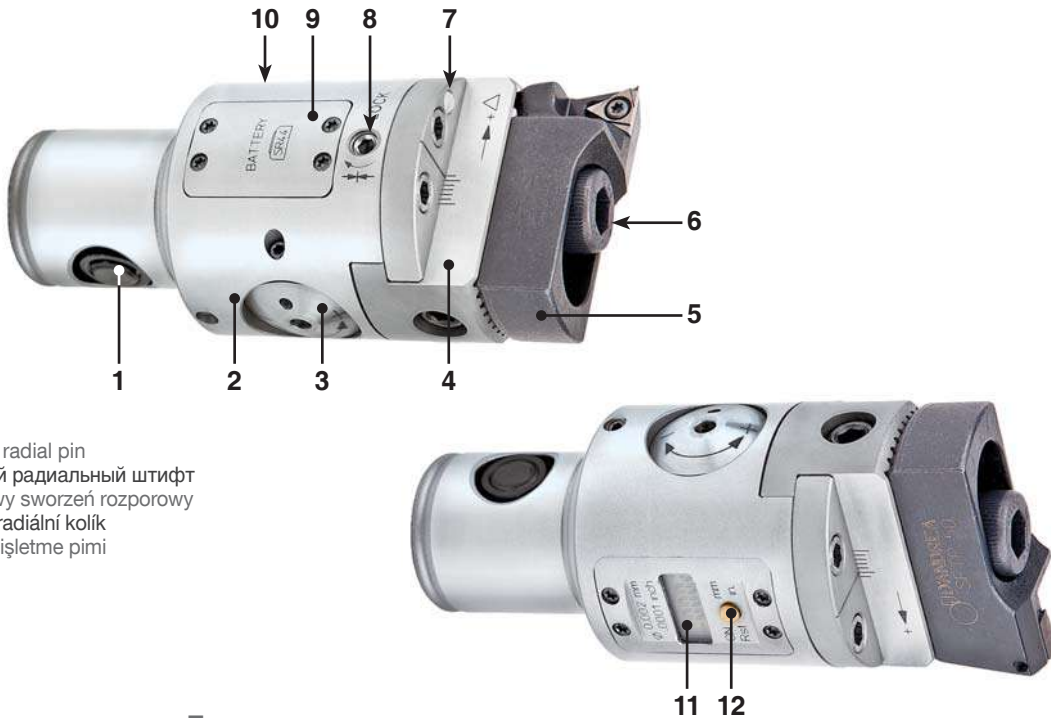


*testarossad'andrea*

*testar*



testatca



- 1**
- Expanding radial pin
  - Разжимной радиальный штифт
  - Promieniowy sworzeń rozporowy
  - Rozširující radiální kolík
  - Radyal genişletme pimi

- 2**
- Body
  - Корпус
  - Korpus
  - Tělo
  - Gövde

- 3**
- Set screw
  - Установочный винт
  - Śruba ustawcza
  - Nastavovací šroub
  - Ayar vidası

- 4**
- Slide toolholder
  - Салазки
  - Sanie narzędziowe
  - Nástrojový držák šoupátka
  - Kayar takım tutucu

- 5**
- Bit holder
  - Кассета головки
  - Wytaczak
  - Hrotový držák
  - Matkap kovani

- 6**
- Tools clamp screws
  - Зажимные винты инструмента
  - Śruba blokująca narzędzie
  - Upínací šrouby nástroje
  - Takımların sıkma vidaları

- 7**
- Coolant outlet
  - Выход хладагента
  - Wylot cieczy chłodzącej
  - Výstup chladicí kapaliny
  - Soğutma sıvısı çıkışı

- 8**
- Slide clamp screw
  - Зажимные винты салазок
  - Śruba blokująca sanie narzędziowe
  - Upínací šroub šoupátka
  - Sürgülü sıkma vidası

- 9**
- Battery compartment cover
  - Крышка батарейного отсека
  - Osłona baterii
  - Kryt prostoru baterie
  - Pil bölümü kapağı

- 10**
- Oiler
  - Масленка
  - Smarownica
  - Olejnička
  - Yağlayıcı

**IP67** | **2 μm**



- 11**
- Digital display
  - Цифровой дисплей
  - Wyświetlacz cyfrowy
  - Digitální displej
  - Dijital gösterge

- 12**
- Selection button
  - Кнопка выбора
  - Przycisk Wyboru
  - Tlačítko pro výběr
  - Seçme düğmesi

**GB FEATURES.** The TR-ELETTRA heads enable high precision machining with tolerance grade, IT6, with excellent surface finish. They have a 1 micron radius adjustment sensitivity on a built-in digital display, ensuring maximum speed and adjustment accuracy. The TR-ELETTRA heads are resistant to water infiltration and are coated with an anti-corrosive surface protection.

**RU ХАРАКТЕРИСТИКИ.** Головки TR-Elettra позволяют производить высокоточную обработку по классу IT6 с исключительным качеством поверхности. Они имеют точность регулировки радиуса в 1 микрон на встроенном цифровом дисплее обеспечивая скорость и точность настройки. Головки TR-ELETTRA являются влагозащищенными и имеют антикоррозионное покрытие.

**PL CECZY.** Głowice TR-Elettra umożliwiają obróbkę o bardzo wysokiej dokładności w tolerancji IT6 i gwarantują uzyskanie doskonałej jakości powierzchni. Posiadają dokładność ustawczą 1 mikrometr na promieniu widoczną na wbudowanym wyświetlaczu cyfrowym, zapewniającym maksymalną szybkość i dokładność ustawienia. Głowice TR-Elettra są odporne na przedostawanie się chłodziwa i są pokryte warstwą antykorozyjną.

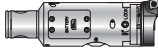
**CZ VLASTNOSTI.** Pomocí hlav TR-ELETTRA se dosáhne vysoce přesného obrábění podle tolerance IT6 s vynikající finální úpravou povrchu. Přesnost nastavení poloměru na vestavěném digitálním displeji je 1 mikron, což zajišťuje maximální přesnost a rychlost nastavení. Tyto TR-ELETTRA hlavy jsou voděodolné a jsou potaženy antikorozií povrchovou vrstvou.

**TR ÖZELLİKLER.** TR-ELETTRA kafaları IT6 toleransında mükemmel yüzey kalitesinde yüksek hassasiyet sağlar. Dijital göstergede 1 mikron yarıçap ayarı hassasiyeti ile maximum hız ve ayar doğruluğuna sahiptir.



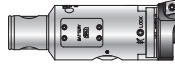
**TR-ELETTRA 32 MHD'32**

Ø 35.5 ~ 51.5



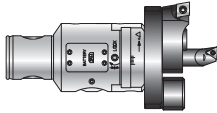
**TR-ELETTRA 40 MHD'40**

Ø 48 ~ 64



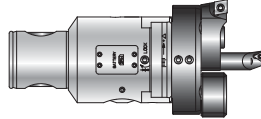
**TR-ELETTRA 50 MHD'50**

Ø 2.5 ~ 110



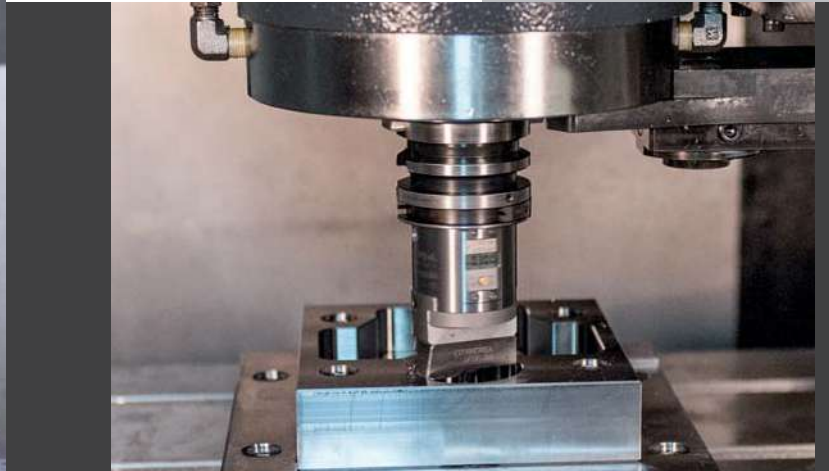
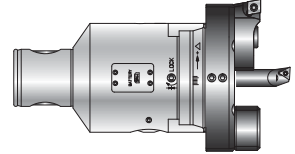
**TR-ELETTRA 63 MHD'63**

Ø 6 ~ 125



**TR-ELETTRA 80 - MHD'80**

Ø 6 ~ 200



TR-E 32 - MHD'32

TR-E 40 - MHD'40

TR-E 50 - MHD'50

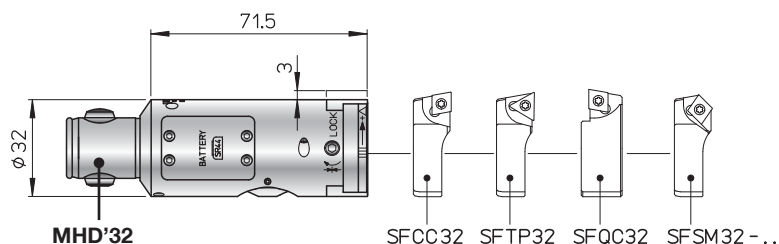
TR-E 63 - MHD'63

TR-E 80 - MHD'80



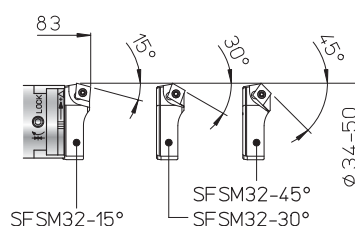
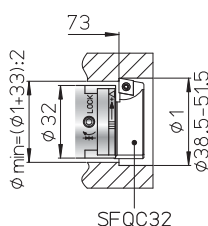
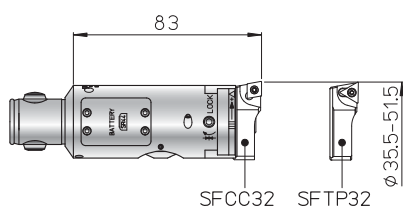


2 µm



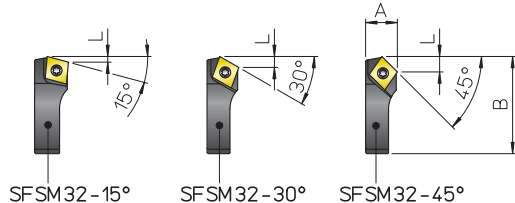
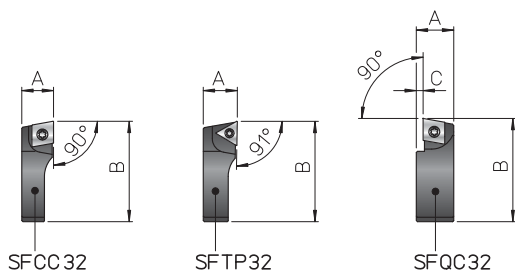
| REF.                 | CODE         | Kg. |
|----------------------|--------------|-----|
| TR-ELETTRA 32 MHD'32 | 455200320320 | 0.4 |

TR-E 32  
Ø 35 ~ 51.5



- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



| REF.        | CODE         | A    | B    | C   | L   | CCGT 0602.. | TPGX 0902.. | TS 25   | TORX T08 | Kg.  |
|-------------|--------------|------|------|-----|-----|-------------|-------------|---------|----------|------|
| SFCC 32     | 470500532002 | 11.5 | 34.5 | -   | -   | CCGT 0602.. | -           | TS 25   | TORX T08 | 0.02 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | -   | -   | -           | TPGX 0902.. | CS 250T | TORX T08 | 0.02 |
| SFQC 32     | 470500532062 | 13.5 | 35.5 | 2.5 | -   | CCMT 0602.. | -           | TS 25   | TORX T08 | 0.03 |
| SFSM 32-15° | 470500532011 | 11.5 | 33.5 | -   | 1.6 | CCMT 0602.. | -           | TS 25   | TORX T08 | 0.02 |
| SFSM 32-30° | 470500532013 |      |      |     | 3   |             |             |         |          |      |
| SFSM 32-45° | 470500532015 |      |      |     | 4.3 |             |             |         |          |      |

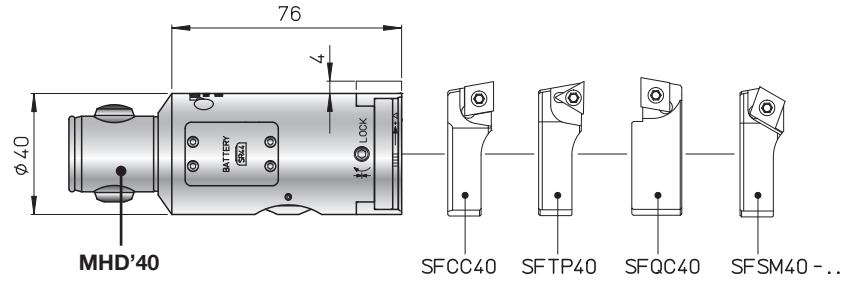


# TR-ELETTRA 40 Ø 48 ~ 64

## MHD'40

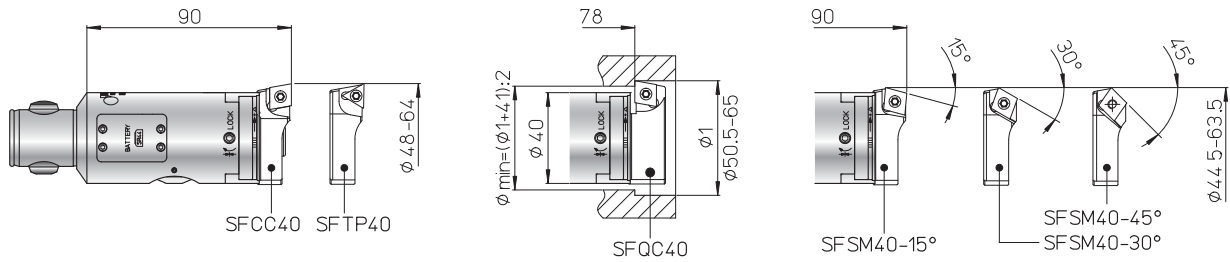
testarossa d'andrea

47



| REF.                 | CODE         | Kg. |
|----------------------|--------------|-----|
| TR-ELETTRA 40 MHD'40 | 455200400400 | 0.7 |

## TR-E 40 Ø 48 ~ 64



- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁÓWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



| REF.        | CODE         | A    | B    | C | L   |             |             |            |          | Kg.  |
|-------------|--------------|------|------|---|-----|-------------|-------------|------------|----------|------|
| SFCC 40     | 470500540002 | 14   | 44   | - | -   | CCGT 09T3.. | -           | TS 4       | TORX T15 | 0.04 |
| SFTP 40     | 470500540001 | 14   | 44   | - | -   | -           | TPGX 1103.. | CS 300890T | TORX T08 | 0.04 |
| SFQC 40     | 470500540062 | 16.5 | 46   | 3 | -   | CCMT 09T3.. | -           | TS 4       | TORXT15  | 0.06 |
| SFSM 40-15° | 470500540011 | 14   | 42.5 | - | 2.4 | CCMT 09T3.. | -           | TS 4       | TORXT15  | 0.03 |
| SFSM 40-30° | 470500540013 |      |      |   | 4.6 |             |             |            |          |      |
| SFSM 40-45° | 470500540015 |      |      |   | 6.6 |             |             |            |          |      |

116

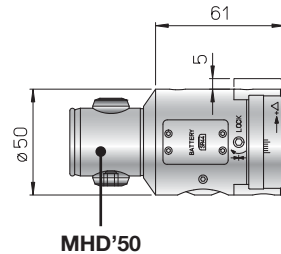
120

119

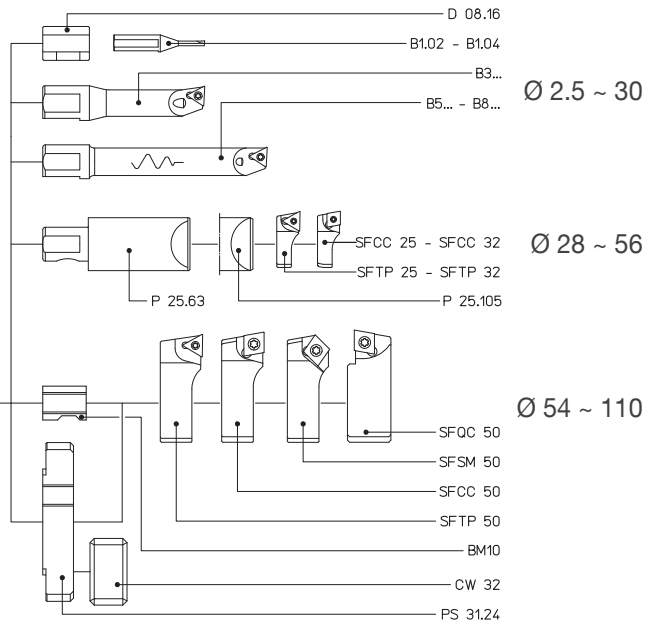




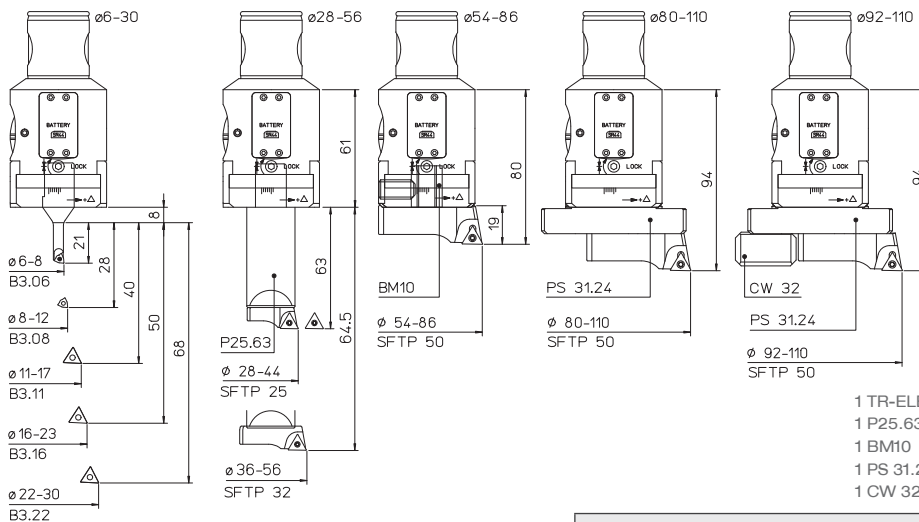
2 µm



MHD'50



| REF.                 | CODE         | Kg. |
|----------------------|--------------|-----|
| TR-ELETTRA 50 MHD'50 | 455200500500 | 1.1 |

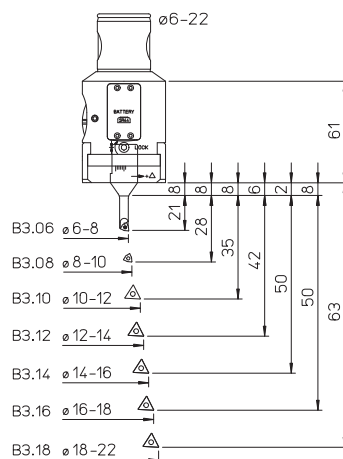


**KIT K01**  
Ø 6 ~ 110



1 TR-ELETTRA 50 MHD'50  
 1 P25.63 1 B3.06 1 B3.22 5 TPGX 090202L DC100  
 1 BM10 1 B3.08 1 SFTP25 1 TPGX 110302L DC100  
 1 PS 31.24 1 B3.11 1 SFTP32 2 WCGT 020102L DC100  
 1 CW 32 1 B3.16 1 SFTP50

| REF.                         | CODE         | Ø       |
|------------------------------|--------------|---------|
| KIT K01 TR-ELETTRA 50 MHD'50 | 655200500500 | 6 ~ 110 |



**KIT K00**  
Ø 6 ~ 22



1 TR-ELETTRA 50 MHD'50  
 1 B3.06 1 B3.12 1 B3.18  
 1 B3.08 1 B3.14 5 TPGX 090202L DC100  
 1 B3.10 1 B3.16 2 WCGT 020102L DC100

| REF.                         | CODE         | Ø      |
|------------------------------|--------------|--------|
| KIT K00 TR-ELETTRA 50 MHD'50 | 655200500501 | 6 ~ 22 |

119



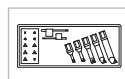
120



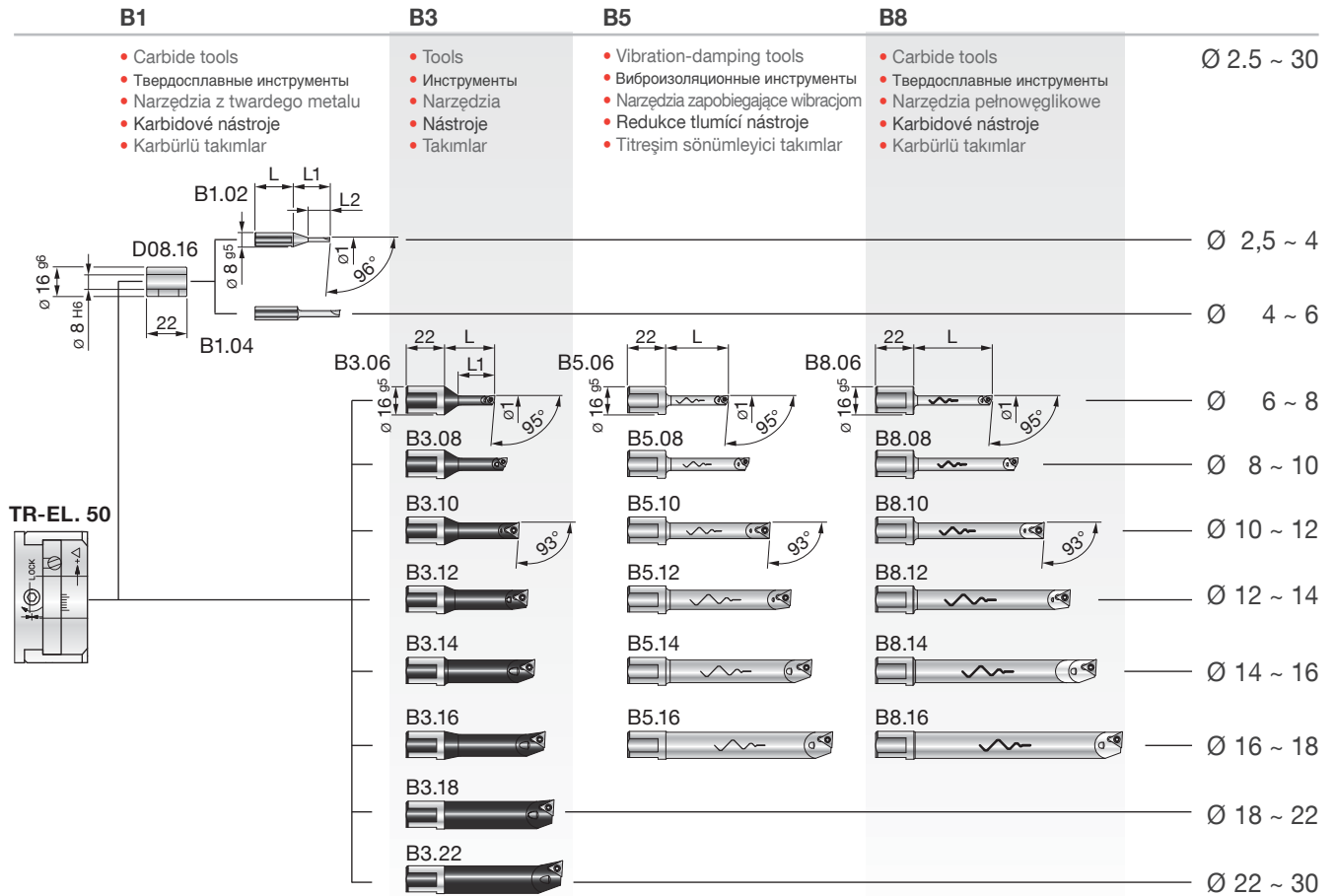
116



241







| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| D08.16 | 200560116082 | 0.02 |

| REF.  | CODE         | Ø1      | L  | L1 | L2   | Kg.  |
|-------|--------------|---------|----|----|------|------|
| B1.02 | 572010502001 | 2.5 ~ 4 | 22 | 21 | 12.5 | 0.02 |
| B1.04 | 572010504001 | 4 ~ 6   | 24 | 24 | -    |      |

| REF.  | CODE         | Ø1      | L  | L1 | ⚙           | ⚙           | ⚙        | ⚙        | Kg.   |
|-------|--------------|---------|----|----|-------------|-------------|----------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29 | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36 | 28 |             |             | TS 211   |          | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43 | 35 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48 | 40 |             |             |          |          | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 | 48 | 42 |             |             |          |          | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52 | 50 |             |             |          |          | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58 | 50 |             |             |          |          | 0.07  |
| B3.18 | 572010518001 | 18 ~ 22 | 63 | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68 | -  |             |             |          |          | 0.1   |

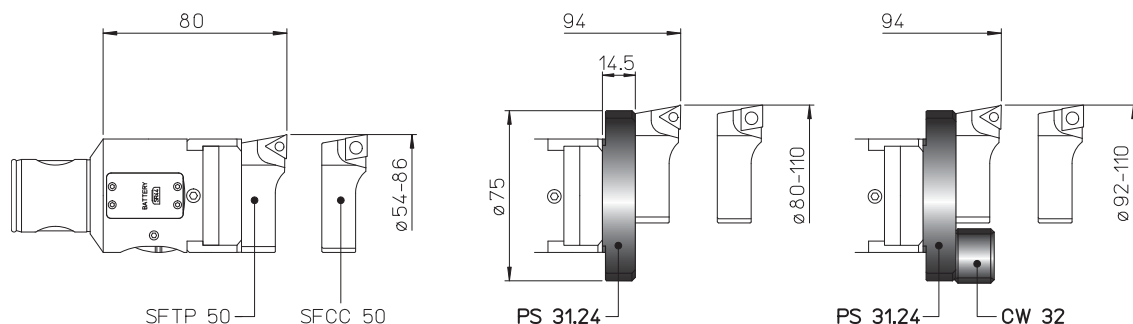
|       |              |         |    |   |             |             |          |          |       |
|-------|--------------|---------|----|---|-------------|-------------|----------|----------|-------|
| B5.06 | 572010506105 | 6 ~ 8   | 36 | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48 |   |             |             | TS 211   |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60 |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72 |   |             |             |          |          | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84 |   |             |             |          |          | 0.3   |
| B5.16 | 572010516105 | 16 ~ 18 | 96 |   |             |             |          |          | 0.3   |

|       |              |         |     |   |             |             |          |          |       |
|-------|--------------|---------|-----|---|-------------|-------------|----------|----------|-------|
| B8.06 | 572010506108 | 6 ~ 8   | 45  | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |   |             |             | TS 211   |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |   |             |             |          |          | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |   |             |             |          |          | 0.2   |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |   |             |             |          |          | 0.3   |

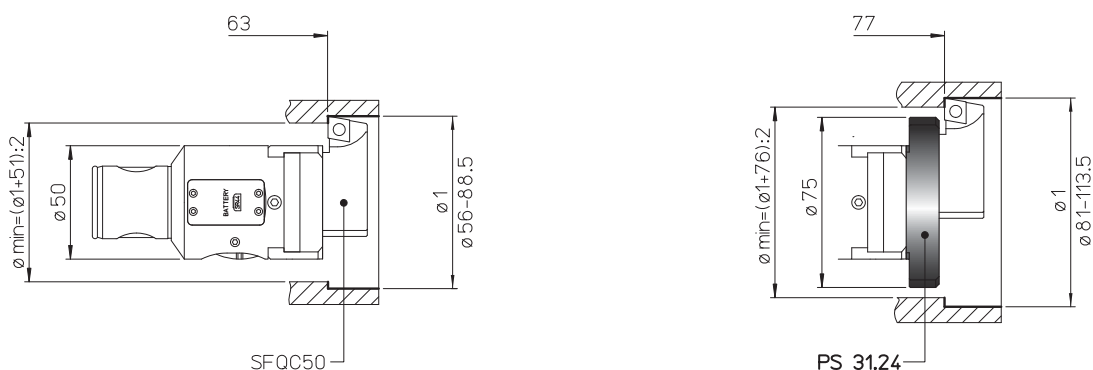
### MHD'50

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

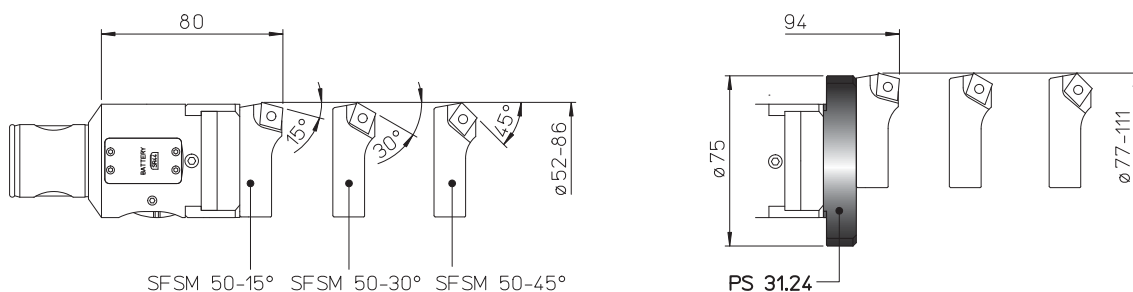
**PS 31**  
**CW 32**  
Ø 54 ~ 110



**PS 31**  
Ø 56 ~ 113.5



**PS 31**  
Ø 52 ~ 111

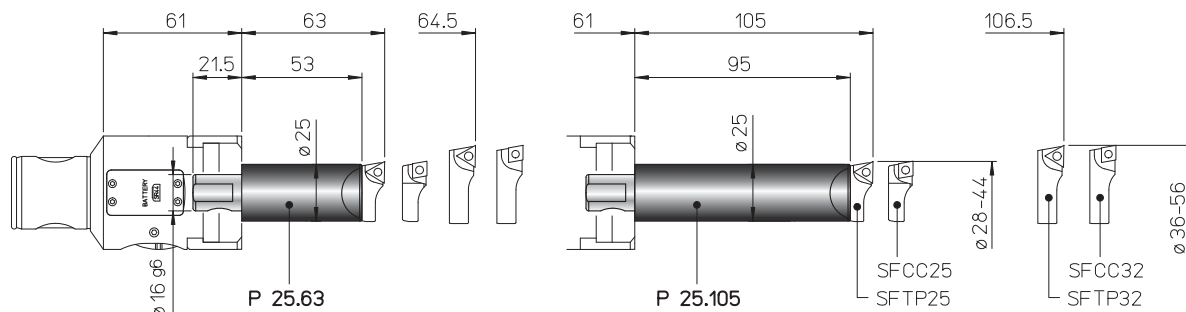


| REF.            | CODE         | Kg.  |
|-----------------|--------------|------|
| PS 31.24 TR..50 | 433024140751 | 0.19 |
| CW 32           | 392011003201 | 0.07 |



- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁÓWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

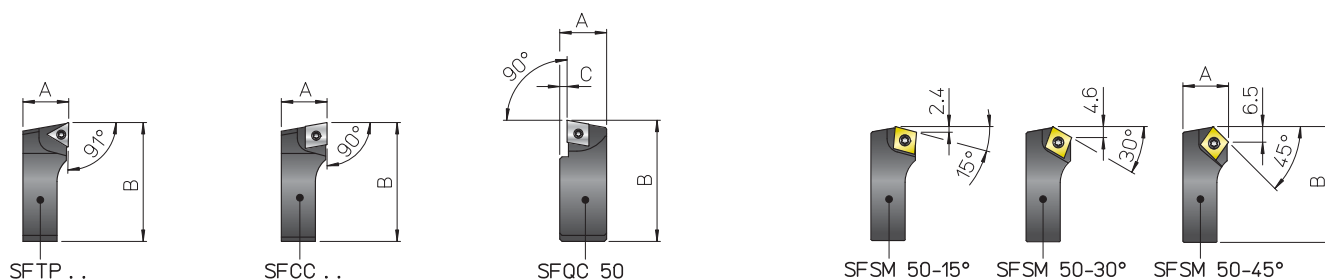
P 25  
Ø 28 ~ 56



| REF.          | CODE         | Kg. |
|---------------|--------------|-----|
| P25.63 TR...  | 435116250631 | 0.5 |
| P25.105 TR... | 435116251051 | 0.8 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁÓWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



| REF.        | CODE         | A    | B    | C | △           | □           | ⌢          | ⌢        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | TPGX 1103.. | -           | CS 300890T |          | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T |          | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SFSM 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

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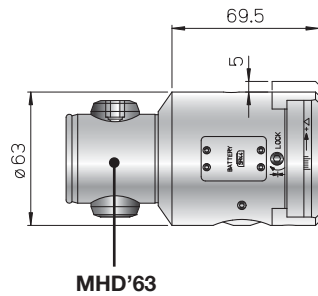
125

119

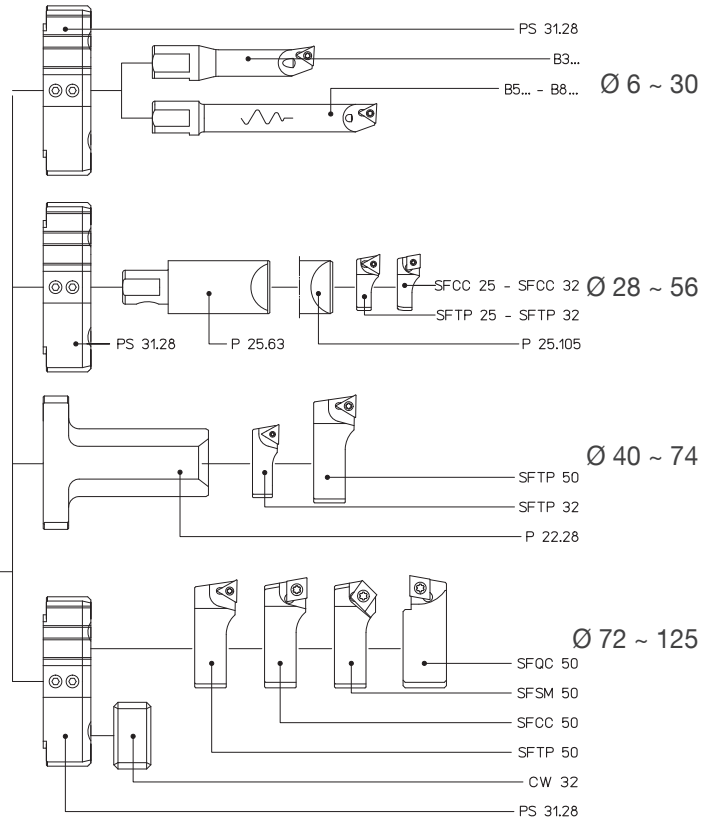




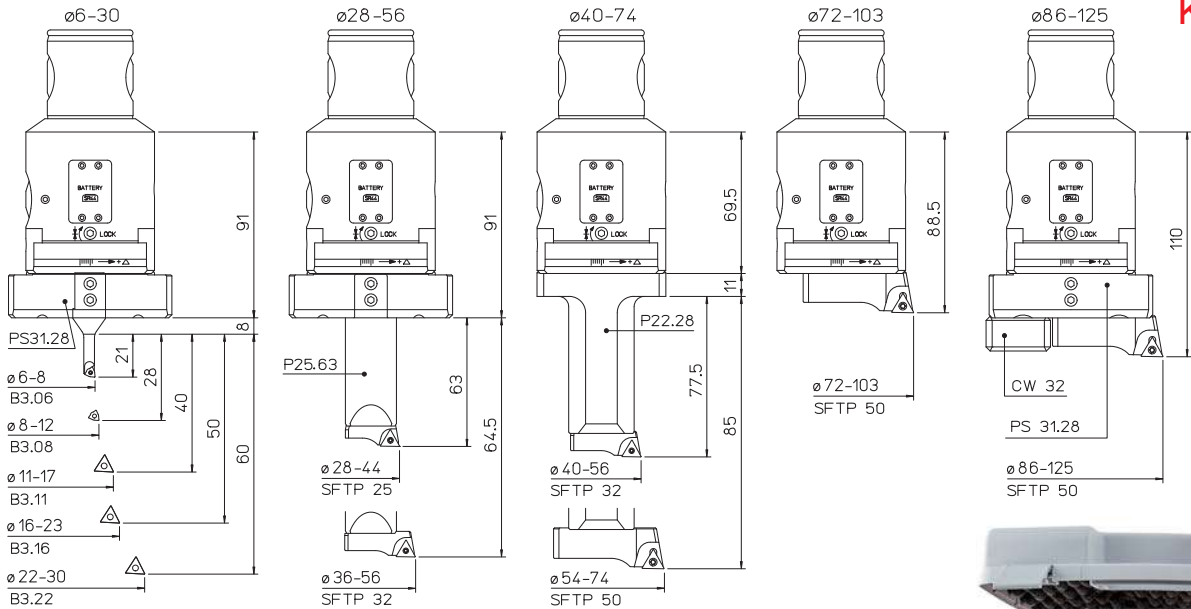
2 µm



MHD'63



| REF.                 | CODE         | Kg. |
|----------------------|--------------|-----|
| TR-ELETTRA 63 MHD'63 | 455200630630 | 2.2 |



**KIT K01**  
Ø 6 ~ 125



- 1 TR-ELETTRA 63 MHD'63  
1 P25.63 1 B3.06 1 B3.22 5 TPGX 090202L DC100  
1 P22.28 1 B3.08 1 SFTP25 1 TPGX 110302L DC100  
1 PS 31.28 1 B3.11 1 SFTP32 2 WCGT 020102L DC100  
1 CW 32 1 B3.16 1 SFTP50

| REF.                         | CODE         | Ø       |
|------------------------------|--------------|---------|
| KIT K01 TR-ELETTRA 63 MHD'63 | 655200500630 | 6 ~ 125 |

119



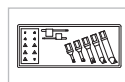
120



116



241





|  | B3                                                                                                                                  | B5                                                                                                                                                                                                                                   | B8                                                                                                                                                                                          |           |
|--|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|  | <ul style="list-style-type: none"> <li>Tools</li> <li>Инструменты</li> <li>Narzędzia</li> <li>Nástroje</li> <li>Takımlar</li> </ul> | <ul style="list-style-type: none"> <li>Vibration-damping tools</li> <li>Виброизоляционные инструменты</li> <li>Narzędzia zapobiegające wibracjom</li> <li>Redukce tlumící nástroje</li> <li>Titreşim sönümleyici takımlar</li> </ul> | <ul style="list-style-type: none"> <li>Carbide tools</li> <li>Твердосплавные инструменты</li> <li>Narzędzia pełnowęglkowe</li> <li>Karbidové nástroje</li> <li>Karbürli takımlar</li> </ul> | Ø 6 ~ 30  |
|  |                                                                                                                                     |                                                                                                                                                                                                                                      |                                                                                                                                                                                             |           |
|  | B3.06                                                                                                                               | B5.06                                                                                                                                                                                                                                | B8.06                                                                                                                                                                                       | Ø 6 ~ 8   |
|  | B3.08                                                                                                                               | B5.08                                                                                                                                                                                                                                | B8.08                                                                                                                                                                                       | Ø 8 ~ 10  |
|  | B3.10                                                                                                                               | B5.10                                                                                                                                                                                                                                | B8.10                                                                                                                                                                                       | Ø 10 ~ 12 |
|  | B3.12                                                                                                                               | B5.12                                                                                                                                                                                                                                | B8.12                                                                                                                                                                                       | Ø 12 ~ 14 |
|  | B3.14                                                                                                                               | B5.14                                                                                                                                                                                                                                | B8.14                                                                                                                                                                                       | Ø 14 ~ 16 |
|  | B3.16                                                                                                                               | B5.16                                                                                                                                                                                                                                | B8.16                                                                                                                                                                                       | Ø 16 ~ 18 |
|  | B3.18                                                                                                                               |                                                                                                                                                                                                                                      |                                                                                                                                                                                             | Ø 18 ~ 22 |
|  | B3.22                                                                                                                               |                                                                                                                                                                                                                                      |                                                                                                                                                                                             | Ø 22 ~ 30 |

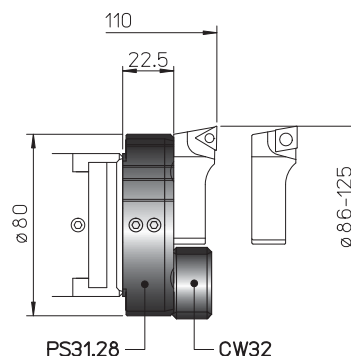
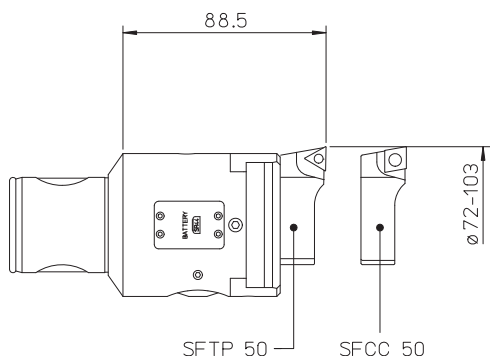
| REF.                   | CODE         | Kg. |
|------------------------|--------------|-----|
| PS 31.28 TR-ELETTRA 63 | 433028220802 | 0.3 |

| REF.  | CODE             | Ø1      | L   | L1 | △           | △           | △        | △        | Kg.   |
|-------|------------------|---------|-----|----|-------------|-------------|----------|----------|-------|
| B3.06 | 57 201 05 06 001 | 6 ~ 8   | 29  | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.035 |
| B3.08 | 57 201 05 08 001 | 8 ~ 10  | 36  | 28 |             |             | TS 211   |          | 0.04  |
| B3.10 | 57 201 05 10 001 | 10 ~ 12 | 43  | 35 |             |             |          |          | 0.05  |
| B3.11 | 57 201 05 11 001 | 11 ~ 13 | 48  | 40 |             |             |          |          | 0.055 |
| B3.12 | 57 201 05 12 001 | 12 ~ 14 |     | 42 |             |             |          |          | 0.06  |
| B3.14 | 57 201 05 14 001 | 14 ~ 16 | 52  | 50 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.07  |
| B3.16 | 57 201 05 16 001 | 16 ~ 18 | 58  |    |             |             |          |          |       |
| B3.18 | 57 201 05 18 001 | 18 ~ 22 | 63  | -  |             |             |          |          | 0.1   |
| B3.22 | 57 201 05 22 001 | 22 ~ 30 | 68  |    |             |             |          |          |       |
| B5.06 | 57 201 05 06 105 | 6 ~ 8   | 36  |    | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 57 201 05 08 105 | 8 ~ 10  | 48  |    |             |             | TS 211   |          | 0.09  |
| B5.10 | 57 201 05 10 105 | 10 ~ 12 | 60  |    |             |             |          |          | 0.1   |
| B5.12 | 57 201 05 12 105 | 12 ~ 14 | 72  |    | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B5.14 | 57 201 05 14 105 | 14 ~ 16 | 84  |    |             |             |          |          | 0.3   |
| B5.16 | 57 201 05 16 105 | 16 ~ 18 | 96  |    |             |             |          |          |       |
| B8.06 | 57 201 05 06 108 | 6 ~ 8   | 45  |    | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 57 201 05 08 108 | 8 ~ 10  | 60  |    |             |             | TS 211   |          | 0.08  |
| B8.10 | 57 201 05 10 108 | 10 ~ 12 | 75  |    |             |             |          |          | 0.1   |
| B8.12 | 57 201 05 12 108 | 12 ~ 14 | 90  |    | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B8.14 | 57 201 05 14 108 | 14 ~ 16 | 105 |    |             |             |          |          |       |
| B8.16 | 57 201 05 16 108 | 16 ~ 18 | 120 |    |             |             |          |          | 0.3   |

#### MHD'63

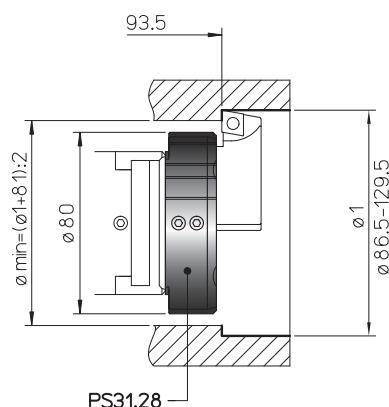
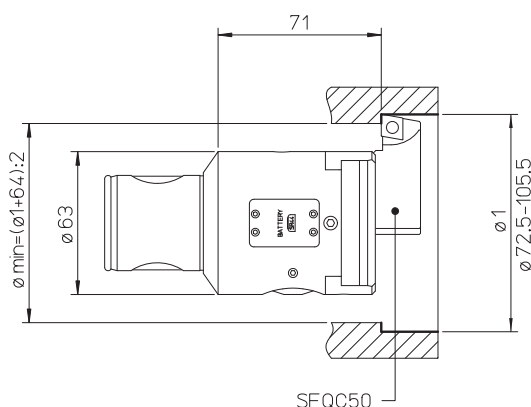
- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

**PS 31**  
**CW 32**  
Ø 72~125



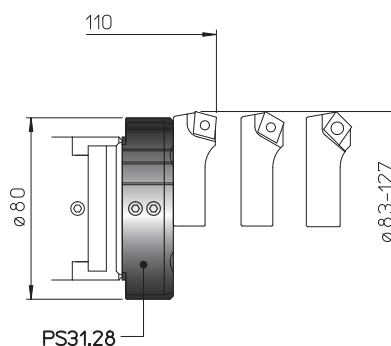
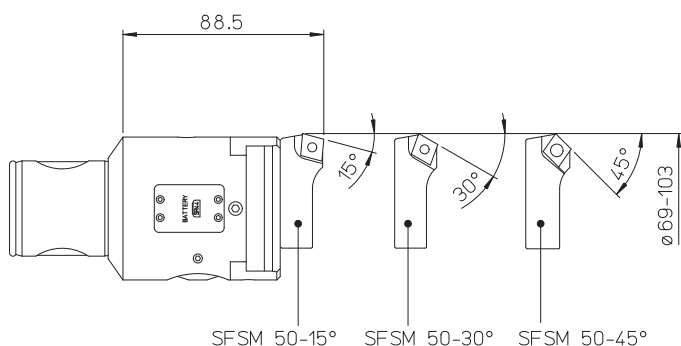
**PS 31**

Ø 72.5 ~ 129.5



**PS 31**

Ø 69 ~ 127



| REF.                   | CODE         | Kg.  |
|------------------------|--------------|------|
| PS 31.28 TR-ELETTRA 63 | 433028220802 | 0.3  |
| CW 32                  | 392011003201 | 0.07 |

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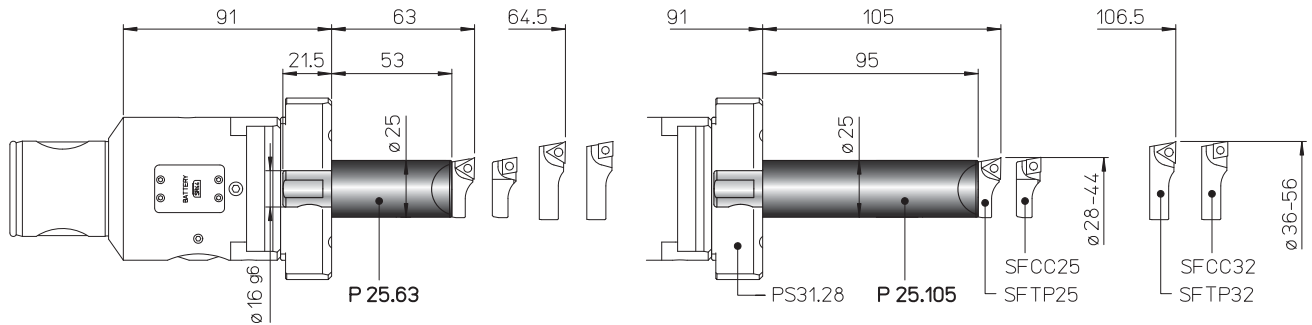


125



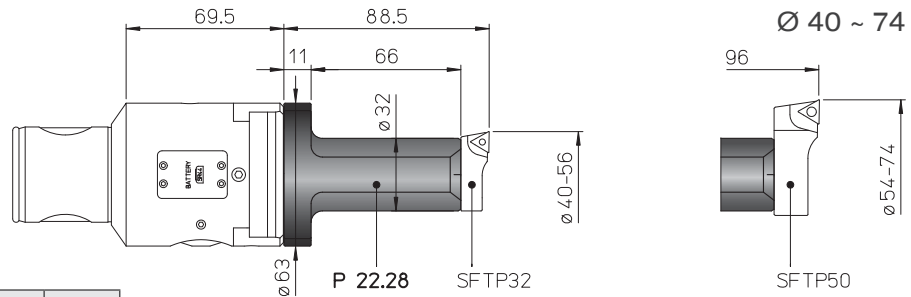
- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

P 25  
Ø 28 ~ 56



| REF.          | CODE         | Kg. |
|---------------|--------------|-----|
| P25.63 TR...  | 435116250631 | 0.5 |
| P25.105 TR... | 435116251051 | 0.8 |

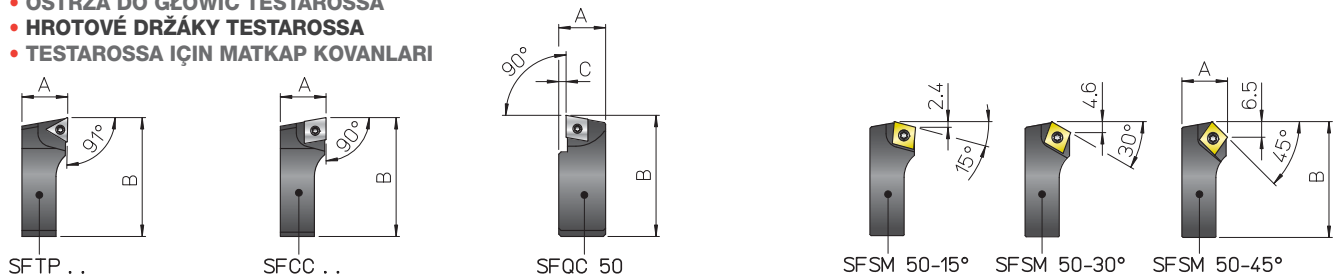
P 22  
Ø 40 ~ 74



| REF.    | CODE         | Kg.  |
|---------|--------------|------|
| P 22.28 | 433028220631 | 0.45 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



| REF.        | CODE         | A    | B    | C | △           | □           | ⌘          | ⌘        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | -           | -           | CS 300890T | -        | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | -          | -        | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | -           | -          | -        | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SF5M 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SF5M 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SF5M 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

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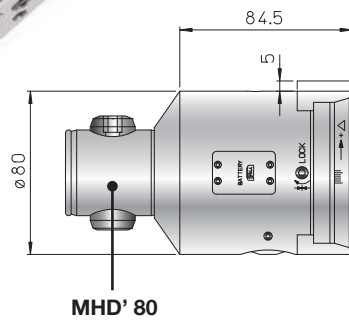
125

119

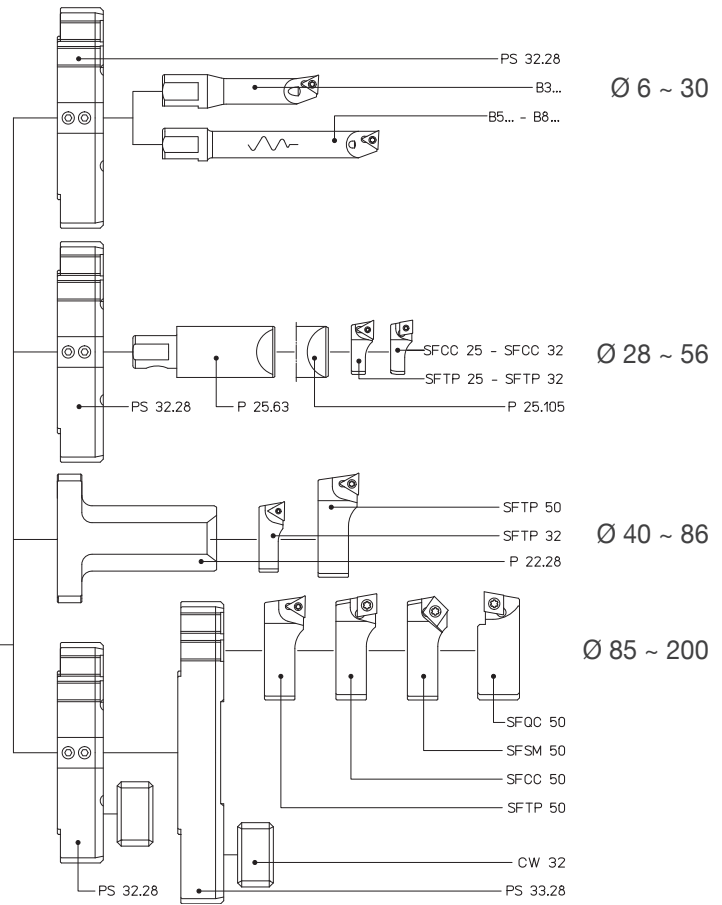




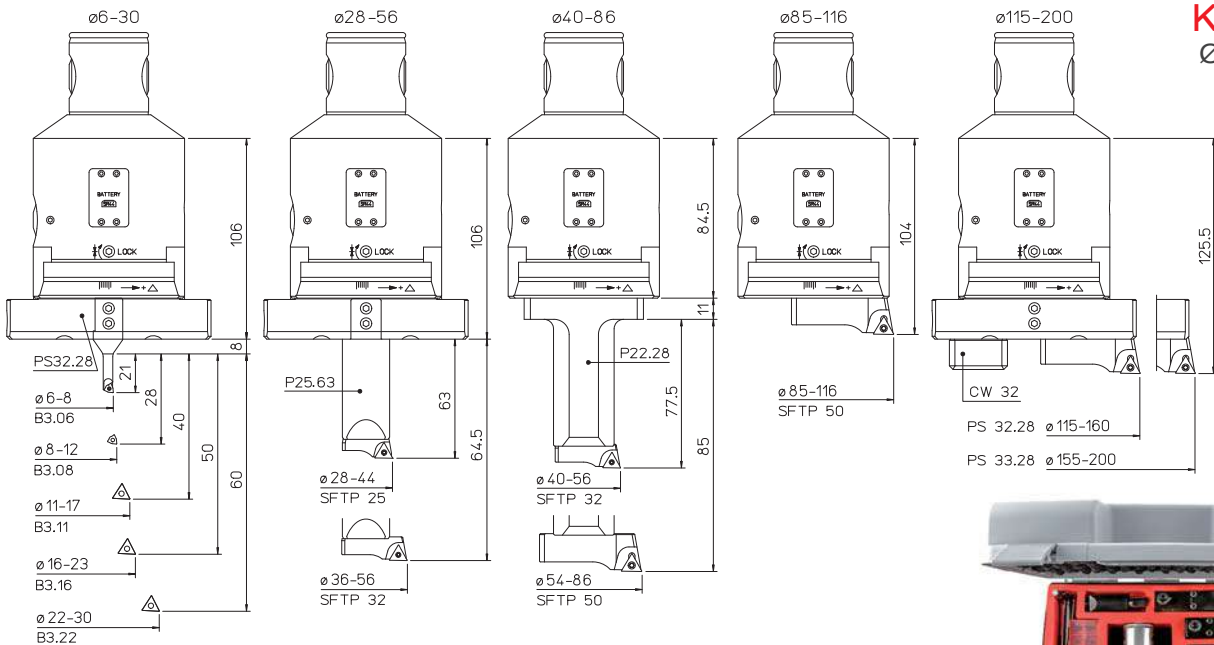
2 µm



MHD'80



| REF.                 | CODE         | Kg. |
|----------------------|--------------|-----|
| TR-ELETTRA 80 MHD'80 | 455200800800 | 3.9 |



**KIT K01**  
Ø 6 ~ 200



- 1 TR-ELETTRA 80 MHD'80  
1 P25.63 1 CW 32 1 B3.16 1 SFTP50  
1 P22.28 1 B3.06 1 B3.22 5 TPGX 090202L DC100  
1 PS 32.28 1 B3.08 1 SFTP25 1 TPGX 110302L DC100  
1 PS 33.28 1 B3.11 1 SFTP32 2 WCGT 020102L DC100

| REF.                     | CODE         | Ø       |
|--------------------------|--------------|---------|
| K01 TR-ELETTRA 80 MHD'80 | 655200500800 | 6 ~ 200 |

119



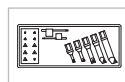
120

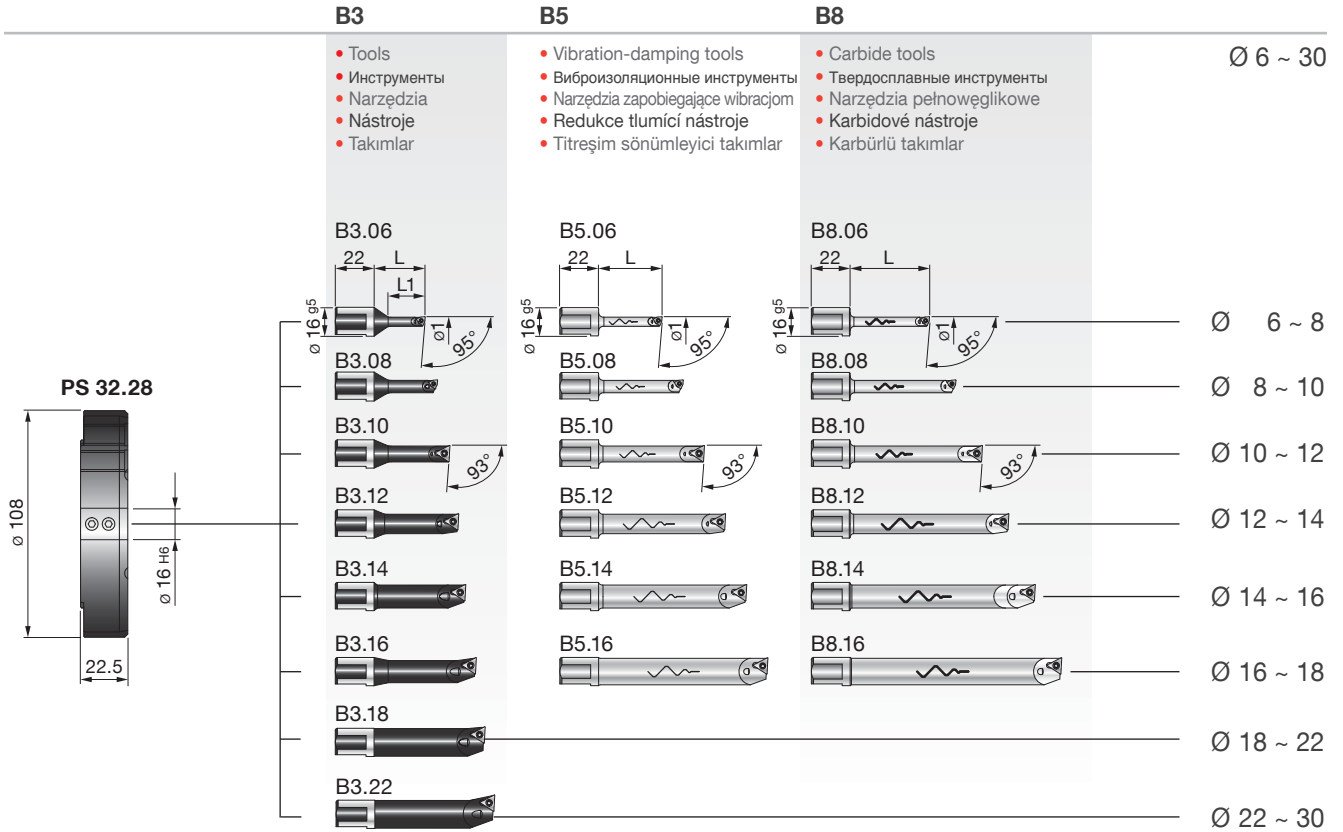


116



241





| REF.                   | CODE         | Kg. |
|------------------------|--------------|-----|
| PS 32.28 TR-ELETTRA 80 | 433028221082 | 0.5 |

| REF.  | CODE         | Ø1      | L   | L1 | WCGT 0201.. | TPGX 0902.. | CS 250 T | TORX T06 | TORX T08 | Kg.   |
|-------|--------------|---------|-----|----|-------------|-------------|----------|----------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29  | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 |          | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36  | 28 | WCGT 0201.. | -           | TS 211   | TORX T06 |          | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43  | 35 | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48  | 40 | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 | 48  | 42 | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52  | 50 | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.1   |
| B3.18 | 572010518001 | 18 ~ 22 | 63  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.1   |
| B5.06 | 572010506105 | 6 ~ 8   | 36  | -  | WCGT 0201.. | -           | TS 21    | TORX T06 |          | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48  | -  | WCGT 0201.. | -           | TS 211   | TORX T06 |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.3   |
| B5.16 | 572010516105 | 16 ~ 18 | 96  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.3   |
| B8.06 | 572010506108 | 6 ~ 8   | 45  | -  | WCGT 0201.. | -           | TS 21    | TORX T06 |          | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  | -  | WCGT 0201.. | -           | TS 211   | TORX T06 |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.3   |
| B8.16 | 572010516108 | 16 ~ 18 | 120 | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 |          | 0.3   |

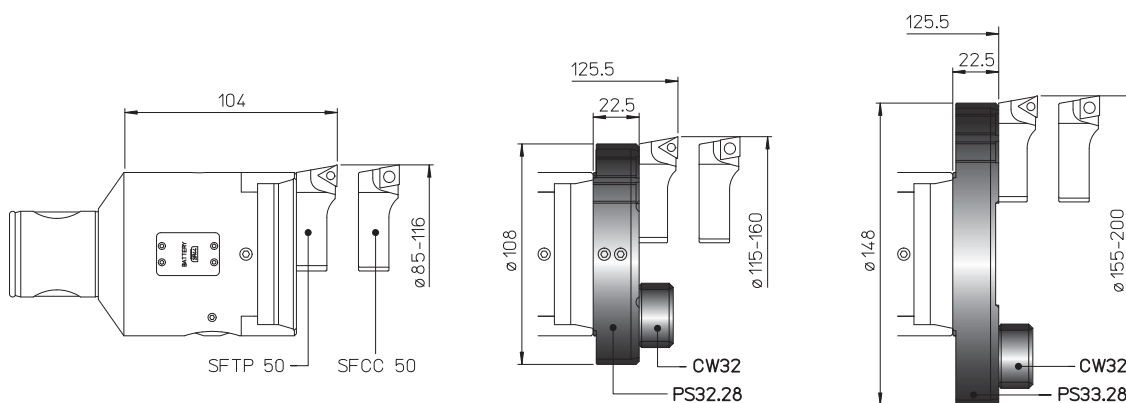


**MHD'80**

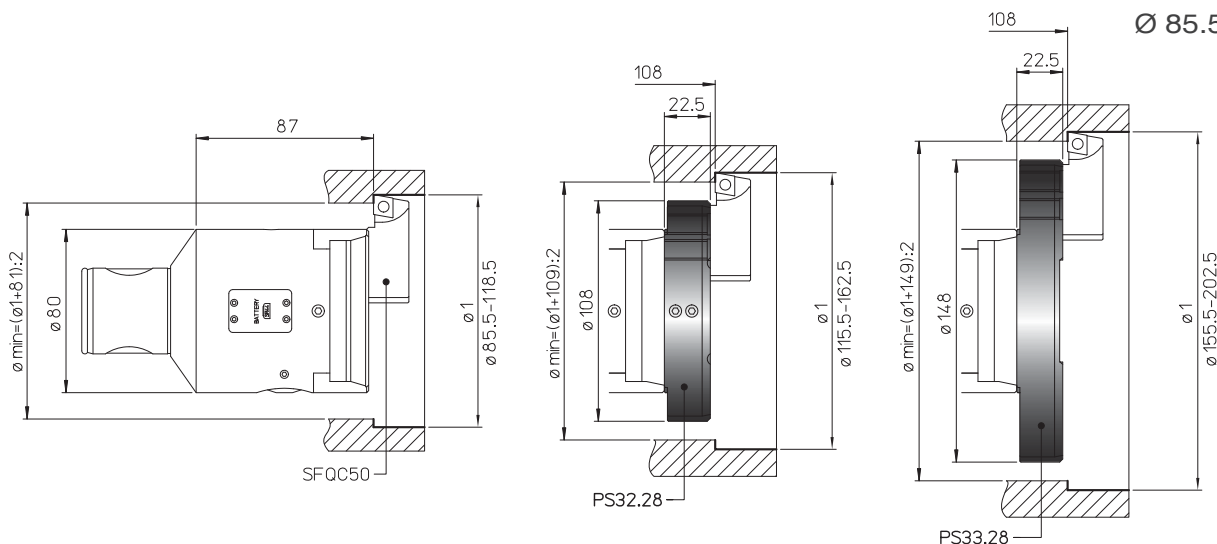
- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

**PS**
**CW 32**

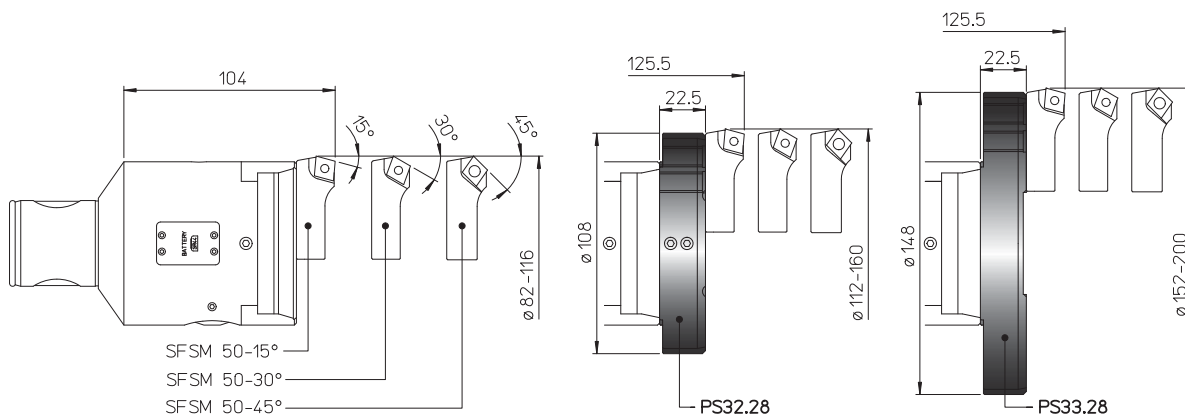
Ø 85~ 200


**PS**

Ø 85.5 ~ 202.5


**PS**

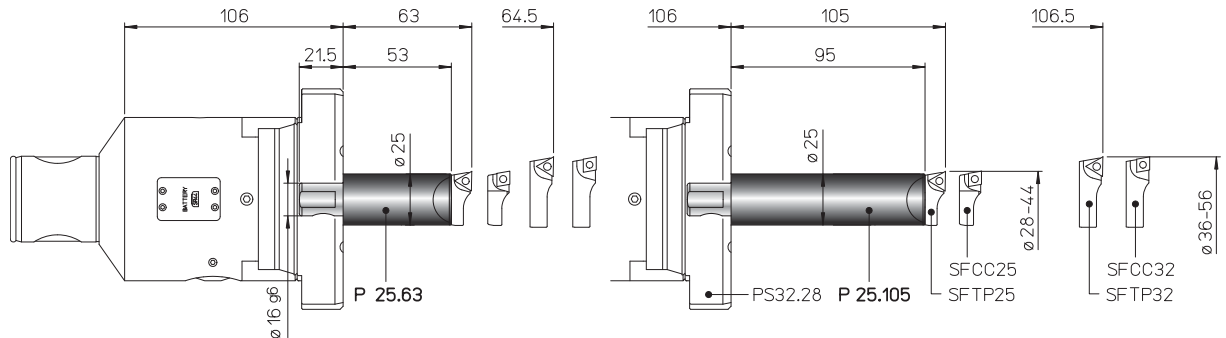
Ø 82 ~ 200



| REF.                   | CODE         | Kg.  |
|------------------------|--------------|------|
| PS 32.28 TR-ELETTRA 80 | 433028221082 | 0.5  |
| PS 33.28 TR-ELETTRA 80 | 433028221482 | 0.6  |
| CW 32                  | 392011003201 | 0.07 |

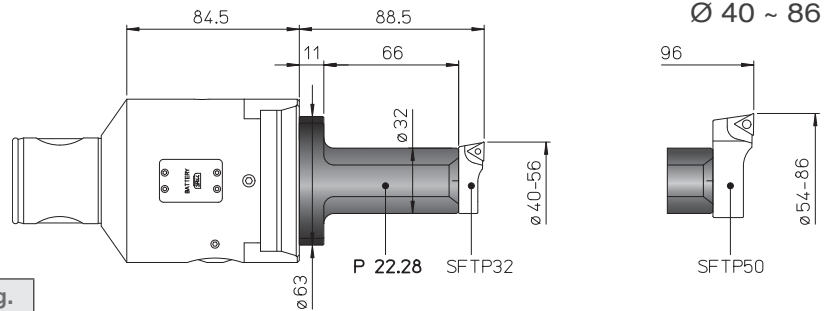
- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

**P 25**  
Ø 28 ~ 56



| REF.          | CODE         | Kg. |
|---------------|--------------|-----|
| P25.63 TR...  | 435116250631 | 0.5 |
| P25.105 TR... | 435116251051 | 0.8 |

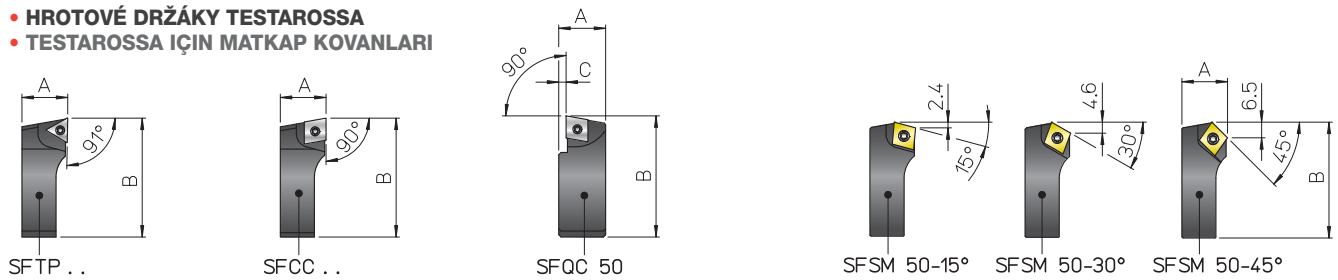
**P 22**  
Ø 40 ~ 86



| REF.    | CODE         | Kg.  |
|---------|--------------|------|
| P 22.28 | 433028220631 | 0.45 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

**SF**



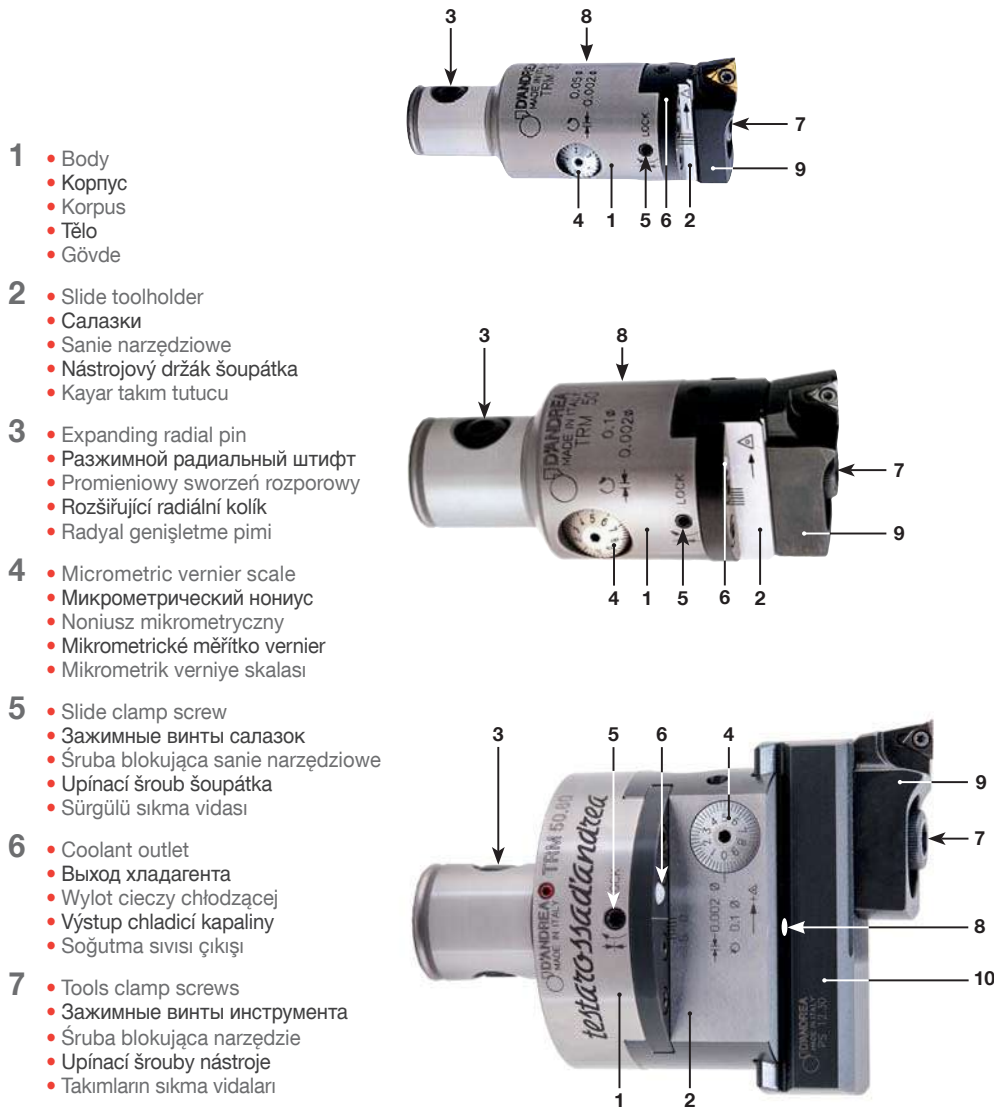
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|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | -           | -           | -          | -        | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T | -        | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | -           | -          | -        | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SFSM 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

116

125

119





- 1 • Body  
• Корпус  
• Korpus  
• Tělo  
• Gövde

- 2 • Slide toolholder  
• Салазки  
• Sanie narzędziowe  
• Nástrojový držák šoupátka  
• Kayar takim tutucu

- 3 • Expanding radial pin  
• Разжимной радиальный штифт  
• Promieniowy sworzeń rozporowy  
• Rozšiřující radiální kolík  
• Radyal genişletme pimi

- 4 • Micrometric vernier scale  
• Микрометрический нониус  
• Noniusz mikrometryczny  
• Mikrometrické měřítko vernier  
• Mikrometrik verniye skalası

- 5 • Slide clamp screw  
• Зажимные винты салазок  
• Śruba blokująca sanie narzędziowe  
• Upínací šroub šoupátka  
• Sürgülü sıkma vidası

- 6 • Coolant outlet  
• Выход хладагента  
• Wylot cieczy chłodzącej  
• Výstup chladicí kapaliny  
• Soğutma sıvısı çıkışı

- 7 • Tools clamp screws  
• Зажимные винты инструмента  
• Śruba blokująca narzędzie  
• Upínací šrouby nástroje  
• Takımların sıkma vidaları

2 μm



- 8 • Oiler  
• Масленка  
• Smarownica  
• Olejniczka  
• Yağlayıcı

- 9 • Bit holder  
• Кассета головки  
• Wytaczak  
• Hrotový držák  
• Matkap kovani

- 10 • Tool holder  
• Держатель  
• Oprawka narzędziowa  
• Nástrojový držák  
• Takım tutucu

**GB FEATURES.** The TRM heads in the D'Andrea Testarossa line have protective rustproof coating. High precision work to IT6 tolerance, with excellent surface finish, is achieved using TRM boring heads. These are very sensitive and radial correction of 1 micron can be effected directly on the machine and easily read on the vernier scale.

**RU ХАРАКТЕРИСТИКИ.** Головки TRM линии Testarossa D'Andrea оснащены защитным антикоррозийным покрытием. Головки TRM обеспечивают высокую точность с допусками по классу IT6 с исключительной чистотой поверхности. Они очень чувствительны и радиальная коррекция в 1 микрон может быть осуществлена прямо на станке и легко считана по шкале нониуса.

**PL CECHY.** Głowice serii TRM, pochodzące z nowej linii Testarossa firmy D'Andrea, posiadają dodatkową ochronną powłokę antykorozyjną. Głowice TRM umożliwiają obróbkę o bardzo wysokiej dokładności w tolerancji IT6 i gwarantują uzyskanie doskonałej jakości powierzchni. Dokładność ustawcza głowic wynosi 1 mikrometr na promieniu. Wartość ta jest łatwa do odczytania bezpośrednio na noniuszu głowicy co umożliwia dokonywanie regulacji bezpośrednio na obrabiarce.

**CZ VLASTNOSTI.** Hlavy TRM v řadě Testarossa společnosti D'Andrea mají rezuzvzdornou povrchovou úpravu. Pomocí vyvrtávacích hlav TRM se docílí vysoce přesné obrábění dle tolerance IT6 s vynikající finální úpravou povrchu. Jsou velmi citlivé a radiální korekci 1 mikronu lze provést přímo na stroji a snadno odečíst na měřítku vernier.

**TR ÖZELLİKLER.** D'Andrea Testarossa ürün gamındaki TRM kafaları, koruyucu paslanmaz kaplamaya sahiptir. TRM matkap başları kullanılarak IT6 toleransa kadar yüksek hassasiyetli çalışma ve mükemmel yüzey bitirme gerçekleştirilir. Bunlar son derece hassastırlar ve 1 mikron radyal düzeltme doğrudan makine üzerinde gerçekleştirilip verniye skalasında kolayca okunabilir. sul raggio, facilmente leggibile sul nonio ed eseguibile anche in macchina.

TRM 16

Ø 18 ~ 23



TRM 20

Ø 22 ~ 29



TRM 25

Ø 28 ~ 38



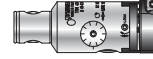
TRM 32

Ø 35.5 ~ 51.5



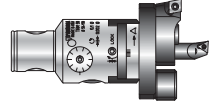
TRM 40

Ø 48 ~ 63



TRM 50

Ø 2.5 ~ 108



TRM 50/63

Ø 6 ~ 125



TRM 63/63

Ø 6 ~ 125



TRM 50/80

Ø 6 ~ 160



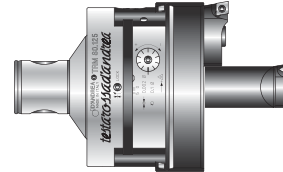
TRM 80/80

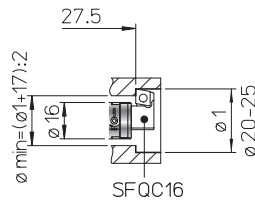
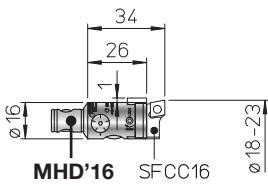
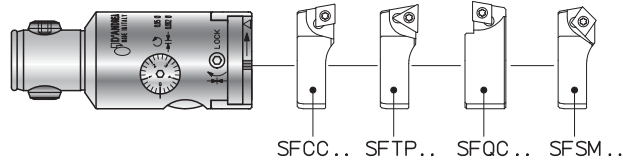
Ø 6 ~ 160



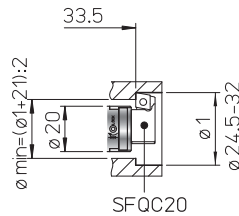
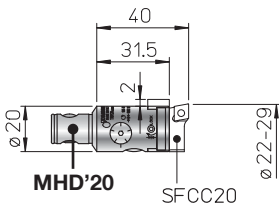
TRM 80/125

Ø 36 ~ 500

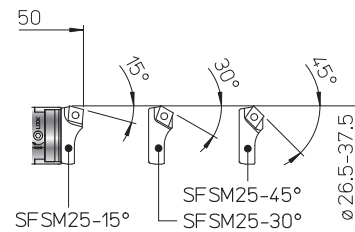
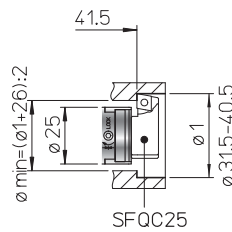
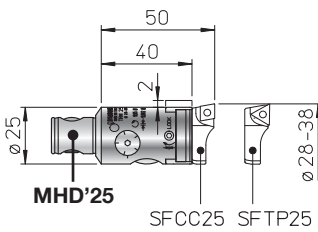




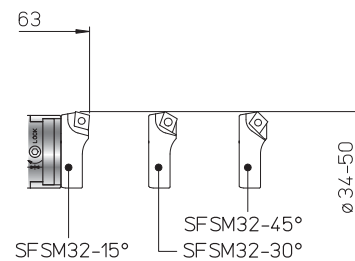
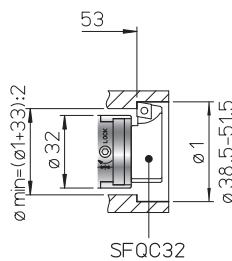
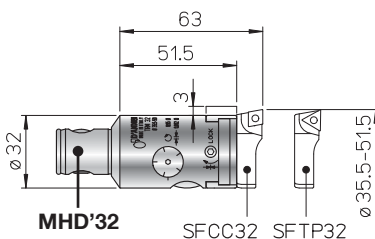
**TRM 16**  
Ø 18 ~ 23



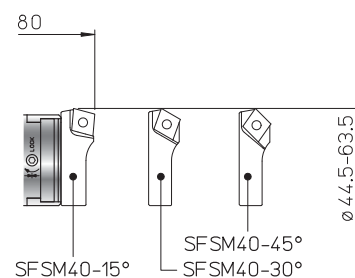
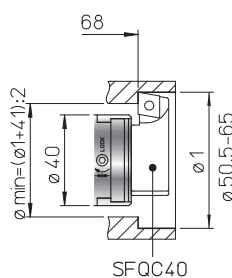
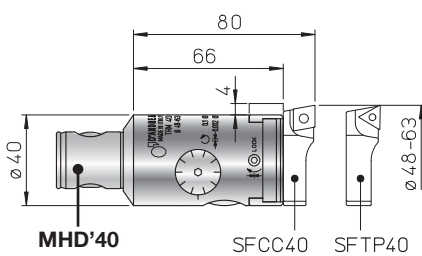
**TRM 20**  
Ø 22 ~ 29



**TRM 25**  
Ø 28 ~ 38



**TRM 32**  
Ø 35.5 ~ 51.5



**TRM 40**  
Ø 48 ~ 63



TRM

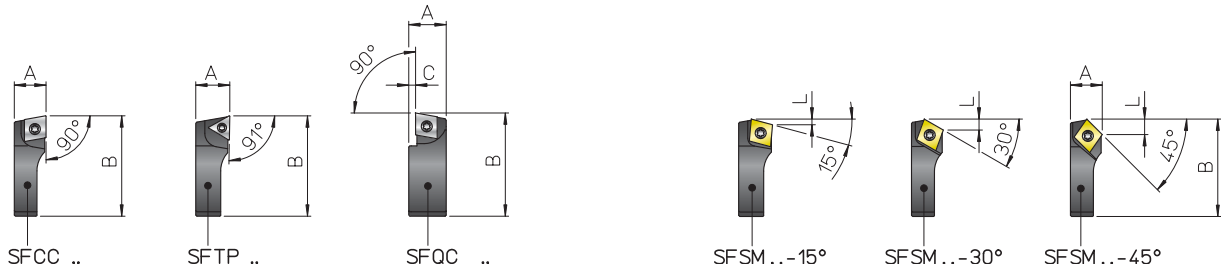


2 µm

| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| TRM 16 | 455001600341 | 0.05 |
| TRM 20 | 455002000401 | 0.1  |
| TRM 25 | 455002500500 | 0.2  |
| TRM 32 | 455003200630 | 0.35 |
| TRM 40 | 455004000800 | 0.7  |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



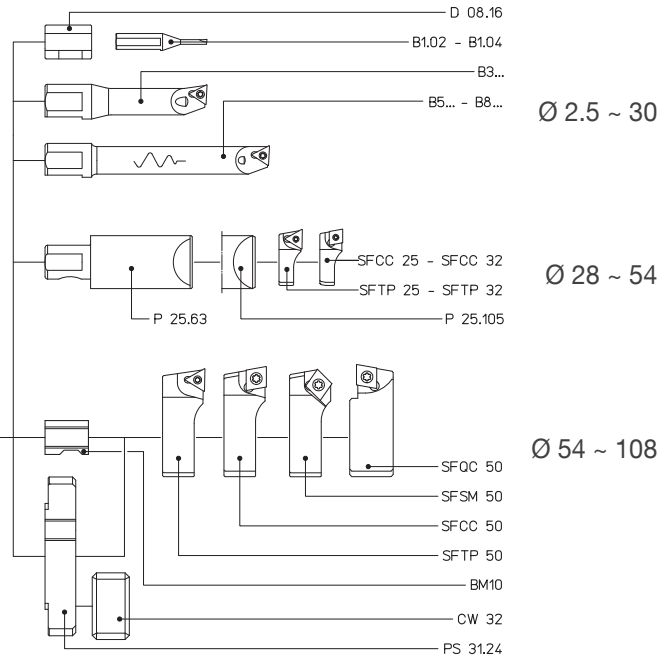
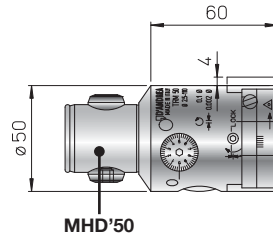
| REF.        | CODE         | A    | B    | C   | L   |  |  |  |  | Kg.   |
|-------------|--------------|------|------|-----|-----|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------|
| SFCC 16     | 470500516002 | 8    | 17   | -   | -   | CCGT 0602..                                                                         | -                                                                                     | TS 25                                                                                 | TORX T08                                                                              | 0.003 |
| SFCC 20     | 470500520002 | 8.5  | 21   |     |     |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.005 |
| SFCC 25     | 470500525002 | 10   | 26.5 |     |     |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.01  |
| SFCC 32     | 470500532002 | 11.5 | 34.5 |     |     |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.02  |
| SFCC 40     | 470500540002 | 14   | 44   | -   | -   | CCGT 09T3..                                                                         | -                                                                                     | TS 4                                                                                  | TORX T15                                                                              | 0.04  |
|             |              |      |      |     |     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |       |
| SFTP 25     | 470500525001 | 10   | 26.5 | -   | -   | -                                                                                   | TPGX 0902..                                                                           | CS 250T                                                                               | TORX T08                                                                              | 0.01  |
| SFTP 32     | 470500532001 | 11.5 | 34.5 |     |     |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.02  |
| SFTP 40     | 470500540001 | 14   | 44   | -   | -   | -                                                                                   | TPGX 1103..                                                                           | CS 300890T                                                                            |                                                                                       | 0.04  |
|             |              |      |      |     |     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |       |
| SFQC 16     | 470500516062 | 10   | 18   | 2   | -   | CCMT 0602..                                                                         | -                                                                                     | TS 25                                                                                 | TORX T08                                                                              | 0.005 |
| SFQC 20     | 470500520062 | 10.5 | 22.5 |     |     |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.008 |
| SFQC 25     | 470500525062 | 12   | 28.5 | 2.5 |     |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.01  |
| SFQC 32     | 470500532062 | 13.5 | 35.5 |     |     |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.03  |
| SFQC 40     | 470500540062 | 16.5 | 46   | 3   | -   | CCMT 09T3..                                                                         | -                                                                                     | TS 4                                                                                  | TORXT15                                                                               | 0.06  |
|             |              |      |      |     |     |                                                                                     |                                                                                       |                                                                                       |                                                                                       |       |
| SFSM 25-15° | 470500525011 | 10   | 25.5 | -   | 1.6 | CCMT 0602..                                                                         | -                                                                                     | TS 25                                                                                 | TORX T08                                                                              | 0.01  |
| SFSM 25-30° | 470500525013 |      |      |     | 3   |                                                                                     |                                                                                       |                                                                                       |                                                                                       |       |
| SFSM 25-45° | 470500525015 |      |      |     | 4.3 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |       |
| SFSM 32-15° | 470500532011 | 11.5 | 33.5 | -   | 1.6 |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.02  |
| SFSM 32-30° | 470500532013 |      |      |     | 3   |                                                                                     |                                                                                       |                                                                                       |                                                                                       |       |
| SFSM 32-45° | 470500532015 |      |      |     | 4.3 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |       |
| SFSM 40-15° | 470500540011 | 14   | 42.5 | -   | 2.4 | CCMT 09T3..                                                                         | -                                                                                     | TS 4                                                                                  | TORXT15                                                                               | 0.03  |
| SFSM 40-30° | 470500540013 |      |      |     | 4.6 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |       |
| SFSM 40-45° | 470500540015 |      |      |     | 6.6 |                                                                                     |                                                                                       |                                                                                       |                                                                                       |       |

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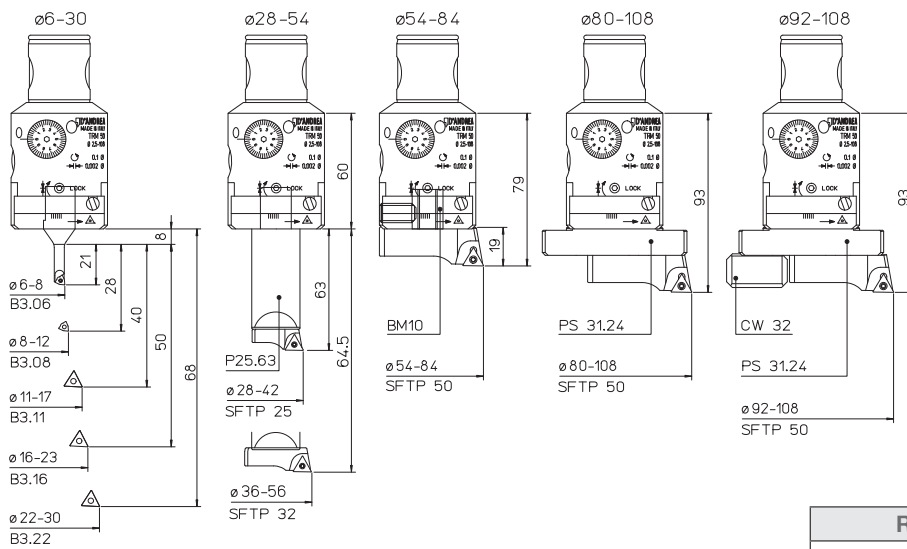
120

119



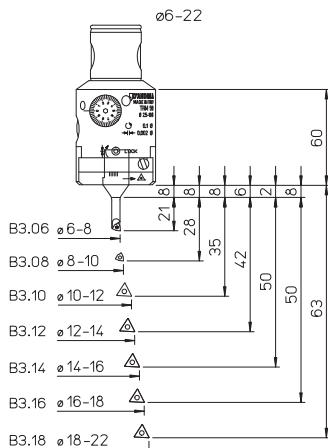

**2 µm**


| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| TRM 50 | 455005000500 | 1   |


**KIT K01**  
Ø 6 ~ 108


1 TRM 50 1 CW 32 1 B3.16 1 SFTP50  
1 P25.63 1 B3.06 1 B3.22 5 TPGX 090202L DC100  
1 BM10 1 B3.08 1 SFTP25 1 TPGX 110302L DC100  
1 PS 31.24 1 B3.11 1 SFTP32 2 WCGT 020102L DC100

| REF.           | CODE         | Ø       |
|----------------|--------------|---------|
| KIT K01 TRM 50 | 655005010501 | 6 ~ 108 |


**KIT K00**  
Ø 6 ~ 22


1 TRM50 1 B3.10 1 B3.16 5 TPGX 090202L DC100  
1 B3.06 1 B3.12 1 B3.18 2 WCGT 020102L DC100  
1 B3.08 1 B3.14

| REF.           | CODE         | Ø      |
|----------------|--------------|--------|
| KIT K00 TRM 50 | 655005010500 | 6 ~ 22 |

119



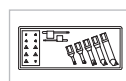
120



116



241



**B1**

- Carbide tools
- Твердосплавные инструменты
- Narzędzia z twardego metalu
- Karbidové nástroje
- Karbürli takımlar

**B3**

- Tools
- Инструменты
- Narzędzia
- Nástroje
- Takımlar

**B5**

- Vibration-damping tools
- Виброизоляционные инструменты
- Narzędzia zapobiegające wibracjom
- Redukce tlumící nástroje
- Titreşim sönümleyici takımlar

**B8**

- Carbide tools
- Твердосплавные инструменты
- Narzędzia pełnowęglkowe
- Karbidové nástroje
- Karbürli takımlar

Ø 2.5 ~ 30

Ø 2.5 ~ 4

Ø 4 ~ 6

Ø 6 ~ 8

Ø 8 ~ 10

Ø 10 ~ 12

Ø 12 ~ 14

Ø 14 ~ 16

Ø 16 ~ 18

Ø 18 ~ 22

Ø 22 ~ 30

TRM 50

| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| D08.16 | 200560116082 | 0.02 |

| REF.  | CODE         | Ø1      | L  | L1 | L2   | Kg.  |
|-------|--------------|---------|----|----|------|------|
| B1.02 | 572010502001 | 2.5 ~ 4 | 22 | 21 | 12.5 | 0.02 |
| B1.04 | 572010504001 | 4 ~ 6   | 24 | 24 | -    |      |

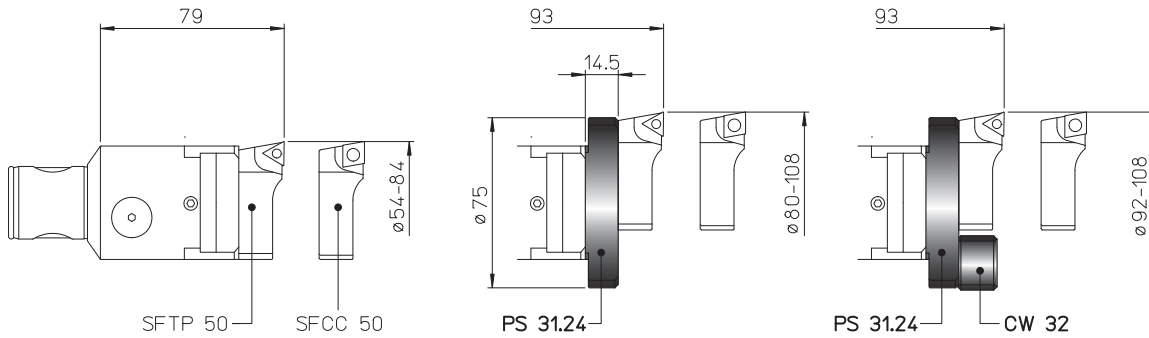
| REF.  | CODE         | Ø1      | L  | L1 | W           | H           | T        | U        | Kg.   |
|-------|--------------|---------|----|----|-------------|-------------|----------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29 | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36 | 28 |             |             | TS 211   |          | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43 | 35 |             |             |          |          | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 |    | 40 |             |             |          |          | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 |    | 42 |             |             |          |          | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52 | 50 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58 |    |             |             |          |          |       |
| B3.18 | 572010518001 | 18 ~ 22 | 63 |    |             |             |          |          | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68 | -  |             |             |          |          |       |

|       |              |         |    |   |             |             |          |          |       |
|-------|--------------|---------|----|---|-------------|-------------|----------|----------|-------|
| B5.06 | 572010506105 | 6 ~ 8   | 36 |   | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48 |   |             |             | TS 211   |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60 | - |             | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72 |   |             |             |          |          |       |
| B5.14 | 572010514105 | 14 ~ 16 | 84 |   |             |             |          |          | 0.2   |
| B5.16 | 572010516105 | 16 ~ 18 | 96 |   |             |             |          |          | 0.3   |

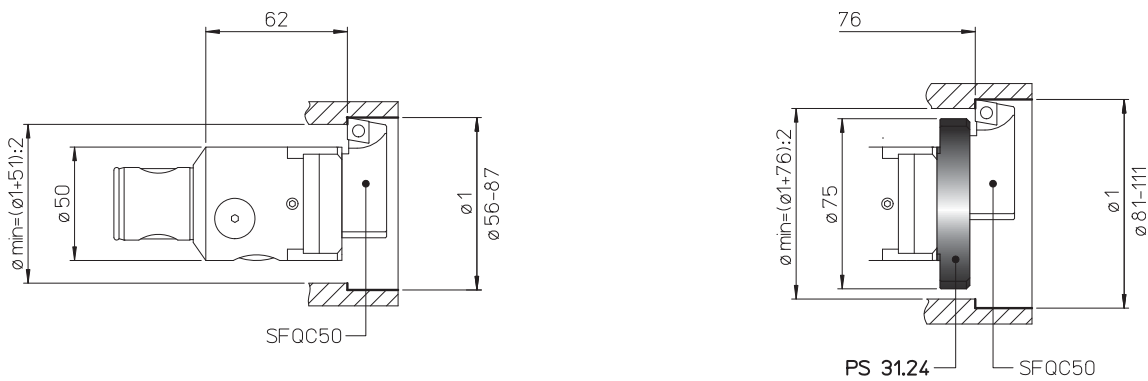
|       |              |         |     |   |             |             |          |          |       |
|-------|--------------|---------|-----|---|-------------|-------------|----------|----------|-------|
| B8.06 | 572010506108 | 6 ~ 8   | 45  |   | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |   |             |             | TS 211   |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  | - |             | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |   |             |             |          |          |       |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |   |             |             |          |          | 0.2   |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |   |             |             |          |          | 0.3   |

- **TOOLHOLDERS FOR TESTAROSSA**
- **ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA**
- **OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA**
- **NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA**
- **TESTAROSSA İÇİN TAKIM TUTUCULAR**

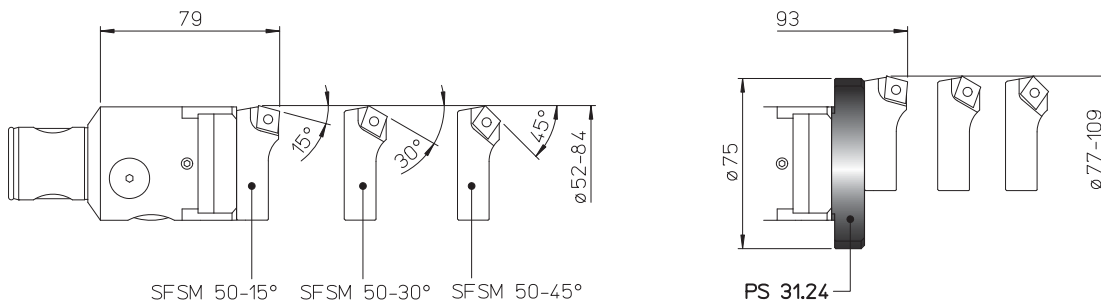
PS 31  
CW 32  
Ø 54 ~ 108



PS 31  
Ø 56 ~ 111



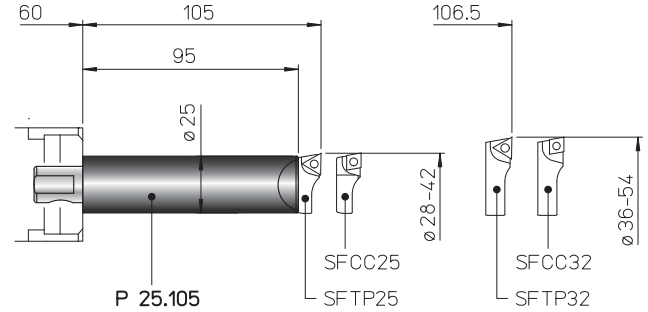
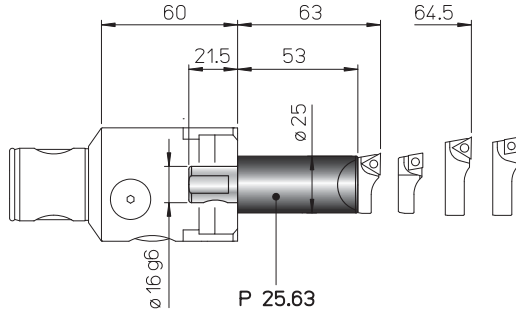
PS 31  
Ø 52 ~ 109



| REF.            | CODE         | Kg.  |
|-----------------|--------------|------|
| PS 31.24 TR..50 | 433024140751 | 0.19 |
| CW 32           | 392011003201 | 0.07 |

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

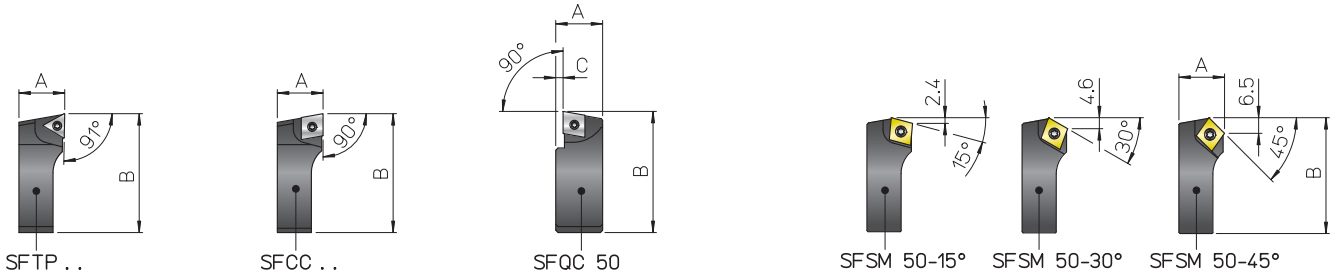
P 25  
Ø 28 ~ 54



| REF.          | CODE         | Kg. |
|---------------|--------------|-----|
| P25.63 TR...  | 435116250631 | 0.5 |
| P25.105 TR... | 435116251051 | 0.8 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



| REF.        | CODE         | A    | B    | C | △           | □           | □          | □        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | TPGX 1103.. | -           | CS 300890T | TORX T15 | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T | TORX T15 | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SF5M 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SF5M 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SF5M 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

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125

119

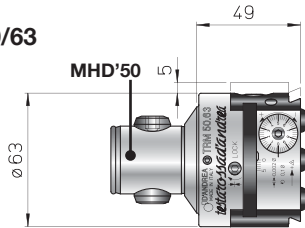




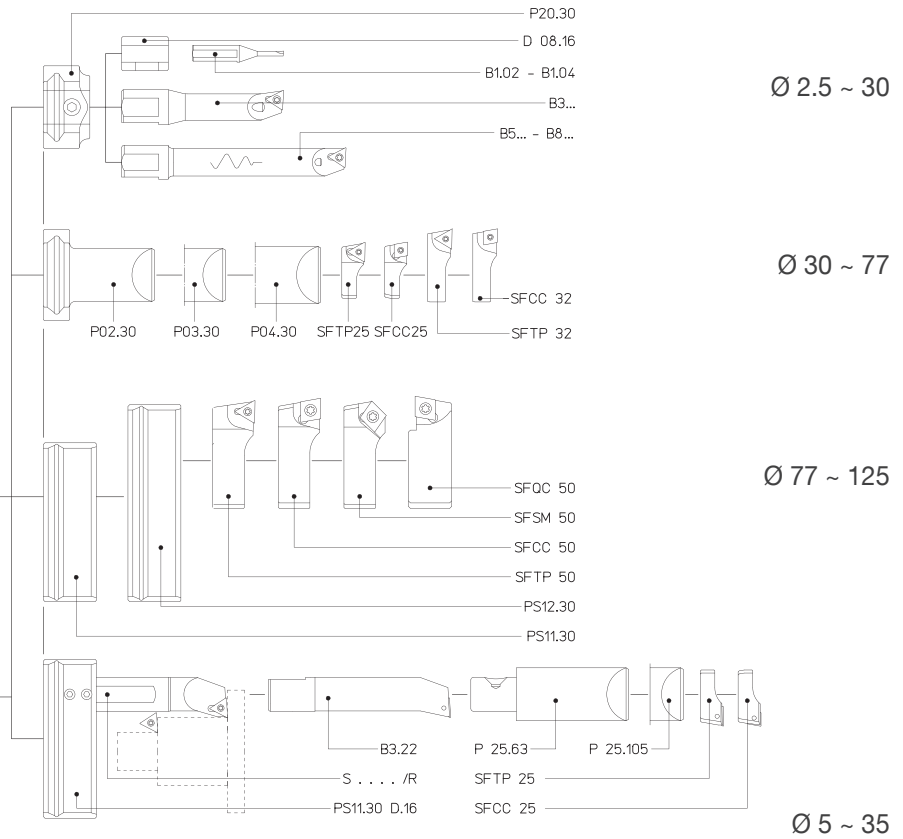
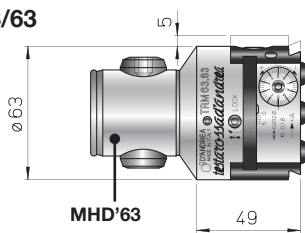


2 µm

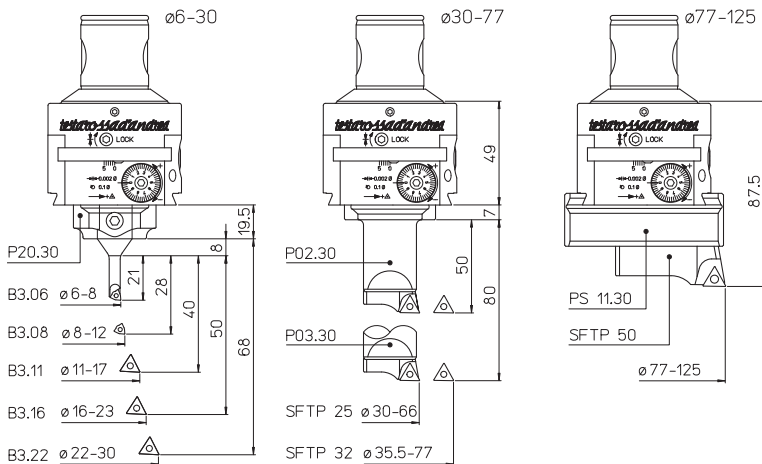
TRM 50/63



TRM 63/63



| REF.      | CODE         | Kg. |
|-----------|--------------|-----|
| TRM 50/63 | 455005000631 | 1.1 |
| TRM 63/63 | 455006300631 | 1.5 |

**KIT K01**  
 Ø 6 ~ 125


1 TRM.../ 63  
 1 P20.30 1 B3.06 1 B3.22 5 TPGX 090202L DC100  
 1 PS11.30 1 B3.08 1 SFTP25 1 TPGX 110302L DC100  
 1 P02.30 1 B3.11 1 SFTP32 2 WCGT 020102L DC100  
 1 P03.30 1 B3.16 1 SFTP50

| REF.              | CODE         | Ø       |
|-------------------|--------------|---------|
| KIT K01 TRM 50/63 | 655005010632 | 6 ~ 125 |
| KIT K01 TRM 63/63 | 655006310632 |         |

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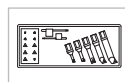
120

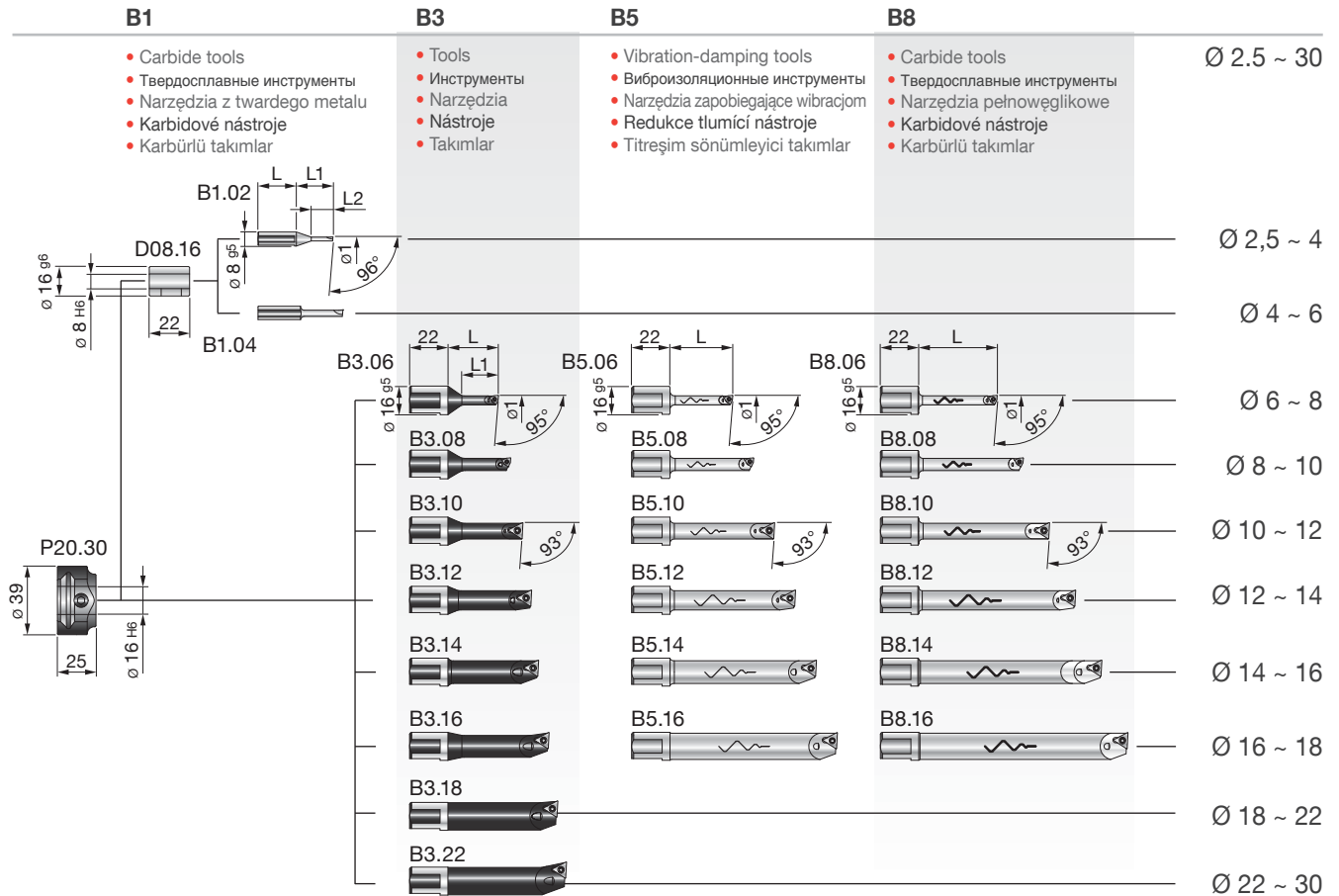


116



241





| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| P20.30 | 431030160300 | 0.2 |

| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| D08.16 | 200560116082 | 0.02 |

| REF.  | CODE         | Ø1      | L  | L1 | L2   | Kg.  |
|-------|--------------|---------|----|----|------|------|
| B1.02 | 572010502001 | 2.5 ~ 4 | 22 | 21 | 12.5 | 0.02 |
| B1.04 | 572010504001 | 4 ~ 6   | 24 | 24 | -    |      |

| REF.  | CODE         | Ø1      | L  | L1 | △           | △           | △               | △        | Kg.   |
|-------|--------------|---------|----|----|-------------|-------------|-----------------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29 | 21 | WCGT 0201.. | -           | TS 21<br>TS 211 | TORX T06 | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36 | 28 |             |             |                 |          | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43 | 35 | -           | TPGX 0902.. | CS 250 T        | TORX T08 | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48 | 40 |             |             |                 |          | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 | 48 | 42 |             |             |                 |          | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52 | 50 |             |             |                 |          | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58 | 50 |             |             |                 |          | 0.07  |
| B3.18 | 572010518001 | 18 ~ 22 | 63 | -  |             |             |                 |          | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68 | -  |             |             |                 |          | 0.1   |

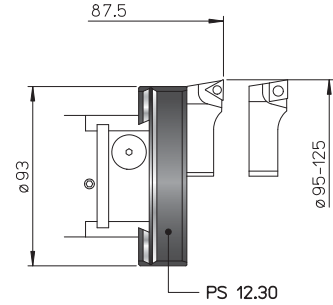
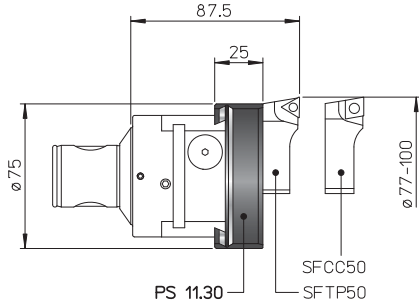
|       |              |         |    |   |             |             |                 |          |       |
|-------|--------------|---------|----|---|-------------|-------------|-----------------|----------|-------|
| B5.06 | 572010506105 | 6 ~ 8   | 36 | - | WCGT 0201.. | -           | TS 21<br>TS 211 | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48 |   |             |             |                 |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60 |   | -           | TPGX 0902.. | CS 250 T        | TORX T08 | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72 |   |             |             |                 |          | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84 |   |             |             |                 |          | 0.2   |
| B5.16 | 572010516105 | 16 ~ 18 | 96 |   |             |             |                 |          | 0.3   |

|       |              |         |     |   |             |             |                 |          |       |
|-------|--------------|---------|-----|---|-------------|-------------|-----------------|----------|-------|
| B8.06 | 572010506108 | 6 ~ 8   | 45  | - | WCGT 0201.. | -           | TS 21<br>TS 211 | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |   |             |             |                 |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  |   | -           | TPGX 0902.. | CS 250 T        | TORX T08 | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |   |             |             |                 |          | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |   |             |             |                 |          | 0.2   |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |   |             |             |                 |          | 0.3   |

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULA

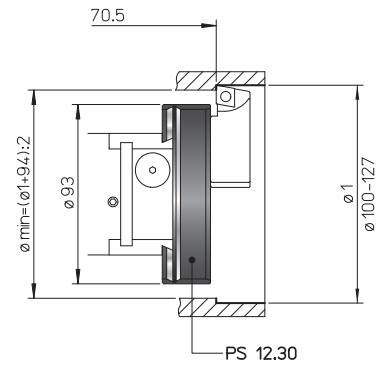
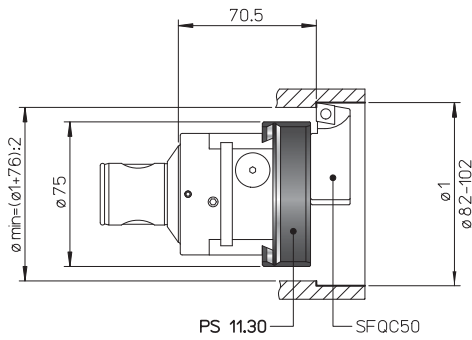
PS

Ø 77 ~ 125



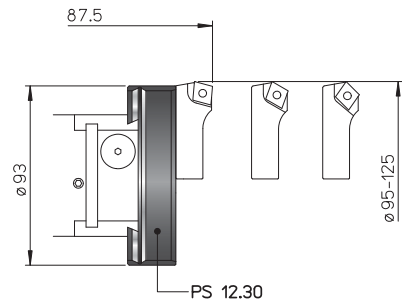
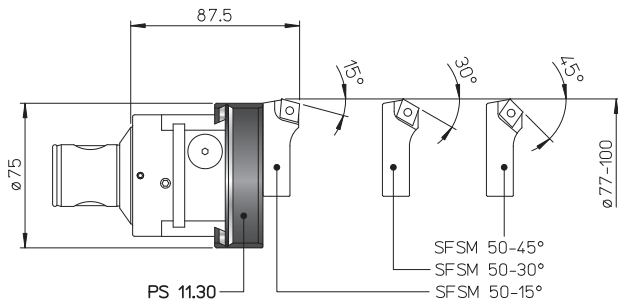
PS

Ø 82 ~ 127



PS

Ø 77 ~ 125



| REF.     | CODE         | Kg. |
|----------|--------------|-----|
| PS 11.30 | 433030260750 | 0.4 |
| PS 12.30 | 433030260950 | 0.5 |

119



125



116



- P



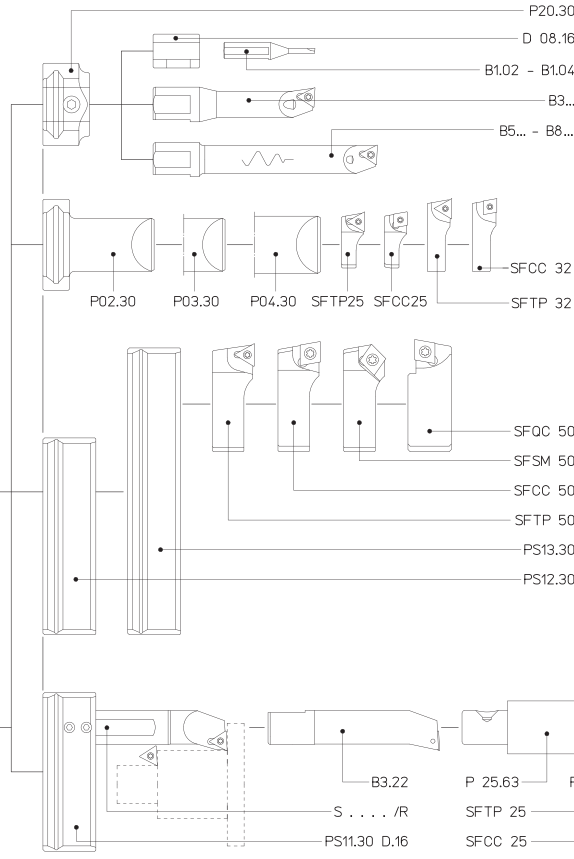
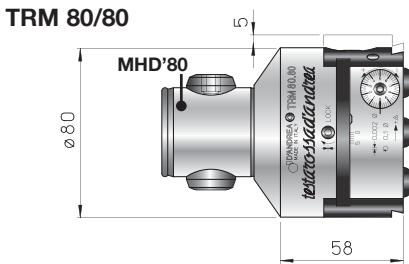
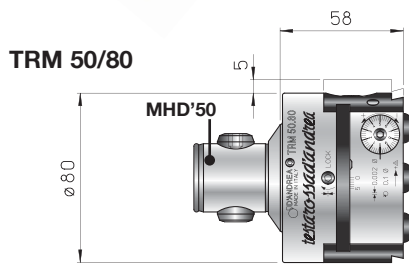
# D'ANDREA

## MODULHARD'ANDREA

**TRM 50/80**  
**TRM 80/80** Ø 2.5 ~ 160  
 • TESTAROSSA



2 µm



Ø 2.5 ~ 30

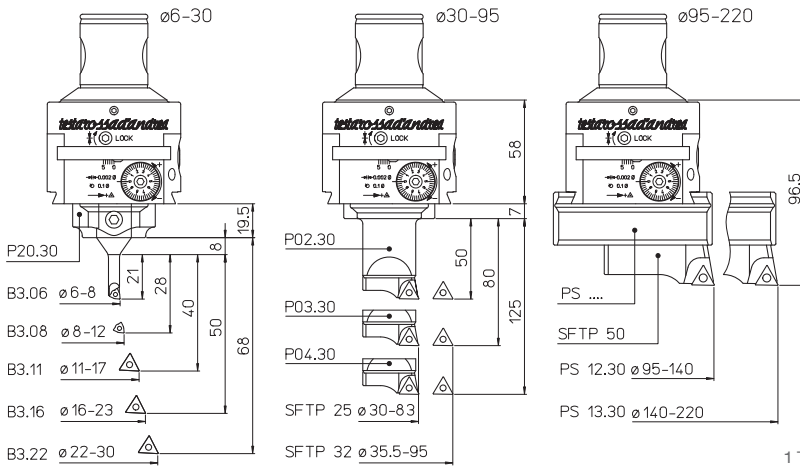
Ø 30 ~ 95

Ø 95 ~ 160

Ø 10 ~ 45

| REF.      | CODE         | Kg. |
|-----------|--------------|-----|
| TRM 50/80 | 455005000801 | 2   |
| TRM 80/80 | 455008000801 | 2.5 |

**KIT K01**  
 Ø 6 ~ 220



1 TRM.../ 80

1 P20.30 1 P03.30 1 SFTP50 1 B3.16 5 TPGX 090202L DC100  
 1 PS12.30 1 P04.30 1 B3.06 1 B3.22 1 TPGX 110302L DC100  
 1 PS13.30 1 SFTP25 1 B3.08 2 WCGT 020102L DC100  
 1 P02.30 1 SFTP32 1 B3.11

| REF.              | CODE         | Ø       |
|-------------------|--------------|---------|
| KIT K01 TRM 50/80 | 655005010802 | 6 ~ 220 |
| KIT K01 TRM 80/80 | 655008010802 |         |

119



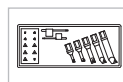
120



116

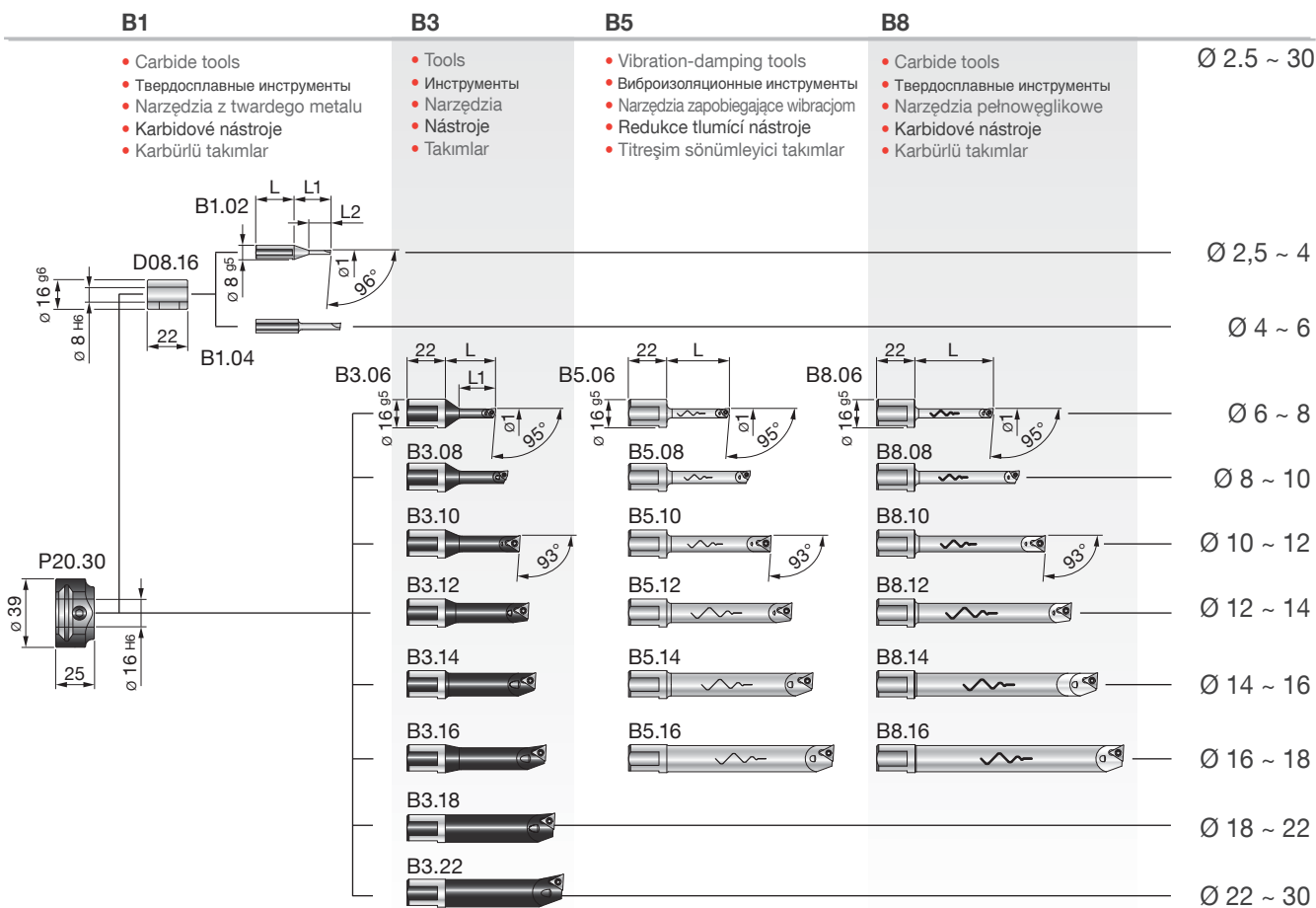


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**ŞEVKET ÖLÜ®**  
 MAKİNA TİCARET VE SAN. LTD. ŞTİ.





| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| P20.30 | 431030160300 | 0.2 |

| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| D08.16 | 200560116082 | 0.02 |

| REF.  | CODE         | Ø1      | L  | L1 | L2   | Kg.  |
|-------|--------------|---------|----|----|------|------|
| B1.02 | 572010502001 | 2.5 ~ 4 | 22 | 21 | 12.5 | 0.02 |
| B1.04 | 572010504001 | 4 ~ 6   | 24 | 24 | -    |      |

| REF.  | CODE         | Ø1      | L  | L1 | △           | △           | TS 21    | TORX T06 | Kg.   |
|-------|--------------|---------|----|----|-------------|-------------|----------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29 | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36 | 28 |             |             | TS 211   |          | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43 | 35 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48 | 40 |             |             |          |          | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 | 42 | 42 |             |             |          |          | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52 | 50 |             |             |          |          | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58 | 50 |             |             |          |          | 0.07  |
| B3.18 | 572010518001 | 18 ~ 22 | 63 | -  |             |             |          |          | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68 | -  |             |             |          |          | 0.1   |

|       |              |         |    |   |             |             |          |          |       |
|-------|--------------|---------|----|---|-------------|-------------|----------|----------|-------|
| B5.06 | 572010506105 | 6 ~ 8   | 36 | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48 |   |             |             | TS 211   |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60 |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72 |   |             |             |          |          | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84 |   |             |             |          |          | 0.2   |
| B5.16 | 572010516105 | 16 ~ 18 | 96 |   |             |             |          |          | 0.3   |

|       |              |         |     |   |             |             |          |          |       |
|-------|--------------|---------|-----|---|-------------|-------------|----------|----------|-------|
| B8.06 | 572010506108 | 6 ~ 8   | 45  | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |   |             |             | TS 211   |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |   |             |             |          |          | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |   |             |             |          |          | 0.2   |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |   |             |             |          |          | 0.3   |

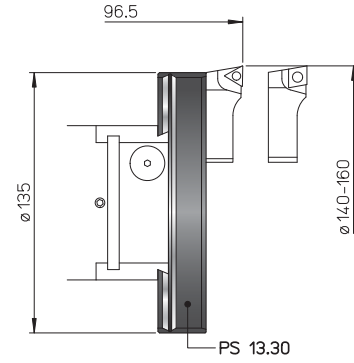
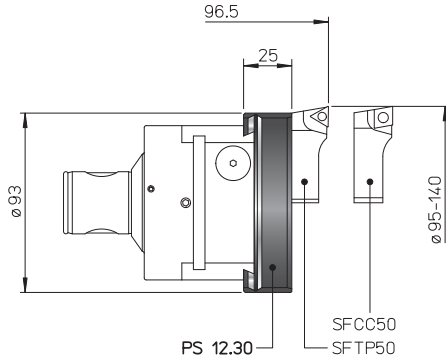
### TRM 50/80

### TRM 80/80 Ø 95 ~ 162

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

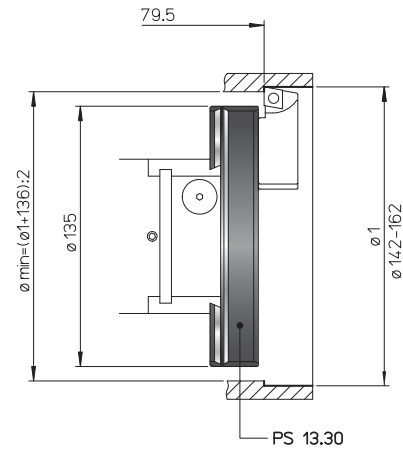
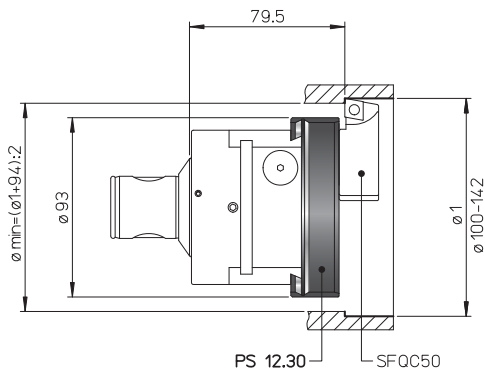
PS

Ø 95 ~ 160



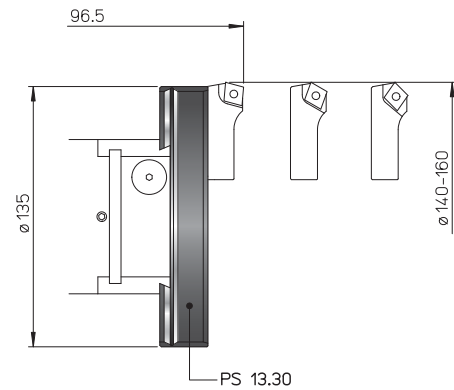
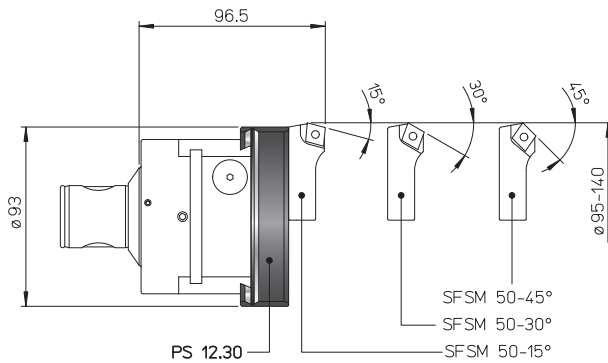
PS

Ø 100 ~ 162



PS

Ø 95 ~ 160



| REF.     | CODE         | Kg. |
|----------|--------------|-----|
| PS 12.30 | 433030260950 | 0.5 |
| PS 13.30 | 433030261400 | 0.7 |

119



125

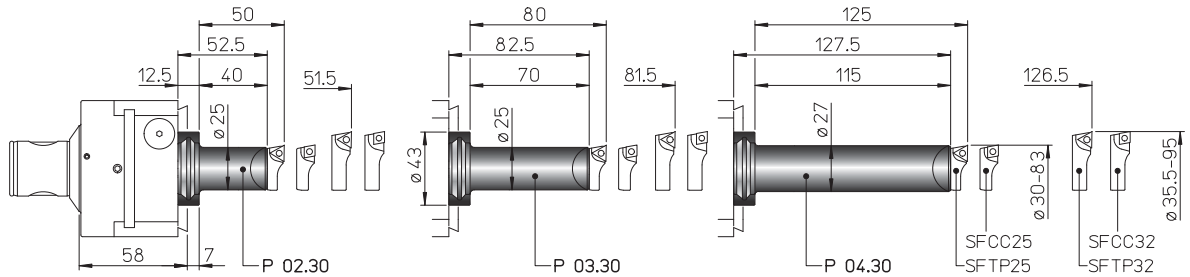


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- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

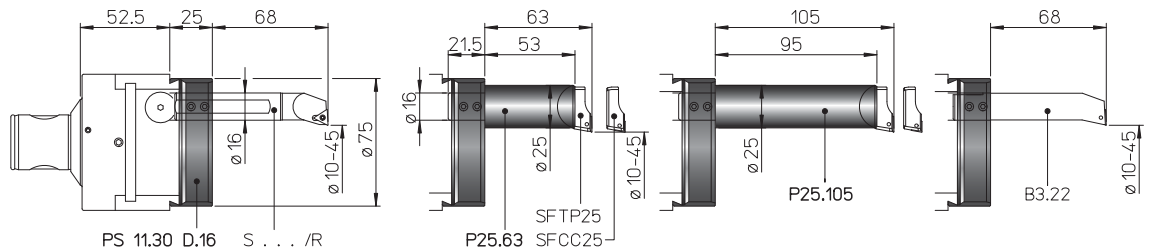
P  
Ø 30 ~ 95



| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| P02.30 | 431030250400 | 0.3 |
| P03.30 | 431030250700 | 0.4 |
| P04.30 | 431030251150 | 0.7 |

- TESTAROSSA EXTERNAL TURNING
- TESTAROSSA ВНЕШНЕГО ОБТАЧИВАНИЯ
- TESTAROSSA TOCZENIE ZEWNĘTRZNE
- EXTERNÍ SOUSTRUŽENÍ TESTAROSSA
- TESTAROSSA DIŞ TORNALAMA

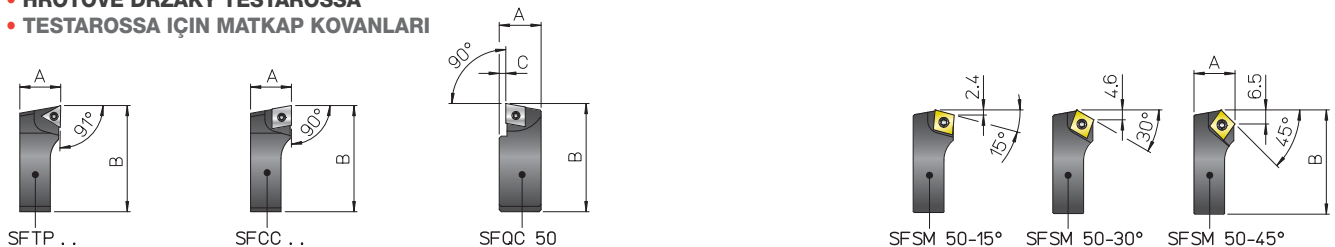
PS + P25  
Ø 10 ~ 45



| REF.          | CODE         | Kg. |
|---------------|--------------|-----|
| PS 11.30 D.16 | 433030260755 | 0.4 |
| P25.63 TR...  | 435116250631 | 0.5 |
| P25.105 TR... | 435116251051 | 0.8 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

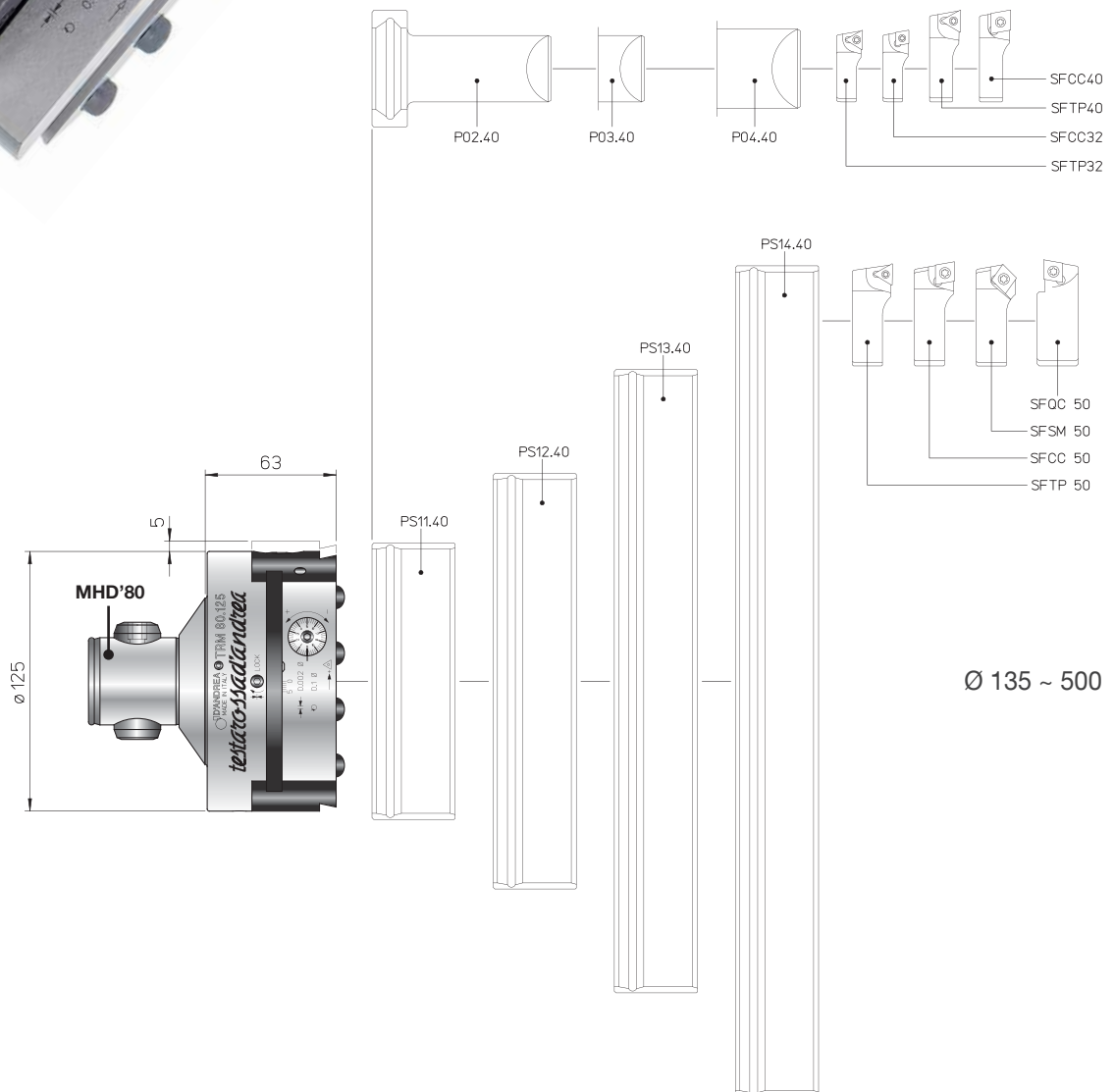
SF



| REF.        | CODE         | A    | B    | C | △           | □           | □          | □        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | TPGX 1103.. | -           | CS 300890T | TORX T08 | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T | TORX T15 | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SFSM 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

**2 µm**

Ø 36 ~ 138



Ø 135 ~ 500

| REF.       | CODE         | Kg. |
|------------|--------------|-----|
| TRM 80/125 | 455008001251 | 5.5 |

119



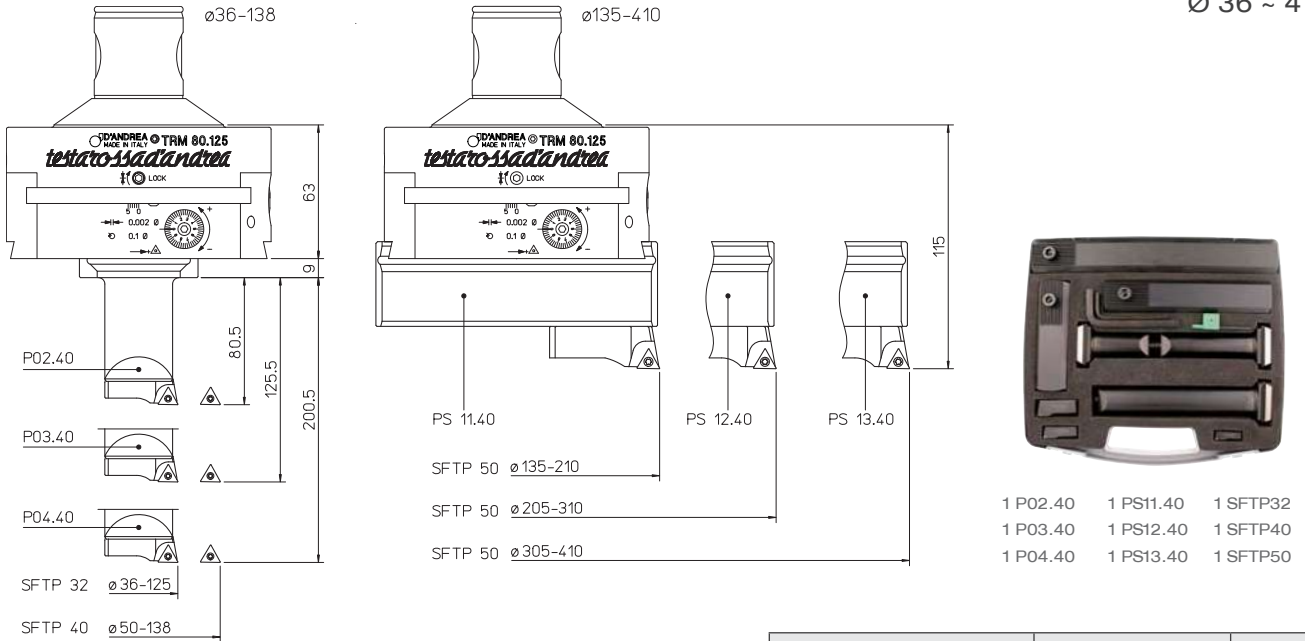
120



116



**KIT K03**  
Ø 36 ~ 410

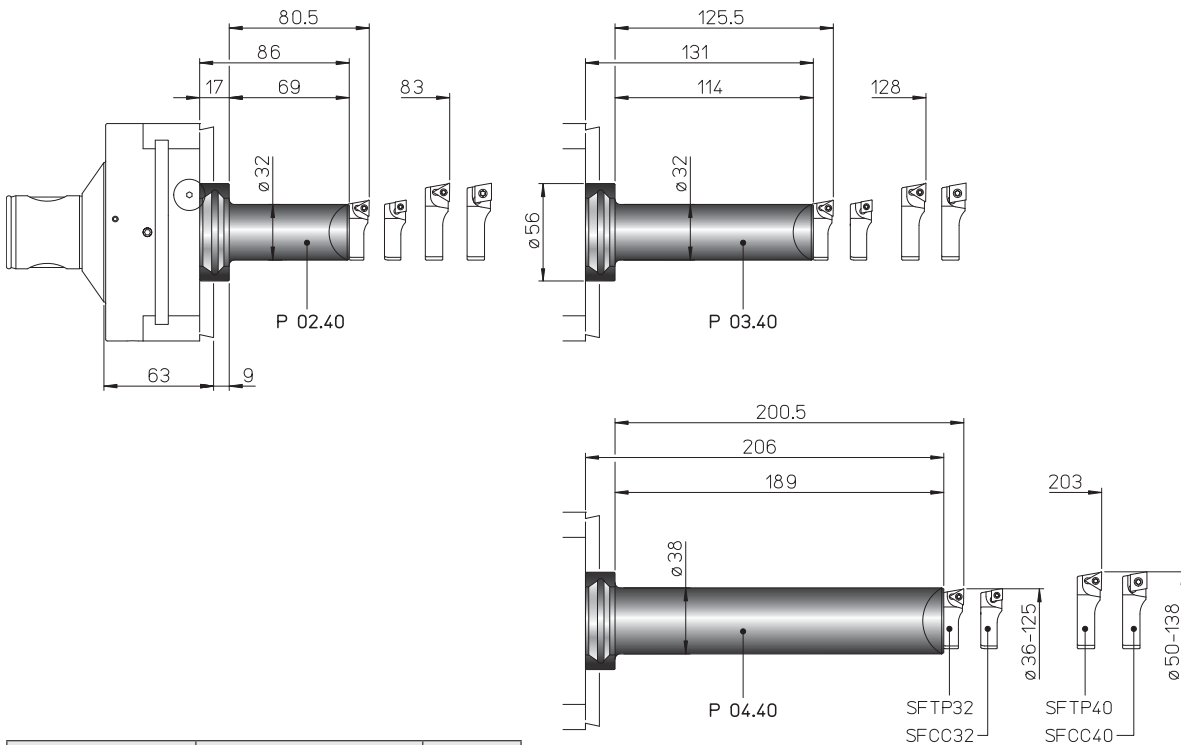


- |          |           |          |
|----------|-----------|----------|
| 1 P02.40 | 1 PS11.40 | 1 SFTP32 |
| 1 P03.40 | 1 PS12.40 | 1 SFTP40 |
| 1 P04.40 | 1 PS13.40 | 1 SFTP50 |

| REF.               | CODE         | Ø        |
|--------------------|--------------|----------|
| KIT K03 TRM 80/125 | 655012500030 | 36 ~ 410 |

**P**

Ø 36 ~ 138



| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| P02.40 | 431040320700 | 0.7 |
| P03.40 | 431040321150 | 1   |
| P04.40 | 431040321900 | 2   |

116

125

119

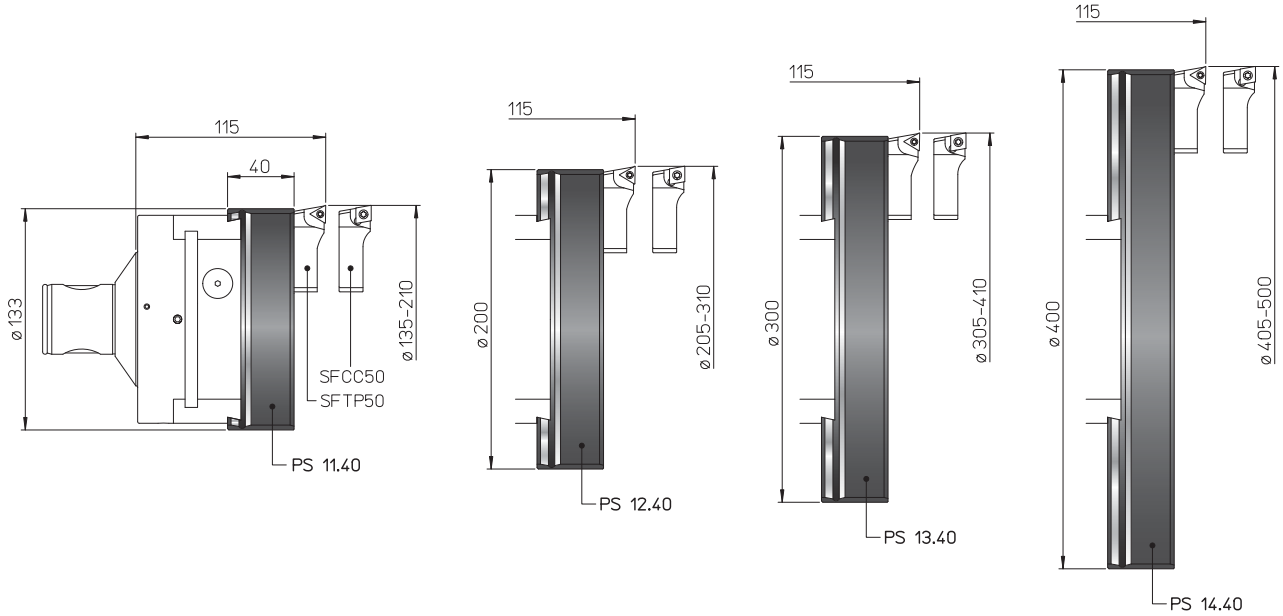




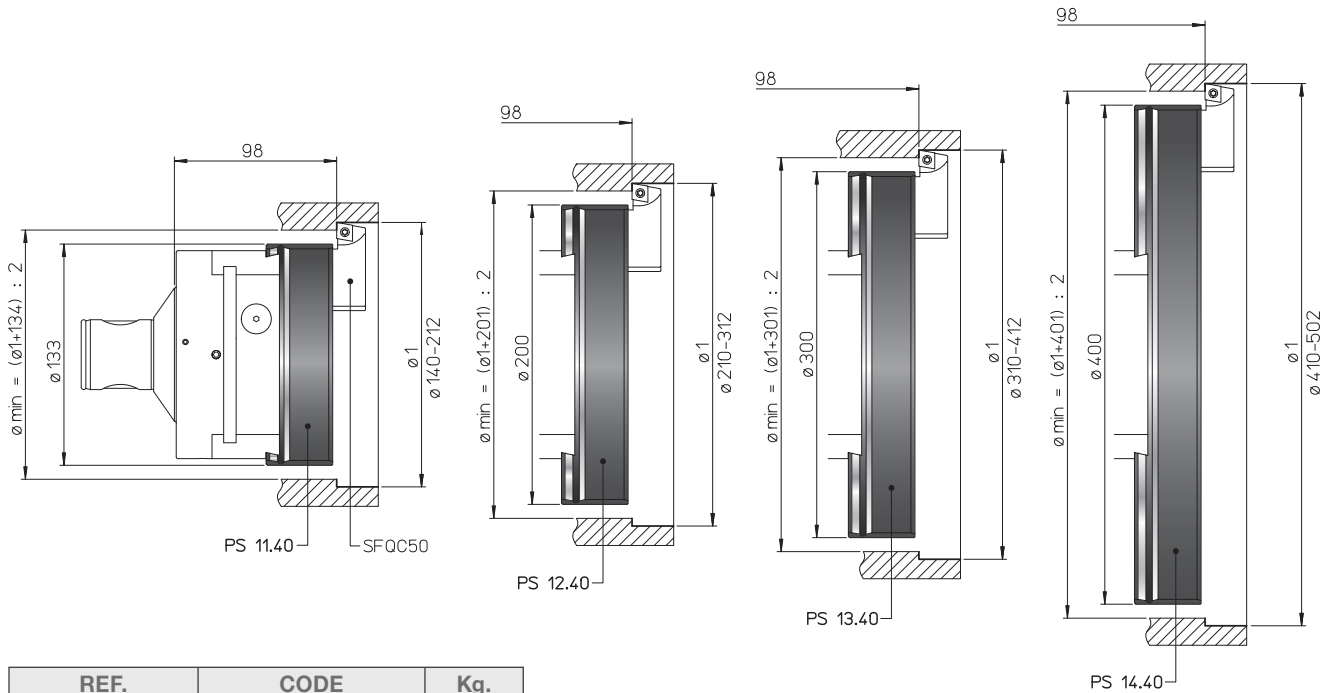
- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

**PS**

Ø 135 ~ 500


**PS**

Ø 140 ~ 502



| REF.     | CODE         | Kg. |
|----------|--------------|-----|
| PS 11.40 | 433040351500 | 1.5 |
| PS 12.40 | 433040352300 | 2.4 |
| PS 13.40 | 433040353300 | 3.5 |
| PS 14.40 | 433040354000 | 4.6 |

119



125

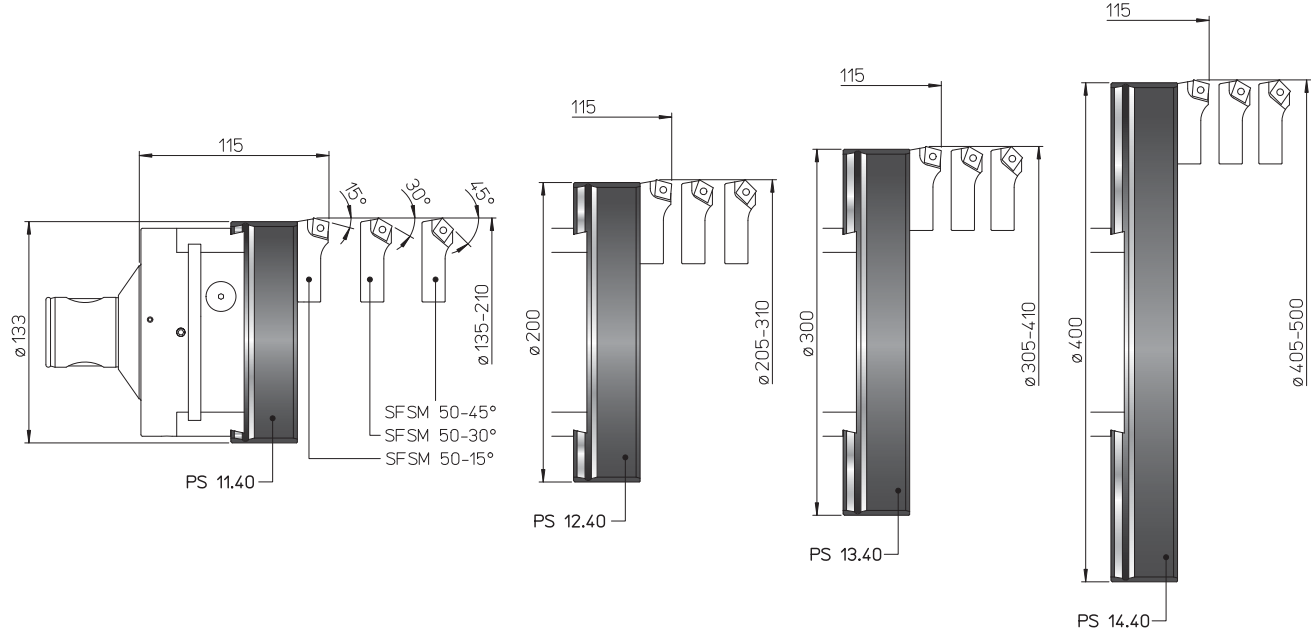


116



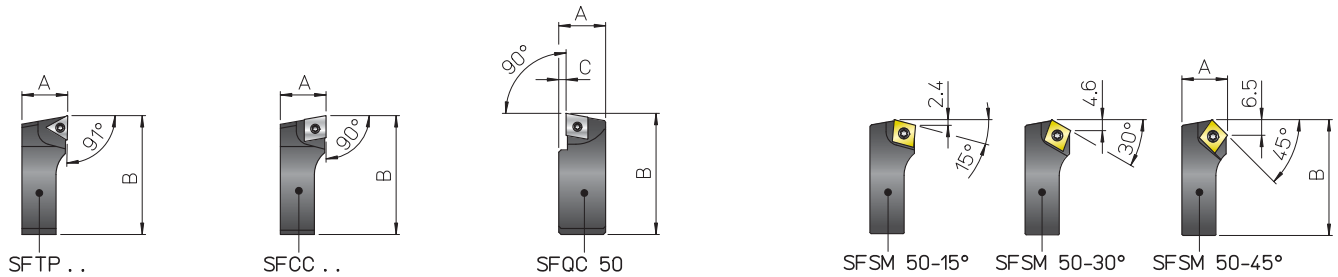
- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

**PS**  
Ø 135 ~ 500



- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

**SF**



| REF.        | CODE         | A    | B    | C | △           | □           | ⌢          | ⌘        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.02 |
| SFTP 40     | 470500540001 | 14   | 44   | - | TPGX 1103.. | -           | CS 300890T |          | 0.04 |
| SFTP 50     | 470500550001 | 19   | 52   | - |             |             |            |          | 0.08 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.02 |
| SFCC 40     | 470500540002 | 14   | 44   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.04 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           |             |            |          | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SFSM 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

116

125

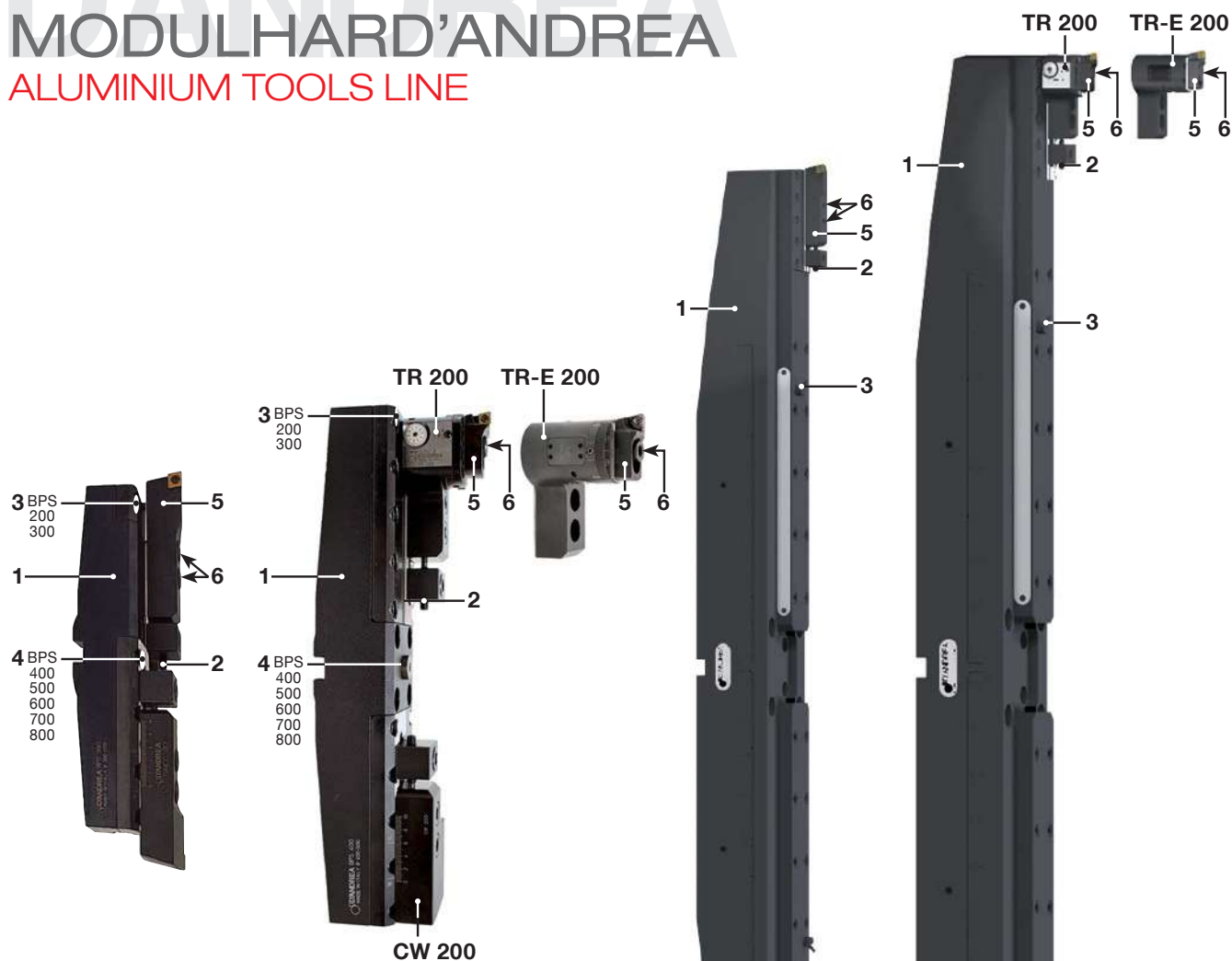
119



# D'ANDREA

## MODULHARD'ANDREA

### ALUMINIUM TOOLS LINE



- |                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1</b></p> <ul style="list-style-type: none"> <li>• Body</li> <li>• Корпус</li> <li>• Korpus</li> <li>• Tělo</li> <li>• Gövde</li> </ul>                                                                                 | <p><b>4</b></p> <ul style="list-style-type: none"> <li>• Coolant outlets 1/4 GAS</li> <li>• Отверстия выхода хладагента 1/4 ГАЗ</li> <li>• Wylot cieczy chłodzącej 1/4 GAS</li> <li>• Výstupy chladiva 1/4 GAS</li> <li>• Soğutma sıvısı çıkışları, 1/4 GAZ</li> </ul> |
| <p><b>2</b></p> <ul style="list-style-type: none"> <li>• Setting screws</li> <li>• Регулировочные винты</li> <li>• Śruba regulacyjna</li> <li>• Nastavovací šrouby</li> <li>• Ayar vidaları</li> </ul>                        | <p><b>5</b></p> <ul style="list-style-type: none"> <li>• Bit holder</li> <li>• Кассета головки</li> <li>• Wytaczak</li> <li>• Hrotový držák</li> <li>• Matkap kovani</li> </ul>                                                                                        |
| <p><b>3</b></p> <ul style="list-style-type: none"> <li>• Coolant outlets</li> <li>• Отверстия выхода хладагента</li> <li>• Wylot cieczy chłodzącej</li> <li>• Výstupy chladiva</li> <li>• Soğutma sıvısı çıkışları</li> </ul> | <p><b>6</b></p> <ul style="list-style-type: none"> <li>• Tools clamp screws</li> <li>• Зажимные винты инструмента</li> <li>• Śruby blokujące narzędzie</li> <li>• Upínací šrouby nástroje</li> <li>• Takımların sıkma vidaları</li> </ul>                              |

**GB** The BPS double-bit crossbars cover a working area from  $\varnothing$  200 - 2700 mm. The BPS double-bit crossbars are constructed in Aluminium and mounted on a steel double-bit plate.

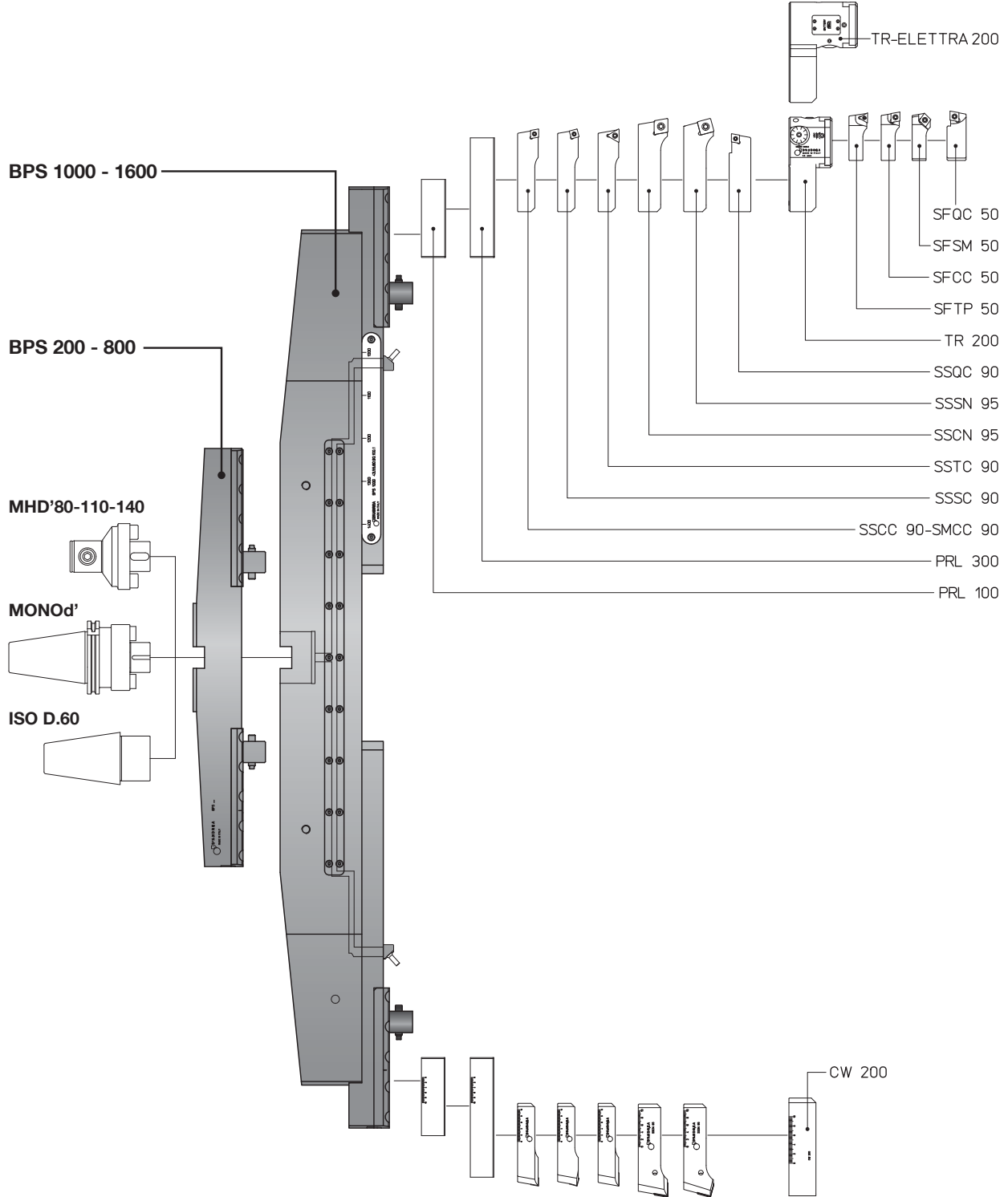
**RU** Двухрезцовые штанги BPS охватывают диапазон от 200 до 2700 мм. Корпус штанги BPS изготовлен из специального алюминиевого сплава и усилен стальной пластиной, на которой крепится кассета.

**PL** Wytaczadła typu BPS pozwalają obsłużyć zakres średnic od 200 do 2700 mm. Wytaczadła wykonywane są z aluminium, na którym mocowana jest stalowa płytka.

**CZ** Příčky dvouhrotového BPS pokrývají pracovní oblast od  $\varnothing$  200 - 2700 mm. Příčky dvouhrotového BPS jsou konstruovány v hliníku a namontovány na ocelovou dvouhrotovou desku.

**TR** BPS çift uçlu çapraz kollar  $\varnothing$  200 - 2700 mm arasında bir çalışma alanını kapsar. BPS çift uçlu çapraz kollar alüminyumdan mamuldür ve çelik çift uçlu plakanın üzerine monte edilir.

- DOUBLE-BIT CROSSBARS FOR BIG DIAMETERS
- ДВУХРЕЗЦОВЫЕ РАСТОЧНЫЕ ШТАНГИ ДЛЯ БОЛЬШИХ ДИАМЕТРОВ
- WYTACZADŁA WIELKOŚREDNICOWE
- DVOUHROTOVÉ PŘÍČKY PRO VELKÉ PRŮMĚRY
- BÜYÜK ÇAPLAR İÇİN ÇİFT UÇLU ÇAPRAZ KOLLAR



| REF.    | CODE         | Kg. |
|---------|--------------|-----|
| BPS 200 | 435540881980 | 3.2 |
| BPS 300 | 435540882980 | 3.9 |
| BPS 400 | 435540883980 | 6.9 |
| BPS 500 | 435560884940 | 9.4 |
| BPS 600 | 435560885940 | 9.9 |

| REF.        | CODE         | Kg.  |
|-------------|--------------|------|
| BPS 700     | 435560886940 | 11.2 |
| BPS 800     | 435560887940 | 15.2 |
| BPS 1000 GD | 435560901001 | 55   |
| BPS 1150 GD | 435560901151 | 70   |
| BPS 1600 GD | 435560901601 | 115  |

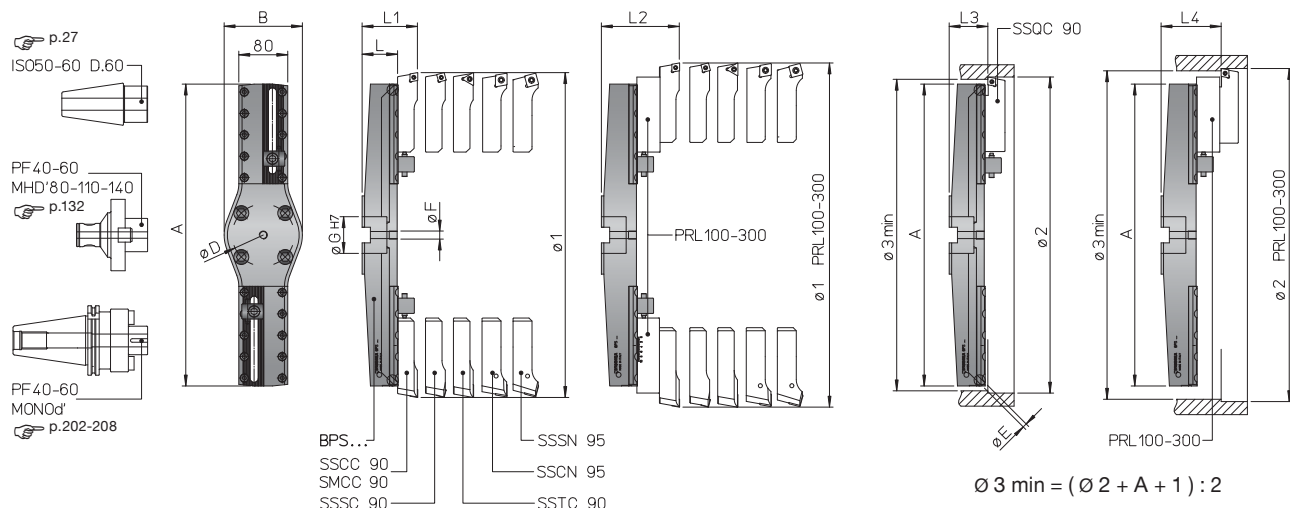
# D'ANDREA

## MODULHARD'ANDREA

### ALUMINIUM TOOLS LINE

**BPS 200~800** Ø 200 ~ 1200

- DOUBLE-BIT BORING CROSSBARS
- ДВУХРЕЗЦОВЫЕ ШТАНГИ
- WYTACZADŁA DWUOŻOWE
- DVOUHROTOVÉ PŘÍČKY PRO VYVRTÁVÁNÍ
- DELİK AÇMA İÇİN ÇİFT UÇLU ÇAPRAZ KOLLAR



|                    | BPS 200      | BPS 300   | BPS 400   | BPS 500       | BPS 600    | BPS 700    | BPS 800     |
|--------------------|--------------|-----------|-----------|---------------|------------|------------|-------------|
| A                  | 194          | 288       | 394       | 494           | 594        | 694        | 794         |
| B                  | -            |           |           | 128           |            |            |             |
| Ø D                | (4xM12) 66.7 |           |           | (4xM16) 101.6 |            |            |             |
| Ø E                | 2.5          |           |           | -             |            |            |             |
| Ø F                | -            |           |           | 1/4 GAS       |            |            |             |
| Ø G                | 40           |           |           | 60            |            |            |             |
| Ø 1                | 200 ~ 300    | 300 ~ 400 | 400 ~ 500 | 500 ~ 600     | 600 ~ 700  | 700 ~ 800  | 800 ~ 900   |
| Ø 1 PRL 100        | 300 ~ 400    | 400 ~ 500 | 500 ~ 600 | 600 ~ 700     | 700 ~ 800  | 800 ~ 900  | 900 ~ 1000  |
| Ø 1 PRL 300        | 400 ~ 600    | 500 ~ 700 | 600 ~ 800 | 700 ~ 900     | 800 ~ 1000 | 900 ~ 1100 | 1000 ~ 1200 |
| Ø 2                | 202 ~ 302    | 302 ~ 402 | 402 ~ 502 | 502 ~ 602     | 602 ~ 702  | 702 ~ 802  | 802 ~ 902   |
| Ø 2 PRL 100        | 302 ~ 402    | 402 ~ 502 | 502 ~ 602 | 602 ~ 702     | 702 ~ 802  | 802 ~ 902  | 902 ~ 1002  |
| Ø 2 PRL 300        | 402 ~ 602    | 502 ~ 702 | 602 ~ 802 | 702 ~ 902     | 802 ~ 1002 | 902 ~ 1102 | 1002 ~ 1202 |
| L                  | 54           |           |           | 61            | 69         | 71         | 80          |
| L1 S...90          | 86           |           |           | 93            | 101        | 103        | 112         |
| L1 S...95          | 94           |           |           | 101           | 109        | 111        | 120         |
| L2 PRL 100 S...90  | 116          |           |           | 123           | 131        | 133        | 142         |
| L2 PRL 300 S...90  | 126          |           |           | 133           | 141        | 143        | 152         |
| L2 PRL 100 S...95  | 124          |           |           | 131           | 139        | 141        | 150         |
| L2 PRL 300 S...95  | 134          |           |           | 141           | 149        | 151        | 160         |
| L3 SSQC 90         | 56.5         |           |           | 63.5          | 71.5       | 73.5       | 82.5        |
| L4 PRL 100 SSQC 90 | 86.5         |           |           | 93.5          | 101.5      | 103.5      | 112.5       |
| L4 PRL 300 SSQC 90 | 96.5         |           |           | 103.5         | 111.5      | 113.5      | 122.5       |

119



126

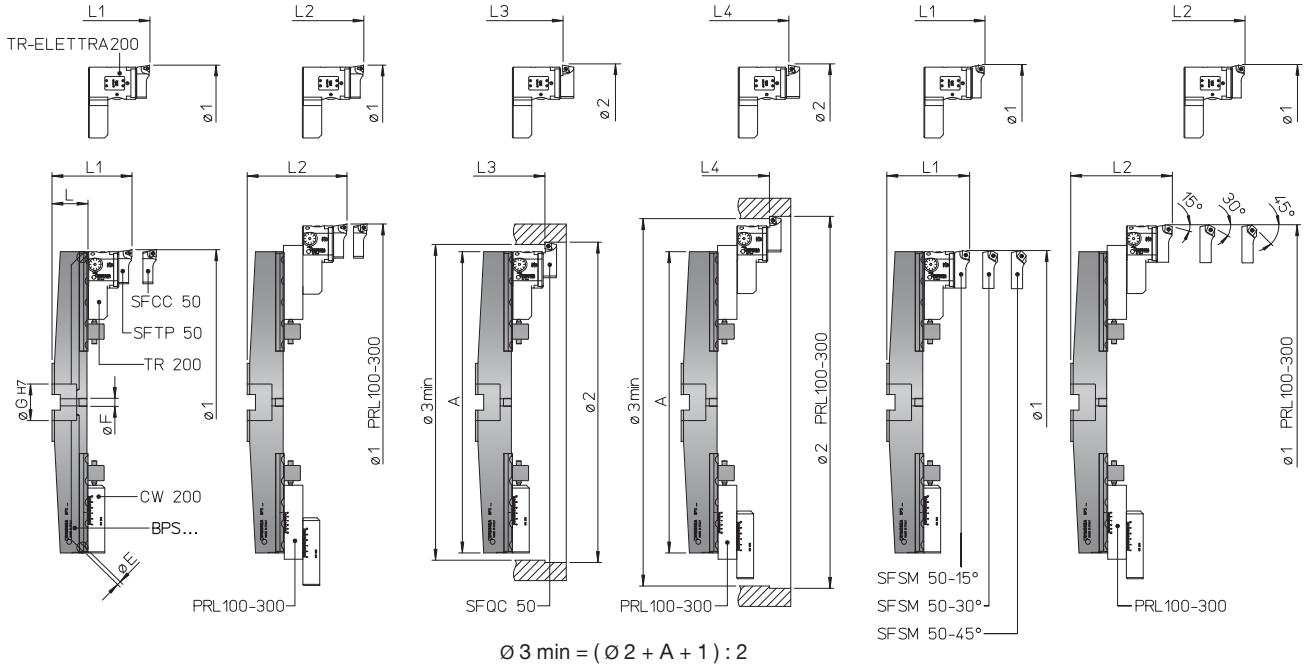


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- DOUBLE-BIT CROSSBARS FOR BIG DIAMETER FINISH
- ДВУХРЕЗЦОВЫЕ РАСТОЧНЫЕ ШТАНГИ ДЛЯ ЧИСТОВОЙ ОБРАБОТКИ БОЛЬШИХ ДИАМЕТРОВ
- WYTACZADŁA WYKOŃCZENIOWE WIELKOŚREDNICOWE
- DVOUHROTOVÉ PŘÍČKY PRO DOKONČENÍ VELKÝCH PRŮMĚRŮ
- BÜYÜK ÇAPLI BITİRME İŞLERİ İÇİN ÇİFT UÇLU ÇAPRAZ KOLLAR



|             | BPS 200      | BPS 300 | BPS 400   |         | BPS 500       |         | BPS 600    |         | BPS 700    |         | BPS 800     |         |
|-------------|--------------|---------|-----------|---------|---------------|---------|------------|---------|------------|---------|-------------|---------|
| A           | 194          | 288     | 394       |         | 494           |         | 594        |         | 694        |         | 794         |         |
| B           | -            |         |           |         | 128           |         |            |         |            |         |             |         |
| Ø D         | (4xM12) 66.7 |         |           |         | (4xM16) 101.6 |         |            |         |            |         |             |         |
| Ø E         | 2.5          |         | -         |         |               |         |            |         |            |         |             |         |
| Ø F         | -            |         | 1/4 GAS   |         |               |         |            |         |            |         |             |         |
| Ø G         | 40           |         |           |         | 60            |         |            |         |            |         |             |         |
| Ø 1         | 200~300      | 300~400 | 400 ~ 500 |         | 500 ~ 600     |         | 600 ~ 700  |         | 700 ~ 800  |         | 800 ~ 900   |         |
| Ø 1 PRL 100 | 300~400      | 400~500 | 500 ~ 600 |         | 600 ~ 700     |         | 700 ~ 800  |         | 800 ~ 900  |         | 900 ~ 1000  |         |
| Ø 1 PRL 300 | 400~600      | 500~700 | 600 ~ 800 |         | 700 ~ 900     |         | 800 ~ 1000 |         | 900 ~ 1100 |         | 1000 ~ 1200 |         |
| Ø 2         | 202~302      | 302~402 | 402 ~ 502 |         | 502 ~ 602     |         | 602 ~ 702  |         | 702 ~ 802  |         | 802 ~ 902   |         |
| Ø 2 PRL 100 | 302~402      | 402~502 | 502 ~ 602 |         | 602 ~ 702     |         | 702 ~ 802  |         | 802 ~ 902  |         | 902 ~ 1002  |         |
| Ø 2 PRL 300 | 402~602      | 502~702 | 602 ~ 802 |         | 702 ~ 902     |         | 802 ~ 1002 |         | 902 ~ 1102 |         | 1002 ~ 1202 |         |
| L           | 54           |         | 61        |         | 69            |         | 71         |         | 74         |         | 80          |         |
|             | TR-200       | TR-E200 | TR-200    | TR-E200 | TR-200        | TR-E200 | TR-200     | TR-E200 | TR-200     | TR-E200 | TR-200      | TR-E200 |
| L1          | 120          | 147     | 127       | 154     | 135           | 162     | 137        | 164     | 140        | 167     | 146         | 173     |
| L2 PRL 100  | 150          | 177     | 157       | 184     | 165           | 192     | 167        | 194     | 170        | 197     | 176         | 203     |
| L2 PRL 300  | 160          | 187     | 167       | 194     | 175           | 202     | 177        | 204     | 180        | 207     | 186         | 213     |
| L3          | 103          | 130     | 110       | 137     | 118           | 145     | 120        | 147     | 123        | 150     | 129         | 156     |
| L4 PRL 100  | 133          | 160     | 140       | 167     | 148           | 175     | 150        | 177     | 153        | 180     | 159         | 186     |
| L4 PRL 300  | 143          | 170     | 150       | 177     | 158           | 185     | 160        | 187     | 163        | 190     | 169         | 196     |



# D'ANDREA

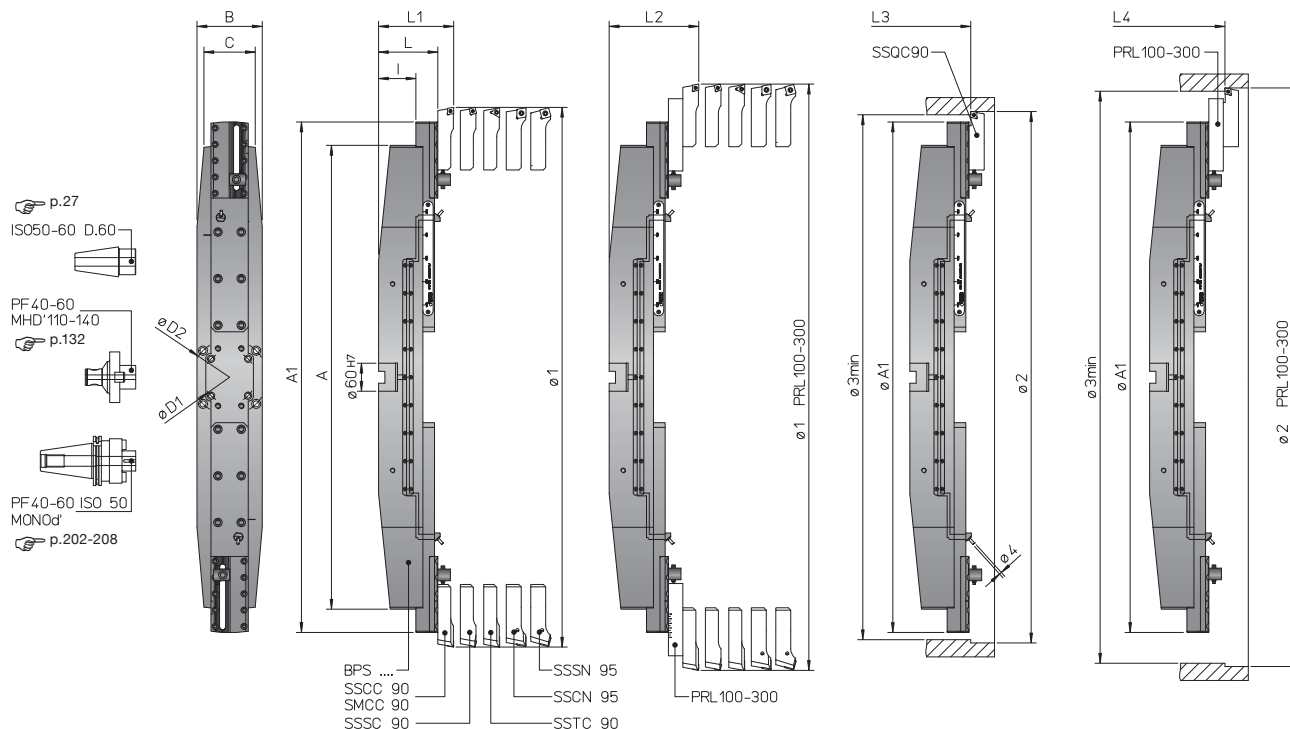
## MODULHARD'ANDREA

### ALUMINIUM TOOLS LINE

## BPS 1000~1600 GD

Ø 1000 ~ 2700

- DOUBLE-BIT BORING CROSSBARS
- ДВУХРЕЗЦОВЫЕ РАСТОЧНЫЕ ШТАНГИ
- WYTACZADŁA DWUNOŻOWE
- DVOUHROTOVÉ PŘÍČKY PRO VYVRTÁVÁNÍ
- DELİK AÇMA İÇİN ÇİFT UÇLU ÇAPRAZ KOLLAR



$$\phi 3 \text{ min} = (\phi 2 + A1 + 1) : 2$$

|                    | BPS 1000 GD   | BPS 1150 GD | BPS 1600 GD   |
|--------------------|---------------|-------------|---------------|
| A                  | 995           |             | 1595          |
| A1                 | 995 ~ 1395    | 1495 ~ 1695 | 1595 ~ 2295   |
| B                  | 140           |             | 170           |
| C                  | 110           |             | 130           |
| Ø D1               | (4xM16) 101.6 |             |               |
| Ø D2               | -             |             | (4xM20) 177.8 |
| Ø 1                | 1000 ~ 1500   | 1500 ~ 1800 | 1600 ~ 2400   |
| Ø 1 PRL 100        | 1100 ~ 1600   | 1600 ~ 1900 | 1700 ~ 2500   |
| Ø 1 PRL 300        | 1200 ~ 1800   | 1700 ~ 2100 | 1800 ~ 2700   |
| Ø 2                | 1002 ~ 1502   | 1502 ~ 1802 | 1602 ~ 2402   |
| Ø 2 PRL 100        | 1102 ~ 1602   | 1602 ~ 1902 | 1702 ~ 2502   |
| Ø 2 PRL 300        | 1202 ~ 1802   | 1702 ~ 2102 | 1802 ~ 2702   |
| I                  | 80            |             | 105           |
| L                  | 126           |             | 151           |
| L1 S...90          | 158           |             | 183           |
| L1 S...95          | 166           |             | 191           |
| L2 PRL 100 S...90  | 188           |             | 213           |
| L2 PRL 300 S...90  | 198           |             | 223           |
| L2 PRL 100 S...95  | 196           |             | 221           |
| L2 PRL 300 S...95  | 206           |             | 231           |
| L3 SSQC 90         | 128,5         |             | 153,5         |
| L4 PRL 100 SSQC 90 | 158,5         |             | 183,5         |
| L4 PRL 300 SSQC 90 | 168,5         |             | 193,5         |

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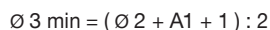


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Ø 1000 ~ 2700

- 85

116

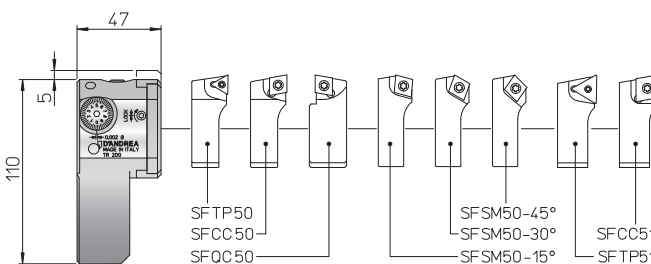
- MICROMETRIC HEAD TR 200 / TR-ELETTRA 200
- МИКРОМЕТРИЧЕСКАЯ ГОЛОВКА TR 200 / TR-ELETTRA 200
- GŁOWICA MIKROMETRYCZNA TR 200 / TR-ELETTRA 200
- MIKROMETRICKÁ HLAVA TR 200 / TR-ELETTRA 200
- MIKROMETRIK KAFA TR 200 / TR-ELETTRA 200

### TR 200

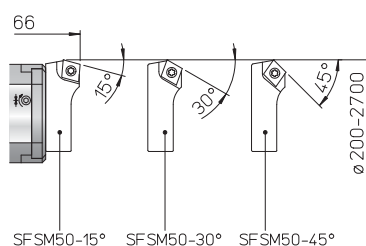
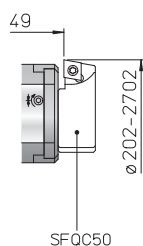
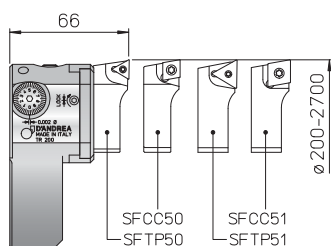


- 1 • Body  
• Корпус  
• Korpus  
• Tělo  
• Gövde
- 2 • Slide toolholder  
• Салазки  
• Śanie narzędziowe  
• Šoupátko nástrojového držáku  
• Kayar takim tutucu
- 3 • Micrometric vernier scale  
• Микрометрический нониус  
• Noniusz mikrometryczny  
• Mikrometrické měřítko vernie  
• Mikrometrik verniye skalasi
- 4 • Slide clamp screw  
• Зажимные винты салазок  
• Śruba blokująca śanie narzędziowe  
• Upínací šroub šoupátka  
• Sürgülü sıkma vidası

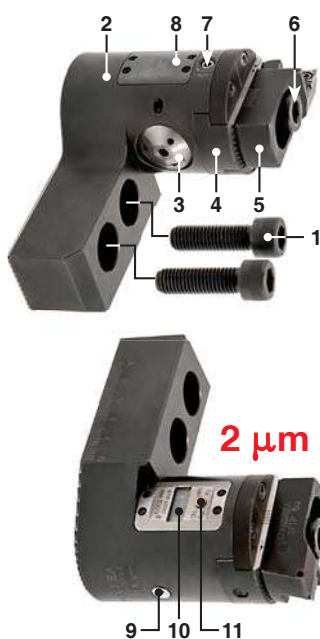
2 µm



| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| TR 200 | 455020002000 | 1.3 |

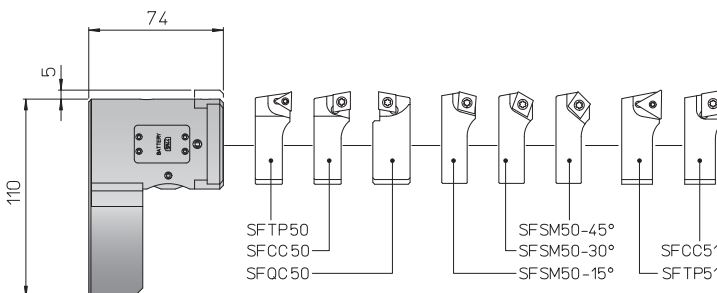


### TR-ELETTRA 200

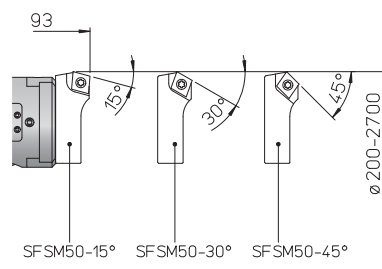
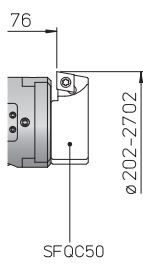
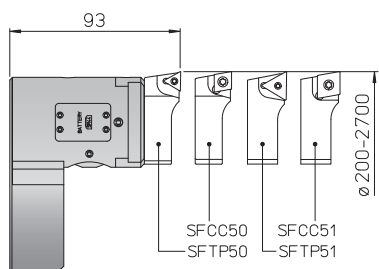


- 1 • Lock screw TR-E 200  
• Фиксирующий винт  
• Śruby mocujące TR-E 200  
• Zajišťovací šroub TR-E 200  
• Kilit vidası TR-E 200
- 2 • Body  
• Корпус  
• Korpus  
• Tělo  
• Gövde
- 3 • Set screw  
• Установочный винт  
• Śruba ustawcza  
• Nastavovací šroub  
• Ayar vidası
- 4 • Slide toolholder  
• Салазки  
• Śanie narzędziowe  
• Šoupátko nástrojového držáku  
• Kayar takim tutucu
- 5 • Bit holders  
• Кассета головки  
• Wytaczak  
• Hrotový držák  
• Matkap kovani
- 6 • Tool clamp screws  
• Зажимные винты инструмента  
• Śruba blokująca narzędzie  
• Upínací šrouby nástroje  
• Takımların sıkma vidaları
- 7 • Slide clamp screw  
• Зажимные винты салазок  
• Śruba blokująca śanie narzędziowe  
• Upínací šroub šoupátka  
• Sürgülü sıkma vidası
- 8 • Battery compartment cover  
• Крышка батарейного отсека  
• Osłona baterii  
• Kryt prostoru baterie  
• Pil bölümü kapağı
- 9 • Oiler  
• Масленка  
• Smarownica  
• Olejnička  
• Yağlayıcı
- 10 • Digital display  
• Цифровой дисплей  
• Wyświetlacz cyfrowy  
• Digitální displej  
• Dijital göstere
- 11 • Selection button  
• Кнопка выбора  
• Przycisk wyboru  
• Tlačítko pro výběr  
• Seçim düğmesi

2 µm



| REF.           | CODE         | Kg. |
|----------------|--------------|-----|
| TR-ELETTRA 200 | 455220002000 | 1.7 |



119



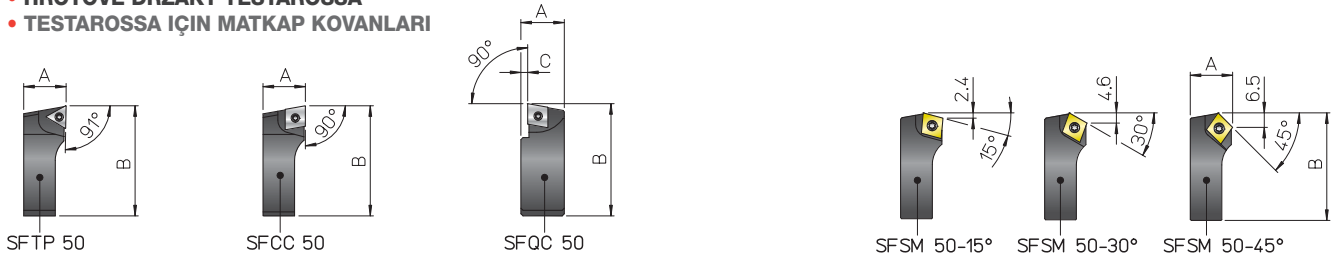
127



116



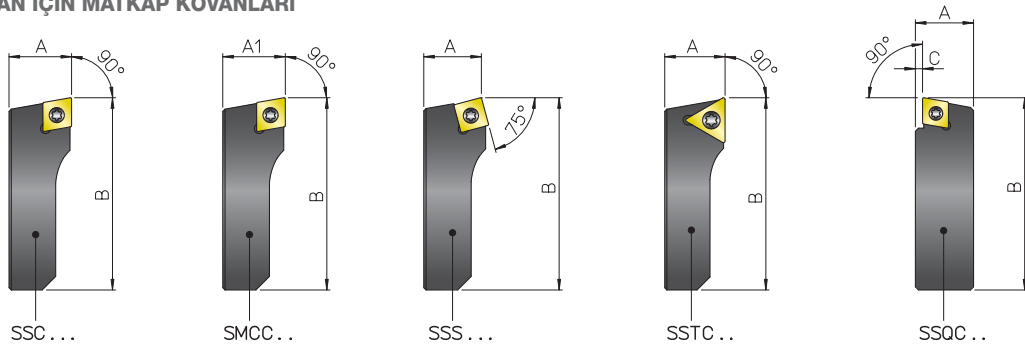
- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI



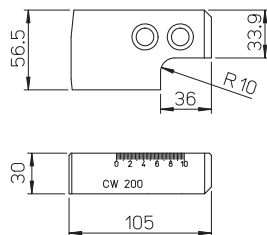
| REF.        | CODE         | A    | B    | C |             |             |            |          | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T | TORX T08 | 0.08 |
| SFTP 51     | 470500550003 | 21   | 52   | - | TCMT 16T3.. | -           | TS 4       | TORX T15 | 0.09 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFCC 51     | 470500550004 | 21   | 52   | - | -           | CCMT 1204.. | TS 5       | TORX T25 | 0.09 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SFSM 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

- BIT-HOLDERS FOR DOUBLE-BIT ITEMS
- КАССЕТЫ ДЛЯ ДВУХРЕЗЦОВЫХ ГОЛОВОК
- OSTRZA DO GŁOWIC DWUNOŻOWYCH
- HROTOVÉ DRŽÁKY PRO DVOUHROTOVÉ DÍLY
- ÇİFT UÇLU EKİPMAN İÇİN MATKAP KOVANLARI

SS-SM

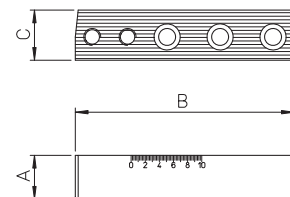


| REF.    | CODE         | A    | A1   | B   | C   |             |              |       |          | Kg. |
|---------|--------------|------|------|-----|-----|-------------|--------------|-------|----------|-----|
| SSCC 90 | 470500590201 | 32   | -    | 130 | -   | CCMT 1204.. | -            | TS 5  | TORX T25 | 0.7 |
| SSCN 95 | 470500595201 | 40   | -    | 130 | -   | CNM. 1906.. | -            | p.126 |          | 0.9 |
| SMCC 90 | 470500590203 | -    | 31.7 | 130 | -   | CCMT 1204.. | -            | TS 5  | TORX T25 | 0.7 |
| SSSC 90 | 470500590202 | 32   | -    | 130 | -   | -           | SCMT 1204..  | TS 5  | TORX T25 | 0.7 |
| SSSN 95 | 470500595202 | 40   | -    | 130 | -   | -           | SNM . 1906.. | p.126 |          | 0.9 |
| SSTC 90 | 470500590206 | 32   | -    | 130 | -   | TCMT 2204.. | -            | TS 5  | TORX T25 | 0.7 |
| SSQC 90 | 470500590261 | 31.5 | -    | 122 | 3.5 | CCMT 1204.. | -            | TS 5  | TORX T25 | 0.8 |



| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| CW 200 | 392011010501 | 1.3 |

CW



PRL

| REF.    | CODE         | A  | B   | C    | Kg. |
|---------|--------------|----|-----|------|-----|
| PRL 100 | 392011015501 | 31 | 155 | 33.5 | 1.1 |
| PRL 300 | 392011030001 | 41 | 255 | 35.5 | 2.8 |

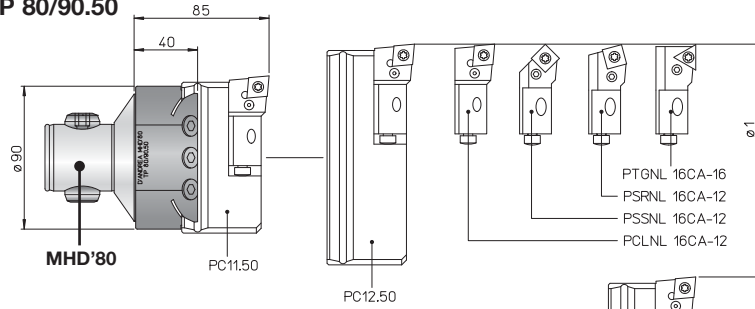
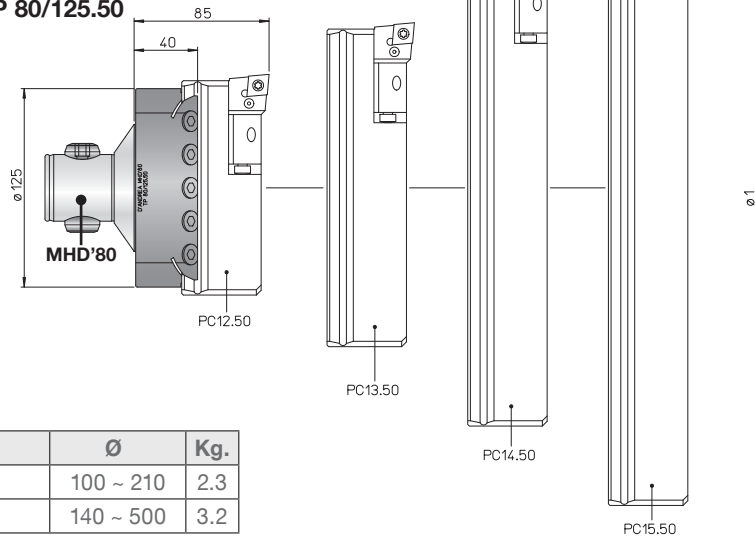
116

126-127

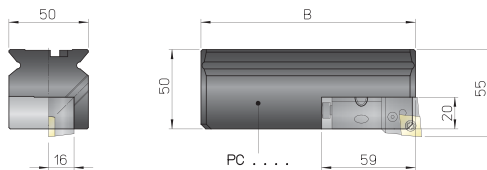




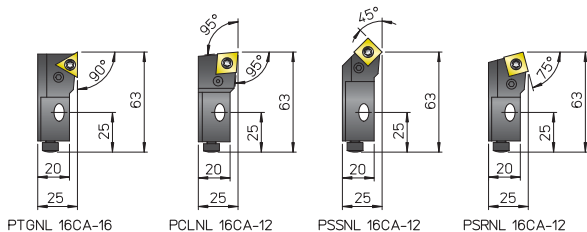
- TOOLHOLDERS
- ДЕРЖАТЕЛИ
- OPRAWKI NARZĘDZIOWE
- NÁSTROJOVÉ DRŽÁKY
- TAKIM TUTUCULAR

**TP 80/90.50**

**TP 80/125.50**


| REF.         | CODE         | Ø         | Kg. |
|--------------|--------------|-----------|-----|
| TP 80/90.50  | 460408050001 | 100 ~ 210 | 2.3 |
| TP 80/125.50 | 460408050002 | 140 ~ 500 | 3.2 |

**PC**


| REF.     | CODE         | B   | Ø 1<br>TP80/90.50 | Ø 1<br>TP80/125.50 | Kg. |
|----------|--------------|-----|-------------------|--------------------|-----|
| PC 11.50 | 433050160950 | 95  | 100 ~ 140         | —                  | 1.3 |
| PC 12.50 | 433050161350 | 135 | 140 ~ 210         | 140 ~ 210          | 2   |
| PC 13.50 | 433050162000 | 200 | —                 | 210 ~ 310          | 3.2 |
| PC 14.50 | 433050163000 | 300 | —                 | 310 ~ 410          | 4.8 |
| PC 15.50 | 433050164000 | 400 | —                 | 410 ~ 500          | 6.3 |

**16CA ISO 5611**


| REF.          | CODE         | △           |
|---------------|--------------|-------------|
| PTGNL 16CA-16 | 483010161001 | TNM. 1604.. |
| PCLNL 16CA-12 | 483010161002 | CNM. 1204.. |
| PSSNL 16CA-12 | 483010161003 | SNM. 1204.. |
| PSRNL 16CA-12 | 483010161004 |             |

• On request • Поставляются по запросу • Na zamówienie • Na vyžádán • İsteğe bağlı

120



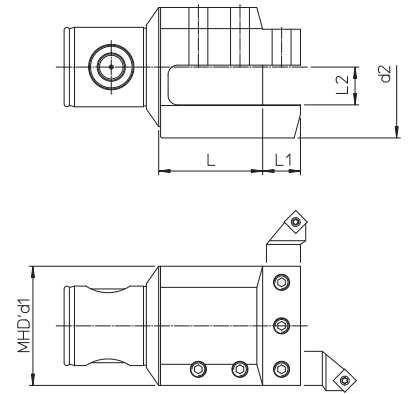
116



- TOOLHOLDERS
- ДЕРЖАТЕЛИ
- OPRAWKI NARZĘDZIOWE
- NÁSTROJOVÉ DRŽÁKY
- TAKIM TUTUCULAR

TU

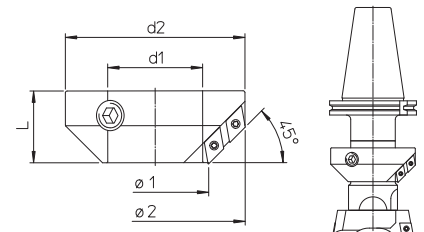
89



| REF.          | CODE         | MHD' d1 | d2  | L  | L1 | L2 | Kg.  |
|---------------|--------------|---------|-----|----|----|----|------|
| TU 50/60.16   | 460505016001 | 50      | 60  | 44 | 16 | 16 | 1.2  |
| TU 63/75.20   | 460506320001 | 63      | 75  | 55 | 20 | 20 | 2.4  |
| TU 80/95.25   | 460508025001 | 80      | 95  | 65 | 25 | 25 | 3.6  |
| TU 110/110.32 | 460511032001 | 110     | 130 | 78 | 32 | 32 | 11.2 |

- CHAMFERING TOOLS
- КОЛЬЦО ДЛЯ СНЯТИЯ ФАСКИ
- PIERŚCIEŃ DO SKOSÓW
- ZKOSENÉ NÁSTROJE
- YIV AÇMA TAKIMLARI

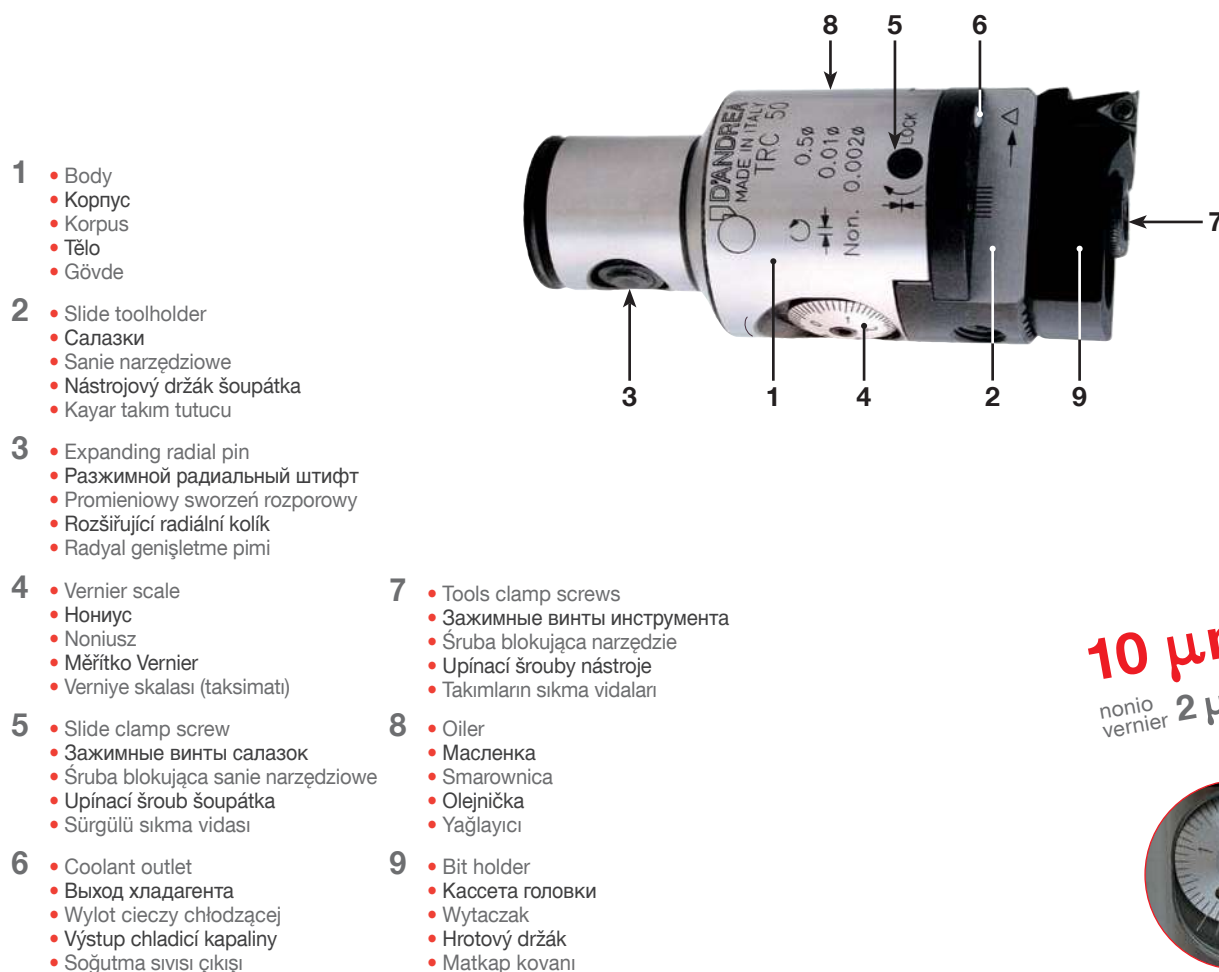
AS.. 45°



| REF.     | CODE         | Ø1       | d1 | d2  | L  |             |       |          | Kg.   |
|----------|--------------|----------|----|-----|----|-------------|-------|----------|-------|
| AS 16.45 | 655601600130 | 18 ~ 28  | 16 | 28  | 13 | DCMT 0702.. | TS 25 | TORX T08 | 0.035 |
| AS 20.45 | 655602000150 | 23 ~ 32  | 20 | 32  | 15 |             |       |          | 0.045 |
| AS 25.45 | 655602500180 | 28 ~ 43  | 25 | 43  | 18 |             |       |          | 0.1   |
| AS 32.45 | 655603200220 | 35 ~ 54  | 32 | 54  | 22 |             |       |          | 0.2   |
| AS 40.45 | 655604000300 | 46 ~ 72  | 40 | 72  | 30 | DCMT 11T3.. | TS 4  | TORX T15 | 0.5   |
| AS 50.45 | 655605000380 | 56 ~ 95  | 50 | 95  | 38 |             |       |          | 1.1   |
| AS 63.45 | 655606300460 | 75 ~ 125 | 63 | 125 | 46 | DCMT 1504.. | TS 5  | TORX 25  | 2.3   |
| AS 80.45 | 655608000580 | 95 ~ 165 | 80 | 165 | 58 |             |       |          | 5.2   |

120





**GB FEATURES.** High precision work to IT6 tolerance, with excellent surface finish, is achieved using TRC boring heads. These are very sensitive and radial correction of 5 micron can be effected directly on the machine and easily read on the vernier scale.

**RU ХАРАКТЕРИСТИКИ.** Головки TRC обеспечивают высокую точность обработки по классу точности IT6 с исключительной чистотой поверхности. Они очень чувствительны и радиальная коррекция в 5 микрон может быть осуществлена прямо на станке и легко считана по шкале нониуса.

**PL** Głowice z serii TRC umożliwiają obróbkę o bardzo wysokiej dokładności w tolerancji IT6 i gwarantują uzyskanie doskonałej jakości powierzchni. Dokładność ustawcza głowic wynosi 5 mikrometrów na promieniu. Wartość ta jest łatwa do odczytania bezpośrednio na noniuszu, co umożliwia dokonywanie regulacji bezpośrednio na obrabiarce.

**CZ VLASTNOSTI.** Pomocí vyvrtávacích hlav TRC se docílí vysoce přesné obrábění dle tolerance IT6 s vynikající finální úpravou povrchu. Jsou velmi citlivé a radiální korekci 5 mikronů lze provést přímo na stroji a snadno odečíst na měřtku vernier.

**TR ÖZELLİKLER.** TRC matkap başları kullanılarak IT6 toleransa kadar yüksek hassasiyetli çalışma ve mükemmel yüzey bitirme gerçekleştirilir. Bunlar son derece hassastır ve 5 mikron radyal düzeltme doğrudan makine üzerinde gerçekleştirilip verniye skalasında kolayca okunabilir.

**TRC 14**

Ø 14.5 ~ 18



**TRC 16**

Ø 18 ~ 24



**TRC 20**

Ø 22 ~ 30



**TRC 25**

Ø 28 ~ 40



**TRC 32**

Ø 35.5 ~ 53.5



**TRC 40**

Ø 48 ~ 66



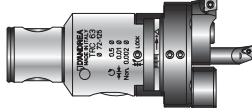
**TRC 50**

Ø 2.5 ~ 110



**TRC 63**

Ø 6 ~ 125



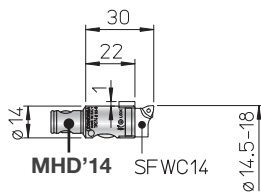
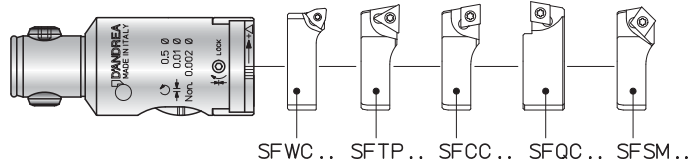
**TRC 80**

Ø 6 ~ 200

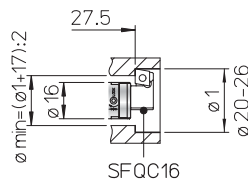
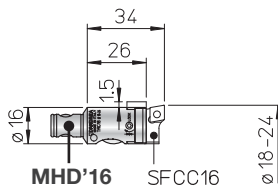


# D'ANDREA

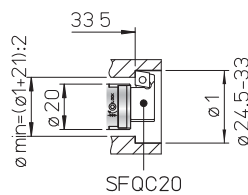
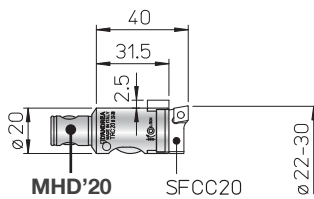
## MODULHARD'ANDREA



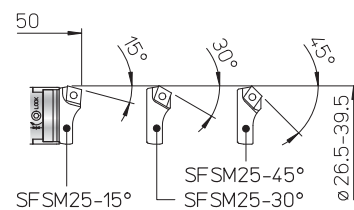
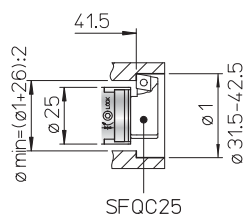
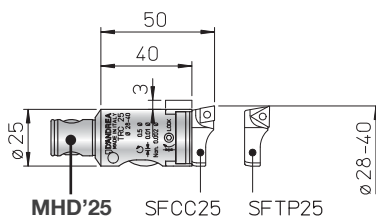
**TRC 14**  
Ø 14.5 ~ 18



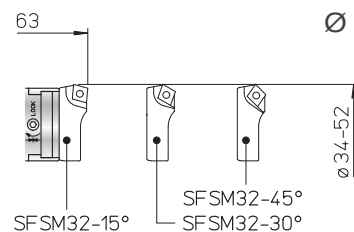
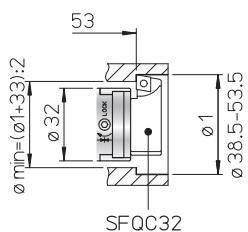
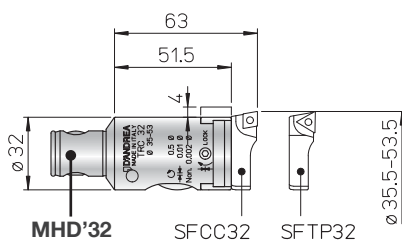
**TRC 16**  
Ø 18 ~ 24



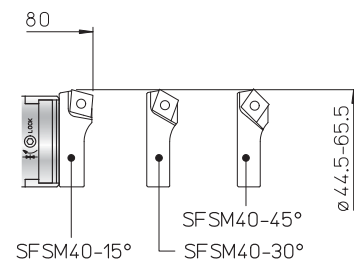
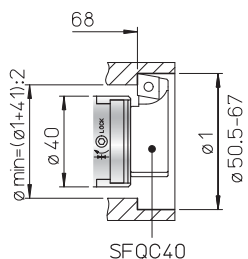
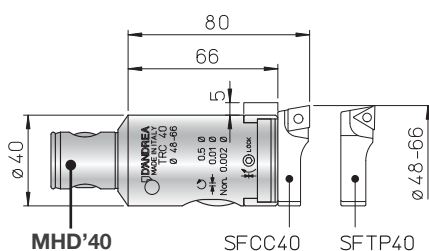
**TRC 20**  
Ø 22 ~ 30



**TRC 25**  
Ø 28 ~ 40



**TRC 32**  
Ø 35.5 ~ 53.5



**TRC 40**  
Ø 48 ~ 66



## • TESTAROSSA

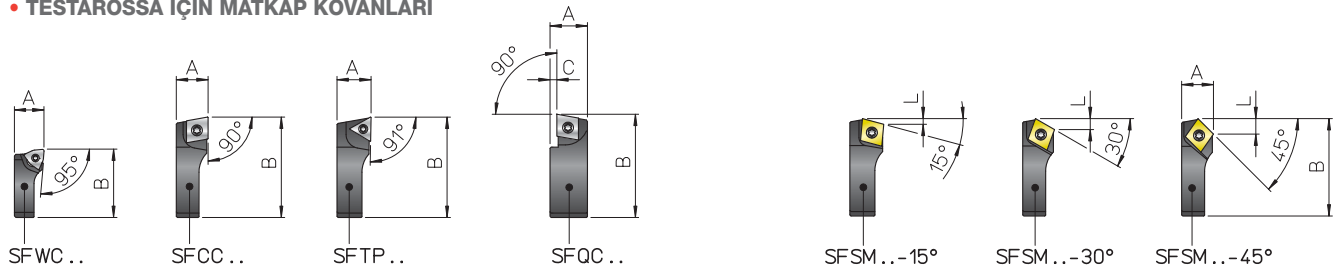
TRC



| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| TRC 14 | 455011400301 | 0.02 |
| TRC 16 | 455011600341 | 0.05 |
| TRC 20 | 455012000401 | 0.1  |
| TRC 25 | 455012500501 | 0.2  |
| TRC 32 | 455013200631 | 0.35 |
| TRC 40 | 455014000801 | 0.7  |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



| REF.        | CODE         | A    | B    | C   | L   | △           | □           | △           | □          | △        | Kg.   |
|-------------|--------------|------|------|-----|-----|-------------|-------------|-------------|------------|----------|-------|
| SFWC 14     | 470500514002 | 8    | 14   | -   | -   | WCGT 0201.. | -           | -           | TS 211     | TORX T06 | 0.003 |
| SFCC 16     | 470500516002 | 8    | 17   | -   | -   | -           | CCGT 0602.. | -           | TS 25      | TORX T08 | 0.003 |
| SFCC 20     | 470500520002 | 8.5  | 21   | -   | -   | -           | -           | -           | -          | -        | 0.005 |
| SFCC 25     | 470500525002 | 10   | 26.5 | -   | -   | -           | -           | -           | -          | -        | 0.01  |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | -   | -   | -           | -           | -           | -          | -        | 0.02  |
| SFCC 40     | 470500540002 | 14   | 44   | -   | -   | -           | CCGT 09T3.. | -           | TS 4       | TORX T15 | 0.04  |
| SFTP 25     | 470500525001 | 10   | 26.5 | -   | -   | -           | -           | TPGX 0902.. | CS 250T    | TORX T08 | 0.01  |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | -   | -   | -           | -           | -           | -          | -        | 0.02  |
| SFTP 40     | 470500540001 | 14   | 44   | -   | -   | -           | -           | TPGX 1103.. | CS 300890T | -        | 0.04  |
| SFQC 16     | 470500516062 | 10   | 18   | 2   | -   | -           | CCMT 0602.. | -           | TS 25      | TORX T08 | 0.005 |
| SFQC 20     | 470500520062 | 10.5 | 22.5 | 2   | -   | -           | -           | -           | -          | -        | 0.008 |
| SFQC 25     | 470500525062 | 12   | 28.5 | 2.5 | -   | -           | -           | -           | -          | -        | 0.01  |
| SFQC 32     | 470500532062 | 13.5 | 35.5 | 2.5 | -   | -           | -           | -           | -          | -        | 0.03  |
| SFQC 40     | 470500540062 | 16.5 | 46   | 3   | -   | -           | CCMT 09T3.. | -           | TS 4       | TORX T15 | 0.06  |
| SFSM 25-15° | 470500525011 | 10   | 25.5 | -   | 1.6 | -           | CCMT 0602.. | -           | TS 25      | TORX T08 | 0.01  |
| SFSM 25-30° | 470500525013 | -    | -    | -   | 3   | -           | -           | -           | -          | -        | -     |
| SFSM 25-45° | 470500525015 | -    | -    | -   | 4.3 | -           | -           | -           | -          | -        | -     |
| SFSM 32-15° | 470500532011 | 11.5 | 33.5 | -   | 1.6 | -           | -           | -           | -          | -        | 0.02  |
| SFSM 32-30° | 470500532013 | -    | -    | -   | 3   | -           | -           | -           | -          | -        | -     |
| SFSM 32-45° | 470500532015 | -    | -    | -   | 4.3 | -           | -           | -           | -          | -        | -     |
| SFSM 40-15° | 470500540011 | 14   | 42.5 | -   | 2.4 | -           | CCMT 09T3.. | -           | TS 4       | TORX T15 | 0.03  |
| SFSM 40-30° | 470500540013 | -    | -    | -   | 4.6 | -           | -           | -           | -          | -        | -     |
| SFSM 40-45° | 470500540015 | -    | -    | -   | 6.5 | -           | -           | -           | -          | -        | -     |

116

120

119

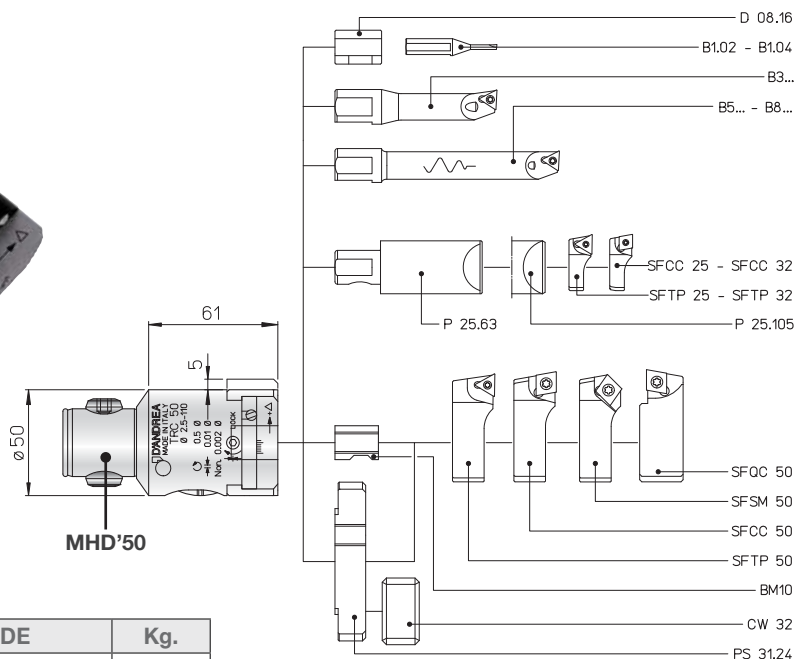


MODULHARD'ANDREA

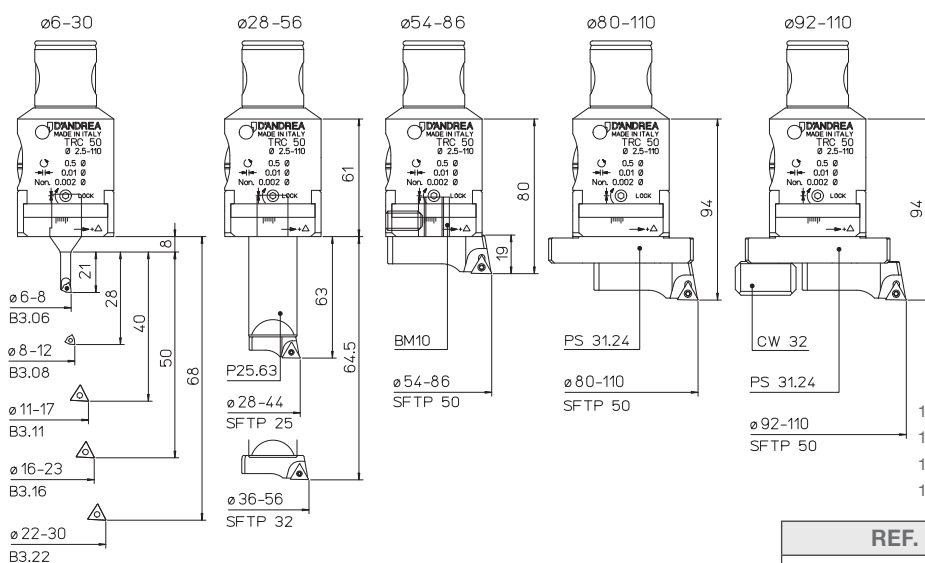


10  $\mu\text{m}$

nonio vernier **2  $\mu\text{m}$**



| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| TRC 50 | 455015000801 | 1   |



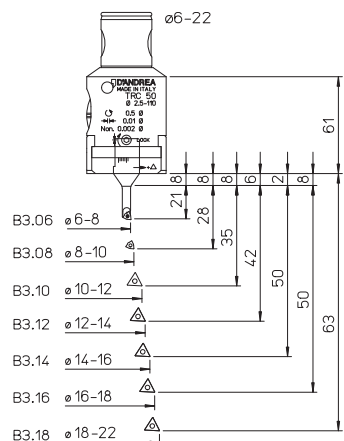
KIT K01

Ø 6 ~ 110



|            |         |          |                      |
|------------|---------|----------|----------------------|
| 1 TRC 50   | 1 CW 32 | 1 B3.16  | 1 SFTP50             |
| 1 P25.63   | 1 B3.06 | 1 B3.22  | 5 TPGX 090202L DC100 |
| 1 BM10     | 1 B3.08 | 1 SFTP25 | 1 TPGX 110302L DC100 |
| 1 PS 31.24 | 1 B3.11 | 1 SFTP32 | 2 WCGT 020102L DC100 |

| REF.           | CODE         | Ø       |
|----------------|--------------|---------|
| KIT K01 TRC 50 | 655015010502 | 6 ~ 110 |



KIT K00

Ø 6 ~ 22



1 TRC50 1 B3.10 1 B3.16 5 TPGX 090202L DC100  
1 B3.06 1 B3.12 1 B3.18 2 WCGT 020102L DC100  
1 B3.08 1 B3.14

| REF.           | CODE         | Ø      |
|----------------|--------------|--------|
| KIT K00 TRC 50 | 655015010500 | 6 ~ 22 |

**B1**

- Carbide tools
- Твердосплавные инструменты
- Narzędzia z twardego metalu
- Karbidové nástroje
- Karbürli takımlar

**B3**

- Tools
- Инструменты
- Narzędzia
- Nástroje
- Takımlar

**B5**

- Vibration-damping tools
- Виброизоляционные инструменты
- Narzędzia zapobiegające wibracjom
- Redukce tlumiące nástroje
- Titreşim sönümleyici takımlar

**B8**

- Carbide tools
- Твердосплавные инструменты
- Narzędzia pełnowęglkowe
- Karbidové nástroje
- Karbürli takımlar

Ø 2.5 ~ 30

TRC 50

| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| D08.16 | 200560116082 | 0.02 |

| REF.  | CODE         | Ø1      | L  | L1 | L2   | Kg.  |
|-------|--------------|---------|----|----|------|------|
| B1.02 | 572010502001 | 2.5 ~ 4 | 22 | 21 | 12.5 | 0.02 |
| B1.04 | 572010504001 | 4 ~ 6   | 24 | 24 | -    |      |

| REF.  | CODE         | Ø1      | L  | L1 | ⊙           | ⊙           | ⊙        | ⊙        | Kg.   |
|-------|--------------|---------|----|----|-------------|-------------|----------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29 | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36 | 28 |             |             | TS 211   |          | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43 | 35 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48 | 40 |             |             |          |          | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 | 48 | 42 |             |             |          |          | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52 | 50 |             |             |          |          | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58 | 50 |             |             |          |          | 0.07  |
| B3.18 | 572010518001 | 18 ~ 22 | 63 | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68 | -  |             |             |          |          | 0.1   |

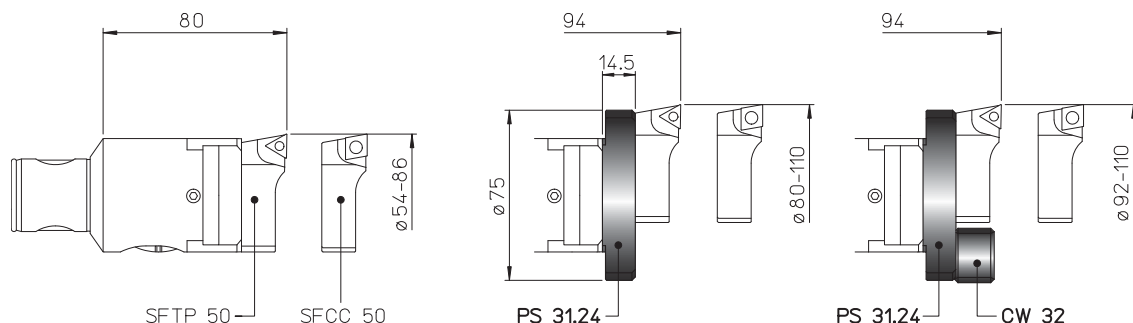
|       |              |         |    |   |             |             |          |          |       |
|-------|--------------|---------|----|---|-------------|-------------|----------|----------|-------|
| B5.06 | 572010506105 | 6 ~ 8   | 36 | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48 |   |             |             | TS 211   |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60 |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72 |   |             |             |          |          | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84 |   |             |             |          |          | 0.3   |
| B5.16 | 572010516105 | 16 ~ 18 | 96 |   |             |             |          |          | 0.3   |

|       |              |         |     |   |             |             |          |          |       |
|-------|--------------|---------|-----|---|-------------|-------------|----------|----------|-------|
| B8.06 | 572010506108 | 6 ~ 8   | 45  | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |   |             |             | TS 211   |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |   |             |             |          |          | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |   |             |             |          |          | 0.2   |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |   |             |             |          |          | 0.3   |

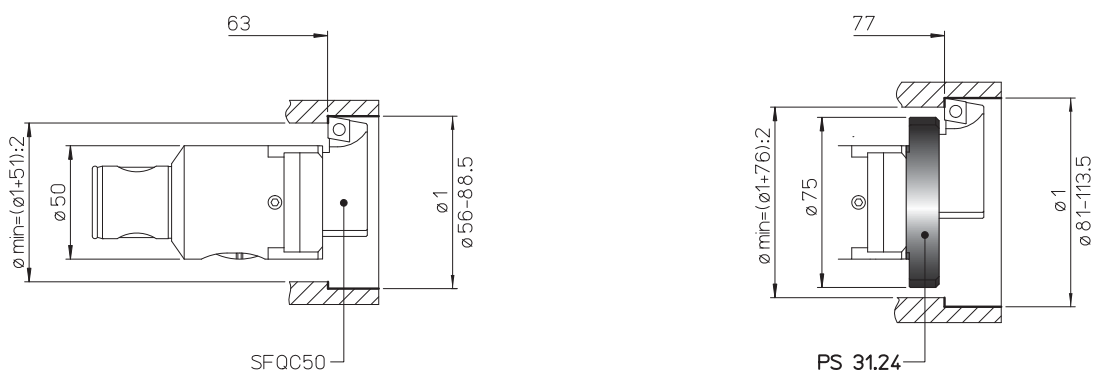
### TRC 50 Ø 52 ~ 113.5

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

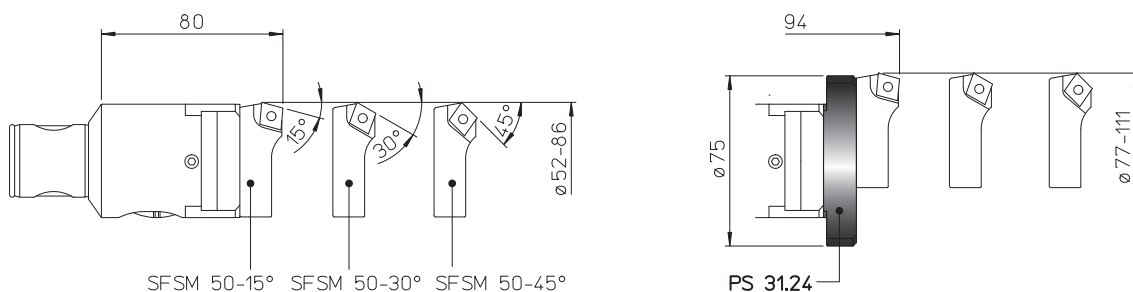
**PS 31**  
**CW 32**  
Ø 54 ~ 110



**PS 31**  
Ø 56 ~ 113.5



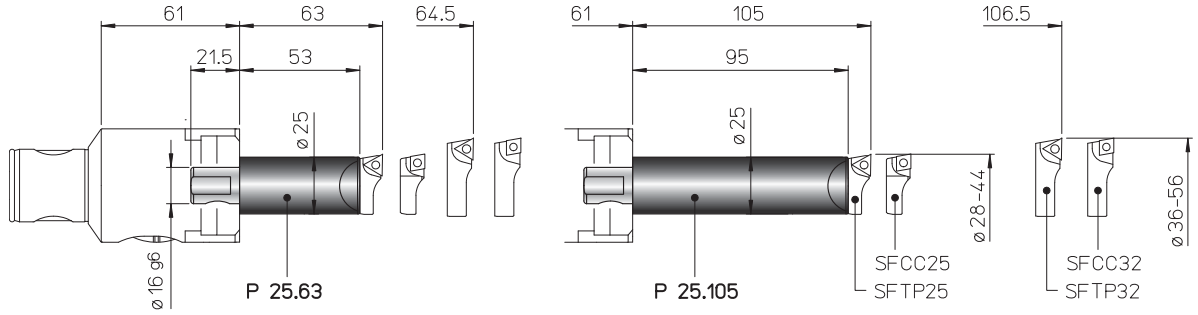
**PS 31**  
Ø 52 ~ 111



| REF.            | CODE         | Kg.  |
|-----------------|--------------|------|
| PS 31.24 TR..50 | 433024140751 | 0.19 |
| CW 32           | 392011003201 | 0.07 |

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

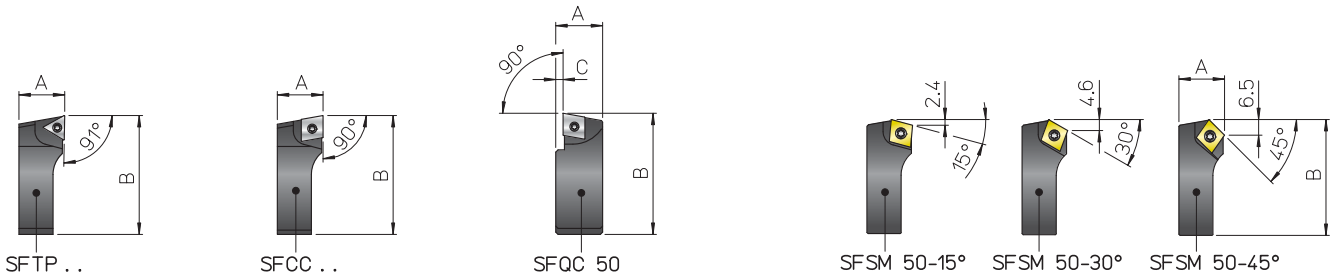
P 25  
Ø 28 ~ 56



| REF.          | CODE         | Kg. |
|---------------|--------------|-----|
| P25.63 TR...  | 435116250631 | 0.5 |
| P25.105 TR... | 435116251051 | 0.8 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



| REF.        | CODE         | A    | B    | C | △           | □           | ⌢          | ⌘        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | TPGX 1103.. | -           | CS 300890T |          | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T |          | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | CCGT 09T3.. | TS 4       |          | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       |          | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SFSM 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

116

125

119



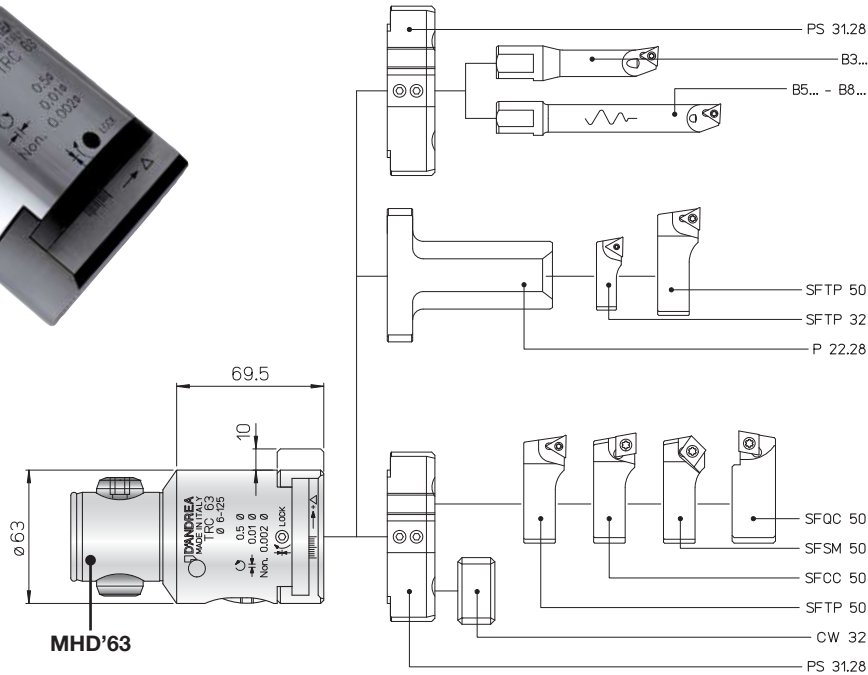


# D'ANDREA

## MODULHARD'ANDREA



**10  $\mu$ m**  
nonio  
vernier **2  $\mu$ m**



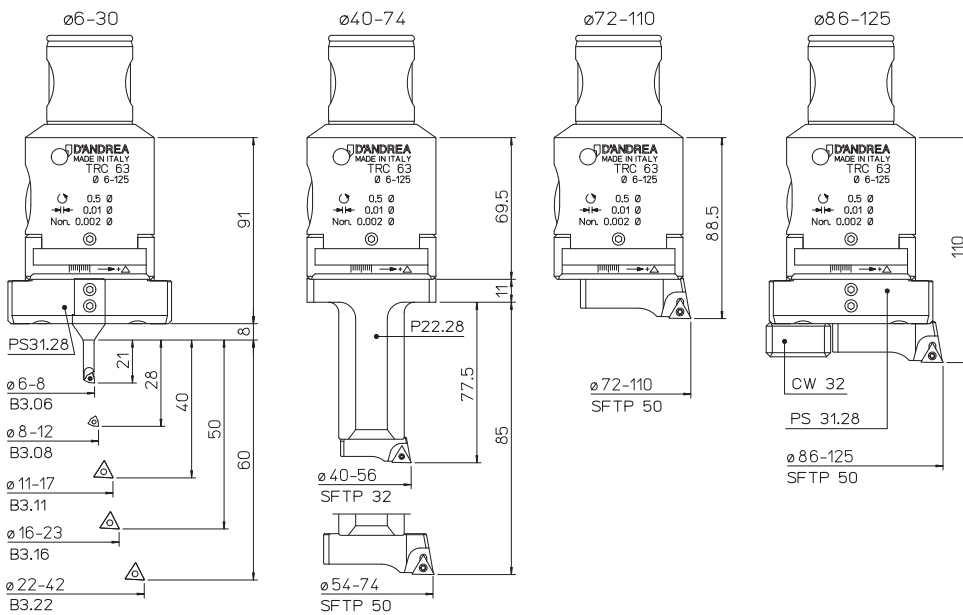
Ø 6 ~ 42

Ø 40 ~ 74

Ø 72 ~ 125

| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| TRC 63 | 455016301001 | 2   |

**KIT K01**  
Ø 6 ~ 125



1 TRC 63 1 B3.08 1 SFTP32  
1 PS31.28 1 B3.11 1 SFTP50  
1 CW 32 1 B3.16  
1 P22.28 1 B3.22  
1 B3.06  
5 TPGX 090202L DC100  
1 TPGX 110302L DC100  
2 WCGT 020102L DC100

| REF.           | CODE         | Ø       |
|----------------|--------------|---------|
| KIT K01 TRC 63 | 655016310632 | 6 ~ 125 |

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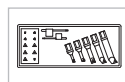
120



116



241



**B3**

- Tools
- Инструменты
- Narzędzia
- Nástroje
- Takımlar

**B5**

- Vibration-damping tools
- Виброизоляционные инструменты
- Narzędzia zapobiegające wibracjom
- Redukce tlumící nástroje
- Titreşim sönümleyici takımlar

**B8**

- Carbide tools
- Твердосплавные инструменты
- Narzędzia pełnowęglikowe
- Karbidové nástroje
- Karbürli takımlar

Ø 6 ~ 30

**PS 31.28**

Ø 80

Ø 16 H6

22.5

**B3.06**

22 L L1

Ø 16 H6

90°

**B3.08**

**B3.10**

90°

**B3.12**

**B3.14**

**B3.16**

**B3.18**

**B3.22**

**B5.06**

22 L

Ø 16 H6

90°

**B5.08**

**B5.10**

90°

**B5.12**

**B5.14**

**B5.16**

**B8.06**

22 L

Ø 16 H6

90°

**B8.08**

**B8.10**

90°

**B8.12**

**B8.14**

**B8.16**

Ø 6 ~ 8

Ø 8 ~ 10

Ø 10 ~ 12

Ø 12 ~ 14

Ø 14 ~ 16

Ø 16 ~ 18

Ø 18 ~ 22

Ø 22 ~ 30

| REF.            | CODE         | Kg. |
|-----------------|--------------|-----|
| PS 31.28 TRC 63 | 433028220801 | 0.3 |

| REF.  | CODE         | Ø1      | L   | L1 | △           | △           | △        | △        | Kg.   |
|-------|--------------|---------|-----|----|-------------|-------------|----------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29  | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36  | 28 |             |             | TS 211   |          | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43  | 35 |             |             |          |          | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48  | 40 |             |             |          |          | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 |     | 42 |             |             |          |          | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52  | 50 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58  |    |             |             |          |          |       |
| B3.18 | 572010518001 | 18 ~ 22 | 63  | -  |             |             |          |          | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68  |    |             |             |          |          |       |
| B5.06 | 572010506105 | 6 ~ 8   | 36  |    | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48  |    |             |             | TS 211   |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60  | -  |             |             |          |          | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72  |    | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84  |    |             |             |          |          | 0.3   |
| B5.16 | 572010516105 | 16 ~ 18 | 96  |    |             |             |          |          |       |
| B8.06 | 572010506108 | 6 ~ 8   | 45  |    | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |    |             |             | TS 211   |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  | -  |             |             |          |          | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |    | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |    |             |             |          |          | 0.3   |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |    |             |             |          |          |       |

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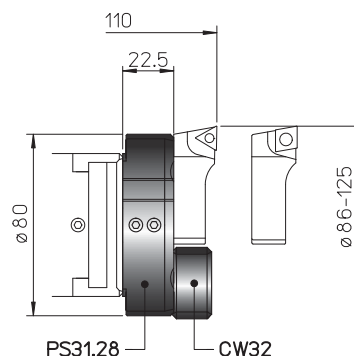
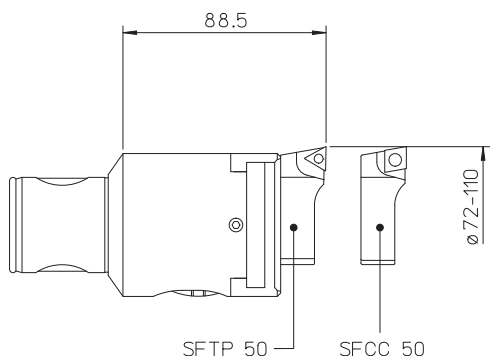
125

119

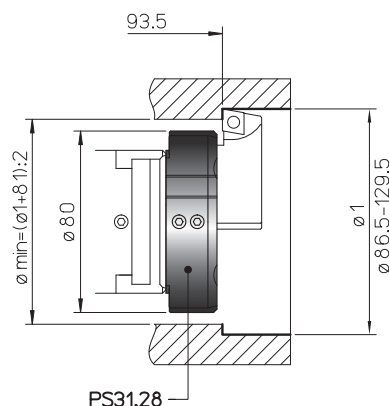
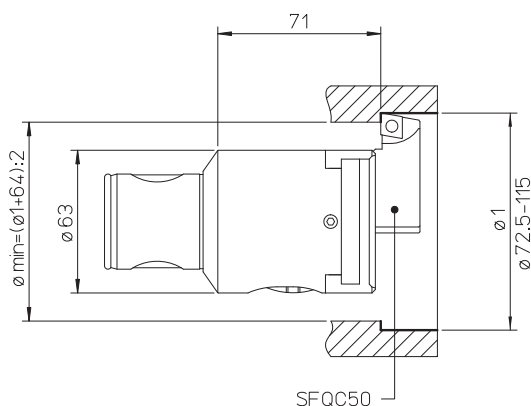


- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

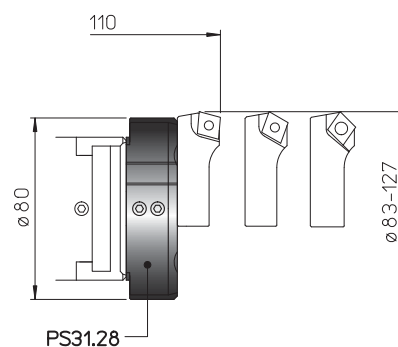
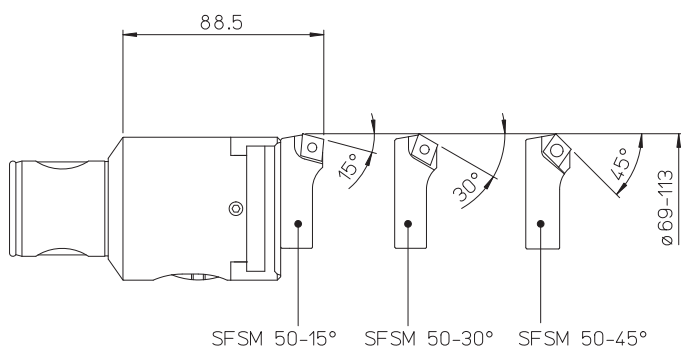
**PS 31**  
**CW 32**  
Ø 72~125



**PS 31**  
Ø 72.5 ~ 129.5



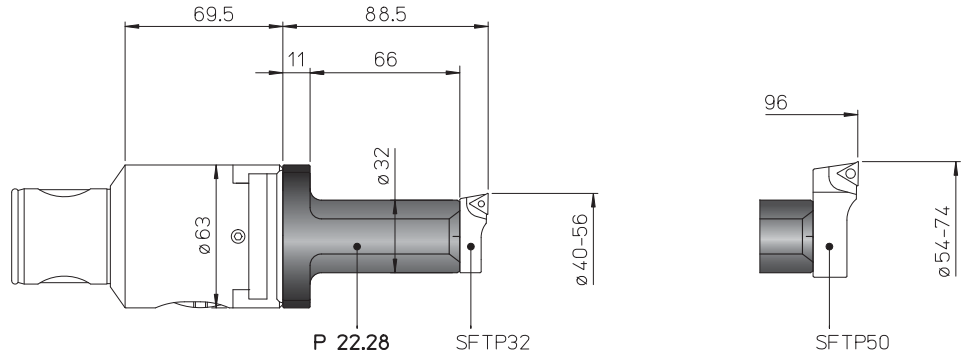
**PS 31**  
Ø 69 ~ 127



| REF.            | CODE         | Kg.  |
|-----------------|--------------|------|
| PS 31.28 TRC 63 | 433028220801 | 0.3  |
| CW 32           | 392011003201 | 0.07 |

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

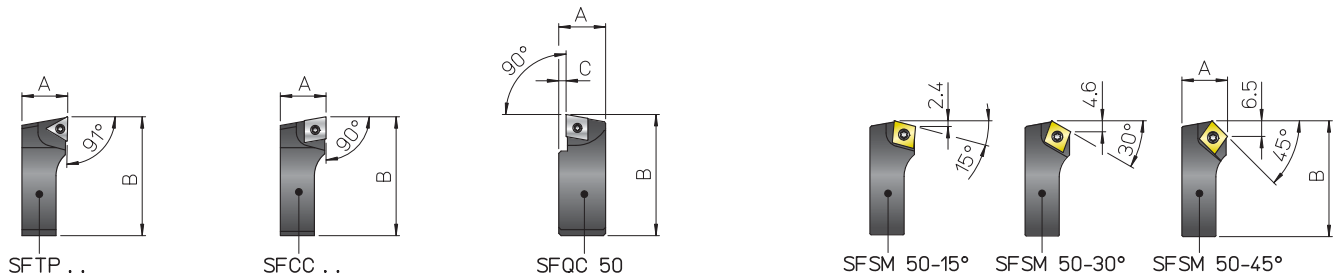
**P 22**  
Ø 40 ~ 74



| REF.    | CODE         | Ø    |
|---------|--------------|------|
| P 22.28 | 433028220631 | 0.45 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



| REF.        | CODE         | A    | B    | C | △           | □           | ⌋          | ⌋        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T | TORX T08 | 0.08 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORX T15 | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORX T15 | 0.07 |
| SFSM 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SFSM 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

116

125

119



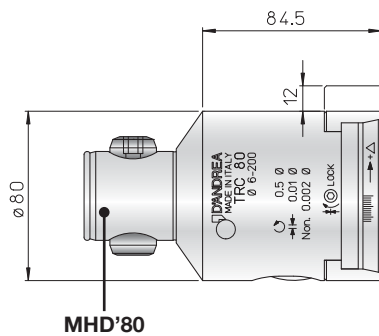
# D'ANDREA

## MODULHARD'ANDREA

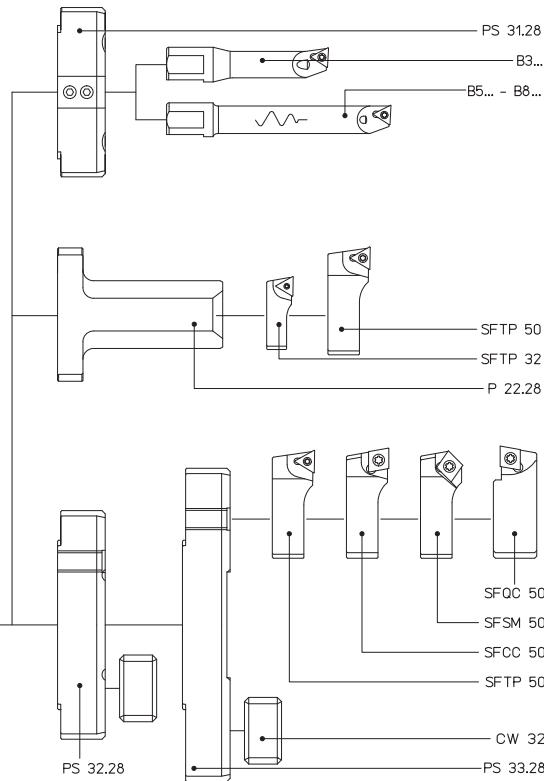


**10 µm**

nonio  
vernier **2 µm**



MHD'80



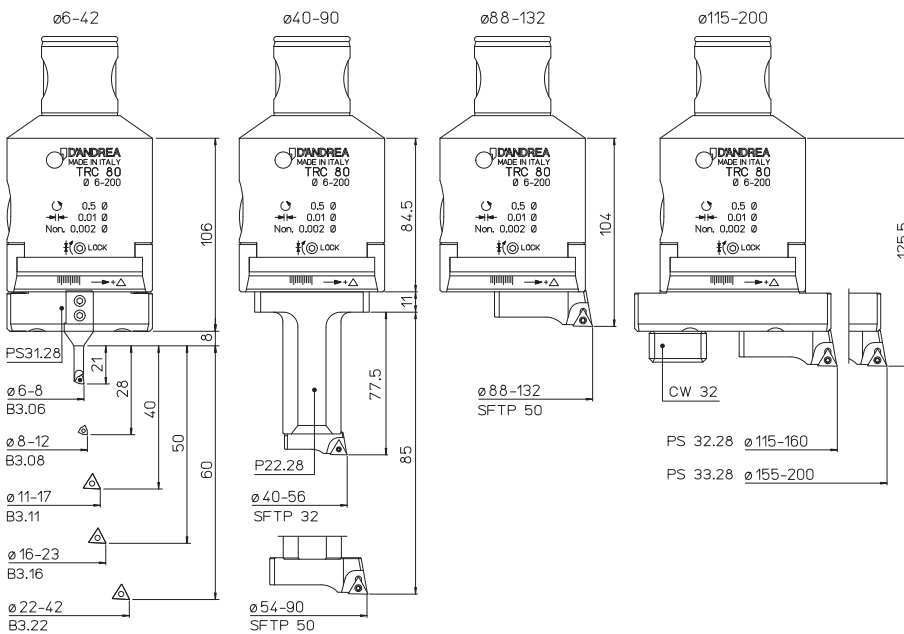
Ø 6 ~ 42

Ø 40 ~ 90

Ø 88 ~ 200

| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| TRC 80 | 455018001201 | 3.8 |

**KIT K01**  
Ø 6 ~ 200



- 1 TRC 80
- 1 PS31.28
- 1 PS32.28
- 1 PS33.28
- 1 CW 32
- 1 P22.28
- 5 TPGX 090202L DC100
- 1 TPGX 110302L DC100
- 2 WCGT 020102L DC100
- 1 B3.06
- 1 B3.08
- 1 B3.11
- 1 B3.16
- 1 B3.22
- 1 SFTP32
- 1 SFTP50

| REF.           | CODE         | Ø       |
|----------------|--------------|---------|
| KIT K01 TRC 80 | 655018010802 | 6 ~ 200 |

119



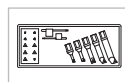
120



116



241





**B3**

- Tools
- Инструменты
- Narzędzia
- Nástroje
- Takımlar

**B5**

- Vibration-damping tools
- Виброизоляционные инструменты
- Narzędzia zapobiegające wibracjom
- Redukce tłumící nástroje
- Titreşim sönümleyici takımlar

**B8**

- Carbide tools
- Твердосплавные инструменты
- Narzędzia pełnowęglikowe
- Karbidové nástroje
- Karbürli takımlar

Ø 6 ~ 30

**PS 31.28**

Ø 80  
Ø 16 H6  
22.5

**B3.06** 22 L L1 95°  
Ø 16 g5

**B3.08**

**B3.10** 95°

**B3.12**

**B3.14**

**B3.16**

**B3.18**

**B3.22**

**B5.06** 22 L L1 95°  
Ø 16 g5

**B5.08**

**B5.10** 95°

**B5.12**

**B5.14**

**B5.16**

**B8.06** 22 L L1 95°  
Ø 16 g5

**B8.08**

**B8.10** 95°

**B8.12**

**B8.14**

**B8.16**

Ø 6 ~ 8  
Ø 8 ~ 10  
Ø 10 ~ 12  
Ø 12 ~ 14  
Ø 14 ~ 16  
Ø 16 ~ 18  
Ø 18 ~ 22  
Ø 22 ~ 30

| REF.            | CODE         | Kg. |
|-----------------|--------------|-----|
| PS 31.28 TRC 80 | 433028220801 | 0.3 |

| REF.  | CODE         | Ø1      | L   | L1 | ⚠           | ⚠           | 🔧        | 🔧        | Kg.   |
|-------|--------------|---------|-----|----|-------------|-------------|----------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29  | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36  | 28 |             |             | TS 211   |          | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43  | 35 |             |             |          |          | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48  | 40 |             |             |          |          | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 | 48  | 42 |             |             |          |          | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52  | 50 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58  |    |             |             |          |          |       |
| B3.18 | 572010518001 | 18 ~ 22 | 63  |    |             |             |          |          | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68  |    |             |             |          |          |       |
| B5.06 | 572010506105 | 6 ~ 8   | 36  |    | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48  |    |             |             | TS 211   |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60  |    |             |             |          |          | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72  |    | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84  |    |             |             |          |          | 0.3   |
| B5.16 | 572010516105 | 16 ~ 18 | 96  |    |             |             |          |          |       |
| B8.06 | 572010506108 | 6 ~ 8   | 45  |    | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |    |             |             | TS 211   |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  |    |             |             |          |          | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |    | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |    |             |             |          |          |       |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |    |             |             |          |          | 0.3   |

116

125

119



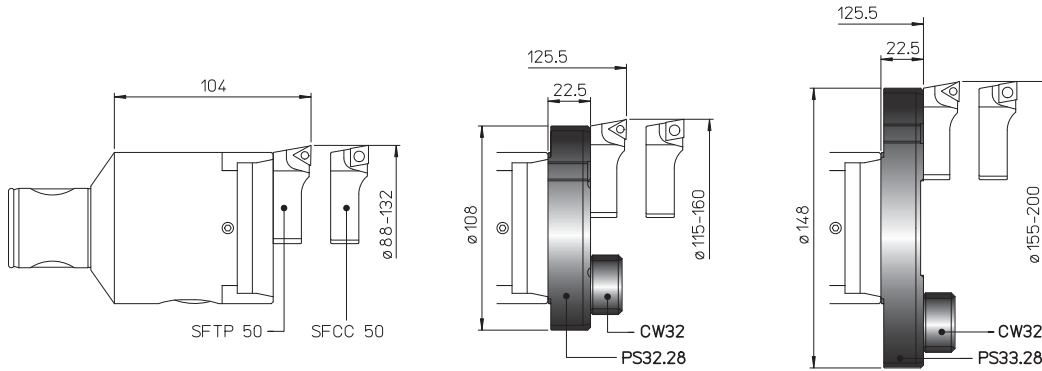
### TRC 80 Ø 85 ~ 202.5

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

PS

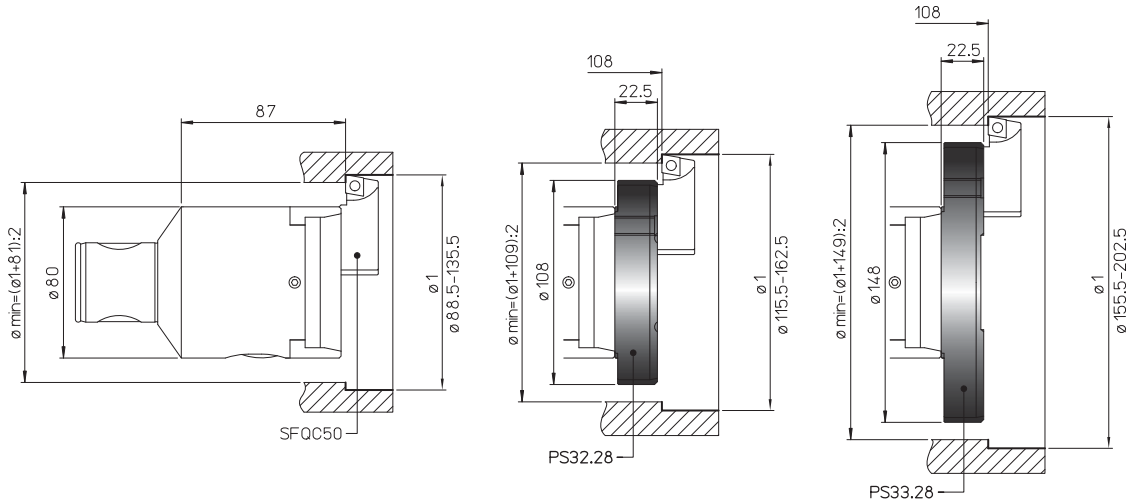
CW 32

Ø 88~ 200



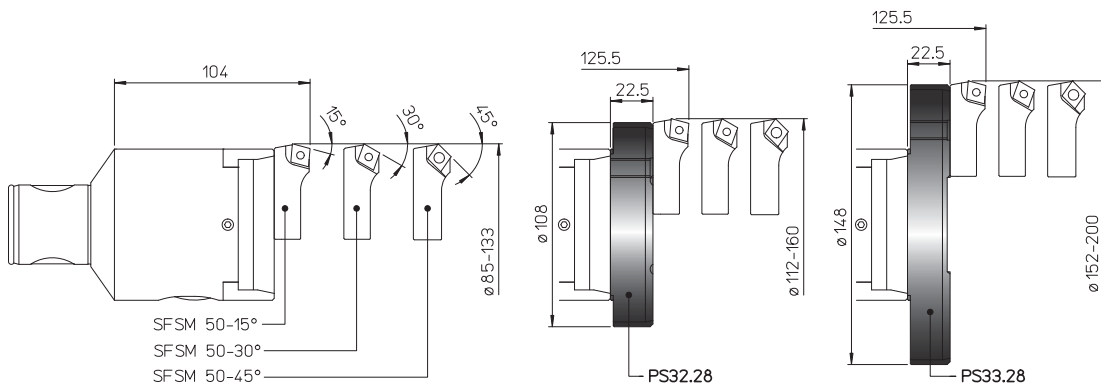
PS

Ø 88.5 ~ 202.5



PS

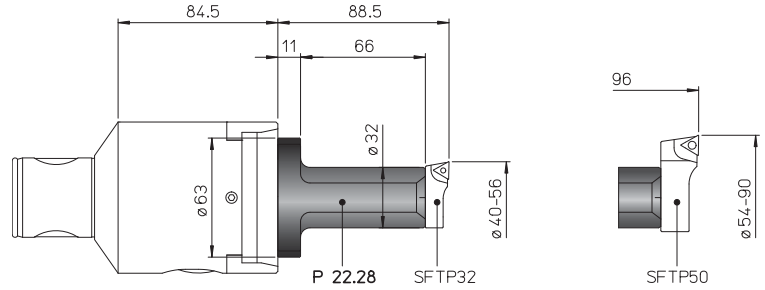
Ø 85 ~ 200



| REF.            | CODE         | Kg.  |
|-----------------|--------------|------|
| PS 32.28 TRC 80 | 433028221081 | 0.5  |
| PS 33.28 TRC 80 | 433028221481 | 0.6  |
| CW 32           | 392011003201 | 0.07 |

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

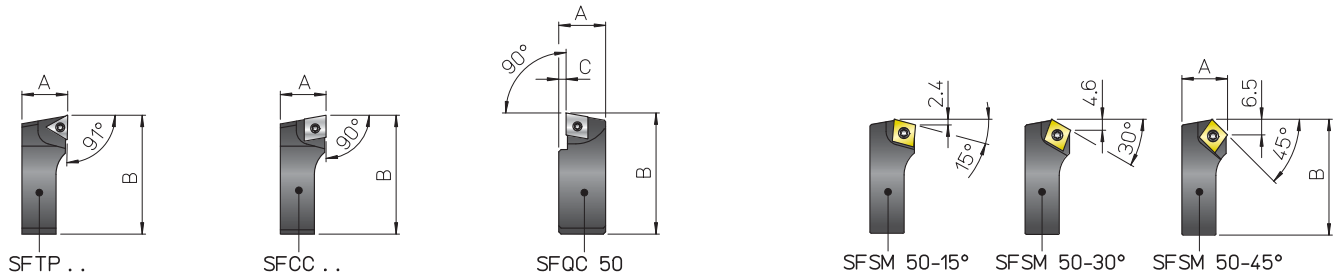
**P 22**  
Ø 40 ~ 90



| REF.    | CODE         | Kg.  |
|---------|--------------|------|
| P 22.28 | 433028220631 | 0.45 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



| REF.        | CODE         | A    | B    | C | △           | □           | ⌋          | ⌋        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 32     | 470500532001 | 11.5 | 34.5 | — | TPGX 0902.. | —           | CS 250T    | TORX T08 | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | — | TPGX 1103.. | —           | CS 300890T |          | 0.08 |
| SFCC 50     | 470500550002 | 19   | 52   | — | —           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | —           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | — | —           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SFSM 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

116

125

119



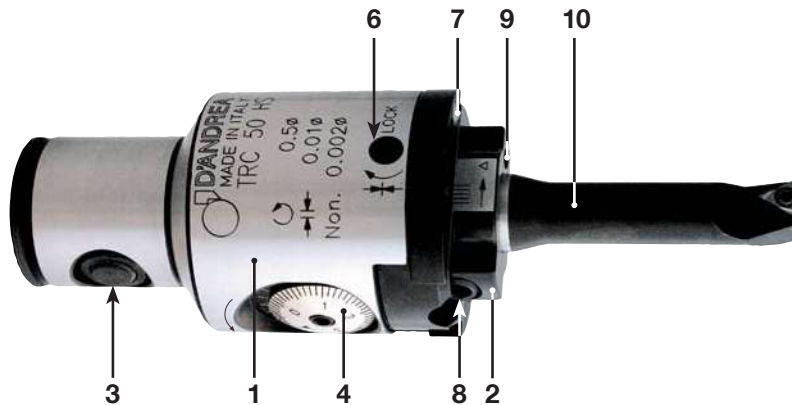
# D'ANDREA

## MODULHARD'ANDREA

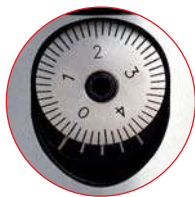
### TRC HS

RPM MAX 12.000

Ø 2.5 ~ 22



10  $\mu\text{m}$   
nonio  
vernier 2  $\mu\text{m}$



- 1 • Body  
• Корпус  
• Korpus  
• Tělo  
• Gövde
- 2 • Slide toolholder  
• Салазки  
• Sanie narzędziowe  
• Nástrojový držák šoupátka  
• Kayar takim tutucu
- 3 • Expanding radial pin  
• Разжимной радиальный штифт  
• Promieniowy sworzeń rozporowy  
• Rozšiřující radiální kolík  
• Radyal genişletme pimi
- 4 • Vernier scale  
• Нониус  
• Noniusz  
• Měřitko Vernier  
• Verniye skalası (taksimati)
- 5 • Micrometric vernier scale  
• Микрометрический нониус  
• Noniusz mikrometryczny  
• Mikrometrické měřitko vernier  
• Mikrometrik verniye skalası

#### TRC 32 HS

Ø 2.5 ~ 18



#### TRC 50 HS

Ø 2.5 ~ 22



**GB FEATURES.** High precision work to IT6 tolerance, with excellent surface finish, is achieved using TRC HS boring heads. These are very sensitive and radial correction of 5 micron can be effected directly on the machine and easily read on the vernier scale.

**RU ХАРАКТЕРИСТИКИ.** Головки TRC HS обеспечивают высокую точность обработки по классу точности IT6 с исключительной чистотой поверхности. Они очень чувствительны и радиальная коррекция в 5 микрон может быть осуществлена прямо на станке и легко считана по шкале нониуса.

**PL CECHY.** Głowice z serii TRC HS umożliwiają obróbkę o bardzo wysokiej dokładności w tolerancji IT6 i gwarantują uzyskanie doskonałej jakości powierzchni. Dokładność ustawcza głowic wynosi 5 mikrometrów na promieniu. Wartość ta jest łatwa do odczytania bezpośrednio na noniuszu, co umożliwia dokonywanie regulacji bezpośrednio na obrabiarce..

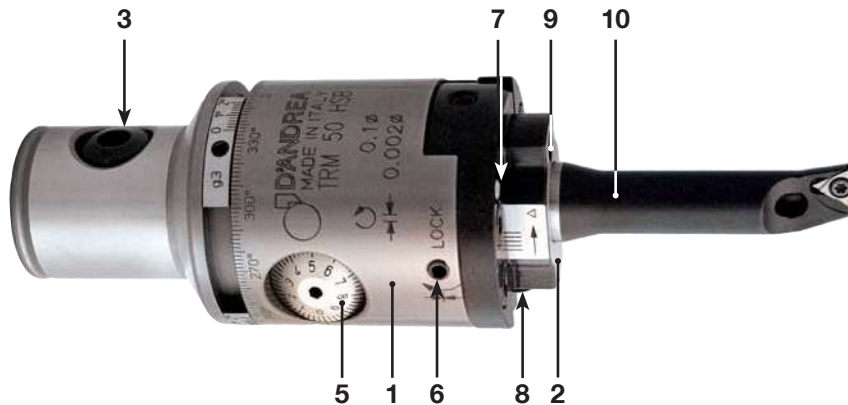
**CZ VLASTNOSTI.** Pomocí vyvrtávacích hlav TRC HS se docílí vysoce přesné obrábění dle tolerance IT6 s vynikající finální úpravou povrchu. Jsou velmi citlivé a radiální korekci 5 mikronů lze provést přímo na stroji a snadno odečíst na měřtku vernier.

**TR ÖZELLİKLER.** TRC HS matkap başları kullanılarak IT6 toleransa kadar yüksek hassasiyetli çalışma ve mükemmel yüzey bitirme gerçekleştirilir. Bunlar son derece hassastırlar ve 5 mikron radyal düzeltme doğrudan makine üzerinde gerçekleştirilip verniye skalasında kolayca okunabilir.

## TRM HSB

RPM MAX 20.000

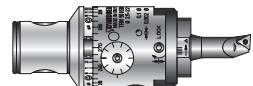
Ø 2.5 ~ 22



2 µm



- 6
  - Slide clamp screw
  - Зажимные винты салазок
  - Śruba blokująca sanie narzędziowe
  - Upínací šroub šoupátka
  - Sürgülü sıkma vidası
- 7
  - Coolant outlet
  - Выход хладагента
  - Wylot cieczy chłodzącej
  - Výstup chladicí kapaliny
  - Soğutma sıvısı çıkışı
- 8
  - Tools clamp screws
  - Зажимные винты инструмента
  - Śruba blokująca narzędzie
  - Upínací šrouby nástroje
  - Takımların sıkma vidaları
- 9
  - Oiler
  - Масленка
  - Smarownica
  - Olejnička
  - Yağlayıcı
- 10
  - Tool
  - Инструмент
  - Wytaczak
  - Nástroj
  - Takım

TRM 32 HSB  
Ø 2.5 ~ 18TRM 50 HSB  
Ø 2.5 ~ 22

**GB FEATURES.** High precision work to IT6 tolerance, with excellent surface finish, is achieved using TRM HSB boring heads. These are very sensitive and radial correction of 1 micron can be effected directly on the machine and easily read on the vernier scale.

**RU ХАРАКТЕРИСТИКИ.** Головки TRM HSB обеспечивают высокую точность обработки по классу точности IT6 с исключительной чистотой поверхности. Они очень чувствительны и радиальная коррекция в 1 микрон может быть осуществлена прямо на станке и легко считана по шкале нониуса.

**PL CECHY.** Głowice z serii TRC HSB umożliwiają obróbkę o bardzo wysokiej dokładności w tolerancji IT6 i gwarantują uzyskanie doskonałej jakości powierzchni. Dokładność ustawcza głowic wynosi 1 mikrometr na promieniu. Wartość ta jest łatwa do odczytania bezpośrednio na noniuszu, co umożliwia dokonywanie regulacji bezpośrednio na obrabiarce.

**CZ VLASTNOSTI.** Pomocí vyvrtávacích hlav TRM HSB se docílí vysoce přesné obrábění dle tolerance IT6 s vynikající finální úpravou povrchu. Jsou velmi citlivé a radiální korekce 1 mikron lze provést přímo na stroji a snadno odečíst na měřítku vernier.

**TR ÖZELLİKLER.** TRM HSB matkap başları kullanılarak IT6 toleransa kadar yüksek hassasiyetli çalışma ve mükemmel yüzey bitirme gerçekleştirilir. Bunlar son derece hassastırlar ve 1 mikron radyal düzeltme doğrudan makine üzerinde gerçekleştirilip verniye skalasında kolayca okunabilir.

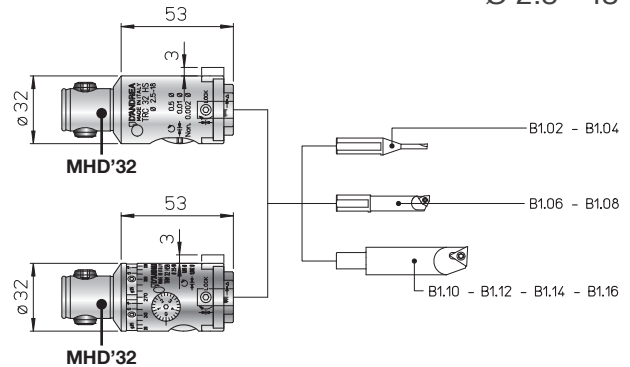
TRC 32 HS  
TRM 32 HSB  
Ø 2.5 ~ 18



**TRC 32 HS**  
Ø 2.5 ~ 18  
RPM MAX 12.000

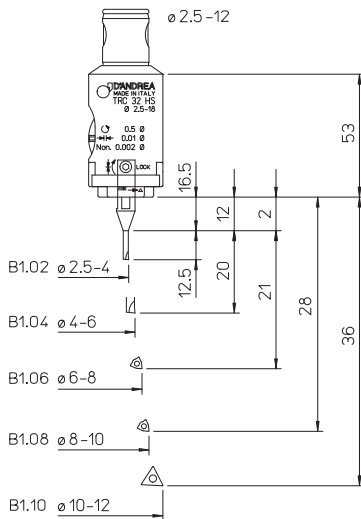


**TRM 32 HSB**  
Ø 2.5 ~ 18  
RPM MAX 20.000



| REF.       | CODE         | Kg.  |
|------------|--------------|------|
| TRC 32 HS  | 455033200531 | 0.35 |
| TRM 32 HSB | 455103200531 |      |

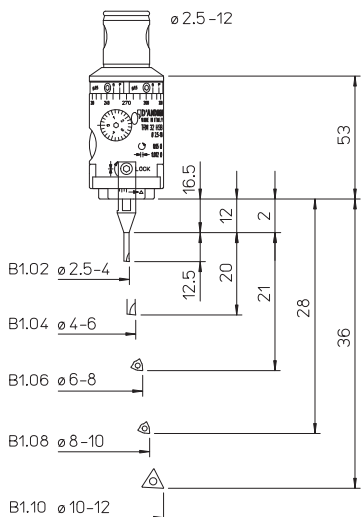
**KIT K01**  
**TRC 32 HS**  
Ø 2.5 ~ 12



1 TRC32HS 1 B1.04 1 B1.08  
1 B1.02 1 B1.06 1 B1.10  
5 TPGX 090202L DC100  
2 WCGT 020102L DC100

| REF.                     | CODE         | Ø        |
|--------------------------|--------------|----------|
| <b>KIT K01 TRC 32 HS</b> | 655033230322 | 2.5 ~ 12 |

**KIT K01**  
**TRM 32 HSB**  
Ø 2.5 ~ 12



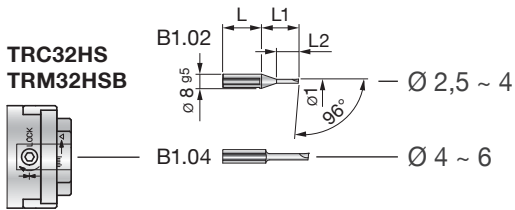
1 TRM32HSB 1 B1.04 1 B1.08  
1 B1.02 1 B1.06 1 B1.10  
5 TPGX 090202L DC100  
2 WCGT 020102L DC100

| REF.                      | CODE         | Ø        |
|---------------------------|--------------|----------|
| <b>KIT K01 TRM 32 HSB</b> | 655003230321 | 2.5 ~ 12 |



B1

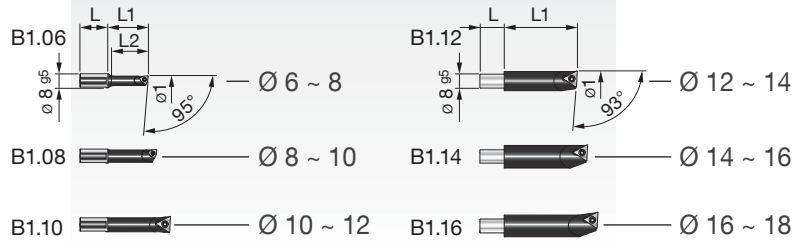
- Carbide tools
- Твердосплавные инструменты
- Narzędzia z twardego metalu
- Karbidové nástroje
- Karbürli takımlar



B1

- Tools
- Инструменты
- Narzędzia
- Nástroje
- Takımlar

Ø 2.5 ~ 22



| REF.  | CODE         | Ø1      | L  | L1 | L2   | Kg.  |
|-------|--------------|---------|----|----|------|------|
| B1.02 | 572010502001 | 2.5 ~ 4 | 22 | 21 | 12.5 | 0.02 |
| B1.04 | 572010504001 | 4 ~ 6   | 24 | 24 | —    |      |

| REF.  | CODE         | Ø1      | L  | L1 | L2 | WCGT 0201.. | TPGX 0902.. | CS 250 T | TORX T06 | TORX T08 | Kg.   |
|-------|--------------|---------|----|----|----|-------------|-------------|----------|----------|----------|-------|
| B1.06 | 572010506000 | 6 ~ 8   | 16 | 23 | 21 | —           | —           | TS 21    | —        | —        | 0.01  |
| B1.08 | 572010508000 | 8 ~ 10  | 16 | 28 | —  | —           | —           | TS 211   | —        | —        | 0.015 |
| B1.10 | 572010510000 | 10 ~ 12 | 14 | 36 | —  | —           | —           | —        | —        | —        | 0.02  |
| B1.12 | 572010512000 | 12 ~ 14 | 14 | 42 | —  | —           | —           | —        | —        | —        | 0.03  |
| B1.14 | 572010514000 | 14 ~ 16 | 14 | 48 | —  | —           | —           | —        | —        | —        | 0.04  |
| B1.16 | 572010516000 | 16 ~ 18 | 14 | 54 | —  | —           | —           | —        | —        | —        | 0.05  |



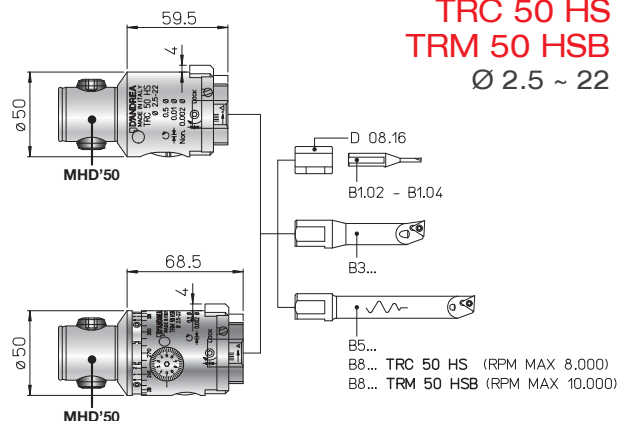
**10 µm**  
nonio  
vernier **2 µm**

**TRC 50 HS**  
Ø 2.5 ~ 22  
RPM MAX 12.000

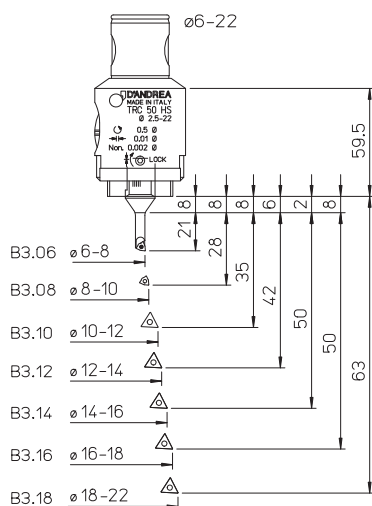


**2 µm**

**TRM 50 HSB**  
Ø 2.5 ~ 22  
RPM MAX 20.000



| REF.       | CODE         | Kg. |
|------------|--------------|-----|
| TRC 50 HS  | 455035000601 | 1   |
| TRM 50 HSB | 455105000701 | 1.4 |

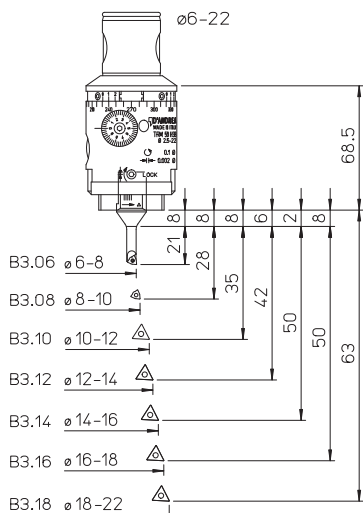


**KIT K01**  
**TRC 50 HS**  
Ø 6 ~ 22



1 TRC50HS 1 B3.10 1 B3.16  
1 B3.06 1 B3.12 1 B3.18  
1 B3.08 1 B3.14  
5 TPGX 090202L DC100  
2 WCGT 020102L DC100

| REF.              | CODE         | Ø      |
|-------------------|--------------|--------|
| KIT K01 TRC 50 HS | 655035030502 | 6 ~ 22 |

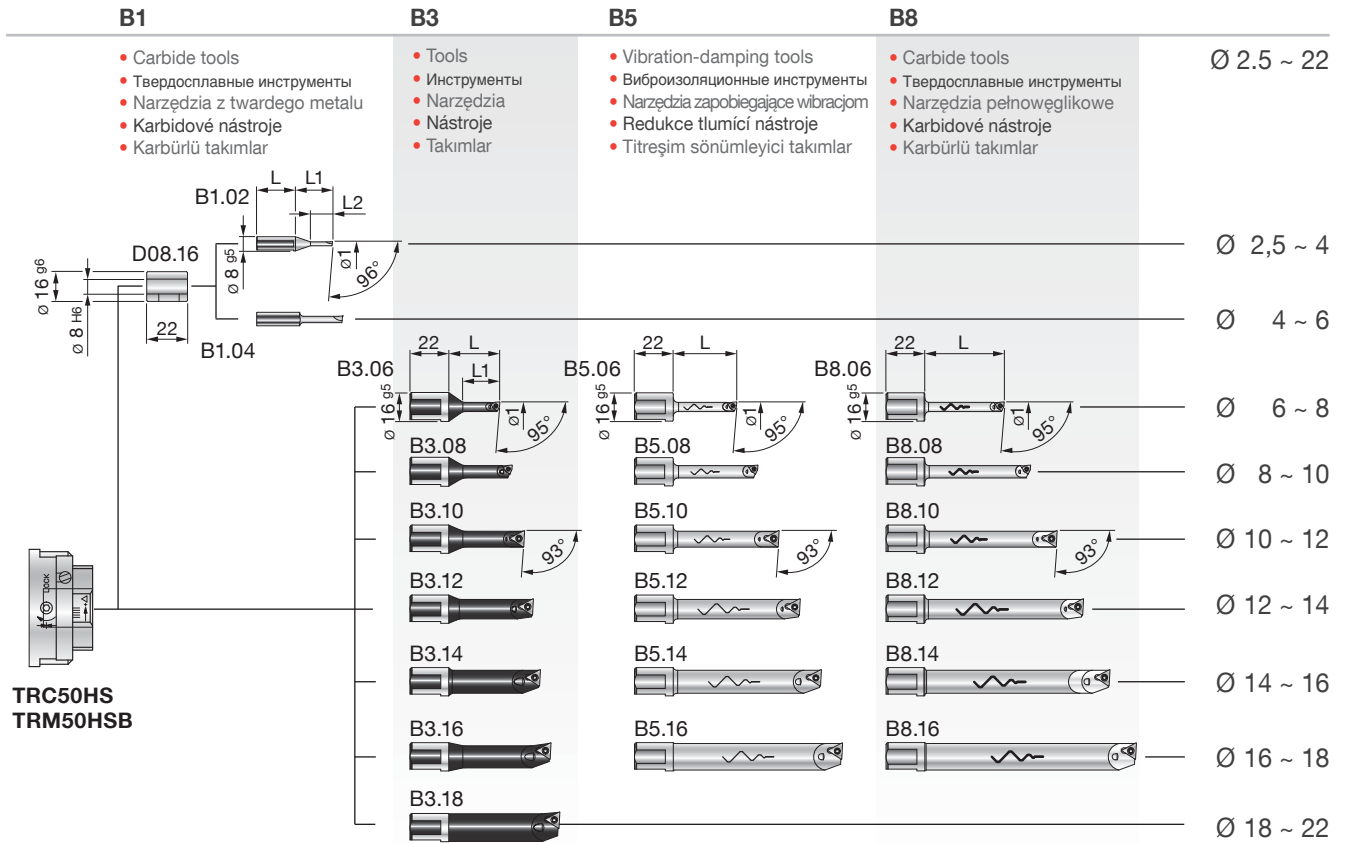


**KIT K01**  
**TRM 50 HSB**  
Ø 6 ~ 22



1 TRM50HSB 1 B3.10 1 B3.16  
1 B3.06 1 B3.12 1 B3.18  
1 B3.08 1 B3.14  
5 TPGX 090202L DC100  
2 WCGT 020102L DC100

| REF.               | CODE         | Ø      |
|--------------------|--------------|--------|
| KIT K01 TRM 50 HSB | 655005030501 | 6 ~ 22 |



| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| D08.16 | 200560116082 | 0.02 |

| REF.  | CODE         | Ø1      | L  | L1 | L2   | Kg.  |
|-------|--------------|---------|----|----|------|------|
| B1.02 | 572010502001 | 2.5 ~ 4 | 22 | 21 | 12.5 | 0.02 |
| B1.04 | 572010504001 | 4 ~ 6   | 24 | 24 | -    |      |

| REF.  | CODE         | Ø1      | L  | L1 |  |  |  |  | Kg.   |
|-------|--------------|---------|----|----|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29 | 21 | WCGT 0201..                                                                         | -                                                                                   | TS 21                                                                               | TORX T06                                                                            | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36 | 28 |                                                                                     |                                                                                     | TS 211                                                                              |                                                                                     | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43 | 35 | -                                                                                   | TPGX 0902..                                                                         | CS 250 T                                                                            | TORX T08                                                                            | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48 | 40 |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 |    | 42 |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52 | 50 |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58 |    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |       |
| B3.18 | 572010518001 | 18 ~ 22 | 63 | -  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |       |

|       |              |         |    |   |             |             |          |          |       |
|-------|--------------|---------|----|---|-------------|-------------|----------|----------|-------|
| B5.06 | 572010506105 | 6 ~ 8   | 36 | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48 |   |             |             | TS 211   |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60 |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72 |   |             |             |          |          | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84 |   |             |             |          |          | 0.3   |
| B5.16 | 572010516105 | 16 ~ 18 | 96 |   |             |             |          |          | 0.3   |

|       |              |         |     |   |             |             |          |          |       |
|-------|--------------|---------|-----|---|-------------|-------------|----------|----------|-------|
| B8.06 | 572010506108 | 6 ~ 8   | 45  | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |   |             |             | TS 211   |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |   |             |             |          |          | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |   |             |             |          |          | 0.3   |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |   |             |             |          |          | 0.3   |

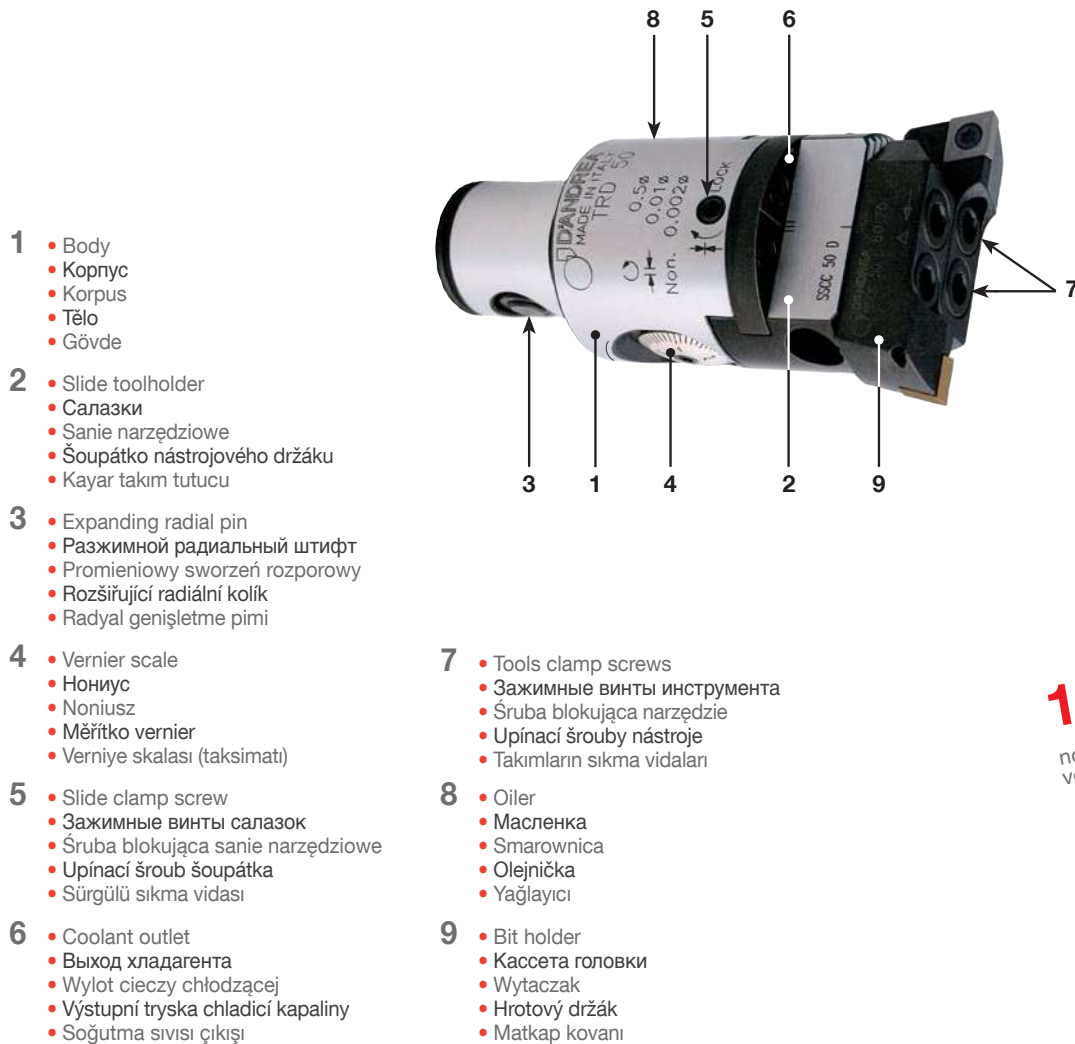
116

125

119



- DOUBLE-BIT TESTAROSSA
- ДВУХРЕЗЦОВАЯ ГОЛОВКА TESTAROSSA
- GŁOWICA TESTAROSSA DWUNOŻOWA
- DVOUHROTOVÁ TESTAROSSA
- ÇİFT UÇLU TESTAROSSA



Dom. Brev. Dep.  
Patent Pending

**10  $\mu$ m**  
nonio  
vernier **2  $\mu$ m**



**GB** The main advantage of the TRD head is that it can be pre-regulated independently of the bit holders found on the slide. This allows both roughing and high precision finish work at the same time.

**RU** Основным преимуществом головок TRD является независимая предварительная регулировка кассет, установленных на салазках, которая позволяет осуществлять черновые и чистовые операции.

**PL** Główną zaletą głowic TRD jest możliwość niezależnej regulacji wytaczadeł znajdujących się na saniach. Umożliwia to wykonywanie operacji wytaczania zgrubnego i wykończeniowego w tym samym czasie.

**CZ** Hlavní výhodou hlavy TRD je, že ji lze předem regulovat nezávisle na hrotových držácích na šoupátku. To umožňuje jak hrubování tak vysoce přesné finální opracování současně.

**TR** TRD kafanın en büyük avantajı, sürgü üzerinde bulunan kovanlardan bağımsız olarak ön ayara tabi tutulabilmesidir. Bu sayede, kaba işleme ve ince işleme çalışmaları aynı anda yapılabilir.

**GB FEATURES.** The double-bit TRD heads allow both roughing and high precision finish thanks to their rigidity and the sensitivity of the sliding mechanism which can achieve radial correction of 5 microm. This can be effected directly on the machine and easily read on the vernier scale.

**RU ХАРАКТЕРИСТИКИ.** Двухрезцовые головки TRD позволяют осуществлять комбинированные операции высокой точности, как черновые, так и чистовые, благодаря жесткости и чувствительности механизма салазок, который позволяет достигать радиальной коррекции в 5 микрон. Корректировка может быть осуществлена прямо на станке и считана по шкале нониуса.

**PL CECHY.** Głowice dwunożowe TRD umożliwiają jednoczesne wytaczanie zgrubne i wykończeniowe dzięki wysokiej sztywności i dokładności mechanizmu mikrometrycznego. Dokładność ustawcza wynosi 5 mikrometrów na promieniu. Wartość ta jest możliwa do odczytania bezpośrednio na obrabiarce dzięki czytelnej skali znajdującej się na głowicy.

**CZ VLASTNOSTI.** Dvouhrotové hlavy TRD umožňují jak hrubování tak vysoce přesné finální opracování díky pevnosti a citlivosti šoupátkového mechanismu, který může dosáhnout radiální korekce 5 mikrometrů. To lze provést přímo na stroji a snadno odečíst měřítkem vernier.

**TR ÖZELLİKLER.** Çift uçlu TRD kafaları, sağlamlıkları ve 5 mikron radyal düzeltme yapılabilen kayar mekanizmaları sayesinde hem kaba işleme hem de yüksek hassasiyetli ince işleme işlerinin yapılabilmesini sağlar. Bu doğrudan makine üzerinde gerçekleştirilebilir ve verniye skalasında kolayca okunabilir.

**TRD 25**  
Ø 28 ~ 36



**TRD 32**  
Ø 36 ~ 46



**TRD 40**  
Ø 46 ~ 60



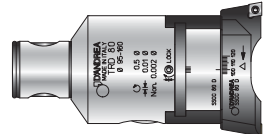
**TRD 50**  
Ø 60 ~ 75



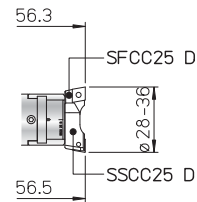
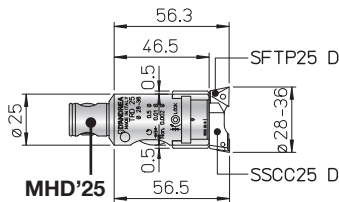
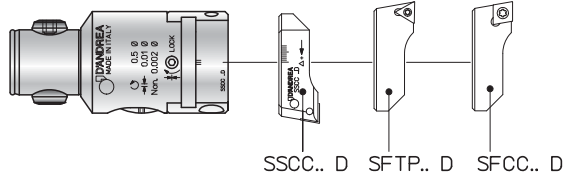
**TRD 63**  
Ø 75 ~ 95



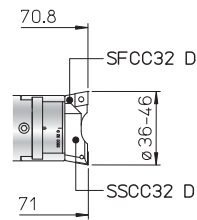
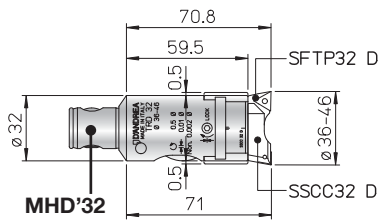
**TRD 80**  
Ø 95 ~ 160



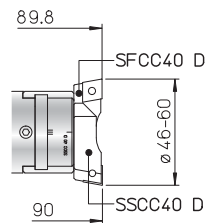
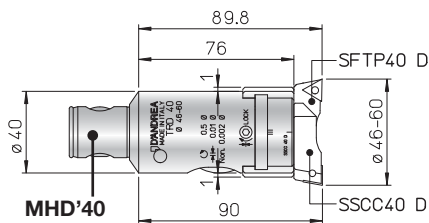
- **DOUBLE-BIT TESTAROSSA**
- **ДВУХРЕЗЦОВАЯ ГОЛОВКА TESTAROSSA**
- **GŁOWICA TESTAROSSA DWUNOŻOWA**
- **DVOUHROTOVÁ TESTAROSSA**
- **ÇİFT UÇLU TESTAROSSA**



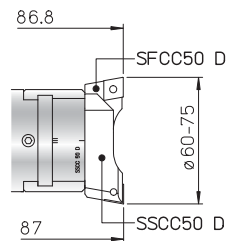
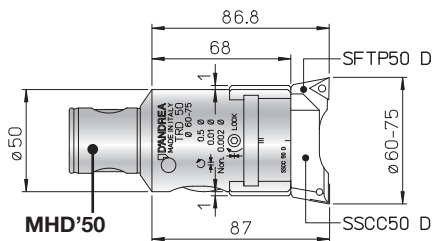
TRD 25  
Ø 28 ~ 36



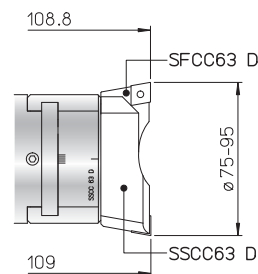
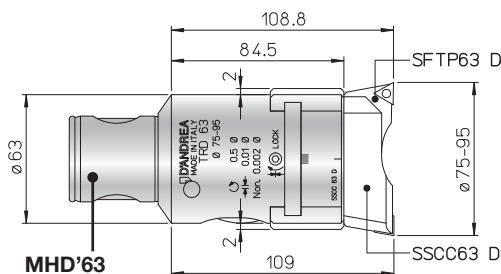
TRD 32  
Ø 36 ~ 46



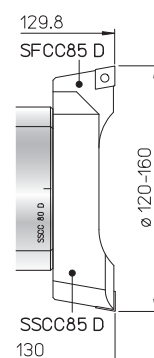
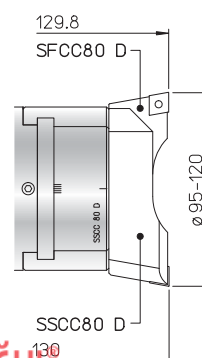
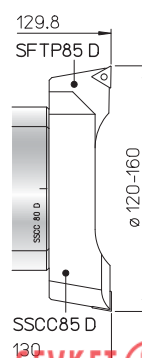
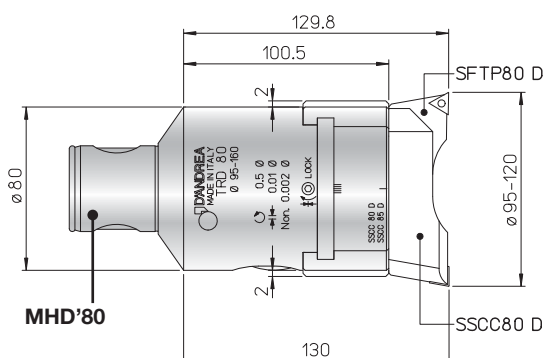
TRD 40  
Ø 46 ~ 60



TRD 50  
Ø 60 ~ 75



TRD 63  
Ø 75 ~ 95



TRD 80  
Ø 95 ~ 160



- DOUBLE-BIT TESTAROSSA
- ДВУХРЕЗЦОВАЯ ГОЛОВКА TESTAROSSA
- GŁOWICA TESTAROSSA DWUNOŻOWA
- DVOUHROTOVÁ TESTAROSSA
- ÇİFT UÇLU TESTAROSSA

TRD

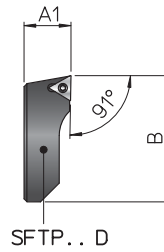
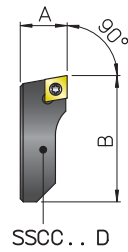


10 µm  
nonio  
vernier 2 µm

| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| TRD 25 | 455022500571 | 0.2  |
| TRD 32 | 455023200711 | 0.35 |
| TRD 40 | 455024000901 | 0.7  |
| TRD 50 | 455025000861 | 1.5  |
| TRD 63 | 455026301081 | 2.7  |
| TRD 80 | 455028001291 | 4.8  |

- BIT-HOLDERS FOR DOUBLE-BIT TESTAROSSA
- КАССЕТЫ ДЛЯ ДВУХРЕЗЦОВОЙ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA DWUNOŻOWYCH
- HROTOVÉ DRŽÁKY PRO DVOUHROTOVOU TESTAROSSA
- ÇİFT UÇLU TESTAROSSA İÇİN MATKAP KOVANLARI

SS-SF



| REF.      | CODE         | A    | A1   | B     |             |             |            |          | Kg.   |
|-----------|--------------|------|------|-------|-------------|-------------|------------|----------|-------|
| SSCC 25 D | 470500525220 | 10   | -    | 24    | -           | CCMT 0602.. | TS 25      | TORX T08 | 0.008 |
| SSCC 32 D | 470500532220 | 11.5 | -    | 30    | -           |             |            |          | 0.015 |
| SSCC 40 D | 470500540220 | 14   | -    | 40    | -           |             |            |          | 0.03  |
| SSCC 50 D | 470500550220 | 19   | -    | 54    | -           |             |            |          | 0.06  |
| SSCC 63 D | 470500563220 | 24.5 | -    | 68    | -           | CCMT 09T3.. | TS 4       | TORX T15 | 0.15  |
| SSCC 80 D | 470500580220 | 29.5 | -    | 87    | -           |             |            |          | 0.3   |
| SSCC 85 D | 470500585221 |      | -    | 107.4 | -           |             |            |          | 0.4   |
| SFTP 25 D | 470500525030 | -    | 9.8  | 24    | TPGX 0902.. | -           | CS 250T    |          | 0.008 |
| SFTP 32 D | 470500532030 | -    | 11.3 | 30    |             |             |            |          | 0.015 |
| SFTP 40 D | 470500540030 | -    | 13.8 | 40    |             |             |            |          | 0.03  |
| SFTP 50 D | 470500550030 | -    | 18.8 | 54    |             |             |            |          | 0.06  |
| SFTP 63 D | 470500563030 | -    | 24.3 | 68    | TPGX 1103.. | -           | CS 300890T | TORX T08 | 0.15  |
| SFTP 80 D | 470500580030 | -    | 29.3 | 87    |             |             |            |          | 0.3   |
| SFTP 85 D | 470500585031 | -    |      | 107.4 |             |             |            |          | 0.4   |
| SFCC 25 D | 470500525020 | -    | 9.8  | 24    | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.008 |
| SFCC 32 D | 470500532020 | -    | 11.3 | 30    | -           |             |            |          | 0.015 |
| SFCC 40 D | 470500540020 | -    | 13.8 | 40    | -           |             |            |          | 0.03  |
| SFCC 50 D | 470500550020 | -    | 18.8 | 54    | -           |             |            |          | 0.06  |
| SFCC 63 D | 470500563020 | -    | 24.3 | 68    | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.15  |
| SFCC 80 D | 470500580020 | -    | 29.3 | 87    | -           |             |            |          | 0.3   |
| SFCC 85 D | 470500585021 | -    |      | 107.4 | -           |             |            |          | 0.4   |

116

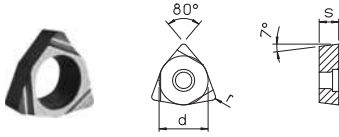
120

118



- INSERTS
- BCTABKI
- KOŃCÓWKI
- VLOŽKY
- EK PARÇALAR

WCGT ○○○○○○ L

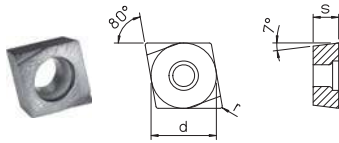


| REF.          | d    | s    | r   |                |          | CARBIDE |       | CERMET | COATED CERMET |
|---------------|------|------|-----|----------------|----------|---------|-------|--------|---------------|
|               |      |      |     |                |          | DP300   | DK100 | DC100  | DC100T        |
| WCGT 020102 L | 3.97 | 1.59 | 0.2 | TS 21*-TS 211* | TORX T06 | •       | •     | •      | •             |
| WCGT 020104 L |      |      | 0.4 |                |          | •       | •     | •      | •             |

\* TS21 : B...06

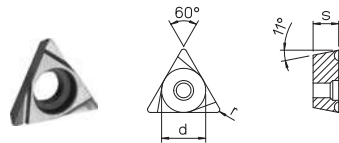
\* TS211 : B...08

CCGT ○○○○○○ L



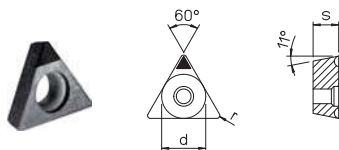
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|------------------|-------|------|-----|-------|----------|---------|-------|--------|---------------|
|                  |       |      |     |       |          | DP300   | DK100 | DC100  | DC100T        |
| CCGT 060200 L10° | 6.35  | 2.38 | 0   | TS 25 | TORX T08 | •       | •     | •      | •             |
| CCGT 060202 L    |       |      | 0.2 |       |          | •       | •     | •      | •             |
| CCGT 060204 L    |       |      | 0.4 |       |          | •       | •     | •      | •             |
| CCGT 09T302 L    | 9.525 | 3.97 | 0.2 | TS 4  | TORX T15 | •       | •     | •      | •             |
| CCGT 09T304 L    |       |      | 0.4 |       |          | •       | •     | •      | •             |

TPGX ○○○○○○ L



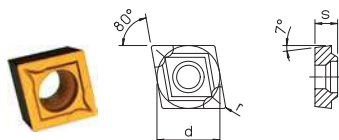
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|------------------|------|------|-----|-----------|----------|---------|-------|--------|---------------|
|                  |      |      |     |           |          | DP300   | DK100 | DC100  | DC100T        |
| TPGX 090200 L10° | 5.56 | 2.38 | 0   | CS250T    | TORX T08 | •       | •     | •      | •             |
| TPGX 090202 L    |      |      | 0.2 |           |          | •       | •     | •      | •             |
| TPGX 090204 L    |      |      | 0.4 |           |          | •       | •     | •      | •             |
| TPGX 110300 L10° | 6.35 | 3.18 | 0   | CS300890T | TORX T08 | •       | •     | •      | •             |
| TPGX 110302 L    |      |      | 0.2 |           |          | •       | •     | •      | •             |
| TPGX 110304 L    |      |      | 0.4 |           |          | •       | •     | •      | •             |

TPGX ○○○○○○



| REF.        | d    | s    | r   |           |          | SINTERED DIAMOND | CUBIC BORON NITRIDE |         |
|-------------|------|------|-----|-----------|----------|------------------|---------------------|---------|
|             |      |      |     |           |          | D20 MDC          | D20 CBN             | D25 CBN |
| TPGX 090202 | 5.56 | 2.38 | 0.2 | CS250T    | TORX T08 | •                | •                   | •       |
| TPGX 090204 |      |      | 0.4 |           |          | •                | •                   | •       |
| TPGX 110302 | 6.35 | 3.18 | 0.2 | CS300890T | TORX T08 | •                | -                   | •       |
| TPGX 110304 |      |      | 0.4 |           |          | •                | •                   | •       |

CCMT ○○○○○○



| REF.        | d     | s    | r   |       |          | CARBIDE | CVD COATED CARBIDE |
|-------------|-------|------|-----|-------|----------|---------|--------------------|
|             |       |      |     |       |          | DP300   | DP100 R            |
| CCMT 060202 | 6.35  | 2.38 | 0.2 | TS 25 | TORX T08 | •       | •                  |
| CCMT 060204 |       |      | 0.4 |       |          | •       | •                  |
| CCMT 09T304 | 9.525 | 3.97 | 0.4 | TS 4  | TORX T15 | •       | •                  |
| CCMT 09T308 |       |      | 0.8 |       |          | •       | •                  |
| CCMT 120404 | 12.7  | 4.76 | 0.4 | TS 5  | TORX T25 | •       | •                  |
| CCMT 120408 |       |      | 0.8 |       |          | •       | •                  |



- BORING GRADE
- ПАСТОЧКА
- JAKOŚĆ WYTACZANIA
- STUPEŇ VYVRTÁVÁNÍ
- DELİK AÇMA SINIFI

| ISO | CARBIDE<br>ИЗ ТВЕРДОСПЛАВНОГО МЕТАЛЛА<br>TWARDY METAL<br>KARBID<br>METALLI SERAMİK | CERMET | COATED CERMET<br>МЕТАЛЛО-КЕРАМИЧЕСКАЯ С ПОКРЫТИЕМ<br>CERMET POWLEKANY<br>POTAHOVANÝ CERMET<br>KAPLAMALI METALLI SERAMİK | CVD COATED CARBIDE<br>ИЗ ТВЕРДОСПЛАВНОГО МЕТАЛЛА С ПОКРЫТИЕМ CVD<br>TWARDY METAL POWLEKANY CVD<br>CVD POTAHOVANÝ KARBID<br>CVD KAPLI KARBÜR |
|-----|------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| P01 |                                                                                    |        |                                                                                                                         |                                                                                                                                             |
| P10 |                                                                                    | DC100  | DC100T                                                                                                                  | DP100R                                                                                                                                      |
| P20 | DP300                                                                              |        |                                                                                                                         |                                                                                                                                             |
| P30 |                                                                                    |        |                                                                                                                         |                                                                                                                                             |
| P40 |                                                                                    |        |                                                                                                                         |                                                                                                                                             |
| K01 |                                                                                    |        |                                                                                                                         |                                                                                                                                             |
| K10 | DK100                                                                              | DC100  | DC100T                                                                                                                  | DP100R                                                                                                                                      |
| K20 | DP300                                                                              |        |                                                                                                                         |                                                                                                                                             |
| K30 |                                                                                    |        |                                                                                                                         |                                                                                                                                             |

**DP300**

- Roughing and finishing. Low carbon steel - stainless steels
- Черновая и чистовая обработка. Низкоуглеродистая сталь – нержавеющая сталь
- Obróbka zgrubna i wykończenie. Stale o niskiej zawartości węgla – stale nierdzewne
- Hrubování a dokončování. Nízkouhlíková ocel - nerezové oceli
- Kaba işleme ve bitirme. Düşük karbonlu çelik - paslanmaz çelikler

**DK100**

- Roughing and finishing. Aluminium alloy Cast iron
- Черновая и чистовая обработка. Алюминиевый сплав, чугун
- Obróbka zgrubna i wykończenie. Stopy aluminium i żeliwa
- Hrubování a dokončování. Hliníková slitina. Litina
- Kaba işleme ve bitirme. Alüminyum alaşım Dökme demir

**DP100R**

- Roughing. Steels, alloy steels and cast iron
- Черновая обработка. Сталь, легированная сталь и чугун
- Obróbka zgrubna. Stale, stale stopowe i żeliwa
- Hrubování. Oceli, slitinové oceli a litina
- Kaba işleme. Çelikler, alaşımlı çelikler ve dökme demir

**DC100**

- Finishing. Alloy steels and cast iron
- Чистовая обработка. Легированная сталь в целом и сфероидальный чугун
- Wykończenie. Stale stopowe i żeliwa sferoidalne
- Dokončování. Slitinové oceli a litina
- Bitirme. Alaşımlı çelikler ve dökme demir

**DC100T**

- Finishing. Alloy steels, stainless steels and cast iron
- Чистовая обработка. Легированная сталь в целом и сфероидальный чугун
- Wykończenie. Stale stopowe, stale nierdzewne i żeliwa sferoidalne
- Dokončování. Slitinové oceli, nerezové oceli a litina
- Bitirme. Alaşımlı çelikler, paslanmaz çelikler ve dökme demir

**D20MDC**

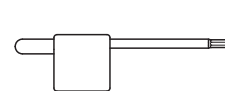
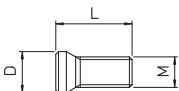
- Finishing. Aluminium alloys, non-ferrous materials and non-metals
- Чистовая обработка. Алюминиевые сплавы, цветные металлы и неметаллы
- Wykończenie. Stopy aluminium, materiały nieżelazne i niemetały
- Dokončování. Hliníkové slitiny, neželezné materiály a nekovy
- Bitirme. Alüminyum alaşımlar, demir içermeyen malzemeler ve metal olmayan malzemeler

**D20CBN**

- Finishing. High hardness steels (over 50 HRC) (it may replace the grinding)
- Чистовая обработка. Стали с высокой твердостью - по Роквеллу более 50 ед. по шкале С (может заменить шлифование)
- Wykończenie. Stale o dużej twardości przekraczającej 50 HRC (może zastępować szlifowanie)
- Dokončování. Oceli o vysoké tvrdosti (nad 50 HRC) (může nahradit broušení)
- Bitirme. Yüksek sertlikte (>50 HRC) çelikler (taşlamanın yerini alabilir)

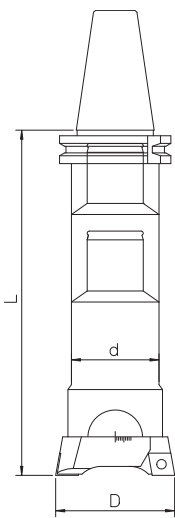
**D25CBN**

- Finishing. High hardness steel (over 50 HRC) and interrupted cutting (it may replace the grinding)
- Чистовая обработка. Стали с высокой твердостью - по Роквеллу более 50 ед. по шкале С и прерывание резания (может заменить шлифование)
- Wykończenie. Stale o dużej twardości przekraczającej 50 HRC i skrawaniu przerywanym (może zastępować szlifowanie)
- Dokončování. Ocel o vysoké tvrdosti (nad 50 HRC) a přerušované frézování (může nahradit broušení)
- Bitirme. Yüksek sertlikte (>50 HRC) çelik ve fasıllı kesme (taşlamanın yerini alabilir)

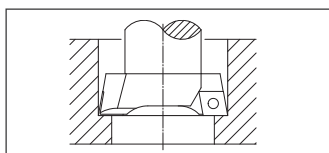
**TORX**

| REF.        | CODE         | M          | L    | D    | REF.     | CODE             |
|-------------|--------------|------------|------|------|----------|------------------|
| TS 21       | 494010002034 | M 2x0.4    | 3.7  | 2.7  | TORX T06 | 10 150 09 0 0600 |
| TS 211      | 494010002040 |            | 4    |      |          |                  |
| CS 250 T    | 494010002565 | M 2.5x0.45 | 6    | 3.7  | TORX T08 | 10 150 09 0 0800 |
| CS 300890 T | 494010003008 | M 3x0.5    | 8    | 4.1  |          |                  |
| TS 25       | 494010002555 | M 2.5x0.45 | 5.7  | 3.45 | TORX T15 | 10 150 09 0 1500 |
| TS 4        | 494010004008 | M 4x0.7    | 10   | 5.5  |          |                  |
| TS 5        | 494010005009 | M 5x0.8    | 11.5 | 7    | TORX T25 | 10 150 09 0 2500 |
| DMC US63    | 494210035070 | M 3.5x0.6  | 10   | 5.2  | TORX T15 | 10 150 09 0 1500 |

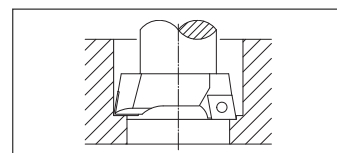
• **RECOMMENDED CUTTING CONDITIONS FOR ROUGHING OPERATIONS WITH DOUBLE-BIT HEADS TS**  
 • **DATI DI TAGLIO CONSIGLIATI PER SGROSSATURA DI FORI CON TESTINE BITAGLIENTI TS**

| material<br><br>materiale                         | boring bar<br>dimensions<br><br>dimensioni<br>bareno | working<br>conditions<br><br>condizioni<br>di lavoro | cutting speed $V_c = \text{m/min.}$<br>velocità di taglio $V_c = \text{m/min.}$ |                      |           | feed $f_n = \text{mm/rev (twin cutters)}$<br>avanzamento $f = \text{mm/giro (due taglienti)}$ |                                 |           |  |
|---------------------------------------------------|------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------|----------------------|-----------|-----------------------------------------------------------------------------------------------|---------------------------------|-----------|-------------------------------------------------------------------------------------|
|                                                   |                                                      |                                                      | D < 38                                                                          | diameter<br>diametro | D > 120   | R = 0.2                                                                                       | insert radius<br>raggio inserto | R = 0.8   |                                                                                     |
|                                                   |                                                      |                                                      |                                                                                 | D = 38-120           |           |                                                                                               |                                 |           |                                                                                     |
| carbon steel<br>acciaio al carbonio<br>HB ≤ 200   | L / d = 2.5                                          | good / buona                                         | 120 - 180                                                                       | 140 - 200            | 160 - 250 | –                                                                                             | 0.2 - 0.4                       | 0.3 - 0.5 |                                                                                     |
|                                                   | L / d = 4                                            | normal / normale                                     | 100 - 160                                                                       | 120 - 180            | 140 - 200 | –                                                                                             | 0.2 - 0.4                       | 0.3 - 0.5 |                                                                                     |
|                                                   | L / d = 6.3                                          | difficult / difficile                                | 70 - 100                                                                        | 70 - 100             | 70 - 100  | 0.15 - 0.3                                                                                    | 0.2 - 0.4                       | -         |                                                                                     |
| carbon steel<br>acciaio al carbonio<br>HB > 200   | L / d = 2.5                                          | good / buona                                         | 100 - 160                                                                       | 120 - 180            | 140 - 200 | –                                                                                             | 0.2 - 0.4                       | 0.3 - 0.5 |                                                                                     |
|                                                   | L / d = 4                                            | normal / normale                                     | 80 - 140                                                                        | 100 - 160            | 120 - 180 | –                                                                                             | 0.2 - 0.4                       | 0.3 - 0.5 |                                                                                     |
|                                                   | L / d = 6.3                                          | difficult / difficile                                | 60 - 90                                                                         | 70 - 100             | 70 - 100  | 0.15 - 0.3                                                                                    | 0.2 - 0.4                       | -         |                                                                                     |
| stainless steel<br>acciaio inox<br>AISI 304 - 316 | L / d = 2.5                                          | good / buona                                         | 80 - 110                                                                        | 90 - 120             | 100 - 140 | –                                                                                             | 0.2 - 0.4                       | 0.3 - 0.5 |                                                                                     |
|                                                   | L / d = 4                                            | normal / normale                                     | 70 - 100                                                                        | 80 - 110             | 90 - 120  | –                                                                                             | 0.2 - 0.4                       | 0.3 - 0.5 |                                                                                     |
|                                                   | L / d = 6.3                                          | difficult / difficile                                | 60 - 90                                                                         | 60 - 90              | 60 - 90   | 0.15 - 0.3                                                                                    | 0.2 - 0.4                       | -         |                                                                                     |
| cast iron<br>ghisa                                | L / d = 2.5                                          | good / buona                                         | 90 - 120                                                                        | 100 - 140            | 120 - 160 | –                                                                                             | 0.2 - 0.4                       | 0.3 - 0.5 |                                                                                     |
|                                                   | L / d = 4                                            | normal / normale                                     | 70 - 100                                                                        | 90 - 120             | 100 - 140 | –                                                                                             | 0.2 - 0.4                       | 0.3 - 0.5 |                                                                                     |
|                                                   | L / d = 6.3                                          | difficult / difficile                                | 60 - 90                                                                         | 60 - 90              | 60 - 90   | 0.15 - 0.3                                                                                    | 0.2 - 0.4                       | -         |                                                                                     |
| aluminium<br>alluminio                            | L / d = 2.5                                          | good / buona                                         | 160 - 250                                                                       | 200 - 300            | 250 - 350 | –                                                                                             | 0.3 - 0.5                       | 0.4 - 0.6 |                                                                                     |
|                                                   | L / d = 4                                            | normal / normale                                     | 140 - 200                                                                       | 160 - 250            | 200 - 300 | –                                                                                             | 0.3 - 0.5                       | 0.4 - 0.6 |                                                                                     |
|                                                   | L / d = 6.3                                          | difficult / difficile                                | 100 - 150                                                                       | 100 - 150            | 100 - 150 | 0.2 - 0.4                                                                                     | 0.3 - 0.5                       | -         |                                                                                     |

| cutting depth<br>profondità di passata                                              | working range<br>campo di lavoro | max. cutting depth max.<br>profondità di passata |                                          |
|-------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------------|------------------------------------------|
| ap = mm                                                                             | Ø = mm                           | steel<br>acciaio                                 | cast iron, aluminium<br>ghisa, alluminio |
|  | 18 - 28                          | 1.5 - 2                                          | 2 - 2.5                                  |
|                                                                                     | 28 - 50                          | 2 - 3                                            | 2.5 - 3.5                                |
|                                                                                     | 50 - 68                          | 3 - 4                                            | 3.5 - 5                                  |
|                                                                                     | 68 - 200                         | 4 - 5                                            | 5 - 7                                    |
|                                                                                     | 200 - 500                        | 5 - 6                                            | 6 - 8                                    |



- Twin cutters at the same cutting diameter
- Due taglienti sullo stesso diametro



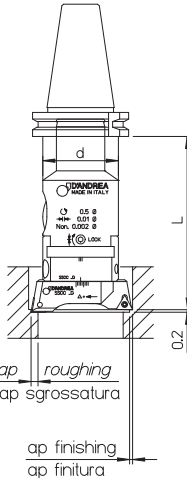
- Twin cutters at different cutting diameters
- Due taglienti su diametri diversi

- It's advisable to start with B hole ≥ the boring bar diameter d.
- È consigliabile che il preforo B sia ≥ al diametro del bareno d.

- **ATTENTION:** For boring operations at different diameters, reduce to a half the feed indicated on the above table.
- **ATTENZIONE:** Per lavorare con un solo tagliente o con differenti diametri di taglio, dimezzare l'avanzamento indicato in tabella.

• **RECOMMENDED CUTTING CONDITIONS FOR BORING OPERATIONS WITH DOUBLE-BIT TESTAROSSA TRD**  
 • **DATI DI TAGLIO CONSIGLIATI PER ALESATURA CON TESTAROSSA BITAGLIENTE TRD**

| material                                          | boring bar dimensions | working conditions    | cutting speed<br>Vc= m/min.      | feed fn= mm/rev                 |           | quality insert          |                       | cutting depth         |                         |            |             |
|---------------------------------------------------|-----------------------|-----------------------|----------------------------------|---------------------------------|-----------|-------------------------|-----------------------|-----------------------|-------------------------|------------|-------------|
| materiale                                         | dimensioni bareno     | condizioni di lavoro  | velocità di taglio<br>Vc= m/min. | avanzamento<br>fn= mm/giro      |           | qualità inserto         |                       | profondità di passata |                         |            |             |
|                                                   |                       |                       |                                  | insert radius<br>raggio inserto |           | roughing<br>sgrossatura | finishing<br>finitura | finishing<br>finitura | roughing<br>sgrossatura |            |             |
|                                                   |                       |                       |                                  | R = 0.2                         | R = 0.4   |                         |                       |                       | ø28<br>ø46              | ø46<br>ø75 | ø75<br>ø160 |
| carbon steel<br>acciaio al carbonio<br>HB ≤ 200   | L / d = 2.5           | good / buona          | 160 - 250                        | 0.1 - 0.2                       | 0.1 - 0.2 | DC100<br>DP300          | DP300<br>DP100R       | 0.15 - 0.3            | 1.5                     | 2          | 2.5         |
|                                                   | L / d = 4             | normal / normale      | 120 - 180                        | 0.1 - 0.2                       | 0.1 - 0.2 |                         |                       |                       |                         |            |             |
|                                                   | L / d = 6.3           | difficult / difficile | 70 - 100                         | *0.1 - 0.15                     | 0.1 - 0.2 |                         |                       |                       |                         |            |             |
| carbon steel<br>acciaio al carbonio<br>HB > 200   | L / d = 2.5           | good / buona          | 140 - 200                        | 0.1 - 0.2                       | 0.1 - 0.2 | DC100                   | DP300<br>DP100R       | 0.15 - 0.3            | 1.5                     | 2          | 2.5         |
|                                                   | L / d = 4             | normal / normale      | 100 - 160                        | 0.1 - 0.2                       | 0.1 - 0.2 |                         |                       |                       |                         |            |             |
|                                                   | L / d = 6.3           | difficult / difficile | 70 - 100                         | *0.1 - 0.15                     | 0.1 - 0.2 |                         |                       |                       |                         |            |             |
| stainless steel<br>acciaio inox<br>AISI 304 - 316 | L / d = 2.5           | good / buona          | 100 - 140                        | 0.1 - 0.2                       | 0.1 - 0.2 | DP300                   | DP300                 | 0.15 - 0.3            | 1.5                     | 2          | 2.5         |
|                                                   | L / d = 4             | normal / normale      | 80 - 110                         | 0.1 - 0.2                       | 0.1 - 0.2 |                         |                       |                       |                         |            |             |
|                                                   | L / d = 6.3           | difficult / difficile | 60 - 90                          | *0.1 - 0.15                     | 0.1 - 0.2 |                         |                       |                       |                         |            |             |
| cast iron<br>ghisa                                | L / d = 2.5           | good / buona          | 120 - 160                        | 0.1 - 0.2                       | 0.1 - 0.2 | DK100<br>DC300          | DP100R                | 0.15 - 0.3            | 2                       | 2.5        | 3           |
|                                                   | L / d = 4             | normal / normale      | 90 - 120                         | 0.1 - 0.2                       | 0.1 - 0.2 |                         |                       |                       |                         |            |             |
|                                                   | L / d = 6.3           | difficult / difficile | 60 - 90                          | *0.1 - 0.15                     | 0.1 - 0.2 |                         |                       |                       |                         |            |             |
| aluminium<br>alluminio                            | L / d = 2.5           | good / buona          | 250 - 350                        | 0.1 - 0.2                       | 0.1 - 0.2 | DK100                   | DK100                 | 0.15 - 0.3            | 2                       | 2.5        | 3           |
|                                                   | L / d = 4             | normal / normale      | 160 - 250                        | 0.1 - 0.2                       | 0.1 - 0.2 |                         |                       |                       |                         |            |             |
|                                                   | L / d = 6.3           | difficult / difficile | 100 - 150                        | *0.1 - 0.15                     | 0.1 - 0.2 |                         |                       |                       |                         |            |             |

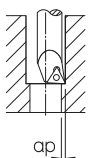
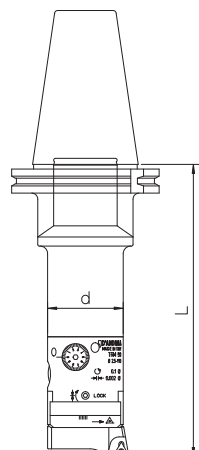


Technical drawing of a boring bar with dimensions L, d, and ap. The drawing shows the bar with a conical tip and a cutting edge. The dimensions are labeled: L is the total length, d is the diameter, and ap is the cutting depth. The drawing also shows the roughing and finishing stages of the cut.

\* Only for finishing inserts

\* Solo per inserti di finitura

- **RECOMMENDED CUTTING CONDITIONS FOR BORING OPERATIONS WITH TESTAROSSA TR-E / TRM / TRC / TR-PSC**
- **DATI DI TAGLIO CONSIGLIATI PER L'ALESATURA CON TESTAROSSA TR-E / TRM / TRC / TR-PSC**

| material                                          | boring bar dimensions | working conditions    | cutting speed<br>Vc= m/min.      | feed fn= mm/rev<br>avanzamento fn= mm/giro |             |             | quality insert  | cutting depth                                                                                                                                                                  |
|---------------------------------------------------|-----------------------|-----------------------|----------------------------------|--------------------------------------------|-------------|-------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| materiale                                         | dimensioni bareno     | condizioni di lavoro  | velocità di taglio<br>Vc= m/min. | insert radius<br>raggio inserto            |             |             | qualità inserto | profondità di passata                                                                                                                                                          |
|                                                   |                       |                       |                                  | R = 0.0                                    | R = 0.2     | R = 0.4     |                 |                                                                                                                                                                                |
| carbon steel<br>acciaio al carbonio<br>HB ≤ 200   | L / d = 2.5           | good / buona          | 200 - 300                        | –                                          | 0.05 - 0.08 | 0.07 - 0.1  | DC100<br>DP300  | <br><br> |
|                                                   | L / d = 4             | normal / normale      | 160 - 250                        | –                                          | 0.05 - 0.08 | 0.07 - 0.1  |                 |                                                                                                                                                                                |
|                                                   | L / d = 6.3           | difficult / difficile | 70 - 100                         | 0.05 - 0.08                                | 0.05 - 0.08 | –           |                 |                                                                                                                                                                                |
| carbon steel<br>acciaio al carbonio<br>HB > 200   | L / d = 2.5           | good / buona          | 160 - 250                        | –                                          | 0.05 - 0.08 | 0.07 - 0.1  | DC100           |                                                                                                                                                                                |
|                                                   | L / d = 4             | normal / normale      | 150 - 200                        | –                                          | 0.05 - 0.08 | 0.07 - 0.1  |                 |                                                                                                                                                                                |
|                                                   | L / d = 6.3           | difficult / difficile | 70 - 100                         | 0.05 - 0.08                                | 0.05 - 0.08 | –           |                 |                                                                                                                                                                                |
| stainless steel<br>acciaio inox<br>AISI 304 - 316 | L / d = 2.5           | good / buona          | 120 - 160                        | –                                          | 0.05 - 0.08 | 0.07 - 0.1  | DP300           |                                                                                                                                                                                |
|                                                   | L / d = 4             | normal / normale      | 100 - 140                        | –                                          | 0.05 - 0.08 | 0.07 - 0.1  |                 |                                                                                                                                                                                |
|                                                   | L / d = 6.3           | difficult / difficile | 70 - 100                         | 0.05 - 0.08                                | 0.05 - 0.08 | –           |                 |                                                                                                                                                                                |
| cast iron<br>ghisa                                | L / d = 2.5           | good / buona          | 120 - 160                        | –                                          | 0.05 - 0.08 | 0.07 - 0.1  | DK100<br>DC100  |                                                                                                                                                                                |
|                                                   | L / d = 4             | normal / normale      | 100 - 140                        | –                                          | 0.05 - 0.08 | 0.07 - 0.1  |                 |                                                                                                                                                                                |
|                                                   | L / d = 6.3           | difficult / difficile | 70 - 100                         | 0.05 - 0.08                                | 0.05 - 0.08 | –           |                 |                                                                                                                                                                                |
| aluminium<br>alluminio                            | L / d = 2.5           | good / buona          | 300 - 400                        | –                                          | 0.05 - 0.08 | 0.07 - 0.1  | DK100           |                                                                                                                                                                                |
|                                                   | L / d = 4             | normal / normale      | 250 - 350                        | –                                          | 0.05 - 0.08 | 0.07 - 0.1  |                 |                                                                                                                                                                                |
|                                                   | L / d = 6.3           | difficult / difficile | 100 - 150                        | 0.05 - 0.08                                | 0.05 - 0.08 | –           |                 |                                                                                                                                                                                |
| steel<br>acciaio<br>HB ≤ 200                      | L / d = 2.5           | good / buona          | 80 - 100                         | –                                          | 0.04 - 0.06 | 0.05 - 0.07 | D20CBN          |                                                                                                                                                                                |
|                                                   | L / d = 4             | normal / normale      | 80 - 100                         | –                                          | 0.04 - 0.06 | 0.05 - 0.07 |                 |                                                                                                                                                                                |

- **CALCULATION FORMULAS FOR BORING**
- **FORMULA DI CALCOLO PER ALESATURA**

**Vc** • cutting speed (m/min.)  
• velocità di taglio (m/min.)

$$Vc = \frac{\pi \cdot D \cdot n}{1000}$$

**D** • diameter of workpiece (mm)  
• diametro del pezzo da lavorare (mm)

$$n = \frac{Vc \cdot 1000}{\pi \cdot D}$$

**n** • number of revolutions / min' (rev./min.)  
• numero di giri al minuto (giri/min.)

**Vf** • feed rate (mm/min.)  
• velocità avanzamento (mm/min.)

$$Vf = n \cdot fn$$

**fn** • feed / rev. (mm/rev)  
• avanzamento al giro (mm/giro)

**π** • 3.14

- SPARE PARTS
- ЗАПАСНЫЕ ЧАСТИ
- CZĘŚCI ZAMIENNE
- NÁHRADNÍ DÍLY
- YEDEK PARÇALAR

### SYSTEM MHD'

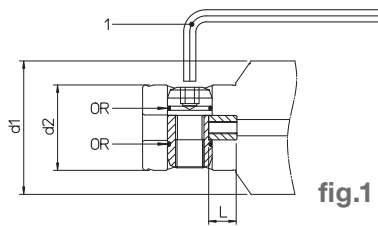


fig.1

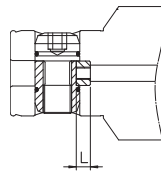


fig.2

| REF.                                            | CODE         | d1      | d2 | CODE 1       | CODE OR      | L     | fig. |
|-------------------------------------------------|--------------|---------|----|--------------|--------------|-------|------|
| MHD' 14                                         | 381725001161 | 14      | 10 | 101500100250 | -            | 2     | 2    |
| MHD' 16                                         |              | 16      |    |              |              |       |      |
| MHD' 20                                         | 381725001201 | 20      | 13 | 101500100300 |              | 2.5   |      |
| MHD' 25                                         | 381725001251 | 25      | 16 |              |              | 3     |      |
| MHD' 32                                         | 381725001321 | 32      | 20 | 101500100400 | 101254007510 | 3.55  |      |
| MHD' 40                                         | 381725001401 | 40      | 25 | 101500100500 | 101254010010 | 4     |      |
| MHD' 50<br>RD 50 / ..<br>TR-E - TRM - TRC - TRD | 381725001501 | 50      | 32 | 101500100600 | 101254013010 | 4.2   | 1    |
| MHD' 50                                         | 381725001001 |         |    |              |              | 12.2  |      |
| MHD' 63-80                                      | 381725001002 | 63-80   | 42 | 101500100800 | 101251002075 | 13.85 |      |
| MHD' 110 - 140                                  | 381725001003 | 110-140 | 76 | 101500101400 | 101251003112 | 10    |      |

TS

fig.1

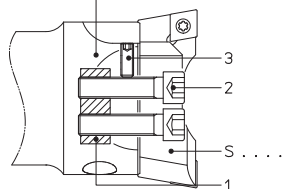
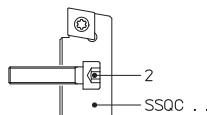
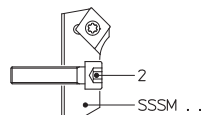
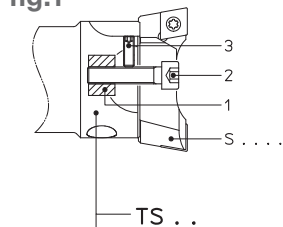


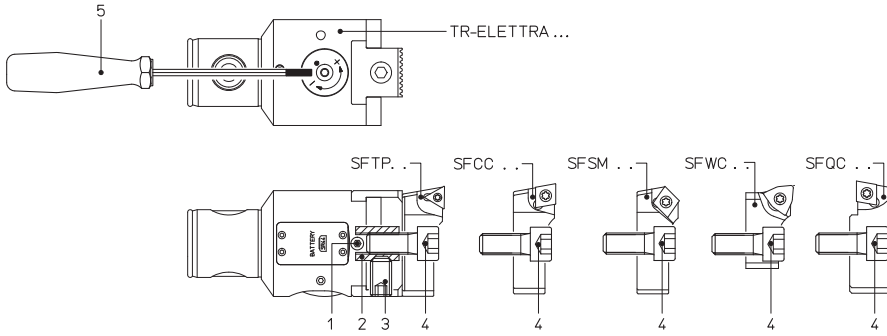
fig.2

| fig. | REF.     | CODE 1       | CODE 2       | CODE 3       |
|------|----------|--------------|--------------|--------------|
| 1    | TS 16/16 | 201430110008 | 100051030014 | 100231030004 |
|      | TS 20/20 | 201430110009 | 100051040015 | 100231030005 |
|      | TS 25/25 | 201430110010 | 100051040020 | 100231030008 |
|      | TS 32/32 | 201430110011 | 100051050025 | 100231040012 |
|      | TS 40/40 | 201430110012 | 100051060030 | 100231050014 |
| 2    | TS 50/50 | 201430110013 | 100051080035 | 100231050012 |
|      | TS 50/63 | 201430110014 | 100051100040 | 100231060016 |
|      | TS 63/63 |              |              |              |
|      | TS 80/80 | 201430110015 | 100051120045 | 100231080025 |



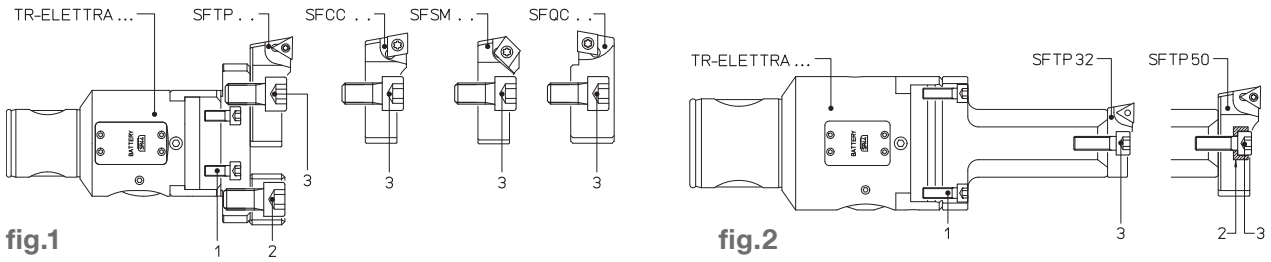
- SPARE PARTS
- ЗАПАСНЫЕ ЧАСТИ
- CZĘŚCI ZAMIENNE
- NÁHRADNÍ DÍLY
- YEDEK PARÇALAR

## TR-ELETTRA



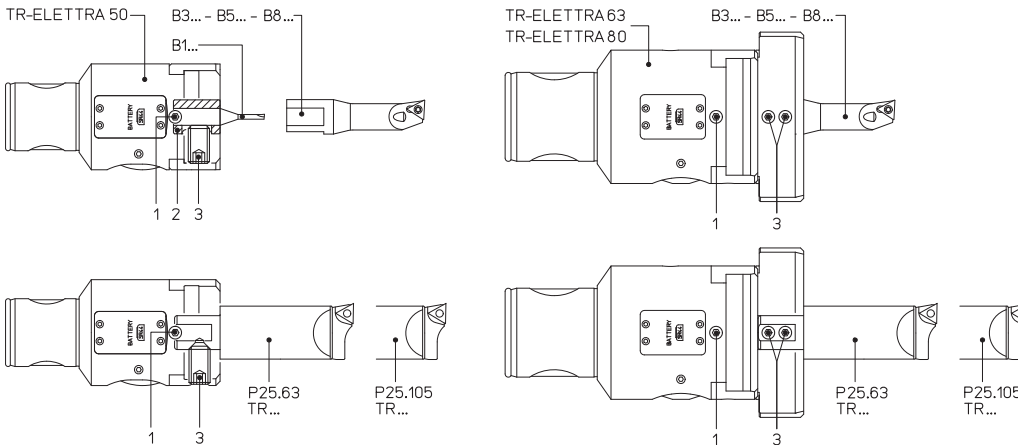
| REF.          | CODE 1       | CODE 2       | CODE 3       | CODE 4       | CODE 5       |
|---------------|--------------|--------------|--------------|--------------|--------------|
| TR-ELETTRA 32 | 100238050007 | -            | -            | 100051060012 | 101500800250 |
| TR-ELETTRA 40 |              |              |              | 100051080014 | 101500800300 |
| TR-ELETTRA 50 | 100238060010 | 201041015002 | 100231100016 | 100051100025 | 101500800250 |
| TR-ELETTRA 63 |              | -            | -            | 100051100020 |              |
| TR-ELETTRA 80 | 200100150614 |              |              | 100051100025 |              |

## TR-ELETTRA



| REF.          | CODE 1       | CODE 2       | CODE 3       | fig |
|---------------|--------------|--------------|--------------|-----|
| TR-ELETTRA 50 | 200100150501 | 100051100020 | 100051100025 | 1   |
| TR-ELETTRA 63 | 100051050025 |              |              |     |
| TR-ELETTRA 80 |              |              |              |     |
| TR-ELETTRA 63 | 100051050016 | 201040607001 | 100051006020 | 2   |
| TR-ELETTRA 80 |              |              |              |     |

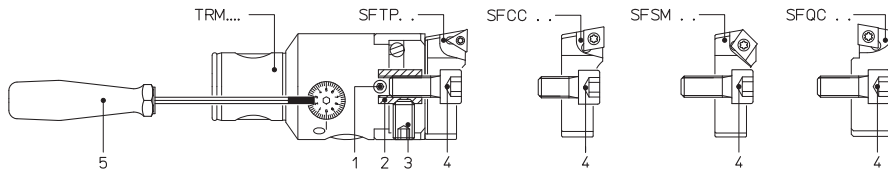
## TR-ELETTRA



| REF.          | CODE 1       | CODE 2       | CODE 3       |
|---------------|--------------|--------------|--------------|
| TR-ELETTRA 50 | 100238060010 | 200560116082 | 100231100016 |
| TR-ELETTRA 63 |              | -            | 100231060006 |
| TR-ELETTRA 80 | 200100150614 |              |              |

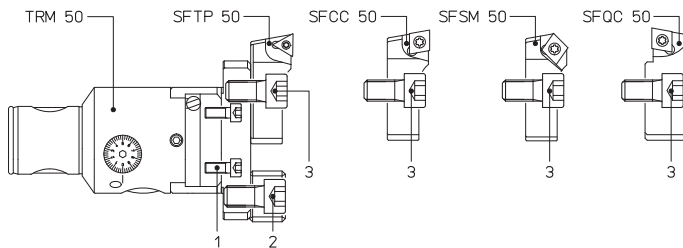
- SPARE PARTS
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- CZĘŚCI ZAMIENNE
- NÁHRADNÍ DÍLY
- YEDEK PARÇALAR

TRM



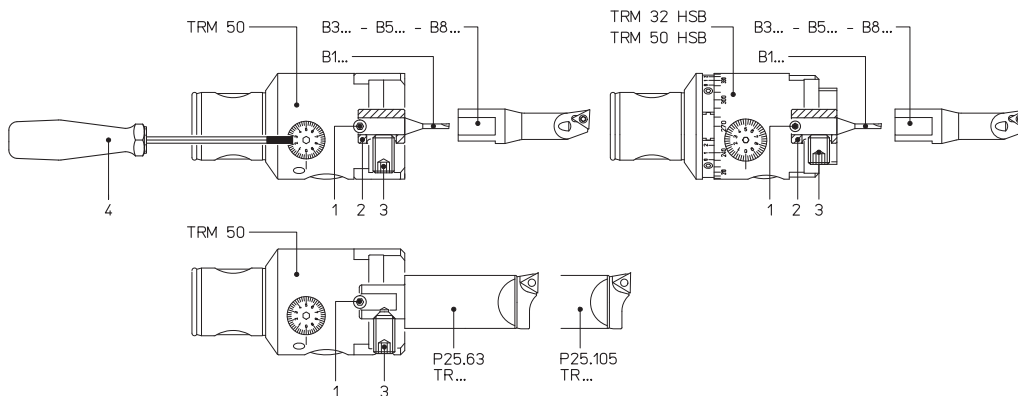
| REF.   | CODE 1       | CODE 2       | CODE 3       | CODE 4       | CODE 5       |
|--------|--------------|--------------|--------------|--------------|--------------|
| TRM 16 | 200100190301 | -            | -            | 100051030006 | 101500800150 |
| TRM 20 |              |              |              | 100051040008 |              |
| TRM 25 | 100271040004 |              |              | 100051050010 | 101500800200 |
| TRM 32 | 100231040006 |              |              | 100051060012 |              |
| TRM 40 | 100271050006 |              |              | 100051080014 | 101500800250 |
| TRM 50 | 100271050008 | 201041015002 | 100231100016 | 100051100025 |              |

TRM



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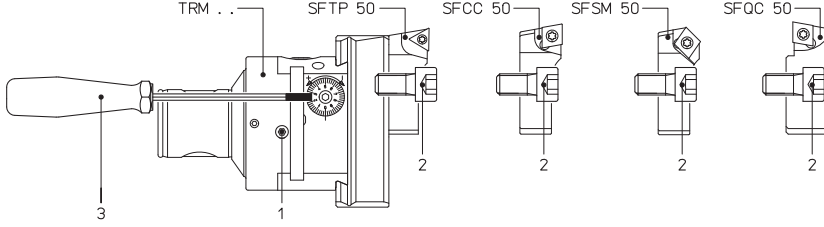
TRM



| REF.       | CODE 1       | CODE 2       | CODE 3                       | CODE 4       |
|------------|--------------|--------------|------------------------------|--------------|
| TRM 50     | 100271050008 | 200560116082 | 100231100016                 | 101500800250 |
| TRM 32 HSB | 100271040005 | -            | 100231050008<br>100231050012 | 101500800200 |
| TRM 50 HSB | 100271050008 | 200560116082 | 100231100010                 | 101500800250 |

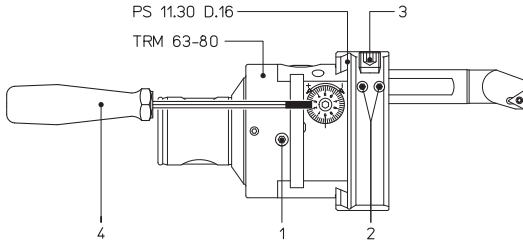
- SPARE PARTS
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- YEDEK PARÇALAR

TRM



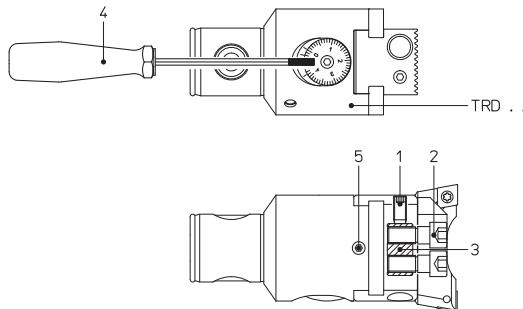
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|---------|--------------|--------------|--------------|
| TRM 63  | 100251060010 | 100051100018 | 101500800300 |
| TRM 80  | 100251060014 |              |              |
| TRM 125 | 100251060020 |              |              |

TRM



| REF.   | CODE 1       | CODE 2       | CODE 3       | CODE 4       |
|--------|--------------|--------------|--------------|--------------|
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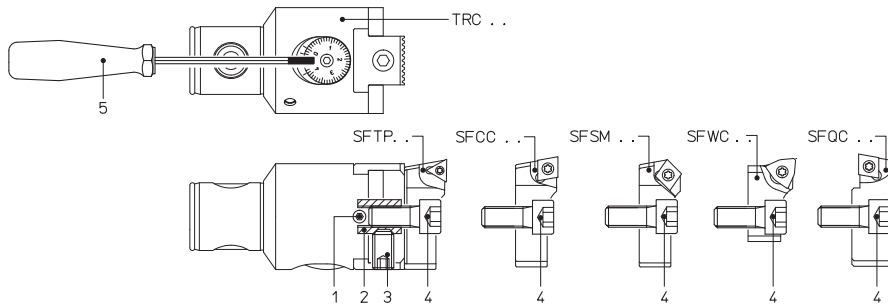
TRD



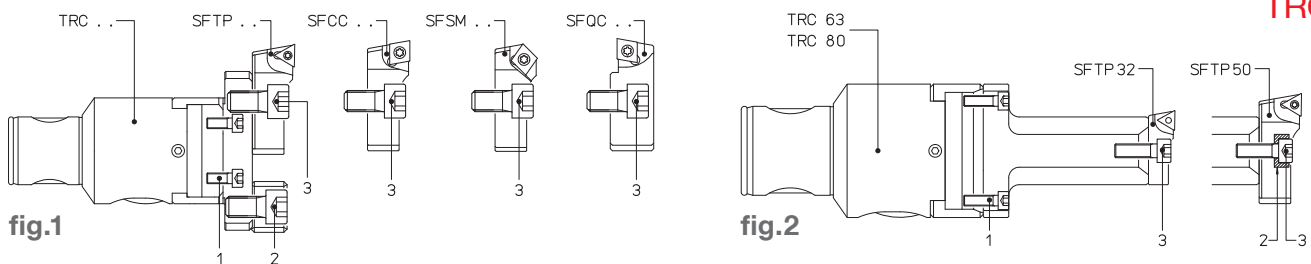
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| TRD 25 | 100231040008 | 200100150411 | 201430110024 | 101500800200 | 100271040004 |
| TRD 32 | 100231050010 | 200100150512 | 201430110023 | 101500800250 | 100271050006 |
| TRD 40 | 100231060012 | 200100150616 | 201430170001 | 101500800300 | 100271060006 |
| TRD 50 | 100231060014 | 200100150820 | 201430110021 |              | 100271060008 |
| TRD 63 | 100231060016 | 200100151026 | 201430110026 |              |              |
| TRD 80 | 100231060020 | 200100151230 | 201430110022 |              | 100271060012 |

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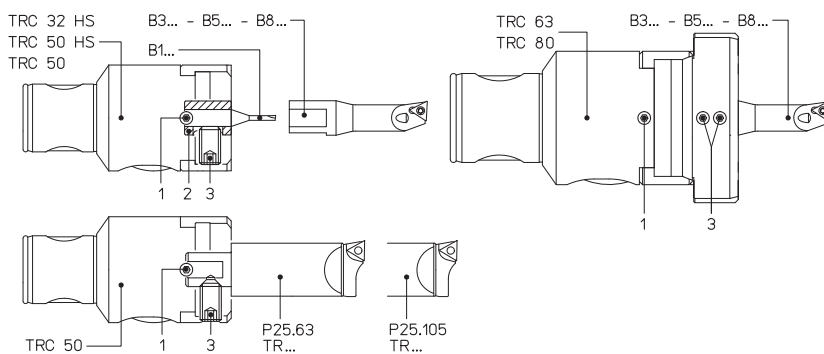
TRC



| REF.   | CODE 1       | CODE 2 | CODE 3 | CODE 4       | CODE 5       |
|--------|--------------|--------|--------|--------------|--------------|
| TRC 14 | 200100190302 | -      | -      | 100051030006 | 101500800150 |
| TRC 16 | 200100190301 |        |        | 100051040008 |              |
| TRC 20 |              |        |        | 100051050010 |              |
| TRC 25 | 100271040004 |        |        | 100051060012 | 101500800250 |
| TRC 32 | 100271050005 |        |        | 100051080014 | 101500800300 |
| TRC 40 | 100271060006 |        |        | 201041015002 |              |
| TRC 50 | 100271060008 | -      | -      | 100051100025 |              |
| TRC 63 |              |        |        | 100051100020 |              |
| TRC 80 | 100271060012 |        |        | 100051100025 |              |



| REF.   | CODE 1       | CODE 2       | CODE 3       | fig. |
|--------|--------------|--------------|--------------|------|
| TRC 50 | 200100150501 | 100051100020 | 100051100025 | 1    |
| TRC 63 | 100051050025 |              |              |      |
| TRC 80 | 100051050025 |              |              |      |
| TRC 63 | 100051050016 | 201040607001 | 100051006020 | 2    |
| TRC 80 |              |              |              |      |

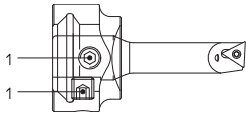


| REF.      | CODE 1       | CODE 2       | CODE 3                       |
|-----------|--------------|--------------|------------------------------|
| TRC 32 HS | 100271050006 | –            | 100231050008<br>100231050012 |
| TRC 50 HS | 100271060008 | 200560116082 | 100231100010                 |
| TRC 50    |              | –            | 100231060006                 |
| TRC 63    |              |              |                              |
| TRC 80    | 100271060012 |              |                              |



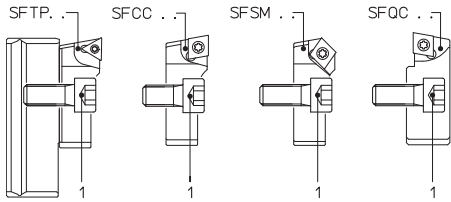
- SPARE PARTS
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- NÁHRADNÍ DÍLY
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P 20.30



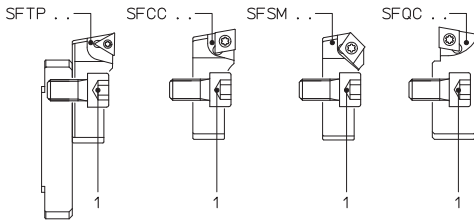
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|--------|--------------|
| P20.30 | 100251080008 |

PS



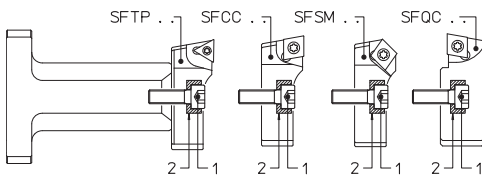
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| PS 11.30 | 100051100018 |
| PS 12.30 |              |
| PS 13.30 |              |
| PS 11.40 | 100051100025 |
| PS 12.40 |              |
| PS 13.40 |              |
| PS 14.40 |              |

PS



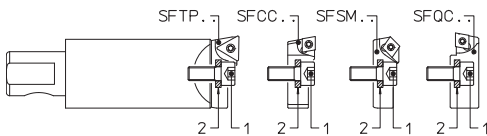
| REF.    | CODE1        |
|---------|--------------|
| PS31.24 | 100051100020 |
| PS31.28 | 100051100025 |
| PS32.28 |              |
| PS33.28 |              |

P 22.28



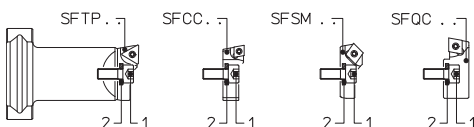
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|--------|--------------|--------------|
| P22.28 | 100051060020 | 201040607001 |

P 25



| REF.    | CODE 1       | CODE 2       |
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| P25.63  | 100051050012 | 100800100530 |
| P25.105 |              |              |

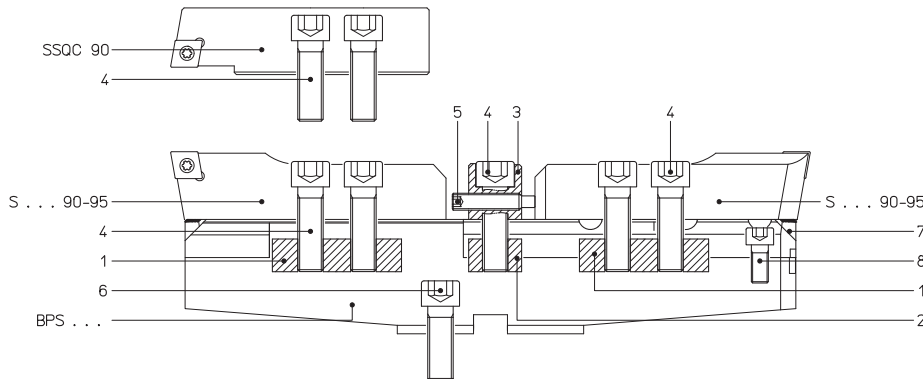
P



| REF.    | CODE 1       | CODE 2       |
|---------|--------------|--------------|
| P 00.30 | 100051050012 | 100800100530 |
| P 03.30 |              |              |
| P 04.30 |              |              |
| P 02.40 | 100051060018 | 100800100640 |
| P 03.40 |              |              |
| P 04.40 |              |              |

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BPS

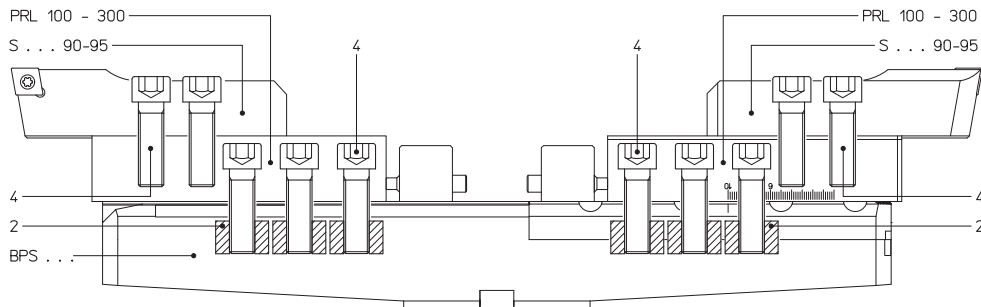


| REF.                  | CODE 1       | CODE 2       | CODE 3       | CODE 4       |
|-----------------------|--------------|--------------|--------------|--------------|
| BPS 200-300-400       | 201430110017 | 201430110016 | 201100502601 | 100051120040 |
| BPS 500-600-700-800   |              |              |              |              |
| BPS 1000-1150-1600 GD |              |              |              |              |

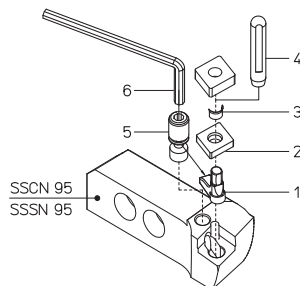
| REF.                  | CODE 5       | CODE 6       | CODE 7       | CODE 8       |
|-----------------------|--------------|--------------|--------------|--------------|
| BPS 200               | 100251080040 | 100051120035 | 200655015707 | 100051080025 |
| BPS 300               |              |              | 200655015708 |              |
| BPS 400               |              | 100051160050 | 200655016301 | 100051080020 |
| BPS 500-600-700-800   |              |              |              | 100051080025 |
| BPS 1000-1150-1600 GD |              |              |              | 100051080030 |
| BPS 1600 GD           |              | 100051200060 |              |              |

BPS + PRL 100 - 300



| REF.                  | CODE 2       | CODE 4       |
|-----------------------|--------------|--------------|
| BPS 200-300-400       | 201430110016 | 100051120040 |
| BPS 500-600-700-800   |              |              |
| BPS 1000-1150-1600 GD |              |              |

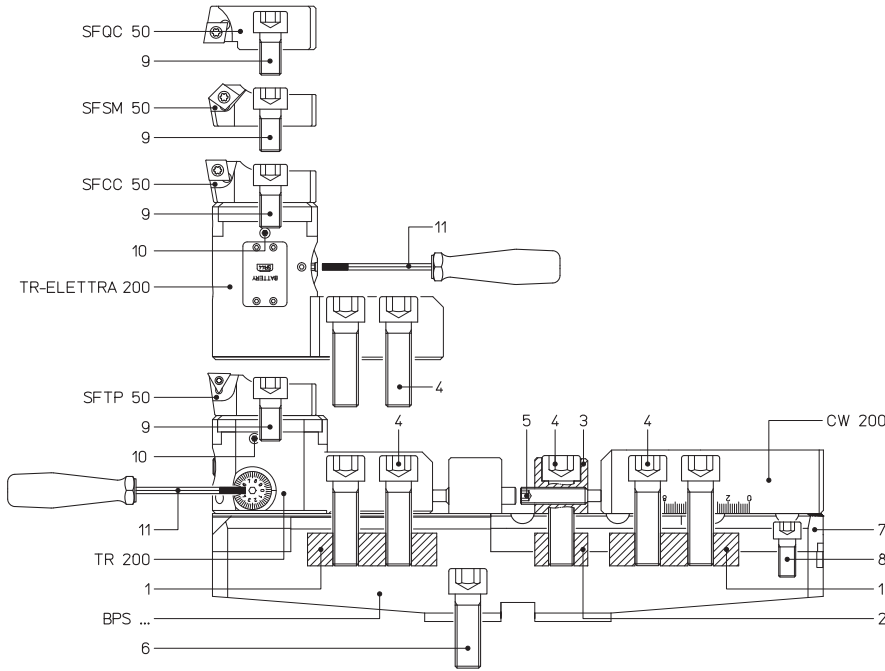
SS 95



| REF.    | CODE 1       | CODE 2       | CODE 3       | CODE 4       | CODE 5       | CODE 6       |
|---------|--------------|--------------|--------------|--------------|--------------|--------------|
| SSCN 95 | 491111190600 | 492031190600 | 100655095112 | 101501301408 | 494311190600 | 101500100400 |
| SSSN 95 |              | 492035190600 |              |              |              |              |



- SPARE PARTS
- ЗАПАСНЫЕ ЧАСТИ
- CZĘŚCI ZAMIENNE
- NÁHRADNÍ DÍLY
- YEDEK PARÇALAR

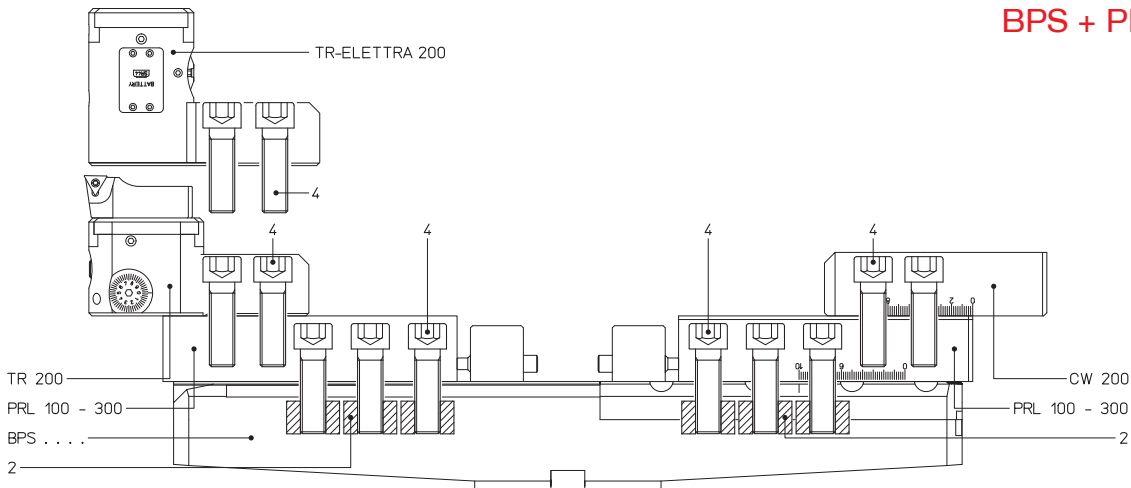


| REF.                  | CODE 1       | CODE 2       | CODE 3       | CODE 4       | CODE 5       |
|-----------------------|--------------|--------------|--------------|--------------|--------------|
| BPS 200-300-400       | 201430110017 | 201430110016 | 201100502601 | 100051120040 | 100251080040 |
| BPS 500-600-700-800   |              |              |              |              |              |
| BPS 1000-1150-1600 GD |              |              |              |              |              |

| REF.                  | CODE 6       | CODE 7       | CODE 8       |
|-----------------------|--------------|--------------|--------------|
| BPS 200               | 100051120035 | 200655015707 | 100051080025 |
| BPS 300               |              | 200655015708 |              |
| BPS 400               |              | 200655016301 | 100051080020 |
| BPS 500-600-700-800   | 100051080025 |              |              |
| BPS 1000-1150-1600 GD | 100051080030 |              |              |
| BPS 1600 GD           |              |              | 100051200060 |

| REF.                  | CODE 9       | CODE 10      | CODE 11      |
|-----------------------|--------------|--------------|--------------|
| BPS 200-300-400       | 100051100020 | 100251060008 | 101500800300 |
| BPS 500-600-700-800   |              |              |              |
| BPS 1000-1150-1600 GD |              |              |              |

## BPS + PRL 100 - 300



| REF.                  | CODE 2       | CODE 4       |
|-----------------------|--------------|--------------|
| BPS 200-300-400       | 201430110016 | 100051120040 |
| BPS 500-600-700-800   |              |              |
| BPS 1000-1160-1600 GD |              |              |

- CHUCKING TOOLS
- АДАПТОРЫ
- ADAPTERY
- UPÍNACÍ NÁSTROJE
- TORNA AYNALARI



**GB** Complete program of modular chucking tools with MHD' arbor that meets several milling, drilling and tapping needs.

**RU** Полная программа модульных адаптеров D'Andrea с держателем MHD' для фрезерования, сверления и нарезания резьбы.

**PL** Kompletny program adapterów modułowych firmy D'Andrea, który spełnia wymagania procesów związanych z frezowaniem, wierceniem i gwintowaniem.

**CZ** Úplný program modulárních upínacích nástrojů s hřídelí MHD, který zajišťuje několik potřeb pro frézování, vrtání a řezání závitů.

**TR** Pek çok farklı frezeleme, delme ve diş açma ihtiyaçlarını karşılayan MHD malafalı modüler torna aynalarından oluşan komple program.



- INDEX
- СОДЕРЖАНИЕ
- SPIS TREŚCI
- REJSTRIK
- DİZİN

## CHUCKING TOOLS

**PE.** Collet chucks to DIN 6499 - ER 11, ER 16, ER 20, ER 25, ER 32, ER 40.

**MHD' FORCE.** Ultra-light toolholder FORCE.

**AW.** Combi-toolholders Weldon (DIN 1835 B) and Whistle Notch (DIN 1835 E).

**PF.** Universal milling cutter-holders for disc cutters and facing cutters.

**CM.** Toolholders with internal morse taper for tools with thread to DIN 228-A and tang to DIN 228-B.

**AM.** Tapping chuck holders for high production thread cutting.

**B16.** Drill chuck-holders with internal taper B16 to DIN 238.

**NS.** Semi-finished toolholders for special tools with hardened and ground.

**ACR/NC.** Coolant chucking tools NC.

**ACR.** Coolant chucking tools

## АДАПТОРЫ

**PE.** Цанговые эластичные адапторы DIN 6499 - ER 11, ER 16, ER 20, ER 25, ER 32, ER 40.

**MHD' FORCE.** Сверхжесткие адапторы FORCE.

**AW.** Комбинированные адапторы Weldon (DIN 1835 B) и Whistle Notch (DIN 1835 E).

**PF.** Универсальные фрезерные оправки для дисковых и торцевых фрез.

**CM.** Комбинированные адапторы для внутреннего конуса морзе с нарезным отверстием DIN 228-A или с лапкой DIN 228-B.

**AM.** Держатели под резьбонарезные патроны для высокопроизводительного нарезания резьбы.

**B16.** Адапторы для сверлильных патронов с внутренним конусом B16 по DIN 238.

**NS.** Адапторы-полуфабрикаты для нестандартных инструментов.

**ACR/NC.** Оснастка для подвода СОЖ NC.

**ACR.** Оснастка для подвода СОЖ.

## ADAPTERY

**PE.** Końcówki narzędziowe z wyjściem pod tulejki rozprężne zgodne z DIN 6499 - typ ER 11, ER 16, ER 20, ER 25, ER 32, ER 40.

**MHD' FORCE.** Końcówki narzędziowe o dużej precyzji i sile zacisku.

**AW.** Końcówki narzędziowe do mocowania narzędzi z chwytem WELDON (DIN 1835 B) i Whistle Notch (DIN 1835 E).

**PF.** Końcówki narzędziowe do mocowania głowic frezowych i frezów tarczowych.

**CM.** Końcówki narzędziowe do mocowania narzędzi ze stożkami Morse'a zarówno z gwintem (DIN 228 A), jak i z płetwą (DIN 228 B).

**AM.** Końcówki narzędziowe do mocowania gwintowników. Posiadają kompensację osiową.

**B16.** Końcówki narzędziowe do mocowania uchwytów wiertarskich.

**NS.** Półwyroby do produkcji narzędzi specjalnych. Posiadają wykonane złącza MHD.

**ACR/NC.** Adaptory do doprowadzenia chłodzenia. Wersja pod wymianę automatyczną.

**ACR.** Adaptory do doprowadzenia chłodzenia. Wersja pod wymianę manualną.

## UPINACÍ NÁSTROJE

**PE.** Pouzdrové upínací nástroje dle DIN 6499 - ER 11, ER 16, ER 20, ER 25, ER 32, ER 40.

**MHD' FORCE.** Velmi pevný nástrojový držák FORCE.

**AW.** Kombi nástrojové držáky Weldon (DIN 1835 B) a Whistle Notch (DIN 1835 E).

**PF.** Univerzální frézovací držáky pro diskové frézy a frézy pro čelní soustružení.

**CM.** Nástrojové držáky s interním kuželem Morse pro nástroje se závitem dle DIN 228-A a tang dle DIN 228-B.

**AM.** Kuželové upínací držáky pro řezání závitů s vysokou přesností.

**B16.** Upínací držáky na vrtání s interním kuželem B16 dle DIN 238.

**NS.** Rozpracované nástrojové držáky pro speciální nástroje s tvrzením a broušením.

**ACR/NC.** Upínací nástroje chladiwa NC.

**ACR.** Upínací nástroje chladiwa.

## TORNA AYNALARI

**PE.** DIN 6499 - ER 11, ER 16, ER 20, ER 25, ER 32, ER 40 standartlarına uygun pens adaptörleri.

**MHD' FORCE.** Ultra hafif takım tutucu FORCE.

**AW.** Weldon (DIN 1835 B) ve Whistle Notch (DIN 1835 E) kombine takım tutucular.

**PF.** Disk kesiciler ve diş yüzey kesiciler için universal frezeleme kesicisi tutucuları.

**CM.** DIN 228-A ve DIN 228-B standardında dişlere sahip takımlar için dahili mors konikli takım tutucular.

**AM.** Yüksek üretimli dişli kesme için diş açma mandreni tutucuları.

**B16.** B16 - DIN 238 DAHİLİ KONIKLI TORNA KAFASI TUTUCULAR.

**NS.** Sertleştirilmiş özel takımlar için yarı mamul takım tutucular.

**ACR/NC.** Soğutma sıvılı tornalama takımları NC.

**ACR.** Soğutma sıvılı tornalama takımları.

p. 130 • PE



p. 130 • MHD FORCE



p. 131 • AW



p. 132 • PF



p. 133 • CM



p. 134 • AM



p. 134 • B16



p. 134 • NS



p. 135 • ACR/NC



p. 135 • ACR

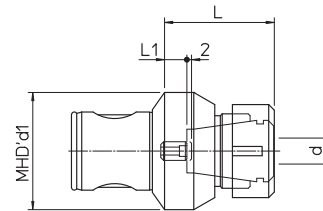


- CHUCKING TOOLS
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- COLLETS CHUCKING TOOLS
- ЦАНГОВЫЕ ЭЛАСТИЧНЫЕ АДАПТОРЫ
- KOŃCÓWKI NARZĘDZIOWE DO ELASTYCZNYCH TULEI ZACISKOWYCH
- POUZDROVÉ UPÍNACÍ NÁSTROJE
- FREZE ÇAKILI TORNA KAFASI TAKIMLARI

ER DIN 6499

PE

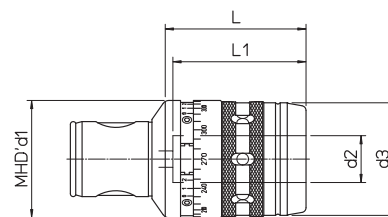


- Supplied without collets and clamping wrenches
- Цанги и зажимные ключи в комплект поставки не входят
- Elastyczne tuleje zaciskowe i klucze montażowe nie są na wyposażeniu
- Dodává se bez pouzder a upínacích klíčů
- Freze çakıları ve sıkıştırma anahtarları olmadan teslim edilir

| REF.          | CODE         | MHD' d <sub>1</sub> | d        | L      | L <sub>1</sub> | kg   |  |  | N·m |
|---------------|--------------|---------------------|----------|--------|----------------|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----|
| PE 16 / ER11M | 655701600110 | 16                  | 0.5 ~ 7  | 25     | 2.5            | 0.03 | ER-11M                                                                              | E11M                                                                                | 30  |
| PE 20 / ER16M | 655702000160 | 20                  | 0.5 ~ 10 | 32     | 1              | 0.06 | ER-16M                                                                              | E16M                                                                                | 40  |
| PE 25 / ER20M | 655702500200 | 25                  | 1 ~ 13   | 40     | 2.5            | 0.15 | ER-20M                                                                              | E20M                                                                                | 80  |
| PE 32 / ER25M | 655703200250 | 32                  | 1 ~ 16   | 42     | 1.5            | 0.25 | ER-25M                                                                              | E25M                                                                                | 160 |
| PE 40 / ER25  | 655704000250 | 40                  |          | 45     | 5              | 0.4  | UM/ER25                                                                             | E25                                                                                 | 200 |
| PE 50 / ER25  | 655705000250 | 50                  |          | 48     | 7              | 0.7  |                                                                                     |                                                                                     |     |
| PE 50 / ER32  | 655705000320 |                     | 63       | 2 ~ 20 | 55             | 8    | 1                                                                                   | UM/ER32                                                                             | E32 |
| PE 63 / ER32  | 655706300320 | 59                  |          | 12     | 1.3            |      |                                                                                     |                                                                                     |     |
| PE 63 / ER40  | 655706300400 | 3 ~ 26              |          |        | 64             | 1.5  | UM/ER40                                                                             | E40                                                                                 | 250 |

- ULTRA-TIGHT TOOLHOLDER FORCE
- СВЕРХЖЕСТКИЕ АДАПТОРЫ FORCE
- KOŃCÓWKI NARZĘDZIOWE O DUŻEJ SIŁE ZACISKU FORCE
- VELMI PEVNÝ NÁSTROJOVÝ DRŽÁK FORCE
- ULTRA HAFIF TAKIM TUTUCU FORCE

MHD' FORCE



- Supplied without collets and clamping wrenches
- Цанги и зажимные ключи в комплект поставки не входят
- Elastyczne tuleje zaciskowe i klucze montażowe nie są na wyposażeniu
- Dodává se bez pouzder a upínacích klíčů
- Freze çakıları ve sıkıştırma anahtarları olmadan teslim edilir

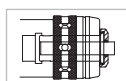
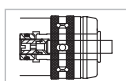
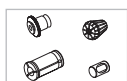
| REF.           | CODE         | MHD' d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | L  | L <sub>1</sub> | kg |
|----------------|--------------|---------------------|----------------|----------------|----|----------------|----|
| FORCE 50/20 HS | 656305000205 | 50                  | 20             | 48             | 60 | 60             | 1  |
| FORCE 63/32 HS | 656306300325 | 63                  | 32             | 66             | 80 | 80             | 2  |

120-136

241-242

222

222



- CHUCKING TOOLS
- АДАПТОРЫ
- ADAPTERY
- UPÍNACÍ NÁSTROJE
- TORNA AYNALARI

- WELDON WHISTLE NOTCH CHUCKING TOOLS
- АДАПТОРЫ WELDON WHISTLE NOTCH
- KOŃCÓWKI NARZĘDZIOWE WELDON WHISTLE NOTCH
- UPÍNACÍ NÁSTROJE WELDON WHISTLE NOTCH
- WELDON WHISTLE NOTCH TORNA KAFASI TAKIMLARI

DIN 1835 B-E  
AW

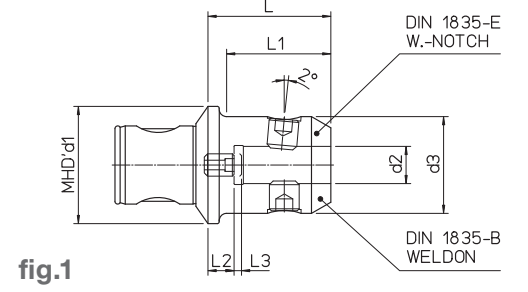


fig.1

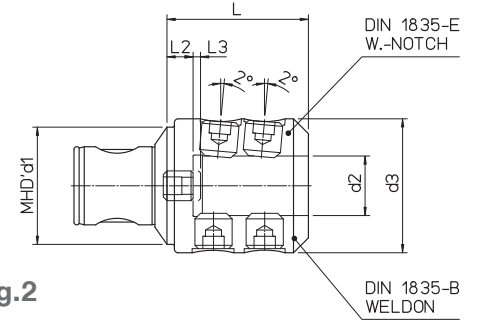


fig.2

| REF.     | CODE         | MHD' d1 | d2 <sup>H5</sup> | d3 | L  | L1   | L2 | L3 | kg  | fig. |
|----------|--------------|---------|------------------|----|----|------|----|----|-----|------|
| AW 50/6  | 655805000060 | 50      | 6                | 25 | 44 | 32.5 | 7  | 2  | 0.5 | 1    |
| AW 50/8  | 655805000080 |         | 8                | 28 |    | 33   |    |    | 0.7 |      |
| AW 50/10 | 655805000100 |         | 10               | 35 | 52 | 42   | 11 | 3  | 0.8 |      |
| AW 50/12 | 655805000120 |         | 12               | 42 | 57 | 48   |    |    | 1.1 |      |
| AW 50/14 | 655805000140 |         | 14               | 48 | 67 | 61   | 17 | 4  | 1.2 | 2    |
| AW 50/16 | 655805000160 |         | 16               | 51 |    | -    | 16 |    | 1.8 |      |
| AW 50/20 | 655805000200 |         | 20               | 63 | 80 | -    | 22 |    | 1.4 | 1    |
| AW 50/25 | 655805000250 |         | 25               | 63 | 80 | -    | 22 |    | 1.5 |      |
| AW 63/16 | 655806300160 | 63      | 16               | 48 | 64 | 53   | 14 | 4  | 2.1 | 2    |
| AW 63/20 | 655806300200 |         | 20               | 52 | 66 | 56   |    |    | 2.5 |      |
| AW 63/25 | 655806300250 |         | 25               | 64 | 74 | -    | 16 |    | 3.2 | 2    |
| AW 63/32 | 655806300320 |         | 32               | 72 | 76 |      | 14 |    | 3.2 |      |
| AW 80/40 | 655808000400 | 80      | 40               | 80 | 83 | -    | 12 | -  | -   | -    |



- DISC AND FACING CUTTER HOLDERS
- ФРЕЗЕРНЫЕ ОПРАВКИ ДЛЯ ДИСКОВЫХ И ТОРЦОВЫХ ФРЕЗ
- KOŃCÓWKI NARZĘDZIOWE DO FREZÓW TARCZOWYCH I CZOŁOWYCH
- DRŽÁKY DISKOVÝCH A ČELNÍCH FRÉZ
- DISK VE DIŞ YÜZEY KESİCİ TUTUCULARI

PF

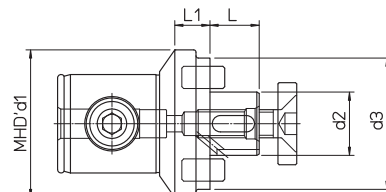
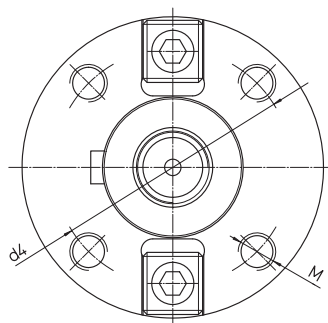
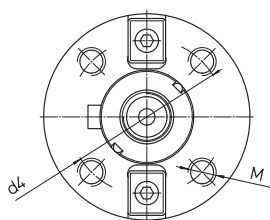


fig.1

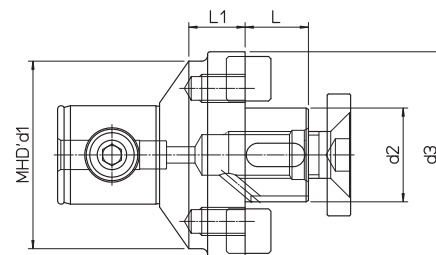


fig.2

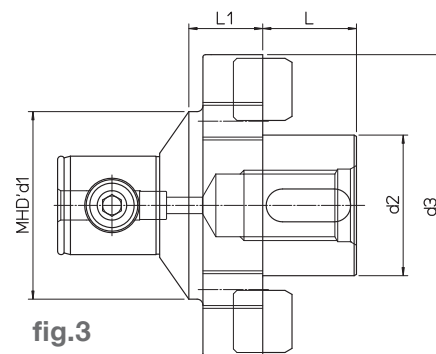


fig.3

| REF.      | CODE         | MHD' d1 | d2 | d3    | d4    | M   | L  | L1 | kg  | fig. |
|-----------|--------------|---------|----|-------|-------|-----|----|----|-----|------|
| PF 40/16  | 655904020165 | 40      | 16 | 32    | -     | -   | 17 | 15 | 0.3 | 1    |
| PF 40/22  | 655904020225 |         | 22 | 40    |       |     | 19 | 13 | 0.4 |      |
| PF 50/16  | 655905000160 | 50      | 16 | 32    |       |     | 17 | 15 | 0.5 |      |
| PF 50/22  | 655905000220 |         | 22 | 40    |       |     | 19 |    | 0.6 |      |
| PF 50/27  | 655905000270 |         | 27 | 50    |       |     | 21 |    | 0.7 |      |
| PF 50/32  | 655905000320 |         | 32 | 60    |       |     | 24 |    | 0.9 |      |
| PF 63/22  | 655906300220 | 63      | 22 | 60    |       |     | 19 | 24 | 1.1 |      |
| PF 63/27  | 655906300270 |         | 27 | 63    |       |     | 21 |    | 1.2 |      |
| PF 63/32  | 655906300320 |         | 32 | 80    |       |     | 24 |    | 1.7 |      |
| PF 80/32  | 655908000320 | 80      | 32 | 84    | 66.7  | M12 | 27 | 24 | 1.9 | 2    |
| PF 80/40  | 655908000400 |         | 40 | 90    | -     | -   | 30 |    | 2.0 |      |
| PF 80/50  | 655908000500 |         | 50 | 128.5 | 101.6 | M16 | 40 |    | 3.5 |      |
| PF 80/60  | 655908000600 | 110     | 60 | 88    | 66.7  | M12 | 27 | 20 | 4.2 | 2    |
| PF 110/40 | 655911000400 |         | 40 | 88    | 66.7  | M12 | 27 | 20 | 4.2 | 2    |
| PF 110/60 | 655911000600 |         | 60 | 128.5 | 101.6 | M16 | 40 | 36 | 6   | 3    |
| PF 140/40 | 655914000400 | 140     | 40 | 88    | 66.7  | M12 | 27 | 26 | 6.2 | 2    |
| PF 140/60 | 655914000600 |         | 60 | 140   | 101.6 | M16 | 40 |    | 7.8 | 3    |



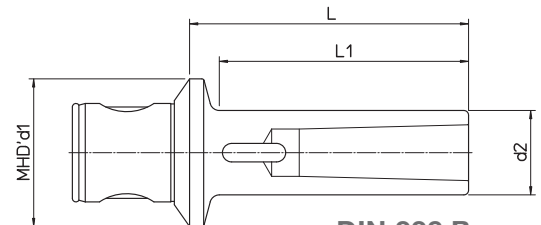


- CHUCKING TOOLS
- АДАПТОРЫ
- ADAPTERY
- UPÍNACÍ NÁSTROJE
- TORNA AYNALARI

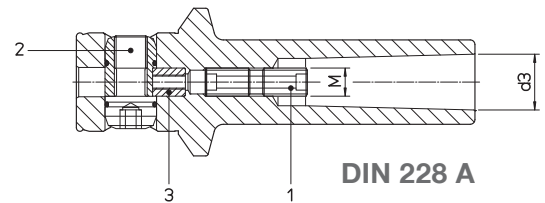
- MORSE TAPER CHUCKING TOOLS
- АДАПТОРЫ ДЛЯ ВНУТРЕННЕГО КОНУСА MORSE
- KOŃCÓWKI NARZĘDZIOWE DO STOŻKA MORSE'A
- UPÍNACÍ NÁSTROJE S KUŽELEM
- MORS KONIK TORNA AYNASI TAKIMLARI

DIN 228 A-B

CM



DIN 228 B



DIN 228 A

| REF.    | CODE         | MHD' d <sub>1</sub> | MORSE | d <sub>2</sub> | d <sub>3</sub> | L   | L <sub>1</sub> | M   | kg  |
|---------|--------------|---------------------|-------|----------------|----------------|-----|----------------|-----|-----|
| CM 50/1 | 656005000010 | 50                  | 1     | 20             | 12.065         | 80  | 68             | M6  | 0.6 |
| CM 50/2 | 656005000020 |                     | 2     | 30             | 17.780         | 100 | 86             | M10 | 0.7 |
| CM 50/3 | 656005000030 |                     | 3     | 36             | 23.825         | 120 | 110            | M12 | 1   |
| CM 63/3 | 656006300030 | 63                  | 4     | 48             | 31.267         | 150 | 108            |     | 1.3 |
| CM 63/4 | 656006300040 |                     |       |                |                |     | 133            | M16 | 2   |

**GB MT DIN 228-A.** To chuck a morse taper tool with thread proceed as follows:

a. Drive in screw 1; b. Remove expanding pin 2 and sleeve 3 to allow the Allen wrench to be introduced from the rear; c. Fit the tool and tighten screw 1 clockwise; d. Reassemble expanding pin 2 and sleeve 3.

**MT DIN 228-B.** To chuck a morse taper tool with tang remove screw. 1. Combi-chucking tools for morse taper with DIN 228-A thread bore and with DIN 228-B tooth.

**RU CM DIN 228-A.** Чтобы установить инструмент с внутренним конусом Морзе с нарезным отверстием, необходимо: а. Установить винт 1, путем внутреннего затягивания. б. Удалить расширяемый штифт 2 и втулку 3 чтобы обеспечить тыловой проход шестигранного ключа; с. Установить инструмент и затянуть винт 1 по часовой стрелке 1; d. Установить повторно втулку 3 и расширяемый штифт 2.

**CM DIN 228-B.** Перед тем, как установить инструмент на конус Морзе с шипом, необходимо: удалить винт 1. Комбинированные адаптеры для внутреннего конуса морзе с нарезным отверстием DIN 228-A и с лапкой DIN 228-B.

**PL CM DIN 228-A.** W celu zamontowania narzędzia stożkowego Morse'a z uchwytem gwintowanym należy: a. Całkowicie dokręcić śrubę 1; b. Wyjąć sworzeń rozprężny 2 oraz tuleję 3, umożliwiając w ten sposób wejście klucza sześciokątne od tyłu; c. Zamontować narzędzie, po czym śrubę 1 dokręcić w kierunku zgodnym z ruchem wskazówek zegara; d. Ponownie zamontować tuleję 3 oraz sworzeń rozprężny 2.

**CM DIN 228-B.** Przed montażem narzędzia stożkowego Morse'a z czopem należy wyjąć śrubę 1. Adaptery zestawiane ze stożkiem Morse'a z otworem gwintowanym DIN 228-A i zębem DIN 228-B.

**CZ MT DIN 228-A.** Při upínání nástroje s kuželem morse se závitem postupujte následovně: a. Utáhněte šroub 1; b. Vyndejte rozšiřující kolík 2 a pouzdro 3 a tím umožníte přístup imbusového klíče zezadu; c. Nasaďte nástroj a utáhněte šroub 1 ve směru hodinových ručiček; d. Opětovně instalujte rozšiřující kolík 2 a pouzdro 3.

**MT DIN 228-B.** Při upínání nástroje s kuželem morse s tang vyndejte šroub. 1. Kombi-upínací nástroje pro kužel morse se závitovým otvorem DIN 228-A a zubem DIN 228-B.

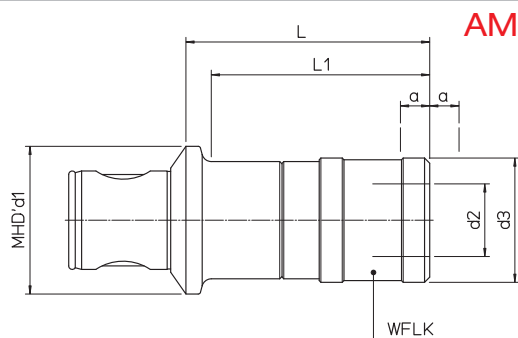
**TR MT DIN 228-A.** Dişli bir mors konik takımında torna açmak için şunları yapın: a. Vidayı takın 1; b. Aлын anahtarının arkadan sokulabilmesi için genişletme pimi 2 ile manşonu 3 sökün; c. Aleti takın ve vidayı 1 saat yönünde çevirin; d. Genişletme pimi 2 ile manşonu 3 yeniden takın.

**MT DIN 228-B.** Tespit vidalı bir mors konik takımında torna açmak için şunları yapın: 1. DIN 228-A dış çaplı ve DIN 228-B dişli mors konik için kombine torna aynası takımları.



- CHUCKING TOOLS
- АДАПТОРЫ
- ADAPTERY
- UPÍNACÍ NÁSTROJE
- TORNA AYNALARI

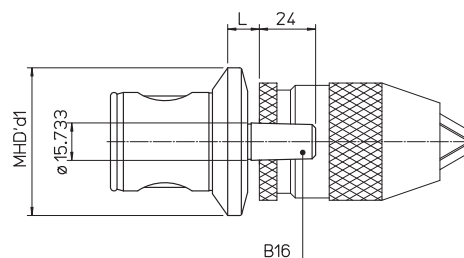
- TAPPING CHUCK HOLDERS
- ДЕРЖАТЕЛИ ПОД РЕЗЬБОНАРЕЗНЫЕ ПАТРОНЫ
- ADAPTERY DO GWINTOWANIA
- KUŽELOVÉ UPÍNACÍ DRŽÁKY
- DIŞ AÇMA TORNA AYNASI TUTUCULARI



AM

| REF.        | CODE         | MHD' d <sub>1</sub> | WFLK            | Capacity | L   | L <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | a    | kg  |
|-------------|--------------|---------------------|-----------------|----------|-----|----------------|----------------|----------------|------|-----|
| AM 50/M3-12 | 656505000100 | 50                  | WFLK 115B/A 308 | M 3 ~ 12 | 72  | 60             | 19             | 36             | 7.5  | 0.9 |
| AM 50/M8-20 | 656505000200 |                     | WFLK 225B/A 308 | M 8 ~ 20 | 106 | –              | 31             | 53             | 12.5 | 1.2 |
| AM 63/M3-12 | 656506300100 | 63                  | WFLK 115B/A 308 | M 3 ~ 12 | 70  | 58             | 19             | 36             | 7.5  | 1   |
| AM 63/M8-20 | 656506300200 |                     | WFLK 225B/A 308 | M 8 ~ 20 | 104 | 93             | 31             | 53             | 12.5 | 1.3 |

- DRILLING CHUCK HOLDERS B16 D238
- АДАПТОРЫ ДЛЯ ШПИНДЕЛЯ B16 D238
- KOŃCÓWKI NARZĘDZIOWE DO UCHWYTU B16 D238
- VRTACÍ UPÍNACÍ DRŽÁKY B16 D238
- MATKAP AYNASI TUTUCULARI B16 D238

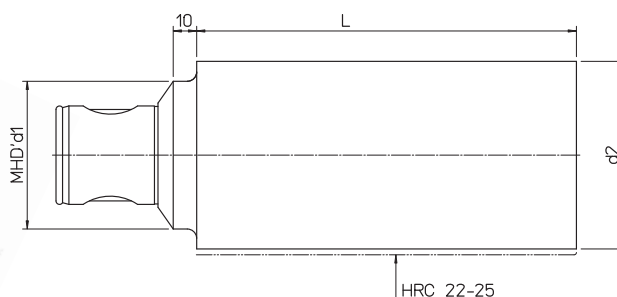


B16

- Drilling chuck holders with B16 DIN 238 thread.
- Адапторы для сверлильных патронов с внутренним конусом b16 по din 238.
- KOŃCÓWKI NARZĘDZIOWE do oprawek końcówek z uchwytem B16 DIN 238.
- Vrtací upínací držáky se závitem B16 D238.
- B16 DIN 238 dişli matkap aynası tutucular.

| REF.    | CODE         | MHD' d <sub>1</sub> | L    | kg  |
|---------|--------------|---------------------|------|-----|
| B 50/16 | 656105000160 | 50                  | 10   | 0.4 |
| B 63/16 | 656106300160 | 63                  | 13.5 | 0.8 |

- SEMIFINISHED CHUCK HOLDERS
- АДАПТОРЫ-ПОЛУФАБРИКАТЫ
- KOŃCÓWKI NARZĘDZIOWE – PÓŁPRODUKTY
- ROZPRACOVANÉ UPÍNACÍ DRŽÁKY
- YARI MAMUL TORNA AYNASI TUTUCULAR

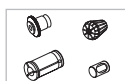


NS

| REF.   | CODE         | MHD' d <sub>1</sub> | d <sub>2</sub> | L   | kg  |
|--------|--------------|---------------------|----------------|-----|-----|
| NS 50  | 657205001600 | 50                  | 63             | 160 | 4.2 |
| NS 63  | 657206302000 | 63                  | 80             | 200 | 8.7 |
| NS 80  | 657208002500 | 80                  | 100            | 250 | 16  |
| NS 110 | 657211002500 | 110                 | 130            |     | 18  |
| NS 140 | 657214002500 | 140                 | 150            |     | 30  |

120-137

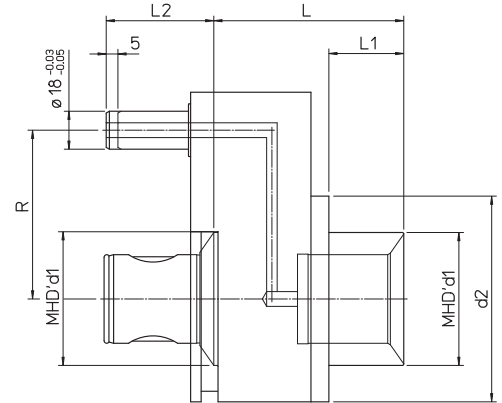
245



- CHUCKING TOOLS
- АДАПТОРЫ
- ADAPTERY
- UPÍNACÍ NÁSTROJE
- TORNA AYNALARI

- COOLANT CHUCKING TOOLS NC
- АДАПТОРЫ ДЛЯ ХЛАДАГЕНТА NC
- ADAPTERY UMOŻLIWIAJĄCE DOPROWADZENIE CIECZY CHŁODZĄCEJ NC
- UPÍNACÍ NÁSTROJE CHLADIVA NC
- SOĞUTMA SIVİLİ TORNA AYNASI TAKIMLARI NC

ACR/NC

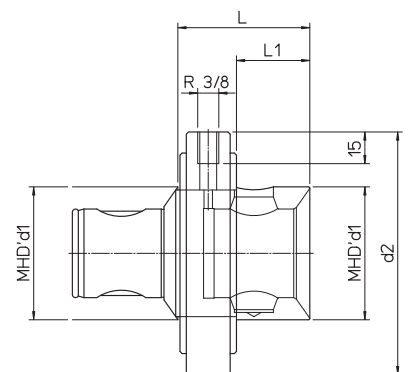


- **Important note.** Activate the coolant before the chuck rotation not to damage internal gaskets.
- **Внимание.** Использовать хладагент ДО НАЧАЛА ВРАЩЕНИЯ штифта, во избежание повреждения внутренних уплотнений.
- **Uwaga.** Ciecz chłodzącą należy wprowadzić w obieg przed pierwszym obrotem uchwyty. Uniknie się w ten sposób uszkodzenia uszczelek wewnętrznych.
- **Důležitá poznámka.** Abyste nepoškodili interní těsnění, aktivujte chladivo ještě před rotací při upínání.
- **Önemli not.** İç contalara hasar vermemek için, ayna döndüşünden önce soğutma sıvısını etkinleştirin.

| REF.         | CODE         | MHD' d <sub>1</sub> | R  | d <sub>2</sub> | L  | L <sub>1</sub> | L <sub>2</sub> | RPM max | BAR    | kg  |
|--------------|--------------|---------------------|----|----------------|----|----------------|----------------|---------|--------|-----|
| ACR/NC 50/50 | 656705000501 | 50                  | 65 | 80             | 72 | 28.5           | 43             | 7000    | max 10 | 1.9 |
| ACR/NC 50/50 | 656705000500 |                     | 80 |                |    |                |                |         |        | 2.5 |
| ACR/NC 63/63 | 656706300630 | 63                  |    | 100            | 88 | 37             | 51             | 5600    |        | 5   |

- COOLANT CHUCKING TOOLS
- АДАПТОРЫ ДЛЯ ХЛАДАГЕНТА
- ADAPTERY UMOŻLIWIAJĄCE DOPROWADZENIE CIECZY CHŁODZĄCEJ
- UPÍNACÍ NÁSTROJE CHLADIVA
- SOĞUTMA SIVİLİ TORNA AYNASI TAKIMLARI

ACR



- **Important note.** Activate the coolant before the chuck rotation not to damage internal gaskets.
- **Внимание.** Использовать хладагент ДО НАЧАЛА ВРАЩЕНИЯ штифта, во избежание повреждения внутренних уплотнений.
- **Uwaga.** Ciecz chłodzącą należy wprowadzić w obieg przed pierwszym obrotem uchwyty. Uniknie się w ten sposób uszkodzenia uszczelek wewnętrznych.
- **Důležitá poznámka.** Abyste nepoškodili interní těsnění, aktivujte chladivo ještě před rotací při upínání.
- **Önemli not.** İç contalara hasar vermemek için, ayna döndüşünden önce soğutma sıvısını etkinleştirin.

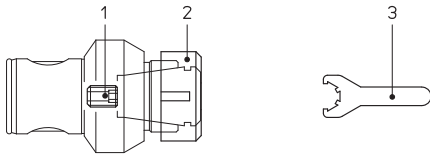
| REF.      | CODE         | MHD' d1 | d2  | L  | L1 | RPM max | BAR    | kg  |
|-----------|--------------|---------|-----|----|----|---------|--------|-----|
| ACR 63/63 | 656706310630 | 63      | 115 | 63 | 35 | 3500    | max 10 | 2.9 |



- ACCESSORIES AND SPARE PARTS
- ЗАПАСНЫЕ ЧАСТИ
- CZĘŚCI ZAMIENNE
- NÁHRADNÍ DÍLY
- YEDEK PARÇALAR

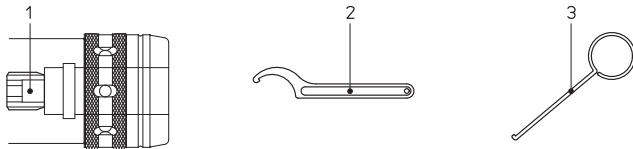
ER DIN 6499

PE



| REF.          | CODE 1       | CODE 2       | CODE 3       |
|---------------|--------------|--------------|--------------|
| PE 16 / ER11M | 200100190403 | 100451011100 | 101501001100 |
| PE 20 / ER16M |              | 100451011600 | 101501001600 |
| PE 25 / ER20M | 200100190506 | 100451012000 | 101501002000 |
| PE 32 / ER25M | 200100190608 | 100451012500 | 101501002500 |
| PE 40 / ER25  | 200100190808 | 100451032500 | 101501002501 |
| PE 50 / ER25  |              | 100451033200 | 101501003201 |
| PE 50 / ER32  | 200100191014 |              |              |
| PE 63 / ER32  | 200100191014 | 100451034000 | 101501004001 |
| PE 63 / ER40  | 200100191214 |              |              |

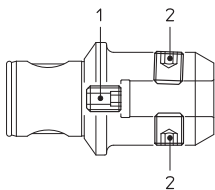
FORCE



| REF      | CODE 1       | CODE 2       | CODE 3       |
|----------|--------------|--------------|--------------|
| FORCE 12 | 200100191014 | 101500400028 | 201271600400 |
| FORCE 20 | 200100191615 | 101500400050 |              |
| FORCE 32 |              | 101500400075 |              |

DIN 1835 B-E

AW

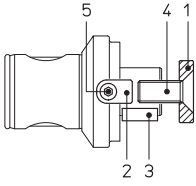


| REF.     | CODE 1       | CODE 2       |
|----------|--------------|--------------|
| AW 50/6  | 200100190808 | 200100190610 |
| AW 50/8  |              | 200100190810 |
| AW 50/10 | 200100190809 | 200100191012 |
| AW 50/12 |              | 200100191216 |
| AW 50/14 | 200100191215 | 200100191416 |
| AW 50/16 |              | 200100191616 |
| AW 50/20 | 200100191615 | 200100191820 |
| AW 50/25 |              | 200100191416 |
| AW 63/16 | 200100191215 | 200100191616 |
| AW 63/20 |              | 200100191820 |
| AW 63/25 | 200100191615 | 200100192020 |
| AW 63/32 |              |              |
| AW 80/40 | 200100192019 |              |

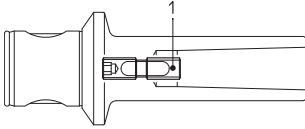


- ACCESSORIES AND SPARE PARTS
- ЗАПАСНЫЕ ЧАСТИ
- CZĘŚCI ZAMIENNE
- NÁHRADNÍ DÍLY
- YEDEK PARÇALAR

PF

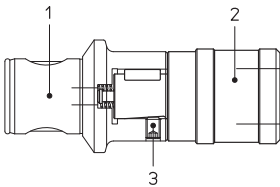


| REF.              | CODE 1       | CODE 2       | CODE 3       | CODE 4       | CODE 5       |
|-------------------|--------------|--------------|--------------|--------------|--------------|
| PF 50/16 PF 40/16 | 201010085010 | 201101800801 | 101001040014 | 100101080025 | 100051030008 |
| PF 50/22 PF 40/22 | 201010105030 | 201101801002 | 101001060016 | 100101100025 | 100051040010 |
| PF 50/27          | 201010125030 | 201101801202 | 101001070018 | 100101120030 | 100051050012 |
| PF 50/32          | 201010165020 | 201101801402 | 101001080020 | 100101160035 | 100051060016 |
| PF 63/22          | 201010105030 | 201101801002 | 101001060016 | 100101100025 | 100051040010 |
| PF 63/27          | 201010125030 | 201101801202 | 101001070018 | 100101120030 | 100051050012 |
| PF 63/32          | 201010165020 | 201101801402 | 101001080020 | 100101160035 | 100051060016 |
| PF 80/32          |              |              |              |              |              |
| PF 80/40          | 201010210010 | 201101801603 | 101001100025 | 100101200045 | 100051060018 |
| PF 80/50          | 201010260330 | 201101801802 | 101001120028 | 100101240050 | 100051060020 |
| PF 80/60          | -            | 201101802510 | 101001140036 | -            | 100051120025 |
| PF 110/40         | 201010210010 | 201101801603 | 101001100025 | 100101200045 | 100051060018 |
| PF 110/60         | -            | 201101802510 | 101001140036 | -            | 100051120025 |
| PF 140/40         | 201010210010 | 201101801603 | 101001100025 | 100101200045 | 100051060018 |
| PF 140/60         | -            | 201101802510 | -            | -            | 100051120025 |

DIN 228 A  
CM

| REF.    | CODE 1       |
|---------|--------------|
| CM 50/1 | 201081506003 |
| CM 50/2 | 201081510002 |
| CM 50/3 | 201081512004 |
| CM 63/3 |              |
| CM 63/4 | 201081516001 |

AM



| REF.        | REF. 1       | CODE 1       | REF. 2          | CODE 2       | CODE 3       |
|-------------|--------------|--------------|-----------------|--------------|--------------|
| AM 50/M3-12 | RAM 50/M3-12 | 456505000100 | WFLK 115B/A 308 | 495090010312 | 100231060008 |
| AM 50/M8-20 | RAM 50/M8-20 | 456505000200 | WFLK 225B/A 308 | 495090020820 | 100231080012 |
| AM 63/M3-12 | RAM 63/M3-12 | 456506300100 | WFLK 115B/A 308 | 495090010312 | 100231060008 |
| AM 63/M8-20 | RAM 63/M8-20 | 456506300200 | WFLK 225B/A 308 | 495090020820 | 100231080012 |



*PSC Modularity  
and high precision*





- ARBORS  
• ДЕРЖАТЕЛИ  
• PODSTAWOWE UCHWYTY NARZĘDZIOWE  
• HŘÍDELE  
• MALAFALAR

p.140 • **HSK-A / PSC**  
DIN 69893 / ISO 26623-2



p.140 • **DIN-AD / PSC**  
DIN 69871 / ISO 26623-2



p.140 • **DIN-AD+B / PSC**  
DIN 69871 / ISO 26623-2



p.141 • **CAT-AD+B / PSC**  
ANSI B5.50 / ISO 26623-2



p.141 • **BT / PSC**  
MAS 403 BT / ISO 26623-2



p.141 • **BT-AD+B / PSC**  
MAS 403 BT / ISO 26623-2



p.142 • **PSC - MHD'**  
ISO 26623-1



- EXTENSIONS REDUCTIONS  
• УДЛИНИТЕЛИ И ПЕРЕХОДНИКИ  
• PRZEDŁUŻKI REDUKCJE  
• PRODLOUŽENÍ REDUKCE  
• UZATMALAR ÇAP DÜŞÜRÜCÜLER

p.143 • **PR / PSC**  
ISO 26623-1 / 2



p.143 • **RD / PSC**  
ISO 26623-1 / 2



p.149-153-157 • **SF. .**  
p.163-167-171



p.148-152-156-162 • **PS 31**



p.148-152-156-162 • **CW 32**



p.149-153-157 • **P25**  
p.163-167



p.153-157 • **P22**



p.165-169 • **P20.30**



p.166-170 • **PS**



p.167-171 • **P**



p.147-151-155 • **B. .**  
p.161-165-169



• TESTAROSSA

p.144-149 • **TR-E50 PSC 50** • **KIT K01**  
Ø 2.5-110 Ø 6 ~ 110



p.150-153 • **TR-E63 PSC 63** • **KIT K01**  
Ø 6 ~ 125 Ø 6 ~ 125



p.154-157 • **TR-E80 PSC 80** • **KIT K01**  
Ø 6 ~ 200 Ø 6 ~ 200



p.158-163 • **TR 50 PSC 40**  
• **TR 50 PSC 50** • **KIT K01**  
• **TR 50 PSC 63** Ø 2.5 ~ 108 Ø 6 ~ 108



p.164-167 • **TR 63 PSC 63** • **KIT K01**  
Ø 2.5 ~ 125 Ø 6 ~ 125



p.168-171 • **TR 80 PSC 80** • **KIT K01**  
Ø 2.5 ~ 160 Ø 6 ~ 220



p.172 • **PSC-PF**  
ISO 26623-1



p.179 • **PSC-MF**  
ISO 26623-1



• **KIT K01**  
**PSC 63**  
ISO 26623-1



• **KIT K01**  
**PSC 80**  
ISO 26623-1



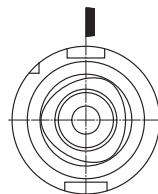
p.214-215 • **PSC 63-80 CT**  
ISO 26623-1



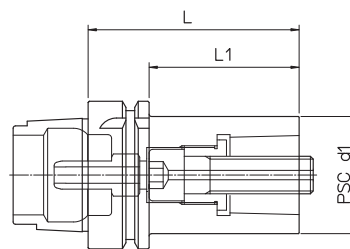
p.230 • **MCD' PSC**  
ISO 26623-1



- Supplied with coolant tube
- Имеется соединение для хладагента
- Komplet złączek do cieczy chłodzącej
- Dodávané s chladičím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

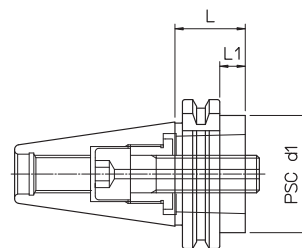
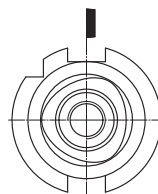


**HSK-A / PSC**  
DIN 69893 / ISO 26623-2



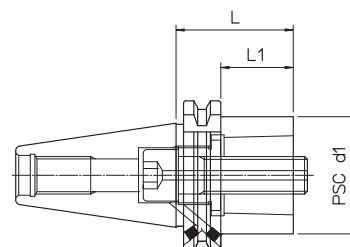
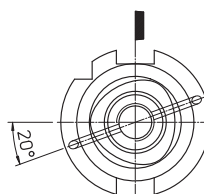
| HSK-A | REF.                | CODE         | PSC d1 | L   | L1  | kg  |
|-------|---------------------|--------------|--------|-----|-----|-----|
| 63    | HSK-A63 PSC 40.80   | 41PV04056320 | 40     | 80  | 54  | 1.1 |
|       | HSK-A63 PSC 50.90   | 41PV05056320 | 50     | 90  | 64  | 1.5 |
| 100   | HSK-A100 PSC 50.100 | 41PV05059920 | 50     | 100 | 71  | 3   |
|       | HSK-A100 PSC 63.110 | 41PV06359920 | 63     | 110 | 81  | 3.6 |
|       | HSK-A100 PSC 80.120 | 41PV08059920 | 80     | 120 | 91  | 4.7 |
| 125   | HSK-A125 PSC 80.130 | 41PV08059520 | 80     | 130 | 101 | 6.5 |

**DIN-AD / PSC**  
DIN 69871 / ISO 26623-2



| DIN | REF.                   | CODE         | PSC d1 | L  | L1 | kg  |
|-----|------------------------|--------------|--------|----|----|-----|
| 40  | DIN69871-A40 PSC 50.30 | 41PV05014020 | 50     | 30 | 11 | 0.8 |
| 50  | DIN69871-A50 PSC 63.30 | 41PV06315020 | 63     |    |    | 2.5 |

**DIN-AD+B / PSC**  
DIN 69871 / ISO 26623-2



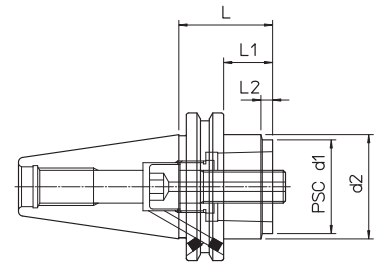
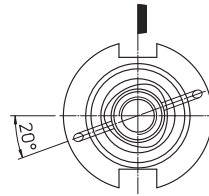
| DIN | REF.                      | CODE         | PSC d1 | L  | L1 | kg  |
|-----|---------------------------|--------------|--------|----|----|-----|
| 40  | DIN69871-AD+B40 PSC 40.30 | 41PV04014021 | 40     | 30 | 11 | 0.8 |
|     | DIN69871-AD+B40 PSC 50.40 | 41PV05014029 | 50     | 40 | 21 | 0.9 |
|     | DIN69871-AD+B40 PSC 50.50 | 41PV05014021 |        | 50 | 31 | 1.1 |
| 50  | DIN69871-AD+B50 PSC 50.30 | 41PV05015021 | 50     | 30 | 11 | 2.7 |
|     | DIN69871-AD+B50 PSC 63.30 | 41PV06315029 |        |    |    | 2.8 |
|     | DIN69871-AD+B50 PSC 63.50 | 41PV06315021 | 63     | 50 | 31 | 3   |
|     | DIN69871-AD+B50 PSC 80.70 | 41PV08015021 | 80     | 70 | 51 | 3.7 |

- ARBORS
- ДЕРЖАТЕЛИ
- PODSTAWOWE UCHWYTY NARZĘDZIOWE
- HŘÍDELE
- MALAFALAR

## CAT-AD+B / PSC

ANSI B5.50 / ISO 26623-2

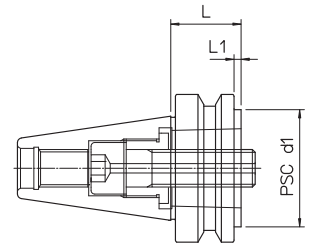
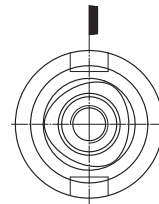
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| CAT | REF.                  | CODE         | PSC d1 | d2   | L   | L1 | L2   | M          | kg   |
|-----|-----------------------|--------------|--------|------|-----|----|------|------------|------|
| 40  | CAT40 AD+B PSC 40.40  | 41PV04014046 | 40     | 44.5 | 40  | 21 | 5    | UNC 5/8-11 | 0.95 |
|     | CAT40 AD+B PSC 50.50  | 41PV05014046 | 50     | -    | 50  | 31 | -    |            | 1    |
| 50  | CAT50 AD+B PSC 50.40  | 41PV05015046 |        | 69.9 | 40  | 21 | 5    | UNC 1/8    | 2.5  |
|     | CAT50 AD+B PSC 63.50  | 41PV06315046 | 63     | 70   | 50  | 31 | 12.5 |            | 3    |
|     | CAT50 AD+B PSC 80.100 | 41PV08015046 | 80     | -    | 100 | 81 | -    |            | 4.6  |

## BT / PSC

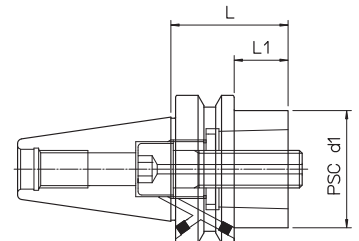
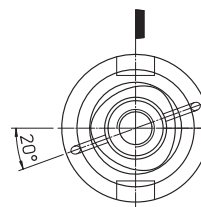
MAS 403 BT / ISO 26623-2



| BT | REF.                  | CODE         | PSC d1 | L  | L1 | kg  |
|----|-----------------------|--------------|--------|----|----|-----|
| 40 | MAS403 BT40 PSC 50.30 | 41PV05014030 | 50     | 30 | 3  | 0.9 |
| 50 | MAS403 BT50 PSC 63.40 | 41PV06315030 | 63     | 40 | 2  | 3.3 |

## BT-AD+B / PSC

MAS 403 BT / ISO 26623-2



| BT | REF.                       | CODE         | PSC d1 | L  | L1 | kg  |
|----|----------------------------|--------------|--------|----|----|-----|
| 40 | MAS403 BT40-AD+B PSC 40.30 | 41PV04014031 | 40     | 30 | 3  | 0.9 |
|    | MAS403 BT40-AD+B PSC 50.50 | 41PV05014031 | 50     | 50 | 23 | 1.2 |
| 50 | MAS403 BT50-AD+B PSC 50.40 | 41PV05015031 |        | 40 | 2  | 3.4 |
|    | MAS403 BT50-AD+B PSC 63.50 | 41PV06315031 | 63     | 50 | 12 | 3.5 |
|    | MAS403 BT50-AD+B PSC 80.70 | 41PV08015031 | 80     | 70 | 32 | 4   |

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249-252



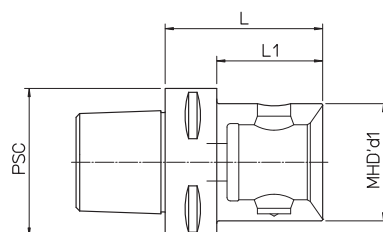


fig.1

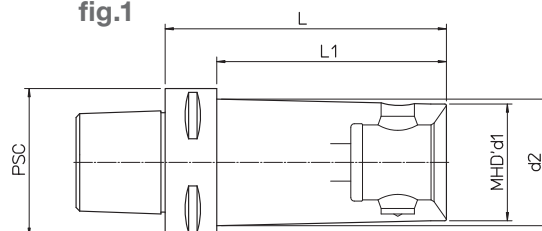


fig.2

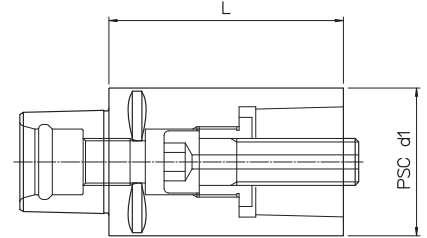
| PSC | REF.                   | CODE         | MHD' d1 | d2 | L   | L1  | Kg. | fig. |
|-----|------------------------|--------------|---------|----|-----|-----|-----|------|
| 40  | PSC 40 - MHD' 32.42    | 416322604004 | 32      | -  | 42  | 22  | 0.3 | 1    |
|     | PSC 40 - MHD' 40.45    | 416402604004 | 40      |    | 45  | -   | 0.4 |      |
| 50  | PSC 50 - MHD' 50.55    | 416502605005 | 50      |    | 55  | -   | 0.8 |      |
| 63  | PSC 63 - MHD' 40.50    | 416402606305 | 40      | 44 | 50  | 28  | 0.9 | 2    |
|     | PSC 63 - MHD' 40.120   | 416402606312 |         |    | 120 | 98  | 1.5 |      |
|     | PSC 63 - MHD' 50.55    | 416502606305 | 50      | -  | 55  | 33  | 0.8 | 1    |
|     | PSC 63 - MHD' 50.67    | 416502606306 |         |    | 67  | 45  | 1.1 |      |
|     | PSC 63 - MHD' 50.120   | 416502606312 |         | 54 | 120 | 98  | 1.9 | 2    |
|     | PSC 63 - MHD' 63.77    | 416632606307 | 63      | -  | 77  | -   | 1.8 | 1    |
| 80  | PSC 80 - MHD' 50.60    | 416502608006 | 50      | 54 | 60  | 30  | 2   | 2    |
|     | PSC 80 - MHD' 50.120   | 416502608012 |         |    | 120 | 90  | 2.8 |      |
|     | PSC 80 - MHD' 63.70    | 416632608007 | 63      | 67 | 70  | 40  | 2.3 | 1    |
|     | PSC 80 - MHD' 63.150   | 416632608015 |         |    | 150 | 120 | 4   | 2    |
|     | PSC 80 - MHD' 80.75    | 416802608007 | 80      | -  | 75  | -   | 2.6 | 1    |
|     | PSC 80 - MHD' 80.120   | 416802608012 |         |    | 120 |     | 4.3 |      |
| 100 | PSC 100 - MHD' 80.80   | 416802610008 |         |    | 80  | 44  | 3.5 |      |
|     | PSC 100 - MHD' 110.120 | 416912610012 | 110     |    | 120 | 84  | 5   |      |



- EXTENSIONS
- УДИЛИННИТЕЛИ
- PRZEDŁUŻKI
- NÁSTAVCE
- UZATMALAR



**PR PSC**  
ISO 26623-1 / 2



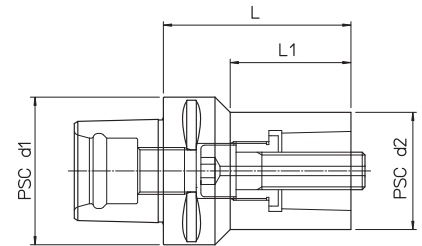
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| REF.          | CODE          | PSC d <sub>1</sub> | L   | kg   |
|---------------|---------------|--------------------|-----|------|
| PR PSC 32.60  | 656PV03206000 | 32                 | 60  | 0.35 |
| PR PSC 32.80  | 656PV03208000 |                    | 80  | 0.45 |
| PR PSC 40.60  | 656PV04006000 | 40                 | 60  | 0.55 |
| PR PSC 40.80  | 656PV04008000 |                    | 80  | 0.7  |
| PR PSC 40.100 | 656PV04010000 |                    | 100 | 0,9  |
| PR PSC 50.80  | 656PV05008000 | 50                 | 80  | 1.1  |
| PR PSC 50.100 | 656PV05010000 |                    | 100 | 1.4  |
| PR PSC 63.100 | 656PV06310000 | 63                 | 100 | 2.2  |
| PR PSC 63.140 | 656PV06314000 |                    | 140 | 3.2  |
| PR PSC 80.100 | 656PV08010000 | 80                 | 100 | 3.6  |
| PR PSC 80.125 | 656PV08012500 |                    | 125 | 4.5  |

- REDUCTIONS
- ПЕРЕХОДНИКИ
- REDUKCJE
- REDUKCE
- KISALTMALAR



**RD PSC**  
ISO 26623-1 / 2

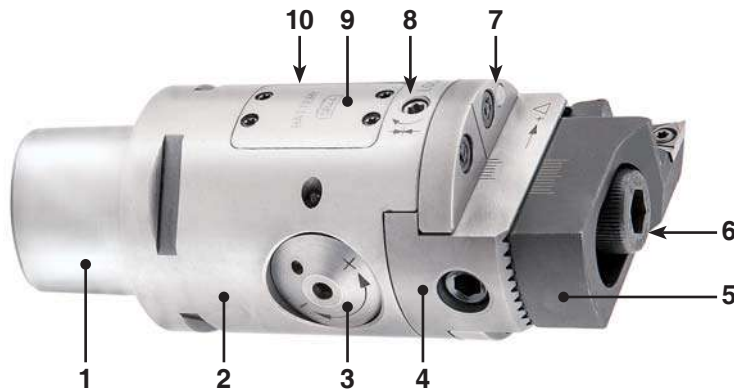


| REF.              | CODE          | PSC d <sub>1</sub> | PSC d <sub>2</sub> | L   | L <sub>1</sub> | kg   |
|-------------------|---------------|--------------------|--------------------|-----|----------------|------|
| RD PSC 40/32.70   | 657PV04003200 | 40                 | 32                 | 70  | 12             | 0.6  |
| RD PSC 50/32.60   | 657PV05003200 | 50                 |                    | 60  | 34.8           | 0.65 |
| RD PSC 50/40.65   | 657PV05004000 |                    | 40                 | 65  | 45             | 0.7  |
| RD PSC 50/40.85   | 657PV05004001 |                    |                    | 85  | 12             | 1    |
| RD PSC 63/32.70   | 657PV06303200 | 63                 | 32                 | 70  | 39             | 1.1  |
| RD PSC 63/40.80   | 657PV06304000 |                    | 40                 | 80  | 51.4           | 1.3  |
| RD PSC 63/50.80   | 657PV06305000 |                    | 50                 |     | 51.5           | 1.5  |
| RD PSC 63/50.110  | 657PV06305001 |                    |                    | 110 | 12             | 3.4  |
| RD PSC 80/32.60   | 657PV08003200 |                    | 80                 | 32  | 60             | 29.3 |
| RD PSC 80/40.70   | 657PV08004000 | 40                 |                    | 70  | 36.5           | 1.9  |
| RD PSC 80/50.80   | 657PV08005000 | 50                 |                    | 80  | 49.3           | 2.2  |
| RD PSC 80/63.80   | 657PV08006300 | 63                 |                    |     | 53.1           | 2.5  |
| RD PSC 80/63.120  | 657PV08006301 |                    |                    | 120 | 12             | 3.9  |
| RD PSC 100/80.100 | 657PV10008000 | 100                | 80                 | 100 | 58.2           | 5    |

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- 1 • PSC  
• PSC  
• PSC  
• PSC  
• PSC

- 2 • Body  
• Корпус  
• Korpus  
• Tělo  
• Gövde

- 3 • Set screw  
• Установочный винт  
• Śruba ustawcza  
• Nastavovací šroub  
• Ayar vidası

- 4 • Slide toolholder  
• Салазки  
• Sanie narzędziowe  
• Nástrojový držák šoupátka  
• Kayar takım tutucu

- 5 • Bit holder  
• Кассета головки  
• Wytaczak  
• Hrotový držák  
• Matkap kovani

- 6 • Tools clamp screws  
• Зажимные винты инструмента  
• Śruba blokująca narzędzie  
• Upínací šrouby nástroje  
• Takımların sıkma vidaları

- 7 • Coolant outlet  
• Выход хладагента  
• Wylot cieczy chłodzącej  
• Výstup chladicí kapaliny  
• Soğutma sıvısı çıkışı

- 8 • Slide clamp screw  
• Зажимные винты салазок  
• Śruba blokująca sanie narzędziowe  
• Upínací šroub šoupátka  
• Sürgülü sıkma vidası

- 9 • Battery compartment cover  
• Крышка батарейного отсека  
• Osłona baterii  
• Kryt prostoru baterie  
• Pil bölümü kapağı

- 10 • Oiler  
• Масленка  
• Smarownica  
• Olejnička  
• Yağlayıcı

IP67

2 μm



- 11 • Digital display  
• Цифровой дисплей  
• Wyświetlacz cyfrowy  
• Digitální displej  
• Dijital gösterge

- 12 • Selection button  
• Кнопка выбора  
• Przycisk Wyboru  
• Tlačítko pro výběr  
• Seçme düğmesi

TR-E 50 - PSC 50



TR-E 63 - PSC 63

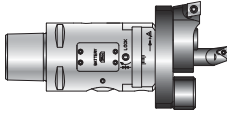


TR-E 80 - PSC 80

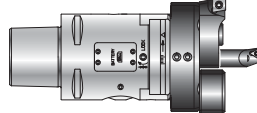




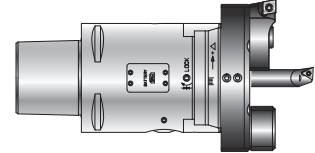
**TR-ELETTRA 50 PSC 50**  
Ø 2.5 ~ 110



**TR-ELETTRA 63 PSC 63**  
Ø 6 ~ 125



**TR-ELETTRA 80 PSC 80**  
Ø 6 ~ 200



**GB FEATURES.** The TR-ELETTRA heads enable high precision machining with tolerance grade, IT6, with excellent surface finish. They have a 1 micron radius adjustment sensitivity on a built-in digital display, ensuring maximum speed and adjustment accuracy. The TR-ELETTRA heads are resistant to water infiltration and are coated with an anti-corrosive surface protection.

**RU ХАРАКТЕРИСТИКИ.** Головки TR-Elettra позволяют производить высокоточную обработку по классу IT6 с исключительным качеством поверхности. Они имеют точность регулировки радиуса в 1 микрон на встроенном цифровом дисплее обеспечивая скорость и точность настройки. Головки TR-ELETTRA являются влагозащищенными и имеют антикоррозионное покрытие.

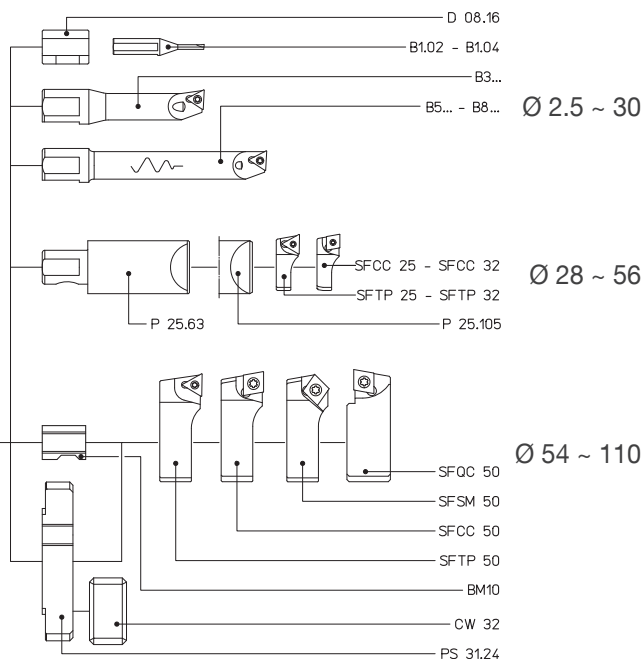
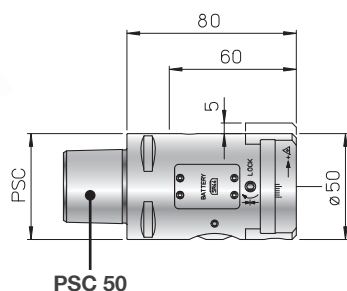
**PL CECHY.** Głowice TR-Elettra umożliwiają obróbkę o bardzo wysokiej dokładności w tolerancji IT6 i gwarantują uzyskanie doskonałej jakości powierzchni. Posiadają dokładność ustawczą 1 mikrometr na promieniu widoczną na wbudowanym wyświetlaczu cyfrowym, zapewniającym maksymalną szybkość i dokładność ustawienia. Głowice TR-Elettra są odporne na przedostawanie się chłodziwa i są pokryte warstwą anykorozijną.

**CZ VLASTNOSTI.** Pomocí hlav TR-ELETTRA se dosáhne vysoce přesného obrábění podle tolerance IT6 s vynikající finální úpravou povrchu. Přesnost nastavení poloměru na vestavěném digitálním displeji je 1 mikron, což zajišťuje maximální přesnost a rychlost nastavení. Tyto TR-ELETTRA hlavy jsou voděodolné a jsou potaženy antikorozií povrchovou vrstvou.

**TR ÖZELLİKLER.** TR-ELETTRA kafaları IT6 toleransında mükemmel yüzey kalitesinde yüksek hassasiyet sağlar. Dijital göstergede 1 mikron yarıçap ayarı hassasiyeti ile maximum hız ve ayar doğruluğuna sahiptir.



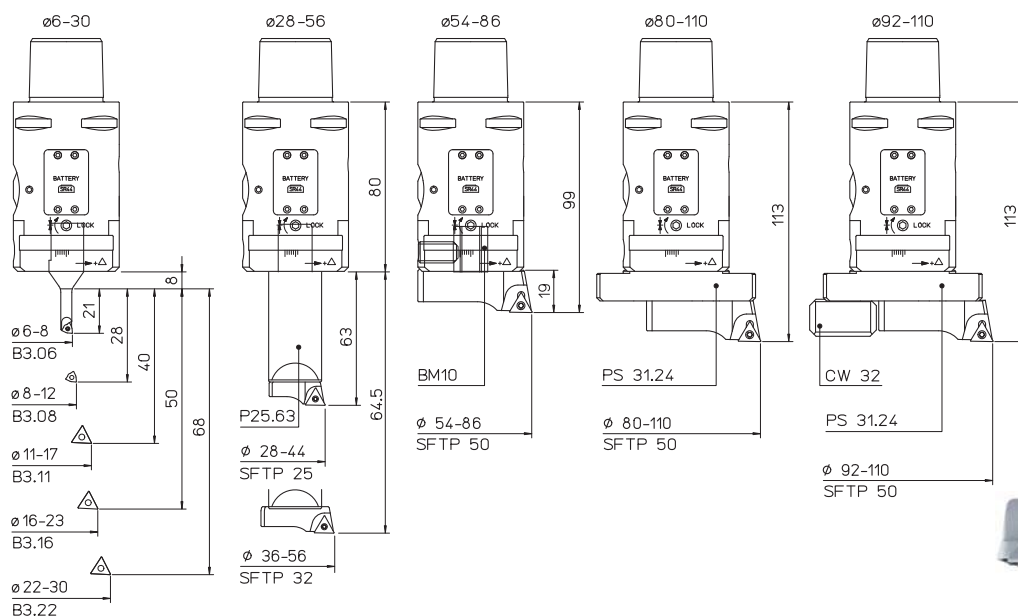
2 µm



| REF.                 | CODE         | Kg. |
|----------------------|--------------|-----|
| TR-ELETTRA 50 PSC 50 | 455255026050 | 1.2 |

KIT K01

Ø 6 ~ 110



1 TR-ELETTRA 50 PSC 50

1 P25.63 1 B3.06 1 B3.22 5 TPGX 090202L DC100  
1 BM10 1 B3.08 1 SFTP25 1 TPGX 110302L DC100  
1 PS 31.24 1 B3.11 1 SFTP32 2 WCGT 020102L DC100  
1 CW 32 1 B3.16 1 SFTP50

| REF.                         | CODE         | Ø       |
|------------------------------|--------------|---------|
| KIT K01 TR-ELETTRA 50 PSC 50 | 655255026050 | 6 ~ 110 |

252



119



173



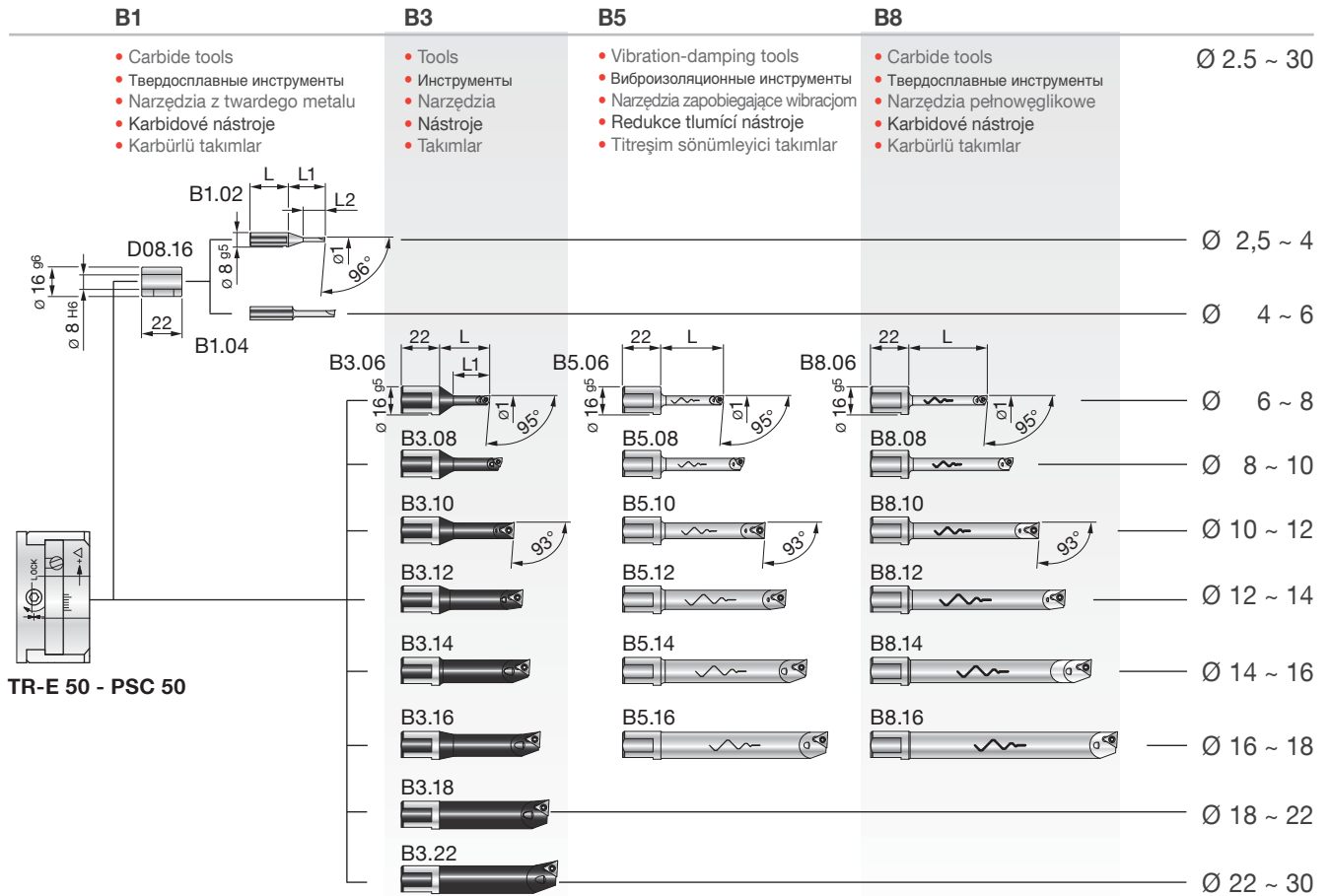
116



241



MAKİNA TİCARET VE SAN. LTD. ŞTİ.



| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| D08.16 | 200560116082 | 0.02 |

| REF.  | CODE         | Ø1      | L  | L1 | L2   | Kg.  |
|-------|--------------|---------|----|----|------|------|
| B1.02 | 572010502001 | 2.5 ~ 4 | 22 | 21 | 12.5 | 0.02 |
| B1.04 | 572010504001 | 4 ~ 6   | 24 | 24 | -    |      |

| REF.  | CODE         | Ø1      | L  | L1 | ⚙           | ⚙           | ⚙        | ⚙        | Kg.   |
|-------|--------------|---------|----|----|-------------|-------------|----------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29 | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36 | 28 |             |             | TS 211   |          | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43 | 35 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48 | 40 |             |             |          |          | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 | 48 | 42 |             |             |          |          | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52 | 50 |             |             |          |          | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58 | 50 |             |             |          |          | 0.07  |
| B3.18 | 572010518001 | 18 ~ 22 | 63 | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68 | -  |             |             |          |          | 0.1   |

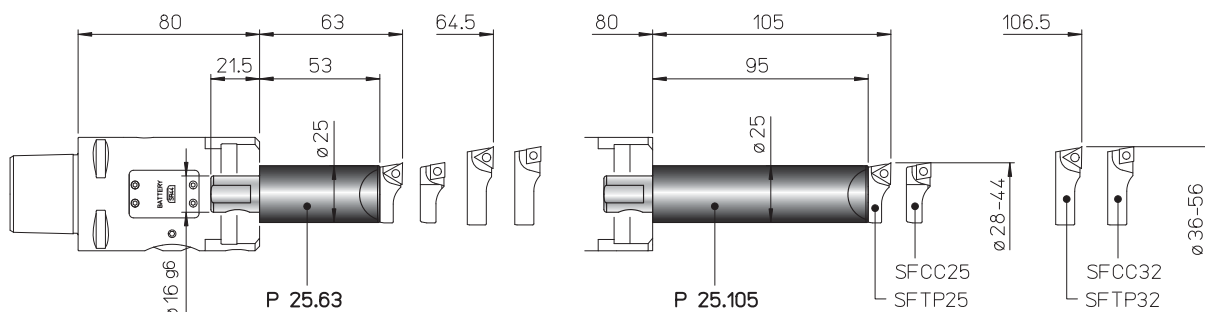
|       |              |         |    |   |             |             |          |          |       |
|-------|--------------|---------|----|---|-------------|-------------|----------|----------|-------|
| B5.06 | 572010506105 | 6 ~ 8   | 36 | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48 |   |             |             | TS 211   |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60 |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72 |   |             |             |          |          | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84 |   |             |             |          |          | 0.3   |
| B5.16 | 572010516105 | 16 ~ 18 | 96 |   |             |             |          |          | 0.3   |

|       |              |         |     |   |             |             |          |          |       |
|-------|--------------|---------|-----|---|-------------|-------------|----------|----------|-------|
| B8.06 | 572010506108 | 6 ~ 8   | 45  | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |   |             |             | TS 211   |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |   |             |             |          |          | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |   |             |             |          |          | 0.2   |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |   |             |             |          |          | 0.3   |



- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

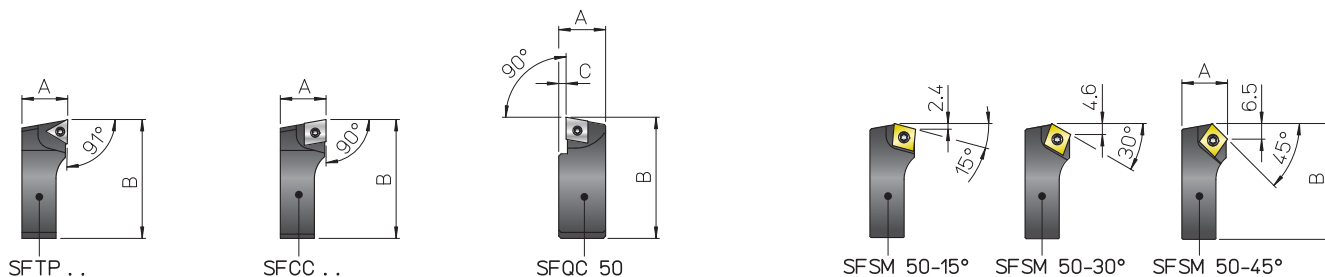
P 25  
Ø 28 ~ 56



| REF.          | CODE         | Kg. |
|---------------|--------------|-----|
| P25.63 TR...  | 435116250631 | 0.5 |
| P25.105 TR... | 435116251051 | 0.8 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



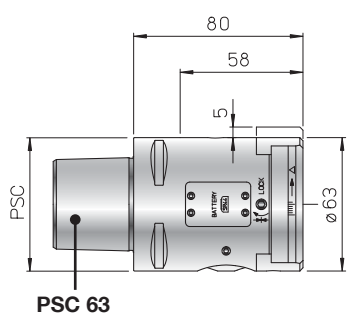
| REF.        | CODE         | A    | B    | C | △           | □           | ⌢          | ⌘        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | TPGX 1103.. | -           | CS 300890T |          | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T |          | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SFSM 50-45° | 470500550015 |      |      |   |             |             |            |          |      |



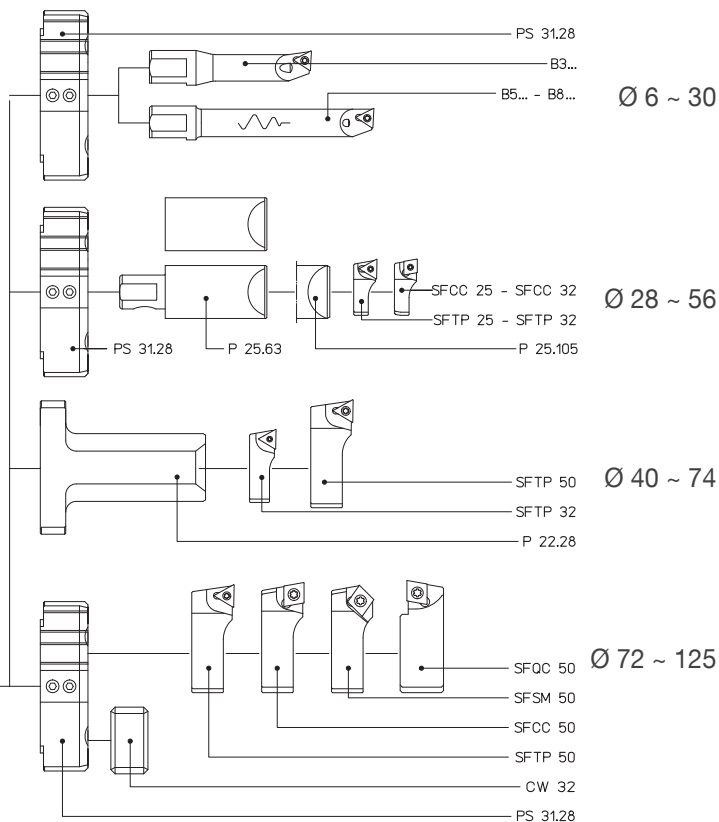
150



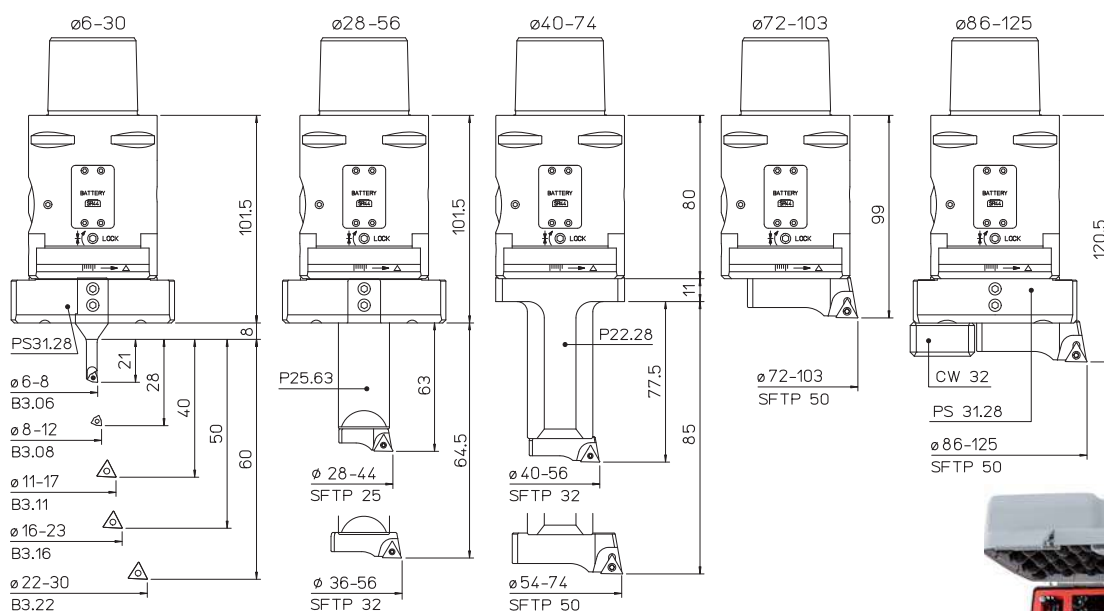
2 µm



PSC 63



| REF.                 | CODE         | Kg. |
|----------------------|--------------|-----|
| TR-ELETTRA 63 PSC 63 | 455256326060 | 2.1 |



KIT K01  
Ø 6 ~ 125



1 TR-ELETTRA 63 PSC 63

1 P25.63 1 B3.06 1 B3.22 5 TPGX 090202L DC100  
1 P22.28 1 B3.08 1 SFTP25 1 TPGX 110302L DC100  
1 PS 31.28 1 B3.11 1 SFTP32 2 WCGT 020102L DC100  
1 CW 32 1 B3.16 1 SFTP50

| REF.                         | CODE         | Ø       |
|------------------------------|--------------|---------|
| KIT K01 TR-ELETTRA 63 PSC 63 | 655256326060 | 6 ~ 125 |

252



119



173



116



241





|  | B3                                                                                                                                  | B5                                                                                                                                                                                                                                    | B8                                                                                                                                                                                          |           |
|--|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
|  | <ul style="list-style-type: none"> <li>Tools</li> <li>Инструменты</li> <li>Narzędzia</li> <li>Nástroje</li> <li>Takımlar</li> </ul> | <ul style="list-style-type: none"> <li>Vibration-damping tools</li> <li>Виброизоляционные инструменты</li> <li>Narzędzia zapobiegające wibracjom</li> <li>Redukce tlumiące nástroje</li> <li>Titreşim sönümleyici takımlar</li> </ul> | <ul style="list-style-type: none"> <li>Carbide tools</li> <li>Твердосплавные инструменты</li> <li>Narzędzia pełnowęglkowe</li> <li>Karbidové nástroje</li> <li>Karbidli takımlar</li> </ul> | Ø 6 ~ 30  |
|  |                                                                                                                                     |                                                                                                                                                                                                                                       |                                                                                                                                                                                             |           |
|  |                                                                                                                                     |                                                                                                                                                                                                                                       |                                                                                                                                                                                             | Ø 6 ~ 8   |
|  | B3.08                                                                                                                               | B5.08                                                                                                                                                                                                                                 | B8.08                                                                                                                                                                                       | Ø 8 ~ 10  |
|  | B3.10                                                                                                                               | B5.10                                                                                                                                                                                                                                 | B8.10                                                                                                                                                                                       | Ø 10 ~ 12 |
|  | B3.12                                                                                                                               | B5.12                                                                                                                                                                                                                                 | B8.12                                                                                                                                                                                       | Ø 12 ~ 14 |
|  | B3.14                                                                                                                               | B5.14                                                                                                                                                                                                                                 | B8.14                                                                                                                                                                                       | Ø 14 ~ 16 |
|  | B3.16                                                                                                                               | B5.16                                                                                                                                                                                                                                 | B8.16                                                                                                                                                                                       | Ø 16 ~ 18 |
|  | B3.18                                                                                                                               |                                                                                                                                                                                                                                       |                                                                                                                                                                                             | Ø 18 ~ 22 |
|  | B3.22                                                                                                                               |                                                                                                                                                                                                                                       |                                                                                                                                                                                             | Ø 22 ~ 30 |

| REF.                   | CODE         | Kg. |
|------------------------|--------------|-----|
| PS 31.28 TR-ELETTRA 63 | 433028220802 | 0.3 |

| REF.  | CODE             | Ø1      | L   | L1 | △           | △           | TS       | TORX     | Kg.   |
|-------|------------------|---------|-----|----|-------------|-------------|----------|----------|-------|
| B3.06 | 57 201 05 06 001 | 6 ~ 8   | 29  | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.035 |
| B3.08 | 57 201 05 08 001 | 8 ~ 10  | 36  | 28 |             |             | TS 211   |          | 0.04  |
| B3.10 | 57 201 05 10 001 | 10 ~ 12 | 43  | 35 |             |             |          |          | 0.05  |
| B3.11 | 57 201 05 11 001 | 11 ~ 13 | 48  | 40 |             |             |          |          | 0.055 |
| B3.12 | 57 201 05 12 001 | 12 ~ 14 |     | 42 |             |             |          |          | 0.06  |
| B3.14 | 57 201 05 14 001 | 14 ~ 16 | 52  | 50 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.07  |
| B3.16 | 57 201 05 16 001 | 16 ~ 18 | 58  |    |             |             |          |          |       |
| B3.18 | 57 201 05 18 001 | 18 ~ 22 | 63  | -  |             |             |          |          | 0.1   |
| B3.22 | 57 201 05 22 001 | 22 ~ 30 | 68  |    |             |             |          |          |       |
| B5.06 | 57 201 05 06 105 | 6 ~ 8   | 36  |    | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 57 201 05 08 105 | 8 ~ 10  | 48  |    |             |             | TS 211   |          | 0.09  |
| B5.10 | 57 201 05 10 105 | 10 ~ 12 | 60  |    |             |             |          |          | 0.1   |
| B5.12 | 57 201 05 12 105 | 12 ~ 14 | 72  |    | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B5.14 | 57 201 05 14 105 | 14 ~ 16 | 84  |    |             |             |          |          | 0.3   |
| B5.16 | 57 201 05 16 105 | 16 ~ 18 | 96  |    |             |             |          |          |       |
| B8.06 | 57 201 05 06 108 | 6 ~ 8   | 45  |    | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 57 201 05 08 108 | 8 ~ 10  | 60  |    |             |             | TS 211   |          | 0.08  |
| B8.10 | 57 201 05 10 108 | 10 ~ 12 | 75  |    |             |             |          |          | 0.1   |
| B8.12 | 57 201 05 12 108 | 12 ~ 14 | 90  |    | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B8.14 | 57 201 05 14 108 | 14 ~ 16 | 105 |    |             |             |          |          | 0.3   |
| B8.16 | 57 201 05 16 108 | 16 ~ 18 | 120 |    |             |             |          |          |       |

116

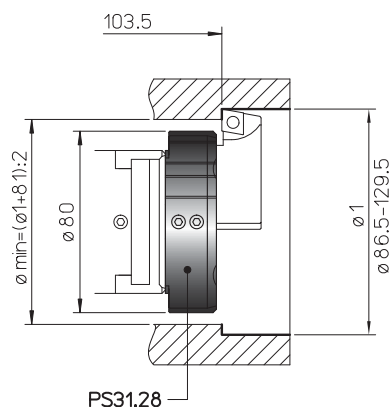
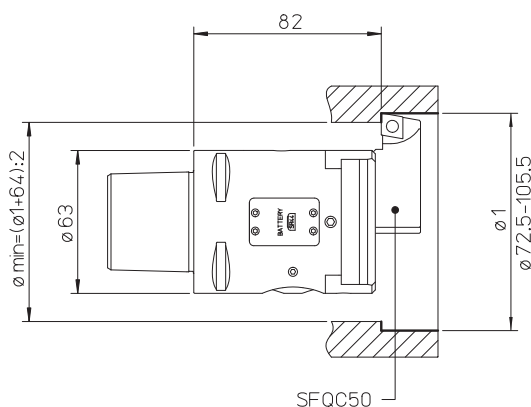
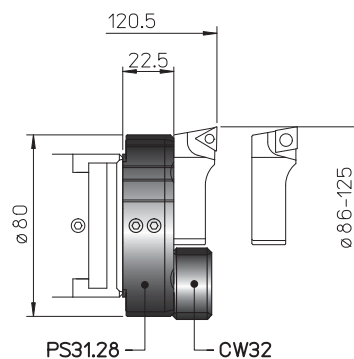
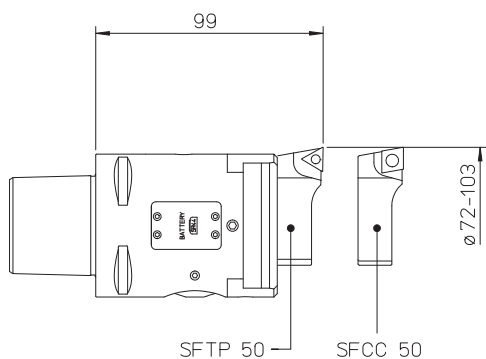
175

119

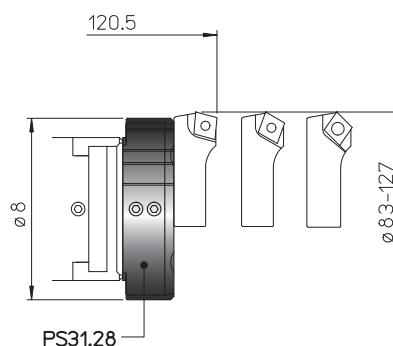
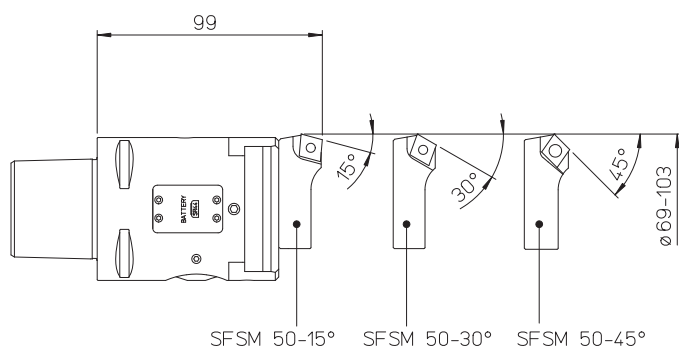


- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

**PS 31**  
**CW 32**  
Ø 72 ~ 125



**PS 31**  
Ø 72.5 ~ 129.5



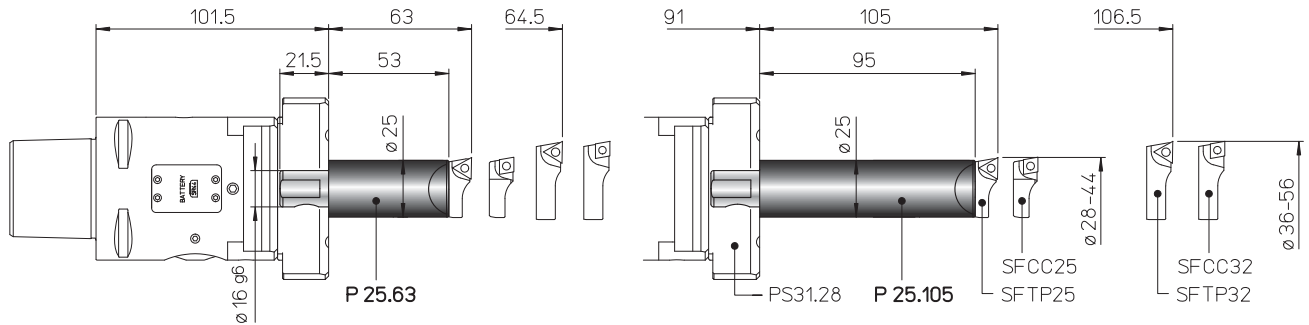
**PS 31**  
Ø 69 ~ 127

| REF.                   | CODE         | Kg.  |
|------------------------|--------------|------|
| PS 31.28 TR-ELETTRA 63 | 433028220802 | 0.3  |
| CW 32                  | 392011003201 | 0.07 |

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

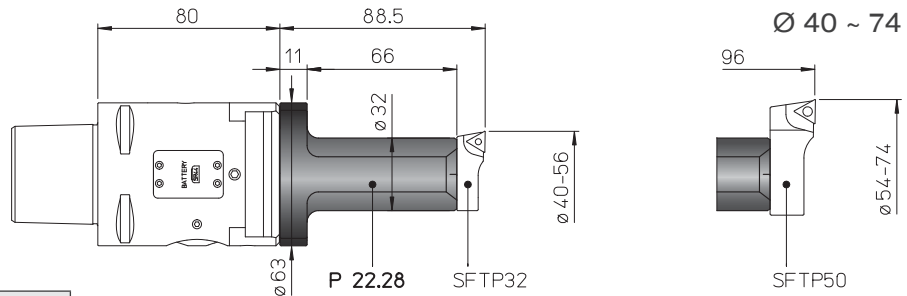
P 25  
Ø 28 ~ 56

153



| REF.          | CODE         | Kg. |
|---------------|--------------|-----|
| P25.63 TR...  | 435116250631 | 0.5 |
| P25.105 TR... | 435116251051 | 0.8 |

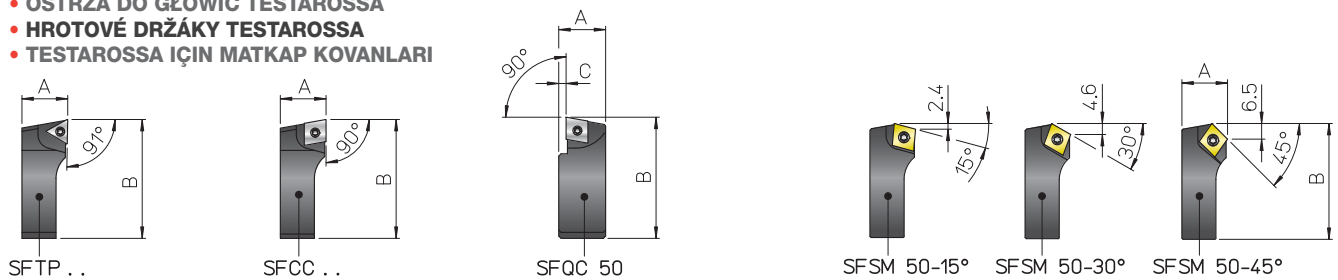
P 22  
Ø 40 ~ 74



| REF.    | CODE         | Kg.  |
|---------|--------------|------|
| P 22.28 | 433028220631 | 0.45 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



| REF.        | CODE         | A    | B    | C |             |             |            |          | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | TPGX 1103.. | -           | CS 300890T | TORX T08 | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T | TORX T08 | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SFSM 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

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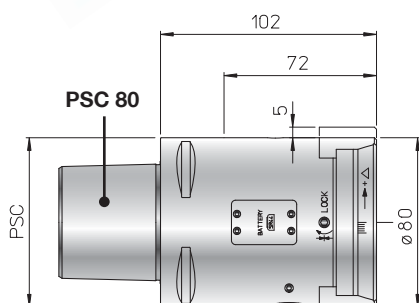
175

119

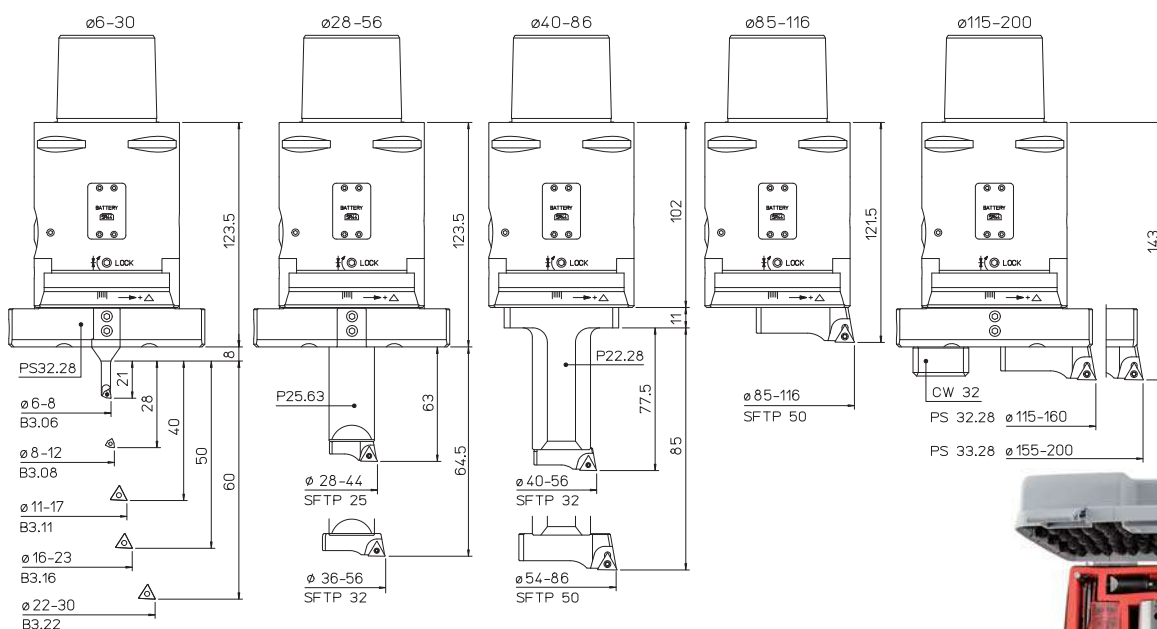
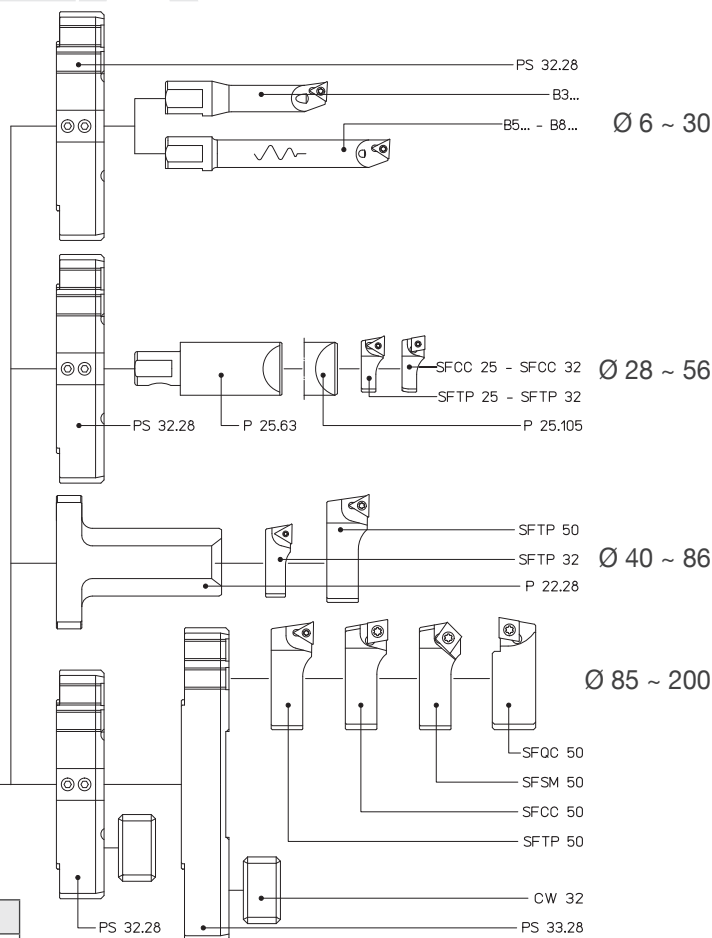




2 µm



| REF.                 | CODE         | Kg. |
|----------------------|--------------|-----|
| TR-ELETTRA 80 PSC 80 | 455258026080 | 4.4 |

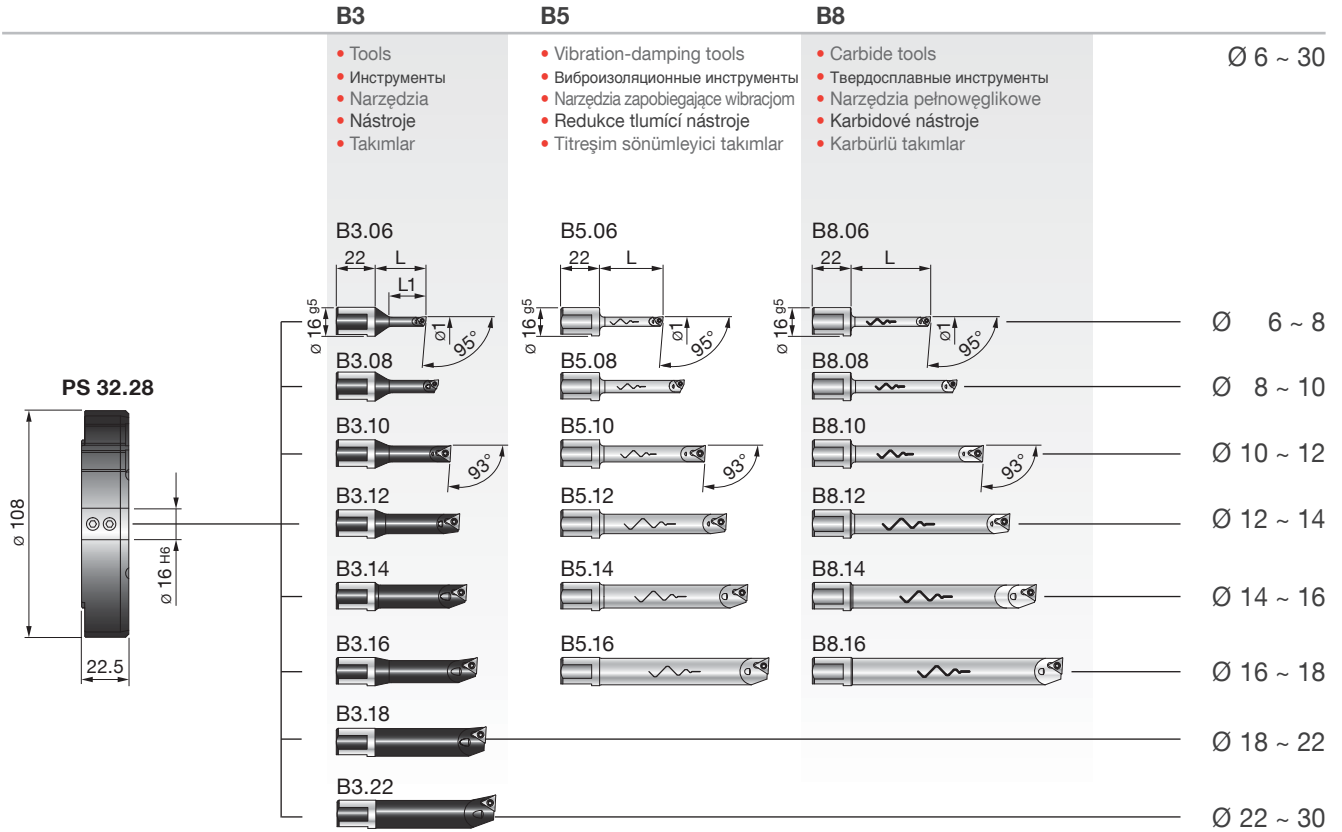


**KIT K01**  
Ø 6 ~ 200

- 1 TR-ELETTRA 80 PSC 80  
 1 P25.63 1 CW 32 1 B3.16 1 SFTP50  
 1 P22.28 1 B3.06 1 B3.22 5 TPGX 090202L DC100  
 1 PS 32.28 1 B3.08 1 SFTP25 1 TPGX 110302L DC100  
 1 PS 33.28 1 B3.11 1 SFTP32 2 WCGT 020102L DC100

| REF.                         | CODE         | Ø       |
|------------------------------|--------------|---------|
| KIT K01 TR-ELETTRA 80 PSC 80 | 655258026080 | 6 ~ 200 |





| REF.                   | CODE         | Kg. |
|------------------------|--------------|-----|
| PS 32.28 TR-ELETTRA 80 | 433028221082 | 0.5 |

| REF.  | CODE         | Ø1      | L   | L1 | WCGT 0201.. | TPGX 0902.. | CS 250 T | TORX T06 | Kg.   |
|-------|--------------|---------|-----|----|-------------|-------------|----------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29  | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36  | 28 | WCGT 0201.. | -           | TS 211   | TORX T06 | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43  | 35 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48  | 40 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 | 48  | 42 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52  | 50 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58  | 50 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.07  |
| B3.18 | 572010518001 | 18 ~ 22 | 63  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B5.06 | 572010506105 | 6 ~ 8   | 36  | -  | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48  | -  | WCGT 0201.. | -           | TS 211   | TORX T06 | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B5.16 | 572010516105 | 16 ~ 18 | 96  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.3   |
| B8.06 | 572010506108 | 6 ~ 8   | 45  | -  | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  | -  | WCGT 0201.. | -           | TS 211   | TORX T06 | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.2   |
| B8.16 | 572010516108 | 16 ~ 18 | 120 | -  | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.3   |



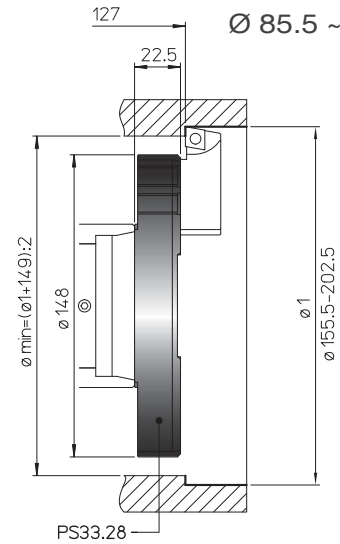
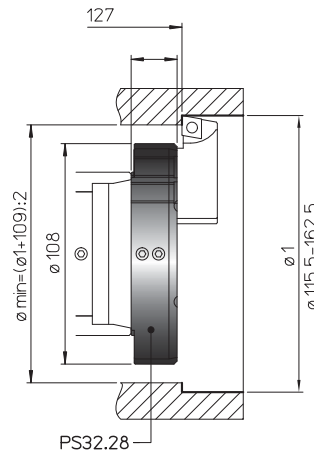
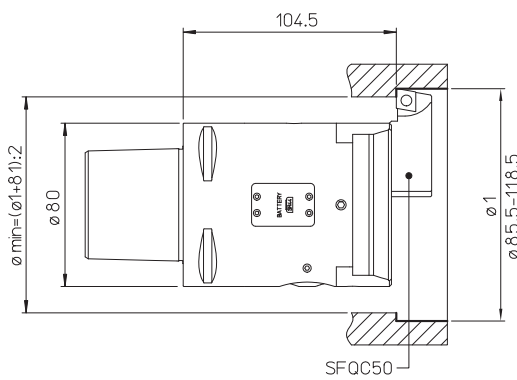
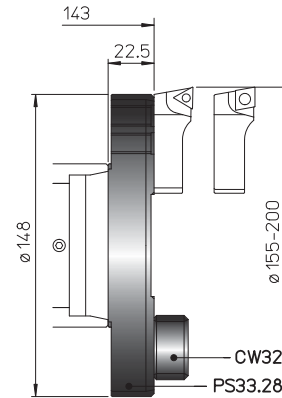
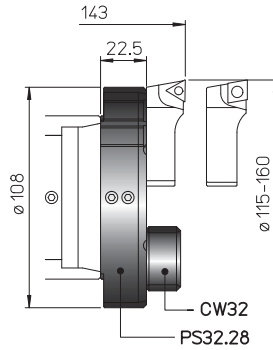
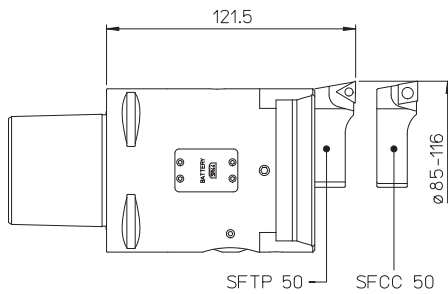
### PSC 80 ISO 26623-1

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

PS

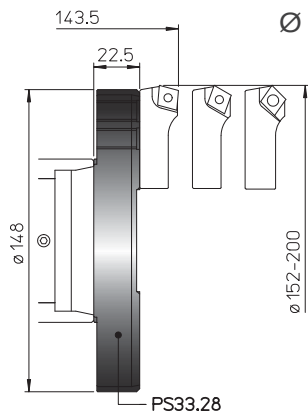
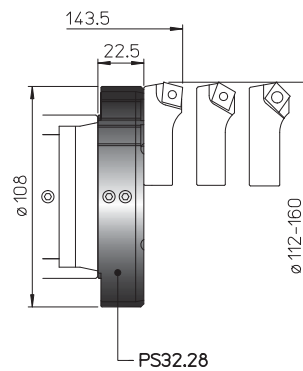
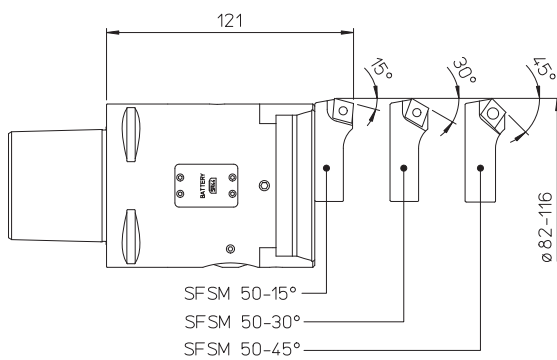
CW 32

Ø 85 ~ 200



PS

Ø 85.5 ~ 202.5



PS

Ø 82 ~ 200

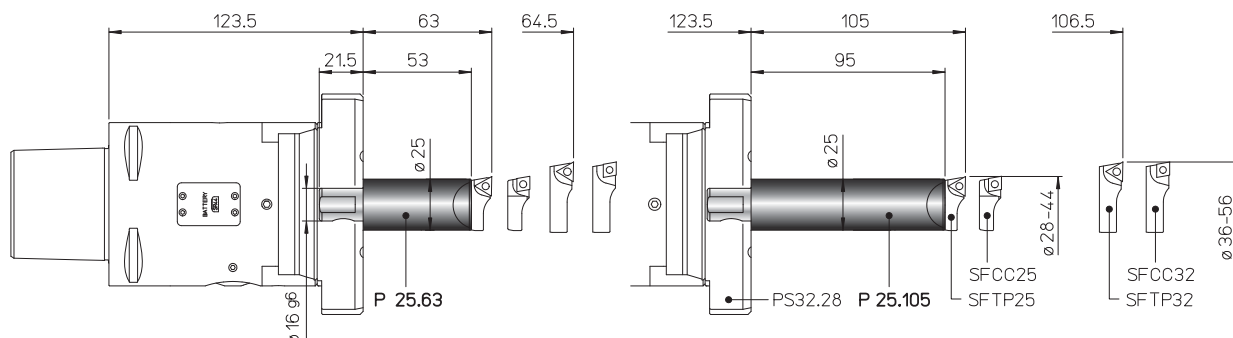
| REF.                   | CODE         | Kg.  |
|------------------------|--------------|------|
| PS 32.28 TR-ELETTRA 80 | 433028221082 | 0.5  |
| PS 33.28 TR-ELETTRA 80 | 433028221482 | 0.6  |
| CW 32                  | 392011003201 | 0.07 |



- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

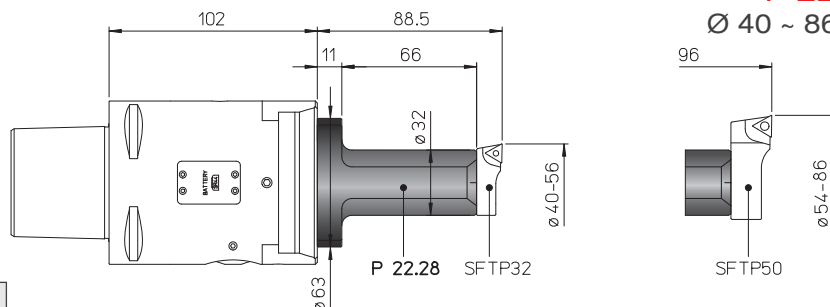
P 25  
Ø 28 ~ 56

157



| REF.         | CODE         | Kg. |
|--------------|--------------|-----|
| P25.63 TR... | 435116250631 | 0.5 |
| P25.105 TR.. | 435116251051 | 0.8 |

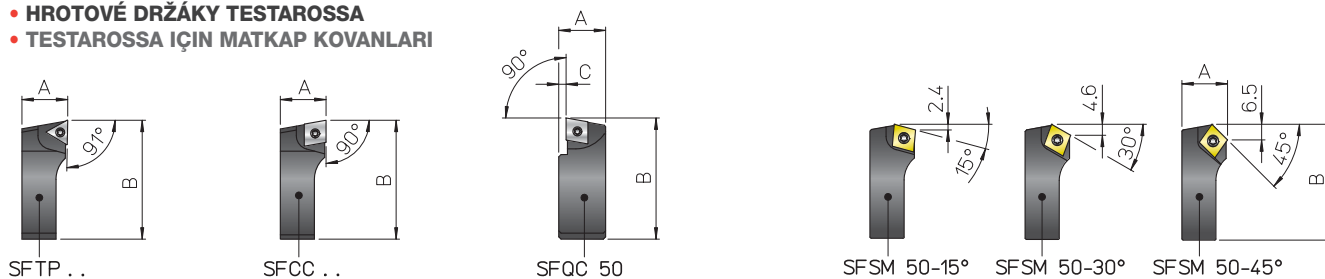
P 22  
Ø 40 ~ 86



| REF.    | CODE         | Kg.  |
|---------|--------------|------|
| P 22.28 | 433028220631 | 0.45 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



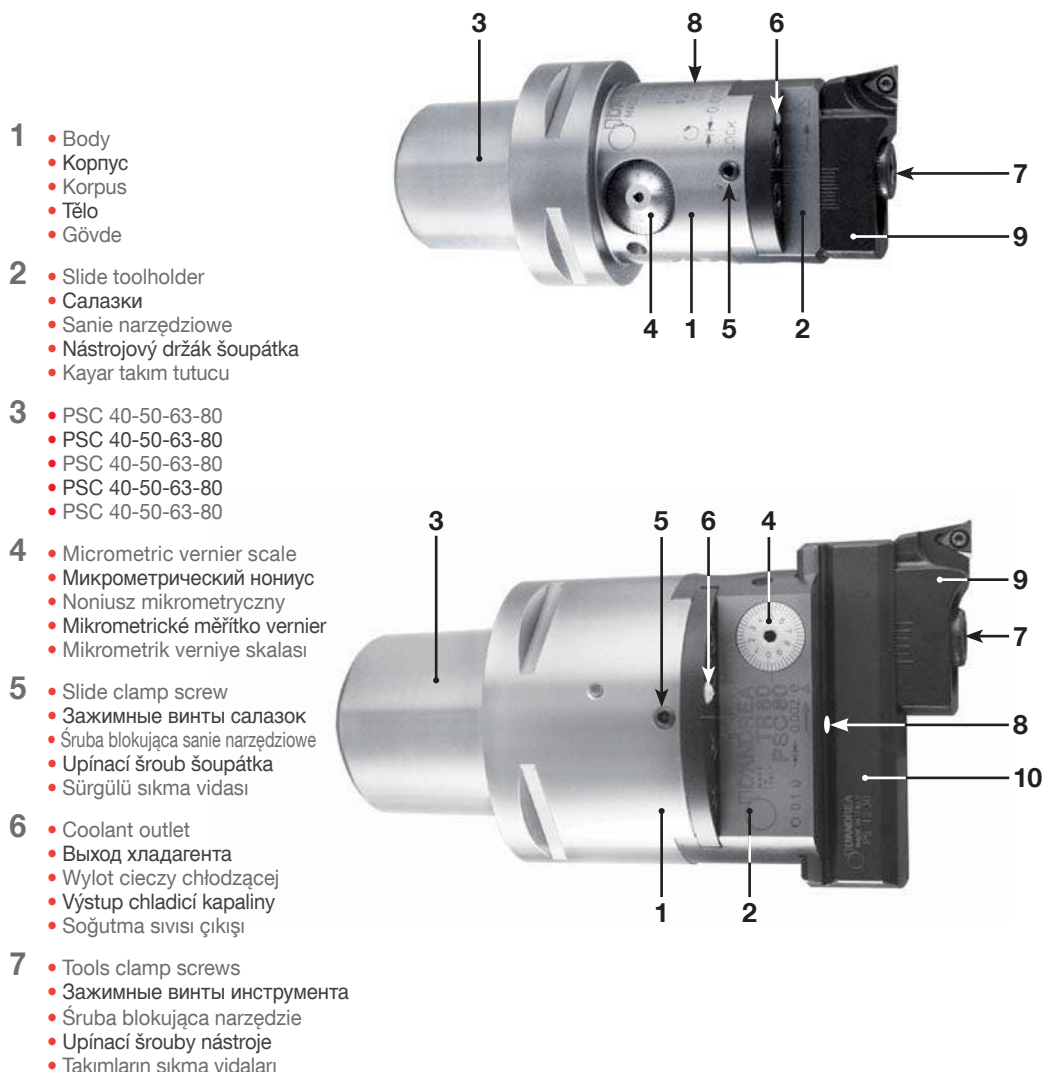
| REF.        | CODE         | A    | B    | C |             |             |            |          | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | TPGX 1103.. | -           | CS 300890T | TORX T08 | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T | TORX T08 | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SFSM 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

116

175

119





2  $\mu\text{m}$



- 1 • Body  
• Корпус  
• Korpus  
• Tělo  
• Gövde

- 2 • Slide toolholder  
• Салазки  
• Sanie narzędziowe  
• Nástrojový držák šoupátka  
• Kayar takim tutucu

- 3 • PSC 40-50-63-80  
• PSC 40-50-63-80  
• PSC 40-50-63-80  
• PSC 40-50-63-80  
• PSC 40-50-63-80

- 4 • Micrometric vernier scale  
• Микрометрический нониус  
• Noniusz mikrometryczny  
• Mikrometrické měřítko vernier  
• Mikrometrik verniye skalası

- 5 • Slide clamp screw  
• Зажимные винты салазок  
• Śruba blokująca sanie narzędziowe  
• Upínací šroub šoupátka  
• Sürgülü sıkma vidası

- 6 • Coolant outlet  
• Выход хладагента  
• Wylot cieczy chłodzącej  
• Výstup chladicí kapaliny  
• Soğutma sıvısı çıkışı

- 7 • Tools clamp screws  
• Зажимные винты инструмента  
• Śruba blokująca narzędzie  
• Upínací šrouby nástroje  
• Takımların sıkma vidaları

- 8 • Oiler  
• Масленка  
• Smarownica  
• Olejniczka  
• Yağlayıcı

- 9 • Bit holder  
• Кассета головки  
• Wytaczak  
• Hrotový držák  
• Matkap kovani

- 10 • Tool holder  
• Держатель  
• Oprawka narzędziowa  
• Nástrojový držák  
• Takim tutucu

**GB FEATURES.** The TR-PSC heads in the D'Andrea Testarossa line have protective rustproof coating. High precision work to IT6 tolerance, with excellent surface finish, is achieved using TR-PSC boring heads. These are very sensitive and radial correction of 1 micron can be effected directly on the machine and easily read on the vernier scale.

**RU ХАРАКТЕРИСТИКИ.** Головки TR-PSC линии Testarossa D'Andrea оснащены защитным антикоррозийным покрытием. Головки TR-PSC обеспечивают высокую точность с допусками по классу IT6 с исключительной чистотой поверхности. Они очень чувствительны и радиальная коррекция в 1 микрон может быть осуществлена прямо на станке и легко считана по шкале нониуса.

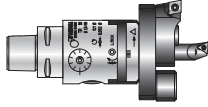
**PL CECHY.** Głowice serii TR-PSC, pochodzące z nowej linii Testarossa firmy D'Andrea, posiadają dodatkową ochronną powłokę antykorozyjną. Głowice TR-PSC umożliwiają obróbkę o bardzo wysokiej dokładności w tolerancji IT6 i gwarantują uzyskanie doskonałej jakości powierzchni. Dokładność ustawcza głowic wynosi 1 mikrometr na promieniu. Wartość ta jest łatwa do odczytania bezpośrednio na noniuszu głowicy co umożliwia dokonywanie regulacji bezpośrednio na obrabiarce.

**CZ VLASTNOSTI.** Hlavy TR-PSC v řadě Testarossa společnosti D'Andrea mají rezuvzdornou povrchovou úpravu. Pomocí vyvrtávacích hlav TR-PSC se docílí vysoce přesné obrábění dle tolerance IT6 s vynikající finální úpravou povrchu. Jsou velmi citlivé a radiální korekci 1 mikronu lze provést přímo na stroji a snadno odečíst na měřítku vernier.

**TR ÖZELLİKLER.** D'Andrea Testarossa ürün gamındaki TR-PSC kafaları, koruyucu paslanmaz kaplamaya sahiptir. TR-PSC matkap başları kullanılarak IT6 toleransa kadar yüksek hassasiyetli çalışma ve mükemmel yüzey bitirme gerçekleştirilir. Bunlar son derece hassastır ve 1 mikron radyal düzeltme doğrudan makine üzerinde gerçekleştirilip verniye skalasında kolayca okunabilir. sul raggio, facilmente leggibile sul nonio ed eseguibile anche in macchina.

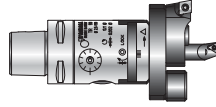
**TR50 - PSC40**

Ø 2.5 ~ 108



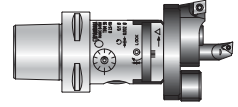
**TR50 - PSC50**

Ø 2.5 ~ 108



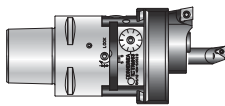
**TR50 - PSC63**

Ø 2.5 ~ 108



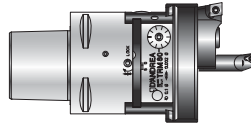
**TR63 - PSC63**

Ø 6 ~ 125



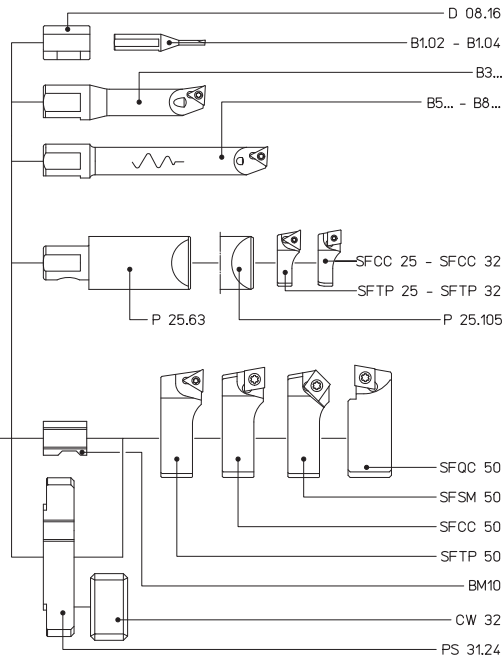
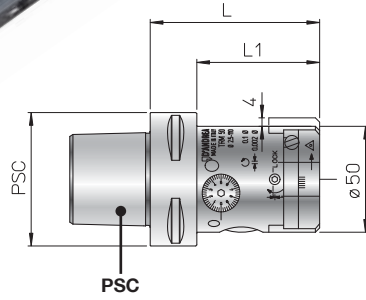
**TR80 - PSC80**

Ø 6 ~ 160





2 µm



Ø 2.5 ~ 30

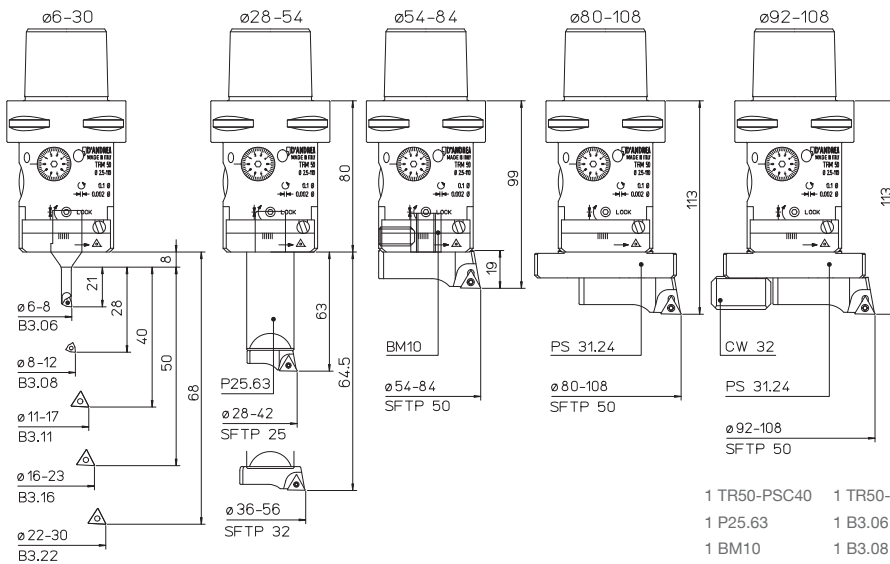
Ø 28 ~ 54

Ø 54 ~ 108

| PSC | REF.           | CODE         | L  | L1 | kg  |
|-----|----------------|--------------|----|----|-----|
| 40  | TR 50 - PSC 40 | 455055026040 | 80 | 60 | 0.9 |
| 50  | TR 50 - PSC 50 | 455055026050 |    | 60 | 1.1 |
| 63  | TR 50 - PSC 63 | 455055026060 |    | 58 | 1.3 |

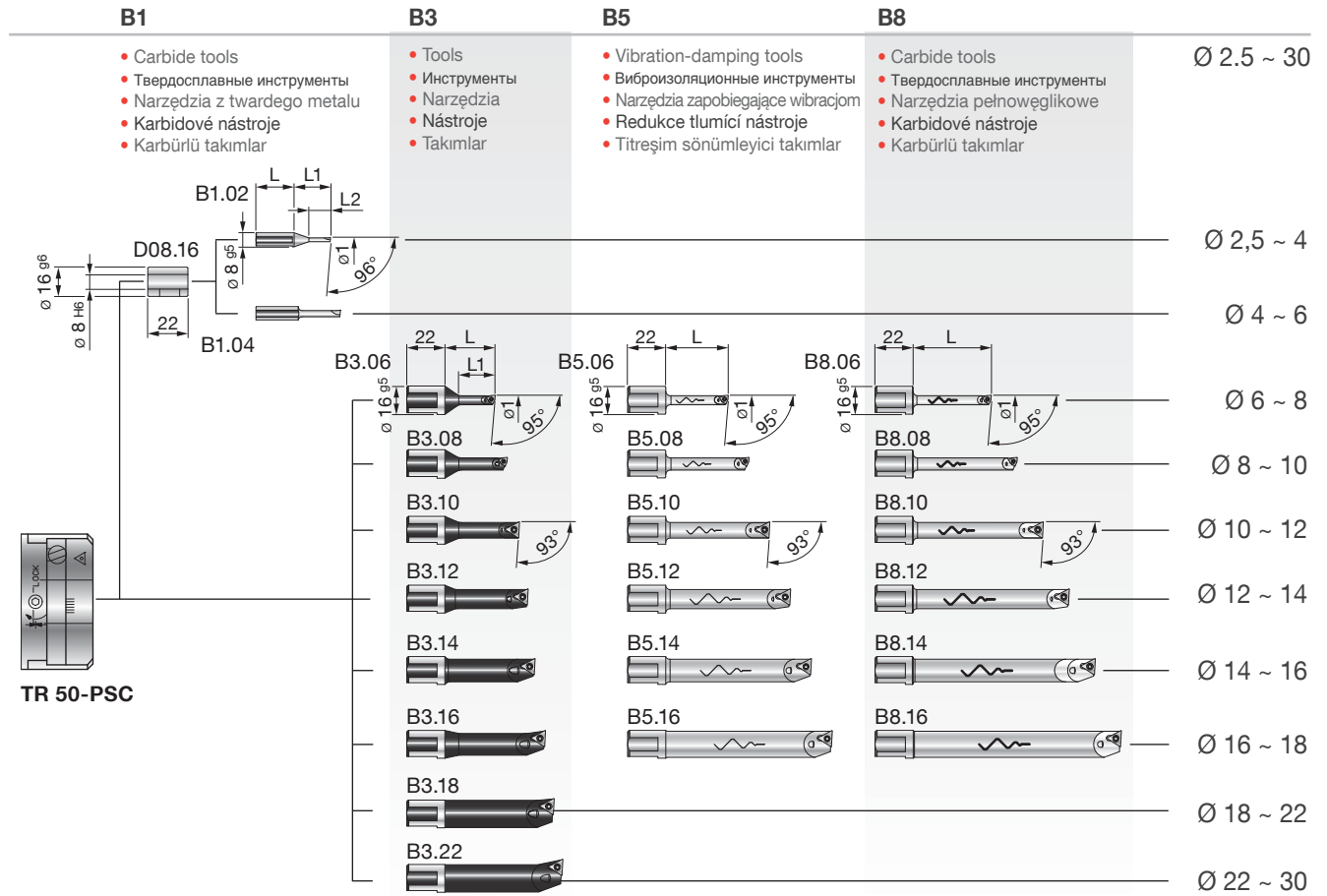
KIT K01

Ø 6 ~ 108



|              |              |              |                      |
|--------------|--------------|--------------|----------------------|
| 1 TR50-PSC40 | 1 TR50-PSC50 | 1 TR50-PSC63 |                      |
| 1 P25.63     | 1 B3.06      | 1 B3.22      |                      |
| 1 BM10       | 1 B3.08      | 1 SFTP25     | 1 TPGX 110302L DC100 |
| 1 PS 31.24   | 1 B3.11      | 1 SFTP32     | 5 TPGX 090202L DC100 |
| 1 CW 32      | 1 B3.16      | 1 SFTP50     | 2 WCGT 020102L DC100 |

| REF.                  | CODE         | Ø       |
|-----------------------|--------------|---------|
| KIT K01 TR 50 - PSC40 | 655060410501 | 6 ~ 108 |
| KIT K01 TR 50 - PSC50 | 655060510501 |         |
| KIT K01 TR 50 - PSC63 | 655060610501 |         |



| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| D08.16 | 200560116082 | 0.02 |

| REF.  | CODE         | Ø1      | L  | L1 | L2   | Kg.  |
|-------|--------------|---------|----|----|------|------|
| B1.02 | 572010502001 | 2.5 ~ 4 | 22 | 21 | 12.5 | 0.02 |
| B1.04 | 572010504001 | 4 ~ 6   | 24 | 24 | -    |      |

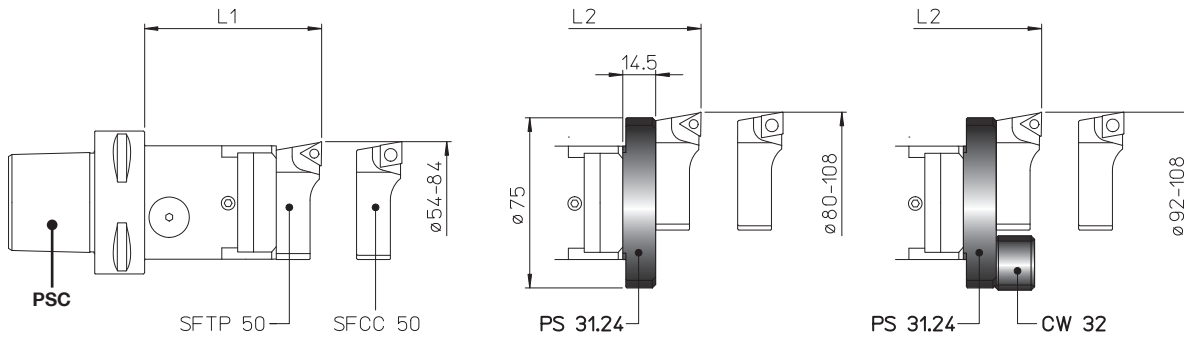
| REF.  | CODE         | Ø1      | L  | L1 |  |  |  |  | Kg.   |
|-------|--------------|---------|----|----|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29 | 21 | WCGT 0201..                                                                         | -                                                                                     | TS 21                                                                                 | TORX T06                                                                              | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36 | 28 |                                                                                     |                                                                                       | TS 211                                                                                |                                                                                       | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43 | 35 | -                                                                                   | TPGX 0902..                                                                           | CS 250 T                                                                              | TORX T08                                                                              | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48 | 40 |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 |    | 42 |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52 | 50 |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58 |    |                                                                                     |                                                                                       |                                                                                       |                                                                                       |       |
| B3.18 | 572010518001 | 18 ~ 22 | 63 | -  |                                                                                     |                                                                                       |                                                                                       |                                                                                       | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68 |    |                                                                                     |                                                                                       |                                                                                       |                                                                                       |       |

|       |              |         |    |   |             |             |          |          |       |
|-------|--------------|---------|----|---|-------------|-------------|----------|----------|-------|
| B5.06 | 572010506105 | 6 ~ 8   | 36 | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48 |   |             |             | TS 211   |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60 |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72 |   |             |             |          |          | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84 |   |             |             |          |          |       |
| B5.16 | 572010516105 | 16 ~ 18 | 96 |   |             |             |          |          | 0.3   |

|       |              |         |     |   |             |             |          |          |       |
|-------|--------------|---------|-----|---|-------------|-------------|----------|----------|-------|
| B8.06 | 572010506108 | 6 ~ 8   | 45  | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |   |             |             | TS 211   |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |   |             |             |          |          | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |   |             |             |          |          |       |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |   |             |             |          |          | 0.3   |

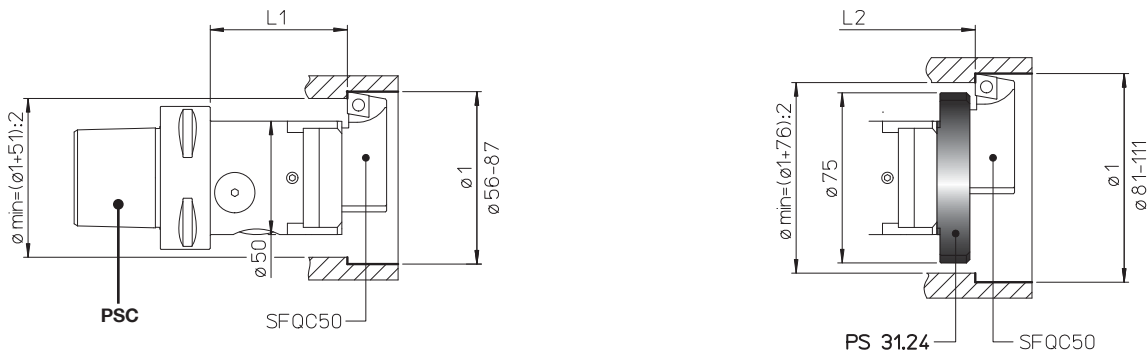
- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

**PS 31**  
**CW 32**  
Ø 54~ 108



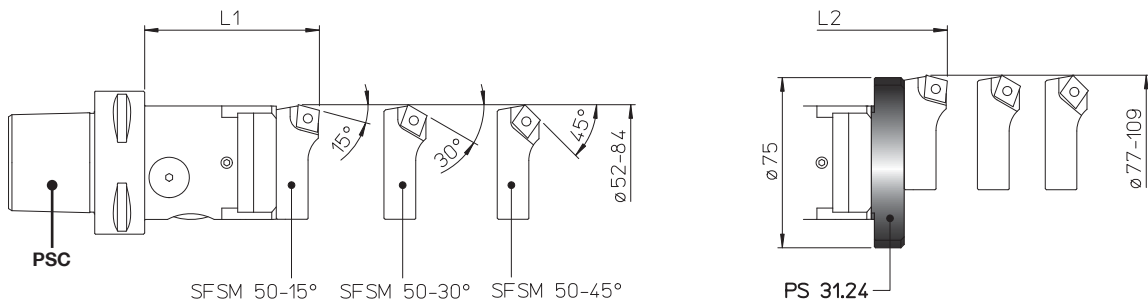
| PSC | REF.           | L1 | L2 |
|-----|----------------|----|----|
| 40  | TR 50 - PSC 40 | 79 | 93 |
| 50  | TR 50 - PSC 50 |    |    |
| 63  | TR 50 - PSC 63 | 77 | 91 |

**PS 31**  
Ø 56 ~ 111



| PSC | REF.           | L1 | L2 |
|-----|----------------|----|----|
| 40  | TR 50 - PSC 40 | 62 | 76 |
| 50  | TR 50 - PSC 50 |    |    |
| 63  | TR 50 - PSC 63 | 60 | 74 |

**PS 31**  
Ø 52 ~ 109



| PSC | REF.           | L1 | L2 |
|-----|----------------|----|----|
| 40  | TR 50 - PSC 40 | 79 | 93 |
| 50  | TR 50 - PSC 50 |    |    |
| 63  | TR 50 - PSC 63 | 77 | 91 |

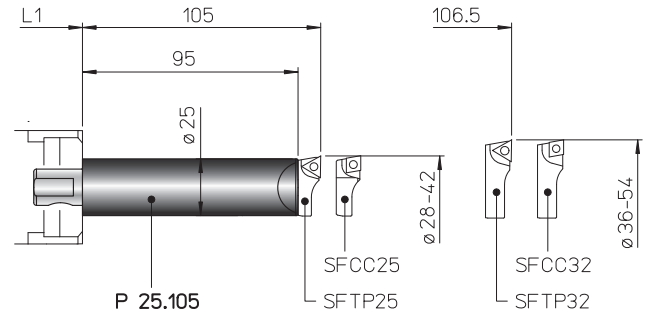
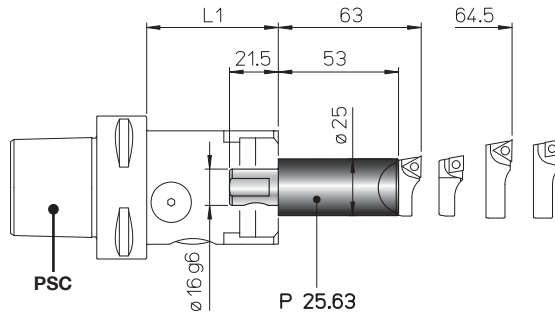
| REF.            | CODE         | Kg.  |
|-----------------|--------------|------|
| PS 31.24 TR..50 | 433024140751 | 0.19 |
| CW 32           | 392011003201 | 0.07 |



- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

P 25  
Ø 28 ~ 54

163

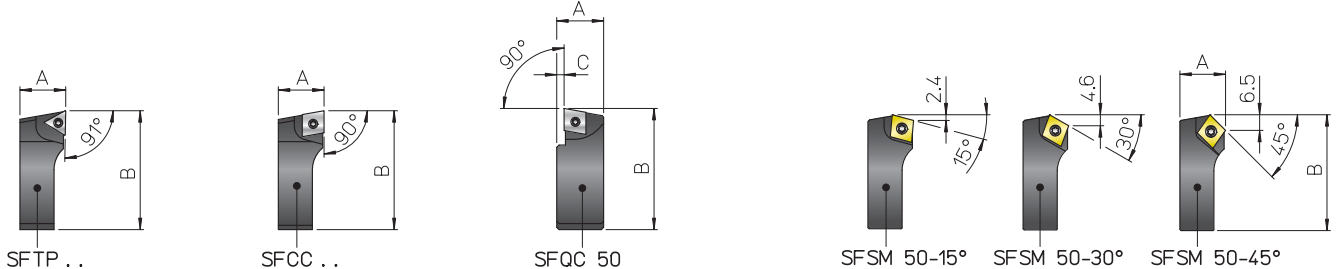


| PSC | REF.           | L1 |
|-----|----------------|----|
| 40  | TR 50 - PSC 40 | 60 |
| 50  | TR 50 - PSC 50 |    |
| 63  | TR 50 - PSC 63 | 58 |

| REF.          | CODE         | Kg. |
|---------------|--------------|-----|
| P25.63 TR...  | 435116250631 | 0.5 |
| P25.105 TR... | 435116251051 | 0.8 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

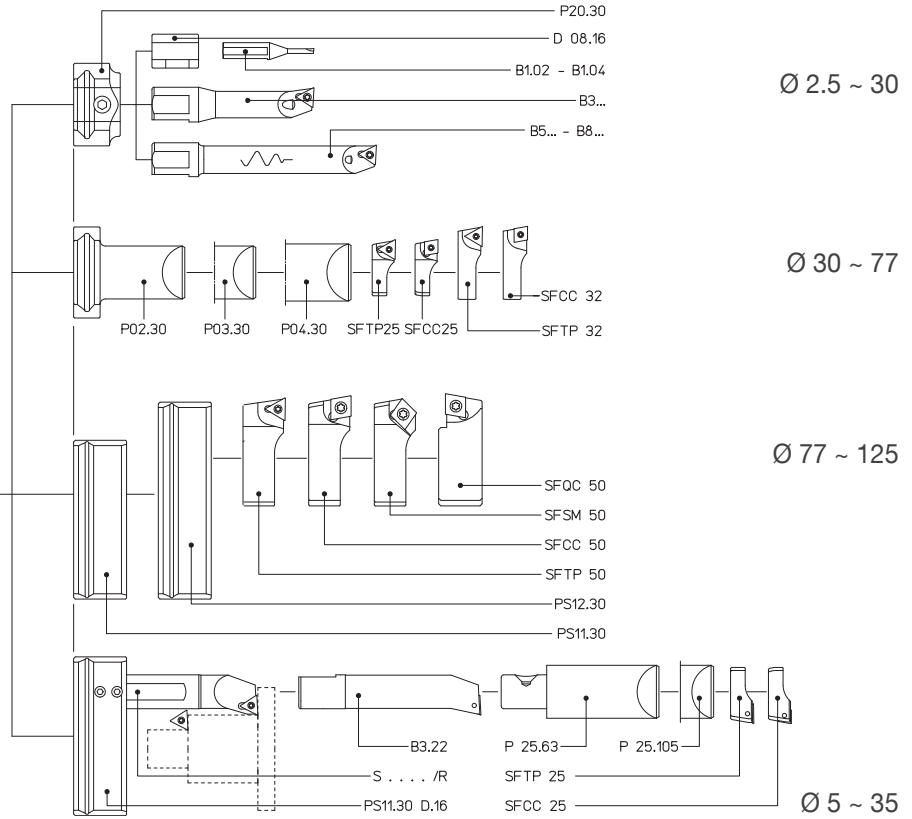
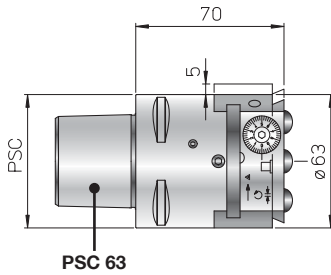
SF



| REF.        | CODE         | A    | B    | C | △           | □           | ⊥          | ⌘        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | TPGX 1103.. | -           | CS 300890T |          | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T |          | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SF5M 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SF5M 50-30° | 470500550013 |      |      |   |             |             |            |          |      |
| SF5M 50-45° | 470500550015 |      |      |   |             |             |            |          |      |

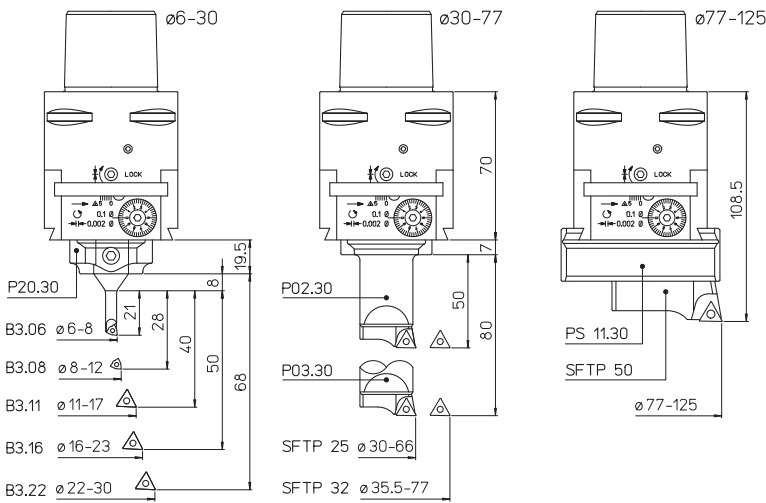


2 µm



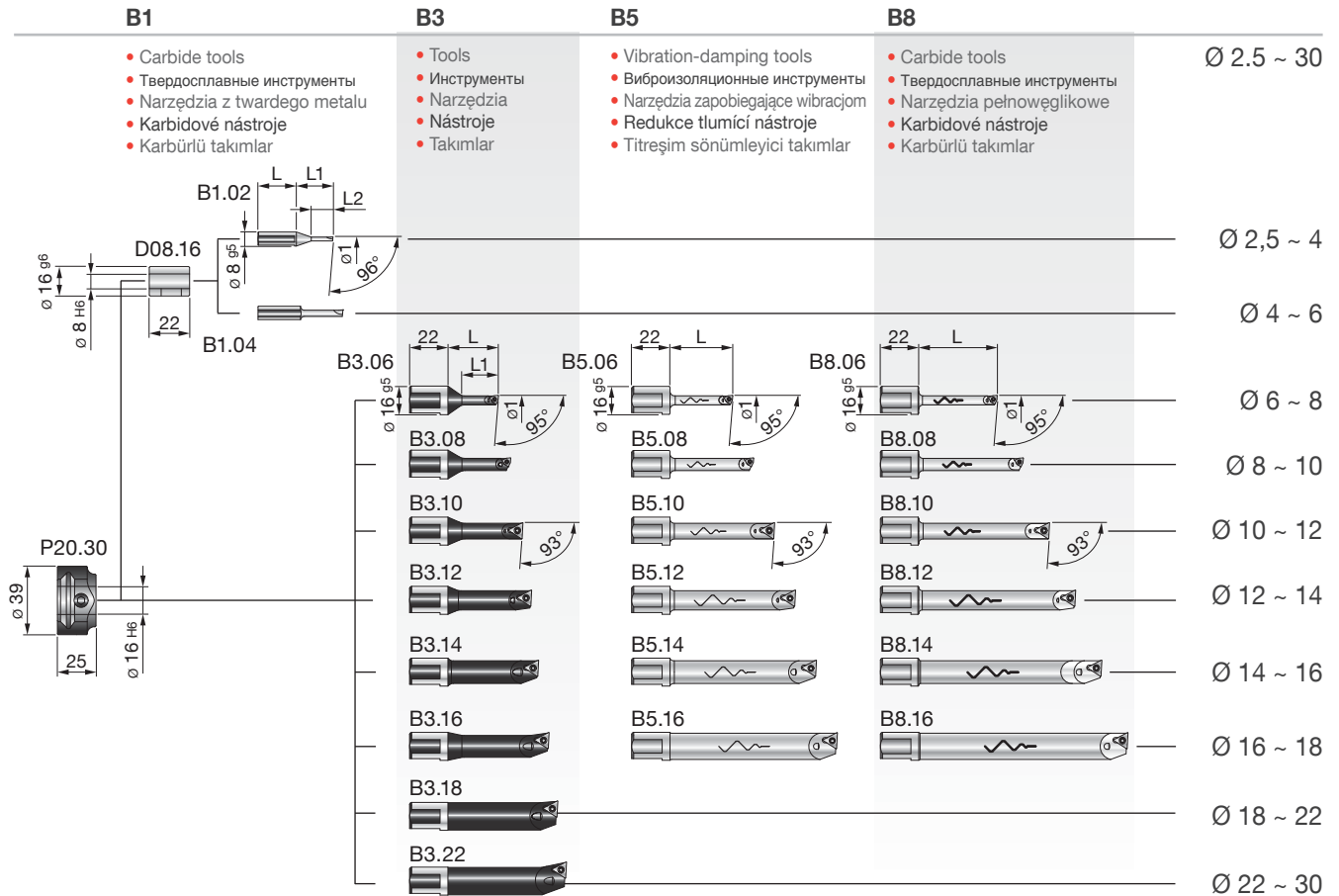
| REF.           | CODE         | kg  |
|----------------|--------------|-----|
| TR 63 - PSC 63 | 455056326060 | 1.5 |

**KIT K01**  
Ø 6 ~ 125



- 1 TR 63 - PSC 63
- |                      |          |          |         |
|----------------------|----------|----------|---------|
| 1 P20.30             | 1 P02.30 | 1 SFTP25 | 1 B3.06 |
| 1 PS11.30            | 1 P03.30 | 1 SFTP32 | 1 B3.08 |
| 5 TPGX 090202L DC100 | 1 SFTP50 | 1 B3.11  |         |
| 1 TPGX 110302L DC100 |          | 1 B3.16  |         |
| 2 WCGT 020102L DC100 |          | 1 B3.22  |         |

| REF.                  | CODE         | Ø       |
|-----------------------|--------------|---------|
| KIT K01 TR 63 - PSC63 | 655060610631 | 6 ~ 125 |



| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| P20.30 | 431030160300 | 0.2 |

| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| D08.16 | 200560116082 | 0.02 |

| REF.  | CODE         | Ø1      | L  | L1 | L2   | Kg.  |
|-------|--------------|---------|----|----|------|------|
| B1.02 | 572010502001 | 2.5 ~ 4 | 22 | 21 | 12.5 | 0.02 |
| B1.04 | 572010504001 | 4 ~ 6   | 24 | 24 | -    |      |

| REF.  | CODE         | Ø1      | L  | L1 | △           | △           | △               | △        | Kg.   |
|-------|--------------|---------|----|----|-------------|-------------|-----------------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29 | 21 | WCGT 0201.. | -           | TS 21<br>TS 211 | TORX T06 | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36 | 28 |             |             |                 |          | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43 | 35 | -           | TPGX 0902.. | CS 250 T        | TORX T08 | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48 | 40 |             |             |                 |          | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 | 48 | 42 |             |             |                 |          | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52 | 50 |             |             |                 |          | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58 | 50 |             |             |                 |          | 0.07  |
| B3.18 | 572010518001 | 18 ~ 22 | 63 | -  |             |             |                 |          | 0.1   |
| B3.22 | 572010522001 | 22 ~ 30 | 68 | -  |             |             |                 |          | 0.1   |

|       |              |         |    |   |             |             |                 |          |       |
|-------|--------------|---------|----|---|-------------|-------------|-----------------|----------|-------|
| B5.06 | 572010506105 | 6 ~ 8   | 36 | - | WCGT 0201.. | -           | TS 21<br>TS 211 | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48 |   |             |             |                 |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60 |   | -           | TPGX 0902.. | CS 250 T        | TORX T08 | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72 |   |             |             |                 |          | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84 |   |             |             |                 |          | 0.2   |
| B5.16 | 572010516105 | 16 ~ 18 | 96 |   |             |             |                 |          | 0.3   |

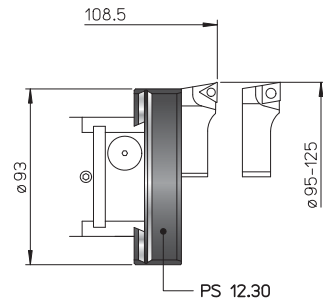
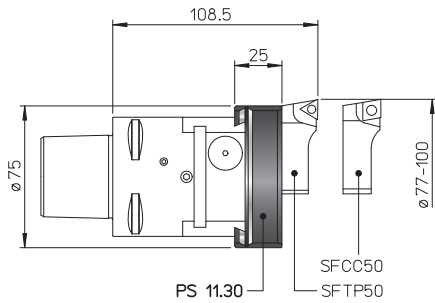
|       |              |         |     |   |             |             |                 |          |       |
|-------|--------------|---------|-----|---|-------------|-------------|-----------------|----------|-------|
| B8.06 | 572010506108 | 6 ~ 8   | 45  | - | WCGT 0201.. | -           | TS 21<br>TS 211 | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |   |             |             |                 |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  |   | -           | TPGX 0902.. | CS 250 T        | TORX T08 | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |   |             |             |                 |          | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |   |             |             |                 |          | 0.2   |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |   |             |             |                 |          | 0.3   |

ISO 26623-1

- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

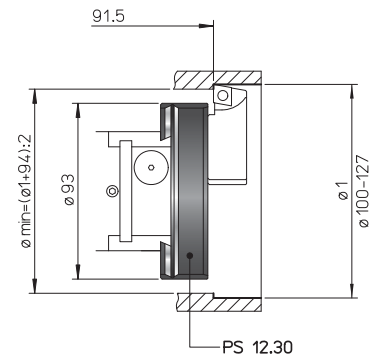
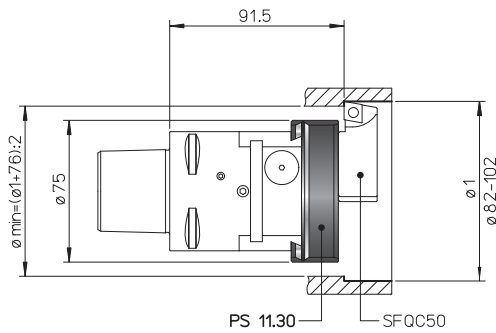
PS

Ø 77 ~ 125



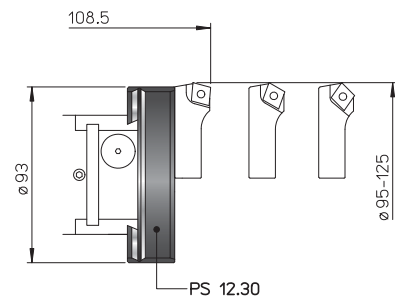
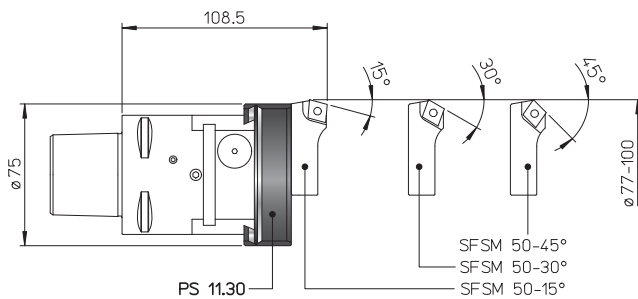
PS

Ø 82 ~ 127



PS

Ø 77 ~ 125



| REF.     | CODE         | Kg. |
|----------|--------------|-----|
| PS 11.30 | 433030260750 | 0.4 |
| PS 12.30 | 433030260950 | 0.5 |

119



175



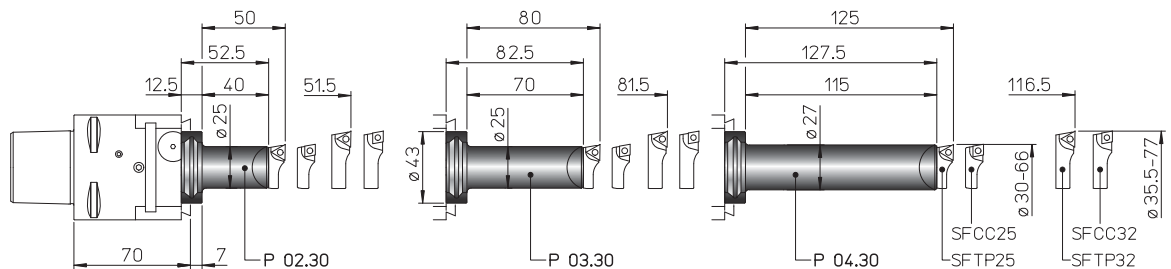
116



- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

P  
Ø 30 ~ 77

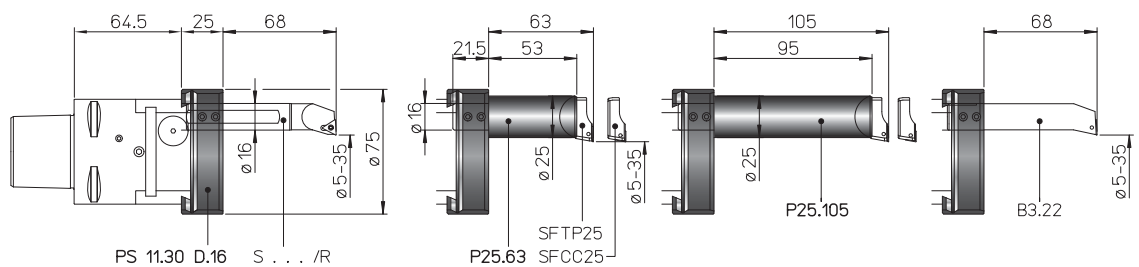
167



| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| P02.30 | 431030250400 | 0.3 |
| P03.30 | 431030250700 | 0.4 |
| P04.30 | 431030251150 | 0.7 |

- TESTAROSSA EXTERNAL TURNING
- TESTAROSSA ВНЕШНЕГО ОБТАЧИВАНИЯ
- TESTAROSSA TOCZENIE ZEWNĘTRZNE
- EXTERNÍ SOUSTRUŽENÍ TESTAROSSA
- TESTAROSSA DIŞ TORNALAMA

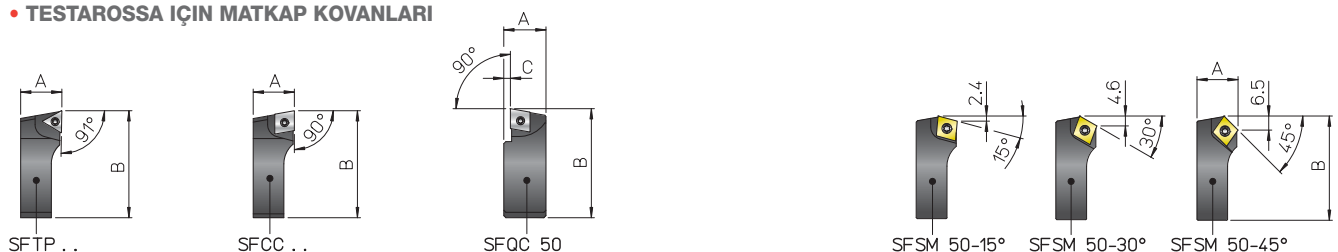
PS + P25  
Ø 5 ~ 35



| REF.          | CODE         | Kg. |
|---------------|--------------|-----|
| PS 11.30 D.16 | 433030260755 | 0.4 |
| P25.63 TR...  | 435116250631 | 0.5 |
| P25.105 TR... | 435116251051 | 0.8 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

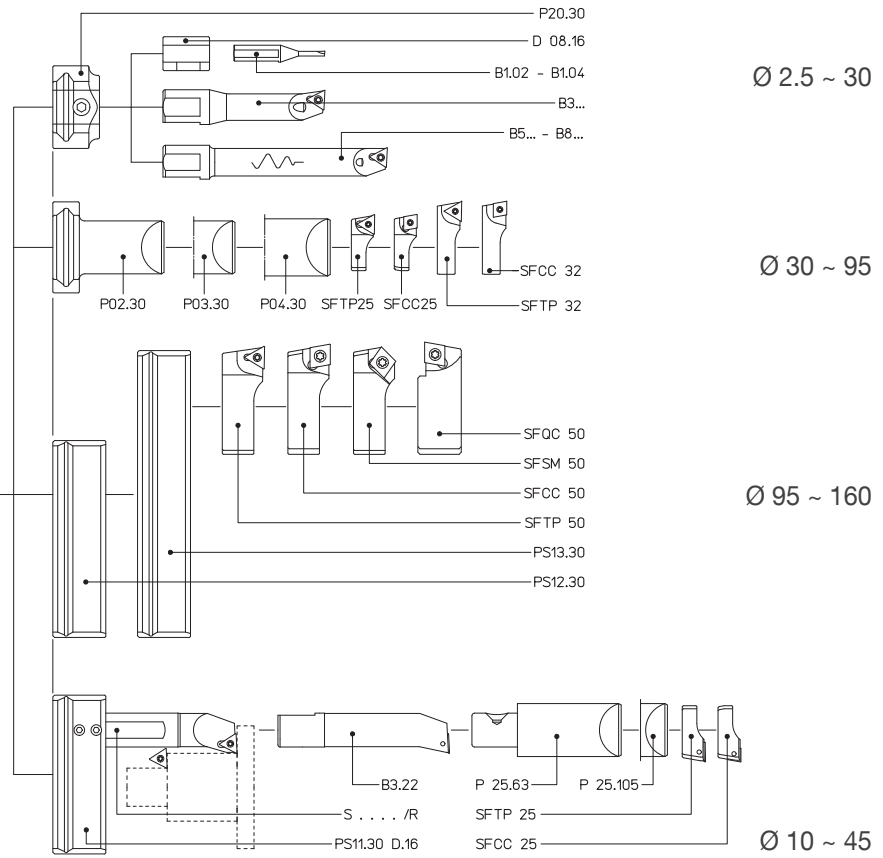
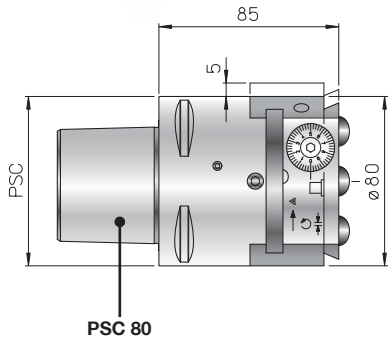
SF



| REF.        | CODE         | A    | B    | C | △           | □           | ⊥          | ⌘        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | -           | -           | CS 300890T | -        | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | -          | -        | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | -           | -          | -        | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQC 50     | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 | -    | -    | - | -           | -           | -          | -        | -    |
| SFSM 50-45° | 470500550015 | -    | -    | - | -           | -           | -          | -        | -    |

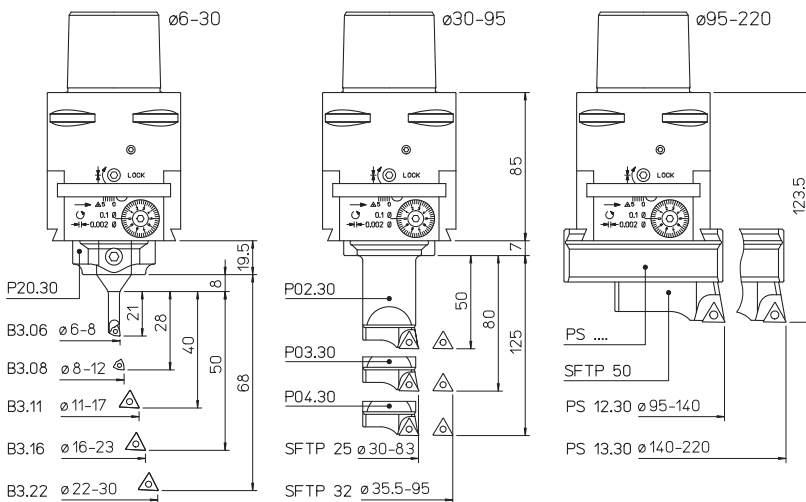


2 µm



| REF.           | CODE         | kg  |
|----------------|--------------|-----|
| TR 80 - PSC 80 | 455058026080 | 2.5 |

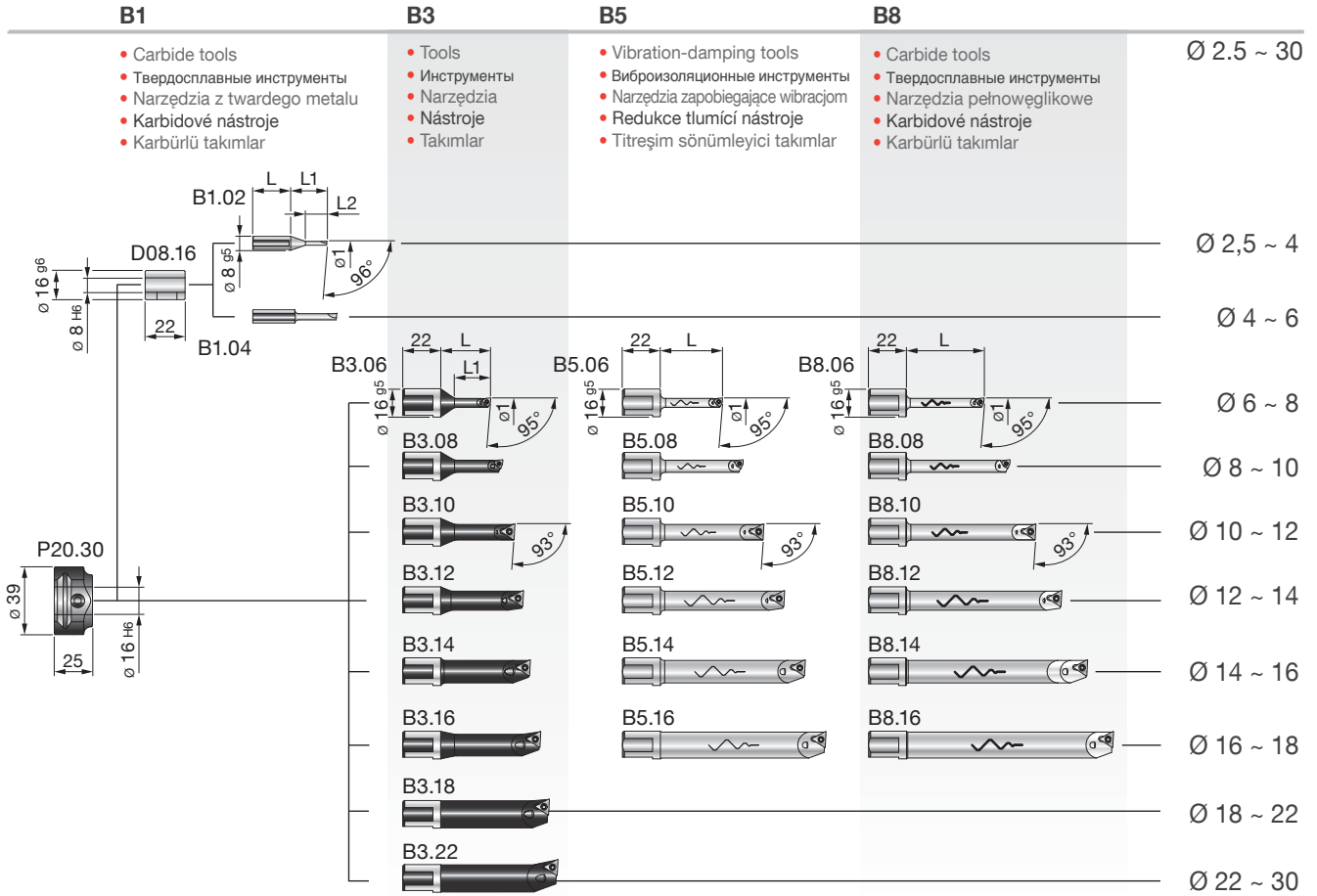
**KIT K01**  
Ø 6 ~ 220



- 1 TR 80 - PSC 80  
 1 P20.30 1 P02.30 1 SFTP25 1 B3.06  
 1 PS12.30 1 P03.30 1 SFTP32 1 B3.08  
 1 PS13.30 1 P04.30 1 SFTP50 1 B3.12  
 5 TPGX 090202L DC100 1 B3.16  
 1 TPGX 110302L DC100 1 B3.22  
 2 WCGT 020102L DC100

| REF.                  | CODE         | Ø       |
|-----------------------|--------------|---------|
| KIT K01 TR 80 - PSC80 | 655060810801 | 6 ~ 220 |





| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| P20.30 | 431030160300 | 0.2 |

| REF.   | CODE         | Kg.  |
|--------|--------------|------|
| D08.16 | 200560116082 | 0.02 |

| REF.  | CODE         | Ø1      | L  | L1 | L2   | Kg.  |
|-------|--------------|---------|----|----|------|------|
| B1.02 | 572010502001 | 2.5 ~ 4 | 22 | 21 | 12.5 | 0.02 |
| B1.04 | 572010504001 | 4 ~ 6   | 24 | 24 | -    |      |

| REF.  | CODE         | Ø1      | L  | L1 | △           | △           | △        | △        | Kg.   |
|-------|--------------|---------|----|----|-------------|-------------|----------|----------|-------|
| B3.06 | 572010506001 | 6 ~ 8   | 29 | 21 | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.035 |
| B3.08 | 572010508001 | 8 ~ 10  | 36 | 28 |             |             | TS 211   |          | 0.04  |
| B3.10 | 572010510001 | 10 ~ 12 | 43 | 35 | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.05  |
| B3.11 | 572010511001 | 11 ~ 13 | 48 | 40 |             |             |          |          | 0.055 |
| B3.12 | 572010512001 | 12 ~ 14 | 42 | 42 |             |             |          |          | 0.06  |
| B3.14 | 572010514001 | 14 ~ 16 | 52 | 50 |             |             |          |          | 0.07  |
| B3.16 | 572010516001 | 16 ~ 18 | 58 | -  |             |             |          |          | 0.1   |
| B3.18 | 572010518001 | 18 ~ 22 | 63 | -  |             |             |          |          |       |
| B3.22 | 572010522001 | 22 ~ 30 | 68 | -  |             |             |          |          |       |

|       |              |         |    |   |             |             |          |          |       |
|-------|--------------|---------|----|---|-------------|-------------|----------|----------|-------|
| B5.06 | 572010506105 | 6 ~ 8   | 36 | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.075 |
| B5.08 | 572010508105 | 8 ~ 10  | 48 |   |             |             | TS 211   |          | 0.09  |
| B5.10 | 572010510105 | 10 ~ 12 | 60 |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B5.12 | 572010512105 | 12 ~ 14 | 72 |   |             |             |          |          | 0.2   |
| B5.14 | 572010514105 | 14 ~ 16 | 84 |   |             |             |          |          |       |
| B5.16 | 572010516105 | 16 ~ 18 | 96 |   |             |             |          |          | 0.3   |

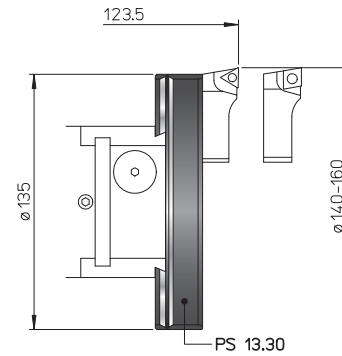
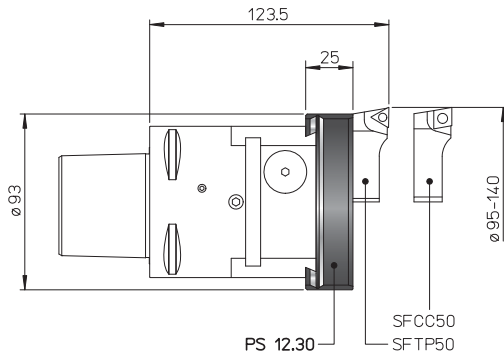
|       |              |         |     |   |             |             |          |          |       |
|-------|--------------|---------|-----|---|-------------|-------------|----------|----------|-------|
| B8.06 | 572010506108 | 6 ~ 8   | 45  | - | WCGT 0201.. | -           | TS 21    | TORX T06 | 0.065 |
| B8.08 | 572010508108 | 8 ~ 10  | 60  |   |             |             | TS 211   |          | 0.08  |
| B8.10 | 572010510108 | 10 ~ 12 | 75  |   | -           | TPGX 0902.. | CS 250 T | TORX T08 | 0.1   |
| B8.12 | 572010512108 | 12 ~ 14 | 90  |   |             |             |          |          | 0.2   |
| B8.14 | 572010514108 | 14 ~ 16 | 105 |   |             |             |          |          |       |
| B8.16 | 572010516108 | 16 ~ 18 | 120 |   |             |             |          |          | 0.3   |

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- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

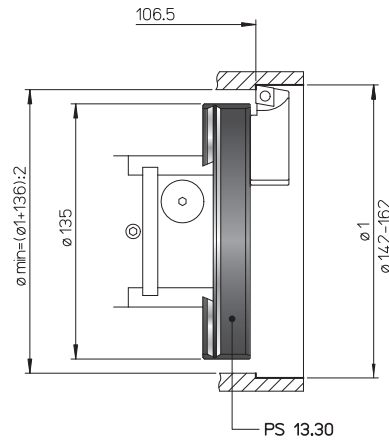
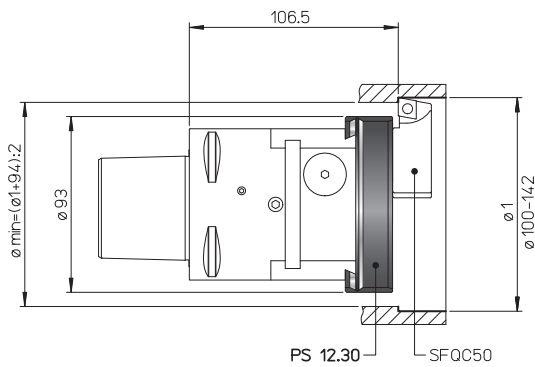
PS

Ø 95 ~ 160



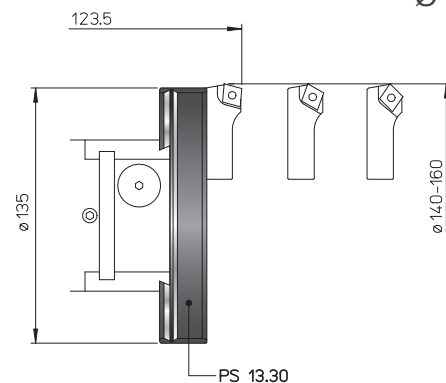
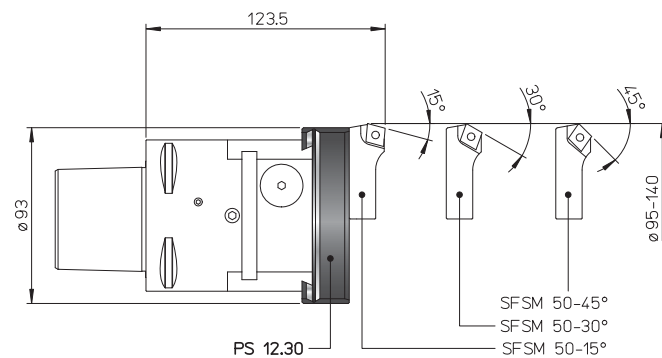
PS

Ø 100 ~ 162



PS

Ø 95 ~ 160



| REF.     | CODE         | Kg. |
|----------|--------------|-----|
| PS 12.30 | 433030260950 | 0.5 |
| PS 13.30 | 433030261400 | 0.7 |

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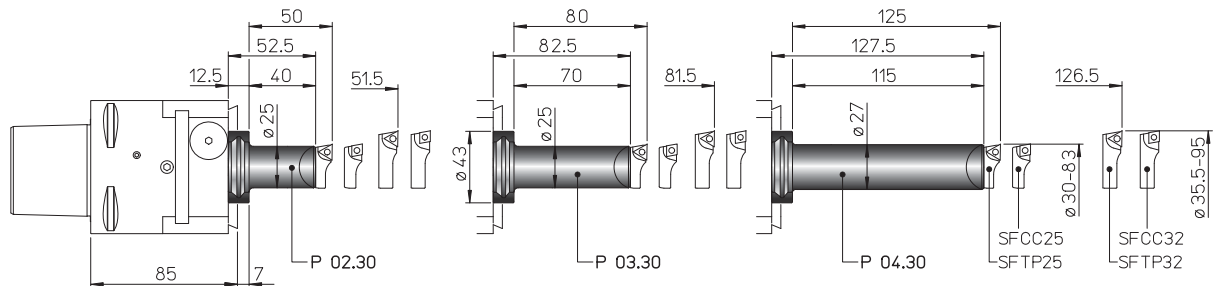
175



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- TOOLHOLDERS FOR TESTAROSSA
- ДЕРЖАТЕЛИ ДЛЯ ГОЛОВКИ TESTAROSSA
- OPRAWKI NARZĘDZIOWE DO GŁOWIC TESTAROSSA
- NÁSTROJOVÉ DRŽÁKY PRO TESTAROSSA
- TESTAROSSA İÇİN TAKIM TUTUCULAR

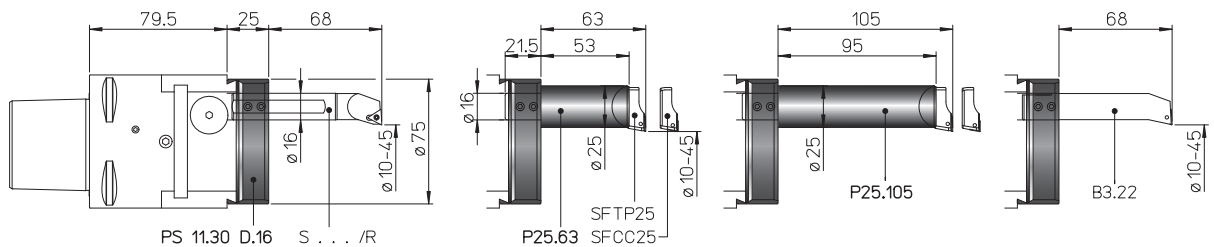


| REF.   | CODE         | Kg. |
|--------|--------------|-----|
| P02.30 | 431030250400 | 0.3 |
| P03.30 | 431030250700 | 0.4 |
| P04.30 | 431030251150 | 0.7 |

- TESTAROSSA EXTERNAL TURNING
- TESTAROSSA ВНЕШНЕГО ОБТАЧИВАНИЯ
- TESTAROSSA TOCZENIE ZEWNĘTRZNE
- EXTERNÍ SOUSTRUŽENÍ TESTAROSSA
- TESTAROSSA DIŞ TORNALAMA

PS + P25

Ø 10 ~ 45



| REF.          | CODE         | Kg. |
|---------------|--------------|-----|
| PS 11.30 D.16 | 433030260755 | 0.4 |
| P25.63 TR...  | 435116250631 | 0.5 |
| P25.105 TR... | 435116251051 | 0.8 |

- BIT-HOLDERS FOR TESTAROSSA
- КАССЕТЫ ДЛЯ ГОЛОВКИ TESTAROSSA
- OSTRZA DO GŁOWIC TESTAROSSA
- HROTOVÉ DRŽÁKY TESTAROSSA
- TESTAROSSA İÇİN MATKAP KOVANLARI

SF



| REF.        | CODE         | A    | B    | C | △           | □           | ▧          | ✂        | Kg.  |
|-------------|--------------|------|------|---|-------------|-------------|------------|----------|------|
| SFTP 25     | 470500525001 | 10   | 26.5 | - | TPGX 0902.. | -           | CS 250T    | TORX T08 | 0.01 |
| SFTP 32     | 470500532001 | 11.5 | 34.5 | - | TPGX 1103.. | -           | CS 300890T | TORX T08 | 0.02 |
| SFTP 50     | 470500550001 | 19   | 52   | - | TPGX 1103.. | -           | CS 300890T | TORX T15 | 0.08 |
| SFCC 25     | 470500525002 | 10   | 26.5 | - | -           | CCGT 0602.. | TS 25      | TORX T08 | 0.01 |
| SFCC 32     | 470500532002 | 11.5 | 34.5 | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.02 |
| SFCC 50     | 470500550002 | 19   | 52   | - | -           | CCGT 09T3.. | TS 4       | TORX T15 | 0.08 |
| SFQ 50      | 470500550062 | 20.5 | 53   | 3 | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.1  |
| SFSM 50-15° | 470500550011 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-30° | 470500550013 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |
| SFSM 50-45° | 470500550015 | 19   | 50.5 | - | -           | CCMT 09T3.. | TS 4       | TORXT15  | 0.07 |

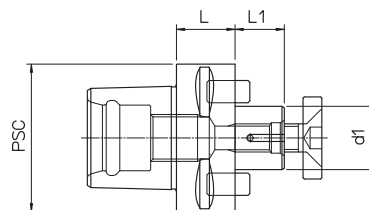
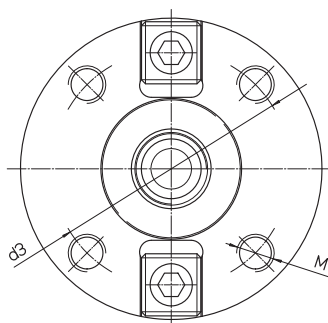
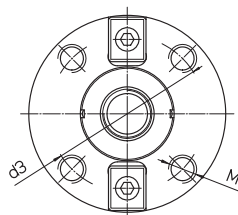


fig.1

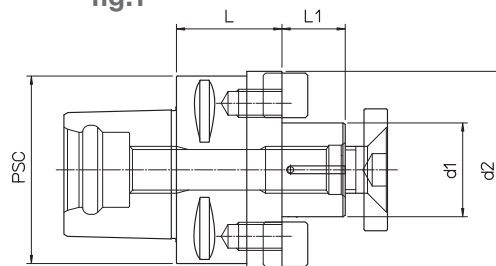


fig.2

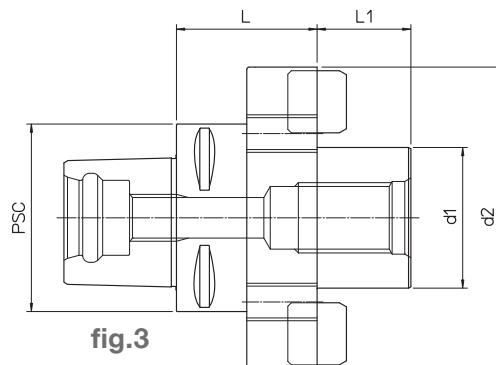


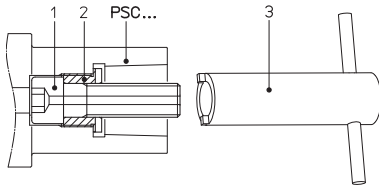
fig.3

| PSC | REF.           | CODE            | d1 | d2    | d3    | M   | L  | L1  | kg   | fig. |
|-----|----------------|-----------------|----|-------|-------|-----|----|-----|------|------|
| 40  | PSC 40 PF22.25 | 71PSC-040PF2202 | 22 | -     | -     | -   | 25 | 19  | 0.3  | 1    |
| 50  | PSC 50 PF22.25 | 71PSC-050PF2202 |    |       |       |     |    |     | 27   |      |
|     | PSC 50 PF27.25 | 71PSC-050PF2702 | 21 |       |       |     |    | 0.6 |      |      |
| 63  | PSC 63 PF27.25 | 71PSC-063PF2702 |    |       |       |     |    | 32  | 0.8  |      |
|     | PSC 63 PF32.25 | 71PSC-063PF3202 | 24 |       |       |     |    |     |      |      |
| 80  | PSC 80 PF32.30 | 71PSC-080PF3203 |    |       |       |     | 40 | 84  | 66.7 |      |
|     | PSC 80 PF40.45 | 71PSC-080PF4004 | 40 | 84    | 66.7  | M12 | 45 | 27  | 2.4  |      |
|     | PSC 80 PF60.60 | 71PSC-080PF6006 | 60 | 128.5 | 101.6 | M16 | 60 | 40  | 5.2  | 3    |

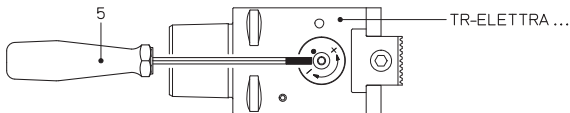


- SPARE PARTS
- ЗАПАСНЫЕ ЧАСТИ
- CZĘŚCI ZAMIENNE
- NÁHRADNÍ DÍLY
- YEDEK PARÇALAR

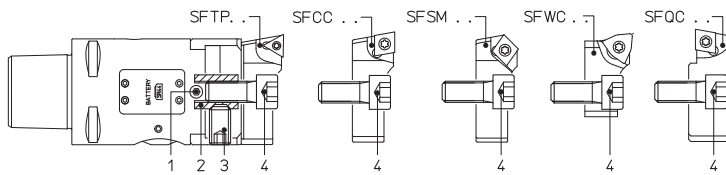
PSC



| PSC | CODE 1       | CODE 2       | CODE 3       |
|-----|--------------|--------------|--------------|
| 40  | 200100151445 | 201032215004 | 101501402100 |
| 50  | 200100151655 | 201032515003 | 101501402400 |
| 63  | 200101152065 | 201033015016 | 101501403000 |
| 80  |              |              |              |



TR-ELETTRA



| REF.          | CODE 1       | CODE 2       | CODE 3       | CODE 4       | CODE 5       |
|---------------|--------------|--------------|--------------|--------------|--------------|
| TR-ELETTRA 50 | 100238060010 | 201041015002 | 100231100016 | 100051100025 | 101500800300 |
| TR-ELETTRA 63 |              | -            | -            | 100051100020 |              |
| TR-ELETTRA 80 | 200100150614 |              |              | 100051100025 |              |

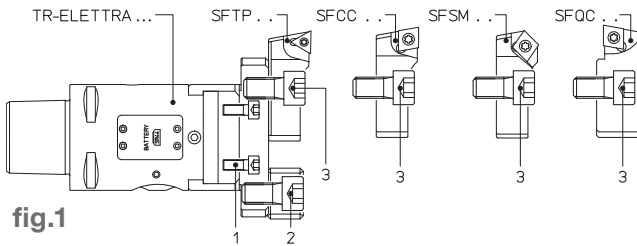


fig.1

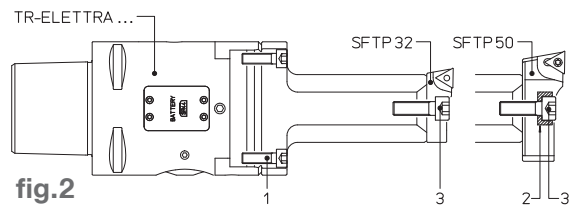
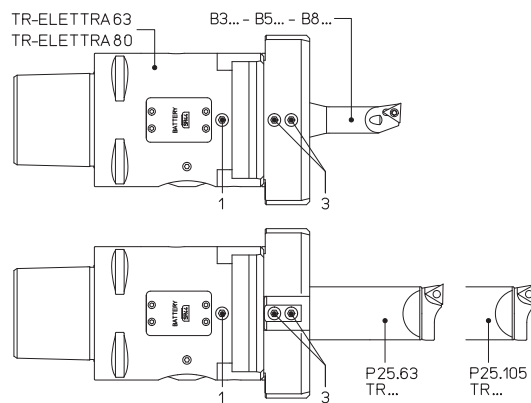
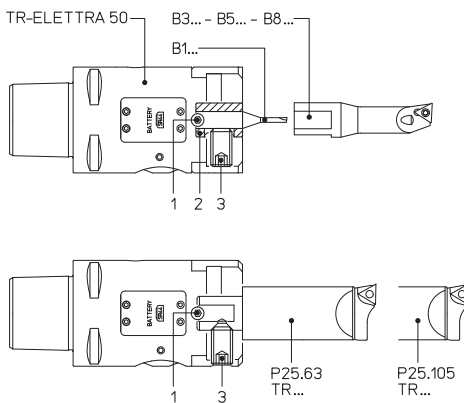


fig.2

TR-ELETTRA

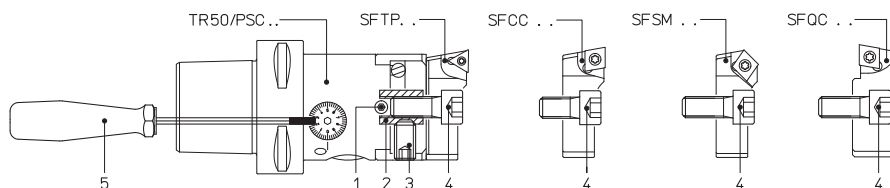
| REF.          | CODE 1       | CODE 2       | CODE 3       | fig |
|---------------|--------------|--------------|--------------|-----|
| TR-ELETTRA 50 | 200100150501 | 100051100020 | 100051100025 | 1   |
| TR-ELETTRA 63 | 100051050025 |              |              |     |
| TR-ELETTRA 80 |              |              |              |     |
| TR-ELETTRA 63 | 100051050016 | 201040607001 | 100051006020 | 2   |
| TR-ELETTRA 80 |              |              |              |     |



TR-ELETTRA

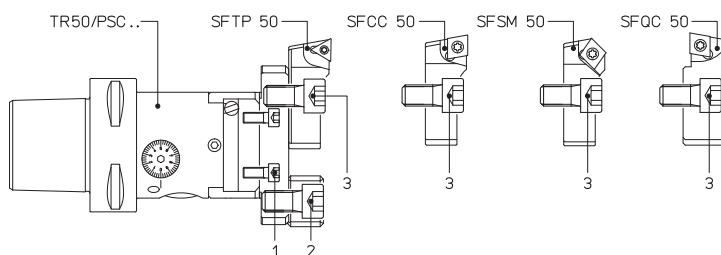
| REF.          | CODE 1        | CODE 2       | CODE 3       |
|---------------|---------------|--------------|--------------|
| TR-ELETTRA 50 | 100238060010  | 200560116082 | 100231100016 |
| TR-ELETTRA 63 |               | -            | 100231060006 |
| TR-ELETTRA 80 | 2001000150614 |              |              |

### TR-PSC



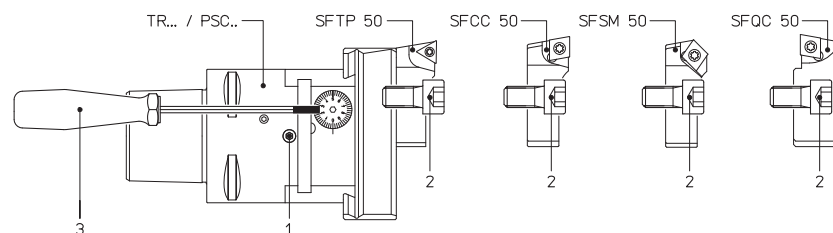
| REF.               | CODE 1       | CODE 2       | CODE 3       | CODE 4       | CODE 5       |
|--------------------|--------------|--------------|--------------|--------------|--------------|
| TR 50 PSC 40-50-63 | 100271050008 | 201041015002 | 100231100016 | 100051100025 | 101500800250 |

### TR-PSC



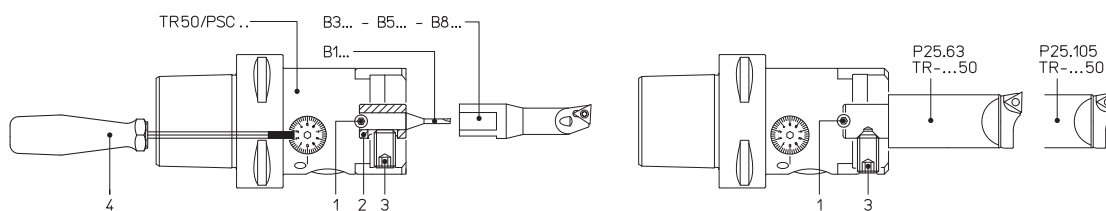
| REF.                 | CODE 1       | CODE 2       | CODE 3       |
|----------------------|--------------|--------------|--------------|
| TR 50 - PSC 40-50-63 | 200100150501 | 100051100020 | 100051100025 |

### TR-PSC



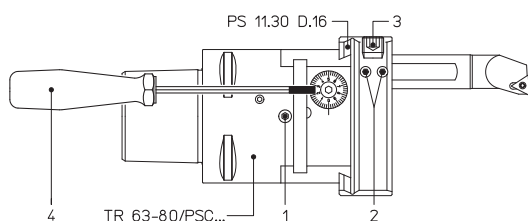
| REF.           | CODE 1       | CODE 2       | CODE 3       |
|----------------|--------------|--------------|--------------|
| TR 63 - PSC 63 | 100251060010 | 100051100018 | 101500800300 |
| TR 80 - PSC 80 | 100251060014 |              |              |

### TR-PSC



| REF.             | CODE 1       | CODE 2       | CODE 3       | CODE 4       |
|------------------|--------------|--------------|--------------|--------------|
| TR50 PSC40-50-63 | 100271050008 | 200560116082 | 100231100010 | 101500800250 |

### TR-PSC



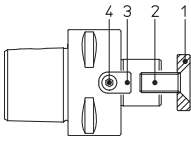
| REF.                     | CODE 1       | CODE 2       | CODE 3       | CODE 4       |
|--------------------------|--------------|--------------|--------------|--------------|
| TR63 PSC63<br>TR80 PSC80 | 100251060014 | 100231050006 | 100231100010 | 101500800300 |



- SPARE PARTS
- ЗАПАСНЫЕ ЧАСТИ
- CZĘŚCI ZAMIENNE
- NÁHRADNÍ DÍLY
- YEDEK PARÇALAR

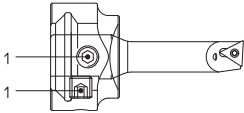
PSC - PF

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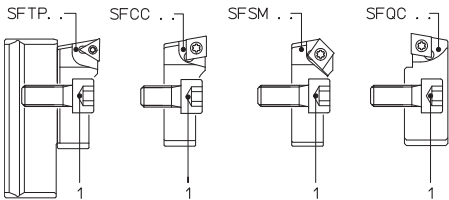
| REF.  | CODE 1       | CODE 2       | CODE 3       | CODE 4       |
|-------|--------------|--------------|--------------|--------------|
| PF 22 | 201010105030 | 100101100025 | 201101801002 | 100051040010 |
| PF 27 | 201010125030 | 100101120030 | 201101801202 | 100051050012 |
| PF 32 | 201010165020 | 100101160035 | 201101801402 | 100051060016 |
| PF 40 | 201010210010 | 100101200045 | 201101801603 | 100051060018 |
| PF 60 | -            | -            | 201101802510 | 100051120025 |

P 20.30



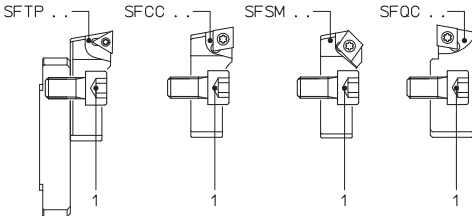
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|--------|--------------|
| P20.30 | 100251080008 |

PS



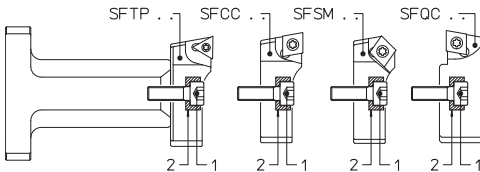
| REF.     | CODE 1       |
|----------|--------------|
| PS 11.30 | 100051100018 |
| PS 12.30 |              |
| PS 13.30 |              |
| PS 11.40 | 100051100025 |
| PS 12.40 |              |
| PS 13.40 |              |
| PS 14.40 |              |

PS



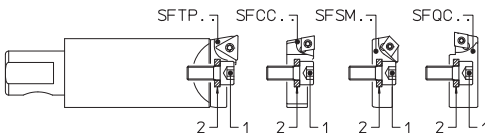
| REF.    | CODE1        |
|---------|--------------|
| PS31.24 | 100051100020 |
| PS31.28 |              |
| PS32.28 | 100051100025 |
| PS33.28 |              |

P 22.28



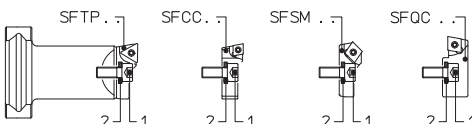
| REF.   | CODE 1       | CODE 2       |
|--------|--------------|--------------|
| P22.28 | 100051060020 | 201040607001 |

P 25

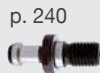


| REF.    | CODE 1       | CODE 2       |
|---------|--------------|--------------|
| P25.63  | 100051050012 | 100800100530 |
| P25.105 |              |              |

P



| REF.    | CODE 1       | CODE 2       |
|---------|--------------|--------------|
| P 00.30 | 100051050012 | 100800100530 |
| P 03.30 |              |              |
| P 04.30 |              |              |
| P 02.40 | 100051060018 | 100800100640 |
| P 03.40 |              |              |
| P 04.40 |              |              |



p. 178 DIN 69893 HSK-A

p. 179 ISO 26623-1 PSC

p. 180 DIN 69871 AD+B

p. 181 MAS 403 BT AD+B

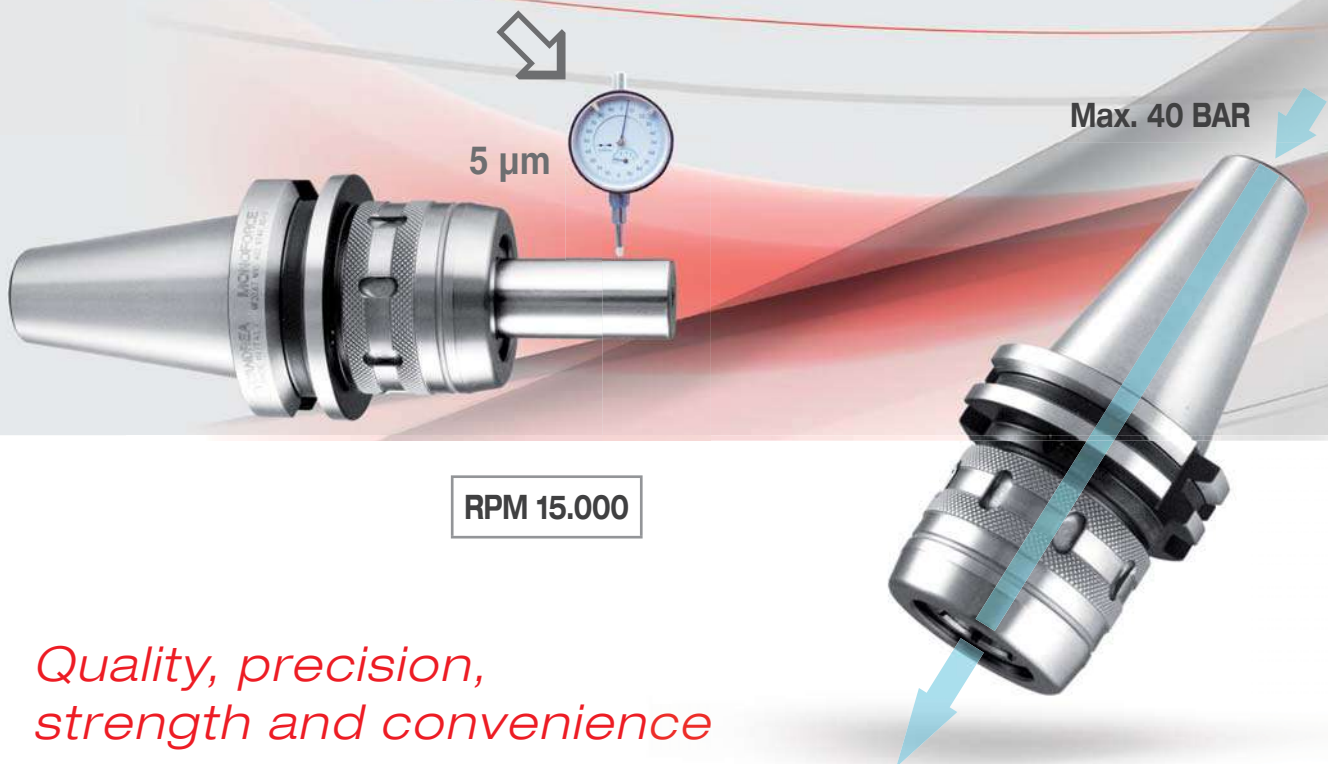
p. 182 DIN 69871 AD+B FC  
FACE CONTACT

p. 183 MAS 403 BT AD+B FC  
FACE CONTACT

### KIT MONOFORCE

p. 178 HSK  
p. 179 PSC  
p. 180 DIN  
p. 181 BT  
p. 182 DIN FACE CONTACT  
p. 183 BT FACE CONTACT





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*Quality, precision,  
strength and convenience*

- **HIGH PRECISION ULTRA-TIGHT TOOLHOLDER**
- **ВЫСОКОЖЕСТКИЕ СВЕРХТОЧНЫЕ ДЕРЖАТЕЛИ**
- **OPRAWKA PRECYZYJNA O DUŻEJ SIŁE ZACISKU**
- **VYSOCE PŘESNÝ A VELMI PEVNÝ NÁSTROJOVÝ DRŽÁK**
- **YÜKSEK HASSASIYETLİ ULTRA SIKI TAKIM TUTUCU**

**GB MONOforce** is a addition to D'Andrea range of tool holders, which complements the existing balanceable FORCE chuck from Toprun family. This new chuck provides an economical and innovative solution for tool holding, where precision and high clamping forces for the cutting tool are required. MONOforce is available with tapers conforming to DIN 69871, MAS-BT and both in ISO 40 and 50 sizes, and also HSK 63 and 100, ISO 26623-1 PSC 63 and 80. The chuck accepts reduction bushes to suit cutters having shank sizes ranging from Ø 3 mm. to Ø 25 mm. MONOforce can also be supplied in kit form, which includes of a set of reduction bushes and clamping wrench. MONOforce toolholders are manufactured by D'Andrea in their modern manufacturing plants in Italy.

**RU MONOforce** представляют собой идеальное экономичное решение для оснащения любого типа станков, где требуются операции высокой точности при зажиме инструмента подверженного сильным нагрузкам кручения. MONOforce является частью Toprun, известной запатентованной системой интегральных балансируемых держателей. Программа MONOforce производится в версии для шпинделей HSK 63 и 100, ISO 26623-1 PSC 63 и 80, а также DIN 69871 и MAS-BT, выполненных в размерах ISO 40 и 50 и предполагает использование переходных стандартных втулок Ø 12, 20 и 32мм, имеющихся в диапазоне всех стандартных диаметров и совместимых с этими диаметрами гнезд для зажимов от Ø 3 мм до Ø 25 мм. Держатели MONOforce, полностью произведенные компанией Д'Андреа имеются также в комплектах с соединительными втулками и зажимным ключом.

**PL MONOforce** jest idealnym i tanim rozwiązaniem przeznaczonym do wyposażenia wszelkiego rodzaju obrabiarek, wszędzie tam, gdzie wymaga się wysokiej dokładności i niezbędny jest mocny zacisk narzędzi, podlegających dużym obciążeniom skrętnym. MONOforce dołącza do już znanego Force z rodziny Toprun, który jest patentowanym systemem wyrównoważalnych opravek zintegrowanych. Program MONOforce dostępny jest w wersjach do wrzecion obrabiarek HSK 63 i 100, ISO 26623-1 PSC 63 i 80, DIN 69871, MAS-BT w wielkościach 40 i 50. Oprawki wykorzystują tulejki redukcyjne ze średnic 12, 20 i 32 mm. Do dyspozycji mamy całą gamę tulei umożliwiających mocowanie narzędzi z chwytami o średnicach od Ø 3 mm do Ø 25 mm. Oprawki MONOforce, w całości wykonywane są w firmie D'Andrea. Są do nabycia także w praktycznych, kompletnych zestawach, zawierających tulejki redukcyjne i klucz montażowy.

**CZ MONOforce** je doplňkem k řadě nástrojových držáků společnosti D'Andrea, který doplňuje stávající vyvažovatelný upínák FORCE z řady Toprun. Tento nový upínák poskytuje úsporné a inovativní řešení držáků nástrojů, u kterých je požadována přesnost a velké upínací síly frézovacích nástrojů. MONOforce je k dispozici s kužely, které jsou v souladu s DIN 69871, MAS-BT a velikostech ISO 40 a 50, jakož i HSK 63 a 100, ISO 26623-1 PSC 63 a 80. Na upínák lze aplikovat redukční pouzdra odpovídající frézám s velikostí násady Ø 3 mm až Ø 25 mm. MONOforce lze také dodat v podobě soupravy zahrnující řadu redukčních pouzder a upínací klíč. Nástrojové držáky MONOforce vyrábí společnost D'Andrea ve svých moderních výrobních závodech v Itálii.

**TR MONOforce**, Toprun ürün ailesindeki mevcut dengelenbilir FORCE torna aynalarını tamamlayan D'Andrea takım tutucularına yapılan bir eklemedir. Bu yeni torna aynası, kesme aleti için hassas ve yüksek sıkıştırma kuvvetlerine ihtiyaç duyulan takım tutma için ekonomik ve yenilikçi bir çözümdür. MONOforce, DIN 69871 ve MAS-BT standartlarına uygun ve ISO 40 ve 50 ebatları ile HSK 63 ve 100, ISO 26623-1 PSC 63 i 80 ebatlarında mevcut koniklerle sunulur. Torna aynası, Ø 3 mm ile Ø 25 mm arasındaki kesici saplarının uymasını sağlayan redüktör burçlarını kabul eder. MONOforce, redüktör burçlarını ve sıkıştırma anahtarını da içeren bir kit olarak da tedarik edilebilir. MONOforce takım tutucular, D'Andrea'nın İtalya'daki modern imalat tesislerinde imal edilmektedir.

## DIN 69893 HSK-A

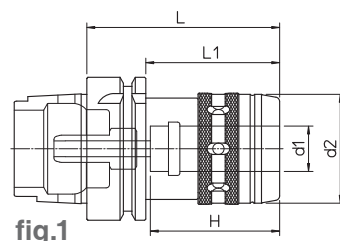


fig.1

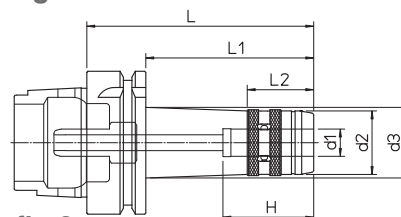


fig.2

- Supplied with coolant tube - without clamping wrench
- В комплект входит соединительная втулка для СОЖ, зажимный ключ не входит в комплект поставки
- Wyposażona w złączkę do cieczy chłodzącej - klucz zaciskowy nie jest na wyposażeniu
- Dodávaný s chladicím potrubím - bez upínacího kľúče
- Soğutma sıvısı borusuyla, sıkıştırma anahtarı olmadan tedarik edilir

| HSK-A | REF.              | CODE            | d1 | d2 | d3 | H  | L   | L1 | L2   | kg  | fig. |
|-------|-------------------|-----------------|----|----|----|----|-----|----|------|-----|------|
| 63    | HSK-A63 MF12.70   | 71HSK-A63MF1207 | 12 | 28 | —  | 46 | 70  | 44 | —    | 0.8 | 1    |
|       | HSK-A63 MF12.100  | 71HSK-A63MF1210 |    |    | 32 |    | 100 | 74 | 29.5 | 1.1 | 2    |
|       | HSK-A63 MF20.85   | 71HSK-A63MF2008 | 20 | 48 | —  | 60 | 85  | 59 | —    | 1.2 | 1    |
|       | HSK-A63 MF20.125  | 71HSK-A63MF2012 |    |    |    |    | 125 | 99 |      | 1.7 | 2    |
|       | HSK-A63 MF32.105  | 71HSK-A63MF3210 | 32 | 66 |    | 80 | 105 | —  |      | 2   | 1    |
|       | HSK-A63 MF32.140  | 71HSK-A63MF3214 |    |    |    |    | 140 |    |      | 2.6 | 2    |
| 100   | HSK-A100 MF32.110 | 71HSKA100MF3211 |    |    |    |    | 110 | 81 | —    | 3.1 | 1    |
|       | HSK-A100 MF32.160 | 71HSKA100MF3216 |    |    |    |    |     |    |      | 160 |      |

## KIT K01 HSK-A63



### K01 MONOforce 12 K01 MONOforce 20 KIT K01 MONOforce 32

|                |                |                |
|----------------|----------------|----------------|
| 1 MONOforce 12 | 1 MONOforce 20 | 1 MONOforce 32 |
| 1 RC 12.04     | 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 12.06     | 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 12.08     | 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 12.10     | 1 RC 20.12     | 1 RC 32.12     |
| 1 CHV 28       | 1 RC 20.16     | 1 RC 32.16     |
|                | 1 CHV 50       | 1 RC 32.20     |
|                |                | 1 RC 32.25     |
|                |                | 1 CHV 75       |

| HSK-A | REF.                           | CODE            |
|-------|--------------------------------|-----------------|
| 63    | KIT K01 MONOFORCE 12.70 HSK63  | 7KHSA-A63MF1207 |
|       | KIT K01 MONOFORCE 20.85 HSK63  | 7KHSA-A63MF2008 |
|       | KIT K01 MONOFORCE 32.105 HSK63 | 7KHSA-A63MF3210 |

## KIT K01 HSK-A100



### K01 MONOforce 20 KIT K01 MONOforce 32

|                |                |
|----------------|----------------|
| 1 MONOforce 20 | 1 MONOforce 32 |
| 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 20.12     | 1 RC 32.12     |
| 1 RC 20.16     | 1 RC 32.16     |
| 1 CHV 50       | 1 RC 32.20     |
|                | 1 RC 32.25     |
|                | 1 CHV 75       |

| HSK-A | REF.                            | CODE           |
|-------|---------------------------------|----------------|
| 100   | KIT K01 MONOFORCE 32.110 HSK100 | 7KHSA100MF3211 |

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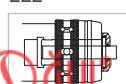
222



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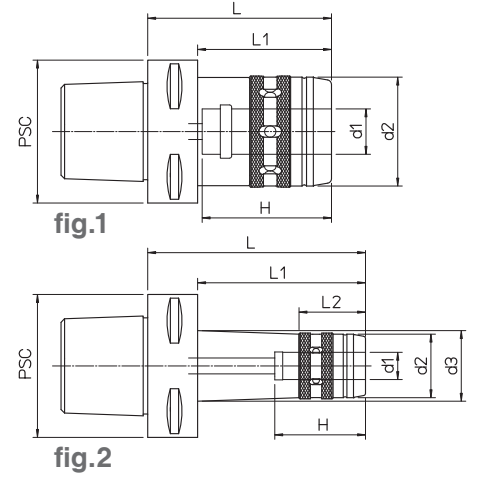


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- HIGH PRECISION ULTRA-TIGHT TOOLHOLDER
- ВЫСОКОЖЕСТКИЕ СВЕРХТОЧНЫЕ ДЕРЖАТЕЛИ
- OPRAWKA PRECYZYJNA O DUŻEJ SIŁE ZACISKU
- VYSOCE PŘESNÝ A VELMI PEVNÝ NÁSTROJOVÝ DRŽÁK
- YÜKSEK HASSASİYETLİ ULTRA SIKI TAKIM TUTUCU

## ISO 26623-1 PSC



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- Without clamping wrench
- Зажимный ключ не входит в комплект поставки
- Klucz zaciskowy nie jest na wyposażeniu
- Bez upínacího kľíče
- Sıkıştırma anahtarsız

| PSC | REF.               | CODE            | d1 | d2 | d3   | H  | L   | L1  | L2   | kg  | fig. |   |
|-----|--------------------|-----------------|----|----|------|----|-----|-----|------|-----|------|---|
| 63  | PSC 63 - MF 12.70  | 71PSC-063MF1207 | 12 | 28 | –    | 46 | 70  | 48  | –    | 0.9 | 1    |   |
|     | PSC 63 - MF 12.100 | 71PSC-063MF1210 |    |    | 31.5 |    | 100 | 78  | 29.5 | 1.4 | 2    |   |
|     | PSC 63 - MF 20.80  | 71PSC-063MF2008 | 20 | 48 | –    | 60 | 80  | 58  | –    | 1.3 | 1    |   |
|     | PSC 63 - MF 20.120 | 71PSC-063MF2012 |    |    |      |    | 120 | 98  |      | 1.9 | 2    |   |
|     | PSC 63 - MF 32.100 | 71PSC-063MF3210 | 32 | 66 |      | 80 | 100 | –   |      | 2.1 | 1    |   |
|     | PSC 63 - MF 32.140 | 71PSC-063MF3214 |    |    |      |    | 140 |     |      | 3.1 | 2    |   |
| 80  | PSC 80 - MF 20.80  | 71PSC-080MF2008 | 20 | 48 |      | –  | 60  | 80  | 50   | –   | 3.7  | 1 |
|     | PSC 80 - MF 20.125 | 71PSC-080MF2012 |    |    |      |    |     | 125 | 95   |     | 4.1  | 2 |
|     | PSC 80 - MF 32.100 | 71PSC-080MF3210 | 32 | 66 |      |    | 80  | 100 | 70   |     | 4.4  | 1 |
|     | PSC 80 - MF 32.160 | 71PSC-080MF3216 |    |    |      |    |     | 160 | 130  |     | 4.9  | 2 |



### K01 MONOFORCE 12 K01 MONOFORCE 20 KIT K01 MONOFORCE 32

|                |                |                |
|----------------|----------------|----------------|
| 1 MONOFORCE 12 | 1 MONOFORCE 20 | 1 MONOFORCE 32 |
| 1 RC 12.04     | 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 12.06     | 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 12.08     | 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 12.10     | 1 RC 20.12     | 1 RC 32.12     |
| 1 CHV 28       | 1 RC 20.16     | 1 RC 32.16     |
|                | 1 CHV 50       | 1 RC 32.20     |
|                |                | 1 RC 32.25     |
|                |                | 1 CHV 75       |

| PSC | REF.                            | CODE            |
|-----|---------------------------------|-----------------|
| 63  | KIT K01 MONOFORCE 12.70 PSC 63  | 7KPSC-063MF1207 |
|     | KIT K01 MONOFORCE 20.80 PSC 63  | 7KPSC-063MF2008 |
|     | KIT K01 MONOFORCE 32.100 PSC 63 | 7KPSC-063MF3210 |



### K01 MONOFORCE 20 KIT K01 MONOFORCE 32

|                |                |
|----------------|----------------|
| 1 MONOFORCE 20 | 1 MONOFORCE 32 |
| 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 20.12     | 1 RC 32.12     |
| 1 RC 20.16     | 1 RC 32.16     |
| 1 CHV 50       | 1 RC 32.20     |
|                | 1 RC 32.25     |
|                | 1 CHV 75       |

| PSC | REF.                            | CODE            |
|-----|---------------------------------|-----------------|
| 80  | KIT K01 MONOFORCE 20.80 PSC 80  | 7KPSC-080MF2008 |
|     | KIT K01 MONOFORCE 32.100 PSC 80 | 7KPSC-080MF3210 |

## KIT K01

ISO 26623-1 PSC 80

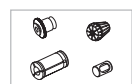
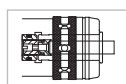
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## DIN 69871 AD+B

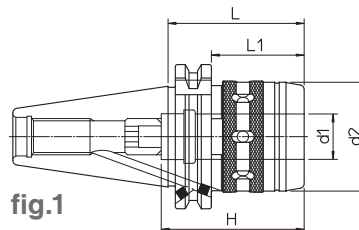


fig.1

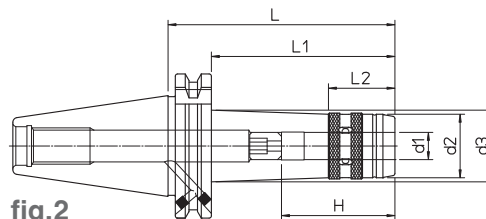


fig.2

- Without clamping wrench
- Зажимный ключ не входит в комплект поставки
- Klucz zaciskowy nie jest na wyposażeniu
- Bez upínacího kľúče
- Sıkıştırma anahtarsız

| DIN | REF.                     | CODE            | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | H  | L   | L <sub>1</sub> | L <sub>2</sub> | kg  | fig. |   |
|-----|--------------------------|-----------------|----------------|----------------|----------------|----|-----|----------------|----------------|-----|------|---|
| 40  | DIN69871-AD+B40 MF12.50  | 71DIN-B40MF1205 | 12             | 28             | –              | 46 | 50  | 31             | –              | 0.8 | 1    |   |
|     | DIN69871-AD+B40 MF12.100 | 71DIN-B40MF1210 |                |                | 32             |    | 100 | 81             | 29.5           | 1.2 | 2    |   |
|     | DIN69871-AD+B40 MF20.60  | 71DIN-B40MF2006 | 20             | 48             | –              | 63 | 60  | 41             | –              | 1.1 | 1    |   |
|     | DIN69871-AD+B40 MF20.100 | 71DIN-B40MF2010 |                |                |                |    | 100 | 81             |                | 1.4 | 2    |   |
|     | DIN69871-AD+B40 MF32.95  | 71DIN-B40MF3209 | 32             | 66             |                | 80 | 95  | –              |                | 1.6 | 1    |   |
|     | DIN69871-AD+B40 MF32.140 | 71DIN-B40MF3214 |                |                |                |    | 140 |                |                | 2.0 | 2    |   |
| 50  | DIN69871-AD+B50 MF20.80  | 71DIN-B50MF2008 | 20             | 48             |                | –  | 63  | 80             | 61             | –   | 2.3  | 1 |
|     | DIN69871-AD+B50 MF20.125 | 71DIN-B50MF2012 |                |                |                |    |     | 125            | 106            |     | 2.7  | 2 |
|     | DIN69871-AD+B50 MF32.75  | 71DIN-B50MF3207 | 32             | 66             |                |    | 90  | 75             | 56             |     | 2.8  | 1 |
|     | DIN69871-AD+B50 MF32.160 | 71DIN-B50MF3216 |                |                |                |    |     | 160            | 141            |     | 3.2  | 2 |



### K01 MONOforce 12 K01 MONOforce 20 KIT K01 MONOforce 32

|                |                |                |
|----------------|----------------|----------------|
| 1 MONOforce 12 | 1 MONOforce 20 | 1 MONOforce 32 |
| 1 RC 12.04     | 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 12.06     | 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 12.08     | 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 12.10     | 1 RC 20.12     | 1 RC 32.12     |
| 1 CHV 28       | 1 RC 20.16     | 1 RC 32.16     |
|                | 1 CHV 50       | 1 RC 32.20     |
|                |                | 1 RC 32.25     |
|                |                | 1 CHV 75       |

### KIT K01 DIN-A40

| DIN | REF.                              | CODE            |
|-----|-----------------------------------|-----------------|
| 40  | KIT K01 MONOFORCE 12.50 DIN40AD+B | 7KDIN-B40MF1205 |
|     | KIT K01 MONOFORCE 20.60 DIN40AD+B | 7KDIN-B40MF2006 |
|     | KIT K01 MONOFORCE 32.95 DIN40AD+B | 7KDIN-B40MF3209 |



### K01 MONOforce 20 KIT K01 MONOforce 32

|                |                |
|----------------|----------------|
| 1 MONOforce 20 | 1 MONOforce 32 |
| 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 20.12     | 1 RC 32.12     |
| 1 RC 20.16     | 1 RC 32.16     |
| 1 CHV 50       | 1 RC 32.20     |
|                | 1 RC 32.25     |
|                | 1 CHV 75       |

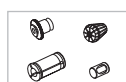
### KIT K01 DIN-A50

| DIN | REF.                              | CODE            |
|-----|-----------------------------------|-----------------|
| 50  | KIT K01 MONOFORCE 20.80 DIN50AD+B | 7KDIN-B50MF2008 |
|     | KIT K01 MONOFORCE 32.75 DIN50AD+B | 7KDIN-B50MF3207 |

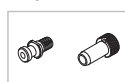
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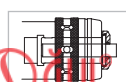
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- HIGH PRECISION ULTRA-TIGHT TOOLHOLDER
- ВЫСОКОЖЕСТКИЕ СВЕРХТОЧНЫЕ ДЕРЖАТЕЛИ
- OPRAWKA PRECYZYJNA O DUŻEJ SIŁE ZACISKU
- VYSOCE PŘESNÝ A VELMI PEVNÝ NÁSTROJOVÝ DRŽÁK
- YÜKSEK HASSASİYETLİ ULTRA SIKI TAKIM TUTUCU

## MAS 403 BT AD+B



- Without clamping wrench
- Зажимный ключ не входит в комплект поставки
- Klucz zaciskowy nie jest na wyposażeniu
- Bez upínacího kľíče
- Sıkıştırma anahtarsız

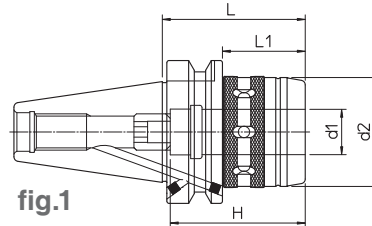


fig.1

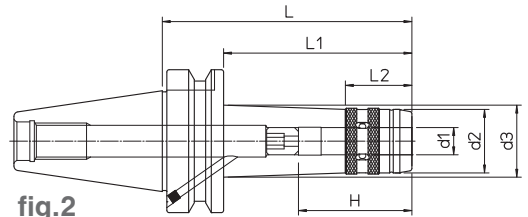


fig.2

| BT | REF.                      | CODE            | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | H  | L   | L <sub>1</sub> | L <sub>2</sub> | kg   | fig. |
|----|---------------------------|-----------------|----------------|----------------|----------------|----|-----|----------------|----------------|------|------|
| 40 | MAS403 BT40-AD+B MF12.60  | 71MBT-B40MF1206 | 12             | 28             | –              | 46 | 60  | 33             | –              | 0.9  | 1    |
|    | MAS403 BT40-AD+B MF12.100 | 71MBT-B40MF1210 |                |                | 32             |    | 100 | 73             |                | 29.5 | 1.4  |
|    | MAS403 BT40-AD+B MF20.63  | 71MBT-B40MF2006 | 20             | 48             | –              | 63 | 63  | 36             | –              | 1.3  | 1    |
|    | MAS403 BT40-AD+B MF20.100 | 71MBT-B40MF2010 |                |                |                |    | 100 | 73             |                | 1.9  | 2    |
|    | MAS403 BT40-AD+B MF32.90  | 71MBT-B40MF3209 | 32             | 66             |                | 80 | 90  | –              |                | 2.1  | 1    |
|    | MAS403 BT40-AD+B MF32.140 | 71MBT-B40MF3214 |                |                |                |    | 140 |                |                | 3.1  | 2    |
| 50 | MAS403 BT50-AD+B MF20.85  | 71MBT-B50MF2008 | 20             | 48             |                | 63 | 85  | 47             |                | 3.7  | 1    |
|    | MAS403 BT50-AD+B MF20.125 | 71MBT-B50MF2012 |                |                |                |    | 125 | 87             |                | 4.1  | 2    |
|    | MAS403 BT50-AD+B MF32.95  | 71MBT-B50MF3209 | 32             | 66             |                | 90 | 95  | 57             |                | 4.4  | 1    |
|    | MAS403 BT50-AD+B MF32.160 | 71MBT-B50MF3216 |                |                |                |    | 160 | 122            |                | 4.9  | 2    |



### K01 MONOforce 12 K01 MONOforce 20 KIT K01 MONOforce 32

|                |                |                |
|----------------|----------------|----------------|
| 1 MONOforce 12 | 1 MONOforce 20 | 1 MONOforce 32 |
| 1 RC 12.04     | 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 12.06     | 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 12.08     | 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 12.10     | 1 RC 20.12     | 1 RC 32.12     |
| 1 CHV 28       | 1 RC 20.16     | 1 RC 32.16     |
|                | 1 CHV 50       | 1 RC 32.20     |
|                |                | 1 RC 32.25     |
|                |                | 1 CHV 75       |

### KIT K01 BT 40

| BT | REF.                             | CODE            |
|----|----------------------------------|-----------------|
| 40 | KIT K01 MONOFORCE 12.60 BT40AD+B | 7KMBT-B40MF1206 |
|    | KIT K01 MONOFORCE 20.63 BT40AD+B | 7KMBT-B40MF2006 |
|    | KIT K01 MONOFORCE 32.90 BT40AD+B | 7KMBT-B40MF3209 |



### K01 MONOforce 20 KIT K01 MONOforce 32

|                |                |
|----------------|----------------|
| 1 MONOforce 20 | 1 MONOforce 32 |
| 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 20.12     | 1 RC 32.12     |
| 1 RC 20.16     | 1 RC 32.16     |
| 1 CHV 50       | 1 RC 32.20     |
|                | 1 RC 32.25     |
|                | 1 CHV 75       |

### KIT K01 BT 50

| BT | REF.                             | CODE            |
|----|----------------------------------|-----------------|
| 50 | KIT K01 MONOFORCE 20.85 BT50AD+B | 7KMBT-B50MF2008 |
|    | KIT K01 MONOFORCE 32.95 BT50AD+B | 7KMBT-B50MF3209 |

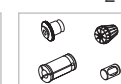
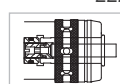
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# D'ANDREA

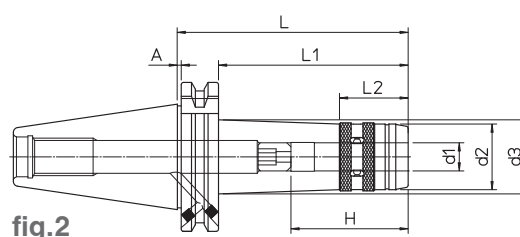
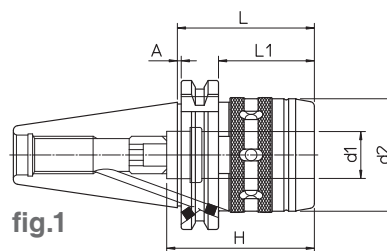
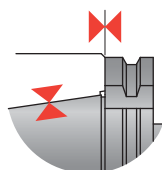
## MONOforce

### FACE CONTACT

- HIGH PRECISION ULTRA-TIGHT TOOLHOLDER
- ВЫСОКОЖЕСТКИЕ СВЕРХТОЧНЫЕ ДЕРЖАТЕЛИ
- OPRAWKA PRECYZYJNA O DUŻEJ SIŁE ZACISKU
- VYSOCE PŘESNÝ A VELMI PEVNÝ NÁSTROJOVÝ DRŽÁK
- YÜKSEK HASSASIYETLİ ULTRA SIKI TAKIM TUTUCU

### DIN 69871 FC

#### FACE CONTACT AD+B



- Without clamping wrench
- Зажимный ключ не входит в комплект поставки
- Klucz zaciskowy nie jest na wyposażeniu
- Bez upínacího kľíče
- Sıkıştırma anahtarsız

| DIN | REF.                        | CODE            | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | H  | A   | L   | L <sub>1</sub> | L <sub>2</sub> | kg  | fig. |
|-----|-----------------------------|-----------------|----------------|----------------|----------------|----|-----|-----|----------------|----------------|-----|------|
| 40  | DIN69871-AD+B40 FC MF12.50  | 71DIF-B40MF1205 | 12             | 28             | —              | 46 | 1   | 50  | 31             | —              | 0.8 | 1    |
|     | DIN69871-AD+B40 FC MF12.100 | 71DIF-B40MF1210 |                |                | 32             |    |     | 100 | 81             | 29.5           | 1.2 | 2    |
|     | DIN69871-AD+B40 FC MF20.60  | 71DIF-B40MF2006 | 20             | 48             | —              | 63 |     | 60  | 41             | —              | 1.1 | 1    |
|     | DIN69871-AD+B40 FC MF20.100 | 71DIF-B40MF2010 |                |                |                |    |     | 100 | 81             |                | 1.4 | 2    |
|     | DIN69871-AD+B40 FC MF32.95  | 71DIF-B40MF3209 | 32             | 66             |                | 80 |     | 95  | —              |                | 1.6 | 1    |
|     | DIN69871-AD+B40 FC MF32.140 | 71DIF-B40MF3214 |                |                |                |    |     | 140 | —              |                | 2.0 | 2    |
| 50  | DIN69871-AD+B50 FC MF20.80  | 71DIF-B50MF2008 | 20             | 48             | —              | 63 | 1.5 | 80  | 61             | —              | 2.3 | 1    |
|     | DIN69871-AD+B50 FC MF20.125 | 71DIF-B50MF2012 |                |                |                |    |     | 125 | 106            |                | 2.7 | 2    |
|     | DIN69871-AD+B50 FC MF32.75  | 71DIF-B50MF3207 | 32             | 66             |                | 90 |     | 75  | 56             |                | 2.8 | 1    |
|     | DIN69871-AD+B50 FC MF32.160 | 71DIF-B50MF3216 |                |                |                |    |     | 160 | 141            |                | 3.2 | 2    |



#### K01 MONOforce 12 FC K01 MONOforce 20 FC K01 MONOforce 32 FC

|                |                |                |
|----------------|----------------|----------------|
| 1 MONOforce 12 | 1 MONOforce 20 | 1 MONOforce 32 |
| 1 RC 12.04     | 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 12.06     | 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 12.08     | 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 12.10     | 1 RC 20.12     | 1 RC 32.12     |
| 1 CHV 28       | 1 RC 20.16     | 1 RC 32.16     |
|                | 1 CHV 50       | 1 RC 32.20     |
|                |                | 1 RC 32.25     |
|                |                | 1 CHV 75       |

#### KIT K01

#### DIN-A40

| DIN | REF.                                 | CODE            |
|-----|--------------------------------------|-----------------|
| 40  | KIT K01 MONOFORCE 12.50 DIN40AD+B FC | 7KDIF-B40MF1205 |
|     | KIT K01 MONOFORCE 20.60 DIN40AD+B FC | 7KDIF-B40MF2006 |
|     | KIT K01 MONOFORCE 32.95 DIN40AD+B FC | 7KDIF-B40MF3209 |



#### K01 MONOforce 20 FC K01 MONOforce 32 FC

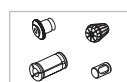
|                |                |
|----------------|----------------|
| 1 MONOforce 20 | 1 MONOforce 32 |
| 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 20.12     | 1 RC 32.12     |
| 1 RC 20.16     | 1 RC 32.16     |
| 1 CHV 50       | 1 RC 32.20     |
|                | 1 RC 32.25     |
|                | 1 CHV 75       |

#### KIT K01

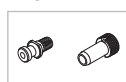
#### DIN-A50

| DIN | REF.                                 | CODE            |
|-----|--------------------------------------|-----------------|
| 50  | KIT K01 MONOFORCE 20.80 DIN50AD+B FC | 7KDIF-B50MF2008 |
|     | KIT K01 MONOFORCE 32.75 DIN50AD+B FC | 7KDIF-B50MF3207 |

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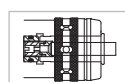
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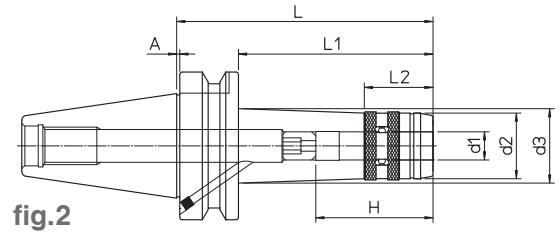
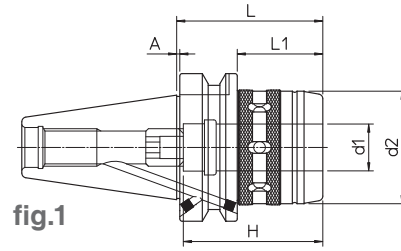
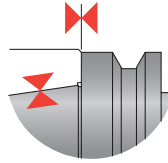
222



ŞEKERİ ÖLÜ®  
MAKİNA TİCARET VE SAN. LTD. ŞTİ.

- HIGH PRECISION ULTRA-TIGHT TOOLHOLDER
- ВЫСОКОЖЕСТКИЕ СВЕРХТОЧНЫЕ ДЕРЖАТЕЛИ
- OPRAWKA PRECYZYJNA O DUŻEJ SIŁE ZACISKU
- VYSOCE PŘESNÝ A VELMI PEVNÝ NÁSTROJOVÝ DRŽÁK
- YÜKSEK HASSASİYETLİ ULTRA SIKI TAKIM TUTUCU

## MAS 403 BT FC FACE CONTACT AD+B



- Without clamping wrench
- Зажимный ключ не входит в комплект поставки
- Klucz zaciskowy nie jest na wyposażeniu
- Bez upínacího kľíče
- Sıkıştırma anahtarsız

| BT | REF.                         | CODE            | d1 | d2 | d3 | H  | A   | L   | L1  | L2   | kg  | fig. |     |   |
|----|------------------------------|-----------------|----|----|----|----|-----|-----|-----|------|-----|------|-----|---|
| 40 | MAS403 BT40 FC AD+B MF12.60  | 71MBF-B40MF1206 | 12 | 28 | –  | 46 | 1   | 60  | 33  | –    | 0.9 | 1    |     |   |
|    | MAS403 BT40 FC AD+B MF12.100 | 71MBF-B40MF1210 |    |    | 32 |    |     | 100 | 73  | 29.5 | 1.4 | 2    |     |   |
|    | MAS403 BT40 FC AD+B MF20.63  | 71MBF-B40MF2006 | 20 | 48 | –  |    |     | 63  | 63  | 36   | –   | 1.3  | 1   |   |
|    | MAS403 BT40 FC AD+B MF20.100 | 71MBF-B40MF2010 |    |    |    |    |     |     | 100 | 73   |     | 1.9  | 2   |   |
|    | MAS403 BT40 FC AD+B MF32.90  | 71MBF-B40MF3209 | 32 | 66 |    |    |     | 80  | 90  | –    |     | 2.1  | 1   |   |
|    | MAS403 BT40 FC AD+B MF32.140 | 71MBF-B40MF3214 |    |    |    |    |     |     | 140 | –    |     | 3.1  | 2   |   |
| 50 | MAS403 BT50 FC AD+B MF20.85  | 71MBF-B50MF2008 | 20 | 48 |    | –  | 63  | 1.5 | 85  | 47   |     | –    | 3.7 | 1 |
|    | MAS403 BT50 FC AD+B MF20.125 | 71MBF-B50MF2012 |    |    |    |    |     |     | 125 | 87   |     |      | 4.1 | 2 |
|    | MAS403 BT50 FC AD+B MF32.95  | 71MBF-B50MF3209 | 32 | 66 | 90 |    | 95  |     | 57  | 4.4  | 1   |      |     |   |
|    | MAS403 BT50 FC AD+B MF32.160 | 71MBF-B50MF3216 |    |    |    |    | 160 |     | 122 | 4.9  | 2   |      |     |   |



### K01 MONOForce 12 FC K01 MONOForce 20 FC K01 MONOForce 32 FC

|                |                |                |
|----------------|----------------|----------------|
| 1 MONOForce 12 | 1 MONOForce 20 | 1 MONOForce 32 |
| 1 RC 12.04     | 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 12.06     | 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 12.08     | 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 12.10     | 1 RC 20.12     | 1 RC 32.12     |
| 1 CHV 28       | 1 RC 20.16     | 1 RC 32.16     |
|                | 1 CHV 50       | 1 RC 32.20     |
|                |                | 1 RC 32.25     |
|                |                | 1 CHV 75       |

### KIT K01 BT 40

| BT | REF.                                | CODE            |
|----|-------------------------------------|-----------------|
| 40 | KIT K01 MONOFORCE 12.60 BT40AD+B FC | 7KMBF-B40MF1206 |
|    | KIT K01 MONOFORCE 20.63 BT40AD+B FC | 7KMBF-B40MF2006 |
|    | KIT K01 MONOFORCE 32.90 BT40AD+B FC | 7KMBF-B40MF3209 |



### K01 MONOForce 20 FC K01 MONOForce 32 FC

|                |                |
|----------------|----------------|
| 1 MONOForce 20 | 1 MONOForce 32 |
| 1 RC 20.06     | 1 RC 32.06     |
| 1 RC 20.08     | 1 RC 32.08     |
| 1 RC 20.10     | 1 RC 32.10     |
| 1 RC 20.12     | 1 RC 32.12     |
| 1 RC 20.16     | 1 RC 32.16     |
| 1 CHV 50       | 1 RC 32.20     |
|                | 1 RC 32.25     |
|                | 1 CHV 75       |

### KIT K01 BT 50

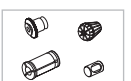
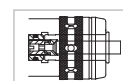
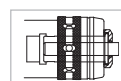
| BT | REF.                                | CODE            |
|----|-------------------------------------|-----------------|
| 50 | KIT K01 MONOFORCE 20.85 BT50AD+B FC | 7KMBF-B50MF2008 |
|    | KT K01 MONOFORCE 32.95 BT50AD+B FC  | 7KMBF-B50MF3209 |

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*High speed, balancing and precision*

0.003



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ER  
FORCE

**DIN 69893 HSK-E**  
ER  
FORCE

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**DIN 69871-A**  
ER  
FORCE

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**MAS 403 BT**  
ER  
FORCE



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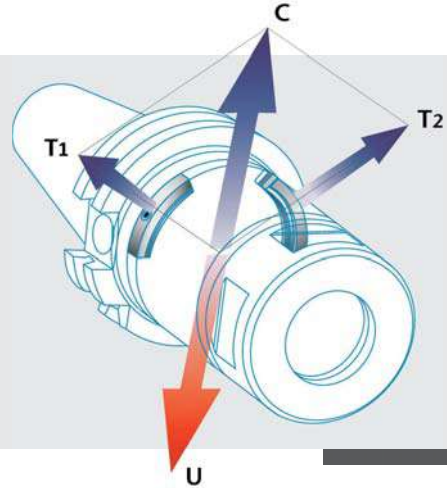
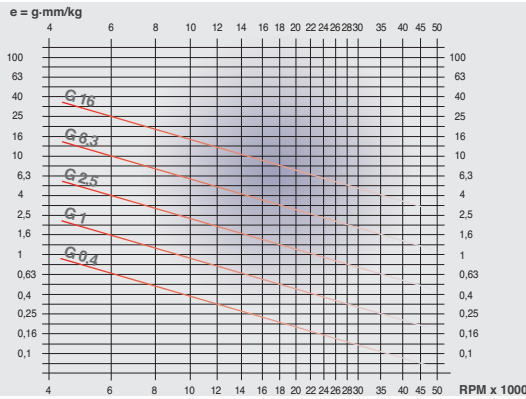
**KIT FORCE**  
HSK  
DIN  
BT





- **BALANCEABLE TOOLHOLDERS - BALANCING AND PRECISION**
- **ВЫСОКОСКОРОСТНЫЕ БАЛАНСИРУЕМЫЕ ДЕРЖАТЕЛИ**
- **OPRAWKI NARZĘDZIOWE Z MOŻLIWOŚCIĄ WYRÓWNOWAŻANIA, PRZEZNACZONE DO PRAC Z WYSOKIMI PRĘDKOŚCIAMI**
- **VYVAŽOVATELNÉ NÁSTROJOVÉ DRŽÁKY - VYVAŽOVÁNÍ A PŘESNOST**
- **DENGELNEBİLİR TAKIM TUTUCULAR - DENGELME VE HASSASİYET**

Ⓜ The use of **TOPRUN** balanceable toolholders provides the following advantages: considerable extension of spindle bearings life; considerable extension of tool life; improved accuracy and surface finish; drastic reduction of vibrations and noise level of the machining centre. For high speed machining with Toprun toolholders, the two counterweights in the graduated groove (patented) have to be positioned following the indications provided by the electronic balancing unit; a quick and easy balancing of the toolholder complete with tension rod and tool according to the ISO 1940/1 standards. For machining up to 8,000 rpm it is sufficient to position the counterweights at 0° and at 180°. **BALANCING.** The balancing operation has the aim to bring the original unbalance "U" within the maximum admissible level "G". The manufacturers of high speed milling machines usually prescribe a balancing level "G 1" or "G 2.5" for the toolholders to be used on their machines according to the ISO 1940/1 standard. Specifically, the original unbalance "U" of the tool and toolholder is neutralized by the resulting centrifugal force "C" produced by the two balancing masses "T1" and "T2".



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Ⓜ Использование балансируемых держателей TOPRUN обеспечивает следующие преимущества: продление срока службы шпинделя обрабатывающего центра; продление срока службы инструмента; повышение точности и качества обрабатываемой поверхности; снижение вибрации и уровня шума обрабатывающего центра. Для использования держателей TOPRUN при высокоскоростной обработке, два противовеса, расположенные в градуированном пазу (запатентованный принцип) должны быть установлены согласно показаниям электронного балансирующего устройства в соответствии со стандартом ISO 1940/1. Для работы на скоростях до 8000 об/мин. достаточно установить противовесы в позиции 0° и 180°. **БАЛАНСИРОВКА;** Цель балансировки - привести изначальный дисбаланс "U", уже существующий в держателе, в рамки максимально допустимого значения "G". Для высокоскоростных фрезерных станков стандарта ISO 1940/1 уровень балансировки для держателей, который обычно предписывает производитель, равен степени G1 или G 2.5. В частности, балансировка проходит следующим образом: начальный дисбаланс инструмента и держателя "U" нейтрализуется результирующей центробежной силой "C", создаваемой двумя балансирующими массами "T1" и "T2", расположение которых показывается балансирующим устройством.

Ⓜ Korzyści z zastosowania oprawek wyrównoważalnych **TOPRUN**: wydłużenie żywotności wrzeciona obrabiarki; wydłużenie żywotności narzędzia; poprawa dokładności i jakości wykonania powierzchni; redukcja vibracji i hałasu powodowanego przez centrum obróbcze. Przy używaniu oprawek narzędziowych Toprun na urządzeniach wysokoobrotowych, należy umieścić dwie płytki znajdujące się w okrężnym, wyskalowanym rowku (rozwiązanie opatentowane) w odpowiednich położeniach, według wskazówek podanych na elektronicznym urządzeniu przeznaczonym do wyrównoważania dynamicznego, zgodnie z wymogami normy ISO 1940/1. Przy obróbkach do 8.000 obr./min. wystarczy ustawić płytki w położeniach kątowych 0° i 180°. **WYRÓWNOWAŻENIE.** Czynność wyrównoważania polega na redukcji niewyrównoważenia „U” powstałej w każdej oprawce, do maksymalnej, akceptowanej wartości, określonej jako stopień wyrównoważanie „G”. Zazwyczaj producenci obrabiarek z wrzecionami umożliwiającymi pracę z wysokimi obrotami wymagają wykorzystywania oprawek wyrównoważonych w klasie „G1” lub „G2,5” według normy ISO 1940/1. Wyrównoważenie przebiega w ten sposób, że niewyrównoważenie „U”, powstałe w oprawce i narzędziu, zostaje skompensowane za pomocą wynikowej siły „C”, która jest wypadkową sił odśrodkowych powstałych od płytek „T1” i „T2”. Pozycję płytek wskazuje urządzenie wyrównoważające.

Ⓜ Použití vyvažovatelných nástrojových držáků **TOPRUN** dává následující výhody: značné prodloužení životnosti ložisek vřetena, značné prodloužení životnosti nástroje, vylepšená přesnost a úprava povrchu, prudké snížení hladiny vibrací a hluku obráběcího centra. Při vysokorychlostním obrábění pomocí nástrojových držáků Toprun je nutno umístit dvě protizávaží do kalibrované drážky (patentované) podle informací poskytovaných elektronickou vyvažující jednotkou; rychlé a snadné vyvažování nástrojového držáku s napínací tyčí a nástrojem v souladu s normami ISO 1940/1. Při obrábění do 8 000 ot/min postačuje umístit protizávaží v pozicích 0° a 180°. **VYVAŽOVÁNÍ.** Cílem operace vyvažování je dostat původní nerovnováhu "U" do rámce maximálně přípustné hladiny "G". Výrobci vysokorychlostních frézovacích strojů obvykle předepisují vyvažovací hladinu "G 1" nebo "G 2.5" pro nástrojové držáky, které se používají na jejich strojích podle normy ISO 1940/1. Konkrétně je původní nerovnováha "U" nástroje a nástrojového držáku neutralizována výslednou odstředivou silou "C" vytvořenou dvěma hmotnostmi "T1" a "T2".

Ⓜ **TOPRUN** dengelenabilir takım tutucuların kullanılması şu avantajları sunar: gelişmiş doğruluk, hassasiyet ve yüzey bitirme; takımın hizmet ömrünün ciddi biçimde uzatılması, mil yataklarının hizmet ömrünün önemli ölçüde uzatılması; işleme merkezindeki titreşim ve gürültü seviyelerinde ciddi biçimde azalma. Toprun takım tutucularla yüksek hızlarda işleme için, kademeli yivdeki (patentlidir) iki karşı ağırlığın elektronik dengeleme ünitesi tarafından belirtilen göstergeler izlenerek konumlandırılması gerekir; bu, takım tutucunun gergi kolu ve takımla birlikte hızlı, kolay ve ISO 1940/1 standardına uygun bir şekilde dengelenmesini sağlar. 8.000 dev/dak'a varan hızlardaki işlemlerde, karşı ağırlıkların 0° ve 180°'de konumlandırılması yeterlidir. **DENGELME.** Dengelenmenin amacı, orijinal dengesiz "U" konumunu maksimum izin verilen seviye olan "G" aralığı içine getirmektir. Yüksek hızda işleme makinesi üreticileri, takım tutucuların makinelerinde ISO 1940/1 standardına uygun bir şekilde kullanılabilmesi için genellikle G 1" veya "G 2.5" dengeleme seviyesini önerirler. Özellikle, takımın ve takım tutucunun orijinal dengesiz "U" konumu, "T1" ve "T2" dengeleme kütlelerince üretilen santrifüj kuvveti "C" sonucu nötr hale getirilir.

## DIN 69893 HSK-A

ER - DIN 6499

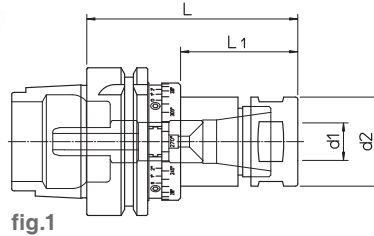


fig.1

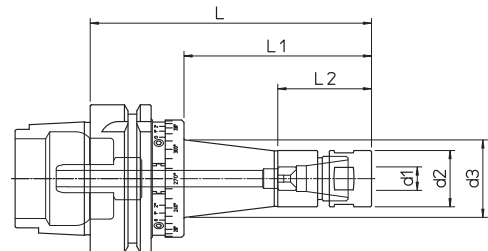


fig.2

- Supplied with coolant tube - without collets and clamping wrenches. The ring-nuts of the Toprun spindles allow the use of the ER collets with a working range of 0,5 mm.
- В комплект входит соединительная втулка для СОЖ. Эластичная цанга и зажимный ключ не входят в комплект поставки. Зажимные кольца шпинделей Toprun позволяют использовать цанги типа ER с рабочим диапазоном 0,5 мм.
- Wyposażona w złączkę do cieczy chłodzącej – Tulejka ER oraz klucze zaciskowe nie są na wyposażeniu. Nasadki wrzecion Toprun umożliwiają zastosowanie tulei zaciskowych ER z zakresem roboczym wynoszącym 0,5 mm.
- Dodává se s potrubím chladiwa - bez pouzder a upínacích kľúčů. Kroužkové matice vřeten Toprun umožňují použití pouzder ER s pracovním rozsahem 0,5 mm.
- Soğutma sıvısı borusuyla, çakı tutacağı ve sıkıştırma anahtarları olmadan tedarik edilir. Toprun millerinin halka somunları, ER çakı tutacaklarının 0,5 mm çalışma aralığıyla kullanılabilmesini sağlar.

| HSK-A | REF.             | CODE         | TYPE  | d1       | d2 | d3 | L   | L1  | L2 | kg  | fig. |
|-------|------------------|--------------|-------|----------|----|----|-----|-----|----|-----|------|
| 63    | HSK-A63 ER16.80  | 410101656320 | ER 16 | 0.5 ~ 10 | 24 | —  | 80  | 40  | —  | 0.9 | 1    |
|       | HSK-A63 ER16.120 | 410121656320 |       |          |    | 34 | 120 | 80  | 40 | 1.1 | 2    |
|       | HSK-A63 ER25.80  | 410082556320 | ER 25 | 1 ~ 16   | 38 | —  | 80  | 40  | —  | 1.2 | 1    |
|       | HSK-A63 ER25.140 | 410122556320 |       |          |    | 45 | 140 | 100 | 50 | 1.6 | 2    |
|       | HSK-A63 ER32.90  | 410083256320 | ER 32 | 2 ~ 20   | 50 | —  | 90  | —   | —  | 1.5 | 1    |

## DIN 69893 HSK-E

ER - DIN 6499

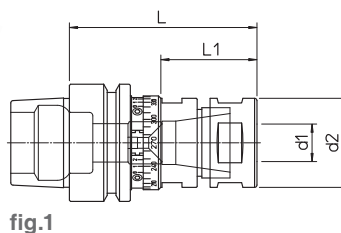


fig.1

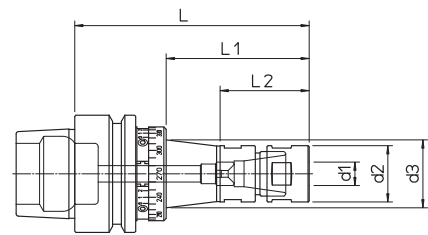


fig.2

- Supplied without collets and clamping wrenches. The ring-nuts of the Toprun spindles allow the use of the ER collets with a working range of 0,5 mm.
- Эластичная цанга и зажимный ключ не входят в комплект поставки. Зажимные кольца шпинделей Toprun позволяют использовать цанги типа ER с рабочим диапазоном 0,5 мм.
- Tuleja zaciskowa elastyczna oraz klucze zaciskowe nie są na wyposażeniu. Nasadki wrzecion Toprun umożliwiają zastosowanie tulei zaciskowych ER z zakresem roboczym wynoszącym 0,5 mm.
- Dodává se bez pouzder a upínacích kľúčů. Kroužkové matice vřeten Toprun umožňují použití pouzder ER s pracovním rozsahem 0,5 mm
- Freze çakıları ve sıkıştırma anahtarları olmadan teslim edilir. Toprun millerinin halka somunları, ER çakı tutacaklarının 0,5 mm çalışma aralığıyla kullanılabilmesini sağlar.

| HSK-E | REF.             | CODE         | TYPE  | d1       | d2 | d3 | L   | L1   | L2 | kg  | fig. |
|-------|------------------|--------------|-------|----------|----|----|-----|------|----|-----|------|
| 40    | HSK-E40 ER16.60  | 410101654025 | ER 16 | 0.5 ~ 10 | 24 | —  | 60  | 28.5 | —  | 0.3 | 1    |
|       | HSK-E40 ER16.100 | 410121654025 |       |          |    | 28 | 100 | 68.5 | 36 | 0.4 | 2    |
|       | HSK-E40 ER25.70  | 410102554025 | ER 25 | 1 ~ 16   | 38 | —  | 70  | —    | —  | 0.7 | 1    |
| 50    | HSK-E50 ER16.70  | 410081655025 | ER 16 | 0.5 ~ 10 | 24 | —  | —   | 31   | —  | 0.6 | 1    |
|       | HSK-E50 ER16.100 | 410121655025 |       |          |    | 29 | 100 | 61   | 38 | 0.8 | 2    |
|       | HSK-E50 ER25.70  | 410082555025 | ER 25 | 1 ~ 16   | 38 | —  | 70  | 31   | —  | 1   | 1    |

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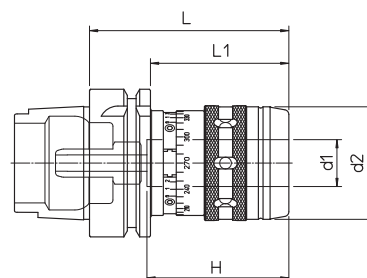
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- HIGH PRECISION ULTRA-TIGHT BALANCEABLE TOOLHOLDER
- ВЫСОКОТОЧНЫЕ СВЕРХЖЕСТКИЕ БАЛАНСИРУЕМЫЕ ДЕРЖАТЕЛИ.
- OPRAWKA NARZĘDZIOWA PRECYZYJNA Z MOCNYM ZAMKNIĘCIEM I MOŻLIWOŚCIĄ WYRÓWNOWAŻANIA
- VYSOCE PŘESNÝ A VELMI PEVNÝ VYVAŽOVATELNÝ NÁSTROJOVÝ DRŽÁK
- YÜKSEK HASSASİYETLİ ULTRA SIKI DENGELENEİLİR TAKIM TUTUCU

## DIN 69893 HSK-A FORCE



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- Supplied with coolant tube - without clamping wrench
- В комплект входит соединительная втулка для СОЖ, зажимный ключ не входит в комплект поставки
- Wyposażona w złączkę do cieczy chłodzącej – Klucze zaciskowe nie są na wyposażeniu
- Dodávaný s chladicím potrubím - bez upínacího kľíče
- Soğutma sıvısı borusuyla, sıkıştırma anahtarı olmadan tedarik edilir

| HSK-A | REF.                | CODE         | d1 | d2 | H  | L   | L1 | kg  |
|-------|---------------------|--------------|----|----|----|-----|----|-----|
| 63    | HSK-A63 FORCE20.85  | 410002056320 | 20 | 48 | 60 | 85  | 59 | 1.2 |
|       | HSK-A63 FORCE32.110 | 410003256320 | 32 | 66 | 80 | 110 | —  | 2   |

## KIT FORCE

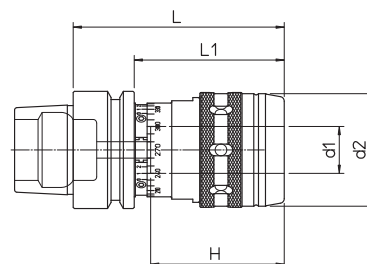


### K01 FORCE 20 K01 FORCE 32

|            |            |
|------------|------------|
| 1 FORCE 20 | 1 FORCE 32 |
| 1 RC 20.06 | 1 RC 32.06 |
| 1 RC 20.08 | 1 RC 32.08 |
| 1 RC 20.10 | 1 RC 32.10 |
| 1 RC 20.12 | 1 RC 32.12 |
| 1 RC 20.16 | 1 RC 32.16 |
| 1 CHV 50   | 1 RC 32.20 |
|            | 1 RC 32.25 |
|            | 1 CHV 75   |

| HSK-A | REF.                   | CODE         |
|-------|------------------------|--------------|
| 63    | KIT K01 FORCE 20 HSK63 | 610002056320 |
|       | KIT K01 FORCE 32 HSK63 | 610003256320 |

## DIN 69893 HSK-E FORCE



- Without clamping wrench
- Зажимный ключ не входит в комплект поставки
- Klucz zaciskowy nie jest na wyposażeniu
- Bez upínacího kľíče
- Sıkıştırma anahtarsız

| HSK-E | REF.               | CODE         | d1 | d2 | H  | L  | L1 | kg  |
|-------|--------------------|--------------|----|----|----|----|----|-----|
| 50    | HSK-E50 FORCE20.90 | 410002055025 | 20 | 48 | 60 | 90 | 64 | 1.2 |

222

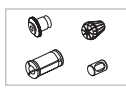
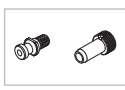
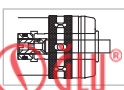
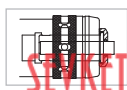
222

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MAKİNA TİCARET VE SAN. LTD. ŞTİ.

**DIN 69871 A**  
**ER - DIN 6499**

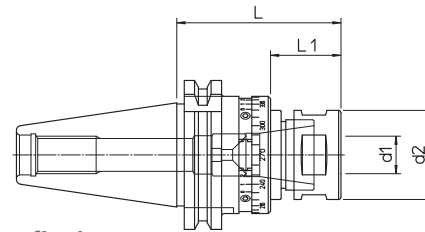


fig.1

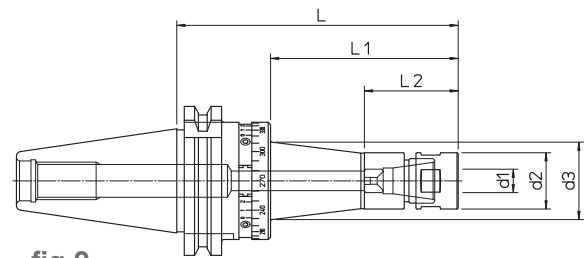


fig.2

- Supplied without collets and clamping wrenches.

The ring-nuts of the Toprun spindles allow the use of the ER collets with a working range of 0,5 mm.

- Эластичная цанга и зажимный ключ не входят в комплект поставки.

Зажимные кольца шпинделей Toprun позволяют использовать цанги типа ER с рабочим диапазоном 0,5 мм.

- Tuleja zaciskowa elastyczna oraz klucze zaciskowe nie są na wyposażeniu.

Nasadki wrzecion Toprun umożliwiają zastosowanie tulei zaciskowych ER z zakresem roboczym wynoszącym 0,5 mm.

- Dodáva se bez pouzder a upínacích kľúčů.

Kroužkové matice vřeten Toprun umožňují použití pouzder ER s pracovním rozsahem 0,5 mm.

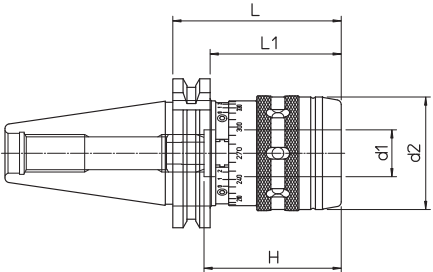
- Freze çakıları ve sıkıştırma anahtarları olmadan teslim edilir.

Toprun millerinin halka somunları, ER çakı tutacaklarının 0,5 mm çalışma aralığıyla kullanılabilmesini sağlar.

| DIN | REF.                  | CODE         | TYPE  | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | L   | L <sub>1</sub> | L <sub>2</sub> | kg  | fig. |
|-----|-----------------------|--------------|-------|----------------|----------------|----------------|-----|----------------|----------------|-----|------|
| 40  | DIN69871-A40 ER16.70  | 410081614020 | ER 16 | 0.5 ~ 10       | 24             | –              | 70  | 30             | –              | 1.1 | 1    |
|     | DIN69871-A40 ER16.120 | 410121614020 |       |                |                | 34             | 120 | 80             | 40             | 1.3 | 2    |
|     | DIN69871-A40 ER25.70  | 410082514020 | ER 25 | 1 ~ 16         | 38             | –              | 70  | 30             | –              | 1.4 | 1    |
|     | DIN69871-A40 ER25.140 | 410122514020 |       |                |                | 45             | 140 | 100            | 50             | 1.8 | 2    |
|     | DIN69871-A40 ER32.75  | 410083214020 | ER 32 | 2 ~ 20         | 50             | –              | 75  | –              | –              | 1.7 | 1    |

- HIGH PRECISION ULTRA-TIGHT BALANCEABLE TOOLHOLDER
- ВЫСОКОТОЧНЫЕ СВЕРХЖЕСТКИЕ БАЛАНСИРУЕМЫЕ ДЕРЖАТЕЛИ.
- OPRAWKA NARZĘDZIOWA PRECYZYJNA Z MOCNYM ZAMKNIĘCIEM I MOŻLIWOŚCIĄ WYRÓWNOWAŻANIA
- VYSOCE PŘESNÝ A VELMI PEVNÝ VYVAŽOVATELNÝ NÁSTROJOVÝ DRŽÁK
- YÜKSEK HASSASIYETLİ ULTRA SIKİ DENGELENEİLİR TAKIM TUTUCU

## DIN 69871 A FORCE



- Without clamping wrench
- Зажимный ключ не входит в комплект поставки
- Klucz zaciskowy nie jest na wyposażeniu
- Bez upínacího kľíče
- Sıkıştırma anahtarsız

| DIN | REF.                     | CODE         | d1 | d2 | H  | L   | L1   | kg  |
|-----|--------------------------|--------------|----|----|----|-----|------|-----|
| 40  | DIN69871-A40 FORCE20.75  | 410002014020 | 20 | 48 | 60 | 75  | 55.9 | 1.3 |
|     | DIN69871-A40 FORCE32.105 | 410003214020 | 32 | 66 | 80 | 105 | –    | 2.1 |

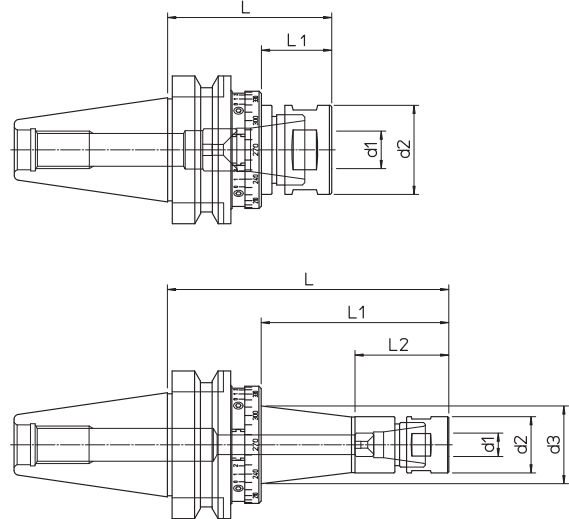
## KIT FORCE



| K01 FORCE 20 | K01 FORCE 32 |
|--------------|--------------|
| 1 FORCE 20   | 1 FORCE 32   |
| 1 RC 20.06   | 1 RC 32.06   |
| 1 RC 20.08   | 1 RC 32.08   |
| 1 RC 20.10   | 1 RC 32.10   |
| 1 RC 20.12   | 1 RC 32.12   |
| 1 RC 20.16   | 1 RC 32.16   |
| 1 CHV 50     | 1 RC 32.20   |
|              | 1 RC 32.25   |
|              | 1 CHV 75     |

| DIN | REF.                  | CODE         |
|-----|-----------------------|--------------|
| 40  | KIT K01 FORCE20 DIN40 | 610002014020 |
|     | KIT K01 FORCE32 DIN40 | 610003214020 |

## MAS 403 BT ER-DIN 6499



- Supplied without collets and clamping wrenches.

The ring-nuts of the Toprun spindles allow the use of the ER collets with a working range of 0,5 mm.

- Эластичная цанга и зажимный ключ не входят в комплект поставки.

Зажимные кольца шпинделей Toprun позволяют использовать цанги типа ER с рабочим диапазоном 0,5 мм.

- Tuleja zaciskowa elastyczna oraz klucze zaciskowe nie są na wyposażeniu.

Nasadki wrzecion Toprun umożliwiają zastosowanie tulei zaciskowych ER z zakresem roboczym wynoszącym 0,5 mm.

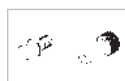
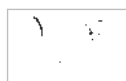
- Dodává se bez pouzder a upínacích kľučů.

Kroužkové matice vřeten Toprun umožňují použití pouzder ER s pracovním rozsahem 0,5 mm.

- Freze çakıları ve sıkıştırma anahtarları olmadan teslim edilir.

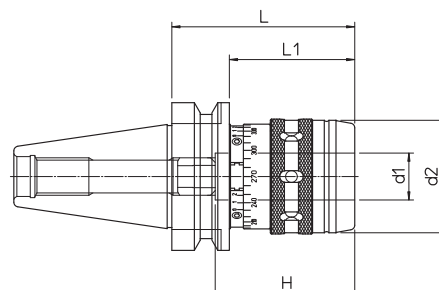
Toprun millerinin halka somunları, ER çakı tutacaklarının 0,5 mm çalışma aralığıyla kullanılabilmesini sağlar.

| BT | REF.                 | CODE         | TYPE  | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | L   | L <sub>1</sub> | L <sub>2</sub> | kg  | fig. |
|----|----------------------|--------------|-------|----------------|----------------|----------------|-----|----------------|----------------|-----|------|
| 30 | MAS403 BT30 ER16.60  | 410101613030 | ER 16 | 0.5 ~ 10       | 24             | –              | 60  | 25             | –              | 0.8 | 1    |
|    | MAS403 BT30 ER16.90  | 410121613030 |       |                |                | 29             | 90  | 55             | 32             | 0.9 | 2    |
|    | MAS403 BT30 ER25.60  | 410102513030 | ER 25 | 1 ~ 16         | 38             | –              | 60  | 25.5           | –              | 1.1 | 1    |
| 40 | MAS403 BT40 ER16.70  | 410081614030 | ER 16 | 0.5 ~ 10       | 24             | –              | 70  | 30             | –              | 1   | 1    |
|    | MAS403 BT40 ER16.120 | 410121614030 |       |                |                | 34             | 120 | 80             | 40             | 1.3 | 2    |
|    | MAS403 BT40 ER25.70  | 410082514030 | ER 25 | 1 ~ 16         | 38             | –              | 70  | 30             | –              | 1.4 | 1    |
|    | MAS403 BT40 ER25.140 | 410122514030 |       |                |                | 45             | 140 | 100            | 50             | 1.8 | 2    |
|    | MAS403 BT40 ER32.75  | 410083214030 | ER 32 | 2 ~ 20         | 50             | –              | 75  | 32             | –              | 1.7 | 1    |



- HIGH PRECISION ULTRA-TIGHT BALANCEABLE TOOLHOLDER
- ВЫСОКОТОЧНЫЕ СВЕРХЖЕСТКИЕ БАЛАНСИРУЕМЫЕ ДЕРЖАТЕЛИ.
- OPRAWKA NARZĘDZIOWA PRECYZYJNA Z MOCNYM ZAMKNIĘCIEM I MOŻLIWOŚCIĄ WYRÓWNOWAŻANIA
- VYSOCE PŘESNÝ A VELMI PEVNÝ VYVAŽOVATELNÝ NÁSTROJOVÝ DRŽÁK
- YÜKSEK HASSASIYETLİ ULTRA SIKİ DENGELENEİLİR TAKIM TUTUCU

## MAS 403 BT FORCE



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- Without clamping wrench
- Зажимный ключ не входит в комплект поставки
- Klucz zaciskowy nie jest na wyposażeniu
- Bez upínacího kľíče
- Sıkıştırma anahtarsız

| BT | REF.                   | CODE         | d1 | d2 | H  | L  | L1   | kg  |
|----|------------------------|--------------|----|----|----|----|------|-----|
| 40 | MAS403 BT40 FORCE20.80 | 410002014030 | 20 | 48 | 60 | 80 | 53.5 | 1.4 |
|    | MAS403 BT40 FORCE32.90 | 410003214030 | 32 | 66 | 80 | 90 | 65   | 1.9 |

## KIT FORCE



### K01 FORCE 20 K01 FORCE 32

|            |            |
|------------|------------|
| 1 FORCE 20 | 1 FORCE 32 |
| 1 RC 20.06 | 1 RC 32.06 |
| 1 RC 20.08 | 1 RC 32.08 |
| 1 RC 20.10 | 1 RC 32.10 |
| 1 RC 20.12 | 1 RC 32.12 |
| 1 RC 20.16 | 1 RC 32.16 |
| 1 CHV 50   | 1 RC 32.20 |
|            | 1 RC 32.25 |
|            | 1 CHV 75   |

| BT | REF.                 | CODE         |
|----|----------------------|--------------|
| 40 | KIT K01 FORCE20 BT40 | 610002014030 |
|    | KIT K01 FORCE32 BT40 | 610003214030 |

222

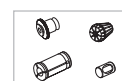
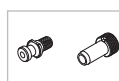
222

222

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**DIN 69893 HSK-A**

ER  
WD  
PF  
CM  
MS

p. 240



p. 198

**DIN 69871 AD+B**

ER  
WD  
PF  
CM  
MS

p. 240



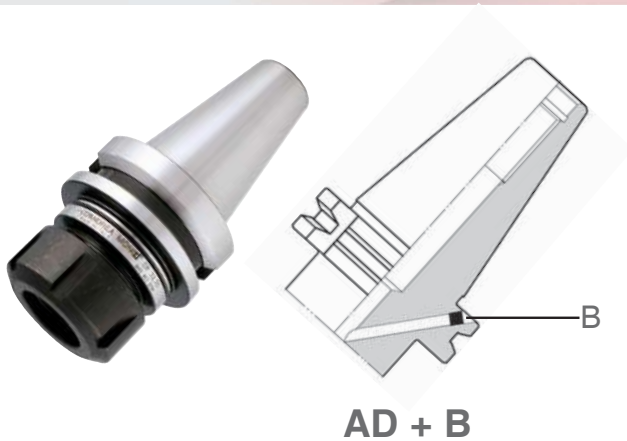
p. 204

**MAS 403 BT AD+B**

ER  
WD  
PF  
CM  
MS







*Quality, precision,  
strength and convenience*

- INTEGRATED TOOLHOLDERS
- ИНТЕГРАЛЬНЫЕ ДЕРЖАТЕЛИ
- ZINTEGROWANE OPRAWKI NARZĘDZIOWE
- INTEGROVANÉ NÁSTROJOVÉ DRŽÁKY
- ENTEGRE TAKIM TUTUCULAR

**GB** The integrated MONOd' tool holders represent an ideal solution to equip any type of machine tool with HSK 63 and 100, DIN AD+B and BT AD+B base arbors, guaranteeing the benefits of a high quality and high precision, with a price that is highly competitive on the market. The MONOd' program includes ER collet chucks, Weldon end mill holders, Morse tapers, and tapping chucks. All toolholders are designed to be balanced at G 6.3 8.000 RPM. MONOd' ER G 6.3 at 15.000 RPM.

**RU** Интегральные Держатели MONOd' представляют собой идеальное решение для оснащения любого станка с переходными втулками HSK 63 и 100, DIN AD+B и BT AD+B, обеспечивая преимущества высокого качества и значительный уровень точности исполнения в сочетании с конкурентоспособными ценами. Программа MONOd' включает в себя цанговые патроны ER, Weldon, оправки для насадных фрез, переходники Морзе и метчики. Все резцедержатели имеют высокий класс балансировки, G 6.3 при 8000 об/мин. MONOd' ER - G 6.3 при 15000 об/мин.

**PL** Linia zintegrowanych oprawek narzędziowych MONOd' jest idealną propozycją wyposażenia obrabiarek z oprawką podstawową HSK 63 i 100, DIN AD+B oraz BT AD+B, zapewniając użytkownikowi wysoką jakość i duży stopień dokładności, przy zachowaniu konkurencyjnej ceny. Program MONOd' zawiera tulejki ER, Weldon, oprawki frezarskie, tuleje redukcyjne Morse'a oraz gwintowniki. Wszystkie imaki nożowe są o wysokiej klasie wyważenia, G 6.3 przy 8000 obr./min. MONOd' ER - G 6.3 przy 15000 obr./min.

**CZ** Integrované nástrojové držáky MONOd' představují ideální řešení pro vybavení jakéhokoliv typu obráběcího stroje základními vřeteny HSK 63 a 100, DIN AD+B a BT AD+B, které zaručuje výhody vysoké kvality a vysoké přesnosti a s cenou, která je na trhu vysoce konkurenceschopná. Program MONOd' zahrnuje pouzdrové upínáky ER, koncové frézovací držáky Weldon, kužely Morse a závitorezné upínáky.

Všechny držáky nástrojů mají vysoce vyvažovací třídu, G 6,3 při 8000 ot/min. MONOd' ER - G 6,3 při 15000 ot/min.

**TR** Entegre MONOd' takım tutucular, HSK 63 ve 100, DIN AD+B ve BT AD+B temel malafalı her çeşit işleme takımının kullanılabilmesi için ideal bir çözüm sunarak yüksek kalite ve hassasiyetin tüm avantajlarını piyasadaki en avantajlı fiyatlarla ayağınıza getirir. MONOd' programı ER freze çıkısı tutacaklı aynaları, Weldon uç mili tutucuları, Mors konikleri ve dış açma torna aynalarını içerir.

Tüm takım tutucuları, G 6.3 8.000 dev / dak'da dengelenmek üzere tasarlanmıştır. 15.000 devirde MONOd' ER G 6.3.

DIN 69893 HSK-A

ER - DIN 6499

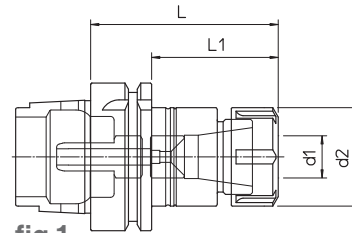


fig.1

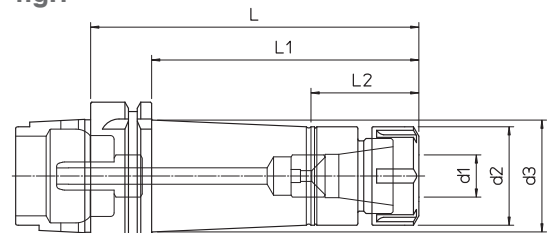


fig.2

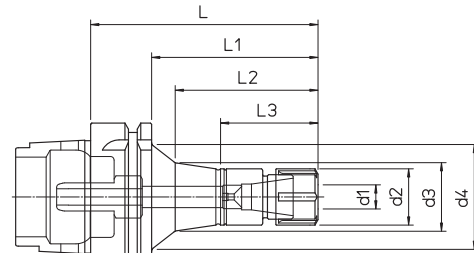


fig.3

- Supplied with coolant tube - without collets and clamping wrenches
- Эластичная цанга и зажимный ключ не входят в комплект поставки
- Wyposażona w złączkę do cieczy chłodzącej – Tuleja elastyczna i klucze zaciskowe nie są na wyposażeniu
- Dodává se s potrubím chladiwa - bez pouzder a upínacích klíčů
- Soğutma sıvısı borusuyla, çakı tutacağı ve sıkıştırma anahtarları olmadan tedarik edilir

| HSK-A | REF.              | CODE            | TYPE    | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | d <sub>4</sub> | L   | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> | kg  | fig. |
|-------|-------------------|-----------------|---------|----------------|----------------|----------------|----------------|-----|----------------|----------------|----------------|-----|------|
| 63    | HSK-A63 ER16.80   | 71HSKA063ER1608 | ER 16 M | 0.5 ~ 10       | 22             | 32             | -              | 80  | 54             | 41             | -              | 1.1 | 1    |
|       | HSK-A63 ER16.120  | 71HSKA063ER1612 |         |                |                | 31             |                | 120 | 94             |                |                | 1.9 | 2    |
|       | HSK-A63 ER25.80   | 71HSKA063ER2508 | ER 25   | 1 ~ 16         | 42             | -              |                | 80  | 54             | -              |                | 1.3 | 1    |
|       | HSK-A63 ER25.140  | 71HSKA063ER2514 |         |                |                | 47.5           |                | 140 | 114            | 46             |                | 1.7 | 2    |
|       | HSK-A63 ER32.90   | 71HSKA063ER3209 | ER 32   | 2 ~ 20         | 50             | -              |                | 90  | 64             | -              |                | 1.6 | 1    |
|       | HSK-A63 ER32.160  | 71HSKA063ER3216 |         |                |                |                |                | 160 | 134            |                |                | 2.2 | 2    |
| 100   | HSK-A100 ER16.100 | 71HSKA100ER1610 | ER 16 M | 0.5 ~ 10       | 22             | 25             | 45             | 100 | 71             | 61             | 41.5           | 2.3 | 3    |
|       | HSK-A100 ER16.160 | 71HSKA100ER1616 |         |                |                | 34.5           | 44             | 160 | 131            | 126            |                | 2.5 |      |
|       | HSK-A100 ER25.100 | 71HSKA100ER2510 | ER 25   | 1 ~ 16         | 42             | 45.5           | -              | 100 | 71             | 47             | -              | 2.6 | 2    |
|       | HSK-A100 ER25.160 | 71HSKA100ER2516 |         |                |                | 49.5           |                | 160 | 131            |                |                | 3.2 |      |
|       | HSK-A100 ER32.120 | 71HSKA100ER3212 | ER 32   | 2 ~ 20         | 50             | 55             |                | 120 | 91             | 52             |                | 3.1 |      |
|       | HSK-A100 ER32.160 | 71HSKA100ER3216 |         |                |                | 56.5           |                | 160 | 131            |                |                | 3.7 |      |
|       | HSK-A100 ER40.120 | 71HSKA100ER4012 | ER 40   | 3 ~ 26         | 63             | 71.5           |                | 120 | 91             | 60             |                | 3.5 |      |

- WELDON TOOLHOLDER
- ДЕРЖАТЕЛИ WELDON
- OPRAWKA NARZĘDZIOWA WELDON
- NÁSTROJOVÝ DRŽÁK WELDON
- WELDON TAKIM TUTUCU

## DIN 69893 HSK-A WD - DIN 1835-B

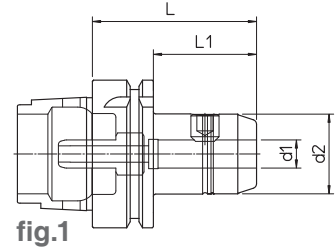


fig.1

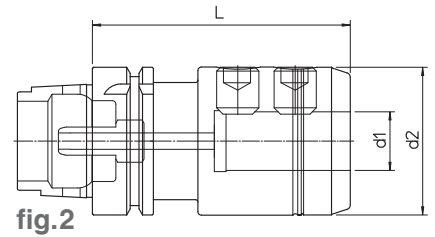


fig.2

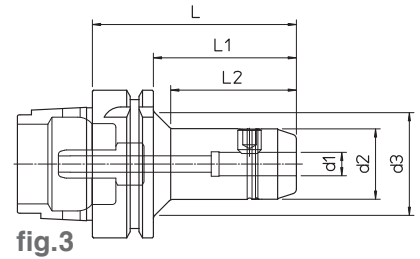


fig.3

- Supplied with coolant tube
- Содержит соединение для хладагента
- Wyposażona w złączkę do cieczy chłodzącej
- Dodávané s chladicím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

| HSK-A | REF.              | CODE            | d <sub>1</sub> <sup>H5</sup> | d <sub>2</sub> | d <sub>3</sub> | L   | L <sub>1</sub> | L <sub>2</sub> | kg  | fig. |  |
|-------|-------------------|-----------------|------------------------------|----------------|----------------|-----|----------------|----------------|-----|------|--|
| 63    | HSK-A63 WD06.60   | 71HSKA063WD0606 | 6                            | 23             | -              | 60  | 34             | -              | 0.8 | 1    |  |
|       | HSK-A63 WD08.65   | 71HSKA063WD0806 | 8                            | 26             |                | 65  | 39             |                | 0.9 |      |  |
|       | HSK-A63 WD10.70   | 71HSKA063WD1007 | 10                           | 30             |                | 70  | 44             |                | 1.1 |      |  |
|       | HSK-A63 WD12.70   | 71HSKA063WD1207 | 12                           | 34             |                |     |                |                | 1.2 |      |  |
|       | HSK-A63 WD16.80   | 71HSKA063WD1608 | 16                           | 42             |                | 80  | 54             |                | 1.4 |      |  |
|       | HSK-A63 WD20.80   | 71HSKA063WD2008 | 20                           | 50             |                |     |                |                | 1.5 |      |  |
|       | HSK-A63 WD25.110  | 71HSKA063WD2511 | 25                           | 63             |                | 110 | -              | 2.3            | 2   |      |  |
|       | HSK-A63 WD32.110  | 71HSKA063WD3211 | 32                           | 70             |                |     |                | 2.5            |     |      |  |
| 100   | HSK-A100 WD10.90  | 71HSKA100WD1009 | 10                           | 30             | 45             | 90  | 61             | 53.5           | 2.3 | 3    |  |
|       | HSK-A100 WD12.100 | 71HSKA100WD1210 | 12                           | 34             |                | 100 | 71             | 65.5           | 2.4 |      |  |
|       | HSK-A100 WD14.100 | 71HSKA100WD1410 | 14                           | 38             |                |     |                | 67.5           | 2.5 |      |  |
|       | HSK-A100 WD16.100 | 71HSKA100WD1610 | 16                           | 42             | -              | 110 | 81             | -              | 2.6 | 1    |  |
|       | HSK-A100 WD18.110 | 71HSKA100WD1811 | 18                           | 46             |                |     |                |                | 3   |      |  |
|       | HSK-A100 WD20.110 | 71HSKA100WD2011 | 20                           | 50             |                |     |                |                | 3.1 |      |  |
|       | HSK-A100 WD25.120 | 71HSKA100WD2512 | 25                           | 63             |                | 120 | 91             |                | 3.9 |      |  |
|       | HSK-A100 WD32.120 | 71HSKA100WD3212 | 32                           | 70             |                |     |                |                | 4.3 |      |  |
|       | HSK-A100 WD40.120 | 71HSKA100WD4012 | 40                           | 80             |                |     |                |                | 4.8 |      |  |

- MILL HOLDER
- ОПРАВКА ДЛЯ ФРЕЗ
- OPRAWKA FREZARSKA
- FRÉZOVACÍ DRŽÁK
- FREZE TUTUCU

DIN 69893 HSK-A

PF

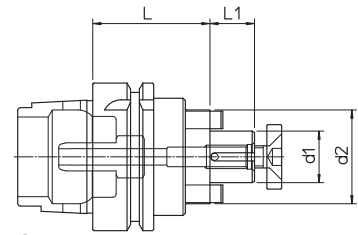


fig.1

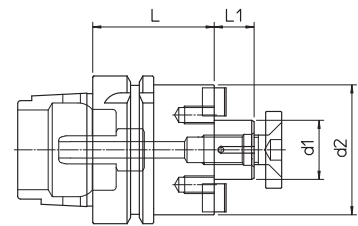


fig.2

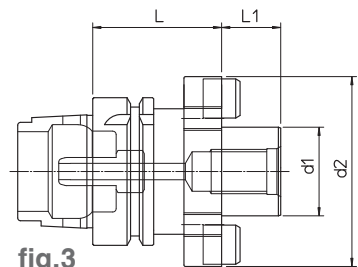
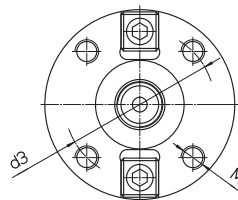
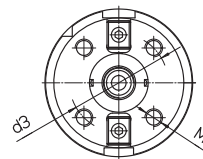


fig.3



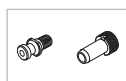
- Supplied with coolant tube
- Содержит соединение для хладагента
- Wyposażona w złączkę do cieczy chłodzącej
- Dodávané s chladicím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

| HSK-A | REF.             | CODE           | d1 | d2    | d3 | M | L  | L1 | kg  | fig. |
|-------|------------------|----------------|----|-------|----|---|----|----|-----|------|
| 63    | HSK-A63 PF16.50  | 71HSA063PF1605 | 16 | 32    | -  | - | 50 | 17 | 1.1 | 1    |
|       | HSK-A63 PF22.50  | 71HSA063PF2205 | 22 | 40    |    |   |    | 19 | 1.2 |      |
|       | HSK-A63 PF27.55  | 71HSA063PF2705 | 27 | 50    |    |   |    | 21 | 1.4 |      |
|       | HSK-A63 PF32.60  | 71HSA063PF3206 | 32 | 60    |    |   |    | 24 | 1.8 |      |
| 100   | HSK-A100 PF22.65 | 71HSA100PF2265 | 22 | 40    | -  | - | 65 | 19 | 2.3 |      |
|       | HSK-A100 PF27.65 | 71HSA100PF2765 | 27 | 50    |    |   |    | 21 | 2.5 |      |
|       | HSK-A100 PF32.70 | 71HSA100PF3270 | 32 | 60    |    |   |    | 24 | 2.9 |      |
|       | HSK-A100 PF40.70 | 71HSA100PF4070 | 40 | 88    |    |   | 70 | 27 | 3.3 | 2    |
|       | HSK-A100 PF60.75 | 71HSA100PF6075 | 60 | 128.5 |    |   |    | 40 | 4.2 | 3    |

248



240

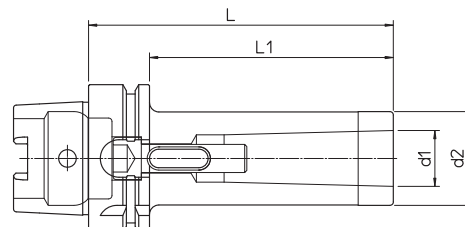


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- MORSE TAPER TOOLHOLDER
- ДЕРЖАТЕЛИ С КОНУСОМ MORSE
- OPRAWKA STOŻKOWA MORSE'A
- NÁSTROJOVÝ DRŽÁK S KUŽELEM MORSE
- MORS KONIK TAKIM TUTUCU

DIN 69893 HSK-A  
CM - DIN 228 AB

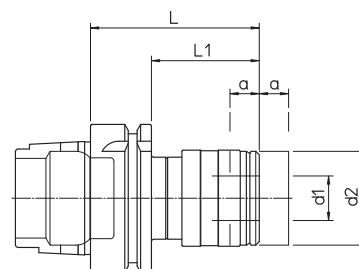


197

| HSK-A | REF.                | CODE            | MORSE | d1     | d2 | L   | L1  | kg  |
|-------|---------------------|-----------------|-------|--------|----|-----|-----|-----|
| 63    | HSK-A63 CM2.110 A-B | 71HСКА063CMB211 | 2     | 17.780 | 32 | 110 | 84  | 2   |
|       | HSK-A63 CM3.130 A-B | 71HСКА063CMB313 | 3     | 23.825 | 40 | 130 | 104 | 2.2 |
|       | HSK-A63 CM4.155 A-B | 71HСКА063CMB415 | 4     | 31.267 | 48 | 155 | 129 | 2.6 |

- TAPPING TOOLHOLDER
- ДЕРЖАТЕЛИ МЕТЧИКОВ
- OPRAWKA GWINTOWNIKA
- ZÁVITOŘEZNÝ NÁSTROJOVÝ DRŽÁK
- DIŞ ÇEKME TAKIMI TUTUCU

DIN 69893 HSK-A  
MS

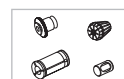
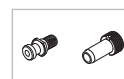


| HSK-A | REF.              | CODE            | d1 | d2 | L   | L1 | a   | kg  |
|-------|-------------------|-----------------|----|----|-----|----|-----|-----|
| 63    | HSK-A63 MS1 M3-12 | 71HСКА063M10312 | 19 | 39 | 72  | 46 | 7.5 | 1   |
|       | HSK-A63 MS2 M8-20 | 71HСКА063M20820 | 31 | 60 | 110 | 84 | 10  | 1.7 |

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245

248



DIN 69871 AD+B40

ER - DIN 6499

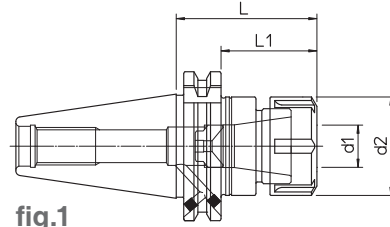


fig.1

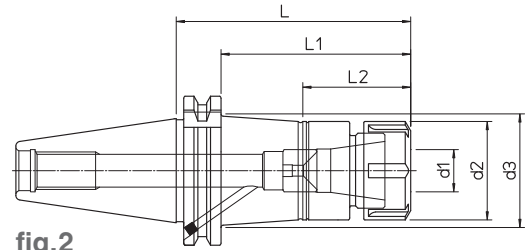


fig.2

- Supplied without collets and clamping wrenches
- Эластичная цанга и зажимный ключ не входят в комплект поставки
- Tuleja elastyczna i klucze zaciskowe nie są na wyposażeniu
- Dodává se bez pouzder a upínacích klíčů
- Freze çakıları ve sıkıştırma anahtarları olmadan teslim edilir

| DIN | REF.                     | CODE            | TYPE    | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | L   | L <sub>1</sub> | L <sub>2</sub> | kg  | fig. |
|-----|--------------------------|-----------------|---------|----------------|----------------|----------------|-----|----------------|----------------|-----|------|
| 40  | DIN69871-AD+B40 ER16.60  | 71DIN-B40ER1606 | ER 16 M | 0.5 ~ 10       | 22             | —              | 60  | 41             | —              | 0.9 | 1    |
|     | DIN69871-AD+B40 ER16.100 | 71DIN-B40ER1610 |         |                |                | 29.5           | 100 | 81             | 41             | 1   | 2    |
|     | DIN69871-AD+B40 ER16.160 | 71DIN-B40ER1616 |         |                |                | 38             | 160 | 141            |                | 2   |      |
|     | DIN69871-AD+B40 ER25.60  | 71DIN-B40ER2506 | ER 25   | 1 ~ 16         | 42             | —              | 60  | 41             | —              | 1.1 | 1    |
|     | DIN69871-AD+B40 ER25.100 | 71DIN-B40ER2510 |         |                |                | 47             | 100 | 81             | 46             | 1.6 | 2    |
|     | DIN69871-AD+B40 ER25.160 | 71DIN-B40ER2516 |         |                |                | 50             | 160 | 141            |                | 2.1 |      |
|     | DIN69871-AD+B40 ER32.70  | 71DIN-B40ER3207 | ER 32   | 2 ~ 20         | 50             | —              | 70  | 51             | —              | 1.2 | 1    |
|     | DIN69871-AD+B40 ER32.110 | 71DIN-B40ER3211 |         |                |                |                | 110 | 91             |                | 1.7 |      |
|     | DIN69871-AD+B40 ER32.160 | 71DIN-B40ER3216 |         |                |                |                | 160 | 141            |                | 2.7 |      |
|     | DIN69871-AD+B40 ER40.80  | 71DIN-B40ER4008 | ER 40   | 3 ~ 26         | 63             |                | 80  | 61             |                | 1.3 |      |
|     | DIN69871-AD+B40 ER40.120 | 71DIN-B40ER4012 |         |                |                |                | 120 | 101            |                | 2.3 |      |
|     | DIN69871-AD+B40 ER40.160 | 71DIN-B40ER4016 |         |                |                |                | 160 | 141            |                | 3.3 |      |





- COLLET CHUCK HOLDER
- ЦАНГОВЫЕ ПАТРОНЫ
- OPRAWKA TULEI ZACISKOWEJ
- POUZDROVÝ UPÍNACÍ DRŽÁK
- FREZE ÇAKISI TUTUCULU TORNA AYNASI TUTUCU

DIN 69871 AD+B50

ER - DIN 6499

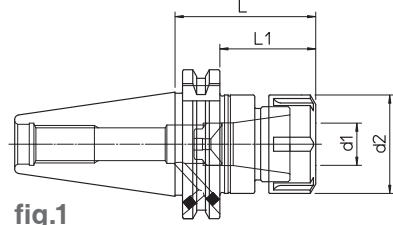


fig.1

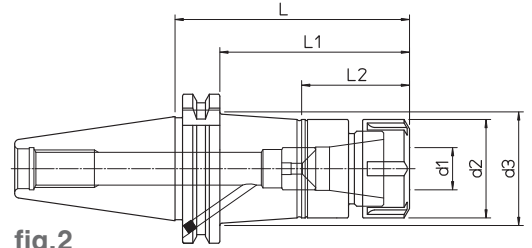


fig.2

199

- Supplied without collets and clamping wrenches
- Эластичная цанга и зажимный ключ не входят в комплект поставки
- Tuleja elastyczna i klucze zaciskowe nie są na wyposażeniu
- Dodává se bez pouzder a upínacích klíčů
- Freze çakıları ve sıkıştırma anahtarları olmadan teslim edilir

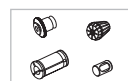
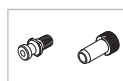
| DIN | REF.                     | CODE            | TYPE    | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | L   | L <sub>1</sub> | L <sub>2</sub> | kg  | fig. |
|-----|--------------------------|-----------------|---------|----------------|----------------|----------------|-----|----------------|----------------|-----|------|
| 50  | DIN69871-AD+B50 ER16.100 | 71DIN-B50ER1610 | ER 16 M | 0.5 ~ 10       | 22             | 29.5           | 100 | 81             | 41             | 2.5 | 2    |
|     | DIN69871-AD+B50 ER16.160 | 71DIN-B50ER1616 |         |                |                | 32.5           | 160 | 141            |                | 3.3 |      |
|     | DIN69871-AD+B50 ER25.70  | 71DIN-B50ER2507 | ER 25   | 1 ~ 16         | 42             | —              | 70  | 51             | —              | 2.5 | 1    |
|     | DIN69871-AD+B50 ER25.110 | 71DIN-B50ER2511 |         |                |                | 48             | 110 | 91             | 46             | 2.8 |      |
|     | DIN69871-AD+B50 ER25.160 | 71DIN-B50ER2516 |         |                |                | 50             | 160 | 141            |                | 3.6 | 2    |
|     | DIN69871-AD+B50 ER32.70  | 71DIN-B50ER3207 | ER 32   | 2 ~ 20         | 50             | —              | 70  | 51             | —              | 2.9 |      |
|     | DIN69871-AD+B50 ER32.110 | 71DIN-B50ER3211 |         |                |                | 55             | 110 | 91             | 52             | 3.4 |      |
|     | DIN69871-AD+B50 ER32.160 | 71DIN-B50ER3216 |         |                |                | 57.5           | 160 | 141            |                | 4   |      |
|     | DIN69871-AD+B50 ER40.100 | 71DIN-B50ER4010 | ER 40   | 3 ~ 26         | 63             | 65             | 100 | 81             | 55             | 3.8 |      |
|     | DIN69871-AD+B50 ER40.160 | 71DIN-B50ER4016 |         |                |                | 70             | 160 | 141            |                | 4.3 |      |

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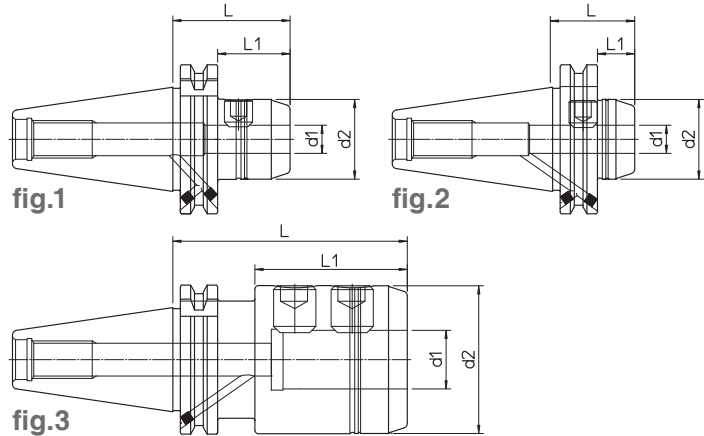
242-244

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DIN 69871 AD+B40

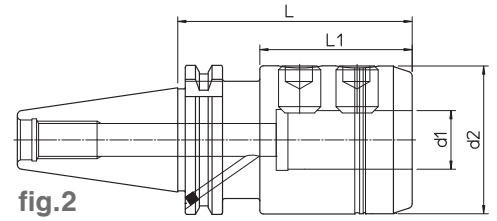
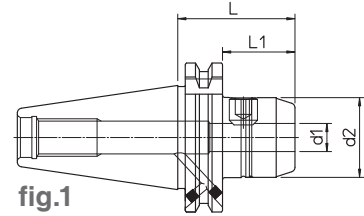
WD - DIN 1835-B



| DIN | REF.                     | CODE            | d <sub>1</sub> <sup>H5</sup> | d <sub>2</sub> | L   | L <sub>1</sub> | kg  | fig. |
|-----|--------------------------|-----------------|------------------------------|----------------|-----|----------------|-----|------|
| 40  | DIN69871-AD+B40 WD06.50  | 71DIN-B40WD0605 | 6                            | 23             | 50  | 31             | 0.8 | 1    |
|     | DIN69871-AD+B40 WD06.110 | 71DIN-B40WD0611 |                              |                | 110 | 91             | 1   |      |
|     | DIN69871-AD+B40 WD06.160 | 71DIN-B40WD0616 |                              |                | 160 | 141            | 1.1 |      |
|     | DIN69871-AD+B40 WD08.50  | 71DIN-B40WD0805 | 8                            | 26             | 50  | 31             | 0.9 |      |
|     | DIN69871-AD+B40 WD08.110 | 71DIN-B40WD0811 |                              |                | 110 | 91             | 1.1 |      |
|     | DIN69871-AD+B40 WD08.160 | 71DIN-B40WD0816 |                              |                | 160 | 141            | 1.3 |      |
|     | DIN69871-AD+B40 WD10.50  | 71DIN-B40WD1005 | 10                           | 30             | 50  | 31             | 1   |      |
|     | DIN69871-AD+B40 WD10.110 | 71DIN-B40WD1011 |                              |                | 110 | 91             | 1.4 |      |
|     | DIN69871-AD+B40 WD10.160 | 71DIN-B40WD1016 |                              |                | 160 | 141            | 1.6 |      |
|     | DIN69871-AD+B40 WD12.35  | 71DIN-B40WD1203 | 12                           | 34             | 35  | 16             | 1   | 2    |
|     | DIN69871-AD+B40 WD12.50  | 71DIN-B40WD1205 |                              |                | 50  | 31             | 1.1 | 1    |
|     | DIN69871-AD+B40 WD12.110 | 71DIN-B40WD1211 |                              |                | 110 | 91             | 1.4 |      |
|     | DIN69871-AD+B40 WD12.160 | 71DIN-B40WD1216 |                              |                | 160 | 141            | 1.7 |      |
|     | DIN69871-AD+B40 WD14.50  | 71DIN-B40WD1405 | 14                           | 38             | 50  | 31             | 1.2 | 1    |
|     | DIN69871-AD+B40 WD14.110 | 71DIN-B40WD1411 |                              |                | 110 | 91             | 1.6 |      |
|     | DIN69871-AD+B40 WD16.35  | 71DIN-B40WD1603 | 16                           | 42             | 35  | 16             | 1.1 | 2    |
|     | DIN69871-AD+B40 WD16.63  | 71DIN-B40WD1606 |                              |                | 63  | 44             | 1.3 | 1    |
|     | DIN69871-AD+B40 WD16.110 | 71DIN-B40WD1611 |                              |                | 110 | 91             | 1.7 |      |
|     | DIN69871-AD+B40 WD16.160 | 71DIN-B40WD1616 |                              |                | 160 | 141            | 2.2 |      |
|     | DIN69871-AD+B40 WD18.63  | 71DIN-B40WD1806 | 18                           | 46             | 63  | 44             | 1.4 | 1    |
|     | DIN69871-AD+B40 WD18.110 | 71DIN-B40WD1811 |                              |                | 110 | 91             | 1.9 |      |
|     | DIN69871-AD+B40 WD20.35  | 71DIN-B40WD2003 | 20                           | 50             | 35  | 16             | 1.2 | 2    |
|     | DIN69871-AD+B40 WD20.63  | 71DIN-B40WD2006 |                              |                | 63  | 44             | 1.5 | 1    |
|     | DIN69871-AD+B40 WD20.110 | 71DIN-B40WD2011 |                              |                | 110 | 91             | 2.1 |      |
|     | DIN69871-AD+B40 WD20.160 | 71DIN-B40WD2016 |                              |                | 160 | 141            | 2.6 |      |
|     | DIN69871-AD+B40 WD25.35  | 71DIN-B40WD2503 | 25                           | 63             | 35  | 16             | 1.3 | 2    |
|     | DIN69871-AD+B40 WD25.100 | 71DIN-B40WD2510 |                              |                | 100 | 65             | 2   | 3    |
|     | DIN69871-AD+B40 WD25.160 | 71DIN-B40WD2516 |                              |                | 160 | 125            | 3.2 |      |
|     | DIN69871-AD+B40 WD32.100 | 71DIN-B40WD3210 | 32                           | 70             | 100 | 65             | 2.5 |      |
|     | DIN69871-AD+B40 WD32.160 | 71DIN-B40WD3216 |                              |                | 160 | 125            | 3.9 |      |

- WELDON TOOLHOLDER
- ДЕРЖАТЕЛИ WELDON
- OPRAWKA NARZĘDZIOWA WELDON
- NÁSTROJOVÝ DRŽÁK WELDON
- WELDON TAKIM TUTUCU

## DIN 69871 AD+B50 WD - DIN 1835-B



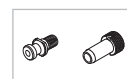
201

| DIN | REF.                     | CODE            | d <sub>1</sub> <sup>H5</sup> | d <sub>2</sub> | L   | L <sub>1</sub> | kg  | fig. |
|-----|--------------------------|-----------------|------------------------------|----------------|-----|----------------|-----|------|
| 50  | DIN69871-AD+B50 WD06.63  | 71DIN-B50WD0606 | 6                            | 23             | 63  | 44             | 2.3 | 1    |
|     | DIN69871-AD+B50 WD06.110 | 71DIN-B50WD0611 |                              |                | 110 | 91             | 2.4 |      |
|     | DIN69871-AD+B50 WD06.160 | 71DIN-B50WD0616 |                              |                | 160 | 141            | 2.5 |      |
|     | DIN69871-AD+B50 WD08.63  | 71DIN-B50WD0806 | 8                            | 26             | 63  | 44             | 2.4 |      |
|     | DIN69871-AD+B50 WD08.110 | 71DIN-B50WD0811 |                              |                | 110 | 91             | 2.5 |      |
|     | DIN69871-AD+B50 WD08.160 | 71DIN-B50WD0816 |                              |                | 160 | 141            | 2.7 |      |
|     | DIN69871-AD+B50 WD10.63  | 71DIN-B50WD1006 | 10                           | 30             | 63  | 44             | 2.5 |      |
|     | DIN69871-AD+B50 WD10.110 | 71DIN-B50WD1011 |                              |                | 110 | 91             | 2.7 |      |
|     | DIN69871-AD+B50 WD10.160 | 71DIN-B50WD1016 |                              |                | 160 | 141            | 2.9 |      |
|     | DIN69871-AD+B50 WD12.63  | 71DIN-B50WD1206 | 12                           | 34             | 63  | 44             | 2.6 |      |
|     | DIN69871-AD+B50 WD12.110 | 71DIN-B50WD1211 |                              |                | 110 | 91             | 2.8 |      |
|     | DIN69871-AD+B50 WD12.160 | 71DIN-B50WD1216 |                              |                | 160 | 141            | 3.2 |      |
|     | DIN69871-AD+B50 WD14.63  | 71DIN-B50WD1406 | 14                           | 38             | 63  | 44             | 2.7 |      |
|     | DIN69871-AD+B50 WD14.110 | 71DIN-B50WD1411 |                              |                | 110 | 91             | 3   |      |
|     | DIN69871-AD+B50 WD16.63  | 71DIN-B50WD1606 | 16                           | 42             | 63  | 44             | 2.8 |      |
|     | DIN69871-AD+B50 WD16.110 | 71DIN-B50WD1611 |                              |                | 110 | 91             | 3.2 |      |
|     | DIN69871-AD+B50 WD16.160 | 71DIN-B50WD1616 |                              |                | 160 | 141            | 3.7 |      |
|     | DIN69871-AD+B50 WD18.63  | 71DIN-B50WD1806 | 18                           | 46             | 63  | 44             | 2.9 |      |
|     | DIN69871-AD+B50 WD18.110 | 71DIN-B50WD1811 |                              |                | 110 | 91             | 3.4 |      |
|     | DIN69871-AD+B50 WD20.63  | 71DIN-B50WD2006 | 20                           | 50             | 63  | 44             | 3   |      |
|     | DIN69871-AD+B50 WD20.110 | 71DIN-B50WD2011 |                              |                | 110 | 91             | 3.6 |      |
|     | DIN69871-AD+B50 WD20.160 | 71DIN-B50WD2016 |                              |                | 160 | 141            | 4.2 |      |
|     | DIN69871-AD+B50 WD25.80  | 71DIN-B50WD2508 | 25                           | 63             | 80  | 61             | 3.5 | 2    |
|     | DIN69871-AD+B50 WD25.110 | 71DIN-B50WD2511 |                              |                | 110 | 91             | 4.1 |      |
|     | DIN69871-AD+B50 WD25.160 | 71DIN-B50WD2516 |                              |                | 160 | 141            | 5.1 |      |
|     | DIN69871-AD+B50 WD32.100 | 71DIN-B50WD3210 | 32                           | 70             | 100 | 81             | 4.6 |      |
|     | DIN69871-AD+B50 WD32.160 | 71DIN-B50WD3216 |                              |                | 160 | 141            | 6   |      |
|     | DIN69871-AD+B50 WD40.100 | 71DIN-B50WD4010 | 40                           | 80             | 100 | 81             | 4.8 |      |
|     | DIN69871-AD+B50 WD40.160 | 71DIN-B50WD4016 |                              |                | 160 | 141            | 6.5 |      |

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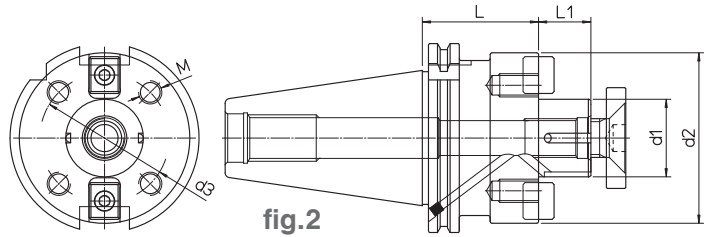
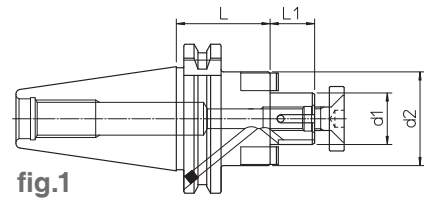
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DIN 69871 AD+B

PF

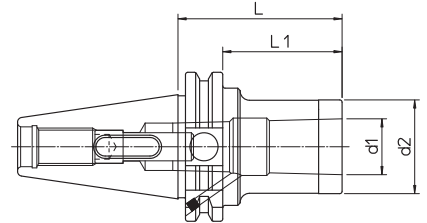


| DIN | REF.                     | CODE            | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | M   | L    | L <sub>1</sub> | kg  | fig. |     |   |
|-----|--------------------------|-----------------|----------------|----------------|----------------|-----|------|----------------|-----|------|-----|---|
| 40  | DIN69871-AD+B40 PF16.35  | 71DIN-B40PF1603 | 16             | 32             | -              | -   | 35   | 17             | 0.9 | 1    |     |   |
|     | DIN69871-AD+B40 PF16.110 | 71DIN-B40PF1611 |                |                |                |     | 110  |                | 1.3 |      |     |   |
|     | DIN69871-AD+B40 PF16.160 | 71DIN-B40PF1616 |                |                |                |     | 160  |                | 1.9 |      |     |   |
|     | DIN69871-AD+B40 PF22.40  | 71DIN-B40PF2204 | 22             | 40             |                |     | 40   | 19             | 1   |      |     |   |
|     | DIN69871-AD+B40 PF22.110 | 71DIN-B40PF2211 |                |                |                |     | 110  |                | 1.7 |      |     |   |
|     | DIN69871-AD+B40 PF22.160 | 71DIN-B40PF2216 |                |                |                |     | 160  |                | 2.1 |      |     |   |
|     | DIN69871-AD+B40 PF27.45  | 71DIN-B40PF2704 | 27             | 50             |                |     | 45   | 21             | 1.2 |      |     |   |
|     | DIN69871-AD+B40 PF27.110 | 71DIN-B40PF2711 |                |                |                |     | 110  |                | 2.2 |      |     |   |
|     | DIN69871-AD+B40 PF27.160 | 71DIN-B40PF2716 |                |                |                |     | 160  |                | 2.9 |      |     |   |
|     | DIN69871-AD+B40 PF32.50  | 71DIN-B40PF3205 | 32             | 60             |                |     | 50   | 24             | 1.7 |      |     |   |
|     | DIN69871-AD+B40 PF32.110 | 71DIN-B40PF3211 |                |                |                |     | 110  |                | 3   |      |     |   |
|     | DIN69871-AD+B40 PF40.55  | 71DIN-B40PF4005 | 40             | 70             |                |     | 55   | 27             | 2.1 |      |     |   |
| 50  | DIN69871-AD+B50 PF16.40  | 71DIN-B50PF1604 | 16             | 32             | -              | -   | 40   | 17             | 2.4 |      |     |   |
|     | DIN69871-AD+B50 PF16.110 | 71DIN-B50PF1611 |                |                |                |     | 110  |                | 2.8 |      |     |   |
|     | DIN69871-AD+B50 PF16.160 | 71DIN-B50PF1616 |                |                |                |     | 160  |                | 3.1 |      |     |   |
|     | DIN69871-AD+B50 PF22.45  | 71DIN-B50PF2204 | 22             | 40             |                |     | 45   | 19             | 2.6 |      |     |   |
|     | DIN69871-AD+B50 PF22.110 | 71DIN-B50PF2211 |                |                |                |     | 110  |                | 3.2 |      |     |   |
|     | DIN69871-AD+B50 PF22.160 | 71DIN-B50PF2216 |                |                |                |     | 160  |                | 3.7 |      |     |   |
|     | DIN69871-AD+B50 PF27.50  | 71DIN-B50PF2705 | 27             | 50             |                |     | 50   | 21             | 2.7 |      |     |   |
|     | DIN69871-AD+B50 PF27.110 | 71DIN-B50PF2711 |                |                |                |     | 110  |                | 3.6 |      |     |   |
|     | DIN69871-AD+B50 PF27.160 | 71DIN-B50PF2716 |                |                |                |     | 160  |                | 4.4 |      |     |   |
|     | DIN69871-AD+B50 PF32.55  | 71DIN-B50PF3205 | 32             | 60             |                |     | 55   | 24             | 3.2 |      |     |   |
|     | DIN69871-AD+B50 PF32.120 | 71DIN-B50PF3212 |                |                |                |     | 120  |                | 5.5 |      |     |   |
|     | DIN69871-AD+B50 PF40.60  | 71DIN-B50PF4006 | 40             | 88             |                |     | 66.7 | M12            | 60  | 27   | 4.3 | 2 |
|     | DIN69871-AD+B50 PF40.120 | 71DIN-B50PF4012 |                |                |                |     |      |                | 120 |      | 7.1 |   |
|     | DIN69871-AD+B50 PF60.70  | 71DIN-B50PF6007 | 60             | 128.5          | 101.6          | M16 | 70   | 40             | 6.6 |      |     |   |



- MORSE TAPER TOOLHOLDER
- ДЕРЖАТЕЛИ С КОНУСОМ MORSE
- OPRAWKA STOŻKOWA MORSE'A
- NÁSTROJOVÝ DRŽÁK S KUŽELEM MORSE
- MORS KONIK TAKIM TUTUCU

DIN 69871 AD+B  
CM - DIN 228 AB

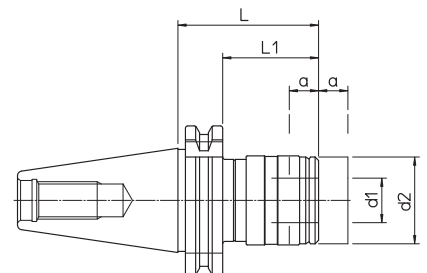


203

| DIN | REF.                        | CODE            | MORSE | d <sub>1</sub> | d <sub>2</sub> | L   | L <sub>1</sub> | kg  |
|-----|-----------------------------|-----------------|-------|----------------|----------------|-----|----------------|-----|
| 40  | DIN69871-AD+B40 CM2.50 A-B  | 71DIN-B40CMB205 | 2     | 17.780         | 32             | 50  | 31             | 1   |
|     | DIN69871-AD+B40 CM2.125 A-B | 71DIN-B40CMB212 |       |                |                | 125 | 106            | 1.4 |
|     | DIN69871-AD+B40 CM3.70 A-B  | 71DIN-B40CMB307 | 3     | 23.825         | 40             | 70  | 51             | 1.1 |
|     | DIN69871-AD+B40 CM3.140 A-B | 71DIN-B40CMB314 |       |                | 42             | 140 | 121            | 1.5 |
| 50  | DIN69871-AD+B50 CM2.60 A-B  | 71DIN-B50CMB206 | 2     | 17.780         | 32             | 60  | 41             | 2.6 |
|     | DIN69871-AD+B50 CM2.125 A-B | 71DIN-B50CMB212 |       |                |                | 125 | 106            | 2.8 |
|     | DIN69871-AD+B50 CM3.60 A-B  | 71DIN-B50CMB306 | 3     | 23.825         | 40             | 60  | 41             | 2.7 |
|     | DIN69871-AD+B50 CM3.140 A-B | 71DIN-B50CMB314 |       |                | 42             | 140 | 121            | 3.2 |
|     | DIN69871-AD+B50 CM4.80 A-B  | 71DIN-B50CMB408 | 4     | 31.267         | 48             | 80  | 61             | 2.9 |

- TAPPING TOOLHOLDER
- ДЕРЖАТЕЛИ МЕТЧИКОВ
- OPRAWKA GWINTOWNIKA
- ZÁVITOŘEZNÝ NÁSTROJOVÝ DRŽÁK
- DIŞ ÇEKME TAKIMI TUTUCU

DIN 69871 A  
MS

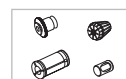
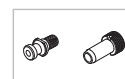


| DIN | REF.                    | CODE            | d <sub>1</sub> | d <sub>2</sub> | L   | L <sub>1</sub> | a    | kg  |
|-----|-------------------------|-----------------|----------------|----------------|-----|----------------|------|-----|
| 40  | DIN69871-A40 MS1 M3-12  | 71DIN-A40M10312 | 19             | 36             | 60  | 40.9           | 7.5  | 0.9 |
|     | DIN69871-A40 MS2 M8-20  | 71DIN-A40M20820 | 31             | 53             | 98  | 78.9           | 12.5 | 1.3 |
| 50  | DIN69871-A50 MS1 M3-12  | 71DIN-A50M10312 | 19             | 38             | 62  | 42.9           | 7.5  | 2.8 |
|     | DIN69871-A50 MS2 M8-20  | 71DIN-A50M20820 | 31             | 53             | 84  | 64.9           | 12.5 | 3.1 |
|     | DIN69871-A50 MS3 M14-33 | 71DIN-A50M31433 | 48             | 78             | 139 | 119.9          | 20   | 4.3 |

240

245

249



- COLLET CHUCK HOLDER
- ЦАНГОВЫЕ ПАТРОНЫ
- OPRAWKA TULEI ZACISKOWEJ
- POUZDROVÝ UPÍNACÍ DRŽÁK
- FREZE ÇAKISI TUTUCULU TORNA AYNASI TUTUCU

MAS 403 BT40 AD+B

ER - DIN 6499

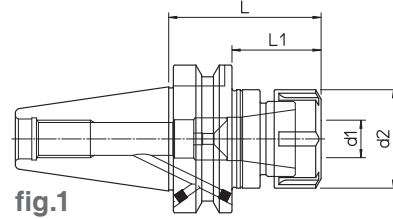


fig.1

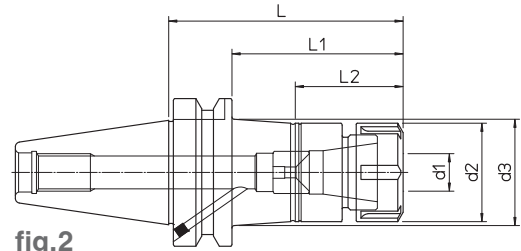
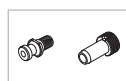
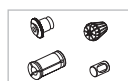


fig.2

- Supplied without collets and clamping wrenches
- Эластичная цанга и зажимный ключ не входят в комплект поставки.
- Tuleja elastyczna i klucze zaciskowe nie są na wyposażeniu
- Dodává se bez pouzder a upínacích klíčů
- Freze çakıları ve sıkıştırma anahtarları olmadan teslim edilir

| BT | REF.                      | CODE            | TYPE    | d <sub>1</sub> | d <sub>2</sub> | d <sub>3</sub> | L   | L <sub>1</sub> | L <sub>2</sub> | kg  | fig. |
|----|---------------------------|-----------------|---------|----------------|----------------|----------------|-----|----------------|----------------|-----|------|
| 40 | MAS403 BT40-AD+B ER16.60  | 71MBT-B40ER1606 | ER 16 M | 0.5 ~ 10       | 22             | —              | 60  | 33             | —              | 1   | 1    |
|    | MAS403 BT40-AD+B ER16.100 | 71MBT-B40ER1610 |         |                |                | 28             | 100 | 73             | 41             | 1.1 | 2    |
|    | MAS403 BT40-AD+B ER16.160 | 71MBT-B40ER1616 |         |                |                | 36.5           | 160 | 133            |                | 2.1 |      |
|    | MAS403 BT40-AD+B ER25.65  | 71MBT-B40ER2506 | ER 25   | 1 ~ 16         | 42             | —              | 65  | 38             | —              | 1.2 | 1    |
|    | MAS403 BT40-AD+B ER25.100 | 71MBT-B40ER2510 |         |                |                | 45.5           | 100 | 73             | 46             | 1.7 | 2    |
|    | MAS403 BT40-AD+B ER25.160 | 71MBT-B40ER2516 |         |                |                | 49.5           | 160 | 133            |                | 2.2 |      |
|    | MAS403 BT40-AD+B ER32.70  | 71MBT-B40ER3207 | ER 32   | 2 ~ 20         | 50             | —              | 70  | 43             | —              | 1.3 | 1    |
|    | MAS403 BT40-AD+B ER32.110 | 71MBT-B40ER3211 |         |                |                |                | 110 | 83             |                | 1.8 |      |
|    | MAS403 BT40-AD+B ER32.160 | 71MBT-B40ER3216 |         |                |                |                | 160 | 133            |                | 2.8 |      |
|    | MAS403 BT40-AD+B ER40.80  | 71MBT-B40ER4008 | ER 40   | 3 ~ 26         | 63             |                | 80  | 53             |                | 1.4 |      |
|    | MAS403 BT40-AD+B ER40.120 | 71MBT-B40ER4012 |         |                |                |                | 120 | 93             |                | 2.4 |      |
|    | MAS403 BT40-AD+B ER40.160 | 71MBT-B40ER4016 |         |                |                |                | 160 | 133            |                | 3.4 |      |





- COLLET CHUCK HOLDER
- ЦАНГОВЫЕ ПАТРОНЫ
- OPRAWKA TULEI ZACISKOWEJ
- POUZDROVÝ UPÍNACÍ DRŽÁK
- FREZE ÇAKISI TUTUCULU TORNA AYNASI TUTUCU

MAS 403 BT50 AD+B

ER - DIN 6499

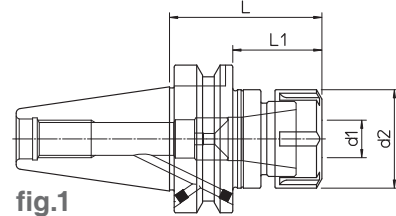


fig.1

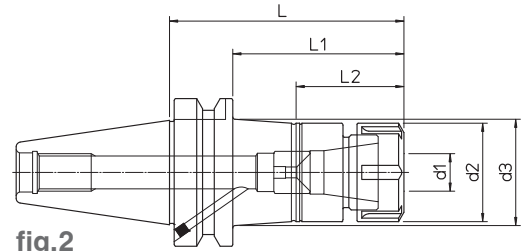


fig.2

205

- Supplied without collets and clamping wrenches
- Эластичная цанга и зажимный ключ не входят в комплект поставки.
- Tuleja elastyczna i klucze zaciskowe nie są na wyposażeniu
- Dodává se bez pouzder a upínacích klíčů
- Freze çakıları ve sıkıştırma anahtarları olmadan teslim edilir

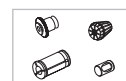
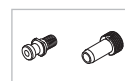
| BT | REF.                      | CODE            | TYPE    | d1       | d2 | d3   | L   | L1  | L2 | kg  | fig. |
|----|---------------------------|-----------------|---------|----------|----|------|-----|-----|----|-----|------|
| 50 | MAS403 BT50-AD+B ER16.100 | 71MBT-B50ER1610 | ER 16 M | 0.5 ~ 10 | 22 | 26.5 | 100 | 62  | 41 | 3.6 | 2    |
|    | MAS403 BT50-AD+B ER16.160 | 71MBT-B50ER1616 |         |          |    | 31   | 160 | 122 |    | 4.3 |      |
|    | MAS403 BT50-AD+B ER25.75  | 71MBT-B50ER2507 | ER 25   | 1 ~ 16   | 42 | —    | 75  | 37  | —  | 3.5 | 1    |
|    | MAS403 BT50-AD+B ER25.110 | 71MBT-B50ER2511 |         |          |    | 45.5 | 110 | 72  | 46 | 3.8 | 2    |
|    | MAS403 BT50-AD+B ER25.160 | 71MBT-B50ER2516 |         |          |    | 48.5 | 160 | 122 |    | 4.6 |      |
|    | MAS403 BT50-AD+B ER32.80  | 71MBT-B50ER3208 | ER 32   | 2 ~ 20   | 50 | —    | 80  | 42  | —  | 3.9 | 1    |
|    | MAS403 BT50-AD+B ER32.110 | 71MBT-B50ER3211 |         |          |    | 52.5 | 110 | 72  | 52 | 4.4 | 2    |
|    | MAS403 BT50-AD+B ER32.160 | 71MBT-B50ER3216 |         |          |    | 56   | 160 | 122 |    | 5   |      |
|    | MAS403 BT50-AD+B ER40.100 | 71MBT-B50ER4010 | ER 40   | 3 ~ 26   | 63 | —    | 100 | 62  | —  | 4.8 | 1    |
|    | MAS403 BT50-AD+B ER40.160 | 71MBT-B50ER4016 |         |          |    | 68.5 | 160 | 122 | 55 | 5.3 | 2    |

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240

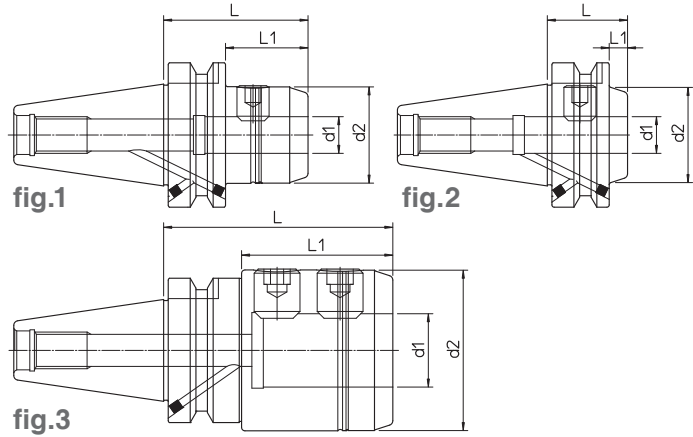
242-244

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### MAS 403 BT40 AD+B

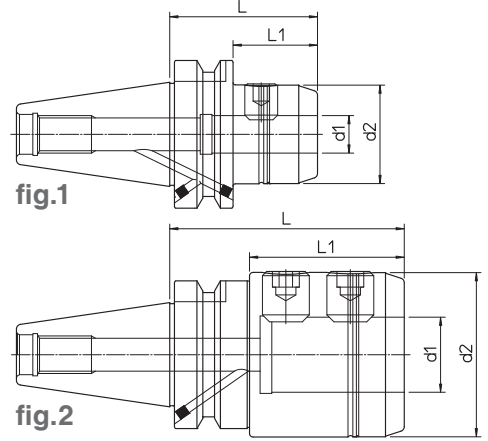
WD - DIN 1835-B



| BT | REF.                      | CODE            | d <sub>1</sub> <sup>H5</sup> | d <sub>2</sub> | L   | L <sub>1</sub> | kg  | fig. |
|----|---------------------------|-----------------|------------------------------|----------------|-----|----------------|-----|------|
| 40 | MAS403 BT40-AD+B WD06.50  | 71MBT-B40WD0605 | 6                            | 23             | 50  | 23             | 0.8 | 1    |
|    | MAS403 BT40-AD+B WD06.110 | 71MBT-B40WD0611 |                              |                | 110 | 83             | 0.9 |      |
|    | MAS403 BT40-AD+B WD06.160 | 71MBT-B40WD0616 |                              |                | 160 | 133            | 1.1 |      |
|    | MAS403 BT40-AD+B WD08.50  | 71MBT-B40WD0805 | 8                            | 26             | 50  | 23             | 0.9 |      |
|    | MAS403 BT40-AD+B WD08.110 | 71MBT-B40WD0811 |                              |                | 110 | 83             | 1.1 |      |
|    | MAS403 BT40-AD+B WD08.160 | 71MBT-B40WD0816 |                              |                | 160 | 133            | 1.3 |      |
|    | MAS403 BT40-AD+B WD10.56  | 71MBT-B40WD1005 | 10                           | 30             | 56  | 29             | 1   | 1    |
|    | MAS403 BT40-AD+B WD10.110 | 71MBT-B40WD1011 |                              |                | 110 | 83             | 1.2 |      |
|    | MAS403 BT40-AD+B WD10.160 | 71MBT-B40WD1016 |                              |                | 160 | 133            | 1.5 |      |
|    | MAS403 BT40-AD+B WD12.35  | 71MBT-B40WD1203 | 12                           | 34             | 35  | 8              | 0.9 | 2    |
|    | MAS403 BT40-AD+B WD12.56  | 71MBT-B40WD1205 |                              |                | 56  | 29             | 1.1 | 1    |
|    | MAS403 BT40-AD+B WD12.110 | 71MBT-B40WD1211 |                              |                | 110 | 83             | 1.4 |      |
|    | MAS403 BT40-AD+B WD12.160 | 71MBT-B40WD1216 |                              |                | 160 | 133            | 1.7 |      |
|    | MAS403 BT40-AD+B WD14.56  | 71MBT-B40WD1405 | 14                           | 38             | 56  | 29             | 1.2 | 2    |
|    | MAS403 BT40-AD+B WD14.110 | 71MBT-B40WD1411 |                              |                | 110 | 83             | 1.6 |      |
|    | MAS403 BT40-AD+B WD16.35  | 71MBT-B40WD1603 | 16                           | 42             | 35  | 8              | 1   | 2    |
|    | MAS403 BT40-AD+B WD16.63  | 71MBT-B40WD1606 |                              |                | 63  | 36             | 1.3 | 1    |
|    | MAS403 BT40-AD+B WD16.110 | 71MBT-B40WD1611 |                              |                | 110 | 83             | 1.7 |      |
|    | MAS403 BT40-AD+B WD16.160 | 71MBT-B40WD1616 |                              |                | 160 | 133            | 2.2 |      |
|    | MAS403 BT40-AD+B WD18.63  | 71MBT-B40WD1806 | 18                           | 46             | 63  | 36             | 1.4 | 2    |
|    | MAS403 BT40-AD+B WD18.110 | 71MBT-B40WD1811 |                              |                | 110 | 83             | 1.9 |      |
|    | MAS403 BT40-AD+B WD20.35  | 71MBT-B40WD2003 | 20                           | 50             | 35  | 8              | 1.1 | 2    |
|    | MAS403 BT40-AD+B WD20.63  | 71MBT-B40WD2006 |                              |                | 63  | 36             | 1.5 | 1    |
|    | MAS403 BT40-AD+B WD20.110 | 71MBT-B40WD2011 |                              |                | 110 | 83             | 2.1 |      |
|    | MAS403 BT40-AD+B WD20.160 | 71MBT-B40WD2016 |                              |                | 160 | 133            | 2.6 |      |
|    | MAS403 BT40-AD+B WD25.35  | 71MBT-B40WD2503 | 25                           | 63             | 35  | 8              | 1   | 2    |
|    | MAS403 BT40-AD+B WD25.100 | 71MBT-B40WD2510 |                              |                | 100 | 73             | 2   | 3    |
|    | MAS403 BT40-AD+B WD25.160 | 71MBT-B40WD2516 |                              |                | 160 | 133            | 3.2 |      |
|    | MAS403 BT40-AD+B WD32.100 | 71MBT-B40WD3210 | 32                           | 70             | 100 | 67             | 2.5 |      |
|    | MAS403 BT40-AD+B WD32.160 | 71MBT-B40WD3216 |                              |                | 160 | 127            | 3.9 |      |

- WELDON TOOLHOLDER
- ДЕРЖАТЕЛИ WELDON
- OPRAWKA NARZĘDZIOWA WELDON
- NÁSTROJOVÝ DRŽÁK WELDON
- WELDON TAKIM TUTUCU

## MAS 403 BT50 AD+B WD - DIN 1835-B



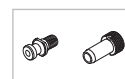
207

| BT | REF.                      | CODE            | d1 <sup>H5</sup> | d2 | L   | L1  | kg  | fig. |
|----|---------------------------|-----------------|------------------|----|-----|-----|-----|------|
| 50 | MAS403 BT50-AD+B WD06.63  | 71MBT-B50WD0606 | 6                | 23 | 63  | 25  | 2.3 | 1    |
|    | MAS403 BT50-AD+B WD06.110 | 71MBT-B50WD0611 |                  |    | 110 | 72  | 2.4 |      |
|    | MAS403 BT50-AD+B WD06.160 | 71MBT-B50WD0616 |                  |    | 160 | 122 | 2.6 |      |
|    | MAS403 BT50-AD+B WD08.63  | 71MBT-B50WD0806 | 8                | 26 | 63  | 25  | 2.4 |      |
|    | MAS403 BT50-AD+B WD08.110 | 71MBT-B50WD0811 |                  |    | 110 | 72  | 2.5 |      |
|    | MAS403 BT50-AD+B WD08.160 | 71MBT-B50WD0816 |                  |    | 160 | 122 | 2.7 |      |
|    | MAS403 BT50-AD+B WD10.70  | 71MBT-B50WD1007 | 10               | 30 | 70  | 32  | 3   |      |
|    | MAS403 BT50-AD+B WD10.110 | 71MBT-B50WD1011 |                  |    | 110 | 72  | 3.2 |      |
|    | MAS403 BT50-AD+B WD10.160 | 71MBT-B50WD1016 |                  |    | 160 | 122 | 3.4 |      |
|    | MAS403 BT50-AD+B WD12.70  | 71MBT-B50WD1207 | 12               | 34 | 70  | 32  | 3.1 |      |
|    | MAS403 BT50-AD+B WD12.110 | 71MBT-B50WD1211 |                  |    | 110 | 72  | 3.3 |      |
|    | MAS403 BT50-AD+B WD12.160 | 71MBT-B50WD1216 |                  |    | 160 | 122 | 3.6 |      |
|    | MAS403 BT50-AD+B WD14.70  | 71MBT-B50WD1407 | 14               | 38 | 70  | 32  | 3.2 |      |
|    | MAS403 BT50-AD+B WD14.110 | 71MBT-B50WD1411 |                  |    | 110 | 72  | 3.5 |      |
|    | MAS403 BT50-AD+B WD16.80  | 71MBT-B50WD1608 | 16               | 42 | 80  | 42  | 3.3 |      |
|    | MAS403 BT50-AD+B WD16.110 | 71MBT-B50WD1611 |                  |    | 110 | 72  | 3.5 |      |
|    | MAS403 BT50-AD+B WD16.160 | 71MBT-B50WD1616 |                  |    | 160 | 122 | 4   |      |
|    | MAS403 BT50-AD+B WD18.80  | 71MBT-B50WD1808 | 18               | 46 | 80  | 42  | 3.4 |      |
|    | MAS403 BT50-AD+B WD18.110 | 71MBT-B50WD1811 |                  |    | 110 | 72  | 3.7 |      |
|    | MAS403 BT50-AD+B WD20.80  | 71MBT-B50WD2008 | 20               | 50 | 80  | 42  | 3.5 |      |
|    | MAS403 BT50-AD+B WD20.110 | 71MBT-B50WD2011 |                  |    | 110 | 72  | 3.8 |      |
|    | MAS403 BT50-AD+B WD20.160 | 71MBT-B50WD2016 |                  |    | 160 | 122 | 4.5 |      |
|    | MAS403 BT50-AD+B WD25.100 | 71MBT-B50WD2510 | 25               | 63 | 100 | 62  | 4.5 | 2    |
|    | MAS403 BT50-AD+B WD25.125 | 71MBT-B50WD2512 |                  |    | 125 | 87  | 5   |      |
|    | MAS403 BT50-AD+B WD25.160 | 71MBT-B50WD2516 |                  |    | 160 | 122 | 5.7 |      |
|    | MAS403 BT50-AD+B WD32.100 | 71MBT-B50WD3210 | 32               | 70 | 100 | 62  | 5.6 |      |
|    | MAS403 BT50-AD+B WD32.160 | 71MBT-B50WD3216 |                  |    | 160 | 122 | 7   |      |
|    | MAS403 BT50-AD+B WD40.110 | 71MBT-B50WD4011 | 40               | 80 | 110 | 72  | 5.8 |      |
|    | MAS403 BT50-AD+B WD40.160 | 71MBT-B50WD4016 |                  |    | 160 | 122 | 7.4 |      |

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### MAS 403 BT AD+B

PF

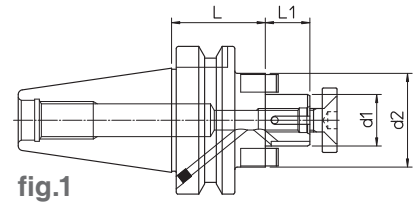


fig.1

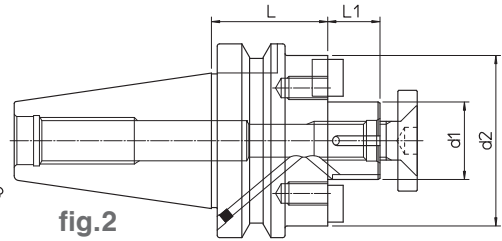
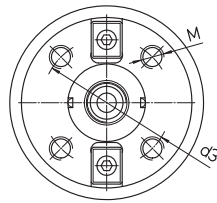


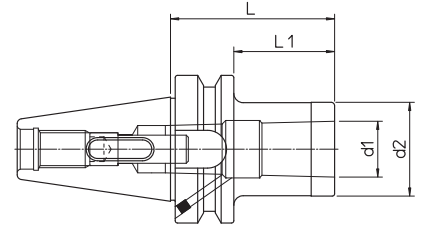
fig.2

| BT | REF.                      | CODE            | d1 | d2    | d3   | M   | L     | L1  | kg  | fig. |
|----|---------------------------|-----------------|----|-------|------|-----|-------|-----|-----|------|
| 40 | MAS403 BT40-AD+B PF16.40  | 71MBT-B40PF1604 | 16 | 32    | -    | -   | 40    | 17  | 0.9 | 1    |
|    | MAS403 BT40-AD+B PF16.110 | 71MBT-B40PF1611 |    |       |      |     | 110   |     | 1.3 |      |
|    | MAS403 BT40-AD+B PF16.160 | 71MBT-B40PF1616 |    |       |      |     | 160   |     | 1.6 |      |
|    | MAS403 BT40-AD+B PF22.40  | 71MBT-B40PF2204 | 22 | 40    |      |     | 40    | 19  | 1   |      |
|    | MAS403 BT40-AD+B PF22.110 | 71MBT-B40PF2211 |    |       |      |     | 110   |     | 1.6 |      |
|    | MAS403 BT40-AD+B PF22.160 | 71MBT-B40PF2216 |    |       |      |     | 160   |     | 2.1 |      |
|    | MAS403 BT40-AD+B PF27.45  | 71MBT-B40PF2704 | 27 | 50    |      |     | 45    | 21  | 1.2 |      |
|    | MAS403 BT40-AD+B PF27.110 | 71MBT-B40PF2711 |    |       |      |     | 110   |     | 2.2 |      |
|    | MAS403 BT40-AD+B PF27.160 | 71MBT-B40PF2716 |    |       |      |     | 160   |     | 2.9 |      |
|    | MAS403 BT40-AD+B PF32.50  | 71MBT-B40PF3205 | 32 | 60    |      |     | 50    | 24  | 1.7 |      |
|    | MAS403 BT40-AD+B PF32.110 | 71MBT-B40PF3211 |    |       |      |     | 110   |     | 3   |      |
|    | MAS403 BT40-AD+B PF40.55  | 71MBT-B40PF4005 | 40 | 70    |      |     | 55    | 27  | 2.1 |      |
| 50 | MAS403 BT50-AD+B PF16.50  | 71MBT-B50PF1605 | 16 | 32    | 66.7 | M12 | 50    | 17  | 2.4 |      |
|    | MAS403 BT50-AD+B PF16.110 | 71MBT-B50PF1611 |    |       |      |     | 110   |     | 2.8 |      |
|    | MAS403 BT50-AD+B PF16.160 | 71MBT-B50PF1616 |    |       |      |     | 160   |     | 3.1 |      |
|    | MAS403 BT50-AD+B PF22.50  | 71MBT-B50PF2205 | 22 | 40    |      |     | 50    | 19  | 2.6 |      |
|    | MAS403 BT50-AD+B PF22.110 | 71MBT-B50PF2211 |    |       |      |     | 110   |     | 3.2 |      |
|    | MAS403 BT50-AD+B PF22.160 | 71MBT-B50PF2216 |    |       |      |     | 160   |     | 3.7 |      |
|    | MAS403 BT50-AD+B PF27.55  | 71MBT-B50PF2705 | 27 | 50    |      |     | 55    | 21  | 2.7 |      |
|    | MAS403 BT50-AD+B PF27.110 | 71MBT-B50PF2711 |    |       |      |     | 110   |     | 3.6 |      |
|    | MAS403 BT50-AD+B PF27.160 | 71MBT-B50PF2716 |    |       |      |     | 160   |     | 4.3 |      |
|    | MAS403 BT50-AD+B PF32.55  | 71MBT-B50PF3205 | 32 | 60    |      |     | 55    | 24  | 3.2 |      |
|    | MAS403 BT50-AD+B PF32.120 | 71MBT-B50PF3212 |    |       |      |     | 120   |     | 5.5 |      |
|    | MAS403 BT50-AD+B PF40.60  | 71MBT-B50PF4006 | 40 | 88    |      |     | M16   | 60  | 27  | 4.3  |
|    | MAS403 BT50-AD+B PF40.120 | 71MBT-B50PF4012 |    |       |      |     |       | 120 |     | 7.1  |
|    | MAS403 BT50-AD+B PF60.80  | 71MBT-B50PF6008 | 60 | 128.5 |      |     | 101.6 | 80  | 40  | 6.8  |



- MORSE TAPER TOOLHOLDER
- ДЕРЖАТЕЛИ С КОНУСОМ MORSE
- OPRAWKA STOŻKOWA MORSE'A
- NÁSTROJOVÝ DRŽÁK S KUŽELEM MORSE
- MORS KONIK TAKIM TUTUCU

## MAS 403 BT AD+B CM - DIN 228 AB

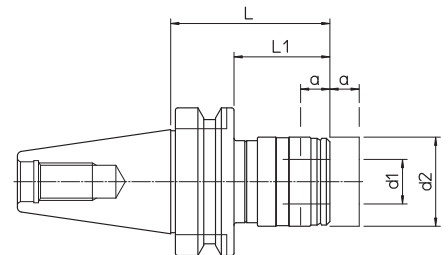


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| BT | REF.                         | CODE            | MORSE | d <sub>1</sub> | d <sub>2</sub> | L   | L <sub>1</sub> | kg  |
|----|------------------------------|-----------------|-------|----------------|----------------|-----|----------------|-----|
| 40 | MAS403 BT40-AD+B CM2.50 A-B  | 71MBT-B40CMB205 | 2     | 17.780         | 32             | 50  | 23             | 1   |
|    | MAS403 BT40-AD+B CM2.125 A-B | 71MBT-B40CMB212 |       |                |                | 125 | 98             | 1.3 |
|    | MAS403 BT40-AD+B CM3.70 A-B  | 71MBT-B40CMB307 | 3     | 23.825         | 40             | 70  | 43             | 1.1 |
|    | MAS403 BT40-AD+B CM3.140 A-B | 71MBT-B40CMB314 |       |                |                | 140 | 113            | 1.5 |
| 50 | MAS403 BT50-AD+B CM2.60 A-B  | 71MBT-B50CMB206 | 2     | 17.780         | 32             | 60  | 22             | 2.6 |
|    | MAS403 BT50-AD+B CM2.125 A-B | 71MBT-B50CMB212 |       |                |                | 125 | 87             | 2.8 |
|    | MAS403 BT50-AD+B CM3.60 A-B  | 71MBT-B50CMB306 | 3     | 23.825         | 40             | 60  | 22             | 2.7 |
|    | MAS403 BT50-AD+B CM3.145 A-B | 71MBT-B50CMB314 |       |                |                | 145 | 107            | 3.2 |
|    | MAS403 BT50-AD+B CM4.80 A-B  | 71MBT-B50CMB408 | 4     | 31.267         | 48             | 80  | 42             | 2.9 |

- TAPPING TOOLHOLDER
- ДЕРЖАТЕЛИ МЕТЧИКОВ
- OPRAWKA GWINTOWNIKA
- ZÁVITOŘEZNÝ NÁSTROJOVÝ DRŽÁK
- DIŞ ÇEKME TAKIMI TUTUCU

## MAS 403 BT MS

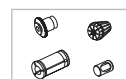
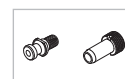


| BT | REF.                   | CODE            | d <sub>1</sub> | d <sub>2</sub> | L     | L <sub>1</sub> | a    | kg  |
|----|------------------------|-----------------|----------------|----------------|-------|----------------|------|-----|
| 40 | MAS403 BT40 MS1 M3-12  | 71MBT-40-M10312 | 19             | 36             | 67.5  | 40.5           | 7.5  | 0.9 |
|    | MAS403 BT40 MS2 M8-20  | 71MBT-40-M20820 | 31             | 53             | 94.5  | 67.5           | 12.5 | 1.3 |
| 50 | MAS403 BT50 MS1 M3-12  | 71MBT-50-M10312 | 19             | 38             | 80    | 42             | 7.5  | 2.8 |
|    | MAS403 BT50 MS2 M8-20  | 71MBT-50-M20820 | 31             | 53             | 102.5 | 64.5           | 12.5 | 3.1 |
|    | MAS403 BT50 MS3 M14-33 | 71MBT-50-M31433 | 48             | 78             | 154.5 | 116.5          | 20   | 4.3 |

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CT

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ISO 26623-1 PSC  
CT



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DIN 69871 AD+B  
CT

p. 240



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MAS 403 BT AD+B  
CT



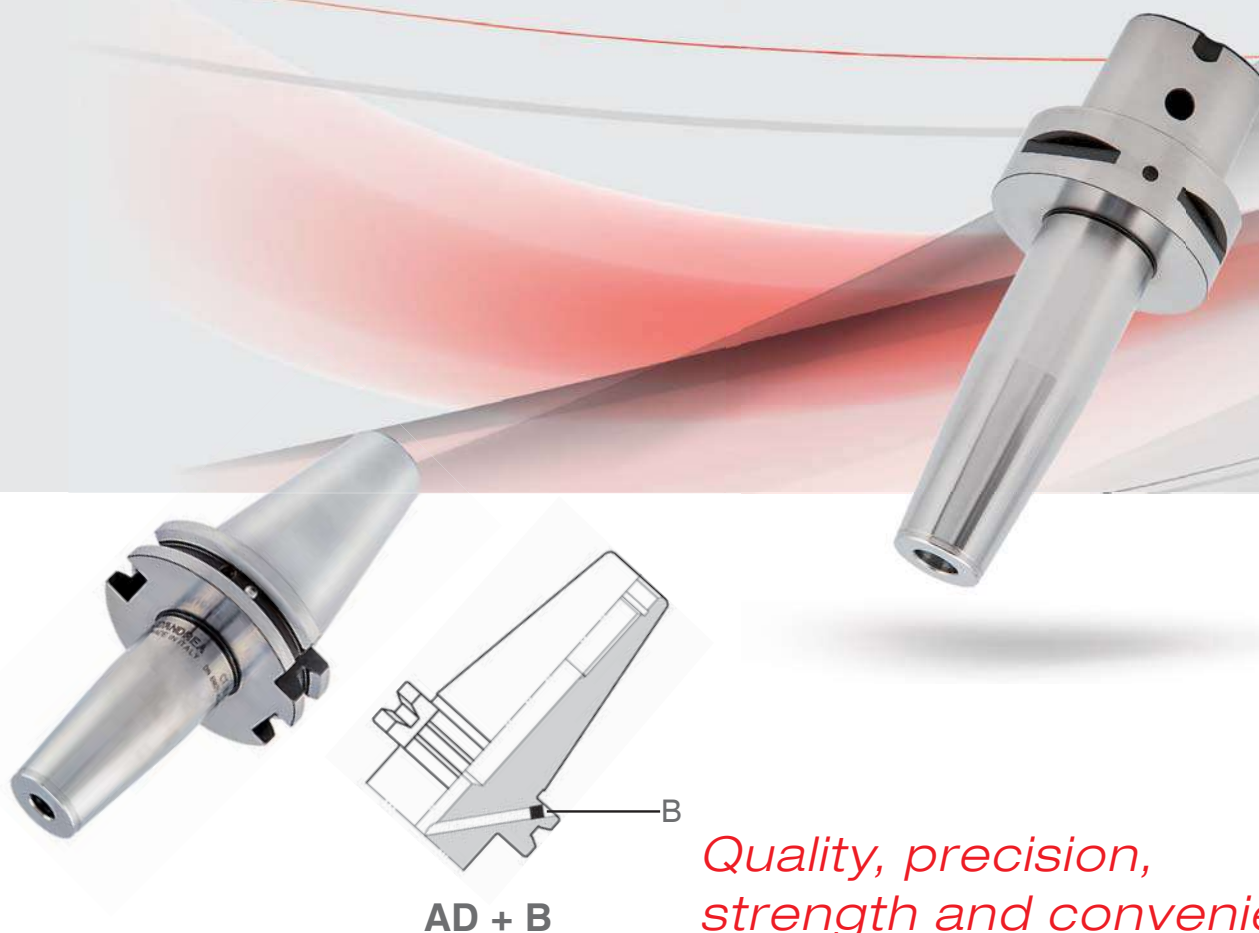
p. 220

PR CT

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*Quality, precision,  
strength and convenience*

- SHRINK FIT CHUCKS
- ШПИНДЕЛИ С ТЕРМИЧЕСКИМ КЛИНОВЫМ СОЕДИНЕНИЕМ
- WRZĘCIONA Z TERMICZNYM POŁĄCZENIEM KLINOWYM
- ULOŽENÍ LISOVANÉ ZA TEPLA
- SIKI GEÇME MANDRENLERİ

**GB** The integrated to fit chucks MONOd' CT tool holders represent an ideal solution to equip any type of machine tool with HSK 63 and 100, ISO 26623-1 PSC, DIN AD+B and BT AD+B base arbors, guaranteeing the benefits of a high quality and high precision.

**RU** Неразъемные держатели для инструментов с термическим клиновым соединением представляют собой идеальное решение для любого типа металлорежущих станков с основным соединением HSK 63 и 100, ISO 26623-1 PSC, DIN AD+B и BT AD+B, гарантирующее высокое качество и высокую точность.

**PL** Integralne uchwyty narzędziowe z termicznym połączeniem klinowym MONOd' CT są idealnym rozwiązaniem dla każdego typu obrabiarki z podstawowym połączeniem HSK 63 i 100, ISO 26623-1 PSC, DIN AD+B i BT AD+B, z gwarancją wysokiej jakości i wysokiego stopnia precyzji

**CZ** Uložení lisované za tepla integrované s nástrojovými držáky MONOd' CT jsou ideálním řešením pro každý typ obráběcího stroje se základním vybavením HSK 63 a 100, ISO 26623-1 PSC, DIN AD+B a BT AD+B, se zárukou vysoké kvality a vysokého stupně přesnosti.

**TR** MONOd' CT siki geçme entegre takım tutucuları HSK 63 ve 100, ISO 26623-1 PSC, DIN AD+B ve BT AD+B temel eklere sahip her türlü takım tezgahının donanımında ideal bir çözüm sunarak, üstün kalite ve yüksek doğruluk derecesinde avantajlar sağlar.

### DIN 69893 HSK-A63

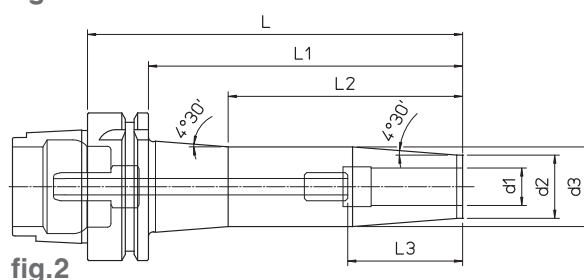
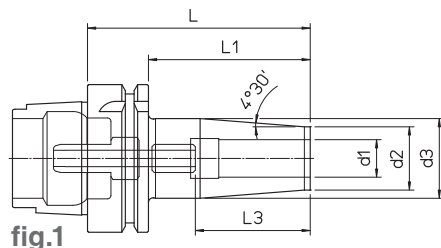
CT

0.003

RPM 25.000



- Supplied with coolant tube
- Содержит соединение для хладагента
- Wyposażona w złączkę do cieczy chłodzącej
- Dodávané s chladičím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

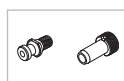


| HSK-A | REF.             | CODE            | d1  | d2  | d3  | L   | L1  | L2  | L3      | kg      | fig.    |     |         |     |
|-------|------------------|-----------------|-----|-----|-----|-----|-----|-----|---------|---------|---------|-----|---------|-----|
| 63    | HSK-A63 CT03.80  | 71HСКА063CT0308 | 3   | 10  | —   | 80  | 54  | —   | 9       | 0.7     | 1       |     |         |     |
|       | HSK-A63 CT04.80  | 71HСКА063CT0408 | 4   |     |     |     |     |     | 12      |         |         |     |         |     |
|       | HSK-A63 CT05.80  | 71HСКА063CT0508 | 5   |     |     |     |     |     | 15      |         |         |     |         |     |
|       | HSK-A63 CT06.80  | 71HСКА063CT0608 | 6   | 21  | 27  | 120 | 94  | 100 | 22 / 36 | 0.8     | 1       |     |         |     |
|       | HSK-A63 CT06.120 | 71HСКА063CT0612 |     |     |     |     |     |     |         | 1       |         |     |         |     |
|       | HSK-A63 CT06.160 | 71HСКА063CT0616 |     |     |     |     |     |     |         | 1.2     |         |     |         |     |
|       | HSK-A63 CT06.200 | 71HСКА063CT0620 | 1.4 |     |     | 2   |     |     |         |         |         |     |         |     |
|       | HSK-A63 CT08.80  | 71HСКА063CT0808 | 8   |     |     |     | 80  | 54  | —       | 26 / 36 | 0.8     | 1   |         |     |
|       | HSK-A63 CT08.120 | 71HСКА063CT0812 |     |     |     | 120 | 94  | 1   |         |         |         |     |         |     |
|       | HSK-A63 CT08.160 | 71HСКА063CT0816 |     |     |     | 160 | 134 | 100 |         |         | 1.2     | 2   |         |     |
|       | HSK-A63 CT08.200 | 71HСКА063CT0820 |     |     |     | 200 | 174 | 110 |         |         | 1.4     |     |         |     |
|       | HSK-A63 CT10.85  | 71HСКА063CT1008 | 10  | 24  | 32  | 85  | 59  | —   | 31 / 41 | 0.9     | 1       |     |         |     |
|       | HSK-A63 CT10.120 | 71HСКА063CT1012 |     |     |     | 120 | 94  |     |         | 1.1     |         |     |         |     |
|       | HSK-A63 CT10.160 | 71HСКА063CT1016 |     |     |     | 160 | 134 |     |         | 100     | 1.4     | 2   |         |     |
|       | HSK-A63 CT10.200 | 71HСКА063CT1020 |     |     |     | 200 | 174 |     |         | 125     | 1.6     |     |         |     |
|       | HSK-A63 CT12.90  | 71HСКА063CT1209 | 12  |     |     | 27  | 34  | 90  | 64      | —       | 36 / 46 | 0.9 | 1       |     |
|       | HSK-A63 CT12.120 | 71HСКА063CT1212 |     |     |     |     |     | 120 | 94      |         |         | 1.1 |         |     |
|       | HSK-A63 CT12.160 | 71HСКА063CT1216 |     |     |     |     |     | 160 | 134     |         |         | 100 | 1.3     | 2   |
|       | HSK-A63 CT12.200 | 71HСКА063CT1220 |     |     |     |     |     | 200 | 174     |         |         | 125 | 1.6     |     |
|       | HSK-A63 CT14.90  | 71HСКА063CT1409 | 14  | 27  | 34  |     |     | 90  | 64      | —       | 36 / 46 | 0.9 | 1       |     |
|       | HSK-A63 CT14.120 | 71HСКА063CT1412 |     |     |     |     |     | 120 | 94      |         |         | 1.1 |         |     |
|       | HSK-A63 CT14.160 | 71HСКА063CT1416 |     |     |     |     |     | 160 | 134     |         |         | 100 | 1.4     | 2   |
|       | HSK-A63 CT16.95  | 71HСКА063CT1609 | 16  |     |     |     |     | 33  | 42      | 95      | 69      | —   | 39 / 49 | 0.9 |
|       | HSK-A63 CT16.120 | 71HСКА063CT1612 |     |     |     | 120 | 94  |     |         | 1.1     |         |     |         |     |
|       | HSK-A63 CT16.160 | 71HСКА063CT1616 |     |     |     | 160 | 134 |     |         | 100     | 1.4     |     |         | 2   |
|       | HSK-A63 CT16.200 | 71HСКА063CT1620 |     |     |     | 200 | 174 |     |         | 125     | 1.7     |     |         |     |
|       | HSK-A63 CT18.95  | 71HСКА063CT1809 | 18  |     |     | 33  | 42  |     |         | 95      | 69      | —   | 39 / 49 | 1.1 |
|       | HSK-A63 CT18.120 | 71HСКА063CT1812 |     | 120 | 94  |     |     |     |         | 1.4     |         |     |         |     |
|       | HSK-A63 CT18.160 | 71HСКА063CT1816 |     | 160 | 134 |     |     |     |         | 100     | 1.8     |     |         | 2   |
|       | HSK-A63 CT20.100 | 71HСКА063CT2010 | 20  | 44  | 53  |     |     |     |         | 100     | 74      | —   | 41 / 51 | 1.4 |
|       | HSK-A63 CT20.120 | 71HСКА063CT2012 |     |     |     |     |     | 120 | 94      | 1.3     |         |     |         |     |
|       | HSK-A63 CT20.160 | 71HСКА063CT2016 |     |     |     |     |     | 160 | 134     | 100     | 1.8     |     |         | 2   |
|       | HSK-A63 CT20.200 | 71HСКА063CT2020 |     |     |     |     |     | 200 | 174     | 125     | 2.2     |     |         |     |
|       | HSK-A63 CT25.120 | 71HСКА063CT2512 | 25  |     |     |     |     | 44  | 53      | 120     | 94      | —   | 47 / 57 | 1.8 |
|       | HSK-A63 CT25.160 | 71HСКА063CT2516 |     |     |     | 160 | 134 |     |         | 2.5     |         |     |         |     |

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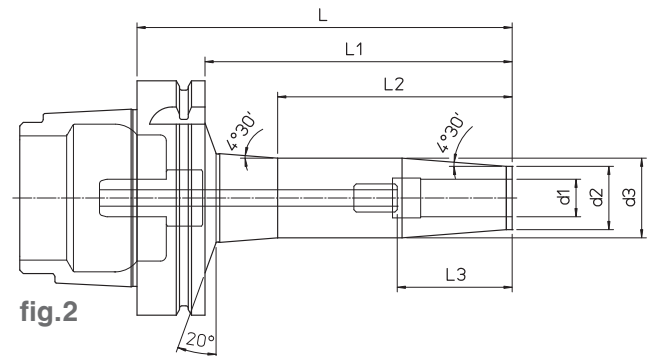
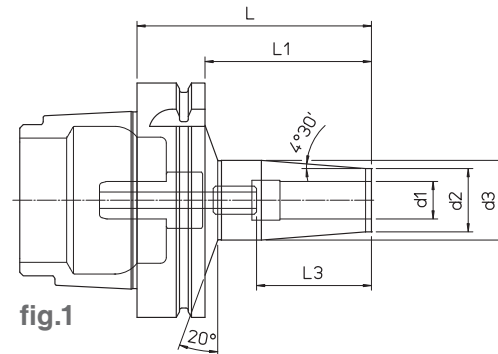
- SHRINK FIT CHUCKS
- ШПИНДЕЛИ С ТЕРМИЧЕСКИМ КЛИНОВЫМ СОЕДИНЕНИЕМ
- WRZĘCIONA Z TERMICZNYM POŁĄCZENIEM KLINOWYM
- ULOŽENÍ LISOVANÉ ZA TEPLA
- SIKİ GEÇME MANDRENLERİ

DIN 69893 HSK-A100

CT

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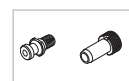
- Supplied with coolant tube
- Содержит соединение для хладагента
- Wyposażona w złączkę do cieczy chłodzącej
- Dodávané s chladičím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

| HSK-A | REF.              | CODE            | d1 | d2  | d3  | L   | L1  | L2  | L3      | kg      | fig. |         |
|-------|-------------------|-----------------|----|-----|-----|-----|-----|-----|---------|---------|------|---------|
| 100   | HSK-A100 CT06.85  | 71HСКА100CT0608 | 6  | 21  | 27  | 85  | 56  | -   | 22 / 36 | 2.2     | 1    |         |
|       | HSK-A100 CT06.120 | 71HСКА100CT0612 |    |     |     | 120 | 91  |     |         | 2.4     |      |         |
|       | HSK-A100 CT06.160 | 71HСКА100CT0616 |    |     |     | 160 | 131 |     |         | 100     |      | 2.5     |
|       | HSK-A100 CT08.85  | 71HСКА100CT0808 | 8  |     |     | 85  | 56  | -   | 26 / 36 | 2.2     | 1    |         |
|       | HSK-A100 CT08.120 | 71HСКА100CT0812 |    |     |     | 120 | 91  |     |         | 2.4     |      |         |
|       | HSK-A100 CT08.160 | 71HСКА100CT0816 |    |     |     | 160 | 131 |     |         | 100     |      | 2.5     |
|       | HSK-A100 CT10.90  | 71HСКА100CT1009 | 10 | 24  | 32  | 90  | 61  | -   | 31 / 41 | 2.3     | 1    |         |
|       | HSK-A100 CT10.120 | 71HСКА100CT1012 |    |     |     | 120 | 91  |     |         | 2.5     |      |         |
|       | HSK-A100 CT10.160 | 71HСКА100CT1016 |    |     |     | 160 | 131 |     |         | 100     |      | 2.7     |
|       | HSK-A100 CT12.95  | 71HСКА100CT1209 | 12 |     |     | 95  | 66  | -   | 36 / 46 | 2.3     | 1    |         |
|       | HSK-A100 CT12.120 | 71HСКА100CT1212 |    |     |     | 120 | 91  |     |         | 2.5     |      |         |
|       | HSK-A100 CT12.160 | 71HСКА100CT1216 |    |     |     | 160 | 134 |     |         | 100     |      | 2.7     |
|       | HSK-A100 CT14.95  | 71HСКА100CT1409 | 14 | 27  | 34  | 95  | 66  | -   |         | 39 / 49 | 2.3  | 1       |
|       | HSK-A100 CT14.120 | 71HСКА100CT1412 |    |     |     | 120 | 91  |     |         |         | 2.5  |         |
|       | HSK-A100 CT14.160 | 71HСКА100CT1416 |    |     |     | 160 | 131 |     |         |         | 100  |         |
|       | HSK-A100 CT16.100 | 71HСКА100CT1610 | 16 |     |     | 100 | 71  | -   | 41 / 51 |         | 2.3  | 1       |
|       | HSK-A100 CT16.120 | 71HСКА100CT1612 |    |     |     | 120 | 91  |     |         |         | 2.5  |         |
|       | HSK-A100 CT16.160 | 71HСКА100CT1616 |    |     |     | 160 | 131 |     |         |         | 100  |         |
|       | HSK-A100 CT18.100 | 71HСКА100CT1810 | 18 | 33  | 42  | 100 | 71  | -   |         | 47 / 57 | 2.5  | 1       |
|       | HSK-A100 CT18.120 | 71HСКА100CT1812 |    |     |     | 120 | 91  |     |         |         | 2.8  |         |
|       | HSK-A100 CT18.160 | 71HСКА100CT1816 |    |     |     | 160 | 131 |     |         |         | 100  |         |
|       | HSK-A100 CT20.120 | 71HСКА100CT2012 | 20 |     |     | 120 | 91  | -   | 41 / 51 |         | 2.7  | 1       |
|       | HSK-A100 CT20.160 | 71HСКА100CT2016 |    |     |     | 160 | 131 |     |         |         | 100  |         |
|       | HSK-A100 CT25.120 | 71HСКА100CT2512 | 25 |     |     | 44  | 53  | 120 | 91      |         | -    | 47 / 57 |
|       | HSK-A100 CT25.160 | 71HСКА100CT2516 |    | 160 | 131 |     |     | 100 | 3.8     |         |      |         |
|       | HSK-A100 CT32.120 | 71HСКА100CT3212 | 32 | 120 | 91  |     |     | -   | 51 / 61 | 2.9     | 1    |         |
|       | HSK-A100 CT32.160 | 71HСКА100CT3216 |    | 160 | 131 |     |     |     |         | 100     |      | 3.5     |

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- SHRINK FIT CHUCKS
- ШПИНДЕЛИ С ТЕРМИЧЕСКИМ КЛИНОВЫМ СОЕДИНЕНИЕМ
- WRZĘCIONA Z TERMICZNYM POŁĄCZENIEM KLINOWYM
- ULOŽENÍ LISOVANÉ ZA TEPLA
- SIKI GEÇME MANDRENLERİ

ISO 26623-1 PSC63

CT

0.003

RPM 25.000

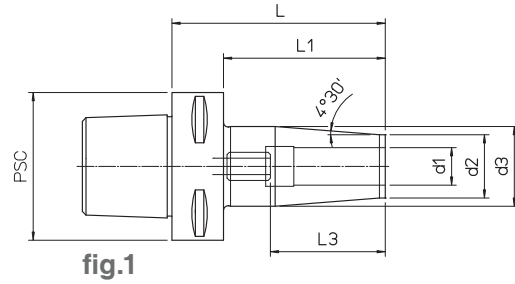


fig.1

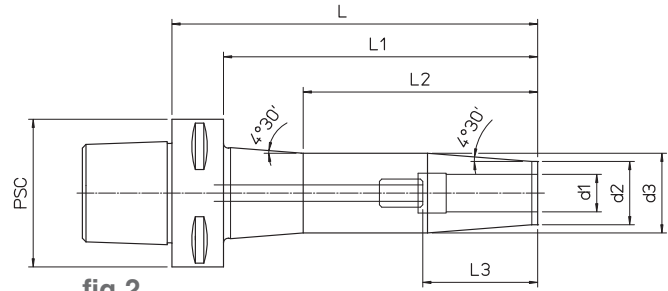


fig.2

| PSC | REF.            | CODE            | d1 | d2 | d3 | L   | L1 | L2  | L3      | kg  | fig. |
|-----|-----------------|-----------------|----|----|----|-----|----|-----|---------|-----|------|
| 63  | PSC 63 CT03.80  | 71PSC-063CT0308 | 3  | 10 | -  | 80  | 58 | -   | 9       | 0.8 | 1    |
|     | PSC 63 CT04.80  | 71PSC-063CT0408 | 4  |    |    |     |    |     | 12      |     |      |
|     | PSC 63 CT05.80  | 71PSC-063CT0508 | 5  |    |    |     |    |     | 15      |     |      |
|     | PSC 63 CT06.80  | 71PSC-063CT0608 | 6  | 21 | 27 | 120 | 98 | 100 | 22 / 36 | 1   | 1    |
|     | PSC 63 CT06.120 | 71PSC-063CT0612 |    |    |    |     |    |     |         | 1.2 | 2    |
|     | PSC 63 CT06.160 | 71PSC-063CT0616 |    |    |    |     |    |     |         | 0.8 | 1    |
|     | PSC 63 CT08.80  | 71PSC-063CT0808 | 8  |    |    | 120 | 98 | -   | 26 / 36 | 1   |      |
|     | PSC 63 CT08.120 | 71PSC-063CT0812 |    |    |    |     |    |     |         | 1.2 |      |
|     | PSC 63 CT08.160 | 71PSC-063CT0816 |    |    |    |     |    |     |         | 0.9 | 1    |
|     | PSC 63 CT10.80  | 71PSC-063CT1008 | 10 | 24 | 32 | 80  | 58 | -   | 31 / 41 | 1.1 |      |
|     | PSC 63 CT10.120 | 71PSC-063CT1012 |    |    |    |     |    |     |         | 1.4 |      |
|     | PSC 63 CT10.160 | 71PSC-063CT1016 |    |    |    |     |    |     |         | 0.9 | 1    |
|     | PSC 63 CT12.85  | 71PSC-063CT1208 | 12 |    |    | 120 | 98 | -   | 36 / 46 | 1.1 |      |
|     | PSC 63 CT12.120 | 71PSC-063CT1212 |    |    |    |     |    |     |         | 1.3 |      |
|     | PSC 63 CT12.160 | 71PSC-063CT1216 |    |    |    |     |    |     |         | 0.9 | 1    |
|     | PSC 63 CT14.85  | 71PSC-063CT1408 | 14 | 27 | 34 | 85  | 63 | -   | 39 / 49 | 1.1 |      |
|     | PSC 63 CT14.120 | 71PSC-063CT1412 |    |    |    |     |    |     |         | 1.4 |      |
|     | PSC 63 CT14.160 | 71PSC-063CT1416 |    |    |    |     |    |     |         | 0.9 | 1    |
|     | PSC 63 CT16.85  | 71PSC-063CT1608 | 16 |    |    | 85  | 63 | -   | 41 / 51 | 1.4 |      |
|     | PSC 63 CT16.120 | 71PSC-063CT1612 |    |    |    |     |    |     |         | 1.8 |      |
|     | PSC 63 CT16.160 | 71PSC-063CT1616 |    |    |    |     |    |     |         | 1.4 | 1    |
|     | PSC 63 CT18.90  | 71PSC-063CT1809 | 18 | 33 | 42 | 90  | 68 | -   | 47 / 57 | 1.4 |      |
|     | PSC 63 CT18.120 | 71PSC-063CT1812 |    |    |    |     |    |     |         | 1.8 |      |
|     | PSC 63 CT18.160 | 71PSC-063CT1816 |    |    |    |     |    |     |         | 1.4 | 1    |
|     | PSC 63 CT20.90  | 71PSC-063CT2009 | 20 |    |    | 90  | 68 | -   | 41 / 51 | 1.8 |      |
|     | PSC 63 CT20.120 | 71PSC-063CT2012 |    |    |    |     |    |     |         | 1.4 |      |
|     | PSC 63 CT20.160 | 71PSC-063CT2016 |    |    |    |     |    |     |         | 1.8 | 2    |
|     | PSC 63 CT25.120 | 71PSC-063CT2512 | 25 | 44 | 53 | 120 | 98 | -   | 47 / 57 | 1.4 | 1    |
|     | PSC 63 CT25.160 | 71PSC-063CT2516 |    |    |    |     |    |     |         | 1.8 |      |

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- ШПИНДЕЛИ С ТЕРМИЧЕСКИМ КЛИНОВЫМ СОЕДИНЕНИЕМ
- WRZECIONA Z TERMICZNYM POŁĄCZENIEM KLINOWYM
- ULOŽENÍ LISOVANÉ ZA TEPLA
- SIKİ GEÇME MANDRENLERİ

ISO 26623-1 PSC80

CT

0.003

RPM 12.000

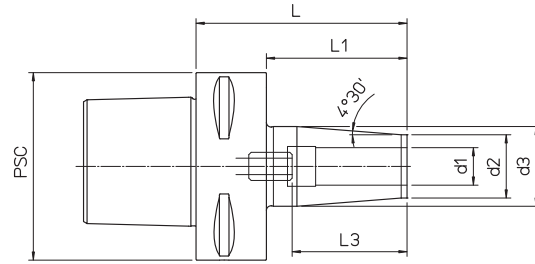


fig.1

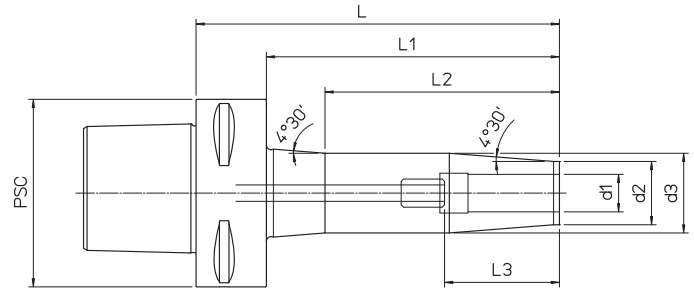


fig.2

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| PSC | REF.            | CODE            | d1 | d2 | d3 | L   | L1  | L2 | L3      | kg      | fig.    |     |
|-----|-----------------|-----------------|----|----|----|-----|-----|----|---------|---------|---------|-----|
| 80  | PSC 80 CT06.80  | 71PSC-080CT0608 | 6  | 21 | 27 | 80  | 50  | -  | 22 / 36 | 2.2     | 1       |     |
|     | PSC 80 CT06.120 | 71PSC-080CT0612 |    |    |    | 120 | 90  |    |         | 2.4     |         |     |
|     | PSC 80 CT06.160 | 71PSC-080CT0616 |    |    |    | 160 | 130 |    |         | 100     |         | 2.5 |
|     | PSC 80 CT08.80  | 71PSC-080CT0808 | 8  |    |    | 80  | 50  | -  | 26 / 36 | 2.2     | 1       |     |
|     | PSC 80 CT08.120 | 71PSC-080CT0812 |    |    |    | 120 | 90  |    |         | 2.4     |         |     |
|     | PSC 80 CT08.160 | 71PSC-080CT0816 |    |    |    | 160 | 130 |    |         | 100     |         | 2.5 |
|     | PSC 80 CT10.90  | 71PSC-080CT1009 | 10 | 24 | 32 | 90  | 60  | -  | 31 / 41 | 2.3     | 1       |     |
|     | PSC 80 CT10.120 | 71PSC-080CT1012 |    |    |    | 120 | 90  |    |         | 2.5     |         |     |
|     | PSC 80 CT10.160 | 71PSC-080CT1016 |    |    |    | 160 | 130 |    |         | 100     |         | 2.7 |
|     | PSC 80 CT12.90  | 71PSC-080CT1209 | 12 |    |    | 90  | 60  | -  | 36 / 46 | 2.3     | 1       |     |
|     | PSC 80 CT12.120 | 71PSC-080CT1212 |    |    |    | 120 | 90  |    |         | 2.5     |         |     |
|     | PSC 80 CT12.160 | 71PSC-080CT1216 |    |    |    | 160 | 130 |    |         | 100     |         | 2.7 |
|     | PSC 80 CT14.90  | 71PSC-080CT1409 | 14 | 27 | 34 | 90  | 60  | -  |         | 39 / 49 | 2.3     | 1   |
|     | PSC 80 CT14.120 | 71PSC-080CT1412 |    |    |    | 120 | 90  |    |         |         | 2.5     |     |
|     | PSC 80 CT14.160 | 71PSC-080CT1416 |    |    |    | 160 | 130 |    |         |         | 100     |     |
|     | PSC 80 CT16.90  | 71PSC-080CT1609 | 16 |    |    | 90  | 60  | -  | 41 / 51 |         | 2.3     | 1   |
|     | PSC 80 CT16.120 | 71PSC-080CT1612 |    |    |    | 120 | 90  |    |         |         | 2.5     |     |
|     | PSC 80 CT16.160 | 71PSC-080CT1616 |    |    |    | 160 | 130 |    |         |         | 100     |     |
|     | PSC 80 CT18.95  | 71PSC-080CT1809 | 18 | 33 | 42 | 95  | 65  | -  |         | 47 / 57 | 2.5     | 1   |
|     | PSC 80 CT18.120 | 71PSC-080CT1812 |    |    |    | 120 | 90  |    |         |         | 2.8     |     |
|     | PSC 80 CT18.160 | 71PSC-080CT1816 |    |    |    | 160 | 130 |    |         |         | 100     |     |
|     | PSC 80 CT20.95  | 71PSC-080CT2009 | 20 |    |    | 95  | 65  | -  | 51 / 61 |         | 2.5     | 1   |
|     | PSC 80 CT20.120 | 71PSC-080CT2012 |    |    |    | 120 | 90  |    |         |         | 2.8     |     |
|     | PSC 80 CT20.160 | 71PSC-080CT2016 |    |    |    | 160 | 130 |    |         |         | 100     |     |
|     | PSC 80 CT25.120 | 71PSC-080CT2512 | 25 | 44 | 53 | 120 | 90  | -  |         | 47 / 57 | 3.1     | 1   |
|     | PSC 80 CT25.160 | 71PSC-080CT2516 |    |    |    | 160 | 130 |    |         |         | 100     |     |
|     | PSC 80 CT32.120 | 71PSC-080CT3212 | 32 |    |    | 120 | 90  | -  |         |         | 51 / 61 | 2.9 |
|     | PSC 80 CT32.160 | 71PSC-080CT3216 |    |    |    | 160 | 130 |    | 100     |         |         | 3.5 |

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- SHRINK FIT CHUCKS
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- ULOŽENÍ LISOVANÉ ZA TEPLA
- SIKİ GEÇME MANDRENLERİ

DIN 69871 AD+B40

CT

0.003

RPM 25.000

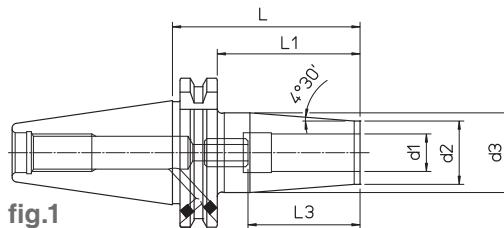


fig.1

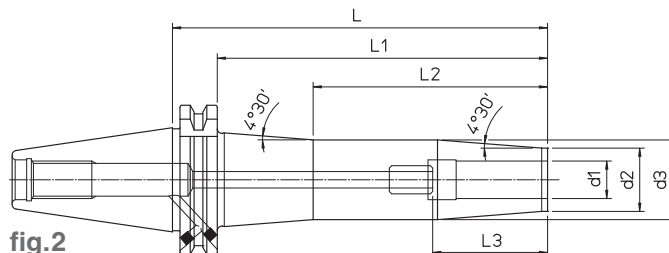


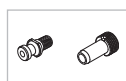
fig.2

| DIN | REF.                     | CODE            | d1  | d2  | d3  | L   | L1  | L2      | L3      | kg      | fig.    |         |     |
|-----|--------------------------|-----------------|-----|-----|-----|-----|-----|---------|---------|---------|---------|---------|-----|
| 40  | DIN69871-AD+B40 CT03.80  | 71DIN-B40CT0308 | 3   | 10  | —   | 80  | 61  | —       | 9       | 0.8     | 1       |         |     |
|     | DIN69871-AD+B40 CT04.80  | 71DIN-B40CT0408 | 4   |     |     |     |     |         | 12      |         |         |         |     |
|     | DIN69871-AD+B40 CT05.80  | 71DIN-B40CT0508 | 5   |     |     |     |     |         | 15      |         |         |         |     |
|     | DIN69871-AD+B40 CT06.80  | 71DIN-B40CT0608 | 6   | 21  | 27  | 120 | 101 | 22 / 36 | 1       | 1       |         |         |     |
|     | DIN69871-AD+B40 CT06.120 | 71DIN-B40CT0612 |     |     |     | 160 | 141 |         | 100     | 1.2     | 2       |         |     |
|     | DIN69871-AD+B40 CT06.160 | 71DIN-B40CT0616 |     |     |     | 200 | 181 | 110     | 1.6     |         |         |         |     |
|     | DIN69871-AD+B40 CT06.200 | 71DIN-B40CT0620 | 8   |     |     | 80  | 61  | 26 / 36 | 0.8     | 1       |         |         |     |
|     | DIN69871-AD+B40 CT08.80  | 71DIN-B40CT0808 |     |     |     | 120 | 101 |         | —       |         | 1       |         |     |
|     | DIN69871-AD+B40 CT08.120 | 71DIN-B40CT0812 |     |     |     | 160 | 141 |         | 100     | 1.2     | 2       |         |     |
|     | DIN69871-AD+B40 CT08.160 | 71DIN-B40CT0816 |     |     |     | 200 | 181 |         | 110     | 1.6     |         |         |     |
|     | DIN69871-AD+B40 CT08.200 | 71DIN-B40CT0820 | 10  | 24  | 32  | 80  | 61  | —       | 31 / 41 | 0.9     | 1       |         |     |
|     | DIN69871-AD+B40 CT10.80  | 71DIN-B40CT1008 |     |     |     | 120 | 101 |         |         | —       |         | 1.1     |     |
|     | DIN69871-AD+B40 CT10.120 | 71DIN-B40CT1012 |     |     |     | 160 | 141 |         |         | 100     | 1.4     | 2       |     |
|     | DIN69871-AD+B40 CT10.160 | 71DIN-B40CT1016 |     |     |     | 200 | 181 | 125     |         | 1.8     |         |         |     |
|     | DIN69871-AD+B40 CT10.200 | 71DIN-B40CT1020 | 12  |     |     | 80  | 61  | 36 / 46 | 0.9     | 1       |         |         |     |
|     | DIN69871-AD+B40 CT12.80  | 71DIN-B40CT1208 |     |     |     | 120 | 101 |         | —       |         | 1.1     |         |     |
|     | DIN69871-AD+B40 CT12.120 | 71DIN-B40CT1212 |     |     |     | 160 | 141 |         | 100     | 1.3     | 2       |         |     |
|     | DIN69871-AD+B40 CT12.160 | 71DIN-B40CT1216 |     |     |     | 200 | 181 |         | 125     | 1.8     |         |         |     |
|     | DIN69871-AD+B40 CT12.200 | 71DIN-B40CT1220 | 14  | 27  | 34  | 80  | 61  | —       | 36 / 46 | 0.9     | 1       |         |     |
|     | DIN69871-AD+B40 CT14.80  | 71DIN-B40CT1408 |     |     |     | 120 | 101 |         |         | —       |         | 1.1     |     |
|     | DIN69871-AD+B40 CT14.120 | 71DIN-B40CT1412 |     |     |     | 160 | 141 |         |         | 100     | 1.4     | 2       |     |
|     | DIN69871-AD+B40 CT14.160 | 71DIN-B40CT1416 |     |     |     | 80  | 61  | 39 / 49 | 0.9     | 1       |         |         |     |
|     | DIN69871-AD+B40 CT16.80  | 71DIN-B40CT1608 | 120 |     |     | 101 | —   |         | 1.1     |         |         |         |     |
|     | DIN69871-AD+B40 CT16.120 | 71DIN-B40CT1612 | 160 |     |     | 141 | 100 |         | 1.4     | 2       |         |         |     |
|     | DIN69871-AD+B40 CT16.160 | 71DIN-B40CT1616 | 200 |     |     | 181 | 125 |         | 1.9     |         |         |         |     |
|     | DIN69871-AD+B40 CT16.200 | 71DIN-B40CT1620 | 18  |     |     | 33  | 42  | 80      | 61      | —       | 39 / 49 | 1.1     | 1   |
|     | DIN69871-AD+B40 CT18.80  | 71DIN-B40CT1808 |     |     |     |     |     | 120     | 101     |         |         | —       |     |
|     | DIN69871-AD+B40 CT18.120 | 71DIN-B40CT1812 |     |     |     |     |     | 160     | 141     |         |         | 100     | 1.8 |
|     | DIN69871-AD+B40 CT18.160 | 71DIN-B40CT1816 |     |     |     |     |     | 80      | 61      | 41 / 51 | 1.3     | 1       |     |
|     | DIN69871-AD+B40 CT20.80  | 71DIN-B40CT2008 | 20  | 120 | 101 |     |     | —       | 1.4     |         |         |         |     |
|     | DIN69871-AD+B40 CT20.120 | 71DIN-B40CT2012 |     | 160 | 141 |     |     | 100     | 1.8     |         | 2       |         |     |
|     | DIN69871-AD+B40 CT20.160 | 71DIN-B40CT2016 |     | 200 | 181 |     |     | 125     | 2.4     |         |         |         |     |
|     | DIN69871-AD+B40 CT20.200 | 71DIN-B40CT2020 |     | 25  | 44  |     |     | 53      | 100     | 81      | —       | 47 / 57 | 1.8 |
|     | DIN69871-AD+B40 CT25.100 | 71DIN-B40CT2510 |     |     |     |     |     |         |         |         |         |         |     |

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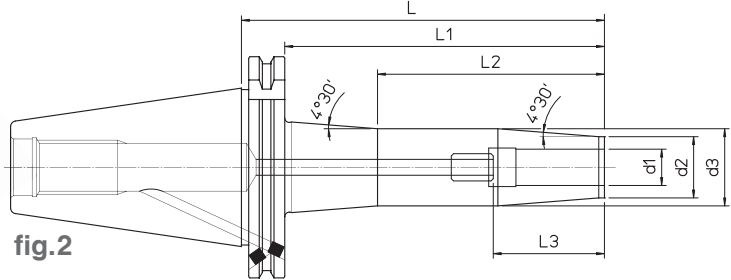
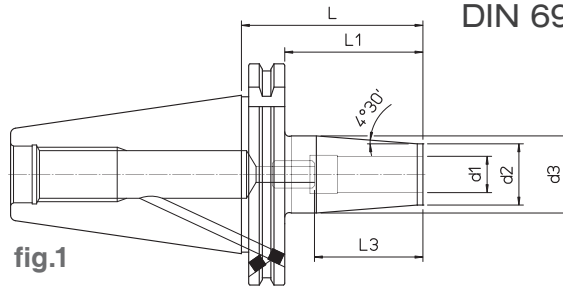




- SHRINK FIT CHUCKS
- ШПИНДЕЛИ С ТЕРМИЧЕСКИМ КЛИНОВЫМ СОЕДИНЕНИЕМ
- WRZECIONA Z TERMICZNYM POŁĄCZENIEM KLINOWYM
- ULOŽENÍ LISOVANÉ ZA TEPLA
- SIKİ GEÇME MANDRENLERİ

0.003

RPM 12.000



DIN 69871 AD+B50

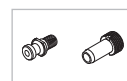
CT

| DIN | REF.                     | CODE            | d1 | d2 | d3 | L   | L1  | L2 | L3      | kg  | fig. |     |
|-----|--------------------------|-----------------|----|----|----|-----|-----|----|---------|-----|------|-----|
| 50  | DIN69871-AD+B50 CT06.80  | 71DIN-B50CT0608 | 6  | 21 | 27 | 80  | 61  | -  | 22 / 36 | 2.2 | 1    |     |
|     | DIN69871-AD+B50 CT06.120 | 71DIN-B50CT0612 |    |    |    | 120 | 101 |    |         | 2.4 |      |     |
|     | DIN69871-AD+B50 CT06.160 | 71DIN-B50CT0616 |    |    |    | 160 | 141 |    |         | 100 | 2.5  | 2   |
|     | DIN69871-AD+B50 CT06.200 | 71DIN-B50CT0620 |    |    |    | 200 | 181 |    |         | 110 | 3.4  |     |
|     | DIN69871-AD+B50 CT08.80  | 71DIN-B50CT0808 | 8  |    |    | 80  | 61  | -  | 26 / 36 | 2.2 | 1    |     |
|     | DIN69871-AD+B50 CT08.120 | 71DIN-B50CT0812 |    |    |    | 120 | 101 |    |         | 2.4 |      |     |
|     | DIN69871-AD+B50 CT08.160 | 71DIN-B50CT0816 |    |    |    | 160 | 141 |    |         | 100 | 2.5  | 2   |
|     | DIN69871-AD+B50 CT08.200 | 71DIN-B50CT0820 |    |    |    | 200 | 181 |    |         | 110 | 3.4  |     |
|     | DIN69871-AD+B50 CT10.80  | 71DIN-B50CT1008 | 10 | 24 | 32 | 80  | 61  | -  | 31 / 41 | 2.3 | 1    |     |
|     | DIN69871-AD+B50 CT10.120 | 71DIN-B50CT1012 |    |    |    | 120 | 101 |    |         | 2.5 |      |     |
|     | DIN69871-AD+B50 CT10.160 | 71DIN-B50CT1016 |    |    |    | 160 | 141 |    |         | 100 | 2.7  | 2   |
|     | DIN69871-AD+B50 CT10.200 | 71DIN-B50CT1020 |    |    |    | 200 | 181 |    |         | 125 | 3.6  |     |
|     | DIN69871-AD+B50 CT12.80  | 71DIN-B50CT1208 | 12 |    |    | 80  | 61  | -  | 36 / 46 | 2.3 | 1    |     |
|     | DIN69871-AD+B50 CT12.120 | 71DIN-B50CT1212 |    |    |    | 120 | 101 |    |         | 2.5 |      |     |
|     | DIN69871-AD+B50 CT12.160 | 71DIN-B50CT1216 |    |    |    | 160 | 141 |    |         | 100 | 2.7  | 2   |
|     | DIN69871-AD+B50 CT12.200 | 71DIN-B50CT1220 |    |    |    | 200 | 181 |    |         | 125 | 3.6  |     |
|     | DIN69871-AD+B50 CT14.80  | 71DIN-B50CT1408 | 14 | 27 | 34 | 80  | 61  | -  | 36 / 46 | 2.3 | 1    |     |
|     | DIN69871-AD+B50 CT14.120 | 71DIN-B50CT1412 |    |    |    | 120 | 101 |    |         | 2.5 |      |     |
|     | DIN69871-AD+B50 CT14.160 | 71DIN-B50CT1416 |    |    |    | 160 | 141 |    |         | 100 | 2.8  | 2   |
|     | DIN69871-AD+B50 CT16.80  | 71DIN-B50CT1608 | 16 |    |    | 80  | 61  | -  | 39 / 49 | 2.3 | 1    |     |
|     | DIN69871-AD+B50 CT16.120 | 71DIN-B50CT1612 |    |    |    | 120 | 101 |    |         | 2.5 |      |     |
|     | DIN69871-AD+B50 CT16.160 | 71DIN-B50CT1616 |    |    |    | 160 | 141 |    |         | 100 | 2.8  | 2   |
|     | DIN69871-AD+B50 CT16.200 | 71DIN-B50CT1620 |    |    |    | 200 | 181 |    |         | 125 | 3.7  |     |
|     | DIN69871-AD+B50 CT18.80  | 71DIN-B50CT1808 | 18 | 33 | 42 | 80  | 61  | -  | 39 / 49 | 2.5 | 1    |     |
|     | DIN69871-AD+B50 CT18.120 | 71DIN-B50CT1812 |    |    |    | 120 | 101 |    |         | 2.8 |      |     |
|     | DIN69871-AD+B50 CT18.160 | 71DIN-B50CT1816 |    |    |    | 160 | 141 |    |         | 100 | 3.1  | 2   |
|     | DIN69871-AD+B50 CT20.80  | 71DIN-B50CT2008 | 20 |    |    | 80  | 61  | -  | 41 / 51 | 2.5 | 1    |     |
|     | DIN69871-AD+B50 CT20.120 | 71DIN-B50CT2012 |    |    |    | 120 | 101 |    |         | -   |      | 2.8 |
|     | DIN69871-AD+B50 CT20.160 | 71DIN-B50CT2016 |    |    |    | 160 | 141 |    |         | 100 | 3.1  | 2   |
|     | DIN69871-AD+B50 CT20.200 | 71DIN-B50CT2020 |    |    |    | 200 | 181 |    |         | 125 | 4.2  |     |
|     | DIN69871-AD+B50 CT25.120 | 71DIN-B50CT2512 | 25 | 44 | 53 | 120 | 101 | -  | 47 / 57 | 3.1 | 1    |     |
|     | DIN69871-AD+B50 CT25.160 | 71DIN-B50CT2516 |    |    |    | 160 | 141 |    |         | 100 |      | 2.8 |
|     | DIN69871-AD+B50 CT25.200 | 71DIN-B50CT2520 |    |    |    | 200 | 181 |    |         | 125 | 5.2  | 2   |
|     | DIN69871-AD+B50 CT32.120 | 71DIN-B50CT3212 | 32 |    |    | 120 | 101 | -  | 51 / 61 | 2.9 | 1    |     |
|     | DIN69871-AD+B50 CT32.160 | 71DIN-B50CT3216 |    |    |    | 160 | 141 |    |         | 100 |      | 3.5 |

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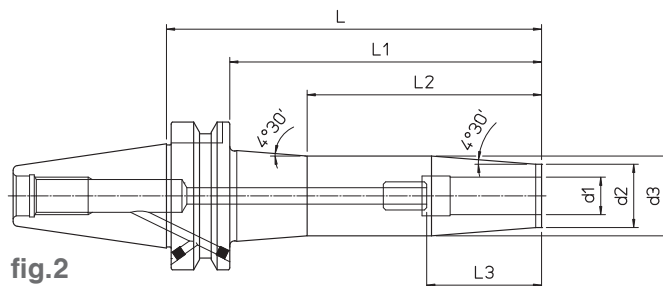
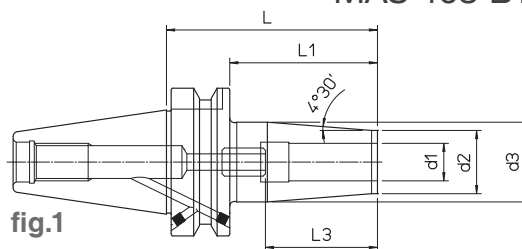


- SHRINK FIT CHUCKS
- ШПИНДЕЛИ С ТЕРМИЧЕСКИМ КЛИНОВЫМ СОЕДИНЕНИЕМ
- WRZĘCIONA Z TERMICZNYM POŁĄCZENIEM KLINOWYM
- ULOŽENÍ LISOVANÉ ZA TEPLA
- SIKI GEÇME MANDRENLERİ

### MAS 403 BT40 AD+B CT

0.003

RPM 25.000

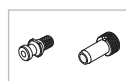


| BT | REF.                      | CODE            | d1  | d2  | d3  | L       | L1      | L2      | L3      | kg  | fig. |         |     |   |         |     |
|----|---------------------------|-----------------|-----|-----|-----|---------|---------|---------|---------|-----|------|---------|-----|---|---------|-----|
| 40 | MAS403 BT40-AD+B CT03.90  | 71MBT-B40CT0309 | 3   | 10  | —   | 90      | 63      | —       | 9       | 1   | 1    |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT04.90  | 71MBT-B40CT0409 | 4   |     |     |         |         |         | 12      |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT05.90  | 71MBT-B40CT0509 | 5   |     |     |         |         |         | 15      |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT06.90  | 71MBT-B40CT0609 | 6   | 21  | 27  | 120     | 93      | 100     | 22 / 36 | 0.8 | 1    |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT06.120 | 71MBT-B40CT0612 |     |     |     |         |         |         |         | 1   |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT06.160 | 71MBT-B40CT0616 |     |     |     |         |         |         |         | 1.2 |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT06.200 | 71MBT-B40CT0620 | 8   |     |     | 90      | 63      | —       | 26 / 36 | 1.7 | 2    |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT08.90  | 71MBT-B40CT0809 |     |     |     |         |         |         |         | 0.8 |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT08.120 | 71MBT-B40CT0812 |     |     |     |         |         |         |         | 1   |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT08.160 | 71MBT-B40CT0816 | 120 |     |     | 93      | —       | 100     | 1.2     | 1   |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT08.200 | 71MBT-B40CT0820 |     |     |     |         |         |         |         |     | 1.7  |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT10.90  | 71MBT-B40CT1009 |     | 10  | 24  |         |         |         |         |     | 32   | 90      | 63  | — | 31 / 41 | 0.9 |
|    | MAS403 BT40-AD+B CT10.120 | 71MBT-B40CT1012 | 1.1 |     |     |         |         |         |         |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT10.160 | 71MBT-B40CT1016 | 1.4 |     |     |         |         |         |         |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT10.200 | 71MBT-B40CT1020 | 12  | 90  |     | 63      | —       | 36 / 46 | 1.9     | 2   |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT12.90  | 71MBT-B40CT1209 |     |     |     |         |         |         | 0.9     |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT12.120 | 71MBT-B40CT1212 |     |     |     |         |         |         | 1.1     |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT12.160 | 71MBT-B40CT1216 | 160 | 133 |     | 100     | 125     | 1.3     | 1       |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT12.200 | 71MBT-B40CT1220 |     |     |     |         |         |         |         | 1.9 |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT14.90  | 71MBT-B40CT1409 |     |     | 14  |         |         |         |         | 27  | 34   | 90      | 63  | — | 31 / 41 | 0.9 |
|    | MAS403 BT40-AD+B CT14.120 | 71MBT-B40CT1412 | 1.1 |     |     |         |         |         |         |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT14.160 | 71MBT-B40CT1416 | 1.4 |     |     |         |         |         |         |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT16.90  | 71MBT-B40CT1609 | 16  | 90  | 63  | —       | 39 / 49 | 0.9     | 1       |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT16.120 | 71MBT-B40CT1612 |     |     |     |         |         | 1.1     |         |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT16.160 | 71MBT-B40CT1616 |     |     |     |         |         | 1.4     |         |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT16.200 | 71MBT-B40CT1620 | 18  | 200 | 173 | 125     | 2       | 1       |         |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT18.90  | 71MBT-B40CT1809 |     |     |     |         |         |         | 0.9     |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT18.120 | 71MBT-B40CT1812 |     |     |     |         |         |         | 1.1     |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT18.160 | 71MBT-B40CT1816 | 160 | 133 | 100 | 39 / 49 | 1.8     | 2       |         |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT20.90  | 71MBT-B40CT2009 |     |     |     |         | 42      |         | 90      | 63  | —    | 41 / 51 | 1.4 |   |         |     |
|    | MAS403 BT40-AD+B CT20.120 | 71MBT-B40CT2012 |     |     |     |         |         |         |         |     |      |         | 1.3 |   |         |     |
|    | MAS403 BT40-AD+B CT20.160 | 71MBT-B40CT2016 | 1.8 |     |     |         |         |         |         |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT20.200 | 71MBT-B40CT2020 | 20  | 200 | 173 | 125     | 2.4     | 2       |         |     |      |         |     |   |         |     |
|    | MAS403 BT40-AD+B CT25.100 | 71MBT-B40CT2510 |     |     |     |         |         |         | 25      | 44  | 53   | 100     | 73  | — | 47 / 57 | 1.8 |

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- SHRINK FIT CHUCKS
- ШПИНДЕЛИ С ТЕРМИЧЕСКИМ КЛИНОВЫМ СОЕДИНЕНИЕМ
- WRZECIONA Z TERMICZNYM POŁĄCZENIEM KLINOWYM
- ULOŽENÍ LISOVANÉ ZA TEPLA
- SIKİ GEÇME MANDRENLERİ

MAS 403 BT50 AD+B

CT

0.003

RPM 12.000

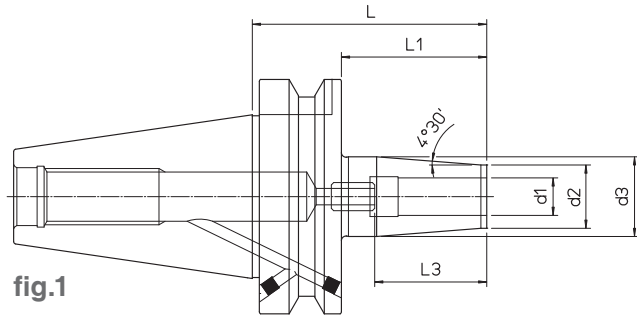


fig.1

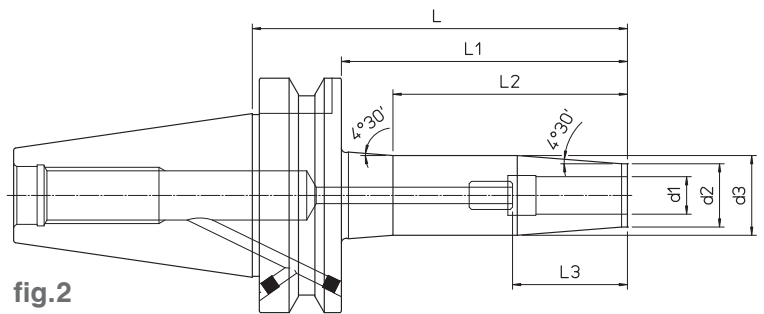


fig.2

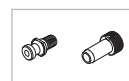
219

| BT | REF.                      | CODE            | d1 | d2 | d3 | L   | L1  | L2  | L3      | kg  | fig. |
|----|---------------------------|-----------------|----|----|----|-----|-----|-----|---------|-----|------|
| 50 | MAS403 BT50-AD+B CT06.100 | 71MBT-B50CT0610 | 6  | 21 | 27 | 100 | 62  | –   | 22 / 36 | 2.2 | 1    |
|    | MAS403 BT50-AD+B CT06.160 | 71MBT-B50CT0616 |    |    |    | 160 | 122 | 100 |         | 2.5 | 2    |
|    | MAS403 BT50-AD+B CT06.200 | 71MBT-B50CT0620 |    |    |    | 200 | 162 | 110 |         | 4.2 |      |
|    | MAS403 BT50-AD+B CT08.100 | 71MBT-B50CT0810 | 8  |    |    | 100 | 62  | –   | 26 / 36 | 2.2 | 1    |
|    | MAS403 BT50-AD+B CT08.160 | 71MBT-B50CT0816 |    |    |    | 160 | 122 | 100 |         | 2.5 | 2    |
|    | MAS403 BT50-AD+B CT08.200 | 71MBT-B50CT0820 |    |    |    | 200 | 162 | 110 |         | 4.2 |      |
|    | MAS403 BT50-AD+B CT10.100 | 71MBT-B50CT1010 | 10 | 24 | 32 | 100 | 62  | –   | 31 / 41 | 2.3 | 1    |
|    | MAS403 BT50-AD+B CT10.160 | 71MBT-B50CT1016 |    |    |    | 160 | 122 | 100 |         | 2.7 | 2    |
|    | MAS403 BT50-AD+B CT10.200 | 71MBT-B50CT1020 |    |    |    | 200 | 162 | 125 |         | 4.4 |      |
|    | MAS403 BT50-AD+B CT12.100 | 71MBT-B50CT1210 | 12 |    |    | 100 | 62  | –   | 36 / 46 | 2.3 | 1    |
|    | MAS403 BT50-AD+B CT12.160 | 71MBT-B50CT1216 |    |    |    | 160 | 122 | 100 |         | 2.7 | 2    |
|    | MAS403 BT50-AD+B CT12.200 | 71MBT-B50CT1220 |    |    |    | 200 | 162 | 125 |         | 4.4 |      |
|    | MAS403 BT50-AD+B CT14.100 | 71MBT-B50CT1410 | 14 | 27 | 34 | 100 | 62  | –   | 36 / 46 | 2.3 | 1    |
|    | MAS403 BT50-AD+B CT14.160 | 71MBT-B50CT1416 |    |    |    | 160 | 122 | 100 |         | 2.8 | 2    |
|    | MAS403 BT50-AD+B CT16.100 | 71MBT-B50CT1610 | 16 |    |    | 100 | 62  | –   | 39 / 49 | 2.3 | 1    |
|    | MAS403 BT50-AD+B CT16.160 | 71MBT-B50CT1616 |    |    |    | 160 | 122 | 100 |         | 2.8 | 2    |
|    | MAS403 BT50-AD+B CT16.200 | 71MBT-B50CT1620 |    |    |    | 200 | 162 | 125 |         | 4.5 |      |
|    | MAS403 BT50-AD+B CT18.100 | 71MBT-B50CT1810 | 18 | 33 | 42 | 100 | 62  | –   | 39 / 49 | 2.5 | 1    |
|    | MAS403 BT50-AD+B CT18.160 | 71MBT-B50CT1816 |    |    |    | 160 | 122 | 100 |         | 3.1 | 2    |
|    | MAS403 BT50-AD+B CT20.120 | 71MBT-B50CT2012 | 20 |    |    | 120 | 82  | –   | 41 / 51 | 2.8 | 1    |
|    | MAS403 BT50-AD+B CT20.160 | 71MBT-B50CT2016 |    |    |    | 160 | 122 | 100 |         | 3.1 | 2    |
|    | MAS403 BT50-AD+B CT20.200 | 71MBT-B50CT2020 |    |    |    | 200 | 162 | 125 |         | 4.9 |      |
|    | MAS403 BT50-AD+B CT25.120 | 71MBT-B50CT2512 | 25 | 44 | 53 | 120 | 82  | –   | 47 / 57 | 3.1 | 1    |
|    | MAS403 BT50-AD+B CT25.160 | 71MBT-B50CT2516 |    |    |    | 160 | 122 | 100 |         | 3.8 | 2    |
|    | MAS403 BT50-AD+B CT25.200 | 71MBT-B50CT2520 |    |    |    | 200 | 162 | 125 |         | 5.8 |      |
|    | MAS403 BT50-AD+B CT32.120 | 71MBT-B50CT3212 | 32 |    |    | 120 | 82  | –   | 51 / 61 | 2.9 | 1    |
|    | MAS403 BT50-AD+B CT32.160 | 71MBT-B50CT3216 |    |    |    | 160 | 122 | 100 |         | 3.5 | 2    |

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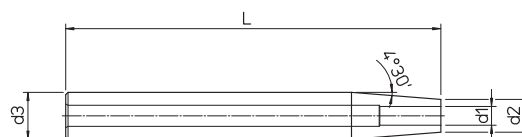
240

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- SHRINK FIT EXTENSIONS
- УДЛИНИТЕЛИ С ТЕРМИЧЕСКИМ КЛИНОВЫМ СОЕДИНЕНИЕМ
- PRZEŁUŻACZE O TERMICZNYM POŁĄCZENIU KLINOWYM
- PRODLOUŽENÍ ULOŽENÍ LISOVANÝCH ZA TEPLA
- SIKİ GEÇME UZATMALARI

PR CT N

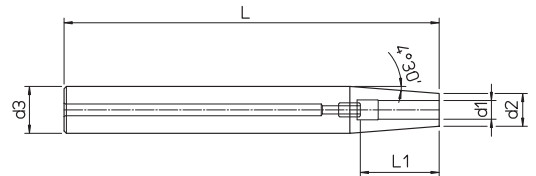


| REF.               | CODE         | d1 | d2 | d3 | L   | kg   |      |      |
|--------------------|--------------|----|----|----|-----|------|------|------|
| PR.CT.N D12.03.160 | 49DC11612030 | 3  | 8  | 12 | 160 | 0.09 |      |      |
| PR.CT.N D12.04.160 | 49DC11612040 | 4  |    |    |     |      |      |      |
| PR.CT.N D16.03.160 | 49DC11616030 | 3  | 10 | 16 |     | 0.14 |      |      |
| PR.CT.N D16.04.160 | 49DC11616040 | 4  |    |    |     |      |      |      |
| PR.CT.N D16.05.160 | 49DC11616050 | 5  |    |    |     |      |      |      |
| PR.CT.N D16.06.160 | 49DC11616060 | 6  | 12 | 20 |     | 0.16 |      |      |
| PR.CT.N D16.08.160 | 49DC11616080 | 8  | 14 |    |     | 0.27 |      |      |
| PR.CT.N D20.05.160 | 49DC11620050 | 5  |    |    |     | 20   | 0.26 |      |
| PR.CT.N D20.06.160 | 49DC11620060 | 6  |    |    |     |      | 20   | 0.21 |
| PR.CT.N D20.08.160 | 49DC11620080 | 8  |    |    |     |      |      | 20   |
| PR.CT.N D20.10.160 | 49DC11620100 | 10 | 20 |    |     |      |      |      |
| PR.CT.N D20.12.160 | 49DC11620120 | 12 |    |    |     | 20   |      |      |



- SHRINK FIT EXTENSIONS WITH AXIAL ADJUSTMENT
- УДЛИНИТЕЛИ С ТЕРМИЧЕСКИМ КЛИНОВЫМ СОЕДИНЕНИЕМ С ОСЕВОЙ РЕГУЛИРОВКОЙ
- PRZEDŁUŻACZE O TERMICZNYM POŁĄCZENIU KLINOWYM Z REGULACJĄ OSIOWĄ
- PRODLOUŽENÍ ULOŽENÍ LISOVANÝCH ZA TEPLA S AXIÁLNÍ ÚPRAVOU
- EKSENEL AYARLI SIKI GEÇME UZATMALARI

PR CT R



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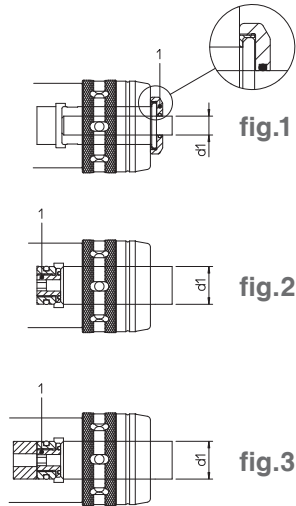
| REF.               | CODE         | d1   | d2  | d3      | L       | L1      | kg      |
|--------------------|--------------|------|-----|---------|---------|---------|---------|
| PR.CT.R D16.06.130 | 49DC21316060 | 6    | 10  | 16      | 130     | 22 / 36 | 0.18    |
| PR.CT.R D16.06.160 | 49DC21616060 |      |     |         | 160     |         | 0.17    |
| PR.CT.R D20.06.130 | 49DC21320060 |      | 14  | 20      | 130     |         | 0.20    |
| PR.CT.R D20.08.130 | 49DC21320080 | 0.25 |     |         |         |         |         |
| PR.CT.R D20.06.160 | 49DC21620060 | 160  |     |         | 22 / 32 | 0.33    |         |
| PR.CT.R D20.08.160 | 49DC21620080 |      |     |         | 26 / 36 | 0.32    |         |
| PR.CT.R D25.10.130 | 49DC21325100 | 10   | 20  | 25      | 130     | 31 / 41 | 0.40    |
| PR.CT.R D25.12.130 | 49DC21325120 | 12   |     |         |         | 36 / 46 | 0.37    |
| PR.CT.R D25.16.130 | 49DC21325160 | 16   | 22  |         |         | 39 / 49 | 0.32    |
| PR.CT.R D25.08.160 | 49DC21625080 | 8    | 19  |         | 160     | 26 / 36 | 0.53    |
| PR.CT.R D25.10.160 | 49DC21625100 | 10   | 20  |         |         | 31 / 41 | 0.51    |
| PR.CT.R D25.12.160 | 49DC21625120 | 12   |     |         |         | 22      | 36 / 46 |
| PR.CT.R D25.14.160 | 49DC21625140 | 14   | 200 |         |         |         | 39 / 49 |
| PR.CT.R D25.16.160 | 49DC21625160 | 16   |     |         |         | 20      | 26 / 36 |
| PR.CT.R D25.08.200 | 49DC22025080 | 8    | 19  | 31 / 41 | 0.64    |         |         |
| PR.CT.R D25.10.200 | 49DC22025100 | 10   | 22  | 36 / 46 | 0.60    |         |         |
| PR.CT.R D25.12.200 | 49DC22025120 | 12   |     | 32      | 160     |         | 0.52    |
| PR.CT.R D25.16.200 | 49DC22025160 | 16   | 27  |         |         | 32      | 200     |
| PR.CT.R D32.16.160 | 49DC21632160 |      |     | 18      | 41 / 51 |         |         |
| PR.CT.R D32.18.160 | 49DC21632180 | 20   | 20  | 32      | 200     | 39 / 49 | 1.81    |
| PR.CT.R D32.20.160 | 49DC21632200 | 16   |     |         |         | 41 / 51 | 0.87    |
| PR.CT.R D32.16.200 | 49DC22032160 | 20   |     |         |         |         |         |
| PR.CT.R D32.20.200 | 49DC22032200 | 20   |     |         |         |         |         |

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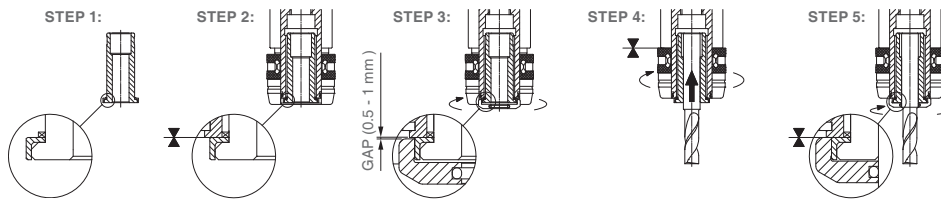


- SEALING DEVICE FOR HIGH PRESSURE COOLANT SUPPLY
- УПЛОТНИТЕЛЬНОЕ УСТРОЙСТВО ДЛЯ ХЛАДАГЕНТА ПОД ВЫСОКИМ ДАВЛЕНИЕМ
- URZĄDZENIA USZCZELNIAJĄCE CIECZ CHŁODZĄCĄ POD WYSOKIM CIŚNIENIEM
- TĚSNIČÍ ZAŘÍZENÍ PRO PŘÍVOD VYSOKOTLAKÉHO CHLADIVA
- YÜKSEK BASINÇLI SOĞUTMA SIVISI BESLEMESİ İÇİN SIZDIRMAZLIK ELEMANI

## FORCE GH - VT

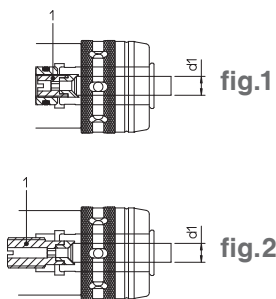


| fig. | REF.                                                               | CODE1        | d1 |
|------|--------------------------------------------------------------------|--------------|----|
| 1    | GH 20 MONOforce 20<br>HSK63 MHD'50 / DIN/BT-40-50<br>PSC 63 - 80   | 382042020061 | 6  |
|      |                                                                    | 382042020081 | 8  |
|      |                                                                    | 382042020101 | 10 |
|      |                                                                    | 382042020121 | 12 |
|      |                                                                    | 382042020141 | 14 |
| 2    | VT 20.20 MONOforce 20 DIN/BT-40-50 HSK63-100 PSC 63-80             | 382042020161 | 16 |
|      |                                                                    | 382042020201 | 20 |
|      |                                                                    | 382042032061 | 6  |
|      |                                                                    | 382042032081 | 8  |
|      |                                                                    | 382042032101 | 10 |
| 1    | GH 32 MONOforce 32<br>DIN/BT-40-50 / HSK63-100 MHD'63<br>PSC 63-80 | 382042032121 | 12 |
|      |                                                                    | 382042032141 | 14 |
|      |                                                                    | 382042032161 | 16 |
|      |                                                                    | 382042032181 | 18 |
|      |                                                                    | 382042032201 | 20 |
|      |                                                                    | 382042032251 | 25 |
|      |                                                                    | 382042032321 | 32 |
| 2    | VT 32.32 MONOforce 32 DIN/BT-40 HSK63-100 PSC 63-80                | 382042032321 | 32 |
| 3    | VT 32.32.100 MONOforce 32 DIN/BT-50                                | 382042032322 | 32 |



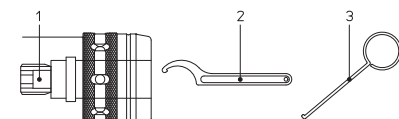
- SETTING SCREW FOR INTERNAL COOLANT SUPPLY
- ЗАЖИМНЫЕ ВИНТЫ ПРОХОДА ХЛАДАГЕНТА
- ŚRUBA REGULUJĄCA PRZEPŁYW CIECZY CHŁODZĄCEJ
- NASTAVOVACÍ ŠROUB PRO INTERNÍ PŘÍVOD CHLADIVA
- DAHİLİ SOĞUTMA SIVISI BESLEMESİ İÇİN AYAR VIDASI

## FORCE VCR



| fig. | REF.                                                 | CODE 1       | d1      |
|------|------------------------------------------------------|--------------|---------|
| 1    | VCR 20 MONOforce 20<br>HSK63-100 MHD'50<br>PSC 63-80 | 382041020032 | 3 ~ 5   |
|      |                                                      | 382041020062 | 6 ~ 12  |
|      |                                                      | 382041020142 | 14 ~ 20 |
| 1    | VCR 32 MONOforce 32<br>HSK63-100 MHD'63<br>PSC 63-80 | 382041032033 | 3 ~ 5   |
|      |                                                      | 382041032063 | 6 ~ 12  |
|      |                                                      | 382041032143 | 14 ~ 20 |
|      |                                                      | 382041032253 | 25 ~ 32 |
|      |                                                      | 382041020031 | 3 ~ 5   |
| 2    | VCR 20 MONOforce 20<br>DIN/BT-40-50                  | 382041020061 | 6 ~ 12  |
|      |                                                      | 382041020141 | 14 ~ 20 |
|      |                                                      | 382041032031 | 3 ~ 5   |
| 2    | VCR 32 MONOforce 32<br>DIN/BT-40                     | 382041032061 | 6 ~ 12  |
|      |                                                      | 382041032141 | 14 ~ 20 |
|      |                                                      | 382041032251 | 25 ~ 32 |
|      |                                                      | 382041032032 | 3 ~ 5   |
|      |                                                      | 382041032062 | 6 ~ 12  |
| 2    | VCR 32 MONOforce 32<br>DIN/BT-50                     | 382041032142 | 14 ~ 20 |
|      |                                                      | 382041032252 | 25 ~ 32 |

## FORCE



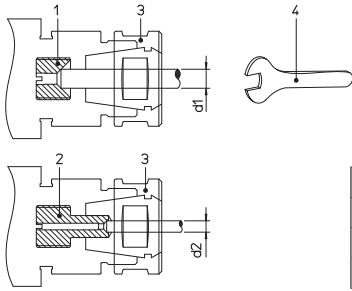
| REF.     | CODE 1       | CODE 2       | CODE 3       |
|----------|--------------|--------------|--------------|
| FORCE 12 | 200100191014 | 101500400028 | 201271600400 |
| FORCE 20 | 200100191615 | 101500400050 |              |
| FORCE 32 |              | 101500400075 |              |





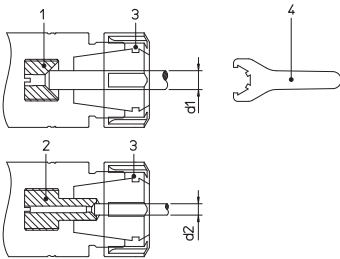
- ACCESSORIES AND SPARE PARTS
- ЗАПЧАСТИ И КОМПЛЕКТУЮЩИЕ
- WYPOSAŻENIE DODATKOWE I CZĘŚCI ZAMIENNE
- PŘÍSLUŠENSTVÍ A NÁHRADNÍ DÍLY
- AKSESUARLAR VE YEDEK PARÇALAR

## TOPRUN - ER



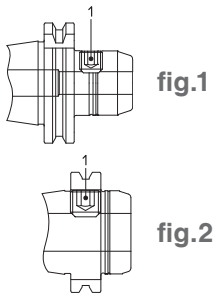
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| ER 25 | 201082018001 | 8 ~ 16 | 201082018002 | 2 ~ 7 | 201043010002 | 201271503400 |
| ER 32 | 201082022001 | 8 ~ 20 | 201082022002 | 3 ~ 7 | 201044015001 | 201271504500 |

## MONOd' - ER



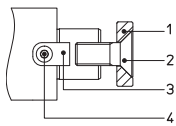
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| ER 16 M | 201082010001 | 5 ~ 10 | 201082010002 | 1 ~ 4 | 100451011600 | 101501001600 |
| ER 25   | 201082018001 | 8 ~ 16 | 201082018002 | 2 ~ 7 | 100451032500 | 101501002501 |
| ER 32   | 201082022001 | 8 ~ 20 | 201082022002 | 3 ~ 7 | 100451033200 | 101501003201 |
| ER 40   | 201082028001 | 9 ~ 26 | 201082028002 | 4 ~ 8 | 100451034000 | 101501004001 |

## MONOd' - WD



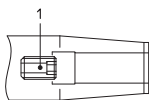
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|------|-------|--------------|------|-------|--------------|
| 1    | WD 06 | 200100190610 | 1    | WD 20 | 200100191616 |
|      | WD 08 | 200100190810 | 2    |       | 200100191613 |
|      | WD 10 | 200100191010 | 1    | WD 25 | 200100191820 |
|      | WD 12 | 200100191212 | 2    |       | 200100191821 |
|      | WD 14 |              | 1    | WD 32 | 200100192020 |
|      | WD 16 | WD 40        |      |       |              |
|      | WD 18 |              |      |       |              |

## MONOd' - PF



| REF.  | CODE 1       | CODE 2       | CODE 3       | CODE 4       |
|-------|--------------|--------------|--------------|--------------|
| PF 16 | 201010085010 | 100101080025 | 201101800801 | 100051030008 |
| PF 22 | 201010105030 | 100101100025 | 201101801002 | 100051040010 |
| PF 27 | 201010125030 | 100101120030 | 201101801202 | 100051050012 |
| PF 32 | 201010165020 | 100101160035 | 201101801402 | 100051060016 |

## MONOd' CT



| REF.  | CODE 1       | REF.  | CODE 1       |
|-------|--------------|-------|--------------|
| CT 06 | 200100190520 | CT 16 | 200100191221 |
| CT 08 | 200100190620 | CT 18 |              |
| CT 10 | 200100190820 | CT 20 | 200100191620 |
| CT 12 | 200100191018 | CT 25 |              |
| CT 14 |              | CT 32 |              |

# D'ANDREA

## MCD' HSK-PSC

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- СОДЕРЖАНИЕ
- SPIS TREŚCI
- REJSTRIK
- DİZİN

HSK

PSC



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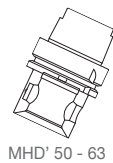


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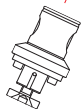


224

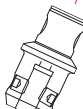
## Turning operations



MHD' 50 - 63



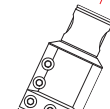
MHD' PF



MHD' WD



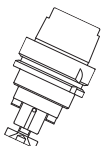
MHD' ER



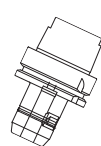
MHD' TU



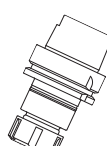
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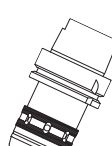
MONOd' PF



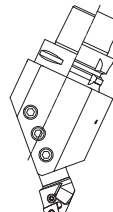
MONOd' WD



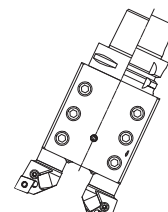
MONOd' ER



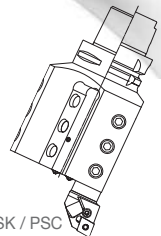
MONOforce 12 - 20 - 32



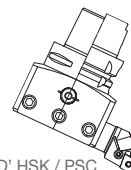
MCD' HSK / PSC  
TU 25.45 R/L



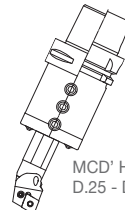
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TU 25.02 N



MCD' HSK / PSC  
TU 25.03

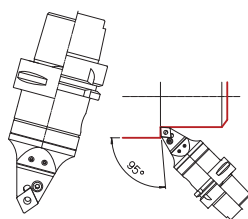


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TU 25.90

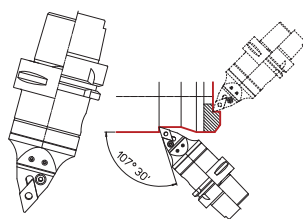


MCD' HSK / PSC  
D.25 - D.40

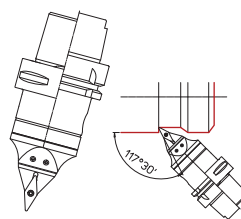




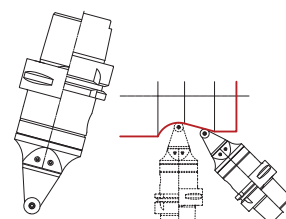
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PCMNN



MCD' HSK / PSC  
PDNNN



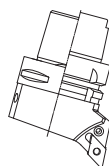
MCD' HSK / PSC  
SVVBN



MCD' HSK / PSC  
SRDCN



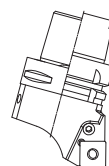
MCD' HSK / PSC  
PCLNR/L



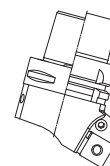
MCD' HSK / PSC  
PDJNR/L



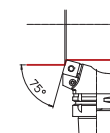
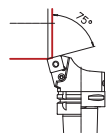
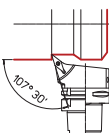
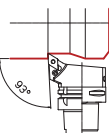
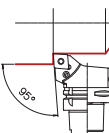
MCD' HSK / PSC  
SVHBR/L



MCD' HSK / PSC  
PSKNR/L



MCD' HSK / PSC  
PSRNR/L



- TURNING TOOLS
- ТОКАРНЫЕ РЕЗЦЫ
- NARZĘDZIA TOKARSKIE
- NÁSTROJE NA SOUSTRUŽENÍ
- TORNA AYNASI TAKIMLARI

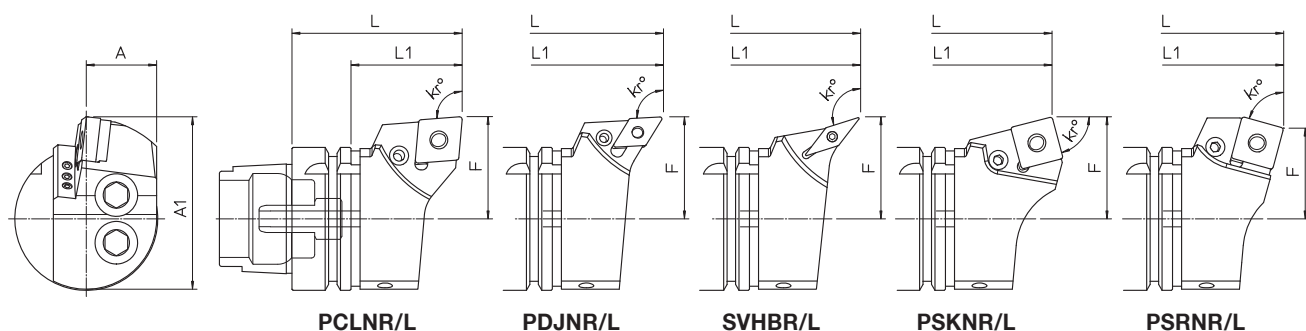
**GB** MCD' is the line of tools and tool holders for lathes, built according to ISO 26623-1 PSC and HSK-T63 standards with recommended DIN 69893-T, ICTM constructive tolerances (ISO 12164-3) for the application on spindles of MULTI-TASK machinery. The MCD' program is produced in modular version, and is composed of toolholders with HSK coupling module and interchangeable bit holders. The range includes toolholders which permit the mounting of tools for internal, external, cutting and threading of the various standard programs on the market. **All Tool Holders are equipped with the passage of the coolant with standard pressure of MAX 40 BAR.**

**RU** MCD' – линия резцов и держателей для токарных станков, создаваемых в соответствии со стандартами ISO 26623-1 PSC и HSK-T63 с допусками ICTM (ISO 12164-3) рекомендованные для применения на шпинделях станков MULTI-TASK. Программа MCD' производится в модульном исполнении и состоит из держателя с креплением HSK и сменного модуля держателя. Сюда входят держатели, позволяющие закреплять инструменты для внутреннего и наружного точения, резки, а также для нарезания резьбы согласно различным стандартным программам, существующим на рынке. **Все резцедержатели оборудованы каналом для смазочно-охлаждающей жидкости со стандартным давлением МАКС. 40 БАР.**

**PL** MCD' jest linią narzędzi i opravek narzędziowych przeznaczonych na urządzenia typu MULTI-TASK, z częścią chwytową zgodną z normami ISO 26623-1 PSC i HSK-T63. Oprawki są zgodne konstrukcyjnie i posiadające tolerancje ICTM (ISO 12164-3). MCD' jest produkowany jako narzędzie modułowe składające się z typoszeregu imaków posiadających uchwyt HSK oraz wymiennych, pasujących do nich końcówek skrawających. System posiada kompletną gamę opravek przeznaczonych do mocowania narzędzi do obróbek wewnętrznych, zewnętrznych, przecinania i wykonywania gwintów zgodną z różnymi, istniejącymi na rynku, standardami. **Wszystkie imaki nożowe wyposażone są w smarowy płyn chłodzący o ciśnieniu standardowym MAX 40 BAR.**

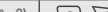
**CZ** MCD' je řada nástrojů a nástrojových držáků pro soustruhy navržených podle norem ISO 26623-1 PSC a HSK-T63 s doporučenými konstrukčními tolerancemi ICTM (ISO 12164-3) pro použití na vřetenech strojů MULTI-TASK. Program MCD' se vyrábí v modulární verzi a skládá se z nástrojových držáků se spojkovým modulem HSK a zaměnitelnými hrotovými držáky. Řada zahrnuje nástrojové držáky umožňující montáž nástrojů pro vnitřní plochy, vnější plochy, frézování a řezání závitů v rámci různých standardních programů na trhu. **Všechny držáky nástrojů jsou vybaveny průchodem chladiva se standardním tlakem MAX. 40 BAR.**

**TB** MCD', ISO 26623-1 PSC ve HSK-T63 standartlarına uygun olarak önerilen ICTM yapı toleranslarıyla (ISO 12164-3) üretilmiş, ÇOKLU GÖREV makinelerinin millerindeki uygulamalar için kullanılan takım ve takım tutucu setlerinin ürün ailesidir. MCD' programı modüler versiyonda üretilmiştir ve HSK kaplin modüllü takım tutuculardan ve birbirleriyle değiştirilebilen kovanlardan oluşur. Ürün yelpazesi, piyasadaki çeşitli standart programların iç, dış, kesme ve dış açma işleri için farklı takımların monte edilmesine imkan tanır. **Tüm Takım Tutucuları, içindeki soğutma sıvısının standart basıncı MAX 40 BAR olan geçiş ile donatılmıştır.**



- Supplied with coolant tube
- Содержит соединение для хладагента
- Wyposażona w złączkę do cieczy chłodzącej
- Dodávané s chladicím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

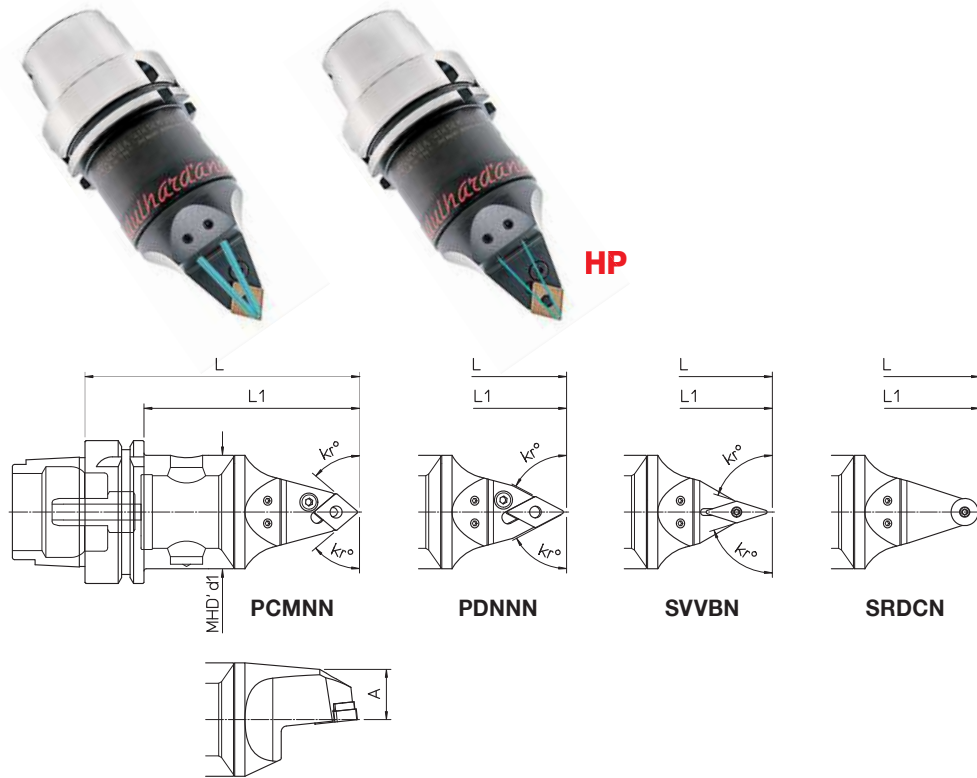
- Available on request HP = High Pressure **Max 80 BAR**
- Поставляются по заказу HP = высокое давление **Max 80 BAR**
- Dostarczane na zamówienie HP = wysokie ciśnienie **Max 80 BAR**
- Dodávané na objednávku HP = vysoký tlak **Max 80 BAR**
- Talebe göre HP = .Yüksek Basıncı olarak da mevcuttur **Max 80 BAR**

| HSK-T | REF.                       | CODE            | A  | A <sub>1</sub> | F  | L  | L <sub>1</sub> | K <sub>r</sub> <sup>1)</sup> | γ <sup>2)</sup> | λ <sup>3)</sup> |  | kg  |  |  |  |  |  |  |
|-------|----------------------------|-----------------|----|----------------|----|----|----------------|------------------------------|-----------------|-----------------|---------------------------------------------------------------------------------------|-----|--|--|--|--|--|--|
| 63    | MCD'HSK-T63 PCLNR 45075-19 | 6H06PCLNR40719N | 31 | 76             | 45 | 75 | 49             | 95°                          | 6°              | 6°              | CNM..1906..                                                                           | 1.3 |  |  |  |  |  |  |
|       | MCD'HSK-T63 PCLNL 45075-19 | 6H06PCLNL40719N |    |                |    |    |                | 93°                          |                 |                 | DNM..1506..                                                                           |     |  |  |  |  |  |  |
|       | MCD'HSK-T63 PDJNR 45075-15 | 6H06PDJNR40715N |    |                |    |    |                | 107° 30'                     |                 |                 | VBM..1604..                                                                           |     |  |  |  |  |  |  |
|       | MCD'HSK-T63 PDJNL 45075-15 | 6H06PDJNL40715N |    |                |    |    |                |                              |                 |                 |                                                                                       |     |  |  |  |  |  |  |
|       | MCD'HSK-T63 SVHBR 45075-16 | 6H06SVHBR40716N |    |                |    | 73 | 47             | 75°                          | 6°              | 6°              | SNM..1906..                                                                           |     |  |  |  |  |  |  |
|       | MCD'HSK-T63 SVHBL 45075-16 | 6H06SVHBL40716N |    |                |    |    |                |                              |                 |                 |                                                                                       |     |  |  |  |  |  |  |
|       | MCD'HSK-T63 PSKNR 45073-19 | 6H06PSKNR40719N |    |                |    | 75 | 49             |                              |                 |                 |                                                                                       |     |  |  |  |  |  |  |
|       | MCD'HSK-T63 PSKNL 45073-19 | 6H06PSKNL40719N |    |                |    |    |                |                              |                 |                 |                                                                                       |     |  |  |  |  |  |  |
|       | MCD'HSK-T63 PSRNR 40075-19 | 6H06PSRNR40719N |    |                |    |    |                |                              |                 |                 |                                                                                       |     |  |  |  |  |  |  |
|       | MCD'HSK-T63 PSRNL 40075-19 | 6H06PSRNL40719N |    |                |    |    |                |                              |                 |                 |                                                                                       |     |  |  |  |  |  |  |

- Right hand bit-holders shown: 1) Side cutting edge angle. 2) True rake angle. 3) Cutting edge inclination
- На рисунке правые модули. 1) Угол записи. 2) Передний угол. 3) Угол наклона
- Na rysunku końcówki prawe: 1) Kąt nastawczy. 2) Górny kąt natarcia. 3) Kąt nachylenia
- Zobrazené pravé hrotové držáky: 1) Úhel řezné hrany. 2) Skutečný úhel sklonu. 3) Sklon řezné hrany
- Sağdan kullanımlı kovanlar gösterilmiştir: 1) Yan kesme kenarı açısı. 2) Gerçek meyil açısı. 3) Kesme kenarı eğimi

- TURNING TOOLS
- ТОКАРНЫЕ РЕЗЦЫ
- NARZĘDZIA TOKARSKIE
- NÁSTROJE NA SOUSTRUŽENÍ
- TORNA AYNASI TAKIMLARI

DIN 69893  
MCD' HSK-T63



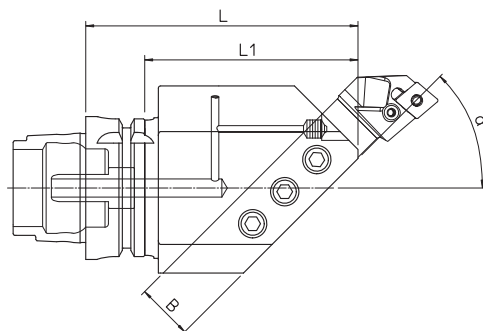
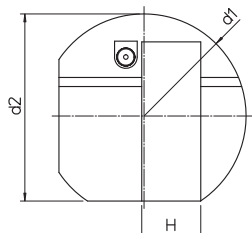
- Supplied with coolant tube
- Содержит соединение для хладагента
- Wyposażona w złączkę do cieczy chłodzącej
- Dodávané s chladičím potrubím
- Soğutma sıvısı borusuyla tedarik edilir

- Available on request HP = High Pressure **Max 80 BAR**
- Поставляются по заказу HP = высокое давление **Max 80 BAR**
- Dostarczane na zamówienie HP = wysokie ciśnienie **Max 80 BAR**
- Dodávané na objednávku HP = vysoký tlak **Max 80 BAR**
- Talebe göre HP = .Yüksek Basıncılı olarak da mevcuttur **Max 80 BAR**

| HSK-T | REF.                        | CODE            | MHD'd <sub>1</sub> | A  | L   | L <sub>1</sub> | K <sub>r</sub> <sup>1)</sup> | γ <sup>2)</sup> | λ <sup>3)</sup> |  | kg  |
|-------|-----------------------------|-----------------|--------------------|----|-----|----------------|------------------------------|-----------------|-----------------|---------------------------------------------------------------------------------------|-----|
| 63    | MCD' HSK-T63 PCMNN 00121-12 | 6H06PCMNN01212N | 50                 | 22 | 121 | 95             | 50°                          | 6°              | 0°              | CNM..1204..                                                                           | 1.4 |
|       | MCD' HSK-T63 PDNNN 00121-15 | 6H06PDNNN01215N |                    |    |     |                | 62° 30'                      |                 |                 | DNM..1506..                                                                           |     |
|       | MCD' HSK-T63 SVVBN 00121-16 | 6H06SVVBN01216N |                    |    |     |                | 72° 30'                      | VBM..1604..     |                 |                                                                                       |     |
|       | MCD' HSK-T63 SRDCN 00121-12 | 6H06SRDCN01212N |                    |    |     |                | -                            | RCM..1204..     |                 |                                                                                       |     |

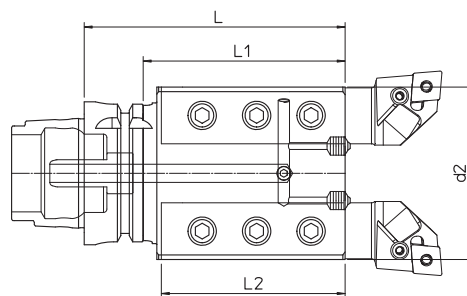
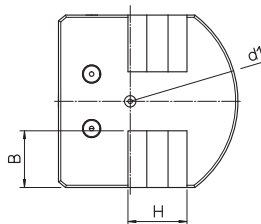
- 1) Side cutting edge angle. 2) True rake angle. 3) Cutting edge inclination
- 1) Угол записи. 2) Передний угол. 3) Угол наклона
- 1) Kąt nastawczy. 2) Górny kąt natarcia. 3) Kąt nachylenia
- 1) Úhel řezné hrany. 2) Skutečný úhel sklonu. 3) Sklon řezné hrany
- 1) Yan kesme kenarı açısı. 2) Gerçek meyil açısı. 3) Kesme kenarı eğimi

DIN 69893  
MCD' HSK-T63



- Right hand tool holder shown. Supplied with coolant tube. Without bit-holders and clamping wrenches. A standard application requires left hand tools with right hand adapters.
- На рисунке правые держатели. Включают соединения для хладагента. Кассеты и зажимные ключи не входят в комплект поставки. Нормальная эксплуатация требует левого инструмента в правом адаптере.
- Na rysunku oprawka narzędziowa prawa. Wyposażona w złącze do cieczy chłodzącej. Końcówki i klucze zaciskowe nie są na wyposażeniu. Normalne zastosowanie wymaga narzędzia lewego w prawej oprawce.
- Zobrazený pravý nástrojový držák. Dodávané s chladicím potrubím. Bez hrotových držáků a upínacích klíčů. Standardní aplikace vyžaduje levé nástroje s pravými adaptéry.
- Sağdan kullanımlı takim tutucu gösterilmiştir. Soğutma sıvısıyla tedarik edilir. Matkap kovanları ve sıkıştırma anahtarları dahil değildir. Standart uygulamada soldan kullanılan takımlar sağdan kullanım adaptörlerine ihtiyaç duyar.

| HSK-T | REF.                  | CODE            | L   | L1 | d1 | d2   | a°  | BxH   | kg  |
|-------|-----------------------|-----------------|-----|----|----|------|-----|-------|-----|
| 63    | MCD' HSK-T63 TU25.45R | 71HСКА63T2545R1 | 120 | 94 | 90 | 82.5 | 45° | 25x25 | 3.4 |
|       | MCD' HSK-T63 TU25.45L | 71HСКА63T2545L1 |     |    |    |      |     |       |     |



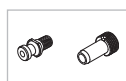
- Supplied with coolant tube. Without bit-holders and clamping wrenches
- Содержат соединения для хладагента. Кассеты и зажимные ключи не входят в комплект поставки
- Wyposażony w złącze do cieczy chłodzącej. Końcówki i klucze zaciskowe nie są na wyposażeniu.
- Dodávané s chladicím potrubím. Bez hrotových držáků a upínacích klíčů
- Soğutma sıvısı borusuyla tedarik edilir. Matkap kovanları ve sıkıştırma anahtarları dahil değildir

| HSK-T | REF.                  | CODE            | L   | L1 | L2 | d1 | d2 | BxH   | kg  |
|-------|-----------------------|-----------------|-----|----|----|----|----|-------|-----|
| 63    | MCD' HSK-T63 TU25.02N | 71HСКА63T2502N1 | 115 | 89 | 80 | 95 | 76 | 25x25 | 3.5 |

248



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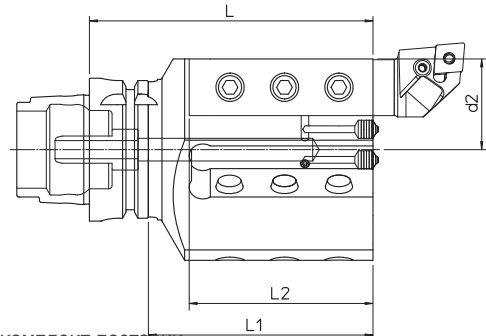
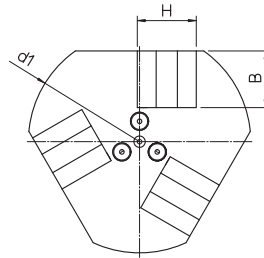
237





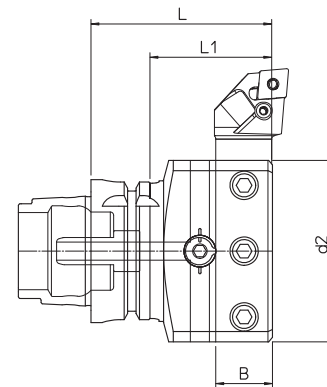
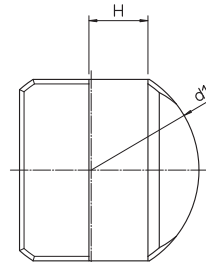
- EXTERNAL TURNING TOOL HOLDERS
- АДАПТОРЫ ДЕРЖАТЕЛЕЙ
- ADAPTERY OPRAWEK NARZĘDZIOWYCH
- EXTERNÍ DRŽÁKY NÁSTROJŮ NA SOUSTRUŽENÍ
- DIŞ TORNALAMA TAKIMI TUTUCULARI

DIN 69893  
MCD' HSK-T63



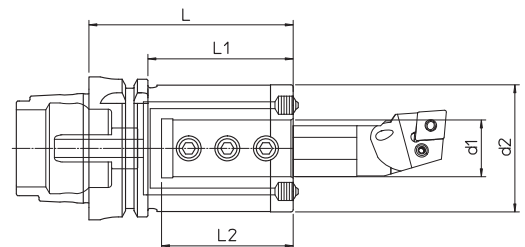
- Supplied with coolant tube. Without bit-holders and clamping wrenches
- Содержат соединения для хладагента. Кассеты и зажимные ключи не входят в комплект поставки
- Wyposażony w złącze do cieczy chłodzącej. Końcówki i klucze zaciskowe nie są na wyposażeniu.
- Dodávané s chladicím potrubím. Bez hrotových držáků a upínacích klíčů
- Soğutma sıvısı borusuyla tedarik edilir. Matkap kovanları ve sıkıştırma anahtarları dahil değildir

| HSK-T | REF.                  | CODE           | L   | L1 | L2 | d1 | d2 | BxH   | kg |
|-------|-----------------------|----------------|-----|----|----|----|----|-------|----|
| 63    | MCD' HSK-T63 TU25.03R | 71HSA63T2503R1 | 125 | 99 | 80 | 98 | 40 | 25x25 | 4  |
|       | MCD' HSK-T63 TU25.03L | 71HSA63T2503L1 |     |    |    |    |    |       |    |



- Supplied with coolant tube. Without bit-holders and clamping wrenches
- Содержат соединения для хладагента. Кассеты и зажимные ключи не входят в комплект поставки
- Wyposażony w złącze do cieczy chłodzącej. Końcówki i klucze zaciskowe nie są na wyposażeniu.
- Dodávané s chladicím potrubím. Bez hrotových držáků a upínacích klíčů
- Soğutma sıvısı borusuyla tedarik edilir. Matkap kovanları ve sıkıştırma anahtarları dahil değildir

| HSK-T | REF.                 | CODE           | L  | L1 | d1 | d2 | BxH   | kg  |
|-------|----------------------|----------------|----|----|----|----|-------|-----|
| 63    | MCD' HSK-T63 TU25.90 | 71HSA63T259001 | 80 | 54 | 95 | 80 | 25x25 | 5.1 |



- Supplied with coolant tube. Without bit-holders and clamping wrenches. **Reduction bushes on request.**
- Содержат соединения для хладагента. Кассеты и зажимные ключи не входят в комплект поставки. **Соединительные втулки поставляются по запросу.**
- Wyposażona w złącze do cieczy chłodzącej. Końcówki i klucze zaciskowe nie są na wyposażeniu. **Tuleje redukcyjne dostępne na zamówienie.**
- Dodávané s chladicím potrubím. Bez hrotových držáků a upínacích klíčů. **Redukční pouzdra na vyžádání.**
- Soğutma sıvısı borusuyla tedarik edilir. Matkap kovanları ve sıkıştırma anahtarları dahil değildir. **Redüktör burçları isteğe bağlıdır.**

| HSK-T | REF.                  | CODE           | d1H7 | d2 | L   | L1  | L2 | kg  |
|-------|-----------------------|----------------|------|----|-----|-----|----|-----|
| 63    | MCD' HSK-T63 D.25x90  | 71HSA63D250901 | 25   | 56 | 90  | 64  | 58 | 1.6 |
|       | MCD' HSK-T63 D.40x135 | 71HSA63D401301 | 40   | 80 | 135 | 109 | 85 | 3.9 |

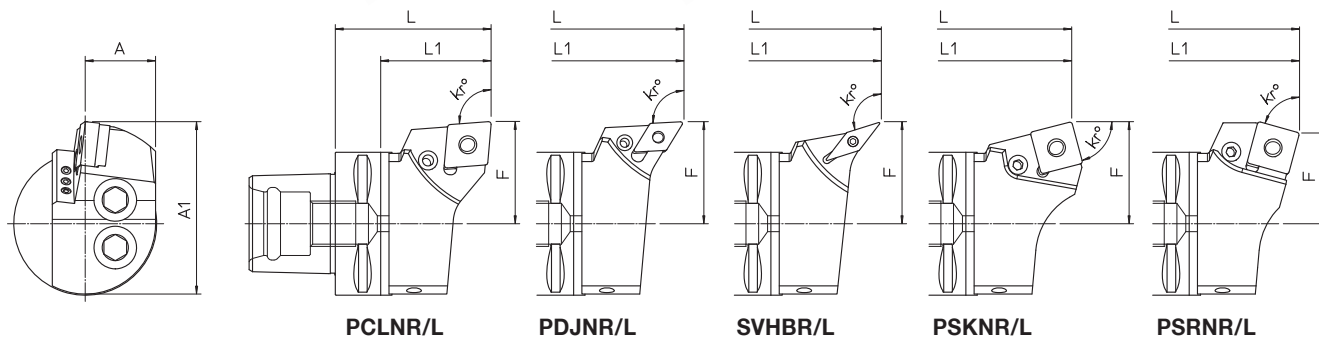
237

240

248



ISO 26623-1  
MCD' PSC



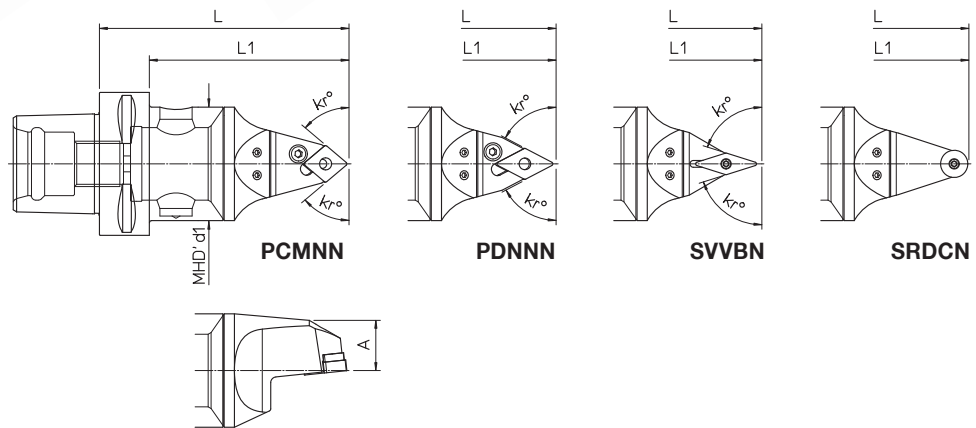
- Available on request HP = High Pressure **Max 80 BAR**
- Поставляются по заказу HP = высокое давление **Max 80 BAR**
- Dostarczane na zamówienie HP = wysokie ciśnienie **Max 80 BAR**
- Dodávané na objednávku HP = vysoký tlak **Max 80 BAR**
- Talebe göre HP = .Yüksek Basıncı olarak da mevcuttur **Max 80 BAR**

| PSC | REF.                         | CODE              | A    | A <sub>1</sub> | F           | L   | L <sub>1</sub> | K <sub>r</sub> <sup>1)</sup> | γ <sup>2)</sup> | λ <sup>3)</sup> |  | kg  |     |             |
|-----|------------------------------|-------------------|------|----------------|-------------|-----|----------------|------------------------------|-----------------|-----------------|---------------------------------------------------------------------------------------|-----|-----|-------------|
| 40  | MCD' PSC 40 PCLNR/L 27050-12 | 6P04PCLNR/L20512N | 19.5 | 47             | 27          | 50  | 30             | 95°                          | 6°              | 6°              | CNM..1204..                                                                           | 0.5 |     |             |
|     | MCD' PSC 40 PDJNR/L 27055-15 | 6P04PDJNR/L20515N |      |                |             | 55  | 35             | 93°                          |                 |                 | DNM..1506..                                                                           |     |     |             |
|     | MCD' PSC 40 PSKNR/L 27050-12 | 6P04PSKNR/L20512N |      | 50             | 30          | 75° | SNM..1204..    |                              |                 |                 |                                                                                       |     |     |             |
|     | MCD' PSC 40 PSRNR/L 22050-12 | 6P04PSRNR/L20512N |      |                |             |     |                | 42                           |                 |                 | 22                                                                                    |     |     |             |
| 50  | MCD' PSC 50 PCLNR/L 35060-12 | 6P05PCLNR/L30612N | 24.5 | 60             | 35          | 60  | 40             | 95°                          | 6°              | 6°              | CNM..1204..                                                                           | 0.8 |     |             |
|     | MCD' PSC 50 PDJNR/L 35060-15 | 6P05PDJNR/L30615N |      |                |             |     |                | 93°                          |                 |                 | DNM..1508..                                                                           |     |     |             |
|     | MCD' PSC 50 PSKNR/L 35060-12 | 6P05PSKNR/L30612N |      | 75°            | SNM..1204.. |     |                |                              |                 |                 |                                                                                       |     |     |             |
|     | MCD' PSC 50 PSRNR/L 27060-12 | 6P05PSRNR/L20612N |      |                |             |     |                | 52                           |                 |                 | 27                                                                                    |     |     |             |
| 63  | MCD' PSC 63 PCLNR/L 45065-19 | 6P06PCLNR/L40619N | 31   | 76             | 45          | 65  | 45             | 95°                          | 6°              | 6°              | CNM..1906..                                                                           | 1.3 |     |             |
|     | MCD' PSC 63 PDJNR/L 45065-15 | 6P06PDJNR/L40615N |      |                |             |     |                | 93°                          |                 |                 | DNM..1506..                                                                           |     |     |             |
|     | MCD' PSC 63 SVHBR/L 45065-16 | 6P06SVHBR/L40616N |      |                |             |     |                | 107.5°                       |                 |                 | 0°                                                                                    |     | 0°  | VBM..1604.. |
|     | MCD' PSC 63 PSKNR/L 45065-19 | 6P06PSKNR/L40619N |      |                |             |     |                | 63                           |                 |                 | 43                                                                                    |     | 75° | 6°          |
|     | MCD' PSC 63 PSRNR/L 40065-19 | 6P06PSRNR/L40619N |      | 71             | 40          | 65  | 45             |                              |                 |                 |                                                                                       |     |     |             |
| 80  | MCD' PSC 80 PCLNR/L 55080-19 | 6P08PCLNR/L50819N | 39.5 | 95             | 55          | 80  | 50             | 95°                          | 6°              | 6°              | CNM..1906..                                                                           | 2.8 |     |             |
|     | MCD' PSC 80 PDJNR/L 55080-15 | 6P08PDJNR/L50815N |      |                |             |     |                | 93°                          |                 |                 | DNM..1506..                                                                           |     |     |             |
|     | MCD' PSC 80 SVHBR/L 55080-16 | 6P08SVHBR/L50816N |      |                |             |     |                | 107.5°                       |                 |                 | 0°                                                                                    |     | 0°  | VBM..1604.. |
|     | MCD' PSC 80 PSKNR/L 55080-19 | 6P08PSKNR/L50819N |      |                |             |     |                | 78                           |                 |                 | 48                                                                                    |     | 75° | 6°          |
|     | MCD' PSC 80 PSRNR/L 45080-19 | 6P08PSRNR/L40819N |      | 85             | 45          | 80  | 50             |                              |                 |                 |                                                                                       |     |     |             |

- Right hand bit-holders shown: 1) Side cutting edge angle. 2) True rake angle. 3) Cutting edge inclination
- На рисунке правые модули. 1) Угол записи. 2) Передний угол. 3) Угол наклона
- Na rysunku końcówki prawe: 1) Kąt nastawczy. 2) Górny kąt natarcia. 3) Kąt nachylenia
- Zobrazené pravé hrotové drážky: 1) Úhel řezné hrany. 2) Skutečný úhel sklonu. 3) Sklon řezné hrany
- Sağdan kullanılanı kovanlar gösterilmiştir: 1) Yan kesme kenarı açısı. 2) Gerçek meyil açısı. 3) Kesme kenarı eğimi

- TURNING TOOLS
- ТОКАРНЫЕ РЕЗЦЫ
- NARZĘDZIA TOKARSKIE
- NÁSTROJE NA SOUSTRUŽENÍ
- TORNA AYNASI TAKIMLARI

ISO 26623-1  
MCD' PSC



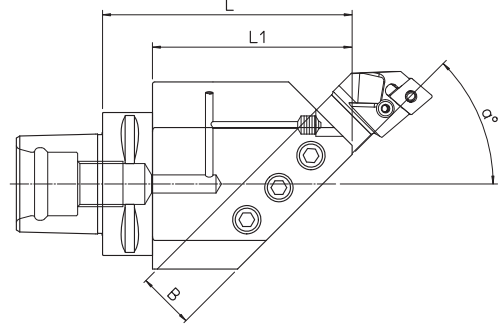
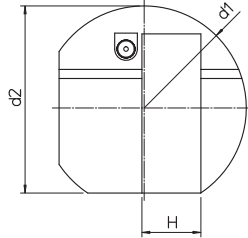
- Available on request HP = High Pressure **Max 80 BAR**
- Поставляются по заказу HP = высокое давление **Max 80 BAR**
- Dostarczane na zamówienie HP = wysokie ciśnienie **Max 80 BAR**
- Dodávané na objednávku HP = vysoký tlak **Max 80 BAR**
- Talebe göre HP = .Yüksek Basıncı olarak da mevcuttur **Max 80 BAR**

| PSC | REF.                       | CODE            | MHD'd <sub>1</sub> | A    | L   | L <sub>1</sub> | K <sub>r</sub> <sup>1)</sup> | γ <sup>2)</sup> | λ <sup>3)</sup> |  | kg  |
|-----|----------------------------|-----------------|--------------------|------|-----|----------------|------------------------------|-----------------|-----------------|---------------------------------------------------------------------------------------|-----|
| 40  | MCD' PSC 40 PCMNN 00090-12 | 6P04PCMNN00912N | 40                 | 22.5 | 90  | 70             | 50                           | 6°              | 0°              |  | 0.7 |
|     | MCD' PSC 40 PDNNN 00090-15 | 6P04PDNNN00915N |                    |      |     |                | 62.5                         |                 |                 |                                                                                       |     |
|     | MCD' PSC 40 SVVBN 00090-16 | 6P04SVVBN00916N |                    |      |     |                | 72.5                         | 0°              |                 |                                                                                       |     |
|     | MCD' PSC 40 SRDCN 00090-10 | 6P04SRDCN00910N |                    |      |     |                | -                            |                 |                 |                                                                                       |     |
| 50  | MCD' PSC 50 PCMNN 00110-12 | 6P05PCMNN01112N | 50                 | 22.1 | 110 | 88             | 50                           | 6°              | 0°              |  | 1.2 |
|     | MCD' PSC 50 PDNNN 00110-15 | 6P05PDNNN01115N |                    |      |     |                | 62.5                         |                 |                 |                                                                                       |     |
|     | MCD' PSC 50 SVVBN 00110-16 | 6P05SVVBN01116N |                    |      |     |                | 72.5                         | 0°              |                 |                                                                                       |     |
|     | MCD' PSC 50 SRDCN 00110-12 | 6P05SRDCN01112N |                    |      |     |                | -                            |                 |                 |                                                                                       |     |
| 63  | MCD' PSC 63 PCMNN 00110-12 | 6P06PCMNN01112N | 63                 | 28.5 | 140 | 110            | 50                           | 6°              | 0°              |  | 1.6 |
|     | MCD' PSC 63 PDNNN 00110-15 | 6P06PDNNN01115N |                    |      |     |                | 62.5                         |                 |                 |                                                                                       |     |
|     | MCD' PSC 63 SVVBN 00110-16 | 6P06SVVBN01116N |                    |      |     |                | 72.5                         | 0°              |                 |                                                                                       |     |
|     | MCD' PSC 63 SRDCN 00110-12 | 6P06SRDCN01112N |                    |      |     |                | -                            |                 |                 |                                                                                       |     |
| 80  | MCD' PSC 80 PCMNN 00140-12 | 6P08PCMNN01412N | 63                 | 28.5 | 140 | 110            | 50                           | 6°              | 0°              |  | 3.3 |
|     | MCD' PSC 80 PDNNN 00140-15 | 6P08PDNNN01415N |                    |      |     |                | 62.5                         |                 |                 |                                                                                       |     |
|     | MCD' PSC 80 SVVBN 00140-16 | 6P08SVVBN01416N |                    |      |     |                | 72.5                         | 0°              |                 |                                                                                       |     |
|     | MCD' PSC 80 SRDCN 00140-16 | 6P08SRDCN01416N |                    |      |     |                | -                            |                 |                 |                                                                                       |     |

- 1) Side cutting edge angle. 2) True rake angle. 3) Cutting edge inclination
- 1) Угол записи. 2) Передний угол. 3) Угол наклона
- 1) Kąt nastawczy. 2) Górny kąt natarcia. 3) Kąt nachylenia
- 1) Úhel řezné hrany. 2) Skutečný úhel sklonu. 3) Sklon řezné hrany
- 1) Yan kesme kenarı açısı. 2) Gerçek meyil açısı. 3) Kesme kenarı eğimi

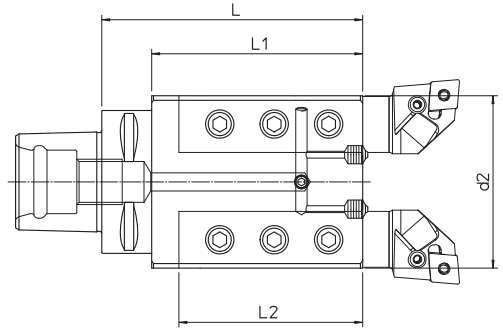
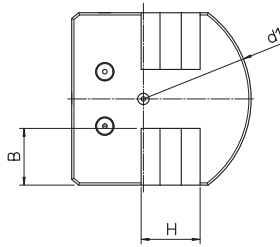
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- Right hand tool holder shown. Without bit-holders and clamping wrenches. A standard application requires left hand tools with right hand adapters.
- На рисунке правые держатели. Кассеты и зажимные ключи не входят в комплект поставки. Нормальная эксплуатация требует левого инструмента в правом адаптере.
- Na rysunku oprawka narzędziowa prawa. Końcówki i klucze zaciskowe nie są na wyposażeniu. Normalne zastosowanie wymaga narzędzia lewego w prawej oprawce.
- Zobrazený pravý nástrojový držák. Bez hrotových držáků a upínacích klíčů. Standardní aplikace vyžaduje levé nástroje s pravými adaptéry.
- Sağdan kullanımlı takım tutucu gösterilmiştir. Matkap kovanları ve sıkıştırma anahtarları dahil değildir. Standart uygulamada soldan kullanılan takımlar sağdan kullanım adaptörlerine ihtiyaç duyar.

| PSC | REF.                  | CODE              | L   | L1  | d1  | d2   | a°  | BxH   | kg  |
|-----|-----------------------|-------------------|-----|-----|-----|------|-----|-------|-----|
| 50  | MCD'PSC 50 TU20.45R/L | 71PSC050T2045R/L1 | 90  | 70  | 72  | 65   | 45° | 20x20 | 1.8 |
| 63  | MCD'PSC 63 TU25.45R/L | 71PSC063T2545R/L1 | 110 | 88  | 90  | 82.5 |     | 25x25 | 3.5 |
| 80  | MCD'PSC 80 TU32.45R/L | 71PSC080T3245R/L1 | 135 | 105 | 115 | 98.5 |     | 32x32 | 6.4 |

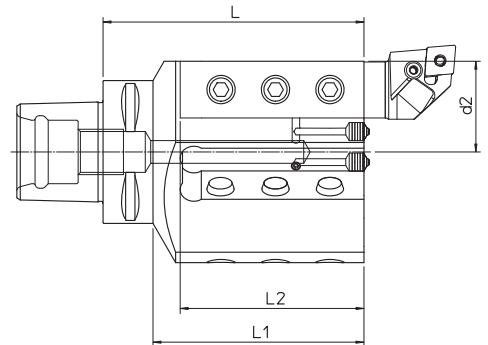
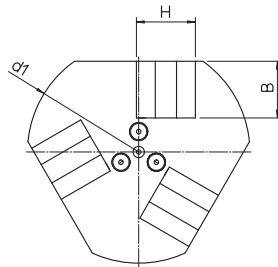


- Without bit-holders and clamping wrenches
- Кассеты и зажимные ключи не входят в комплект поставки
- Końcówki i klucze zaciskowe nie są na wyposażeniu.
- Bez hrotových držáků a upínacích klíčů
- Matkap kovanları ve sıkıştırma anahtarları dahil değildir

| PSC | REF.               | CODE            | L   | L1 | L2 | d1  | d2 | BxH   | kg  |
|-----|--------------------|-----------------|-----|----|----|-----|----|-------|-----|
| 50  | MCD'PSC 50 TU20.02 | 71PSC050T200201 | 100 | 80 | 64 | 80  | 63 | 20x20 | 2.5 |
| 63  | MCD'PSC 63 TU25.02 | 71PSC063T250201 | 115 | 93 | 80 | 95  | 76 | 25x25 | 4   |
| 80  | MCD'PSC 80 TU32.02 | 71PSC080T320201 | 125 | 95 |    | 115 | 86 | 32x32 | 6.2 |

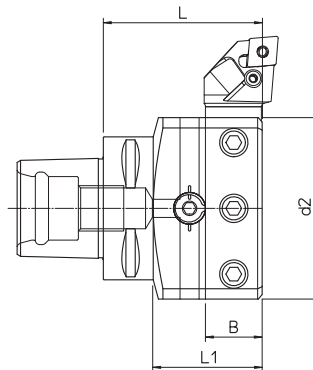
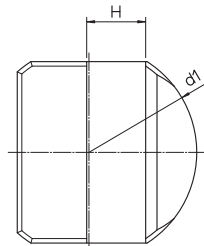
- EXTERNAL TURNING TOOL HOLDERS
- АДАПТОРЫ ДЕРЖАТЕЛЕЙ
- ADAPTERY OPRAWEK NARZĘDZIOWYCH
- EXTERNÍ DRŽÁKY NÁSTROJŮ NA SOUSTRUŽENÍ
- DIŞ TORNALAMA TAKIMI TUTUCULARI

ISO 26623-1  
MCD' PSC



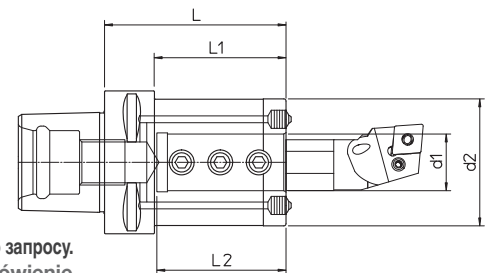
- Without bit-holders and clamping wrenches
- Кассеты и зажимные ключи не входят в комплект поставки
- Końcówki i klucze zaciskowe nie są na wyposażeniu.
- Bez hrotových držáků a upínacích klíčů
- Matkap kovanları ve sıkıştırma anahtarları dahil değildir

| PSC | REF.                 | CODE            | L   | L1 | L2 | d1 | d2 | BxH   | kg |
|-----|----------------------|-----------------|-----|----|----|----|----|-------|----|
| 63  | MCD' PSC 63 TU25.03R | 71PSC063T2503R1 | 115 | 93 | 80 | 98 | 40 | 25x25 | 4  |
|     | MCD' PSC 63 TU25.03L | 71PSC063T2503L1 |     |    |    |    |    |       |    |



- Without bit-holders and clamping wrenches
- Кассеты и зажимные ключи не входят в комплект поставки
- Końcówki i klucze zaciskowe nie są na wyposażeniu.
- Bez hrotových držáků a upínacích klíčů
- Matkap kovanları ve sıkıştırma anahtarları dahil değildir

| PSC | REF.                | CODE            | L  | L1 | d1  | d2  | BxH   | kg  |
|-----|---------------------|-----------------|----|----|-----|-----|-------|-----|
| 50  | MCD' PSC 50 TU20.90 | 71PSC050T209001 | 60 | 40 | 80  | 64  | 20x20 | 1.4 |
| 63  | MCD' PSC 63 TU25.90 | 71PSC063T259001 | 70 | 48 | 95  | 80  | 25x25 | 2.6 |
| 80  | MCD' PSC 80 TU32.90 | 71PSC080T329001 | 85 | 55 | 133 | 105 | 32x32 | 5.2 |



- Without bit-holders and clamping wrenches. **Reduction bushes on request.**
- Кассеты и зажимные ключи не входят в комплект поставки. **Соединительные втулки поставляются по запросу.**
- Końcówki i klucze zaciskowe nie są na wyposażeniu. **Tuleje redukcyjne dostępne na zamówienie.**
- Bez hrotových držáků a upínacích klíčů. **Redukční pouzdra na vyžádání.**
- Matkap kovanları ve sıkıştırma anahtarları dahil değildir. **Redüktör burçları isteğe bağlıdır.**

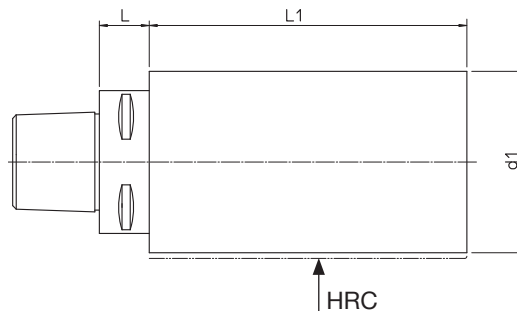
| PSC | REF.                 | CODE            | d1H7 | d2 | L   | L1  | L2 | kg  |
|-----|----------------------|-----------------|------|----|-----|-----|----|-----|
| 50  | MCD' PSC 50 D.25x80  | 71PSC050D250801 | 25   | 56 | 80  | 60  | 58 | 1.4 |
| 63  | MCD' PSC 63 D.25x80  | 71PSC063D250801 |      |    |     | 58  |    | 1.7 |
|     | MCD' PSC 63 D.40x125 | 71PSC063D401201 | 40   | 80 | 125 | 103 | 85 | 3.9 |
| 80  | MCD' PSC 80 D.25x85  | 71PSC080D250801 | 25   | 56 | 85  | 55  | 58 | 2.6 |
|     | MCD' PSC 80 D.40x125 | 71PSC080D401201 | 40   | 80 | 125 | 95  | 85 | 4.6 |

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PSC-NS-H28-42



| PSC | REF.                         | CODE            | d <sub>1</sub> | L  | L <sub>1</sub> | kg   | HRC |
|-----|------------------------------|-----------------|----------------|----|----------------|------|-----|
| 40  | PSC 40 - NS 50.160/140 H.28  | 71PSC040Z205014 | 50             | 20 | 140            | 2.4  | 28  |
|     | PSC 40 - NS 63.160/140 H.28  | 71PSC040Z206314 | 63             |    |                | 3.6  |     |
|     | PSC 40 - NS 80.160/140 H.28  | 71PSC040Z208014 | 80             |    |                | 5.7  |     |
| 50  | PSC 50 - NS 63.160/140 H.28  | 71PSC050Z206314 | 63             |    |                | 3.8  |     |
|     | PSC 50 - NS 80.160/140 H.28  | 71PSC050Z208014 | 80             |    |                | 10.2 |     |
|     | PSC 50 - NS 100.180/160 H.28 | 71PSC050Z210016 | 100            |    | 160            | 5.9  |     |
| 63  | PSC 63 - NS 80.162/140 H.28  | 71PSC063Z208014 | 80             | 22 | 140            | 6.2  |     |
|     | PSC 63 - NS 100.182/160 H.28 | 71PSC063Z210016 | 100            |    | 160            | 10.4 |     |
|     | PSC 63 - NS 120.202/180 H.28 | 71PSC063Z212018 | 120            |    | 180            | 17   |     |
| 80  | PSC 80 - NS 100.190/160 H.28 | 71PSC080Z210016 | 100            | 30 | 160            | 11.5 |     |
|     | PSC 80 - NS 140.210/180 H.28 | 71PSC080Z214018 | 140            |    | 180            | 23.4 |     |

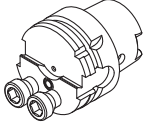
| PSC | REF.                         | CODE            | d <sub>1</sub> | L  | L <sub>1</sub> | kg   | HRC |
|-----|------------------------------|-----------------|----------------|----|----------------|------|-----|
| 40  | PSC 40 - NS 50.160/140 H.42  | 71PSC040Z405014 | 50             | 20 | 140            | 2.4  | 42  |
|     | PSC 40 - NS 63.160/140 H.42  | 71PSC040Z406314 | 63             |    |                | 3.6  |     |
|     | PSC 40 - NS 80.160/140 H.42  | 71PSC040Z408014 | 80             |    |                | 5.7  |     |
| 50  | PSC 50 - NS 63.160/140 H.42  | 71PSC050Z406314 | 63             |    |                | 3.8  |     |
|     | PSC 50 - NS 80.160/140 H.42  | 71PSC050Z408014 | 80             |    |                | 10.2 |     |
|     | PSC 50 - NS 100.180/160 H.42 | 71PSC050Z410016 | 100            |    | 160            | 5.9  |     |
| 63  | PSC 63 - NS 80.162/140 H.42  | 71PSC063Z408014 | 80             | 22 | 140            | 6.2  |     |
|     | PSC 63 - NS 100.182/160 H.42 | 71PSC063Z410016 | 100            |    | 160            | 10.4 |     |
|     | PSC 63 - NS 120.202/180 H.42 | 71PSC063Z412018 | 120            |    | 180            | 17   |     |
| 80  | PSC 80 - NS 100.190/160 H.42 | 71PSC080Z410016 | 100            | 30 | 160            | 11.5 |     |
|     | PSC 80 - NS 140.210/180 H.42 | 71PSC080Z414018 | 140            |    | 180            | 23.4 |     |



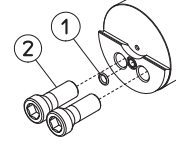


- ACCESSORIES AND SPARE PARTS
- ЗАПЧАСТИ И КОМПЛЕКТУЮЩИЕ
- WYPOSAŻENIE DODATKOWE I CZĘŚCI ZAMIENNE
- PŘÍSLUŠENSTVÍ A NÁHRADNÍ DÍLY
- AKSESUARLAR VE YEDEK PARÇALAR

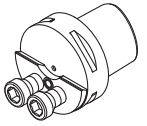
## MCD' HSK



| REF. MCD'      | CODE            |
|----------------|-----------------|
| HSK-T63 F30 RL | 71HSKA63F030RL1 |



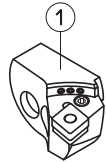
## MCD' PSC



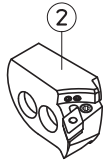
| REF. MCD'     | CODE            |
|---------------|-----------------|
| PSC 40 F20 RL | 71PSC040F020RL1 |
| PSC 50 F20 RL | 71PSC050F020RL1 |
| PSC 63 F20 RL | 71PSC063F020RL1 |
| PSC 80 F30 RL | 71PSC080F030RL1 |

| REF. MCD'        | CODE 1       | CODE 2       |
|------------------|--------------|--------------|
| PSC 40           | 101254004515 | 200100170620 |
| PSC 50           |              | 200100170820 |
| HSK-T63 / PSC 63 | 101254005515 | 200100171225 |
| PSC 80           |              | 200100171631 |

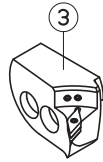
## MCD' HSK / PSC



PCLNR/L



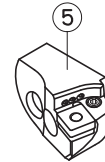
PDJNR/L



SVHBR/L

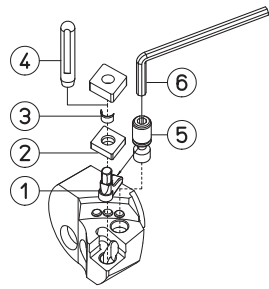


PSKNR/L

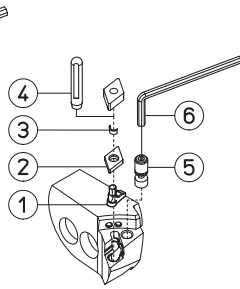


PSRNR/L

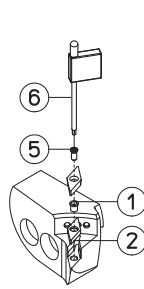
| REF.    | CODE 1            | CODE 2            | CODE 3            | CODE 4            | CODE 5            |
|---------|-------------------|-------------------|-------------------|-------------------|-------------------|
| MCD' 40 | 7504PCLNR/L20312N | 7504PDJNR/L20315N | -                 | 7504PSKNR/L20312N | 7504PSRNR/L20312N |
| MCD' 50 | 7505PCLNR/L30412N | 7505PDJNR/L30415N |                   | 7505PSKNR/L30412N | 7505PSRNR/L20412N |
| MCD' 63 | 7506PCLNR/L40419N | 7506PDJNR/L40415N | 7506SVHBR/L40416N | 7506PSKNR/L40419N | 7506PSRNR/L40419N |
| MCD' 80 | 7508PCLNR/L50519N | 7508PDJNR/L50515N | 7508SVHBR/L50516N | 7508PSKNR/L50519N | 7508PSRNR/L40519N |



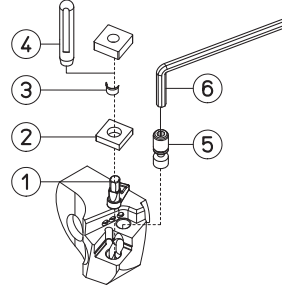
PCLNR/L



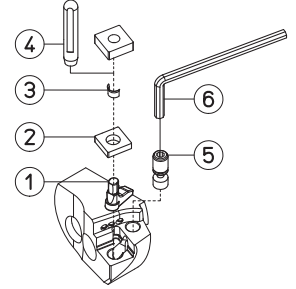
PDJNR/L



SVHBR/L



PSKNR/L



PSRNR/L

|   | REF.             | CODE 1       | CODE 2       | CODE 3       | CODE 4       | CODE 5       | CODE 6       |
|---|------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| □ | PCLNR/L ... - 12 | 491110000002 | 492030003012 | 100655065060 | 101501307100 | 494310080230 | 101500100300 |
|   | PCLNR/L ... - 19 | 491111190600 | 492031190600 | 100655095112 | 101501301408 | 494311190600 | 101500100400 |
| ◊ | PDJNR/L ... - 15 | 491110000003 | 492030003015 | 100655065060 | 101501307100 | 494310080260 | 101500100400 |
|   | SVHBR/L ... - 16 | 492010000508 | 492030003016 | -            | -            | 494210035070 | 101500901500 |
| ◊ | PSKNR/L ... - 12 | 491110000002 | 492035120400 | 100655065060 | 101501307100 | 494310080230 | 101500100300 |
|   | PSKNR/L ... - 19 | 491111190600 | 492035190600 | 100655095112 | 101501301408 | 494311190600 | 101500100400 |
| ◊ | PSRNR/L ... - 12 | 491110000002 | 492035120400 | 100655065060 | 101501307100 | 494310080230 | 101500100300 |
|   | PSRNR/L ... - 19 | 491111190600 | 492035190600 | 100655095112 | 101501301408 | 494311190600 | 101500100400 |



### MCD' HSK

| HSK-A | REF.              | CODE         |
|-------|-------------------|--------------|
| 63    | HSK-A63 MHD'50.66 | 416501506320 |

- Complete range of cones on page 17 • Полная гамма конусов на стр.17 • Kompletna gama stożków na str.17
- Kompletní řada kuželů na straně 17 • Sf.17'deki tüm koni ürünleri

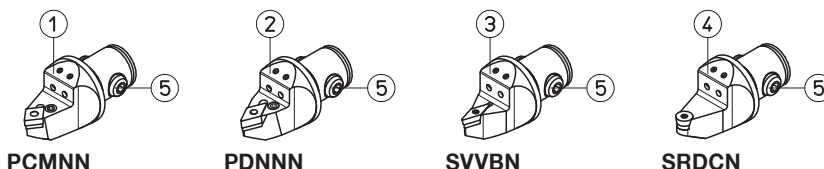
### MCD' PSC



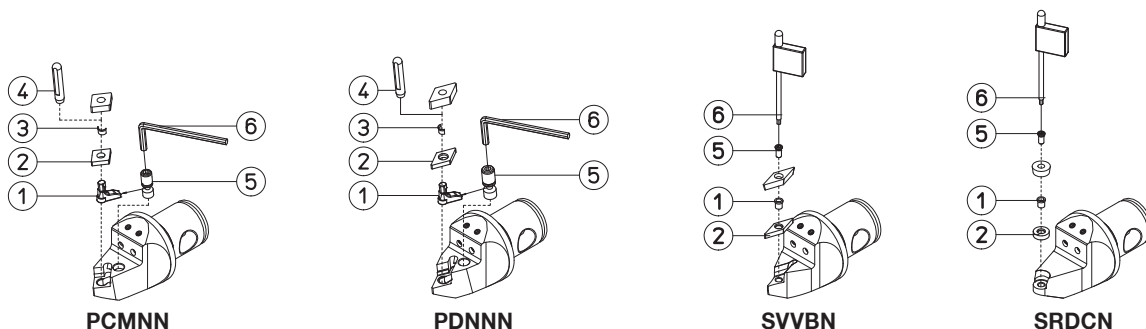
| PSC | REF.                | CODE         |
|-----|---------------------|--------------|
| 40  | PSC 40 - MHD' 40.45 | 416402604004 |
| 50  | PSC 50 - MHD' 50.55 | 416502605005 |
| 63  | PSC 63 - MHD' 50.55 | 416502606305 |
| 80  | PSC 80 - MHD' 63.70 | 416632608007 |

- Complete range of cones on page 19 • Полная гамма конусов на стр.19 • Kompletna gama stożków na str.19
- Kompletní řada kuželů na straně 19 • Sf.19'deki tüm koni ürünleri

### MCD' HSK / PSC

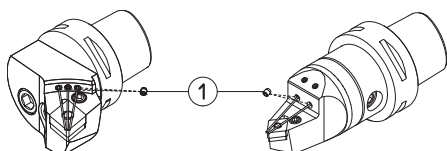


| REF.         | CODE 1       | CODE 2       | CODE 3       | CODE 4       | CODE 5       |
|--------------|--------------|--------------|--------------|--------------|--------------|
| MCD' MHD' 40 | 657540001120 | 657540002150 | 657540003160 | 657540004100 | 381725001401 |
| MCD' MHD' 50 | 657550001120 | 657550002150 | 657550003160 | 657550004120 | 381725001501 |
| MCD' MHD' 63 | 657563001120 | 657563002150 | 657563003160 | 657563004160 | 381725001002 |



| REF            | CODE 1       | CODE 2       | CODE 3       | CODE 4       | CODE 5       | CODE 6       |
|----------------|--------------|--------------|--------------|--------------|--------------|--------------|
| PCMNN ... - 12 | 491110000002 | 492030003012 | 100655065060 | 101501307100 | 494310080230 | 101500100300 |
| PDNNN ... - 15 | 491110000003 | 492030003015 | 100655065060 | 101501307100 | 494310080260 | 101500100400 |
| SVVBN ... - 16 | 492010000508 | 492030003016 | -            | -            | 494210035070 | 101500901500 |
| SRDCN ... - 10 | 492010000508 | 492034100300 | -            | -            | 494210035070 | 101500901500 |
| SRDCN ... - 12 | 492010000508 | 492030003013 | -            | -            | 494210035070 | 101500901500 |
| SRDCN ... - 16 | 492014160600 | 492034160600 | -            | -            | 494214160600 | 101500902000 |

### MCD' HSK / PSC HP

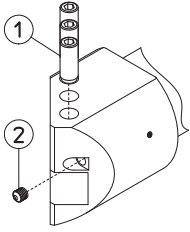


| REF.              | CODE 1       |
|-------------------|--------------|
| MCD' HSK / PSC HP | 100580110450 |



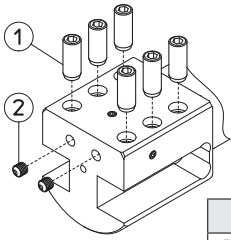
- ACCESSORIES AND SPARE PARTS
- ЗАПЧАСТИ И КОМПЛЕКТУЮЩИЕ
- WYPOSAŻENIE DODATKOWE I CZĘŚCI ZAMIENNE
- PŘÍSLUŠENSTVÍ A NÁHRADNÍ DÍLY
- AKSESUARLAR VE YEDEK PARÇALAR

MCD' HSK / PSC



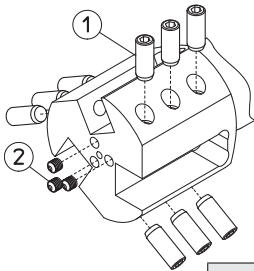
| REF.                    | CODE 1       | CODE 2       |
|-------------------------|--------------|--------------|
| MCD' HSK-T63 TU25.45R/L | 100231120025 | 100585010800 |
| MCD' PSC 50 TU20.45R/L  |              |              |
| MCD' PSC 63 TU25.45R/L  |              |              |
| MCD' PSC 80 TU32.45R/L  |              |              |

MCD' HSK / PSC



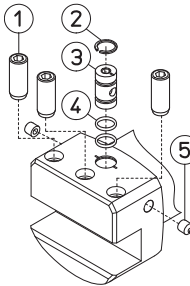
| REF.                 | CODE 1       | CODE 2       |
|----------------------|--------------|--------------|
| MCD' HSK-T63 TU25.02 | 100231120025 | 100585010800 |
| MCD' PSC 50 TU20.02  |              |              |
| MCD' PSC 63 TU25.02  |              |              |
| MCD' PSC 80 TU32.02  |              |              |

MCD' HSK / PSC



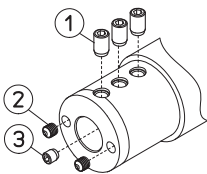
| REF.                    | CODE 1       | CODE 2       |
|-------------------------|--------------|--------------|
| MCD' HSK-T63 TU25.03R/L | 100231120025 | 100585010800 |
| MCD' PSC 63 TU25.03R/L  |              |              |

MCD' HSK / PSC



| REF.                 | CODE 1       | CODE 2       | CODE 3       | CODE 4       | CODE 5       |
|----------------------|--------------|--------------|--------------|--------------|--------------|
| MCD' PSC 50 TU20.90  | 100231120025 | 100900301400 | 201462501400 | 101251002043 | 100580610180 |
| MCD' PSC 63 TU25.90  |              |              |              |              |              |
| MCD' HSK-T63 TU25.90 |              |              |              |              |              |
| MCD' PSC 80 TU32.90  |              |              |              |              |              |

MCD' HSK / PSC



| REF.                           | CODE 1       | CODE 2       | CODE 3       |
|--------------------------------|--------------|--------------|--------------|
| MCD' PSC 50 D.25x80            | 100231100016 | 100585010800 | -            |
| MCD' HSK-T63 / PSC 63 D.25x80  |              |              | -            |
| MCD' HSK-T63 / PSC 63 D.40x125 | 100231120020 |              | 100231080008 |
| MCD' PSC 80 D.25x85            | 100231100016 |              | -            |
| MCD' PSC 80 D.40x125           | 100231120020 |              | 100231080008 |

# D'ANDREA

## ACCESSORIES

- ACCESSORIES
- КОМПЛЕКТУЮЩИЕ
- WYPOSAŻENIE DODATKOWE
- PŘÍSLUŠENSTVÍ
- AKSESUARLAR

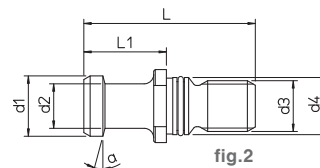
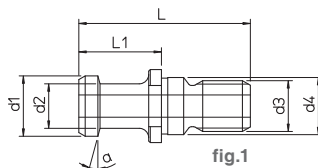
238





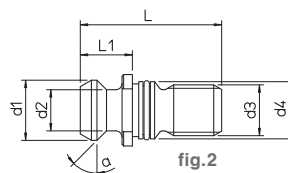
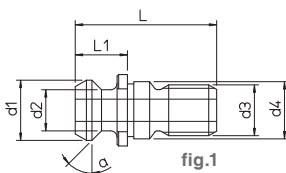
- ACCESSORIES
- КОМПЛЕКТУЮЩИЕ
- WYPOSAŻENIE DODATKOWE
- PŘÍSLUŠENSTVÍ
- AKSESUARLAR

### ISO 7388/2 A - DIN 69872



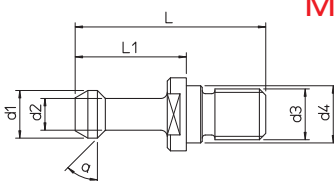
| REF.                      | CODE         | ISO | d1 | d2 | d3  | d4 | L  | L1 | a   | fig. |
|---------------------------|--------------|-----|----|----|-----|----|----|----|-----|------|
| ISO 7388/2 A<br>DIN 69872 | 201430250401 | 40  | 19 | 14 | M16 | 17 | 54 | 26 | 15° | 1    |
|                           | 201430250451 | 45  | 23 | 17 | M20 | 21 | 65 | 30 |     |      |
|                           | 201430250501 | 50  | 28 | 21 | M24 | 25 | 74 | 34 |     |      |
|                           | 201430250400 | 40  | 19 | 14 | M16 | 17 | 54 | 26 |     | 2    |
|                           | 201430250500 | 50  | 28 | 21 | M24 | 25 | 74 | 34 |     |      |
|                           | 201430250600 | 60  | 40 | 30 | M30 | 32 | 90 | 40 |     |      |

### ISO 7388/2 B - ANSI B.5 50



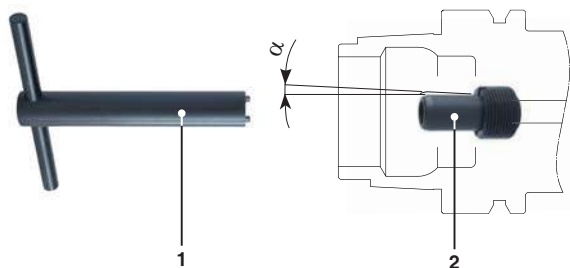
| REF.                        | CODE         | ISO | d1    | d2    | d3  | d4 | L     | L1    | a   | fig. |
|-----------------------------|--------------|-----|-------|-------|-----|----|-------|-------|-----|------|
| ISO 7388/2 B<br>ANSI B.5 50 | 201430251401 | 40  | 18.95 | 12.95 | M16 | 17 | 44.50 | 16.40 | 45° | 1    |
|                             | 201430251451 | 45  | 24.05 | 16.30 | M20 | 21 | 56    | 20.95 |     |      |
|                             | 201430251501 | 50  | 29.10 | 19.60 | M24 | 25 | 65.50 | 25.55 |     |      |
|                             | 201430251400 | 40  | 18.95 | 12.95 | M16 | 17 | 44.50 | 16.40 |     | 2    |
|                             | 201430251500 | 50  | 29.10 | 19.60 | M24 | 25 | 65.50 | 25.55 |     |      |

### MAS 403 BT - 30° - 45°



| REF.           | CODE         | ISO | d1 | d2 | d3  | d4   | L   | L1 | a   |
|----------------|--------------|-----|----|----|-----|------|-----|----|-----|
| MAS 403 BT 30° | 201430252301 | 30  | 11 | 7  | M12 | 12.5 | 43  | 23 | 30° |
|                | 201430252401 | 40  | 15 | 10 | M16 | 17   | 60  | 35 |     |
|                | 201430252451 | 45  | 19 | 14 | M20 | 21   | 70  | 40 |     |
|                | 201430252501 | 50  | 23 | 17 | M24 | 25   | 85  | 45 |     |
|                | 201430252601 | 60  | 32 | 24 | M30 | 31   | 115 | 65 |     |
| MAS 403 BT 45° | 201430252302 | 30  | 11 | 7  | M12 | 12.5 | 43  | 23 | 45° |
|                | 201430252402 | 40  | 15 | 10 | M16 | 17   | 60  | 35 |     |
|                | 201430252452 | 45  | 19 | 14 | M20 | 21   | 70  | 40 |     |
|                | 201430252502 | 50  | 23 | 17 | M24 | 25   | 85  | 45 |     |
|                | 201430252602 | 60  | 32 | 24 | M30 | 31   | 115 | 65 |     |

### HSK



| REF.              | CODE 1       | α    | CODE 2       |
|-------------------|--------------|------|--------------|
| HSK-A40           | 101501101000 | ± 1° | 382019008001 |
| HSK-A50           | 101501101400 |      | 382019010001 |
| HSK-A63 / HSK-T63 | 101501101600 |      | 382019012001 |
| HSK-A80           | 101501101800 |      | 382019014001 |
| HSK-A100          | 101501102200 |      | 382019016001 |

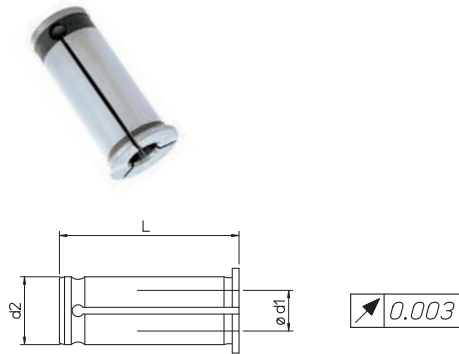




- ACCESSORIES
- КОМПЛЕКТУЮЩИЕ
- WYPOSAŻENIE DODATKOWE
- PŘÍSLUŠENSTVÍ
- AKSESUARLAR

- BUSHES FOR ULTRA-TIGHT SPINDLE
- ЗАЖИМНАЯ СВЕРХЖЕСТКАЯ ГИЛЬЗА ДЛЯ ШПИНДЕЛЯ
- TULEJE DO WRZECION O DUŻEJ SIŁE ZACISKU
- POUZDRA PRO VYSOCE PEVNÉ VŘETENO
- ULTRA SIKI MİL İÇİN BURÇLAR

RC



| FORCE (d2) | REF.     | CODE         | d1 | L  |
|------------|----------|--------------|----|----|
| 12         | RC 12.03 | 497080012030 | 3  | 44 |
|            | RC 12.04 | 497080012040 | 4  |    |
|            | RC 12.06 | 497080012060 | 6  |    |
|            | RC 12.08 | 497080012080 | 8  |    |
|            | RC 12.10 | 497080012100 | 10 |    |
| 20         | RC 20.03 | 497080020030 | 3  | 50 |
|            | RC 20.04 | 497080020040 | 4  |    |
|            | RC 20.05 | 497080020050 | 5  |    |
|            | RC 20.06 | 497080020060 | 6  |    |
|            | RC 20.08 | 497080020080 | 8  |    |
|            | RC 20.10 | 497080020100 | 10 |    |
|            | RC 20.12 | 497080020120 | 12 |    |
|            | RC 20.14 | 497080020140 | 14 |    |
| 32         | RC 20.16 | 497080020160 | 16 | 63 |
|            | RC 32.03 | 497080032030 | 3  |    |
|            | RC 32.04 | 497080032040 | 4  |    |
|            | RC 32.05 | 497080032050 | 5  |    |
|            | RC 32.06 | 497080032060 | 6  |    |
|            | RC 32.08 | 497080032080 | 8  |    |
|            | RC 32.10 | 497080032100 | 10 |    |
|            | RC 32.12 | 497080032120 | 12 |    |
|            | RC 32.14 | 497080032140 | 14 |    |
|            | RC 32.16 | 497080032160 | 16 |    |
|            | RC 32.18 | 497080032180 | 18 |    |
|            | RC 32.20 | 497080032200 | 20 |    |
|            | RC 32.25 | 497080032250 | 25 |    |

- RC SEALED bushes supplied upon request
- Поставляются по запросу гильзы RC по ПЛОТНОСТИ
- Na zamówienie: tuleje RC SZCZELNE
- UZAVŘENÁ POUZDRA RC se dodávají na vyžádání
- RC contalı burçlar istek üzerine mevcuttur

- REDUCTIONS
- ПЕРЕХОДНИК
- REDUKTOR
- REDUKCE
- KISALTMALAR

D



fig.1

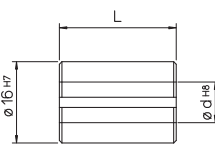
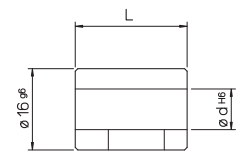


fig.2



| REF.   | CODE         | L  | Ø d | fig. |
|--------|--------------|----|-----|------|
| D04.16 | 200560116040 | 23 | 4   | 1    |
| D08.16 | 200560116082 | 22 | 8   | 2    |
| D10.16 | 200560116100 | 23 | 10  | 1    |
| D12.16 | 200560116120 |    | 12  |      |



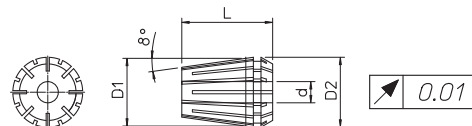
- 1 B3.06
- 1 B3.08
- 1 B3.11
- 1 B3.16
- 1 B3.22
- 5 TPGX 090202L
- 3 WCGT 020102L

KIT  
Ø 6 ~ 30

| REF.   | CODE         | Ø      |
|--------|--------------|--------|
| K20.50 | 655000100200 | 6 ~ 30 |

- ER COLLET
- ЦАНГА ER
- TULEJA ZACISKOWA ER
- UPÍNACÍ POUZDRO ER
- ER FREZE ÇAKISI TUTUCU

ER DIN 6499-B



| REF.  | d        | D <sub>1</sub> | D <sub>2</sub> | L    |
|-------|----------|----------------|----------------|------|
| ER 11 | 0.5 ~ 7  | 11             | 11.5           | 18   |
| ER 16 | 0.5 ~ 10 | 16             | 17             | 27.5 |
| ER 20 | 1 ~ 13   | 20             | 21             | 31.5 |
| ER 25 | 1 ~ 16   | 25             | 26             | 34   |
| ER 32 | 2 ~ 20   | 32             | 33             | 40   |
| ER 40 | 3 ~ 26   | 40             | 41             | 46   |

| RANGE   | ER11         | ER16         | ER20         | ER25         | ER32         | ER40         |
|---------|--------------|--------------|--------------|--------------|--------------|--------------|
| 1 - 0.5 | 496080111010 | 496080116010 | -            | -            | -            | -            |
| 1.5 - 1 | 496080111015 | 496080116015 | -            | -            | -            | -            |
| 2 - 1   | -            | -            | 496080120020 | 496080125020 | -            | -            |
| 2 - 1.5 | 496080111020 | 496080116021 | -            | -            | -            | -            |
| 2.5 - 2 | 496080111025 | 496080116025 | -            | -            | -            | -            |
| 3 - 2   | -            | 496080116030 | 496080120030 | 496080125030 | 496080132030 | -            |
| 3 - 2.5 | 496080111030 | -            | -            | -            | -            | -            |
| 3.5 - 3 | 496080111035 | -            | -            | -            | -            | -            |
| 4 - 3   | -            | 496080116040 | 496080120040 | 496080125040 | 496080132040 | 496080140040 |
| 4 - 3.5 | 496080111040 | -            | -            | -            | -            | -            |
| 4.5 - 4 | 496080111045 | -            | -            | -            | -            | -            |
| 5 - 4   | -            | 496080116050 | 496080120050 | 496080125050 | 496080132050 | 496080140050 |
| 5 - 4.5 | 496080111050 | -            | -            | -            | -            | -            |
| 5.5 - 5 | 496080111055 | -            | -            | -            | -            | -            |
| 6 - 5   | -            | 496080116060 | 496080120060 | 496080125060 | 496080132060 | 496080140060 |
| 6 - 5.5 | 496080111060 | -            | -            | -            | -            | -            |
| 6.5 - 6 | 496080111065 | -            | -            | -            | -            | -            |
| 7 - 6   | -            | 496080116070 | 496080120070 | 496080125070 | 496080132070 | 496080140070 |
| 7 - 6.5 | 496080111070 | -            | -            | -            | -            | -            |
| 8 - 7   | -            | 496080116080 | 496080120080 | 496080125080 | 496080132080 | 496080140080 |
| 9 - 8   | -            | 496080116090 | 496080120090 | 496080125090 | 496080132090 | 496080140090 |
| 10 - 9  | -            | 496080116100 | 496080120100 | 496080125100 | 496080132100 | 496080140100 |
| 11 - 10 | -            | -            | 496080120110 | 496080125110 | 496080132110 | 496080140110 |
| 12 - 11 | -            | -            | 496080120120 | 496080125120 | 496080132120 | 496080140120 |
| 13 - 12 | -            | -            | 496080120130 | 496080125130 | 496080132130 | 496080140130 |
| 14 - 13 | -            | -            | -            | 496080125140 | 496080132140 | 496080140140 |
| 15 - 14 | -            | -            | -            | 496080125150 | 496080132150 | 496080140150 |
| 16 - 15 | -            | -            | -            | 496080125160 | 496080132160 | 496080140160 |
| 17 - 16 | -            | -            | -            | -            | 496080132170 | 496080140170 |
| 18 - 17 | -            | -            | -            | -            | 496080132180 | 496080140180 |
| 19 - 18 | -            | -            | -            | -            | 496080132190 | 496080140190 |
| 20 - 19 | -            | -            | -            | -            | 496080132200 | 496080140200 |
| 21 - 20 | -            | -            | -            | -            | -            | 496080140210 |
| 22 - 21 | -            | -            | -            | -            | -            | 496080140220 |
| 23 - 22 | -            | -            | -            | -            | -            | 496080140230 |
| 24 - 23 | -            | -            | -            | -            | -            | 496080140240 |
| 25 - 24 | -            | -            | -            | -            | -            | 496080140250 |
| 26 - 25 | -            | -            | -            | -            | -            | 496080140260 |

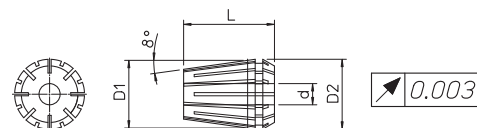
• ER collet SEALED supplied upon request • ГЕРМЕТИЧНАЯ цанга типа ER поставляется по запросу • Precyzyjna tuleja zaciskowa ER, uszczelniona, może być dostarczona na żądanie • upínací kleštiny ER, UTĚSNĚNÉ, může být dodáno na vyžádání • ER-Hassas pens, CONTALI, istek üzerine sağlanır

| SET ER | REF.        | Ø        | CODE         |
|--------|-------------|----------|--------------|
|        | SET ER11/13 | 0.5 ~ 7  | 496080111000 |
|        | SET ER16/10 | 0.5 ~ 10 | 496080116000 |
|        | SET ER20/12 | 1 ~ 13   | 496080120000 |
|        | SET ER25/15 | 1 ~ 16   | 496080125000 |
|        | SET ER32/18 | 2 ~ 20   | 496080132000 |
|        | SET ER40/23 | 3 ~ 26   | 496080140000 |



- ER ULTRA-PRECISE COLLET
- СВЕРХТОЧНЫЕ ЦАНГИ ER
- TULEJA ZACISKOWA ER O WYSOKIEJ PRECYZJI
- VYSOCE PŘESNÉ UPÍNACÍ POUZDRO ER
- ER ULTRA HASSAS ÇAKI TUTUCU

## ER DIN 6499-B



| REF.  | d        | D <sub>1</sub> | D <sub>2</sub> | L    |
|-------|----------|----------------|----------------|------|
| ER 16 | 0.5 ~ 10 | 16             | 17             | 27.5 |
| ER 25 | 1 ~ 16   | 25             | 26             | 34   |
| ER 32 | 2 ~ 20   | 32             | 33             | 40   |
| ER 40 | 3 ~ 26   | 40             | 41             | 46   |

| RANGE     | ER16         | ER25         | ER32         | ER40         |
|-----------|--------------|--------------|--------------|--------------|
| 1 - 0.5   | 496080016010 | -            | -            | -            |
| 1.5 - 1   | 496080016015 | -            | -            | -            |
| 2 - 1.5   | 496080016020 | 496080025020 | -            | -            |
| 2.5 - 2   | 496080016025 | 496080025025 | 496080032025 | -            |
| 3 - 2.5   | 496080016030 | 496080025030 | 496080032030 | -            |
| 3.5 - 3   | 496080016035 | 496080025035 | 496080032035 | -            |
| 4 - 3.5   | 496080016040 | 496080025040 | 496080032040 | 496080040040 |
| 4.5 - 4   | 496080016045 | 496080025045 | 496080032045 | 496080040045 |
| 5 - 4.5   | 496080016050 | 496080025050 | 496080032050 | 496080040050 |
| 5.5 - 5   | 496080016055 | 496080025055 | 496080032055 | 496080040055 |
| 6 - 5.5   | 496080016060 | 496080025060 | 496080032060 | 496080040060 |
| 6.5 - 6   | 496080016065 | 496080025065 | 496080032065 | 496080040065 |
| 7 - 6.5   | 496080016070 | 496080025070 | 496080032070 | 496080040070 |
| 7.5 - 7   | 496080016075 | 496080025075 | 496080032075 | 496080040075 |
| 8 - 7.5   | 496080016080 | 496080025080 | 496080032080 | 496080040080 |
| 8.5 - 8   | 496080016085 | 496080025085 | 496080032085 | 496080040085 |
| 9 - 8.5   | 496080016090 | 496080025090 | 496080032090 | 496080040090 |
| 9.5 - 9   | 496080016095 | 496080025095 | 496080032095 | 496080040095 |
| 10 - 9.5  | 496080016100 | 496080025100 | 496080032100 | 496080040100 |
| 10.5 - 10 | -            | 496080025105 | 496080032105 | 496080040105 |
| 11 - 10.5 | -            | 496080025110 | 496080032110 | 496080040110 |
| 11.5 - 11 | -            | 496080025115 | 496080032115 | 496080040115 |
| 12 - 11.5 | -            | 496080025120 | 496080032120 | 496080040120 |
| 12.5 - 12 | -            | 496080025125 | 496080032125 | 496080040125 |
| 13 - 12.5 | -            | 496080025130 | 496080032130 | 496080040130 |
| 13.5 - 13 | -            | 496080025135 | 496080032135 | 496080040135 |
| 14 - 13.5 | -            | 496080025140 | 496080032140 | 496080040140 |
| 14.5 - 14 | -            | 496080025145 | 496080032145 | 496080040145 |
| 15 - 14.5 | -            | 496080025150 | 496080032150 | 496080040150 |
| 15.5 - 15 | -            | 496080025155 | 496080032155 | 496080040155 |
| 16 - 15.5 | -            | 496080025160 | 496080032160 | 496080040160 |
| 16.5 - 16 | -            | -            | 496080032165 | 496080040165 |
| 17 - 16.5 | -            | -            | 496080032170 | 496080040170 |
| 17.5 - 17 | -            | -            | 496080032175 | 496080040175 |
| 18 - 17.5 | -            | -            | 496080032180 | 496080040180 |
| 18.5 - 18 | -            | -            | 496080032185 | 496080040185 |
| 19 - 18.5 | -            | -            | 496080032190 | 496080040190 |
| 19.5 - 19 | -            | -            | 496080032195 | 496080040195 |
| 20 - 19.5 | -            | -            | 496080032200 | 496080040200 |
| 20.5 - 20 | -            | -            | -            | 496080040205 |
| 21 - 20.5 | -            | -            | -            | 496080040210 |
| 21.5 - 21 | -            | -            | -            | 496080040215 |
| 22 - 21.5 | -            | -            | -            | 496080040220 |
| 22.5 - 22 | -            | -            | -            | 496080040225 |
| 23 - 22.5 | -            | -            | -            | 496080040230 |
| 23.5 - 23 | -            | -            | -            | 496080040235 |
| 24 - 23.5 | -            | -            | -            | 496080040240 |
| 24.5 - 24 | -            | -            | -            | 496080040245 |
| 25 - 24.5 | -            | -            | -            | 496080040250 |
| 25.5 - 25 | -            | -            | -            | 496080040255 |
| 26 - 25.5 | -            | -            | -            | 496080040260 |

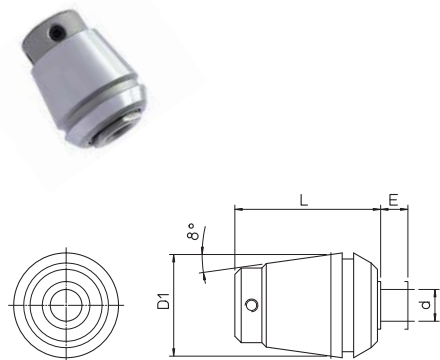
• On request • Поставляются по запросу • Na zamówienie • Na vyžádání • İsteğe bağılı

# D'ANDREA

## ACCESSORIES

- TAPPING COLLETS WITH AXIAL COMPENSATION
- ЦАНГИ НАРЕЗАНИЯ РЕЗЬБЫ С ОСЕВОЙ КОМПЕНСАЦИЕЙ
- TULEJA ZACISKOWA GWINTUJĄCE Z KOMPENSACJĄ OSIOWĄ
- ZÁVITOŘEZNÁ POUZDRA S AXIÁLNÍ KOMPENZACÍ
- EKSENEL TELAFILI DIŞ ÇEKME BİÇAĞI TUTUCULARI

ET-1- ER

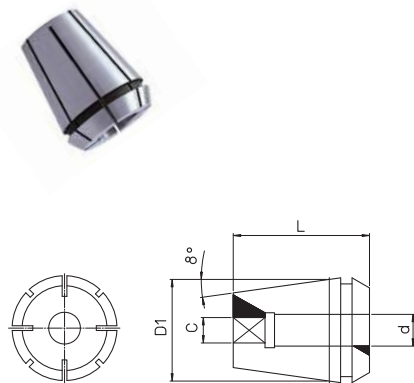


| REF.                    | CODE         | d   | D1 | L  | E  |              |
|-------------------------|--------------|-----|----|----|----|--------------|
| ET-1-ER25<br>(M2 ~ M12) | 496086125280 | 2.8 | 26 | 34 | 8  | 100451012500 |
|                         | 496086125350 | 3.5 |    |    |    |              |
|                         | 496086125450 | 4.5 |    |    |    |              |
|                         | 496086125600 | 6   |    |    |    |              |
|                         | 496086125700 | 7   |    |    |    |              |
|                         | 496086125900 | 9   |    |    |    |              |
| ET-1-ER32<br>(M4 ~ M16) | 496086132450 | 4.5 | 33 | 43 | 10 | 100451033200 |
|                         | 496086132600 | 6   |    |    |    |              |
|                         | 496086132700 | 7   |    |    |    |              |
|                         | 496086132900 | 9   |    |    |    |              |
|                         | 496086132110 | 11  |    |    |    |              |
|                         | 496086132120 | 12  |    |    |    |              |
| ET-1-ER40<br>(M8 ~ M20) | 496086140600 | 6   | 41 | 54 | 13 | 100451034000 |
|                         | 496086140700 | 7   |    |    |    |              |
|                         | 496086140900 | 9   |    |    |    |              |
|                         | 496086140110 | 11  |    |    |    |              |
|                         | 496086140120 | 12  |    |    |    |              |
|                         | 496086140140 | 14  |    |    |    |              |
|                         | 496086140160 | 16  |    |    |    |              |

• On request • Поставляются по запросу • Na zamówienie • Na vyžádání • İsteğe bağlı

- TAPPING COLLETS WITHOUT AXIAL COMPENSATION
- ЗАЖИМЫ ДЛЯ НАРЕЗАНИЯ ВНУТРЕННИХ РЕЗЬБ МЕТЧИ КОМ
- TULEJE ZACISKOWE DO MASKOWANIA SZTYWNEGO
- PEVNÁ ZÁVITOŘEZNÁ POUZDRA
- DIŞ ÇEKME İÇİN KARGABURUN

ER - GB



| REF.                    | CODE         | (d Ø x c) | DIN 371 | DIN 374-376 | D1 | L    |              |
|-------------------------|--------------|-----------|---------|-------------|----|------|--------------|
| ER 16-GB<br>(M4 ~ M10)  | 496085116045 | 4.5 x 3.4 | M4      | M6          | 16 | 27.5 | 100451011600 |
|                         | 496085116055 | 5.5 x 4.3 | -       | M7          |    |      |              |
|                         | 496085116060 | 6 x 4.9   | M5      | M8          |    |      |              |
|                         | 496085116070 | 7 x 5.5   | M6      | M10         |    |      |              |
| ER 25-GB<br>(M4 ~ M16)  | 496085125045 | 4.5 x 3.4 | M4      | M6          | 25 | 34   | 100451012500 |
|                         | 496085125055 | 5.5 x 4.3 | -       | M7          |    |      |              |
|                         | 496085125060 | 6 x 4.9   | M5      | M8          |    |      |              |
|                         | 496085125070 | 7 x 5.5   | -       | M10         |    |      |              |
|                         | 496085125090 | 9 x 7     | -       | M12         |    |      |              |
|                         | 496085125110 | 11 x 9    | -       | M14         |    |      |              |
|                         | 496085125120 | 12 x 9    | -       | M16         |    |      |              |
|                         | 496085132045 | 4.5 x 3.4 | M4      | M6          | 32 | 40   | 100451033200 |
| ER 32-GB<br>(M4 ~ M20)  | 496085132055 | 5.5 x 4.3 | -       | M7          |    |      |              |
|                         | 496085132060 | 6 x 4.9   | M5      | M8          |    |      |              |
|                         | 496085132070 | 7 x 5.5   | -       | M10         |    |      |              |
|                         | 496085132090 | 9 x 7     | -       | M12         |    |      |              |
|                         | 496085132110 | 11 x 9    | -       | M14         |    |      |              |
|                         | 496085132120 | 12 x 9    | -       | M16         |    |      |              |
|                         | 496085132140 | 14 x 11   | -       | M18         |    |      |              |
|                         | 496085132160 | 16 x 12   | -       | M20         |    |      |              |
| ER 40-GB<br>(M10 ~ M27) | 496085140070 | 7 x 5.5   | -       | M10         | 40 | 46   | 100451034000 |
|                         | 496085140090 | 9 x 7     | -       | M12         |    |      |              |
|                         | 496085140110 | 11 x 9    | -       | M14         |    |      |              |
|                         | 496085140120 | 12 x 9    | -       | M16         |    |      |              |
|                         | 496085140140 | 14 x 11   | -       | M18         |    |      |              |
|                         | 496085140160 | 16 x 12   | -       | M20         |    |      |              |
|                         | 496085140180 | 18 x 14.5 | -       | M22         |    |      |              |
|                         | 496085140200 | 20 x 16   | -       | M24         |    |      |              |

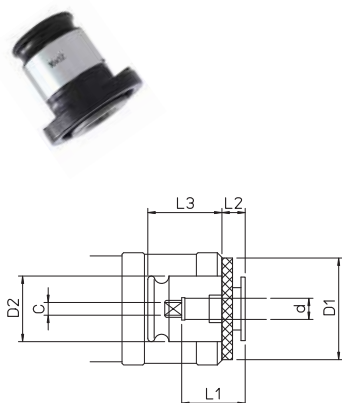
• On request • Поставляются по запросу • Na zamówienie • Na vyžádání • İsteğe bağlı

- For TOPRUN spindles, use ring-nuts shown in the chart
- Для использования на шпинделях TOPRUN использовать зажимные кольца, указанные в таблице
- W przypadku stosowania na wrzecionach TOPRUN, użyć tulei wskazanych w tabeli
- Pro vřetena TOPRUN použijte kroužkové matice podle grafu
- TOPRUN milleri için tabloda gösterilen halka somunları kullanın



- QUICK CHANGE TAP HOLDERS WITHOUT TORQUE CLUTCH
- БЫСТРОЗАМЕНЯЕМЫЕ ВТУЛКИ БЕЗ ОГРАНИЧЕНИЯ ПАРЫ
- TULEJE SZYBKOZMIENNE BEZ OGRANICZEN W ZAKRESIE PARY SIŁ
- DRŽÁKY PRO RYCHLOU VÝMĚNU BEZ MOMENTOVÉ SVORKY
- HIZLI DEĞİŞTİRİLEBİLEN TORK MILLİ KILAVUZ ÇEKME BİÇAĞI TUTUCULARI

BFC



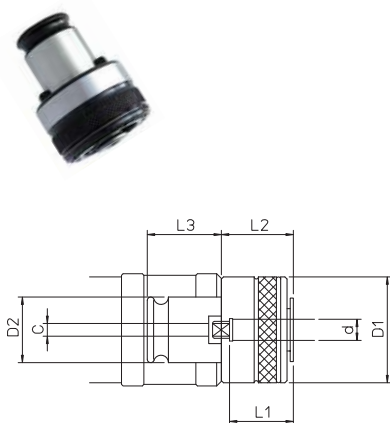
| REF.               | CODE         | (d Ø x c [mm]) | DIN 371  | DIN 374 | DIN 376 | D1 | D2 | L1 | L2 | L3   |
|--------------------|--------------|----------------|----------|---------|---------|----|----|----|----|------|
| BFC1<br>(M3 ~ 12)  | 495061035027 | 3.5 x 2.7      | M3       | M5      | M5      | 30 | 19 | 17 | 7  | 21.5 |
|                    | 495061045034 | 4.5 x 3.4      | M4       | M6      | M6      |    |    |    |    |      |
|                    | 495061055043 | 5.5 x 4.3      | -        | M7      | M7      |    |    |    |    |      |
|                    | 495061060049 | 6 x 4.9        | M5<br>M6 | M8      | M8      |    |    |    |    |      |
|                    | 495061070055 | 7 x 5.5        | -        | M10     | M10     |    |    |    |    |      |
|                    | 495061090070 | 9 x 7          | -        | M12     | M12     |    |    |    |    |      |
| BFC2<br>(M6 ~ 20)  | 495062060049 | 6 x 4.9        | M5<br>M6 | M8      | M8      | 48 | 31 | 30 | 11 | 35   |
|                    | 495062070055 | 7 x 5.5        | -        | M10     | M10     |    |    |    |    |      |
|                    | 495062090070 | 9 x 7          | -        | M12     | M12     |    |    |    |    |      |
|                    | 495062110090 | 11 x 9         | -        | M14     | M14     |    |    |    |    |      |
|                    | 495062120090 | 12 x 9         | -        | M16     | M16     |    |    |    |    |      |
|                    | 495062140110 | 14 x 11        | -        | M18     | M18     |    |    |    |    |      |
| BFC3<br>(M14 ~ 33) | 495062160120 | 16 x 12        | -        | M20     | M20     | 70 | 48 | 44 | 14 | 55.5 |
|                    | 495063110090 | 11 x 9         | -        | M14     | M14     |    |    |    |    |      |
|                    | 495063120090 | 12 x 9         | -        | M16     | M16     |    |    |    |    |      |
|                    | 495063140110 | 14 x 11        | -        | M18     | M18     |    |    |    |    |      |
|                    | 495063160120 | 16 x 12        | -        | M20     | M20     |    |    |    |    |      |
|                    | 495063180145 | 18 x 14.5      | -        | M22     | M22     |    |    |    |    |      |
|                    | 495063200160 | 20 x 16        | -        | M24     | M24     |    |    |    |    |      |
|                    | 495063220180 | 22 x 18        | -        | M27     | M27     |    |    |    |    |      |
|                    | 495063250200 | 25 x 20        | -        | M30     | M30     |    |    |    |    |      |
|                    | 495063250200 | 25 x 20        | -        | M33     | M33     |    |    |    |    |      |

• On request • Поставляются по запросу • Na zamówienie • Na vyžádání • İsteğe bağlı

- QUICK CHANGE TAP HOLDERS WITH TORQUE CLUTCH
- ВТУЛКИ БЫСТРОЙ СМЕНЫ С ОГРАНИЧЕНИЕМ МОМЕНТА
- TULEJE SZYBKOZMIENNE Z OGRANICZENIEM MOMENTU OBROTOWEGO
- DR BKY PRO RYCHLOU VÝMĚNU S MOMENTOVOU SVORKOU
- HIZLI DEĞİŞTİRİLEBİLEN TORK MİLSİZ KILAVUZ ÇEKME BİÇAĞI TUTUCULARI

BFS

245



| REF.               | CODE         | (d Ø x c [mm]) | DIN 371  | DIN 374 | DIN 376 | D1 | D2 | L1 | L2 | L3   |
|--------------------|--------------|----------------|----------|---------|---------|----|----|----|----|------|
| BFS1<br>(M3 ~ 12)  | 495071035027 | 3.5 x 2.7      | M3       | M5      | M5      | 32 | 19 | 17 | 25 | 21.5 |
|                    | 495071040030 | 4 x 3          | M3.5     | -       | -       |    |    |    |    |      |
|                    | 495071045034 | 4.5 x 3.4      | M4       | M6      | M6      |    |    |    |    |      |
|                    | 495071055043 | 5.5 x 4.3      | -        | M7      | M7      |    |    |    |    |      |
|                    | 495071060049 | 6 x 4.9        | M5<br>M6 | M8      | M8      |    |    |    |    |      |
|                    | 495071070055 | 7 x 5.5        | -        | M10     | M10     |    |    |    |    |      |
|                    | 495071080062 | 8 x 6.2        | M8       | -       | -       |    |    |    |    |      |
|                    | 495071090070 | 9 x 7          | -        | M12     | M12     |    |    |    |    |      |
| BFS2<br>(M6 ~ 20)  | 495071100080 | 10 x 8         | M10      | -       | -       | 50 | 31 | 30 | 34 | 35   |
|                    | 495072060049 | 6 x 4.9        | M5<br>M6 | M8      | M8      |    |    |    |    |      |
|                    | 495072070055 | 7 x 5.5        | -        | M10     | M10     |    |    |    |    |      |
|                    | 495072080062 | 8 x 6.2        | M8       | -       | -       |    |    |    |    |      |
|                    | 495072090070 | 9 x 7          | -        | M12     | M12     |    |    |    |    |      |
|                    | 495072100080 | 10 x 8         | M10      | -       | -       |    |    |    |    |      |
|                    | 495072110090 | 11 x 9         | -        | M14     | M14     |    |    |    |    |      |
|                    | 495072120090 | 12 x 9         | -        | M16     | M16     |    |    |    |    |      |
| BFS3<br>(M14 ~ 33) | 495072140110 | 14 x 11        | -        | M18     | M18     | 72 | 48 | 44 | 45 | 55.5 |
|                    | 495072160120 | 16 x 12        | -        | M20     | M20     |    |    |    |    |      |
|                    | 495073110090 | 11 x 9         | -        | M14     | M14     |    |    |    |    |      |
|                    | 495073120090 | 12 x 9         | -        | M16     | M16     |    |    |    |    |      |
|                    | 495073140110 | 14 x 11        | -        | M18     | M18     |    |    |    |    |      |
|                    | 495073160120 | 16 x 12        | -        | M20     | M20     |    |    |    |    |      |
|                    | 495073180145 | 18 x 14.5      | -        | M22     | M22     |    |    |    |    |      |
|                    | 495073200160 | 20 x 16        | -        | M24     | M24     |    |    |    |    |      |
|                    | 495073220180 | 22 x 18        | -        | M27     | M27     |    |    |    |    |      |
|                    | 495073250200 | 25 x 20        | -        | M30     | M30     |    |    |    |    |      |
|                    | 495073250200 | 25 x 20        | -        | M33     | M33     |    |    |    |    |      |

• On request • Поставляются по запросу • Na zamówienie • Na vyžádání • İsteğe bağlı

**Oktober 1995**

**DIN**  
69871-1

Ersatz für Ausgabe 1990-03



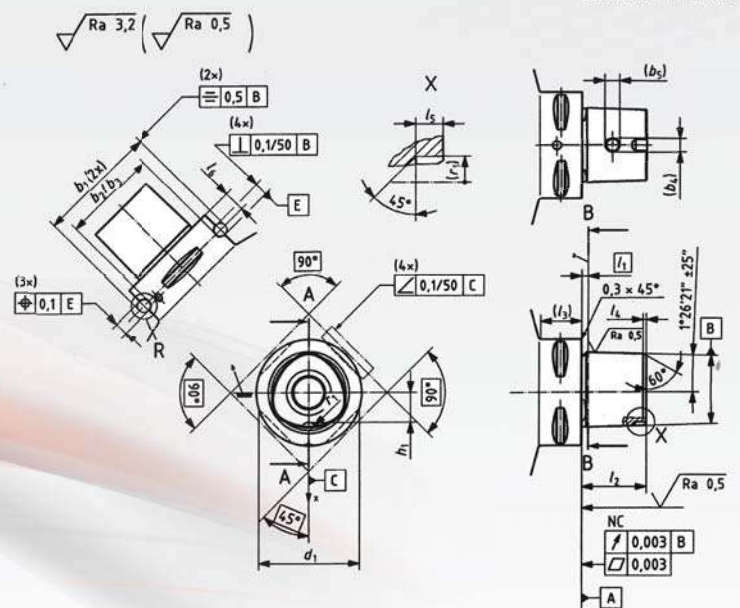




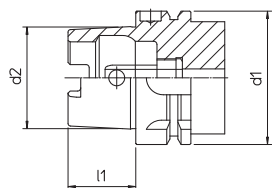
ISO  
26623-1

247

Dimensions in millimetres

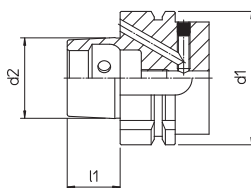


#### HSK-A



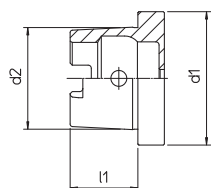
| HSK-A | d1  | d2 | l1 |
|-------|-----|----|----|
| 32    | 32  | 24 | 16 |
| 40    | 40  | 30 | 20 |
| 50    | 50  | 38 | 25 |
| 63    | 63  | 48 | 32 |
| 80    | 80  | 60 | 40 |
| 100   | 100 | 75 | 50 |

#### HSK-B



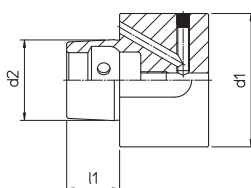
| HSK-B | d1  | d2 | l1 |
|-------|-----|----|----|
| -     | -   | -  | -  |
| 40    | 40  | 24 | 16 |
| 50    | 50  | 30 | 20 |
| 63    | 63  | 38 | 25 |
| 80    | 80  | 48 | 32 |
| 100   | 100 | 60 | 40 |

#### HSK-C



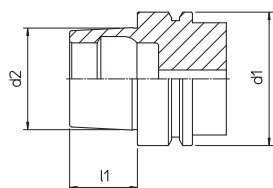
| HSK-C | d1  | d2 | l1 |
|-------|-----|----|----|
| 32    | 32  | 24 | 16 |
| 40    | 40  | 30 | 20 |
| 50    | 50  | 38 | 25 |
| 63    | 63  | 48 | 32 |
| 80    | 80  | 60 | 40 |
| 100   | 100 | 75 | 50 |

#### HSK-D



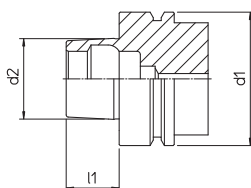
| HSK-D | d1  | d2 | l1 |
|-------|-----|----|----|
| -     | -   | -  | -  |
| 40    | 40  | 24 | 16 |
| 50    | 50  | 30 | 20 |
| 63    | 63  | 38 | 25 |
| 80    | 80  | 48 | 32 |
| 100   | 100 | 60 | 40 |

#### HSK-E



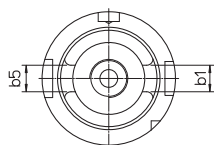
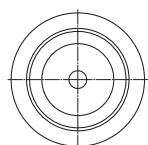
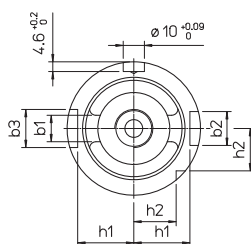
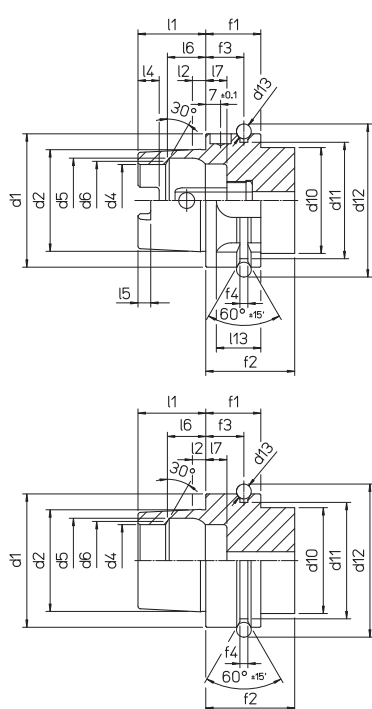
| HSK-E | d1 | d2 | l1 |
|-------|----|----|----|
| 32    | 32 | 24 | 16 |
| 40    | 40 | 30 | 20 |
| 50    | 50 | 38 | 25 |
| 63    | 63 | 48 | 32 |
| -     | -  | -  | -  |

#### HSK-F



| HSK-F | d1 | d2 | l1 |
|-------|----|----|----|
| -     | -  | -  | -  |
| -     | -  | -  | -  |
| 50    | 50 | 30 | 20 |
| 63    | 63 | 38 | 25 |
| 80    | 80 | 48 | 32 |

#### HSK-A HSK-E



#### HSK-T

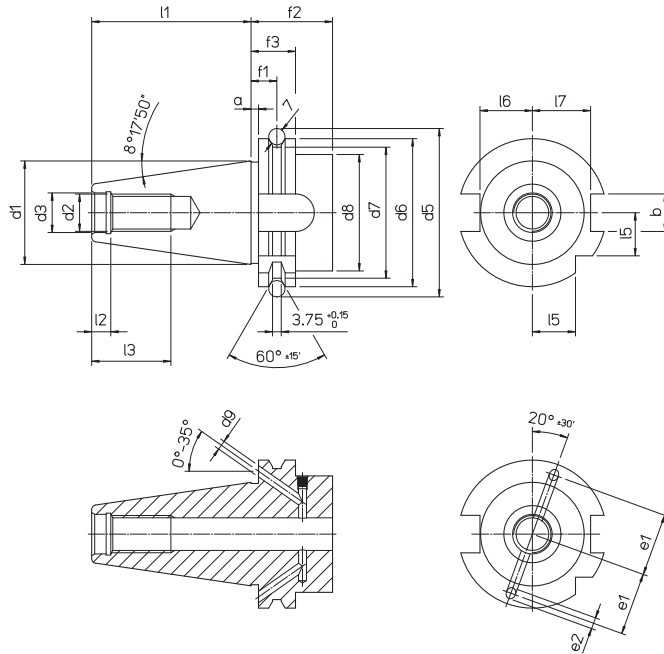
| HSK-T                                                     | 32                                                 | 40    | 50     | 63                                                  | 80    | 100   |
|-----------------------------------------------------------|----------------------------------------------------|-------|--------|-----------------------------------------------------|-------|-------|
| b1 $\begin{smallmatrix} +0.04 \\ -0.04 \end{smallmatrix}$ | 7.05                                               | 8.05  | 10.54  | 12.54                                               | 16.04 | 20.02 |
| b5                                                        | 6.932                                              | 7.932 | 10.425 | 12.425                                              | 15.93 | 19.91 |
|                                                           | $\begin{smallmatrix} +0.03 \\ 0 \end{smallmatrix}$ |       |        | $\begin{smallmatrix} +0.035 \\ 0 \end{smallmatrix}$ |       |       |

| HSK                                                       | 32                                                             | 40                                                             | 50                                                             | 63                                                             | 80                                                             | 100                                                            |
|-----------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------|
| b1 $\begin{smallmatrix} +0.04 \\ -0.04 \end{smallmatrix}$ | 7.05                                                           | 8.05                                                           | 10.54                                                          | 12.54                                                          | 16.04                                                          | 20.02                                                          |
| b2 H10                                                    | 7                                                              | 9                                                              | 12                                                             | 16                                                             | 18                                                             | 20                                                             |
| b3 H10                                                    | 9                                                              | 11                                                             | 14                                                             | 18                                                             | 20                                                             | 22                                                             |
| d1 h10                                                    | 32                                                             | 40                                                             | 50                                                             | 63                                                             | 80                                                             | 100                                                            |
| d2                                                        | $\begin{smallmatrix} 24 \\ +0.007 \\ +0.005 \end{smallmatrix}$ | $\begin{smallmatrix} 30 \\ +0.007 \\ +0.005 \end{smallmatrix}$ | $\begin{smallmatrix} 38 \\ +0.009 \\ +0.006 \end{smallmatrix}$ | $\begin{smallmatrix} 48 \\ +0.011 \\ +0.007 \end{smallmatrix}$ | $\begin{smallmatrix} 60 \\ +0.013 \\ +0.008 \end{smallmatrix}$ | $\begin{smallmatrix} 75 \\ +0.015 \\ +0.009 \end{smallmatrix}$ |
| d4 H10                                                    | 17                                                             | 21                                                             | 26                                                             | 34                                                             | 42                                                             | 53                                                             |
| d5 H11                                                    | 21                                                             | 25.5                                                           | 32                                                             | 40                                                             | 50                                                             | 63                                                             |
| d6                                                        | 19                                                             | 23                                                             | 29                                                             | 37                                                             | 46                                                             | 58                                                             |
| d10 max.                                                  | 26                                                             | 34                                                             | 42                                                             | 53                                                             | 67                                                             | 85                                                             |
| d11 $\begin{smallmatrix} 0 \\ -0.01 \end{smallmatrix}$    | 26.5                                                           | 34.8                                                           | 43                                                             | 55                                                             | 70                                                             | 92                                                             |
| d12 $\begin{smallmatrix} 0 \\ -0.01 \end{smallmatrix}$    | 37                                                             | 45                                                             | 59.3                                                           | 72.3                                                           | 88.8                                                           | 109.75                                                         |
| d13                                                       | 4                                                              |                                                                |                                                                | 7                                                              |                                                                |                                                                |
| f1 $\begin{smallmatrix} 0 \\ -0.01 \end{smallmatrix}$     | 20                                                             |                                                                |                                                                | 26                                                             |                                                                | 29                                                             |
| f2 min.                                                   | 35                                                             |                                                                |                                                                | 42                                                             |                                                                | 45                                                             |
| f3 $\pm 0.01$                                             | 16                                                             |                                                                |                                                                | 18                                                             |                                                                | 20                                                             |
| f4 $\begin{smallmatrix} +0.15 \\ 0 \end{smallmatrix}$     | 2                                                              |                                                                |                                                                | 3.75                                                           |                                                                |                                                                |
| h1 $\begin{smallmatrix} 0 \\ -0.2 \end{smallmatrix}$      | 13                                                             | 17                                                             | 21                                                             | 26.5                                                           | 34                                                             | 44                                                             |
| h2 $\begin{smallmatrix} 0 \\ -0.13 \end{smallmatrix}$     | 9.5                                                            | 12                                                             | 15.5                                                           | 20                                                             | 25                                                             | 31.5                                                           |
| l1 $\begin{smallmatrix} 0 \\ -0.2 \end{smallmatrix}$      | 16                                                             | 20                                                             | 25                                                             | 32                                                             | 40                                                             | 50                                                             |
| l2                                                        | 3.2                                                            | 4                                                              | 5                                                              | 6.3                                                            | 8                                                              | 10                                                             |
| l4 $\begin{smallmatrix} +0.2 \\ 0 \end{smallmatrix}$      | 5                                                              | 6                                                              | 7.5                                                            | 10                                                             | 12                                                             | 15                                                             |
| l5 $\begin{smallmatrix} +0.2 \\ 0 \end{smallmatrix}$      | 3                                                              | 3.5                                                            | 4.5                                                            | 6                                                              | 8                                                              | 10                                                             |
| l6 JS10                                                   | 8.92                                                           | 11.42                                                          | 14.13                                                          | 18.13                                                          | 22.85                                                          | 28.56                                                          |
| l7 $\begin{smallmatrix} 0 \\ -0.1 \end{smallmatrix}$      | 8                                                              |                                                                | 10                                                             | 10                                                             | 12.5                                                           | 12.5                                                           |
| l13                                                       | 12                                                             |                                                                | 19                                                             | 21                                                             | 22                                                             | 24                                                             |



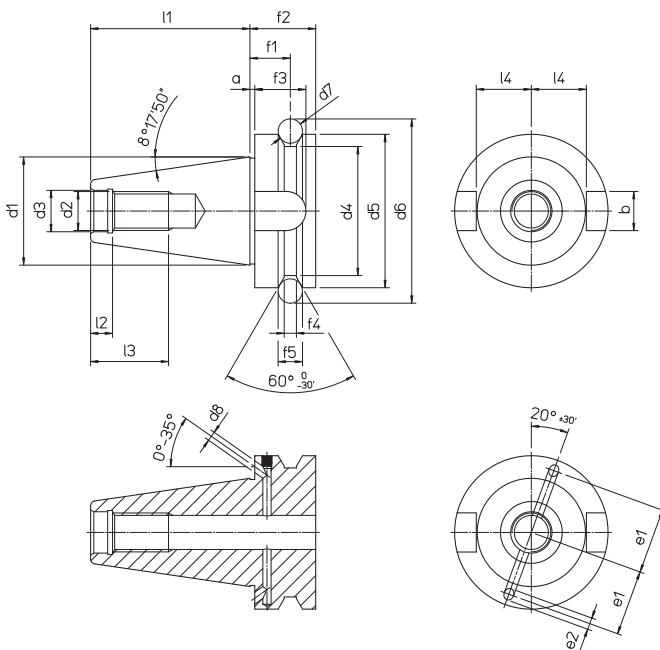
- ARBORS STANDARDS
- НОРМЫ ПО ДЕРЖАТЕЛЯМ
- NORMY DOTYCZĄCE PODSTAWOWYCH UCHWYTÓW
- NORMY VŘETEN
- MALAFA STANDARTLARI

## DIN 69871 A-B



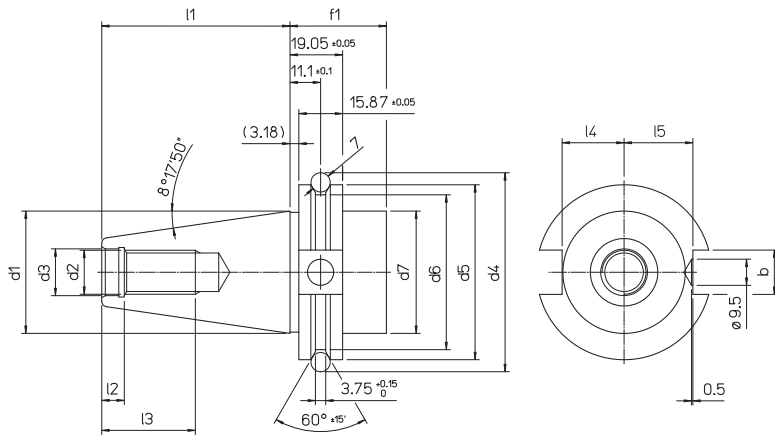
| ISO                                                  | 30    | 40    | 45    | 50     | 60     |
|------------------------------------------------------|-------|-------|-------|--------|--------|
| a ± 0.01                                             | 3.2   |       |       |        |        |
| b H12                                                | 16.1  |       | 19.3  | 25.7   |        |
| d1                                                   | 31.75 | 44.45 | 57.15 | 69.85  | 107.95 |
| d2                                                   | M12   | M16   | M20   | M24    | M30    |
| d3 H7                                                | 13    | 17    | 21    | 25     | 32     |
| d5 ± 0.05                                            | 59.3  | 72.3  | 91.35 | 107.25 | 164.75 |
| d6 $\begin{smallmatrix} 0 \\ -0.1 \end{smallmatrix}$ | 50    | 63.55 | 82.55 | 97.50  | 155    |
| d7 $\begin{smallmatrix} 0 \\ -0.5 \end{smallmatrix}$ | 44.3  | 56.25 | 75.25 | 91.25  | 147.70 |
| d8 max.                                              | 45    | 50    | 63    | 80     | 130    |
| d9                                                   | 4     |       | 5     | 6      | 8      |
| e1 ± 0.1                                             | 21    | 27    | 35    | 42     | 66     |
| e2 max.                                              | 5     |       | 6     | 7      | 9.2    |
| f1 ± 0.1                                             | 11.1  |       |       |        |        |
| f2 min.                                              | 35    |       |       |        | 38     |
| f3 $\begin{smallmatrix} 0 \\ -0.1 \end{smallmatrix}$ | 19.1  |       |       |        |        |
| l1 $\begin{smallmatrix} 0 \\ -0.3 \end{smallmatrix}$ | 47.8  | 68.4  | 82.7  | 101.75 | 161.80 |
| l2 $\begin{smallmatrix} +0.5 \\ 0 \end{smallmatrix}$ | 5.5   | 8.2   | 10    | 11.5   | 14     |
| l3 min.                                              | 24    | 32    | 40    | 47     | 59     |
| l5 $\begin{smallmatrix} 0 \\ -0.3 \end{smallmatrix}$ | 15    | 18.5  | 24    | 30     | 49     |
| l6 $\begin{smallmatrix} 0 \\ -0.4 \end{smallmatrix}$ | 16.4  | 22.8  | 29.1  | 35.5   | 54.5   |
| l7 $\begin{smallmatrix} 0 \\ -0.4 \end{smallmatrix}$ | 19    | 25    | 31.3  | 37.7   | 59.3   |

## MAS 403 BT A-B



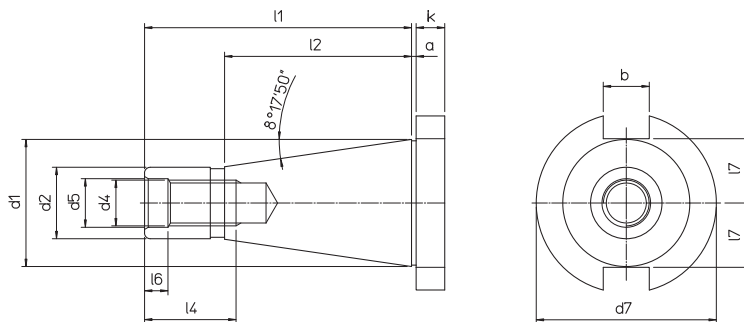
| ISO                             | 30     | 35     | 40     | 45      | 50      | 60      |
|---------------------------------|--------|--------|--------|---------|---------|---------|
| a ± 0.04                        | 2      |        |        | 3       |         |         |
| b H12                           | 16.1   |        |        | 19.3    | 25.7    | 25,7    |
| d1                              | 31.75  | 38.10  | 44.45  | 57.15   | 69.85   | 107,95  |
| d2                              | M 12   |        | M 16   | M 20    | M 24    | M30     |
| d3 H8                           | 12.5   |        | 17     | 21      | 25      | 31      |
| d4                              | 38     | 43     | 53     | 73      | 85      | 135     |
| d5 h8                           | 46     | 53     | 63     | 85      | 100     | 155     |
| d6                              | 56.144 | 65.680 | 75.679 | 100.215 | 119.019 | 180,359 |
| d7                              | 8      | 10     |        | 12      | 15      | 20      |
| d8                              | 4      |        |        | 5       | 6       | 8       |
| e1 ± 0.1                        | 21     | 23     | 27     | 35      | 42      | 66      |
| e2 max.                         | 5      |        |        | 6       | 7       | 9,2     |
| f1 ± 0.1                        | 13.6   | 14.6   | 16.6   | 21.2    | 23.2    | 28,2    |
| f2                              | 22     | 24     | 27     | 33      | 38      | 4,8     |
| f3 min.                         | 17     | 20     | 21     | 26      | 31      | 34      |
| f4                              | 4      | 5      |        | 6       | 7       | 11      |
| f5 <sup>+0.1</sup> <sub>0</sub> | 8      | 10     |        | 12      | 15      | 20      |
| l1 ± 0.2                        | 48.4   | 56.4   | 65.4   | 82.8    | 101.8   | 161,8   |
| l2 <sup>+0.5</sup> <sub>0</sub> | 7      |        | 9      | 11      | 13      | 16      |
| l3 min.                         | 24     |        | 30     | 38      | 45      | 56      |
| l4 <sub>0</sub> <sup>-0.2</sup> | 16.3   | 19.6   | 22.6   | 29.1    | 35.4    | 60,1    |

### ANSI/CAT

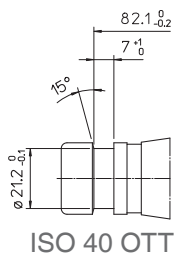


| ANSI/CAT         |       |       |        |
|------------------|-------|-------|--------|
| ISO              | 40    | 45    | 50     |
| b $^{+0.2}_{0}$  | 16.1  | 19.3  | 25.7   |
| d1               | 44.45 | 57.15 | 69.85  |
| d2               | M 16  | M 20  | M 24   |
| d3 H7            | 17    | 21    | 25     |
| d4 $\pm 0.05$    | 72.3  | 91.35 | 107.25 |
| d5 $^{0}_{-0.1}$ | 63.55 | 82.55 | 98.45  |
| d6 $^{0}_{-0.5}$ | 56.25 | 75.25 | 91.25  |
| d7 $\pm 0.25$    | 44.45 | 57.15 | 69.85  |
| f1 $\pm 0.25$    | 35    |       | 36.5   |
| l1 $^{0}_{-0.3}$ | 68.4  | 82.7  | 101.75 |
| l2 $^{+0.5}_{0}$ | 4.75  | 5.25  | 5.75   |
| l3 min.          | 30    | 38    | 45     |
| l4 $^{0}_{-0.4}$ | 22.8  | 29.10 | 35.50  |
| l5 $^{0}_{-0.4}$ | 25    | 31.3  | 37.7   |

### DIN 2080

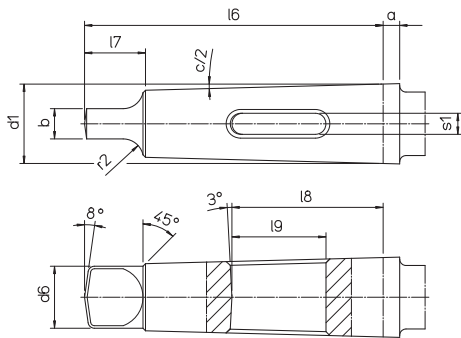


| DIN 2080         |       |       |       |       |
|------------------|-------|-------|-------|-------|
| ISO              | 30    | 40    | 45    | 50    |
| a $\pm 0.2$      | 1.6   |       | 3.2   |       |
| b H12            | 16.1  |       | 19.3  | 25.7  |
| d1               | 31.75 | 44.45 | 57.15 | 69.85 |
| d2 a10           | 17.4  | 25.3  | 32.4  | 39.6  |
| d4 $\pm 0.05$    | M 12  | M 16  | M 20  | M 24  |
| d5               | 13    | 17    | 21    | 26    |
| d7 $^{0}_{-0.4}$ | 50    | 63    | 80    | 97.5  |
| k $\pm 0.15$     | 8     | 10    | 12    | 12    |
| l1               | 68.4  | 93.4  | 106.8 | 126.8 |
| l2               | 48.4  | 65.4  | 82.8  | 101.8 |
| l4               | 24    | 32    | 40    | 47    |
| l6 $^{+0.5}_{0}$ | 5.5   | 8.2   | 10    | 11.5  |
| l7 max.          | 16.2  | 22.5  | 29    | 35.3  |



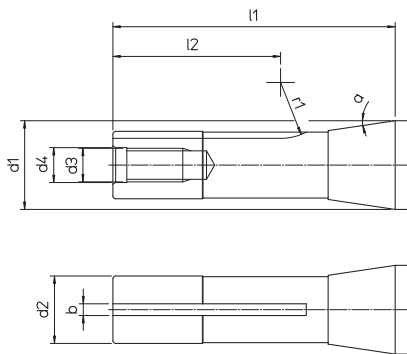
- ARBORS STANDARDS
- НОРМЫ ПО ДЕРЖАТЕЛЯМ
- NORMY DOTYCZĄCE PODSTAWOWYCH UCHWYTÓW
- NORMY VŘETEN
- MALAFA STANDARTLARI

## DIN 228/B DIN 1806



| MORSE                                              | 4        | 5        |
|----------------------------------------------------|----------|----------|
| a                                                  | 6.5      |          |
| b H13                                              | 11.9     | 15.9     |
| c/2                                                | 1°29'15" | 1°30'26" |
| d1                                                 | 31.267   | 44.399   |
| d6 max.                                            | 24.5     | 35.7     |
| l6 $\begin{smallmatrix} 0 \\ -1 \end{smallmatrix}$ | 117.5    | 149.5    |
| l7 max.                                            | 24       | 29       |
| l8                                                 | 59.5     | 64       |
| l9                                                 | 37       | 42       |
| r2                                                 | 8        | 10       |
| s1                                                 | 8.3      | 12.4     |

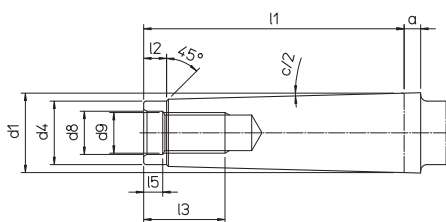
## R8



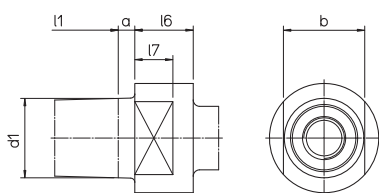
| R8                                                          |          |
|-------------------------------------------------------------|----------|
| a                                                           | 8°25'30" |
| b $\pm 0.1$                                                 | 4.2      |
| d1                                                          | 31.750   |
| d2                                                          | 24.109   |
| d3 $\begin{smallmatrix} -0.007 \\ -0.020 \end{smallmatrix}$ | M 12     |
| d4                                                          | 12.5     |
| l1                                                          | 101      |
| l2 min.                                                     | 60       |
| r1                                                          | 20       |

251

## DIN 228/A

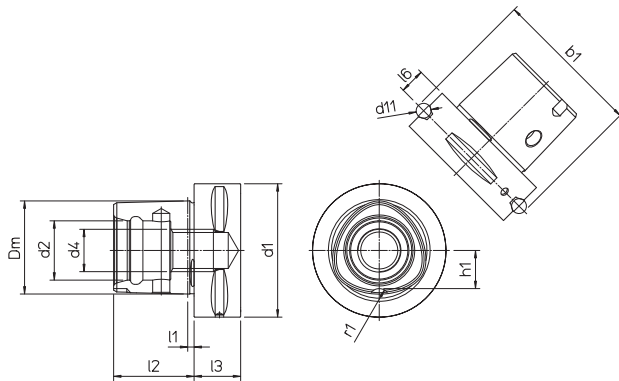


## DIN 2207



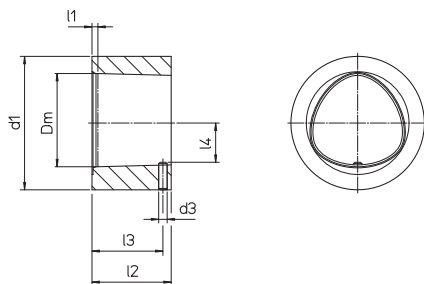
| MORSE                                                | 4        | 4 SIP |
|------------------------------------------------------|----------|-------|
| a                                                    | 6.5      |       |
| b d9                                                 | 32       |       |
| c/2                                                  | 1°29'15" |       |
| d1                                                   | 31.267   |       |
| d4 max.                                              | 25       |       |
| d8                                                   | 17       |       |
| d9                                                   | M 16     | M 14  |
| l1 max.                                              | 102.5    |       |
| l2                                                   | 9        |       |
| l3                                                   | 32       |       |
| l5 $\begin{smallmatrix} +0.5 \\ 0 \end{smallmatrix}$ | 8.2      |       |
| l6                                                   | 15       |       |
| l7                                                   | 23       |       |

### ISO 26623-1



| PSC                                 | 32      | 40      | 50      | 63    | 80   | 100   |
|-------------------------------------|---------|---------|---------|-------|------|-------|
| b1 ±0.1                             | 39      | 46      | 59.3    | 70.7  | 86   | 110   |
| Dm                                  | 22      | 28      | 35      | 44    | 55   | 72    |
| d1 ±0.1                             | 32      | 40      | 50      | 63    | 80   | 100   |
| d2 <sup>+0.1</sup> <sub>-0.05</sub> | 15      | 18      | 21      | 28    | 32   | 43    |
| d4                                  | M12x1.5 | M14x1.5 | M16x1.5 | M20x2 |      | M24x2 |
| d11                                 | 5       |         | 7       |       |      | 10    |
| l1                                  | 2.5     |         | 3       |       |      |       |
| l2 ±0.1                             | 19      | 24      | 30      | 38    | 48   | 60    |
| l3 min                              | 15      | 20      |         | 22    | 30   | 36    |
| l6 ±0.15                            | 6       | 8       | 10      | 12    |      | 16    |
| h1 ±0.1                             | 9       | 11      | 14      | 18    | 22.2 | 29    |
| r1 <sup>+2</sup> <sub>0</sub>       | 3       | 3       | 4       | 5     | 6    | 8     |

### ISO 26623-2



| PSC      | 32       | 40        | 50        | 63        | 80        | 100  |
|----------|----------|-----------|-----------|-----------|-----------|------|
| Dm       | 22       | 28        | 35        | 44        | 55        | 72   |
| d1 min   | 32       | 40        | 50        | 63        | 80        | 100  |
| d3       | 2        | 2.5       | 3         | 4         | 5         | 6    |
| l1       | 2.3      | 2.3       | 2.8       | 2.8       | 2.8       | 2.8  |
| l2 F 0.1 | 18.4     | 23.4      | 29.4      | 37.4      | 47.4      | 59.4 |
| l3 F 0.2 | 16.5     | 21        | 26        | 33.5      | 43        | 52.5 |
| l4       | 9.4 ±0.1 | 11.5 ±0.2 | 14.5 ±0.2 | 18.5 ±0.2 | 22.8 ±0.2 | 29.6 |





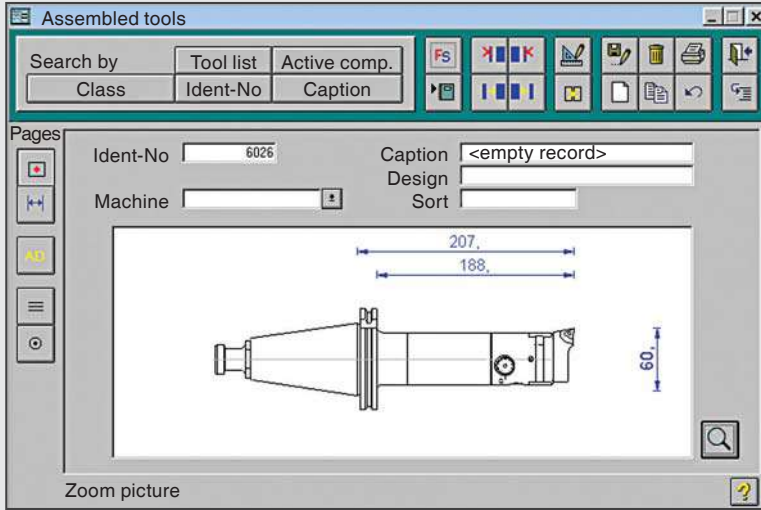
**GB** It allows to be graphically constructed in a short period of time, showing the complete composition of the Modulhard'Andrea tools, including dimensions, weight and the list of components.

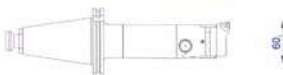
**RU** Графический генератор, позволяющий в короткое время подобрать полный состав элементов MODULHARD'ANDREA, с указанием размеров, веса и списка компонентов.

**PL** Generator graficzny pozwalający w krótkim czasie skompletować zestaw narzędziowy z elementów systemu MODULHARD'ANDREA, podając jednocześnie wymiary, masę i kompletną listę wykorzystanych elementów..

**CZ** Umožňuje konstrukci v grafické podobě v krátké době a se zobrazením úplné sestavy nástrojů Modulhard'Andrea včetně rozměrů, hmotnosti a seznamu komponent.

**TR** Kısa sürede grafik olarak yapılandırılabilmesi sayesinde, tüm Modulhard'Andrea takımlarını ebatları, ağırlıkları ve bileşen listeleriyle birlikte verir.



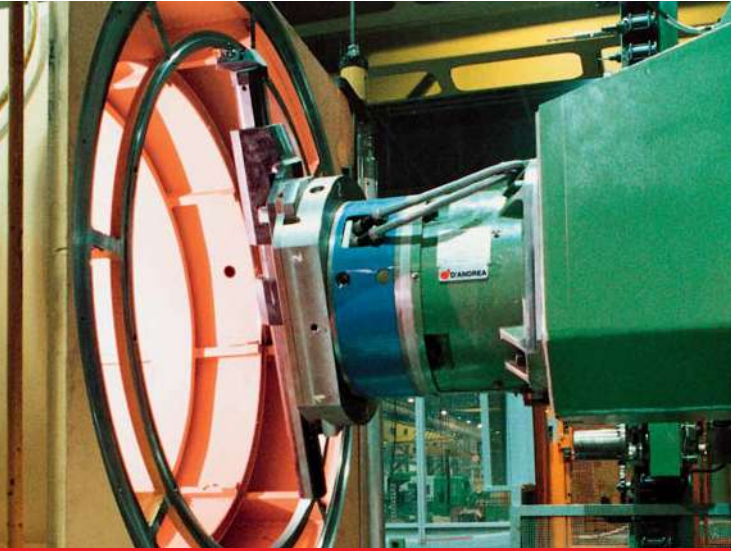
| Tool assembling                                                                      |                        |                   |                 | 6019     |       |        |   |
|--------------------------------------------------------------------------------------|------------------------|-------------------|-----------------|----------|-------|--------|---|
| < empty record >                                                                     |                        |                   |                 | Machine: |       |        |   |
| Diem:                                                                                | 80                     | Cutting:          | 0               | Radius:  | 0     | Angle: | 0 |
|                                                                                      |                        |                   |                 | 207,     | 188,  |        |   |
|  |                        |                   |                 |          |       |        |   |
| Quant                                                                                | Description            | Design            | Article         | Weight   | Price |        |   |
| 1                                                                                    | ISO7385/2-B ANSI B5.50 | AS                | 20 143 025 1501 | 0,000    | 0,00  |        |   |
| 1                                                                                    | DIN 69711 A-D 50 MHC50 | 41.6.50 01 050 20 | MHC50           | 2,700    | 0,00  |        |   |
| 1                                                                                    | PR 50 80               | 65-69 050 0080 0  | D 2.5-84        | 1,100    | 0,00  |        |   |
| 1                                                                                    | TRM 50/50              | 45.50 050 0050 0  | TPGX 1103 - L   | 0,980    | 0,00  |        |   |
| 1                                                                                    | SFTF 50                | 47 050 05 50 001  |                 | 4,880    | 0,00  |        |   |
|                                                                                      |                        |                   |                 | 4,880    | 0,00  |        |   |

|         |            |
|---------|------------|
| WinTool | 15.08.2015 |
|---------|------------|



# HEADS

use your head



*"Super sized" performance*



*Turning operations on all machining centres*

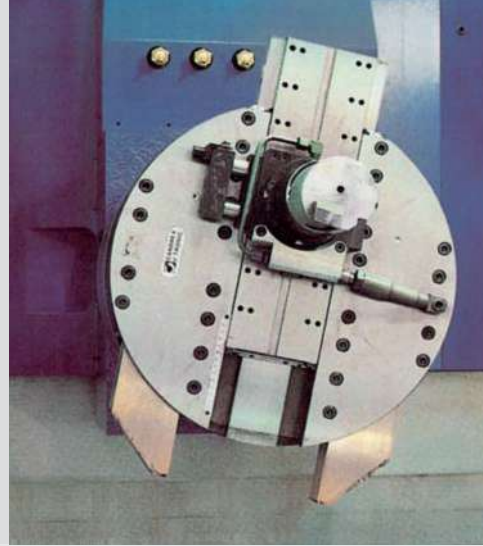
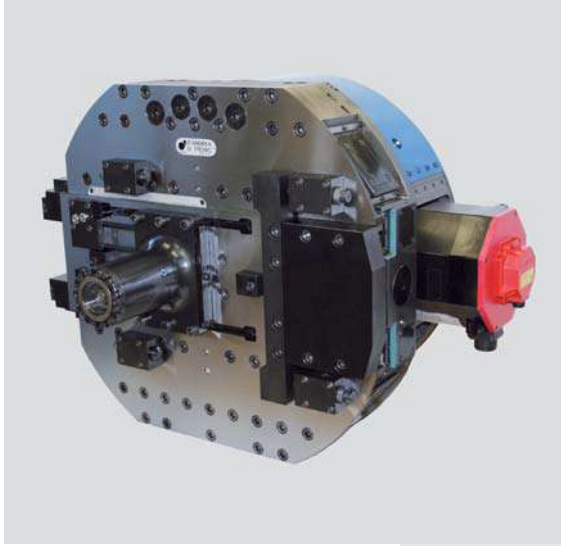


*For automatic facing*

*Unit and transfer solutions*



Made in Italy



SPECIAL and SYNCHRO



U-TRONIC



TA-CENTER



TA-TRONIC



U-COMAX



AUTORADIAL





- GB** Medium and large sized NC boring and facing heads for boring machines, machining centers, and special machinery, which are applied manually, automatically, and with palletized systems on boring machines, machining centers, and special machinery.
- RU** Головки больших и средних размеров с балансировкой для торцевания и растачивания с цифровым управлением на расточных станках, устанавливаемые вручную, автоматически и с поддонными системами в обрабатывающих центрах и специальных станках.
- PL** Głowice planujące i wytaczarskie o średnich i dużych rozmiarach, kontrolowane numerycznie, z automatyczną i ręczną wymianą narzędzi z systemami paletowymi, wykorzystywane na wytaczarkach, centrach obróbkowych i obrabiarkach specjalnych.
- CZ** Střední a velké NC vyvrtávací hlavy a lící desky pro vyvrtávačky, obráběcí centra a speciální stroje, které se používají manuálně, automaticky a s paletizačními systémy, na vyvrtáčkách, obráběcích centrech a speciálních strojích.
- TR** Delik açma makineleri, işleme merkezleri ve özel makinelerde paletli sistemlerle manuel ya da otomatik uygulanan delik açma makineleri, işleme merkezleri ve özel makineler için orta ve büyük boy NC delik açma ve dış yüzey hazırlama kafaları.

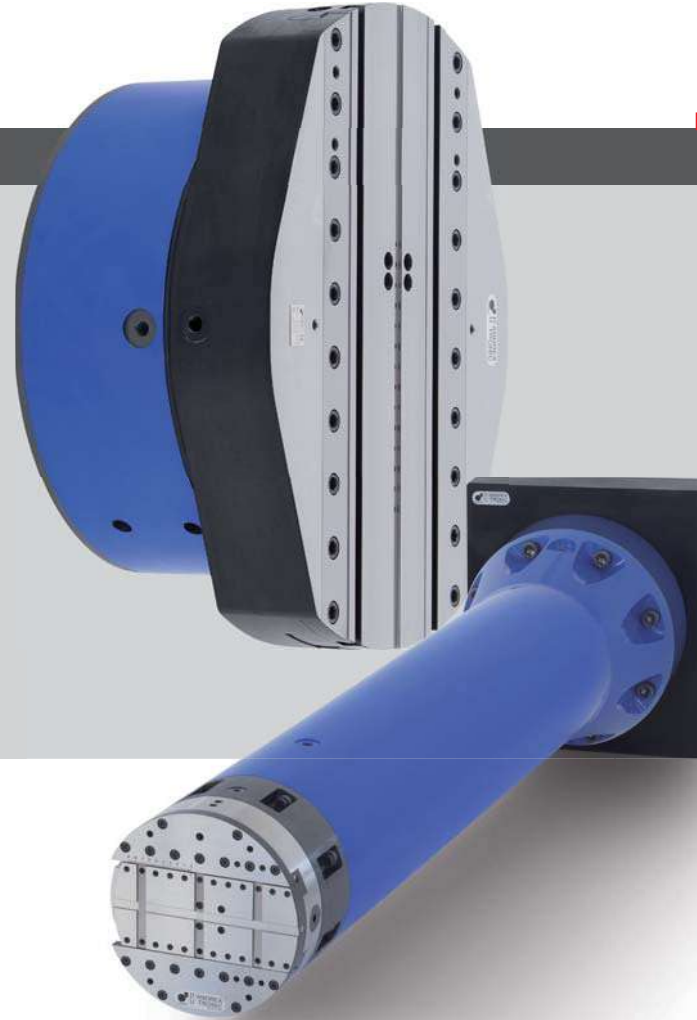
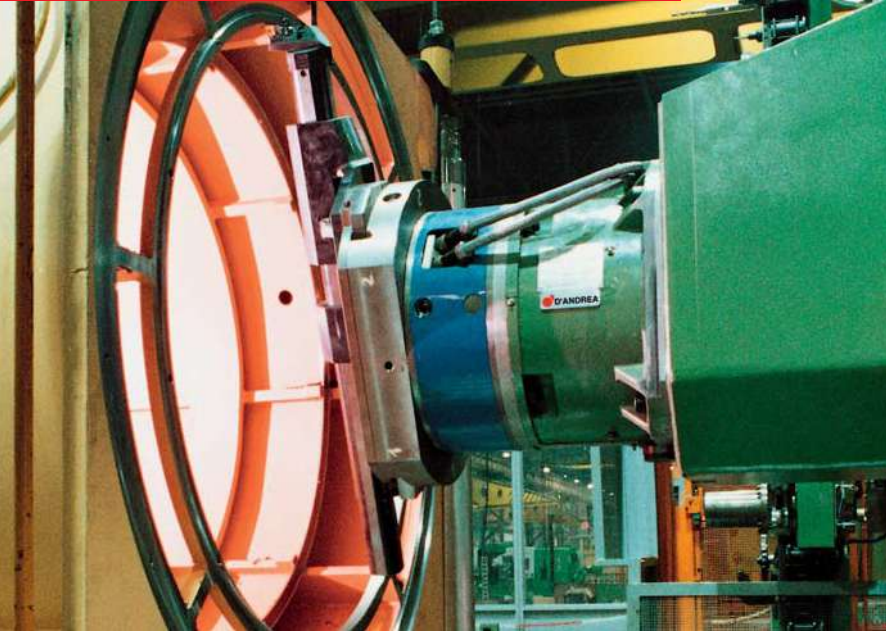
- GB** Numerical control boring and facing heads with automatic balancing on machining centers with automatic tool change and special machines.
- RU** Головки с автоматической балансировкой для торцевания и растачивания с цифровым управлением для обрабатывающих центров с автоматической заменой инструмента и специальных станков.
- PL** Głowice wytaczarskie i planujące z automatycznym wyrównoważeniem, kontrolowane numerycznie, wykorzystywane na centrach obróbkowych z automatyczną wymianą narzędzi i obrabiarkach specjalnych.
- CZ** Numericky řízené vyvrtávací hlavy a lící desky s automatickým vyvažováním na obráběcích centrech s automatickou výměnou nástrojů a speciálními stroji.
- TR** Otomatik takım değişimi yapılan makinelerde ve özel makinelerde otomatik dengeleme sunan nümerik kontrollü delik açma ve dış yüzey hazırlama kafaları.

- GB** Heads with automatic balancing for numerical control boring and facing, which are applied manually, automatically, and with palletized systems, on boring machines, machining centres, and special machinery.
- RU** Головки с автоматической балансировкой для торцевания и растачивания с цифровым управлением, устанавливаемые вручную и автоматически и с поддонными системами на расточных станках, в обрабатывающих центрах и специальных станках.
- PL** Głowice wytaczarskie i planujące z automatycznym wyrównoważeniem, kontrolowane numerycznie, z automatyczną i ręczną wymianą narzędzi z systemami paletowymi, wykorzystywane na wytaczarkach, centrach obróbkowych i obrabiarkach specjalnych.
- CZ** Hlavy s automatickým vyvažováním pro numericky řízené vyvrtávání a čelní soustružení, které se používají manuálně, automaticky a s paletizačními systémy, na vyvrtáčkách, obráběcích centrech a speciálních strojích.
- TR** Delik açma makinelerinde, işleme merkezlerinde ve özel makinelerde paletli sistemlerle manuel ya da otomatik uygulanan nümerik kontrollü delik açma ve dış yüzey hazırlama işleri için otomatik dengelemeli kafalar.

- GB** NC axial control boring and facing heads on transfer machines and machining units, which are rigidly applied to machinery spindles.
- RU** Головки с осевым управлением для торцевания и растачивания с цифровым управлением на агрегатных станках и рабочих единицах которые жестко прилажены к шпинделям станков.
- PL** Głowice wytaczarskie sterowane numerycznie, dedykowane do wykorzystania na urządzeniach typu transfer, jednostkach obróbkowych lub maszynach specjalnych. Szywno nakładane na wrzeciona obrabiarek.
- CZ** NC axiálně řízené vyvrtávací hlavy a lící desky na obráběcích strojích a obráběcích jednotkách, které se pevně aplikují na vřetena stroje.
- TR** Makine millerine rijit olarak uygulanan aktarma makinelerindeki ve işleme ünitelerindeki NC eksenel kontrollü delik açma ve dış yüzey hazırlama kafaları.

- GB** Heads with automatic feed and rapid return of the slide for facing operations on machining centers and special machinery with automatic tool changing, which does not require electronic interfaces.
- RU** Головки с автоматической подачей и быстрым возвратом салазок для торцевания в обрабатывающих центрах и специальных станках с автоматической заменой инструмента, не нуждающихся в электронном интерфейсе.
- PL** Głowice wytaczarskie z automatycznym posuwem mechanicznym i szybkim powrotem sań narzędziowych. Wykorzystywane na centrach obróbkowych i obrabiarkach specjalnych z automatyczną zmianą narzędzi. Nie wymagają podłączenia do elektroniki obrabiarki.
- CZ** Hlavy s automatickým posuvem a rychlým návratem šoupátka pro čelní soustružení na obráběcích centrech a speciálních strojích s automatickou výměnou nástrojů, které nevyžadují elektronická rozhraní.
- TR** Elektronik arayüzler gerektirmeyen, otomatik takım değiştirme yapılan özel makinelerde ve işleme merkezlerinde dış yüzey hazırlama işleri için otomatik beslemeli ve hızlı sürgü döndürüşlü kafalar.

- GENERAL FEATURES
- ОБЩИЕ ХАРАКТЕРИСТИКИ
- DANE OGÓLNE
- OBECNÉ VLASTNOSTI
- GENEL ÖZELLİKLER



*“Super sized” performance*

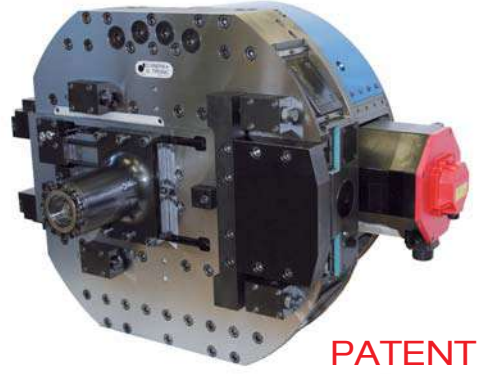
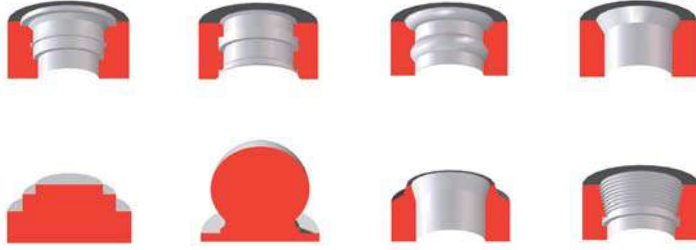


**GB** U-TRONIC are medium and large sized CN heads that are connected to the U axis of the CNC in the tooling machine for outer facing, inner facing, back-facing, cylindrical and conical boring and threading, concave and convex radius machining through the interpolation with the other axes of the tooling machine. They can be applied manually or automatically and with pallet systems on boring machines, machining centres and special machines. They are constructed in 6 standard models from  $\varnothing 360$  to  $\varnothing 1000$  mm. All these include an internal passage for coolant. Special versions of U-TRONIC up to 1600 in diameter, with two slides or with counterweights for self-balancing, may be supplied if required. Fixed tool holders may be applied to the slide, with either manual or automatic tool changers.

**RU** U-TRONIC - это головки средних и больших размеров с числовым управлением, которые связаны с осью U ЧПУ станка для операций внутренней, внешней и обратной торцовки, цилиндрической и конической расточки и резьбы, вогнутых и выпуклых радиусов, с интерполяцией с другими осями станка. Они применяются вручную или автоматически и с поддонными системами на расточных станках, обрабатывающих центрах и специальных станках. Они выполнены в 6 моделях от  $\varnothing 360$  до  $\varnothing 1000$  мм, все с внутренним подводом СОЖ. U-TRONIC в специальном исполнении до 1600 мм, исполнении с двумя салазками или противовесами для автоматической балансировки могут быть предоставлены по запросу.







**PATENTED**



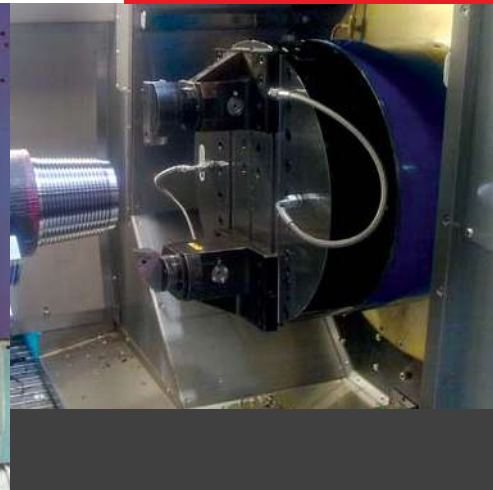
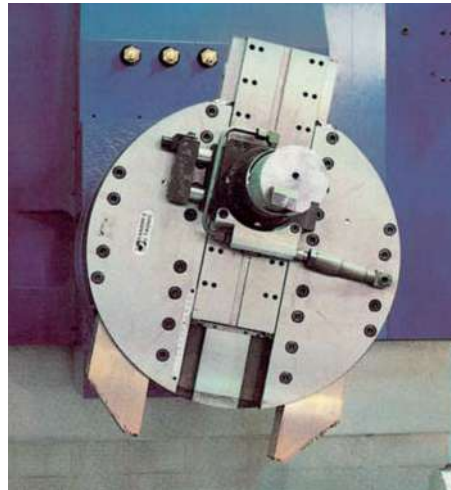
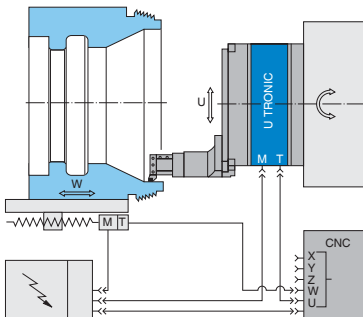
**PL** U-TRONIC to głowice CN o średnich i dużych rozmiarach, przyłączane do osi U urządzenia CNC obrabiarki, przeznaczone do wykonywania czynności związanych z planowaniem powierzchni zewnętrznych i wewnętrznych, wykonywaniem rowków, wytoczeń, gwintów cylindrycznych i stożkowych, promieni wklęsłych i wypukłych, poprzez interpolację z pozostałymi osiami obrabiarki. Nakładane są ręcznie, automatycznie oraz przy użyciu systemów paletowych na wytaczarki, centra obróbkowe oraz specjalne maszyny. Dostępne są w 6 wersjach, od  $\varnothing 360$  do  $\varnothing 1000$  mm, Wszystkie z wewnętrznym przełotem cieczy chłodzącej. U-TRONIC w wersji specjalnej do  $\varnothing 1600$  mm, z dwoma saniami lub przeciwcieżarem do samowyrównoważania, dostarczane są na życzenie. Na sanie można nałożyć stałe oprawki narzędziowe, oprawki z ręczną lub automatyczną zmianą narzędzia.

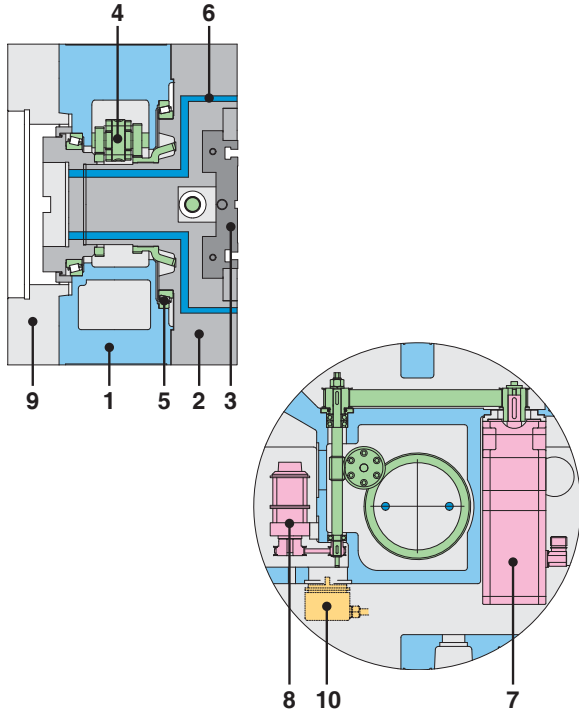
**CZ** U-TRONIC jsou střední a velké CN hlavy připojené na osu U řízení CNC v obráběcím stroji pro provádění čelního obrábění vnějších povrchů, čelního obrábění vnitřních povrchů, zpětného čelního obrábění, válcového a kónického vrtání a závitování, konkávního a konvexního poloměrového obrábění pomocí interpolace s ostatními osami obráběcího stroje. Lze je aplikovat manuálně nebo automaticky s paletovými systémy na vrtacích strojích, obráběcích centrech a speciálních strojích. Mohou být navrženy v 6 modelech od  $\varnothing 360$  do  $\varnothing 1000$  mm. Všechny zahrnují vnitřní průchod pro chladicí kapalinu. Na požádání lze dodat speciální do  $\varnothing 1600$  mm, verzi U-TRONIC se dvěma šoupátky nebo protizávažími pro vyvažování. Na šoupátko lze aplikovat pevné nástrojové držáky buď s manuální nebo automatickou výměnou nástrojů.

**TR** U-TRONIC ürün gamındaki ürünler, işleme takımının diğer aksları ile ara kutuplama yapılarak iç/dış yüzey hazırlama, arka yüzey hazırlama, silindirik/konik dış ve delik açma ve konkav/konveks yarıçap işleme gibi işlemlerde kullanılan, CNC'nin U eksenine bağlanmış orta ve büyük boy CN kafalandır. Bunlar, paletli sistemler aracılığıyla delik açma makinelerine, işleme merkezlerine ve özel makinelere manuel ya da otomatik olarak uygulanabilir.  $\varnothing 360$  ila  $\varnothing 1000$  mm arasında çaplara sahip 6 model mevcuttur. Bu modellerin her biri, soğutma sıvısı için bir iç kanala sahiptir. Gerektiğinde, otomatik dengeleme için karşı ağırlıklı veya iki kızaklı özel kadarıyla  $\varnothing 1600$  mm, U-TRONIC versiyonları da tedarik edilebilir. Sabit takım tutucular, otomatik veya manuel takım değiştiricilerle kazağa uygulanabilir.



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- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1</b> • Stationary body<br/>• Неподвижный корпус<br/>• Korpus stały<br/>• Stacionární díl<br/>• Sabit gövde</p> <p><b>2</b> • Rotating body<br/>• Вращающийся корпус<br/>• Korpus obrotowy<br/>• Rotující díl<br/>• Döner gövde</p> <p><b>3</b> • Tool slide<br/>• Салазки резцедержателя<br/>• Sanie narzędziowe<br/>• Šoupátko nástroje<br/>• Takım kazağı</p> <p><b>4</b> • Gears<br/>• Кинематическая цепь<br/>• Mechanizm kinematyczny<br/>• Převod<br/>• Dişliler</p> <p><b>5</b> • Bearings<br/>• Подшипники<br/>• Łożysko<br/>• Ložiska<br/>• Yataklar</p> | <p><b>6</b> • Coolant way<br/>• Подвод СОЖ<br/>• Doprowadzanie cieczy chłodzącej<br/>• Průtok chladicí kapaliny<br/>• Soğutma sıvısı kanalı</p> <p><b>7</b> • Servomotor<br/>• Сервомотор<br/>• Serwomotor<br/>• Servomotor<br/>• Servomotor</p> <p><b>8</b> • Limit switches<br/>• Концевой микровыключатель<br/>• Mikrowyłączniki krańcowe<br/>• Limitní spínače<br/>• Limit anahtarları</p> <p><b>9</b> • Flange<br/>• Фланец<br/>• Kołnierz<br/>• Příruba<br/>• Flanş</p> <p><b>10</b> • Encoder up on request<br/>• Энкодер по запросу<br/>• Enkoder na zamówienie<br/>• Kodér na vyžádání<br/>• Kodlayıcı isteğe bağlı mevcuttur</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



**GB PREARRANGEMENTS.** U-TRONIC heads are prearranged with holes that allow coolants to pass through. It is also possible to enter air from the holes provided on the fixed body, in order to pressurize the motor and limit switch area, to automatically lubricate the internal kinematic motion and lubricate the slide guiding rails and lead screw with sprayed oil.

**RU ПОДГОТОВКА.** В головках U-TRONIC предусмотрены отверстия, которые позволяют прохождение охлаждающей жидкости. Кроме того, из предусмотренных отверстий на неподвижном корпусе возможно провести воздух для создания давления в отсеке двигателя и концевых выключателей, для автоматической смазки в механизме внутренней кинематической цепи и для смазки распыленным маслом направляющие скольжения и ходового винта.

**PL PRZYSTOSOWANIE.** W głowicach U-TRONIC wykonane zostały otwory, przez które przepływa ciecz chłodząca. Ponadto, przez otwory wykonane w korpusie stałym można przepuścić powietrze niezbędne do zwiększania ciśnienia w strefie silnika i ogranicznika, wykonywać automatyczny cykl smarowania wewnętrznych mechanizmów kinematycznych oraz smarować (rozpylonym olejem) prowadnice śań oraz śrubę pociągową.

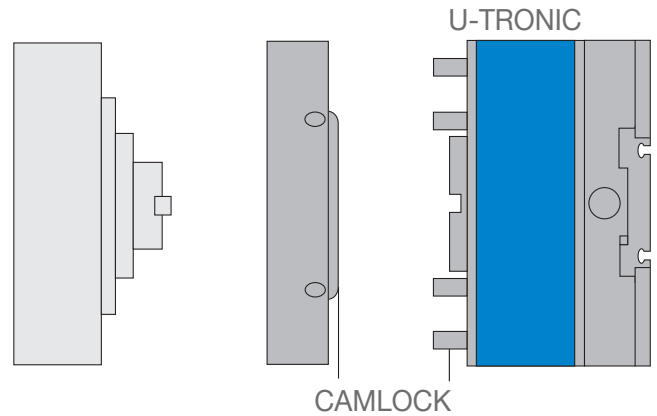
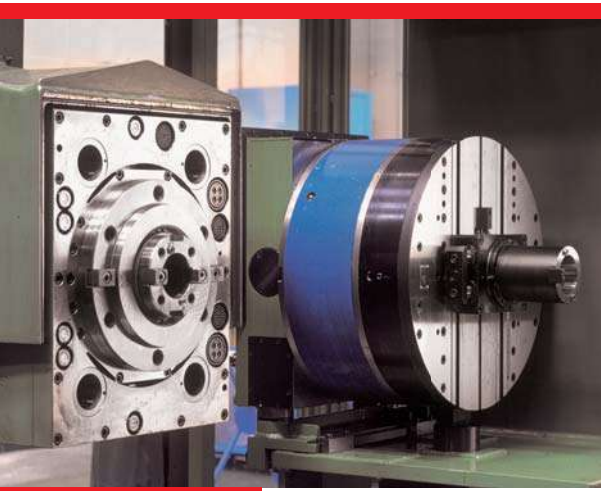
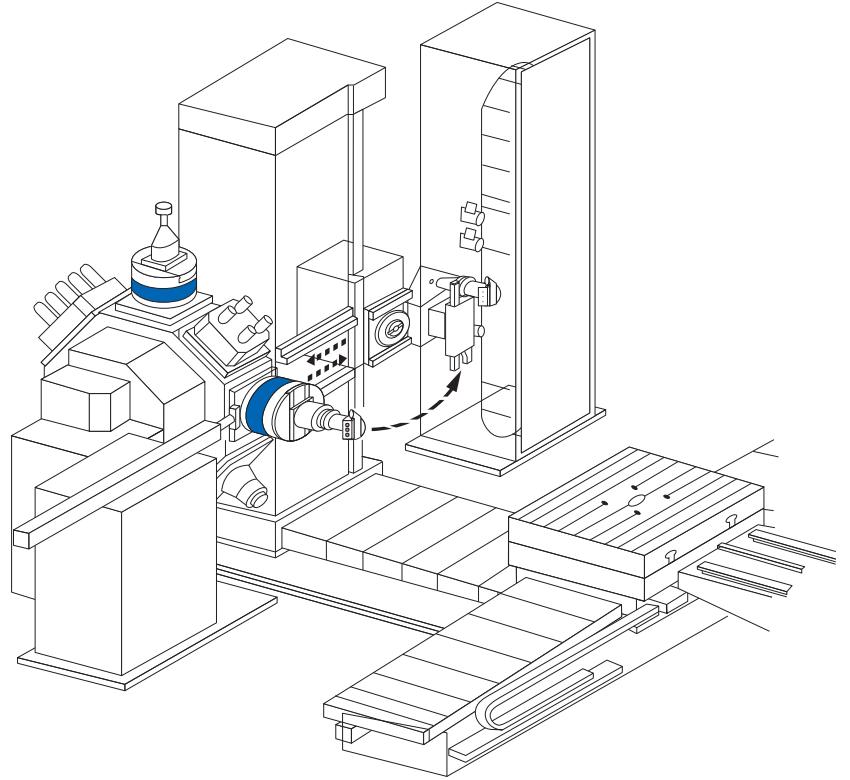
**CZ PŘEDBĚŽNÁ OPATŘENÍ.** HLAVY U-TRONIC jsou předem připraveny s otvory umožňujícími průchod chladicí kapaliny. Je rovněž možné vhnát vzduch z otvorů na pevném těle s cílem zvýšit tlak motoru a oblasti spínačů, automaticky promazávat vnitřní kinematický pohyb a mazat vodící kolejničky šoupátka a vodící šroub rozstříkem oleje.

**TR ÖN AYARLAMALAR.** U-TRONIC kafalar, soğutma sıvısının geçmesine imkan tanıyan deliklerle önceden ayarlanmıştır. Ayrıca, motora ve limit anahtarı bölgesine basınç uygulamak, dahili kinematik hareketi otomatik olarak yağlamak, kazağın kılavuz raylarını ve vida açma milini yağ püskürtmeyle yağlamak için havanın sabit gövdedeki deliklerden geçmesini sağlamak da mümkündür.





- APPLICATION
- ПРИМЕНЕНИЕ
- APLIKACJA
- POUŽITÍ
- UYGULAMA



**GB** U-TRONIC is applied manually or automatically using a flange for fastening to the machine tool and a plate for the rotation of the rotating body. It is applied manually using a flange for fastening with a cam lock quick coupling, or automatically with a palletized system and special connectors. U-TRONIC can also be fitted with an automatic tool change toolholder changer of the tool mounted on the slide to obtain total automation.

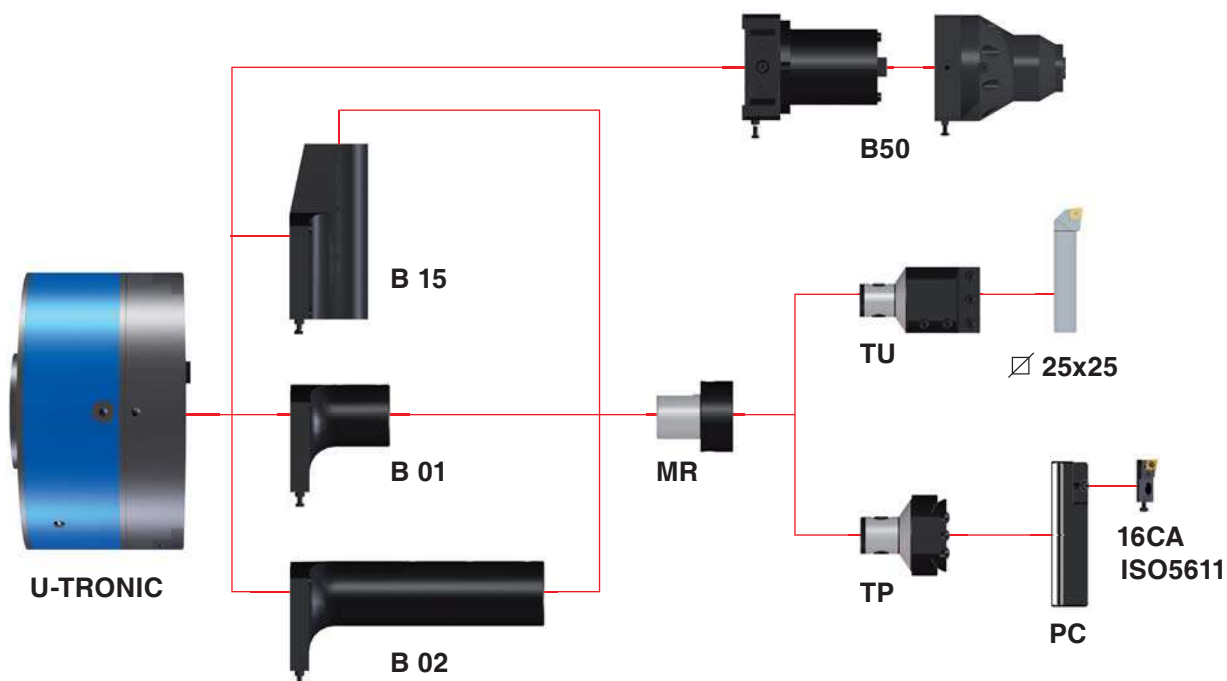
**RU** U-TRONIC устанавливается вручную или автоматически с помощью фланца для крепления к станку и пластины для вращения вращающегося тела. Он устанавливается вручную с помощью фланца для крепления с поворотным замком быстрого соединения или автоматически с поддонными системами и специальными переходниками. U-TRONIC может также быть оснащен патроном с автоматической сменой инструмента, который крепится на салазках для достижения полной автоматизации.

**PL** Głowice U-TRONIC nakłada się ręcznie lub automatycznie przy użyciu kołnierza montażowego i dysku wprowadzającego w ruch korpus obrotowy. Nakładanie ręczne następuje przy pomocy kołnierza montażowego z szybkozłączem typu camlock, nakładanie automatyczne przy użyciu systemów paletowych i stosownych łączników. Głowice U-TRONIC mogą być wyposażone w oprawkę narzędziową z automatyczną zmianą narzędzia, zamontowaną na saniach. W ten sposób uzyskujemy kompletną automatyzację procesu obróbczego.

**CZ** U-TRONIC se aplikuje manuálně nebo automaticky pomocí příruby pro upnutí obráběcího stroje a desky pro rotaci rotačního tělesa. Manuálně se použije pomocí příruby pro upnutí s rychlou spojkou bloku vačky, nebo automaticky s paletizovaným systémem a speciálními konektory. U-TRONIC je také možno upevnit pomocí zařízení na automatickou výměnu nástrojových držáků nástroje připevněného na šoupátko s cílem zajistit úplnou automatizaci.

**TR** U-TRONIC, işleme takımına sabitleme için bir flanş ve döner gövdenin dönüşünü temin etmek için bir plaka kullanılarak manuel ya da otomatik olarak uygulanabilir. Kam kilidi çabuk kaplı ile sabitleme için bir flanş kullanılarak manuel olarak ya da paletli sistem ve özel konektörler kullanılarak otomatik olarak uygulanabilir. U-TRONIC, yüzde yüz otomasyonun sağlanması için, kazağın üzerine monte edilmiş takım/takım tutucunun otomatik değiştirilmesini sağlayan bir ekipmanla da donatılabilir.

UT 3-360 / 5-500 / 5-630 / 5-800 / 8-800 / 8-1000 S



K03



| REF.                               | CODE         |
|------------------------------------|--------------|
| KIT K03 UT 3-360 S                 | 501703259300 |
| KIT K03 UT 5-500 / 5-630 / 5-800 S | 501705009300 |
| KIT K03 UT 8-800 / 8-1000 S        | 501708009300 |

B50



fig.1

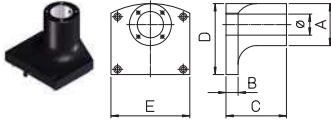
| U-TRONIC                      | REF.                |
|-------------------------------|---------------------|
| UT 3-360 S                    | B50 HSK - A63 -A100 |
| UT 5-500 / UT 5-630 / 5-800 S | B50 DIN69871-A-B 50 |
| UT 8-800 / 8-1000 S           | B50 MAS BT50        |

- Special and HYDRAULICS B50 (fig.1) toolholders for automatic tool change, can be provided on request.
- По запросу поставляются B50 нестандартные и ГИДРОДИНАМИЧЕСКИЕ (рис.1)
- Na żądanie dostarczane są specjalne i OLEODYNAMICZNE B50 (rys.1)
- Na vyžádání lze dodat speciální B50 a HYDRAULIKU (obr.1)
- Özel B50'ler ve hidrolik (şek.1) elemanlar isteğe bağlı olarak mevcuttur.



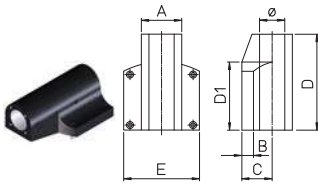
- ACCESSORIES
- КОМПЛЕКТУЮЩИЕ
- WYPOSAŻENIE DODATKOWE
- PŘÍSLUŠENSTVÍ
- AKSESUARLAR

## B01 / B02



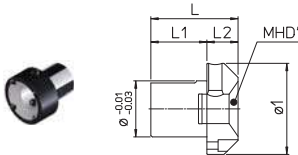
| U-TRONIC                   | REF. | CODE         | Ø <sub>H7</sub> | A   | B  | C   | D   | E   | kg. |
|----------------------------|------|--------------|-----------------|-----|----|-----|-----|-----|-----|
| UT 3-360 S                 | B01  | 443005001150 | 50              | 80  | 23 | 100 | 135 | 150 | 5.5 |
|                            | B02  | 443005002750 |                 |     |    | 260 |     |     | 8.5 |
| UT 5-500 / 5-630 / 5-800 S | B01  | 443006301550 | 63              | 100 | 30 | 155 | 170 | 200 | 11  |
|                            | B02  | 443006303650 |                 |     |    | 400 |     |     | 19  |
| UT 8-800 / 8-1000 S        | B01  | 443008002300 | 80              | 130 | 30 | 230 | 200 | 250 | 25  |
|                            | B02  | 443008007200 |                 |     |    | 720 |     |     | 60  |

## B15



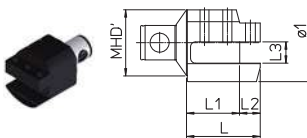
| U-TRONIC                   | REF. | CODE         | Ø <sub>H7</sub> | A   | B  | C  | D   | D1  | E   | Kg. |
|----------------------------|------|--------------|-----------------|-----|----|----|-----|-----|-----|-----|
| UT 3-360 S                 | B15  | 445005001900 | 50              | 80  | 23 | 60 | 190 | 135 | 150 | 3.7 |
| UT 5-500 / 5-630 / 5-800 S |      | 445006302500 | 63              | 100 | 30 | 70 | 270 | 170 | 200 | 7.5 |
| UT 8-800 / 8-1000 S        |      | 445008003001 | 80              | 130 |    | 85 | 300 | 200 | 250 | 34  |

## MR



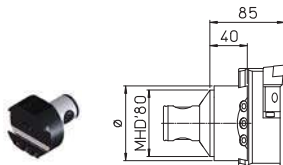
| U-TRONIC                   | REF.          | CODE         | MHD' | Ø <sub>H7</sub> | Ø1  | L   | L1 | L2  | Kg. |
|----------------------------|---------------|--------------|------|-----------------|-----|-----|----|-----|-----|
| UT 3-360 S                 | MR 50/80.80   | 450208001060 | 80   | 50              | 80  | 95  | 50 | 45  | 1.6 |
| UT 5-500 / 5-630 / 5-800 S | MR 63/98.80   | 450209801060 |      | 63              | 98  | 105 | 60 |     | 3   |
| UT 8-800 / 8-1000 S        | MR 80/130.80  | 450213001240 | 110  | 80              | 130 | 125 | 80 | 105 | 6   |
|                            | MR 80/130.110 | 450213001340 |      |                 |     | 185 |    |     | 9   |

## TU



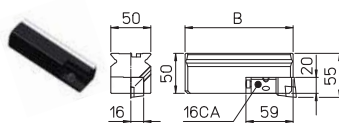
| U-TRONIC                   | REF.          | CODE         | MHD' | Ø1  | L   | L1 | L2 | L3 | Kg.  |
|----------------------------|---------------|--------------|------|-----|-----|----|----|----|------|
| UT 3-360 S                 | TU 80/95.25   | 460508025001 | 80   | 95  | 90  | 65 | 25 | 32 | 4    |
| UT 5-500 / 5-630 / 5-800 S |               |              |      |     |     |    |    |    |      |
| UT 8-800 / 8-1000 S        | TU 110/110.32 | 460511032001 | 110  | 130 | 110 | 78 | 32 | 32 | 11.2 |

## TP



| U-TRONIC                   | REF.         | CODE         | Ø   | Kg. |
|----------------------------|--------------|--------------|-----|-----|
| UT 3-360 S                 | TP 80/90.50  | 460408050001 | 90  | 2.3 |
| UT 5-500 / 5-630 / 5-800 S |              |              |     |     |
| UT 8-800 / 8-1000 S        | TP 80/125.50 | 460408050002 | 125 | 3.2 |

## PC



| U-TRONIC                   | REF.     | CODE         | Ø   | Kg. |
|----------------------------|----------|--------------|-----|-----|
| UT 3-360 S                 | PC 11.50 | 433050160950 | 95  | 1.3 |
| UT 5-500 / 5-630 / 5-800 S | PC 12.50 | 433050161350 | 135 | 2   |
|                            | PC 13.50 | 433050162000 | 200 | 3.2 |
| UT 8-800 / 8-1000 S        | PC 14.50 | 433050163000 | 300 | 5   |

PTGNL 16CA-16

CODE 483010161001

PCLNL 16CA-12

CODE 483010161002

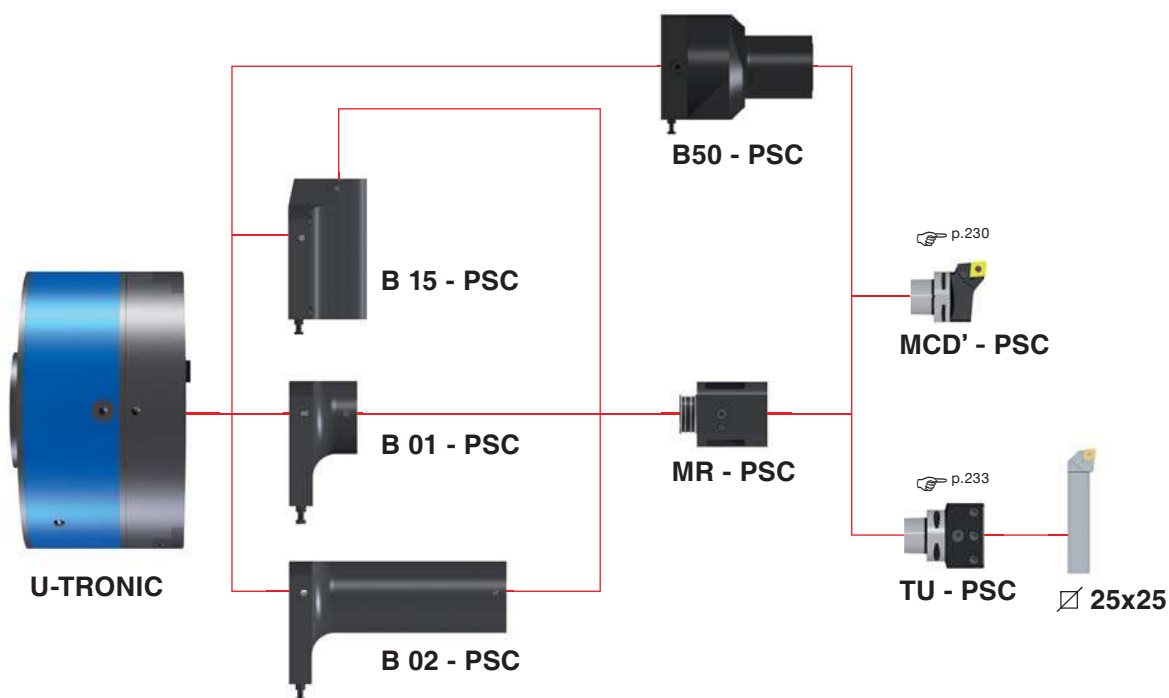
PSSNL 16CA-12

CODE 483010161003

PSRNL 16CA-12

CODE 483010161004

UT 3-360 / 5-500 / 5-630 / 5-800 / 8-800 / 8-1000 S



K03 - PSC



1 B 01 - PSC  
1 B 02 - PSC  
1 B 15 - PSC  
1 MR - PSC

| REF.                                      | CODE         |
|-------------------------------------------|--------------|
| KIT K03 PSC 63 UT 3-360 S                 | 501703259304 |
| KIT K03 PSC 63 UT 5-500 / 5-630 / 5-800 S | 501705009310 |
| KIT K03 PSC 80 UT 5-500 / 5-630 / 5-800 S | 501705009302 |
| KIT K03 PSC 80 UT 8-800 / 8-1000 S        | 501708009301 |

B50 - PSC



| U-TRONIC                      | REF.          |
|-------------------------------|---------------|
| UT 3-360 S                    | B50 PSC 63-80 |
| UT 5-500 / UT 5-630 / 5-800 S |               |
| UT 8-800 / 8-1000 S           |               |

- Special and HYDRAULICS B50 toolholders for automatic tool change, can be provided on request.
- По запросу поставляются B50 нестандартные и ГИДРОДИНАМИЧЕСКИЕ.
- Na żądanie dostarczane są specjalne i OLEODYNAMICZNE B50.
- Na vyžádání lze dodat speciální B50 a HYDRAULIKU.
- Özel B50'ler ve hidrolik elemanlar isteğe bağlı olarak mevcuttur.

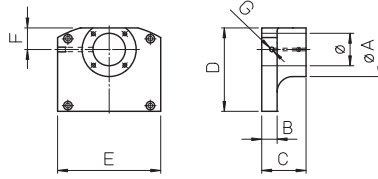




- ACCESSORIES
- КОМПЛЕКТУЮЩИЕ
- WYPOSAŻENIE DODATKOWE
- PŘÍSLUŠENSTVÍ
- AKSESUARLAR

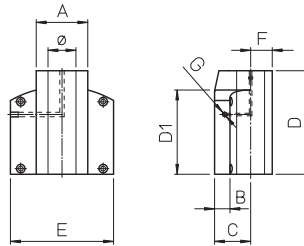
PSC

B01 / B02 - PSC



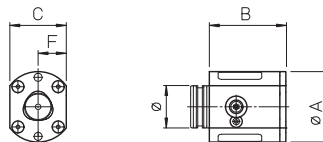
| U-TRONIC                   | REF.         | CODE         | Ø <sub>H7</sub> | A   | B   | C   | D     | E   | F  | G     | kg. |     |    |       |    |
|----------------------------|--------------|--------------|-----------------|-----|-----|-----|-------|-----|----|-------|-----|-----|----|-------|----|
| UT 3-360 S                 | B01 - PSC 63 | 443005000310 | 63              | 105 | 23  | 31  | 137   | 150 | 42 | G1/8' | 3.5 |     |    |       |    |
|                            | B02 - PSC 63 | 443005001610 |                 |     |     | 161 |       |     |    |       | 10  |     |    |       |    |
| UT 5-500 / 5-630 / 5-800 S | B01 - PSC 63 | 443006302002 |                 |     | 30  | 80  | 130   | 86  |    |       | 162 | 200 | 50 | G1/4' | 11 |
|                            | B02 - PSC 63 | 443006304452 |                 |     |     |     |       | 331 |    |       |     |     |    |       | 20 |
|                            | B01 - PSC 80 | 443006302001 | 71              | 185 |     |     |       | 180 | 30 |       |     |     |    |       |    |
|                            | B02 - PSC 80 | 443006304451 | 316             | 235 |     |     |       |     |    |       |     |     |    |       |    |
| UT 8-800 / 8-1000 S        | B01 - PSC 80 | 443008001460 | 636             | 182 | 250 | 50  | G1/4' | 16  |    |       |     |     |    |       |    |
|                            | B02 - PSC 80 | 443008006360 |                 |     |     |     |       | 53  |    |       |     |     |    |       |    |

B15 - PSC



| U-TRONIC                   | REF.         | CODE         | ØH7 | A   | B  | C  | D   | D1  | E   | F  | G      | Kg.  |
|----------------------------|--------------|--------------|-----|-----|----|----|-----|-----|-----|----|--------|------|
| UT 3-360 S                 | B15 - PSC 63 | 445005001210 | 63  | 100 | 23 | 60 | 121 | -   | 150 | 42 | G1/8'  | 8    |
| UT 5-500 / 5-630 / 5-800 S | B15 - PSC 63 | 445006303152 |     |     | 30 | 70 | 201 | 170 | 200 |    |        | 6.5  |
|                            | B15 - PSC 80 | 445006303911 | 80  | 130 | 39 | 85 | 262 | 200 | 180 | 50 | G 1/4' | 27.5 |
| UT 8-800 / 8-1000 S        | B15 - PSC 80 | 445008003005 |     |     | 30 |    | 300 | 200 | 250 |    |        | 33   |

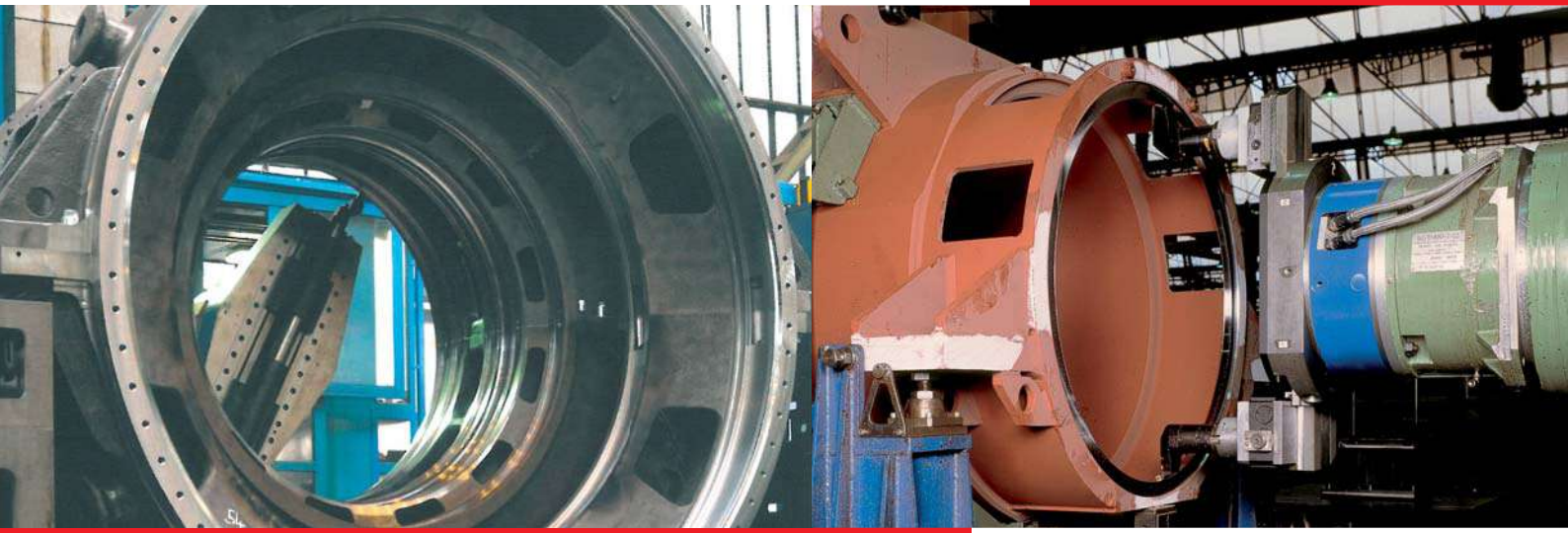
MR - PSC



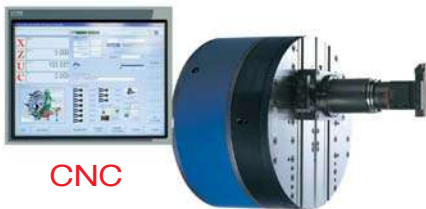
| U-TRONIC                   | REF.        | CODE         | Øg6 | A   | B   | C   | F  | Kg. |
|----------------------------|-------------|--------------|-----|-----|-----|-----|----|-----|
| UT 3-360 S                 | MR - PSC 63 | 450206000630 | 63  | 105 | 114 | 84  | 42 | 6.5 |
| UT 5-500 / 5-630 / 5-800 S |             |              |     |     |     |     |    |     |
| UT 5-500 / 5-630 / 5-800 S | MR - PSC 80 | 450208000800 | 80  | 130 | 129 | 100 | 50 | 11  |
| UT 8-800 / 8-1000 S        |             |              |     |     |     |     |    |     |

**GB** There are two types of controls for U-TRONIC heads: - The first involves a direct connection to the "U" axis of the NC of the machine tool and allows for all types of cylindrical and conical boring, facing, threading, corner rounding and spherical operations to be performed. - The second involves the use of a simple U-CONTROL positioner with wireless REMOTE, which can be connected to the M functions of the machine to receive start signals of the different operations programmed on the REMOTE-CONTROL. This solution allows all types of turning, boring, facing, internal, external, threading, and conical operations to be performed **but spherical operations**.

**RU** Управление головками TA-Tronic может осуществляться двумя способами: Первый предполагает прямое соединение с осью "U" ЧПУ станка, которое позволяет осуществлять операции расточки, внутренней, внешней и обратной торцовки, внутренние и внешние токарные операции, канавки, фоновграфические фланцы, коническую резьбу и расточку, коническую, а также переменную расточку, вогнутые и выпуклые радиусы путем интерполяции с другими осями. Второй - с простым и экономичным позиционером U-CONTROL с беспроводным дистанционным управлением. Позиционер может быть подключен к функции M контроля станка и получать сигналы запуска различных операций, запрограммированных на пульте дистанционного управления. Это решение позволяет осуществлять операции расточки, внутренней, внешней и обратной торцовки, внутренние и внешние токарные операции, канавки, фоновграфические фланцы, коническую резьбу и расточку. На станках с беспроводным дистанционным управлением не представляется возможным выполнять **сферическую обработку**.



266



CNC



**KIT U-CONTROL  
WIRELESS**

CODE : 55 0 020 100 001

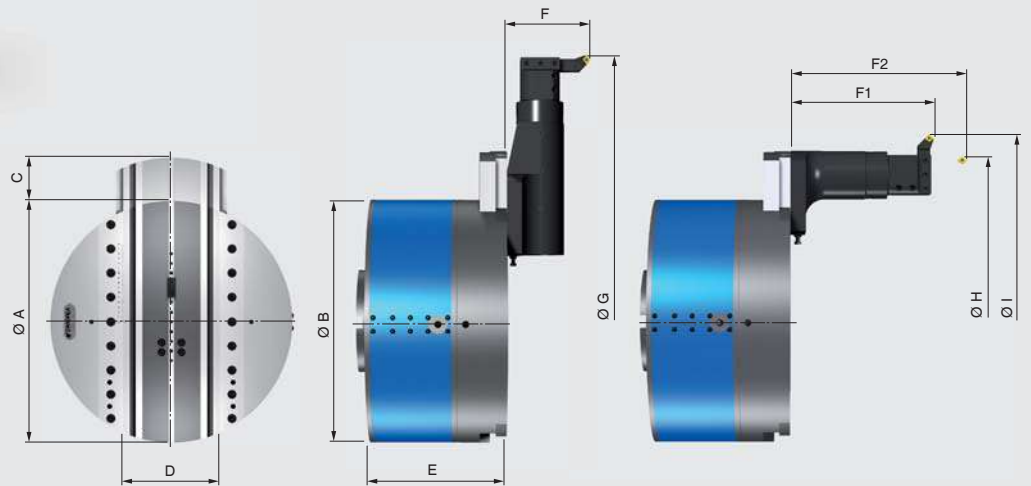
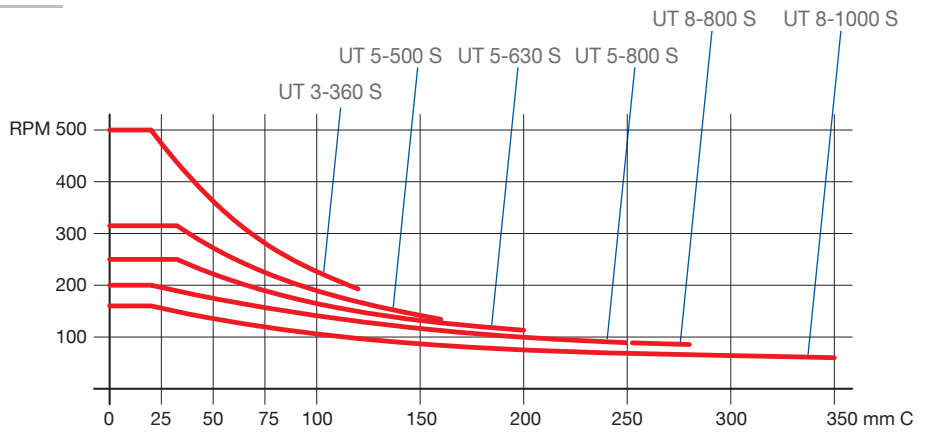
**PL** Istnieją dwa sposoby sterowania głowicami U-Tronic: - Pierwszy sposób przewiduje wykonanie bezpośredniego połączenia pomiędzy osią „U” a sterownikiem numerycznym obrabiarki, i pozwala na wykonanie wszelkich czynności związanych z toczeniem, wytaczaniem, planowaniem powierzchni wewnętrznych i zewnętrznych, gwintowaniem, obróbką promieni i powierzchni kulistych. - Drugi sposób przewiduje zastosowanie zwykłego przyrządu ustawczego U-CONTROL ze zdalnym urządzeniem bezprzewodowym, które można połączyć z funkcjami M sterownika obrabiarki w celu otrzymywania sygnału startu do rozpoczęcia czynności zaprogramowanych na sterowniku zdalnym. Rozwiązanie to pozwala na wykonanie wszelkich czynności związanych z toczeniem, wytaczaniem, planowaniem powierzchni wewnętrznych i zewnętrznych, gwintowaniem i obróbką promieni **(poza operacjami sferycznymi)**.

**CZ** Jsou dva typy ovládání hlav U-TRONIC: - První zahrnuje přímé připojení na osu "U" řízení NC obráběcího stroje a umožňuje provádění všech typů válcového a kónického vrtání, čelního soustružení, závitování, zaoblování rohů a sférických operací. Druhý typ zahrnuje použití jednoduchého polohovacího zařízení U-CONTROL s bezdrátovým ovládáním REMOTE, které lze připojit na M funkce stroje a tak získávat signály pro startování různých operací naprogramovaných v REMOTE-CONTROL. Toto řešení umožňuje provádět veškeré typy operací obrábění, vrtání, čelního soustružení, vnitřního a vnějšího, závitování a kónických operací **kromě sférických operací**.

**TR** U-TRONIC kafaları için iki kumanda komutu mevcuttur: - Birincisi, işleme takımı NC'sinin "U" eksenine doğrudan bağlanıy içirir ve her çeşit silindirik/konik delik açma, dış yüzey hazırlama, dış açma, köşe yuvarlama ve dairesel işlemin yapılabilmesini sağlar. - İkincisi ise, makinenin M fonksiyonlarına bağlanabilen uzaktan kumandalı basit bir U-CONTROL kullanılması suretiyle, uzaktan kumanda ile programlanmış farklı işlemlerin başlatma sinyallerinin alınmasını içirir. Bu çözüm, dairesel işlemler hariç olmak üzere, her çeşit tornalama, delik açma, dış yüzey hazırlama, iç/dış delik açma ve konik işlemin yapılmasını mümkün kılar.



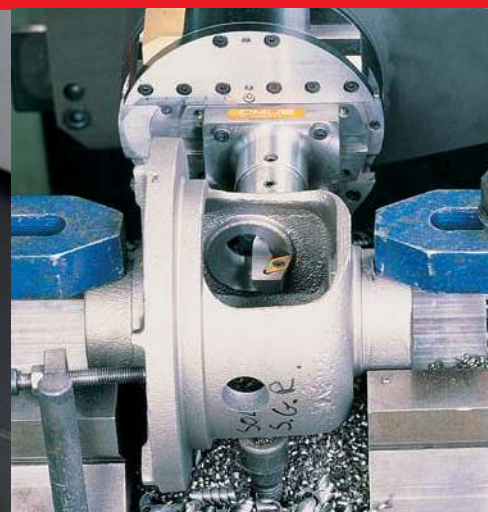
- TECHNICAL DATA
- ТЕХНИЧЕСКИЕ ДАННЫЕ
- DANE TECHNICZNE
- TECHNICKÁ DATA
- TEKNİK VERİLER



|                                                                                                                      |         | UT 3-360 S | UT 5-500 S | UT 5-630 S | UT 5-800 S | UT 8-800 S | UT 8-1000 S |
|----------------------------------------------------------------------------------------------------------------------|---------|------------|------------|------------|------------|------------|-------------|
| Ø A                                                                                                                  | mm      | 360        | 500        | 630        | 800        |            | 1000        |
| Ø B                                                                                                                  | mm      |            |            | 500        |            | 800        |             |
| C<br>• radial traverse • Радиальный поперечина • Promieniowy przecinać<br>• paprskovitě krížení • Radyal travers     | mm      | 120        | 160        | 200        | 250        | 280        | 350         |
| D                                                                                                                    | mm      | 154.6      | 199.6      |            | 230        | 250        | 260         |
| E                                                                                                                    | mm      | 235        | 278.5      | 282        | 370        | 410        | 415         |
| Ø G x F                                                                                                              | mm      | 800 x 140  | 1000 x 150 | 1250 x 150 | 1400 x 150 | 1600 x 160 | 2000 x 160  |
| Ø H x F2                                                                                                             | mm      | 400 x 400  | 560 x 540  | 700 x 540  | 830 x 540  | 850 x 860  | 1050 x 860  |
| Ø I x F1                                                                                                             | mm      | 670 x 240  | 850 x 295  | 1050 x 295 | 1300 x 295 | 1250 x 370 | 1600 x 370  |
| Max. mm/min                                                                                                          | mm/min  | 1 ÷ 400    |            |            |            | 1 ÷ 500    |             |
| Max. °/min                                                                                                           | RPM     | 500        | 315        | 250        | 200        |            | 160         |
| • Weight • Вес • Ciężar<br>• Hmotnost • Ağırlık                                                                      | Kg      | 130        | 230        | 310        | 530        | 1000       | 1200        |
| • Radial force • Радиальная сила • Siła radialna<br>• Radiální síla • Radyal kuvvet                                  | daN     | 400        | 500        |            |            | 1000       |             |
| • Torque • Вращающий момент • Moment skřecající<br>• Krouticí moment • Tork                                          | daNm    | 400        | 800        |            |            | 1000       |             |
| • Boring accuracy • Точность расточки • Precyzja wytaczania<br>• Přesnost vrtání • Delik açma hassasiyeti            |         | H7         |            |            |            |            |             |
| • Max chip removal • Максимум удаления • Maksymalne usuwanie<br>naddatku • Max likvidace špon • Maks. talaş giderimi | mm² C40 | 5          | 9          |            |            | 14         |             |
| • Rapid trasverse • Быстрый • Szybkość<br>• Rychłoposuv • Hızlı transvers                                            | mm/min  | 400        |            |            |            | 500        |             |
| • Roughness • Шероховатость • Chropowatość powierzchni<br>• Drsnost • Pürüzlülük                                     | Ra      | 0,8 ~ 1,2  |            |            |            |            |             |



# D'ANDREA TA-CENTER



## *Turning operations on all machining centres*

**GB** TA-CENTER boring and facing heads are made to be used on automatic tool changers, therefore on essentially all machining centres. A U-Drive unit commands the feed control of the tool slide and the tool placement even during rotation. This unit is managed directly by an axle called "U" by the CNC of the machining centre. Organized in this way, the machining centre is the solution to a series of different processes like inner and outer turning operations, grooves, conical and variable boring, concave and convex radius machining, cylindrical and conical threading, complex profiles, and spherical operations.

**RU** Торцевые и расточные головки TA-CENTER созданы для использования на станках с автоматической сменой инструмента, то есть практически во всех обрабатывающих центрах. Мониторинг подачи салазок резцедержателя и положения инструмента, даже во время вращения, находится под контролем на приводе U-DRIVE. Эта группа управляется непосредственно осью под названием "U" ЧПУ обрабатывающего центра. Обрабатывающий центр, организованный таким образом, позволяет разрешить целый ряд различных процессов обработки, таких как внутренние и внешние токарные работы, канавки, коническое, а также переменное растачивание, выпуклые и вогнутые радиусы, цилиндрическая и коническая резьба и фоновграфический фланцы и сферическую обработку.

**PL** Głowice wytaczarskie i planujące TA-CENTER powstały, aby być wykorzystywane na obrabiarkach z automatyczną wymianą narzędzi, a tym samym, by być wykorzystywane na wszystkich centrach obróbkowych. Kontrola posuwu narzędziowych i pozycji narzędzia, zwłaszcza podczas obrotu, jest realizowana przez układ U-DRIVE. Jest on sterowany i kontrolowany bezpośrednio z układu sterowania obrabiarki jako dodatkowa oś „U”. Tak przystosowane centrum obróbkowe pozwala na wykonanie dodatkowych rodzajów obróbek takich jak toczenie wewnętrzne i zewnętrzne, wykonywanie rowków, wytaczanie powierzchni stożkowych (również zmiennych), wykonywanie wytoczeń promieniowych wklęsłych i wypukłych, gwintowanie cylindryczne i stożkowe, spirale fonograficzne i obróbki kuliste.



- GENERAL FEATURES
- ОБЩИЕ ХАРАКТЕРИСТИКИ
- DANE OGÓLNE
- OBECNÉ VLASTNOSTI
- GENEL ÖZELLİKLER



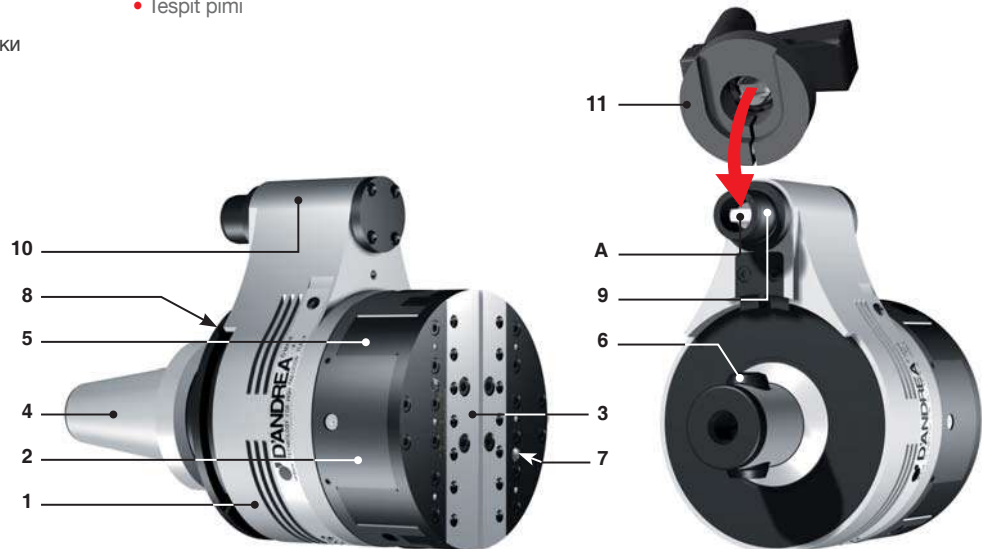
**CZ** Vyrťovací hlavy a lící desky TA-CENTER jsou určeny k použití na strojích s automatickou výměnou nástroje, tedy v zásadě na všech obráběcích centrech. Jednotka U-Drive ovládá řízení posuvu šoupátka stroje a nasazení nástroje i během rotace. Tato jednotka je řízena přímo osou zvanou "U" systému CNC obráběcího centra. Při tomto způsobu organizace obráběcí centrum poskytuje řešení pro řadu různých procesů jako obrábění vnitřních a vnějších ploch, drážek, konické a proměnné vyvrtávání, konkávní a konvexní poloměrové obrábění, válcové a konické řezání závitů, komplexní profily a sférické operace.

**TR** TA-CENTER delik açma ve dış yüzey hazırlama kafaları otomatik takım değiştiricilerde kullanılır ve bu nedenle tüm işleme merkezleri için mutlaka gereklidir. U-Drive tahrik ünitesi, dönüş sırasında bile takım kazağının besleme kontrolünü ve takım değişimini kumanda eder. Bu ünite, işleme merkezi CNC'si tarafından "U" adı verilen bir aksla doğrudan yönetilir. Bu şekilde donatılan bir işleme merkezi, iç ve dış tornalama faaliyetleri, yiv açma, konik ve değişken delik açma, konkav/konveks yarıçap işleme, silindirik ve konik dış çekme, kompleks profiller ve küresel işlemler gibi pek çok farklı işlem için tek bir çözüm sunan hale getirilebilir.

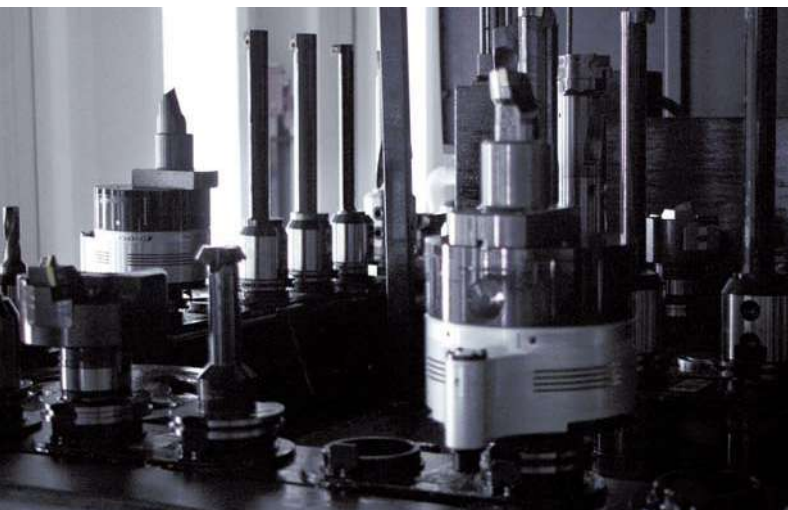
# D'ANDREA TA-CENTER

- COMPONENTS
- СОСТАВЛЯЮЩИЕ
- ELEMENTY SKŁADOWE
- SOUČÁSTI
- BİLEŞENLER

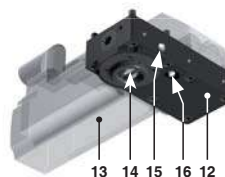
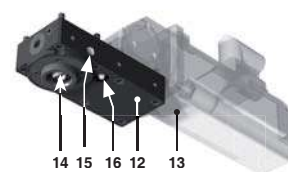
- Fixed body
  - Неподвижный корпус
  - Korpus stały
  - Upevněný díl
  - Sabit gövde
- Rotating body
  - Вращающийся корпус
  - Korpus obrotowy
  - Rotující díl
  - Döner gövde
- Toolholder slide
  - Салазки резцедержателя
  - Sanie narzędziowe
  - Šoupátko nástrojového držáku
  - Takım tutucu kazağı
- Interchangeable taper
  - Взаимозаменяемый конус
  - Wymienny stożek
  - Vyměnitelný kužel
  - Değiştirilebilir konik
- Balancing counter-weights
  - Противовесы для балансировки
  - Przeciwważar wyważający
  - Vyvažující protizávaží
  - Dengeleme için karşı ağırlıklar
- MHD' coupling
  - Крепление MHD'
  - Złącze MHD'
  - Spojka MHD
  - MHD' kaplin
- Coolant liquid outlet nozzle
  - Выходящее сопла охлаждающе-смазочной жидкости
  - Dysze wylotowe cieczy chłodzącej i smarującej
  - Výstupní tryska chladicí kapaliny
  - Soğutma sıvısı çıkış nozulu
- Orientation ring
  - Направляющее кольцо
  - Pierścień ustawczy
  - Orientační kroužek
  - Yönlendirme halkası
- Retaining pin
  - Стопорный штифт
  - Sworzeń zatrzymujący
  - Pojistný kolík
  - Tespit pimi
- "A" Drive
  - Коробка привода 'A'
  - Napęd pomocniczy 'A'
  - "A" pohon
  - "A" sürücü
- Manual rotation device
  - Устройство ручного вращения
  - Urządzenie do wykonywania obrotów ręcznych
  - Zařízení pro manuální rotaci
  - Manuel döndürme cihazı







- 12** • Base element  
 • Основной корпус  
 • Korpus podstawowy  
 • Bázový prvek  
 • Taban elemanı
- 13** • Servomotor  
 • Сервомотор  
 • Serwomotor  
 • Servomotor  
 • Servomotor
- 14** • Mechanical unit for automatic hook-up to the TA-CENTER drive  
 • Механическое устройство для автоматического подключения к приводу TA-CENTER  
 • Zespół mechaniczny do podłączania do napędu pomocniczego głowicy TA-CENTER  
 • Mechanická jednotka pro automatické připojení na pohon TA-CENTER  
 • TA-CENTER düzenine (sürücüsüne) otomatik sabitleme için mekanik ünite
- 15** • The unit comes with air inlet connection for cleaning the drive  
 • Устройство подключения доступа воздуха для очистки привода  
 • Złącze dedykowane do wlotu powietrza do czyszczenia napędu pomocniczego  
 • Jednotka se dodává s připojením na přívod vzduchu pro čištění pohonu  
 • Ünite, düzenin temizlenmesi için bir hava girişi bağlantısı sunulur
- 16** • Manual lubrication  
 • Ручная маслѐнка  
 • Smarownica ręczna  
 • Ruční maznice  
 • Manüel gres tabancası



- **U-DRIVE COMMAND UNIT**  
 • **БЛОК УПРАВЛЕНИЯ U-DRIVE**  
 • **JEDNOSTKA STERUJĄCA U-DRIVE**  
 • **ŘÍDICÍ JEDNOTKA U-DRIVE**  
 • **U-DRIVE KOMUT ÜNİTESİ**

**GB** The U-DRIVE drive unit must be mounted on the machining centre in a proper position next to the spindle so to ensure the mechanical connection to the TA-CENTER head drive.

**RU** Привод U-Drive должен быть установлен на обрабатывающем центре в правильном положении рядом со шпинделем с тем, чтобы обеспечить механическое соединение с головкой TA-CENTER.

**PL** Układ napędowy U-DRIVE musi zostać zamontowany na centrum obróbczym w odpowiedniej pozycji obok wrzeciona, tak, aby zagwarantować połączenie mechaniczne napędu pomocniczego z głowicą TA-CENTER.

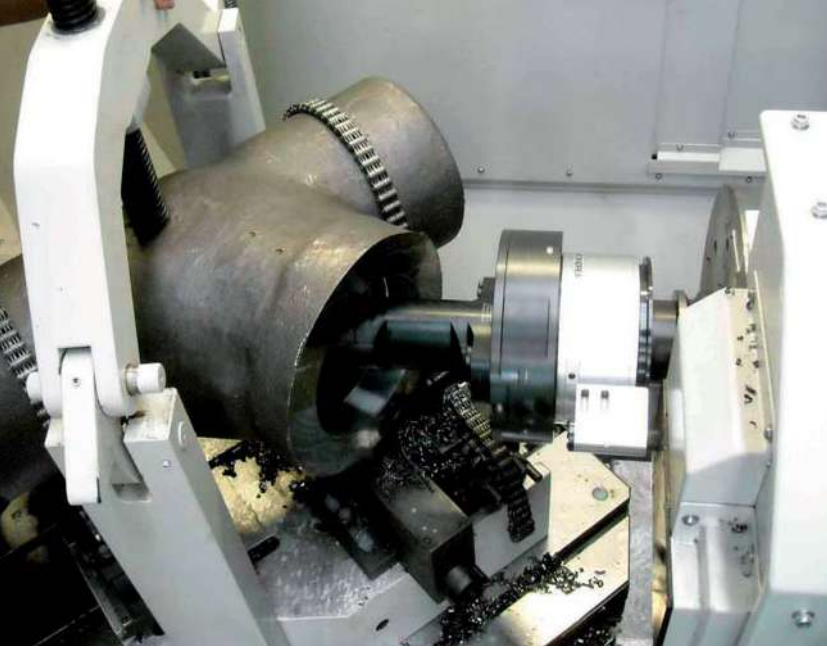
**CZ** Řídicí jednotku U-DRIVE je nutno namontovat na obráběcí centrum ve správné poloze vedle vrjetena, aby bylo zajištěno mechanické napojení na pohon hlavy TA-CENTER.

**TR** U-DRIVE tahrik ünitesi, TA-CENTER kafa düzenine mekanik bağlantı sağlanması için işleme merkezi üzerinde milin yanına doğru konumlandırılmalıdır.



# D'ANDREA TA-CENTER

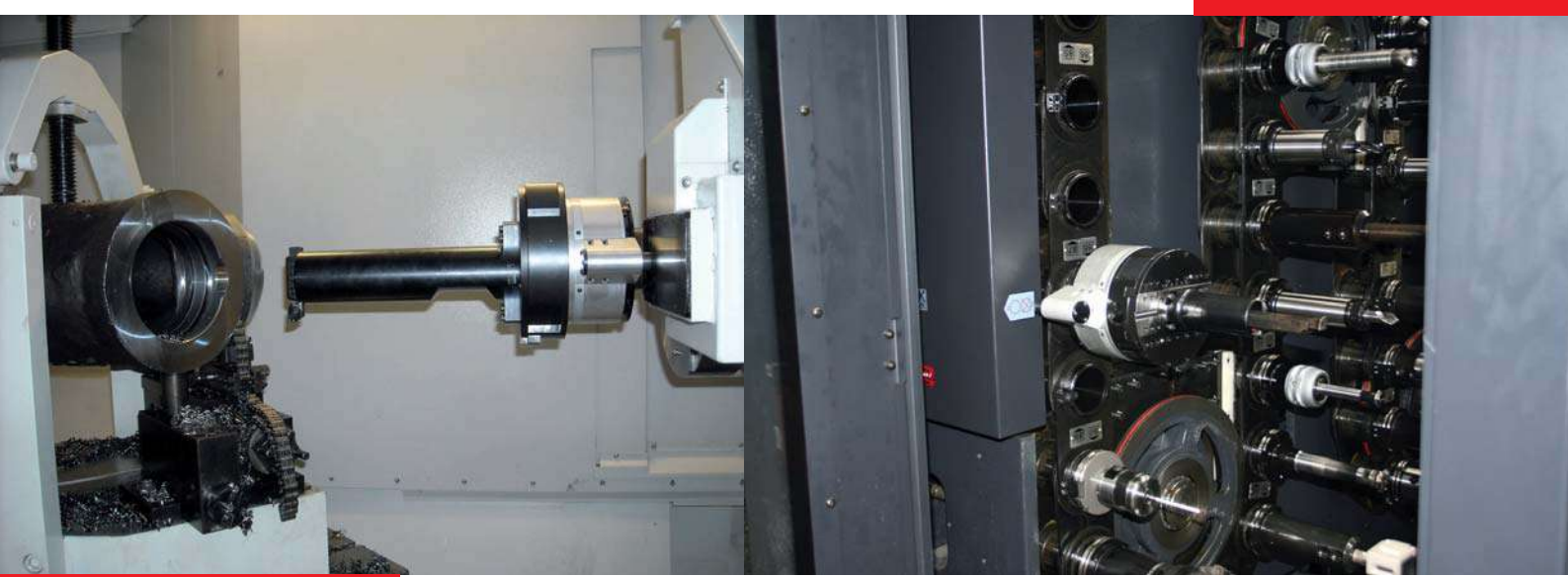
- APPLICATION
- ПРИМЕНЕНИЕ
- APLIKACJE
- POUŽITÍ
- UYGULAMA



**BB** Any application on machines that do not permit the connection to an axis of the NC, may be made by managing the motor of the U-DRIVE with a practical, simple, and economical U-CONTROL positioner with wireless REMOTE-CONTROL. The positioner can be connected to the M functions of the machine to receive start signals of the various operations programmed on the REMOTE-CONTROL. **Spherical machining is not possible with machines equipped with the U-CONTROL WIRELESS KIT.**

**RU** Применение на станках, которые не позволяют подключение к оси с ЧПУ может быть осуществлено путем управления двигателем привода U-DRIVE с практичным, простым и экономичным позиционером U-CONTROL с беспроводным дистанционным управлением. Позиционер может быть подключен к функции M управления станка и может получать сигналы запуска различных операций, запрограммированных на пульте дистанционного управления. **На станках с U-CONTROL KIT WIRELESS не представляется возможным выполнять сферическую обработку.**

**PL** W przypadku aplikacji na obrabiarkach, które nie umożliwiają podłączenia napędu do osi układu sterowania, możemy posłużyć się praktycznym, prostym i ekonomicznym sterownikiem zewnętrznym U-CONTROL ze zdalnym sterowaniem bezprzewodowym REMOTE-CONTROL. Przy wykorzystaniu funkcji M przyrząd ustawczy może być podłączony do układu sterowania obrabiarki w celu otrzymywania sygnału start do rozpoczęcia operacji zaprogramowanych na urządzeniu REMOTE-CONTROL. **Maszyny wyposażone w zestaw U-CONTROL WIRELESS nie mają możliwości wykonywania obróbek kulistych.**



**CNC**



**KIT U-CONTROL WIRELESS**



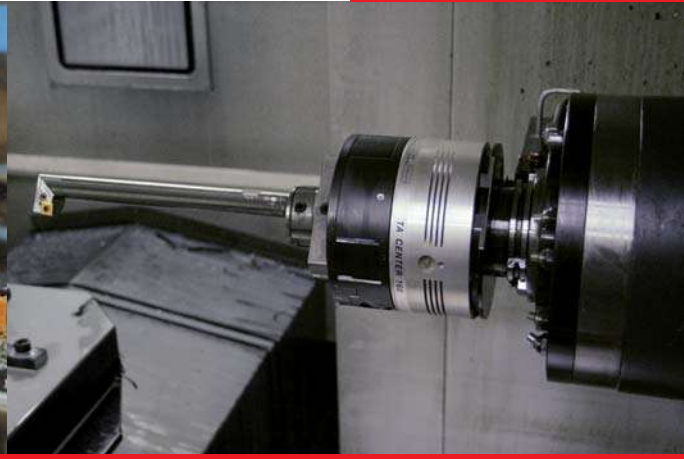
**CZ** Jakékoliv nasazení na stroje nedovolující připojení na osu NC lze provést ovládáním motoru U-DRIVE pomocí praktického, jednoduchého a úsporného polohovacího zařízení U-CONTROL s bezdrátovým dálkovým ovládáním REMOTE-CONTROL. Polohovací zařízení lze připojit na M funkce stroje a tak získávat signály pro startování různých operací naprogramovaných v REMOTE-CONTROL. **Sférické obrábění není možné u strojů vybavených bezdrátovou soupravou U-CONTROL WIRELESS KIT.**

**TR** NC'nin bir eksenine bağlanmaya izin verilmeyen makinelerdeki herhangi bir uygulama, U-DRIVE motorunun kablosuz uzaktan kumandalı pratik, basit ve ekonomik bir U-CONTROL konumlandırıcısıyla yönetilmesi suretiyle kolayca gerçekleştirilebilir. Konumlandırıcı, uzaktan kumandada programlanmış çeşitli işlemlerin başlatma sinyallerini almak için makinenin M fonksiyonlarına bağlanabilir. **U-CONTROL kablosuz kitle donatılmış makinelerde küresel işleme mümkün değildir.**



# D'ANDREA

## TA-CENTER



- BALANCING AND COOLANT SUPPLY
- БАЛАНСИРОВКА И ПОДВОД СОЖ
- WYRÓWNOWAŻANIE I DOPROWADZANIE CIECZY CHŁODZĄCEJ
- VYVAŽOVÁNÍ A PŘÍVOD CHLADICÍ KAPALINY
- DENGELEME VE SOĞUTMA SIVISI BESLEMESİ



**GB** TA-CENTER heads are designed with two counter-weights for automatic balancing, that move opposite to the slide. Coolant exits from the two adjustable nozzles in the TA-CENTER located next to the slide after crossing the taper and the rotating body of the head.

**RU** Головки TA-CENTER были разработаны с двумя противовесами для автоматической балансировки, которые движутся в направлении, противоположном салазкам. В TA-CENTER охлаждающая жидкость выходит из двух регулируемых сопел, расположенных рядом с салазками после пересечения конуса и вращающегося тела головки.

**PL** Głowice TA-CENTER zostały wyposażone w dwa przeciwwagi służące do automatycznego wyrównowazania. Ciężary te poruszają się w kierunku przeciwnym do kierunku ruchu sań. Rozwiązanie to pozwala na pracę z wysokimi prędkościami obrotowymi bez wyraźnych drgań narzędzia. W głowicach typu TA-CENTER ciecz chłodząca wydostaje się z dwóch nastawnych dysz umieszczonych obok sań narzędziowych. Ciecz chłodząca przepływa przez stożek i korpus obrotowy głowicy.

**CZ** Hlavy TA-CENTER jsou navrženy se dvěma protizávažími pro automatické vyvažování, která se pohybují opačně vůči šoupátku. Chladicí kapalina odchází ze dvou nastavitelných trysek v centru TA-CENTER umístěných vedle šoupátka po přechodu kužele a rotujícího těla hlavy.

**TR** TA-CENTER kafaları, kazağa karşı hareket eden ve otomatik dengelirmede kullanılan iki karşı ağırlıkla tasarlanmıştır. Soğutma sıvısı, konikten ve kafanın döner gövdesinden geçtikten sonra kazağın yanındaki TA-CENTER'da bulunan ayarlanabilir iki nozuldan çıkar.



## K02



| REF.               | CODE         |
|--------------------|--------------|
| K02 TA-C 80 I.65   | 501250800650 |
| K02 TA-C 80 I.80   | 501250800800 |
| K02 TA-C 100 I.80  | 501251000800 |
| K02 TA-C 100 I.110 | 501251001100 |
| K02 TA-C 125 I.80  | 501251250800 |
| K02 TA-C 125 I.110 | 501251251100 |
| K02 TA-C 160 I.110 | 501251601100 |
| K02 TA-C 200 I.110 | 501252001100 |

## K03

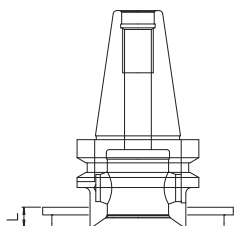


1 P120 1 P130

| REF.                 | CODE         |
|----------------------|--------------|
| KIT K03 TA-C 80      | 501200300801 |
| KIT K03 TA-C 100-125 | 501200301001 |
| KIT K03 TA-C 160-200 | 501200301601 |

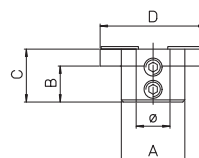
• Complete range of cones on page 17 • Полная гамма конусов на стр.17 • Kompletna gama stożków na str.17  
• Kompletní řada kuželů na straně 17 • Sf.17'deki tüm koni ürünleri

## MHD'



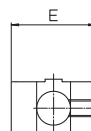
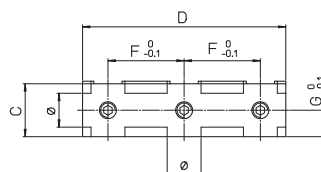
| REF.         | MHD' | L    |
|--------------|------|------|
| TA-C 80      | 40   | 10,5 |
| TA-C 100-125 | 50   | 11,5 |
| TA-C 160-200 | 80   |      |

## P120



|              | REF. | CODE         | ØH7 | A  | B    | C  | D  | E  | Kg.  |
|--------------|------|--------------|-----|----|------|----|----|----|------|
| TA-C 80      | P120 | 431550160200 | 16  | 30 | 14   | 20 | 40 | 32 | 0.1  |
| TA-C 100-125 |      | 431550160250 |     |    | 17   | 25 | 50 | 40 | 0.2  |
| TA-C 160-200 |      | 431550250380 | 25  | 47 | 27.5 | 38 | 76 | 54 | 0.55 |

## P130

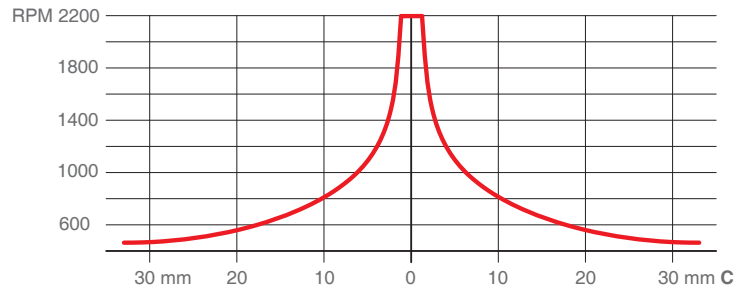
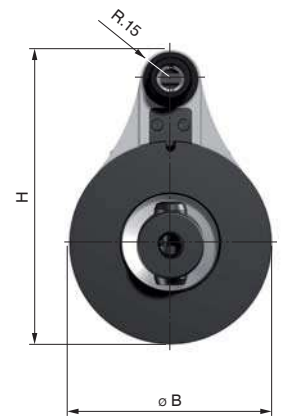
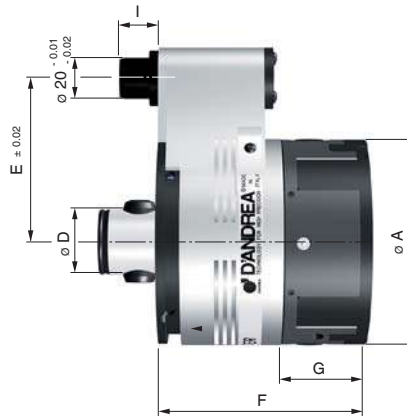
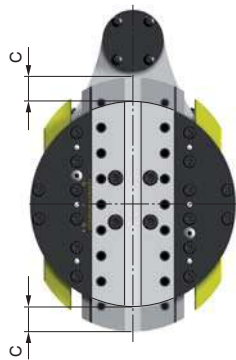


|              | REF. | CODE         | ØH7 | C  | D   | E  | F    | G    | Kg. |
|--------------|------|--------------|-----|----|-----|----|------|------|-----|
| TA-C 80      | P130 | 433032200800 | 16  | 20 | 80  | 32 | 30   | 10.5 | 0.3 |
| TA-C 100-125 |      | 433040250950 |     | 25 | 95  | 40 | 37   |      | 0.5 |
| TA-C 160-200 |      | 433054381520 | 25  | 38 | 152 | 54 | 59.5 | 16.5 | 1.6 |





• TECHNICAL DATA  
 • ТЕХНИЧЕСКИЕ ДАННЫЕ  
 • DANE TECHNICZNE  
 • TECHNICKÁ DATA  
 • TEKNİK VERİLER



|                                                                                                                       |         | TA-C 80                                         | TA-C 100                                        | TA-C 125                                        | TA-C 160  | TA-C 200  |
|-----------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-----------|-----------|
| Ø A                                                                                                                   | mm      | 80                                              | 100                                             | 125                                             | 160       | 200       |
| Ø B                                                                                                                   | mm      | 80.5                                            | 100.5                                           |                                                 | 160.5     |           |
| C<br>• radial traverse • Радиальный поперечина • Promieniowy przecinać<br>• paprskovitě krížení • Radyal travers      | mm      | ± 10                                            | ± 12                                            | ± 17                                            | ± 25      | ± 32.5    |
| Ø D                                                                                                                   | mm      | (MHD'40) 25 <sup>-0.004</sup> <sub>-0.006</sub> | (MHD'50) 32 <sup>-0.005</sup> <sub>-0.008</sub> | (MHD'80) 42 <sup>-0.005</sup> <sub>-0.008</sub> |           |           |
| E                                                                                                                     | mm      | 65/80                                           | 80/110                                          |                                                 | 110       |           |
| F                                                                                                                     | mm      | 81                                              | 100                                             | 104                                             | 136       |           |
| G                                                                                                                     | mm      | 33.2                                            | 40.5                                            | 44.5                                            | 56        |           |
| H                                                                                                                     | mm      | 120 / 135                                       | 145 / 175                                       |                                                 | 205       |           |
| I                                                                                                                     | mm      | 17                                              | 19                                              |                                                 |           |           |
| Ø L                                                                                                                   | mm      | 8 ~ 62                                          | 10 ~ 72                                         | 10 ~ 81                                         | 20 ~ 109  | 20 ~ 124  |
| M                                                                                                                     | mm      | 60                                              | 75                                              |                                                 | 125       |           |
| Ø N                                                                                                                   | mm      | 62 ~ 102                                        | 72 ~ 122                                        | 63 ~ 131                                        | 103 ~ 203 | 88 ~ 218  |
| O                                                                                                                     | mm      | 80                                              | 100                                             |                                                 | 160       |           |
| Ø P                                                                                                                   | mm      | 112 ~ 160                                       | 122 ~ 200                                       | 131 ~ 250                                       | 203 ~ 320 | 218 ~ 400 |
| Q                                                                                                                     | mm      | 20.5                                            | 25.5                                            |                                                 | 38.5      |           |
| Max. mm/min                                                                                                           | mm/min  | 1 ÷ 500                                         |                                                 |                                                 |           |           |
| Max. °/min                                                                                                            | RPM     | 2200                                            | 2000                                            | 1800                                            | 1600      | 1400      |
| • Weight without the cone • Вес без конуса • Ciężar bez stożka<br>• Hmotnost bez kužele • Konisiz ağırlık             | Kg      | 2.5                                             | 4.8                                             | 6.5                                             | 16.8      | 21.4      |
| • Radial force • Радиальная сила • Siła radialna<br>• Radiální síla • Radyal kuvvet                                   | daN     | 100                                             | 150                                             |                                                 | 250       |           |
| • Torque • Вращающий момент • Moment skrećający<br>• Kroutici moment • Tork                                           | Nm      | 200                                             | 400                                             |                                                 | 800       |           |
| • Boring accuracy • Точность расточки • Precyzja wytaczania<br>• Přesnost vrtání • Delik açma hassasiyeti             |         | H7                                              |                                                 |                                                 |           |           |
| • Max chip removal • Максимум удаления • Maksymalne usuwanie nadadtaku<br>• Max likvidace špon • Maks. talaş giderimi | mm² C40 | 0,5                                             | 0,75                                            | 0,85                                            | 1         |           |
| • Roughness • Шероховатость • Chropowatość powierzchni<br>• Hrubost • Pürüzlülük                                      | Ra      | 0,8 ~ 1,2                                       |                                                 |                                                 |           |           |



### *Turning operations on all machine tools*



**GB** TA-Tronic boring and facing heads can be manually or automatically applied on small boring machines, machining centres and special machines. Connection with the machine tool spindle occurs through a cone for the rotation of the rotating head and a flange for fastening the fixed body on to the fixed part of the machine. For lighter tasks a simple anti-rotation pin may be used.

**RU** Расточные и торцевые головки TA-Tronic применяются вручную или автоматически на малых расточных станках, обрабатывающих центрах и специальных станках. Соединение со шпинделем станка осуществляется с помощью конуса вращения подвижной части и фланца для крепления неподвижной части на шпинделе. Для менее тяжелых операций можно использовать простой противоповоротный штифт.

**PL** Głowice wierzące i planujące TA-Tronic można ręcznie lub automatycznie stosować we wszystkich małych wytaczarkach (wiertarkach), obrabiarkach wielooperacyjnych oraz urządzeniach specjalnych. Połączenie z wrzecionem obrabiarki następuje poprzez stożek w celu zapewnienia rotacji głowicy obrotowej oraz kołnierza służący do zamocowania stałego korpusu do nieruchomej części urządzenia. W przypadku lżejszych prac, można użyć prostego kołka przeciwwrotacyjnego.

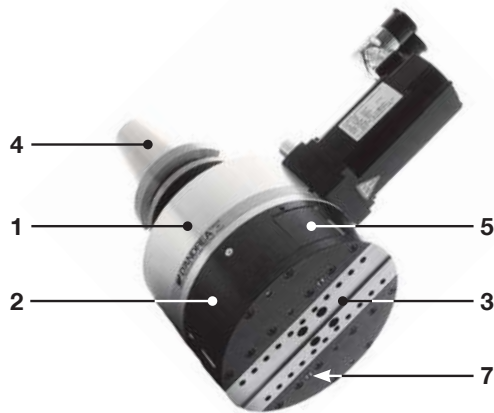


- GENERAL FEATURES
- ОБЩИЕ ХАРАКТЕРИСТИКИ
- DANE OGÓLNE
- OBECNÉ VLASTNOSTI
- GENEL ÖZELLİKLER



**CZ** Vytvrtávací hlavy a lícní desky TA-Tronic lze používat manuálně nebo automaticky na malých vrtacích strojích, obráběcích centrech a speciálních strojích. Připojení na vřeteno obráběcího stroje se odehrává pomocí kužele pro rotaci rotační hlavy a příruby pro upevnění pevného dílu na fixní část stroje. Pro jednodušší operace lze použít jednoduchý antirotační kolík.

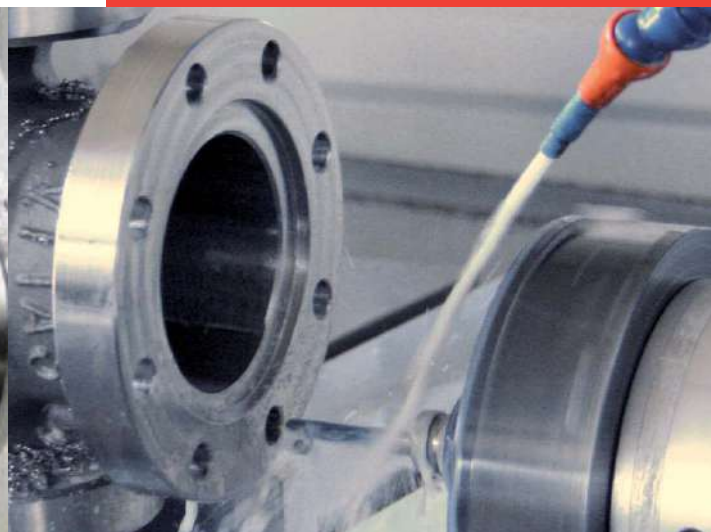
**TR** TA-Tronic delik açma ve dış yüzey hazırlama kafaları, küçük delik açma makinelerinde, işleme merkezlerinde ve özel makinelerde manuel ya da otomatik olarak uygulanabilir. İşleme takımının miliyle olan bağlantı, döner kafanın dönüşünde kullanılan bir koni ve sabit gövdenin makinenin sabit parçasına bağlanmasında kullanılan bir flanş ile gerçekleştirilir. Daha hafif görevlerde ise dönüş önleyici basit bir pim kullanılabilir.



- 1 • Fixed body  
• Неподвижный корпус  
• Korpus stały  
• Upevněný díl  
• Sabit gövde
- 2 • Rotating body  
• Вращающийся корпус  
• Korpus obrotowy  
• Rotující díl  
• Döner gövde
- 3 • Toolholder slide  
• Салазки резцедержателя  
• Sanie narzędziowe  
• Šoupátko nástrojového držáku  
• Takım tutucu kızıği
- 4 • Interchangeable taper  
• Взаимозаменяемый конус  
• Stożek wymienny  
• Vyměnitelný kužel  
• Değiştirilebilir konik

- 5 • Balancing counter-weights  
• Противовесы для балансировки  
• Przeciwważar wyważający  
• Vyvažovací protizávaží  
• Dengeleme için karşı ağırlıklar
- 6 • MHD' coupling  
• Крепление MHD'  
• Złącze MHD'  
• Spojka MHD  
• MHD' kaplin'
- 7 • Coolant liquid outlet nozzle  
• Выходящие сопла охлаждающе-смазочной жидкости  
• Dysze wylotowe cieczy chłodzącej i smarującej  
• Výstupní tryska chladicí kapaliny  
• Soğutma sıvısı çıkış nozulu

- 8 • Anti-rotation pin  
• Противовращательный штифт  
• Sworzeń zapobiegający obrotom  
• Antiotační kolík  
• Dönüş önleme pimi
- 9 • Motor  
• Двигатель  
• Silnik  
• Motor  
• Motor
- 10 • Anti-rotation Small block  
• Противовращательный вкладыш  
• Płytkę zapobiegającą obrotom  
• Antiotační malý blok  
• Dönüş önleme için küçük blok





- COMMAND UNIT
- БЛОК УПРАВЛЕНИЯ
- JEDNOSTKA STERUJĄCA
- ŘÍDICÍ JEDNOTKA
- KOMUT BİRİMİ

Two possibilities are available for the control unit of the TA-Tronic head: the first one involves a direct connection to the “U” axis of the NC in the machine tool which allows for boring, inner facing, outer facing, back – facing, grooving, complex profiles, threading and taper boring, taper and variable boring, concave and convex radius machining through the interpolation with the other axis. The second with a simple and economical U-CONTROL positioner with a wireless REMOTE-CONTROL. The positioner can be connected to the M function of the machine to receive start signals of the various operations programmed on the REMOTE-CONTROL. This solution allows for boring machining, inner facing, outer facing, back-facing, inner and outer turning operations, grooves, complex profiles, threading, and taper boring. **Spherical machining is not possible with machines equipped with the U-CONTROL WIRELESS KIT.**

Управление головками TA-Tronic может осуществляться двумя способами: Первый предполагает прямое соединение с осью “U” ЧПУ станка, которое позволяет осуществлять операции расточки, внутренней, внешней и обратной торцовки, внутренние и внешние токарные операции, канавки, фоновграфические фланцы, коническую резьбу и расточку, коническую, а также переменную расточку, вогнутые и выпуклые радиусы путем интерполяции с другими осями. Второй - с простым и экономичным позиционером U-CONTROL с беспроводным дистанционным управлением. Позиционер может быть подключен к функции M контроля станка и получать сигналы запуска различных операций, запрограммированных на пульте дистанционного управления. Это решение позволяет осуществлять операции расточки, внутренней, внешней и обратной торцовки, внутренние и внешние токарные операции, канавки, фоновграфические фланцы, коническую резьбу и расточку. **На станках с беспроводным дистанционным управлением не представляется возможным выполнять сферическую обработку.**

Istnieją dwie metody sterowania głowicami typu TA-Tronic: pierwsza wykorzystuje bezpośrednie połączenie głowicy z osią „U” sterownika numerycznego obrabiarki, co pozwala na wytaczanie, planowanie wewnętrzne i zewnętrzne, wykonywanie rowków, toczenie wewnętrzne i zewnętrzne, wykonywanie kanałów, spiral fonograficznych, gwintów i wytaczanie stożków (również zmiennych), promieni wklęsłych i wypukłych poprzez interpolację z pozostałymi osiami. Druga to prosty i ekonomiczny przyrząd nastawczy U-CONTROL ze zdalnym sterowaniem bezprzewodowym REMOTE-CONTROL. Przyrząd nastawczy może być podłączony do układu sterowania obrabiarki przy wykorzystaniu funkcji M, uzyskując tym samym sygnał startu do rozpoczęcia operacji zaprogramowanych na sterowniku REMOTE-CONTROL. Rozwiązanie to pozwala na wytaczanie, planowanie wewnętrzne i zewnętrzne, wykonywanie rowków, toczenie wewnętrzne i zewnętrzne, wykonywanie kanałów, spiral fonograficznych, gwintów i wytaczanie stożków. **Maszyny wyposażone w bezprzewodowy zestaw U-CONTROL WIRELESS nie mają możliwości wykonywania obróbek sferycznych.**

Pro řídicí jednotku hlavy TA-Tronic jsou k dispozici dvě možnosti: první znamená přímé spojení s osou “U” NC i obráběcím stroji, které umožňuje vrtání, čelní soustružení vnitřních povrchů, čelní soustružení vnějších povrchů, zpětné čelní soustružení, drážkování, komplexní profily, řezání závitů a kuželové vrtání, kuželové a proměnné vrtání, konkávní a konvexní poloměrové obrábění pomocí interpolace s druhou osou. Druhá možnost je pomocí jednoduchého a úsporného polohovacího zařízení U-CONTROL s bezdrátovým vzdáleným ovládáním REMOTE-CONTROL. Polohovací zařízení lze připojit na M funkci stroje a tak získávat signály pro startování různých operací naprogramovaných v REMOTE-CONTROL. Toto řešení umožňuje vrtání, čelní soustružení vnitřních povrchů, čelní soustružení vnějších povrchů, zpětné čelní soustružení, obráběcí operace na vnitřních a vnějších površích, drážkování, komplexní profily, řezání závitů a kuželové vrtání. **Sférické obrábění není možné u strojů vybavených bezdrátovou soupravou U-CONTROL WIRELESS KIT.**

TA-Tronic kafanın kumanda ünitesi için iki seçenek mevcuttur: birincisi, diğer aksla ara kutuplama yapılarak delik açma, iç/dış yüzey hazırlama, arka yüzey hazırlama, yiv açma, kompleks profil hazırlama, dış açma ve konik delik açma, konik/değişken delik açma, konkav/konveks yarıçap işleme gibi işlerin yapılabilmesini sağlayan, işleme takımı NC'sinin “U” eksenine doğrudan bağlantıyı içerir. İkincisi ise, kablolu uzaktan kumandalı basit ve ekonomik U-CONTROL'dür. Kumandandırıcı, uzaktan kumandada programlanmış çeşitli işlemlerin başlatma sinyallerini almak için makinenin M fonksiyonlarına bağlanabilir. Bu çözüm, delik açma, iç/dış yüzey hazırlama, arka yüzey hazırlama, iç/dış tornalama, yiv açma, kompleks profil oluşturma, dış açma ve konik delik açma işlemlerinin yapılmasını sağlar. **U-CONTROL kablolu kitle donatılmış makinelerde küresel işleme mümkün değildir.**



CNC



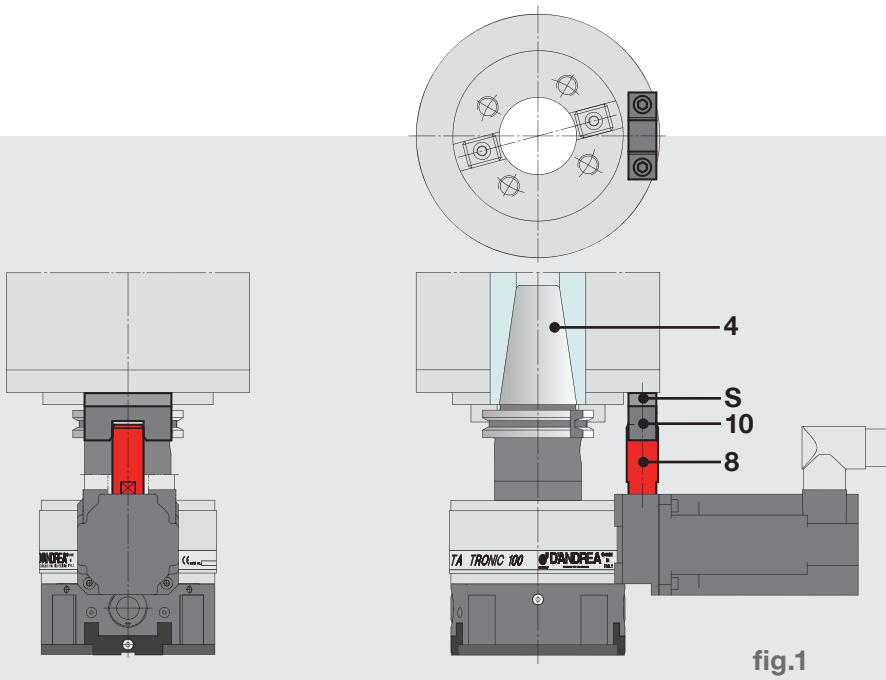
KIT U-CONTROL WIRELESS  
CODE : 55 0 020 100 001

# D'ANDREA

## TA-TRONIC

**GB** TA-TRONIC is mounted on the machine using a taper (4). The anti-rotation pin (8) inserted in the dowel (10) locked on the head of the machine tool, preventing the fixed body of TA-TRONIC to rotate. The dowel (10) is applied on a fixed part around the spindle fig. 1, adjusting the height indicated by way of a thickness S. For heavy machining it is advisable to apply a flange to make the TA-TRONIC solidly connected with the head of the machine tool (fig. 2-3). It is always advisable to use a flange with TA-TRONIC 160 and 200. The type of flange to use depends on the model of the machine and may be easily built by the Customer or supplied by D'Andrea.

**RU** TA-TRONIC устанавливается на машине с помощью конуса (4). Противовращательный штифт (8), вставляется во вкладыш (10) заблокированный в головной части станка предотвращает вращение неподвижного корпуса TA-TRONIC. Вкладыш (10) необходимо установить на неподвижной части вокруг шпинделя рис.1, регулируя высоту с помощью прокладки S. Для тяжелой обработки целесообразно применение фланца для соединения TA-TRONIC с головной частью станка (рис. 2-3). С TA-TRONIC 160 и 200 рекомендуется всегда использовать фланец. Тип используемого фланца зависит от модели станка и может быть легко построен клиентом или поставлен компанией D'Andrea.





- APPLICATION
- ПРИМЕНЕНИЕ
- APLIKACJA
- POUŽITÍ
- UYGULAMA

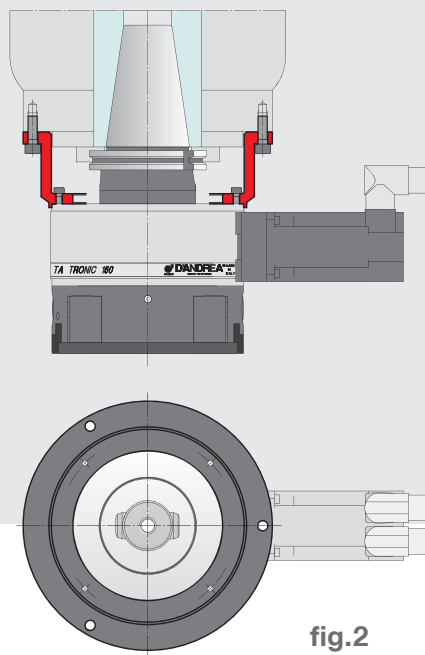
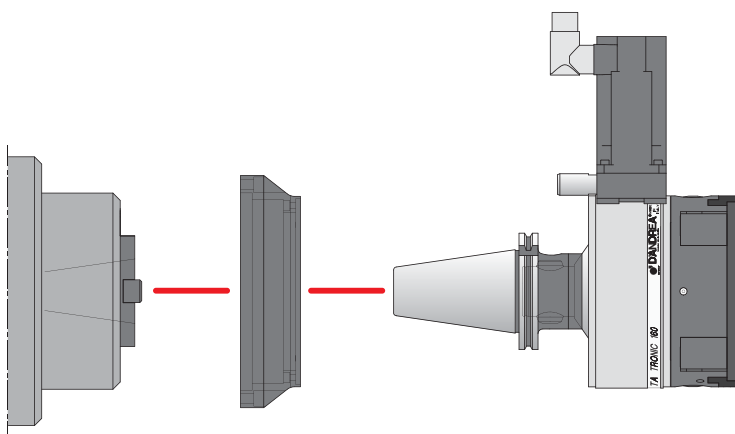


fig.2

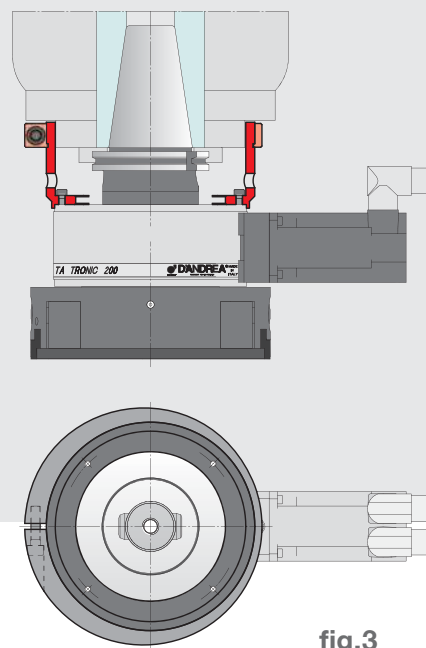


fig.3

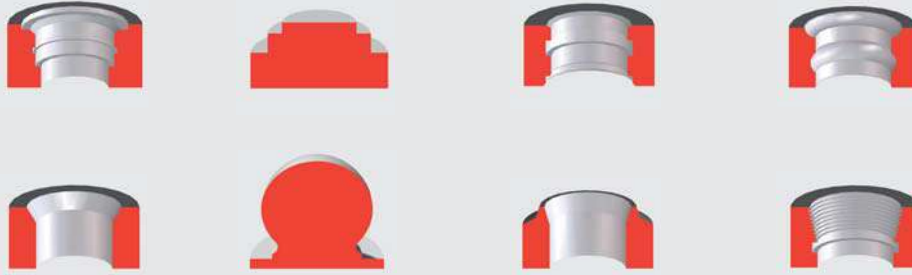
**PL** Głowice TA-TRONIC montowane są na obrabiarkie przy użyciu stożka (4). Sworzeń zapobiegający obrotowi (8), umieszczony w płytce (10) i zablokowany na głowicy obrabiarki, uniemożliwia ruch obrotowy korpusu stałego TA-TRONIC. Płytke (10) należy przymocować do korpusu stałego wokół wrzeciona (rys. 1), regulując wysokość przekładką odległościową S. W przypadku skomplikowanych obróbek, zaleca się nałożenie kołnierza sztywno łączącego TA-TRONIC z głowicą obrabiarki (rys. 2-3). W przypadku modeli TA-TRONIC 160 i 200 zaleca się stałe stosowanie kołnierza. Rodzaj kołnierza zależy od modelu maszyny i może być skonstruowany przez Klienta lub dostarczony przez firmę D'Andrea.

**CZ** TA-TRONIC se namontuje na stroj pomocí kužele (4). Antiotační kolík (8) se vloží do čepu (10) zablockovaného na hlavě obráběcího stroje a brání tak rotaci upevněného těla TA-TRONIC. Čep (10) se aplikuje na fixní část kolem vřetena, obr. 1, a tak se nastaví výška indikovaná tloušťkou S. Pro náročné obrábění se doporučuje použít přírubu, aby došlo k pevnému spojení TA-TRONIC s hlavou obráběcího stroje (obr. 2-3). V případě TA-TRONIC 160 a 200 se doporučuje použít přírubu vždy. Typ použité příruby závisí na modelu stroje a zákazník si ji může snadno vyrobit nebo ji může dodat společnost D'Andrea.

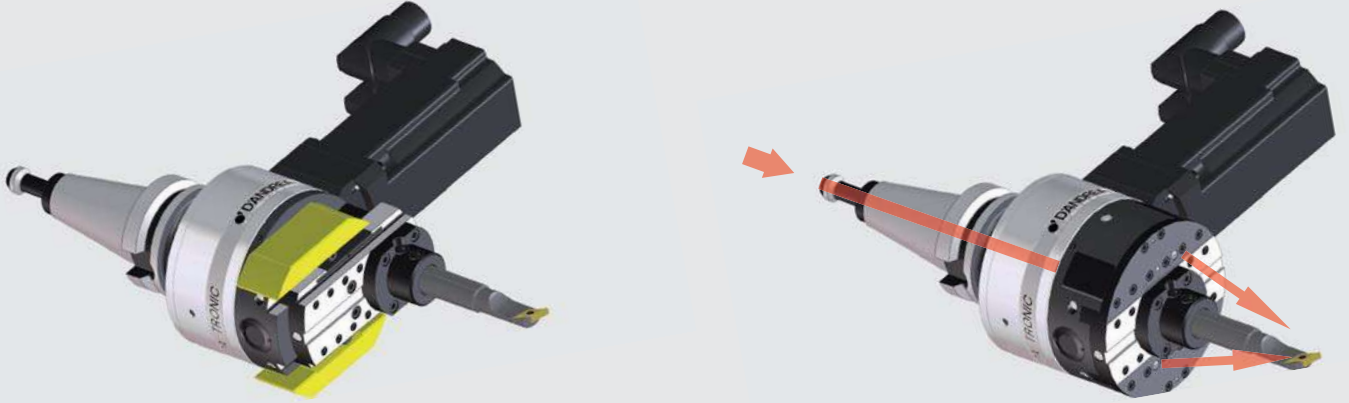
**TR** TA-TRONIC, bir konik (4) vasitasiyla makineye monte edilir. İşleme takımının kafasına sabitlenmiş kılavuz pime (10) yerleştirilen bir dönüş önleme pimi (8), TA-TRONIC sabit gövdesinin dönmesini önler. Kılavuz pim (10), şek. 1'deki gibi milin çevresindeki bir sabit parçaya takılır ve S kalınlığı ile gösterilen yükseklik ayarı yapılır. Ağır işleme faaliyetlerinde, TA-TRONIC'in işleme takımını kafasına sağlam bir şekilde sabitlemesi için flanş kullanılması önerilir (şek. 2-3). TA-TRONIC 160 ve 200 flanşlarının kullanılması mutlaka önerilir. Kullanılacak flanş makinenin modeline göre değişir ve D'Andrea tarafından tedarik edilebileceği gibi Müşteri tarafından da kolayca oluşturulabilir.

# D'ANDREA

## TA-TRONIC



- BALANCING AND COOLANT SUPPLY
- БАЛАНСИРОВКА И ПОДВОД СОЖ
- WYRÓWNOWAŻANIE I DOPROWADZANIE CIECZY CHŁODZĄCEJ
- VYVAŽOVÁNÍ A PŘÍVOD CHLADICÍ KAPALINY
- DENGELEME VE SOĞUTMA SIVISI BESLEMESİ



**GB** TA-TRONIC heads are designed with two counter-weights for automatic balancing, that move opposite to the slide. Coolant exits from the two adjustable nozzles in the TA-TRONIC located next to the slide after crossing the taper and the rotating body of the head.

**RU** Головки TA-CENTER были разработаны с двумя противовесами для автоматической балансировки, которые движутся в направлении, противоположном салазкам. В TA-CENTER охлаждающая жидкость выходит из двух регулируемых сопел, расположенных рядом с салазками после пересечения конуса и вращающегося тела головки.

**PL** Głowice TA-TRONIC zostały wyposażone w dwa przesuwne przeciwwagi służące do automatycznego wyrównywania. Ciężary te poruszają się w kierunku przeciwnym do kierunku ruchu sań. W głowicach TA-TRONIC ciecz chłodząca wypływa przez nastawne dysze usytuowane obok sań narzędziowych, natychmiast po przejściu przez stożek i korpus obrotowy głowicy.

**CZ** Hlavy TA-TRONIC jsou navrženy se dvěma protizávažími pro automatické vyvažování, která se pohybují opačně vůči šoupátku. Chladicí kapalina odchází ze dvou nastavitelných trysek v centru TA-TRONIC umístěných vedle šoupátka po křížení kužele a rotujícího těla hlavy.

**TR** TA-TRONIC kafaları, kazağa karşı hareket eden ve otomatik dengelemede kullanılan iki karşı ağırlıkla tasarlanmıştır. Soğutma sıvısı, konikten ve kafanın döner gövdesinden geçtikten sonra kazağın yanındaki TA-TRONIC'da bulunan ayarlanabilir iki nozuldan çıkar.



## K02



| REF.                                 | CODE         |
|--------------------------------------|--------------|
| K02 TA-T 100 1FK7022-5AK71-1HA5      | 501201000400 |
| K02 TA-T 100 FANUC $\beta$ is 1/6000 | 501201000800 |
| K02 TA-T 100 AKM22C-ANBNC-00         | 501201000600 |
| K02 TA-T 125 1FK7022-5AK71-1HA5      | 501201250400 |
| K02 TA-T 125 FANUC $\beta$ is 1/6000 | 501201250800 |
| K02 TA-T 125 AKM22C-ANBNC-00         | 501201250600 |
| K02 TA-T 160 1FK7032-2AK71-1EA2      | 501201600400 |
| K02 TA-T 160 FANUC $\beta$ is 1/6000 | 501201600800 |
| K02 TA-T 160 AKM22C-ANBNC-00         | 501201600600 |
| K02 TA-T 200 1FK7032-2AK71-1EA2      | 501202000400 |
| K02 TA-T 200 FANUC $\beta$ is 1/6000 | 501202000800 |
| K02 TA-T 200 AKM22C-ANBNC-00         | 501202000600 |

## K03



1 P120 1 P130

| REF.                 | CODE         |
|----------------------|--------------|
| KIT K03 TA-T 100-125 | 501200301001 |
| KIT K03 TA-T 160-200 | 501200301601 |

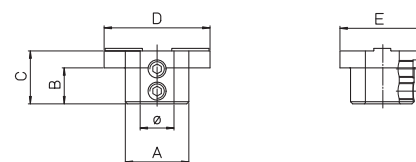
• Complete range of cones on page 17 • Полная гамма конусов на стр.17 • Kompletna gama stożków na str. 17  
• Kompletní řada kuželů na straně 17 • Sf.17'deki tüm koni ürünleri

## MHD'



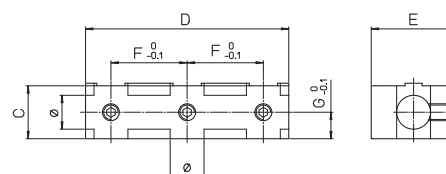
| REF.         | MHD' |
|--------------|------|
| TA-T 100-125 | 50   |
| TA-T 160-200 | 80   |

## P 120



|              | REF. | CODE         | Ø H7 | A  | B    | C  | D  | E  | Kg.  |
|--------------|------|--------------|------|----|------|----|----|----|------|
| TA-T 100-125 | P120 | 431550160250 | 16   | 30 | 17   | 25 | 50 | 40 | 0.2  |
| TA-T 160-200 |      | 431550250380 | 25   | 47 | 27.5 | 38 | 76 | 54 | 0.55 |

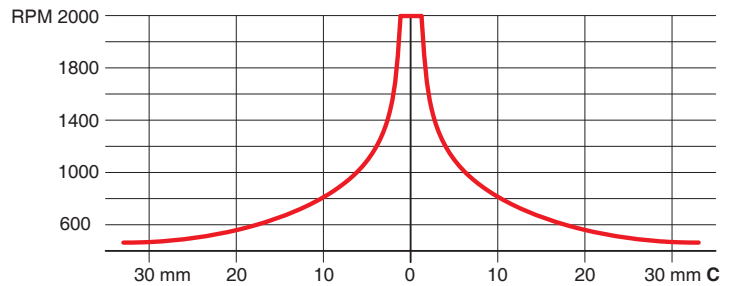
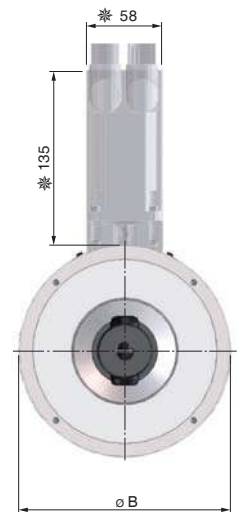
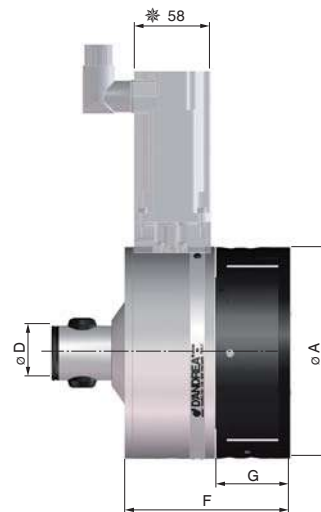
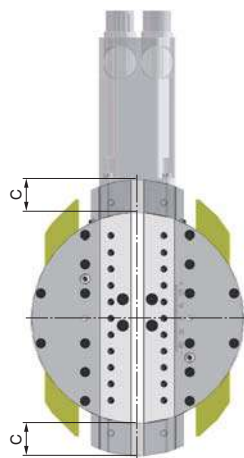
## P 130



|              | REF. | CODE         | Ø H7 | C  | D   | E  | F    | G    | Kg. |
|--------------|------|--------------|------|----|-----|----|------|------|-----|
| TA-T 100-125 | P130 | 433040250950 | 16   | 25 | 95  | 40 | 37   | 10.5 | 0.5 |
| TA-T 160-200 |      | 433054381520 | 25   | 38 | 152 | 54 | 59.5 | 16.5 | 1.6 |



• TECHNICAL DATA  
 • TECHNISCHE DATEN  
 • DATOS TECNICOS  
 • DONNÉES TECHNIQUES  
 • DATI TECNICI

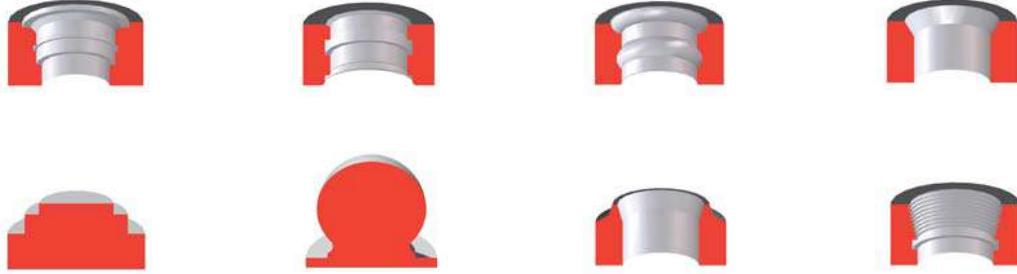


|                                                                                                                                                              |         | TA-T 100                                          | TA-T 125  | TA-T 160                                          | TA-T 200  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------------------------------------------------|-----------|---------------------------------------------------|-----------|
| Ø A                                                                                                                                                          | mm      | 100                                               | 125       | 160                                               | 200       |
| Ø B                                                                                                                                                          | mm      | 100.5                                             |           | 160.5                                             |           |
| C<br>• radial traverse • Радиальный поперечина • Promieniowy przecinać<br>• paprskovité křížení • Radyal travers                                             | mm      | ± 12                                              | ± 17      | ± 25                                              | ± 32.5    |
| Ø D                                                                                                                                                          | mm      | (MHD'50) 32 <sup>- 0.005</sup> <sub>- 0.008</sub> |           | (MHD'80) 42 <sup>- 0.005</sup> <sub>- 0.008</sub> |           |
| F                                                                                                                                                            | mm      | 89                                                | 93        | 125                                               |           |
| G                                                                                                                                                            | mm      | 40.5                                              | 44.5      | 56                                                |           |
| Ø L                                                                                                                                                          | mm      | 10 ~ 72                                           | 10 ~ 81   | 20 ~ 109                                          | 20 ~ 124  |
| M                                                                                                                                                            | mm      | 75                                                |           | 125                                               |           |
| Ø N                                                                                                                                                          | mm      | 72 ~ 122                                          | 63 ~ 131  | 103 ~ 203                                         | 88 ~ 218  |
| O                                                                                                                                                            | mm      | 100                                               |           | 160                                               |           |
| Ø P                                                                                                                                                          | mm      | 122 ~ 200                                         | 131 ~ 250 | 203 ~ 320                                         | 218 ~ 400 |
| Q                                                                                                                                                            | mm      | 25.5                                              |           | 38.5                                              |           |
| Max. mm/min                                                                                                                                                  | mm/min  | 1 ÷ 500                                           |           |                                                   |           |
| Max. 1/min                                                                                                                                                   | RPM     | 2000                                              | 1800      | 1600                                              | 1400      |
| • Weight without the cone and motor • Вес без конуса и двигателя<br>• Waga bez stożka i silnika • Hmotnost bez kužele a motoru • Konisiz ve motorsuz ağırlık | Kg      | 4.2                                               | 6.3       | 15.5                                              | 20.5      |
| • Radial force • Радиальная сила • Sita radialna<br>• Radiální síla • Radyal kuvvet                                                                          | daN     | 150                                               |           | 250                                               |           |
| • Torque • Вращающий момент • Moment skřecający<br>• Kroutící moment • Tork                                                                                  | Nm      | 400                                               |           | 800                                               |           |
| • Boring accuracy • Точность расточки • Precyzja wytaczania<br>• Přesnost vrtání • Delik açma hassasiyeti                                                    |         | H7                                                |           |                                                   |           |
| • Max chip removal • Максимум удаления • Maksymalne usuwanie naddatku<br>• Max likvidace špon • Maks. talaş giderimi                                         | mm² C40 | 0,75                                              | 0,85      | 1                                                 |           |
| • Roughness • Широковатость • Chropowość powierzchni<br>• Drsnost • Pürüzlülük                                                                               | Ra      | 0,8 ~ 1,2                                         |           |                                                   |           |

• \* Rough measures that may vary on changing the motor. • \* Размеры приблизительные и могут варьировать в зависимости от двигателя • Wymiary orientacyjne, uzależnione od typu silnika. • \* Hrubé míry se mohou měnit při výměně motoru. • \* Motora göre değişebilen kaba ölçümlerdir.

# D'ANDREA

## U-COMAX



*Unit and transfer solutions*





- GENERAL FEATURES
- ОБЩИЕ ХАРАКТЕРИСТИКИ
- DANE OGÓLNE
- OBECNÉ VLASTNOSTI
- GENEL ÖZELLİKLER



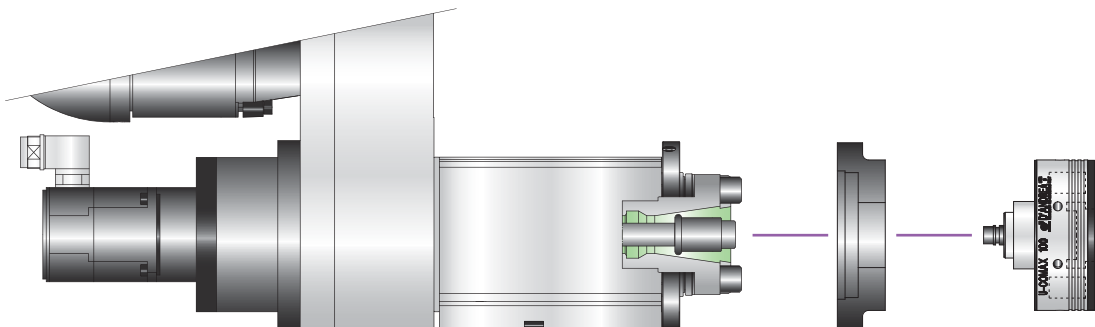
**BB** U-Comax boring and facing heads are axial command heads designed to be used on transfer machines, machining units, and special machinery. Even during rotation the feed control of the toolholder slide is commanded by a U-Drive drive unit, mounted behind the spindle and managed directly by the NC of the machine tool. U-Comax heads are used for inner facing, outer facing, back-facing, inner and outer turning operations, grooves, phonographic grooves, cylindrical and conical threading, conical and variable boring, concave and convex and spherical operations, corner rounding, through interpolation with the other the machine axes.

**RU** Расточные и торцовочные головки U-Comax – это головки с осевым контролем, предназначенные для использования на агрегатных и специальных станках. Управление подачей салазок с держателем инструмента во время вращения осуществляется с помощью привода U-Drive, установленного за шпинделем и управляемого непосредственно с ЧПУ станка. Головки U-Comax используются для операций внутренней, внешней и обратной торцовки, внешних внутренних токарных работ, канавок, фоновграфических фланцев, цилиндрических и конических резьб, конической, также переменной расточки, вогнутых и выпуклых радиусов, путем интерполяции с другими осями машины.

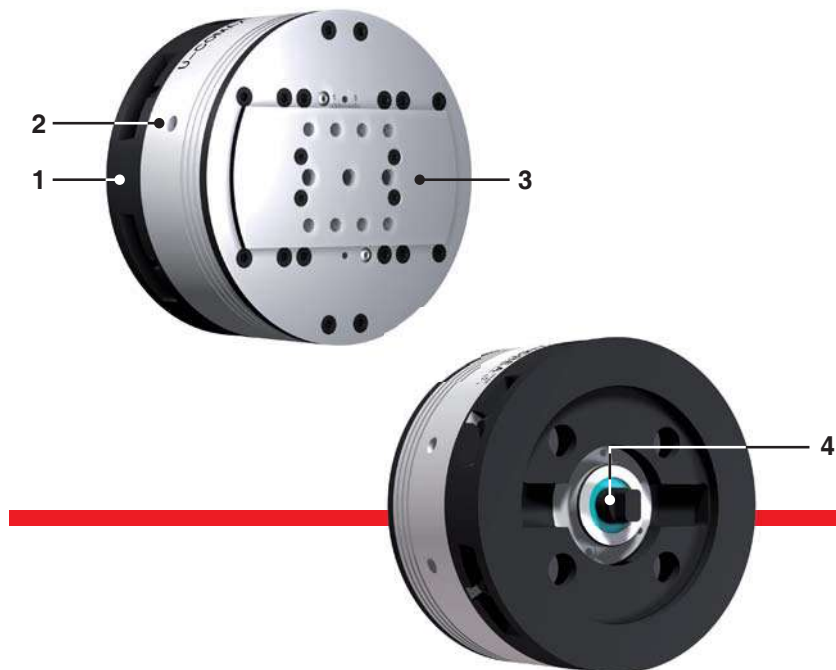
**PL** Głowice wytaczarskie typu U-Comax są głowicami sterowanymi osiowo, dedykowanymi do wykorzystania na urządzeniach typu transfer, jednostkach obróbczych lub maszynach specjalnych. Kontrola przesuwu sań narzędziowych w trakcie obróbki odbywa się z wykorzystaniem specjalnego napędu U-Drive zamontowanego z tyłu wrzeciennika. Sterownik U-Drive zarządzany jest bezpośrednio z układu sterowania obrabiarki. Głowice U-Comax mogą być wykorzystywane do wykonywania operacji toczenia wewnętrznego i zewnętrznego, wykonywania rowków, toczenia powierzchni wewnętrznych i zewnętrznych, kanałów, spiral fonograficznych, gwintowania cylindrycznego i stożkowego, wytaczania zmiennych powierzchni stożkowych, wykonywania wytoczeń promieni wklęsłych i wypukłych, wykonywania operacji sferycznych poprzez interpolację z pozostałymi osiami maszyny.

**CZ** Vyvrtávací hlavy a lícní desky U-Comax jsou osově řízené hlavy navržené pro použití na obráběcích strojích, obráběcích jednotkách a speciální strojích. I během rotace je ovládání posuvu šoupátka nástrojového držáku řízeno hnací jednotkou U-Drive namontovanou ze vřetenem a řízenou přímo NC obráběcího stroje. Hlavy U-Comax se používají pro čelní soustružení vnitřních povrchů, čelní soustružení vnějších povrchů, zpětné čelní soustružení, obrábění operace vnitřních a vnějších povrchů, drážkování, kónického a proměnného vyvrtávání, konkávní, konvexní a sférické operace, zaoblování rohů pomocí interpolace s ostatními osami stroje.

**TR** U-Comax delik açma ve diş yüzey hazırlama kafaları, aktarma makinelerinde, işleme ünitelerinde ve özel makinelerde kullanılmak üzere tasarlanmış eksenel komut kafalarıdır. Dönüş sırasında bile, takım tutucu kazağının besleme kontrolü, milin gerisine monte edilmiş ve doğrudan işleme takımının NC'si tarafından yönetilen U-Drive tahrik ünitesi tarafından komuta edilir. U-Comax kafaları iç/dış yüzey hazırlama, arka yüzey hazırlama, iç/dış tornalama, yiv açma, fonografik yiv açma, silindirik ve konik diş açma, konik ve değişken delik açma, konkav/konveks (içbükey/dışbükey) ve küresel işlemler, köşe yuvarlama işlerinde kullanılır (diğer makinenin akslarıyla ara kutulanarak).



- Adapter flange to the machine
  - Переходный фланец
  - Kołnierz dostosowujący do maszyny
  - Příruba adaptéru na stroji
  - Makineye giden adaptör flanşı
- Rotating body
  - Вращающийся корпус
  - Korpus obrotowy
  - Rotující díl
  - Döner gövde
- Toolholder slide
  - Салазки резцедержателя
  - Sanie narzędziowe
  - Šoupátko nástrojového držáku
  - Takım tutucu kazağı
- Drive shaft
  - Трансмиссионный вал
  - Wał napędowy
  - Hřídel pohonu
  - Tahrik mili



**GB** The U-Drive drive unit for U-Comax heads is mounted behind the spindle of the machine. It is controlled by an axis of the numerical control and mechanically connected to the U-Comax head drive with a transmission shaft that crosses the spindle of the machine. The U-Drive drive unit can be configured in various ways depending on the required application and the design of the machine.

**RU** Привод U-Drive для головок U-Comax устанавливается за шпинделем станка, управляется осью с ЧПУ и механически подсоединен к приводу головок U-Comax с трансмиссионным валом, который пересекает шпиндель станка. Привод U-Drive может принимать различные конфигурации в зависимости от назначения и конструкции станка.

**PL** Układ napędowy U-DRIVE dla głowic U-Comax instalowany jest w tylnej części wrzeciennika i sterowany jest przez oś sterownika numerycznego. Ponadto jest mechanicznie podłączony do napędu głowic U-Comax poprzez wał przechodzący przez wrzeciono obrabiarki. Układ napędowy U-DRIVE może występować w różnych konfiguracjach w zależności od aplikacji i struktury maszyny.

**CZ** Hnací jednotka U-Drive pro hlavy U-Comax je namontována za vřetenem stroje. Je ovládána osou numerického řízení a je mechanicky připojena na hnací jednotku U-Comax pomocí převodové hřídele, která kříží vřeteno stroje. Hnací jednotka U-Drive může být konfigurována různými způsoby v závislosti na požadovaném použití a konstrukci stroje.

**TR** U-Comax kafaları için kullanılan U-Drive tahrik ünitesi, makine milinin arkasına monte edilir. Ünite, makine milinden geçen bir aktarma mili aracılığıyla U-Comax kafası düzenine mekanik olarak bağlanmıştır ve nümerik kontrolün ekseninden kumanda edilir. U-Drive tahrik ünitesi, makine tasarımına ve gerekli olan uygulamaya bağlı olarak pek çok farklı şekilde konfigüre edilebilir.



U-COMAX



U-DRIVE



- APPLICATION
- ПРИМЕНЕНИЕ
- APLIKACJA
- POUŽITÍ
- UYGULAMA

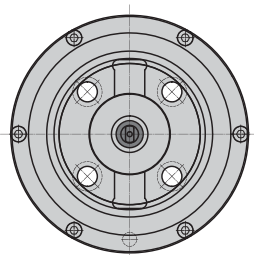
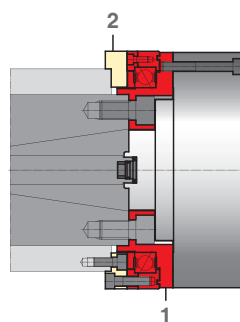
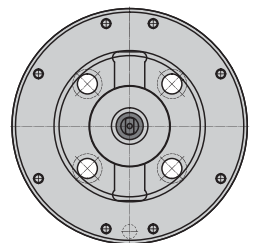
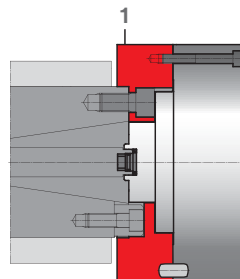
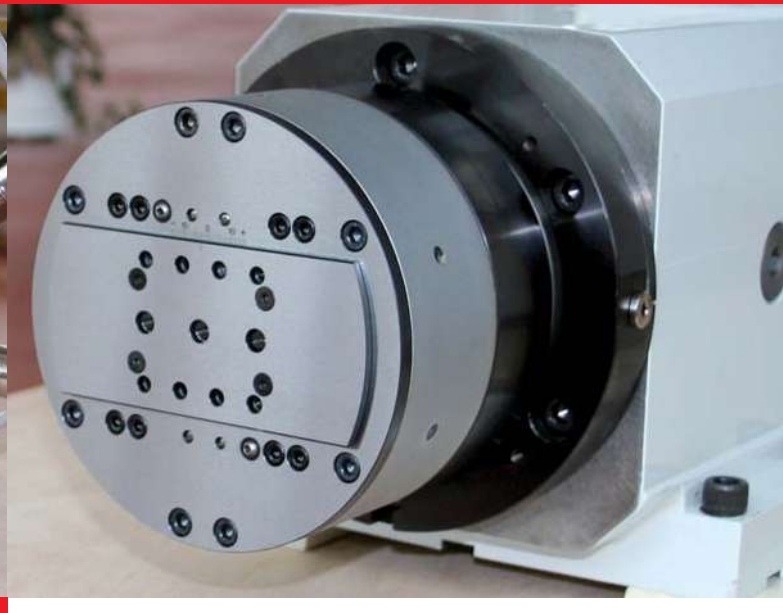
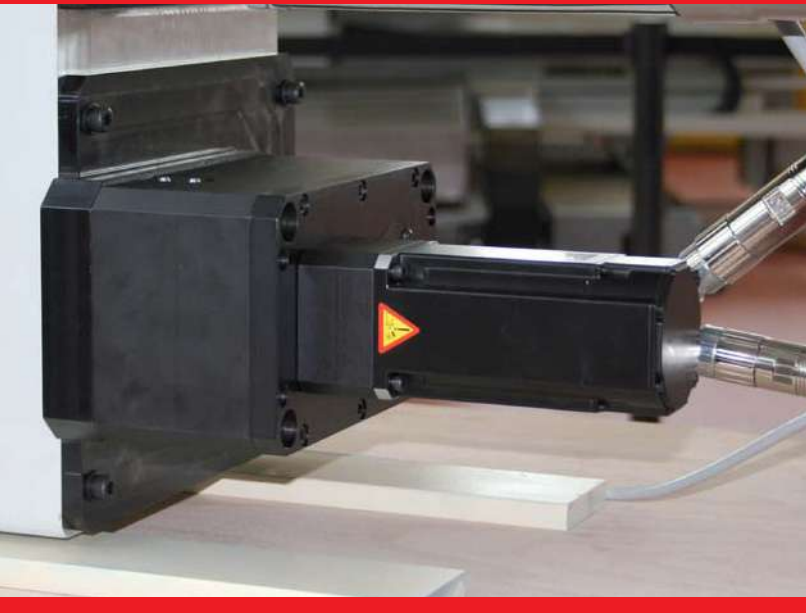
**GB** U-COMAX is installed on the machine by a flange (1) and where required with a connection (2) ring. The flange and connection ring type to use depend on the model of the machine and can be easily constructed by the Customer or provided by D'Andrea.

**RU** Головки U-Comax устанавливаются на станке с помощью фланца (1) и, при необходимости, с применением соединительного кольца (2). Тип используемого фланца и соединительного кольца зависит от модели станка и могут быть легко построены заказчиком или поставлены компанией D'Andrea.

**PL** Głowice U-COMAX montowane są na maszynie przy użyciu kołnierza (1) oraz, jeśli to konieczne, pierścienia łączącego (2). Rodzaj kołnierza i pierścienia zależą od modelu maszyny i mogą być z łatwością skonstruowane przez Klienta lub dostarczone przez firmę D'Andrea.

**CZ** U-COMAX je instalován na stroji pomocí příruby (1) a podle potřeby spojovacím kroužkem (2). Typ použité příruby a spojovacího kroužku závisí na modelu stroje a zákazník si je může snadno vyrobit nebo je může dodat společnost D'Andrea..

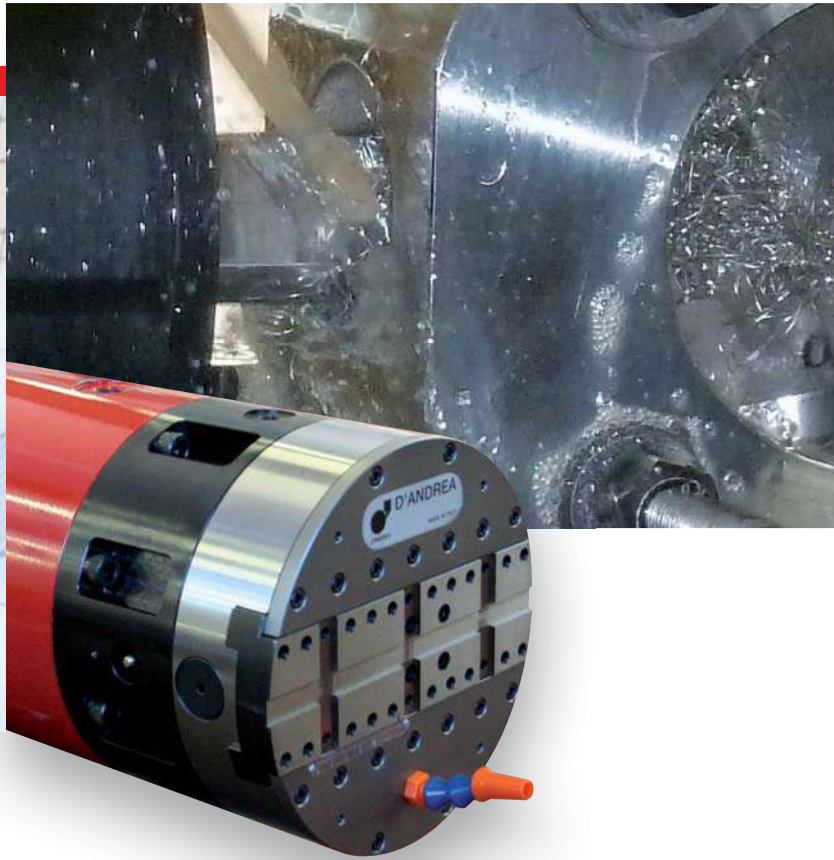
**TR** U-COMAX, bir flanş (1) ve gereken durumlarda bir bağlantı halkası (2) aracılığıyla makinenin üzerine takılır. Kullanılacak flanş ve bağlantı halkası makinenin modeline göre değişir ve D'Andrea tarafından tedarik edilebileceği gibi Müşteri tarafından da kolayca oluşturulabilir.



# D'ANDREA

## U-COMAX

- BALANCING AND COOLANT SUPPLY
- БАЛАНСИРОВКА И ПОДВОД СОЖ
- WYRÓWNOWAŻANIE I DOPROWADZANIE CIECZY CHŁODZĄCEJ
- VYVAŽOVÁNÍ A PŘÍVOD CHLADICÍ KAPALINY
- DENGELME VE SOĞUTMA SIVISI BESLEMESİ



**GB** U-COMAX heads are designed with two counter-weights for automatic balancing, which move opposite to the slide making it possible to machine at a higher number of rpm without noticeable oscillations.

**RU** Привод U-Drive для головок U-Comax устанавливается за шпинделем станка, управляется осью с ЧПУ и механически подсоединен к приводу головок U-Comax с трансмиссионным валом, который пересекает шпиндель станка. Привод U-Drive может принимать различные конфигурации в зависимости от назначения и конструкции станка.

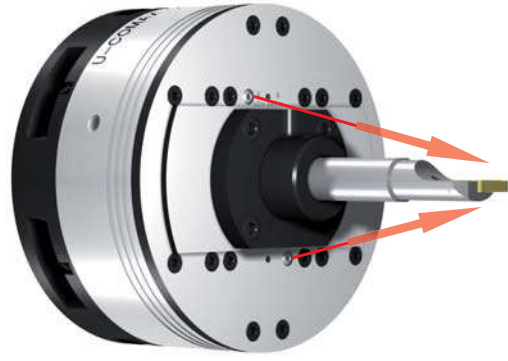
**PL** Układ napędowy U-DRIVE dla głowic U-Comax instalowany jest w tylnej części wrzecienika i sterowany jest przez oś sterownika numerycznego. Ponadto jest mechanicznie podłączony do napędu głowic U-Comax poprzez wał przechodzący przez wrzeciono obrabiarki. Układ napędowy U-DRIVE może występować w różnych konfiguracjach w zależności od aplikacji i struktury maszyny.

**CZ** Hlavy U-COMAX jsou navrženy se dvěma protizávažími pro automatické vyvažování, která se pohybují opačně vůči šoupátku, což umožňuje obrábět při vyšším počtu otáček za minutu bez zaznamenaných oscilací.

**TR** U-COMAX kafaları, kazağa karşı hareket ederek hissedilir bir osilasyon olmaksızın daha yüksek devirlerde işleme yapılabilmesini mümkün kılan otomatik dengeleme için iki adet karşı ağırlıkla donatılmıştır.







**GB** Internal grooves that allow coolant to pass through from the machine spindle to two adjustable nozzles located next to the slide are provided inside U-COMAX rotating body. This noteworthy advantage ensures longer duration of the insert, quicker cutting speed and the obtainment of good surface finishes. The centralized supply of coolant does not harm the U-COMAX whose inner labyrinths are protected by an o-ring. It is advisable not to exceed a pressure of 40 BAR. U-COMAX heads are designed for automatic lubrication with oil sprayed on the slide guiding rails and lead screw.

**RU** Внутри вращающегося тела U-COMAX предусмотрены канавки, позволяющие прохождение СОЖ от шпинделя станка до двух регулируемых сопел, расположенных рядом с салазками. Это значительное преимущество обеспечивает длительный срок службы пластин, большую скорость резания и получения поверхностной отделки хорошего качества. Централизованный подвод жидкого хладагента не вредит U-COMAX, внутренние лабиринты которого находятся под защитой уплотнительного кольца. Не рекомендуется превышать 40 бар давления. В головках U-COMAX предусмотрена смазка распыленным маслом направляющих скольжения и ходового винта.

**PL** Wewnątrz korpusu obrotowego U-COMAX znajdują się kanały umożliwiające przepływ cieczy chłodzącej od wrzeciona maszyny, aż do nastawnych dysz umieszczonych obok sań narzędziowych. Zastosowanie tej metody chłodzenia umożliwia uzyskanie wyższej żywotności narzędzia, zwiększenie prędkości skrawania i uzyskanie dobrych jakościowo powierzchni po obróbce. Scentralizowane doprowadzanie cieczy chłodzącej nie niszczy głowicy U-Comax, której labirynty wewnętrzne chronione są przez wykorzystanie odpowiednich pierścieni uszczelniających. Zaleca się, aby ciśnienie chłodziwa nie przekraczało wartości 40 BAR. Głowice typu U-Comax są zaprojektowane z automatycznym smarowaniem (przy użyciu rozpylonego oleju) prowadnic ślizgowych oraz śruby pociągowej.

**CZ** Uvnitř rotujícího těla U-COMAX jsou vnitřní drážky umožňující průchod chladicí kapaliny z vřetena stroje do dvou nastavitelných trysek umístěných vedle šoupátka. Tato pozoruhodná přednost zajišťuje delší životnost vložky, větší rychlost frézování a docílení dobré povrchové úpravy. Centralizovaný přívod chladicí kapaliny nepůsobí poškození U-COMAX, jehož vnitřní kanály jsou chráněny o-kroužkem. Je žádoucí nepřekračovat tlak 40 BARů. Hlavy U-Comax jsou navrženy pro automatické mazání olejem rozstřikovaným na vodící kolejničky šoupátka a vodící šroub.

**TR** Soğutma sıvısının makineden geçerek kızağın yanındaki ayarlanabilir iki nozula ulaşmasını sağlayan iç yivler, U-COMAX döner gövdesinin içindedir. Bu önemli özellik, ek parçanın daha uzun süre kullanılabilmesini, kesme hızının artırılmasını ve daha iyi yüzey bitirme sonuçlarının elde edilmesini sağlar. Merkezi soğutma sıvısı beslemesi, O-halka ile korunan U-COMAX iç sızdırmazlık elemanlarına zarar vermez. 40 BAR basıncın üzerine çıkılmaması önerilir. U-Comax kafaları, kızağın kılavuz rayları ve vida açma mili üzerine yağ püskürtülerek otomatik yağlanır.

- SUPPLY
- ПОСТАВКА
- DOSTAWA
- PŘÍVOD
- BESLEME

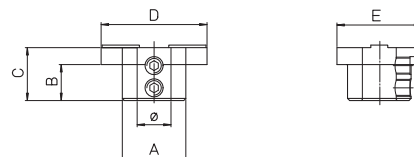


**K02**

| REF.        | CODE         |
|-------------|--------------|
| K02 CMX 100 | 500510010001 |
| K02 CMX 125 | 500512510001 |
| K02 CMX 160 | 500516010001 |
| K02 CMX 200 | 500520010001 |



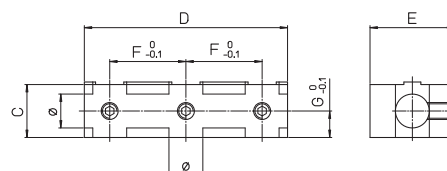
**P 120**



|         | REF. | CODE         | ØH7 | A  | B  | C  | D    | E    | Kg.  |
|---------|------|--------------|-----|----|----|----|------|------|------|
| CMX 100 | P120 | 431550160260 | 16  | 30 | 17 | 25 | 40   | 37.5 | 0.15 |
| CMX 125 |      | 431550160261 |     |    | 16 |    | 48.5 | 46   | 0.2  |
| CMX 160 |      | 431550250390 | 25  | 47 | 36 | 38 | 61   | 58   | 0.55 |
| CMX 200 |      | 431550250391 |     | 56 | 24 |    | 76   | 72   | 0.9  |



**P 130**

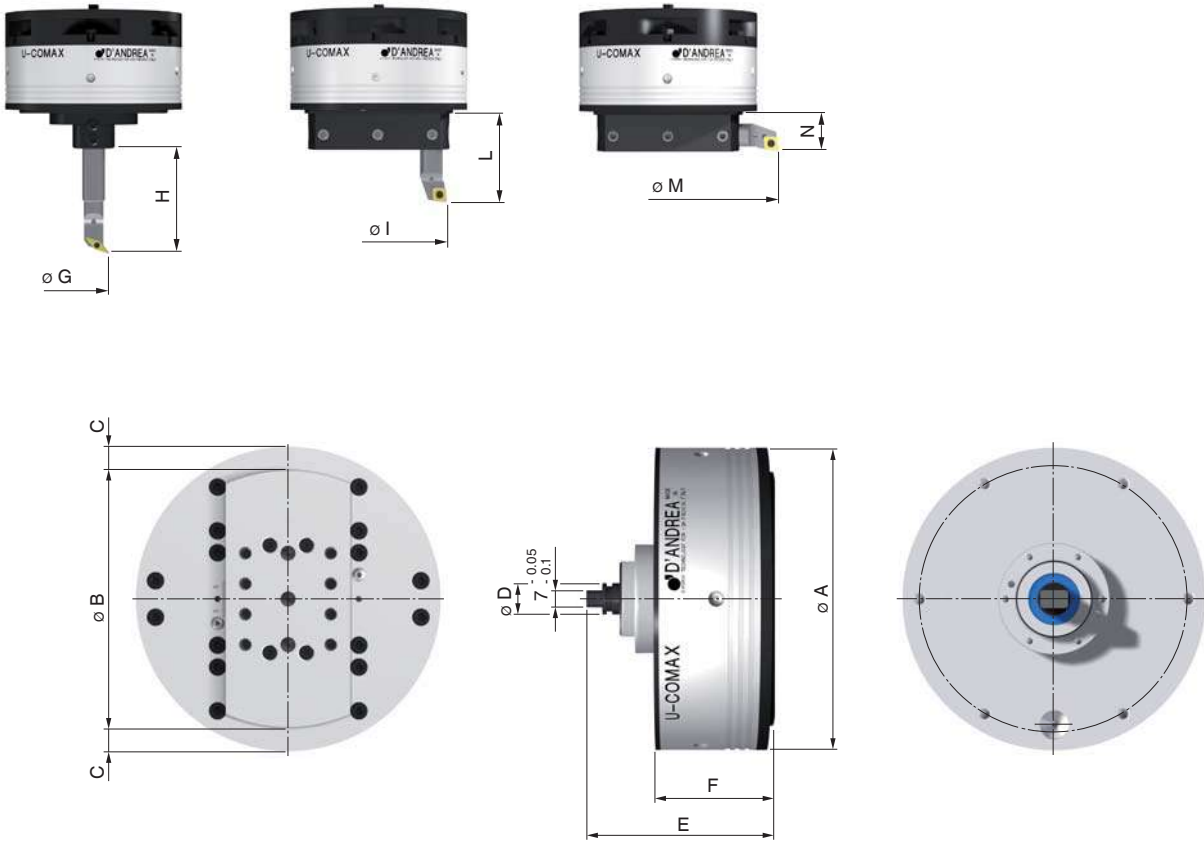
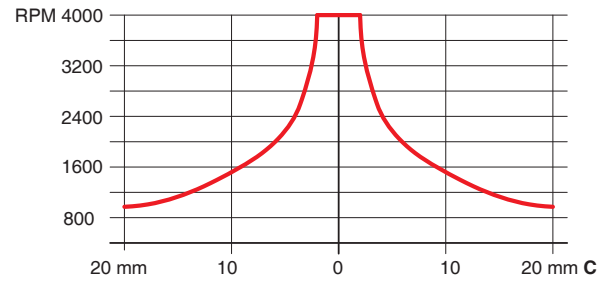


|         | REF. | CODE         | ØH7 | C  | Ø D | E    | F  | G    | Kg.  |
|---------|------|--------------|-----|----|-----|------|----|------|------|
| CMX 100 | P130 | 433037250650 | 16  | 25 | 65  | 37.5 | 22 | 10.5 | 0.25 |
| CMX 125 |      | 433046250810 |     |    | 81  | 46   | 30 |      | 0.45 |
| CMX 160 |      | 433058381030 | 25  | 38 | 103 | 58   | 35 | 16.5 | 0.9  |
| CMX 200 |      | 433072381330 |     |    | 133 | 72   | 50 |      | 1.7  |



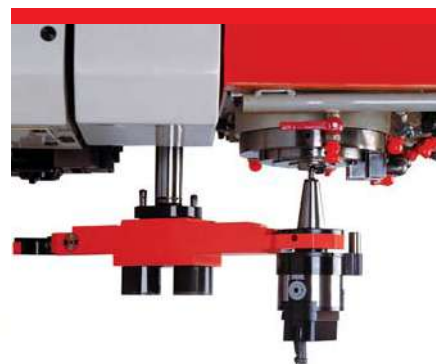
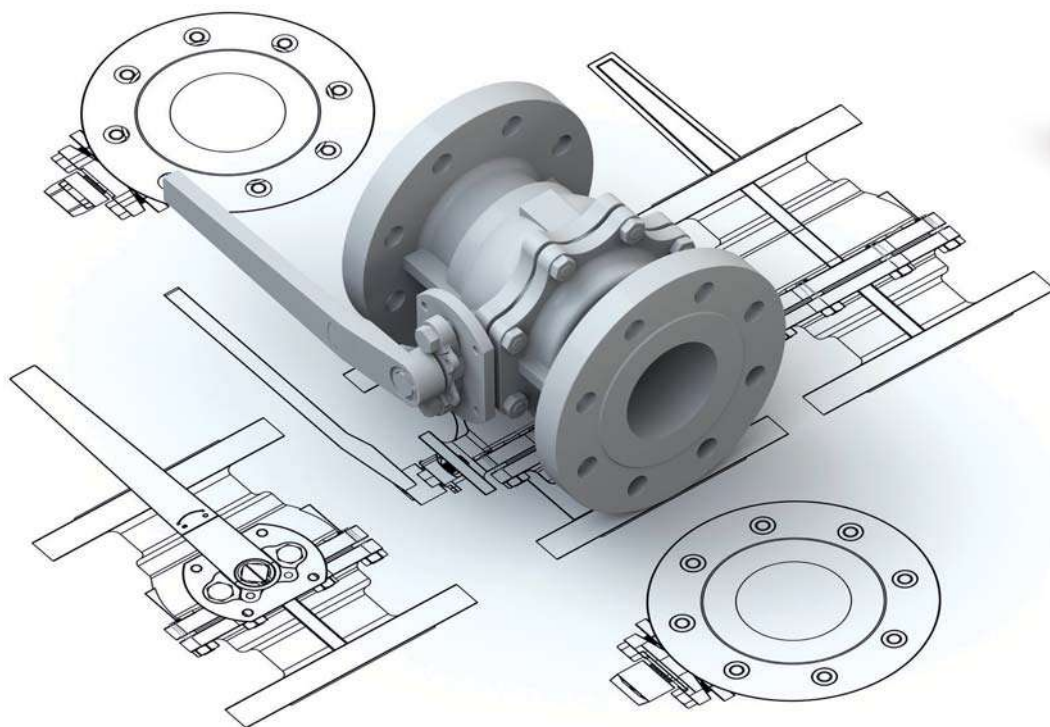


• TECHNICAL DATA  
 • ТЕХНИЧЕСКИЕ ДАННЫЕ  
 • DANE TECHNICZNE  
 • TECHNICKÁ DATA  
 • TEKNİK VERİLER



|                                                                                                                  |        | CMX 100                        | CMX 125   | CMX 160                        | CMX 200   |
|------------------------------------------------------------------------------------------------------------------|--------|--------------------------------|-----------|--------------------------------|-----------|
| Ø A                                                                                                              | mm     | 100.5                          | 125       | 160                            | 200       |
| Ø B                                                                                                              | mm     | 83                             | 105       | 128                            | 167       |
| C<br>• radial traverse • Радиальный поперечина • Promieniowy przecinać<br>• paprskovité krížení • Radyal travers | mm     | ± 9                            | ± 12      | ± 16                           | ± 20      |
| Ø D                                                                                                              | mm     | 13 <sup>- 0.01</sup><br>- 0.02 |           | 15 <sup>- 0.01</sup><br>- 0.02 |           |
| E                                                                                                                | mm     | 86.5                           |           | 109.5                          |           |
| F                                                                                                                | mm     | 52.5                           |           | 69                             | 68        |
| Ø G                                                                                                              | mm     | 10 ~ 62                        | 10 ~ 72   | 20 ~ 81                        | 20 ~ 109  |
| H                                                                                                                | mm     | 60                             | 75        | 100                            | 125       |
| Ø I                                                                                                              | mm     | 62 ~ 102                       | 72 ~ 122  | 81 ~ 131                       | 103 ~ 203 |
| L                                                                                                                | mm     | 80                             | 100       | 125                            | 160       |
| Ø M                                                                                                              | mm     | 122 ~ 160                      | 122 ~ 200 | 131 ~ 250                      | 203 ~ 320 |
| N                                                                                                                | mm     | 25.5                           |           | 38.5                           |           |
| Max. mm/min                                                                                                      | mm/min | 1 ÷ 500                        |           |                                |           |
| Max. Ʌ/min                                                                                                       | RPM    | 4000                           | 3600      | 3200                           | 2800      |
| • Weight • Вес<br>• Ciężar • Hmotnost • Ağırlık                                                                  | Kg     | 2.4                            | 3.2       | 9.8                            | 11.5      |
| • Radial force • Радиальная сила • Siła radialna<br>• Radiální síla • Radyal kuvvet                              | daN    | 150                            |           | 250                            |           |
| • Torque • Вращающий момент • Moment skřęcający<br>• Kroučicí moment • Tork                                      | Nm     | 400                            |           | 800                            |           |

- GENERAL FEATURES
- ОБЩИЕ ХАРАКТЕРИСТИКИ
- DANE OGÓLNE
- OBECNÉ VLASTNOSTI
- GENEL ÖZELLİKLER



**GB** Facing heads with automatic feed and quick return of the slide without stopping or reversing the spindle of the machine tool. Available in 4 models: AR 100, AR 125, AR 160 and 200; they have got a feed and quick return. To change the feed, some interchangeable, optional, gear blocks are available, for feeds in mm/rev. of: 0.05; 0.10; 0.20; 0.30; 0.40; 0.60 and a quick return of 0.08 mm/rev. The interchangeable arbor uses the same locking system used in the MHD' modular system. A simple attachment of the toolholders to the slide favours the manufacturing of special toolholders.

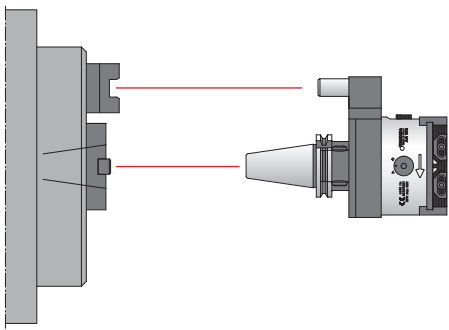
**RU** Торцовочные головки с автоматической подачей и быстрым возвратом салазок без остановки или инверсии шпинделя станка. Изготовленные в 4 моделях: AR 100, AR 125, AR 160 и AR200; они снабжены подачей и быстрым возвратом. Для варьирования подачи предусмотрены взаимозаменяемые блоки передач, опциональные, для подач в мм/об: 0,05; 0,10; 0,20; 0,30; 0,40; 0,60 и быстрое возвращение 0,80 мм/об. Взаимозаменяемый конус использует то же крепление, что и модульная система MHD'. Простое крепление держателя к салазкам упрощает создание специальных держателей.

**PL** Głowice wytaczarskie z posuwem automatycznym i szybkim powrotem sań narzędziowych, nie wymagające do zakończenia operacji wyłączenia obrotów, bądź zmiany kierunku obrotów wrzeciona. Wykonywane w cztery wielkościach: AR100, AR125, AR160, AR200 z szybkim posuwem i ruchem powrotnym. Posiadają specjalne przekładnie zębate (opcjonalne), zmieniające obroty wrzeciona w ruch posuwowy o wartości 0.05; 0.10; 0.20; 0.30; 0.40 i 0.60mm/obrót i szybki ruch powrotny o wartości 0.80mm/obrót. Stożek wymienny umożliwia wykorzystanie tego samego złącza co system modułowy MHD'. Bardzo prosty sposób mocowania oprawek narzędziowych do sań umożliwia wykorzystanie oprawek specjalnych/zadaniowych.

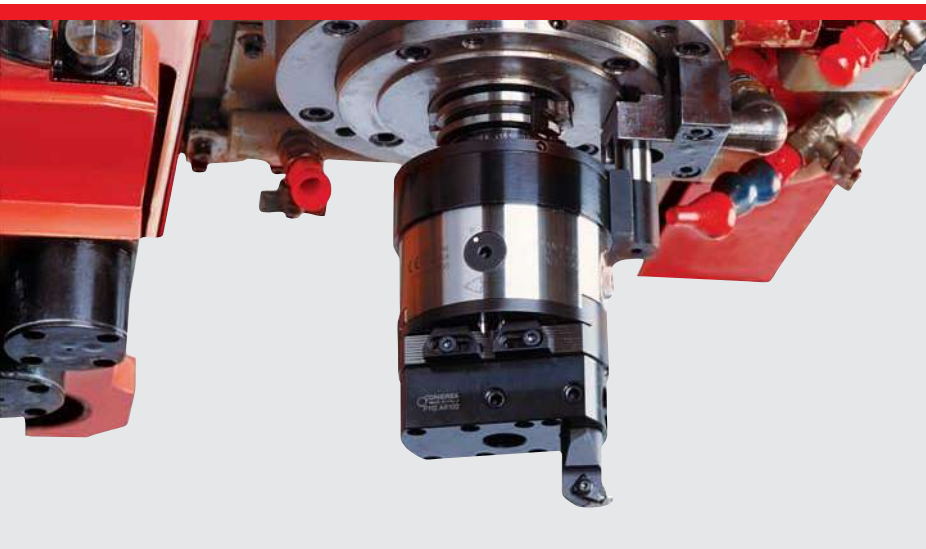
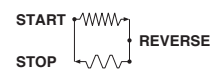
**CZ** Lícni desky s automatickým posuvem a rychlým návratem šoupátka bez zastavení či obrácení vřetena obráběcího stroje. Jsou k dispozici ve 4 modelech: AR 100, AR 125, AR 160 a AR 200; mají posuv a rychlý návrat. Pro změnu posuvu jsou k dispozici vyměnitelné, volitelné převodové bloky pro posuvy v mm/ot.: 0,05; 0,10; 0,20; 0,30; 0,40; 0,60 a rychlý návrat 0,08 mm/ot. Vyměnitelné vřeteno používá tentýž blokový systém jako je používán v modulárním systému MHD. Jednoduché připevnění nástrojových držáků k šoupátku napomáhá výrobě speciálních nástrojových držáků.

**TR** İşleme takımı milinin durmasına veya ters dönmesine neden olmadan kazağın hızla geri dönmelerini sağlayan ve otomatik besleme sunan dış yüzey hazırlama kafaları. 4 model olarak mevcuttur: AR 100, AR 125, AR 160 ve AR 200; her biri otomatik besleme ve hızlı geri dönüş özelliğine sahiptir. 0,05; 0,10; 0,30; 0,20; 0,40; 0,60 mm/dev'deki beslemeler ve 0,08 mm/dev'de hızlı geri dönüşler için, beslemenin değiştirilmesinde kullanılan ve bazıları birbirleriyle değiştirilebilen, isteğe bağlı takım blokları mevcuttur. Birbirleriyle değiştirilebilen malafalar, MHD' modüler sistemde kullanılarak aynı kilitleme sistemini kullanırlar. Takım tutucuların kazağa kolay bir şekilde sabitlenebilmesi, özel takım tutucuların üretilmesini kolaylaştırır.





*For automatic facing*



**GB** The AUTORADIAL heads are applicable on machining centres and on N.C. machines and, without the need of any electronic interface, they can execute automatically a working cycle of: facing, backfacing, internal or external grooving for spring washers and O-rings, record spiral cutting on flanges. The cycle is composed of the working feed and of the quick return of the slide without ever stopping or reversing the rotation of the spindle. To reset the cycle, merely reverse the spindle rotation for a few revolutions.

**RU** AUTORADIAL применяются в обрабатывающих центрах и станках с числовым управлением, не требуют электронного интерфейса или сервоуправления. Автоматически выполняют цикл торцевания, обратного торцевания, фоновграфический фланец, внутреннее или внешнее гнездо для стопорного кольца или уплотнительного кольца. Цикл включает автоматическую подачу и быстрый возврат салазок, без остановки или инверсии шпинделя станка. Восстановление цикла осуществляется путем простого изменения направления вращения шпинделя в течение нескольких оборотов.

**PL** Głowice AUTORADIAL wykorzystywane są na centrach obróbkowych oraz innych obrabiarkach sterowanych numerycznie, bez konieczności podłączania głowicy do interfejsu elektronicznego lub układu zamkniętego. Umożliwiają wykonywanie operacji automatycznego planowania, wykonywania rowków, obsadek wewnętrznych i zewnętrznych pod pierścienie elastyczne typu O-ring, wykonywania spirali fonograficznej na kołnierzach. Cykl pracy składa się z posuwu roboczego i szybkiego powrotu sań do położenia wyjściowego bez konieczności zatrzymania lub zmiany kierunku obrotów wrzeciona obrabiarki. Ponowne wykonanie kolejnego cyklu obróbkowego można rozpocząć wykonując kilka obrotów wrzeciona w przeciwnym kierunku.

**CZ** Hlavy AUTORADIAL se dají používat na obráběcích centrech a na NC strojích a, aniž by bylo potřebné elektronické rozhraní, mohou automaticky provádět pracovní cyklus: čelní soustružení, zpětné čelní soustružení, interní nebo externí drážkování pružných podložek a o-kroužků, spirálové řezání na přírubách. Cyklus sestává z pracovního posuvu a rychlého návratu šoupátka bez jakéhokoliv zastavování či zpětného chodu rotace vřetene. Pro resetování cyklu pouze na několik otáček obraťte rotaci vřetene.

**TR** AUTORADIAL kafalar N.C. makinelerinde ve işleme merkezilerinde kullanılır ve elektronik bir arayüze ihtiyaç olmaksızın şu işleri otomatik olarak yapabilirler: dış yüzey hazırlama, arka yüzey hazırlama, yay pulları ve O-halkalar için iç/dış yiv açma, flanşlarda spiral kesme kaydetme. İş döngüsü, milin dönüşü durdurulmadan veya yönü ters çevrilmeden kazağın hızlıca geri döndürülmesinden ve çalışma parçasının beslenmesinden oluşur. Döngünün sıfırlanması için, milin birkaç tur tersine doğru döndürülmesi yeterlidir.

- 1**
- Override (A), return (R)
  - Переключатель подачи (A), возврата (R)
  - Przełącznik posuwu (A), powrotu (R)
  - Přejezd (A), návrat (R)
  - Devre dışı bırakma (A), geri dönüş (R)

- 2**
- Limit blocks
  - Концевой ограничитель
  - Płytki ogranicznika
  - Limitní bloky
  - Limit bloklar

- 3**
- Control screw
  - Винт подачи
  - Śruba sterująca
  - Kontrolní šroub
  - Kontrol vidası

- 4**
- Check pin
  - Стопорный штифт
  - Sworzeń zatrzymujący
  - Kontrolní kolík
  - Kontrol pimi

- 5**
- Interchangeable feed block
  - Блок взаимозаменяемой подачи
  - Wymienne przekładnie posuwu
  - Vyměnitelný posuvný blok
  - Birbiriyle değiştirilebilir besleme bloğu

- 6**
- Tool slide
  - Салазки резцедержателя
  - Sanie narzędziowe
  - Šoupátko nástroje
  - Takım kazağı

- 7**
- Interchangeable arbor
  - Взаимозаменяемый конус
  - Wymienny stożek
  - Vyměnitelné vřeteno
  - Birbiriyle değiştirilebilir malafa

- 8**
- Drive flange
  - Фланец протяжки
  - Kołnierz przyciągający
  - Příruba pohonu
  - Tahrik flanşı

- 9**
- Rotating body
  - Вращающийся корпус
  - Korpus obrotowy
  - Rotující díl
  - Döner gövde



**• INSTRUCTIONS TO REPLACE THE FEED BLOCK**  
**• ИНСТРУКЦИЯ ПО ЗАМЕНЕ БЛОКА ПОДАЧИ**  
**• INSTRUKCJE DOTYCZĄCE WYMIANY PRZEKŁADNI POSUWU**  
**• POKYNY PRO VÝMĚNU POSUVNÉHO BLOKU**  
**• BESLEME BLOĞU DEĞİŞTİRME TALIMATLARI**

- a**
- Loosen the screw 1
  - Ослабить винты 1
  - Poluzować śruby 1
  - Povolte šroub 1
  - Vidayı 1 gevşetin

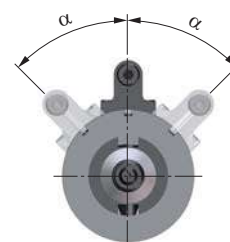
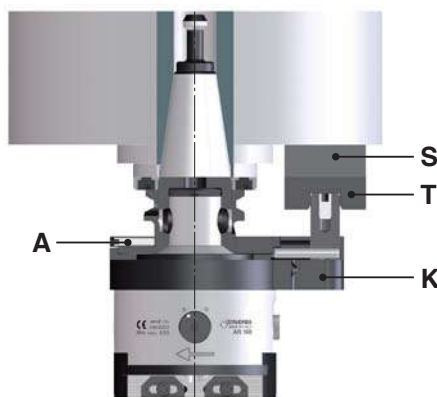
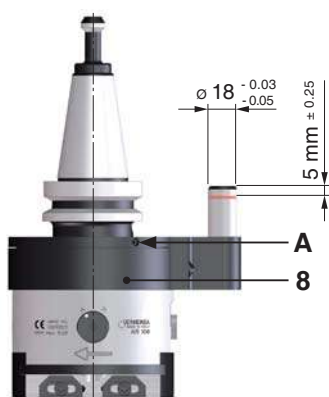
- b**
- Extract block 5
  - Удалить блок 5
  - Wyjąć przekładnię 5
  - Vyndejte blok 5
  - Bloğu 5 çıkarın

- c**
- Insert new block 5 lubricated with ISO-UNI XM2 grease
  - Поместить новый блок 5 смазанный маслом ISO-UNI типа XM2
  - Włożyć nową przekładnię 5, uprzednio nasmarowaną smarem ISO-UNI typu XM2
  - Vložte nový blok 5 namazaný mazivem ISO-UNI XM2
  - ISO-UNI XM2 gresle yağlanmış yeni bloğu 5 yerleştirin

- d**
- Lock screw 1
  - Затянуть винты 1
  - Dokręcić śruby 1
  - Utáhněte šroub 1
  - Vidayı 1 sıkıp kilitleyin







# • **ASSEMBLY** • **УСТАНОВКА** • **MONTAŻ** • **MONTÁŽ** • **MONTAJ**

**BB** In the AUTORADIAL the slide is moved forward by holding back the drive flange (8) while the spindle is rotating. The T-block supplied with the K-NC KIT (K) is to be applied to a fixed part around the spindle, observing the measurements indicated. If the stroke of the check pin is not  $5 \text{ mm} \pm 0.25$ , you must adjust the position of the T-block using the spacer S. The angle  $\alpha$  is freely adjustable by loosening the 3 screws (A), turning the flange (8) to the desired angle and tightening the screws (A).

**RU** В AUTORADIAL подача салазок осуществляется путем удержания фланца протяжки (8) во время вращения шпинделя. Вилка T входящая в комплект K-CN (K) устанавливается на фиксированной части вокруг шпинделя в соответствии с указанными квотами. В случае, если ход стопорного штифта не равен  $5 \text{ mm} \pm 0.25$ , то необходимо отрегулировать положение вкладыша T с помощью прокладки S. Регулирование Угла  $\alpha$  является свободным и достигается путем ослабления 3х винтов (A), поворота фланца (8) на нужный угол и ватянуть винты (A).

**PL** W głowicach AUTORADIAL posuw sań możliwy jest dzięki przeciąganiu (8) podczas ruchu obrotowego wrzeciona. Płytkę T dostarczona wraz z ZESTAWEM K-NC (K) nakładana jest na korpus stały wokół wrzeciona, zgodnie ze wskazanymi odległościami. W przypadku gdy posuw sworznia zatrzymującego nie wynosi  $5 \text{ mm} \pm 0.25$ , koniecznym jest wyregulowanie pozycji płytki T, posługując się w tym celu podkładką odległościową S. Regulacja kąta  $\alpha$  jest dowolna i możemy ją ustalić poprzez poluzowanie 3 śrub (A), obrócenie kołnierza (8) w taki sposób, by uzyskać żądany kąt oraz ponownie dokręcenie śrub (A).

**CZ** U hlav AUTORADIAL se šoupátko posune vpřed pomocí držení příruby pohonu (8), přičemž vřeteno rotuje. Blok T-block dodaný se sadou K-NC KIT (K) je třeba dát na pevnou část kolem vřetena při zachování indikovaných měr. Pokud zdvih kontrolního pinu není  $5 \text{ mm} \pm 0.25$ , musíte nastavit polohu T-bloku pomocí rozpěry S. Úhel  $\alpha$  je volně nastavitelný povolením 3 šroubů (A), otočením příruby (8) do požadovaného úhlu a utažením šroubů (A).

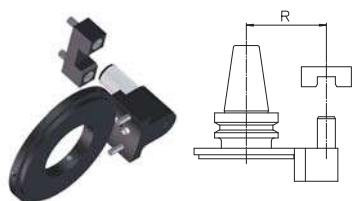
**TR** AUTORADIAL'da, mil dönerken tahrik flanşı (8) tutularak kızak ileri hareket ettirilir. K-NC KİTİ (K) ile verilen T-bloğu, belirtilen ölçüm değerlerine uyularak milin etrafındaki bir sabit parçaya uygulanacaktır. Kontrol piminin hareketi  $5 \text{ mm} \pm 0.25$  değilse, S ara parçasını kullanarak T-bloğunun konumunu ayarlamamız gerekir.  $\alpha$  açısı, 3 vida (A) gevşetilir flanş (8) döndürülerek istenen açığa ayarlanabilir ve ayardan sonra vidalar (A) tekrar sıkılır.

K02



| REF.                | F<br>mm/° | CODE         |              |              |              |
|---------------------|-----------|--------------|--------------|--------------|--------------|
|                     |           | K02 AR 100   | K02 AR 125   | K02 AR 160   | K02 AR 200   |
| K02 AR... - F. 0.05 | 0.05      | 500610020050 | 500612520050 | 500616020050 | 500620020050 |
| K02 AR... - F. 0.1  | 0.1       | 500610020100 | 500612520100 | 500616020100 | 500620020100 |
| K02 AR... - F. 0.2  | 0.2       | 500610020200 | 500612520200 | 500616020200 | 500620020200 |
| K02 AR... - F. 0.3  | 0.3       | 500610020300 | 500612520300 | 500616020300 | 500620020300 |
| K02 AR... - F. 0.4  | 0.4       | 500610020400 | 500612520400 | 500616020400 | 500620020400 |
| K02 AR... - F. 0.5  | 0.5       | 500610020500 | 500612520500 | 500616020500 | 500620020500 |
| K02 AR... - F. 0.6  | 0.6       | 500610020600 | 500612520600 | 500616020600 | 500620020600 |

K-NC



| REF.               | CODE         |              |              |
|--------------------|--------------|--------------|--------------|
|                    | R.65         | R.80         | R.110        |
| K-NC R... - AR 100 | 394110006502 | 394110008002 | -            |
| K-NC R... - AR 125 | -            | 394112508002 | 394112511002 |
| K-NC R... - AR 160 |              | 394116008002 | 394116011003 |
| K-NC R... - AR 200 |              |              |              |

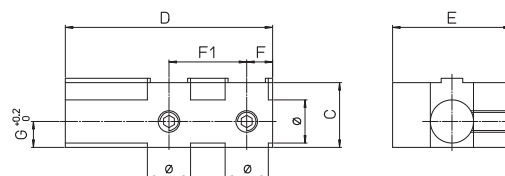
• Complete range of cones on page 17 • Полная гамма конусов на стр.17 • Kompletna gama stożków na str. 17  
• Kompletní řada kuželů na straně 11 • Sf.17'deki tüm koni ürünleri

MHD'



| REF.   | MHD' |
|--------|------|
| AR 100 | 50   |
| AR 125 | 63   |
| AR 160 | 80   |
| AR 200 |      |

P 110



| REF.           | CODE         | ØH7 | C  | D   | E  | F  | F1   | G  | Kg. |
|----------------|--------------|-----|----|-----|----|----|------|----|-----|
| AR 100 - P 110 | 433050300960 | 20  | 30 | 96  | 50 | 12 | 36   | 12 | 0.7 |
| AR 125 - P 110 | 433056381200 | 25  | 39 | 121 | 56 | 15 | 45.5 | 16 | 1.3 |
| AR 160 - P 110 | 433063481600 | 32  | 49 | 164 | 63 | 19 | 63   | 21 | 2.5 |
| AR 200 - P 110 |              |     |    |     |    |    |      |    |     |

• Interchangeable feeds • Взаимозаменяемая подача • Posuw zmienny  
• Vyměnitelné podavače • Birbiriyle değiştirilebilir besleme materyalleri

F...

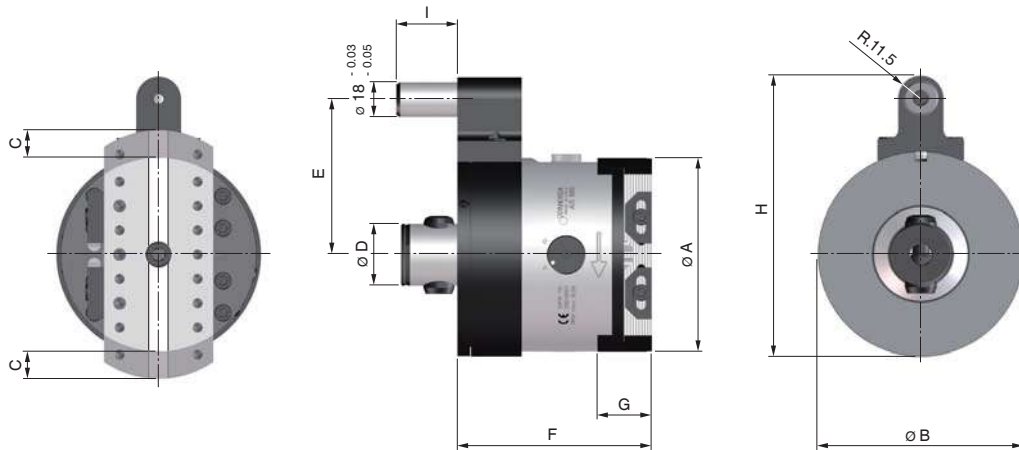
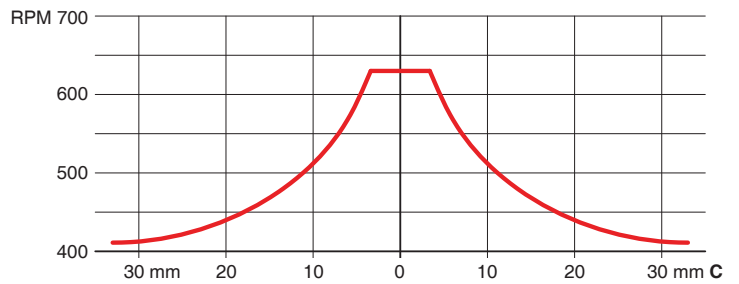
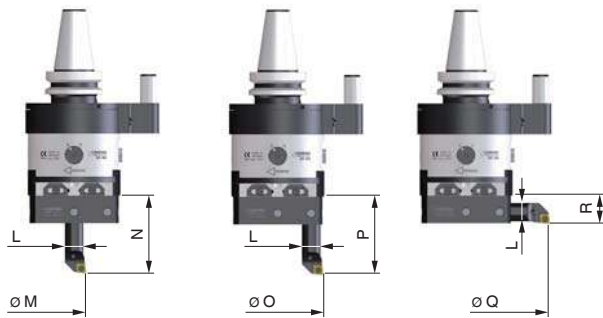


| REF.            | F<br>mm/° | CODE         |              |              |            |
|-----------------|-----------|--------------|--------------|--------------|------------|
|                 |           | K02 AR 100   | K02 AR 125   | K02 AR 160   | K02 AR 200 |
| F. 0.05 - AR... | 0.05      | 382006005001 | 382006105001 | 382006205001 |            |
| F. 0.1 - AR...  | 0.1       | 382006010001 | 382006110001 | 382006210001 |            |
| F. 0.2 - AR...  | 0.2       | 382006020001 | 382006120001 | 382006220001 |            |
| F. 0.3 - AR...  | 0.3       | 382006030001 | 382006130001 | 382006230001 |            |
| F. 0.4 - AR...  | 0.4       | 382006040001 | 382006140001 | 382006240001 |            |
| F. 0.5 - AR...  | 0.5       | 382006050001 | 382006150001 | 382006250001 |            |
| F. 0.6 - AR...  | 0.6       | 382006060001 | 382006160001 | 382006260001 |            |





- TECHNICAL DATA
- ТЕХНИЧЕСКИЕ ДАННЫЕ
- DANE TECHNICZNE
- TECHNICKÁ DATA
- TEKNİK VERİLER



|                                                                                                                                                |      | AR 100                                   | AR 125                                   | AR 160                                   | AR 200        |
|------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------------------------|------------------------------------------|------------------------------------------|---------------|
| Ø A                                                                                                                                            | mm   | 100                                      | 125                                      | 160                                      | 200           |
| Ø B                                                                                                                                            | mm   | 105                                      | 130                                      |                                          |               |
| C<br>• radial traverse • Радиальный поперечина • Promieniowy przecinać<br>• paprskovité křížení • Radyal travers                               | mm   | ± 12.5                                   | ± 20                                     | ± 35                                     | ± 55          |
| Ø D                                                                                                                                            | mm   | (MHD'50) 32 <sup>-0.005<br/>-0.008</sup> | (MHD'63) 42 <sup>-0.005<br/>-0.008</sup> | (MHD'80) 42 <sup>-0.005<br/>-0.008</sup> |               |
| E                                                                                                                                              | mm   | 65/80                                    | 80/110                                   |                                          |               |
| F                                                                                                                                              | mm   | 100                                      | 110                                      | 125                                      |               |
| G                                                                                                                                              | mm   | 28                                       |                                          | 35                                       |               |
| H                                                                                                                                              | mm   | 128.5 / 143.5                            | 156.5 / 186.5                            | 171.5 / 201.5                            | 191.5 / 221.5 |
| I                                                                                                                                              | mm   | 31.5                                     | 39.5                                     | 45.5                                     |               |
| L                                                                                                                                              | mm   | 20                                       | 25                                       | 32                                       |               |
| Ø M                                                                                                                                            | mm   | 76                                       | 99                                       | 144                                      | 244           |
| N                                                                                                                                              | mm   | 125                                      | 160                                      | 200                                      |               |
| Ø O                                                                                                                                            | mm   | 148                                      | 190                                      | 270                                      | 370           |
| P                                                                                                                                              | mm   | 125                                      | 160                                      | 200                                      |               |
| Ø Q                                                                                                                                            | mm   | 250                                      | 320                                      | 400                                      | 500           |
| R                                                                                                                                              | mm   | 31                                       | 40                                       | 50                                       |               |
| Max. ̸/min                                                                                                                                     | RPM  | 630                                      | 500                                      | 400                                      |               |
| • Interchangeable feeds • Взаимозаменяемая подача • Posuw zmienny<br>• Výměnitelné podavače • Biribirile değıştirilebilir besleme materyalleri | mm/̸ | p. 300                                   |                                          |                                          |               |
| • Weight without the cone • Вес без конуса • Waga bez stożka<br>• Hmotnost bez kuzele • Konisiz ağırlık                                        | Kg   | 5.5                                      | 9                                        | 14                                       | 16            |
| • Quick return • Быстрый возврат • Szybki ruch powrotny<br>• Rychlý návrat • Hızlı geri dönüş                                                  | mm/̸ | 0.8                                      |                                          |                                          |               |

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*Enrico D'Andrea*



12/2017  
Cod. 181041001094

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Via Garbagnate 71 • 20020 Lainate (MI) Italy  
Tel. +39 02 937532.1 • Fax +39 02 93753240  
www.dandrea.com • info@dandrea.com

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**D'ANDREA SpA**

Via Garbagnate, 71 - 20020 Lainate (MI) Italy  
t. +39 02.937532.1 f. +39 02.93753240  
info@dandrea.com - [www.dandrea.com](http://www.dandrea.com)

