D'ANDREA®

TECHNOLOGY FOR HIGH PRECISION



HEADS

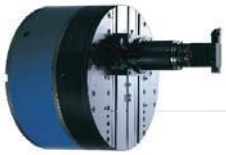
Boring and facing heads
Plandreh-und ausbohrköpfe
Cabezales de mandrinar y refrentar
Tetes a alesar et surface
Teste per alesare e sfacciare



10 TA-CENTER



20 TA-TRONIC



30 U-TRONIC



38 U-COMAX



46 AUTORADIAL

TOOLS

Toolholders
Werkzeugaufnahmen
Portaherramientas
Porte-outils
Portautensili



54 MODULHARD’ TR-PSC



178 MONOforce



184 TOPRUN



192 MONOd’



210 MONOd’ CT



224 MCD’

238 ACCESSORIES

246 TECHNICAL DATA

TA-CENTER

NC boring and facing heads with automatic balancing on machines with tool change.

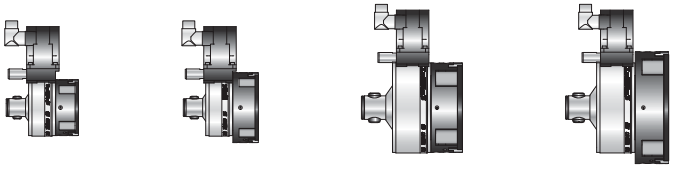
TA-C 80 Ø max 160 | TA-C 100 Ø max 200 | TA-C 125 Ø max 250 | TA-C 160 Ø max 320 | TA-C 200 Ø max 400



TA-TRONIC

NC boring and facing heads with automatic balancing.

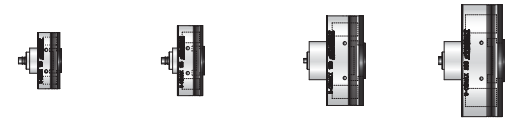
TA-T 100 Ø max 200 | TA-T 125 Ø max 250 | TA-T 160 Ø max 320 | TA-T 200 Ø max 400



U-COMAX

Axial control NC boring and facing heads on transfer machines.

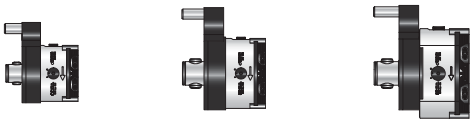
CMX 100 Ø max 160 | CMX 125 Ø max 200 | CMX 160 Ø max 250 | CMX 200 Ø max 320



AUTORADIAL

Heads with automatic feed and rapid return of the slide.

AR 100 Ø max 250 | AR 125 Ø max 320 | AR 160 Ø max 400



modulhard'andrea Modular Toolholder system

ARBORS

DIN 69893



DIN 69871



MAS403BT



ANSI/CAT



DIN 2080



PSC



KM



DIN 228/A 2207



DIN 228/B 1806



DIN 2079

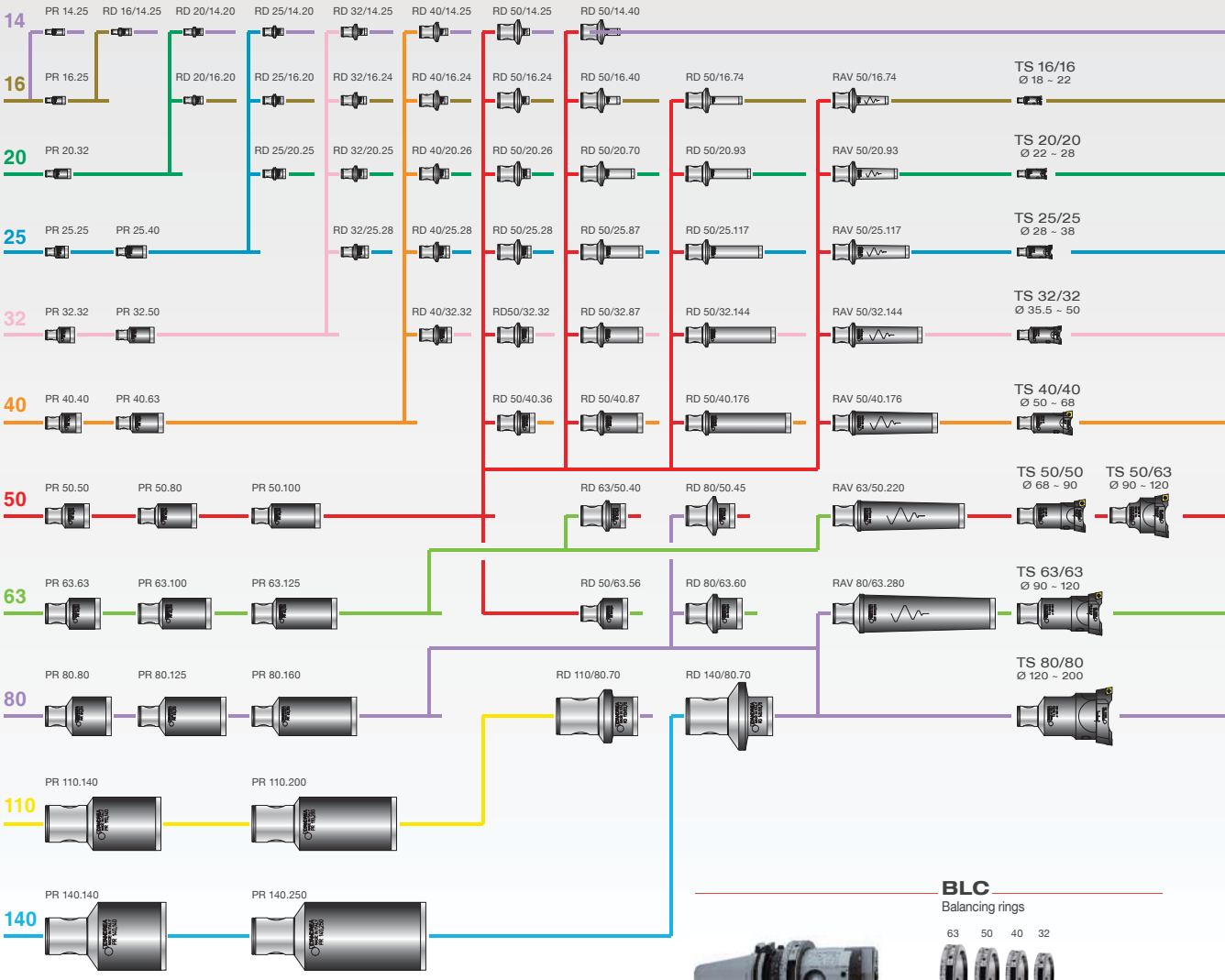


PR
Extensions

RD
Reductions

RAV
Vibration-damping reductions

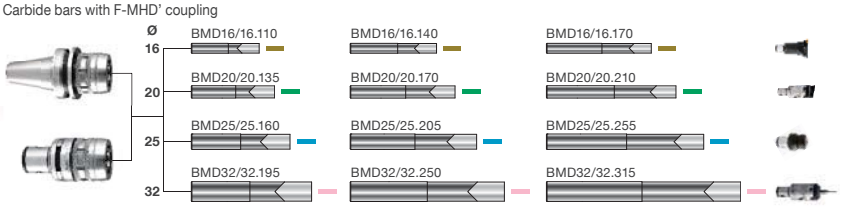
TS
Double-bit heads



BLC
Balancing rings



BMD
Carbide bars with F-MHD' coupling

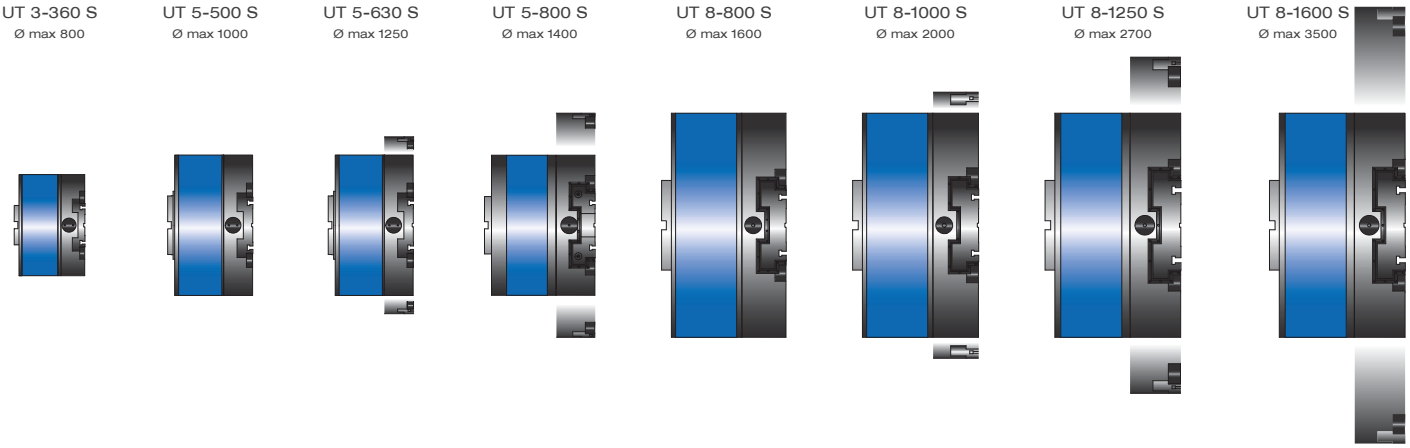


D'ANDREA® TECHNOLOGY FOR HIGH PRECISION

U-TRONIC

Medium and large sized NC boring and facing heads.

UT 3-360 S	UT 5-500 S	UT 5-630 S	UT 5-800 S	UT 8-800 S	UT 8-1000 S	UT 8-1250 S	UT 8-1600 S
Ø max 800	Ø max 1000	Ø max 1250	Ø max 1400	Ø max 1600	Ø max 2000	Ø max 2700	Ø max 3500



testarossad'andrea

TRD
Double-bit centesimal Testarossa for roughing and finishing

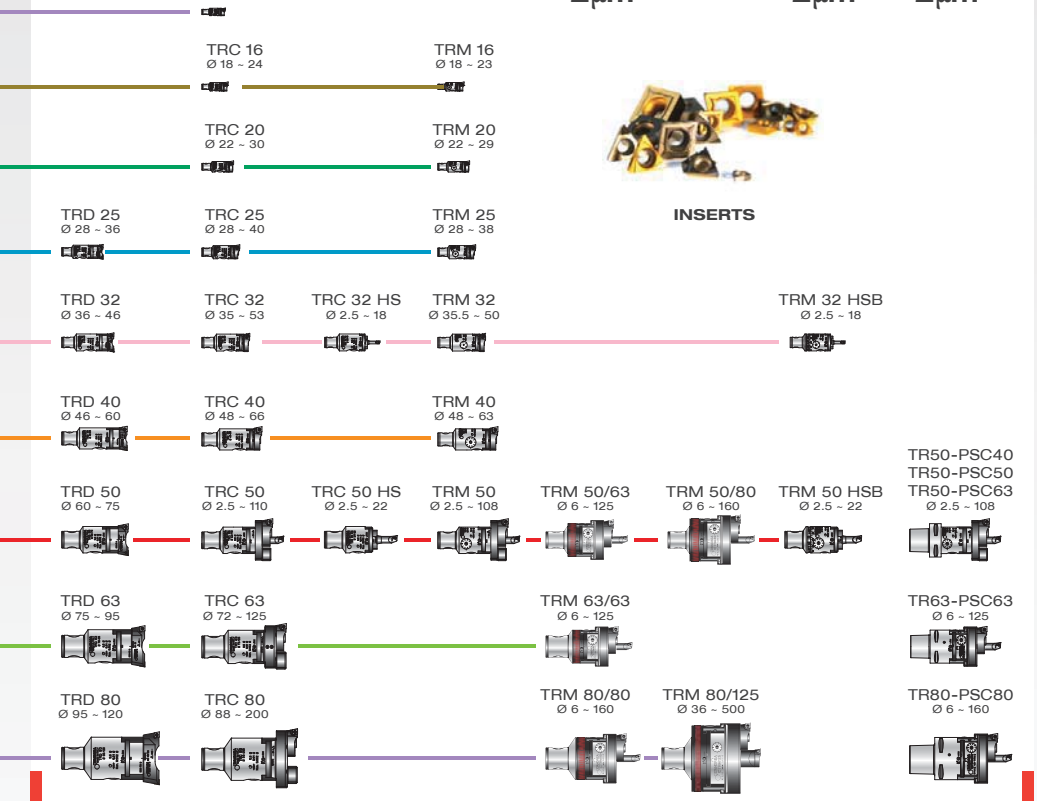
TRC
Centesimal Testarossa

TRC HS
Balanceable high speed centesimal Testarossa

TRM
Micrometric Testarossa
2µm

TRM HSB
Balanceable high speed micrometric Testarossa
2µm

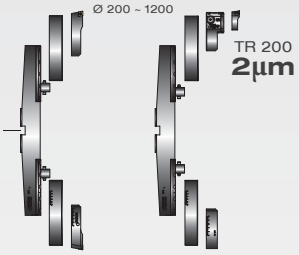
TR-PSC
Micrometric Testarossa
2µm



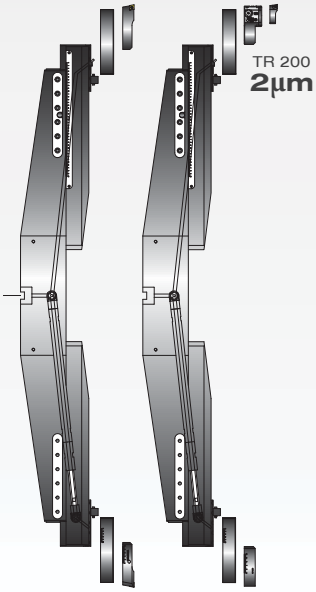
INSERTS

BPS
Large diameter double-bit cross bar for roughing and finishing
Ø 200 ~ 2800

BPS 200 - 800
Ø 200 ~ 1200



BPS 1000 - 1600
Ø 1000 ~ 2800



CHUCKING TOOLS

PE
Collets chucking



MHD' FORCE
Ultra-tight FORCE



AW
Weldon / Whistle Notch



PF
Disc and facing cutter



CM
Morse taper



AM
Tapping



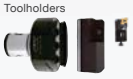
B16
Drilling chuck



NS
Semifinished



TP Toolholders **PC** **16CA**



TU
Toolholders



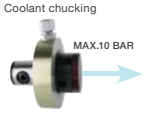
AS..45°
Chamfering tools



ACR/NC
Coolant chucking



ACR
Coolant chucking



SPECIAL



MONOforce

High precision heavy duty milling chuck

RC 12 - 20 -32



TOPRUN

High precision balanceable toolholders for high speed

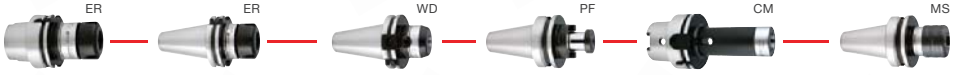
ER FORCE WLD PF ER FORCE



MONOd'

Monobloc toolholders

ER ER WD PF CM MS



MONOd' CT

The integrated to fit chucks

HSK PSC DIN MAS PR CT



MCD'

Modular turning system for multitask machines

HSK-T63 / PSC 40-50-63-80





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







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

Golden Compass
award for industrial design

MARINO D'ANDREA

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).



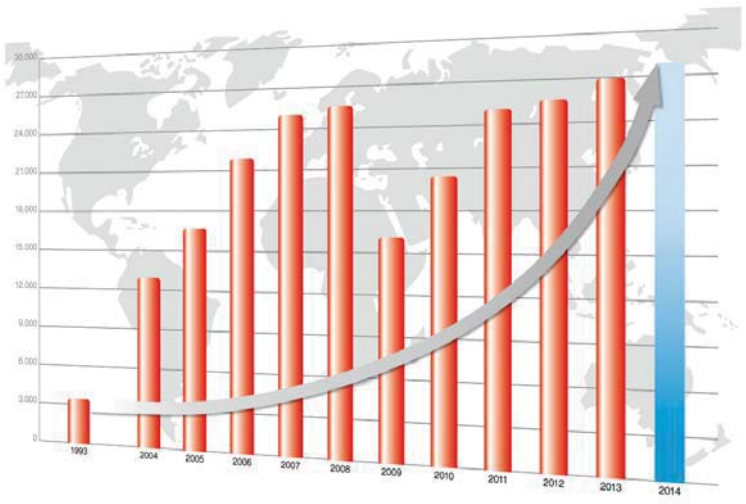
D'Andrea headquarters in Lainate (Milan)
La sede D'Andrea a Lainate (Milano)



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

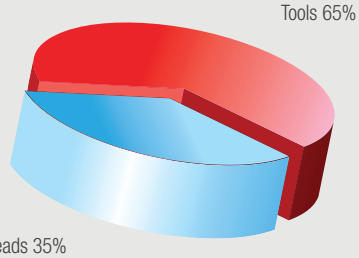
• D'Andrea boasts a functional, modern and productive facility with over 7000 sq.m. of workshops, executive offices, design department and training spaces and it relies on the cooperation of about 110 employees at the Lainate (Milan) plant. The Castel del Giudice (Isernia) plant is over 1300 sq.m. and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





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







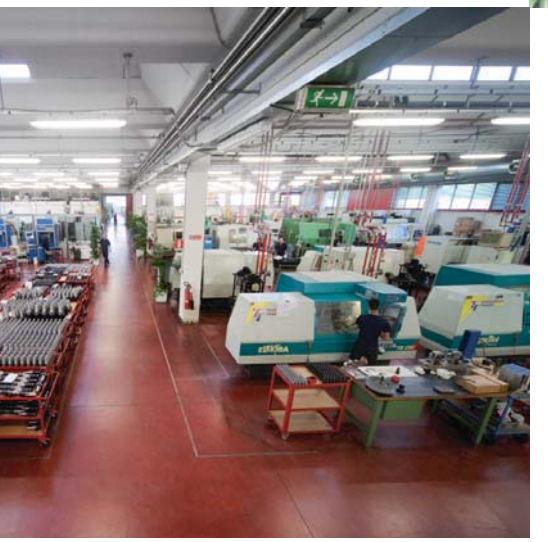
• D'Andrea is a company with an all around approach to management that takes into account the latest trends and developments on the domestic and international market. At the same time, the company has a widespread distribution network offering the right amount of flexibility, to satisfy the local market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

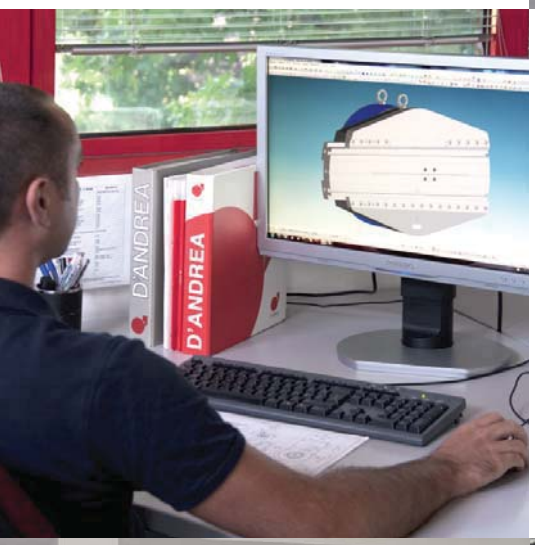


• The Sales Departement manages business all over the world.

• 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.



HEADS

use your head



TA-CENTER



TA-TRONIC



U-TRONIC



U-COMAX



AUTORADIAL

Made in Italy

GB Numerical control boring and facing heads with automatic balancing on machining centers with automatic tool change and special machines.
D Köpfe mit automatischer Auswuchtung zum Ausbohren und Planschleifen mit numerischer Steuerung auf Bearbeitungszentren mit automatischem Werkzeugwechsel und Spezialmaschinen.
E Cabezales con equilibrado automático para mandrinar y refrentar a control numérico en centros de mecanizado y máquinas especiales con cambio automático de la herramienta.
F Têtes à aléser et à dresser avec équilibrage automatique, à commande numérique, pour les centres d'usinage et les machines spéciales, avec changement automatique de l'outil.
I Teste con bilanciatura automatica per alesare e sfacciare a controllo numerico per centri di lavoro con cambio automatico dell'utensile e macchine speciali.

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.
D Köpfe mit automatischem Ausgleich zum ausreiben und planbearbeiten mit numerischer Steuerung, welche manuell, automatisch und mittels Palettisiersystemen auf Bohrmaschinen, Bearbeitungszentren und Spezialmaschinen angebracht werden.
E Cabezales con equilibrado automático para mandrinar y refrentar a control numérico, que se aplican manualmente, automáticamente y o con sistemas paletizados, en mandrinadoras, centros de trabajo y máquinas especiales.
F Têtes avec équilibrage automatique pour aléser et dresser, à commande numérique, qui s'appliquent manuellement, automatiquement et avec des systèmes palettisés sur des aléseuses, des centres d'usinage et des machines spéciales.
I Teste con bilanciatura automatica per alesare e sfacciare a controllo numerico, che si applicano manualmente, automaticamente e con sistemi palettizzati, su alesatrici, centri di lavoro e macchine speciali.

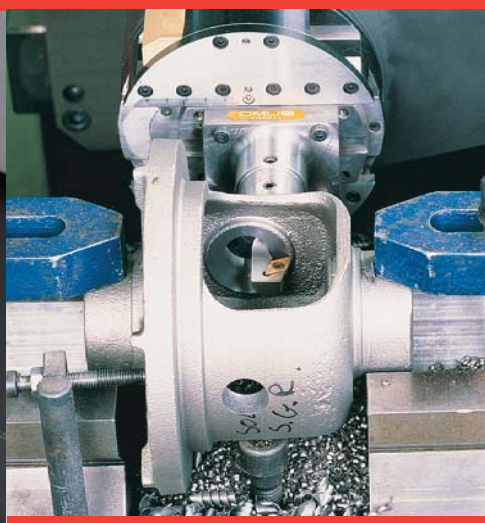
GB Medium and large sized NC boring and facing heads for boring machines, machining centers, and special machinery, which are applied manually, automatically, and with palletized systems on boring machines, machining centers, and special machinery.
D Mittelgrosse und große Köpfe zum ausreiben und planbearbeiten mit numerischer Steuerung auf Bohrmaschinen, Bearbeitungszentren und Spezialmaschinen mit manueller, automatischaer sowie durch Palettisiersystemen zu erfolgender Anbringung auf Bohrmaschinen, Bearbeitungszentren und Spezialmaschinen.
E Cabezales de medias y grandes dimensiones para mandrinar y refrentar a control numérico en mandrinadoras, centros de trabajo y máquinas especiales, que se aplican manualmente, automáticamente o con sistemas paletizados, en mandrinadoras, centros de trabajo y máquinas especiales.
F Têtes aux moyennes et grandes dimensions pour aléser et dresser, à commande numérique, sur des aléseuses, des centres d'usinage et des machines spéciales, qui s'appliquent manuellement, automatiquement et avec des systèmes palettisés sur des aléseuses, des centres d'usinage et des machines spéciales.
I Teste di medie e grandi dimensioni per alesare e sfacciare a controllo numerico su alesatrici, centri di lavoro e macchine speciali, che si applicano manualmente, automaticamente e con sistemi pallettizzati, su alesatrici, centri di lavoro e macchine speciali.

GB NC axial control boring and facing heads on transfer machines and machining units, which are rigidly applied to machinery spindles.
D Köpfe mit Achssteuerung zum ausreiben und planbearbeiten mit numerischer Steuerung auf Transfermaschinen und Bearbeitungseinheiten, welche steif an die Spindeln der Maschinen angebracht werden.
E Cabezales de control axial para mandrinar y refrentar a control numérico en máquinas transfer y estaciones de mecanizado, que se aplican firmemente a los husillos de las máquinas.
F Têtes à commande axiale pour aléser et dresser, à commande numérique, sur des tables transfert et des unités opérationnelles, qui s'appliquent de façon rigide aux broches des machines.
I Teste a comando assiale per alesare e sfacciare a controllo numerico su macchine transfer e unità operatrici, che si applicano rigidamente ai mandrini delle macchine.

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.
D Köpfe mit automatischem Vorschub und Rücklauf des Schlittens zum planbearbeiten auf Bearbeitungszentren und Spezialmaschinen mit automatischem Werkzeugwechsel, ohne Bedarf elektronischer Schnittstellen.
E Cabezales con avance y retroceso rápido automático de la corredera para refrentar en centros de trabajo y máquinas especiales con cambio automático de la herramienta, que no necesitan interfaces electrónicos.
F Têtes avec avance et retour rapide automatique du coulisseau pour dresser sur des centres d'usinage et des machines spéciales avec changement automatique de l'outil, qui n'ont pas besoin d'interfaces électroniques.
I Teste con avanzamento e ritorno rapido automatico della slitta per sfacciare su centri di lavoro e macchine speciali con cambio automatico dell'utensile, che non necessitano di interfacce elettroniche.

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.

D Die TA-CENTER Planbearbeitungs - und Ausdrehköpfe wurden für Maschinen mit automatischem Werkzeugwechsel entwickelt und eignen sich in Folge grundsätzlich für alle Bearbeitungszentren. Die Vorschubkontrolle des Werkzeughalters und der Werkzeugposition wird auch während der Rotation von einer motorbetriebenen U-DRIVE Gruppe gesteuert. Diese Gruppe wird direkt von einer „U“ genannten Achse der numerischen Steuerung des Bearbeitungszentrums verwaltet. Ein so gestaltetes Bearbeitungszentrum ermöglicht die Ausführung einer Reihe von verschiedenen Bearbeitungen, wie zum Beispiel das Innen- und Aussendrehen, Kerben, konische, auch variable Ausbohrungen, konkave und konvexe Radiusbearbeitungen, zylindrisches und konisches Gewindeschneiden, phonographische Spiralen usw, und Rundbearbeitungen.

E Los cabezales para refrentar y mandrinar TA-CENTER nacen para su empleo en máquinas con cambio automático de herramientas, es decir esencialmente e todos los centros de trabajo. El control del avance de la corredera portaherramienta y de la posición herramienta, incluso durante la rotación, están controlados, por un grupo de motorización U-DRIVE. Este grupo es gestionado directamente por un eje llamado “U” del control numérico del centro de trabajo. Un centro de trabajo preparado así, permitirá solucionar una serie de elaboraciones diferentes como torneado interno y externo, muescas, mandrinados cónicos incluso variables, radios cóncavos y convexos, roscas cilíndricas, espirales fonográficas, y operaciones esféricas.











F Les têtes pour aléser et dresser TA CENTER sont conçues pour être utilisées sur des machines pour le changement d'outils en automatique, donc essentiellement sur les centres d'usinage.Le contrôle de l'avancement du coulisseau porte-outils et de la position de l'outil, même pendant la rotation, est commandé par un groupe de motorisation U-DRIVE. Ce groupe est géré directement par un axe appelé « U » de la commande numérique du centre d'usinage. Un centre d'usinage prédisposé de cette façon, permettra de résoudre une série d'usinages différents tels que le tournage intérieur et extérieur, les cannelures, les alésages coniques même variables, les rayons de courbure concaves et convexes, les filetages cylindriques et coniques, les spirales phonographiques, et les opérations sphériques.

I Le teste per alesare e sfacciare TA-CENTER nascono per essere impiegate su macchine con cambio utensili automatico, dunque essenzialmente su tutti i centri di lavoro. Il controllo dell'avanzamento, della slitta portautensili e della posizione utensile, anche durante la rotazione, è comandato da un gruppo di motorizzazione U-DRIVE. Questo gruppo viene gestito direttamente da un asse chiamato "U" del controllo numerico del centro di lavoro. Un centro di lavoro così predisposto permetterà di risolvere una serie di lavorazioni differenti come tornitura interna ed esterna, canalini, alesature coniche anche variabili, raggiature concave e convesse, filettature cilindriche e coniche, spirali fonografiche e operazioni sferiche.

TA-CENTER

- **COMPONENTS**
- **KOMPONENTEN**
- **COMPONENTES**
- **COMPOSANTS**
- **COMPONENTI**

1
- Fixed body
- Fixkörper
- Cuerpo fijo
- Corps fixe
- Corpo fisso

2
- Rotating body
- Rotierender Körper
- Cuerpo giratorio
- Corps rotatif
- Corpo rotante

3
- Toolholder slide
- Werkzeughalterschlitten
- Corredera portaherramientas
- Coulisseau porte-outils
- Slitta portautensili

4
- Interchangeable taper
- Austauschbarer Konus
- Cono intercambiable
- Cône interchangeable
- Cono intercambiabile

5
- Balancing counter-weights
- Ausgleichgegengewichte
- Contrapesos de equilibrado
- Contre-poids d'équilibrage
- Contrappesi di equilibratura

6
- MHD' coupling
- MHD' kupplung
- Acoplamiento MHD'
- Accouplement MHD'
- Attacco MHD'

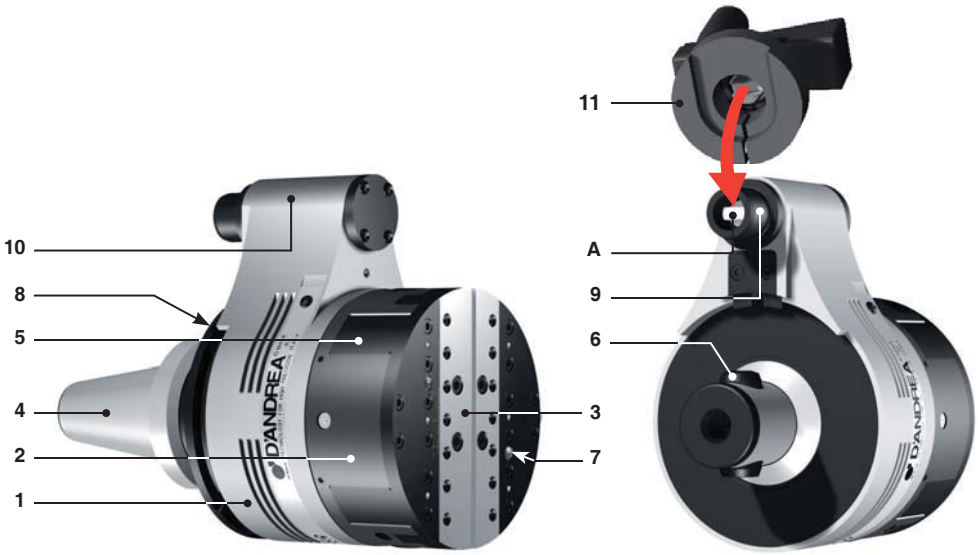
7
- Coolant liquid outlet nozzle
- Kühlmittelaustritt
- Orificios de salida del líquido refrigerante
- Buses de sortie du liquide de lubrification et réfrigérant
- Ugelli di uscita del liquido lubro-refrigerante

8
- Orientation ring
- Orientierungsring
- Anillo de orientación
- Anneau d'orientation
- Anello di orientamento

9
- Retaining pin
- Rückhaltebolzen
- Perno de retención
- Goujon de retenue
- Perno di ritegno

10
- "A" Drive
- Lauf Anschluss „A"
- Toma de movimiento "A"
- Prise de mouvement «A»
- Presa di moto 'A'

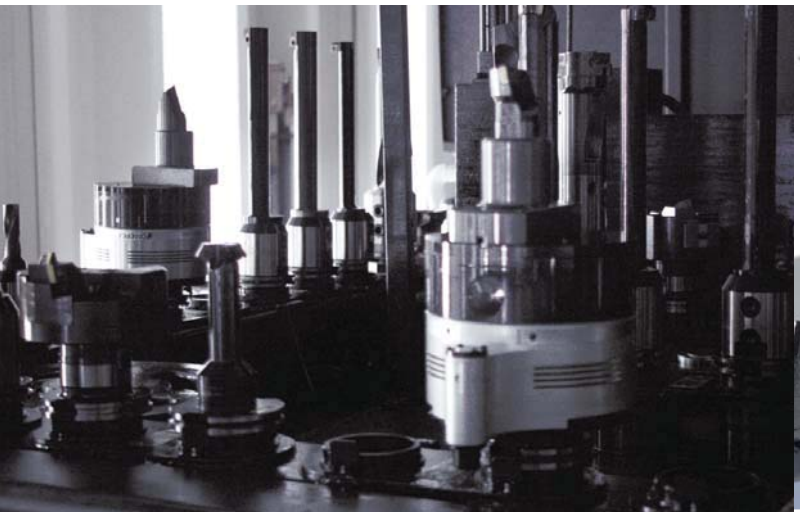
11
- Manual rotation device
- Manuelle Rotierungsvorrichtung
- Dispositivo de rotación manual
- Dispositif de rotation manuel
- Dispositivo di rotazione manuale













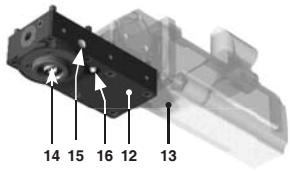
12 • Base element
• Basiskörper
• Cuerpo base
• Corps de base
• Corpo base

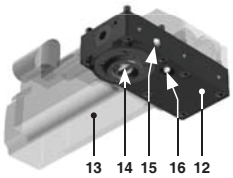
13 • Servomotor
• Servomotor
• Servomotor
• Servomoteur
• Servomotore

14 • Mechanical unit for automatic hook-up to the TA-CENTER drive
• Mechanische Antriebsgruppe zur automatischen Kupplung des TA-CENTER Lauf Anschlusses
• Grupo mecánico para el acoplamiento automático a la toma de movimiento del TA-CENTER
• Groupe mécanique pour l'accrochage automatique à la prise de mouvement de la TA-CENTER
• Gruppo meccanico per il collegamento alla presa di moto della TA-CENTER

15 • The unit comes with air inlet connection for cleaning the drive
• Die Gruppe ist mit einem. Luft Eintrittsanschluss zur Reinigung des Lauf Anschlusses, ausgestattet
• El grupo está predispuesto con entrada de aire para la limpieza de la toma de movimiento
• Le groupe est prédisposé avec une prise d'entrée d'air pour le nettoyage de la prise de mouvement
• Predisposizione attacco entrata aria per pulizia della presa di moto

16 • Manual lubrication
• Manuelle Schmiervorrichtung
• Engrasador manual
• Graisseur manuel
• Ingrassatore manule







- **U-DRIVE COMMAND UNIT**
- **STEUERUNGSEINHEIT U-DRIVE**
- **UNIDAD DE MANDO U-DRIVE**
- **UNITÉ DE COMMANDE U-DRIVE**
- **UNITÀ DI COMANDO U-DRIVE**

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.

D Die U-DRIVE Motorisierungsgruppe muss auf das Bearbeitungszentrum in geeigneter Position, neben der Spindel montiert werden, um die mechanische Verbindung des Lauf Anschlusses mit dem TA-CENTER Kopf zu sichern.

E El grupo de motorización U-DRIVE ha de estar montado en el centro de mecanizado en una posición adecuada al lado del husillo a fin de asegurar la conexión mecánica de la toma de movimiento con el cabezal TA-CENTER.

F Le groupe de motorisation U-DRIVE doit être monté sur le centre d'usinage, dans une position appropriée près de la broche, pour garantir la liaison mécanique de la prise de mouvement avec la tête TA-CENTER.

I Il gruppo U-DRIVE deve essere montato sul centro di lavoro in una posizione adeguata accanto al mandrino in modo da assicurare il collegamento meccanico con la testa TA-CENTER.



TA-CENTER

- APPLICATION
- ANBRINGUNG
- APLICACIÓN
- APPLICATION
- APPLICAZIONI









GB 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.**

D Die eventuelle Anbringung auf Maschinen, die keinen Anschluss an eine CNC Achse ermöglichen, kann durch Verwaltung des Motors der Antriebsgruppe U-DRIVE mit einer praktischen, einfachen und preiswerten U-CONTROL Positioniervorrichtung mit wireless REMOTE-CONTROL erfolgen. Die Positioniervorrichtung kann an die M Funktionen der Maschinensteuerung zum Erhalt der Startsignale der verschiedenen in der REMOTE-CONTROL programmierten Ausführungen angeschlossen werden. **Auf mit U-CONTROL WIRELESS ausgestatteten Maschinen können keine Rundbearbeitungen ausgeführt werden.**

E La eventual aplicación en máquinas que no permiten la conexión a un eje del CNC, se puede realizar gestionando el motor del grupo de motorización U-DRIVE con un práctico, simple y económico posicionador U-CONTROL con REMOTE-CONTROL wireless. El posicionador se puede conectar a las funciones M del control de la máquina para recibir señales de start de las diferentes operaciones programadas en el REMOTE-CONTROL. **En las máquinas equipadas con el KIT U-CONTROL WIRELESS no es posible efectuar elaboraciones esféricas.**





CNC



KIT U-CONTROL WIRELESS

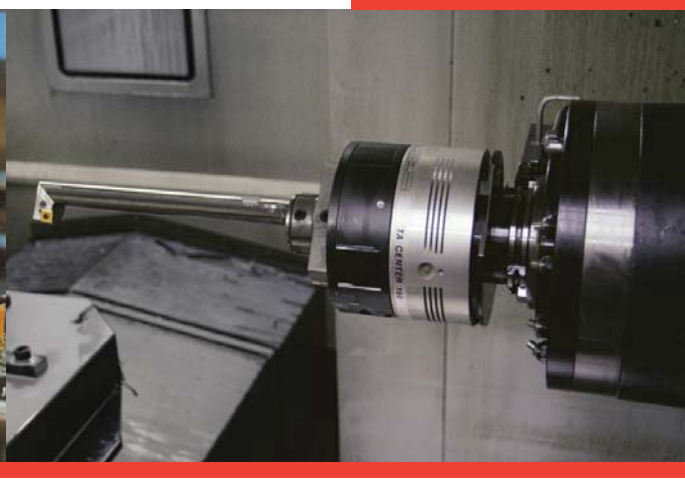


F Les éventuelles applications sur les machines qui ne permettent pas le branchement à un axe de la commande numérique peuvent être réalisées en gérant le moteur du groupe de motorisation U-DRIVE avec un positionneur simple, pratique et économique U-CONTROL avec commande à distance sans fil (REMOTE CONTROL). Le positionneur peut être branché aux fonctions M de commande de la machine pour recevoir des signaux de démarrage des différentes opérations programmées sur la commande à distance. **Il n'est pas possible d'effectuer des usinages sphériques sur les machines équipées du kit U-CONTROL sans fil.**

I L'eventuale applicazione su macchine che non permettono il collegamento ad un asse del CNC, può essere fatta gestendo il motore del gruppo di motorizzazione U-DRIVE con un pratico, semplice ed economico posizionatore U-CONTROL con REMOTE-CONTROL wireless. Il posizionatore può essere collegato alle funzioni M del controllo della macchina per ricevere segnali di start delle varie operazioni programmate sul REMOTE-CONTROL. **Con le macchine equipaggiate con il KIT U-CONTROL WIRELESS non è possibile eseguire lavorazioni sferiche.**

TA-CENTER





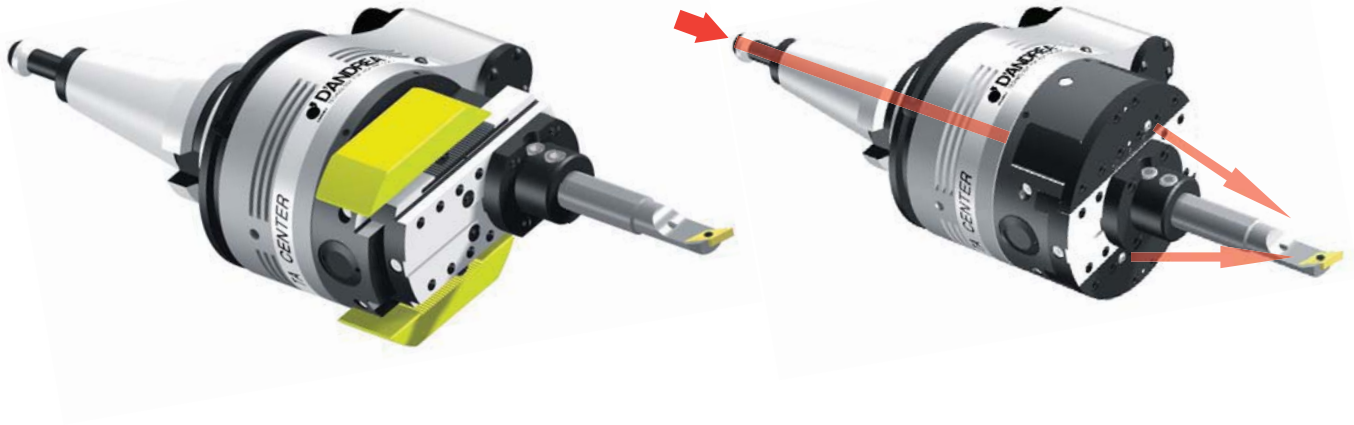












GB TA-CENTER heads are designed with two counter-weights for automatic balancing, that move opposite to the slide. Coolant exits from the two adjustable nozzles in the TA-CENTER located next to the slide after crossing the taper and the rotating body of the head.

D Die TA-CENTER Köpfe wurden mit zwei Gegengewichten zum automatischen Ausgleich entwickelt, sie bewegen sich in die entgegengesetzte Richtung zum Schlitten. In den TA-CENTER fließt das Kühlmittel nach Durchfluss durch den Konus und den Rotierkörper des Kopfes, aus zwei orientierbaren Düsen an der Seite des Schlittens.

E Los cabezales TA-CENTER se han diseñado con dos contrapesos para el equilibrado automático, que se mueven en sentido contrario a la corredera. En los TA-CENTER el líquido refrigerante sale por dos boquillas orientables situadas al lado de la corredera después de haber atravesado el cono y el cuerpo giratorio del cabezal.

F Les têtes TA-CENTER ont été conçues avec deux contrepoids pour l'équilibrage automatique. Ils se déplacent dans le sens contraire par rapport au coulisseau. Dans les TA-CENTER, le liquide réfrigérant sort de deux buses orientables placées à côté du coulisseau, après avoir traversé le cône et le corps rotatif de la tête.

I Le teste TA-CENTER sono state progettate con due contrappesi per il bilanciamento automatico, che si muovono in senso opposto alla slitta. Nelle TA-CENTER il liquido refrigerante esce da due ugelli orientabili posti a fianco della slitta dopo aver attraversato il cono ed il corpo rotante della testa.





TA-CENTER

- SUPPLY
- LIEFERUMFANG
- SUMINISTRO
- FOURNITURE
- FORNITURA

K02



REF.	CODE
K02 TA-C 80 I.65	50 12 5 080 065 0
K02 TA-C 80 I.80	50 12 5 080 080 0
K02 TA-C 100 I.80	50 12 5 100 080 0
K02 TA-C 100 I.110	50 12 5 100 110 0
K02 TA-C 125 I.80	50 12 5 125 080 0
K02 TA-C 125 I.110	50 12 5 125 110 0
K02 TA-C 160 I.110	50 12 5 160 110 0
K02 TA-C 200 I.110	50 12 5 200 110 0

K03



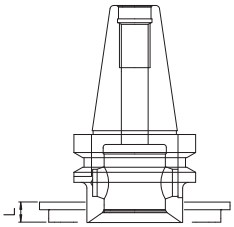
1 P120 1 P130

REF.	CODE
KIT K03 TA-C 80	50 12 0 030 080 1
KIT K03 TA-C 100-125	50 12 0 030 100 1
KIT K03 TA-C 160-200	50 12 0 030 160 1

• Complete range of cones on page 61 • Komplette Konusreihe auf Seite 61 • Gama completa de los conos en la pág. 61
• Gamme complète des cônes à la page 61 • Gamma completa dei coni a pag.61

MHD'

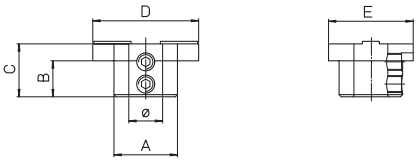




REF.	MHD'	L
TA-C 80	40	10,5
TA-C 100-125	50	11,5
TA-C 160-200	80	

P120

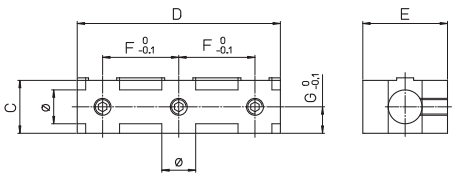




	REF.	CODE	ØH7	A	B	C	D	E	Kg.
TA-C 80	P120	43 15 50 16 020 0	16	30	14	20	40	32	0.1
TA-C 100-125		43 15 50 16 025 0			17	25	50	40	0.2
TA-C 160-200		43 15 50 25 038 0	25	47	27.5	38	76	54	0.55

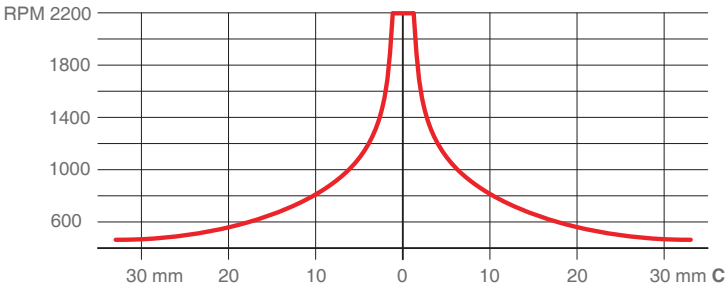
P130



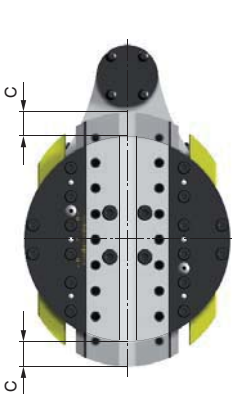


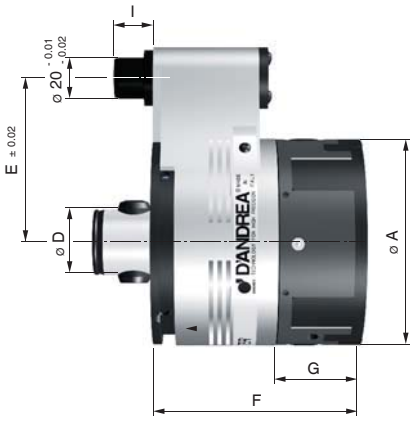
	REF.	CODE	ØH7	C	D	E	F	G	Kg.
TA-C 80	P130	43 30 32 20 080 0	16	20	80	32	30	10.5	0.3
TA-C 100-125		43 30 40 25 095 0		25	95	40	37		0.5
TA-C 160-200		43 30 54 38 152 0	25	38	152	54	59.5	16.5	1.6

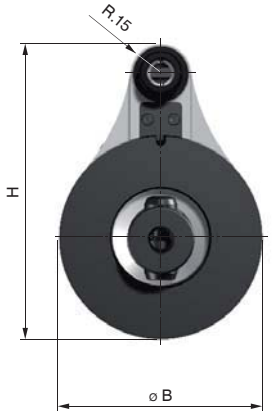
- **TECHNICAL DATA**
- **TECHNISCHE DATEN**
- **DATOS TECNICOS**
- **DONNÉES TECHNIQUES**
- **DATI TECNICI**











		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 • radial traverse • hub des werkzeugschlittens • carrera radial • course radiale • corsa radiale	mm	± 10	± 12	± 17	± 25	± 32.5
Ø D	mm	(MHD'40) 25 - 0.004 - 0.006	(MHD'50) 32 - 0.005 - 0.008		(MHD'80) 42 - 0.005 - 0.008	
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 • Gewicht ohne Konus • Peso sin cono • Poids sans cône • Peso senza cono	Kg	2.5	4.8	6.5	16.8	21.4
• Radial force • Vorschubkraft • Fuerza radial • Force radiale • Forza radiale	daN	100	150		250	
• Torque • Drehmoment • Momento de torsión • Couple maxi • Momento torcente	Nm	200	400		800	
• Boring accuracy • Bohrgenauigkeit • Precisión en mandrinado • Précision d'alésage • Precisione in alesatura		H7				
• Max chip removal • Max Materialabnahme • Max. arranque de viruta • Max du copeau • Max asportazione	mm^2 C40	0,5	0,75	0,85	1	
• Roughness • Rauhigkeit • Rugosidad • Rugosité • Rugosità	Ra	0,8 ~ 1,2				

TA-TRONIC





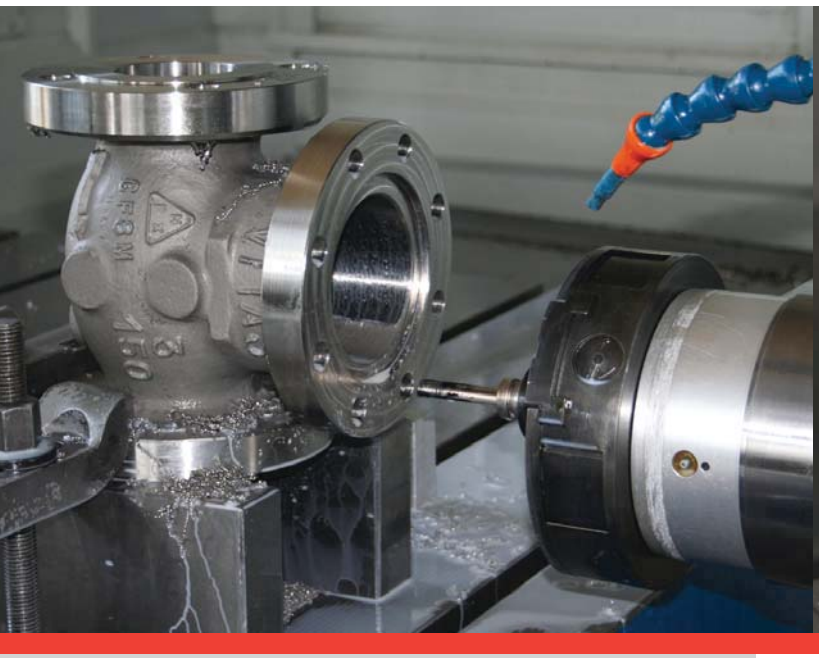
Turning operations on all machine tools



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.

D Die Ausbohr –– und Planbearbeitungsköpfe TA-Tronic werden manuell oder automatisch auf kleinen Bohrmaschinen, Arbeitszentren und Spezialmaschinen angebracht. Die Verbindung mit der Spindel der Werkzeugmaschine erfolgt durch einen Konus zur Rotation des Rotationskörpers und einem Flansch zum Befestigen des festen Körpers am festen Teil der Maschine. Für nicht anspruchsvolle Bearbeitungen kann ein einfacher Rotationsverhindernder Bolzen verwendet werden.

E Los cabezales para mandrinar y refrentar TA-Tronic se aplican manual o automáticamente en pequeñas mandrinadoras, centros de trabajo y máquinas especiales. La conexión con el husillo de la máquina-herramienta se realiza mediante un cono para la rotación del cuerpo giratorio y una brida para la fijación del cuerpo fijo en la parte fija de la máquina. Para operaciones poco pesadas es posible usar un simple perno de antirotación.







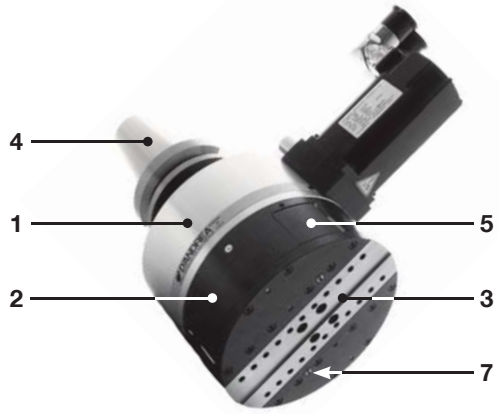


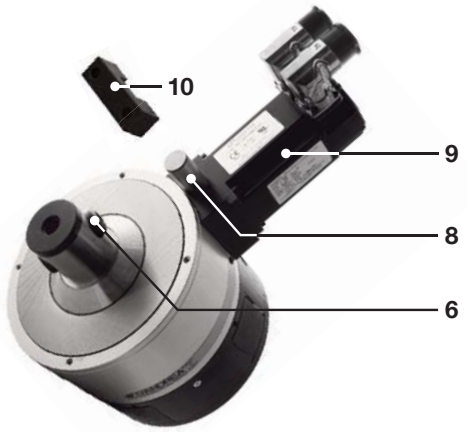
F Les têtes pour aléser et dresser TA-Tronic se montent manuellement ou automatiquement sur de petites aléseuses, des centres d'usinage et des machines spéciales. La liaison avec la broche de la machine outil se produit par le biais d'un cône pour la rotation du corps rotatif et d'une bride pour la fixation du corps fixe sur la partie fixe de la machine. Pour des opérations peu lourdes, il est possible d'utiliser un simple pivot anti-rotation.

I Le teste per alesare e sfacciare TA-Tronic si applicano manualmente o automaticamente su piccole alesatrici, centri di lavoro e macchine speciali. Il collegamento con il mandrino della macchina utensile avviene mediante un cono per la rotazione del corpo rotante e una flangia per il fissaggio del corpo fisso sulla parte fissa della macchina. Per operazioni poco gravose è possibile usare un semplice perno antirotazione.

TA-TRONIC

- COMPONENTS
- KOMPONENTEN
- COMPONENTES
- COMPOSANTS
- COMPONENTI





1
- Fixed body
- Fixkörper
- Cuerpo fijo
- Corps fixe
- Corpo fisso

2
- Rotating body
- Rotierender Körper
- Cuerpo giratorio
- Corps rotatif
- Corpo rotante

3
- Toolholder slide
- Werkzeughalterschlitten
- Corredera portaherramientas
- Coulisseau porte-outils
- Slitta portautensili

4
- Interchangeable taper
- Austauschbarer Konus
- Cono intercambiable
- Cône interchangeable
- Cono intercambiabile

5
- Balancing counter-weights
- Ausgleichgegengewichte
- Contrapesos de equilibrado
- Contre-poids d'équilibrage
- Contrappesi di equilibratura

6
- MHD' coupling
- MHD' kupplung
- Acoplamiento MHD'
- Accouplement MHD'
- Attacco MHD'

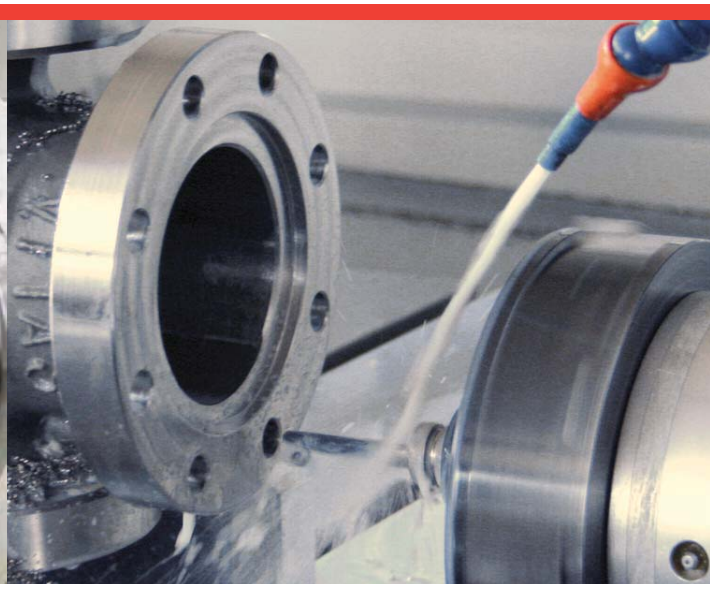
7
- Coolant liquid outlet nozzle
- Kühlmittelaustritt
- Orificios de salida del líquido refrigerante
- Buses de sortie du liquide de lubrification et réfrigérant
- Ugelli di uscita del liquido lubro-refrigerante

8
- Anti-rotation pin
- Rotationsverhindernder Bolzen
- Perno antirotación
- Pivot antirotation
- Perno antirotazione

9
- Motor
- Motor
- Motor
- Moteur
- Motore

10
- Anti-rotation Small block
- Rotationsverhindernder Dübel
- Bloque antirotación
- Goujon antirotation
- Tassello antirotazione





- **COMMAND UNIT**
- **STEUERUNGSEINHEIT**
- **UNIDAD DE MANDO**
- **UNITÉ DE COMMANDE**
- **UNITÀ DI COMANDO**

GB 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 radium machining through the interpolation with the other axis. The second with a simple and economical U-CONTROL postioner 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.**

D Für die Steuerung der TA-Tronic Köpfe bestehen zwei Möglichkeiten: die erste sieht die direkte Verbindung zur „U" Achse der Nummernkontrolle der Werkzeugmaschine zur Ausführung von Bohrarbeiten, Innen – außen und Unterschnittplanbearbeitungen, innen – und Aussendrehen, Kerben und phonografische Spiralen, Gewindeschneiden und konische, auch variable Planbearbeitungen, sowie konkave und konvexe Radialbearbeitungen mittels Interpolation mit den anderen Achsen vor. Die zweite besteht aus einer einfachen und günstigen U-CONTROL Positioniereinrichtung mit REMOTE CONTROL wireless. Die Positioniereinrichtung kann an die M Funktionen der Maschinensteuerung zum Erhalt der Startsignale der verschiedenen, auf REMOTE-CONTROL programmierten Vorgänge, angeschlossen werden. Diese Lösung ermöglicht Bohrarbeiten, innen – und Aussendrehen, Kerben und phonografische Spiralen, sowie konisches Gewindescheiden und Bohrarbeiten. **Auf mit U-CONTROL WIRELESS ausgestatteten Maschinen können keine Rundbearbeitungen ausgeführt werden.**

E Para el mando de los cabezales TA-Tronic existen dos posibilidades: la primera prevé la conexión directa al eje "U" del control numérico de la máquina herramienta que permite elaboraciones de mandrinado, refrentado interno, externo y corte en ángulo agudo, torneado interno y externo, muescas, espirales fonográficas, roscas y mandrinados cónicos, incluso variables, radios cóncavos y convexos mediante la interpolación con los otros ejes. La segunda con simple y económico posicionador U-CONTROL con REMOTE-CONTROL wireless. El posicionador puede estar conectado a las funciones M del control de la máquina para recibir señales de start de las varias operaciones programadas en el REMOTE-CONTROL. Esta solución permite elaboraciones de mandrinado, refrentado interno, externo y corte en ángulo agudo, torneado interno y externo, muescas, espirales fonográficas, roscas y mandrinados cónicos. **Con las máquinas equipadas con el KIT U-CONTROL WIRELESS no es posible efectuar elaboraciones esféricas.**

F Pour la commande des têtes TA-Tronic, deux possibilités sont disponibles: la première prévoit la liaison directe de l'axe « U » de la commande numérique de la machine outil qui permet les usinages d'alésage, de dressage interne, externe et contre-dépouille, de tournage interne et externe, de coulisses, de spirales phonographiques, de filetages et d'alésages cylindriques, d'alésages coniques même variables, de rayons de courbure concaves et convexes, à l'aide de l'interpolation avec les autres axes. La seconde avec un positionneur simple et économique U CONTROL avec contrôle à distance sans fil. Le positionneur peut être branché aux fonctions M de la commande de la machine, pour recevoir les signaux de départ des différentes opérations programmées sur le contrôle à distance. Cette solution permet des usinages d'alésage, de dressage interne, externe et contre-dépouille, de tournage interne et externe, de coulisses, de spirales phonographiques, de filetages et d' alésages coniques. **Il n'est pas possible d'effectuer des usinages sphériques avec les machines équipées du KIT U CONTROL sans fil.**

I Per il comando delle teste TA-Tronic esistono due possibilità: la prima prevede il collegamento diretto all'asse "U" del controllo numerico della macchina utensile che permette lavorazioni di alesatura, sfacciatura interna, esterna e sottosquadra, tornitura interna ed esterna, canalini, spirali fonografiche, filettature e alesature coniche, alesature coniche anche variabili, raggiature concave e convesse mediante l'interpolazione con gli altri assi. La seconda con semplice ed economico posizionatore U-CONTROL con REMOTE-CONTROL wireless. Il posizionatore può essere collegato alle funzioni M del controllo della macchina per ricevere segnali di start delle varie operazioni programmate sul REMOTE-CONTROL. Questa soluzione permette lavorazioni di alesatura, sfacciatura interna, esterna e sottosquadra, tornitura interna ed esterna, canalini, spirali fonografiche, filettature e alesature coniche. **Con le macchine equipaggiate con il KIT U-CONTROL WIRELESS non è possibile eseguire lavorazioni sferiche.**



CNC



KIT U-CONTROL WIRELESS

CODE : 55 0 020 100 001

TA-TRONIC

GB TA-TRONIC is mounted on the machine using a taper (4). The anit-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.

D Die TA-TRONIC Vorrichtungen werden mittels Konus (4) an die Maschine angeschlossen. Der Rotationsverhindernde Bolzen (8), welcher in den, auf dem Kopf der Werkzeugmaschine befestigten Dübel (10) eingeführt ist, verhindert die Rotation des festen TA-TRONIC Körpers. Der Dübel (10) wird auf einen festen Teil rund um die Spindel, fig.1 und Einstellung der angegebenen Höhe mittels einer Distanzscheibe S, angebracht. Für schwerwiegende Arbeiten empfiehlt man das Anbringen eines Flansches zum konsolidieren des TA-TRONIC Kopfes mit dem Kopf der Werkzeugmaschine (fig. 2-3). Mit den TA-TRONIC Vorrichtungen 160 und 200 ist die Anwendung eines Flansches immer empfehlenswert. Die Art des zu verwendenden Flansches hängt vom Maschinenmodell ab und kann einfach vom Kunden selbst hergestellt, oder von D'Andrea geliefert werden.

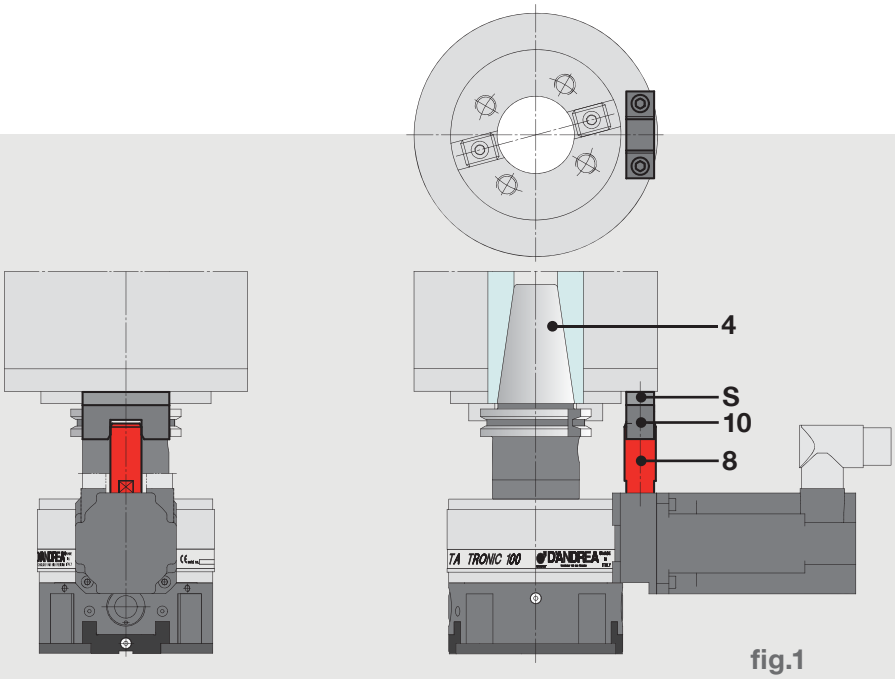
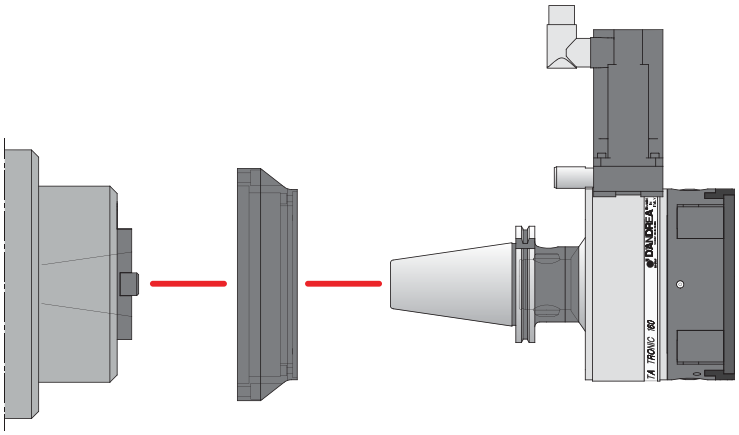


fig.1





- **APPLICATION**
- **ANBRINGUNG**
- **APLICACIÓN**
- **APPLICATION**
- **APPLICAZIONI**



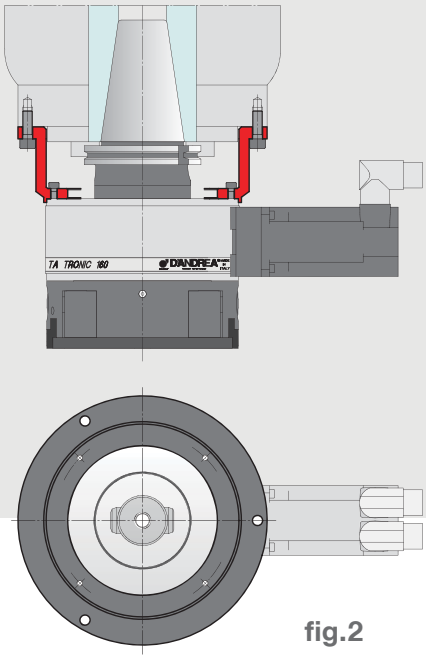


fig.2

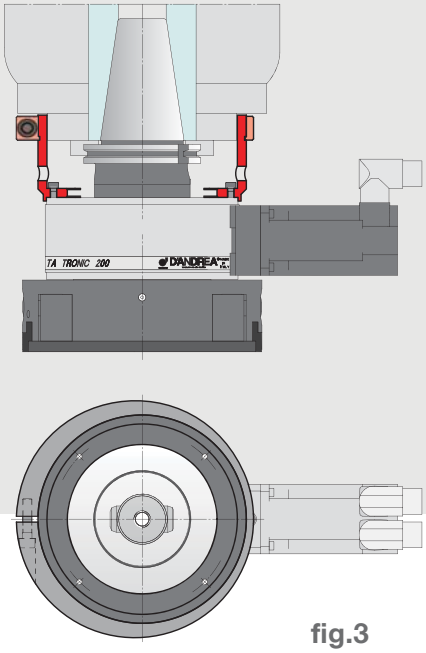


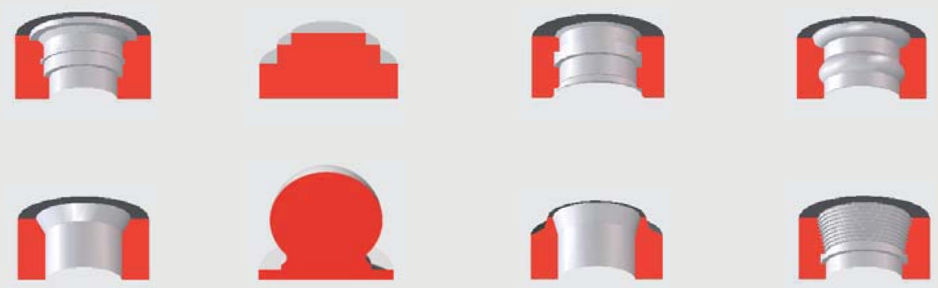
fig.3

E Los TA-TRONIC se montan en la máquina mediante el cono (4). El perno antirotación (8), introducido en el bloque antirotación (10) fijado en el cabezal de la máquina herramienta, impide la rotación del cuerpo fijo de la TA-TRONIC. El bloque ha de colocarse en una parte fija alrededor del husillo fig.1, regulando la altura indicada por medio de un espesor S. Para elaboraciones pesadas se aconseja aplicar una brida para reforzar la unión del TA-TRONIC con el cabezal de la máquina herramienta (fig. 2-3). En los TA-TRONIC 160 y 200 se aconseja siempre el uso de la brida. El tipo de brida depende del modelo de la máquina y puede ser fácilmente construida por el Cliente o suministrada por D'Andrea.

F Les TA-TRONIC sont montées sur la machine à l'aide du cône (4). Le pivot anti-rotation (8) inséré dans le tasseau (10) bloqué sur la tête de la machine outil, empêche la rotation du corps fixe de la TA-TRONIC. Le tasseau (10) doit être monté sur une partie fixe autour de la broche, figure 1, et en réglant la hauteur indiquée à l'aide de l'épaisseur S. Pour des usinages lourds, nous conseillons de monter une bride pour relier la TA-TRONIC à la tête de la machine outil (figure 2-3). Avec les TA-TRONIC 160 et 200, nous conseillons de toujours utiliser la bride. Le type de bride à utiliser dépend du modèle de la machine et peut être facilement fabriqué par le client ou fourni par D'Andrea.

I Le TA-TRONIC vengono montate sulla macchina mediante il cono (4). Il perno antirotazione (8), inserito nel tassello (10) bloccato sulla testa della macchina utensile, impedisce la rotazione del corpo fisso della TA-TRONIC. Il tassello (10) va applicato su una parte fissa attorno al mandrino fig.1, regolando l'altezza per mezzo di uno spessore S. Per lavorazioni gravose è consigliabile applicare una flangia per rendere solidale la TA-TRONIC con la testa della macchina utensile (fig. 2-3). Con le TA-TRONIC 160 e 200 è sempre consigliato l'uso della flangia. Il tipo di flangia da adottare dipende dal modello della macchina e può essere facilmente costruita dal Cliente o fornita da D'Andrea.

TA-TRONIC













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.

D Die TA-TRONIC Köpfe wurden mit zwei Gegengewichten zum automatischen Ausgleich entwickelt, sie bewegen sich in entgegengesetzte Richtung zum Schlitten. In den TA-TRONIC fließt das Kühlmittel nach Durchfluss durch den Konus und den Rotierkörper des Kopfes aus zwei orientierbaren Düsen an der Seite des Schlittens.

E Los cabezales TA-TRONIC se han diseñado con dos contrapesos para el equilibrado automático, que se mueven en sentido contrario a la corredera. En los TA-TRONIC el líquido refrigerante sale por dos boquillas orientables situadas al lado de la corredera después de haber atravesado el cono y el cuerpo giratorio del cabezal.

F Les têtes TA-TRONIC ont été conçues avec deux contrepoids pour l'équilibrage automatique. Ils se déplacent dans le sens contraire par rapport au coulisseau. Dans les TA-TRONIC, le liquide réfrigérant sort de deux buses orientables placées à côté du coulisseau, après avoir traversé le cône et le corps rotatif de la tête.

I Le teste TA-TRONIC sono state progettate con due contrappesi per il bilanciamento automatico, che si muovono in senso opposto alla slitta. Nelle TA-TRONIC il liquido refrigerante esce da due ugelli orientabili posti a fianco della slitta dopo aver attraversato il cono ed il corpo rotante della testa.





TA-TRONIC

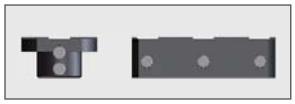
- **SUPPLY**
- **LIEFERUMFANG**
- **SUMINISTRO**
- **FOURNITURE**
- **FORNITURA**

K02



REF.	CODE
K02 TA-T 100 1FK7022-5AK71-1HA5	50 12 0 100 040 0
K02 TA-T 100 FANUC βis 1/6000	50 12 0 100 080 0
K02 TA-T 100 AKM22C-ANBNC-00	50 12 0 100 060 0
K02 TA-T 125 1FK7022-5AK71-1HA5	50 12 0 125 040 0
K02 TA-T 125 FANUC βis 1/6000	50 12 0 125 080 0
K02 TA-T 125 AKM22C-ANBNC-00	50 12 0 125 060 0
K02 TA-T 160 1FK7032-2AK71-1EA2	50 12 0 160 040 0
K02 TA-T 160 FANUC βis 1/6000	50 12 0 160 080 0
K02 TA-T 160 AKM22C-ANBNC-00	50 12 0 160 060 0
K02 TA-T 160 1FK7032-2AK71-1EA2	50 12 0 200 040 0
K02 TA-T 200 FANUC βis 1/6000	50 12 0 200 080 0
K02 TA-T 200 AKM22C-ANBNC-00	50 12 0 200 060 0

K03



1 P120 1 P130

REF.	CODE
KIT K03 TA-T 100-125	50 12 0 030 100 1
KIT K03 TA-T 160-200	50 12 0 030 160 1

• Complete range of cones on page 61 • Komplette Konusreihe auf Seite 61 • Gama completa de los conos en la pág. 61
• Gamme complète des cônes à la page 61 • Gamma completa dei coni a pag. 61

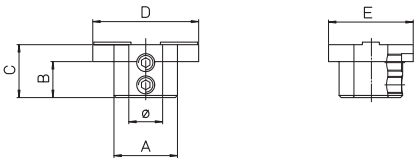
MHD'



REF.	MHD'
TA-T 100-125	50
TA-T 160-200	80

P 120

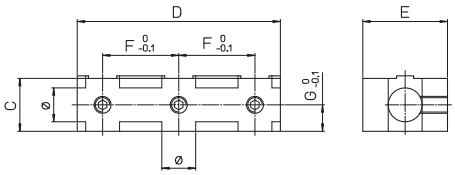




	REF.	CODE	Ø H7	A	B	C	D	E	Kg.
TA-T 100-125	P120	43 15 50 16 025 0	16	30	17	25	50	40	0.2
TA-T 160-200		43 15 50 25 038 0	25	47	27.5	38	76	54	0.55

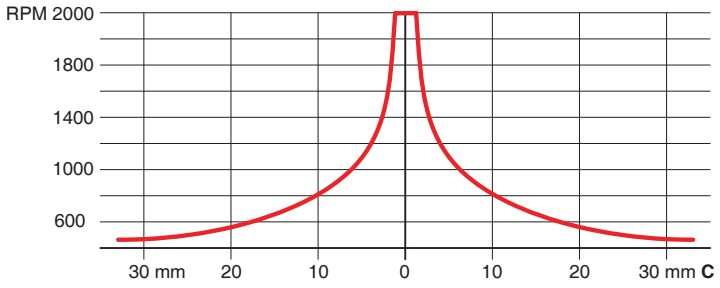
P 130





	REF.	CODE	Ø H7	C	D	E	F	G	Kg.
TA-T 100-125	P130	43 30 40 25 095 0	16	25	95	40	37	10.5	0.5
TA-T 160-200		43 30 54 38 152 0	25	38	152	54	59.5	16.5	1.6

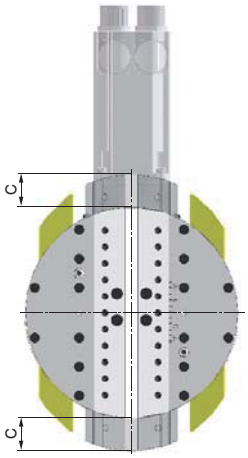
- **TECHNICAL DATA**
- **TECHNISCHE DATEN**
- **DATOS TECNICOS**
- **DONNÉES TECHNIQUES**
- **DATI TECNICI**

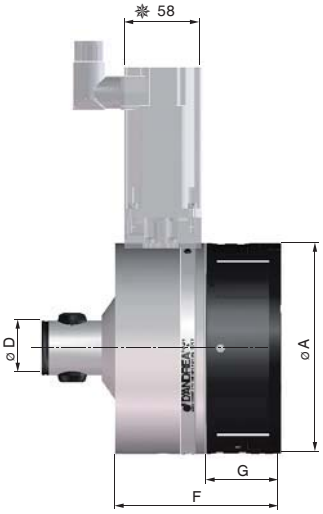


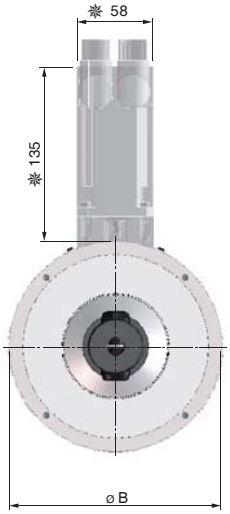










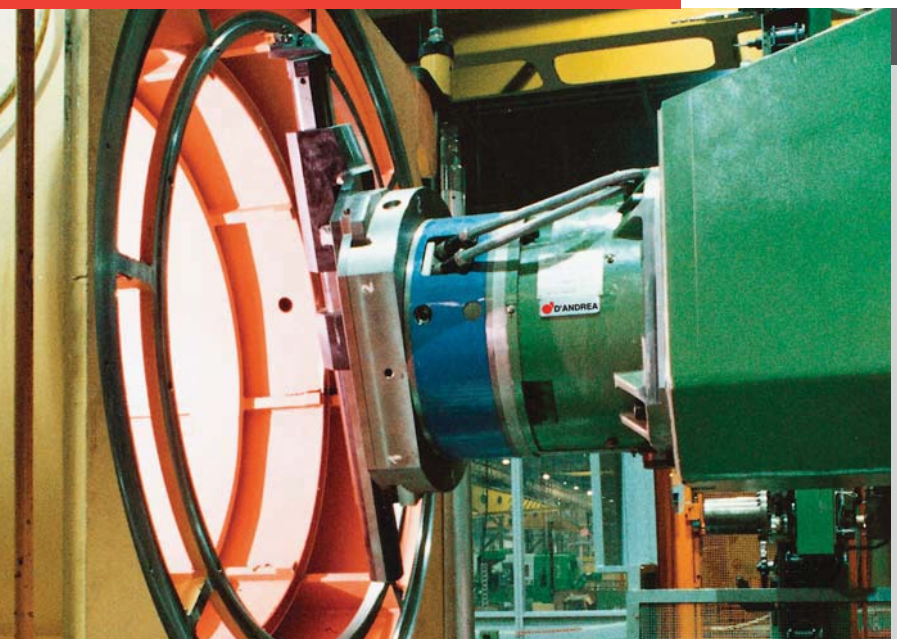


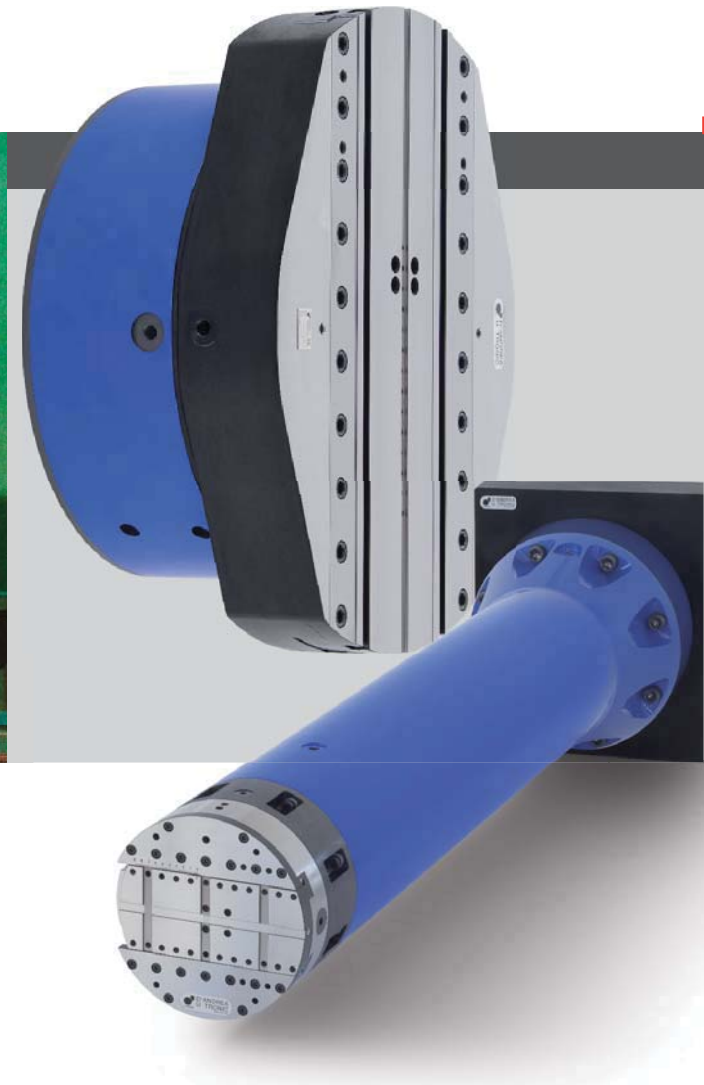
		TA-T 100	TA-T 125	TA-T 160	TA-T 200
Ø A	mm	100	125	160	200
Ø B	mm	100.5		160.5	
C • radial traverse • hub des werkzeugschlittens • carrera radial • course radiale • corsa radiale	mm	± 12	± 17	± 25	± 32.5
Ø D	mm	(MHD'50) 32 - 0.005 - 0.008		(MHD'80) 42 - 0.005 - 0.008	
F	mm	89	93	125	
G	mm	40.5	44.5	56	
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. ↻/min	RPM	2000	1800	1600	1400
• Weight without the cone and motor • Gewicht ohne Konus und motor • Peso sin cono y motor • Poids sans cône et le moteur • Peso senza cono e motore	Kg	4.2	6.3	15.5	20.5
• Radial force • Vorschubkraft • Fuerza radial • Force radiale • Forza radiale	daN	150		250	
• Torque • Drehmoment • Momento de torsión • Couple maxi • Momento torcente	Nm	400		800	
• Boring accuracy • Bohrgenauigkeit • Precisión en mandrinado • Précision d'alésage • Precisione in alesatura		H7			
• Max chip removal • Max Materialabnahme • Max. arranque de viruta • Max du copeau • Max asportazione	mm^2 C40	0,75	0,85	1	
• Roughness • Rauhigkeit • Rugosidad • Rugosité • Rugosità	Ra	0,8 ~ 1,2			

• ❋Rough measures that may vary on changing the motor. • ❋Bezeichnende Masse, welche sich bei Ändern des Motors, ändern können. • ❋Medidas indicativas que pueden variar cuando varía el motor. • ❋Mesures indicatives qui peuvent se modifier lorsque le moteur varie. • ❋Misure indicative che possono variare al variare del motore.

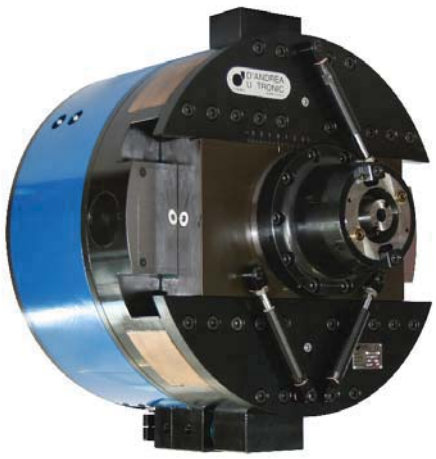
U-TRONIC

- GENERAL FEATURES
- ALLGEMEINE MERKMALE
- CARACTERÍSTICAS GENERALES
- CARACTÉRISTIQUES GÉNÉRALES
- CARATTERISTICHE GENERALI



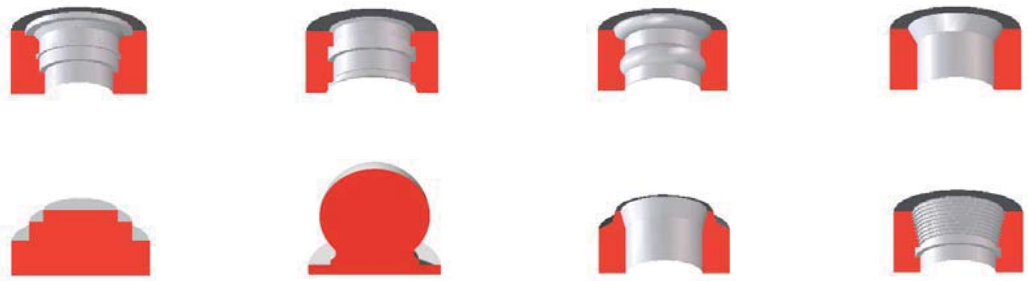


"Super sized" performance



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 axles 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 ø360 to ø1000 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.

D U-TRONIC sind mittelgroße und große CN Köpfe, welche an die CNC U Achse der Werkzeugmaschine zum Ausführen von Außen-Innen- und Unterschnittplanbearbeitungen, zum zylindrischen und konischen Bohren und Gewindeschneiden, sowie für konkave und konvexe Radiusbearbeiten mittels Interpolation mit den anderen Achsen der Werkzeugmaschine angeschlossen werden.Sie werden manuell oder automatisch, sowie mit Palettiersystemen auf Bohrmaschinen, Arbeitszentren und Spezialmaschinen angebracht. Es sind 6 Standardmodelle von ø360 bis ø1000 mm alle mit interner Kühlmittelzufuhr, verfügbar. U-TRONIC in Spezialausgabe, bis ø1600, mit zwei Schlitten oder Gegengewichten zur Selbstbalancierung können auf Anfrage geliefert werden. Auf dem Schlitten können feste Werkzeughalter mit manuellem oder automatischem Werkzeugwechsel angebracht werden.



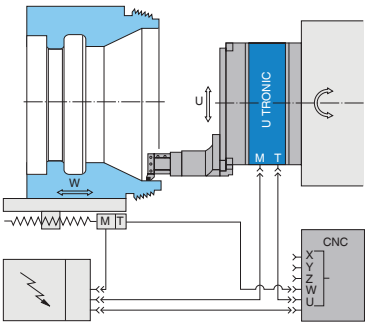


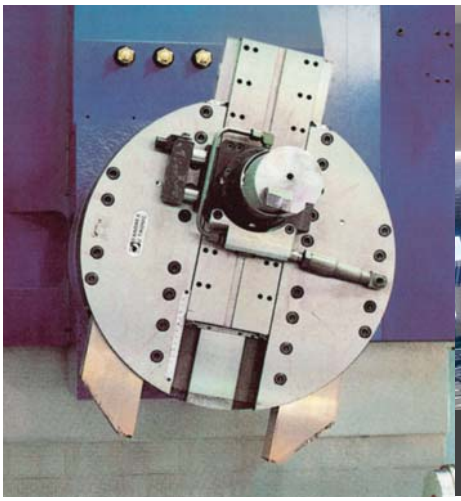
E Los U-TRONIC son cabezales de CN de medias y grandes dimensiones que se conectan al eje U del CNC de la máquina herramienta para elaboraciones de refrentados externos, internos y corte en ángulo, mandrinados y roscas cilíndricas y cónicas, radios cóncavos y convexos, mediante la interpolación con los otros ejes de la máquina herramienta. Se aplican manual, automáticamente y con sistemas paletizados en mandrinadoras, centros de trabajo y máquinas especiales. Están construidas en 6 modelos estándar de ø360 a ø1000 mm todas con paso interno del líquido refrigerante.U-TRONIC en versiones especiales hasta los ø1600, de dos correderas o con contrapesos para el autoequilibrado, se pueden suministrar bajo pedido.En la corredera se pueden aplicar portaherramientas fijos, de cambio manual o de cambio automático de la herramienta.

F Les U-TRONIC sont des têtes à commande numérique, aux moyennes et grandes dimensions, qui se fixent à l'axe U de la commande numérique de la machine outil pour les usinages de dressages externes, internes et contre-dépouille, alésages et filetages cylindriques et coniques, rayons de courbure concaves et convexes par l'interpolation avec les autres axes de la machine-outil. Elles s'appliquent manuellement, automatiquement et à l'aide de systèmes palettisés sur les aléseuses, centres d'usinage et machines spéciales. Elles sont construites en 6 modèles standard, de diamètre allant de ø360 à ø1000 mm. Toutes sont dotées d'un passage interne de liquide réfrigérant. Des U-TRONIC en versions spéciales jusqu'au ø1600, à deux coulisseaux, ou avec des contrepoids pour l'équilibrage automatique, peuvent être fournies sur demande. Il est possible d'appliquer sur le coulisseau des porte-outils fixes, avec changement manuel ou automatique de l'outil.



I Le U-TRONIC sono teste a CN di medie e grandi dimensioni che si collegano all'asse U del CNC della macchina utensile per lavorazioni di sfacciature esterne, interne e sottosquadra, alesature e filettature cilindriche e coniche, raggiature concave e convesse, mediante l'interpolazione con gli altri assi della macchina utensile.Si applicano manualmente, automaticamente e con sistemi pallettizzati su alesatrici, centri di lavoro e macchine speciali. Sono costruite in 6 modelli standard da ø360 a ø1000 mm tutte con passaggio interno del liquido refrigerante. U-TRONIC in versioni speciali fino a ø1600, a due slitte o con contrappesi per l'autobilanciamento, possono essere fornite a richiesta. Sulla slitta si possono applicare portautensili fissi, a cambio manuale o a cambio automatico dell'utensile.

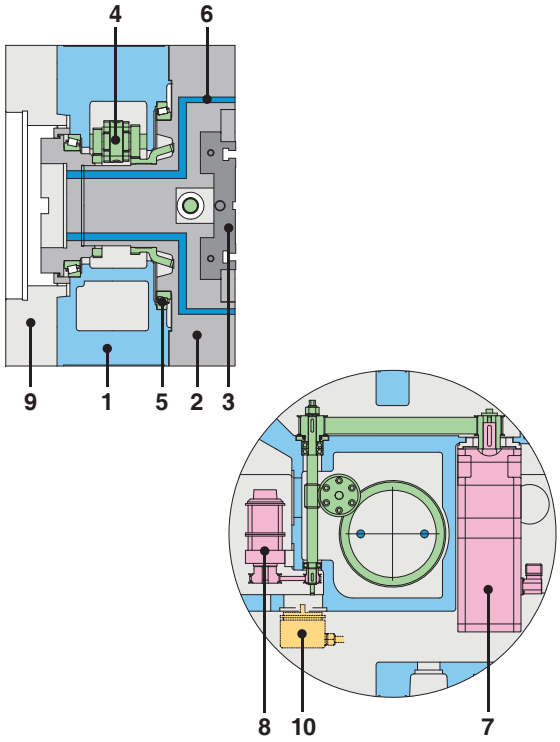






D'ANDREA U-TRONIC

- **COMPONENTS**
- **KOMPONENTEN**
- **COMPONENTES**
- **COMPOSANTS**
- **COMPONENTI**



1
- Stationary body
- Fixe Einheit
- Cuerpo fijo
- Corps fixe
- Corpo fisso

2
- Rotating body
- Rotierender Körper
- Cuerpo giratorio
- Corps rotatif
- Corpo rotante

3
- Tool slide
- Werkzeugschlitten
- Guía portaherramientas
- Coulisseau
- Slitta portautensili

4
- Gears
- Getriebe
- Cinematismo
- Cinématisme
- Cinematismo

5
- Bearings
- Lager
- Rodamientos
- Paliers
- Cuscinetti

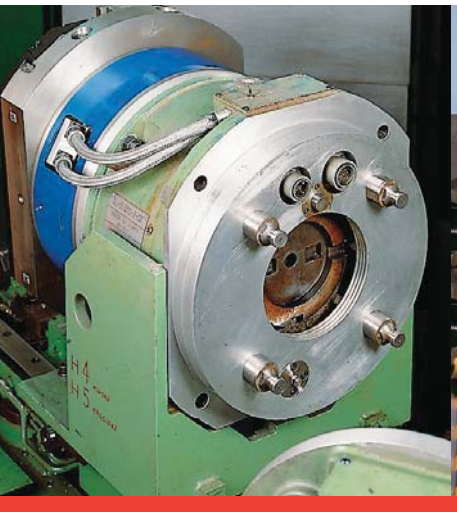
6
- Coolant way
- Kühlmittelzuführung
- Paso de refrigerante
- Passage liquide d'arrosage réfrigérant
- Passaggio refrigerante

7
- Servomotor
- Servomotor
- Servomotor
- Servomoteur
- Servomotore

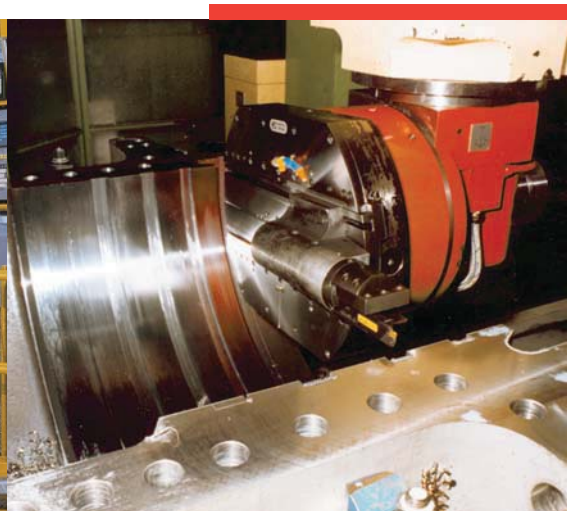
8
- Limit switches
- Endschalter
- Microinterruptores de fin de carrera
- Minirupteurs de fin de course
- Microinterruttori di finecorsa

9
- Flange
- Flansch
- Brida
- Bride
- Flangia

10
- Encoder up on request
- Encoder auf Anfrage
- Encoder bajo petición
- Evéntuel fourni sur demande
- Encoder a richiesta







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.

D VERANLAGUNG. Die TA-CENTER-Köpfe wurden mit Gegengewichten zum Durchfluss des Kühlmittels entwickelt. Es ist auch möglich, Gegengewichte mit automatischem Vorschub und Rücklauf des Schlittens zum Planschleifen auf Bearbeitungszentren und Spezialmaschinen mit automatischem Werkzeugwechsel bei einer hohen Umdrehungsanzahl ohne nennenswerte Schwingungen zu arbeiten.

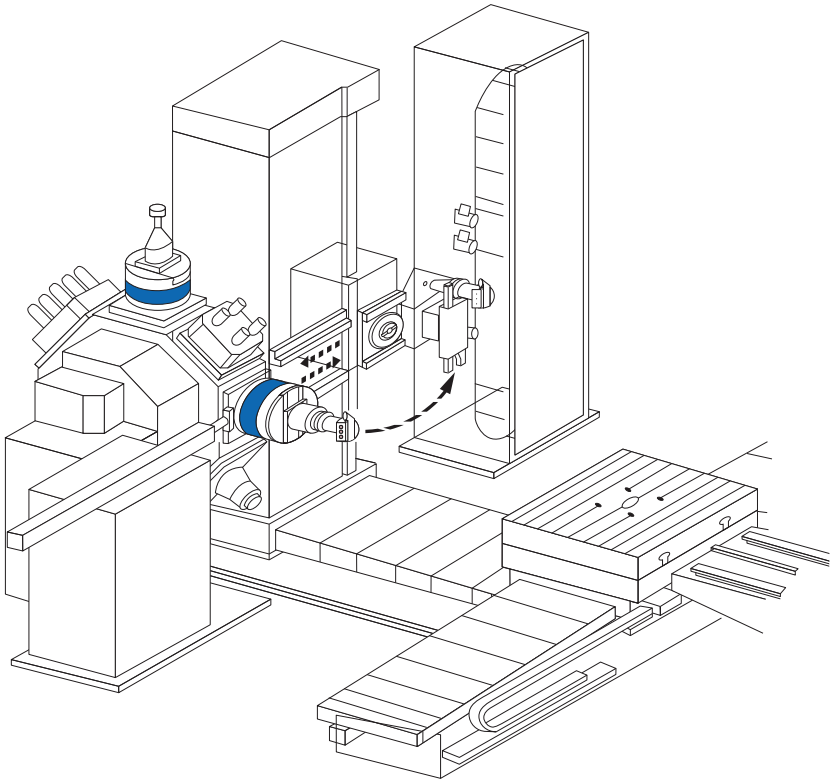
E PREDISPOSICIONES. Los cabezales U-TRONIC están predispuestos con agujeros para el paso del líquido refrigerante. Además es posible introducir a través de los agujeros predispuestos sobre el cuerpo fijo, aire para presurizar la zona motor y final de carrera, engrasar en automático el cinematismo interior y lubricar con aceite nebulizado las guías desplazamiento del carro y del husillo.

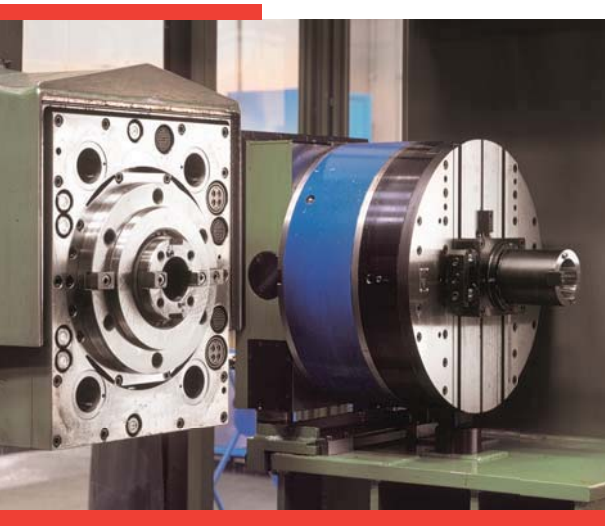
F CARACTÉRISTIQUES. Les têtes U-TRONIC sont munies d'orifices pour le passage du liquide réfrigérant. Il est en outre possible d'introduire de l'air par les orifices présents sur le corps fixe afin de pressuriser la zone moteur et la fin de course, graisser en automatique le cinématisme interne et lubrifier avec de l'huile nébulisée lecoulisseau et la vis mère.

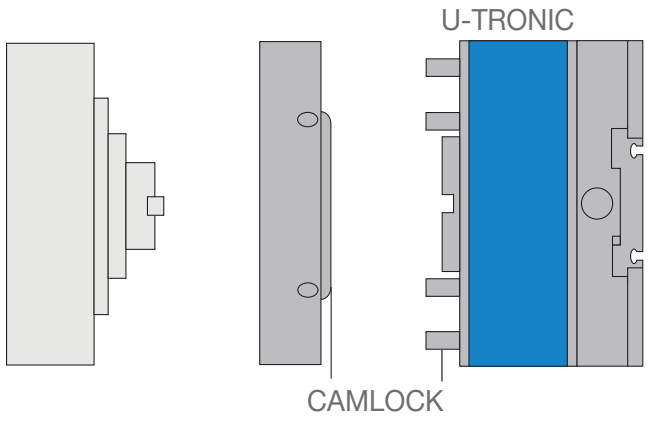
I PREDISPOSIZIONI. Le Teste U-TRONIC sono predisposte con dei fori per il passaggio del liquido refrigerante. Inoltre è possibile immettere dai fori predisposti sul corpo fisso, aria per pressurizzare la zona motore e finecorsa, ingrassare in automatico il cinematismo interno e lubrificare con olio nebulizzato le guide di scorrimento della slitta e la vite madre.

- **APPLICATION**
- **ANBRINGUNG**
- **APLICACIÓN**
- **APPLICATION**
- **APPLICAZIONI**









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.

D U-TRONICS können manuell oder automatisch mittels eines Befestigungsflansches oder einer Scheibe für die Drehung des Drehkörpers an die Werkzeugmaschine, angebracht werden. Diese werden manuell mittels Befestigungsflansch mit Camlock Schnellanschluss, oder automatisch durch Palettiersysteme und eigens vorgesehenen Anschlüssen angebracht. U-TRONIC können außerdem mit einer Werkzeughalterung und automatischem Wechsel des Werkzeuges auf dem Schlitten, zum Erhalt einer vollständigen Automatisierung, ausgestattet werden.

E Los U-TRONIC se aplican manual o automáticamente mediante una pletina para la fijación a la máquina herramienta y un plato para la rotación del cuerpo giratorio. Se aplican manualmente utilizando una abrazadera para la fijación con conexión rápida camlock, o automáticamente con sistemas paletizados y conectores al efecto. Además, los cabezales U-TRONIC pueden estar dotados de un portaherramienta de cambio automático de la herramienta montado en la corredera para obtener un automatismo total.

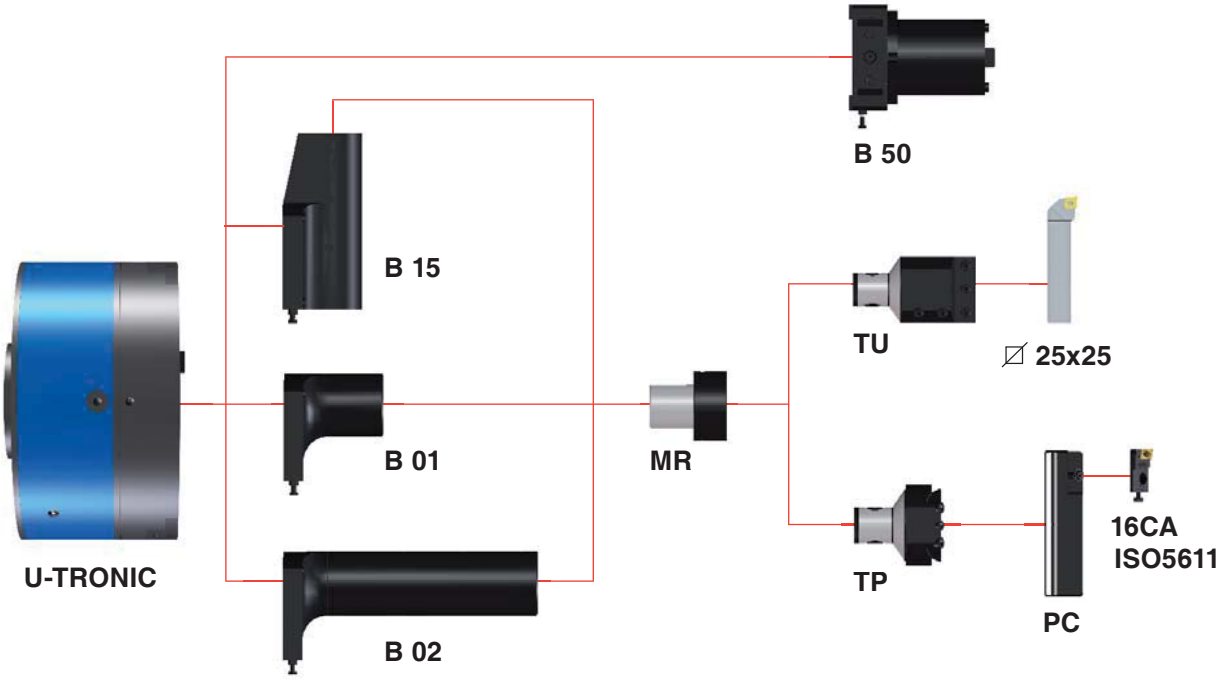
F Les U-TRONIC se montent manuellement ou automatiquement, à l'aide d'une bride pour la fixation à la machine outil, et d'un plateau pour la rotation du corps rotatif. Elles se montent manuellement en utilisant une bride pour la fixation rapide camlock ou automatiquement avec des systèmes palettisés et des connecteurs spéciaux. Les U-TRONIC peuvent également être équipées d'un porte-outil à changement automatique de l'outil, monté sur le coulisseau, afin d'obtenir une automatisation complète.

I Le U-TRONIC si applicano manualmente o automaticamente mediante una flangia per il fissaggio alla macchina utensile e un platorello per la rotazione del corpo rotante. Si applicano manualmente utilizzando una flangia per il fissaggio con attacco rapido camlock, o automaticamente con sistemi pallettizzati e appositi connettori. Le U-TRONIC possono essere in oltre dotate di un portautensile a cambio automatico dell'utensile montato sulla slitta per ottenere una totale automazione.

U-TRONIC

- SUPPLY
- LIEFERUMFANG
- SUMINISTRO
- FOURNITURE
- FORNITURA

UT 3-360 / 5-500 / 5-630 / 5-800 / 8-800 / 8-1000 S



K03

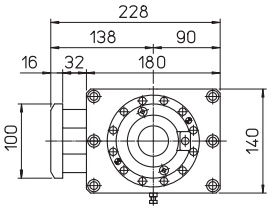


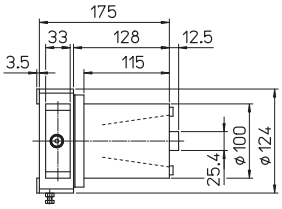
1 B 01
1 B 02
1 B 15
1 MR
1 TU

REF.	CODE
KIT K03 UT 3-360 S	50 17 0325 9 3 00
KIT K03 UT 5-500 / 5-630 / 5-800 S	50 17 0500 9 3 00
KIT K03 UT 8-800 / 8-1000 S	50 17 0800 9 3 00

B50



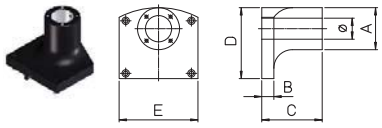




U-TRONIC	REF.
UT 3-360 S	B50 HSK - A63 -A100
UT 5-500 / UT 5-630 / 5-800 S	B50 DIN69871-A-B 50
UT 8-800 / 8-1000 S	B50 MAS BT50

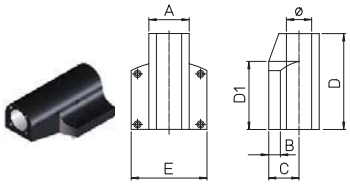
- Special and HYDRAULICS B50 toolholders for automatic tool change, can be provided on request.
- Auf Anfrage sind spezielle und ÖLDYNAMISCHE Werkzeughaltern B50, für automatische Wechsel des Werkzeuges lieferbar.
- Bajo pedido, se pueden suministrar portaherramientas B50 a cambio automatico de la herramienta, especiales y OLEODINAMICOS.
- Porte-outils à changement automatique de l'outil B50 spéciaux et OLÉOHYDRAULIQUES sont fournis sur demande.
- A richiesta sono fornibili portautensili a cambio automatico dell'utensile B50, speciali e OLEODINAMICI

B01 / B02



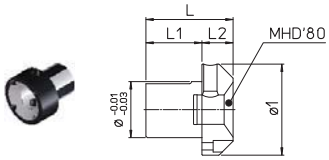
U-TRONIC	REF.	CODE	ØH7	A	B	C	D	E	kg.
UT 3-360 S	B01	44 3 0 050 0115 0	50	80	23	100	135	150	5.5
	B02	44 3 0 050 0275 0				260			8.5
UT 5-500 / 5-630 / 5-800 S	B01	44 3 0 063 0155 0	63	100	30	155	170	200	11
	B02	44 3 0 063 0365 0				400			19
UT 8-800 / 8-1000 S	B01	44 3 0 080 0230 0	80	130		230	200	250	25
	B02	44 3 0 080 0720 0				720	250		60

B15



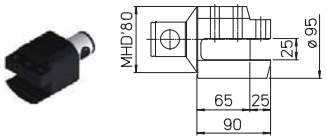
U-TRONIC	REF.	CODE	ØH7	A	B	C	D	D1	E	Kg.
UT 3-360 S	B15	44 5 0 050 0190 0	50	80	23	60	190	135	150	3.7
UT 5-500 / 5-630 / 5-800 S		44 5 0 063 0250 0	63	100	30	70	270	170	200	7.5
UT 8-800 / 8-1000 S		44 5 0 080 0300 1	80	130		85	300	200	250	34

MR



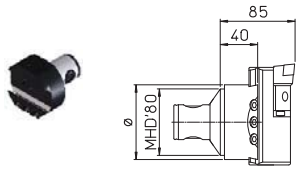
U-TRONIC	REF.	CODE	ØH7	Ø1	L	L1	L2	Kg.
UT 3-360 S	**MR 50/80.80**	45 02 080 0106 0	50	80	95	50	45	1.6
UT 5-500 / 5-630 / 5-800 S	**MR 63/98.80**	45 02 098 0106 0	63	98	105	60		3
UT 8-800 / 8-1000 S	**MR 80/130.80**	45 02 130 0124 0	80	130	125	78		6

TU



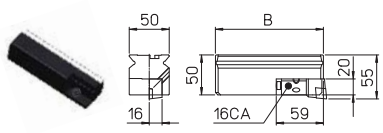
U-TRONIC	REF.	CODE	Kg.
UT 3-360 S	**TU 80/95.25**	46 05 080 25 0 01	4
UT 5-500 / 5-630 / 5-800 S			
UT 8-800 / 8-1000 S			

TP



U-TRONIC	REF.	CODE	Ø	Kg.
UT 3-360 S	**TP 80/90.50**	46 04 080 50 0 01	90	2.3
UT 5-500 / 5-630 / 5-800 S				
UT 8-800 / 8-1000 S	**TP 80/125.50**	46 04 080 50 0 02	125	3.2

PC



U-TRONIC	REF.	CODE	Ø	Kg.
UT 3-360 S	**PC 11.50**	43 30 50 16 095 0	95	1.3
UT 5-500 / 5-630 / 5-800 S	**PC 12.50**	43 30 50 16 135 0	135	2
	PC 13.50	43 30 50 16 200 0	200	3.2
UT 8-800 / 8-1000 S	**PC 14.50**	43 30 50 16 300 0	300	5



PTGNL 16CA-16

CODE	48 3 01 016 1 001



PCLNL 16CA-12

CODE	48 3 01 016 1 002



PSSNL 16CA-12

CODE	48 3 01 016 1 003



PSRNL 16CA-12

CODE	48 3 01 016 1 004

D'ANDREA U-TRONIC

- COMMAND
- STEUERUNG
- MANDO
- COMMANDE
- COMANDO

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.**

D Zum Steuern der U-TRONIC-Köpfe gibt es zwei Möglichkeiten: - Die erste sieht den direkten Anschluss an die "U" Achse der numerischen Steuerung der Werkzeugmaschine vor und ermöglicht die Ausführung aller Arten von Drehbearbeitungen, Ausbohren, Innen- und Außenplanschleifen, Gewindebohrungen, Abrundungen und Rundbearbeitungen. - Die zweite sieht den Einsatz einer einfachen U-CONTROL Positioniervorrichtung mit wireless REMOTE vor, die an die M-Funktionen der Maschinensteuerung angeschlossen wird, um die Startsignale der verschiedenen, auf der REMOTE CONTROL programmierten Vorgänge zu empfangen. Diese Lösung ermöglicht die Ausführung aller Arten von Drehbearbeitungen, Ausbohren, Innen- und Außenplanschleifen, Gewindeschneiden und konische Bearbeitungen **aber keine Rundbearbeitung.**







CNC



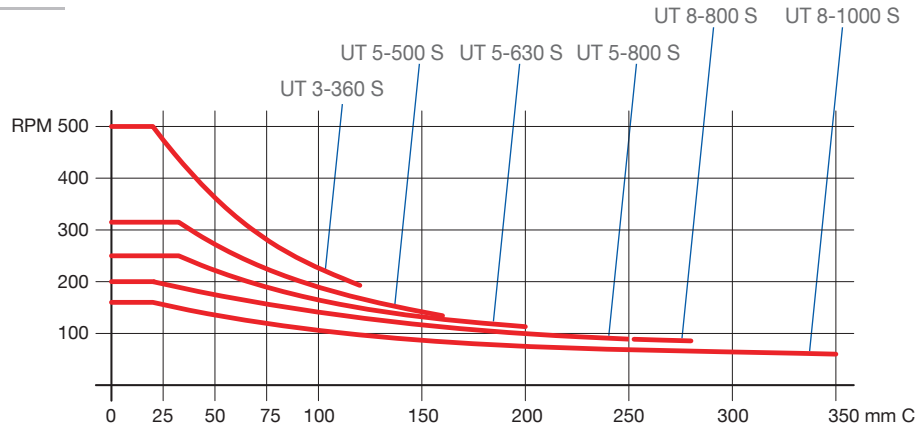
KIT U-CONTROL WIRELESS
CODE : 55 0 020 100 001

E Para el control de los cabezales U-TRONIC existen dos posibilidades: - La primera prevé la conexión directa al eje "U" del control numérico de la máquina herramienta y permite efectuar cualquier tipo de operación de torneado, mandrinados, refrentados internos y externos, roscados, radios y operaciones esféricas. - La segunda prevé el empleo de un simple posicionador U-CONTROL con REMOTE inalámbrico, que puede ser conectado a las funciones M del control de la máquina para recibir señales de start de las diferentes operaciones programadas en el REMOTE-CONTROL. Esta solución permite efectuar cualquier tipo de operación de torneado, mandrinados refrentados internos y externos, roscados y operaciones cónicas pero **no operaciones esféricas.**

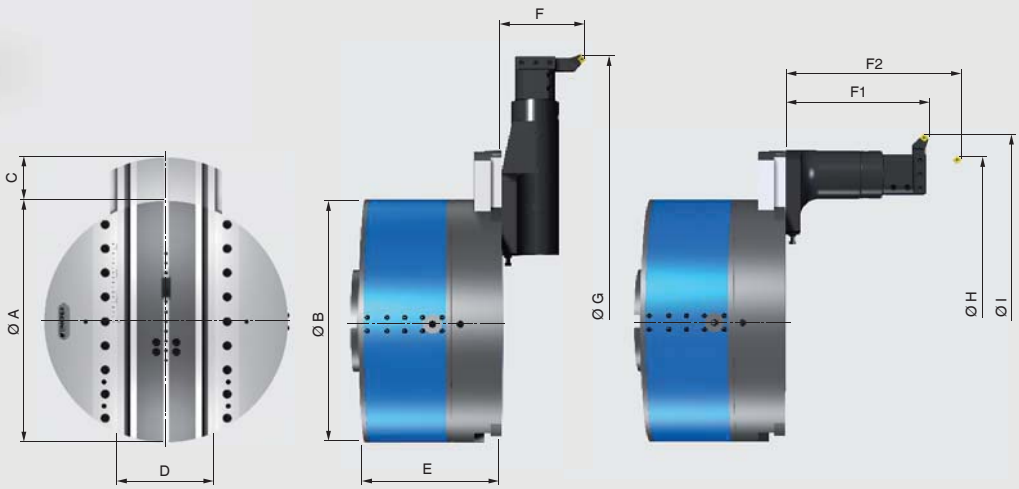
F Deux possibilités existent pour la commande des têtes U-TRONIC: - La première prévoit le branchement direct à l'axe « U » de la commande numérique de la machine-outil et permet d'effectuer tous les types d'opération de tournage, alésage, dressage interne et externe, filetages, les rayons de courbure et les opérations sphériques. - La deuxième prévoit l'utilisation d'un simple positionneur U-CONTROL avec contrôle à distance sans fil qui peut être branché aux fonctions M de la commande de la machine pour recevoir les signaux de départ des différentes opérations programmées sur le contrôle à distance. Cette solution permet d'effectuer tous les types d'opération de tournage, alésage, dressage interne et externe, les filetages et les opérations coniques, **mais pas les opérations sphériques.**

I Per il comando delle teste U-Tronic esistono due possibilità: - La prima prevede il collegamento diretto all'asse "U" del controllo numerico della macchina utensile e permette di eseguire ogni tipo di operazione di tornitura, alesature, sfacciature interne, esterne, filettature, raggiature e operazioni sferiche. - La seconda prevede l'impiego di un semplice posizionatore U-CONTROL con REMOTE wireless, che può essere collegato alle funzioni M del controllo della macchina per ricevere segnali di start delle varie operazioni programmate sul REMOTE-CONTROL. Questa soluzione permette di eseguire ogni tipo di operazione di tornitura, alesature, sfacciature interne, esterne, filettature e operazioni coniche, **ma non operazioni sferiche.**

- **TECHNICAL DATA**
- **TECHNISCHE DATEN**
- **DATOS TÉCNICOS**
- **DONNÉES TECHNIQUES**
- **DATI TECNICI**

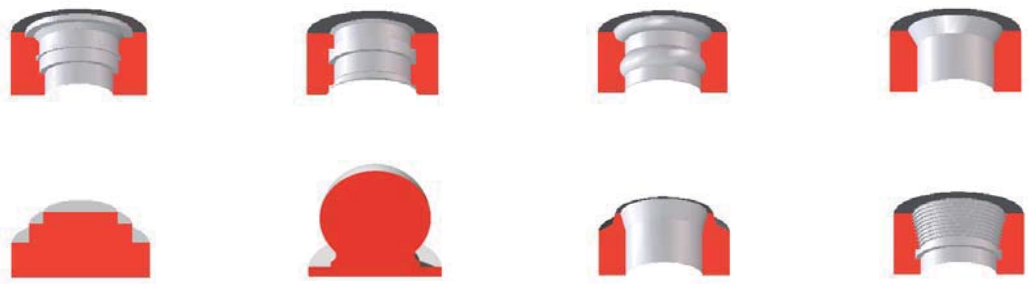






		UT 3-360 S	UT 5-500 S	UT 5-630 S	UT 5-800 S	UT 8-800 S	UT 8-1000 S
Ø A	mm	360	500	630	800		1000
Ø B	mm			500		800	
C • radial traverse • hub des werkzeugschlittens • carrera radial • course radiale • corsa radiale	mm	120	160	200	250	280	350
D	mm	154.6	199.6		230	250	260
E	mm	235	278.5	282	370	410	415
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 • Gewicht • Peso • Poids • Peso	Kg	130	230	310	530	1000	1200
• Radial force • Vorschubkraft • Fuerza radial • Force radiale • Forza radiale	daN	400	500			1000	
• Torque • Drehmoment • Momento de torsión • Couple maxi • Momento torcente	daNm	400	800			1000	
• Boring accuracy • Bohrgenauigkeit • Precisión en mandrinado • Précision d'alésage • Precisione in alesatura		H7					
• Max chip removal • Max Materialabnahme • Max. arranque de viruta • Max du copeau • Max asportazione	mm^2 C40	5	9			14	
• Rapid trasverse • Eilgang • Rápido • Rapide • Rapido	mm/min	400				500	
• Roughness • Rauhigkeit • Rugosidad • Rugosité • Rugosità	Ra	0,8 ~ 1,2					

U-COMAX



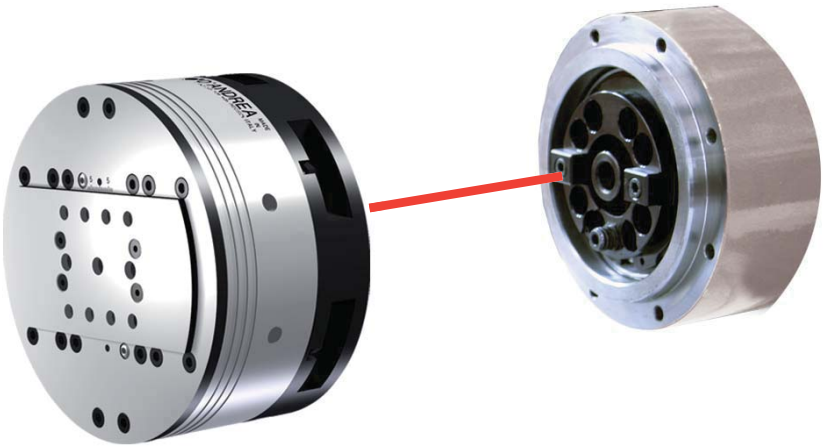




Unit and transfer solutions



- **GENERAL FEATURES**
- **ALLGEMEINE MERKMALE**
- **CARACTERÍSTICAS GENERALES**
- **CARACTÉRISTIQUES GÉNÉRALES**
- **CARATTERISTICHE GENERALI**



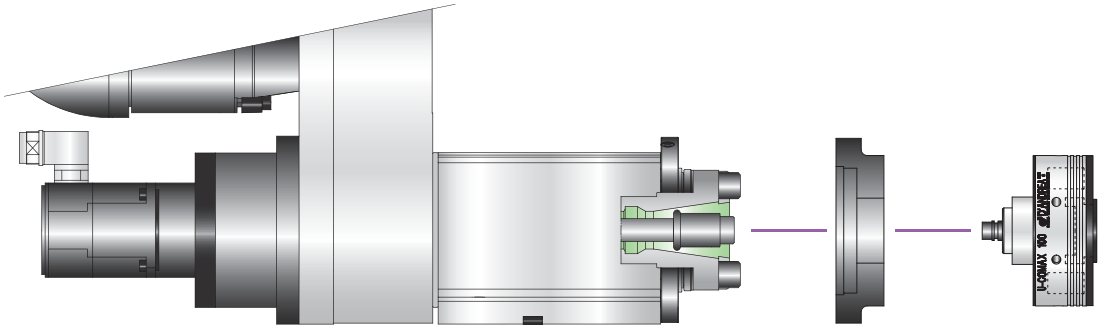
GB U-Comax boring and facing heads are axial command heads designed to be used on transfer machines, machining units, and special machinery. Even during rotation the feed control of the toolholder slide is commanded by a U-Drive drive unit, mounted behind the spindle and managed directly by the NC of 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.

D Die Bohr-und Planschleifköpfe U-Comax sind achsgesteuert und für die Anwendung auf Transfermaschinen, Bedieneinheiten und Spezialmaschinen bestimmt. Die Kontrolle des Werkzeughalterschlittenvorschubs wird auch während der Rotation von einer motorisierten U-Drive Gruppe gesteuert, welche nach der Spindel montiert ist und direkt von der CNC der Werkzeugmaschine verwaltet wird. Die U-Comax Köpfe werden zum Innen– Außen– und Unterschnittplanschleifen, Innen– und Aussendrehen, Kerben, phonographische Spiralen, zylindrisches und konisches Gewindeschneiden, konische, auch variable Bohrungen, konkave und konvexe Rundbearbeitungen mittels Interpolation mit den anderen Maschinenachsen eingesetzt.

E Los cabezales para mandrinar y refrentar U-Comax son cabezales de accionamiento axial destinados al empleo en máquinas transfer, estaciones de trabajo y máquinas especiales. El control del avance de la corredera portaherramientas, incluso durante la rotación, está controlado por un grupo de motorización U-Drive montado detrás del husillo y gestionado directamente por el CNC de la máquina herramienta. Los cabezales U-Comax se emplean para elaboraciones de refrentado interno, externo y bajo-escuadra, torneado interno y externo, canales, espirales fonográficas, roscadas cilíndricas y cónicas, mandrinados cónicos incluso variables, radios cóncavos y convexos y operaciones esféricas, mediante interpolación con los demás ejes de la máquina.

F Les têtes à aléser et à dresser U-Comax sont des têtes à commande axiale, destinées à l'utilisation sur des lignes de transfert, des unités opérationnelles et des machines spéciales. Le contrôle de l'avancement du coulisseau porte-outil, même pendant la rotation, est commandé par un groupe de motorisation U-Drive, monté à l'arrière de la broche et géré directement par le contrôle numérique de la machine-outil. Les têtes U-Comax sont utilisées pour les usinages de dressage interne, externe et contre-dépouille, les tournages internes et externes, les cannelures, les spirales phonographiques, les filetages cylindriques et coniques, les alésages coniques même variables, les rayons de courbure concaves et convexes et les opérations sphériques, à l'aide de l'interpolation avec les autres axes de la machine.

I Le teste per alesare e sfacciare U-Comax sono teste a comando assiale destinate all'impiego su macchine transfer, unità operatrici e macchine speciali. Il controllo dell'avanzamento della slitta portautensili anche durante la rotazione è comandato da un gruppo di motorizzazione U-Drive montato posteriormente al mandrino e gestito direttamente dal CNC della macchina utensile. Le teste U-Comax sono impiegate per lavorazioni di sfacciatura interna, esterna e sottosquadra, tornitura interna ed esterna, canalini, spirali fonografiche, filettature cilindriche e coniche, alesature coniche anche variabili, raggiature concave e convesse e operazioni sferiche, mediante interpolazione con gli altri assi della macchina.



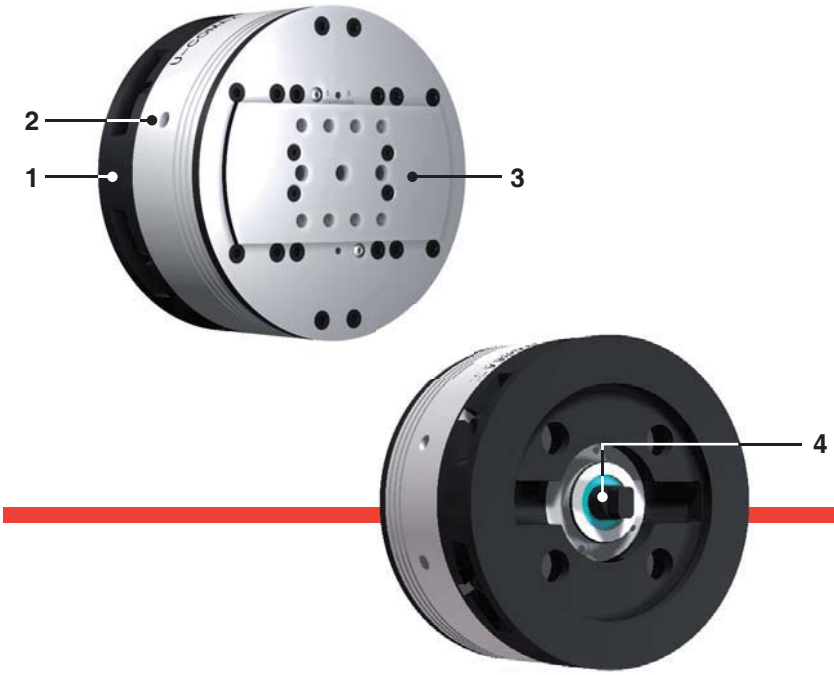
U-COMAX

1
- Adapter flange to the machine
- Anpassungsflansch der Maschine
- Brida de adaptación a la máquina
- Bride d'adaptation à la machine
- Flangia di adattamento alla macchina

2
- Rotating body
- Rotierender Körper
- Cuerpo giratorio
- Corps rotatif
- Corpo rotante

3
- Toolholder slide
- Werkzeughalterschlitten
- Corredera portaherramientas
- Coulisseau porte-outils
- Slitta portautensili

4
- Drive shaft
- Antriebswelle
- Eje de transmisión
- Arbre de transmission
- Albero di trasmissione



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.

D Die U-Drive Motorisierung der U-Comax-Köpfe wird hinter der Maschinenspindel montiert, von einer Achse der numerischen Steuerung verwaltet und mechanisch an den Bewegungsanschluss der U-Comax-Köpfe durch eine Antriebswelle angeschlossen, die die Spindel der Maschine selbst durchquert. Die U-Drive Motorisierung kann je nach Anbringung und Bauform der Maschine verschiedenartig gestaltet werden.

E La motorización U-Drive para los cabezales U-Comax se monta en la parte trasera del husillo de la máquina. Es gestionada por un eje del control numérico y conectada mecánicamente a la toma de movimiento del U-Comax por un eje de transmisión que atraviesa el husillo de la máquina misma. La motorización U-Drive puede tener diferentes configuraciones según la aplicación y la forma constructiva de la máquina.

F Le système moteur U-Drive pour les têtes U-Comax est monté à l'arrière par rapport à la broche de la machine. Il est géré par un axe de la commande numérique et est relié mécaniquement à la prise de mouvement des têtes U-Comax par un arbre de transmission qui traverse la broche de la machine. Le système moteur U-Drive peut avoir différentes configurations selon l'application et la forme de construction de la machine.

I La motorizzazione U-Drive per le teste U-Comax viene montata posteriormente al mandrino della macchina, viene gestito da un asse del controllo numerico e collegata meccanicamente alla presa di moto della teste U-Comax con un albero di trasmissione che attraversa il mandrino della macchina stessa. La motorizzazione U-Drive può assumere diverse configurazioni a seconda dell'applicazione e della forma costruttiva della macchina.



U-COMAX **U-DRIVE**

- **APPLICATION**
- **ANBRINGUNG**
- **APLICACIÓN**
- **APPLICATION**
- **APPLICAZIONI**

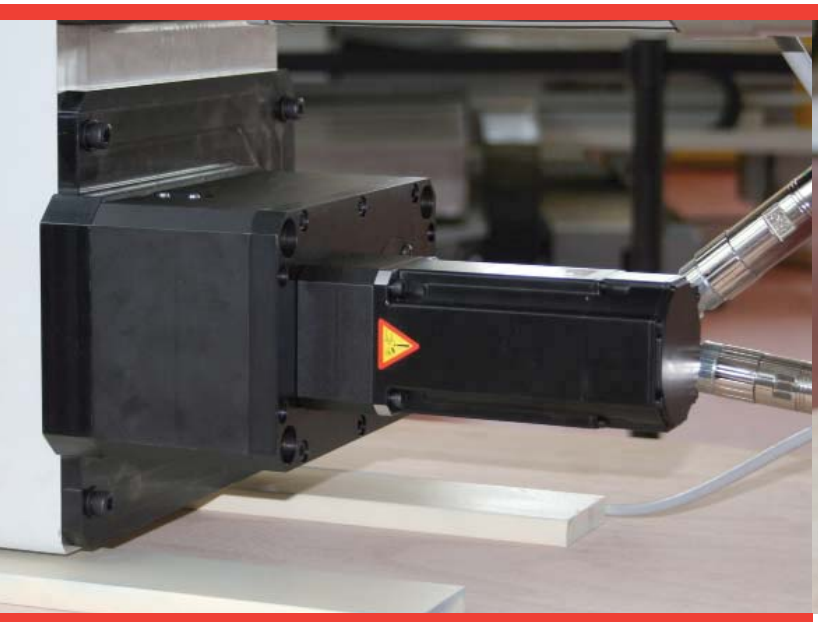
GB U-COMAX is installed on the machine by a flange (1) and where required with a connection (2) ring. The flange and connection ring type to use depend on the model of the machine and can be easily constructed by the Customer or provided by D'Andrea.

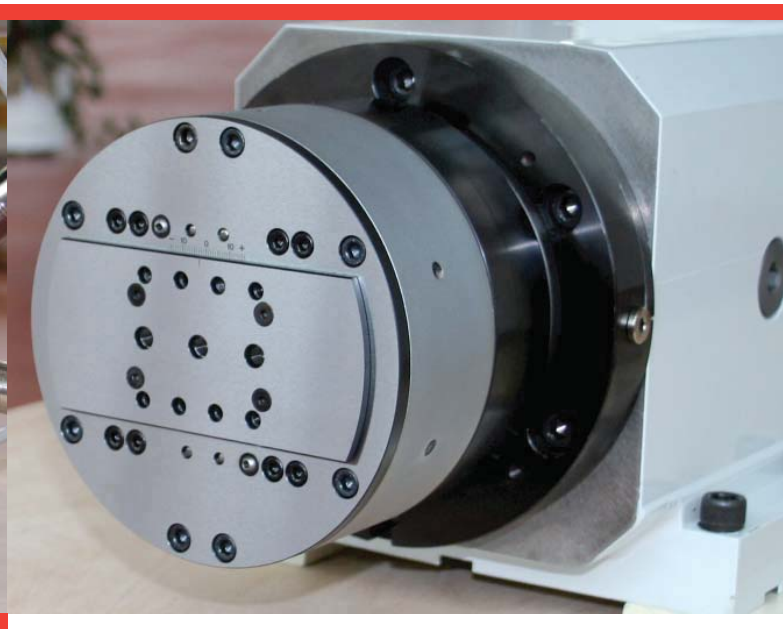
D U-COMAX werden mittels eines Flanschs (1) und wenn erforderlich mit einem Verbindungsring (2), auf die Maschine montiert. Die Art des anzuwendenden Flansches und des Verbindungsringes hängt vom Maschinenmodell ab und kann vom Kunden selbst hergestellt oder von D'Andrea geliefert werden.

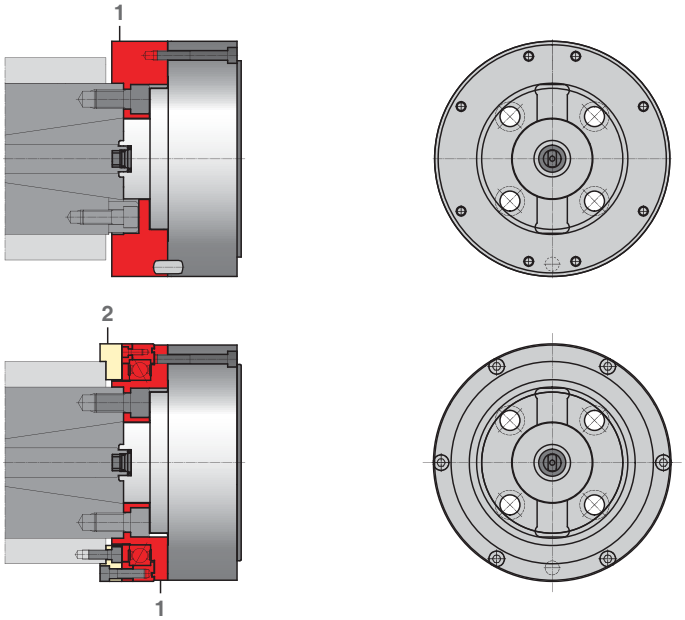
E Los U-COMAX se montan en la máquina mediante una brida (1) y donde es necesario, con un anillo de conexión (2). El tipo de estribo y el anillo de conexión dependen del modelo de la máquina y pueden ser fácilmente construidos por el Cliente o suministrados por D'Andrea.

F Les U-COMAX sont montées sur la machine avec une bride (1) et, lorsque cela est nécessaire, avec une bague de liaison (2). Le type de bride et la bague de liaison à utiliser dépendent du modèle de la machine et peuvent être facilement fabriquées par le client ou fournies par D'Andrea.

I Le U-COMAX vengono montate sulla macchina mediante una flangia (1) e dove necessario con un anello di collegamento (2). Il tipo di flangia e l'anello di collegamento da adottare dipendono dal modello della macchina e possono essere facilmente costruiti dal Cliente o forniti dalla D'Andrea.

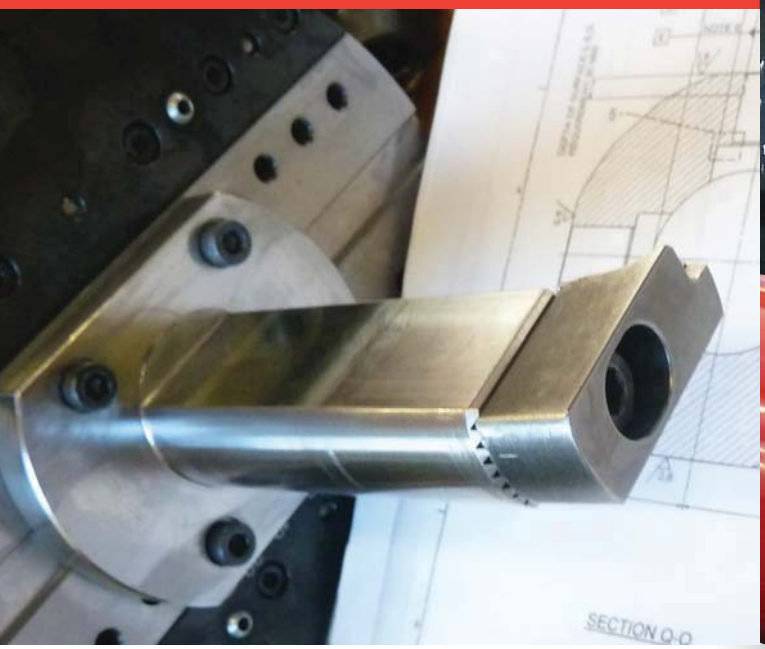


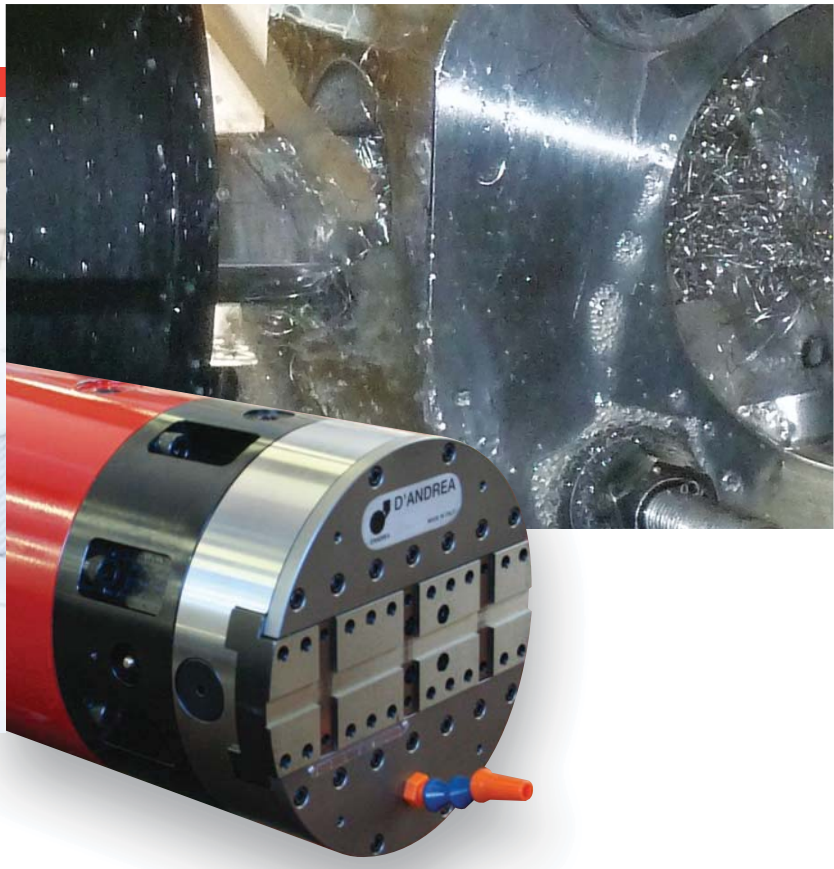




U-COMAX

- **BALANCING AND COOLANT SUPPLY**
- **AUSGLEICH UND ZUFÜHRUNG DES KÜHLMITTELS**
- **EQUILIBRADO Y PASO DEL LÍQUIDO REFRIGERANTE**
- **ÉQUILIBRAGE ET AMENÉE DE LIQUIDE RÉFRIGÉRANT**
- **BILANCIATURA E ADDUZIONE LIQUIDO REFRIGERANTE**







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.

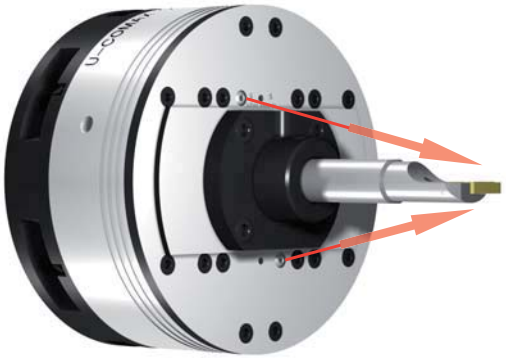
D Die U-COMAX-Köpfe wurden mit zwei Gegengewichten für die automatische Auswuchtung entworfen. Sie bewegen sich entgegengesetzt zum Schlitten und ermöglichen es, bei einer hohen Umdrehungsanzahl ohne nennenswerte Schwingungen zu arbeiten.

E Los cabezales U-COMAX se han diseñado con dos contrapesos para el equilibrado automático, que se mueven en el sentido opuesto al de la corredera permitiendo el trabajo a un elevado número de revoluciones sin oscilaciones apreciables.

F Les têtes U-COMAX ont été conçues avec deux contrepoids pour l'équilibrage automatique. Ils se déplacent dans le sens contraire par rapport au coulisseau, permettant ainsi d'usiner à un nombre élevé de tours, sans oscillations notables.

I Le teste U-COMAX sono state progettate con due contrappesi per il bilanciamento automatico, che si muovono in senso opposto alla slitta permettendo di lavorare ad un elevato numero di giri senza oscillazioni apprezzabili.









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.

D Innerhalb des Drehkörpers des U-COMAX sind Kanäle vorgesehen, die den Durchfluss der Kühlungsflüssigkeit von der Maschinenspindel bis zu den zwei verstellbaren Düsen ermöglichen, die sich seitlich vom Schlitten befinden. Dieser erhebliche Vorteil garantiert eine längere Lebensdauer des Einsatzes, eine höhere Schnittgeschwindigkeit und die Erzielung einer hohen Oberflächengüte. Die zentralisierte Zufuhr der Kühlungsflüssigkeit schädigt den U-COMAX nicht, denn seine internen Labyrinthe sind durch Dichtungsringe geschützt. Es empfiehlt sich, mit nicht mehr als 40 BAR Druck zu arbeiten. Die U-COMAX-Köpfe wurden mit zwei Gegengewichten für die automatische Auswuchtung entworfen. Sie bewegen sich entgegengesetzt zum Schlitten und ermöglichen es, bei einer hohen Umdrehungsanzahl ohne nennenswerte Schwingungen zu arbeiten.

E En el interior del cuerpo giratorio del U-COMAX están previstas unas canalizaciones que permiten el paso del líquido refrigerante del husillo de la máquina hasta dos boquillas orientables situadas al lado de la corredera. Esta notable ventaja asegura una mayor duración de la plaquita de corte, una mayor velocidad de corte y la obtención de buenos acabados superficiales. El suministro centralizado del líquido refrigerante no daña al U-COMAX cuyos canales internos están protegidos por retenes estancos. Se aconseja no superar los 40 BARES de presión. Los U-COMAX están predispuestos para la lubricación automática con aceite nebulizado de las guías de desplazamiento del carro y del husillo.

F Des canalisations sont prévues à l'intérieur du corps rotatif de l'U-COMAX qui permettent le passage du liquide d'arrosage de la broche de la machine jusqu'aux deux buses orientables placées sur les côtés du coulisseau. Cet avantage important garantit une plus longue durée de vie de la plaquette, une vitesse de coupe plus élevée et l'obtention d'excellents finissages des surfaces. L'amenée centralisée de liquide d'arrosage n'endommage pas l'U-COMAX, dont les labyrinthes internes sont protégés par des anneaux d'étanchéité. Nous conseillons de ne pas dépasser les 40 bars de pression. Les U-Comax sont prévus pour la lubrification automatique du coulisseau etde la vis mèreavec de l'huile nébulisée.

I All'interno del corpo rotante della U-COMAX sono previste delle canalizzazioni che permettono il passaggio del liquido refrigerante dal mandrino della macchina sino a due ugelli orientabili posti a fianco della slitta. Questo notevole vantaggio assicura una maggiore durata dell'inserto, una maggiore velocità di taglio e l'ottenimento di buone finiture superficiali. L' adduzione centralizzata del liquido refrigerante non danneggia la U-COMAX i cui labirinti interni sono protetti da anelli di tenuta. È consigliabile non superare i 40 BAR di pressione. Le U-Comax sono predisposte per la lubrificazione automatica con olio nebulizzato delle guide di scorrimento della slitta e la vite madre.

U-COMAX

- SUPPLY
- LIEFERUMFANG
- SUMINISTRO
- FOURNITURE
- FORNITURA



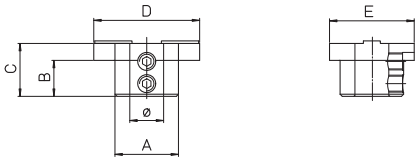
K02



REF.	CODE
K02 CMX 100	50 05 100 100 01
K02 CMX 125	50 05 125 100 01
K02 CMX 160	50 05 160 100 01
K02 CMX 200	50 05 200 100 01

P 120

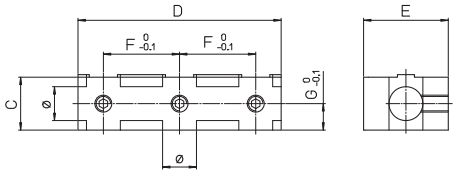




	REF.	CODE	ØH7	A	B	C	D	E	Kg.
CMX 100	P120	43 15 50 16 026 0	16	30	17	25	40	37.5	0.15
CMX 125		43 15 50 16 026 1			16		48.5	46	0.2
CMX 160		43 15 50 25 039 0	25	47	36	38	61	58	0.55
CMX 200		43 15 50 25 039 1		56	24		76	72	0.9

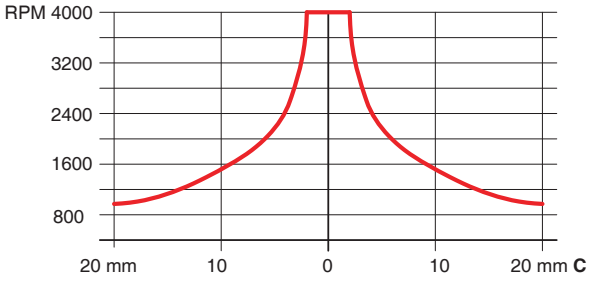
P 130



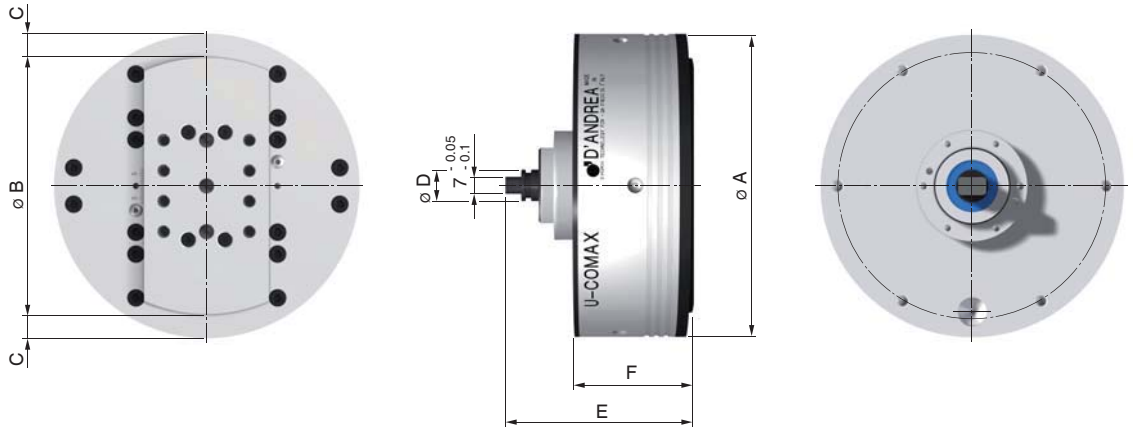


	REF.	CODE	ØH7	C	Ø D	E	F	G	Kg.
CMX 100	P130	43 30 37 25 065 0	16	25	65	37.5	22	10.5	0.25
CMX 125		43 30 46 25 081 0			81	46	30		0.45
CMX 160		43 30 58 38 103 0	25	38	103	58	35	16.5	0.9
CMX 200		43 30 72 38 133 0			133	72	50		1.7

- **TECHNICAL DATA**
- **TECHNISCHE DATEN**
- **DATOS TECNICOS**
- **DONNÉES TECHNIQUES**
- **DATI TECNICI**





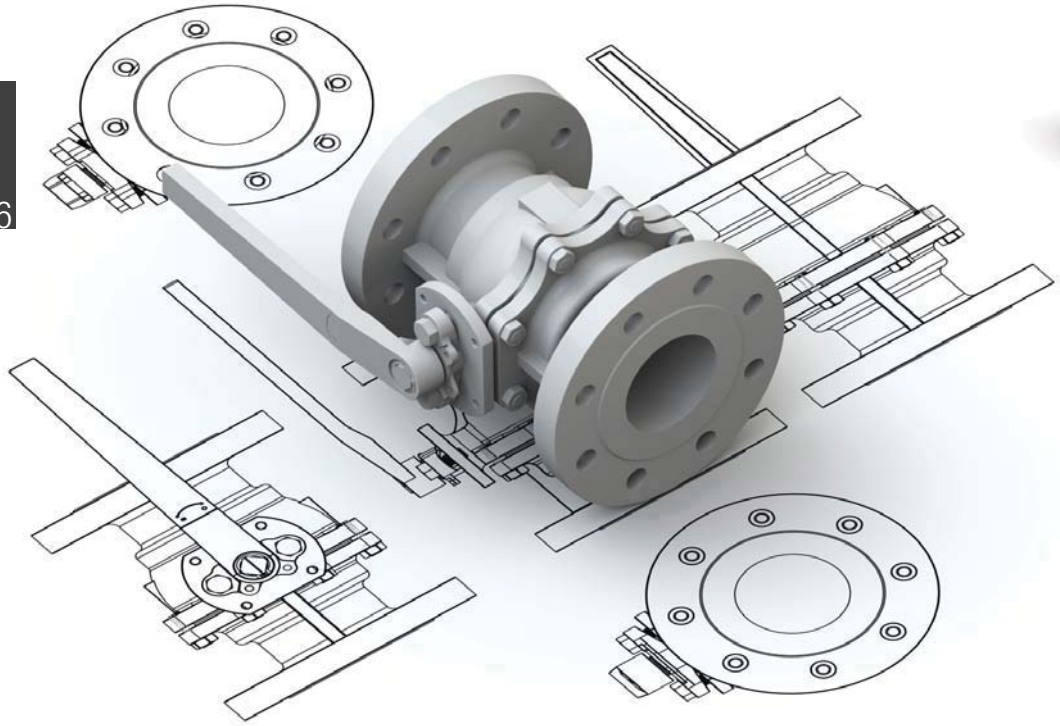


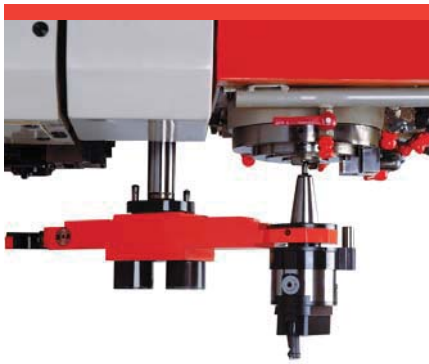
		CMX 100	CMX 125	CMX 160	CMX 200
Ø A	mm	100.5	125	160	200
Ø B	mm	83	105	128	167
C • radial traverse • hub des werkzeugschlittens • carrera radial • course radiale • corsa radiale	mm	± 9	± 12	± 16	± 20
Ø D	mm	13 -0.01 -0.02		15 -0.01 -0.02	
E	mm	86.5		109.5	
F	mm	52.5		69	68
Ø G	mm	10 ~ 62	10 ~ 72	20 ~ 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. ↻/min	RPM	4000	3600	3200	2800
• Weight • Gewicht • Peso • Poids • Peso	Kg	2.4	3.2	9.8	11.5
• Radial force • Vorschubkraft • Fuerza radial • Force radiale • Forza radiale	daN	150		250	
• Torque • Drehmoment • Momento de torsión • Couple maxi • Momento torcente	Nm	400		800	

D'ANDREA AUTORADIAL

- GENERAL FEATURES
- ALLGEMEINE MERKMALE
- CARACTERÍSTICAS GENERALES
- CARACTÉRISTIQUES GÉNÉRALES
- CARATTERISTICHE GENERALI







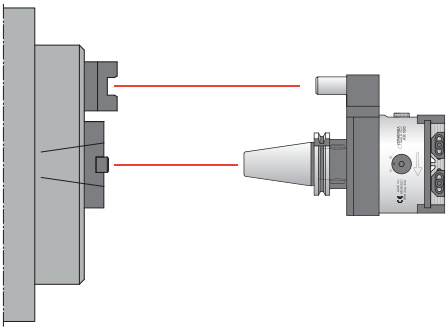
GB Facing heads with automatic feed and quick return of the slide without stopping or reversing the spindle of the machine tool. Available in 3 models: AR 100, AR 125 and AR 160; they have got a feed and quick return. To change the feed, some interchangeable, optional, gear blocks are available, for feeds in mm/rev. of: 0.05; 0.10; 0.20; 0.40; 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.

D Plandrehköpfe mit automatischem Vorschub und Eilrücklauf für den Schlitten, ohne dass die Spindel der Werkzeugmaschine gestoppt oder die Drehrichtung geändert werden muß. Hergestellt in drei Modellgrößen AR 100, AR 125 und AR 160; selbstverständlich mit automatischem Vorschub und Eilrücklauf. Verschiedene, wählbare Vorschübe stehen optional durch auswechselbare Getriebeblöcke in mm/U von 0,05; 0,10; 0,20; 0,40; 0,60 und einem Eilrücklauf von 0,80 mm/U zur Verfügung. Der auswechselbare Kegel hat das gleiche Spannsystem wie es in dem MHD'-Modularsystem bereits verwendet wird. Eine einfache Klemmung der Werkzeughalter am Schlitten erlaubt den Einsatz von Spezialwerkzeughaltern.

E Cabezales de refrentado con avance automático de trabajo y retorno rápido del carro sin la parada o la inversión del husillo de la máquina herramienta. Construidos en 3 modelos: AR 100, AR 125 y AR 160; tienen avance y retorno rápido. Para variar los avances están previstos bloques de engranajes intercambiables, opcionales, para avances en mm/vuelta de 0,05; 0,10; 0,20; 0,40; 0,60 y un retorno rápido de 0,80 mm/vuelta. El cono intercambiable adopta el mismo acoplamiento del sistema modular MHD'. Un simple acoplamiento de los portaherramientas al carro favorece la construcción de portaherramientas especiales.

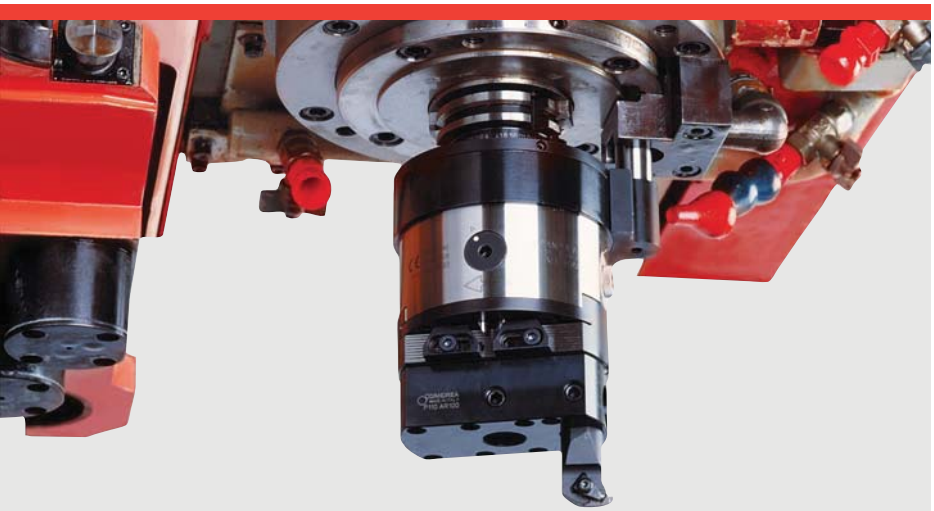
F Têtes à surfacer avec avance automatique et retour rapide du coulisseau, sans obbliga-tion d'arrêter ou d'inverser la rotation de la broche. Ces têtes sont fabriquées en 3 modèles: AR 100, AR 125 et AR 160. Elles sont munies d'un système d'avance et de retour rapide. Pour changer les avances, des systèmes interchangeables et optionnels sont disponibles pour les avances suivantes: 0,05; 0,10; 0,20; 0,40; 0,60 et un retour rapide du coulisseau de 0,80 mm/tour. Les cônes sont interchangeables et leur mode de fixation est identique à celui du système modulaire MHD'. La fixation très simplifiée des porte-outils au coulisseau favorise l'emploi et la fabri-cation de porte-outils spé-ciaux.

I Teste di sfacciatura con avanzamento automatico di lavoro e ritorno rapido della slitta senza l'arresto o l'inversione del mandrino della macchina utensile. Costruite in 3 modelli: AR 100, AR 125 e AR 160; hanno un avanzamento ed il ritorno rapido. Per variare gli avanzamenti sono previsti dei blocchetti di ingranaggi intercambiabili, opzionali, per avanzamenti in mm/giro di: 0,05; 0,10; 0,20; 0,40; 0,60 ed un ritorno rapido di 0,80 mm/giro. Il cono intercambiabile adotta lo stesso fissaggio del sistema modulare MHD'. Un semplice attacco dei portautensili alla slitta favorisce la costruzione di portautensili speciali.





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.

D Die Autoradial Köpfe können an Bearbeitungszentren und an NC-Maschinen verwendet werden, ohne dass elektronische Schnittstellen benötigt werden. Sie können folgende Bearbeitungen automatisch ausführen: plandrehen, hinterdrehen, innen-oder Außennuten einstechen, für Federringe oder O-Ringe, spiralnutenschneiden am Flansch. Der Arbeitsablauf Vorschub und Eilrücklauf des Schlittens ist ohne jedes Stoppen oder einer Drehrichtungsänderung der Spindel möglich. Um den Zyklus zu wiederholen, genügt es, die Spindeldrehrichtung für wenige Umdrehungen zu ändern.

E Los AUTORADIAL son aplicables en centros de mecanizado y en máquinas de CN, sin necesidad de ninguna interfase electrónica, y efectúan automáticamente un ciclo de trabajo de: refrentado, refrentado bajo escuadra, alojamiento interior y exterior para anillos elásticos o retenes, espirales fonográficas en pletina. El ciclo está compuesto por el avance de trabajo y retorno rápido del carro sin parar o invertir la rotación del husillo. El restablecimiento del ciclo se efectúa con la simple inversión del sentido de rotación del husillo durante unas vueltas.

F Les têtes AUTORADIAL sont utilisées sur des centres d'usinage ou des machines à CN sans aucune interface électronique. Elles peuvent exécuter en cycle de travail automatique les opérations suivantes: surfaçage, tournage, rainurage intérieur et extérieur pour rondelles élastiques et joints toriques, taillage de spirales sur des brides. Un cycle de travail est compo-sé de l'avance de travail et du retour rapide du coulisseau et il s'accomplit sans devoir arrêter ou inverser la rotation de la broche. Pour revenir au cycle initial, il suffit simplement d'inverser la rotation de la broche pendant quelques tours.

I Le AUTORADIAL sono applicabili sui centri di lavoro e sulle macchine a CN e senza bisogno di alcuna interfaccia elettronica od asservimento. Eseguono automaticamente un ciclo di lavoro di: sfacciatura, sfacciatura in sottosquadra, sede interna od esterna per anelli elastici od O-ring, spirale fonografica su flangia. Il ciclo è composto dall'avanzamento di lavoro e ritorno rapido della slitta senza mai arrestare o invertire la rotazione del mandrino. Il ripristino del ciclo si esegue con la semplice inversione del senso di rotazione del mandrino per qualche giro.

AUTORADIAL

- **COMPONENTS**
- **KOMPONENTEN**
- **COMPONENTES**
- **COMPOSANTS**
- **COMPONENTI**

1
- Override (A), return (R)
- Vorschubschalter (A), Eilrücklauf (R)
- Selección del avance (A), retorno (R)
- Sélecteur d'avance (A), retour (R)
- Selettore avanzamento (A), ritorno (R)

2
- Limit blocks
- Endanschlag
- Tope de fin de carrera
- Goujons de fin de course
- Tasselli di finecorsa

3
- Control screw
- Kontrollschraube
- Tornillo de mando
- Vis de commande
- Vite comando

4
- Check pin
- Anschlag
- Perno de blocaje
- Piton de retenue
- Perno di ritegno

5
- Interchangeable feed block
- Auswechselbares Vorschubgetriebe
- Bloque avances intercambiables
- Bloc d'avances interchangeables
- Blocchetto avanzamenti intercambiabili

6
- Tool slide
- Werkzeugschlitten
- Guía portaherramientas
- Coulisseau
- Slitta portautensili

7
- Interchangeable arbor
- Auswechselbarer Kegel
- Cono intercambiable
- Cône interchangeable
- Cono intercambiabile

8
- Drive flange
- Mitnehmerflansch
- Brida de arrastre
- Bride d'entraînement
- Flangia di trascinamento

9
- Rotating body
- Rotierender Körper
- Cuerpo giratorio
- Corps rotatif
- Corpo rotante



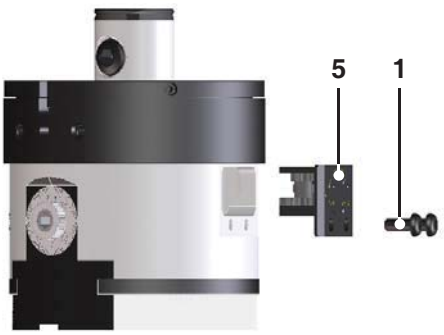


- **INSTRUCTIONS TO REPLACE THE FEED BLOCK**
- **ANWEISUNGEN FÜR DEN AUSTAUSCH DES VORSCHUBMODULS**
- **INSTRUCCIONES PARA SUSTITUIR EL BLOQUE AVANCES**
- **INSTRUCTIONS POUR SUBSTITUER LE BLOC D'AVANCES**
- **ISTRUZIONI PER SOSTITUIRE IL BLOCCHETTO AVANZAMENTI**



a
- Loosen the screw 1
- Schrauben 1 lockern
- Aflojar los tornillos 1
- Desserer vis 1
- Allentare viti 1

b
- Extract block 5
- das Modul 5 herausziehen
- Quitar el bloque 5
- Extraire bloc 5
- Estrarre blocchetto 5

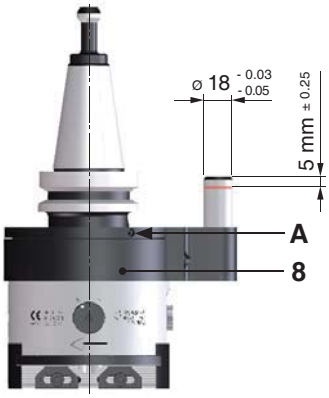


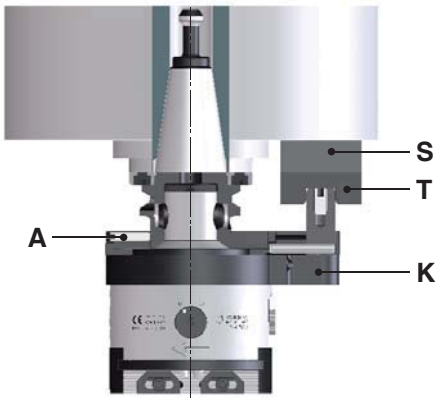
c
- Insert new block 5 lubricated with ISO-UNI XM2 grease
- das neue, mit ISO-UNI-Fett vom Typ XM2 geschmierte Modul 5 einsetzen
- Colocar el nuevo bloque 5 lubrificado con grasa ISO-UNI tipo XM2
- Insérer nouveau bloc 5 lubrifié avec gras ISO-UNI type XM2
- Inserire nuovo blocchetto 5 lubrificato con grasso ISO-UNI tipo XM2

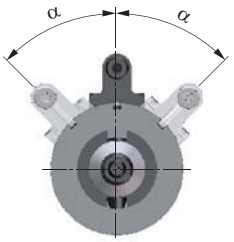
d
- Lock screw 1
- Schrauben 1 festziehen
- Fijar los tornillos 1
- Bloquer vis 1
- Bloccare viti 1











- **ASSEMBLY**
- **MONTAGE**
- **MONTAJE**
- **ASSEMBLAGE**
- **MONTAGGIO**

GB 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 mm ± 0.25, you must adjust the position of the T-block using the spacer S. The angle α is freely adjustable by loosening the 3 screws (A), turning the flange (8) to the desired angle and tightening the screws (A).

D Bei AUTORADIAL kommt es während der Spindelrotation durch Zurückhalten des Mitnehmerflansches (8) zur Vorschubbewegung des Schlittens. Die in dem Set K-NC (K) gelieferte Anschlagaufnahme T wird unter Berücksichtigung der angegebenen Maße an einem festen Teil um die Spindel herum angebracht. Sollte sich die Strecke des Rückhaltezapfens nicht im Bereich von 5 mm ± 0,25 befinden, ist die Position der Anschlagaufnahme T mit einer Unterlegscheibe S einzustellen. Die Wahl des Winkels α ist frei und erfolgt durch das Lockern der 3 Schrauben (A), Drehen des Flansches (8) bis zum gewünschten Winkel und Festziehen der Schrauben (A).

E En los AUTORADIAL el movimiento de avance del carro se obtiene bloqueando la brida de arrastre (8) durante la rotación del husillo. El tope T suministrado con el KIT K-NC (K) va aplicado en una parte fija alrededor del husillo respetando las cotas indicadas. En el caso de que la carrera del tornillo de blocaje no sea de 5 mm ± 0,25, será necesario regular la posición del tope T a través del espesor S. La regulación del ángulo α es libre y se obtiene aflojando los 3 tornillos (A), girando la brida (8) hasta el ángulo deseado y bloqueando de nuevo los tornillos (A).

F Dans les AUTORADIAL, le mouvement d'avance du coulisseau est obtenu en retenant la bride d'entraînement (8) pendant la rotation du mandrin. Le goujon T qui est fourni avec le KIT K-NC (K) doit être appliqué sur une partie fixe autour de la broche en respectant les mesures indiquées. Si la course du piton de retenue n'est pas de 5 mm ± 0,25, il est nécessaire de régler la position du goujon T à l'aide de la cale S. Le réglage de l'angle α est libre et on l'obtient en desserrant les 3 vis (A), en tournant la bride (8) jusqu'à l'angle désiré et en rebloquant les vis (A).

I Nelle AUTORADIAL il movimento di avanzamento della slitta è ottenuto trattenendo la flangia di trascinamento (8) durante la rotazione del mandrino. Il tassello T fornito con il KIT K-NC (K) va applicato ad una parte fissa attorno al mandrino rispettando le quote indicate. Nel caso che la corsa del perno di ritegno non sia di 5 mm ± 0,25, occorrerà regolare la posizione del tassello T per mezzo dello spessore S. La regolazione dell'angolo α è libera e la si ottiene allentando le 3 viti (A), ruotando la flangia (8) fino all'angolo desiderato e ribloccando le viti (A).

- **SUPPLY**
- **LIEFERUMFANG**
- **SUMINISTRO**
- **FOURNITURE**
- **FORNITURA**

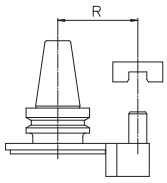
K02



REF.	F mm/↻	CODE		
		K02 AR 100	K02 AR 125	K02 AR 160
K02 AR... - F. 0.05	0.05	50 06 100 20 050	50 06 125 20 050	50 06 160 20 050
K02 AR... - F. 0.1	0.1	50 06 100 20 100	50 06 125 20 100	50 06 160 20 100
K02 AR... - F. 0.2	0.2	50 06 100 20 200	50 06 125 20 200	50 06 160 20 200
K02 AR... - F. 0.3	0.3	50 06 100 20 300	50 06 125 20 300	50 06 160 20 300
K02 AR... - F. 0.4	0.4	50 06 100 20 400	50 06 125 20 400	50 06 160 20 400
K02 AR... - F. 0.6	0.6	50 06 100 20 600	50 06 125 20 600	50 06 160 20 600

K-NC





REF.	CODE		
	R.65	R.80	R.110
K-NC R... - AR 100	39 41 100 065 02	39 41 100 080 02	-
K-NC R... - AR 125	-	39 41 125 080 02	39 41 125 110 02
K-NC R... - AR 160	-	39 41 160 080 02	39 41 160 110 03

MHD'

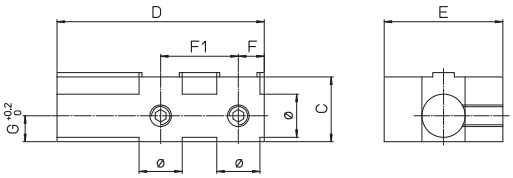
• Complete range of cones on page 61 • Komplette Konusreihe auf Seite 61 • Gama completa de los conos en la pág. 61
• Gamme complète des cônes à la page 61 • Gamma completa dei coni a pag. 61



REF.	MHD'
AR 100	50
AR 125	63
AR 160	80

P 110





REF.	CODE	ØH7	C	D	E	F	F1	G	Kg.
AR 100 - P 110	43 30 50 30 096 0	20	30	96	50	12	36	12	0.7
AR 125 - P 110	43 30 56 38 120 0	25	39	121	56	15	45.5	16	1.3
AR 160 - P 110	43 30 63 48 160 0	32	49	164	63	19	63	21	2.5

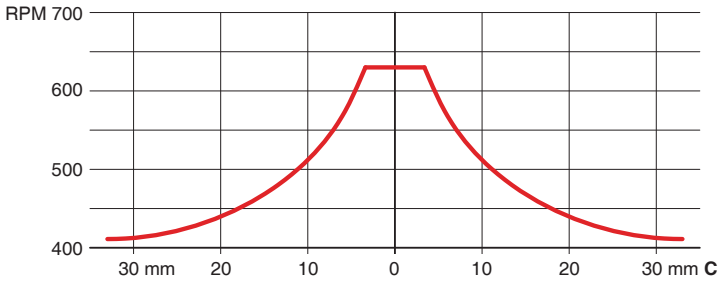
F...

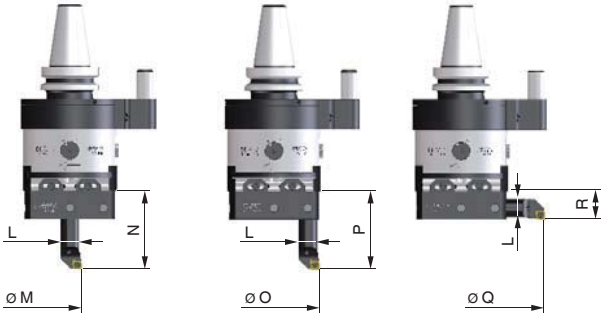
• Interchangeable feeds • Auswechselbare Vorschübe • Avances intercambiables
• Avances interchangeabls • Avanzamenti intercambiabili

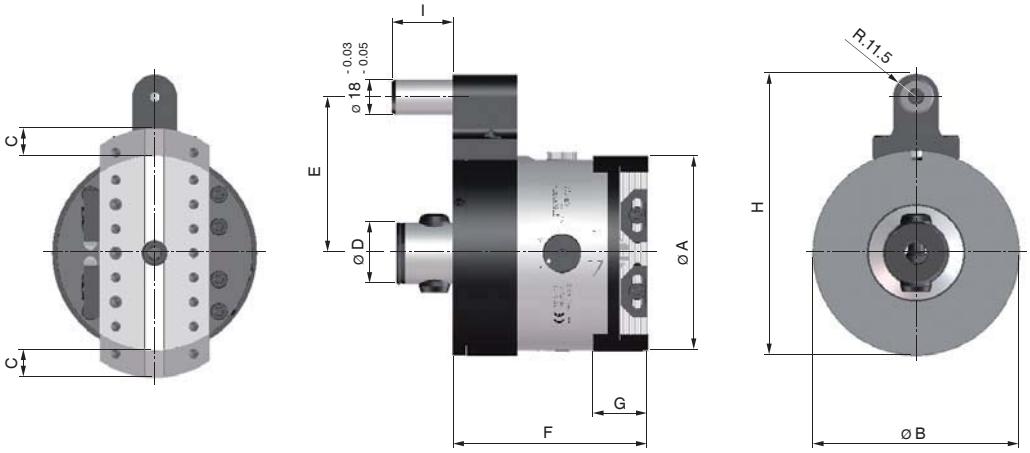


REF.	F mm/↻	CODE		
		K02 AR 100	K02 AR 125	K02 AR 160
F. 0.05 - AR...	0.05	38 20 060 05 001	38 20 061 05 001	38 20 062 05 001
F. 0.1 - AR...	0.1	38 20 060 10 001	38 20 061 10 001	38 20 062 10 001
F. 0.2 - AR...	0.2	38 20 060 20 001	38 20 061 20 001	38 20 062 20 001
F. 0.3 - AR...	0.3	38 20 060 30 001	38 20 061 30 001	38 20 062 30 001
F. 0.4 - AR...	0.4	38 20 060 40 001	38 20 061 40 001	38 20 062 40 001
F. 0.6 - AR...	0.6	38 20 060 60 001	38 20 061 60 001	38 20 062 60 001

- **TECHNICAL DATA**
- **TECHNISCHE DATEN**
- **DATOS TECNICOS**
- **DONNÉES TECHNIQUES**
- **DATI TECNICI**







		AR 100	AR 125	AR 160
Ø A	mm	100	125	160
Ø B	mm	105	130	
C • radial traverse • hub des werkzeugschlittens • carrera radial • course radiale • corsa radiale	mm	± 12.5	± 20	± 35
Ø D	mm	(MHD'50) 32 - 0.005 - 0.008	(MHD'63) 42 - 0.005 - 0.008	(MHD'80) 42 - 0.005 - 0.008
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
I	mm	31.5	39.5	45.5
L	mm	20	25	32
Ø M	mm	76	99	144
N	mm	125	160	200
Ø O	mm	148	190	270
P	mm	125	160	200
Ø Q	mm	250	320	400
R	mm	31	40	50
Max. ↻/min	RPM	630	500	400
• Interchangeable feeds • Auswechselbare Vorschübe • Avances intercambiables • Avances interchangeabls • Avanzamenti intercambiabili	mm/↻	p. 50		
• Weight without the cone • Gewicht ohne Konus • Peso sin cono • Poids sans cône • Peso senza cono	Kg	5.5	9	14
• Quick return • Eilrückzug • Retorno rápido • Retour rapide • Ritorno rapido	mm/↻	0.8		



MODULHARD’
TR-PSC



MONOforce



TOPRUN



MONOd’



MONOd’ CT



MCD’

TOOLS

the power of precision

GB High precision modular toolholders that allow boring, milling, drilling, and tapping operations to be carried out with extreme flexibility and rigidity.
D Modulare Hochpräzisions-Werkzeughalter für Werkzeugmaschinen und Bearbeitungszentren, die mit extremer Flexibilität und Starre Ausbohr-, Fräs-, Bohr-, und Gewindebohrarbeiten ermöglichen.
E Portaherramientas modulares de alta precisión que permiten efectuar con extrema flexibilidad y rigidez, operaciones de mandrinado, fresado, taladrado y roscado.
F Porte-outils modulaires de haute précision permettant d'exécuter grâce à leur extrême flexibilité et rigidité, des opérations d'alésage, fraisage, forage et taraudage.
I Portautensili modulari di alta precisione che consentono di eseguire con estrema flessibilità e rigidità, operazioni di alesatura, fresatura, foratura e maschiatura.

GB High precision ultra-tight toolholder with 12, 20 and 32 mm diameter tool arbor.
D Präzisionswerkzeughalter mit hochfester Aufspannung mit einem Durchmesser von 12, 20 und 32 mm.
E Portaherramientas de precisión de gran apriete con unión herramienta de diámetro 12, 20 y 32 mm.
F Porte-outils de précision à serrage fort prévoyant des dimensions de logement de l'outil de 12, 20 et 32 mm de diamètre.
I Portautensili di precisione a forte serraggio con attacco utensile diametro 12, 20 e 32 mm.

GB High precision balanceable monoblock toolholder for high-speed machining.
D Auswuchtbare Monoblock-Werkzeughalter für Hochpräzision und Hochgeschwindigkeitsbearbeitung.
E Portaherramientas monobloc equilibrables de elevada precisión para elaboraciones de alta velocidad
F Porte-outils monobloc équlibrable de haute précision pour les usinages à grande vitesse.
I Portautensili monoblocco bilanciabili di elevata precisione per lavorazioni ad alta velocità.

GB Integrated high quality toolholders, ideal for all types of machine tool equipment with HSK, DIN and BT base arbors.
D Die integrierten Werkzeughalter von herausragender Qualität stellen die ideale Lösung für die Ausrüstung aller Arten von Werkzeugmaschinen mit Basisanschluss HSK, DIN und BT dar.
E Portaherramientas integrales de elevada calidad, ideales para equipar cualquier tipo de máquina herramienta con unión base HSK, DIN y BT.
F Porte-outils intégraux de haute qualité représentant la solution idéale pour équiper tous les types de machines-outils avec une fixation de base HSK, DIN et BT.
I Portautensili integrali di elevata qualità, ideali per attrezzare ogni tipo di machina utensile con attacco base HSK, DIN e BT.

GB High quality shrink fit integral tool holders, ideal for equipping any type of machine tool with basic HSK, PSC, DIN, and BT attachment.
D Hochwertiger Schrumpf-Werkzeughalter ideal zur Ausstattung jeder Art von Werkzeugmaschinen mit Basissockel HSK, PSC, DIN und BT.
E Portaherramientas integrales con acoplamiento térmico de elevada calidad, ideal para equipar cualquier tipo de máquina herramienta con conexión base HSK, PSC, DIN y BT.
F Porte-outils intégraux de haute qualité, à frettage thermique, aptes à équiper toute machine-outil munie d'attachement de base HSK, PSC, DIN et BT.
I Portautensili integrali a Calettamento Termico di elevata qualità, ideali per attrezzare ogni tipo di machina utensile con attacco base HSK, PSC, DIN e BT.

GB Lathe toolholder program, recommended for the application on MULTI-TASK machines
D Das Werkzeughalterprogramm für Drehmaschinen, das für die Anbringung auf den Spindeln von MULTI-TASK-Maschinen empfohlen wird.
E Programa de portaherramientas de torno recomendado para la aplicación en máquinas MULTI-TASK.
F Programme de porte-outils pour le tour, recommandé pour l'application sur les machines MULTI-TASK.
I Programma di portautensili da tornio, raccomandato per l'applicazione su macchine MULTI-TASK.

Made in Italy





Modularity and high precision



MODULHARD'ANDREA

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p.92-95 • **TRC 14-40**
Ø 14.5 ~ 66

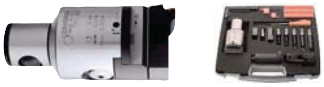


p.95 • **SF. .**

p.96-99 • **TRC 50** • **KIT K01**
Ø 2.5 ~ 110 Ø 6 ~ 110



p.100-103 • **TRC 63** • **KIT K01**
Ø 6 ~ 125 Ø 6 ~ 125



p.104-107 • **TRC 80** • **KIT K01**
Ø 6 ~ 125 Ø 6 ~ 200



p.99-103-107 • **SF. .**



p.108-111 • **TRC 32 HS** • **KIT K01**
Ø 2.5 ~ 18 Ø 2.5 ~ 12



p.108-111 • **TRM 32 HSB** • **KIT K01**
Ø 2.5 ~ 18 Ø 2.5 ~ 12



p.112-113 • **TRC 50 HS** • **KIT K01**
Ø 2.5 ~ 22 Ø 6 ~ 22



p.112-113 • **TRM 50 HSB** • **KIT K01**
Ø 2.5 ~ 22 Ø 6 ~ 22



p.114-117 • **TRM 16-40**
Ø 18 ~ 63



p.117 • **SF. .**

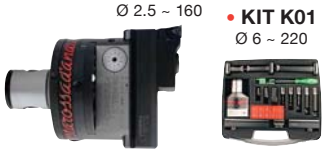
p.118-121 • **TRM 50**
Ø 2.5 ~ 108 • **KIT K01**
Ø 6 ~ 108



p.122-125 • **TRM 50/63**
• **TRM 63/63**
Ø 2.5 ~ 125 • **KIT K01**
Ø 6 ~ 125



p.126-129 • **TRM 50/80**
• **TRM 80/80**
Ø 2.5 ~ 160 • **KIT K01**
Ø 6 ~ 220



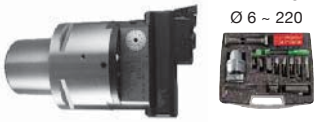
p.130-133 • **TRM 80/125**
Ø 36 ~ 500 • **KIT K01**
Ø 36 ~ 410



p.134-139 • **TR 50 PSC 40**
• **TR 50 PSC 50**
• **TR 50 PSC 63**
Ø 2.5 ~ 108 • **KIT K01**
Ø 6 ~ 108



p.140-147 • **TR 63 PSC 63**
• **TR 80 PSC 80**
Ø 2.5 ~ 160 • **KIT K01**
Ø 6 ~ 220



p.121-125-129-133
p.139-143-147 • **SF. .**



p.148-153 • **BPS . . . .**
Ø 200 ~2800



p.154 • **TR 200**
Ø 200 ~2800



p.155 • **SF. .**

p.155 • **SS. .**



p.154 • **CW** p.154 • **PRL**



p.156 • **TP** p.156 • **PC**



p.157 • **TU** p.157 • **AS..45°**



p.158-159 • **INSERT . . . .**



p.160-161 • **INFO**





p.253 • **Win Tool**

p.170 • **PE**



p.170 • **MHD FORCE**



p.171 • **AW**



p.172 • **PF**



p.173 • **CM**



p.174 • **AM**



p.174 • **B16**



p.174 • **NS**



p.175 • **ACR/NC**



p.175 • **ACR**



MODULHARD'ANDREA

- WHAT IS MHD'?
- WAS IST DAS MHD'?
- ¿QUÉ ES EL MHD'?
- QU'EST-CE QUE LE MHD'?
- COS'È L'MHD'?



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 2800 mm completes the MHD' line with roughing double-bit heads and centesimal and micrometric Testarossa finishing heads with a 2µm sensitivity adjustment.

D Modulare Hochpräzisions-Werkzeughalter für Werkzeugmaschinen und Bearbeitungszentren, die mit extremer Flexibilität und Starre Ausbohr-, Fräs-, Bohr-, und Gewindebohrarbeiten ermöglichen. Die zylindrisch-konische Verbindung in elf Größen garantiert die Austauschbarkeit aller Elemente des Systems, das Basisanschlüsse HSK, DIN, BT und CAT und Polygon-shank Verlängerungen, Reduktionen und Adapter für Werkzeughalter mit einschließt. Das vielseitige Ausbohrprogramm zur Bearbeitung von Durchmessern von 2,5 bis 2800 mm, vervollständigt die Linie MHD' mit den zweischneidigen Grobbearbeitungsköpfen und den zentesimalen und mikrometrischen Feinbearbeitungsköpfen Testarossa mit einer Einstellfeinheit von 2µm.

E Portaherramientas modulares de alta precisión para máquinas herramientas y centros de mecanizado que permiten efectuar con extrema flexibilidad y rigidez, operaciones de mandrinado, fresado, taladrado y roscado. El acoplamiento cilíndrico-cónico disponible en once tamaños, garantiza la intercambiabilidad de todos los elementos del sistema, que incluye uniones base HSK, DIN, BT y CAT y Polygon-shank, prolongadores, reducciones y adaptadores portaherramientas. El amplio programa de mandrinado para la elaboración de diámetros de 2,5 a 2800 mm, completa la línea MHD' con los cabezales de desbaste de doble cuchilla y los cabezales de acabado centesimales y micrométricos Testarossa con sensibilidad de ajuste de 2µm.

F Ce sont des porte-outils modulaires de haute précision pour les machines-outils et les centres d'usinage, qui permettent d'effectuer, grâce à leur grande flexibilité et rigidité, des opérations alésage, fraisage, forage et taraudage. L'accouplement cylindrique-conique, offrant onze grandeurs, garantit l'interchangeabilité de tous les éléments du système, qui comprend des fixations de base HSK, DIN, BT, CAT et jambe conique par polygone (Polygon-shank), des rallonges, des réductions et des adaptateurs porte-outils. Le riche programme d'alésage pour l'usinage des diamètres allant de 2,5 à 2800 mm complète la ligne MHD' avec les têtes de dégrossissage à double tranchant et les têtes de finition centésimales et micrométriques Testarossa, à la sensibilité de réglage de 2 µm.

I Portautensili modulari di alta precisione per macchine utensili e centri di lavoro che consentono di eseguire con estrema flessibilità e rigidità, operazioni di alesatura, fresatura, foratura e maschiatura. L'accoppiamento cilindrico-conico disponibile in undici grandezze, garantisce l'intercambiabilità di tutti gli elementi del sistema, che include attacchi base HSK, DIN, BT, CAT e Polygon-shank, prolunghe, riduzioni e adattatori portautensili. Il ricco programma di alesatura per la lavorazione di diametri da 2,5 a 2800 mm, completa la linea MHD' con le testine di sgrossatura bitaglienti e le testine di finitura centesimali e micrometriche Testarossa con sensibilità di regolazione di 2µm.





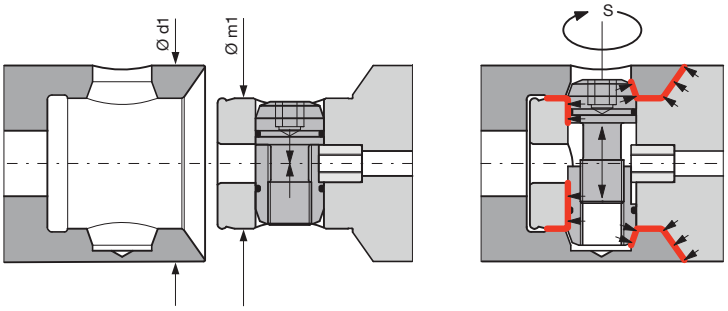
GB The MHD' coupling is the heart of the tool system as it ensures utmost rigidity and concentricity during milling and boring operations. This is achieved by the (patented) cylindrical-conical fit and by a radial expanding bolt for clamping and driving.

D Die MHD' Kupplung ist das Kernstück des MODULHARD'ANDREA, da sie maximale Starrheit und Konzentrizität beim Fräsen und Bohren sichert. Das wird durch die (patentierte) zylindrisch-konische Passfläche und den radialen Spreizbolzen für Axialspannung und Mitnahme erreicht.

E El acoplamiento MHD' es el punto de fuerza del MODULHARD'ANDREA, porque permite fresar y mandrinar con la máxima rigidez y concentricidad, gracias al acoplamiento (patentado) cilíndrico-cónico y al perno radial expansible para el blocaje axial y el arrastre.

F L'accouplement MHD' est l'atout du système d'outils parce qu'il assure une extrême rigidité et concentricité dans les opérations de fraisage et d'alésage grâce au siège cylindrique-conique (breveté) et à une tige radiale expansible pour le blocage et l'entraînement.

I L'attacco MHD' è il punto di forza del Modulhard'andrea perché consente di fresare ed alesare con massima rigidità e concentricità grazie all'accoppiamento (brevettato) cilindrico-conico e al perno radiale espandibile per il bloccaggio assiale e il trascinamento.



MHD'	Ø d_1	Ø m_1	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**
- **ALLGEMEINES**
- **INFORMACIONES GENERALES**
- **GENERALITES**
- **INFORMAZIONI GENERALI**

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.

D Montage: Die Grundaufnahme in einer Halterung befestigen. Gewünschtes Komponente (Reduzierung, Verlängerun, Ausdrehkopf usw.) einsetzen. Darauf achten, dass der radiale Spreizbolzen nicht aus dem zylindrischen Teil heraus ragt. Element durch Rechtsdrehen des Spreizbolzens mit dem mitgelieferten Sechskantschlüssel oder einem Drehmomentschlüssel festklemmen. **Demontage:** Grundaufnahme in einer Halterung befestigen. Spreizbolzen durch Linksdrehen lösen.

E Montaje: Asegurar el acoplamiento base en un soporte. Montar el elemento deseado (reducción, prolongación, cabezal para mandrinar etc.) asegurándose que el perno radial no sobresalga del núcleo cilíndrico. Fijar girando en sentido horario el perno radial con la llave exagonal en dotación o con una llave torsiométrica. **Desmontaje:** Asegurar el acoplamiento base en un soporte. Desbloquear, girando a fondo en sentido antihorario, el perno radial.

F Montage: Fixer le mandrin dans un support. Monter l'élément désiré (réduction, rallonge, tête à aléser etc...) et s'assurer que la tige radiale expandible ne saillit pas de la partie cylindrique. Bloquer l'élément en tournant la tige radiale dans le sens des aiguilles d'une montre au moyen de la clé hexagonale fournie ou d'une clé dynamométrique. **Démontage:** Fixer le mandrin dans un support. Débloquer l'élément en tournant la tige radiale en sens inverse des aiguilles d'une montre.

I Montaggio: Assicurare l'attacco base in un supporto. Montare l'elemento desiderato (riduzione, prolunga, testina per alesare ecc.) assicurandosi che il perno radiale non sporga dal mozzo cilindrico. Bloccare ruotando in senso orario il perno radiale con la chiave esagonale in dotazione o con una chiave torsiometrica. **Smontaggio:** Assicurare l'attacco base in un supporto. Sbloccare, ruotando a fondo in senso antiorario, il perno radiale.

MODULHARD'ANDREA

- **ARBORS EXTENSIONS REDUCTIONS**
- **GRUNDAUFNAHMEN VERLÄNGERUNGEN REDUZIERUNGEN**
- **ACOPLAMIENTOS BASE PROLONGACIONES REDUCCIONES**
- **MANDRINS RALLONGES RÉDUCTIONS**
- **ATTACCHI BASE PROLUNGHE RIDUZIONI**

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.

D **GRUNDAUFNAHMEN.** Die Grundaufnahmen entsprechen den Normen DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A, ISO 26623-1. Sie werden aus Einsatzstahl gefertigt, gehärtet und auf Toleranz AT3 geschliffen. Für schwere Fräsarbeiten und Bohrungen mit Tiefen über 250 mm und Durchmessern über 125 mm ist der Einsatz von Grundaufnahmen Größe MHD' 80, 110 und 140 zweckmäßig. Grundaufnahmen in Sonderausführung sind auf Anfrage lieferbar.
VERLÄNGERUNGEN. Für jede MHD' Größe sind Verlängerungen verschiedener Länge vorhanden, die eine größere Anpassungsfähigkeit an die Bearbeitungstiefe ermöglichen.
REDUZIERUNGEN. Die Reduzierungen ermöglichen die Verwendung der Komponenten kleinerer MHD' Größen. Damit ist eine umfassende Austauschbarkeit und größere Steifigkeit gegeben.

E **ACOPLAMIENTOS BASE.** Los acoplamientos son realizados según las normas DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A, ISO 26623-1 y son construidos en acero cementado, templado y rectificado según tabla AT3. El empleo de acoplamientos con tamaños MHD' 80, 110 y 140 son aconsejables para operaciones de fuerte fresado y para los mandrinados profundos, por encima de los 250 mm con diámetros superiores a 125 mm. A petición, se pueden construir acoplamientos especiales.
PROLONGACIONES. Para cada tamaño de MHD' existen prolongaciones de diferentes longitudes que permiten optimizar las profundidades de mecanización deseadas.
REDUCCIONES. Las reducciones permiten utilizar componentes de un tamaño MHD' más pequeño y, por lo tanto, tener mayor intercambiabilidad y estabilidad de la herramienta.

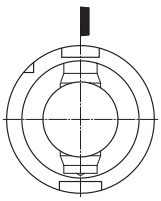
F **MANDRINS.** Les mandrins, conformes aux normes DIN 69871 A-B, MAS 403 BT, DIN 2080, AINSI-CAT, DIN 69893-A, ISO 26623-1 sont fabriqués en acier de cémentation trempé et rectifié à la tolérance AT3. Les tailles MHD' 80, 110 et 140 sont conseillée pour des travaux de fraisage lourds et d'alésage de profondeur supérieure à 250 mm et de diamètre supérieur à 125 mm. Des mandrins spéciaux sont livrables sur demande.
RALLONGES. Pour chaque taille MHD' des ralloges de différentes longueurs sont prévues. Elles permettent une plus grande souplesse d'adaptation à la profondeur d'usinage.
RÉDUCTIONS. Les réductions sont utilisées pour l'emploi des éléments d'une taille MHD' plus petite et améliorent ainsi l'interchangeabilité et la rigidité de l'outil.

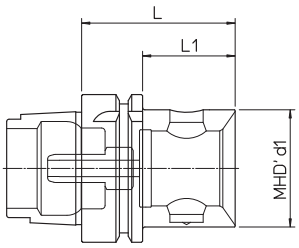
I **ATTACCHI BASE.** Gli attacchi sono realizzati secondo le norme DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A, ISO 26623-1 e sono costruiti in acciaio cementato, temperato e rettificato secondo la tabella AT3. L'impiego di attacchi con grandezze MHD' 80, 110 e 140 sono consigliati per operazioni di fresatura pesante e per alesature profonde oltre i 250 mm con diametri superiori a 125 mm. A richiesta si possono costruire attacchi speciali.
PROLUNGHE. Per ogni grandezza di MHD' esistono prolunghe di differenti lunghezze che consentono di ottimizzare le profondità di lavorazione desiderate.
RIDUZIONI. Le riduzioni permettono di utilizzare componenti di una grandezza MHD' più piccola e quindi avere maggiore intercambiabilità e stabilità dell'utensile.



DIN 69893
HSK-A





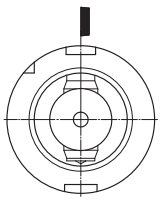


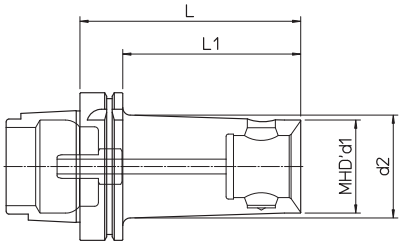
- Supplied with coolant tube
- Lieferung inklusive Kühlmittelrohr
- Completo con racor para el refrigerante
- Pourvu de raccord pour liquide d'arrosage
- Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	MHD' d_1	L	L_1	kg
40	HSK-A40 MHD'32.48	41 6 32 15 040 20	32	48	28	0.4
50	HSK-A50 MHD'50.66	41 6 50 15 050 20	50	66	–	0.6
63	HSK-A63 MHD'40.60	41 6 40 15 063 20	40	60	34	0.7
	HSK-A63 MHD'50.66	41 6 50 15 063 20	50	66	40	0.9
	HSK-A63 MHD'63.75	41 6 63 15 063 20	63	75	–	1.1
80	HSK-A80 MHD'50.70	41 6 50 15 080 20	50	70	44	1.5
	HSK-A80 MHD'63.80	41 6 63 15 080 20	63	80	54	1.8
	HSK-A80 MHD'80.86	41 6 80 15 080 20	80	86	–	2.1
100	HSK-A100 MHD'50.72	41 6 50 15 100 20	50	72	43	2.4
	HSK-A100 MHD'63.82	41 6 63 15 100 20	63	82	53	2.7
	HSK-A100 MHD'80.88	41 6 80 15 100 20	80	88	59	3

DIN 69893
HSK-A







- Supplied with coolant tube
- Lieferung inklusive Kühlmittelrohr
- Completo con racor para el refrigerante
- Pourvu de raccord pour liquide d'arrosage
- Completo di raccordo per il refrigerante

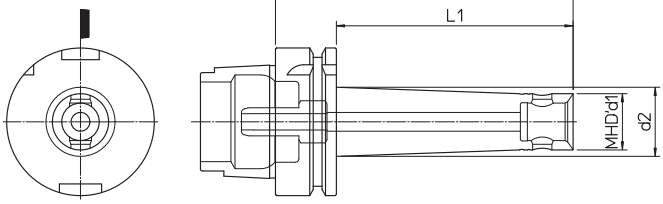
HSK-A	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
63	HSK-A63 MHD'40.120	41 6 40 15 063 28	40	46	120	94	1.4
	HSK-A63 MHD'50.120	41 6 50 15 063 28	50	–			1.7
100	HSK-A100 MHD'50.120	41 6 50 15 100 28		60		91	3.2
	HSK-A100 MHD'63.150	41 6 63 15 100 28	63	70	150	121	4.5
	HSK-A100 MHD'80.180	41 6 80 15 100 28	80	–	180	151	6.5

240 248

DIN 69893
HSK-A



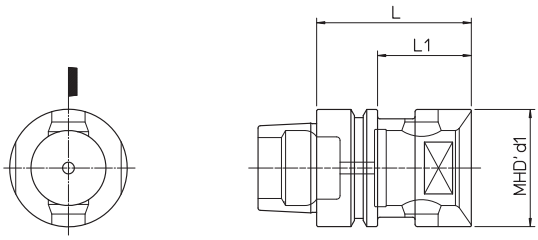
- Supplied with coolant tube
- Lieferung inklusive Kühlmittelrohr
- Completo con racor para el refrigerante
- Pourvu de raccord pour liquide d'arrosage
- Completo di raccordo per il refrigerante



HSK-A	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
63	HSK-A63 MHD'16.63	41 6 16 06 563 20	16	17	63	37	0.7
	HSK-A63 MHD'16.100	41 6 16 10 563 20		19.5	100	74	0.8
	HSK-A63 MHD'20.63	41 6 20 06 563 20	20	-	63	37	0.6
	HSK-A63 MHD'20.90	41 6 20 09 563 20		22.5	90	64	0.8
	HSK-A63 MHD'20.125	41 6 20 12 563 20		25	125	99	0.9
	HSK-A63 MHD'25.63	41 6 25 06 563 20	25	-	63	37	0.7
	HSK-A63 MHD'25.90	41 6 25 09 563 20		27	90	64	0.9
	HSK-A63 MHD'25.125	41 6 25 12 563 20		29.5	125	99	1
	HSK-A63 MHD'32.90	41 6 32 09 563 20	32	33.5	90	64	1
	HSK-A63 MHD'32.125	41 6 32 12 563 20		36	125	99	1.2

DIN 69893
HSK-E

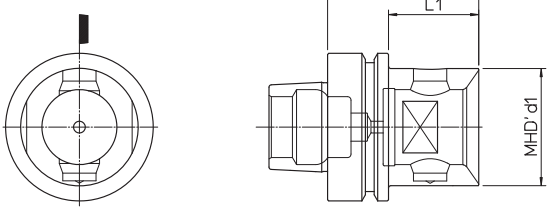




HSK-E	REF.	CODE	MHD' d_1	L	L_1	kg
40	HSK-E40 MHD'32.42	41 6 32 15 040 25	32	42	22	0.5
50	HSK-E50 MHD'50.66	41 6 50 15 050 25	50	66	–	0.6
63	HSK-E63 MHD'50.66	41 6 50 15 063 25			40	0.9

DIN 69893
HSK-F

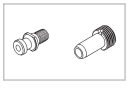




HSK-F	REF.	CODE	MHD' d_1	L	L_1	kg
63	HSK-F63 MHD'50.65	41 6 50 15 063 26	50	65	39	0.8

248
240





ISO 26623-1
PSC



fig.1

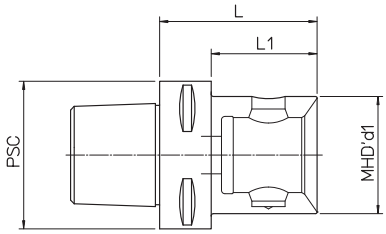
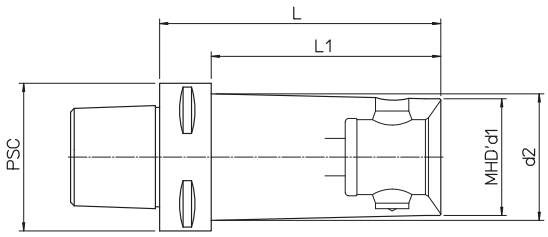


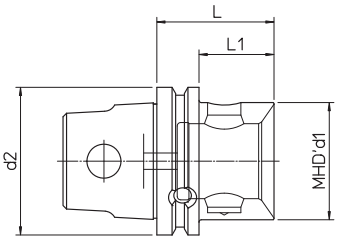
fig.2



PSC	REF.	CODE	MHD' d_1	d_2	L	L_1	Kg.	fig.
40	PSC 40 - MHD' 32.42	41 6 32 26 040 04	32	–	42	22	0.3	1
	PSC 40 - MHD' 40.45	41 6 40 26 040 04	40		45	–	0.4	
50	PSC 50 - MHD' 50.55	41 6 50 26 050 05	50		55		0.8	
63	PSC 63 - MHD' 40.50	41 6 40 26 063 05	40		50	28	0.9	
	PSC 63 - MHD' 40.120	41 6 40 26 063 12		44	120	98	1.5	2
	PSC 63 - MHD' 50.55	41 6 50 26 063 05	50	–	55	33	0.8	1
	PSC 63 - MHD' 50.67	41 6 50 26 063 06			67	45	1.1	
	PSC 63 - MHD' 50.120	41 6 50 26 063 12		54	120	98	1.9	2
	PSC 63 - MHD' 63.77	41 6 63 26 063 07	63	–	77	–	1.8	1
80	PSC 80 - MHD' 50.60	41 6 50 26 080 06	50		60	30	2	
	PSC 80 - MHD' 50.120	41 6 50 26 080 12		54	120	90	2.8	2
	PSC 80 - MHD' 63.70	41 6 63 26 080 07	63	–	70	40	2.3	1
	PSC 80 - MHD' 63.150	41 6 63 26 080 15		67	150	120	4	2
	PSC 80 - MHD' 80.75	41 6 80 26 080 07	80	–	75	–	2.6	1
	PSC 80 - MHD' 80.120	41 6 80 26 080 12			120		4.3	
100	PSC 100 - MHD' 80.80	41 6 80 26 100 08			80	44	3.5	
	PSC 100 - MHD' 110.120	41 6 91 26 100 12	110		120	84	5	

ISO 26622-1
KM



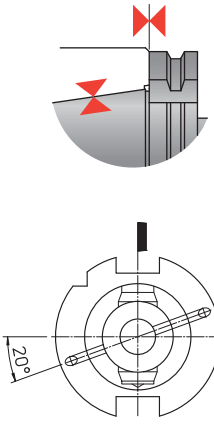


KM	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
63	RD KM - MHD' 50.50	65 70 950 0506 3	50	63	50	32	0.8
	RD KM - MHD' 63.70	65 70 963 0506 3	63		70	–	1.2

UNI DIN HSK MAS-BT

DIN 69871 FC
FACE CONTACT AD+B

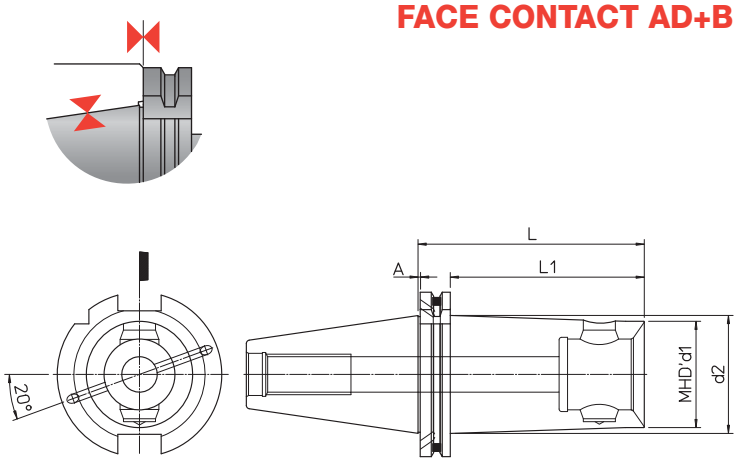




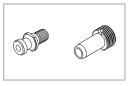
DIN	REF.	CODE	MHD' d_1	A	L	L_1	Kg.
40	DIN69871-AD+B40 FC MHD'50.48	41 6 50 01 040 21F	50	1	48	29	0.9
	DIN69871-AD+B40 FC MHD'63.80	41 6 63 01 040 21F	63		80	–	1.5
50	DIN69871-AD+B50 FC MHD'50.48	41 6 50 01 050 21F	50	1.5	48	29	2.5
	DIN69871-AD+B50 FC MHD'63.56	41 6 63 01 050 21F	63		56	37	2.8
	DIN69871-AD+B50 FC MHD'80.62	41 6 80 01 050 21F	80		62	43	3.4

DIN 69871 FC
FACE CONTACT AD+B



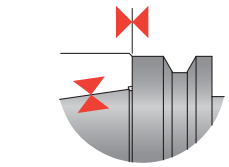


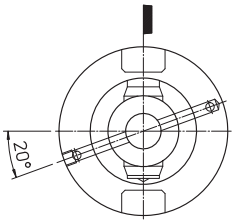
DIN	REF.	CODE	MHD' d_1	d2	A	L	L1	Kg.
40	DIN69871-AD+B40 FC MHD'50.120	41 6 50 01 040 28F	50	–	1	120	101	1.7
50	DIN69871-AD+B50 FC MHD'50.120	41 6 50 01 050 28F		59	1.5			3.5
	DIN69871-AD+B50 FC MHD'50.200	41 6 50 01 050 27F		68		200	181	6.1
	DIN69871-AD+B50 FC MHD'63.150	41 6 63 01 050 28F	63	75.5		150	131	5.2
	DIN69871-AD+B50 FC MHD'63.250	41 6 63 01 050 27F		80		250	231	7.1
	DIN69871-AD+B50 FC MHD'80.180	41 6 80 01 050 28F	80	–		180	161	6.9
	DIN69871-AD+B50 FC MHD'80.300	41 6 80 01 050 27F				300	281	9.2
	DIN69871-AD+B50 FC MHD'110.150	41 6 91 01 050 21F	110			150	–	7.6
	DIN69871-AD+B50 FC MHD'110.250	41 6 91 01 050 28F				250		9.5

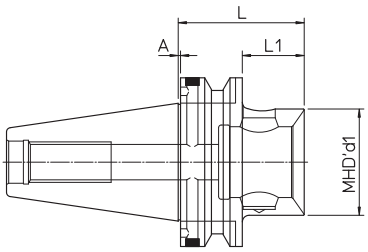


MAS 403 BT FC
FACE CONTACT AD+B





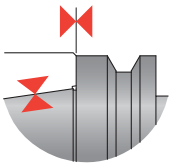


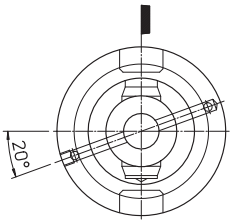


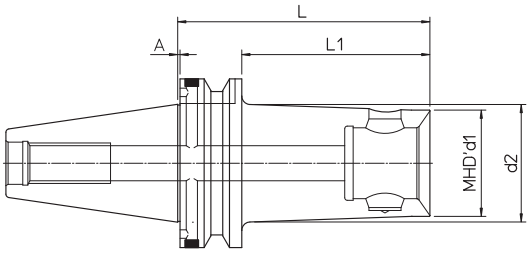
DIN	REF.	CODE	MHD' d_1	A	L	L_1	Kg.
40	MAS403 BT40 FC AD+B MHD'50.48	41 6 50 01 040 31F	50	1	48	21	0.9
	MAS403 BT40 FC AD+B MHD'63.66	41 6 63 01 040 31F	63		66	–	1.2
50	MAS403 BT50 FC AD+B MHD'50.66	41 6 50 01 050 31F	50	1.5		28	3.2
	MAS403 BT50 FC AD+B MHD'63.75	41 6 63 01 050 31F	63		75	37	3.7
	MAS403 BT50 FC AD+B MHD'80.75	41 6 80 01 050 31F	80				4

MAS 403 BT FC
FACE CONTACT AD+B









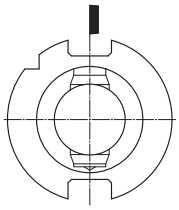
DIN	REF.	CODE	MHD' d_1	d_2	A	L	L_1	Kg.
40	MAS403 BT40 FC AD+B MHD'50.120	41 6 50 01 040 38F	50	–	1	120	93	1.9
50	MAS403 BT50 FC AD+B MHD'50.120	41 6 50 01 050 38F		57.5	1.5		82	4.2
	MAS403 BT50 FC AD+B MHD'50.200	41 6 50 01 050 37F		66		200	162	4.5
	MAS403 BT50 FC AD+B MHD'63.150	41 6 63 01 050 38F	63	73.5		150	112	5.8
	MAS403 BT50 FC AD+B MHD'63.250	41 6 63 01 050 37F		84		250	212	6.1
	MAS403 BT50 FC AD+B MHD'80.180	41 6 80 01 050 38F	80	–		180	142	7.5
	MAS403 BT50 FC AD+B MHD'80.300	41 6 80 01 050 37F				300	262	9.2
	MAS403 BT50 FC AD+B MHD'110.150	41 6 91 01 050 31F	110			150	–	8.1
	MAS403 BT50 FC AD+B MHD'110.250	41 6 91 01 050 38F				250		9.5

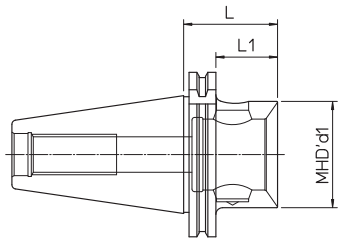
MODULHARD'ANDREA

- ARBORS
- GRUNDAUFNAHMEN
- ACOPLAMIENTOS BASE
- MANDRINS
- ATTACCHI BASE

DIN 69871
AD



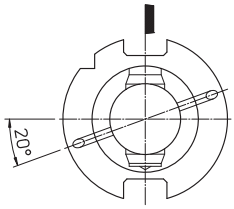


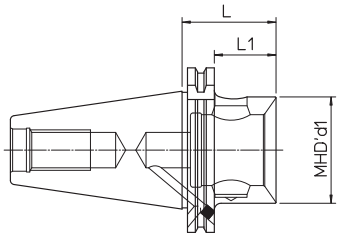


DIN	REF.	CODE	MHD' d_1	L	L_1	kg
30	DIN69871-A30 MHD'32.30	41 6 32 01 030 20	32	30	11	0.4
	DIN69871-A30 MHD'40.45.5	41 6 40 01 030 20	40	45.5	26.5	0.5
	DIN69871-A30 MHD'50.60	41 6 50 01 030 20	50	60	–	0.6
40	DIN69871-A40 MHD'40.45	41 6 40 01 040 20	40	45	26	0.5
	DIN69871-A40 MHD'50.48	41 6 50 01 040 20	50	48	29	0.9
	DIN69871-A40 MHD'50.56	41 6 50 01 040 70		56	37	1.1
	DIN69871-A40 MHD'63.80	41 6 63 01 040 20	63	80	–	1.5
45	DIN69871-A45 MHD'50.48	41 6 50 01 045 20	50	48	29	1.7
	DIN69871-A45 MHD'63.60	41 6 63 01 045 20	63	60	41	1.9
	DIN69871-A45 MHD'80.66	41 6 80 01 045 20	80	66	–	2.2
50	DIN69871-A50 MHD'50.48	41 6 50 01 050 20	50	48	29	2.5
	DIN69871-A50 MHD'63.48	41 6 63 01 050 29	63			2.6
	DIN69871-A50 MHD'63.56	41 6 63 01 050 20		56	37	2.8
	DIN69871-A50 MHD'80.48	41 6 80 01 050 29	80	48	29	3
	DIN69871-A50 MHD'80.62	41 6 80 01 050 20		62	43	3.4
	DIN69871-A50 MHD'110.150	41 6 91 01 050 20	110	150	–	7.6
	DIN69871-A50 MHD'140.160	41 6 94 01 050 20	140	160		10
60	DIN69871-A60 MHD'50.50	41 6 50 01 060 20	50	50	31	8.3
	DIN69871-A60 MHD'63.60	41 6 63 01 060 20	63	60	41	9.3
	DIN69871-A60 MHD'80.65	41 6 80 01 060 20	80	65	46	10.3
	DIN69871-A60 MHD'110.100	41 6 91 01 060 20	110	100	81	10.5
	DIN69871-A60 MHD'110.200	41 6 91 01 060 28		200	181	18
	DIN69871-A60 MHD'140.100	41 6 94 01 060 20	140	100	81	12.8
	DIN69871-A60 MHD'140.250	41 6 94 01 060 28		250	231	30

DIN 69871
B







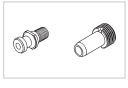
DIN	REF.	CODE	MHD' d_1	L	L_1	kg
40	DIN69871-B40 MHD'50.48	41 6 50 01 040 21	50	48	29	0.9
	DIN69871-B40 MHD'63.80	41 6 63 01 040 21	63	80	–	1.5
45	DIN69871-B45 MHD'50.48	41 6 50 01 045 21	50	48	29	1.7
	DIN69871-B45 MHD'63.60	41 6 63 01 045 21	63	60	41	1.9
	DIN69871-B45 MHD'80.66	41 6 80 01 045 21	80	66	–	2.2
50	DIN69871-B50 MHD'50.48	41 6 50 01 050 21	50	48	29	2.7
	DIN69871-B50 MHD'63.56	41 6 63 01 050 21	63	56	37	2.8
	DIN69871-B50 MHD'80.62	41 6 80 01 050 21	80	62	43	3.4

66

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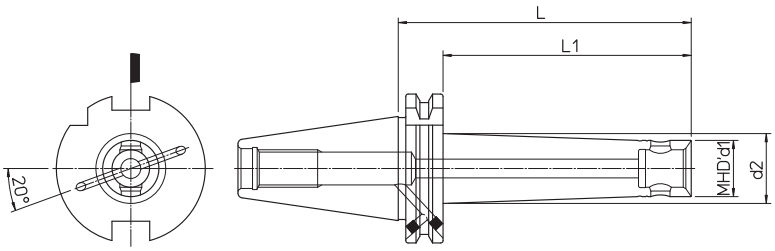


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DIN 69871
AD+B

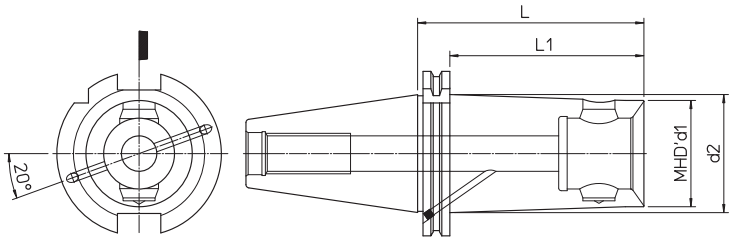




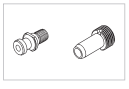
DIN	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
40	DIN69871-AD+B40 MHD'16.40	41 6 16 04 140 21	16	–	40	21	0.7
	DIN69871-AD+B40 MHD'16.63	41 6 16 06 140 21		17.5	63	44	0.8
	DIN69871-AD+B40 MHD'16.100	41 6 16 10 140 21		20	100	81	0.9
	DIN69871-AD+B40 MHD'20.50	41 6 20 05 140 21	20	–	50	31	0.8
	DIN69871-AD+B40 MHD'20.80	41 6 20 08 140 21		22.5	80	61	0.9
	DIN69871-AD+B40 MHD'20.125	41 6 20 12 140 21		25.5	125	106	1
	DIN69871-AD+B40 MHD'25.50	41 6 25 05 140 21	25	–	50	31	0.9
	DIN69871-AD+B40 MHD'25.80	41 6 25 08 140 21		27	80	61	1
	DIN69871-AD+B40 MHD'25.125	41 6 25 12 140 21		30	125	106	1.1
	DIN69871-AD+B40 MHD'32.50	41 6 32 05 140 21	32	–	50	31	1
	DIN69871-AD+B40 MHD'32.80	41 6 32 08 140 21		33.5	80	61	1.1
	DIN69871-AD+B40 MHD'32.125	41 6 32 12 140 21		36.5	125	106	1.2

DIN 69871
AD+B





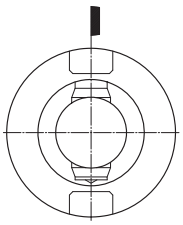
DIN	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
40	DIN69871-AD+B40 MHD'40.120	41 6 40 01 040 28	40	44.5	120	101	1.4
	DIN69871-AD+B40 MHD'50.120	41 6 50 01 040 28	50	–			1.7
50	DIN69871-AD+B50 MHD'50.120	41 6 50 01 050 28		60			3.5
	DIN69871-AD+B50 MHD'63.150	41 6 63 01 050 28	63	70	150	131	5
	DIN69871-AD+B50 MHD'80.180	41 6 80 01 050 28	80	–	180	161	6.9

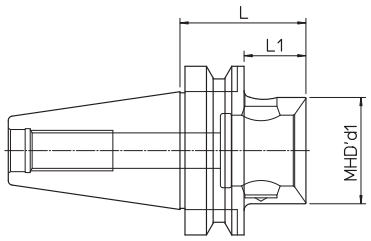




MAS 403 BT



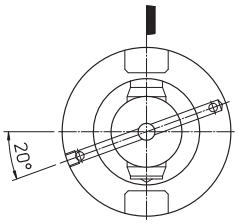


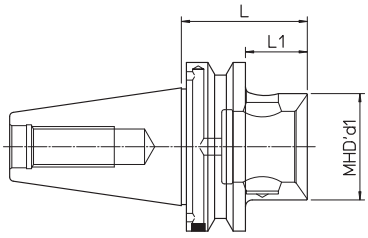


BT	REF.	CODE	MHD' d_1	L	L_1	kg
30	MAS403 BT30 MHD'32.32	41 6 32 01 030 30	32	32	10.5	0.5
	MAS403 BT30 MHD'40.35.5	41 6 40 01 030 30	40	35.5	14	0.6
	MAS403 BT30 MHD'50.60	41 6 50 01 030 30	50	60	–	0.7
35	MAS403 BT35 MHD'50.60	41 6 50 01 035 30			36	0.8
40	MAS403 BT40 MHD'40.45	41 6 40 01 040 30	40	45	18	0.6
	MAS403 BT40 MHD'50.38.5	41 6 50 01 040 39	50	38.5	11.5	0.8
	MAS403 BT40 MHD'50.48	41 6 50 01 040 30		48	21	0.9
	MAS403 BT40 MHD'50.56	41 6 50 01 040 80		56	29	1.1
	MAS403 BT40 MHD'63.66	41 6 63 01 040 30	63	66	–	1.2
45	MAS403 BT45 MHD'50.62	41 6 50 01 045 30	50	62	29	1.7
	MAS403 BT45 MHD'63.70	41 6 63 01 045 30	63	70	37	2.3
	MAS403 BT45 MHD'80.70	41 6 80 01 045 30	80			2.7
50	MAS403 BT50 MHD'50.66	41 6 50 01 050 30	50	66	28	3.3
	MAS403 BT50 MHD'63.50	41 6 63 01 050 39	63	50	12	3.4
	MAS403 BT50 MHD'63.75	41 6 63 01 050 30		75	37	3.7
	MAS403 BT50 MHD'80.50	41 6 80 01 050 39	80	50	12	3.8
	MAS403 BT50 MHD'80.75	41 6 80 01 050 30		75	37	4
	MAS403 BT50 MHD'110.140	41 6 91 01 050 30	110	140	–	6.8
	MAS403 BT50 MHD'140.150	41 6 94 01 050 30	140	150		9.2
60	MAS403 BT60 MHD'110.110	41 6 91 01 060 30	110	110	63	11.5
	MAS403 BT60 MHD'110.200	41 6 91 01 060 38		200	152	18.1
	MAS403 BT60 MHD'140.100	41 6 94 01 060 30	140	100	52	12.9
	MAS403 BT60 MHD'140.250	41 6 94 01 060 38		250	202	30.1

MAS 403 BT
B





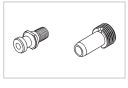


BT	REF.	CODE	MHD' d_1	L	L_1	kg
40	MAS403 BT40B MHD'50.48	41 6 50 01 040 31	50	48	21	0.9
	MAS403 BT40B MHD'63.66	41 6 63 01 040 31	63	66	–	1.2
50	MAS403 BT50B MHD'50.66	41 6 50 01 050 31	50	66	28	3.5
	MAS403 BT50B MHD'63.75	41 6 63 01 050 31	63	75	37	3.7
	MAS403 BT50B MHD'80.75	41 6 80 01 050 31	80			4

249

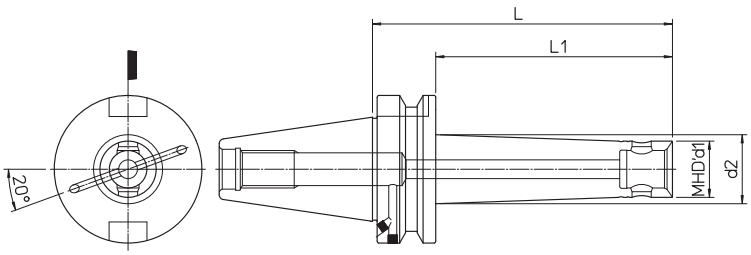


240



MAS 403 BT
AD+B

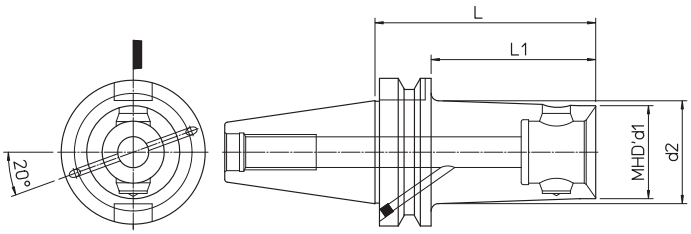




BT	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
40	MAS403 BT40-AD+B MHD'16.45	41 6 16 04 140 31	16	–	45	18	0.8
	MAS403 BT40-AD+B MHD'16.63	41 6 16 06 140 31		17	63	36	0.9
	MAS403 BT40-AD+B MHD'16.100	41 6 16 10 140 31		19.5	100	73	1
	MAS403 BT40-AD+B MHD'20.50	41 6 20 05 140 31	20	–	50	23	0.9
	MAS403 BT40-AD+B MHD'20.80	41 6 20 08 140 31		22	80	53	1
	MAS403 BT40-AD+B MHD'20.125	41 6 20 12 140 31		25	125	98	1.1
	MAS403 BT40-AD+B MHD'25.50	41 6 25 05 140 31	25	–	50	23	1
	MAS403 BT40-AD+B MHD'25.80	41 6 25 08 140 31		26.5	80	53	1.1
	MAS403 BT40-AD+B MHD'25.125	41 6 25 12 140 31		29.5	125	98	1.2
	MAS403 BT40-AD+B MHD'32.50	41 6 32 05 140 31	32	–	50	23	1.1
	MAS403 BT40-AD+B MHD'32.80	41 6 32 08 140 31		33	80	53	1.2
	MAS403 BT40-AD+B MHD'32.125	41 6 32 12 140 31		36	125	98	1.4

MAS 403 BT
AD+B





BT	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
40	MAS403 BT40-AD+B MHD'40.120	41 6 40 01 040 38	40	44.5	120	93	0.9
	MAS403 BT40-AD+B MHD'50.120	41 6 50 01 040 38	50	–			1.9
50	MAS403 BT50-AD+B MHD'50.120	41 6 50 01 050 38		60		82	4.2
	MAS403 BT50-AD+B MHD'63.150	41 6 63 01 050 38	63	70	150	112	5.8
	MAS403 BT50-AD+B MHD'80.180	41 6 80 01 050 38	80	–	180	142	7.5

240 249



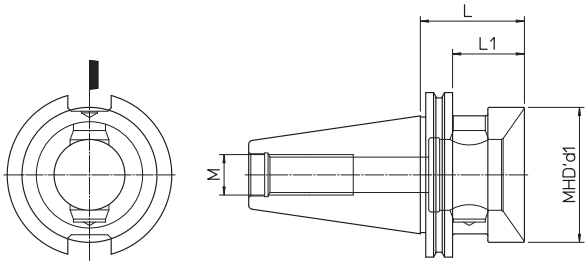


MODULHARD'ANDREA

- ARBORS
- GRUNDAUFNAHMEN
- ACOPLAMIENTOS BASE
- MANDRINS
- ATTACCHI BASE

ANSI/CAT

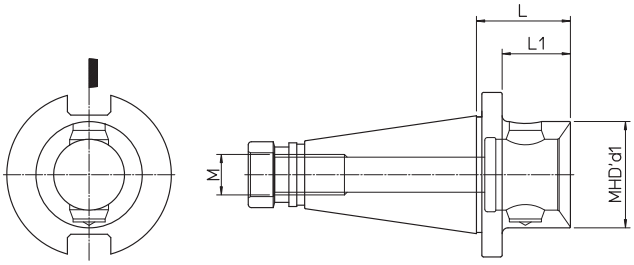




ANSI/CAT	REF.	CODE	MHD' d_1	L	L_1	M	kg
40	ANSI/CAT40 MHD'50.66	41 6 50 01 040 40	50	66	47	M16	1.1
	ANSI/CAT40 MHD'63.100	41 6 63 01 040 40	63	100	–		1.9
45	ANSI/CAT45 MHD'50.48	41 6 50 01 045 40	50	48	29	M20	1.7
	ANSI/CAT45 MHD'63.75	41 6 63 01 045 40	63	75	56		2.1
	ANSI/CAT45 MHD'80.80	41 6 80 01 045 40	80	80	–		2.7
50	ANSI/CAT50 MHD'50.48	41 6 50 01 050 40	50	48	29	M24	2.4
	ANSI/CAT50 MHD'63.56	41 6 63 01 050 40	63	56	37		2.9
	ANSI/CAT50 MHD'80.62	41 6 80 01 050 40	80	62	43		3.2

DIN 2080-A 'OTT'



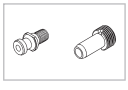


ISO	REF.	CODE	MHD' d_1	L	L_1	M	kg
30	DIN2080-A30 MHD'50.58	41 6 50 01 030 00	50	58	–	M12	0.6
40	DIN2080-A40 MHD'50.48	41 6 50 01 040 00	50	48	36.5	M16	0.9
	DIN2080-A40 MHD'63.60	41 6 63 01 040 00	63	60	–		1.2
45	DIN2080-A45 MHD'50.48	41 6 50 01 045 00	50	48	33	M20	1.6
	DIN2080-A45 MHD'63.60	41 6 63 01 045 00	63	60	45		1.9
	DIN2080-A45 MHD'80.66	41 6 80 01 045 00	80	66	–		2.2
50	DIN2080-A50 MHD'50.48	41 6 50 01 050 00	50	48	33	M24	2.6
	DIN2080-A50 MHD'63.56	41 6 63 01 050 00	63	56	41		2.7
	DIN2080-A50 MHD'80.60	41 6 80 01 050 00	80	60	45		3.2

250

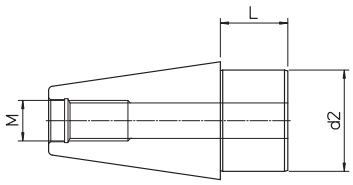


240



ISO 50 D.60
ISO 60 D.60

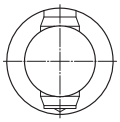


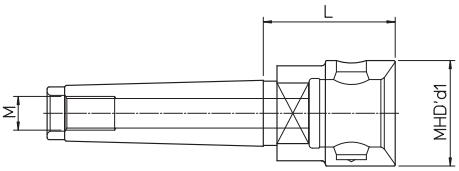


REF.	CODE	d_2	L	M	Kg.
ISO 50 D.60	71ISO-50-DC6040	60	40	24	4.8
ISO 60 D.60	71ISO-60-DC6040			30	9.7

DIN 228/A 2207



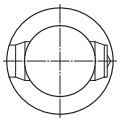


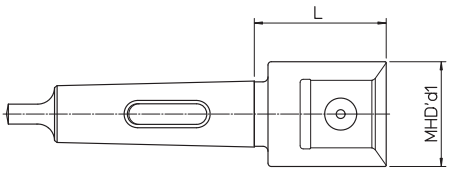


MORSE	REF.	CODE	MHD' d_1	L	M	kg
4	MORSE4-A MHD'50.63	41 6 50 03 004 00	50	63	M16	0.9
4 SIP	MORSE4-A SIP MHD'50.63	41 6 50 03 004 01			M14	

DIN 228/B 1806



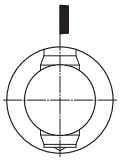


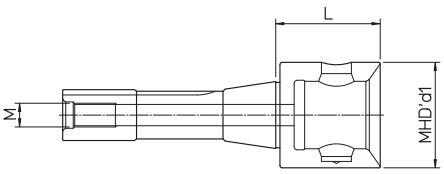


MORSE	REF.	CODE	MHD' d_1	L	kg
4	MORSE4-B MHD'50.56	41 6 50 02 004 00	50	56	0.9
5	MORSE5-B MHD'63.65	41 6 63 02 005 00	63	65	1.5

R8

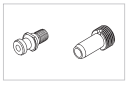






REF.	CODE	MHD' d_1	L	M	kg
R 8	41 6 50 05 008 00	50	50	M12x1.75	0.8

240 251





MODULHARD'ANDREA

- ARBORS
- GRUNDAUFNAHMEN
- ACOPLAMIENTOS BASE
- MANDRINS
- ATTACCHI BASE

BR



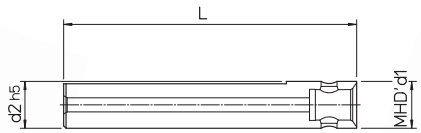


fig.1



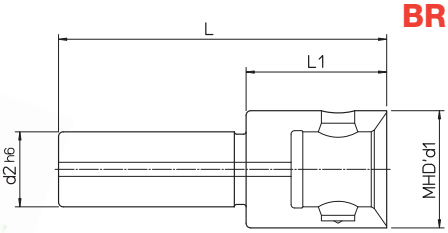
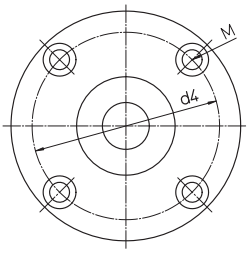


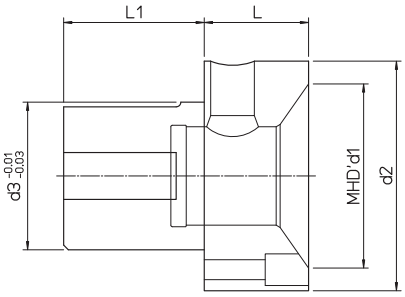
fig.2

REF.	CODE	MHD' d_1	L	L_1	d_2	kg	fig.
BR 16/16.100	65 70 816 0100 1	16	100	–	16	0.15	1
BR 20/20.125	65 70 820 0125 1	20	125	–	20	0.3	
BR 25/32.35	41 6 32 08 025 00	32	100	35	25	0.7	2
BR 32/50.60	41 6 50 08 032 00	50	140	60	32	1	

MR



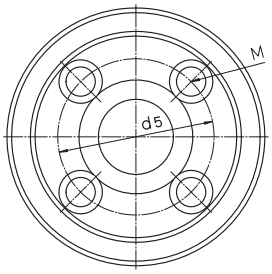


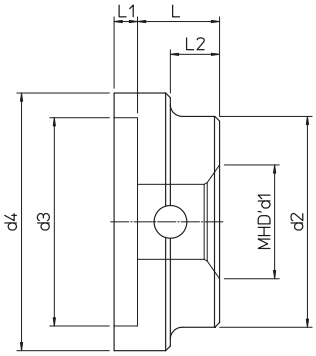


REF.	CODE	MHD' d_1	d_2	d_3	d_4	L	L_1	M	kg
MR 50/80.80	45 02 080 0106 0	63 ~ 80	80	50	65	45	50	M6	1.5
MR 63/98.80	45 02 098 0106 0		98	63	80		60	M8	3.1
MR 80/130.80	45 02 130 0124 0		130	80	104.6		80	M10	6.1

DIN 2079



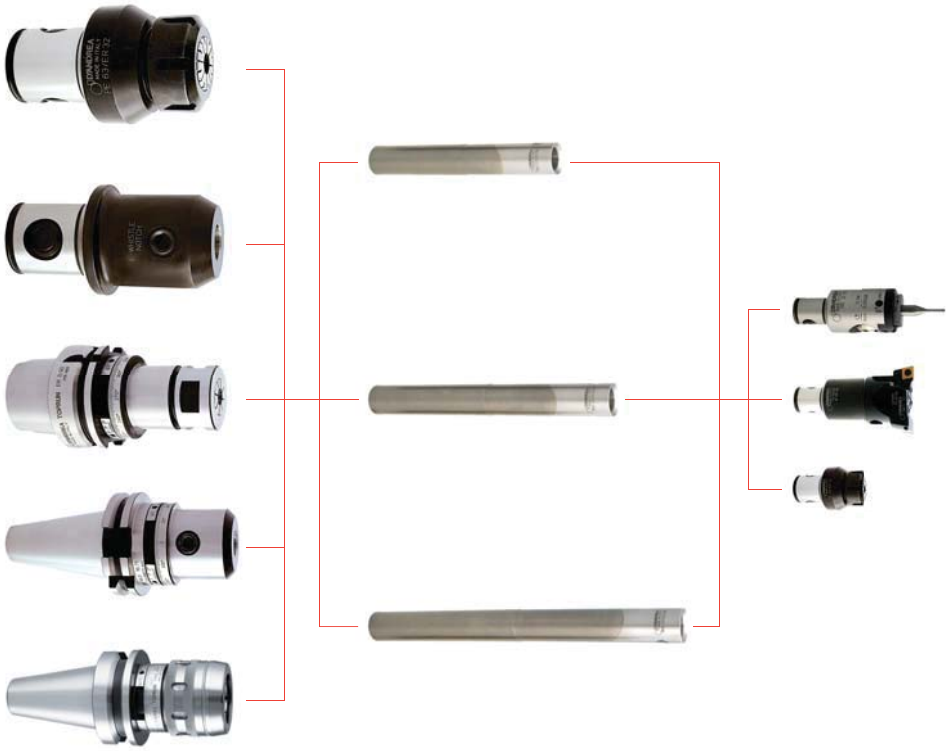




REF.	CODE	MHD' d_1	d_2	d_3	d_4	d_5	L	L_1	L_2	M	kg
DIN 2079-40.50	41 6 50 20 040 00	50	90	88.89	110	66.7	35	10	21	M12	1.8
DIN 2079-40.63	41 6 63 20 040 00	63					47		31		2
DIN 2079-50.63	41 6 63 20 050 00		135	128.57	150	101.6	45	12		M16	5.4
DIN 2079-50.80	41 6 80 20 050 00	80					50		36		5.3
DIN 2079-50.110	41 6 91 20 050 00	110					112		98		8.4
DIN 2079-50.140	41 6 94 20 050 00	140	140				122		108		9.5

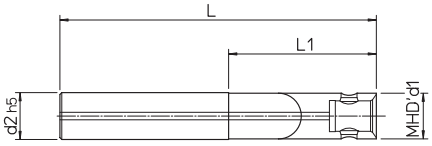
- CARBIDE BARS FOR DEEP-HOLE MACHINING
- HARTMETALL-BOHRSTANGENFÜR TIEFLOCH-BEARBEITUNGEN
- BARRAS DE METAL DURO PARA MECANIZACIONES DE AGUJEROS PROFUNDOS
- BARRES CARBURE POUR USINAGES DE TROUS PROFONDS
- BARRE IN METALLO DURO PER LAVORAZIONI DI FORI PROFONDI

BMD PROGRAM



BMD





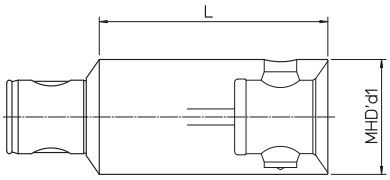
REF.	CODE	MHD' d_1	d_2	L	L_1	kg
BMD 16/16.110	65 70 816 0110 5	16	16	110	50	0.3
BMD 16/16.140	65 70 816 0140 5			140	63	0.4
BMD 16/16.170	65 70 816 0170 5			170	80	0.5
BMD 20/20.135	65 70 820 0135 5	20	20	135	63	0.6
BMD 20/20.170	65 70 820 0170 5			170	80	0.75
BMD 20/20.210	65 70 820 0210 5			210	100	0.9
BMD 25/25.160	65 70 825 0160 5	25	25	160	80	1
BMD 25/25.205	65 70 825 0205 5			205	100	1.3
BMD 25/25.255	65 70 825 0255 5			255	125	1.6
BMD 32/32.195	65 70 832 0195 5	32	32	195	100	2.1
BMD 32/32.250	65 70 832 0250 5			250	125	2.8
BMD 32/32.315	65 70 832 0315 5			315	160	3.5

MODULHARD'ANDREA

- EXTENSIONS
- VERLÄNGERUNGEN
- PROLONGACIONES
- RALLONGES
- PROLUNGHE

PR

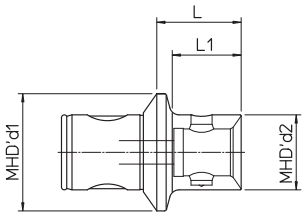




REF.	CODE	MHD' d_1	L	kg
PR 14.25	65 69 014 0025 0	14	25	0.02
PR 16.25	65 69 016 0025 0	16		0.04
PR 20.32	65 69 020 0032 0	20	32	0.07
PR 25.25	65 69 025 0025 0	25	25	0.09
PR 25.40	65 69 025 0040 0		40	0.15
PR 32.32	65 69 032 0032 0	32	32	0.2
PR 32.50	65 69 032 0050 0		50	0.3
PR 40.40	65 69 040 0040 0	40	40	0.4
PR 40.63	65 69 040 0063 0		63	0.6
PR 50.50	65 69 050 0050 0	50	50	0.7
PR 50.80	65 69 050 0080 0		80	1.1
PR 50.100	65 69 050 0100 0		100	1.5
PR 63.63	65 69 063 0063 0	63	63	1.4
PR 63.100	65 69 063 0100 0		100	2.2
PR 63.125	65 69 063 0125 0		125	2.9
PR 80.80	65 69 080 0080 0	80	80	3
PR 80.125	65 69 080 0125 0		125	4.6
PR 80.160	65 69 080 0160 0		160	6.1
PR 110.140	65 69 110 0140 0	110	140	13.5
PR 110.200	65 69 110 0200 0		200	14.3
PR 140.140	65 69 140 0140 0	140	140	24
PR 140.250	65 69 140 0250 0		250	28.5

RD

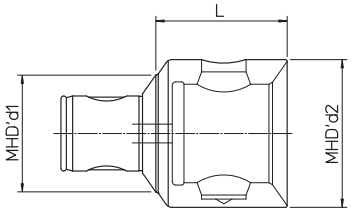




REF.	CODE	MHD' d_1	MHD' d_2	L	L_1	kg
RD 16/14.25	65 70 016 0014 0	16	14	25	19.5	0.02
RD 20/14.20	65 70 020 0014 0	20		20	14.5	0.03
RD 20/16.20	65 70 020 0016 0		16		16	0.05
RD 25/14.20	65 70 025 0014 0	25	14	20	13.5	0.06
RD 25/16.20	65 70 025 0016 0		16		15	0.07
RD 25/20.25	65 70 025 0020 0		20	25	20	0.08
RD 32/14.25	65 70 032 0014 0	32	14	25	17.5	0.08
RD 32/16.24	65 70 032 0016 0		16	24	18	0.10
RD 32/20.25	65 70 032 0020 0		20	25	20	0.12
RD 32/25.28	65 70 032 0025 0		25	28	23	0.14
RD 40/14.25	65 70 040 0014 0	40	14	25	16.5	0.10
RD 40/16.24	65 70 040 0016 0		16	24	17	0.18
RD 40/20.26	65 70 040 0020 0		20	26	20	0.2
RD 40/25.28	65 70 040 0025 0		25	28	22	0.25
RD 40/32.32	65 70 040 0032 0		32	32	27	0.3
RD 50/14.25	65 70 050 0014 0	50	14	25	14.5	0.25
RD 50/14.40	65 70 050 0014 2			40	29.5	0.1
RD 50/16.24	65 70 050 0016 0		16	24	15	0.34
RD 50/20.26	65 70 050 0020 0		20	26	18	0.37
RD 50/25.28	65 70 050 0025 0		25	28	21	0.4
RD 50/32.32	65 70 050 0032 0		32	32	25	0.45
RD 50/40.36	65 70 050 0040 0		40	36	30	0.5
RD 63/50.40	65 70 063 0050 0	63	50	40	34	0.9
RD 80/50.45	65 70 080 0050 0	80		45	36	1.2
RD 80/63.60	65 70 080 0063 0		63	60	52	1.7
RD 110/80.70	65 70 110 0080 0	110	80	70	52	6
RD 140/80.70	65 70 140 0080 0	140			49	7.8

RD





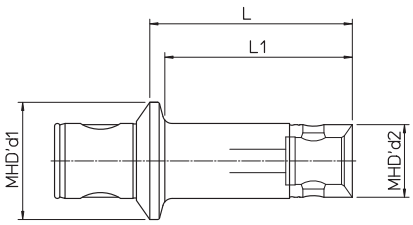
REF.	CODE	MHD' d_1	MHD' d_2	L	kg
RD 50/63.56	65 70 050 0063 0	50	63	56	1.1

MODULHARD'ANDREA

RD

- **REDUCTIONS**
- **REDUZIERUNGEN**
- **REDUCCIONES**
- **RÉDUCTIONS**
- **RIDUZIONI**



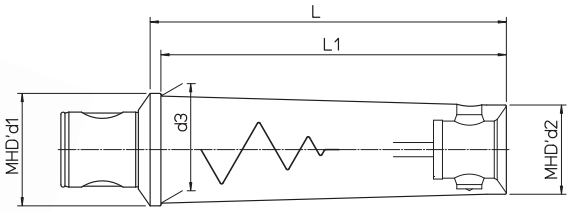


REF.	CODE	MHD' d_1	MHD' d_2	L	L_1	kg
RD 50/16.40	65 70 050 0016 2	50	16	40	32	0.2
RD 50/16.74	65 70 050 0016 3			74	65	0.25
RD 50/20.70	65 70 050 0020 2		20	70	62	0.3
RD 50/20.93	65 70 050 0020 3			93	85	0.35
RD 50/25.87	65 70 050 0025 2		25	87	80	0.6
RD 50/25.117	65 70 050 0025 3			117	110	0.65
RD 50/32.87	65 70 050 0032 2		32	87	80	0.75
RD 50/32.144	65 70 050 0032 3			144	137	1
RD 50/40.87	65 70 050 0040 2		40	87	80	0.9
RD 50/40.176	65 70 050 0040 3			176	170	1.8

RAV

- **VIBRATION-DAMPING REDUCTIONS**
- **VIBRATIONSARME REDUZIERUNGEN**
- **REDUCCIONES ANTI-VIBRACIÓN**
- **RÉDUCTIONS ANTI-VIBRATOIRES**
- **RIDUZIONI ANTIVIBRANTI**



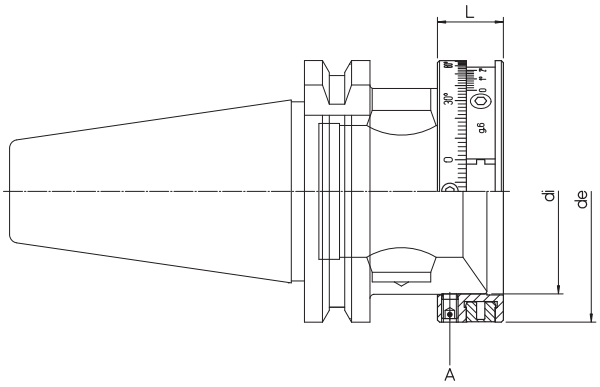


REF.	CODE	MHD' d_1	MHD' d_2	d_3	L	L_1	kg
RAV 50/16.74	65 70 050 0016 5	50	16	17.5	74	65	0.4
RAV 50/20.93	65 70 050 0020 5		20	21.5	93	85	0.5
RAV 50/25.117	65 70 050 0025 5		25	27	117	110	0.8
RAV 50/32.144	65 70 050 0032 5		32	35	144	138	1.4
RAV 50/40.176	65 70 050 0040 5		40	47	176	170	2.5
RAV 63/50.220	65 70 063 0050 5	63	50	60	220	214	5.6
RAV 80/63.280	65 70 080 0063 5	80	63	77	280	272	10.6

- **BALANCING RINGS**
- **AUSWUCHTRINGE**
- **ANILLOS DE EQUILIBRADO**
- **BAGUES D'ÉQUILIBRAGE**
- **ANELLI DI BILANCIATURA**

BLC





REF.	CODE	MHD'	de	di (G6)	L
BLC 42.32	38 17 25 032 001	32	42	31.5	14
BLC 50.40	38 17 25 040 001	40	50	39.5	15
BLC 63.50	38 17 25 050 001	50	63.5	49.8	16
BLC 80.63	38 17 25 063 001	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.

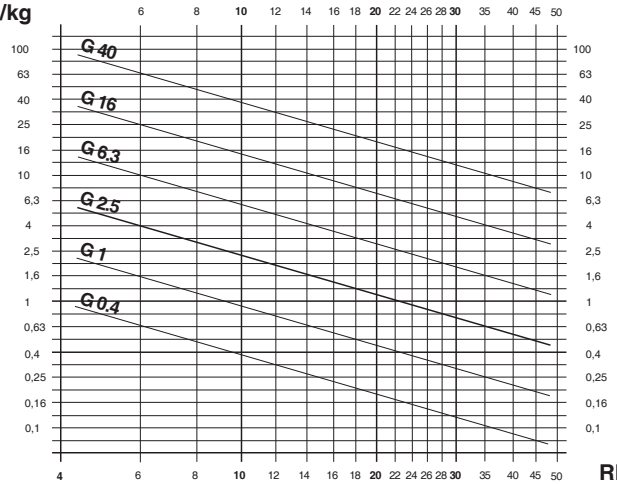
D Der Auswuchtring BLC mit integrierten und beweglichen Gewichten ermöglicht es, den Werkzeughalter, an dem der Ring montiert ist, genau und wirtschaftlich auszuwuchten. Die Verwendung des BLC Auswuchtrings an Werkzeughaltern bietet folgende Vorteile: verbesserte Genauigkeit und Oberflächenfertigung (Qualität); merkbar höhere Lebensdauer der Werkzeuge und Schneidwerkzeuge; Schonung der Spindellager, dadurch deutlich höhere Lebensdauer; erhebliche Verminderung von Vibrationen und Geräuschen am Arbeitsplatz.
MONTAGE: Schutzring aus Kunststoff entfernen; Auswuchtring BLC einsetzen und Schrauben A spannen.

E El anillo de equilibrado BLC, con el simple posicionamiento de los dos contrapesos graduados incorporados, permite equilibrar, en forma precisa y económica, el portaherramientas en el cual va montado. La utilización del anillo BLC da las siguientes ventajas: mejora la precisión y la calidad de las superficies mecanizadas; aumenta la duración de la herramienta; prolonga la vida del husillo del centro de mecanizado; reduce las vibraciones y la rumorosidad del centro de mecanizado.
MONTAJE: Quitar el anillo de protección de plástico; insertar anillo BLC y fijar los tornillos A.

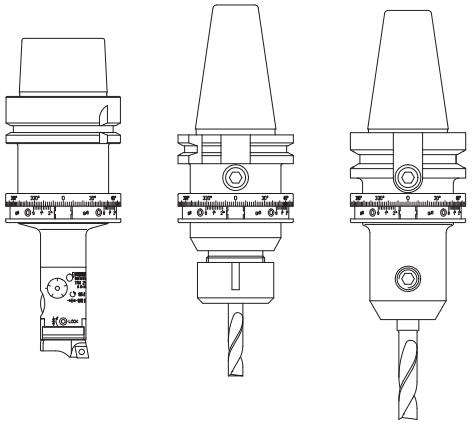
F La bague d'équilibrage BLC, par simple réglage des deux contrepoids gradués incorporés, permet d'équilibrer le porte-outil d'une manière précise et économique. L'utilisation de la bague BLC apporte les avantages suivants: amélioration de la précision et meilleur état de surface; meilleure durée de vie de l'outil; meilleure durée de vie des roulements de broche; réduction des vibrations et des phénomènes de bruit.
MONTAGE: Enlever la bague de protection en plastique; iInsérer la bague BLC et bloquer les clefs A.

I L'anello di bilanciatura BLC, con il semplice posizionamento dei due tasselli graduati incorporati, permette di equilibrare, in modo preciso ed economico, il portautensile nel quale lo stesso viene montato. L'utilizzo dell'anello BLC dà i seguenti vantaggi: migliora la precisione e la qualità delle superfici lavorate; aumenta la durata dell'utensile; allunga la vita del mandrino del centro di lavoro; riduce le vibrazioni e la rumorosità del centro di lavoro.
MONTAGGIO: Togliere l'anello di protezione in plastica; inserire l'anello BLC e bloccare le viti A.

e = g·mm/kg



RPM x 1000



testarossad'andrea

TS	TRD	TRC	TRC HS
		p. 94 • **TRC 14** Ø 14.5 ~ 18	
p.82 • **TS 16/16** Ø 18 ~ 22		p. 94 • **TRC 16** Ø 18 ~ 24	p.116 • **TRM 16** Ø 18 ~ 23
p.82 • **TS 20/20** Ø 22 ~ 28		p. 94 • **TRC 20** Ø 22 ~ 30	p.116 • **TRM 20** Ø 22 ~ 29
p.82 • **TS 25/25** Ø 28 ~ 38	p.90 • **TRD 25** Ø 28 ~ 36	p.94 • **TRC 25** Ø 28 ~ 40	p.116 • **TRM 25** Ø 28 ~ 38
p.82 • **TS 32/32** Ø 35.5 ~ 50	p.90 • **TRD 32** Ø 36 ~ 46	p.94 • **TRC 32** Ø 35 ~ 53	p.110 • **TRC 32 HS** Ø 2.5 ~ 18 — p.116 • **TRM 32** Ø 35.5 ~ 50
p.82 • **TS 40/40** Ø 50 ~ 68	p.90 • **TRD 40** Ø 46 ~ 60	p.94 • **TRC 40** Ø 48 ~ 66	p.116 • **TRM 40** Ø 48 ~ 63
p.83 • **TS 50/50** Ø 68 ~ 90 — p.83 • **TS 50/63** Ø 90 ~ 120	p.90 • **TRD 50** Ø 60 ~ 75	p.96 • **TRC 50** Ø 2.5 ~ 110	p.112 • **TRC 50 HS** Ø 2.5 ~ 22 — p.118 • **TRM 50** Ø 2.5 ~ 108
p.83 • **TS 63/63** Ø 90 ~ 120	p.90 • **TRD 63** Ø 75 ~ 95	p.100 • **TRC 63** Ø 72 ~ 125	
p.83 • **TS 80/80** Ø 120 ~ 200	p.90 • **TRD 80** Ø 95 ~ 120	p.104 • **TRC 80** Ø 88 ~ 200	

TRM

2µm

TRM HSB

2µm



INSERTS

p.110 • **TRM 32 HSB**
Ø 2.5 ~ 18



p.122 • **TRM 50/63**
Ø 6 ~ 125



p.126 • **TRM 50/80**
Ø 6 ~ 160



p.112 • **TRM 50 HSB**
Ø 2.5 ~ 22



p.122 • **TRM 63/63**
Ø 6 ~ 125



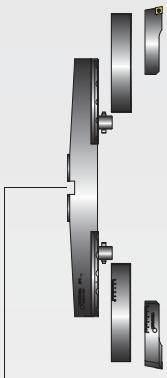
p.126 • **TRM 80/80**
Ø 6 ~ 160



p.130 • **TRM 80/125**
Ø 36 ~ 500

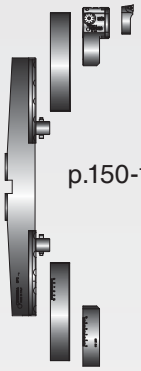


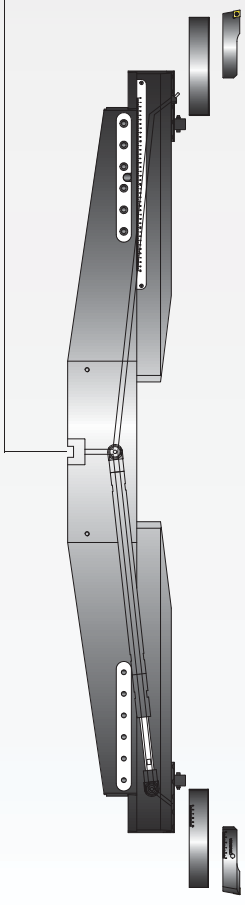
BPS



p.154 • **TR 200**
2µm

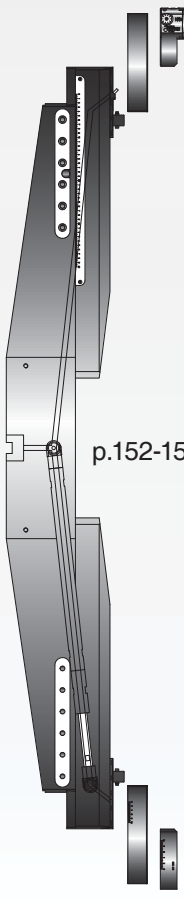
p.150-151 • **BPS 200 - 800**
Ø 200 ~ 1200





p.154 • **TR 200**
2µm

p.152-153 • **BPS 1000 - 1600**
Ø 1000 ~ 2800



MODULHARD'ANDREA

TS Ø 18 ~ 200

- **DOUBLE-BIT HEADS**
- **ZWEISCHNEIDERBOHRKÖPFE**
- **CABEZALES DE DOS CUCHILLAS**
- **TÊTES À DOUBLE TRANCHANT**
- **TESTINE BITAGLIENTI**



1
- Body
- Körper
- Cuerpo
- Corps
- Corpo

2
- Setting screws
- Einstellschraube
- Tornillo de regulación
- Vis de réglage
- Vite di regolazione

3
- Expanding pin
- Spreizbolzen
- Perno radial expansible
- Tige radiale expansible
- Perno radiale espandibile

4
- Coolant outlets
- Kühlmittelaustritt
- Agujeros salida refrigerante
- Sortie du liquide d'arrosage
- Fori uscita refrigerante

5
- Bit holders
- Plattenhalter
- Portaplaquita
- Porte-plaquettes
- Seggio portainserti

6
- Tools clamp screws
- Werkzeugklemmschrauben
- Tornillos blocaje herramienta
- Vis blocage outil
- Viti bloccaggio utensile

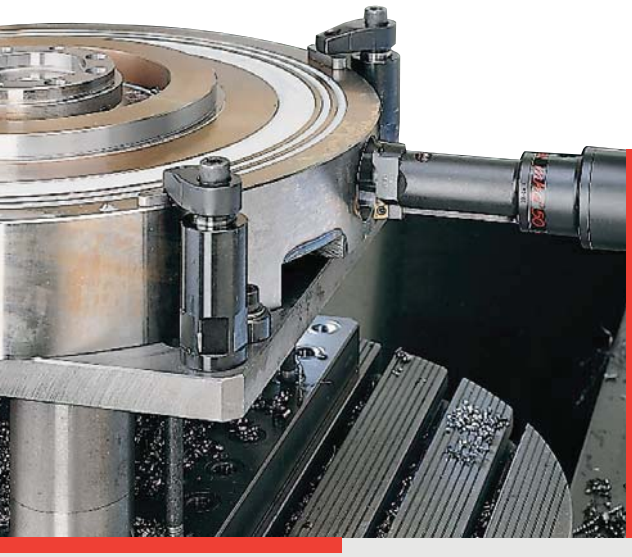
GB The double-bit heads are easy and extremely rigid thanks to the extensive area serrated with contacts between the bit holder and upper insert holder and the heads, together with the constant distance between the seat of the clamping screws and the cutter.

D Die Zweischneiderköpfe sind aufgrund des einfachen Aufbaus und der großen, verzahnten Kontaktfläche zwischen Plattenhalter und Kopf zusammen mit dem gleichbleibenden Abstand zwischen Wendeplattensitz und Plattenhalterklemmung extrem stabil.

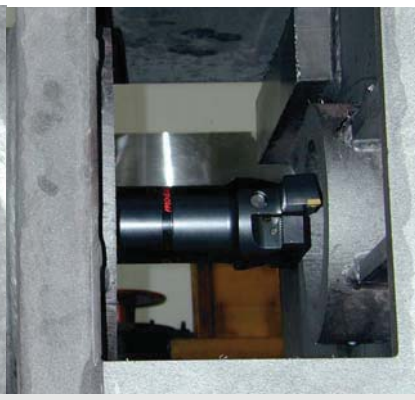
E Los cabezales de dos cuchillas son sencillos y extremamente rígidos gracias a las amplias superficies dentadas de contacto entre los asientos porta-plaquitas y los cabezales mismos, así como a la distancia constante entre los tornillos de sujeción del asiento y el filo de corte.

F Les têtes à double tranchant sont simples et extrêmement rigides grâce aux grandes surfaces dentelées de contact entre les logements porte plaquette et les têtes elles-mêmes, ainsi qu'à la distance constante entre la vis de serrage du logement et le tranchant.

I Le testine bitaglienti sono semplici ed estremamente rigide grazie alle ampie superfici dentellate di contatto tra i seggi portainserto e le testine stesse, unitamente alla distanza costante tra la vite di serraggio del seggio ed il tagliente.







TS Ø 18 ~ 200

- **DOUBLE-BIT HEADS**
- **ZWEISCHNEIDERBOHRKÖPFE**
- **CABEZALES DE DOS CUCHILLAS**
- **TÊTES À DOUBLE TRANCHANT**
- **TESTINE BITAGLIENTI**

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:

D EINSATZ. Die Durchmessereinstellung der Wendeplatten ist auf einem Maschinenwerkzeug-voreinstellgerät vorzunehmen. Mit zwei Plattenhaltern werden die Köpfe für Schrupparbeiten mit starker Spanabnahme verwendet. Diese Köpfe können umfassen:

E EMPLEO. La regulación diametral de los cortes se efectúa sobre un banco presetting para herramientas. Se utilizan con dos asientos para operaciones de desbaste con fuerte arranque de viruta. Los cabezales de dos cuchillas pueden estar compuestos con:

F EMPLOI. Effectuer le réglage radial des plaquettes sur un appareil de préréglage d'outils. Avec deux porte-plaquettes, les barres sont utilisées pour des operations d'ébauchage avec fort enlèvement de copeaux. Ces barres d'alésage peuvent comprendre:

I IMPIEGO. La regolazione diametrale dei taglienti va eseguita su un banco di presetting di utensili. Si utilizzano con due seggi per operazioni di sgrossatura con forti asportazioni. I bareni bitaglienti possono essere composti con:

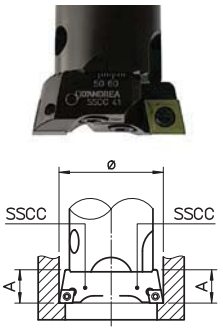


fig.1

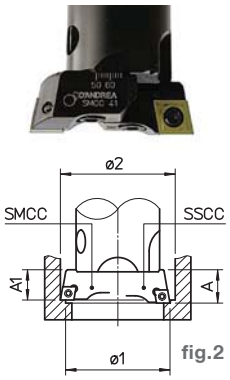


fig.2

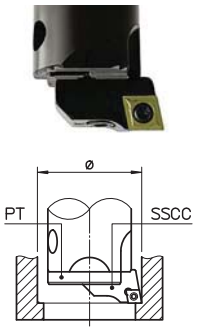


fig.3

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.
D zwei Plattenhalter SSCC auf gleicher Höhe mit der Schneidkante der Wendeplatten auf gleichem Durchmesser einstellen. Für Schrupparbeiten mit großem Vorschub.
E dos asientos SSCC alineados y con la punta de la plaquita sobre el mismo diámetro para operaciones de desbaste con fuertes avances.
F deux porte-plaquettes SSCC dans le même plan avec les coupants réglés sur le même diamètre pour l'ébauchage à haute vitesse d'avance.
I due seggi SSCC allineati e con la punta degli inserti sullo stesso diametro per operazioni di sgrossatura con forti avanzamenti.

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.
D je einen Plattenhalter SSCC und SMCC auf verschiedener Höhe mit der Schneidkante der Wendeplatten auf verschiedenem Durchmesser einstellen für Schrupparbeiten mit großer Spantiefe.
E un asiento SSCC y un asiento más bajo SMCC desalineados y con la punta de las plaquitas sobre diámetros diversos para operaciones de desbaste con fuertes profundidades de pasada.
F un porte-plaquette SSCC et un porte-plaquette SMCC dans deux plans avec les coupants réglés sur des différents diamètres pour l'ébauchage avec grande profondeur de passe.
I un seggio SSCC ed un seggio più basso SMCC disallineati e con la punta degli inserti su diametri diversi per operazioni di sgrossatura con forti profondità di passata.

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.
D mit einem Plattenhalter werden die Bohrstangen für Schlicht- und Schrupparbeiten mit normaler Spanabnahme verwendet. PT Schutzplatte für die Kerbzahnfläche immer aufsetzen.
E se utilizan con un solo asiento para operaciones de acabado y desbaste con normal arranque de viruta. Recordar siempre montar la plaquita PT para la protección de la superficie dentada.
F avec un seul porte-plaquette les barres sont utilisées pour l'ébauchage et le finissage avec enlèvement de copeaux normal. Monter toujours la plaquette PT de protection de la surface dentelée.
I si utilizzano con un solo seggio per operazioni di finitura e sgrossatura con normali asportazioni di truciolo. Ricordarsi sempre di montare la piastrina PT per la protezione della superficie dentellata.

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



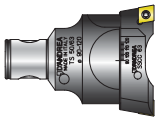
TS 40/40
Ø 50 ~ 68



TS 50/50
Ø 68 ~ 90



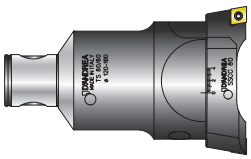
TS 50/63
Ø 90 ~ 120



TS 63/63
Ø 90 ~ 120



TS 80/80
Ø 120 ~ 200

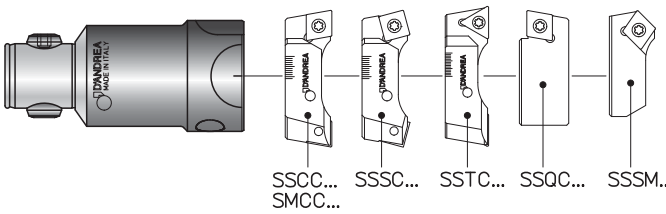


MODULHARD'ANDREA

TS 16~40 Ø 18 ~ 68

- DOUBLE-BIT HEADS
- ZWEISCHNEIDERBOHRKÖPFE
- CABEZALES DE DOS CUCHILLAS
- TÊTES À DOUBLE TRANCHANT
- TESTINE BITAGLIENTI



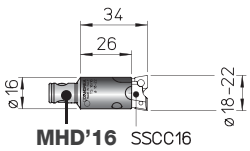


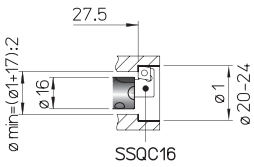
p. 81

REF.	CODE	Kg.
TS 16/16	45 55 016 0034 0	0.05
TS 20/20	45 55 020 0040 0	0.09
TS 25/25	45 55 025 0050 0	0.2
TS 32/32	45 55 032 0063 0	0.35
TS 40/40	45 55 040 0080 0	0.7

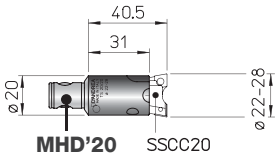
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TS 50/50	45 53 050 0100 0	1.5
TS 50/63	45 53 063 0080 0	2
TS 63/63	45 54 063 0125 0	3
TS 80/80	45 54 080 0140 0	5.3

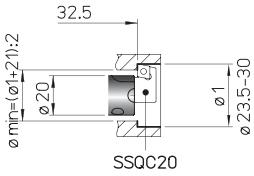
TS 16/16
Ø 18 ~ 22



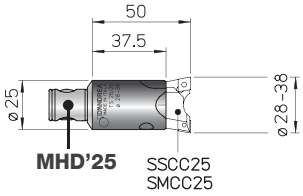


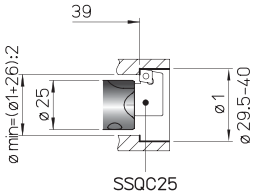
TS 20/20
Ø 22 ~ 28

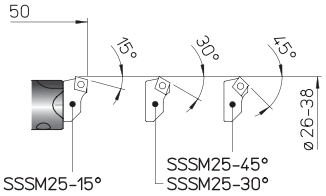




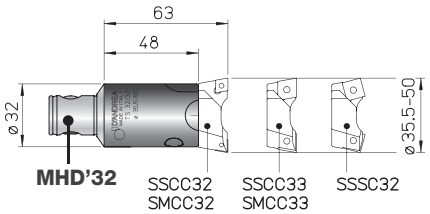
TS 25/25
Ø 28 ~ 38

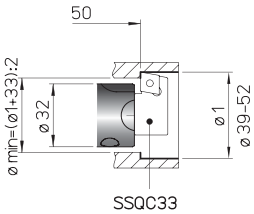


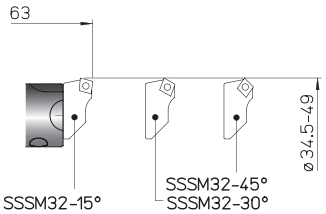




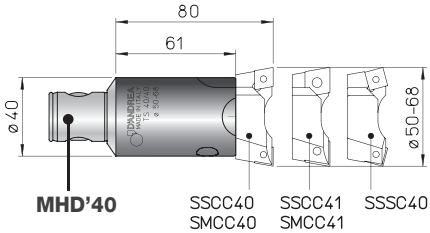
TS 32/32
Ø 35.5 ~ 50

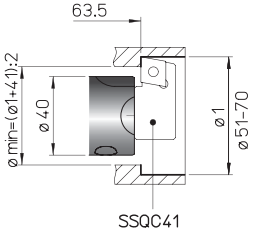


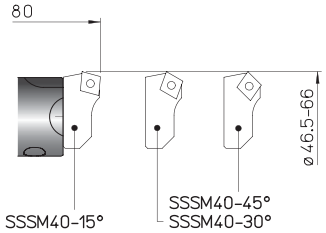




TS 40/40
Ø 50 ~ 68





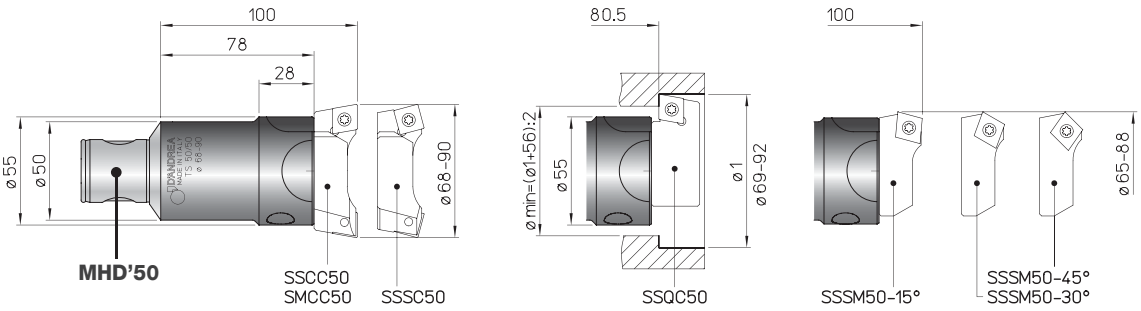


160 INFO
162
158

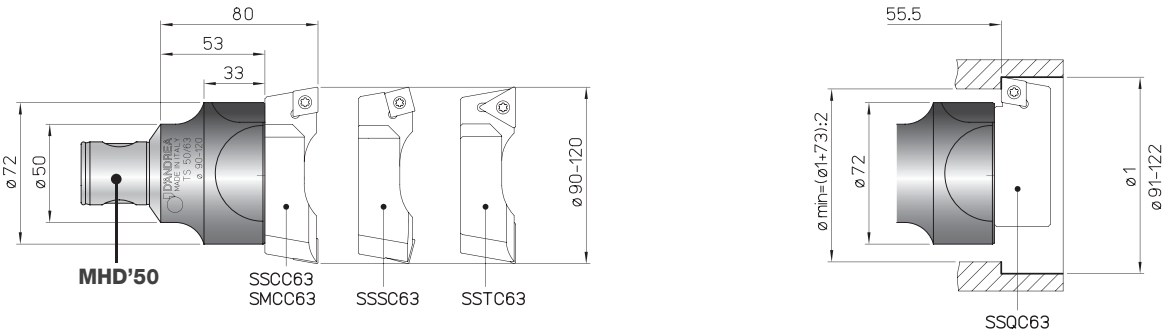
TS 50~80 Ø 68 ~ 200

- DOUBLE-BIT HEADS
- ZWEISCHNEIDERBOHRKÖPFE
- CABEZALES DE DOS CUCHILLAS
- TÊTES À DOUBLE TRANCHANT
- TESTINE BITAGLIENTI

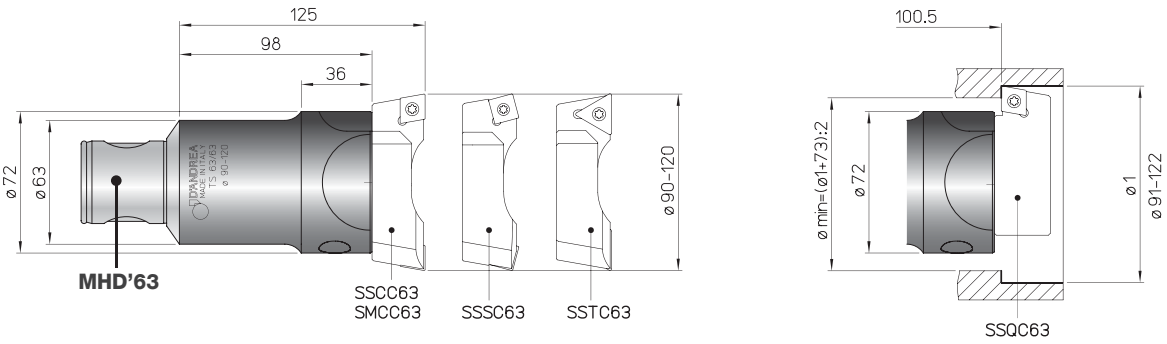
TS 50/50
Ø 68 ~ 90



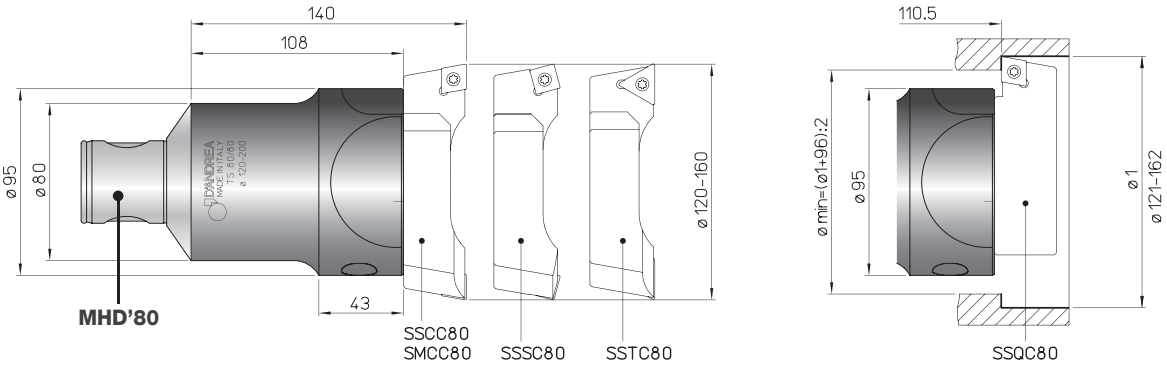
TS 50/63
Ø 90 ~ 120



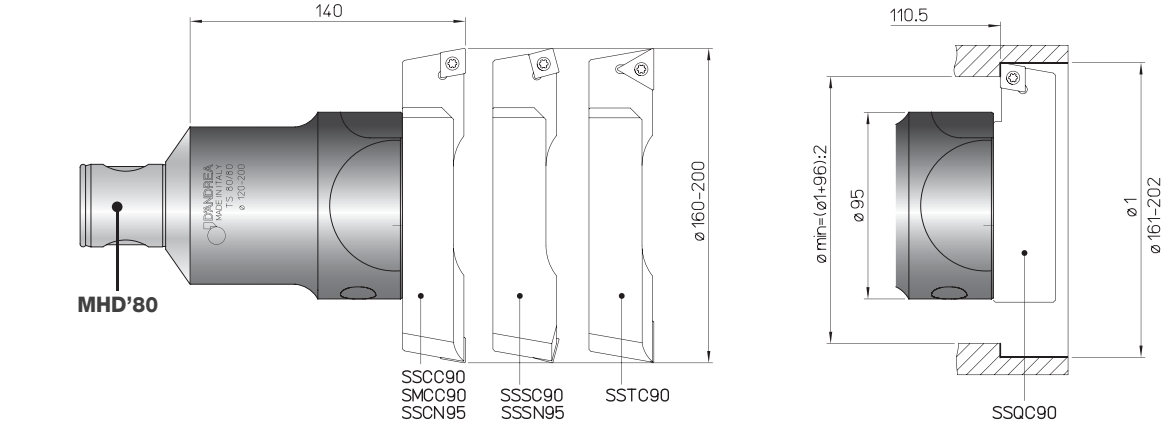
TS 63/63
Ø 90 ~ 120



TS 80/80
Ø 120 ~ 160



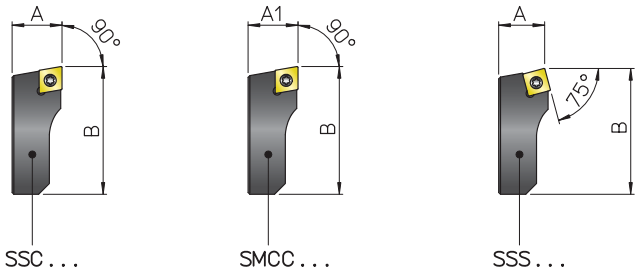
Ø 160 ~ 200



MODULHARD'ANDREA

- BIT-HOLDERS FOR DOUBLE-BIT ITEMS
- PLATTENHALTER FÜR ZWEISCHNEIDERWERKZEUGE
- PORTAPLAQUITAS PARA ASIENTOS A DOS CUCHILLAS
- PORTE-PLAQUETTES POUR PRODUITS À DEUX COUPANTS
- SEGGI PER BITAGLIENTI

SSCC - SMCC - SSSC



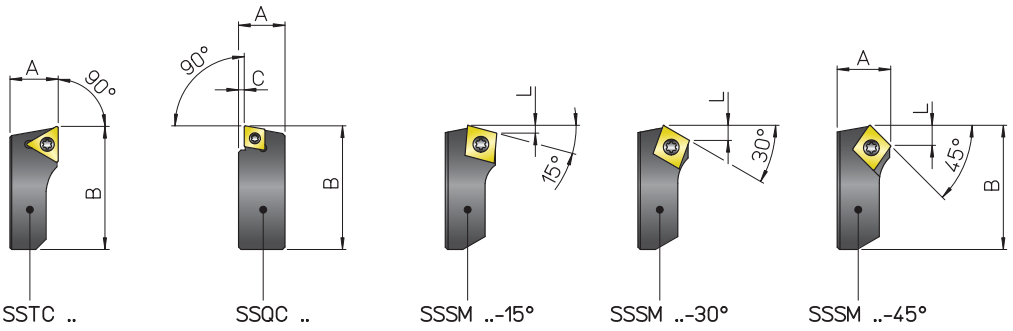
REF.	CODE	A	A1	B					Kg.
SSCC 16	47 050 05 16 201	8	–	15	CCMT 0602..	–	TS 25	TORX T08	0.003
SSCC 20	47 050 05 20 201	9.5		19					0.006
SSCC 25	47 050 05 25 201	12.5		23					0.01
SSCC 32	47 050 05 32 201	15		32					0.02
SSCC 33	47 050 05 32 204		–		CCMT 09T3..	–	TS 4	TORX T15	0.025
SSCC 40	47 050 05 40 201	19		40					0.06
SSCC 41	47 050 05 40 204		–		CCMT 1204..	–	TS5	TORX T25	0.06
SSCC 50	47 050 05 50 204	22		54					0.1
SSCC 63	47 050 05 63 201	27		70.5					0.2
SSCC 80	47 050 05 80 201	32		94.5					0.5
SSCC 90	47 050 05 90 201			130					0.7
SSCN 95	47 050 05 95 201	40			CNM. 1906..		p. 152		0.9
SMCC 25	47 050 05 25 203	–	12.3	23	CCMT 0602..	–	TS 25	TORX T08	0.01
SMCC 32	47 050 05 32 203		14.8	32					0.02
SMCC 33	47 050 05 32 205	–			CCMT 09T3..	–	TS 4	TORX T15	0.025
SMCC 40	47 050 05 40 203		18.7	40					0.06
SMCC 41	47 050 05 40 205	–			CCMT 1204..	–	TS 5	TORX T25	0.06
SMCC 50	47 050 05 50 205		21.7	54					0.1
SMCC 63	47 050 05 63 203		26.7	70.5					0.2
SMCC 80	47 050 05 80 203		31.7	94.5					0.5
SMCC 90	47 050 05 90 203			130					0.7
SSSC 32	47 050 05 32 202	15	–	32	–	SCMT 09T3..	TS 4	TORX T15	0.02
SSSC 40	47 050 05 40 202	19		40					0.06
SSSC 50	47 050 05 50 202	22	–	54	–	SCMT 1204..	TS 5	TORX T25	0.1
SSSC 63	47 050 05 63 202	27		70.5					0.2
SSSC 80	47 050 05 80 202	32		94.5					0.5
SSSC 90	47 050 05 90 202			130					0.7
SSSN 95	47 050 05 95 202	40				SNM. 1906..	p. 152		0.9

160 158

TS 16~80 Ø 18 ~ 200

- BIT-HOLDERS FOR DOUBLE-BIT ITEMS
- PLATTENHALTER FÜR ZWEISCHNEIDERWERKZEUGE
- PORTAPLAQUITAS PARA ASIENTOS A DOS CUCHILLAS
- PORTE-PLAQUETTES POUR PRODUITS À DEUX COUPANTS
- SEGGI PER BITAGLIENTI

SSTC - SSQC - SSSM

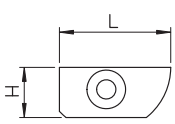


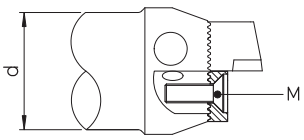
REF.	CODE	A	B	C	L					Kg.
SSTC 63	47 050 05 63 206	27	70.5							0.2
SSTC 80	47 050 05 80 206	32	94.5	–	–	TCMT 2204..	–	TS 5	TORX T25	0.5
SSTC 90	47 050 05 90 206		130							0.7
SSQC 16	47 050 05 16 261	10	16	2						0.005
SSQC 20	47 050 05 20 261	11	19.5	1.5	–	–	CCMT 0602..	TS 25	TORX T08	0.008
SSQC 25	47 050 05 25 261	14.5	24	2.5						0.02
SSQC 33	47 050 05 33 261	17	32	3	–	–	CCMT 09T3..	TS 4	TORX T15	0.03
SSQC 41	47 050 05 41 261	21	42							0.08
SSQC 50	47 050 05 50 261	24.5	57							0.15
SSQC 63	47 050 05 63 261	28.5	76	3.5	–	–	CCMT 1204..	TS 5	TORX T25	0.3
SSQC 80	47 050 05 80 261	31.5	101							0.6
SSQC 90	47 050 05 90 261		122							0.8
SSSM 25-15°	47 050 05 25 211				1.6					
SSSM 25-30°	47 050 05 25 213	12.5	23	–	3					0.01
SSSM 25-45°	47 050 05 25 215				4.3					
SSSM 32-15°	47 050 05 32 211				1.6	–	CCMT 0602..	TS 25	TORX T08	
SSSM 32-30°	47 050 05 32 213	15	31	–	3					0.025
SSSM 32-45°	47 050 05 32 215				4.3					
SSSM 40-15°	47 050 05 40 211				2.4					
SSSM 40-30°	47 050 05 40 213	19	39	–	4.6	–	CCMT 09T3..	TS 4	TORX T15	0.06
SSSM 40-45°	47 050 05 40 215				6.5					
SSSM 50-15°	47 050 05 50 211				3.2					
SSSM 50-30°	47 050 05 50 213	22	53	–	6.2	–	CCMT 1204..	TS 5	TORX T25	0.1
SSSM 50-45°	47 050 05 50 215				8.8					

- COVER PLATES
- ABDECKPLATTEN
- PROTECCIONES
- CACHES DE PROTECTION
- PROTEZIONI MILLERIGHE

PT





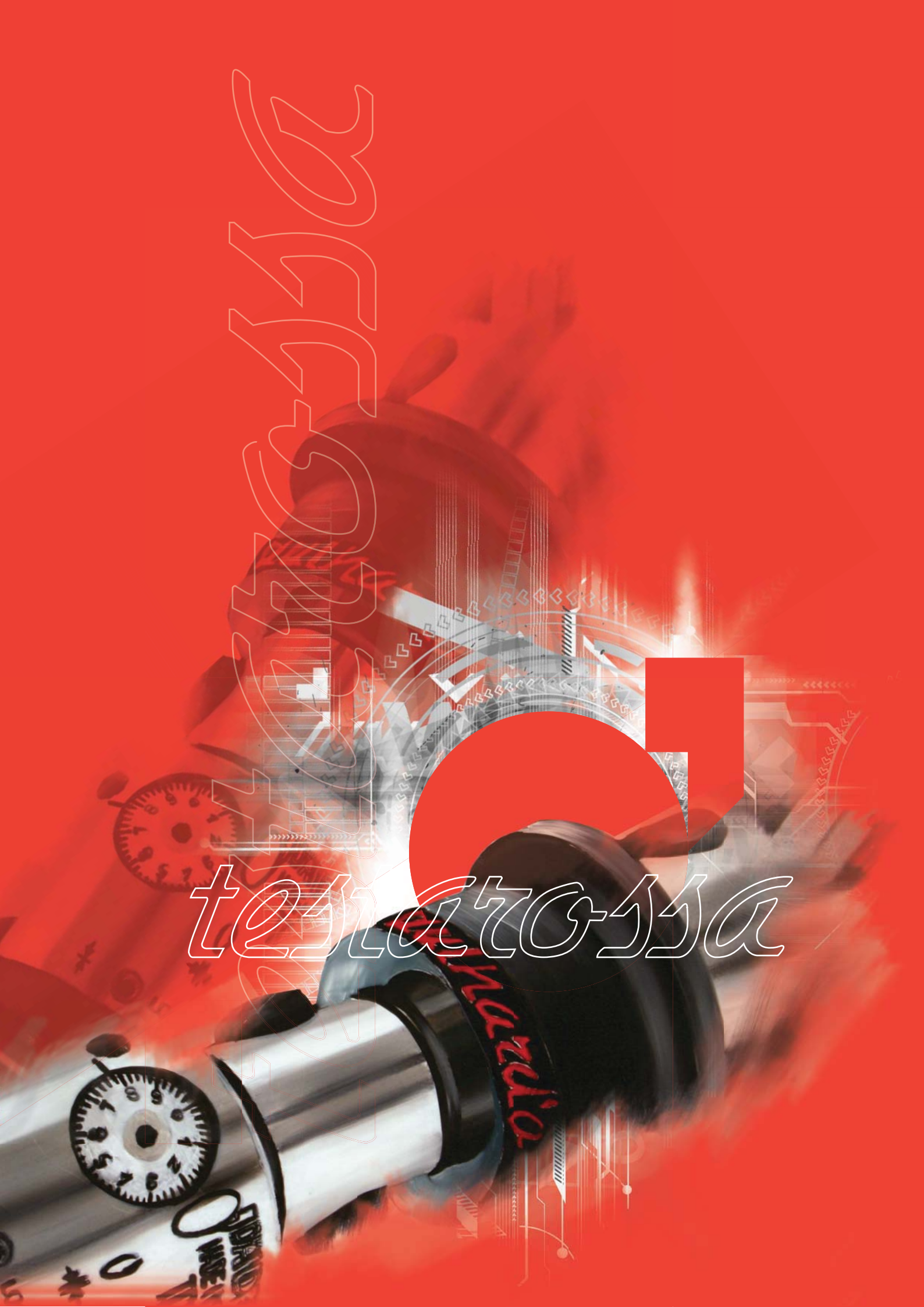


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PT 16	38 47 65 000160	16	7	14	M 3x12
PT 20	38 47 65 000200	20	8.5	17	M 4x14
PT 25	38 47 65 000250	25	10.2	21	M 4x16
PT 32	38 47 65 000320	32	13.9	28	M 5x20
PT 40	38 47 65 000400	40	17.4	35	M 6x25
PT 50	38 47 65 000500	50	21.4	47.5	M 8x25
PT 63	38 47 65 000630	63	26.4	62	M 10x30
PT 80	38 47 65 000800	80	33.9	82.5	M 12x35

158 160

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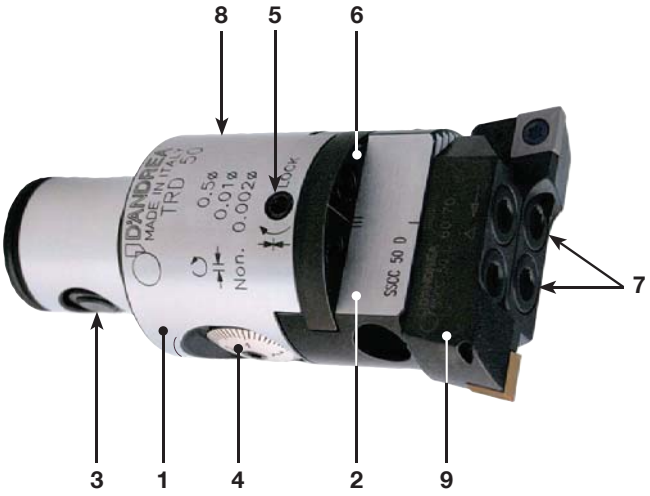



Tehtaalla
tehtaassa

MODULHARD'ANDREA

TRD Ø 28 ~ 120

- **DOUBLE-BIT TESTAROSSA**
- **TESTAROSSA ZWEISCHNEIDERKÖPFE**
- **TESTAROSSA DE DOS CUCHILLAS**
- **DOUBLE TRANCHANT TESTAROSSA**
- **TESTAROSSA BITAGLIENTE**



Dom. Brev. Dep.
Patent Pending

1
- Body
- Körper
- Cuerpo
- Corps
- Corpo

2
- Slide toolholder
- Werkzeugschlitten
- Guía portaherramientas
- Coulisseau
- Slitta portautensili

3
- Expanding radial pin
- Spreizbolzen
- Perno radial expansible
- Tige radiale expansible
- Perno radiale espandibile

4
- Vernier scale
- Nonius
- Nonio
- Vernier
- Nonio

5
- Slide clamp screw
- Schlittenklemmschraube
- Tornillo blocaje guía
- Vis blocage coulisseau
- Vite bloccaggio slitta

6
- Coolant outlet
- Kühlmittelaustritt
- Agujero salida refrigerante
- Sortie du liquide d'arrosage
- Uscita refrigerante

7
- Tools clamp screws
- Werkzeugklemmschrauben
- Tornillos blocaje herramienta
- Vis blocage outil
- Viti bloccaggio utensile

8
- Oiler
- Schmiernippel
- Engrasador
- Graisseur
- Oliatore

9
- Bit holder
- Plattenhalter
- Portaplaquita
- Porte-plaquettes
- Seggio portainserti

10 µm
nonio vernier **2 µm**



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.

D Der Hauptvorteil der TRD Köpfe liegt darin, dass die auf dem Schlitten montierten Sitze unabhängig voneinander voreingestellt werden können. Dies ermöglicht gleichzeitige Grob- und Feinbearbeitungen.

E El punto fuerte de los TRD es el pre-ajuste independiente de los asientos montados sobre la corredera que permiten realizar a la vez operaciones de desbaste y acabado.

F L'avantage des TRD est le pré-réglage indépendant des logements montés sur le coulisseau qui permettent d'effectuer en même temps des travaux de dégrossissage et de finissage.

I Il punto di forza delle TRD è la pre-regolazione indipendente dei seggi montati sulla slitta che consentono di eseguire contemporaneamente lavorazioni di sgrossatura e di finitura.

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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.

D **MERKMALE.** Die TRD Zweischneiderköpfe ermöglichen eine kombinierte und hochpräzise Vor- und Fertigbearbeitung. Dank der Steifigkeit und der auf radial 5 µm über Skala genauen Schlittenverstellung kann das Mass direkt an der Maschine korrigiert werden.

E **CARACTERÍSTICAS.** Los cabezales de dos cuchillas TRD permiten realizar operaciones combinadas de desbaste y acabado de alta precisión, gracias a su rigidez y a la sensibilidad del mecanismo de deslizamiento con ajuste de 5 micras en radio, que puede leerse en el nonio y realizarse directamente en la máquina.

F **CARACTÉRISTIQUES.** Les têtes à double tranchant TRD permettent le travail combiné de dégrossissage et finition de haute précision. Grâce à leur rigidité et à la sensibilité du déplacement du chariot avec un réglage de 5 microns sur le rayon, lisible sur le nonius et exécutable même dans la machine.

I **CARATTERISTICHE**. Le testine bitaglienti TRD consentono lavorazioni combinate di sgrossatura e finitura di alta precisione, grazie alla loro rigidezza e alla sensibilità dello spostamento slitta con regolazione di 5 micron sul raggio, leggibile sul nonio ed eseguibile anche in macchina.

TRD 25
Ø 28 ~ 36



TRD 32
Ø 36 ~ 46



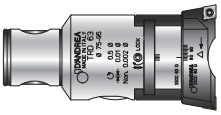
TRD 40
Ø 46 ~ 60



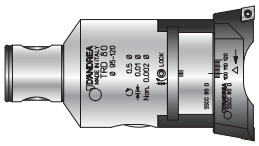
TRD 50
Ø 60 ~ 75



TRD 63
Ø 75 ~ 95



TRD 80
Ø 95 ~ 120







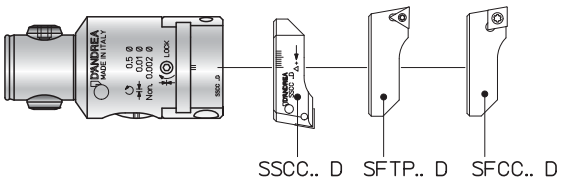


MODULHARD'ANDREA

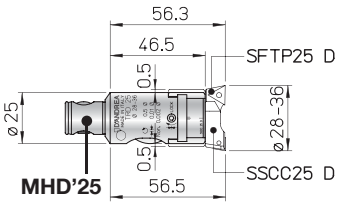
TRD 25~80 Ø 28 ~ 120

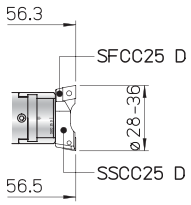
- DOUBLE-BIT TESTAROSSA
- TESTAROSSA ZWEISCHNEIDERKÖPFE
- TESTAROSSA DE DOS CUCHILLAS
- DOUBLE TRANCHANT TESTAROSSA
- TESTAROSSA BITAGLIENTE



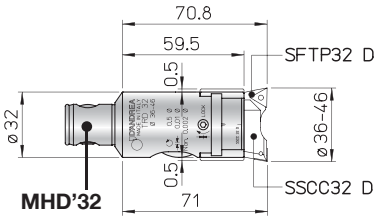


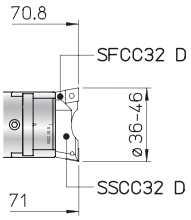
TRD 25
Ø 28 ~ 36



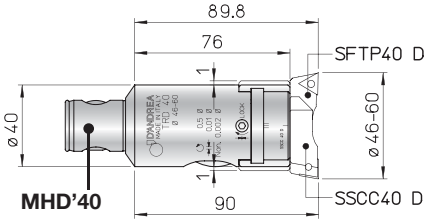


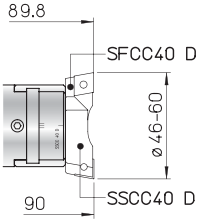
TRD 32
Ø 36 ~ 46



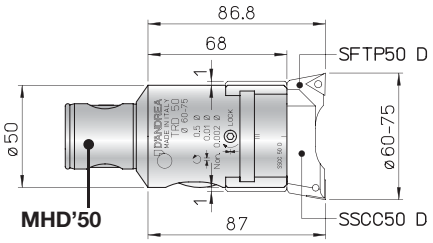


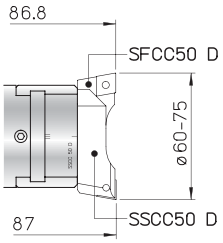
TRD 40
Ø 46 ~ 60



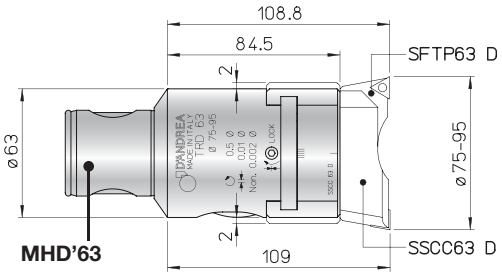


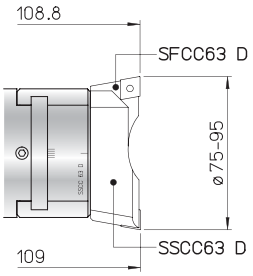
TRD 50
Ø 60 ~ 75



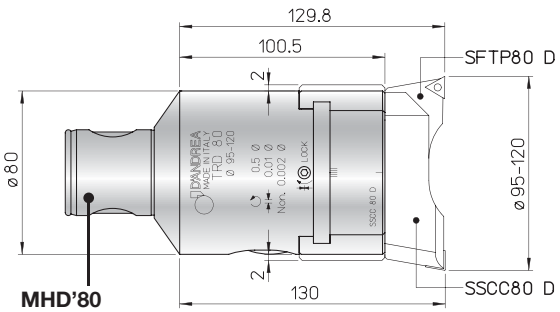


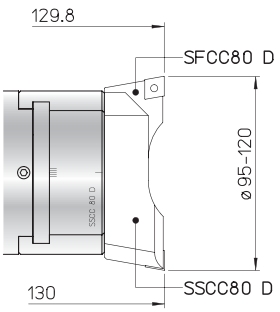
TRD 63
Ø 75 ~ 95





TRD 80
Ø 95 ~ 120





testarossad'andrea

TRD

- DOUBLE-BIT TESTAROSSA
- TESTAROSSA ZWEISCHNEIDERKÖPFE
- TESTAROSSA DE DOS CUCHILLAS
- DOUBLE TRANCHANT TESTAROSSA
- TESTAROSSA BITAGLIENTE

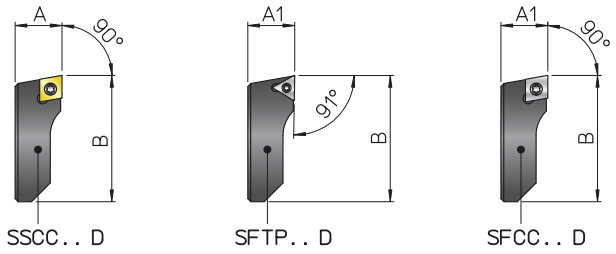


10 µm
nonio vernier **2 µm**

REF.	CODE	Kg.
TRD 25	45 50 225 0057 1	0.2
TRD 32	45 50 232 0071 1	0.35
TRD 40	45 50 240 0090 1	0.7
TRD 50	45 50 250 0086 1	1.5
TRD 63	45 50 263 0108 1	2.7
TRD 80	45 50 280 0129 1	4.8

SS-SF

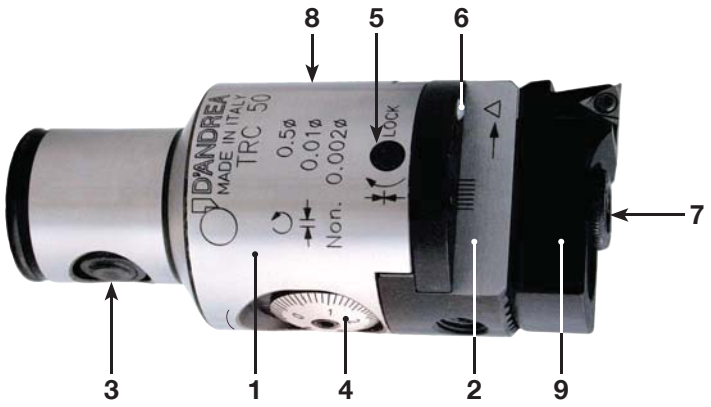
- BIT-HOLDERS FOR DOUBLE-BIT TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA ZWEISCHNEIDERBOHRKÖPFE
- ASIENTOS PARA TESTAROSSA DE DOS CUCHILLAS
- DOUBLE TRANCHANT TESTAROSSA
- SEGGI PER TESTAROSSA BITAGLIENTE



REF.	CODE	A	A1	B	△	◎	▯	⌐	Kg.
SSCC 25 D	47 050 05 25 220	10	–	24	–	CCMT 0602..	TS 25	TORX T08	0.008
SSCC 32 D	47 050 05 32 220	11.5		30					0.015
SSCC 40 D	47 050 05 40 220	14	–	40	–	CCMT 09T3..	TS 4	TORX T15	0.03
SSCC 50 D	47 050 05 50 220	19		54					0.06
SSCC 63 D	47 050 05 63 220	24.5		68					0.15
SSCC 80 D	47 050 05 80 220	29.5		87					0.3
SFTP 25 D	47 050 05 25 030	–	9.8	24	TPGX 0902..	–	CS 250T	TORX T08	0.008
SFTP 32 D	47 050 05 32 030		11.3	30					0.015
SFTP 40 D	47 050 05 40 030	–	13.8	40	TPGX 1103..	–	CS 300890T		0.03
SFTP 50 D	47 050 05 50 030		18.8	54					0.06
SFTP 63 D	47 050 05 63 030		24.3	68					0.15
SFTP 80 D	47 050 05 80 030		29.3	87					0.3
SFCC 25 D	47 050 05 25 020	–	9.8	24	–	CCGT 0602..	TS 25	TORX T08	0.008
SFCC 32 D	47 050 05 32 020		11.3	30					0.015
SFCC 40 D	47 050 05 40 020	–	13.8	40	–	CCGT 09T3..	TS 4	TORX T15	0.03
SFCC 50 D	47 050 05 50 020		18.8	54					0.06
SFCC 63 D	47 050 05 63 020		24.3	68					0.15
SFCC 80 D	47 050 05 80 020		29.3	87					0.3

158 162 160

MODULHARD'ANDREA



1
- Body
- Körper
- Cuerpo
- Corps
- Corpo

2
- Slide toolholder
- Werkzeugschlitten
- Guía portaherramientas
- Coulisseau
- Slitta portautensili

3
- Expanding radial pin
- Spreizbolzen
- Perno radial expansible
- Tige radiale expansible
- Perno radiale espandibile

4
- Vernier scale
- Nonius
- Nonio
- Vernier
- Nonio

5
- Slide clamp screw
- Schlittenklemmschraube
- Tornillo blocaje guía
- Vis blocage coulisseau
- Vite bloccaggio slitta

6
- Coolant outlet
- Kühlmittelaustritt
- Agujero salida refrigerante
- Sortie du liquide d'arrosage
- Uscita refrigerante

7
- Tools clamp screws
- Werkzeugklemmschrauben
- Tornillo blocaje herramienta
- Vis blocage outil
- Viti bloccaggio utensile

8
- Oiler
- Schmiernippel
- Engrasador
- Graisseur
- Oliatore

9
- Bit holder
- Plattenhalter
- Portaplaquita
- Porte-plaquettes
- Seggio portainserti

10 µm
nonio vernier **2 µm**



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.

D MERKMALE. Die TRC Köpfe ermöglichen Bearbeitungen mit hoher Präzision und Toleranzen mit Grad IT6 bei hochwertiger Oberflächengüte. Sie besitzen eine Feinverstellung mit einer Genauigkeit von radial 5 µm, wobei das Maß auf der Skala abgelesen und auch direkt an der Maschine eingestellt werden kann.

E CARACTERÍSTICAS. Los cabezales TRC permiten realizar operaciones de alta precisión con tolerancias de grado IT6 con un extraordinario acabado de la superficie. Tienen una sensibilidad de ajuste de 5 micras en radio, de fácil lectura en el nonio y corregibles directamente sobre la máquina.

F CARACTÉRISTIQUES. Les têtes TRC permettent des usinages de haute précision avec des tolérances de degré IT6 comprenant un excellent finissage superficiel. Elles ont une sensibilité de réglage de 5 microns sur le rayon, facilement lisible sur le vernier et exécutable également dans la machine.

I CARATTERISTICHE. Le testine TRC consentono lavorazioni di alta precisione con tolleranze di grado IT6 con ottima finitura superficiale. Hanno una sensibilità di regolazione di 5 micron sul raggio, facilmente leggibile sul nonio ed eseguibile anche in macchina.

testarossad'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 ~ 53



TRC 40
Ø 48 ~ 66



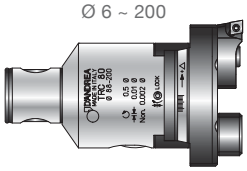
TRC 50
Ø 2.5 ~ 110

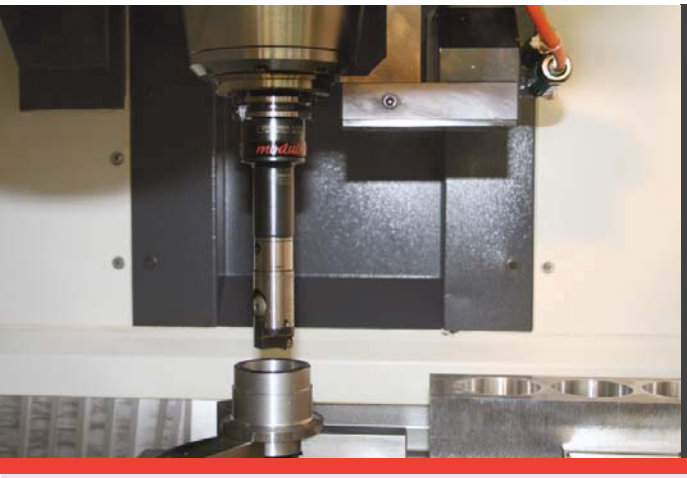


TRC 63
Ø 6 ~ 125



TRC 80
Ø 6 ~ 200



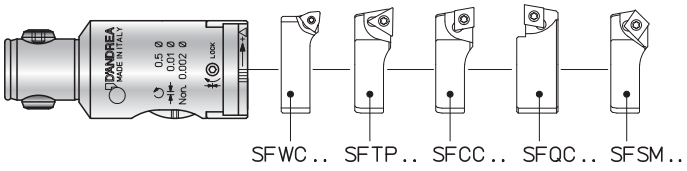




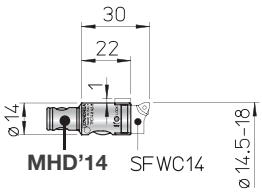


MODULHARD'ANDREA

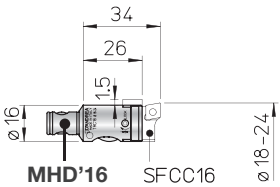


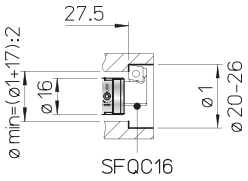


TRC 14
Ø 14.5 ~ 18

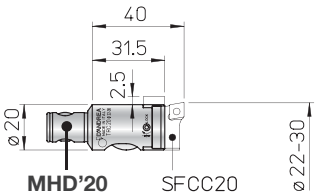


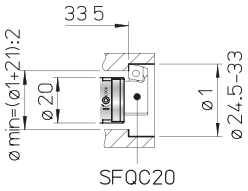
TRC 16
Ø 18 ~ 24



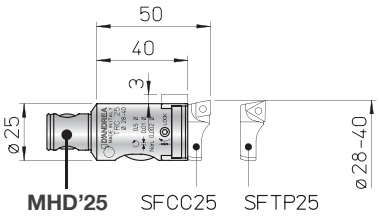


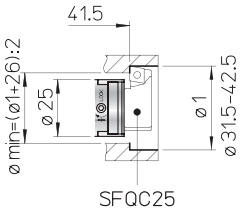
TRC 20
Ø 22 ~ 30

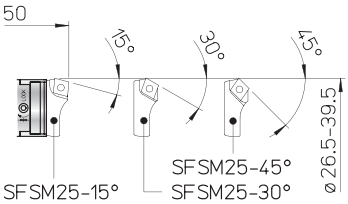




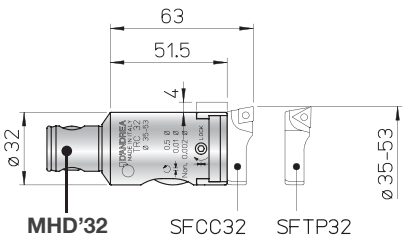
TRC 25
Ø 28 ~ 40

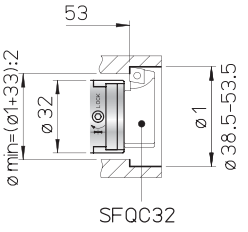


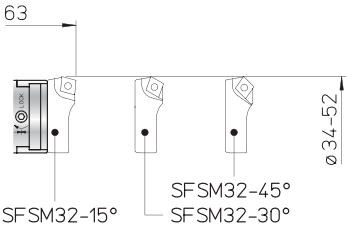




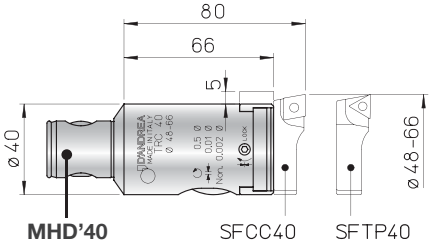
TRC 32
Ø 35 ~ 53

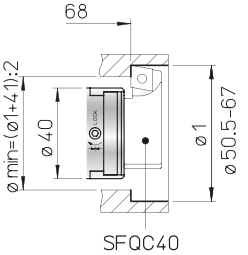


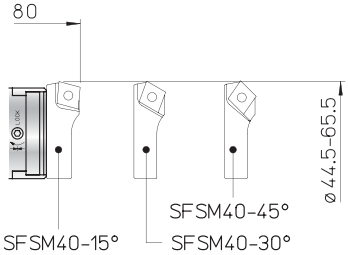




TRC 40
Ø 48 ~ 66







testarossad'andrea

• TESTAROSSA

TRC

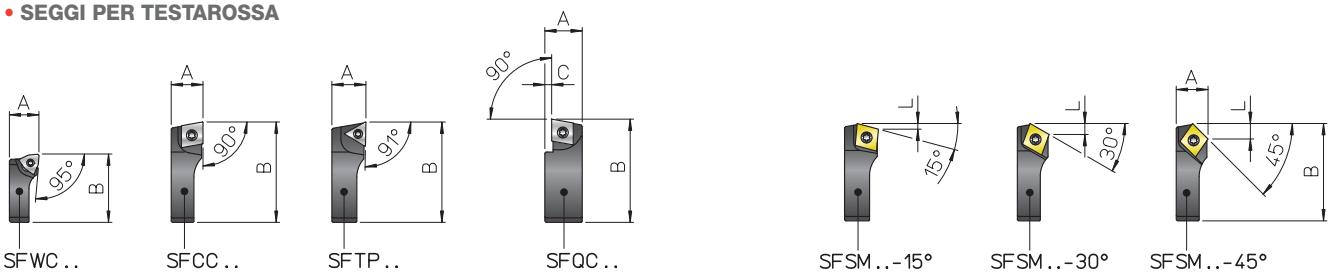


10 µm
nonio vernier **2 µm**

REF.	CODE	Kg.
TRC 14	45 50 114 0030 1	0.02
TRC 16	45 50 116 0034 1	0.05
TRC 20	45 50 120 0040 1	0.1
TRC 25	45 50 125 0050 1	0.2
TRC 32	45 50 132 0063 1	0.35
TRC 40	45 50 140 0080 1	0.7

• BIT-HOLDERS FOR TESTAROSSA
• PLATTENHALTER FÜR TESTAROSSA
• PORTA-PLAQUITAS PARA TESTAROSSA
• PORTE-PLAQUETTES POUR TESTAROSSA
• SEGGI PER TESTAROSSA

SF



REF.	CODE	A	B	C	L						Kg.
SFWC 14	47 050 05 14 002	8	14	–	–	WCGT 0201..	–	–	TS 211	TORX T06	0.003
SFCC 16	47 050 05 16 002	8	17	–	–	–	CCGT 0602..	–	TS 25	TORX T08	0.003
SFCC 20	47 050 05 20 002	8.5	21								0.005
SFCC 25	47 050 05 25 002	10	26.5								0.01
SFCC 32	47 050 05 32 002	11.5	34.5								0.02
SFCC 40	47 050 05 40 002	14	44	–	–	–	CCGT 09T3..	–	TS 4	TORX T15	0.04
SFTP 25	47 050 05 25 001	10	26.5	–	–	–	–	TPGX 0902..	CS 250T	TORX T08	0.01
SFTP 32	47 050 05 32 001	11.5	34.5								0.02
SFTP 40	47 050 05 40 001	14	44	–	–	–	–	TPGX 1103..	CS 300890T		0.04
SFQC 16	47 050 05 16 062	10	18	2	–	–	CCMT 0602..	–	TS 25	TORX T08	0.005
SFQC 20	47 050 05 20 062	10.5	22.5								0.008
SFQC 25	47 050 05 25 062	12	28.5	2.5							0.01
SFQC 32	47 050 05 32 062	13.5	35.5								0.03
SFQC 40	47 050 05 40 062	16.5	46	3	–	–	CCMT 09T3..	–	TS 4	TORXT15	0.06
SFSM 25-15°	47 050 05 25 011	10	25.5	–	1.6	–	CCMT 0602..	–	TS 25	TORX T08	0.01
SFSM 25-30°	47 050 05 25 013				3						
SFSM 25-45°	47 050 05 25 015				4.3						
SFSM 32-15°	47 050 05 32 011	11.5	33.5	–	1.6						0.02
SFSM 32-30°	47 050 05 32 013				3						
SFSM 32-45°	47 050 05 32 015				4.3						
SFSM 40-15°	47 050 05 40 011	14	42.5	–	2.4	–	CCMT 09T3..	–	TS 4	TORXT15	0.03
SFSM 40-30°	47 050 05 40 013				4.6						
SFSM 40-45°	47 050 05 40 015				6.5						

158 162 161

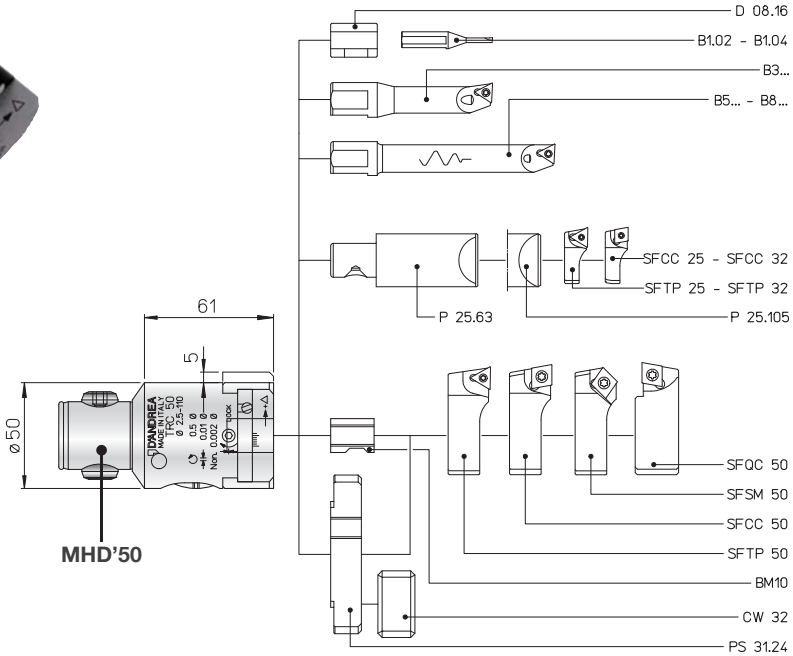


TRC 50 Ø 2.5 ~ 110

• TESTAROSSA



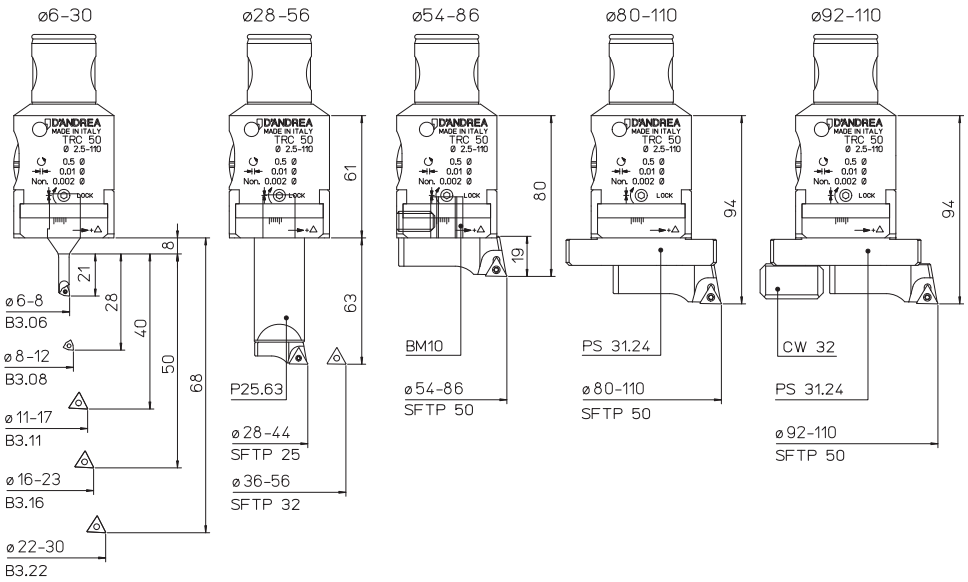
10 µm
nonio vernier **2 µm**



REF.	CODE	Kg.
TRC 50	45 50 150 0080 1	1

KIT K01

Ø 6 ~ 110





K01 TRC 50		
1 TRC 50	1 B3.06	1 SFTP25
1 P25.63	1 B3.08	1 SFTP32
1 BM10	1 B3.11	1 SFTP50
1 PS 31.24	1 B3.16	
1 CW 32	1 B3.22	
5 TPGX 090202L DC100		
1 TPGX 110302L DC100		
2 WCGT 020102L DC100		

REF.	CODE	Ø
K01 TRC 50	65 50 150 1050 1	6 ~ 110

161 INFO
162
158
241

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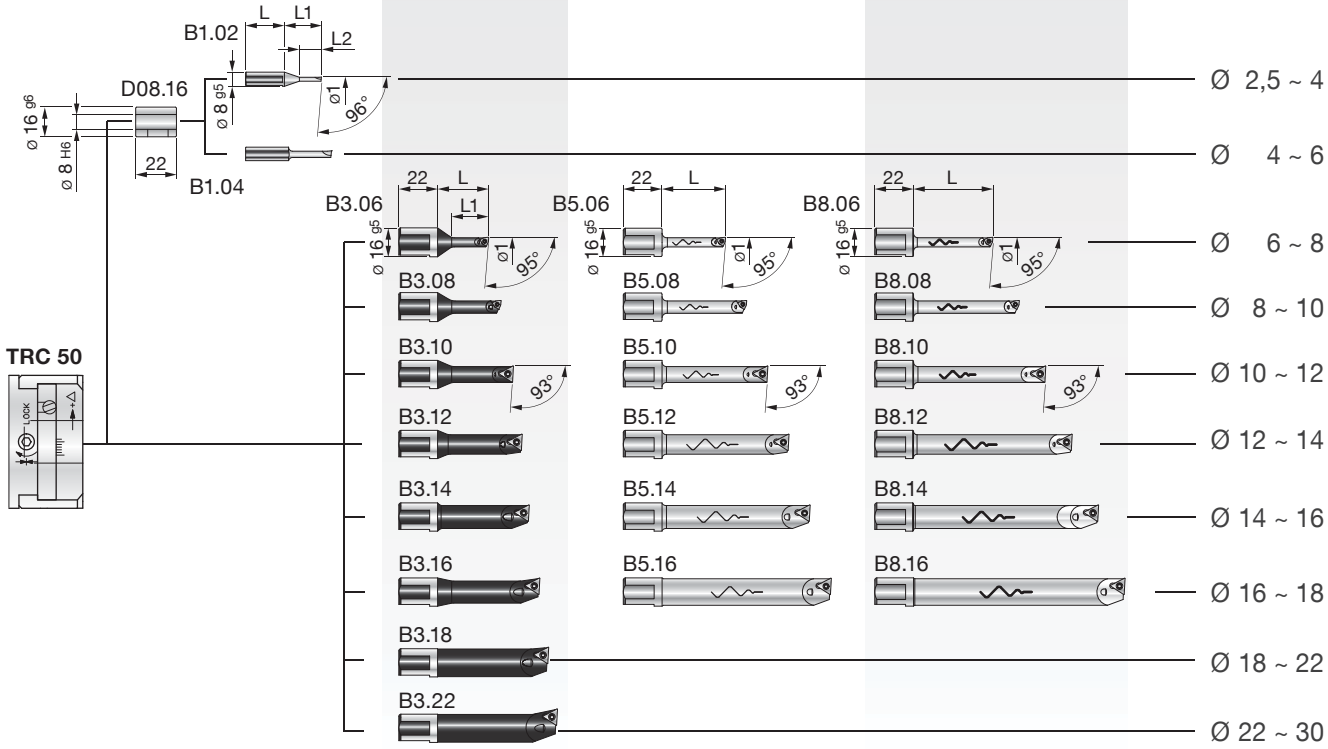
B1
- Carbide tools
- Bohrstange aus hartmetall
- Herramientas de metal duro
- Outils carbure
- Utensili in metallo duro

B3
- Tools
- Bohrstange
- Herramientas
- Outils
- Utensili

B5
- Vibration-damping tools
- Vibrationsarme Bohrstangen
- Herramientas anti-vibración
- Outils anti-vibratoires
- Utensili antivibranti

B8
- Carbide tools
- Bohrstange aus hartmetall
- Herramientas de metal duro
- Outils carbure
- Utensili in metallo duro

Ø 2.5 ~ 30



REF.	CODE	Kg.
D08.16	20 056 01 16 08 2	0.02

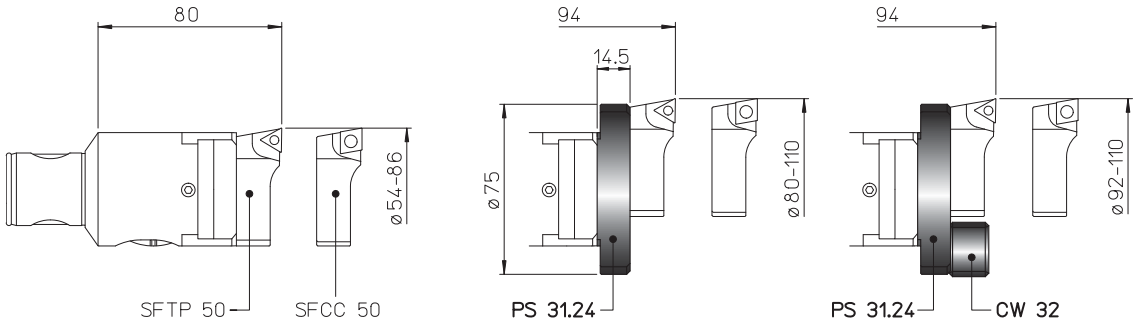
REF.	CODE	Ø1	L	L1	L2	Kg.
B1.02	57 201 05 02 001	2.5 ~ 4	22	21	12.5	0.02
B1.04	57 201 05 04 001	4 ~ 6	24	24	–	

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	–	TPGX 0902..	CS 250 T	TORX T08	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					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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B5.12	57 201 05 12 105	12 ~ 14	72						
B5.14	57 201 05 14 105	14 ~ 16	84						0.2
B5.16	57 201 05 16 105	16 ~ 18	96						0.3
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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B8.12	57 201 05 12 108	12 ~ 14	90						0.2
B8.14	57 201 05 14 108	14 ~ 16	105						
B8.16	57 201 05 16 108	16 ~ 18	120						0.3

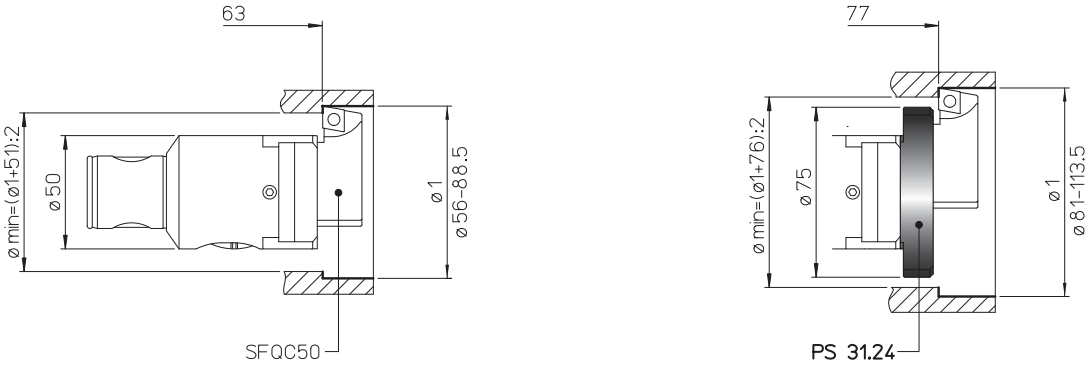
TRC 50 Ø 52 ~ 113.5

- TOOLHOLDERS FOR TESTAROSSA
- WERKZEUGE FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

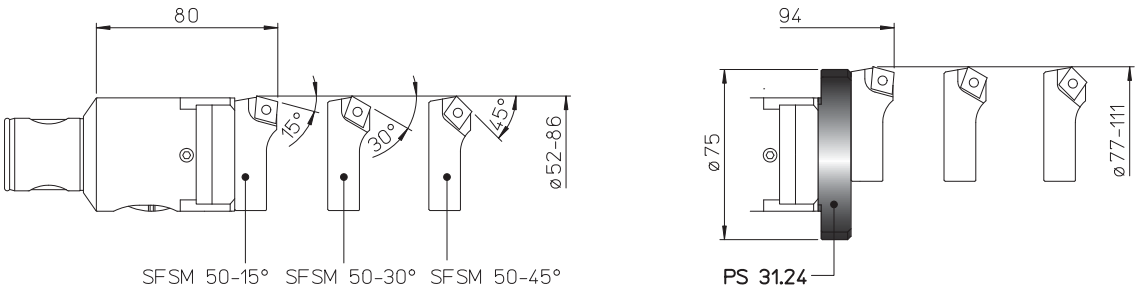
PS 31
CW 32
Ø 54 ~ 110



PS 31
Ø 56 ~ 113.5



PS 31
Ø 52 ~ 111



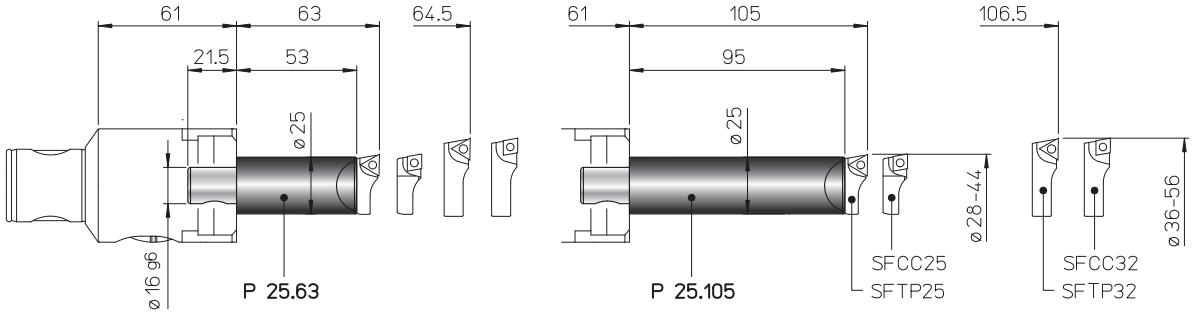
REF.	CODE	Kg.
PS 31.24	43 30 24 14 075 1	0.2
CW 32	39 20 110 032 01	0.5

161 INFO
165
158

testarossad'andrea

- TOOLHOLDERS FOR TESTAROSSA
- WERKZEUGE FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

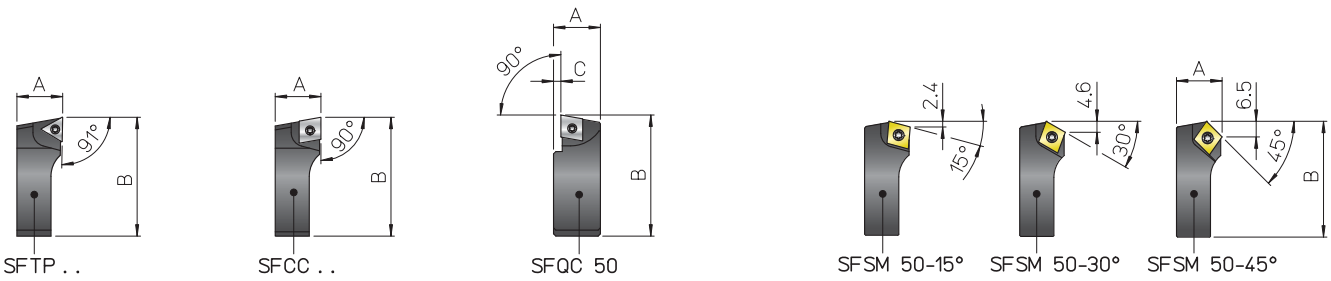
PS 25
Ø 28 ~ 56



REF.	CODE	Kg.
P25.63	43 51 16 25 063 0	0.5
P25.105	43 51 16 25 105 0	0.8

- BIT-HOLDERS FOR TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA
- PORTA-PLAQUITAS PARA TESTAROSSA
- PORTE-PLAQUETTES POUR TESTAROSSA
- SEGGI PER TESTAROSSA

SF



REF.	CODE	A	B	C					Kg.
SFTP 25	47 050 05 25 001	10	26.5	–	TPGX 0902..	–	CS 250T	TORX T08	0.01
SFTP 32	47 050 05 32 001	11.5	34.5						0.02
SFTP 50	47 050 05 50 001	19	52	–	TPGX 1103..	–	CS 300890T		0.08
SFCC 25	47 050 05 25 002	10	26.5	–	–	CCGT 0602..	TS 25	TORX T08	0.01
SFCC 32	47 050 05 32 002	11.5	34.5						0.02
SFCC 50	47 050 05 50 002	19	52	–	–	CCGT 09T3..	TS 4	TORX T15	0.08
SFQC 50	47 050 05 50 062	20.5	53	3	–	CCMT 09T3..	TS 4	TORXT15	0.1
SFSM 50-15°	47 050 05 50 011	19	50.5	–	–	CCMT 09T3..	TS 4	TORXT15	0.07
SFSM 50-30°	47 050 05 50 013								
SFSM 50-45°	47 050 05 50 015								

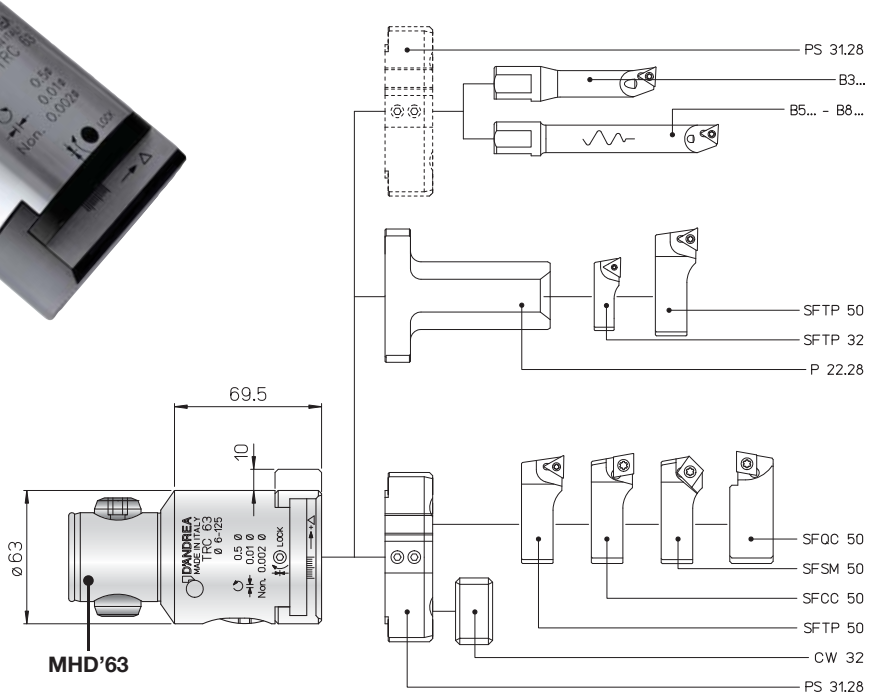
158 165 161

TRC 63 Ø 6 ~ 125

• TESTAROSSA



10 µm
nonio vernier **2 µm**



Ø 6 ~ 30

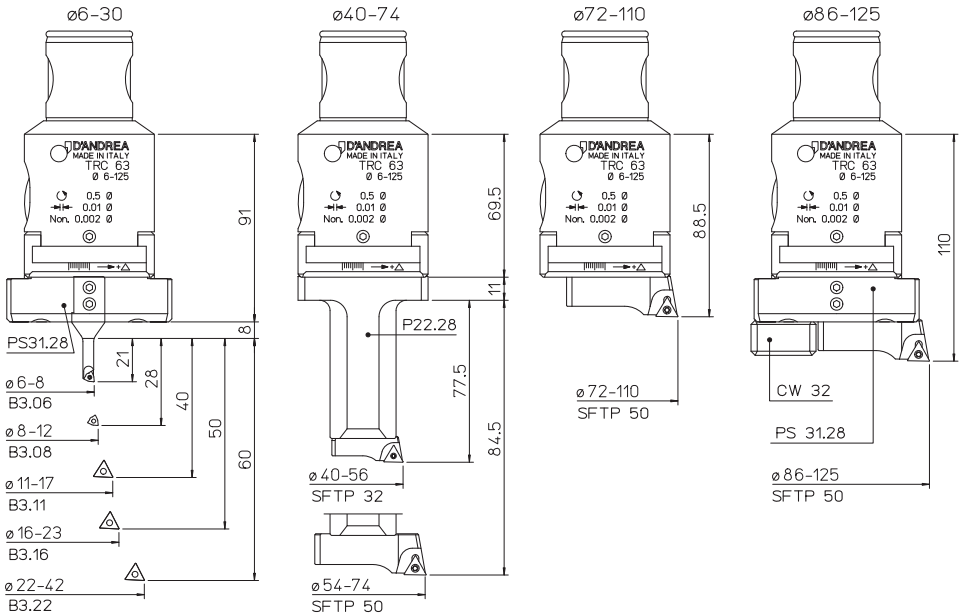
Ø 40 ~ 74

Ø 72 ~ 125

REF.	CODE	Kg.
TRC 63	45 50 163 0100 1	2

KIT K01

Ø 6 ~ 125



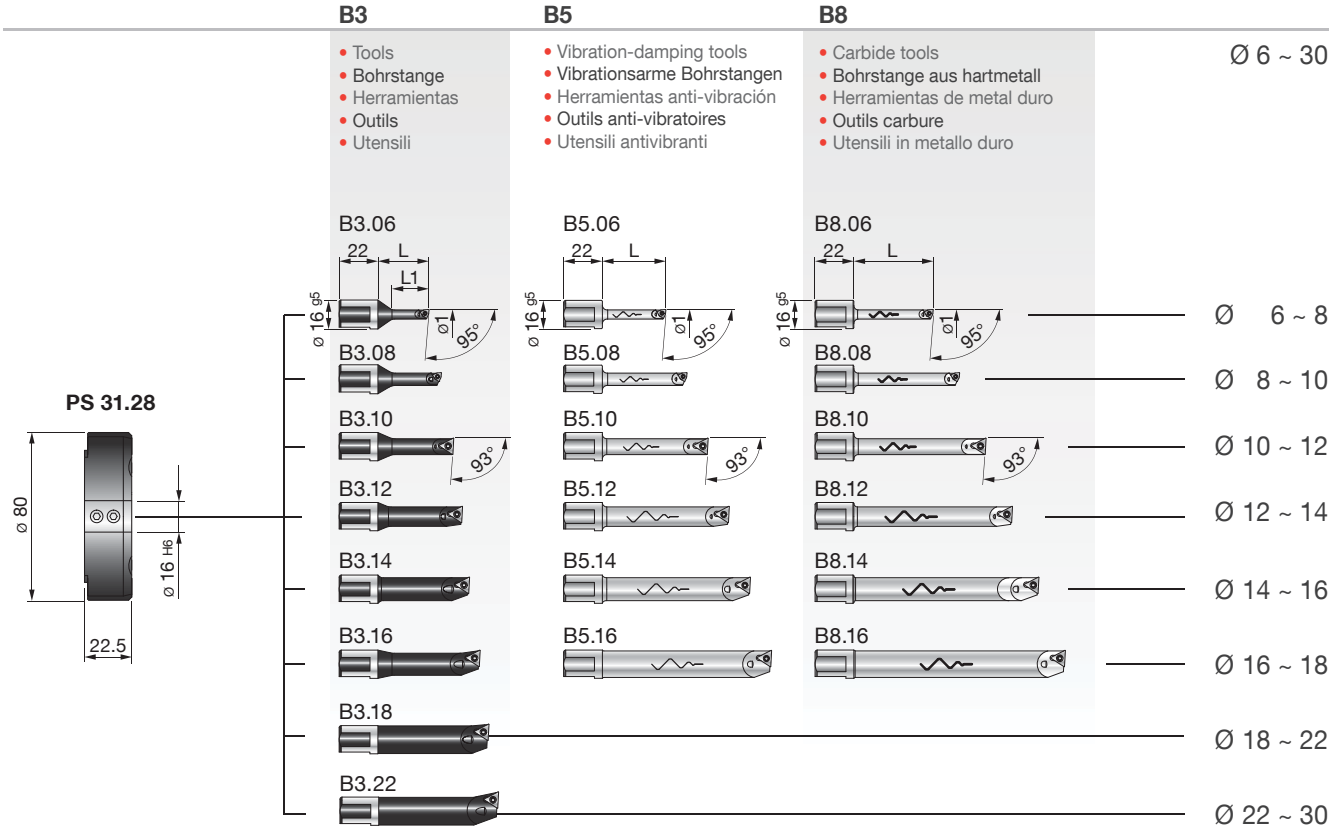


K01 TRC 63	
1 TRC 63	
1 PS31.28	1 B3.06
1 CW 32	1 B3.08
1 P22.28	1 B3.11
1 SFTP32	1 B3.16
1 SFTP50	1 B3.22
5 TPGX 090202L DC100	
1 TPGX 110302L DC100	
2 WCGT 020102L DC100	

REF.	CODE	Ø
K01 TRC 63	65 50 163 1063 1	6 ~ 125

161 INFO
162
158
241

testarossad'andrea



REF.	CODE	Kg.
PS 31.28	43 30 28 22 080 1	0.3

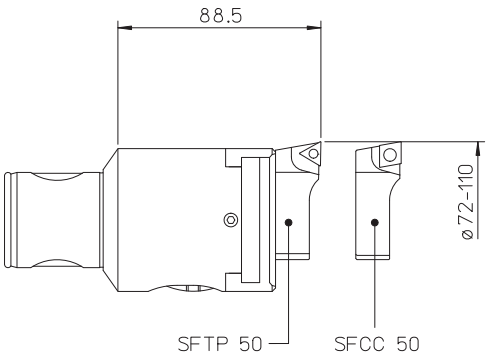
REF.	CODE	Ø1	L	L1					Kg.
B3.06	57 201 05 06 001	6 ~ 8	29	21	WCGT 0201..	–	TS 21	TORX T06	0.035
B3.08	57 201 05 08 001	8 ~ 10	36	28			TS 211		0.04
B3.10	57 201 05 10 001	10 ~ 12	43	35	–	TPGX 0902..	CS 250 T	TORX T08	0.05
B3.11	57 201 05 11 001	11 ~ 13	48	40					0.055
B3.12	57 201 05 12 001	12 ~ 14		42					0.06
B3.14	57 201 05 14 001	14 ~ 16	52	50					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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B5.12	57 201 05 12 105	12 ~ 14	72						
B5.14	57 201 05 14 105	14 ~ 16	84						0.2
B5.16	57 201 05 16 105	16 ~ 18	96						0.3
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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B8.12	57 201 05 12 108	12 ~ 14	90						
B8.14	57 201 05 14 108	14 ~ 16	105						0.2
B8.16	57 201 05 16 108	16 ~ 18	120						0.3

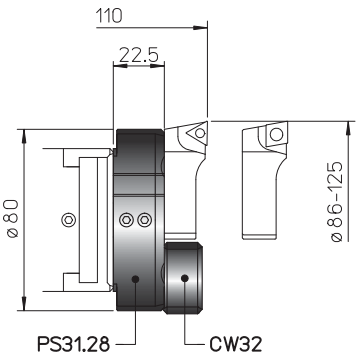
158 165 161

TRC 63 Ø 69 ~ 129.5

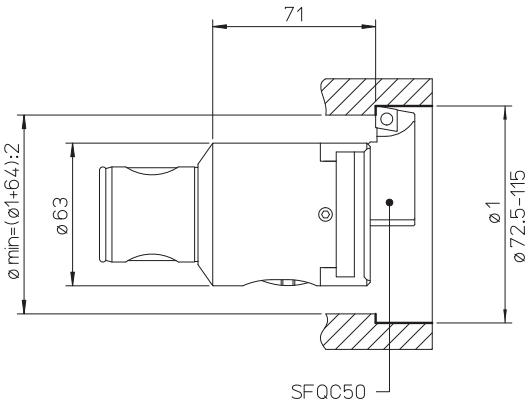
- TOOLHOLDERS FOR TESTAROSSA
- WERKZEUGE FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

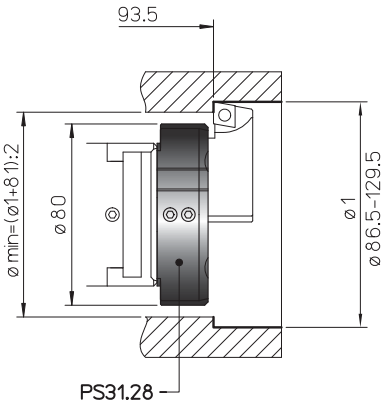
PS 31
CW 32
Ø 72~ 125



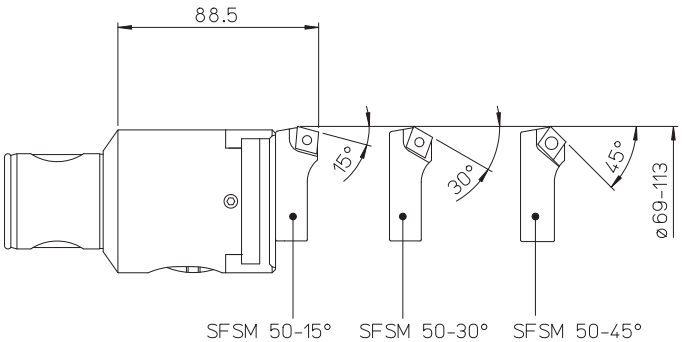


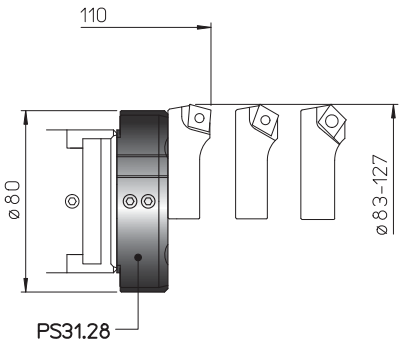
PS 31
Ø 72.5 ~ 129.5





PS 31
Ø 69 ~ 127





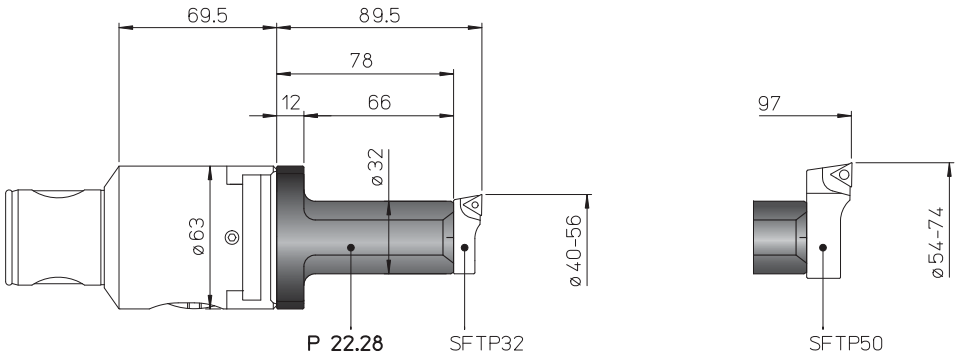
REF.	CODE	Kg.
PS 31.28	43 30 28 22 080 1	0.3
CW 32	39 20 110 032 01	0.5

161
INFO
165

testarossad'andrea

- TOOLHOLDERS FOR TESTAROSSA
- WERKZEUGE FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

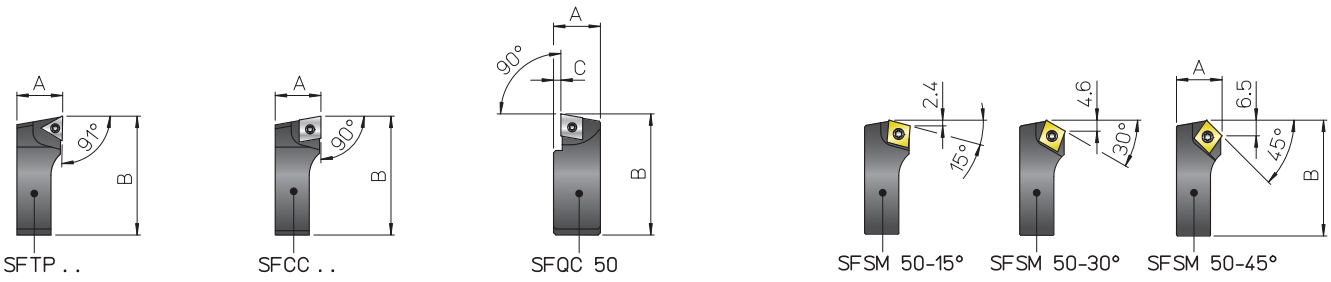
P 22
Ø 40 ~ 74



REF.	CODE	Ø
P 22.28	43 30 28 22 063 1	0.45

- BIT-HOLDERS FOR TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA
- PORTA-PLAQUITAS PARA TESTAROSSA
- PORTE-PLAQUETTES POUR TESTAROSSA
- SEGGI PER TESTAROSSA

SF



REF.	CODE	A	B	C	△	◎			Kg.
SFTP 32	47 050 05 32 001	11.5	34.5	–	TPGX 0902..	–	CS 250T	TORX T08	0.02
SFTP 50	47 050 05 50 001	19	52	–	TPGX 1103..	–	CS 300890T		0.08
SFCC 50	47 050 05 50 002	19	52	–	–	CCGT 09T3..	TS 4	TORX T15	0.08
SFQC 50	47 050 05 50 062	20.5	53	3	–	CCMT 09T3..	TS 4	TORXT15	0.1
SFSM 50-15°	47 050 05 50 011	19	50.5	–	–	CCMT 09T3..	TS 4	TORXT15	0.07
SFSM 50-30°	47 050 05 50 013								
SFSM 50-45°	47 050 05 50 015								

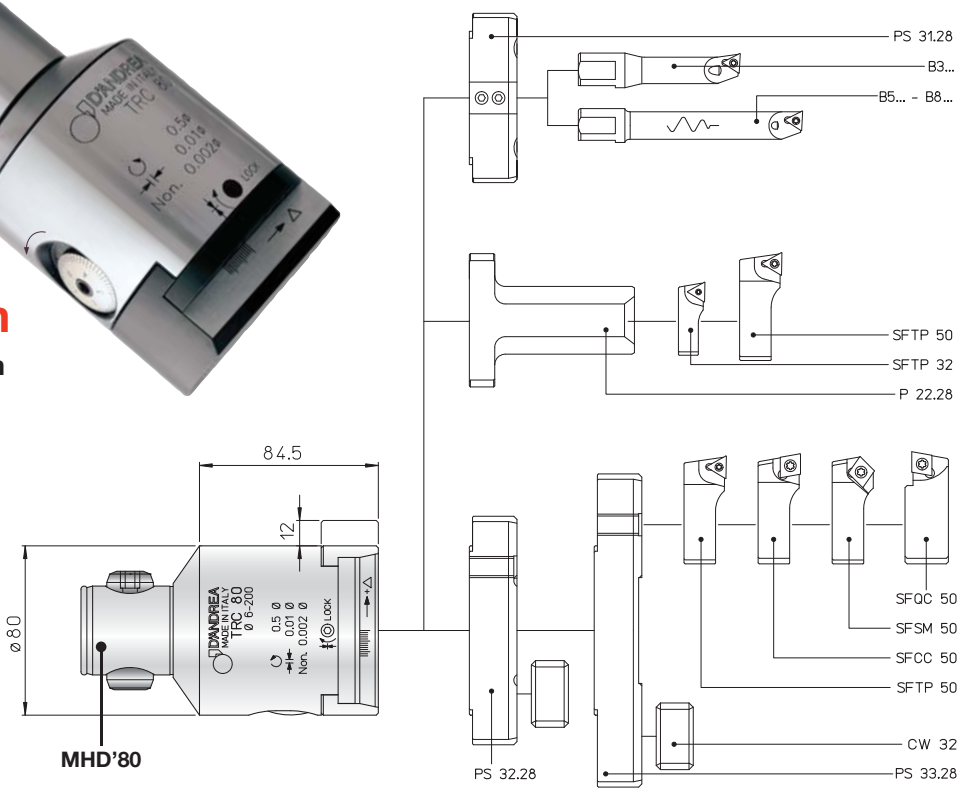
158 165 161
INFO

TRC 80 Ø 6 ~ 200

• TESTAROSSA



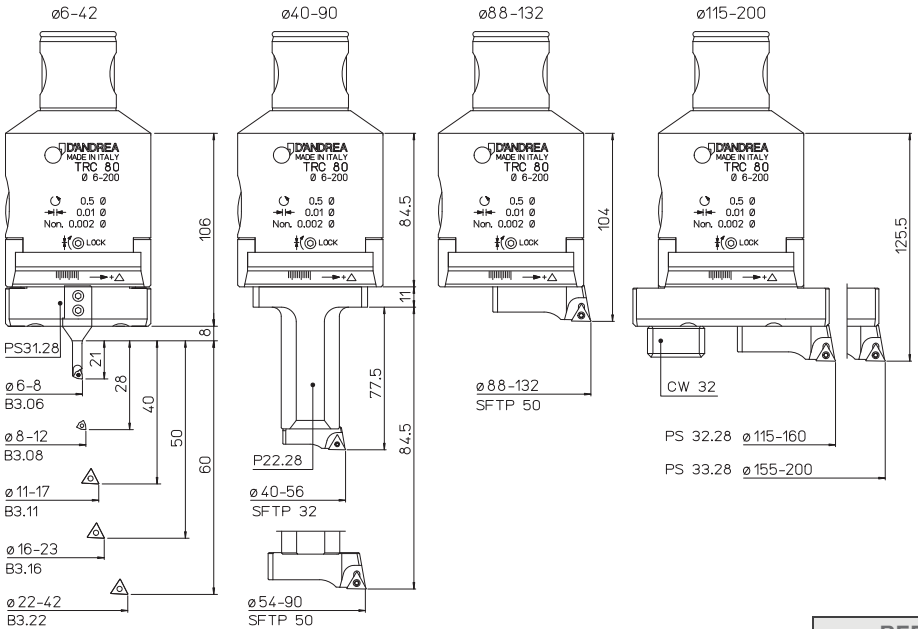
10 µm
nonio vernier **2 µm**



REF.	CODE	Kg.
TRC 80	45 50 180 0120 1	3.8

KIT K01

Ø 6 ~ 200



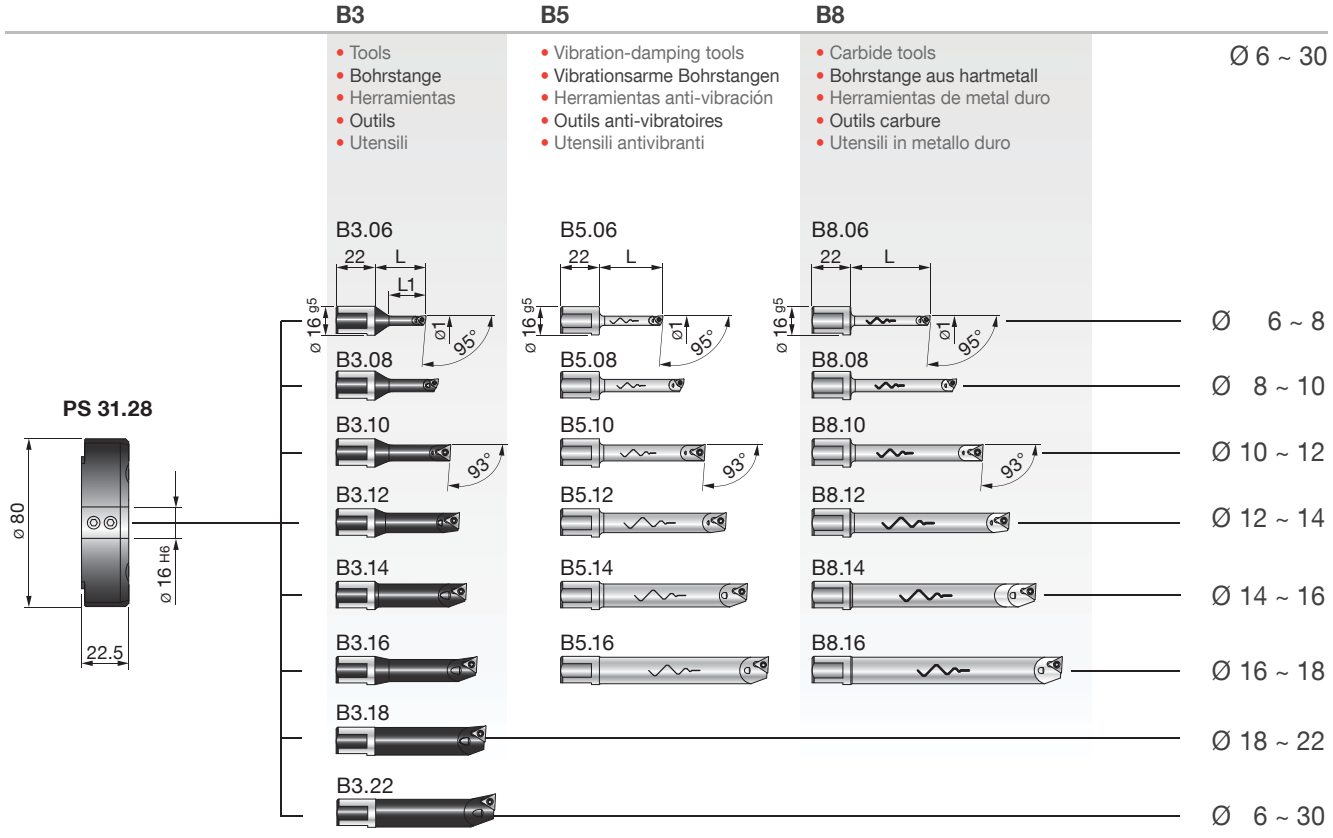


K01 TRC 80		
1 TRC 80	1 B3.06	1 SFTP32
1 PS31.28	1 B3.08	1 SFTP50
1 PS32.28	1 B3.11	
1 PS33.28	1 B3.16	
1 CW 32	1 B3.22	
1 P22.28		
5 TPGX 090202L DC100		
1 TPGX 110302L DC100		
2 WCGT 020102L DC100		

REF.	CODE	Ø
K01 TRC 80	65 50 180 1080 1	6 ~ 200

161 INFO
162
158
241

testarossad'andrea



REF.	CODE	Kg.
PS 31.28	43 30 28 22 080 1	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	–	TPGX 0902..	CS 250 T	TORX T08	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					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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B5.12	57 201 05 12 105	12 ~ 14	72						
B5.14	57 201 05 14 105	14 ~ 16	84						0.2
B5.16	57 201 05 16 105	16 ~ 18	96						0.3
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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B8.12	57 201 05 12 108	12 ~ 14	90						0.2
B8.14	57 201 05 14 108	14 ~ 16	105						
B8.16	57 201 05 16 108	16 ~ 18	120						0.3

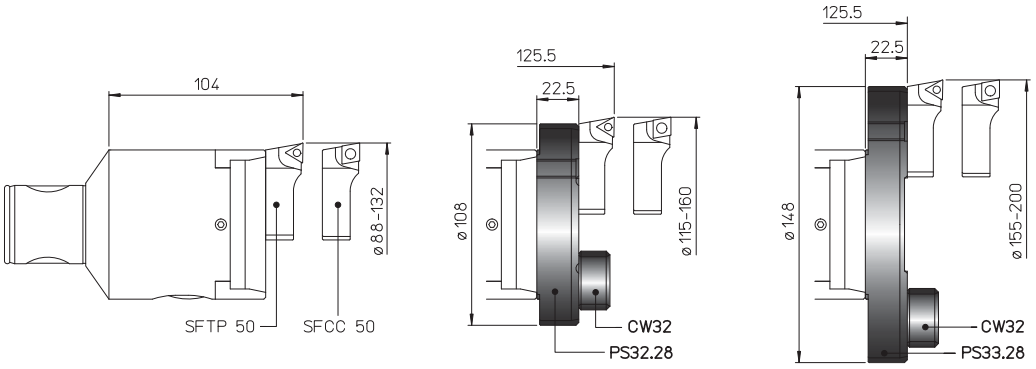
158 165 161



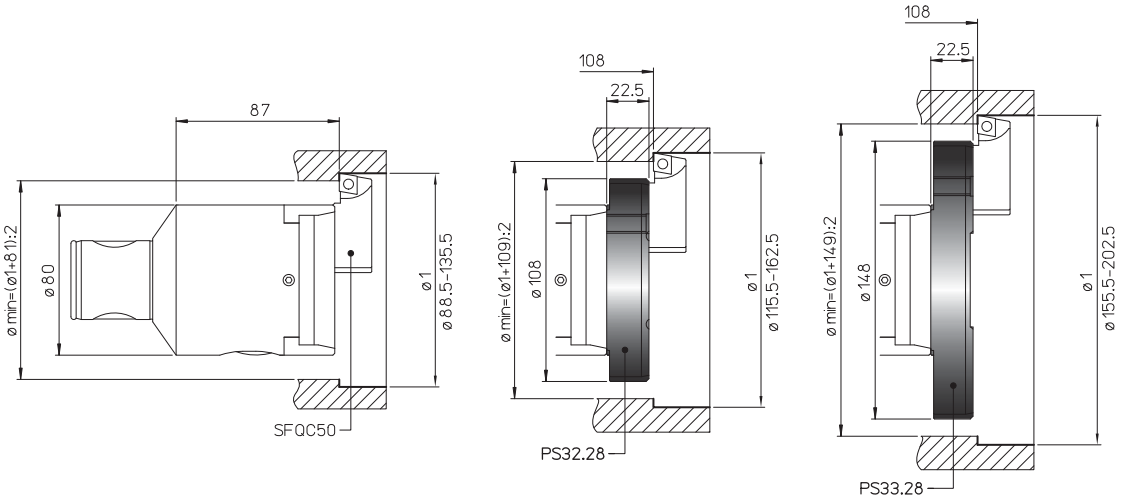
TRC 80 Ø 85 ~ 202.5

- TOOLHOLDERS FOR TESTAROSSA
- WERKZEUGE FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

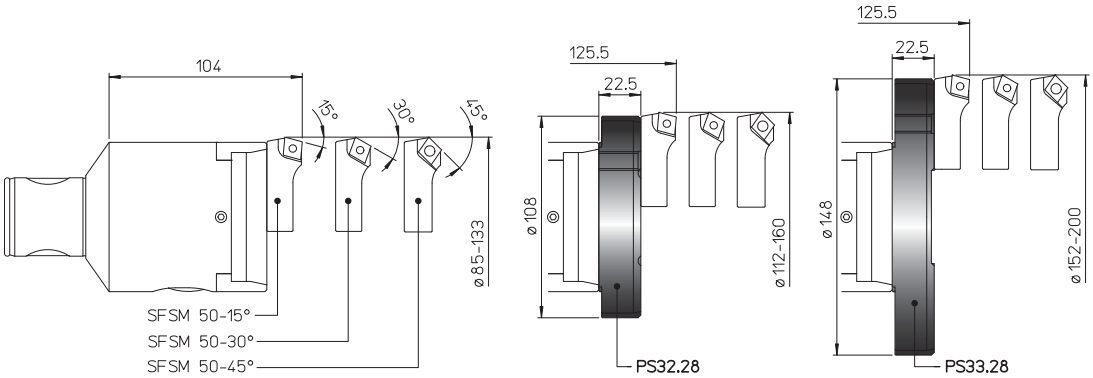
PS
CW 32
Ø 88~ 200



PS
Ø 88.5 ~ 202.5



PS
Ø 85 ~ 200



REF.	CODE	Kg.
PS 32.28	43 30 28 22 108 1	0.5
PS 33.28	43 30 28 22 148 1	0.6
CW 32	39 20 110 032 01	0.5

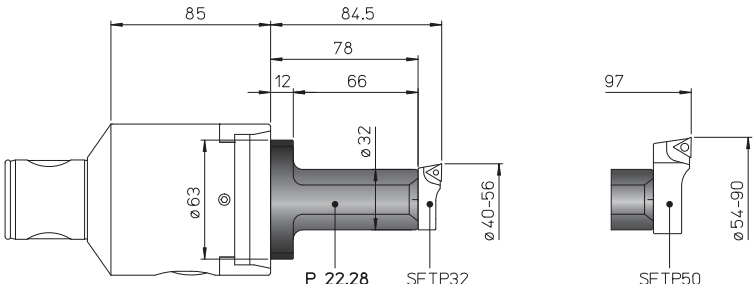
106

161 INFO
165

testarossad'andrea

- TOOLHOLDERS FOR TESTAROSSA
- WERKZEUGE FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

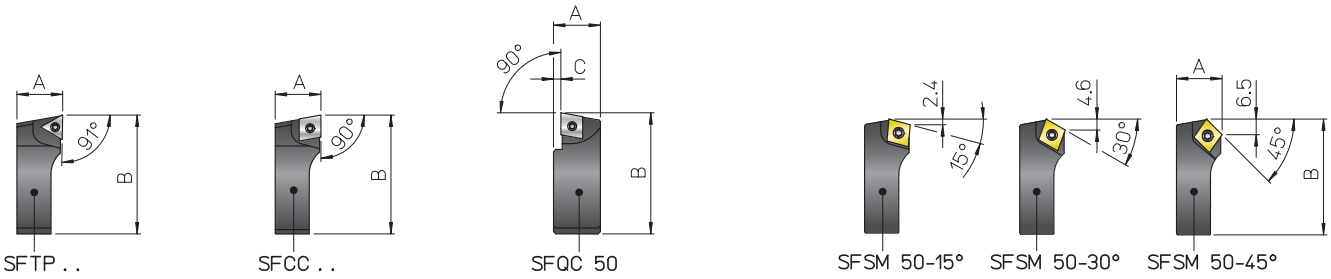
P 22
Ø 40 ~ 90



REF.	CODE	Kg.
P 22.28	43 30 28 22 063 1	0.45

- BIT-HOLDERS FOR TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA
- PORTA-PLAQUITAS PARA TESTAROSSA
- PORTE-PLAQUETTES POUR TESTAROSSA
- SEGGI PER TESTAROSSA

SF



REF.	CODE	A	B	C					Kg.
SFTP 32	47 050 05 32 001	11.5	34.5	–	TPGX 0902..	–	CS 250T	TORX T08	0.02
SFTP 50	47 050 05 50 001	19	52	–	TPGX 1103..	–	CS 300890T		0.08
SFCC 50	47 050 05 50 002	19	52	–	–	CCGT 09T3..	TS 4	TORX T15	0.08
SFQC 50	47 050 05 50 062	20.5	53	3	–	CCMT 09T3..	TS 4	TORXT15	0.1
SFSM 50-15°	47 050 05 50 011	19	50.5	–	–	CCMT 09T3..	TS 4	TORXT15	0.07
SFSM 50-30°	47 050 05 50 013								
SFSM 50-45°	47 050 05 50 015								

158 165 161

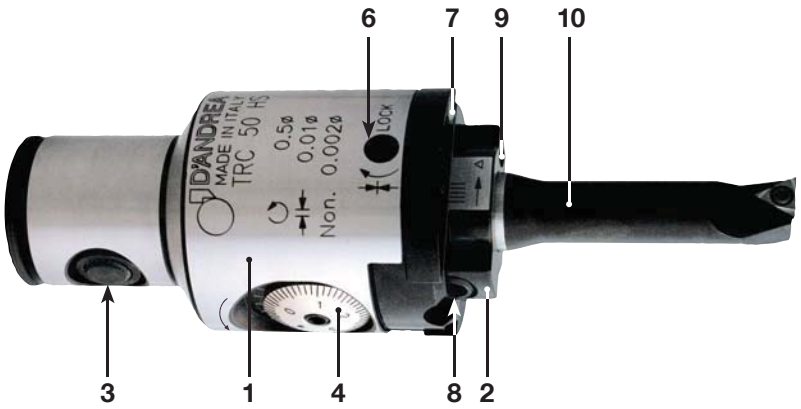
TRC HS Ø 2.5 ~ 22

• TESTAROSSA

TRC HS

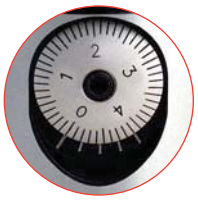
RPM MAX 12.000

Ø 2.5 ~ 22



10 µm

nonio vernier **2 µm**



1 • Body • Körper • Cuerpo • Corps • Corpo

2 • Slide toolholder • Werkzeugschlitten • Guía portaherramientas • Coulisseau • Slitta portautensili

3 • Expanding radial pin • Spreizbolzen • Perno radial expansible • Tige radiale expansible • Perno radiale espandibile

4 • Vernier scale • Nonius • Nonio • Vernier • Nonio

5 • Micrometric vernier scale • Mikrometrischer Nonius • Nonio micrométrico • Vernier micrométrique • Nonio micrometrico

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.

D MERKMALE. Die TRC HS Köpfe ermöglichen Bearbeitungen mit hoher Präzision und Toleranzen mit Grad IT6 bei hochwertiger Oberflächengüte. Sie besitzen eine Feinverstellung mit einer Genauigkeit von radial 5 µm, wobei das Maß auf der Skala abgelesen und auch direkt an der Maschine eingestellt werden kann.

E CARACTERÍSTICAS. Los cabezales TRC HS permiten realizar operaciones de alta precisión con tolerancias de grado IT6 con un extraordinario acabado de la superficie. Tienen una sensibilidad de ajuste de 5 micras en radio, de fácil lectura en el nonio y corregibles directamente sobre la máquina.

F CARACTÉRISTIQUES. Les têtes TRC HS permettent des usinages de haute précision avec des tolérances de degré IT6 comprenant un excellent finissage superficiel. Elles ont une sensibilité de réglage de 5 microns sur le rayon, facilement lisible sur le vernier et exécutable également dans la machine.

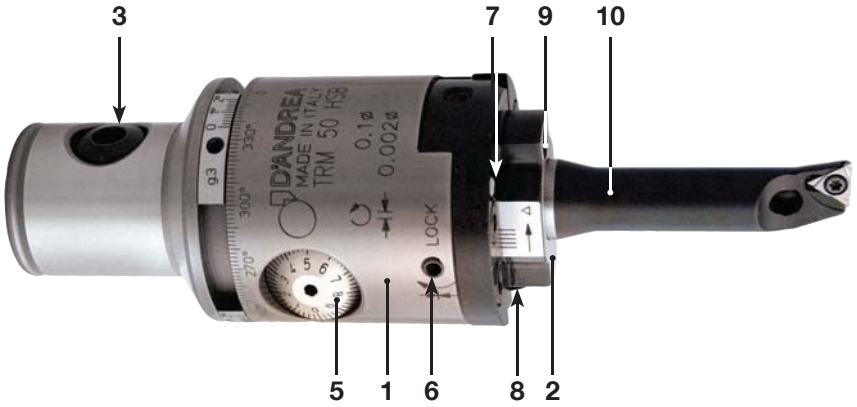
I CARATTERISTICHE. Le testine TRC HS consentono lavorazioni di alta precisione con tolleranze di grado IT6 con ottima finitura superficiale. Hanno una sensibilità di regolazione di 5 micron sul raggio, facilmente leggibile sul nonio ed eseguibile anche in macchina.

testarossad'andrea

TRM HSB

RPM MAX 20.000

Ø 2.5 ~ 22



6
- Slide clamp screw
- Schlittenklemmschraube
- Tornillo blocaje guía
- Vis blocage coulisseau
- Vite bloccaggio slitta

7
- Coolant outlet
- Kühlmittelaustritt
- Agujero salida refrigerante
- Sortie du liquide d'arrosage
- Uscita refrigerante

8
- Tools clamp screws
- Werkzeugklemmschrauben
- Tornillo blocaje herramienta
- Vis blocage outil
- Viti bloccaggio utensile

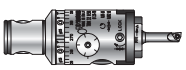
9
- Oiler
- Schmiernippel
- Engrasador
- Graisseur
- Oliatore

10
- Tool
- Werkzeug
- Herramienta
- Outil
- Utensile

2 µm



TRM 32 HSB
Ø 2.5 ~ 18



TRM 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.

D **MERKMALE.** Die TRM HSB Köpfe ermöglichen Bearbeitungen mit hoher Präzision und Toleranzen mit Grad IT6 bei hochwertiger Oberflächengüte. Sie besitzen eine Feinverstellung mit einer Genauigkeit von radial 1 µm, wobei das Maß auf der Skala abgelesen und auch direkt an der Maschine eingestellt werden kann.

E **CARACTERÍSTICAS.** Los cabezales TRM HSB permiten realizar operaciones de alta precisión con tolerancias de grado IT6 con un extraordinario acabado de la superficie. Tienen una sensibilidad de ajuste de 1 micras en radio, de fácil lectura en el nonio y corregibles directamente sobre la máquina.

F **CARACTÉRISTIQUES.** Les têtes TRM HSB permettent des usinages de haute précision avec des tolérances de degré IT6 comprenant un excellent finissage superficiel. Elles ont une sensibilité de réglage de 1 micron sur le rayon, facilement lisible sur le vernier et exécutable également dans la machine.

I **CARATTERISTICHE.** Le testine TRM HSB consentono lavorazioni di alta precisione con tolleranze di grado IT6 con ottima finitura superficiale. Hanno una sensibilità di regolazione di 1 micron sul raggio, facilmente leggibile sul nonio ed eseguibile anche in macchina.

TRC 32 HS
TRM 32 HSB Ø 2.5 ~ 18

• TESTAROSSA

TRC 32 HS
TRM 32 HSB
Ø 2.5 ~ 18



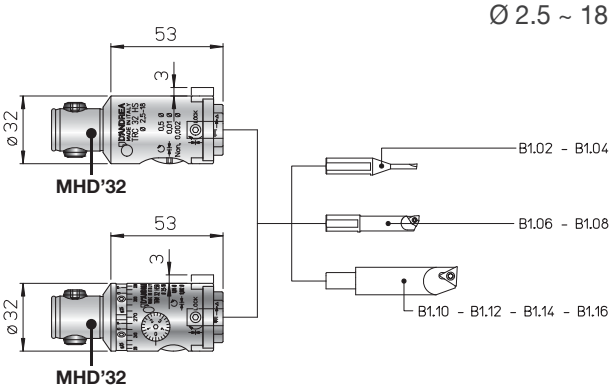
10 µm
nonio vernier **2 µm**



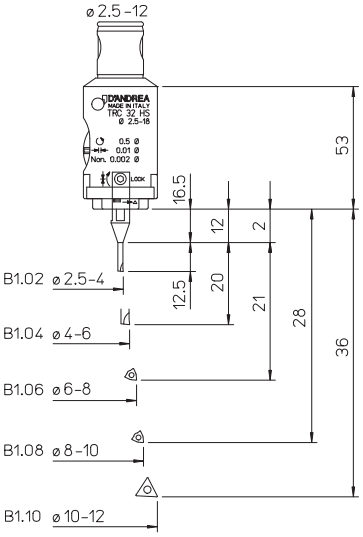
2 µm

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	45 50 332 0053 1	0.35
TRM 32 HSB	45 51 032 0053 1	

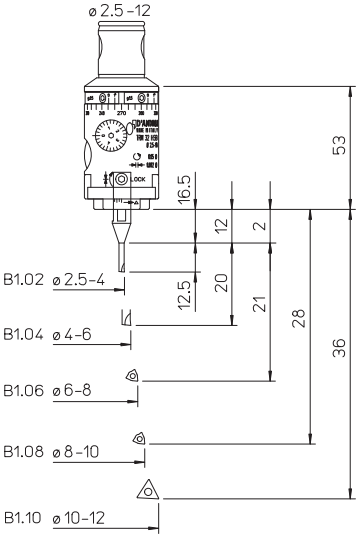


KIT K01
TRC 32 HS
Ø 2.5 ~ 12



REF.	CODE	Ø
K01 TRC 32 HS	65 50 332 3032 1	2.5 ~ 12

K01 TRC 32 HS		
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		



KIT K01
TRM 32 HSB
Ø 2.5 ~ 12



REF.	CODE	Ø
K01 TRM 32 HSB	65 50 032 3032 1	2.5 ~ 12

K01 TRM 32 HSB		
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		

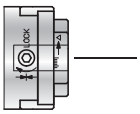
TRC 32 HS
TRM 32 HSB Ø 2.5 ~ 18

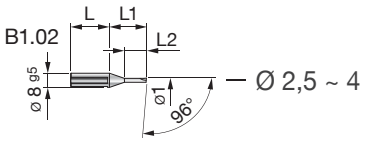
testarossad'andrea

B1

- Carbide tools
- Bohrstange aus hartmetall
- Herramientas de metal duro
- Outils carbure
- Utensili in metallo duro

TRC32HS
TRM32HSB

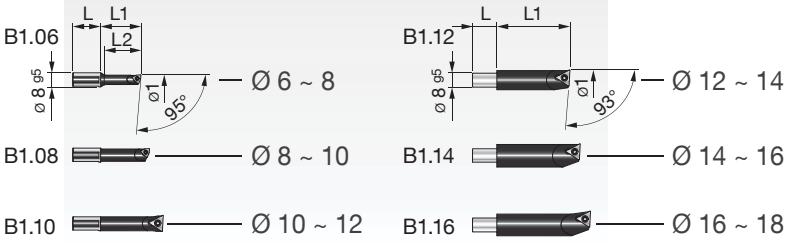




B1

- Tools
- Bohrstange
- Herramientas
- Outils
- Utensili

Ø 2.5 ~ 22



REF.	CODE	Ø1	L	L1	L2	Kg.
B1.02	57 201 05 02 001	2.5 ~ 4	22	21	12.5	0.02
B1.04	57 201 05 04 001	4 ~ 6	24	24	–	

REF.	CODE	Ø1	L	L1	L2					Kg.
B1.06	57 201 05 06 000	6 ~ 8	16	23	21	WCGT 0201..	–	TS 21	TORX T06	0.01
B1.08	57 201 05 08 000	8 ~ 10		28	–			TS 211		0.015
B1.10	57 201 05 10 000	10 ~ 12		36		–	TPGX 0902..	CS 250 T	TORX T08	0.02
B1.12	57 201 05 12 000	12 ~ 14	14	42						0.03
B1.14	57 201 05 14 000	14 ~ 16		48						0.04
B1.16	57 201 05 16 000	16 ~ 18		54						0.05

158 162 161

TRC 50 HS
TRM 50 HSB Ø 2.5 ~ 22

• TESTAROSSA



10 µm
nonio vernier **2 µm**

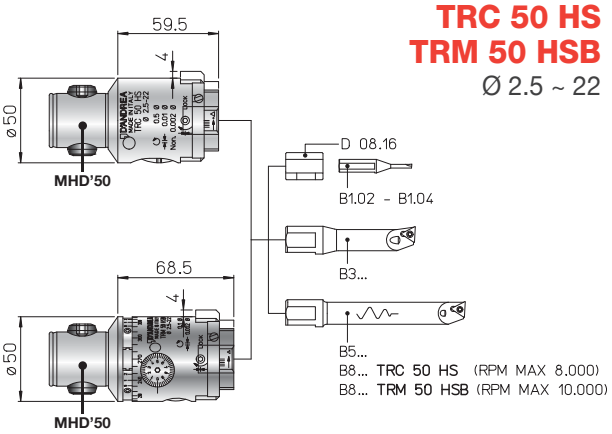
TRC 50 HS
Ø 2.5 ~ 22
RPM MAX 12.000



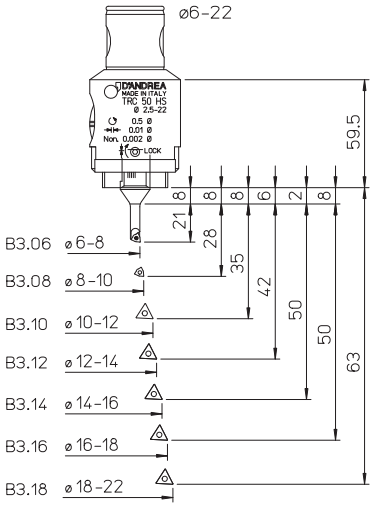
2 µm

TRM 50 HSB
Ø 2.5 ~ 22
RPM MAX 20.000

TRC 50 HS
TRM 50 HSB
Ø 2.5 ~ 22



REF.	CODE	Kg.
TRC 50 HS	45 50 350 0060 1	1
TRM 50 HSB	45 51 050 0070 1	1.4

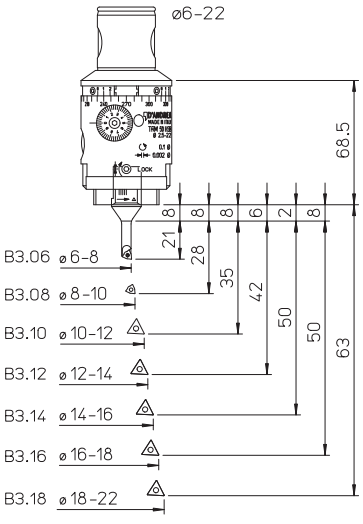


REF.	CODE	Ø
K01 TRC 50 HS	65 50 350 3050 1	6 ~ 22

KIT K01
TRC 50 HS
Ø 6 ~ 22



K01 TRC 50 HS		
1 TRC50HS	1 B3.10	1 B3.16
1 B3.16	1 B3.12	1 B3.18
1 B3.08	1 B3.14	
5 TPGX 090202L DC100		
2 WCGT 020102L DC100		



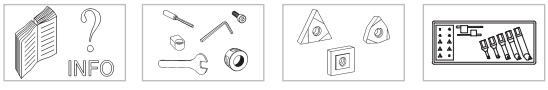
REF.	CODE	Ø
K01 TRM 50 HSB	65 50 050 3050 1	6 ~ 22

KIT K01
TRM 50 HSB
Ø 6 ~ 22



K01 TRM 50 HSB		
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		

161 162 158 241



TRC 32 HS
TRM 32 HSB Ø 2.5 ~ 22

testarossad'andrea

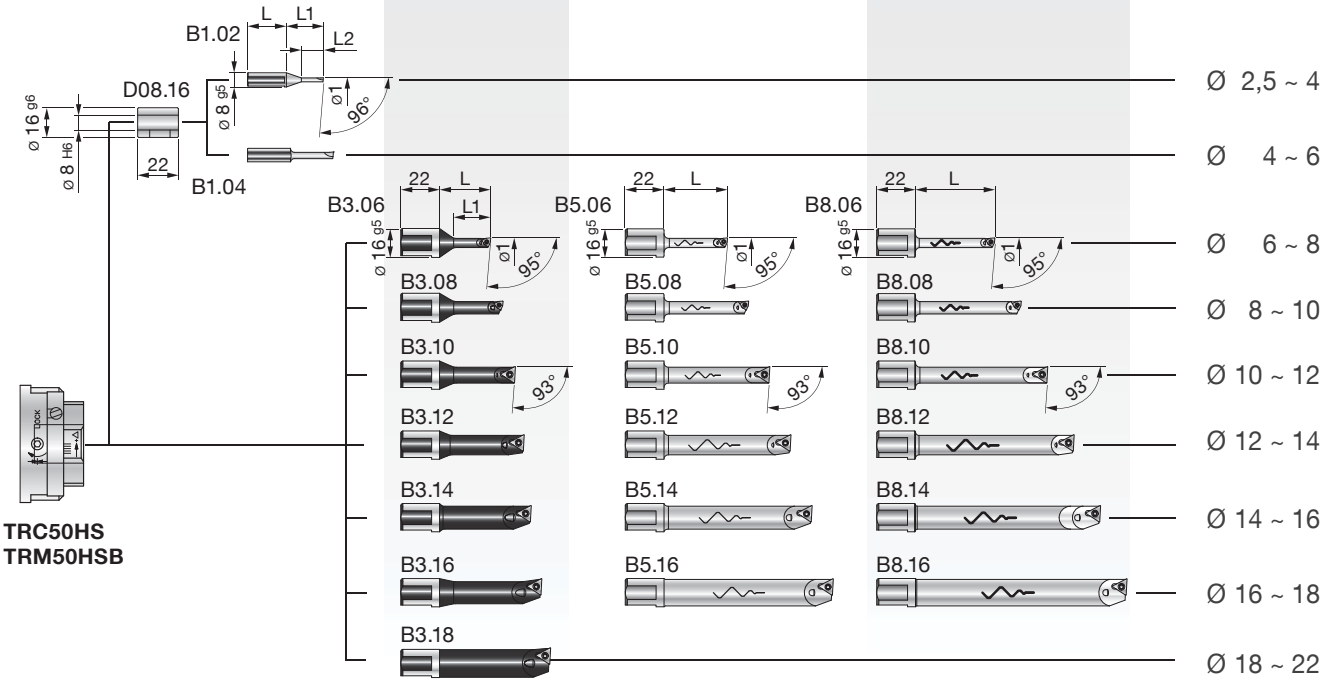
B1
- Carbide tools
- Bohrstange aus hartmetall
- Herramientas de metal duro
- Outils carbure
- Utensili in metallo duro

B3
- Tools
- Bohrstange
- Herramientas
- Outils
- Utensili

B5
- Vibration-damping tools
- Vibrationsarme Bohrstangen
- Herramientas anti-vibración
- Outils anti-vibratoires
- Utensili antivibranti

B8
- Carbide tools
- Bohrstange aus hartmetall
- Herramientas de metal duro
- Outils carbure
- Utensili in metallo duro

Ø 2.5 ~ 22



TRC50HS
TRM50HSB

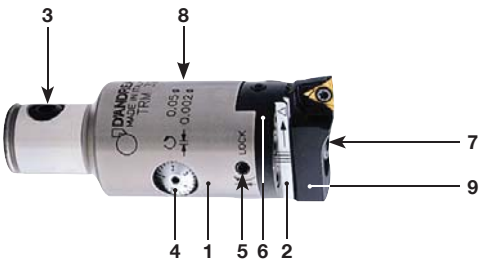
REF.	CODE	Kg.
D08.16	20 056 01 16 08 2	0.02

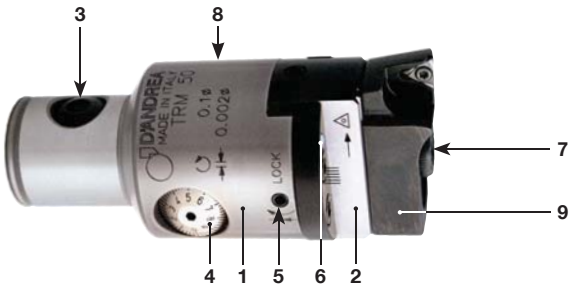
REF.	CODE	Ø1	L	L1	L2	Kg.
B1.02	57 201 05 02 001	2.5 ~ 4	22	21	12.5	0.02
B1.04	57 201 05 04 001	4 ~ 6	24	24	–	

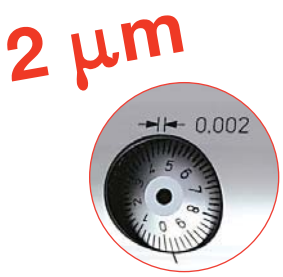
REF.	CODE	Ø1	L	L1					Kg.
B3.06	57 201 05 06 001	6 ~ 8	29	21	WCGT 0201..	–	TS 21	TORX T06	0.035
B3.08	57 201 05 08 001	8 ~ 10	36	28			TS 211		0.04
B3.10	57 201 05 10 001	10 ~ 12	43	35	–	TPGX 0902..	CS 250 T	TORX T08	0.05
B3.11	57 201 05 11 001	11 ~ 13	48	40					0.055
B3.12	57 201 05 12 001	12 ~ 14		42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

158 162 161

MODULHARD'ANDREA









1
- Body
- Körper
- Cuerpo
- Corps
- Corpo

2
- Slide toolholder
- Werkzeugschlitten
- Guía portaherramientas
- Coulisseau
- Slitta portautensili

3
- Expanding radial pin
- Spreizbolzen
- Perno radial expansible
- Tige radiale expansible
- Perno radiale espandibile

4
- Micrometric vernier scale
- Mikrometrischer Nonius
- Nonio micrométrico
- Vernier micrométrique
- Nonio micrometrico

5
- Slide clamp screw
- Schlittenklemmschraube
- Tornillo blocaje guía
- Vis blocage coulisseau
- Vite bloccaggio slitta

6
- Coolant outlet
- Kühlmittelaustritt
- Agujero salida refrigerante
- Sortie du liquide d'arrosage
- Uscita refrigerante

7
- Tools clamp screws
- Werkzeugklemmschraube
- Tornillo blocaje herramientas
- Vis blocage outil
- Viti bloccaggio utensili

8
- Oiler
- Schmiernippel
- Engrasador
- Graisseur
- Oliatore

9
- Bit holder
- Plattenhalter
- Portaplaquita
- Porte-plaquettes
- Seggio portainserti

10
- Tool holder
- Werkzeughalter
- Portaherramienta
- Porte-outil
- Porta utensile

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.

D **MERKMALE.** Die TRM Köpfe der Testarossa-Serie besitzen eine rostbeständige Oberfläche. Die TRM-Köpfe ermöglichen ermöglichen Bearbeitungen mit hoher Präzision und Toleranzen mit Grad IT6 bei hochwertiger Oberflächengüte. Sie besitzen eine Feinverstellung mit einer Genauigkeit von radial 1 µm, wobei das Maß auf der Skala abgelesen und auch direkt an der Maschine eingestellt werden kann.

E **CARACTERÍSTICAS.** Los cabezales TRM de la línea Testarossa D'Andrea cuentan con una protección superficial anticorrosión. Los cabezales TRM permiten realizar operaciones de alta precisión con tolerancias de grado IT6 con un extraordinario acabado de la superficie. Tienen una sensibilidad de ajuste de 1 micra en radio, de fácil lectura en el nonio y corregibles directamente sobre la máquina.

F **CARACTÉRISTIQUES.** Les têtes TRM de la ligne Testarossa D'Andrea ont une protection superficielle anticorrosion. Les têtes TRM permettent des usinages de haute précision avec des tolérances de degré IT6 pour un excellent finissage superficiel. Elles ont une sensibilité de réglage de 1 micron sur le rayon, facilement lisible sur le vernier et exécutable également dans la machine.

I **CARATTERISTICHE.** Le testine TRM della linea Testarossa D'Andrea hanno una protezione superficiale anticorrosiva. Le testine TRM consentono lavorazioni di alta precisione con tolleranze di grado IT6 con ottima finitura superficiale. Hanno una sensibilità di regolazione di 1 micron sul raggio, facilmente leggibile sul nonio ed eseguibile anche in macchina.

testarossad'andrea

TRM 16
Ø 18 ~ 23



TRM 20
Ø 22 ~ 29



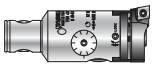
TRM 25
Ø 28 ~ 38



TRM 32
Ø 35.5 ~ 50



TRM 40
Ø 48 ~ 63



TRM 50
Ø 2.5 ~ 108



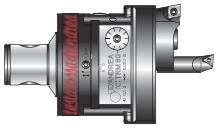
TRM 50/63
Ø 6 ~ 125



TRM 63/63
Ø 6 ~ 125



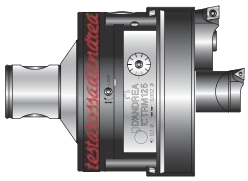
TRM 50/80
Ø 6 ~ 160



TRM 80/80
Ø 6 ~ 160



TRM 80/125
Ø 36 ~ 500





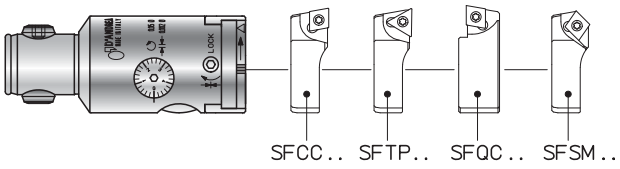




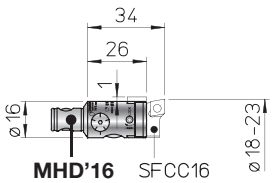


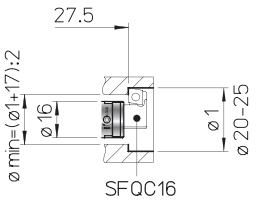
MODULHARD'ANDREA



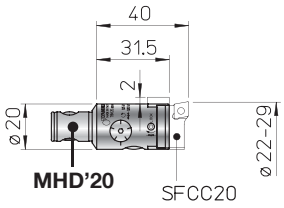


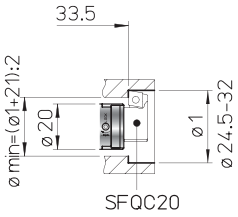
TRM 16
Ø 18 ~ 23



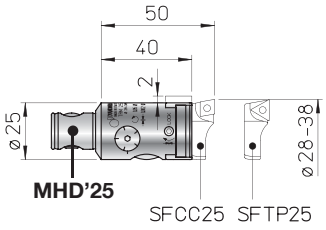


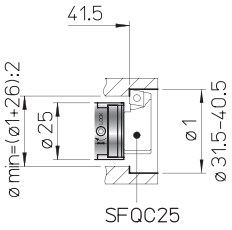
TRM 20
Ø 22 ~ 29

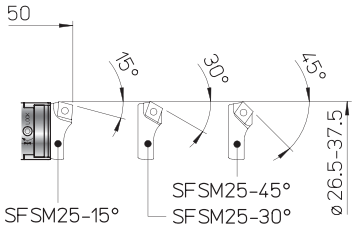




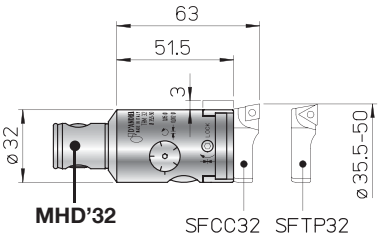
TRM 25
Ø 28 ~ 38

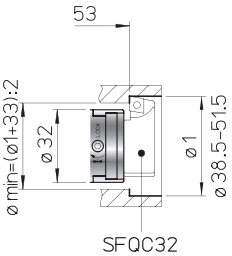


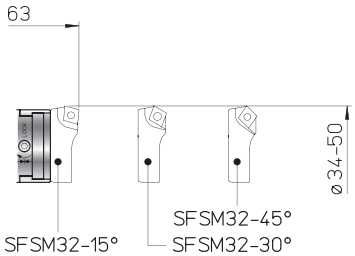




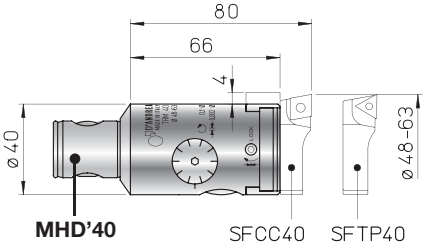
TRM 32
Ø 35.5 ~ 50

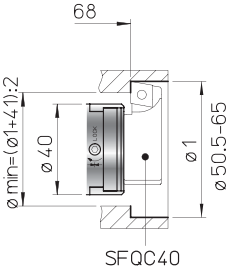


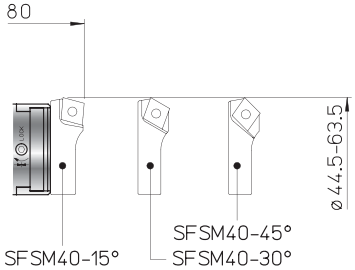




TRM 40
Ø 48 ~ 63







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TRM

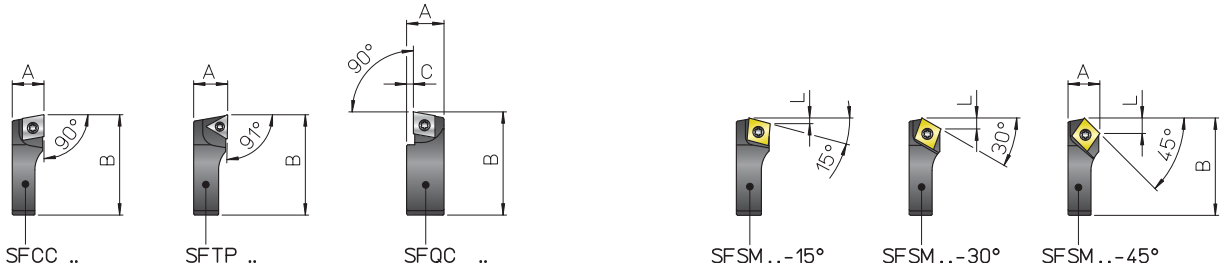


2 µm

REF.	CODE	Kg.
TRM 16	45 50 016 0034 1	0.05
TRM 20	45 50 020 0040 1	0.1
TRM 25	45 50 025 0050 0	0.2
TRM 32	45 50 032 0063 0	0.35
TRM 40	45 50 040 0080 0	0.7

SF

- BIT-HOLDERS FOR TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA
- PORTA-PLAQUITAS PARA TESTAROSSA
- PORTE-PLAQUETTES POUR TESTAROSSA
- SEGGI PER TESTAROSSA



REF.	CODE	A	B	C	L	◎	△			Kg.
SFCC 16	47 050 05 16 002	8	17	–	–	CCGT 0602..	–	TS 25	TORX T08	0.003
SFCC 20	47 050 05 20 002	8.5	21							0.005
SFCC 25	47 050 05 25 002	10	26.5							0.01
SFCC 32	47 050 05 32 002	11.5	34.5							0.02
SFCC 40	47 050 05 40 002	14	44	–	–	CCGT 09T3..	–	TS 4	TORX T15	0.04
SFTP 25	47 050 05 25 001	10	26.5	–	–	–	TPGX 0902..	CS 250T	TORX T08	0.01
SFTP 32	47 050 05 32 001	11.5	34.5							0.02
SFTP 40	47 050 05 40 001	14	44	–	–	–	TPGX 1103..	CS 300890T		0.04
SFQC 16	47 050 05 16 062	10	18	2	–	–	CCMT 0602..	TS 25	TORX T08	0.005
SFQC 20	47 050 05 20 062	10.5	22.5							0.008
SFQC 25	47 050 05 25 062	12	28.5	2.5						0.01
SFQC 32	47 050 05 32 062	13.5	35.5							0.03
SFQC 40	47 050 05 40 062	16.5	46	3	–	–	CCMT 09T3..	TS 4	TORXT15	0.06
SFSM 25-15°	47 050 05 25 011	10	25.5	–	1.6	–	CCMT 0602..	TS 25	TORX T08	0.01
SFSM 25-30°	47 050 05 25 013				3					
SFSM 25-45°	47 050 05 25 015				4.3					
SFSM 32-15°	47 050 05 32 011	11.5	33.5	–	1.6					0.02
SFSM 32-30°	47 050 05 32 013				3					
SFSM 32-45°	47 050 05 32 015				4.3					
SFSM 40-15°	47 050 05 40 011	14	42.5	–	2.4	–	CCMT 09T3..	TS 4	TORXT15	0.03
SFSM 40-30°	47 050 05 40 013				4.6					
SFSM 40-45°	47 050 05 40 015				6.6					

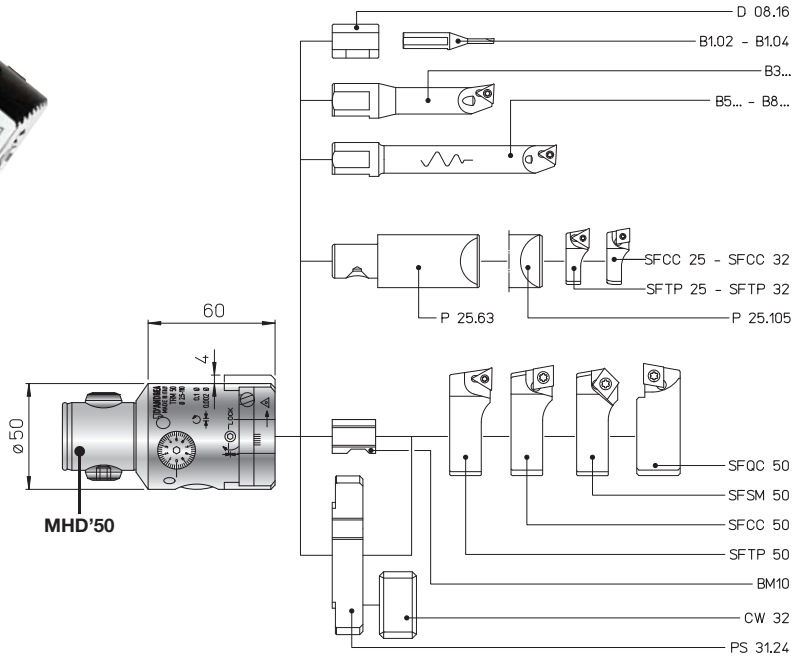
158 162 161
INFO

TRM 50 Ø 2.5 ~ 108

• TESTAROSSA



2 µm



Ø 2.5 ~ 30

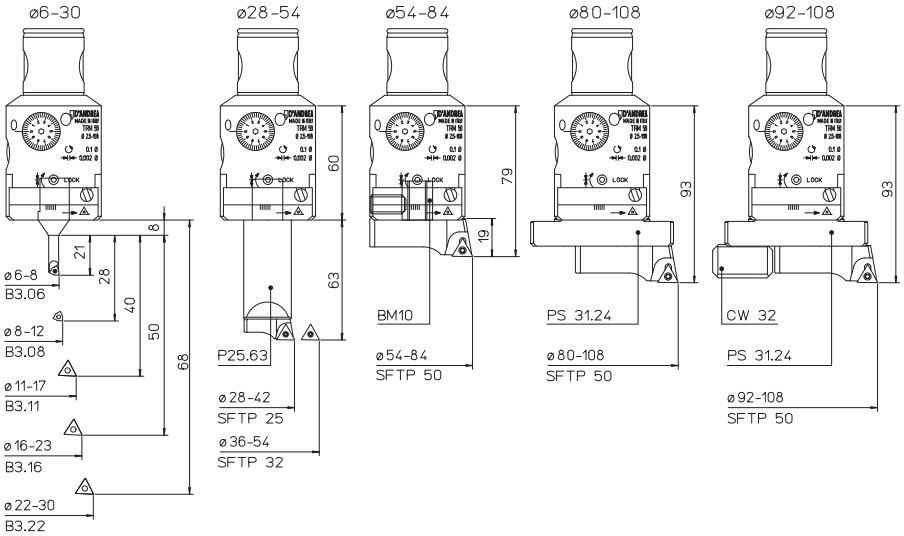
Ø 28 ~ 54

Ø 54 ~ 108

REF.	CODE	Kg.
TRM 50	45 50 050 0050 0	1

KIT K01

Ø 6 ~ 108





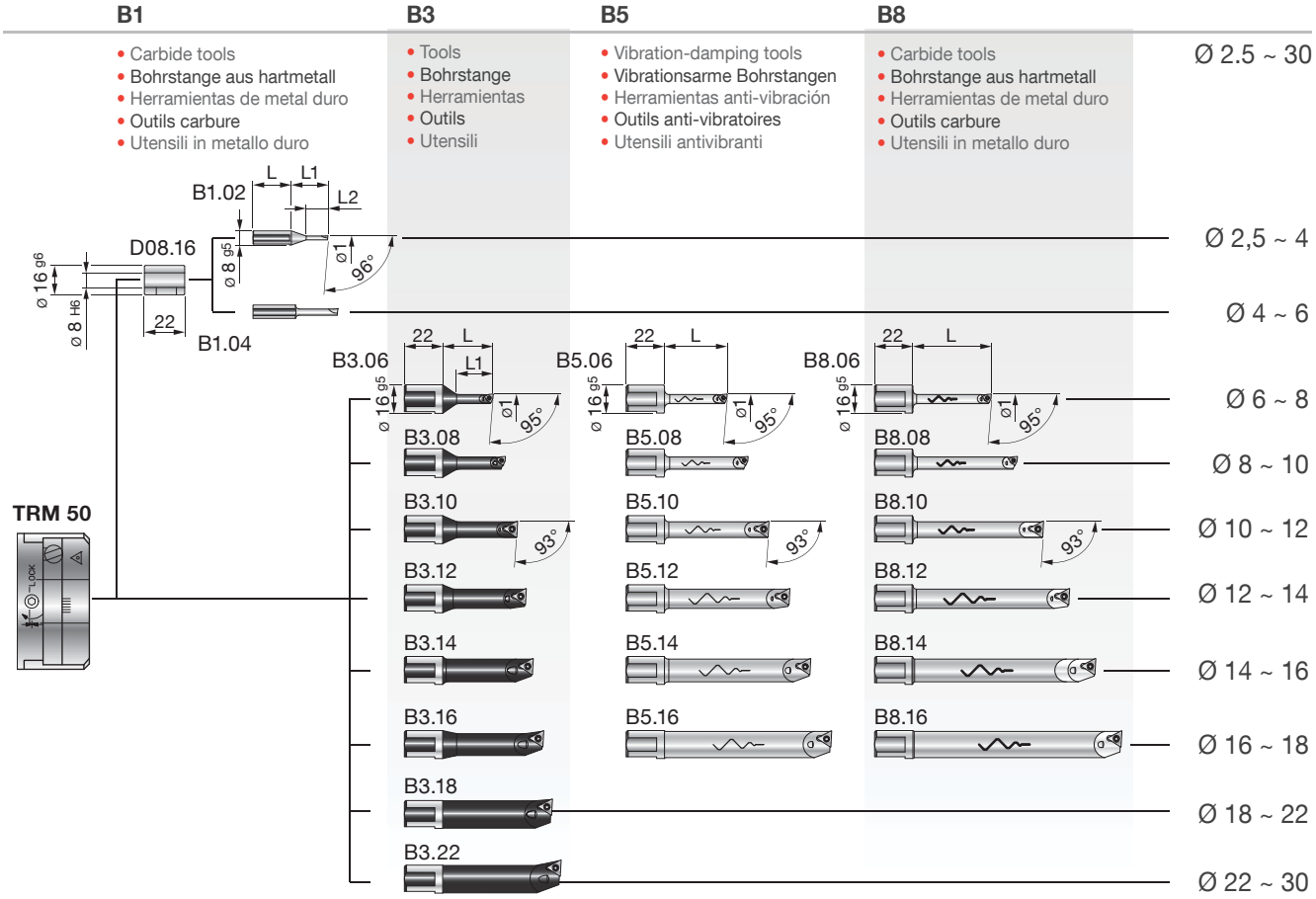
K01 TRM 50		
1 TRM 50	1 B3.06	1 SFTP25
1 P25.63	1 B3.08	1 SFTP32
1 BM10	1 B3.11	1 SFTP50
1 PS 31.24	1 B3.16	
1 CW 32	1 B3.22	
1 TPGX 110302L DC100		
5 TPGX 090202L DC100		
2 WCGT 020102L DC100		

REF.	CODE	Ø
K01 TRM 50	65 50 050 1050 1	6 ~ 108

118

161 INFO
162
158
241

testarossad'andrea



REF.	CODE	Kg.
D08.16	20 056 01 16 08 2	0.02

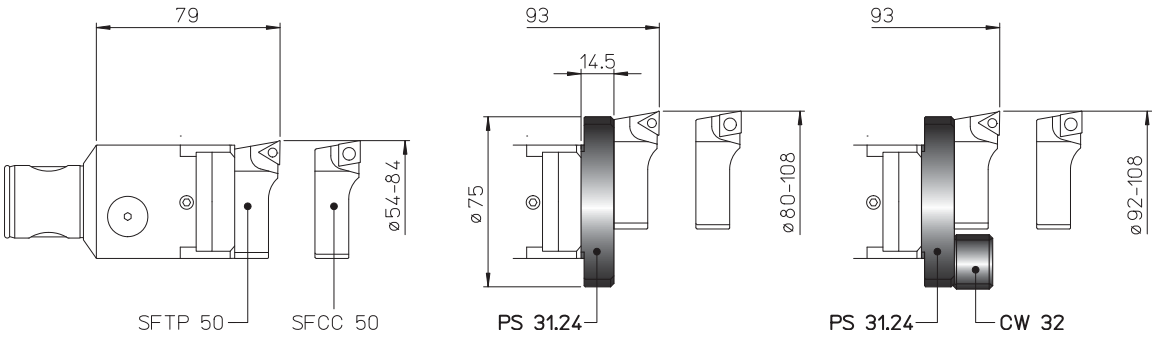
REF.	CODE	Ø1	L	L1	L2	Kg.
B1.02	57 201 05 02 001	2.5 ~ 4	22	21	12.5	0.02
B1.04	57 201 05 04 001	4 ~ 6	24	24	–	

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	–	TPGX 0902..	CS 250 T	TORX T08	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					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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B5.12	57 201 05 12 105	12 ~ 14	72						
B5.14	57 201 05 14 105	14 ~ 16	84						0.2
B5.16	57 201 05 16 105	16 ~ 18	96						0.3
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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B8.12	57 201 05 12 108	12 ~ 14	90						0.2
B8.14	57 201 05 14 108	14 ~ 16	105						
B8.16	57 201 05 16 108	16 ~ 18	120						0.3

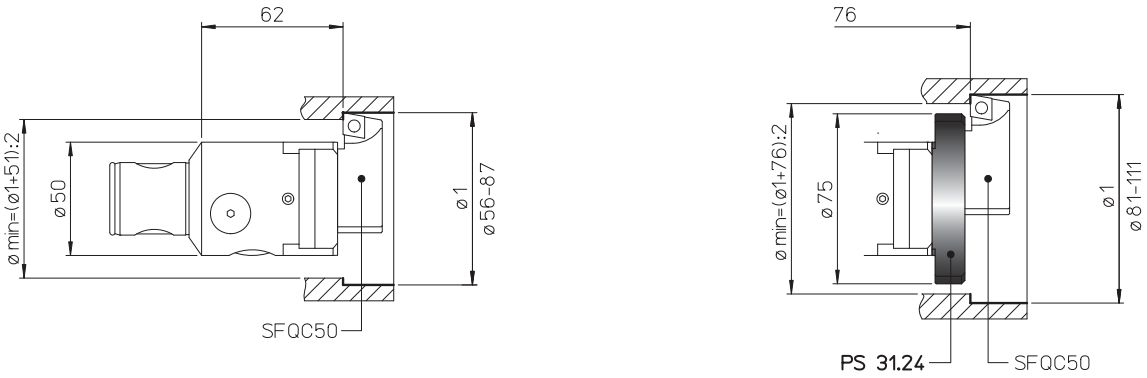
TRM 50 Ø 52 ~ 108

- TOOLHOLDERS FOR TESTAROSSA
- GRUNDHALTER FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

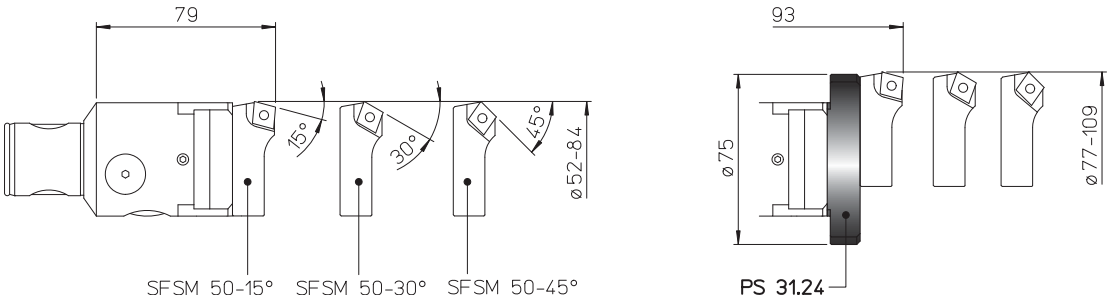
PS 31
CW 32
Ø 54 ~ 108



PS 31
Ø 56 ~ 111



PS 31
Ø 52 ~ 109



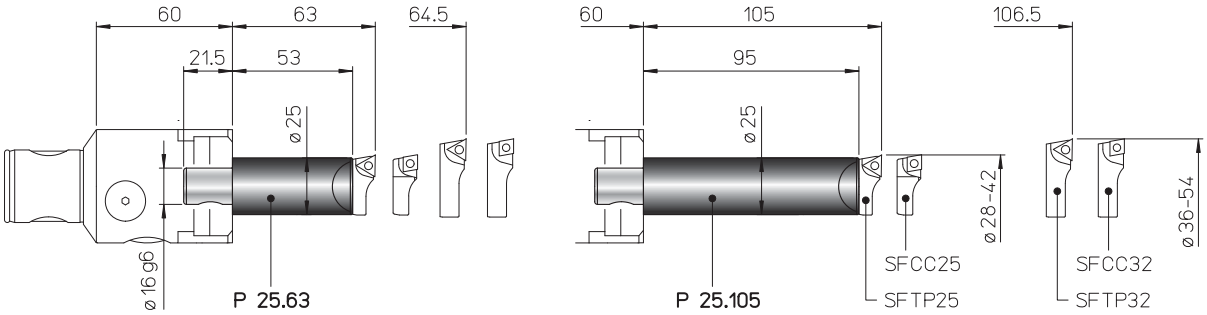
REF.	CODE	Kg.
PS 31.24	43 30 24 14 075 1	0.2
CW 32	39 20 110 032 01	0.5

161 165 158

testarossad'andrea

- TOOLHOLDERS FOR TESTAROSSA
- GRUNDHALTER FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

PS 25
Ø 28 ~ 54

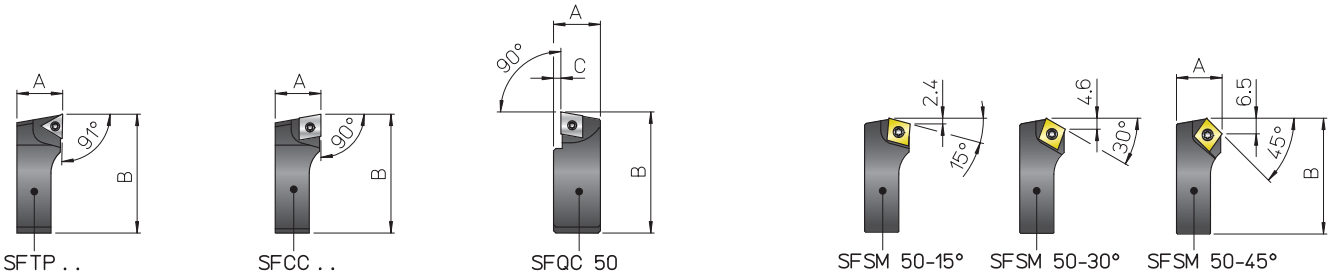


REF.	CODE	Kg.
P25.63	43 51 16 25 063 0	0.5
P25.105	43 51 16 25 105 0	0.8

- BIT-HOLDERS FOR TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA
- PORTA-PLAQUITAS PARA TESTAROSSA
- PORTE-PLAQUETTES POUR TESTAROSSA
- SEGGI PER TESTAROSSA

SF

121



REF.	CODE	A	B	C	△	▭		⟋	Kg.
SFTP 25	47 050 05 25 001	10	26.5	–	TPGX 0902..	–	CS 250T	TORX T08	0.01
SFTP 32	47 050 05 32 001	11.5	34.5						0.02
SFTP 50	47 050 05 50 001	19	52	–	TPGX 1103..	–	CS 300890T		0.08
SFCC 25	47 050 05 25 002	10	26.5	–	–	CCGT 0602..	TS 25	TORX T08	0.01
SFCC 32	47 050 05 32 002	11.5	34.5						0.02
SFCC 50	47 050 05 50 002	19	52	–	–	CCGT 09T3..	TS 4	TORX T15	0.08
SFQC 50	47 050 05 50 062	20.5	53	3	–	CCMT 09T3..	TS 4	TORXT15	0.1
SFSM 50-15°	47 050 05 50 011	19	50.5	–	–	CCMT 09T3..	TS 4	TORXT15	0.07
SFSM 50-30°	47 050 05 50 013								
SFSM 50-45°	47 050 05 50 015								

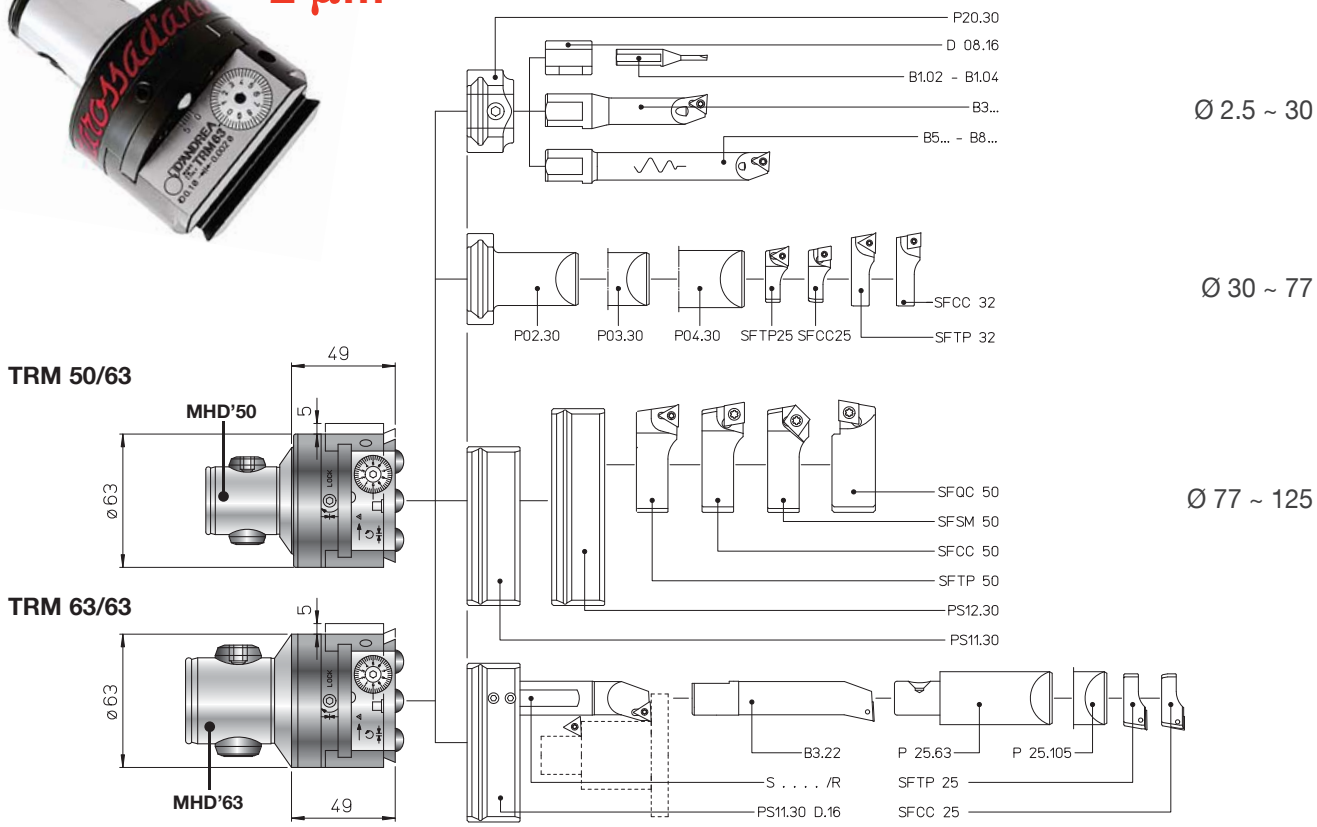
158 165 161
INFO

TRM 50/63
TRM 63/63 Ø 2.5 ~ 125

• **TESTAROSSA**



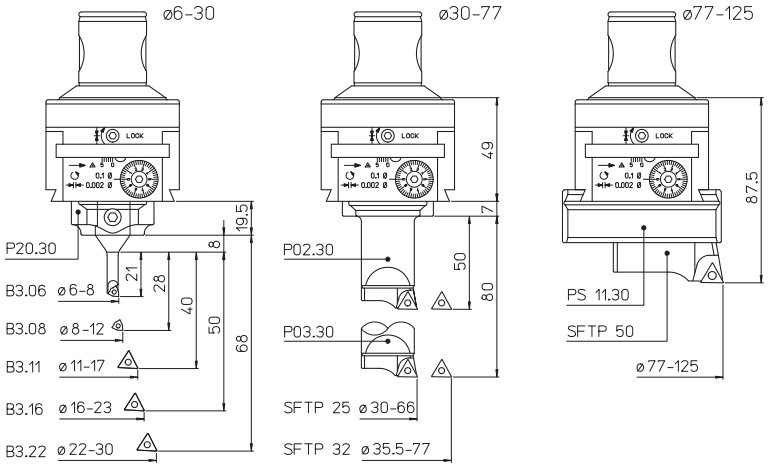
2 µm



REF.	CODE	Kg.
TRM 50/63	45 50 050 0063 0	1.1
TRM 63/63	45 50 063 0063 0	1.5

KIT K01

Ø 6 ~ 125





K01 TRM 50/63 - 63/63			
1 TRM../ 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
K01 TRM 50/63	65 50 050 1063 1	6 ~ 125
K01 TRM 63/63	65 50 063 1063 1	

161 INFO
162
158
241

TRM 50/63
TRM 63/63 Ø 2.5 ~ 30

testarossad'andrea

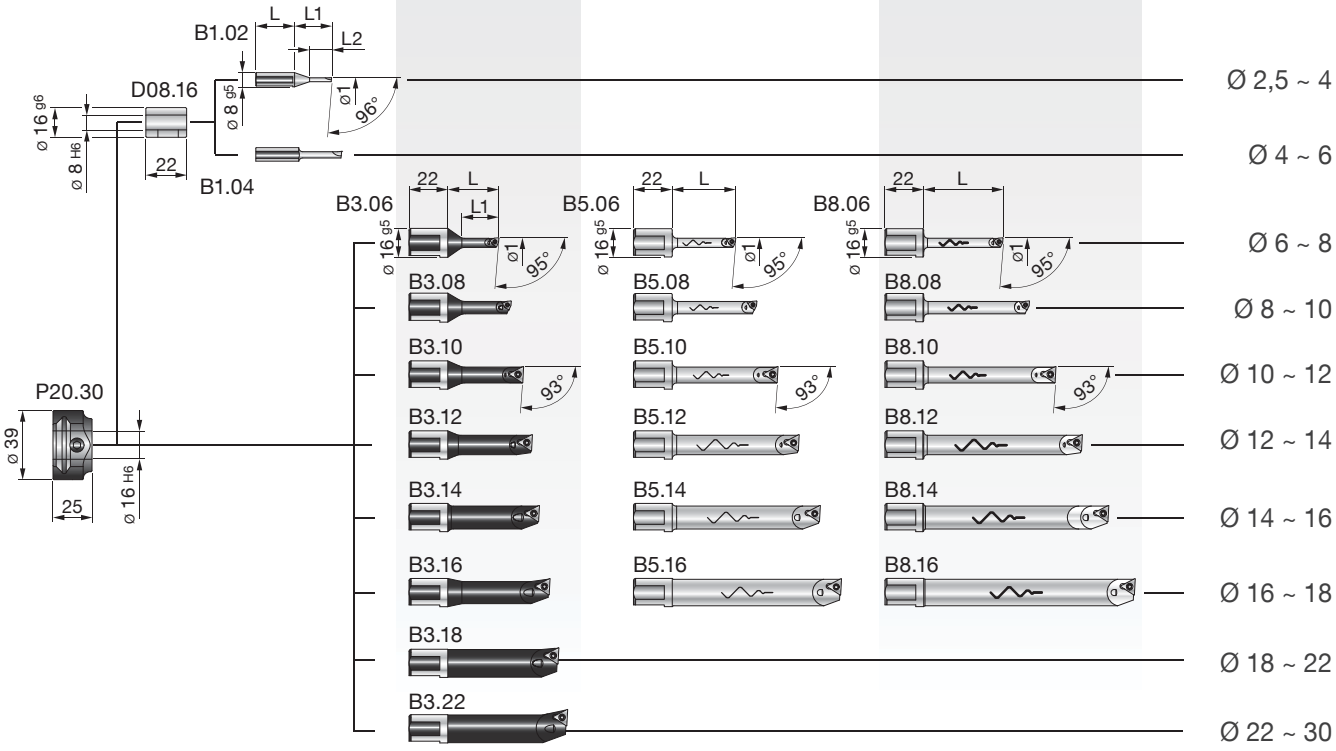
B1
- Carbide tools
- Bohrstange aus hartmetall
- Herramientas de metal duro
- Outils carbure
- Utensili in metallo duro

B3
- Tools
- Bohrstange
- Herramientas
- Outils
- Utensili

B5
- Vibration-damping tools
- Vibrationsarme Bohrstangen
- Herramientas anti-vibración
- Outils anti-vibratoires
- Utensili antivibranti

B8
- Carbide tools
- Bohrstange aus hartmetall
- Herramientas de metal duro
- Outils carbure
- Utensili in metallo duro

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

REF.	CODE	Kg.
D08.16	20 056 01 16 08 2	0.02

REF.	CODE	Kg.
P20.30	43 10 30 16 030 0	0.2

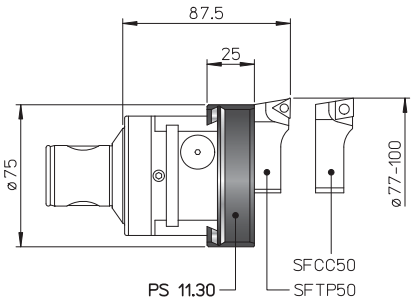
REF.	CODE	Ø1	L	L1	L2	Kg.
B1.02	57 201 05 02 001	2.5 ~ 4	22	21	12.5	0.02
B1.04	57 201 05 04 001	4 ~ 6	24	24	–	

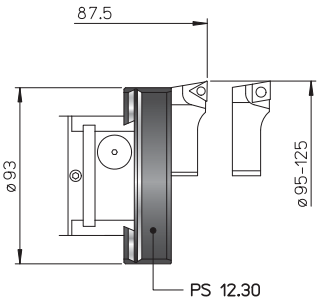
REF.	CODE	Ø1	L	L1					Kg.
B3.06	57 201 05 06 001	6 ~ 8	29	21	WCGT 0201..	–	TS 21	TORX T06	0.035
B3.08	57 201 05 08 001	8 ~ 10	36	28			TS 211		0.04
B3.10	57 201 05 10 001	10 ~ 12	43	35	–	TPGX 0902..	CS 250 T	TORX T08	0.05
B3.11	57 201 05 11 001	11 ~ 13	48	40					0.055
B3.12	57 201 05 12 001	12 ~ 14		42					0.06
B3.14	57 201 05 14 001	14 ~ 16	52	50					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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B5.12	57 201 05 12 105	12 ~ 14	72						
B5.14	57 201 05 14 105	14 ~ 16	84						0.2
B5.16	57 201 05 16 105	16 ~ 18	96						0.3
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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B8.12	57 201 05 12 108	12 ~ 14	90						0.2
B8.14	57 201 05 14 108	14 ~ 16	105						
B8.16	57 201 05 16 108	16 ~ 18	120						0.3

TRM 50/63
TRM 63/63 Ø 77 ~ 127

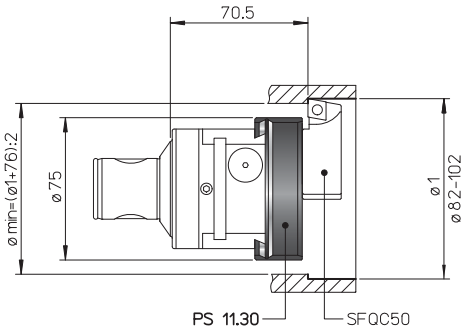
- TOOLHOLDERS FOR TESTAROSSA
- GRUNDHALTER FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

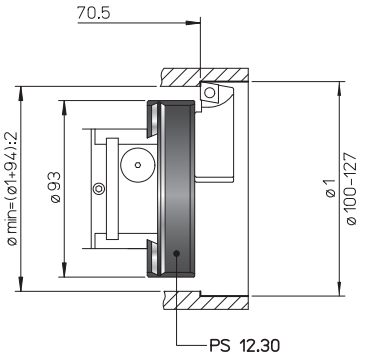
PS
Ø 77 ~ 125



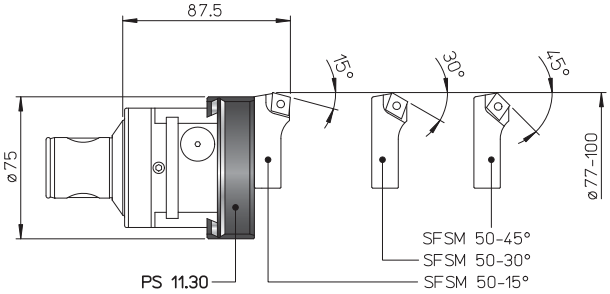


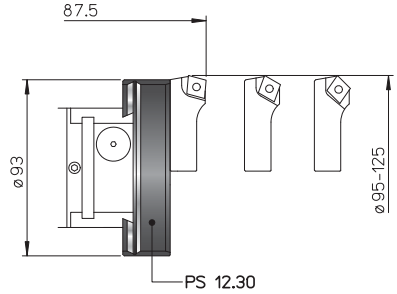
PS
Ø 82 ~ 127





PS
Ø 77 ~ 125





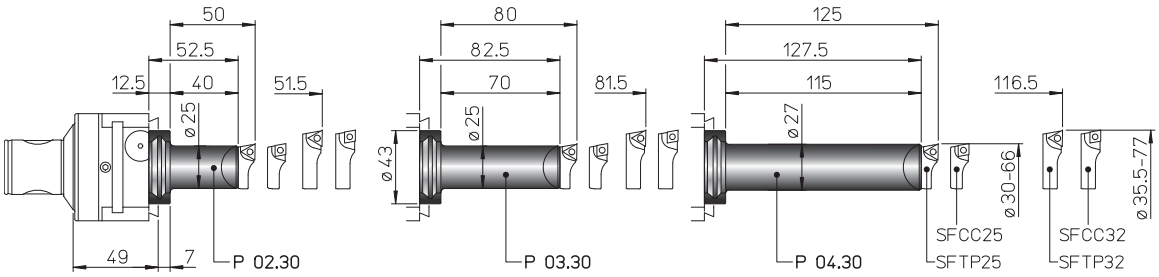
REF.	CODE	Kg.
PS 11.30	43 30 30 26 075 0	0.4
PS 12.30	43 30 30 26 095 0	0.5

161 INFO
165
158

testarossad'andrea

- **TOOLHOLDERS FOR TESTAROSSA**
- **GRUNDHALTER FÜR TESTAROSSA**
- **PORTAHERRAMIENTAS PARA TESTAROSSA**
- **PORTE-OUTILS POUR TESTAROSSA**
- **PORTAUTENSILI PER TESTAROSSA**

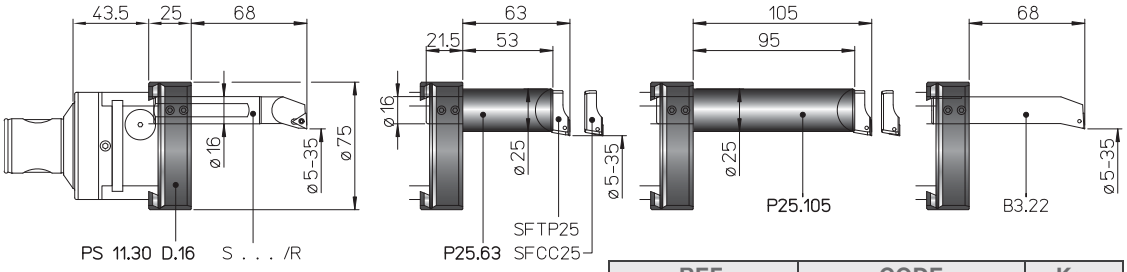
P
Ø 30 ~ 77



REF.	CODE	Kg.
P02.30	43 10 30 25 040 0	0.3
P03.30	43 10 30 25 070 0	0.4
P04.30	43 10 30 25 115 0	0.7

- **TESTAROSSA EXTERNAL TURNING**
- **TESTAROSSA AUSSENDREHEN**
- **TESTAROSSA TORNEADO EXTERIOR**
- **TESTAROSSA TOURNAGE EXTÉRIEUR**
- **TESTAROSSA TORNITURA ESTERNA**

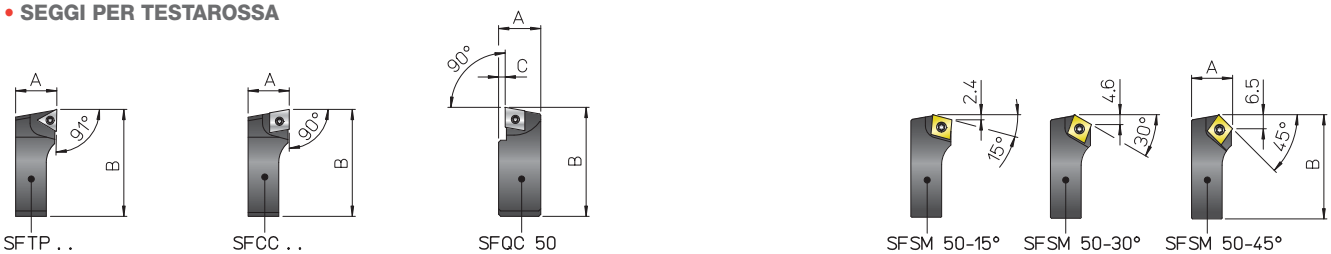
PS + P25
Ø 5 ~ 35



REF.	CODE	Kg.
PS 11.30 D.16	43 30 30 26 075 5	0.4
P25.63	43 51 16 25 063 0	0.5
P25.105	43 51 16 25 105 0	0.8

- **BIT-HOLDERS FOR TESTAROSSA**
- **PLATTENHALTER FÜR TESTAROSSA**
- **PORTA-PLAQUITAS PARA TESTAROSSA**
- **PORTE-PLAQUETTES POUR TESTAROSSA**
- **SEGGI PER TESTAROSSA**

SF



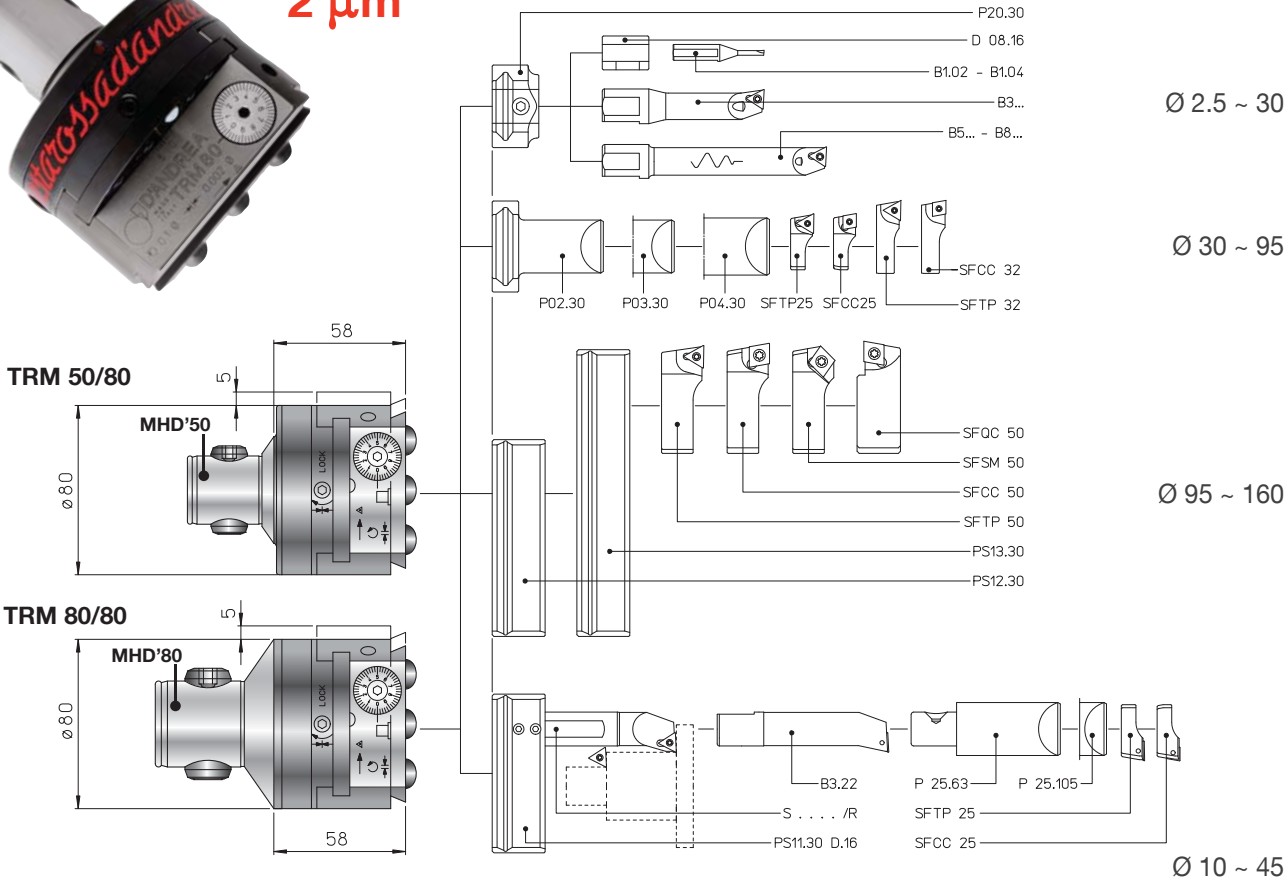
REF.	CODE	A	B	C	△	▭	▯	⌐	Kg.
SFTP 25	47 050 05 25 001	10	26.5	–	TPGX 0902..	–	CS 250T	TORX T08	0.01
SFTP 32	47 050 05 32 001	11.5	34.5						0.02
SFTP 50	47 050 05 50 001	19	52	–	TPGX 1103..	–	CS 300890T		0.08
SFCC 25	47 050 05 25 002	10	26.5	–	–	CCGT 0602..	TS 25	TORX T08	0.01
SFCC 32	47 050 05 32 002	11.5	34.5						0.02
SFCC 50	47 050 05 50 002	19	52	–	–	CCGT 09T3..	TS 4	TORX T15	0.08
SFQC 50	47 050 05 50 062	20.5	53	3	–	CCMT 09T3..	TS 4	TORXT15	0.1
SFSM 50-15°	47 050 05 50 011	19	50.5	–	–	CCMT 09T3..	TS 4	TORXT15	0.07
SFSM 50-30°	47 050 05 50 013								
SFSM 50-45°	47 050 05 50 015								

TRM 50/80
TRM 80/80 Ø 2.5 ~ 160

• **TESTAROSSA**



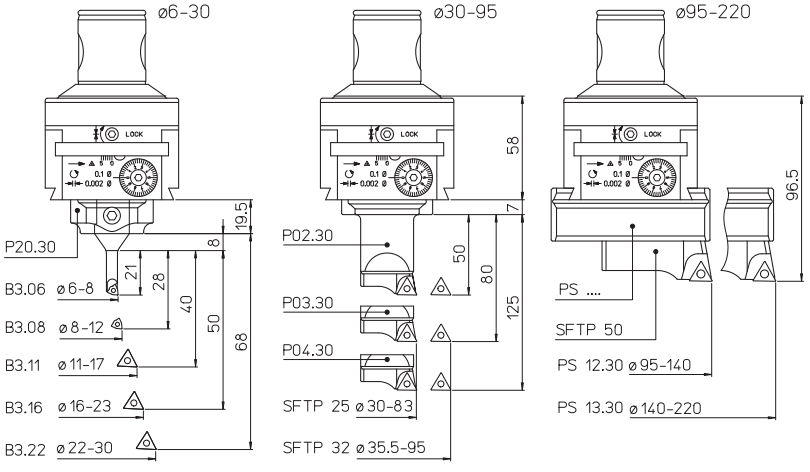
2 µm



REF.	CODE	Kg.
TRM 50/80	45 50 050 0080 0	2
TRM 80/80	45 50 080 0080 0	2.5

KIT K01

Ø 6 ~ 220





K01 TRM 50/80 - 80/80			
1 TRM../ 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
K01 TRM 50/80	65 50 050 1080 1	6 ~ 220
K01 TRM 80/80	65 50 080 1080 1	

161 162 158 241

TRM 50/80
TRM 80/80 Ø 2.5 ~ 30

testarossad'andrea

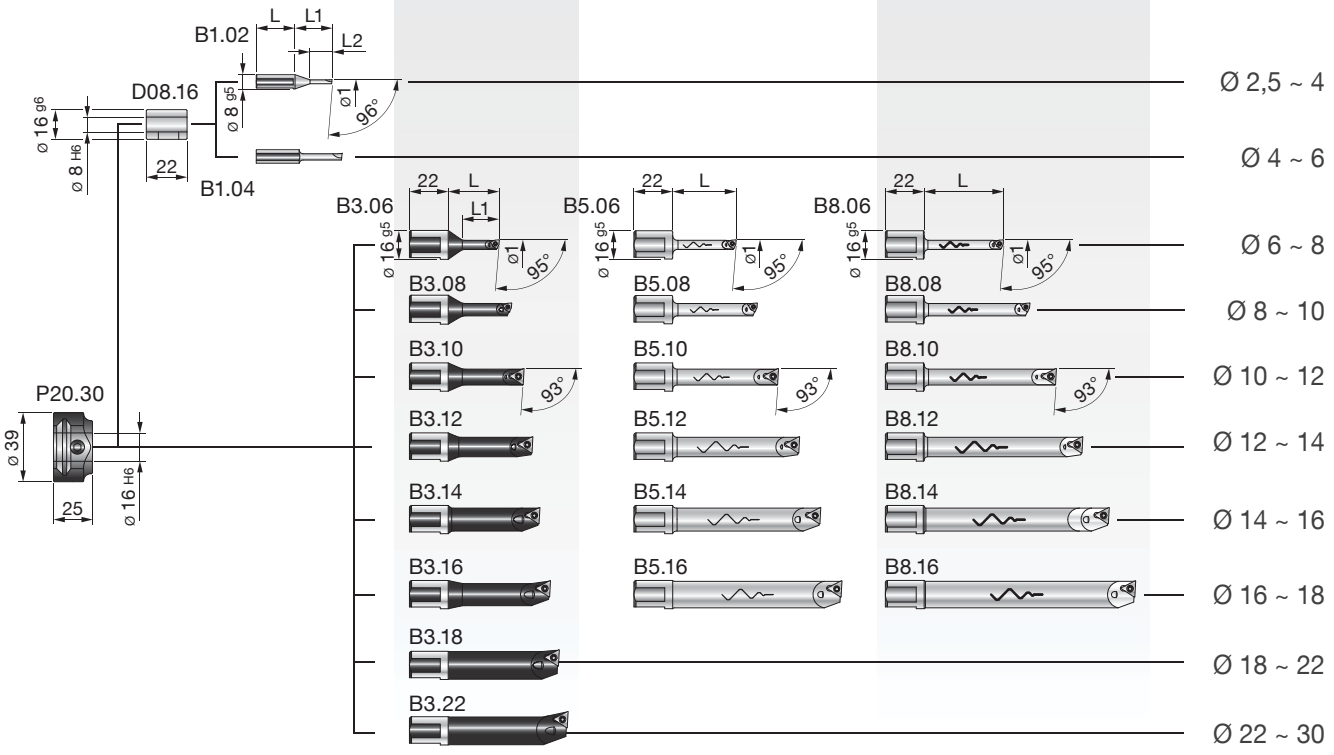
B1
- Carbide tools
- Bohrstange aus hartmetall
- Herramientas de metal duro
- Outils carbure
- Utensili in metallo duro

B3
- Tools
- Bohrstange
- Herramientas
- Outils
- Utensili

B5
- Vibration-damping tools
- Vibrationsarme Bohrstangen
- Herramientas anti-vibración
- Outils anti-vibratoires
- Utensili antivibranti

B8
- Carbide tools
- Bohrstange aus hartmetall
- Herramientas de metal duro
- Outils carbure
- Utensili in metallo duro

Ø 2.5 ~ 30



REF.	CODE	Kg.
D08.16	20 056 01 16 08 2	0.02

REF.	CODE	Kg.
P20.30	43 10 30 16 030 0	0.2

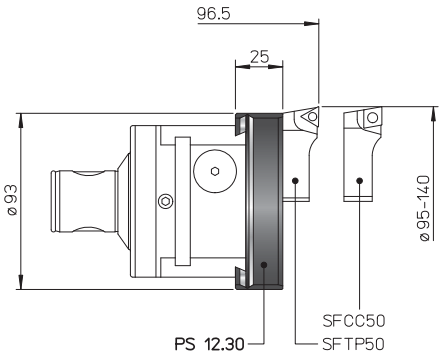
REF.	CODE	Ø1	L	L1	L2	Kg.
B1.02	57 201 05 02 001	2.5 ~ 4	22	21	12.5	0.02
B1.04	57 201 05 04 001	4 ~ 6	24	24	–	

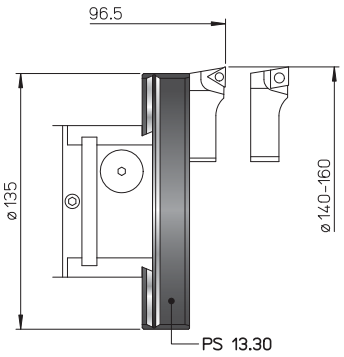
REF.	CODE	Ø1	L	L1					Kg.
B3.06	57 201 05 06 001	6 ~ 8	29	21	WCGT 0201..	–	TS 21	TORX T06	0.035
B3.08	57 201 05 08 001	8 ~ 10	36	28			TS 211		0.04
B3.10	57 201 05 10 001	10 ~ 12	43	35	–	TPGX 0902..	CS 250 T	TORX T08	0.05
B3.11	57 201 05 11 001	11 ~ 13	48	40					0.055
B3.12	57 201 05 12 001	12 ~ 14		42					0.06
B3.14	57 201 05 14 001	14 ~ 16	52	50					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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B5.12	57 201 05 12 105	12 ~ 14	72						
B5.14	57 201 05 14 105	14 ~ 16	84						0.2
B5.16	57 201 05 16 105	16 ~ 18	96						0.3
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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B8.12	57 201 05 12 108	12 ~ 14	90						0.2
B8.14	57 201 05 14 108	14 ~ 16	105						
B8.16	57 201 05 16 108	16 ~ 18	120						0.3

TRM 50/80
TRM 80/80 Ø 95 ~ 162

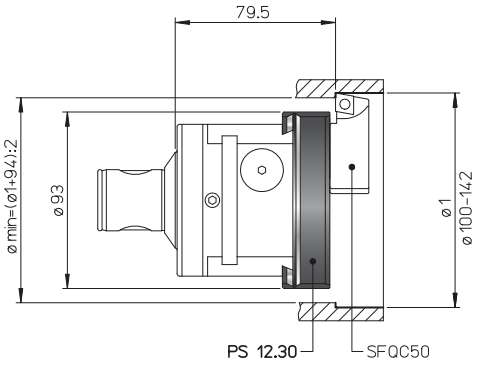
- TOOLHOLDERS FOR TESTAROSSA
- GRUNDHALTER FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

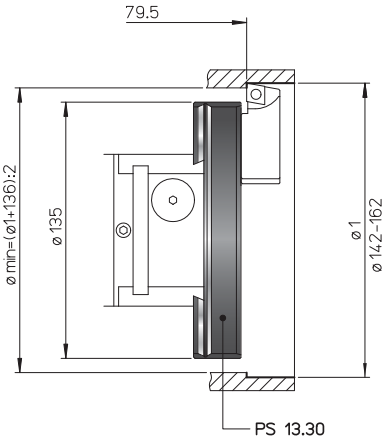
PS
Ø 95 ~ 160



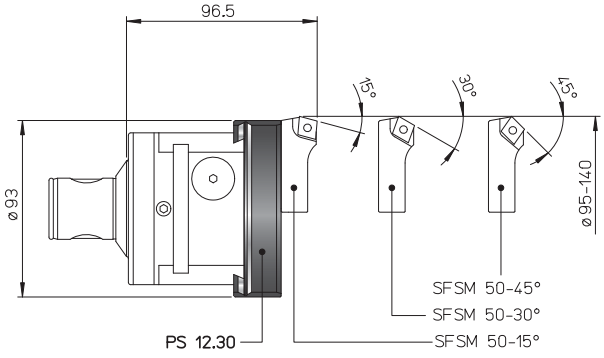


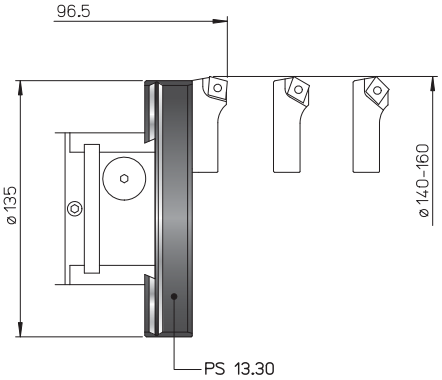
PS
Ø 100 ~ 162





PS
Ø 95 ~ 160



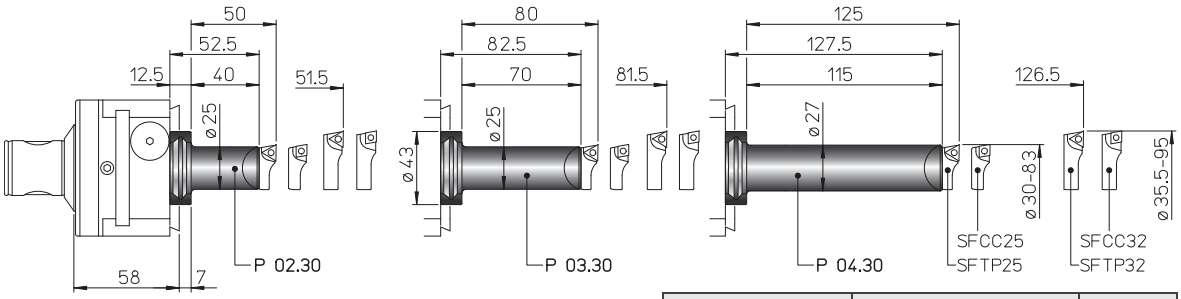


REF.	CODE	Kg.
PS 12.30	43 30 30 26 095 0	0.5
PS 13.30	43 30 30 26 140 0	0.7

161 INFO
165
158

- TOOLHOLDERS FOR TESTAROSSA
- WERKZEUGE FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

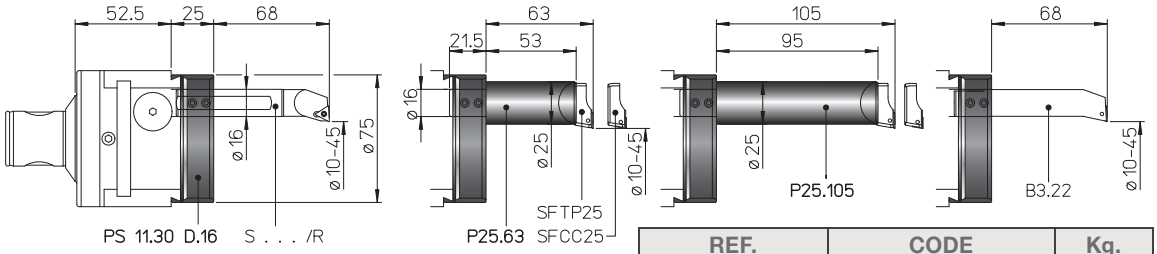
P
Ø 30 ~ 95



REF.	CODE	Kg.
P02.30	43 10 30 25 040 0	0.3
P03.30	43 10 30 25 070 0	0.4
P04.30	43 10 30 25 115 0	0.7

- TESTAROSSA EXTERNAL TURNING
- TESTAROSSA AUSSENDREHEN
- TESTAROSSA TORNEADO EXTERIOR
- TESTAROSSA TOURNAGE EXTÉRIEUR
- TESTAROSSA TORNITURA ESTERNA

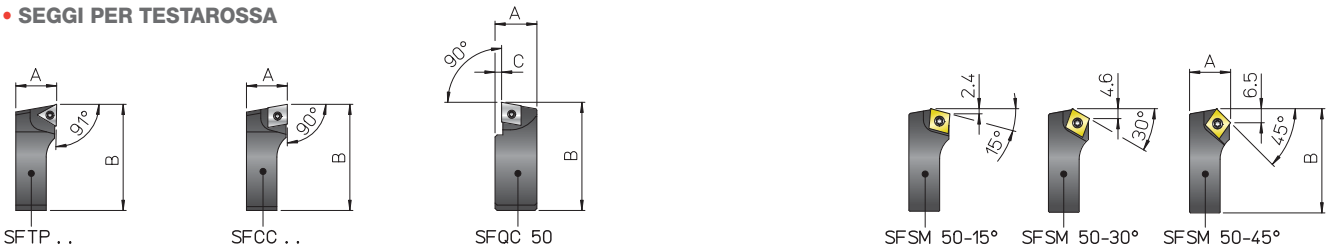
PS + P25
Ø 10 ~ 45



REF.	CODE	Kg.
PS 11.30 D.16	43 30 30 26 075 5	0.4
P25.63	43 51 16 25 063 0	0.5
P25.105	43 51 16 25 105 0	0.8

- BIT-HOLDERS FOR TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA
- PORTA-PLAQUITAS PARA TESTAROSSA
- PORTE-PLAQUETTES POUR TESTAROSSA
- SEGGI PER TESTAROSSA

SF



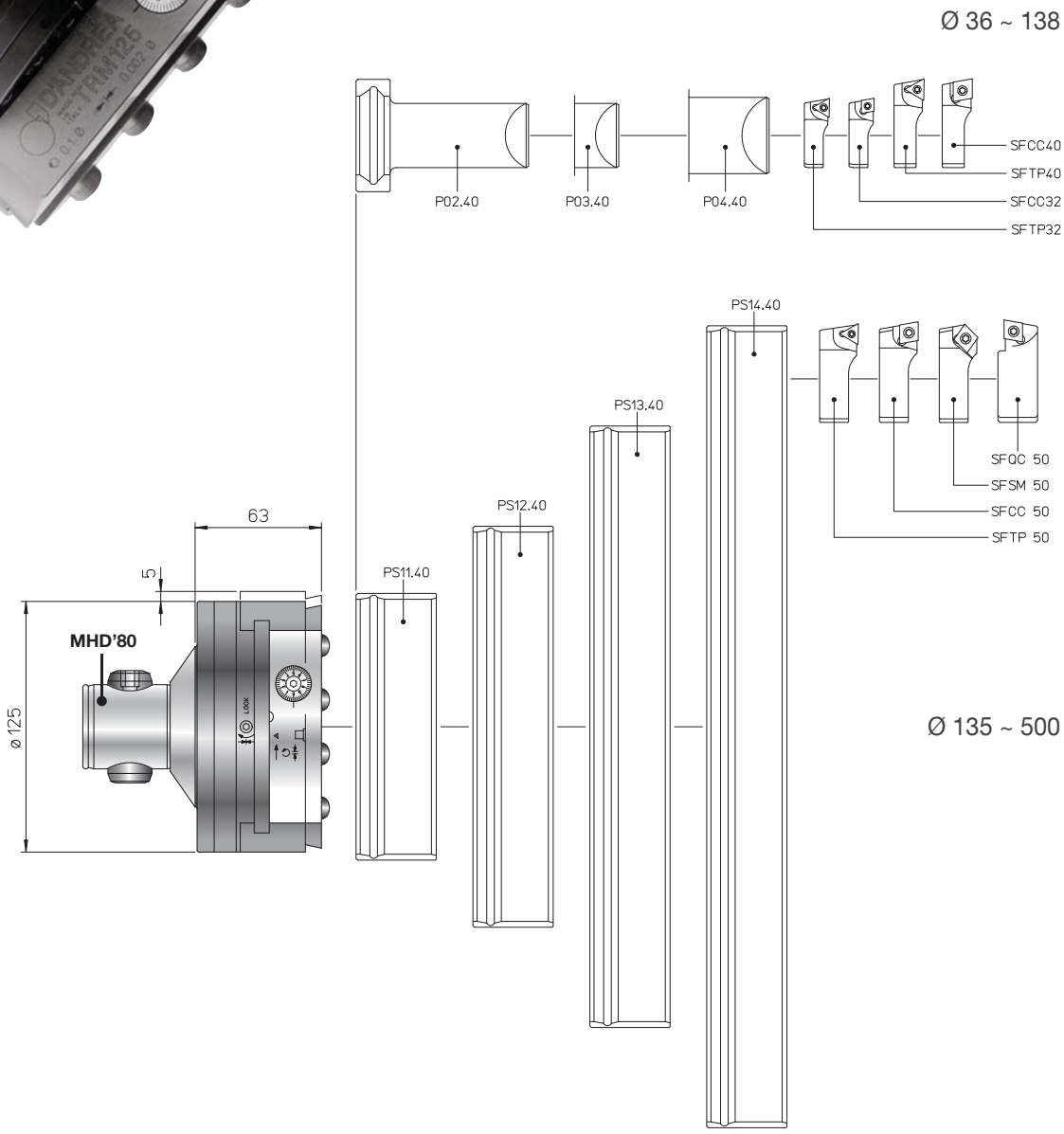
REF.	CODE	A	B	C	△	⬡		⊢	Kg.
SFTP 25	47 050 05 25 001	10	26.5	–	TPGX 0902..	–	CS 250T	TORX T08	0.01
SFTP 32	47 050 05 32 001	11.5	34.5						0.02
SFTP 50	47 050 05 50 001	19	52	–	TPGX 1103..	–	CS 300890T		0.08
SFCC 25	47 050 05 25 002	10	26.5	–	–	CCGT 0602..	TS 25	TORX T08	0.01
SFCC 32	47 050 05 32 002	11.5	34.5						0.02
SFCC 50	47 050 05 50 002	19	52	–	–	CCGT 09T3..	TS 4	TORX T15	0.08
SFQC 50	47 050 05 50 062	20.5	53	3	–	CCMT 09T3..	TS 4	TORXT15	0.1
SFSM 50-15°	47 050 05 50 011	19	50.5	–	–	CCMT 09T3..	TS 4	TORXT15	0.07
SFSM 50-30°	47 050 05 50 013								
SFSM 50-45°	47 050 05 50 015								

TRM 80/125 Ø 36 ~ 500

• TESTAROSSA



2 µm



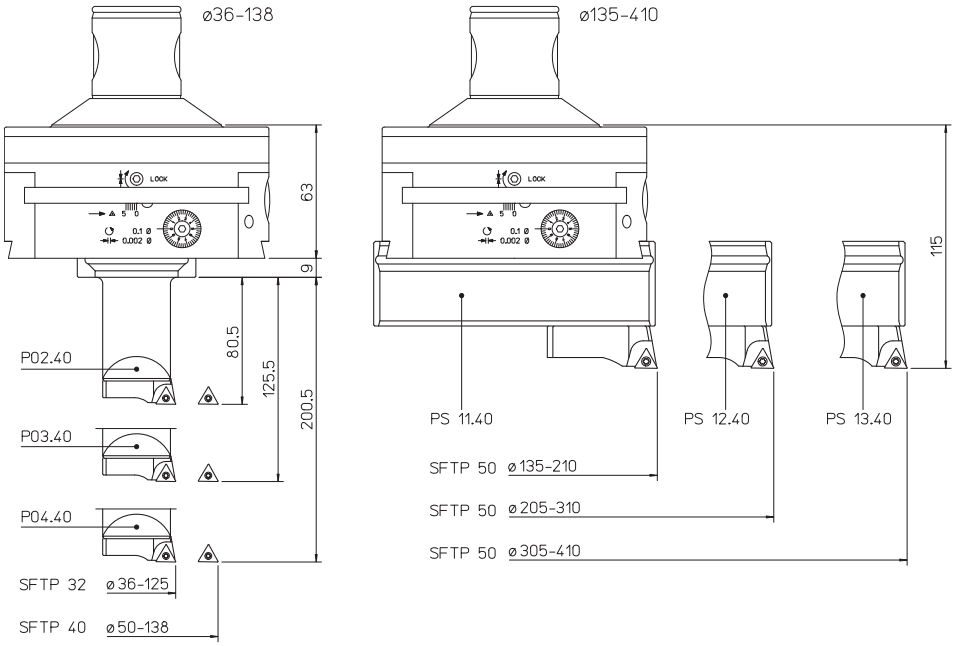
REF.	CODE	Kg.
TRM 80/125	45 50 080 0125 0	5.5

161 INFO
162
158

testarossad'andrea

KIT K03

Ø 36 ~ 410



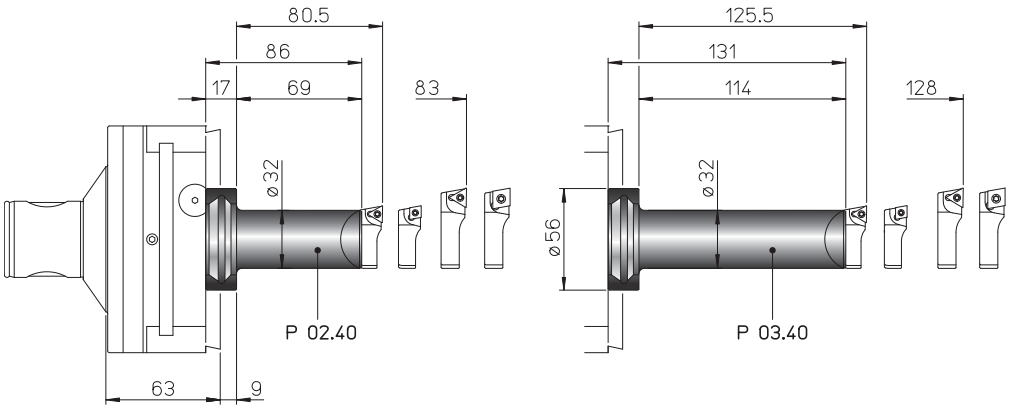


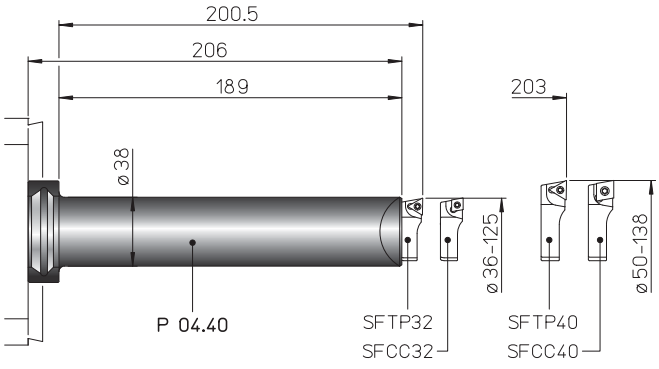
K03 TRM 80/125		
1 P02.40	1 PS11.40	1 SFTP50
1 P03.40	1 PS12.40	
1 P04.40	1 PS13.40	

REF.	CODE	Ø
K03 TRM 80/125	65 50 125 0003 0	36 ~ 410

P

Ø 36 ~ 138





REF.	CODE	Kg.
P02.40	43 10 40 32 070 0	0.7
P03.40	43 10 40 32 115 0	1
P04.40	43 10 40 32 190 0	2

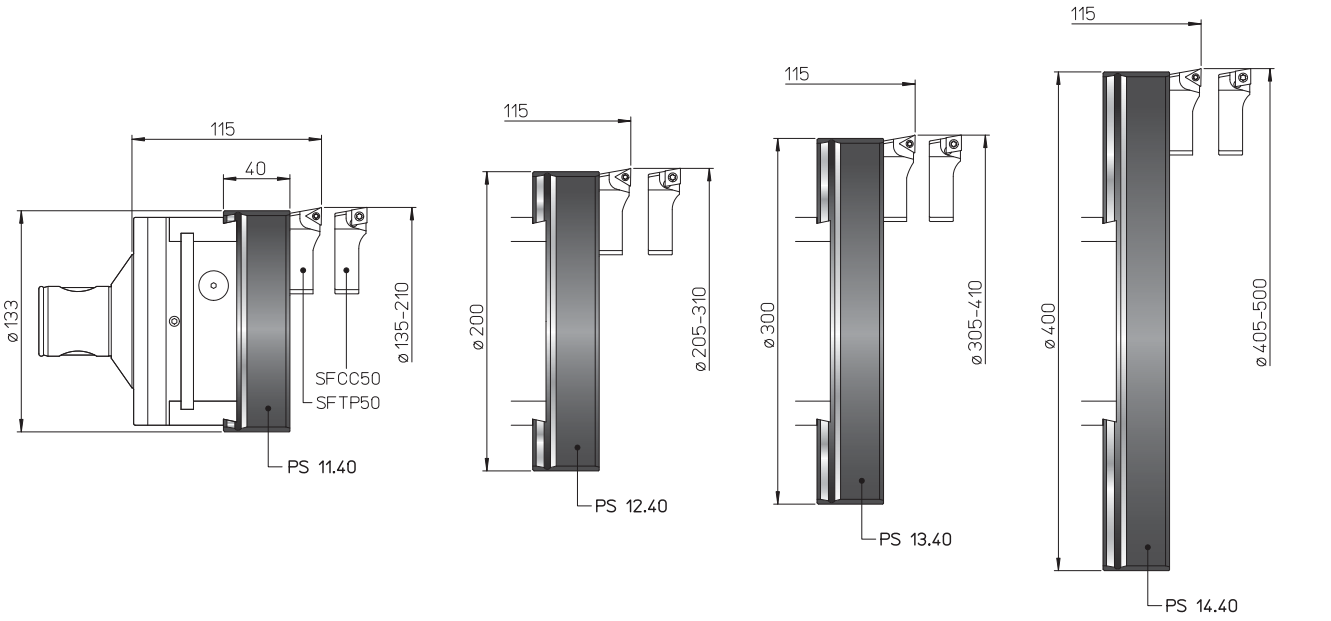
158 165 161
INFO

TRM 80/125 Ø 135 ~ 502

- TOOLHOLDERS FOR TESTAROSSA
- GRUNDHALTER FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

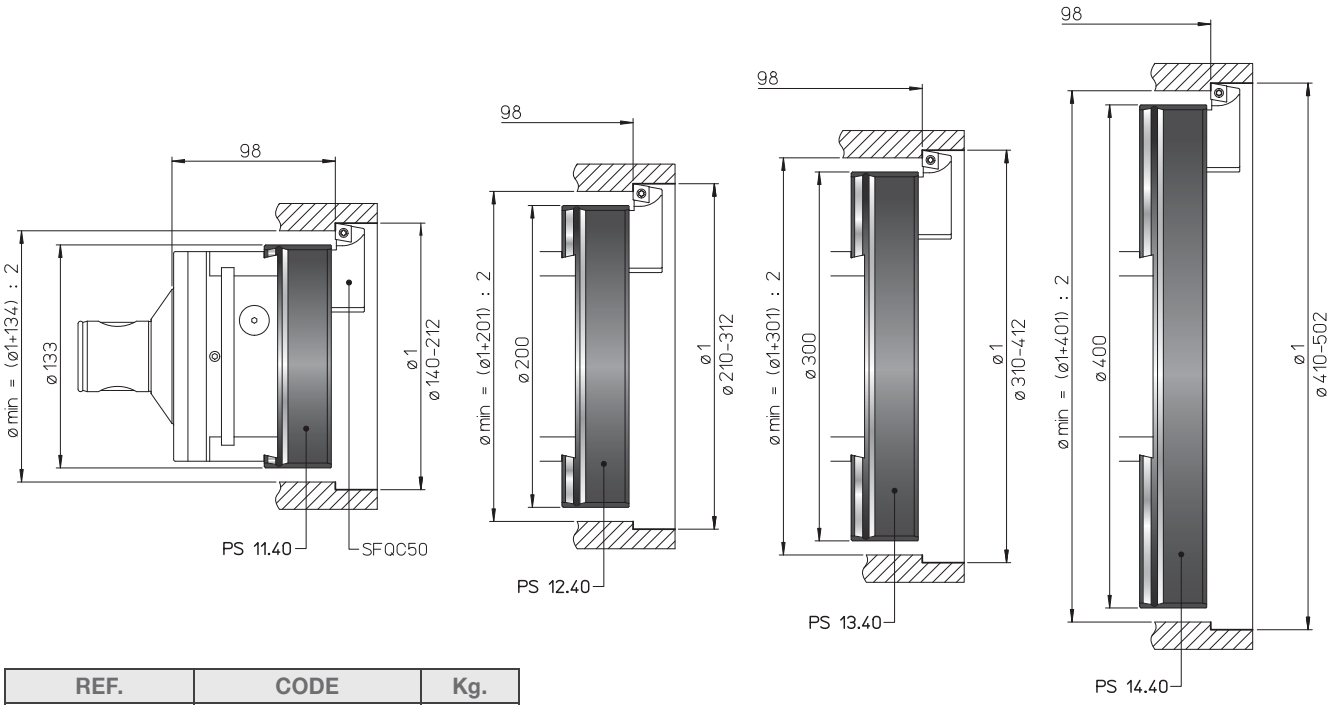
PS

Ø 135 ~ 500



PS

Ø 140 ~ 502



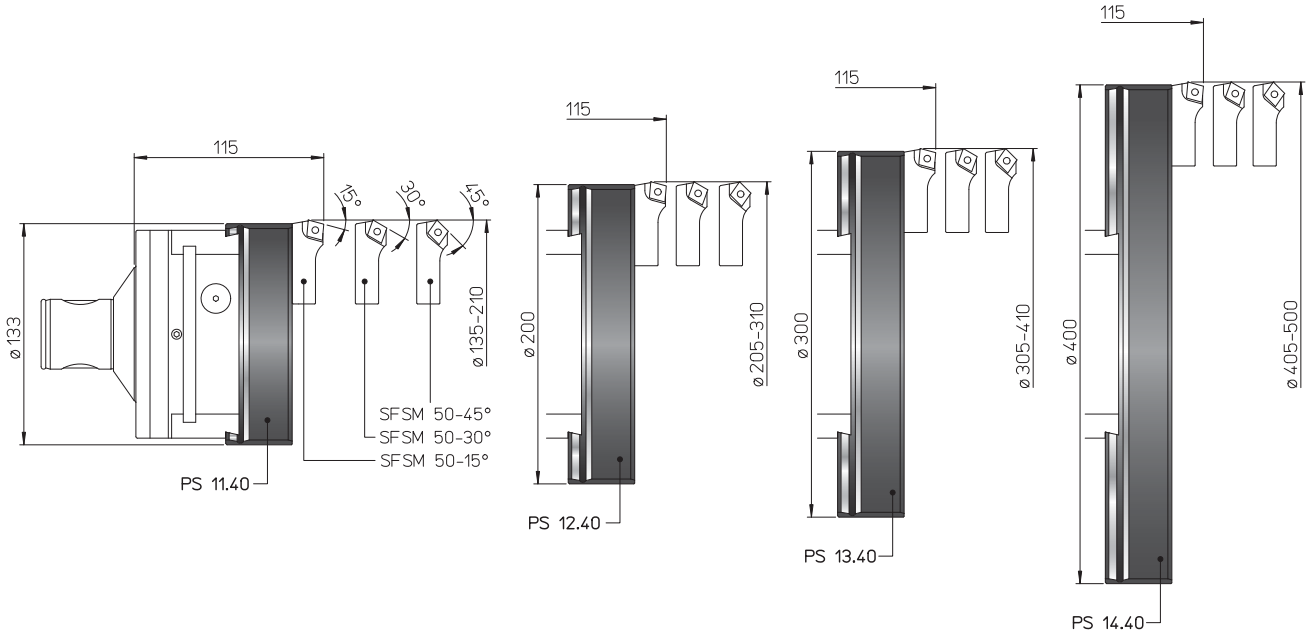
REF.	CODE	Kg.
PS 11.40	43 30 40 35 150 0	1.5
PS 12.40	43 30 40 35 230 0	2.4
PS 13.40	43 30 40 35 330 0	3.5
PS 14.40	43 30 40 35 400 0	4.6

161 INFO
165
158

testarossad'andrea

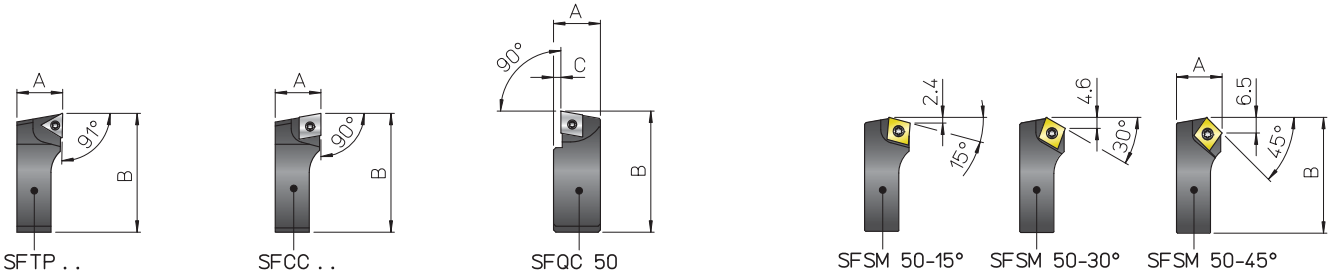
- TOOLHOLDERS FOR TESTAROSSA
- GRUNDHALTER FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

PS
Ø 135 ~ 500



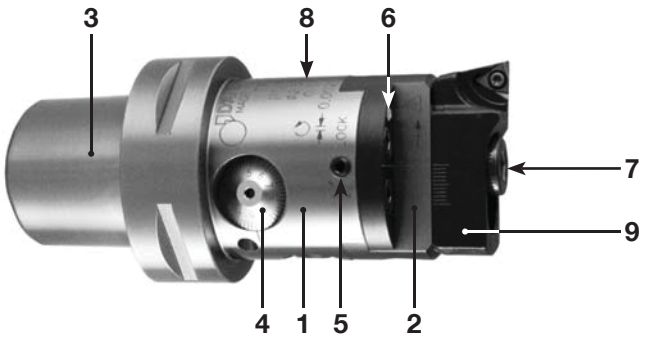
- BIT-HOLDERS FOR TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA
- PORTA-PLAQUITAS PARA TESTAROSSA
- PORTE-PLAQUETTES POUR TESTAROSSA
- SEGGI PER TESTAROSSA

SF



REF.	CODE	A	B	C	△	▭			Kg.
SFTP 32	47 050 05 32 001	11.5	34.5	–	TPGX 0902..	–	CS 250T	TORX T08	0.02
SFTP 40	47 050 05 40 001	14	44	–	TPGX 1103..	–	CS 300890T		0.04
SFTP 50	47 050 05 50 001	19	52						0.08
SFCC 32	47 050 05 32 002	11.5	34.5	–	–	CCGT 0602..	TS 25	TORX T08	0.02
SFCC 40	47 050 05 40 002	14	44	–	–	CCGT 09T3..	TS 4	TORX T15	0.04
SFCC 50	47 050 05 50 002	19	52						0.08
SFQC 50	47 050 05 50 062	20.5	53	3	–	CCMT 09T3..	TS 4	TORXT15	0.1
SFSM 50-15°	47 050 05 50 011	19	50.5	–	–	CCMT 09T3..	TS 4	TORXT15	0.07
SFSM 50-30°	47 050 05 50 013								
SFSM 50-45°	47 050 05 50 015								

158 165 161
INFO



1
- Body
- Körper
- Cuerpo
- Corps
- Corpo

2
- Slide toolholder
- Werkzeugschlitten
- Guía portaherramientas
- Coulisseau
- Slitta portautensili

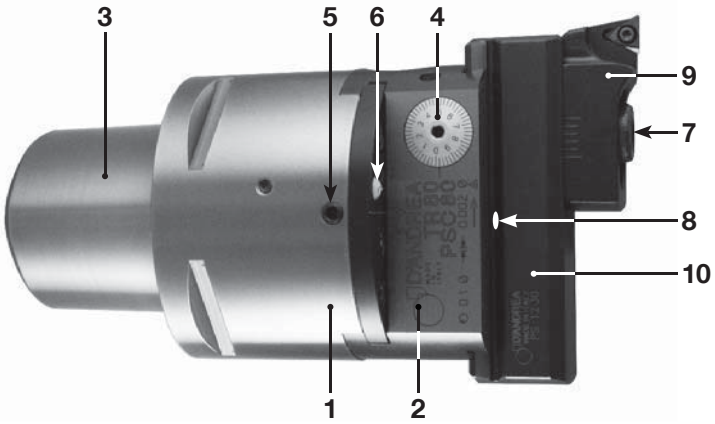
3
- PSC 40-50-63-80
- PSC 40-50-63-80
- PSC 40-50-63-80
- PSC 40-50-63-80
- PSC 40-50-63-80

4
- Micrometric vernier scale
- Mikrometrischer Nonius
- Nonio micrométrico
- Vernier micrométrique
- Nonio micrometrico

5
- Slide clamp screw
- Schlittenklemmschraube
- Tornillo blocaje guía
- Vis blocage coulisseau
- Vite bloccaggio slitta

6
- Coolant outlet
- Kühlmittelaustritt
- Agujero salida refrigerante
- Sortie du liquide d'arrosage
- Uscita refrigerante

7
- Tools clamp screws
- Werkzeugklemmschraube
- Tornillo blocaje herramientas
- Vis blocage outil
- Viti bloccaggio utensili



2 µm



8
- Oiler
- Schmiernippel
- Engrasador
- Graisseur
- Oliatore

9
- Bit holder
- Plattenhalter
- Portaplaquita
- Porte-plaquettes
- Seggio portainserti

10
- Tool holder
- Werkzeughalter
- Portaherramienta
- Porte-outil
- Porta utensile

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.

D **MERKMALE.** Die TR-PSC Köpfe der Testarossa-Serie besitzen eine rostbeständige Oberfläche. Die TR-PSC-Köpfe ermöglichen ermöglichen Bearbeitungen mit hoher Präzision und Toleranzen mit Grad IT6 bei hochwertiger Oberflächengüte. Sie besitzen eine Feinverstellung mit einer Genauigkeit von radial 1 µm, wobei das Maß auf der Skala abgelesen und auch direkt an der Maschine eingestellt werden kann.

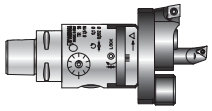
E **CARACTERÍSTICAS.** Los cabezales TR-PSC de la línea Testarossa D'Andrea cuentan con una protección superficial anticorrosión. Los cabezales TR-PSC permiten realizar operaciones de alta precisión con tolerancias de grado IT6 con un extraordinario acabado de la superficie. Tienen una sensibilidad de ajuste de 1 micra en radio, de fácil lectura en el nonio y corregibles directamente sobre la máquina.

F **CARACTÉRISTIQUES.** Les têtes TR-PSC de la ligne Testarossa D'Andrea ont une protection superficielle anticorrosion. Les têtes TR-PSC permettent des usinages de haute précision avec des tolérances de degré IT6 pour un excellent finissage superficiel. Elles ont une sensibilité de réglage de 1 micron sur le rayon, facilement lisible sur le vernier et exécutable également dans la machine.

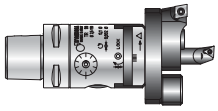
I **CARATTERISTICHE.** Le testine TR-PSC della linea Testarossa D'Andrea hanno una protezione superficiale anticorrosiva. Le testine TR-PSC consentono lavorazioni di alta precisione con tolleranze di grado IT6 con ottima finitura superficiale. Hanno una sensibilità di regolazione di 1 micron sul raggio, facilmente leggibile sul nonio ed eseguibile anche in macchina.

testarossad'andrea

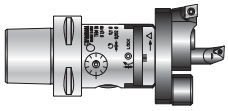
TR50 - PSC40
Ø 2.5 ~ 108



TR50 - PSC50
Ø 2.5 ~ 108



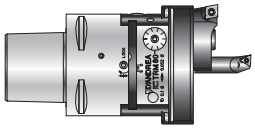
TR50 - PSC63
Ø 2.5 ~ 108



TR63 - PSC63
Ø 6 ~ 125



TR80 - PSC80
Ø 6 ~ 160











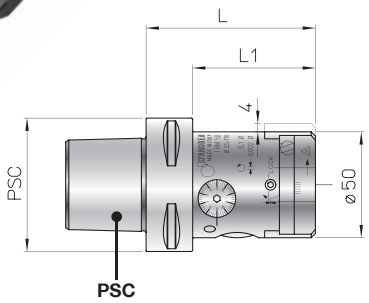
TR50 - PSC Ø 2.5 ~ 108

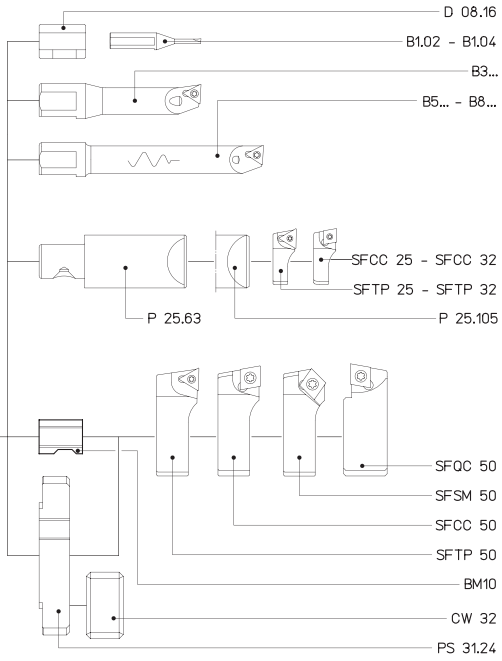
• TESTAROSSA

ISO 26623-1



2 µm





Ø 2.5 ~ 30

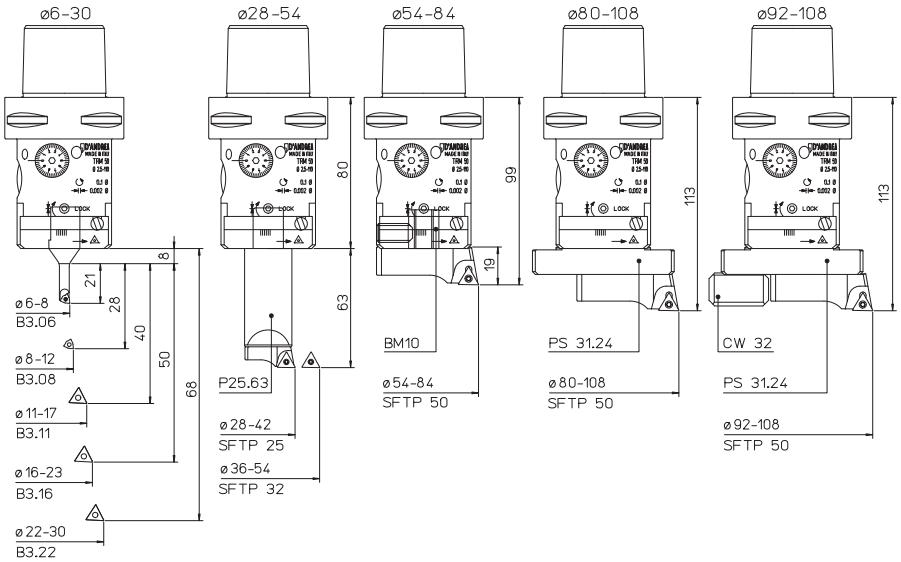
Ø 28 ~ 54

Ø 54 ~ 108

PSC	REF.	CODE	L	L1	kg
40	TR 50 - PSC 40	45 50 550 2604 0	80	60	1
50	TR 50 - PSC 50	45 50 550 2605 0			1.4
63	TR 50 - PSC 63	45 50 550 2606 0		58	1.3

KIT K01

Ø 6 ~ 108





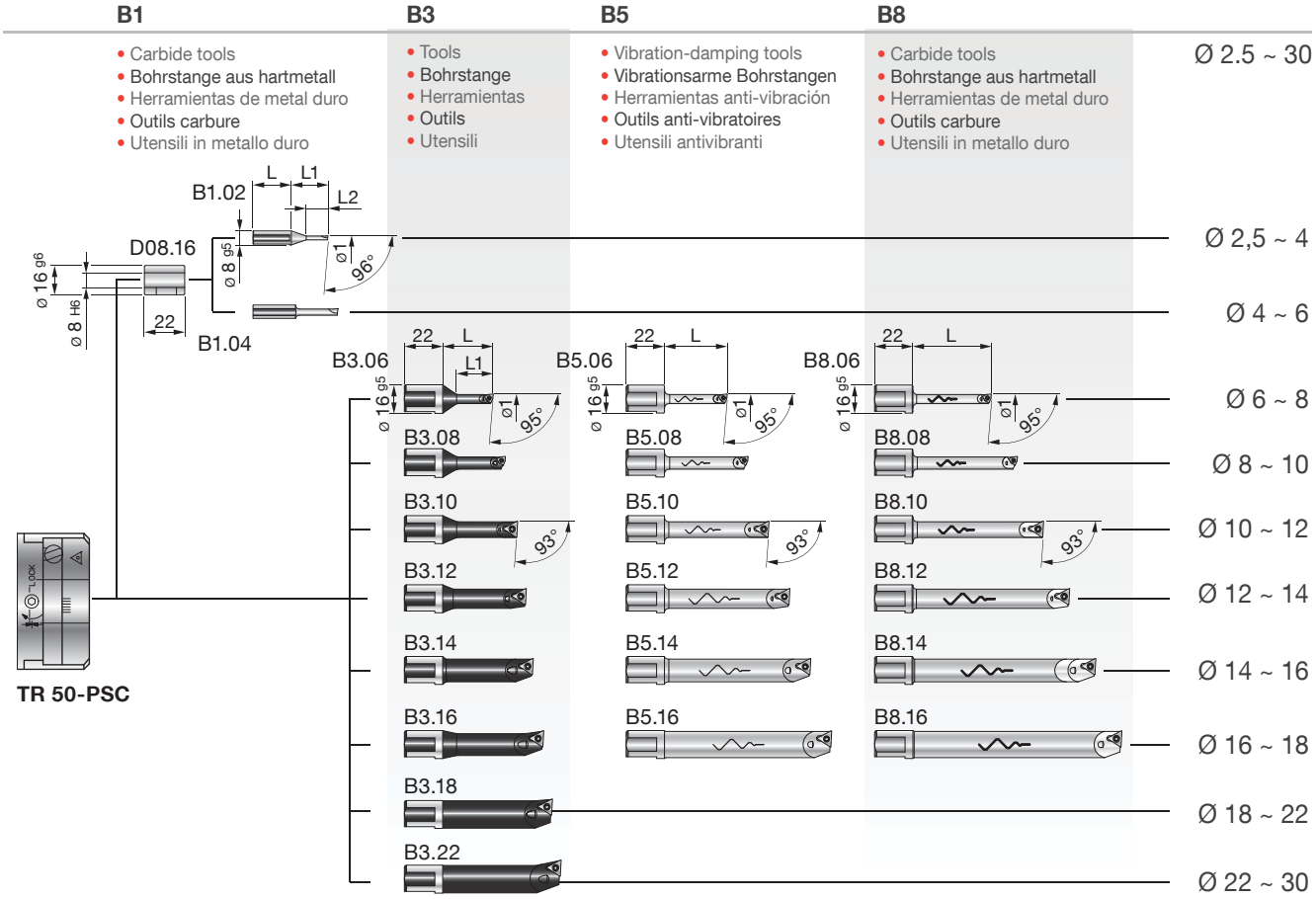
K01 TR 50 - PSC 40 / 50 / 63		
1 TR50-PSC40	1 TR50-PSC50	1 TR50-PSC63
1 P25.63	1 B3.06	1 B3.22
1 BM10	1 B3.08	1 SFTP25
1 PS 31.24	1 B3.11	1 SFTP32
1 CW 32	1 B3.16	1 SFTP50
1 TPGX 110302L DC100		
5 TPGX 090202L DC100		
2 WCGT 020102L DC100		

REF.	CODE	Ø
K01 TR 50 - PSC40	65 50 604 1050 1	6 ~ 108
K01 TR 50 - PSC50	65 50 605 1050 1	
K01 TR 50 - PSC63	65 50 606 1050 1	

252 161 164 158 241

TR50 - PSC Ø 2.5 ~ 30

testarossad'andrea



REF.	CODE	Kg.
D08.16	20 056 01 16 08 2	0.02

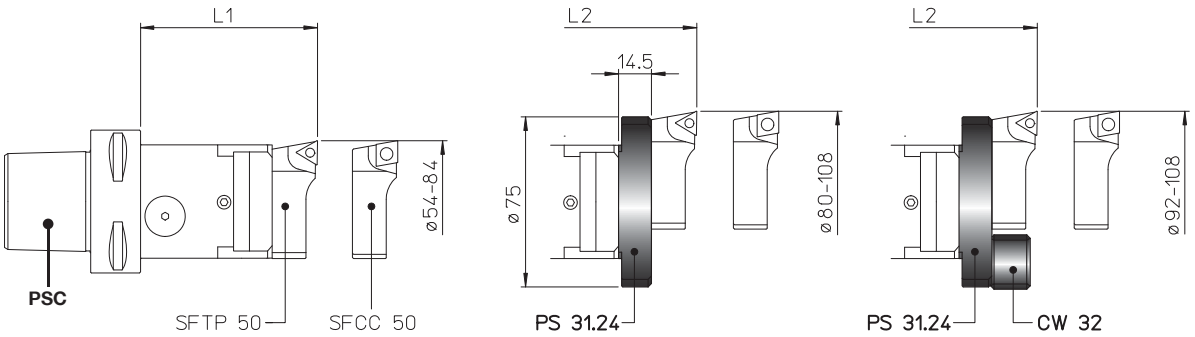
REF.	CODE	Ø1	L	L1	L2	Kg.
B1.02	57 201 05 02 001	2.5 ~ 4	22	21	12.5	0.02
B1.04	57 201 05 04 001	4 ~ 6	24	24	–	

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	–	TPGX 0902..	CS 250 T	TORX T08	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					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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B5.12	57 201 05 12 105	12 ~ 14	72						
B5.14	57 201 05 14 105	14 ~ 16	84						0.2
B5.16	57 201 05 16 105	16 ~ 18	96						0.3
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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B8.12	57 201 05 12 108	12 ~ 14	90						0.2
B8.14	57 201 05 14 108	14 ~ 16	105						
B8.16	57 201 05 16 108	16 ~ 18	120						0.3

TR50 - PSC Ø 54 ~ 108

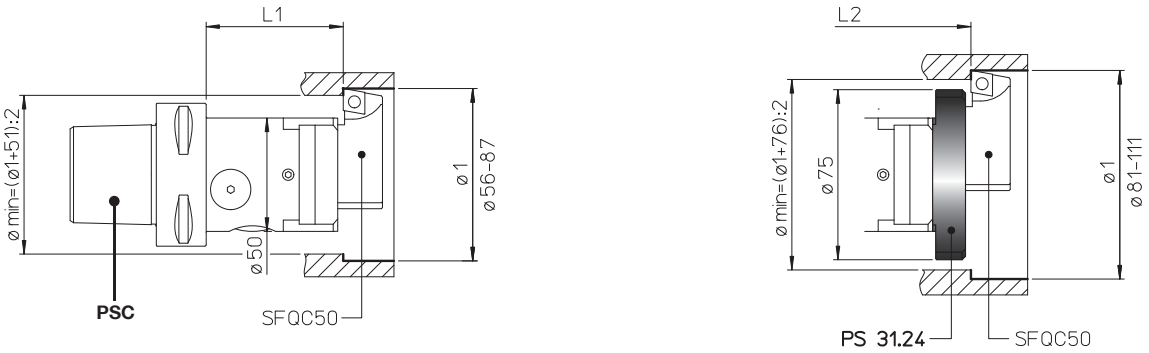
- TOOLHOLDERS FOR TESTAROSSA
- GRUNDHALTER FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

PS 31
CW 32
Ø 54 ~ 108



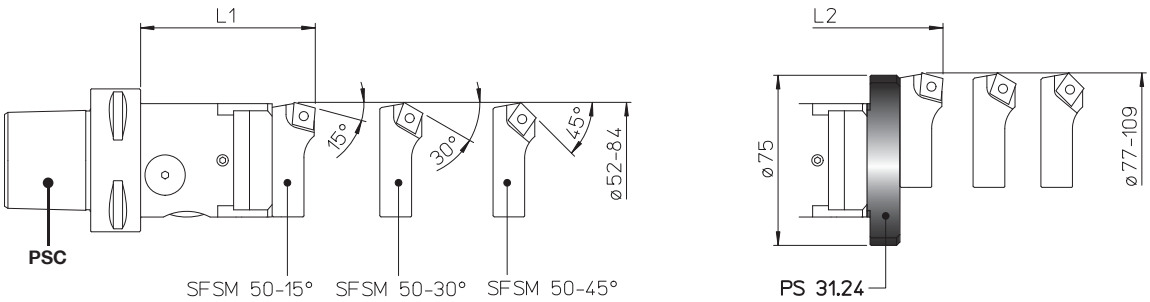
PSC	REF.	L1	L2
40	TR 50 - PSC 40	79	93
50	TR 50 - PSC 50		
63	TR 50 - PSC 63	77	91

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

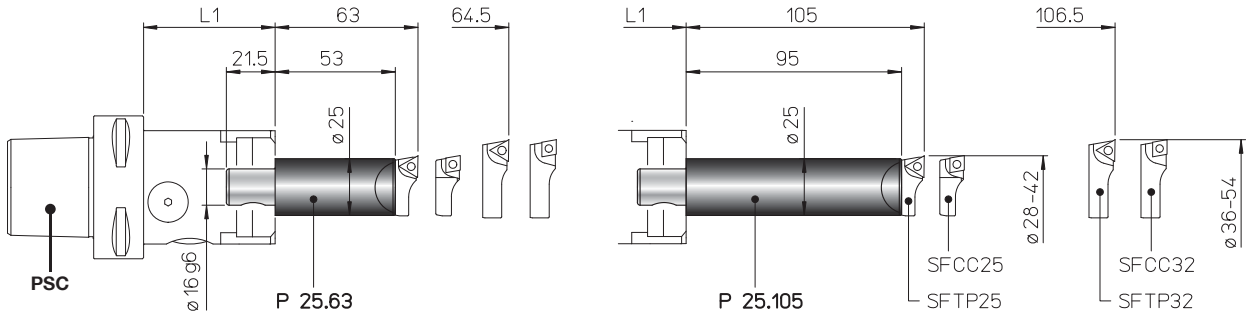
REF.	CODE	Kg.
PS 31.24	43 30 24 14 075 1	0.2
CW 32	39 20 110 032 01	0.5

161 INFO
165
158

testarossad'andrea

- TOOLHOLDERS FOR TESTAROSSA
- GRUNDHALTER FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

PS 25
Ø 28 ~ 54



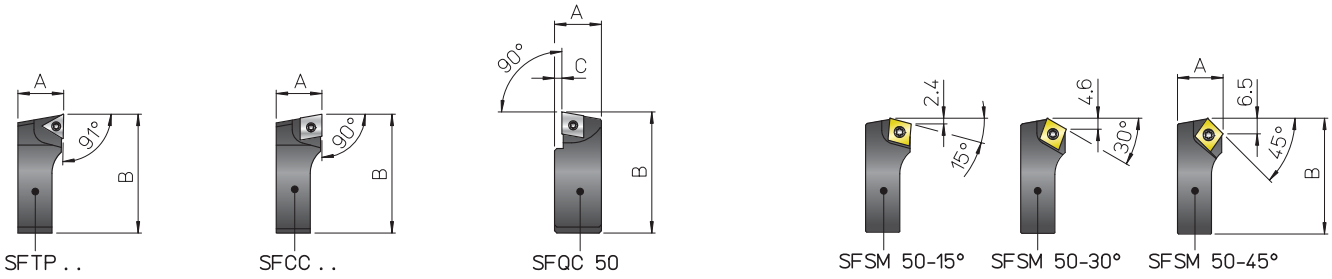
PSC	REF.	L1
40	TR 50 - PSC 40	60
50	TR 50 - PSC 50	
63	TR 50 - PSC 63	58

REF.	CODE	Kg.
P25.63	43 51 16 25 063 0	0.5
P25.105	43 51 16 25 105 0	0.8

- BIT-HOLDERS FOR TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA
- PORTA-PLAQUITAS PARA TESTAROSSA
- PORTE-PLAQUETTES POUR TESTAROSSA
- SEGGI PER TESTAROSSA

SF

139



REF.	CODE	A	B	C					Kg.
SFTP 25	47 050 05 25 001	10	26.5	–	TPGX 0902..	–	CS 250T	TORX T08	0.01
SFTP 32	47 050 05 32 001	11.5	34.5						0.02
SFTP 50	47 050 05 50 001	19	52	–	TPGX 1103..	–	CS 300890T		0.08
SFCC 25	47 050 05 25 002	10	26.5	–	–	CCGT 0602..	TS 25	TORX T08	0.01
SFCC 32	47 050 05 32 002	11.5	34.5						0.02
SFCC 50	47 050 05 50 002	19	52	–	–	CCGT 09T3..	TS 4	TORX T15	0.08
SFQC 50	47 050 05 50 062	20.5	53	3	–	CCMT 09T3..	TS 4	TORXT15	0.1
SFSM 50-15°	47 050 05 50 011	19	50.5	–	–	CCMT 09T3..	TS 4	TORXT15	0.07
SFSM 50-30°	47 050 05 50 013								
SFSM 50-45°	47 050 05 50 015								

158 165 161
INFO

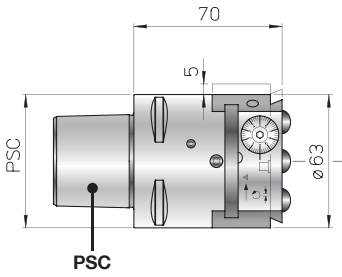
TR63 - PSC63 Ø 2.5 ~ 125

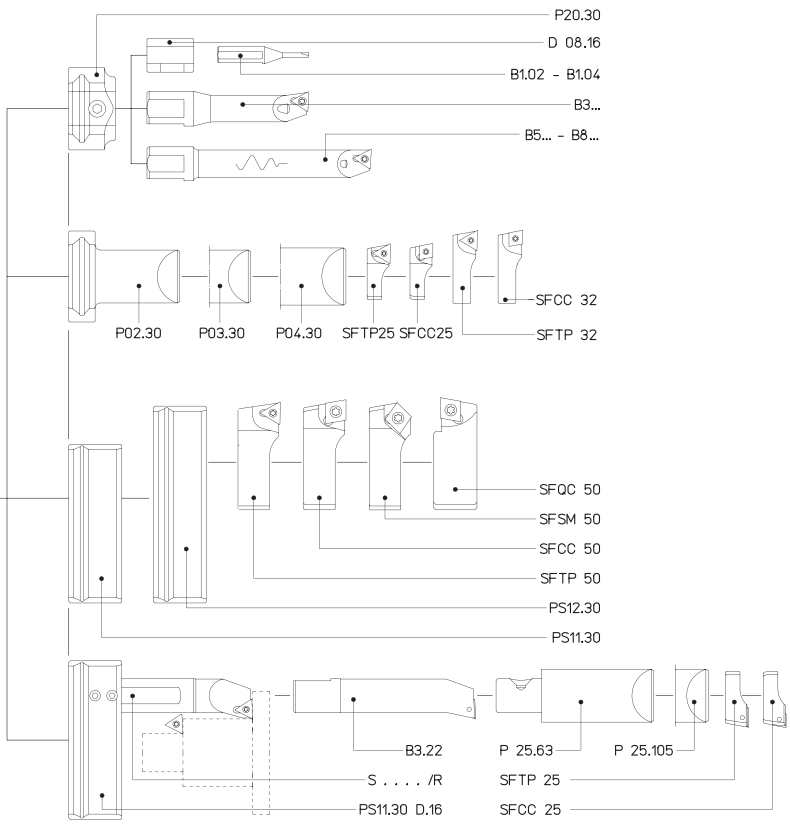
• TESTAROSSA

ISO 26623-1



2 µm

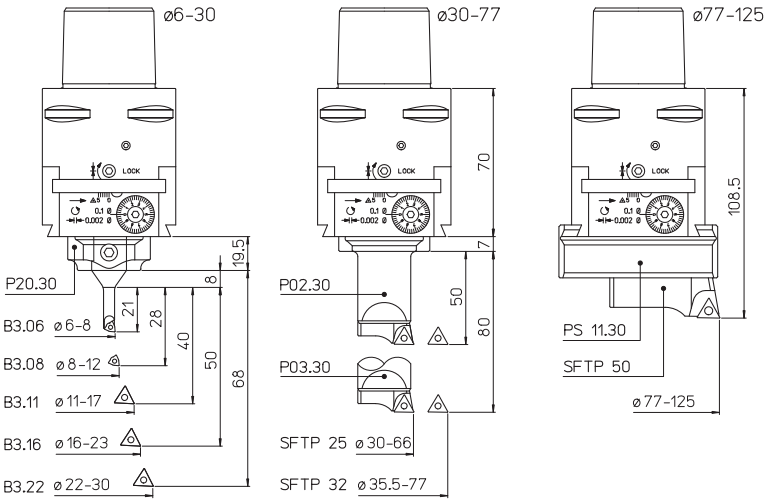




PSC	REF.	CODE	kg
63	TR 63 - PSC 63	45 50 563 2606 0	1.5

KIT K01

Ø 6 ~ 125



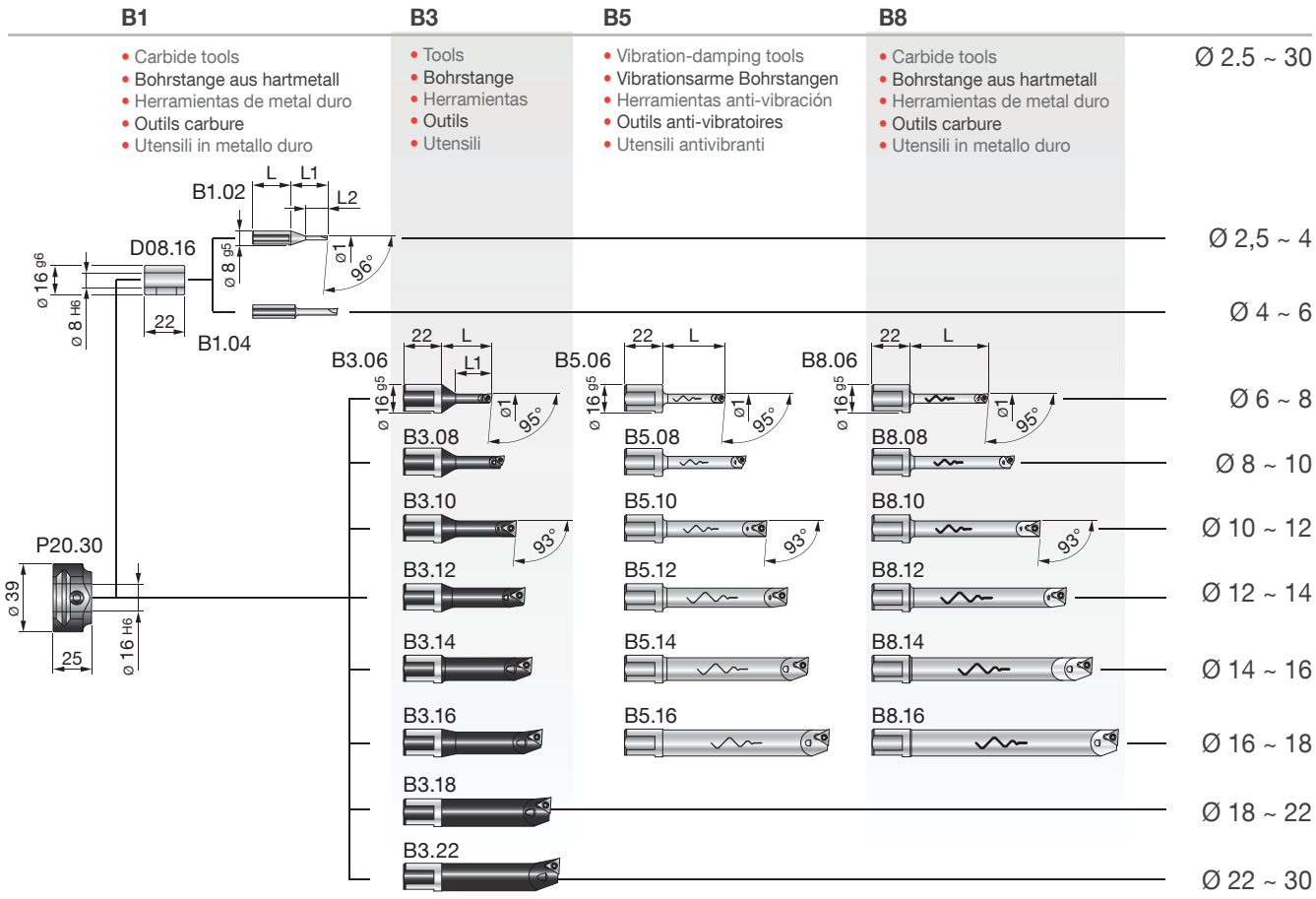


K01 TR 63 - PSC 63			
1 TR 63 - PSC 63			
1 P20.30	1 P02.30	1 SFTP25	1 B3.06
1 PS11.30	1 P03.30	1 SFTP32	1 B3.08
5 TPGX 090202L DC100		1 SFTP50	1 B3.11
1 TPGX 110302L DC100			1 B3.16
2 WCGT 020102L DC100			1 B3.22

REF.	CODE	Ø
K01 TR 63 - PSC63	65 50 606 1063 1	6 ~ 125

252 161 164 158 241

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REF.	CODE	Kg.
D08.16	20 056 01 16 08 2	0.02

REF.	CODE	Kg.
P20.30	43 10 30 16 030 0	0.2

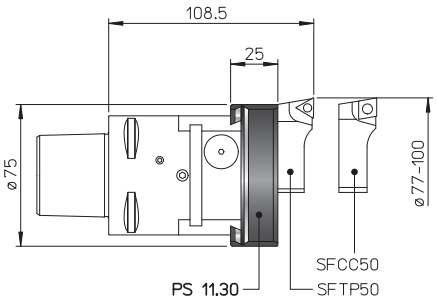
REF.	CODE	Ø1	L	L1	L2	Kg.
B1.02	57 201 05 02 001	2.5 ~ 4	22	21	12.5	0.02
B1.04	57 201 05 04 001	4 ~ 6	24	24	–	

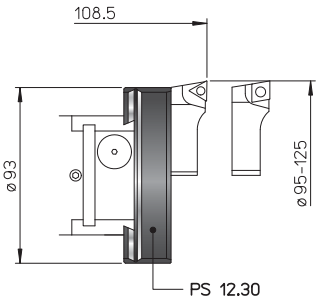
REF.	CODE	Ø1	L	L1					Kg.
B3.06	57 201 05 06 001	6 ~ 8	29	21	WCGT 0201..	–	TS 21	TORX T06	0.035
B3.08	57 201 05 08 001	8 ~ 10	36	28			TS 211		0.04
B3.10	57 201 05 10 001	10 ~ 12	43	35	–	TPGX 0902..	CS 250 T	TORX T08	0.05
B3.11	57 201 05 11 001	11 ~ 13	48	40					0.055
B3.12	57 201 05 12 001	12 ~ 14		42					0.06
B3.14	57 201 05 14 001	14 ~ 16	52	50					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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B5.12	57 201 05 12 105	12 ~ 14	72						
B5.14	57 201 05 14 105	14 ~ 16	84						0.2
B5.16	57 201 05 16 105	16 ~ 18	96						0.3
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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B8.12	57 201 05 12 108	12 ~ 14	90						0.2
B8.14	57 201 05 14 108	14 ~ 16	105						
B8.16	57 201 05 16 108	16 ~ 18	120						0.3

TR63 - PSC63 Ø 2.5 ~ 125

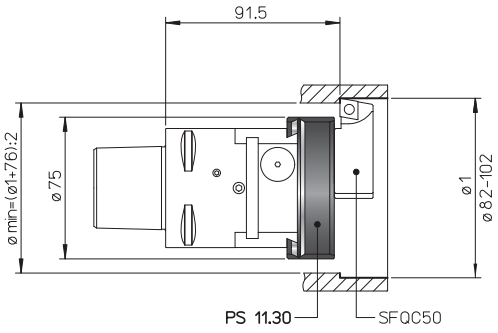
- TOOLHOLDERS FOR TESTAROSSA
- GRUNDHALTER FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

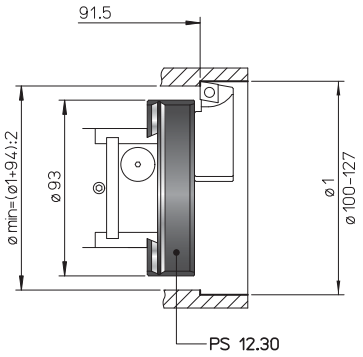
PS
Ø 77 ~ 125



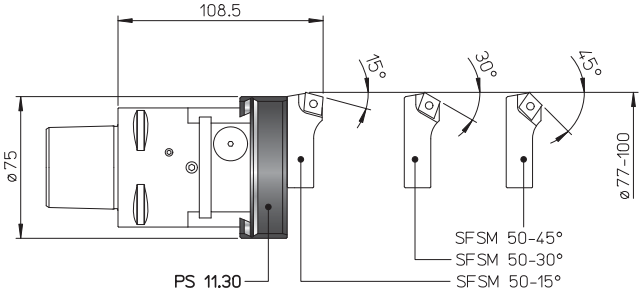


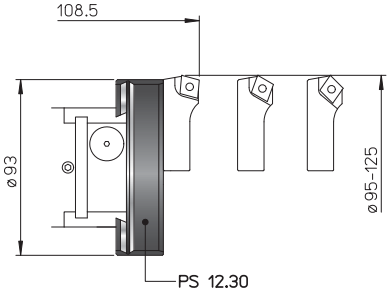
PS
Ø 82 ~ 127





PS
Ø 77 ~ 125





REF.	CODE	Kg.
PS 11.30	43 30 30 26 075 0	0.4
PS 12.30	43 30 30 26 095 0	0.5

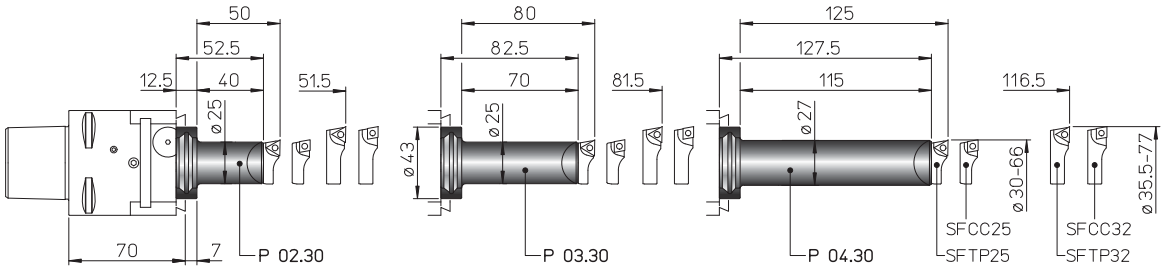
142

161 165 158

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- TOOLHOLDERS FOR TESTAROSSA
- GRUNDHALTER FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

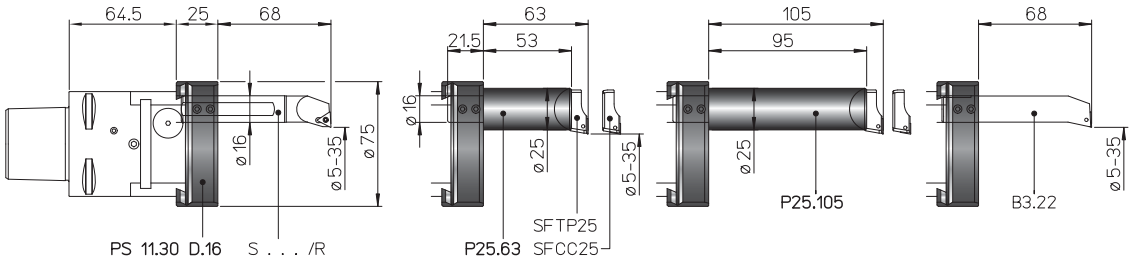
P
Ø 30 ~ 77



REF.	CODE	Kg.
P02.30	43 10 30 25 040 0	0.3
P03.30	43 10 30 25 070 0	0.4
P04.30	43 10 30 25 115 0	0.7

- TESTAROSSA EXTERNAL TURNING
- TESTAROSSA AUSSENDREHEN
- TESTAROSSA TORNEADO EXTERIOR
- TESTAROSSA TOURNAGE EXTÉRIEUR
- TESTAROSSA TORNITURA ESTERNA

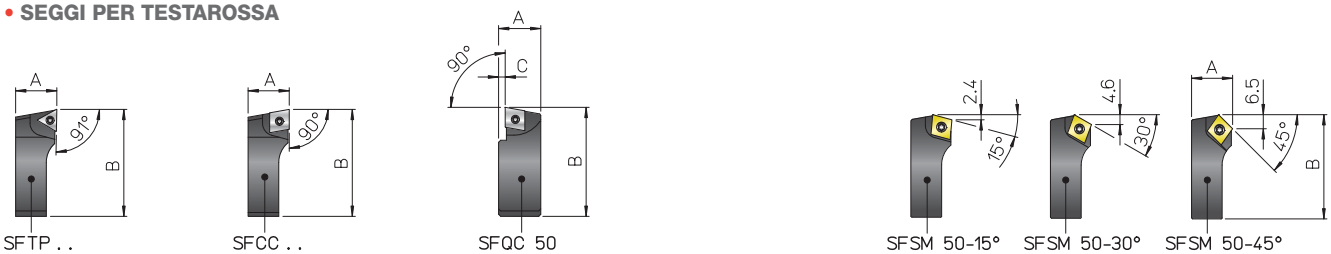
PS + P25
Ø 5 ~ 35



REF.	CODE	Kg.
PS 11.30 D.16	43 30 30 26 075 5	0.4
P25.63	43 51 16 25 063 0	0.5
P25.105	43 51 16 25 105 0	0.8

- BIT-HOLDERS FOR TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA
- PORTA-PLAQUITAS PARA TESTAROSSA
- PORTE-PLAQUETTES POUR TESTAROSSA
- SEGGI PER TESTAROSSA

SF



REF.	CODE	A	B	C	△	▭	▯	⌐	Kg.
SFTP 25	47 050 05 25 001	10	26.5	–	TPGX 0902..	–	CS 250T	TORX T08	0.01
SFTP 32	47 050 05 32 001	11.5	34.5						0.02
SFTP 50	47 050 05 50 001	19	52	–	TPGX 1103..	–	CS 300890T		0.08
SFCC 25	47 050 05 25 002	10	26.5	–	–	CCGT 0602..	TS 25	TORX T08	0.01
SFCC 32	47 050 05 32 002	11.5	34.5						0.02
SFCC 50	47 050 05 50 002	19	52	–	–	CCGT 09T3..	TS 4	TORX T15	0.08
SFQC 50	47 050 05 50 062	20.5	53	3	–	CCMT 09T3..	TS 4	TORXT15	0.1
SFSM 50-15°	47 050 05 50 011	19	50.5	–	–	CCMT 09T3..	TS 4	TORXT15	0.07
SFSM 50-30°	47 050 05 50 013								
SFSM 50-45°	47 050 05 50 015								

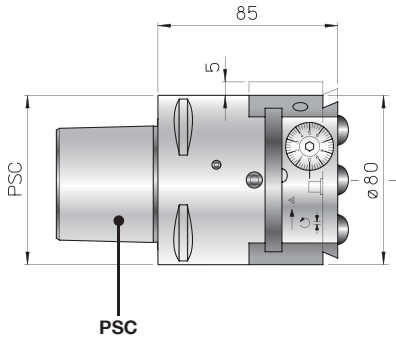
TR80 - PSC80 Ø 2.5 ~ 160

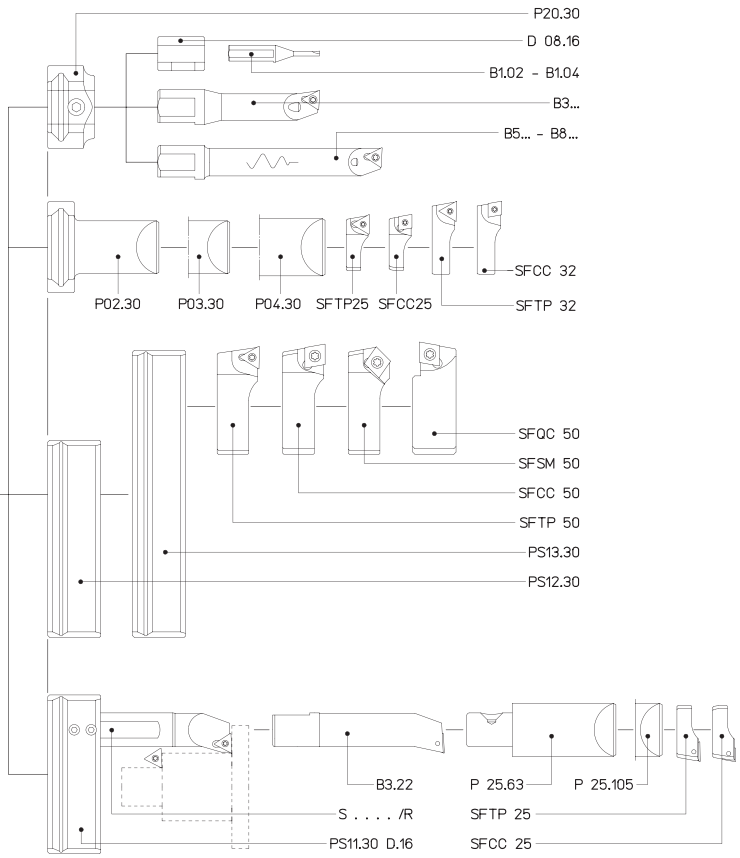
• TESTAROSSA

ISO 26623-1

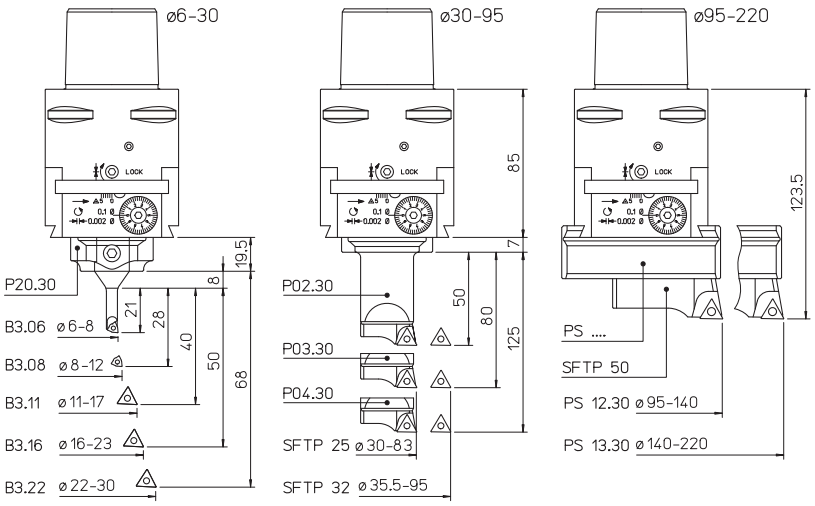


2 µm





PSC	REF.	CODE	kg
80	TR 80 - PSC 80	45 50 580 2608 0	2.5



KIT K01

Ø 6 ~ 220



K01 TR 80 - PSC 80			
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
K01 TR 80 - PSC80	65 50 608 1080 1	6 ~ 220

252 161 164 158 241

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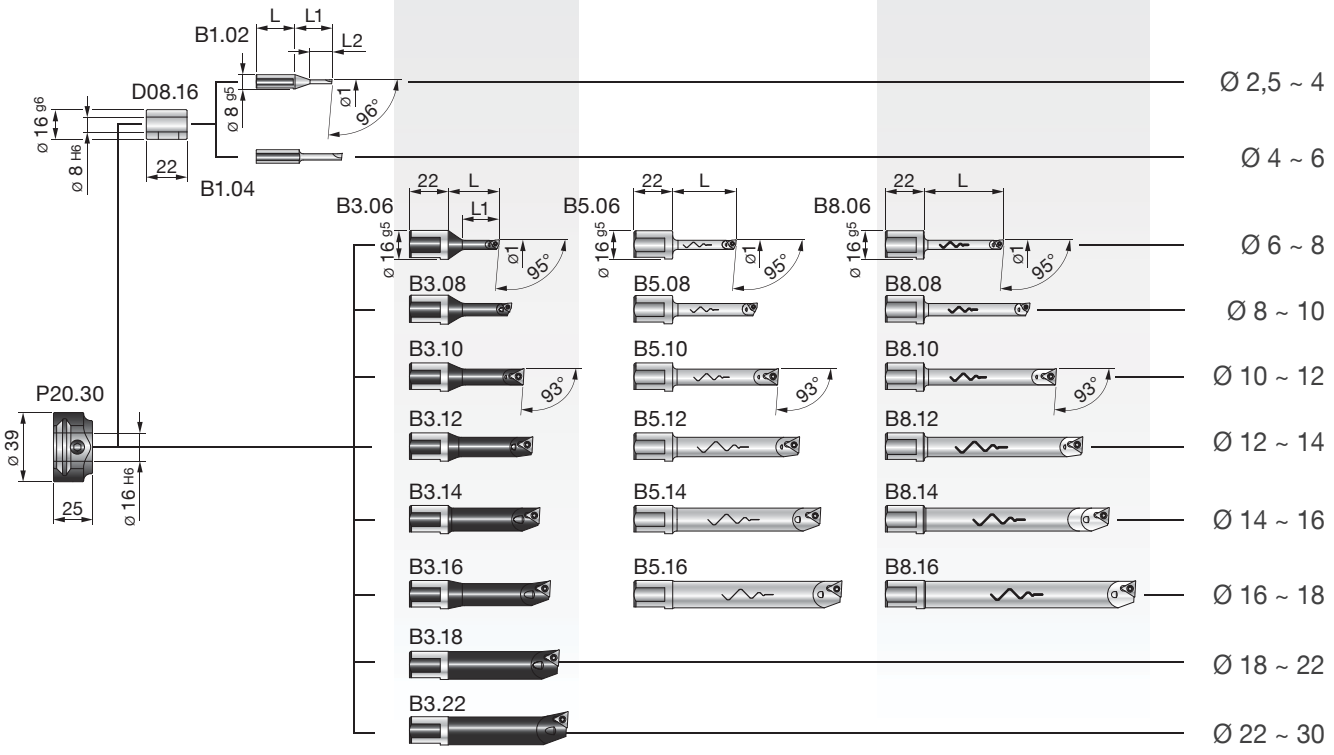
B1
- Carbide tools
- Bohrstange aus hartmetall
- Herramientas de metal duro
- Outils carbure
- Utensili in metallo duro

B3
- Tools
- Bohrstange
- Herramientas
- Outils
- Utensili

B5
- Vibration-damping tools
- Vibrationsarme Bohrstangen
- Herramientas anti-vibración
- Outils anti-vibratoires
- Utensili antivibranti

B8
- Carbide tools
- Bohrstange aus hartmetall
- Herramientas de metal duro
- Outils carbure
- Utensili in metallo duro

Ø 2.5 ~ 30



REF.	CODE	Kg.
D08.16	20 056 01 16 08 2	0.02

REF.	CODE	Kg.
P20.30	43 10 30 16 030 0	0.2

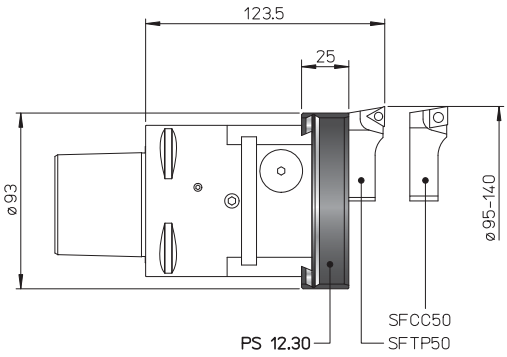
REF.	CODE	Ø1	L	L1	L2	Kg.
B1.02	57 201 05 02 001	2.5 ~ 4	22	21	12.5	0.02
B1.04	57 201 05 04 001	4 ~ 6	24	24	–	

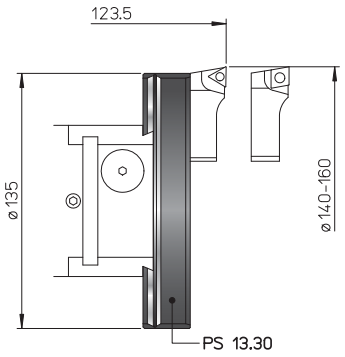
REF.	CODE	Ø1	L	L1	◇	◇	⌐	⌐	Kg.
B3.06	57 201 05 06 001	6 ~ 8	29	21	WCGT 0201..	–	TS 21	TORX T06	0.035
B3.08	57 201 05 08 001	8 ~ 10	36	28			TS 211		0.04
B3.10	57 201 05 10 001	10 ~ 12	43	35	–	TPGX 0902..	CS 250 T	TORX T08	0.05
B3.11	57 201 05 11 001	11 ~ 13	48	40					0.055
B3.12	57 201 05 12 001	12 ~ 14		42					0.06
B3.14	57 201 05 14 001	14 ~ 16	52	50					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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B5.12	57 201 05 12 105	12 ~ 14	72						
B5.14	57 201 05 14 105	14 ~ 16	84						0.2
B5.16	57 201 05 16 105	16 ~ 18	96						0.3
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		–	TPGX 0902..	CS 250 T	TORX T08	0.1
B8.12	57 201 05 12 108	12 ~ 14	90						0.2
B8.14	57 201 05 14 108	14 ~ 16	105						
B8.16	57 201 05 16 108	16 ~ 18	120						0.3

TR80 - PSC80 Ø 95 ~ 162

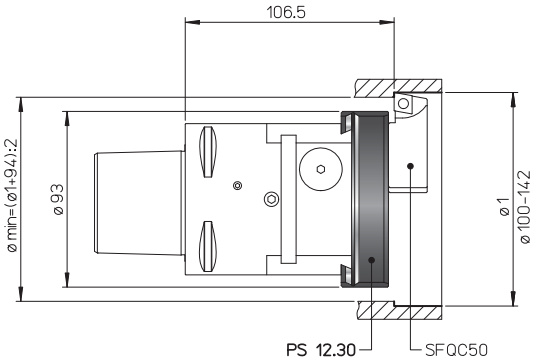
- TOOLHOLDERS FOR TESTAROSSA
- GRUNDHALTER FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

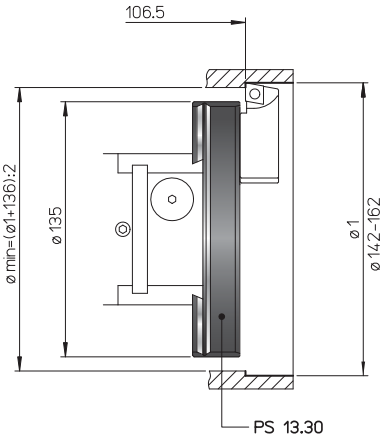
PS
Ø 95 ~ 160



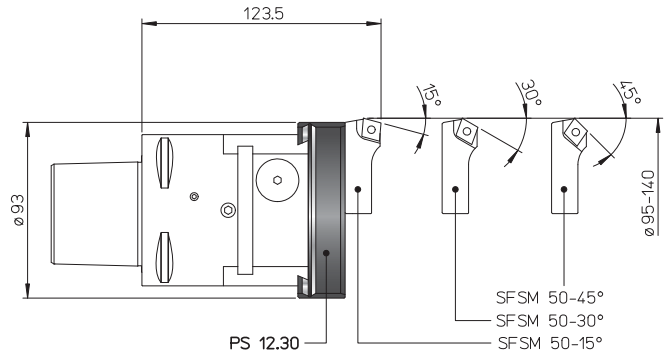


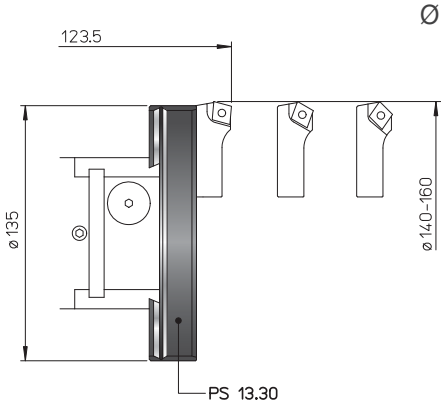
PS
Ø 100 ~ 162





PS
Ø 95 ~ 160





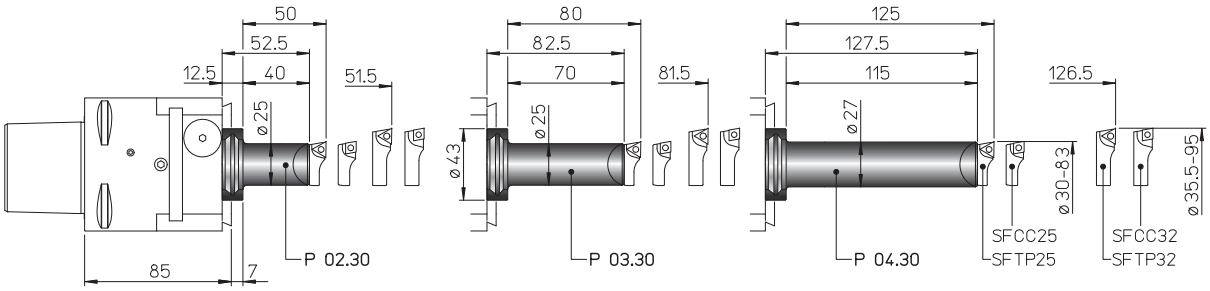
REF.	CODE	Kg.
PS 12.30	43 30 30 26 095 0	0.5
PS 13.30	43 30 30 26 140 0	0.7

161 164 158

testarossad'andrea

- TOOLHOLDERS FOR TESTAROSSA
- WERKZEUGE FÜR TESTAROSSA
- PORTAHERRAMIENTAS PARA TESTAROSSA
- PORTE-OUTILS POUR TESTAROSSA
- PORTAUTENSILI PER TESTAROSSA

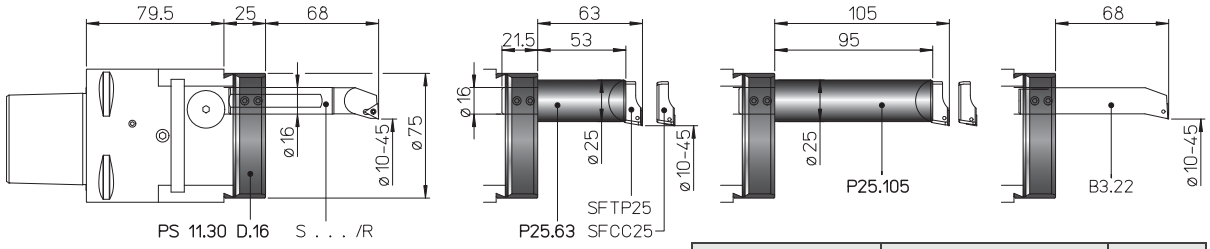
P
Ø 30 ~ 95



REF.	CODE	Kg.
P02.30	43 10 30 25 040 0	0.3
P03.30	43 10 30 25 070 0	0.4
P04.30	43 10 30 25 115 0	0.7

- TESTAROSSA EXTERNAL TURNING
- TESTAROSSA AUSSENDREHEN
- TESTAROSSA TORNEADO EXTERIOR
- TESTAROSSA TOURNAGE EXTÉRIEUR
- TESTAROSSA TORNITURA ESTERNA

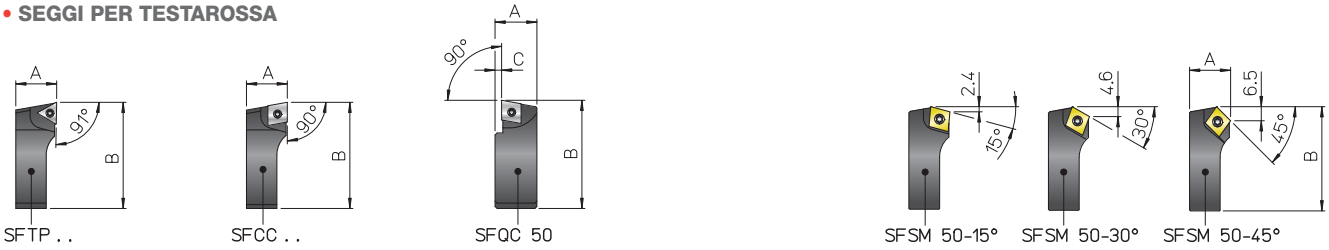
PS + P25
Ø 10 ~ 45



REF.	CODE	Kg.
PS 11.30 D.16	43 30 30 26 075 5	0.4
P25.63	43 51 16 25 063 0	0.5
P25.105	43 51 16 25 105 0	0.8

- BIT-HOLDERS FOR TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA
- PORTA-PLAQUITAS PARA TESTAROSSA
- PORTE-PLAQUETTES POUR TESTAROSSA
- SEGGI PER TESTAROSSA

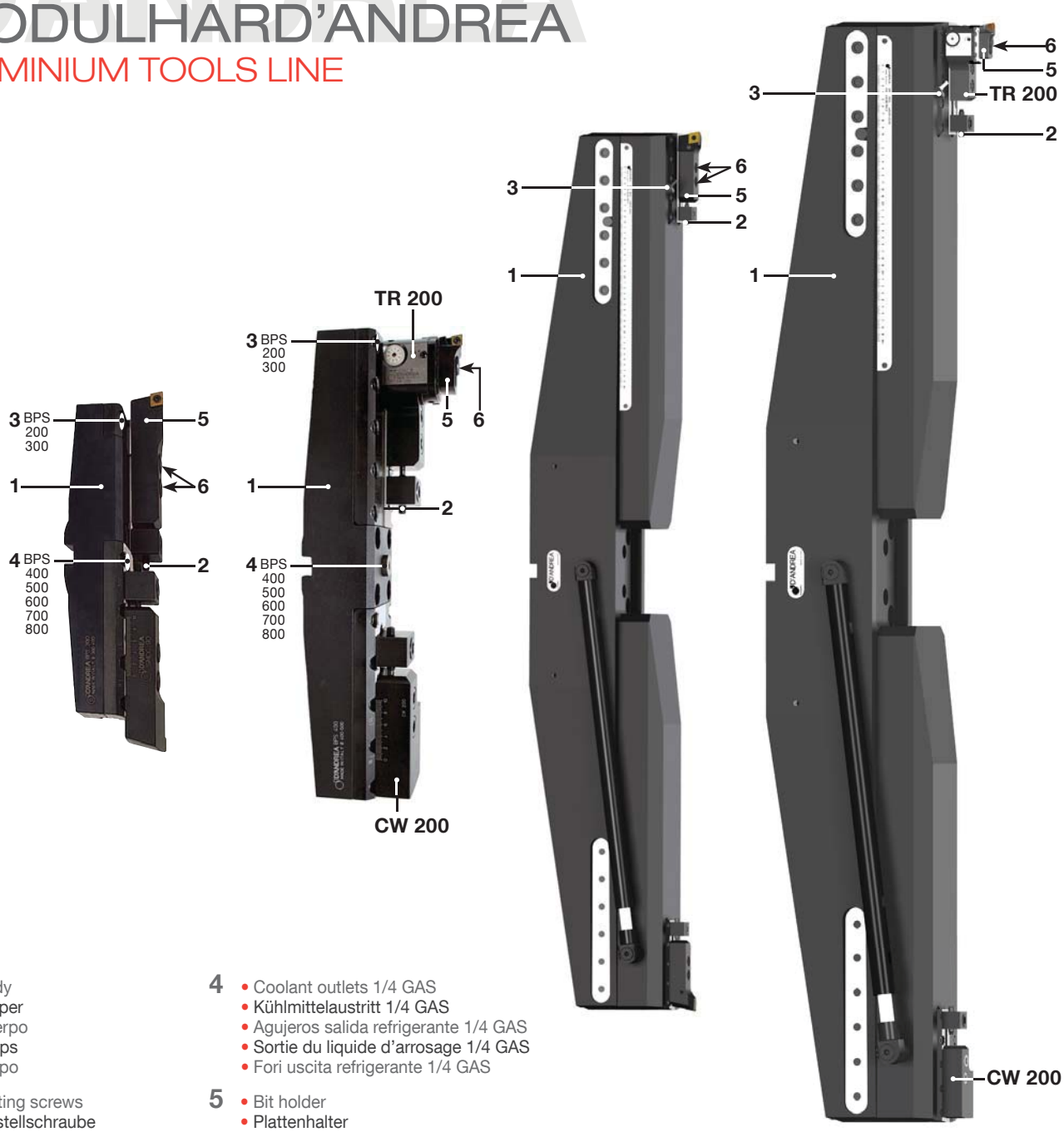
SF



REF.	CODE	A	B	C	△	⬡			Kg.
SFTP 25	47 050 05 25 001	10	26.5	–	TPGX 0902..	–	CS 250T	TORX T08	0.01
SFTP 32	47 050 05 32 001	11.5	34.5						0.02
SFTP 50	47 050 05 50 001	19	52	–	TPGX 1103..	–	CS 300890T		0.08
SFCC 25	47 050 05 25 002	10	26.5	–	–	CCGT 0602..	TS 25	TORX T08	0.01
SFCC 32	47 050 05 32 002	11.5	34.5						0.02
SFCC 50	47 050 05 50 002	19	52	–	–	CCGT 09T3..	TS 4	TORX T15	0.08
SFQC 50	47 050 05 50 062	20.5	53	3	–	CCMT 09T3..	TS 4	TORXT15	0.1
SFSM 50-15°	47 050 05 50 011	19	50.5	–	–	CCMT 09T3..	TS 4	TORXT15	0.07
SFSM 50-30°	47 050 05 50 013								
SFSM 50-45°	47 050 05 50 015								

MODULHARD'ANDREA

ALUMINIUM TOOLS LINE



1
- Body
- Körper
- Cuerpo
- Corps
- Corpo

2
- Setting screws
- Einstellschraube
- Tornillo de regulación
- Vis de réglage
- Vite di regolazione

3
- Coolant outlets
- Kühlmittelaustritt
- Agujeros salida refrigerante
- Sortie du liquide d'arrosage
- Fori uscita refrigerante

4
- Coolant outlets 1/4 GAS
- Kühlmittelaustritt 1/4 GAS
- Agujeros salida refrigerante 1/4 GAS
- Sortie du liquide d'arrosage 1/4 GAS
- Fori uscita refrigerante 1/4 GAS

5
- Bit holder
- Plattenhalter
- Portaplaquita
- Porte-plaquettes
- Seggio portainserti

6
- Tools clamp screws
- Werkzeugklemm-schrauben
- Tornillos blocaje herramienta
- Vis blocage outil
- Viti bloccaggio utensile

GB The BPS double-bit crossbars cover a working area from ø 200 - 2800 mm. The BPS double-bit crossbars are constructed in Aluminium and mounted on a steel double-bit plate.

D Die Zweischneider BPS bedecken ein Arbeitsfeld von ø 200 - 2800 mm. Die Bohrschienen BPS bestehen aus Aluminium auf welches die Sitzhalterungsplatte aus Stahl befestigt wird.

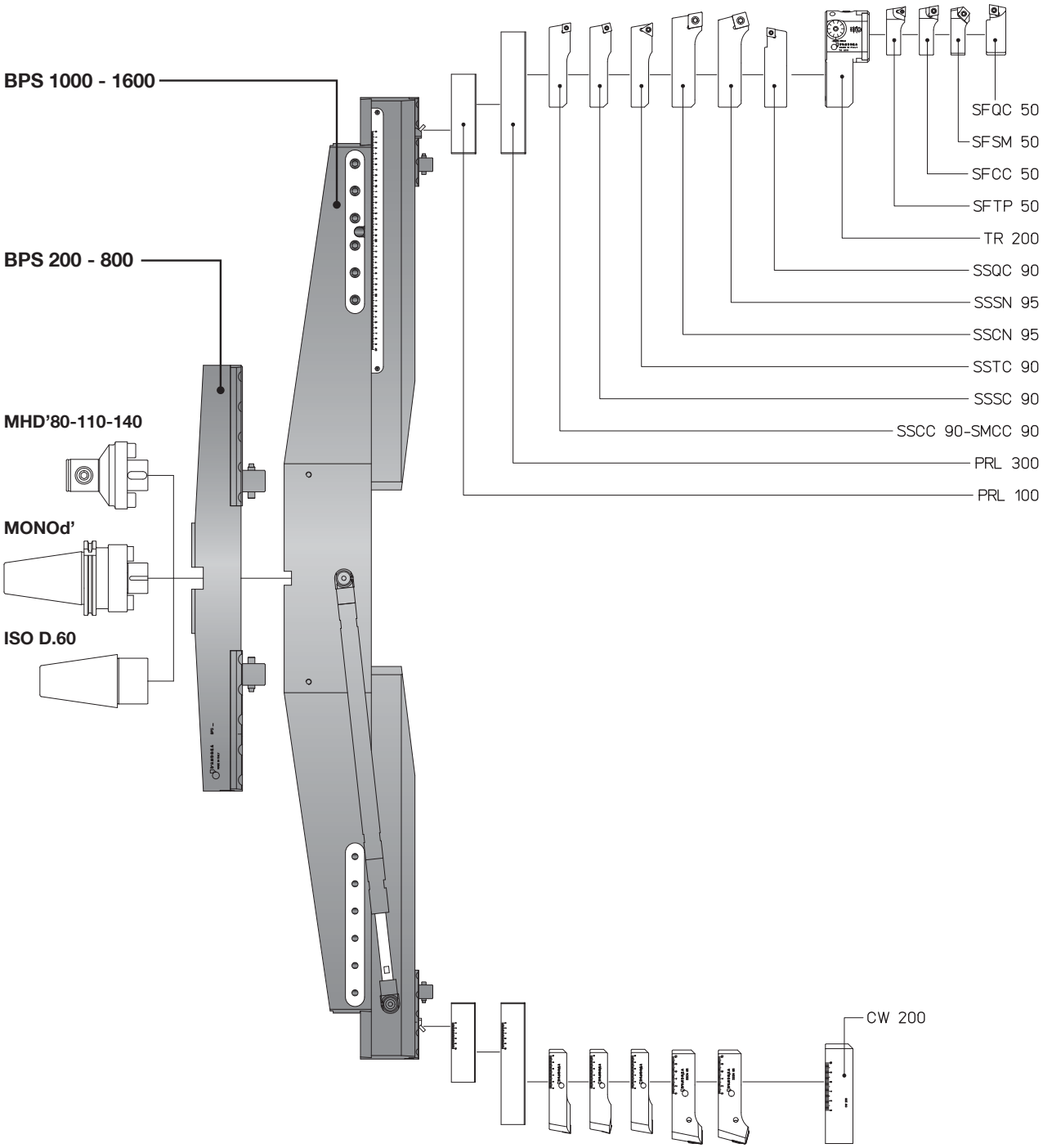
E Las barras porta-asiento BPS cubren un campo de trabajo de 200 a 2800 mm de diámetro. Las barras porta-asiento BPS están realizadas en aluminio, sobre el cual se fija la placa porta-asiento de acero.

F Les barres porte logement BPS couvrent un intervalle de travail de ø 200 - 2800 mm. Les barres porte logement BPS sont réalisées en aluminium sur lequel est fixée la plaquette porte logement en acier.

I Le barre portaseggio BPS coprono un campo di lavoro da ø 200 - 2800 mm. Le barre portaseggio BPS sono costruite in alluminio sul quale viene fissata la piastra portaseggio in acciaio.

BPS Ø 200 ~ 2800

- DOUBLE-BIT CROSSBARS FOR BIG DIAMETERS
- ZWEISCHNEIDERBOHRSCHIENEN FÜR GROSSER DURCHMESSER
- BARRAS PORTA-ASIENTO DE DOS CORTES
- SEMELLES POUR A GRANDS DIAMÈTRES
- BARRE PORTASEGGIO PER GRANDI DIAMETRI



REF.	CODE	Kg.
BPS 200	43 55 40 88 198 0	3.2
BPS 300	43 55 40 88 298 0	3.9
BPS 400	43 55 40 88 398 0	6.9
BPS 500	43 55 60 88 494 0	9.4
BPS 600	43 55 60 88 594 0	9.9

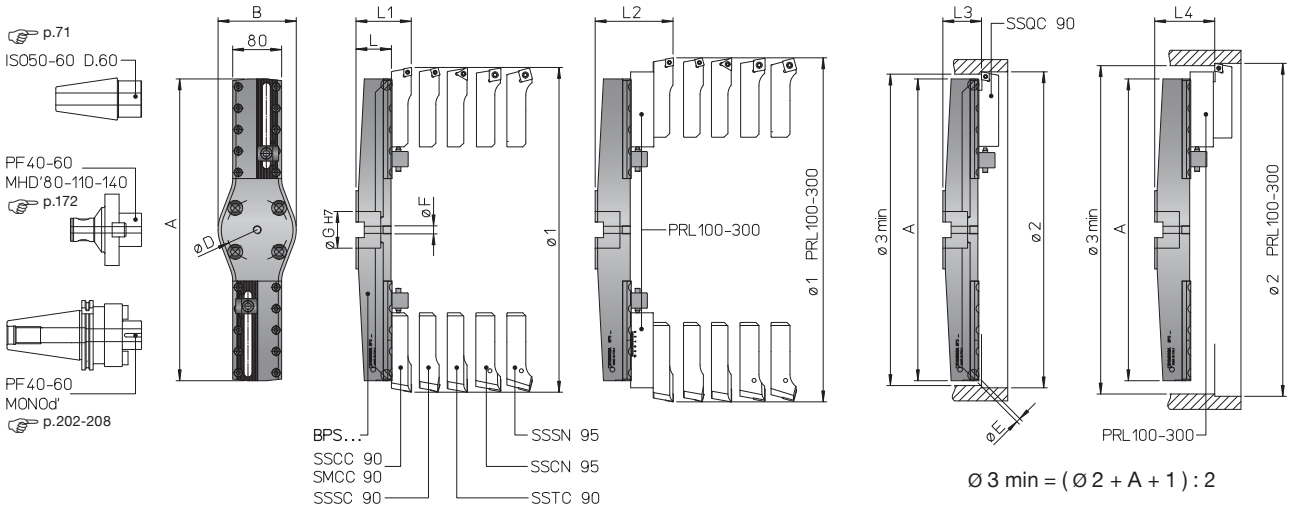
REF.	CODE	Kg.
BPS 700	43 55 60 88 694 0	11.2
BPS 800	43 55 60 88 794 0	15.2
BPS 1000	43 55 60 90 1000	70
BPS 1160	43 55 60 90 1160	100
BPS 1600	43 55 60 90 1600	150

MODULHARD'ANDREA

ALUMINIUM TOOLS LINE

BPS 200~800 Ø 200 ~ 1200

- DOUBLE-BIT BORING CROSSBARS
- ZWEISCHNEIDER-BOHRSCHIENEN
- BARRAS PORTA-ASIENTO DE DOS CORTES
- LES SEMELLES PORTE-LOGEMENT À DEUX TRANCHANTS
- BARRE PORTASEGGIO BITAGLIENTI



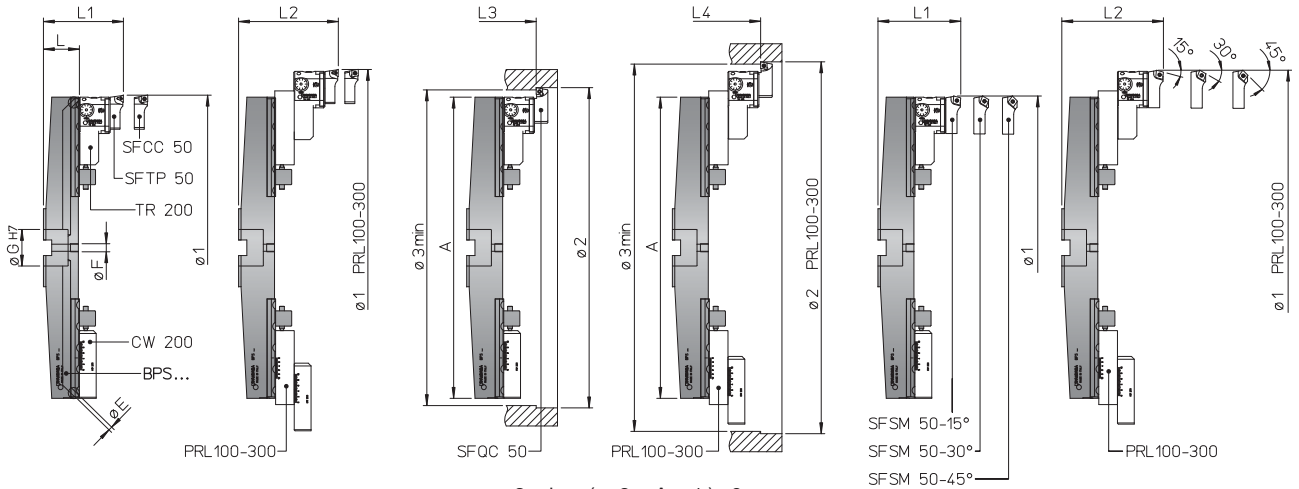
Ø 3 min = (Ø 2 + A + 1) : 2

	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
L1 S . . . 90	86		93	101	103	106	112
L1 S . . . 95	94		101	109	111	114	120
L2 PRL 100 S . . . 90	116		123	131	133	136	142
L2 PRL 300 S . . . 90	126		133	141	143	146	152
L2 PRL 100 S . . . 95	124		131	139	141	144	150
L2 PRL 300 S . . . 95	134		141	149	151	154	160
L3 SSQC 90	56.5		63.5	71.5	73.5	76.5	82.5
L4 PRL 100 SSQC 90	86.5		93.5	101.5	103.5	106.5	112.5
L4 PRL 300 SSQC 90	96.5		103.5	111.5	113.5	116.5	122.5

160 166 158

BPS 200~800 Ø 200 ~ 1200

- **DOUBLE-BIT CROSSBARS FOR BIG DIAMETER FINISH**
- **ZWEISCHNEIDER-BOHRSCHIENEN FÜR FEINBEARBEITUNGEN GROSSER DURCHMESSER**
- **BARRAS PORTA-ASIENTO DE DOS CORTES**
- **LES SEMELLES PORTE-LOGEMENT POUR FINISSAGE DES GRANDS DIAMÈTRES**
- **BARRE PORTASEGGIO PER FINITURA GRANDI DIAMETRI**



Ø 3 min = (Ø 2 + A + 1) : 2

	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
L1	120		127	135	137	140	146
L2 PRL 100	150		157	165	167	170	176
L2 PRL 300	160		167	175	177	180	186
L3	103		110	118	120	123	129
L4 PRL 100	133		140	148	150	153	159
L4 PRL 300	143		150	158	160	163	169

158 167 161
INFO

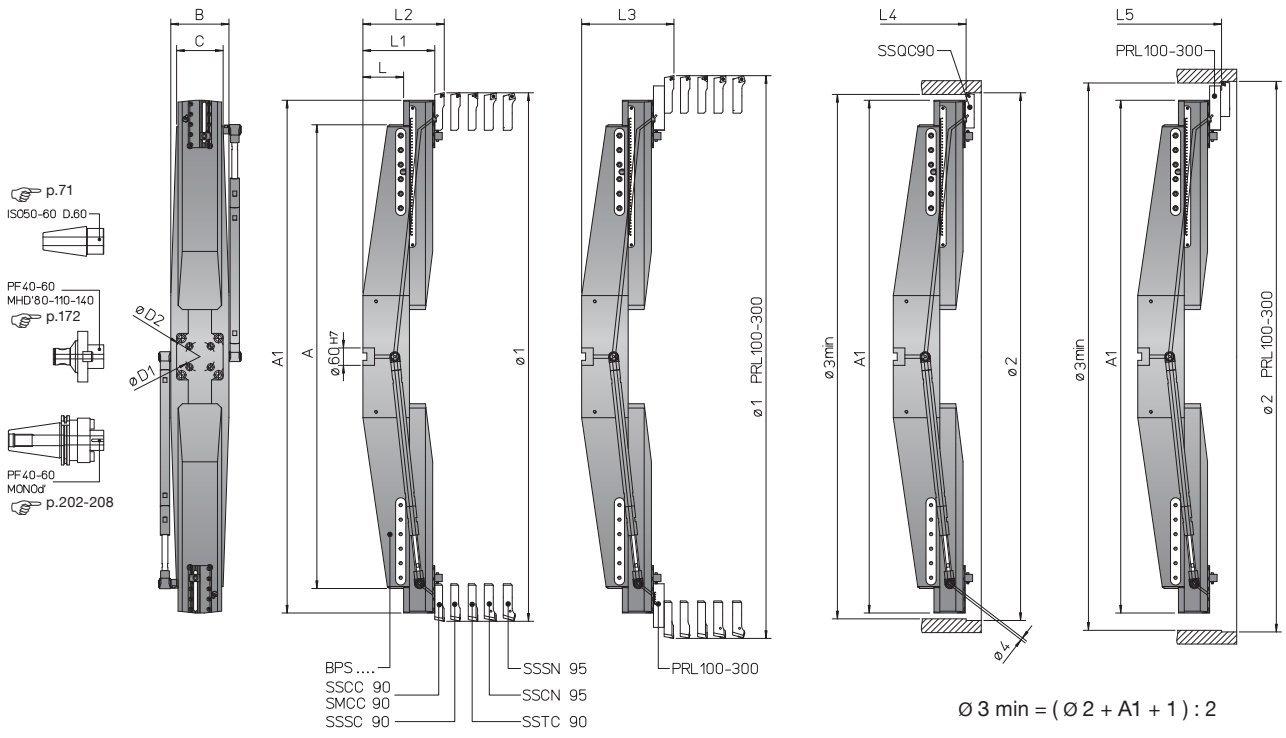
MODULHARD'ANDREA

ALUMINIUM TOOLS LINE

BPS 1000~1600

Ø 1000 ~ 2800

- **DOUBLE-BIT BORING CROSSBARS**
- **ZWEISCHNEIDER-BOHRSCHIENEN**
- **BARRAS PORTA-ASIENTO DE DOS CORTES**
- **LES SEMELLES PORTE-LOGEMENT À DEUX TRANCHANTS**
- **BARRE PORTASEGGIO BITAGLIENTI**



Ø 3 min = (Ø 2 + A1 + 1) : 2

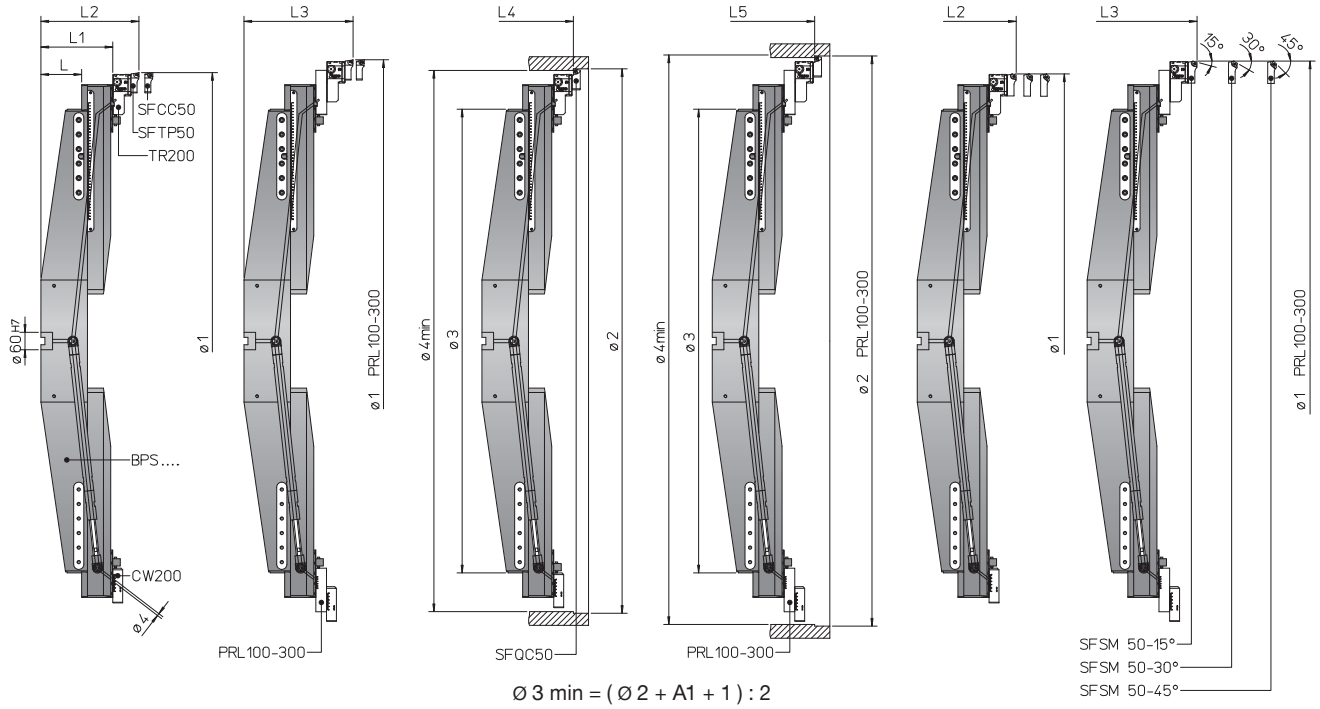
	BPS 1000	BPS 1160	BPS 1600
A	995		1595
A1	995 ~ 1495	1595 ~ 1895	1595 ~ 2395
B	160		200
C	150		160
Ø D1	(4xM16) 101.6		
Ø D2	–		(4xM20) 177.8
Ø 1	1000 ~ 1600	1600 ~ 2000	1600 ~ 2500
Ø 1 PRL 100	1100 ~ 1700	1700 ~ 2100	1700 ~ 2600
Ø 1 PRL 300	1200 ~ 1900	1800 ~ 2300	1800 ~ 2800
Ø 2	1002 ~ 1602	1602 ~ 2002	1602 ~ 2502
Ø 2 PRL 100	1102 ~ 1702	1702 ~ 2102	1702 ~ 2602
Ø 2 PRL 300	1202 ~ 1902	1802 ~ 2302	1802 ~ 2802
L	100		140
L1	191	206	246
L2 S . . . 90	223	238	278
L2 S . . . 95	231	246	286
L3 PRL 100 S . . . 90	253	268	308
L3 PRL 300 S . . . 90	263	278	318
L3 PRL 100 S . . . 95	261	276	316
L3 PRL 300 S . . . 95	271	286	326
L4 SSQC 90	193.5	208.5	248.5
L5 PRL 100 SSQC 90	223.5	238.5	278.5
L5 PRL 300 SSQC 90	233.5	248.5	288.5

160 166 158

BPS 1000~1600

Ø 1000 ~ 2800

- **DOUBLE-BIT CROSSBARS FOR BIG DIAMETER FINISH**
- **ZWEISCHNEIDER-BOHRSCHIENEN FÜR FEINBEARBEITUNGEN GROSSER DURCHMESSER**
- **BARRAS PORTA-ASIENTO DE DOS CORTES**
- **LES SEMELLES PORTE-LOGEMENT POUR FINISSAGE DES GRANDS DIAMÈTRES**
- **BARRE PORTASEGGIO PER FINITURA GRANDI DIAMETRI**



Ø 3 min = (Ø 2 + A1 + 1) : 2

	BPS 1000	BPS 1160	BPS 1600
A	995		1595
A1	995 ~ 1495	1595 ~ 1895	1595 ~ 2395
B	160		200
C	150		160
Ø D1	(4xM16) 101.6		
Ø D2	–		(4xM20) 177.8
Ø 1	1000 ~ 1600	1600 ~ 2000	1600 ~ 2500
Ø 1 PRL 100	1100 ~ 1700	1700 ~ 2100	1700 ~ 2600
Ø 1 PRL 300	1200 ~ 1900	1800 ~ 2300	1800 ~ 2800
Ø 2	1002 ~ 1602	1602 ~ 2002	1602 ~ 2502
Ø 2 PRL 100	1102 ~ 1702	1702 ~ 2102	1702 ~ 2602
Ø 2 PRL 300	1202 ~ 1902	1802 ~ 2302	1802 ~ 2802
L	100		140
L1	191	206	246
L2	257	272	312
L3 PRL 100	287	302	342
L3 PRL 300	297	312	352
L4	240	255	295
L5 PRL 100	270	285	325
L5 PRL 300	280	295	335

158 166 161

MODULHARD'ANDREA

BPS Ø 200 ~ 2800

- **MICROMETRIC HEAD**
- **MIKROMETRISCHER AUSDREHKOPF**
- **CABEZAL MICROMÉTRICO**
- **TÊTE MICROMÉTRIQUE**
- **TESTINA MICROMETRICA**

TR 200

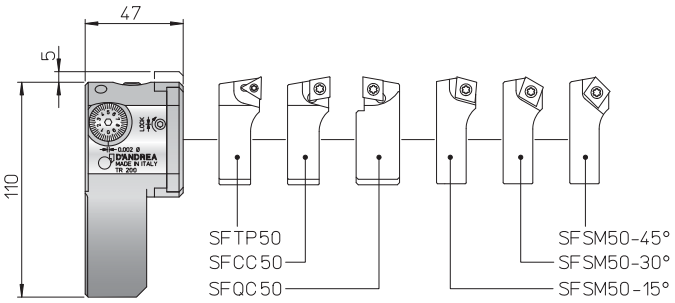


1
- Body
- Körper
- Cuerpo
- Corps
- Corpo

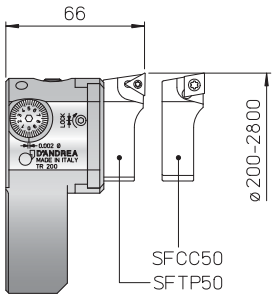
2
- Slide toolholder
- Werkzeugschlitten
- Guía portaherramientas
- Coulisseau
- Slitta portautensili

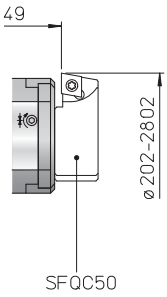
3
- Micrometric vernier scale
- Mikrometrischer Nonius
- Nonio micrométrico
- Vernier micrométrique
- Nonio micrometrico

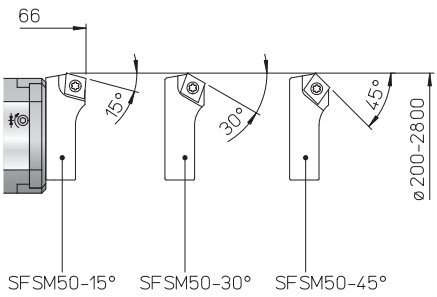
4
- Slide clamp screw
- Schlittenklemmschraube
- Tornillo blocaje guía
- Vis blocage coulisseau
- Vite bloccaggio slitta



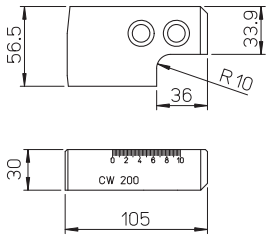
REF.	CODE	Kg.
TR 200	45 50 200 0200 0	1.3





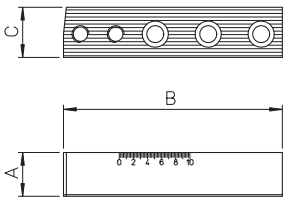


CW



REF.	CODE	Kg.
CW 200	39 20 110 105 01	1.3

PRL

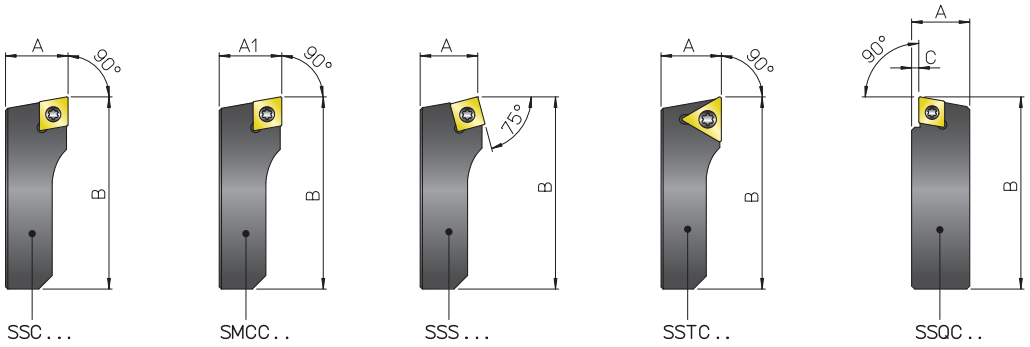


REF.	CODE	A	B	C	Kg.
PRL 100	39 20 110 155 01	31	155	35.5	1.1
PRL 300	39 20 110 300 01	41	255		2.8

161 167 158

- BIT-HOLDERS FOR DOUBLE-BIT ITEMS
- PLATTENHALTER FÜR ZWEISCHNEIDERWERKZEUGE
- PORTAPLAQUITAS PARA ASIENTOS A DOS CUCHILLAS
- PORTE-PLAQUETTES POUR PRODUITS À DEUX COUPANTS
- SEGGI PER BITAGLIENTI

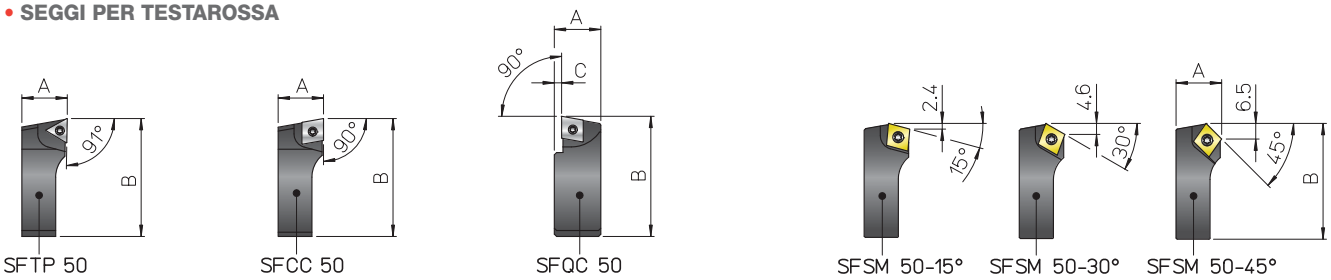
SS-SM



REF.	CODE	A	A_1	B	C						Kg.
SSCC 90	47 050 05 90 201	32	–	130	–	CCMT 1204..	–	–	TS 5	TORX T25	0.7
SSCN 95	47 050 05 95 201	40				CNM. 1906..	–	–	p.152		0.9
SMCC 90	47 050 05 90 203	–	31.7	130	–	CCMT 1204..	–	–	TS 5	TORX T25	0.7
SSSC 90	47 050 05 90 202	32	–	130	–	–	SCMT 1204..	–	TS 5	TORX T25	0.7
SSSN 95	47 050 05 95 202	40				–	SNM . 1906..	–	p.152		0.9
SSTC 90	47 050 05 90 206	32	–	130	–	TCMT 2204..	–	–	TS 5	TORX T25	0.7
SSQC 90	47 050 05 90 261	31.5	–	122	3.5	CCMT 1204..	–	–	TS 5	TORX T25	0.8

- BIT-HOLDERS FOR TESTAROSSA
- PLATTENHALTER FÜR TESTAROSSA
- PORTA-PLAQUITAS PARA TESTAROSSA
- PORTE-PLAQUETTES POUR TESTAROSSA
- SEGGI PER TESTAROSSA

SF



REF.	CODE	A	B	C					Kg.
SFTP 50	47 050 05 50 001	19	52	–	TPGX 1103..	–	CS 300890T	TORX T08	0.08
SFCC 50	47 050 05 50 002	19	52	–	–	CCGT 09T3..	TS 4	TORX T15	0.08
SFQC 50	47 050 05 50 062	20.5	53	3	–	CCMT 09T3..	TS 4	TORXT15	0.1
SFSM 50-15°	47 050 05 50 011	19	50.5	–	–	CCMT 09T3..	TS 4	TORXT15	0.07
SFSM 50-30°	47 050 05 50 013								
SFSM 50-45°	47 050 05 50 015								

158 166 160-161

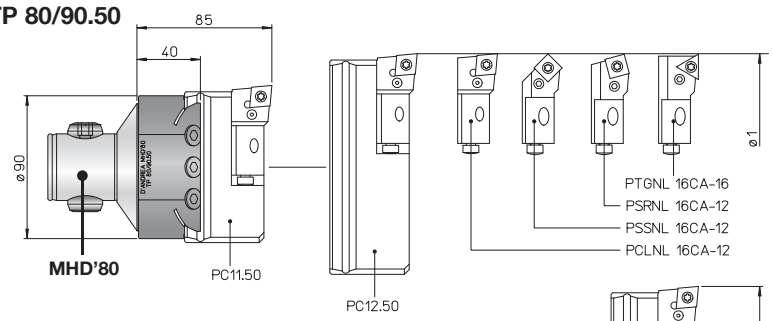


TP Ø 100 ~ 500

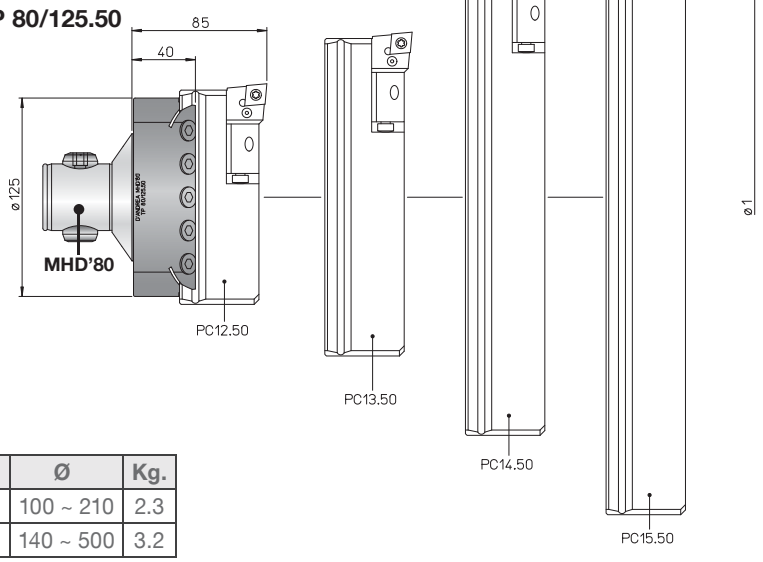
- **TOOLHOLDERS**
- **WERKZEUGHALTER**
- **PORTAHERRAMIENTAS**
- **PORTE-OUTILS**
- **PORTAUTENSILI**



TP 80/90.50

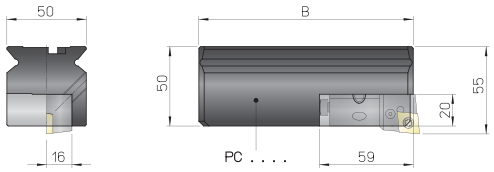


TP 80/125.50



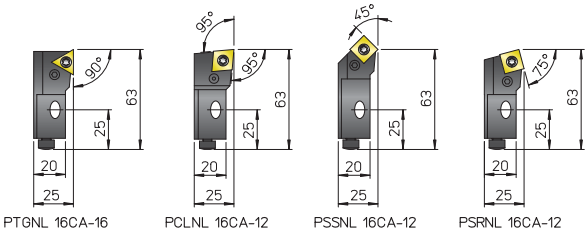
REF.	CODE	Ø	Kg.
TP 80/90.50	46 04 080 50 0 01	100 ~ 210	2.3
TP 80/125.50	46 04 080 50 0 02	140 ~ 500	3.2

PC



REF.	CODE	B	Ø 1 TP80/90.50	Ø 1 TP80/125.50	Kg.
PC 11.50	43 30 50 16 095 0	95	100 ~ 140	–	1.3
PC 12.50	43 30 50 16 135 0	135	140 ~ 210	140 ~ 210	2
PC 13.50	43 30 50 16 200 0	200	–	210 ~ 310	3.2
PC 14.50	43 30 50 16 300 0	300	–	310 ~ 410	4.8
PC 15.50	43 30 50 16 400 0	400	–	410 ~ 500	6.3

16CA ISO 5611



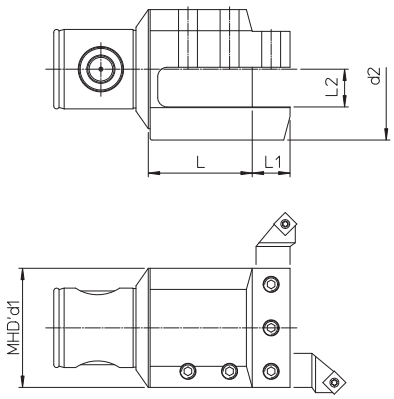
REF.	CODE	△
PTGNL 16CA-16	48 3 01 016 1 001	TNM. 1604..
PCLNL 16CA-12	48 3 01 016 1 002	CNM. 1204..
PSSNL 16CA-12	48 3 01 016 1 003	SNM. 1204..
PSRNL 16CA-12	48 3 01 016 1 004	

- On request
- Auf Anfrage
- A petición
- Sur demande
- Fornibili su richiesta

- **TOOLHOLDERS**
- **WERKZEUGHALTER**
- **PORTAHERRAMIENTAS**
- **PORTE-OUTILS**
- **PORTAUTENSILI**

TU



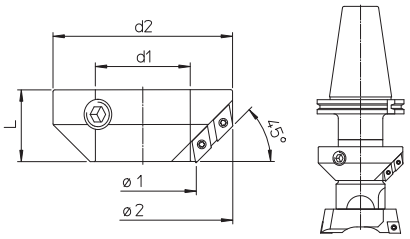


REF.	CODE	MHD' d1	d_2	L	L_1	L_2	Kg.
TU 50/60.16	46 05 050 16 001	50	60	44	16	16	1.2
TU 63/75.20	46 05 063 20 001	63	75	55	20	20	2.4
TU 80/95.25	46 05 080 25 001	80	95	65	25	25	3.6

- **CHAMFERING TOOLS**
- **FASRINGE**
- **HERRAMIENTAS PARA ACHAFLANAR**
- **OUTIL À CHANFREINER**
- **ANELLO PER SMUSSI**

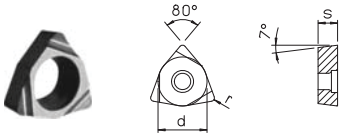
AS.. 45°





REF.	CODE	Ø1	d_1	d_2	L				Kg.
AS 16.45	65 56 016 0013 0	18 ~ 28	16	28	13	DCMT 0702..	TS 25	TORX T08	0.035
AS 20.45	65 56 020 0015 0	23 ~ 32	20	32	15				0.045
AS 25.45	65 56 025 0018 0	28 ~ 43	25	43	18				0.1
AS 32.45	65 56 032 0022 0	35 ~ 54	32	54	22				0.2
AS 40.45	65 56 040 0030 0	46 ~ 72	40	72	30	DCMT 11T3..	TS 4	TORX T15	0.5
AS 50.45	65 56 050 0038 0	56 ~ 95	50	95	38				1.1
AS 63.45	65 56 063 0046 0	75 ~ 125	63	125	46	DCMT 1504..	TS 5	TORX 25	2.3
AS 80.45	65 56 080 0058 0	95 ~ 165	80	165	58				5.2

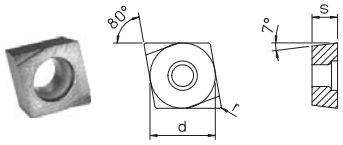
WCGT○○○○○○L



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

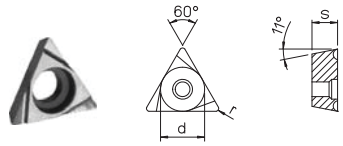
* TS21 : B...06
* TS211 : B...08

CCGT○○○○○○L



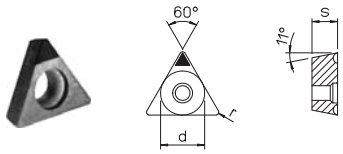
REF.	d	s	r			CARBIDE DP300	CARBIDE DK100	CERMET DC100	COATED CERMET DC100T
CCGT 060200 L10°	6.35	2.38	0	TS 25	TORX T08	•	•	•	•
CCGT 060202 L			0.2			•	•	•	•
CCGT 060204 L			0.4			•	•	•	•
CCGT 09T302 L	9.525	3.97	0.2	TS 4	TORX T15	•	•	•	•
CCGT 09T304 L			0.4			•	•	•	•

TPGX○○○○○○L



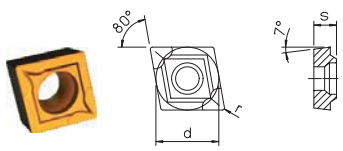
REF.	d	s	r			CARBIDE DP300	CARBIDE DK100	CERMET DC100	COATED CERMET DC100T
TPGX 090200 L10°	5.56	2.38	0	CS250T	TORX T08	•	•	•	•
TPGX 090202 L			0.2			•	•	•	•
TPGX 090204 L			0.4			•	•	•	•
TPGX 110300 L10°	6.35	3.18	0	CS300890T	TORX T08	•	•	•	•
TPGX 110302 L			0.2			•	•	•	•
TPGX 110304 L			0.4			•	•	•	•

TPGX○○○○○○



REF.	d	s	r			SINTERED DIAMOND D20 MDC	CUBIC BORON NITRIDE D20 CBN	CUBIC BORON NITRIDE 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 DP300	CVD COATED CARBIDE 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**
- **ÜBERSICHT AUSBOHRQUALITÄTEN**
- **CALIDAD DE MANDRINADO**
- **QUALITÉ D'ALÉSAGE**
- **QUALITÀ DI BARENATURA**

ISO	CARBIDE HARTMETALL METAL DURO CARBURE METALLO DURO	CERMET	COATED CERMET CERMET BESCHICHTET CERMET RECUBIERTO CERMET REVÊTU CERMET RIVESTITO	CVD COATED CARBIDE HARTMETALL CVD BESCHICHTET METAL DURO RECUBIERTO CVD CARBURE REVÊTU CVD METALLO DURO RIVESTITO CVD
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
- Schruppen und Schlichten. Stahl mit niedrigem Kohlenstoffgehalt - rostfreier Stahl
- Desbaste y acabado. Aceros con bajo contenido de carbono - Aceros inoxidables
- Ébauche et finition. Acier à bas teneur en carbon - acier inoxydable
- Sgrossatura e finitura. Acciai a basso tenore di carbonio - acciai inox

DK100
- Roughing and finishing. Aluminium alloy Cast iron
- Schruppen und Schlichten. Aluminium-Legierungen Gusseisen
- Desbaste y acabado. Aleaciones de aluminio Fundiciones
- Ébauche et finition. Alliage aluminium Fonte
- Sgrossatura e finitura. Leghe di alluminio Ghise

DP100R
- Roughing. Steels, alloy steels and cast iron
- Schruppen. Stahl, legierter Stahl und Gusseisen
- Desbaste. Aceros, aceros aleados y fundiciones
- Ébauche. Aciers, alliage acier et fonte
- Sgrossatura. Acciai, acciai legati e ghise

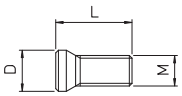
DC100
- Finishing.Alloy steels and cast iron
- Schlichten. Legierter Stahl und Gusseisen
- Acabado. Aceros aleados en general y fundiciones esferoidales
- Finition. Alliage acier et fonte ductile
- Finitura.Acciai legati in genere e ghise sferoidali

DC100T
- Finishing.Alloy steels, stainless steels and cast iron
- Schlichten. Legierter Stahl, rostfreier Stahl und Gusseisen
- Acabado. Aceros aleados en general, aceros inoxidables y fundiciones esferoidales
- Finition. Alliage acier, acier inoxydable et fonte ductile
- Finitura. Acciai legati in genere, acciai inox e ghise sferoidali

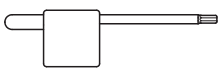
D20MDC
- Finishing. Aluminium alloys, non-ferrous materials and non-metals
- Schlichten. Aluminium-Legierungen, Nichteisenmetalle und nicht-metallische Materialien
- Acabado. Aleaciones de aluminio, materiales no ferrosos y no metálicos
- Finition. Alliage aluminium, non-ferreux et composites
- Finitura. Leghe di alluminio, materiali non-ferrosi e non-metalli

D20CBN
- Finishing. High hardness steels (over 50 HRC) (it may replace the grinding)
- Schlichten. Stahl mit Härte über 50 HRC (kann gegebenenfalls das Schleifen ersetzen)
- Acabado. Aceros de dureza elevada superior a 50 HRC (puede sustituir el rectificado)
- Finition. Acier à haute dureté, supérieure à 50 HRC (il peut remplacer la rectification)
- Finitura. Acciai con elevata durezza superiore 50 HRC (può sostituire la rettifica)

D25CBN
- Finishing. High hardness steel (over 50 HRC) and interrupted cutting (it may replace the grinding)
- Schlichten. Stahl mit Härte über 50 HRC und bei unterbrochenem Schnitt (kann gegebenenfalls das Schleifen ersetzen)
- Acabado. Aceros de dureza elevada superior a 50 HRC y corte interrumpido (puede sustituir el rectificado)
- Finition. Acier à haute dureté, supérieure à 50 HRC et coupe interrompue (il peut remplacer la rectification)
- Finitura. Acciai con elevata durezza superiore 50 HRC e taglio interrotto (può sostituire la rettifica)



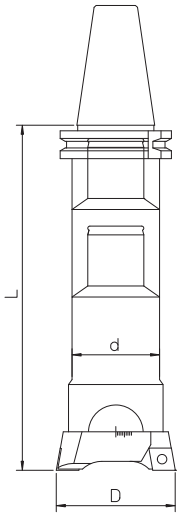
TORX

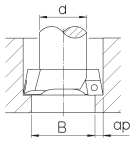


REF.	CODE	M	L	D	REF.	CODE
TS 21	49 40 1 0002034	M 2x0.4	3.7	2.7	TORX TO6	10 150 09 0 0600
TS 211	49 40 1 0002040		4			
CS 250 T	49 40 1 0002565	M 2.5x0.45	6	3.7	TORX TO8	10 150 09 0 0800
CS 300890 T	49 40 1 0003008	M 3x0.5	8	4.1		
TS 25	49 40 1 0002555	M 2.5x0.45	5.7	3.45		
TS 4	49 40 1 0004008	M 4x0.7	10	5.5	TORX T15	10 150 09 0 1500
TS 5	49 40 1 0005009	M 5x0.8	11.5	7	TORX T25	10 150 09 0 2500
DMC US63	49 42 1 0035070	M 3.5x0.6	10	5.2	TORX T15	10 150 09 0 1500

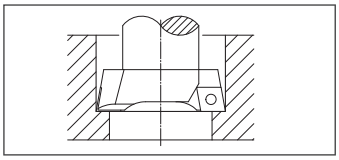
• RECOMMENDED CUTTING CONDITIONS FOR ROUGHING OPERATIONS WITH DOUBLE-BIT HEADS TS
• DATI DI TAGLIO CONSIGLIATI PER SGROSSATURA DI FORI CON TESTINE BITAGLIENTI TS

material materiale	*boring bar dimensions* dimensioni bareno	*working conditions* condizioni di lavoro	*cutting speed Vc = m/min.* velocità di taglio Vc = m/min. *diameter* diametro D < 38	D = 38~120	D > 120	*feed fn = mm/rev (twin cutters)* avanzamento f = mm/giro (due taglienti) *insert radius* raggio inserto R = 0.2	R = 0.4	R = 0.8
carbon steel acciaio al carbonio 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 acciaio al carbonio 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 acciaio inox 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 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 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	-

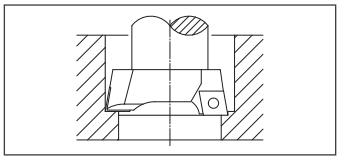


cutting depth profondità di passata ap = mm	*working range* campo di lavoro Ø = mm	*max. cutting depth* max. profondità di passata *steel* acciaio	*cast iron, aluminium* ghisa, alluminio
	18 - 28	1.5 - 2	2 - 2.5
	28 - 50	2 - 3	2.5 - 3.5
	50 - 68	3 - 4	3.5 - 5
	68 - 200	4 - 5	5 - 7
	200 - 500	5 - 6	6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

• 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.



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

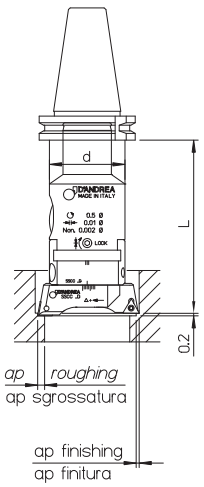


• Twin cutters at different cutting diameters
• Due taglienti su diametri diversi

• **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.

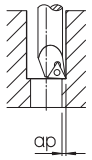
• RECOMMENDED CUTTING CONDITIONS FOR BORING OPERATIONS WITH DOUBLE-BIT TESTAROSSA TRD
• DATI DI TAGLIO CONSIGLIATI PER ALESATURA CON TESTAROSSA BITAGLIENTE TRD

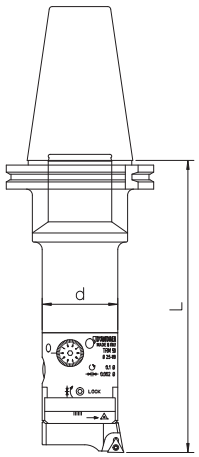
material materiale	*boring bar dimensions* dimensioni bareno	*working conditions* condizioni di lavoro	*cutting speed Vc= m/min.* velocità di taglio Vc= m/min.	*feed fn= mm/rev* avanzamento fn= mm/giro *insert radius* raggio inserto R = 0.2	R = 0.4	*quality insert* qualità inserto *roughing* sgrossatura	*finishing* finitura	*cutting depth* profondità di passata *finishing* finitura	*roughing* sgrossatura ø28 ø46	ø46 ø75	ø75 ø120
carbon steel acciaio al carbonio HB ≤ 200	L / d = 2.5	*good* / buona	160 - 250	0.1 - 0.2	0.1 - 0.2	DC100 DP300	DP300 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 acciaio al carbonio HB > 200	L / d = 2.5	*good* / buona	140 - 200	0.1 - 0.2	0.1 - 0.2	DC100	DP300 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 acciaio inox 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 ghisa	L / d = 2.5	*good* / buona	120 - 160	0.1 - 0.2	0.1 - 0.2	DK100 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 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						



* Only for finishing inserts
* Solo per inserti di finitura

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

material materiale	*boring bar dimensions* dimensioni bareno	*working conditions* condizioni di lavoro	*cutting speed Vc= m/min.* velocità di taglio Vc= m/min.	*feed fn= mm/rev* avanzamento fn= mm/giro *insert radius* raggio inserto			*quality insert* qualità inserto	*cutting depth* profondità di passata
				R = 0.0	R = 0.2	R = 0.4		
carbon steel acciaio al carbonio HB ≤ 200	L / d = 2.5	*good* / buona	200 - 300	–	0.05 - 0.08	0.07 - 0.1	DC100 DP300	 0.1 - 0.25 mm
	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 acciaio al carbonio 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 acciaio inox 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 ghisa	L / d = 2.5	*good* / buona	120 - 160	–	0.05 - 0.08	0.07 - 0.1	DK100 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 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 acciaio 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.)

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

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

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

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

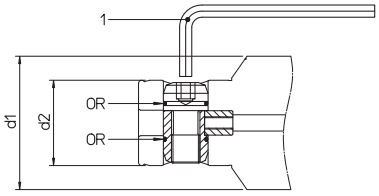
π • 3.14

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

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

$$Vf = n \cdot fn$$

SYSTEM MHD'



REF.	CODE	d_1	d_2	CODE 1	CODE OR
MHD' 14	38 17 25 001161	14	10	10 150 01 0 0250	–
MHD' 16		16			
MHD' 20	38 17 25 001201	20	13	10 150 01 0 0300	
MHD' 25	38 17 25 001251	25	16		
MHD' 32	38 17 25 001321	32	20	10 150 01 0 0400	10 125 4 007510
MHD' 40	38 17 25 001401	40	25	10 150 01 0 0500	10 125 4 010010
MHD' 50 RD 50 / .. TRD - TRC - TRM	38 17 25 001501	50	32	10 150 01 0 0600	10 125 4 013010
MHD' 50	38 17 25 001001				
MHD' 63-80	38 17 25 001002	63-80	42	10 150 01 0 0800	10 125 1 002075
MHD' 110 - 140	38 17 25 001003	110 - 140	76	10 150 01 0 1400	10 125 1 003112

TS

fig.1

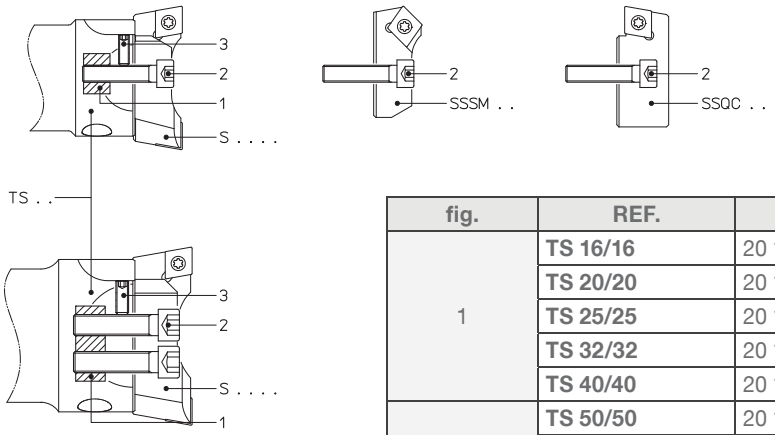
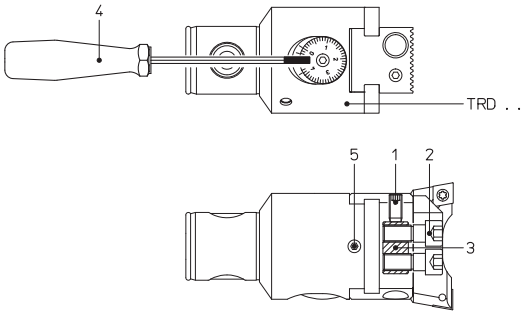


fig.2

fig.	REF.	CODE 1	CODE 2	CODE 3
1	TS 16/16	20 143 011 0008	10 005 1 030 014	10 023 1 030 004
	TS 20/20	20 143 011 0009	10 005 1 040 015	10 023 1 030 005
	TS 25/25	20 143 011 0010	10 005 1 040 020	10 023 1 030 008
	TS 32/32	20 143 011 0011	10 005 1 050 025	10 023 1 040 012
	TS 40/40	20 143 011 0012	10 005 1 060 030	10 023 1 050 014
2	TS 50/50	20 143 011 0013	10 005 1 080 035	10 023 1 050 012
	TS 50/63	20 143 011 0014	10 005 1 100 040	10 023 1 060 016
	TS 63/63			
	TS 80/80	20 143 011 0015	10 005 1 120 045	10 023 1 080 025

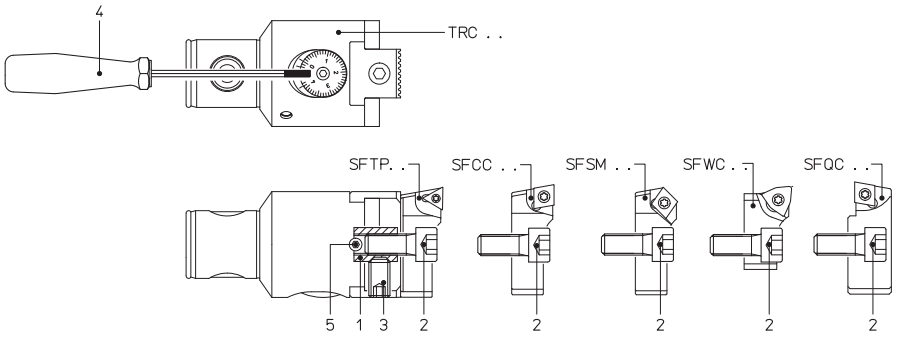
TRD



REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
TRD 25	10 023 1 040 008	20 010 0 15 0411	20 143 011 0024	10 150 08 0 0200	10 023 1 040 005
TRD 32	10 023 1 050 010	20 010 0 15 0512	20 143 011 0023	10 150 08 0 0250	10 023 1 050 005
TRD 40	10 023 1 060 012	20 010 0 15 0616	20 143 017 0001	10 150 08 0 0300	10 023 1 060 006
TRD 50	10 023 1 060 014	20 010 0 15 0820	20 143 011 0021		10 023 1 060 008
TRD 63	10 023 1 060 016	20 010 0 15 1026	20 143 011 0026		
TRD 80	10 023 1 060 020	20 010 0 15 1230	20 143 011 0022		10 023 1 060 012

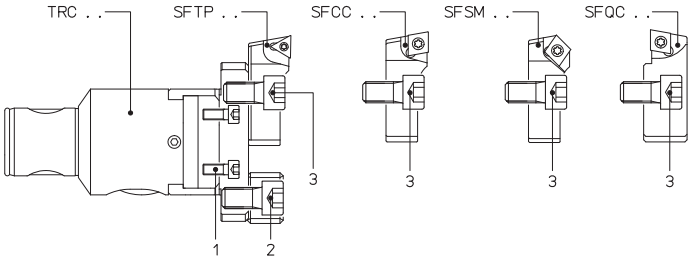
- **SPARE PARTS**
- **ERSATZTEILE**
- **PIEZAS DE RECAMBIO**
- **PIÈCES ETACHÉES**
- **PARTI DI RICAMBIO**

TRC



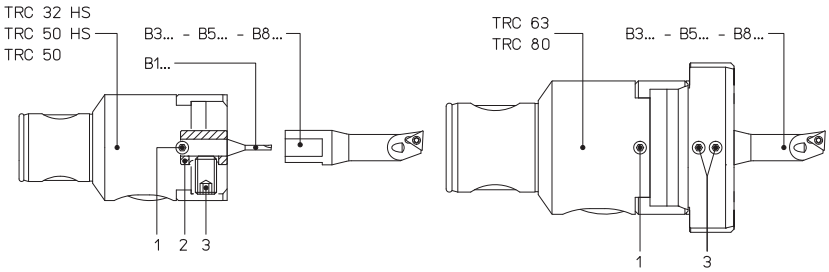
REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
TRC 14	–	10 005 1 030 006	–	10 150 08 0 0150	20 010 0 19 0302
TRC 16					20 010 0 19 0301
TRC 20		10 005 1 040 008			
TRC 25		10 005 1 050 010			10 023 1 040 004
TRC 32		10 005 1 060 012		10 150 08 0 0250	10 023 1 050 005
TRC 40		10 005 1 080 014		10 150 08 0 0300	10 023 1 060 006
TRC 50	20 104 10 150 02	10 005 1 100 025	10 023 1 100 016		10 023 1 060 008
TRC 63	–	10 005 1 100 020	–		
TRC 80		10 005 1 100 025			10 023 1 060 012

TRC



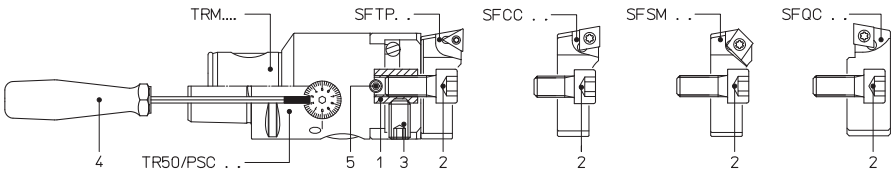
REF.	CODE 1	CODE 2	CODE 3
TRC 50	20 010 015 0501	10 005 1 100 020	10 005 1 100 025
TRC 63	10 005 1 050 025		
TRC 80			

TRC



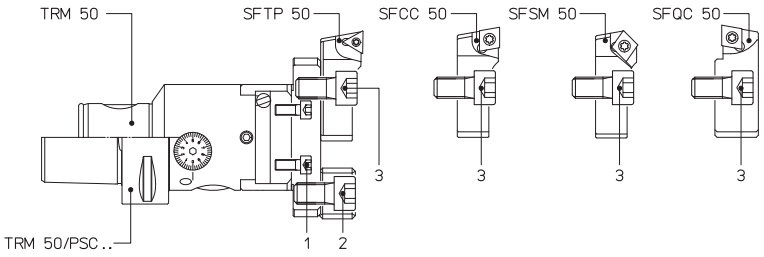
REF.	CODE 1	CODE 2	CODE 3
TRC 32 HS	10 023 1 050 005	–	10 023 1 050 008 10 023 1 050 012
TRC 50 HS	10 023 1 060 008	20 056 01 16 08 2	10 023 1 100 010
TRC 50			
TRC 63		–	10 023 1 060 006
TRC 80	10 023 1 060 012		

TRM / TR-PSC



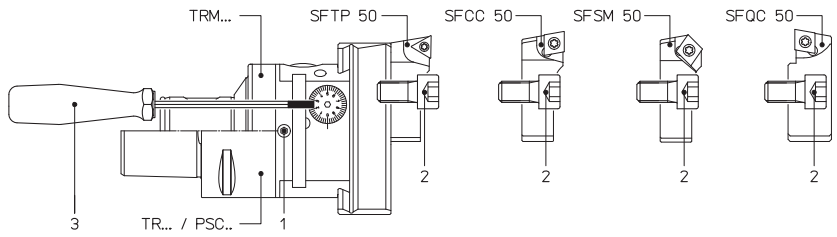
REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
TRM 16	–	10 005 1 030 006	–	10 150 08 0 0150	20 010 0 19 0301
TRM 20		10 005 1 040 008			
TRM 25		10 005 1 050 010		10 150 08 0 0200	10 023 1 040 004
TRM 32		10 005 1 060 012			10 023 1 040 005
TRM 40		10 005 1 080 014		10 150 08 0 0250	10 023 1 050 006
TRM 50 / TR50 PSC40-50-63	20 104 10 150 02	10 005 1 100 025	10 023 1 100 016		10 023 1 050 008

TRM / TR-PSC



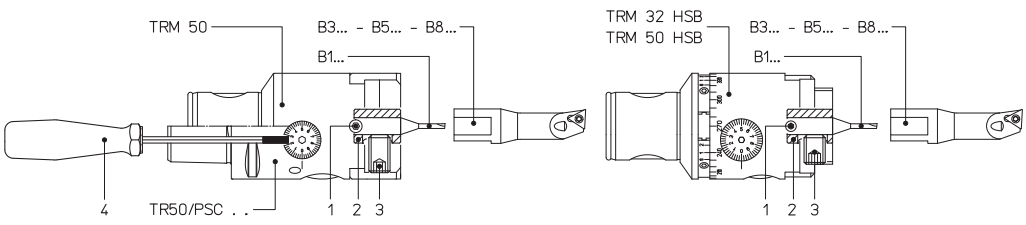
REF.	CODE 1	CODE 2	CODE 3
TRM 50 / TR50 PSC40-50-63	20 010 015 0501	10 005 1 100 020	10 005 1 100 020

TRM / TR-PSC



REF.	CODE 1	CODE 2	CODE 3
TRM 63 / TR 63-PSC 63	10 025 1 060 010	10 005 1 100 025	10 150 08 0 0300
TRM 80 / TR 80-PSC 80	10 025 1 060 014		
TRM 125	10 025 1 060 020		

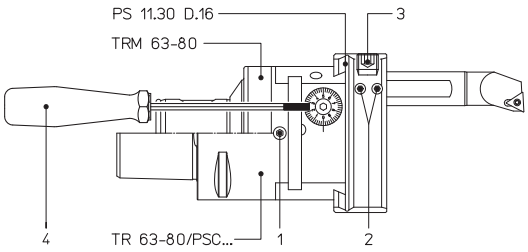
TRM / TR-PSC



REF.	CODE 1	CODE 2	CODE 3	CODE 4
TRM 50 / TR50 PSC40-50-63	10 023 1 050 008	20 056 01 16 08 2	10 023 1 100 010	10 150 08 0 0250
TRM 32 HSB	10 023 1 040 005	–	10 023 1 050 008 10 023 1 050 012	10 150 08 0 0200
TRM 50 HSB	10 023 1 050 008	20 056 01 16 08 2	10 023 1 100 010	10 150 08 0 0250

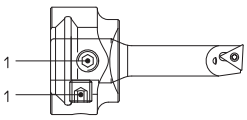
- **SPARE PARTS**
- **ERSATZTEILE**
- **PIEZAS DE RECAMBIO**
- **PIÈCES ETACHÉES**
- **PARTI DI RICAMBIO**

TRM / TR-PSC



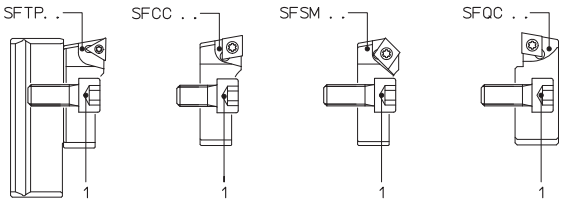
REF.	CODE 1	CODE 2
TRM 63 / TR63 PSC63 TRM 80 / TR80 PSC80	10 025 1 060 010	10 023 1 050 006
	CODE 3	**CODE 4**
	10 023 1 100 010	10 150 08 0 0300

P 20.30



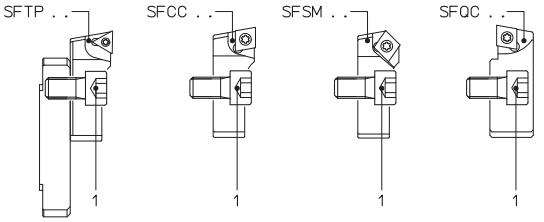
REF.	CODE 1
P20.30	10 025 1 080 008

PS



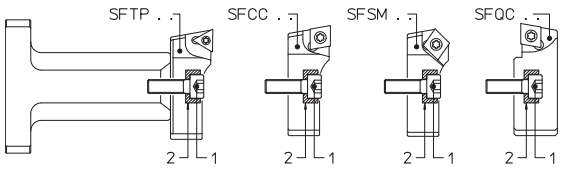
REF.	CODE 1
PS 11.30	10 005 1 100 018
PS 12.30	
PS 13.30	
PS 11.40	10 005 1 100 025
PS 12.40	
PS 13.40	
PS 14.40	

PS



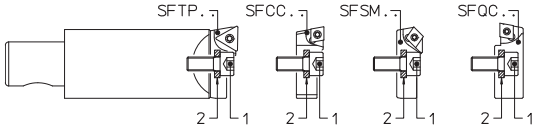
REF.	CODE 1
PS 31.24	10 005 1 100 020
PS 31.28	10 005 1 100 025
PS 32.28	
PS 33.28	

P 22.28



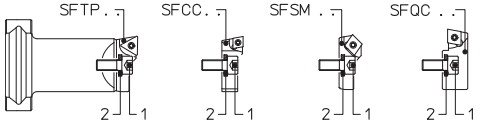
REF.	CODE 1	CODE 2
P22.28	10 005 1 060 020	20 104 06 070 01

P 25



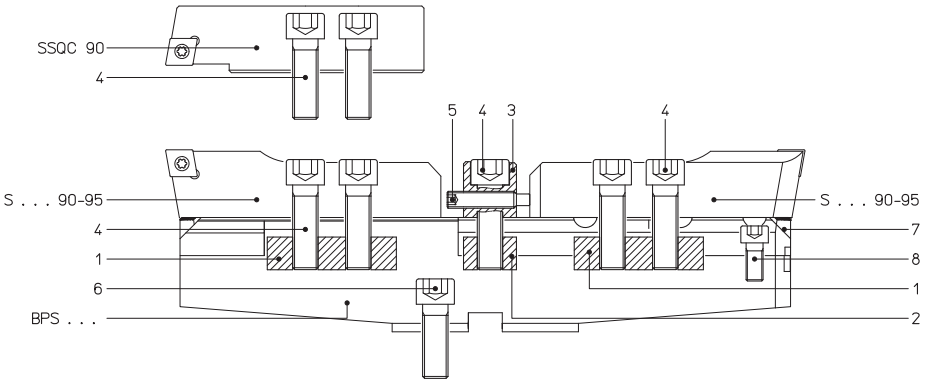
REF.	CODE 1	CODE 2
P25.63	10 005 1 050 012	10 080 01 0053 0
P25.105		

P



REF.	CODE 1	CODE 2
P 20.30	10 005 1 050 012	10 080 01 0053 0
P 03.30		
P 04.30		
P 02.40	10 005 1 060 018	10 080 01 0064 0
P 03.40		
P 04.40		

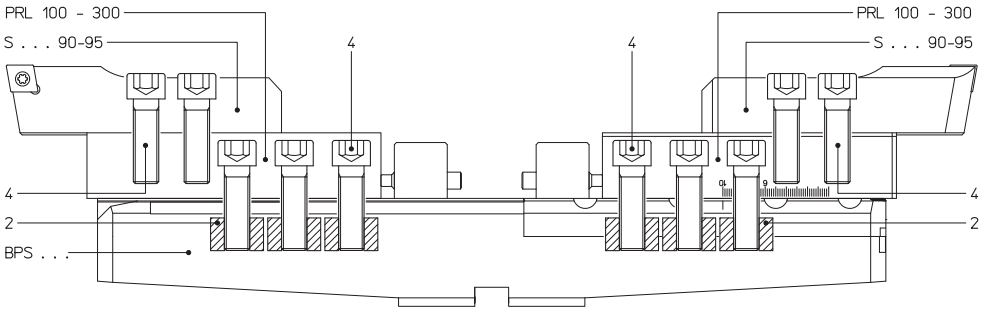
BPS



REF.	CODE 1	CODE 2	CODE 3	CODE 4
BPS 200-300-400	20 143 011 0017	20 143 011 0016	20 110 05 026 01	10 005 1 120 040
BPS 500-600-700-800				
BPS 1000-1160-1600				

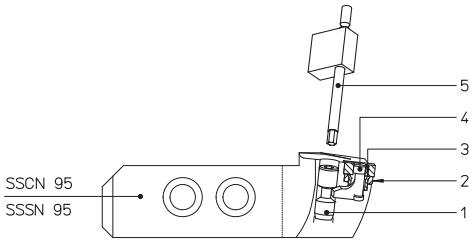
REF.	CODE 5	CODE 6	CODE 7	CODE 8
BPS 200-300	10 025 1 080 040	10 005 1 120 035	20 065 5 0157 01	10 005 1 080 025
BPS 400			20 065 5 0163 01	10 005 1 080 020
BPS 500-600-700-800		10 005 1 160 050		10 005 1 080 025
BPS 1000-1160-1600				10 005 1 080 030
BPS 1600		10 005 1 200 060		

BPS + PRL 100 - 300



REF.	CODE 2	CODE 4
BPS 200-300-400 BPS 500-600-700-800 BPS 1000-1160-1600	20 143 011 0016	10 005 1 120 040

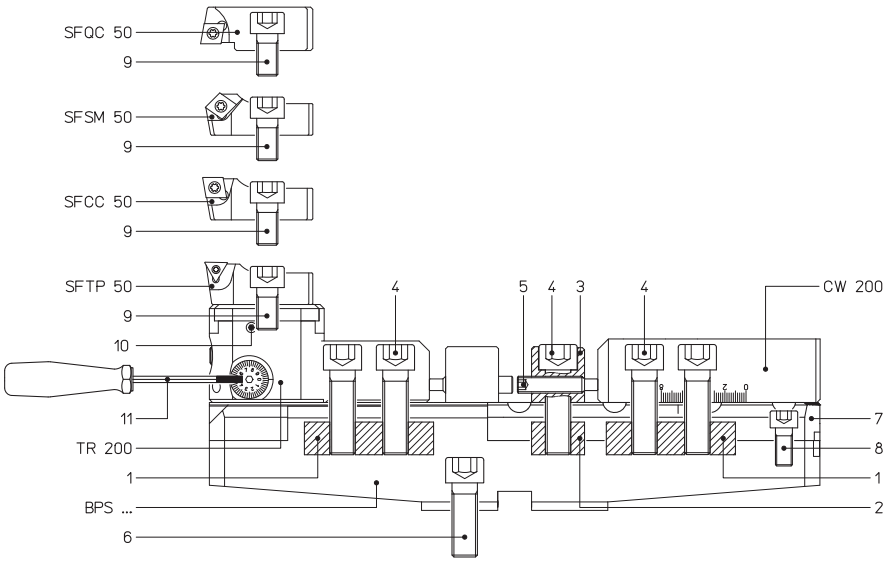
SS 95



REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
SSCN 95	49 43 1 0070060	49 20 3 0004060	10 065 5 067 060	49 11 1 0000060	10 150 09 0 2500
SSSN 95		49 20 3 0004061			

- **SPARE PARTS**
- **ERSATZTEILE**
- **PIEZAS DE RECAMBIO**
- **PIÈCES ETACHÉES**
- **PARTI DI RICAMBIO**

BPS

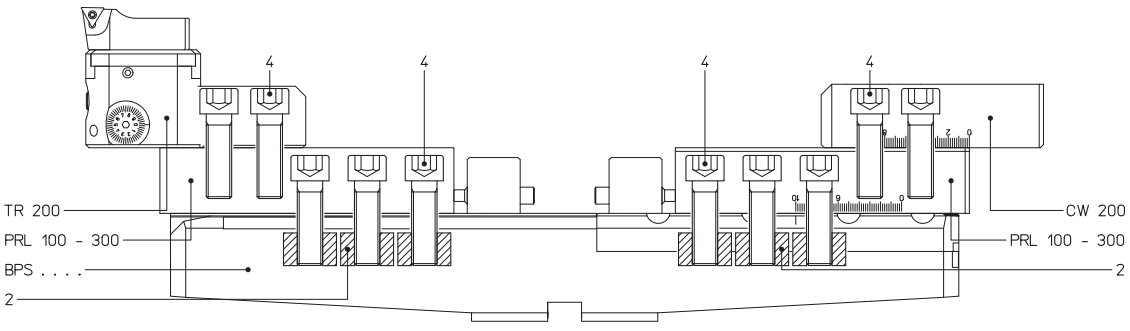


REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
BPS 200-300-400	20 143 011 0017	20 143 011 0016	20 110 05 026 01	10 005 1 120 040	10 025 1 080 040
BPS 500-600-700-800					
BPS 1000-1160-1600					

REF.	CODE 6	CODE 7	CODE 8
BPS 200-300-400	10 005 1 120 035	20 065 5 0157 01	10 005 1 080 025
BPS 400		20 065 5 0163 01	10 005 1 080 020
BPS 500-600-700-800	10 005 1 160 050		10 005 1 080 025
BPS 1000-1160-1600			10 005 1 080 030
BPS 1600	10 005 1 200 060		

REF.	CODE 9	CODE 10	CODE 11
BPS 200-300-400 BPS 500-600-700-800 BPS 1000-1160-1600	10 005 1 100 020	10 025 1 060 008	10 150 08 0 0300

BPS + PRL 100 - 300



REF.	CODE 2	CODE 4
BPS 200-300-400 BPS 500-600-700-800 BPS 1000-1160-1600	20 143 011 0016	10 005 1 120 040

MODULHARD'ANDREA

- CHUCKING TOOLS
- ADAPTER
- ADAPTADORES
- ADAPTATEURS
- ADATTATORI









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

D Das gesamte Programm modularer Adapter D'Andrea mit MHD'-Integralanschluss, das verschiedenen Fräs-, Bohr-, und Gewindebohrarbeiten gerecht wird.

E El programa completo de adaptadores modulares D' Andrea con unión MHD', satisface varias exigencias de elaboración en fresado, roscado y taladrado.

F La gamme complète d'adaptateurs modulaires D'Andrea avec mandrin MHD', répondant aux exigences d'usinage les plus variées en matière de fraisage, forage et taraudage.

I Il completo programma di adattatori modulari D'Andrea con attacco MHD', che soddisfa svariate esigenze di lavorazionein fresatura, foratura e maschiatura.

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- **INHALTSVERZEICHNIS**
- ÍNDICE
- **INDEX**
- INDICE

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p. 170 • **MHD FORCE**



p. 171 • **AW**



p. 172 • **PF**



p. 173 • **CM**



p. 174 • **AM**



p. 174 • **B16**



p. 174 • **NS**



p. 175 • **ACR/NC**



p. 175 • **ACR**



GB 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

D SPANNZEUGE

PE. Spannzangenfutter nach DIN 6499 - ER 11, ER 16, ER 20, ER 25, ER 32, ER 40.
MHD' FORCE. Spannzangenfutter mit hochfester Werkzeugspannung.
AW. Werkzeugaufnahme für Weldon (nach DIN 1835-B) und Whistle Notch (nach DIN 1835-E).
PF. Kombiaufsteckfräsdorne für Scheibenfräser und Planfräser.
CM. Werkzeugaufnahmen mit Morseinnenkegel für Werkzeuge mit Rückzuggewinde nach DIN 228-A und Lappen nach DIN 228-B.
AM. Gewindeschneidspannfutter für höchste Beanspruchung in der Serienfertigung.
B16. Bohrerfutteraufnahme mit Innenkegel B16 nach DIN 238.
NS. Werkzeugaufnahmenrohlinge mit gehärtetem.
ACR/NC. Spannzeuge für Kühlmittel NC.
ACR. Aufnahme mit Kühlmittelübergabe.

E ADAPTADORES

PE. Adaptadores portapinzas elásticas DIN 6499 - ER 11, ER 16, ER 20, ER 25, ER 32, ER 40.
MHD' FORCE. Adaptadores de gran apriete FORCE.
AW. Adaptadores combinados Weldon (DIN 1835 B) y Whistle Notch (DIN 1835 E).
PF. Adaptadores portafresas combinados para fresas a disco y de planear.
CM. Adaptadores combinados para cono morse con agujero roscado DIN 228-A y con uña DIN 228-B.
AM. Adaptadores para roscar para alta producción.
B16. Adaptadores para mandrinos portabrocas con acoplamiento B16 DIN 238.
NS. Adaptadores semielaborados para herramientas especiales.
ACR/NC. Adaptadores para líquido refrigerante NC.
ACR. Adaptadores para líquido refrigerante

F ADAPTATEURS

PE. Adaptateurs porte-pinces DIN 6499 - ER 11, ER 16, ER 20, ER 25, ER 32, ER 40.
MHD' FORCE. Adaptateurs à serrage fort FORCE.
AW. Adaptateurs combinés Weldon (DIN 1835 B) et Whistle Notch (DIN 1835 E).
PF. Adaptateurs porte-fraises combinés pour fraises à disque et fraises à surfacer.
CM. Adaptateurs avec cône morse pour outils avec filetage DIN 228-A et tenon DIN 228-B.
AM. Adaptateurs de taraudage pour forte fabrication en série.
B16. Adaptateurs pour mandrins porte-forets avec filetage B16 DIN 238.
NS. Adaptateurs semi-finis pour outils spéciaux.
ACR/NC. Adaptateurs pour liquide d'arrosage NC.
ACR. Adaptateurs pour liquide d'arrosage.

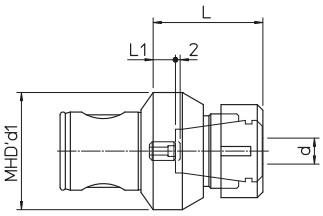
I ADATTATORI

PE. Adattatori portapinze elastiche DIN 6499 - ER 11, ER 16, ER 20, ER 25, ER 32, ER 40.
MHD' FORCE. Adattatori a forte serraggio FORCE.
AW. Adattatori combinati Weldon (DIN 1835 B) e Whistle Notch (DIN 1835 E).
PF. Adattatori portafrese combinati per frese a disco e spianare.
CM. Adattatori combinati per cono morse con foro filettato DIN 228-A e con dente DIN 228-B.
AM. Adattatori di maschiatura per forte produzione.
B16. Adattatori per mandrini portapunte con attacco B16 DIN 238.
NS. Adattatori semilavorati per utensili speciali.
ACR/NC. Adduttori per liquido refrigerante NC.
ACR. Adattatori per liquido refrigerante.

- COLLETS CHUCKING TOOLS
- SPANNZANGENFUTTER
- ADAPTADORES PARA PINZAS ELÁSTICAS
- ADAPTATEURS POUR PINCES DE SERRAGE
- ADATTATORI PER PINZE ELASTICHE

ER DIN 6499
PE





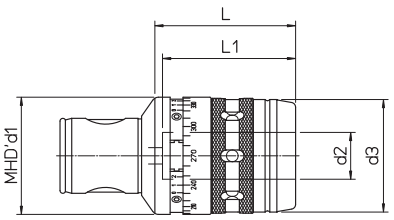
- Supplied without collets and clamping wrenches
- Ohne Spannzangen und Spannschlüssel.
- Pinzas elásticas y llaves de apriete excluidas
- Sans pinces et clés de serrage
- Pinze elastiche e chiavi di serraggio escluse

REF.	CODE	MHD' d_1	d	L	L_1	kg			N·m
PE 16 / ER11M	65 57 016 0011 0	16	0.5 ~ 7	25	2.5	0.03	ER-11M	E11M	30
PE 20 / ER16M	65 57 020 0016 0	20	0.5 ~ 10	32	1	0.06	ER-16M	E16M	40
PE 25 / ER20M	65 57 025 0020 0	25	1 ~ 13	40	2.5	0.15	ER-20M	E20M	80
PE 32 / ER25M	65 57 032 0025 0	32	1 ~ 16	42	1.5	0.25	ER-25M	E25M	160
PE 40 / ER25	65 57 040 0025 0	40		45	5	0.4	UM/ER25	E25	200
PE 50 / ER25	65 57 050 0025 0	50		48	7	0.7			
PE 50 / ER32	65 57 050 0032 0		2 ~ 20	55	8	1	UM/ER32	E32	220
PE 63 / ER32	65 57 063 0032 0	63		59	12	1.3			
PE 63 / ER40	65 57 063 0040 0		3 ~ 26	64		1.5	UM/ER40	E40	250

- ULTRA-TIGHT TOOLHOLDER FORCE
- FORCE SPANNZANGENFUTTER MIT HOCHFESTER WERKZEUGSPANNUNG
- ADAPTADORES DE GRAN APRIETE FORCE
- ADAPTATEURS À SERRAGE FORT FORCE
- ADATTATORI A FORTE SERRAGGIO FORCE

MHD' FORCE

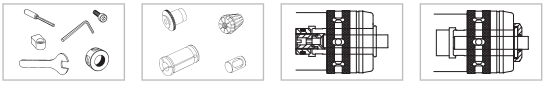




- Supplied without collets and clamping wrenches
- Ohne Spannzangen und Spannschlüssel.
- Pinzas elásticas y llaves de apriete excluidas
- Sans pinces et clés de serrage
- Pinze elastiche e chiavi di serraggio escluse

REF.	CODE	MHD' d_1	d_2	d_3	L	L_1	kg
FORCE 50/20 HS	65 63 050 0020 5	50	20	48	60	60	1
FORCE 63/32 HS	65 63 063 0032 5	63	32	66	80	80	2

162-176 241-242 222 222



- WELDON WHISTLE NOTCH CHUCKING TOOLS
- WELDON / WHISTLE NOTCH WERKZEUGAUFNAHMEN
- ADAPTADORES WELDON WHISTLE NOTCH
- ADAPTATEURS WELDON WHISTLE NOTCH
- ADATTATORI WELDON WHISTLE NOTCH

DIN 1835 B-E
AW



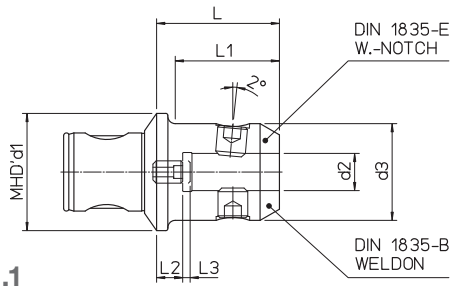


fig.1

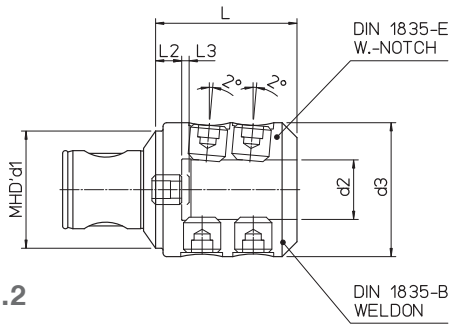


fig.2

REF.	CODE	MHD' d_1	d_2^{H5}	d_3	L	L_1	L_2	L_3	kg	fig.
AW 50/6	65 58 050 0006 0	50	6	25	44	32.5	7	2	0.5	1
AW 50/8	65 58 050 0008 0		8	28		33				
AW 50/10	65 58 050 0010 0		10	35	52	42	11	3	0.7	
AW 50/12	65 58 050 0012 0		12	42	57	48			0.8	
AW 50/14	65 58 050 0014 0		14							
AW 50/16	65 58 050 0016 0		16	48	67	61	17	4	1.1	
AW 50/20	65 58 050 0020 0		20	51		–	16		1.2	
AW 50/25	65 58 050 0025 0		25	63	80		22		1.8	2
AW 63/16	65 58 063 0016 0	63	16	48	64	53	14		1.4	1
AW 63/20	65 58 063 0020 0		20	52	66	56			1.5	
AW 63/25	65 58 063 0025 0		25	64	74	–	16		2.1	2
AW 63/32	65 58 063 0032 0		32	72	76		14		2.5	
AW 80/40	65 58 080 0040 0	80	40	80	83		12		3.2	

PF

- DISC AND FACING CUTTER HOLDERS
- SCHEIBEN- UND PLANFRÄSERAUFSTECKDORNE
- ADAPTADORES PARA FRESAS A DISCO Y DE PLANEAR
- ADAPTATEURS POUR FRAISES À DISQUE ET À SURFACER
- ADATTATORI PER FRESE A DISCO E A SPIANARE

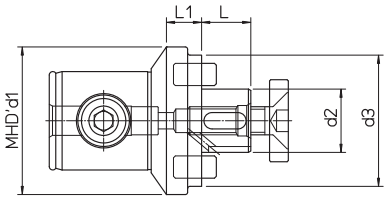
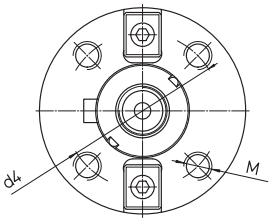


fig.1





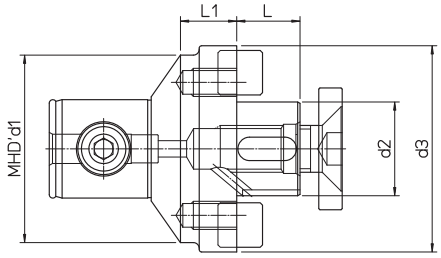
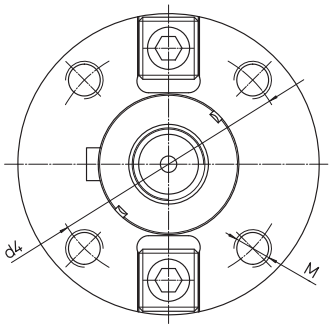


fig.2



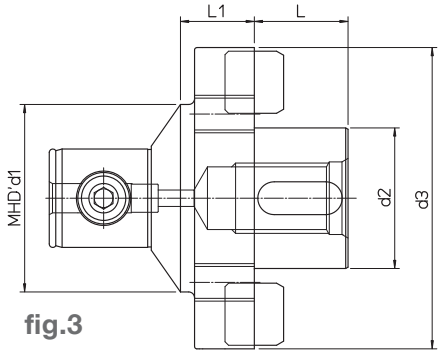


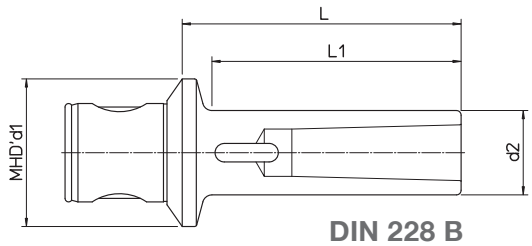
fig.3

REF.	CODE	MHD' d_1	d_2	d_3	d_4	M	L	L_1	kg	fig.
PF 40/16	65 59 040 2016 5	40	16	32	–	–	17	15	0.3	1
PF 40/22	65 59 040 2022 5		22	40			19	13	0.4	
PF 50/16	65 59 050 0016 0	50	16	32			17	15	0.5	
PF 50/22	65 59 050 0022 0		22	40			19			
PF 50/27	65 59 050 0027 0		27	50			21		0.6	
PF 50/32	65 59 050 0032 0		32	60			24		0.7	
PF 63/22	65 59 063 0022 0	63	22				19		0.9	
PF 63/27	65 59 063 0027 0		27				21		1.1	
PF 63/32	65 59 063 0032 0		32	70			24		1.2	
PF 80/32	65 59 080 0032 0	80	32	88				24	1.7	
PF 80/40	65 59 080 0040 0		40		66.7	M12	27		1.9	2
PF 80/50	65 59 080 0050 0		50	90	–	–	30		2.0	
PF 80/60	65 59 080 0060 0		60	128.5	101.6	M16	40	31.5	3.5	3
PF 110/40	65 59 110 0040 0	110	40	88	66.7	M12	27	20	4.2	2
PF 110/60	65 59 110 0060 0		60	128.5	101.6	M16	40	36	6	3
PF 140/40	65 59 140 0040 0	140	40	88	66.7	M12	27	26	6.2	2
PF 140/60	65 59 140 0060 0		60	140	101.6	M16	40		7.8	3

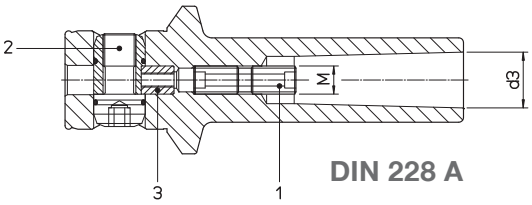
- MORSE TAPER CHUCKING TOOLS
- MORSEKEGELAUFNAHMEN
- ADAPTADORES PARA CONO MORSE
- ADAPTATEURS POUR CÔNE MORSE
- ADATTATORI PER CONO MORSE

DIN 228 A-B
CM





DIN 228 B



DIN 228 A

REF.	CODE	MHD' d_1	MORSE	d_2	d_3	L	L_1	M	kg
CM 50/1	65 60 050 0001 0	50	1	20	12.065	80	68	M6	0.6
CM 50/2	65 60 050 0002 0		2	30	17.780	100	86	M10	0.7
CM 50/3	65 60 050 0003 0		3	36	23.825	120	110	M12	1
CM 63/3	65 60 063 0003 0	63					108		1.3
CM 63/4	65 60 063 0004 0		4	48	31.267	150	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.

D **MK DIN 228-A.** Zum Einspannen eines Morsekegelwerkzeuges mit Rückzuggewinde folgendermaßen vorgehen:
a. Schraube 1 eindrehen; b. Spreizbolzen 2 und Buchse 3 entfernen, um den Sechskantschlüssel von hinten einführen zu können; c. Werkzeug einsetzen und Schraube 1 im Uhrzeigersinn festziehen; d. Buchse 3 und Spreizbolzen 2 wieder einsetzen.
MK DIN 228-B. Zum Einspannen eines Morsekegelwerkzeuges mit Austreiberlappen Schraube 1 herausdrehen. Werkzeughalter mit Morseinnenkegel für Werkzeuge mit Rückzuggewinde nach DIN 228-A und Austreiberlappen nach DIN 228-B.

E **CM DIN 228-A.** Para montar una herramienta con cono morse con agujero roscado se precisa:
a. Montar roscando completamente el tornillo 1; b. Quitar el perno expansible 2 y el casquillo 3 para permitir el paso posterior de la llave exagonal; c. Montar la herramienta y roscar en sentido horario el tornillo 1; d. Montar otra vez el casquillo 3 y el perno expansible 2.
CM DIN 228-B. Antes de montar una herramienta con cono morse con uña de arrastre, se precisa quitar el tornillo 1. Adaptadores combinados para cono morse con agujero roscado DIN 228-A y con uña DIN 228-B.

F **CM DIN 228-A.** Pour monter un outil cône morse avec filetage procéder de cette façon:
a. Poser la vis 1; b. Enlever la tige expansible 2 et la douille 3 pour permettre le passage postérieur de la clef hexagonale; c. Monter l'outil et serrer la vis 1 dans le sens des aiguilles d'une montre; d. Remonter la tige 2 et la douille 3.
CM DIN 228-B. Avant de monter un outil cône morse avec tenon, enlever la vis 1. Adaptateurs combinés pour cône morse avec trou fileté DIN 228-A et avec dent DIN 228-B

I **CM DIN 228-A.** Per montare un utensile a cono morse con attacco filettato occorre: a. Montare avvitando interamente la vite 1; b. Togliere il perno espandibile 2 e la bussola 3 per permettere il passaggio posteriore della chiave esagonale; c. Montare l'utensile e avvitare in senso orario la vite 1; d. Rimontare bussola 3 e perno espandibile 2.
CM DIN 228-B. Prima di montare un utensile a cono morse con tenone occorre togliere la vite 1. Adattatori combinati per cono morse con foro filettato DIN 228-A e con dente DIN 228-B.

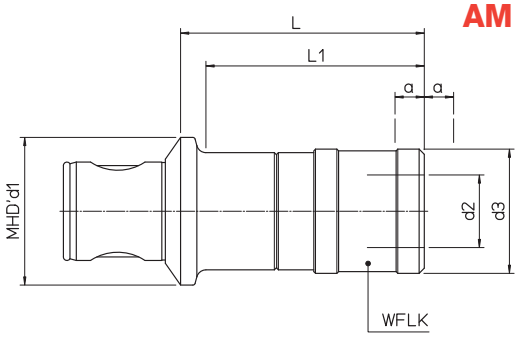
MODULHARD'ANDREA

- CHUCKING TOOLS
- ADAPTER
- ADAPTADORES
- ADAPTATEURS
- ADATTATORI

AM

- TAPPING CHUCK HOLDERS
- GEWINDESCHNEIDSPANNFUTTER
- ADAPTADORES PARA ROSCAR
- ADAPTATEURS DE TARAUDAGE
- ADATTATORI DI MASCHIATURA



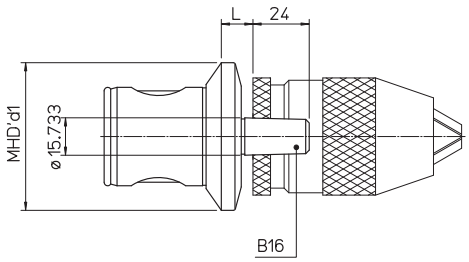


REF.	CODE	MHD' d_1	WFLK	Capacity	L	L_1	d_2	d_3	a	kg
AM 50/M3-12	65 65 050 0010 0	50	WFLK 115B/A 308	M 3 ~ 12	72	60	19	36	7.5	0.9
AM 50/M8-20	65 65 050 0020 0		WFLK 225B/A 308	M 8 ~ 20	106	–	31	53	12.5	1.2
AM 63/M3-12	65 65 063 0010 0	63	WFLK 115B/A 308	M 3 ~ 12	70	58	19	36	7.5	1
AM 63/M8-20	65 65 063 0020 0		WFLK 225B/A 308	M 8 ~ 20	104	93	31	53	12.5	1.3

B16

- DRILLING CHUCK HOLDERS B16 D238
- BOHRFUTTERAUFNAHME B16 D238
- ADAPTADORES PARA MANDRINOS B16 D238
- ADAPTATEURS POUR MANDRIN B16 D238
- ADATTATORI PER MANDRINO B16 D238





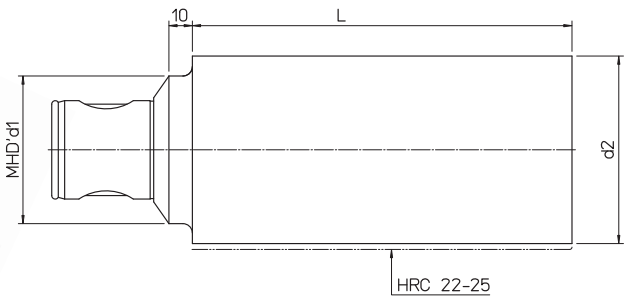
- Drilling chuck holders with B16 DIN 238 thread.
- Bohrfutteraufnahme mit Innenkegel B16 nach DIN 238.
- Adaptadores para mandrinos portabrocas con acoplamiento B16 DIN 238.
- Adaptateurs pour mandrin porte-forets avec cône B16 DIN 238.
- Adattatori per mandrini portapunte con attacco B16 DIN 238.

REF.	CODE	MHD' d_1	L	kg
B 50/16	65 61 050 0016 0	50	10	0.4
B 63/16	65 61 063 0016 0	63	13.5	0.8

NS

- SEMIFINISHED CHUCK HOLDERS
- WERKZEUGAUFNAHMEROHLING
- ADAPTADORES SEMIELABORADOS
- ADAPTATEURS SEMI-FINIS
- ADATTATORI SEMILAVORATI

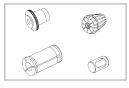




REF.	CODE	MHD' d_1	d_2	L	kg
NS 50	65 72 050 0160 0	50	63	160	4.2
NS 63	65 72 063 0200 0	63	80	200	8.7
NS 80	65 72 080 0250 0	80	100	250	16
NS 110	65 72 110 0250 0	110	130		18
NS 140	65 72 140 0250 0	140	150		30

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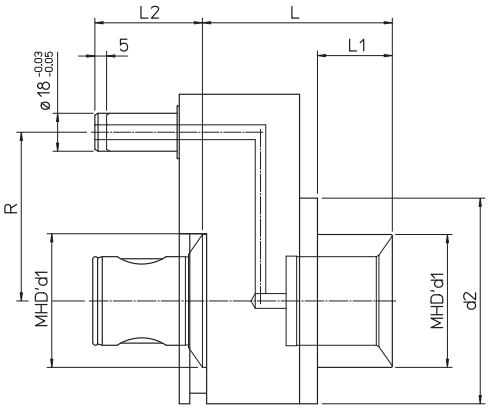


- **CHUCKING TOOLS**
- **ADAPTER**
- **ADAPTADORES**
- **ADAPTATEURS**
- **ADATTATORI**

ACR/NC

- **COOLANT CHUCKING TOOLS NC**
- **AUFNAHME MIT KÜHLMITTELÜBERGABE NC**
- **ADAPTADORES PARA LÍQUIDO REFRIGERANTE NC**
- **ADAPTATEURS POUR LIQUIDE D'ARROSAGE NC**
- **ADATTATORI PER LIQUIDO REFRIGERANTE NC**





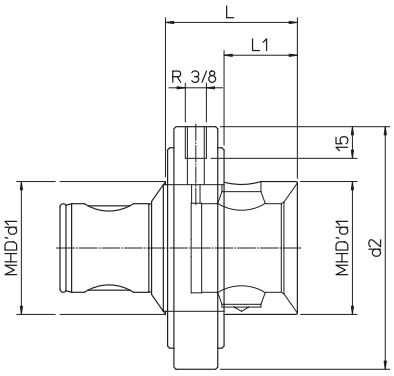
- **Important note.** Activate the coolant before the chuck rotation not to damage internal gaskets.
- **Wichtger Hinweis.** Das Kühlmittel vor der Spindelumdrehung einschalten, um die inneren Dichtungen nicht zu beschädigen.
- **Atención.** Accionar el líquido refrigerante antes de la ROTACIÓN del mandrino para preservar los retenes internos.
- **Note importante.** Actionner le liquide d'arrosage avant la ROTATION du mandrin afin de ne pas endommager les joints intérieurs.
- **Attenzione.** Azionare il liquido refrigerante prima della ROTAZIONE del mandrino per non danneggiare le guarnizioni interne.

REF.	CODE	MHD' d_1	R	d_2	L	L_1	L_2	RPM max	BAR	kg
ACR/NC 50/50	65 67 050 0050 1	50	65	80	72	28.5	43	7000	max 10	1.9
ACR/NC 50/50	65 67 050 0050 0		80							2.5
ACR/NC 63/63	65 67 063 0063 0	63		100	88	37	51	5600		5

ACR

- **COOLANT CHUCKING TOOLS**
- **AUFNAHME MIT KÜHLMITTELÜBERGABE**
- **ADAPTADORES PARA LÍQUIDO REFRIGERANTE**
- **ADAPTATEURS POUR LIQUIDE D'ARROSAGE**
- **ADATTATORI PER LIQUIDO REFRIGERANTE**

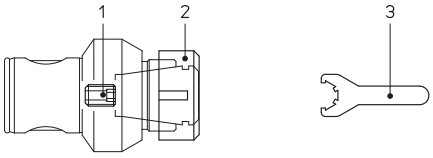




- **Important note.** Activate the coolant before the chuck rotation not to damage internal gaskets.
- **Wichtger Hinweis.** Das Kühlmittel vor der Spindelumdrehung einschalten, um die inneren Dichtungen nicht zu beschädigen.
- **Atención.** Accionar el líquido refrigerante antes de la ROTACIÓN del mandrino para preservar los retenes internos.
- **Note importante.** Actionner le liquide d'arrosage avant la ROTATION du mandrin afin de ne pas endommager les joints intérieurs.
- **Attenzione.** Azionare il liquido refrigerante prima della ROTAZIONE del mandrino per non danneggiare le guarnizioni interne.

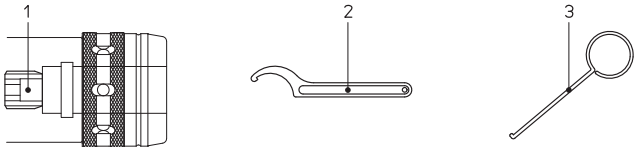
REF.	CODE	MHD' d_1	d_2	L	L_1	RPM max	BAR	kg
ACR 63/63	65 67 063 1063 0	63	115	63	35	3500	max 10	2.9

ER DIN 6499
PE



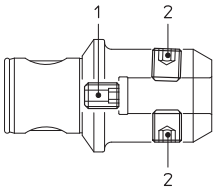
REF.	CODE 1	CODE 2	CODE 3
PE 16 / ER11M	20 010 019 0403	10 045 1 01 11 00	10 150 10 0 1100
PE 20 / ER16M		10 045 1 01 16 00	10 150 10 0 1600
PE 25 / ER20M	20 010 019 0506	10 045 1 01 20 00	10 150 10 0 2000
PE 32 / ER25M	20 010 019 0608	10 045 1 01 25 00	10 150 10 0 2500
PE 40 / ER25	20 010 019 0808	10 045 1 03 25 00	10 150 10 0 2501
PE 50 / ER25			
PE 50 / ER32		10 045 1 03 32 00	10 150 10 0 3201
PE 63 / ER32	20 010 019 1014		
PE 63 / ER40	20 010 019 1214	10 045 1 03 40 00	10 150 10 0 4001

FORCE



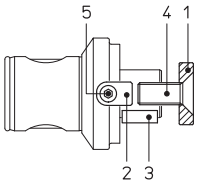
REF	CODE 1	CODE 2	CODE 3
FORCE 12	20 010 019 1014	10 150 04 0 0028	20 127 160 0400
FORCE 20	20 010 019 1615	10 150 04 0 0050	
FORCE 32		10 150 04 0 0075	

DIN 1835 B-E
AW



REF.	CODE 1	CODE 2
AW 50/6	20 010 019 0808	20 010 019 0610
AW 50/8		20 010 019 0810
AW 50/10	20 010 019 0809	20 010 019 1012
AW 50/12		20 010 019 1216
AW 50/14		
AW 50/16	20 010 019 1215	20 010 019 1416
AW 50/20		20 010 019 1616
AW 50/25	20 010 019 1615	20 010 019 1820
AW 63/16	20 010 019 1215	20 010 019 1416
AW 63/20		20 010 019 1616
AW 63/25	20 010 019 1615	20 010 019 1820
AW 63/32		20 010 019 2020
AW 80/40	20 010 019 2019	

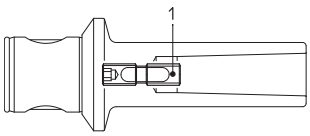
PF



REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
PF 50/16 PF 40/16	20 101 0085 01 0	20 110 18 008 01	10 100 1 040 014	10 010 1 080 025	10 005 1 030 008
PF 50/22 PF 40/22	20 101 0105 03 0	20 110 18 010 02	10 100 1 060 016	10 010 1 100 025	10 005 1 040 010
PF 50/27	20 101 0125 03 0	20 110 18 012 02	10 100 1 070 018	10 010 1 120 030	10 005 1 050 012
PF 50/32	20 101 0165 02 0	20 110 18 014 02	10 100 1 080 020	10 010 1 160 035	10 005 1 060 016
PF 63/22	20 101 0105 03 0	20 110 18 010 02	10 100 1 060 016	10 010 1 100 025	10 005 1 040 010
PF 63/27	20 101 0125 03 0	20 110 18 012 02	10 100 1 070 018	10 010 1 120 030	10 005 1 050 012
PF 63/32	20 101 0165 02 0	20 110 18 014 02	10 100 1 080 020	10 010 1 160 035	10 005 1 060 016
PF 80/32					
PF 80/40	20 101 0210 01 0	20 110 18 016 03	10 100 1 100 025	10 010 1 200 045	10 005 1 060 018
PF 80/50	20 101 0260 33 0	20 110 18 018 02	10 100 1 120 028	10 010 1 240 050	10 005 1 060 020
PF 80/60	-	20 110 18 025 10	10 100 1 140 036	-	10 005 1 120 025
PF 110/40	20 101 0210 01 0	20 110 18 016 03	10 100 1 100 025	10 010 1 200 045	10 005 1 060 018
PF 110/60	-	20 110 18 025 10	10 100 1 140 036	-	10 005 1 120 025
PF 140/40	20 101 0210 01 0	20 110 18 016 03	10 100 1 100 025	10 010 1 200 045	10 005 1 060 018
PF 140/60	-	20 110 18 025 10	-	-	10 005 1 120 025

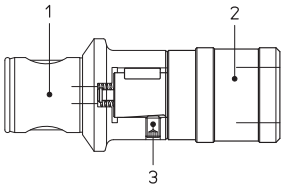
DIN 228 A

CM



REF.	CODE 1
CM 50/1	20 108 15 06 003
CM 50/2	20 108 15 10 002
CM 50/3	20 108 15 12 004
CM 63/3	
CM 63/4	20 108 15 16 001

AM



REF.	REF. 1	CODE 1	REF. 2	CODE 2	CODE 3
AM 50/M3-12	RAM 50/M3-12	45 65 050 0010 0	WFLK 115B/A 308	49 50 9 0010312	10 023 1 060 008
AM 50/M8-20	RAM 50/M8-20	45 65 050 0020 0	WFLK 225B/A 308	49 50 9 0020820	10 023 1 080 012
AM 63/M3-12	RAM 63/M3-12	45 65 063 0010 0	WFLK 115B/A 308	49 50 9 0010312	10 023 1 060 008
AM 63/M8-20	RAM 63/M8-20	45 65 063 0020 0	WFLK 225B/A 308	49 50 9 0020820	10 023 1 080 012

MONOforce

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p.182 **DIN 69871 AD+B**

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p.183 **MAS 403 BT AD+B**



KIT MONOFORCE

p.180 HSK
p.181 PSC
p.182 DIN
p.183 BT



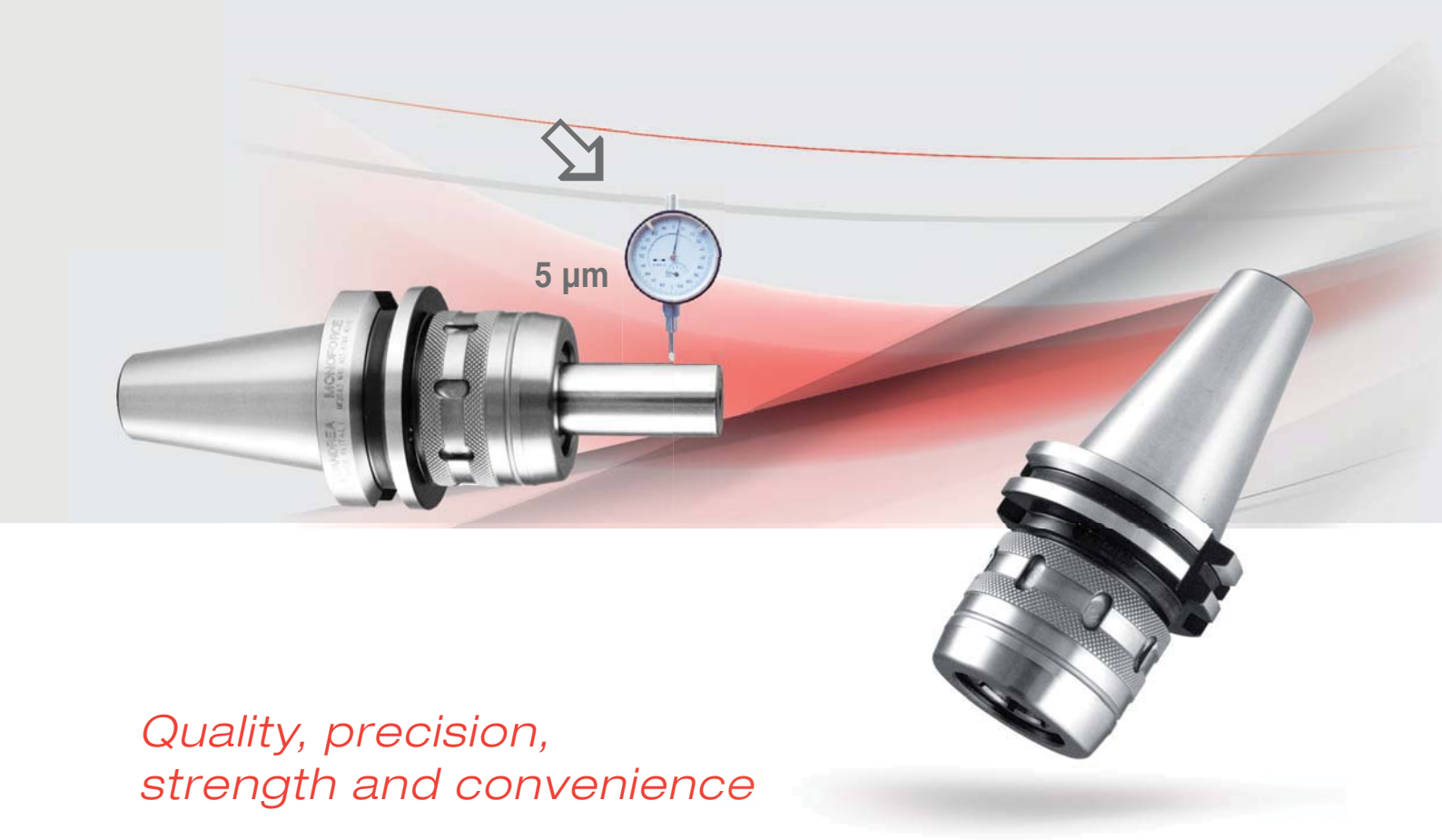












Quality, precision, strength and convenience

- **HIGH PRECISION ULTRA-TIGHT TOOLHOLDER**
- **PRÄZISIONSSPANNZANGENFUTTER MIT HOCHFESTER WERKZEUGSPANNUNG**
- **PORTAHERRAMIENTAS DE PRECISIÓN DE FUERTE BLOCAJE**
- **PORTE-OUTIL DE PRÉCISION À SERRAGE FORT**
- **PORTAUTENSILE DI PRECISIONE A FORTE SERRAGGIO**

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.

D **MONOforce** ist eine Ergänzung zur D'Andrea Werkzeughalterserie und komplettiert die bestehende auswuchtbare FORCE-Spannzange aus der Toprun-Familie. Dieses neue innovative und wirtschaftliche Aufnahmefutter ist ausgelegt für Werkzeugspannungen, bei denen höchste Präzision und Spannkraft zur Klemmung von Fräswerkzeugen gefordert ist. MONOforce ist erhältlich mit Aufnahmekegeln nach DIN 69871, MAS-BT, in ISO 40 und ISO 50 Ausführung sowie als HSK 63 und 100, ISO 26623-1 PSC 63 und 80. Das Futter kann mittels Reduzierhülsen für Fräser von Ø 3 - 25 mm eingesetzt werden. MONOforce wird auch als Set angeboten inklusive Reduzierhülsen und Klemmschrauben. Alle MONOforce-Werkzeughalter werden in den modernen Produktionsstätten von D'Andrea in Italien hergestellt.

E **MONOforce** representa la solución ideal y económica para el equipamiento de todas las Máquinas Herramientas donde existen exigencias de precisión y necesidad de blocaje de herramientas que necesitan elevadas cargas de torsion. MONOforce acompaña al ya famoso Force de la familia Toprun, el sistema patentado de portaherramientas integrales equilibrables. El programa MONOforce para husillos maquina HSK 63 y 100, ISO 26623-1 PSC 63 y 80, DIN 69871 y MAS-BT está realizado en los tama_os ISO 40 y ISO 50 con pinzas de reducción de Ø 12 mm, Ø 20 mm y de Ø 32 mm disponibles estándar en toda la gamma diametral compatible con estos diámetros de alojamientos para blocaje de Ø 3 mm a Ø 25 mm. Los portaherramientas MONOforce, enteramente producidos por D'Andrea, están disponibles también en práticos Kits completos con pinzas de reducción y llaves de blocaje.

F Le **MONOforce** vient agrandir la série de produits D'Andréa dans la gamme des attachements appartenant à la famille Toprun et concernant les attachements équilibrables Force. Ce nouvel attachement est une solution économique et innovatrice dans le domaine des outils de serrage où précision et grande force de clamage sont nécessaires pour les outils coupants. MONOforce est disponible avec des cônes conformément aux normes DIN 69871, MAS-BT toutes les deux en ISO 40, 50 et également HSK 63 et 100, ISO 26623-1 PSC 63 et 80. Les attachements acceptent des pinces de réduction afin de pouvoir appliquer des outils coupants ayant des queues entre Ø 3 et Ø 25 mm. MONOforce peut être fourni en kit, comprenant un set de pinces de réduction ainsi que la clé de serrage. Les attachements MONOforce sont fabrqués par D'Andréa dans leur nouvelle usine située en Italie.

I **MONOforce** rappresenta la soluzione ideale ed economica per l'attrezzatura di tutte le macchine utensili ove sussistano esigenze di precisione e necessità di serraggio utensili sollecitati a elevati carichi torsionali. MONOforce si affianca al già noto Force della famiglia Toprun, il sistema brevettato di portautensili integrali bilanciabili. Il programma MONOforce è costruito nella versione per mandrini macchina HSK 63 e 100, ISO 26623-1 PSC 63 e 80, nonché DIN 69871 e MAS-BT realizzati nelle grandezze ISO 40 e 50 e permette l'impiego di bussole di riduzione da Ø 12 mm, Ø 20 mm e Ø 32 mm. disponibili standard in tutta la gamma diametrale compatibile con questi diametri d'alloggiamento per serraggi da Ø 3 mm a Ø 25 mm. I portautensili MONOforce – interamente prodotti dalla D'Andrea – sono disponibili anche in pratici kit completi di bussole di riduzione e chiave di serraggio.

MONOforce

- HIGH PRECISION ULTRA-TIGHT TOOLHOLDER
- PRÄZISIONSSPANNZANGENFUTTER MIT HOCHFESTER WERKZEUGSPANNUNG
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- PORTE-OUTIL DE PRÉCISION À SERRAGE FORT
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DIN 69893 HSK-A



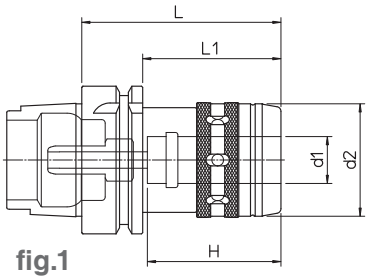


fig.1

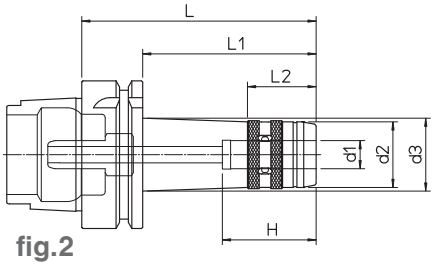


fig.2

- Supplied with coolant tube - without clamping wrench
- Lieferung inklusive Kühlmittelrohr. Ohne Spannzangen und Spannschlüssel.
- Completo con racor para el refrigerante -Llave de apriete excluida
- Pourvu de raccord pour liquide d'arrosage - Sans clef de serrage
- Completo di raccordo per il refrigerante - chiave di serraggio esclusa

HSK-A	REF.	CODE	d_1	d_2	d_3	H	L	L_1	L_2	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	131		3.6	

KIT K01 HSK-A



HSK-A	REF.	CODE
63	KIT K01 MONOFORCE 12.70 HSK63	7KHSK-A63MF1207
	KIT K01 MONOFORCE 20.85 HSK63	7KHSK-A63MF2008
	KIT K01 MONOFORCE 32.105 HSK63	7KHSK-A63MF3210
100	KIT K01 MONOFORCE 32.110 HSK100	7KHSKA100MF3211

KIT K01 MONOforce 12

1 MONOforce 12
1 RC 12.04
1 RC 12.06
1 RC 12.08
1 RC 12.10
1 CHV 28

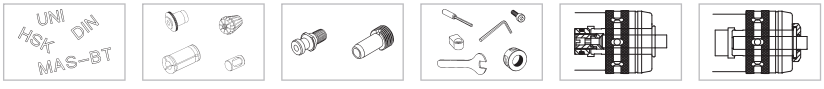
KIT K01 MONOforce 20

1 MONOforce 20
1 RC 20.06
1 RC 20.08
1 RC 20.10
1 RC 20.12
1 RC 20.16
1 CHV 50

KIT K01 MONOforce 32

1 MONOforce 32
1 RC 32.06
1 RC 32.08
1 RC 32.10
1 RC 32.12
1 RC 32.16
1 RC 32.20
1 RC 32.25
1 CHV 75

248 241 240 222 222 222



- **HIGH PRECISION ULTRA-TIGHT TOOLHOLDER**
- **PRÄZISIONSSPANNZANGENFUTTER MIT HOCHFESTER WERKZEUGSPANNUNG**
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ISO 26623-1 PSC



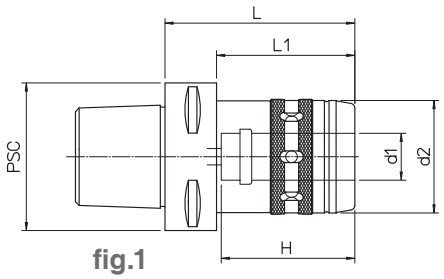


fig.1

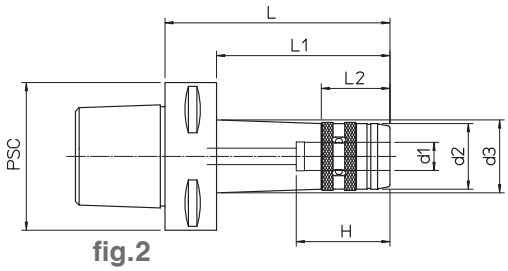


fig.2

- Without clamping wrench
- Ohne Spannschlüssel.
- Llave de apriete excluida
- Sans clef de serrage
- Chiave di serraggio esclusa

PSC	REF.	CODE	d_1	d_2	d_3	H	L	L_1	L_2	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

KIT K01 ISO 26623-1 PSC



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
80	KIT K01 MONOFORCE 20.80 PSC 80	7KPSC-080MF2008
	KIT K01 MONOFORCE 32.100 PSC 80	7KPSC-080MF3210

KIT K01 MONOforce 12

1 MONOforce 12
1 RC 12.04
1 RC 12.06
1 RC 12.08
1 RC 12.10
1 CHV 28

KIT K01 MONOforce 20

1 MONOforce 20
1 RC 20.06
1 RC 20.08
1 RC 20.10
1 RC 20.12
1 RC 20.16
1 CHV 50

KIT K01 MONOforce 32

1 MONOforce 32
1 RC 32.06
1 RC 32.08
1 RC 32.10
1 RC 32.12
1 RC 32.16
1 RC 32.20
1 CHV 75

222 222 222 241 252



MONOforce

- HIGH PRECISION ULTRA-TIGHT TOOLHOLDER
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DIN 69871 AD+B



- Without clamping wrench
- Ohne Spannschlüssel.
- Llave de apriete excluida
- Sans clef de serrage
- Chiave di serraggio esclusa

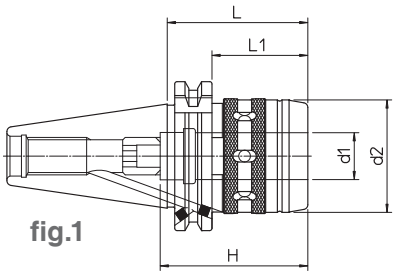


fig.1

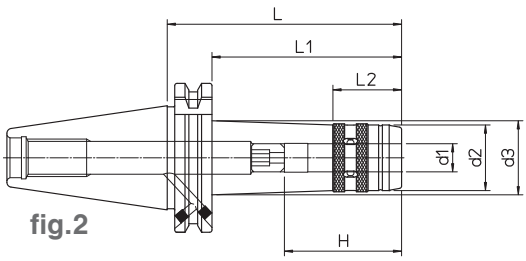


fig.2

DIN	REF.	CODE	d_1	d_2	d_3	H	L	L_1	L_2	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

KIT K01 DIN



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
50	KIT K01 MONOFORCE 20.80 DIN50AD+B	7KDIN-B50MF2008
	KIT K01 MONOFORCE 32.75 DIN50AD+B	7KDIN-B50MF3207

KIT K01 MONOforce 12

1 MONOforce 12
1 RC 12.04
1 RC 12.06
1 RC 12.08
1 RC 12.10
1 CHV 28

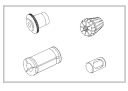
KIT K01 MONOforce 20

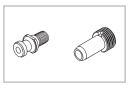
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1 RC 20.06
1 RC 20.08
1 RC 20.10
1 RC 20.12
1 RC 20.16
1 CHV 50

KIT K01 MONOforce 32

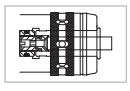
1 MONOforce 32
1 RC 32.06
1 RC 32.08
1 RC 32.10
1 RC 32.12
1 RC 32.16
1 RC 32.20
1 RC 32.25
1 CHV 75

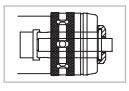
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- **HIGH PRECISION ULTRA-TIGHT TOOLHOLDER**
- **PRÄZISIONSSPANNZANGENFUTTER MIT HOCHFESTER WERKZEUGSPANNUNG**
- **PORTAHERRAMIENTAS DE PRECISIÓN DE FUERTE BLOCAJE**
- **PORTE-OUTIL DE PRÉCISION À SERRAGE FORT**
- **PORTAUTENSILE DI PRECISIONE A FORTE SERRAGGIO**

MAS 403 BT AD+B



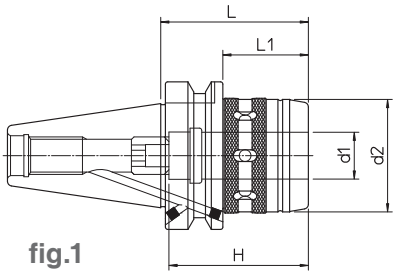


fig.1

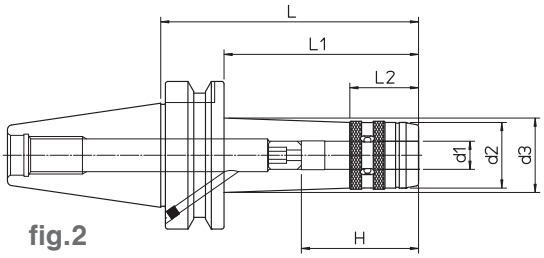


fig.2

- Without clamping wrench
- Ohne Spannschlüssel.
- Llave de apriete excluida
- Sans clef de serrage
- Chiave di serraggio esclusa

BT	REF.	CODE	d_1	d_2	d_3	H	L	L_1	L_2	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	2
	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

KIT K01 BT



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
50	KIT K01 MONOFORCE 20.85 BT50AD+B	7KMBT-B50MF2008
	KIT K01 MONOFORCE 32.95 BT50AD+B	7KMBT-B50MF3209

KIT K01 MONOforce 12

1 MONOforce 12
1 RC 12.04
1 RC 12.06
1 RC 12.08
1 RC 12.10
1 CHV 28

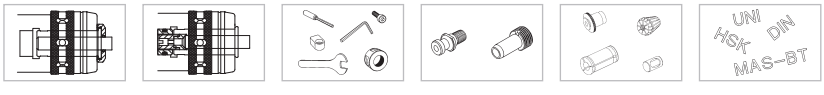
KIT K01 MONOforce 20

1 MONOforce 20
1 RC 20.06
1 RC 20.08
1 RC 20.10
1 RC 20.12
1 RC 20.16
1 CHV 50

KIT K01 MONOforce 32

1 MONOforce 32
1 RC 32.06
1 RC 32.08
1 RC 32.10
1 RC 32.12
1 RC 32.16
1 RC 32.20
1 RC 32.25
1 CHV 75

222 222 222 240 241 249



D'ANDREA TOPRUN

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High speed, balancing and precision

0.003









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p. 190 **MAS 403 BT**
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FORCE

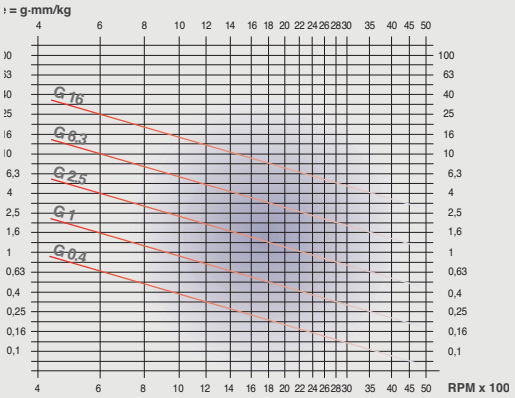


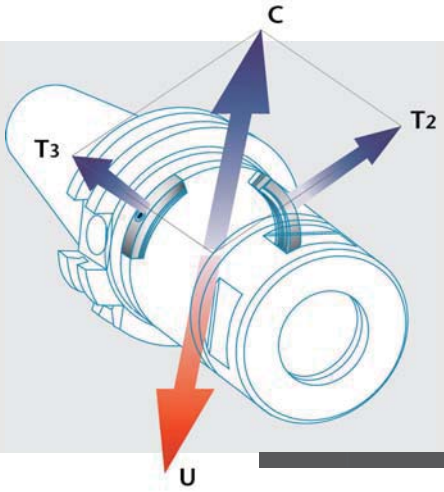
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KIT FORCE
HSK
DIN
BT

- **BALANCEABLE TOOLHOLDERS - BALANCING AND PRECISION**
- **AUSWUCHTBARE WERKZEUGAUFNAHMEN - AUSWUCHTEN UND PRÄZISION**
- **PORTAHERRAMIENTAS EQUILIBRABLES PARA ALTA VELOCIDAD**
- **PORTE-OUTILS ÉQUILIBRABLES POUR HAUTE VITESSE**
- **PORTAUTENSILI BILANCIABILI PER ALTA VELOCITÀ**

GB 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".





D Der Einsatz von ausgewuchteten **TOPRUN** Werkzeugen bietet folgende Vorteile: Schonung der Spindel-Lagerung, dadurch deutlich höhere Lebensdauer; wesentlich höhere Lebensdauer der Werkzeuge und Schneidwerkzeuge; verbesserte Genauigkeit und Oberflächenfertigung (Qualität); erhebliche Verminderung von Vibrationen und Geräuschen am Bearbeitungszentrum. Um eine bestmögliche Leistung der Toprun Werkzeughalter in Hochgeschwindigkeits-bereichen zu erzielen, wird wie folgt verfahren: die zwei Gegengewichte werden in der T-Nut am Umfang des Werkzeuges nach Angaben des elektronischen Auswuchtgerätes positioniert. Ein paar einfache Handgriffe ermöglichen dann die komplette Auswuchtung des Werkzeuges samt Anzugsbolzen und Schneidwerkzeug nach ISO 1940/1. Für Maschinen bis 8000 Drehzahlen/ Min. genügt es, die Gewichte auf 0° und 180° zu positionieren. **AUSWUCHTEN.** Das Ziel des Auswuchtens von Werkzeughaltern ist, die ursprüngliche Unwucht "U" auf das maximale zugelassene "G" Niveau zu reduzieren. Die Hersteller von Hochgeschwindigkeits-fräsmaschinen schreiben eine Wuchtgüte von "G1" oder "G2,5" entsprechend ISO 1940/1 Standard für die verwendeten Werkzeuge ihrer Maschinen vor. Die grundlegende Unwucht "U" des Werkzeuges und der Werkzeugaufnahme wird durch die Zentrifugalkraft "C" neutralisiert, die durch die richtig angeordneten Gegengewichte "T1" und"T2" am Umfang der Werkzeugaufnahme entsteht.

E La utilización de los portaherramientas **TOPRUN** equilibrados tiene las siguientes ventajas: prolonga la vida del husillo del centro de mecanizado; aumenta la duración de la herramienta; mejora la precisión y la calidad de las superficies mecanizadas; reduce las vibraciones y la rumorosidad del centro de mecanizado. Para la utilización de los portaherramientas Toprun en máquinas de alta velocidad, los dos contrapesos insertados en la ranura circular graduada (patentada) deben ser posicionados según las indicaciones indicadas por el equipo electrónico de equilibrado; esto garantiza un rápido equilibrado del portaherramientas completo con tirante y herramienta, respetando las especificaciones ISO 1940/1. Para trabajar hasta 8.000 RPM es suficiente posicionar los contrapesos a 0° y 180°. **EQUILIBRADO.** La operación de equilibrado consiste en reducir el desequilibrio "U" existente en el portaherramientas, llevándolo dentro del valor máximo admisible, definido por el grado de quilibrado "G". Normalmente los constructores de máquinas de alta velocidad piden montar portaherramientas equilibrados con un grado "G1" o bien "G2,5" que hace referencia a la norma ISO 1940/1. En lo específico, el equilibrado se obtiene de esta forma: el desequilibrio "U" presente originariamente en el conjunto de portaherramientas y herramienta se compensa por la resultante "C" de las fuerzas centrífugas generadas por los contrapesos "T1" y "T2", la posición de los cuales viene indicada por una máquina equilibradora.

F L'utilisation des porte-outils équilibrables **TOPRUN** apporte les avantages suivants: meilleure durée de vie des roulements de broche; meilleure durée de vie de l'outil; amélioration de la précision et meilleur état de surface; réduction des vibrations et de bruit. En usinage haute vitesse, pour obtenir les meilleures performances avec les porte-outils Toprun, les deux contrepoids doivent être positionnés dans la rainure circulaire graduée (breveté) en suivant les instructions fournies par l'unité électronique d'équilibrage. Un équilibrage rapide et facile de l'ensemble porte-outil, tirette et outil coupant est ainsi obtenu selon les normes ISO 1940/1. Pour une vitesse de broche de 8.000 RPM, il suffit de positionner les contrepoids à 0° et 180°. **EQUILIBRAGE.** L'équilibrage d'un porte-outils consiste à porter le "U" d'origine non équilibré au grade "G" maximum admissible. Les fabriquants de machines à haute vitesse recommandent le grade "G1" ou "G 2,5", prescrits par les normes ISO 1940/1, pour les porte-outils utilisés sur leurs machines. Le "U" d'origine non équilibré de l'outil et du porte-outils est neutralisé par la résultante de la force centrifuge "C" produite par les deux masses d'équilibrage "T1" et "T2".

I L'utilizzo dei portautensili **TOPRUN** bilanciati dà i seguenti vantaggi: allunga la vita del mandrino del centro di lavoro; aumenta la durata dell'utensile; migliora la precisione e la qualità delle superfici lavorate; riduce le vibrazioni e la rumorosità del centro di lavoro. Per l'utilizzo dei portautensili Toprun su macchine ad alta velocità, i due tasselli inseriti nella gola circolare graduata (brevettato) devono essere posizionati secondo le indicazioni date dall'apparecchiatura elettronica di bilanciatura, nel rispetto delle specifiche ISO 1940/1. Per lavorare sino a 8.000 RPM è sufficiente posizionare i tasselli a 0° e a 180°. **EQUILIBRATURA.** L'operazione di equilibratura consiste nel ridurre lo squilibrio "U" esistente nel portautensile, portandolo entro il valore massimo ammissibile definito dal grado di equilibratura "G". Normalmente i costruttori di macchine ad alta velocità richiedono di montare portautensili bilanciati con un grado "G 1" oppure "G 2,5" in riferimento alla norma ISO 1940/1. Nello specifico la bilanciatura avviene in questo modo: lo squilibrio "U" presente originariamente nell'insieme di portautensile e utensile viene compensato dalla risultante "C" delle forze centrifughe generate dai tasselli "T1" e "T2", la posizione dei quali viene indicata da una macchina equilibratrice.

- BALANCEABLE COLLET CHUCKS HOLDER
- AUSWUCHTBARES PRÄZISIONSSPANNZANGENFUTTER
- PORTAPINZAS DE PRECISIÓN EQUILIBRABLES
- PORTE-PINCES DE PRÉCISION ÉQUILIBRABLE
- PORTAPINZE DI PRECISIONE BILANCIABILE

DIN 69893 HSK-A
ER - DIN 6499



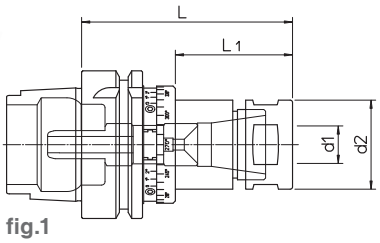


fig.1

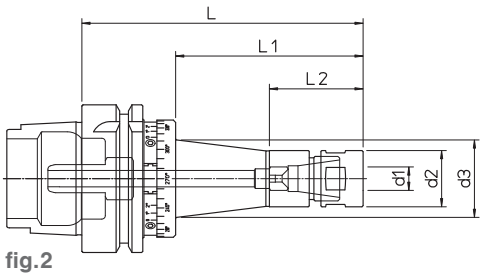


fig.2

- 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.
- Lieferung inklusive Kühlmittelrohr. Ohne Spannzangen und Spannschlüssel. Die Spannmuttern dieser Toprun-Aufnahmen sind für ER Spannzangen mit einem Arbeitsbereich von 0,5 mm vorgesehen.
- Completo con racor para el refrigerante - Pinzas elásticas y llaves de apriete excluidas. Las tuercas de los mandrinos Toprun permiten el empleo de las pinzas ER con un campo de trabajo de 0,5 mm.
- Pourvu de raccord pour liquide d'arrosage - Sans pinces et clés de serrage. Les bagues des mandrins Toprun permettent l'usage des pinces ER avec une capacité d'usinage de 0,5 mm.
- Completo di raccordo per il refrigerante - Pinze elastiche e chiavi di serraggio escluse. Le ghiere dei mandrini Toprun permettono l'impiego delle pinze ER con un campo di lavoro di 0,5 mm.

HSK-A	REF.	CODE	TYPE	d_1	d_2	d_3	L	L_1	L_2	kg	fig.
63	HSK-A63 ER16.80	41 0 10 16 563 20	ER 16	0.5 ~ 10	24	–	80	40	–	0.9	1
	HSK-A63 ER16.120	41 0 12 16 563 20				34	120	80	40	1.1	2
	HSK-A63 ER25.80	41 0 08 25 563 20	ER 25	1 ~ 16	38	–	80	40	–	1.2	1
	HSK-A63 ER25.140	41 0 12 25 563 20				45	140	100	50	1.6	2
	HSK-A63 ER32.90	41 0 08 32 563 20	ER 32	2 ~ 20	50	–	90	–	–	1.5	1

DIN 69893 HSK-E
ER - DIN 6499



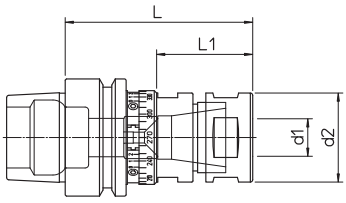


fig.1

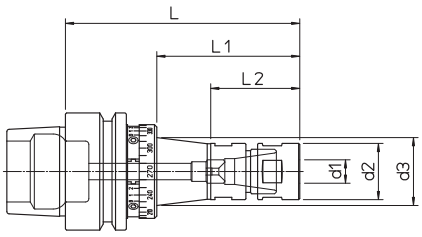
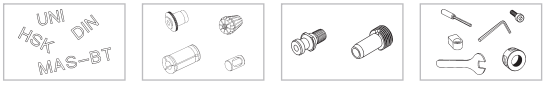


fig.2

- 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.
- Ohne Spannzangen und Spannschlüssel. Die Spannmuttern dieser Toprun-Aufnahmen sind für ER Spannzangen mit einem Arbeitsbereich von 0,5 mm vorgesehen.
- Pinzas elásticas y llaves de apriete excluidas. Las tuercas de los mandrinos Toprun permiten el empleo de las pinzas ER con un campo de trabajo de 0,5 mm.
- Sans pinces et clés de serrage. Les bagues des mandrins Toprun permettent l'usage des pinces ER avec une capacité d'usinage de 0,5 mm.
- Pinze elastiche e chiavi di serraggio escluse. Le ghiere dei mandrini Toprun permettono l'impiego delle pinze ER con un campo di lavoro di 0,5 mm.

HSK-E	REF.	CODE	TYPE	d_1	d_2	d_3	L	L_1	L_2	kg	fig.
40	HSK-E40 ER16.60	41 0 10 16 540 25	ER 16	0.5 ~ 10	24	–	60	28.5	–	0.3	1
	HSK-E40 ER16.100	41 0 12 16 540 25				28	100	68.5	36	0.4	2
	HSK-E40 ER25.70	41 0 10 25 540 25	ER 25	1 ~ 16	38	–	70	–	–	0.7	1
50	HSK-E50 ER16.70	41 0 08 16 550 25	ER 16	0.5 ~ 10	24			31		0.6	
	HSK-E50 ER16.100	41 0 12 16 550 25				29	100	61	38	0.8	2
	HSK-E50 ER25.70	41 0 08 25 550 25	ER 25	1 ~ 16	38	–	70	31	–	1	1

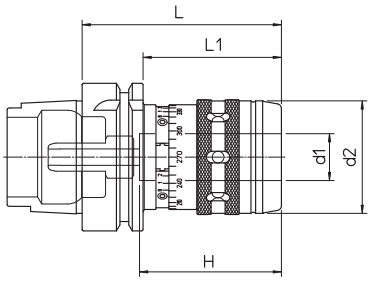
248 242-244 240 223



- HIGH PRECISION ULTRA-TIGHT BALANCEABLE TOOLHOLDER
- AUSWUCHTBARES PRÄZISIONSSPANNZANGENFUTTER MIT HOCHFESTER WERKZEUGSPANNUNG
- PORTAHERRAMIENTAS DE PRECISIÓN DE GRAN APRIETE EQUILIBRABLES
- PORTE-OUTIL ÉQUILIBRABLE DE PRÉCISION À SERRAGE FORT
- PORTAUTENSILE DI PRECISIONE A FORTE SERRAGGIO BILANCIABILE

DIN 69893 HSK-A
FORCE





- Supplied with coolant tube - without clamping wrench
- Lieferung inklusive Kühlmittelrohr. Ohne Spannzangen und Spannschlüssel
- Completo con racor para el refrigerante - Llave de apriete excluida
- Pourvu de raccord pour liquide d'arrosage - Sans clef de serrage
- Completo di raccordo per il refrigerante - Chiave di serraggio esclusa

HSK-A	REF.	CODE	d_1	d_2	H	L	L_1	kg
63	HSK-A63 FORCE20.85	41 0 00 20 563 20	20	48	60	85	59	1.2
	HSK-A63 FORCE32.110	41 0 00 32 563 20	32	66	80	110	–	2

KIT FORCE

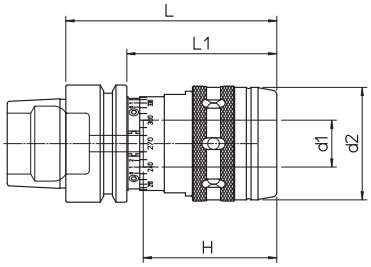


HSK-A	REF.	CODE
63	KIT K01 FORCE 20 HSK63	61 0 00 20 563 20
	KIT K01 FORCE 32 HSK63	61 0 00 32 563 20

KIT K01 FORCE 20	KIT 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 69893 HSK-E
FORCE

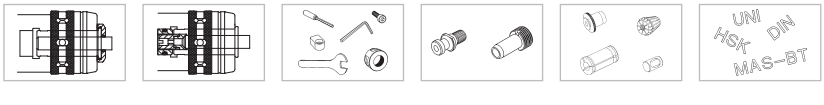




- Without clamping wrench
- Ohne Spannschlüssel
- Llave de apriete excluida
- Sans clef de serrage
- Chiave di serraggio esclusa

HSK-E	REF.	CODE	d_1	d_2	H	L	L_1	kg
50	HSK-E50 FORCE20.90	41 0 00 20 550 25	20	48	60	90	64	1.2

222 222 222 240 241 248



D'ANDREA TOPRUN

- BALANCEABLE COLLET CHUCKS HOLDER
- AUSWUCHTBARES PRÄZISIONSSPANNZANGENFUTTER
- PORTAPINZAS DE PRECISIÓN EQUILIBRABLES
- PORTE-PINCES DE PRÉCISION ÉQUILIBRABLE
- PORTAPINZE DI PRECISIONE BILANCIABILE

DIN 69871 A
ER - DIN 6499



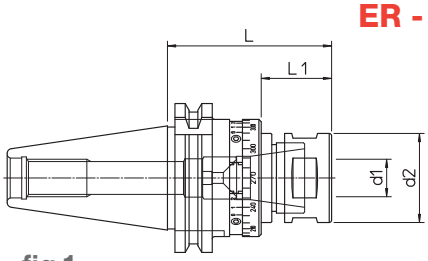


fig.1

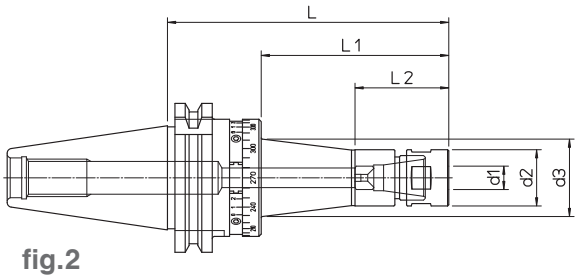


fig.2

- 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.

- Ohne Spannzangen und Spannschlüssel.

Die Spannmuttern dieser Toprun-Aufnahmen sind für ER Spannzangen mit einem Arbeitsbereich von 0,5 mm vorgesehen.

- Pinzas elásticas y llaves de apriete excluidas.

Las tuercas de los mandrinos Toprun permiten el empleo de las pinzas ER con un campo de trabajo de 0,5 mm.

- Sans pinces et clés de serrage.

Les bagues des mandrins Toprun permettent l'usage des pinces ER avec une capacité d'usinage de 0,5 mm.

- Pinze elastiche e chiavi di serraggio escluse.

Le ghiere dei mandrini Toprun permettono l'impiego delle pinze ER con un campo di lavoro di 0,5 mm.

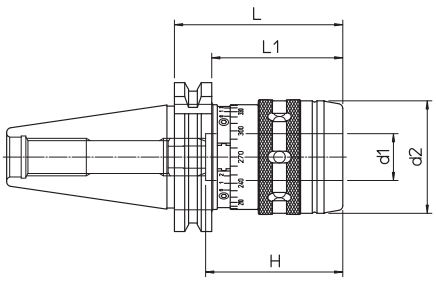
DIN	REF.	CODE	TYPE	d_1	d_2	d_3	L	L_1	L_2	kg	fig.
40	DIN69871-A40 ER16.70	41 0 08 16 140 20	ER 16	0.5 ~ 10	24	–	70	30	–	1.1	1
	DIN69871-A40 ER16.120	41 0 12 16 140 20				34	120	80	40	1.3	2
	DIN69871-A40 ER25.70	41 0 08 25 140 20	ER 25	1 ~ 16	38	–	70	30	–	1.4	1
	DIN69871-A40 ER25.140	41 0 12 25 140 20				45	140	100	50	1.8	2
	DIN69871-A40 ER32.75	41 0 08 32 140 20	ER 32	2 ~ 20	50	–	75	–	–	1.7	1

249 242-244 240 223

- HIGH PRECISION ULTRA-TIGHT BALANCEABLE TOOLHOLDER
- AUSWUCHTBARES PRÄZISIONSSPANNZANGENFUTTER MIT HOCHFESTER WERKZEUGSPANNUNG
- PORTAHERRAMIENTAS DE PRECISIÓN DE GRAN APRIETE EQUILIBRABLES
- PORTE-OUTIL ÉQUILIBRABLE DE PRÉCISION À SERRAGE FORT
- PORTAUTENSILE DI PRECISIONE A FORTE SERRAGGIO BILANCIABILE

DIN 69871 A
FORCE





- Without clamping wrench
- Ohne Spannschlüssel
- Llave de apriete excluida
- Sans clef de serrage
- Chiave di serraggio esclusa

DIN	REF.	CODE	d_1	d_2	H	L	L_1	kg
40	DIN69871-A40 FORCE20.75	41 0 00 20 140 20	20	48	60	75	55.9	1.3
	DIN69871-A40 FORCE32.105	41 0 00 32 140 20	32	66	80	105	–	2.1

KIT FORCE



DIN	REF.	CODE
40	KIT K01 FORCE20 DIN40	61 0 00 20 140 20
	KIT K01 FORCE32 DIN40	61 0 00 32 140 20

KIT K01 FORCE 20	KIT 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

222 222 222 240 241 249

MAS 403 BT
ER-DIN 6499



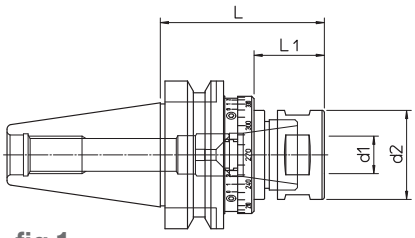


fig.1

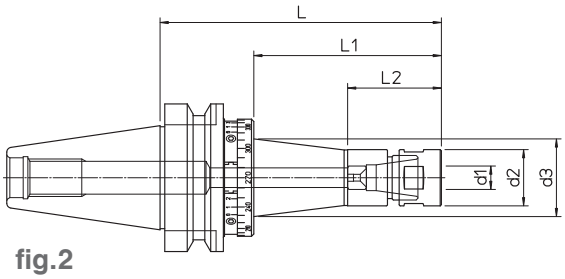


fig.2

- 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.
- Ohne Spannzangen und Spannschlüssel.
Die Spannmuttern dieser Toprun-Aufnahmen sind für ER Spannzangen mit einem Arbeitsbereich von 0,5 mm vorgesehen.
- Pinzas elásticas y llaves de apriete excluidas.
Las tuercas de los mandrinos Toprun permiten el empleo de las pinzas ER con un campo de trabajo de 0,5 mm.
- Sans pinces et clés de serrage.
Les bagues des mandrins Toprun permettent l'usage des pinces ER avec une capacité d'usinage de 0,5 mm.
- Pinze elastiche e chiavi di serraggio escluse.
Le ghiere dei mandrini Toprun permettono l'impiego delle pinze ER con un campo di lavoro di 0,5 mm.

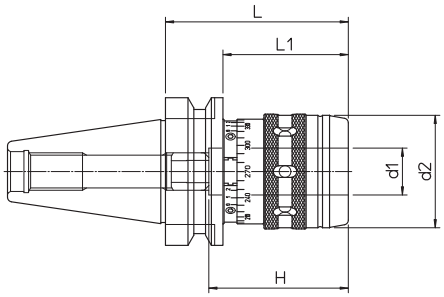
BT	REF.	CODE	TYPE	d_1	d_2	d_3	L	L_1	L_2	kg	fig.
30	MAS403 BT30 ER16.60	41 0 10 16 130 30	ER 16	0.5 ~ 10	24	–	60	25	–	0.8	1
	MAS403 BT30 ER16.90	41 0 12 16 130 30				29	90	55	32	0.9	2
	MAS403 BT30 ER25.60	41 0 10 25 130 30	ER 25	1 ~ 16	38	–	60	25.5	–	1.1	1
40	MAS403 BT40 ER16.70	41 0 08 16 140 30	ER 16	0.5 ~ 10	24		70	30		1	
	MAS403 BT40 ER16.120	41 0 12 16 140 30				34	120	80	40	1.3	2
	MAS403 BT40 ER25.70	41 0 08 25 140 30	ER 25	1 ~ 16	38	–	70	30	–	1.4	1
	MAS403 BT40 ER25.140	41 0 12 25 140 30				45	140	100	50	1.8	2
	MAS403 BT40 ER32.75	41 0 08 32 140 30	ER 32	2 ~ 20	50	–	75	32	–	1.7	1

249 242-244 240 223

- HIGH PRECISION ULTRA-TIGHT BALANCEABLE TOOLHOLDER
- AUSWUCHTBARES PRÄZISIONSSPANNZANGENFUTTER MIT HOCHFESTER WERKZEUGSPANNUNG
- PORTAHERRAMIENTAS DE PRECISIÓN DE GRAN APRIETE EQUILIBRABLES
- PORTE-OUTIL ÉQUILIBRABLE DE PRÉCISION À SERRAGE FORT
- PORTAUTENSILE DI PRECISIONE A FORTE SERRAGGIO BILANCIABILE

MAS 403 BT
FORCE





- Without clamping wrench
- Ohne Spannschlüssel
- Llave de apriete excluida
- Sans clef de serrage
- Chiave di serraggio esclusa

BT	REF.	CODE	d_1	d_2	H	L	L_1	kg
40	MAS403 BT40 FORCE20.80	41 0 00 20 140 30	20	48	60	80	53.5	1.4
	MAS403 BT40 FORCE32.90	41 0 00 32 140 30	32	66	80	90	65	1.9

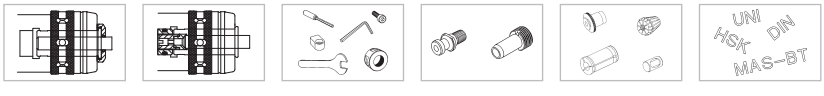
KIT FORCE



BT	REF.	CODE
40	KIT K01 FORCE20 BT40	61 0 00 20 140 30
	KIT K01 FORCE32 BT40	61 0 00 32 140 30

KIT K01 FORCE 20	KIT 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

222 222 222 240 241 249



MONOd’ D’ANDREA

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MAS 403 BT AD+B

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WD
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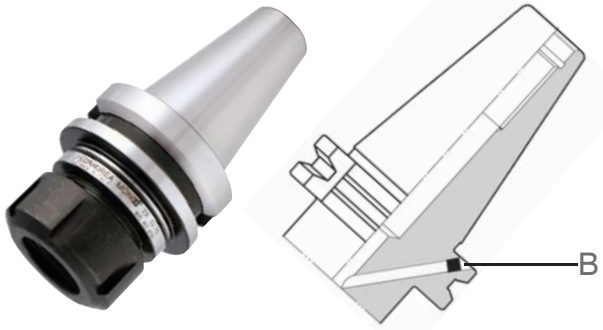












AD + B

Quality, precision, strength and convenience

- **INTEGRATED TOOLHOLDERS**
- **INTEGRIERTEN WERKZEUGHALTER**
- **PORTAHERRAMIENTAS INTEGRALES**
- **PORTE-OUTILS INTÉGRAUX**
- **PORTAUTENSILI INTEGRALI**

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.

D Die vollständigen Werkzeughalter MONOd' stellen die ideale Lösung zum Ausstatten jeder Art von Werkzeugmaschine mit Basisanschluss HSK 63 und 100, DIN AD+B und BT AD+B dar und garantieren die Vorteile hoher Qualität und hohem Präzisionsgrad, zu einem sehr wettbewerbsfähigem Marktpreis. Das MONOd' Programm schließt ER Zangenhalterungen, Weldon, Fräsenhalterung, Reduktionen, Schraubstöcke und Gewindebohrer ein.

E Los portaherramientas integrales MONOd' representan la solución ideal para equipar cualquier tipo de máquina herramienta con unión base HSK 63 y 100, DIN AD+B y BT AD+B, garantizando las ventajas de elevada calidad y alto grado de precisión, con un precio de mercado altamente competitivo. El programa MONOd' incluye portapinzas ER, Weldon, Portafresas, Reducciones a Morse y Roscadores.

F Les porte-outils intégraux MONOd' représentent la solution idéale pour équiper tous les types de machine outils avec une fixation de base HSK 63 et 100, DIN AD+B et BT AD+B, en garantissant les avantages de la qualité élevée et du haut niveau de précision, à un prix de marché très compétitif. Le programme MONOd' comprend des porte-pinces ER, Weldon, des porte-fraises, des réductions des étaux et des taraudeurs.

I I portautensili integrali MONOd' rappresentano la soluzione ideale per attrezzare ogni tipo di macchina utensile con attacco base HSK 63 e 100, DIN AD+B e BT AD+B, garantendo i vantaggi di elevata qualità e alto grado di precisione, con un prezzo di mercato altamente concorrenziale. Il programma MONOd' include portapinze ER, Weldon, Portafrese, Riduzioni Morse e Maschiatori.

DIN 69893 HSK-A
ER - DIN 6499



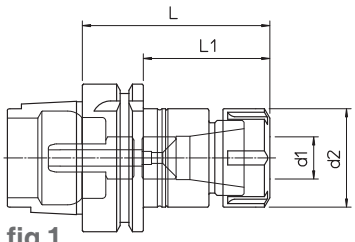


fig.1

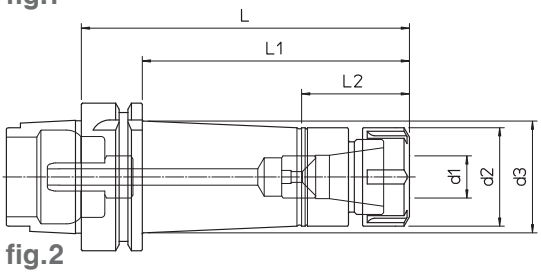


fig.2

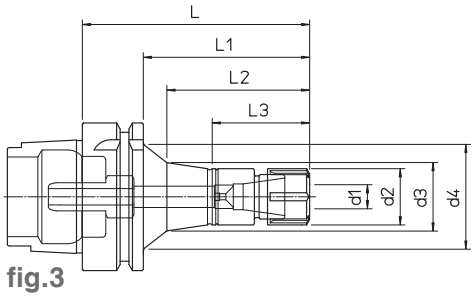
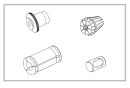
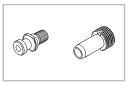


fig.3

- Supplied with coolant tube - without collets and clamping wrenches
- Lieferung inklusive Kühlmittelrohr. Ohne Spannzangen und Spannschlüssel.
- Completo con racor para el refrigerante - Pinzas elásticas y llaves de apriete excluidas
- Pourvu de raccord pour liquide d'arrosage - Sans pinces et clés de serrage
- Completo di raccordo per il refrigerante - Pinze elastiche e chiavi di serraggio escluse

HSK-A	REF.	CODE	TYPE	d_1	d_2	d_3	d_4	L	L_1	L_2	L_3	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	

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DIN 69893 HSK-A
WD - DIN 1835-B



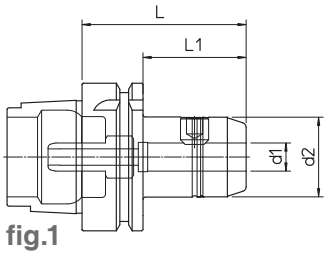


fig.1

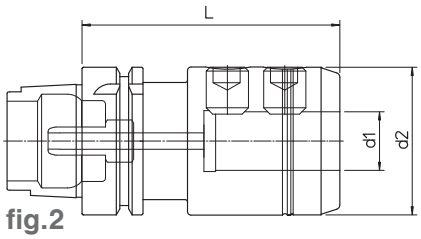


fig.2

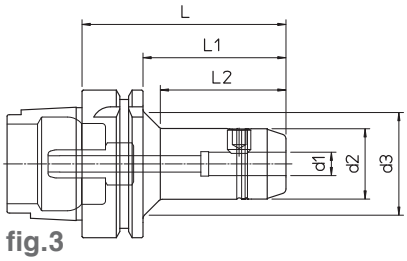


fig.3

- Supplied with coolant tube
- Lieferung inklusive Kühlmittelrohr
- Completo con racor para el refrigerante
- Pourvu de raccord pour liquide d'arrosage
- Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	d_1^{H5}	d_2	d_3	L	L_1	L_2	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	

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DIN 69893 HSK-A
PF



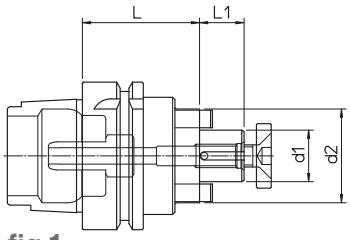
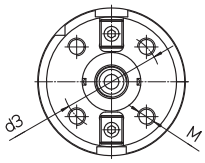


fig.1



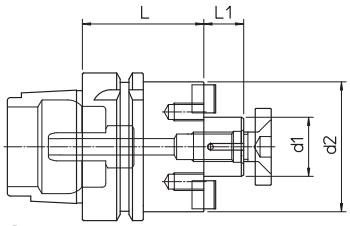
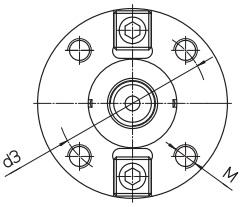


fig.2



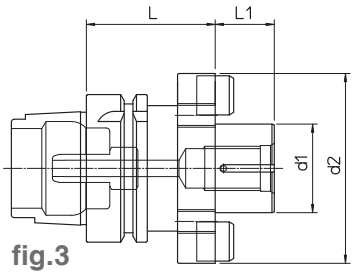
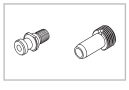


fig.3

- Supplied with coolant tube
- Lieferung inklusive Kühlmittelrohr
- Completo con racor para el refrigerante
- Pourvu de raccord pour liquide d'arrosage
- Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	d_1	d_2	d_3	M	L	L_1	kg	fig.
63	HSK-A63 PF16.50	71HSKA063PF1605	16	32	–	–	50	17	1.1	1
	HSK-A63 PF22.50	71HSKA063PF2205	22	40				19	1.2	
	HSK-A63 PF27.55	71HSKA063PF2705	27	50			55	21	1.4	
	HSK-A63 PF32.60	71HSKA063PF3206	32	60			60	24	1.8	
100	HSK-A100 PF22.65	71HSKA100PF2265	22	40	–	–	65	19	2.3	
	HSK-A100 PF27.65	71HSKA100PF2765	27	50				21	2.5	
	HSK-A100 PF32.70	71HSKA100PF3270	32	60			70	24	2.9	
	HSK-A100 PF40.70	71HSKA100PF4070	40	88	66.7	M12		27	3.3	2
	HSK-A100 PF60.75	71HSKA100PF6075	60	128.5	101.6	M16	75	40	4.2	3

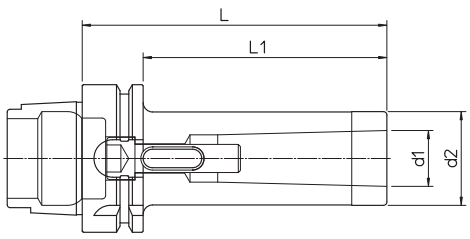
248


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- MORSE TAPER TOOLHOLDER
- WERKZEUGAUFNAHME FÜR MORSEKEGEL
- PORTAHERRAMIENTA CONO MORSE
- PORTE-OUTIL CONE MORSE
- PORTAUTENSILE CONO MORSE

DIN 69893 HSK-A
CM - DIN 228 AB



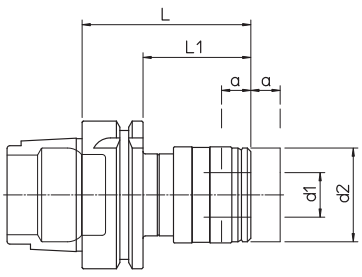


HSK-A	REF.	CODE	MORSE	d_1	d_2	L	L_1	kg
63	HSK-A63 CM2.110 A-B	71HSKA063CMB211	2	17.780	32	110	84	2
	HSK-A63 CM3.130 A-B	71HSKA063CMB313	3	23.825	40	130	104	2.2
	HSK-A63 CM4.155 A-B	71HSKA063CMB415	4	31.267	48	155	129	2.6

- TAPPING TOOLHOLDER
- AUFNAHME MIT GEWINDESCHNEIDSCHNELLWECHSELFUTTER
- PORTAHERRAMIENTA PARA ROSCAR
- PORTE-OUTIL DE TARAUDAGE
- PORTAUTENSILE MASCHIATORE

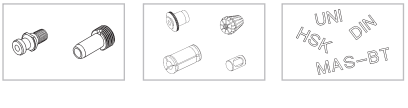
DIN 69893 HSK-A
MS





HSK-A	REF.	CODE	d_1	d_2	L	L_1	a	kg
63	HSK-A63 MS1 M3-12	71HSKA063M10312	19	39	72	46	7.5	1
	HSK-A63 MS2 M8-20	71HSKA063M20820	31	60	110	84	10	1.7

240 245 248



DIN 69871 AD+B40
ER - DIN 6499



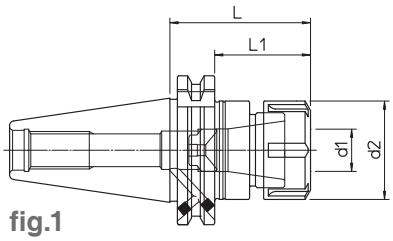


fig.1

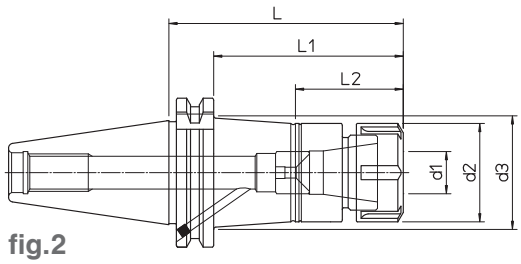
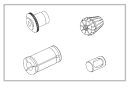
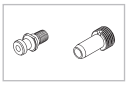


fig.2

- Supplied without collets and clamping wrenches
- Ohne Spannzangen und Spannschlüssel.
- Pinzas elásticas y llaves de apriete excluidas
- Sans pinces et clés de serrage
- Pinze elastiche e chiavi di serraggio escluse

DIN	REF.	CODE	TYPE	d_1	d_2	d_3	L	L_1	L_2	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	

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- **COLLET CHUCK HOLDER**
- **SPANNZANGENFUTTER**
- **PORTAPINZAS**
- **PORTE-PINCES**
- **PORTAPINZE**

DIN 69871 AD+B50
ER - DIN 6499



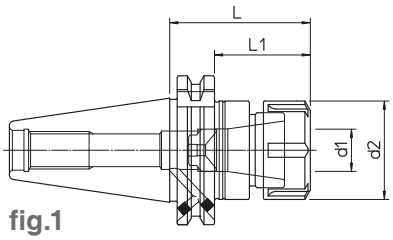


fig.1

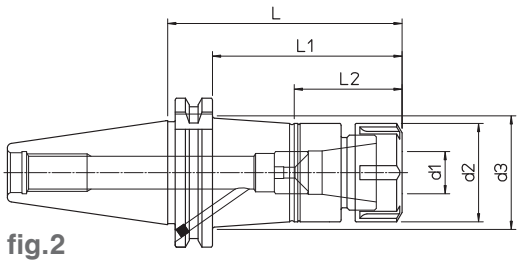


fig.2

- Supplied without collets and clamping wrenches
- Ohne Spannzangen und Spannschlüssel.
- Pinzas elásticas y llaves de apriete excluidas
- Sans pinces et clés de serrage
- Pinze elastiche e chiavi di serraggio escluse

DIN	REF.	CODE	TYPE	d_1	d_2	d_3	L	L_1	L_2	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	2
	DIN69871-AD+B50 ER25.160	71DIN-B50ER2516				50	160	141		3.6	
	DIN69871-AD+B50 ER32.70	71DIN-B50ER3207	ER 32	2 ~ 20	50	–	70	51	–	2.9	1
	DIN69871-AD+B50 ER32.110	71DIN-B50ER3211				55	110	91	52	3.4	2
	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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DIN 69871 AD+B40

WD - DIN 1835-B



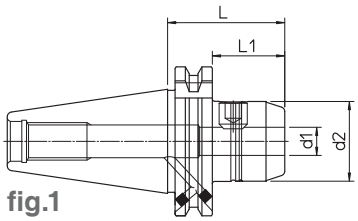


fig.1

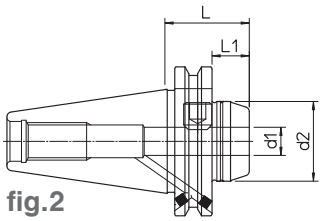


fig.2

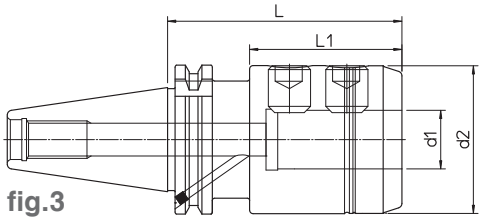


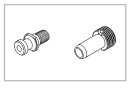
fig.3

DIN	REF.	CODE	d_1^{H5}	d_2	L	L_1	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	
	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	
	DIN69871-AD+B40 WD18.110	71DIN-B40WD1811			110	91	1.9	
	DIN69871-AD+B40 WD20.35	71DIN-B40WD2003	20	44	35	16	1.2	2
	DIN69871-AD+B40 WD20.63	71DIN-B40WD2006		50	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	44	35	16	1.3	2
	DIN69871-AD+B40 WD25.100	71DIN-B40WD2510		63	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	

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DIN 69871 AD+B50

WD - DIN 1835-B



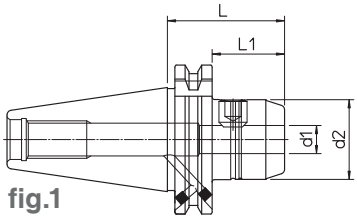


fig.1

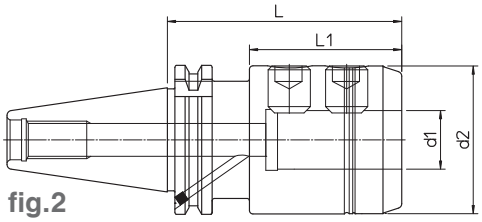
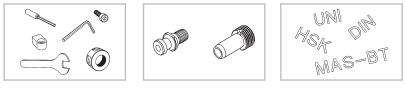


fig.2

DIN	REF.	CODE	d_1^{H5}	d_2	L	L_1	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	
	DIN69871-AD+B50 WD25.110	71DIN-B50WD2511			110	91	4.1	2
	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	
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DIN 69871 AD+B

PF



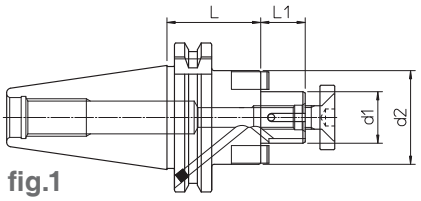


fig.1

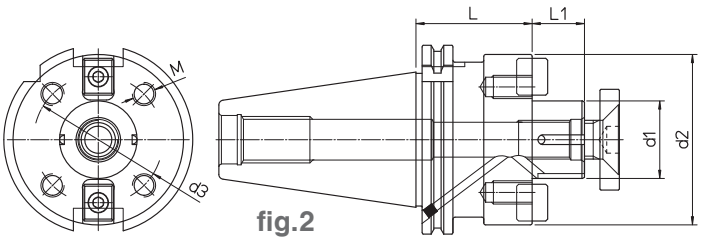
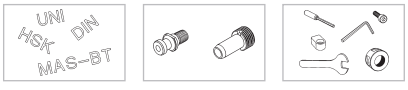


fig.2

DIN	REF.	CODE	d_1	d_2	d_3	M	L	L_1	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	

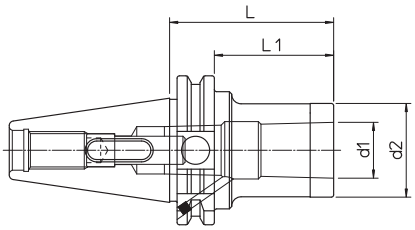
249 240 223



- MORSE TAPER TOOLHOLDER
- WERKZEUGAUFNAHME FÜR MORSEKEGEL
- PORTAHERRAMIENTA CONO MORSE
- PORTE-OUTIL CONE MORSE
- PORTAUTENSILE CONO MORSE

DIN 69871 AD+B
CM - DIN 228 AB



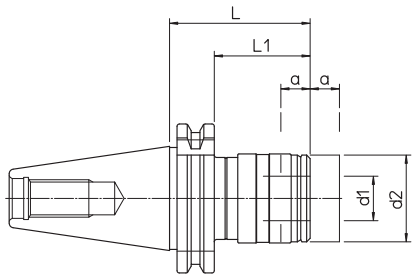


DIN	REF.	CODE	MORSE	d_1	d_2	L	L_1	kg
40	DIN69871-AD+B40 CM2.50 A-B	71DIN-B40CMB205	2	17.780	32	50	31	1
	DIN69871-AD+B40 CM2.125 A-B	71DIN-B40CMB212				125	106	1.4
	DIN69871-AD+B40 CM3.70 A-B	71DIN-B40CMB307	3	23.825	40	70	51	1.1
	DIN69871-AD+B40 CM3.140 A-B	71DIN-B40CMB314			42	140	121	1.5
50	DIN69871-AD+B50 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
- AUFNAHME MIT GEWINDESCHNEIDSCHNELLWECHSELFUTTER
- PORTAHERRAMIENTA PARA ROSCAR
- PORTE-OUTIL DE TARAUDAGE
- PORTAUTENSILE MASCHIATORE

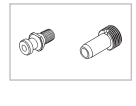
DIN 69871 A
MS

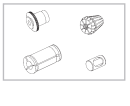




DIN	REF.	CODE	d_1	d_2	L	L_1	a	kg
40	DIN69871-A40 MS1 M3-12	71DIN-A40M10312	19	36	60	40.9	7.5	0.9
	DIN69871-A40 MS2 M8-20	71DIN-A40M20820	31	53	98	78.9	12.5	1.3
50	DIN69871-A50 MS1 M3-12	71DIN-A50M10312	19	38	62	42.9	7.5	2.8
	DIN69871-A50 MS2 M8-20	71DIN-A50M20820	31	53	84	64.9	12.5	3.1
	DIN69871-A50 MS3 M14-33	71DIN-A50M31433	48	78	139	119.9	20	4.3

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MAS 403 BT40 AD+B
ER - DIN 6499



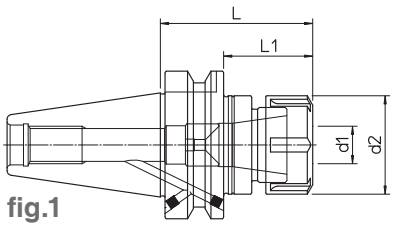


fig.1

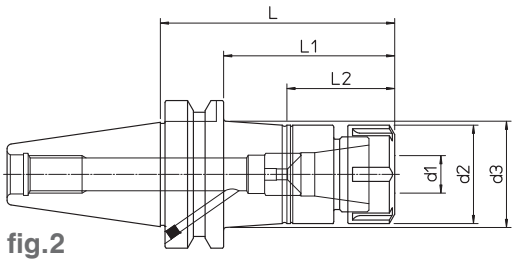


fig.2

- Supplied without collets and clamping wrenches
- Ohne Spannzangen und Spannschlüssel.
- Pinzas elásticas y llaves de apriete excluidas
- Sans pinces et clés de serrage
- Pinze elastiche e chiavi di serraggio escluse

BT	REF.	CODE	TYPE	d_1	d_2	d_3	L	L_1	L_2	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	

249 242-244 240 223

- **COLLET CHUCK HOLDER**
- **SPANNZANGENFUTTER**
- **PORTAPINZAS**
- **PORTE-PINCES**
- **PORTAPINZE**

MAS 403 BT50 AD+B
ER - DIN 6499



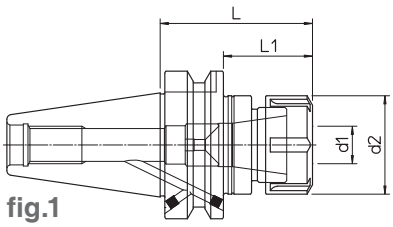


fig.1

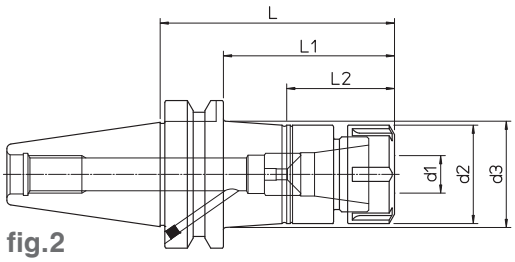


fig.2

- Supplied without collets and clamping wrenches
- Ohne Spannzangen und Spannschlüssel.
- Pinzas elásticas y llaves de apriete excluidas
- Sans pinces et clés de serrage
- Pinze elastiche e chiavi di serraggio escluse

BT	REF.	CODE	TYPE	d_1	d_2	d_3	L	L_1	L_2	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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MAS 403 BT40 AD+B

WD - DIN 1835-B



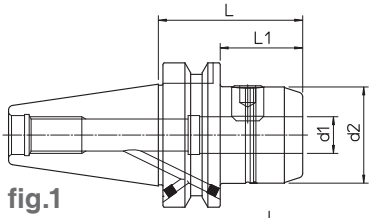


fig.1

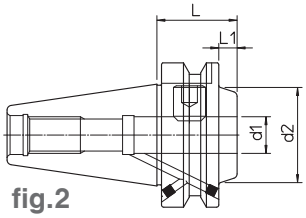


fig.2

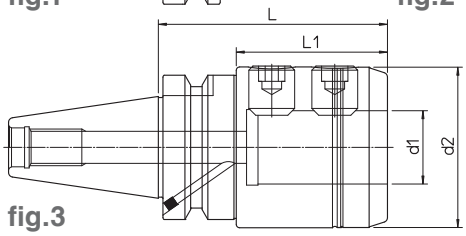


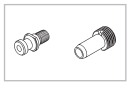
fig.3

BT	REF.	CODE	d_1^{H5}	d_2	L	L_1	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	
	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	
	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	
	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	

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MAS 403 BT50 AD+B
WD - DIN 1835-B



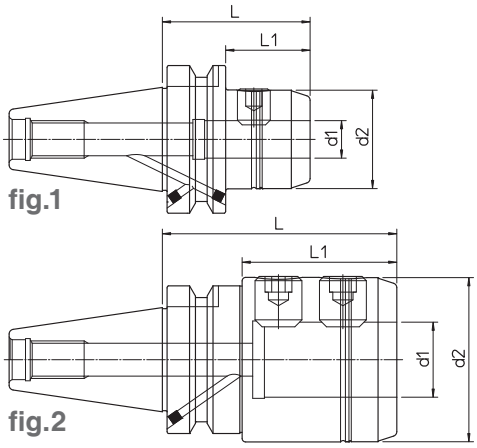
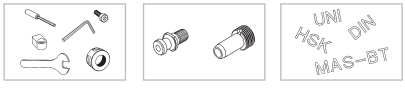


fig.1

fig.2

BT	REF.	CODE	d_1^{H5}	d_2	L	L_1	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



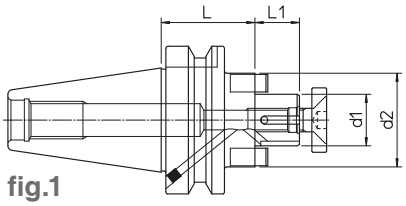


fig.1

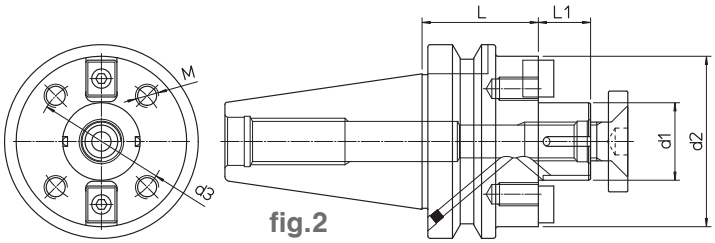
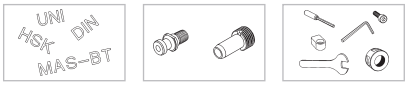


fig.2

BT	REF.	CODE	d_1	d_2	d_3	M	L	L_1	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			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	66.7	M12	60	27	4.3	2
	MAS403 BT50-AD+B PF40.120	71MBT-B50PF4012					120		7.1	
	MAS403 BT50-AD+B PF60.80	71MBT-B50PF6008	60	128.5	101.6	M16	80	40	6.8	

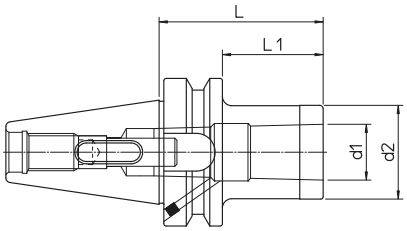
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- MORSE TAPER TOOLHOLDER
- WERKZEUGAUFNAHME FÜR MORSEKEGEL
- PORTAHERRAMIENTA CONO MORSE
- PORTE-OUTIL CONE MORSE
- PORTAUTENSILE CONO MORSE

MAS 403 BT AD+B
CM - DIN 228 AB



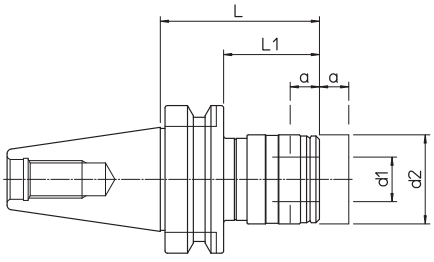


BT	REF.	CODE	MORSE	d_1	d_2	L	L_1	kg
40	MAS403 BT40-AD+B CM2.50 A-B	71MBT-B40CMB205	2	17.780	32	50	23	1
	MAS403 BT40-AD+B CM2.125 A-B	71MBT-B40CMB212				125	98	1.3
	MAS403 BT40-AD+B CM3.70 A-B	71MBT-B40CMB307	3	23.825	40	70	43	1.1
	MAS403 BT40-AD+B CM3.140 A-B	71MBT-B40CMB314				140	113	1.5
50	MAS403 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
- AUFNAHME MIT GEWINDESCHNEIDSCHNELLWE
- PORTAHERRAMIENTA PARA ROSCAR
- PORTE-OUTIL DE TARAUDAGE
- PORTAUTENSILE MASCHIATORE

MAS 403 BT
MS

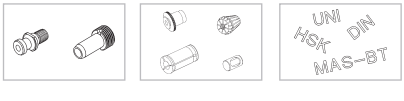




BT	REF.	CODE	d_1	d_2	L	L_1	a	kg
40	MAS403 BT40 MS1 M3-12	71MBT-40-M10312	19	36	67.5	40.5	7.5	0.9
	MAS403 BT40 MS2 M8-20	71MBT-40-M20820	31	53	94.5	67.5	12.5	1.3
50	MAS403 BT50 MS1 M3-12	71MBT-50-M10312	19	38	80	42	7.5	2.8
	MAS403 BT50 MS2 M8-20	71MBT-50-M20820	31	53	102.5	64.5	12.5	3.1
	MAS403 BT50 MS3 M14-33	71MBT-50-M31433	48	78	154.5	116.5	20	4.3

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240 245 223



D'ANDREA

MONOd' CT

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p. 212 **DIN 69893 HSK-A CT**



p. 214 **ISO 26623-1 PSC CT**

p. 240 



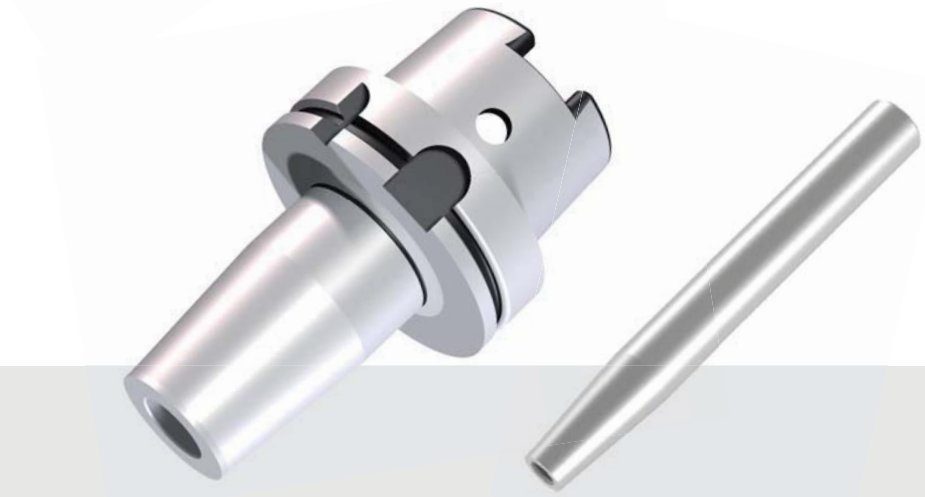
p. 216 **DIN 69871 AD+B CT**

p. 240 

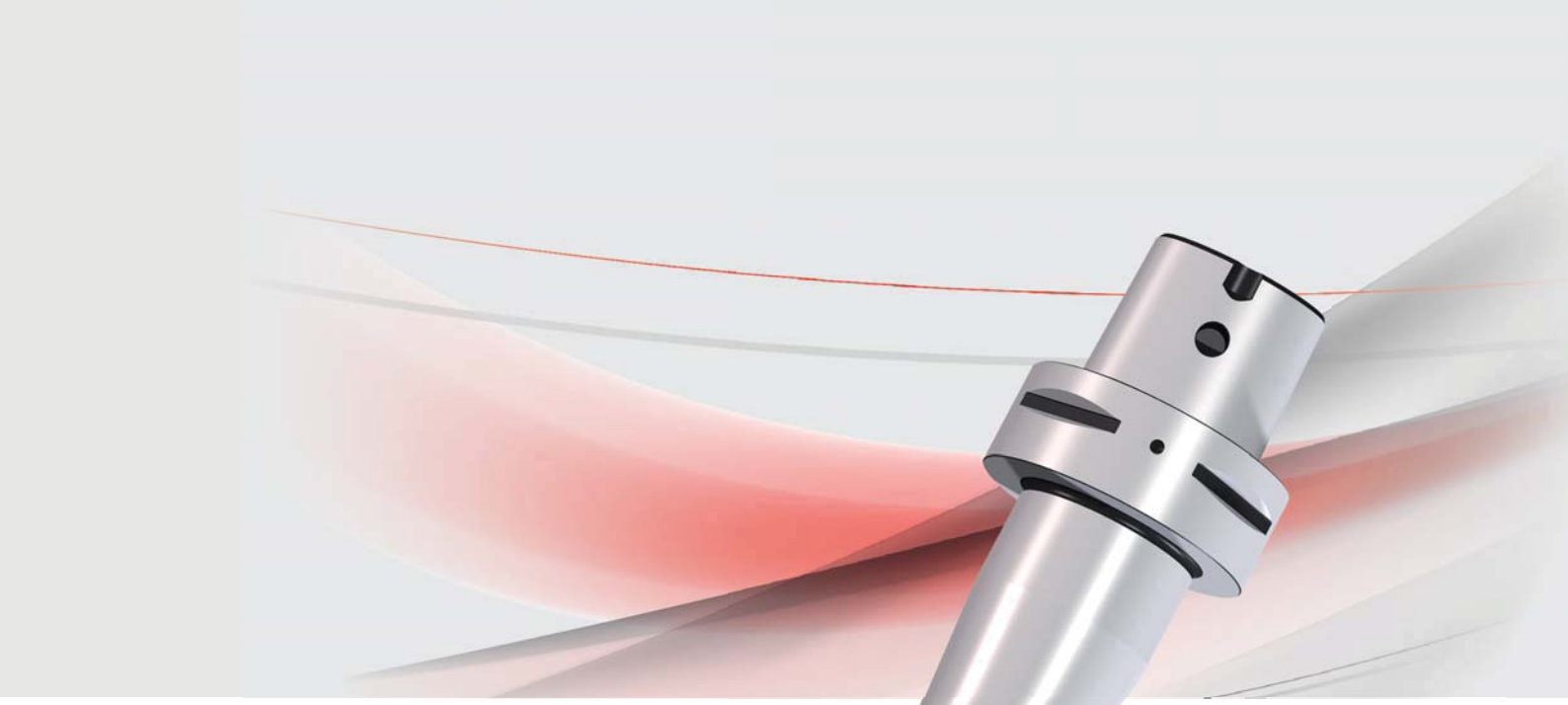


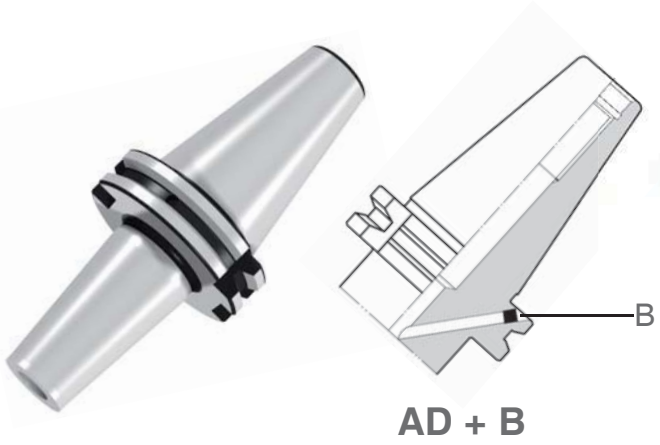
p. 218 **MAS 403 BT AD+B CT**

p. 220 **PR CT**









AD + B

Quality, precision, strength and convenience

- **SHRINK FIT CHUCKS**
- **SCHRUMPFSPANNFUTTER**
- **MANDRILA EMPALME TERMICO**
- **MANDRINS POUR FRETTAGE**
- **MANDRINI A CALETTAMENTO TERMICO**

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.

D Die vollständigen Werkzeughalter auf schrumpfspannfutter MONOd' CT stellen die ideale Lösung zum Ausstatten jeder Art von Werkzeugmaschine mit Basisanschluss HSK 63 und 100, ISO 26623-1 PSC, DIN AD+B und BT AD+B dar und garantieren die Vorteile hoher Qualität und hohem Präzisionsgrad.

E Los portaherramientas integrales a empalme termico MONOd' CT representan la solución ideal para equipar cualquier tipo de máquina herramienta con unión base HSK 63 y 100, SO 26623-1 PSC, DIN AD+B y BT AD+B, garantizando las ventajas de elevada calidad y alto grado de precisión.

F Les porte-outils intégraux à frettage MONOd' CT représentent la solution idéale pour équiper tous les types de machine outils avec une fixation de base HSK 63 et 100, ISO 26623-1 PSC, DIN AD+B et BT AD+B, en garantissant les avantages de la qualité élevée et du haut niveau de précision.

I I portautensili integrali a calettamento termico MONOd' CT rappresentano la soluzione ideale per attrezzare ogni tipo di macchina utensile con attacco base HSK 63 e 100, ISO 26623-1 PSC, DIN AD+B e BT AD+B, garantendo i vantaggi di elevata qualità e alto grado di precisione.

MONOd' CT

- SHRINK FIT CHUCKS
- SCHRUMPFSPANNFUTTER
- MANDRILA EMPALME TERMICO
- MANDRINS POUR FRETTAGE
- MANDRINI A CALETTAMENTO TERMICO

DIN 69893 HSK-A63

CT

0.003

RPM 25.000



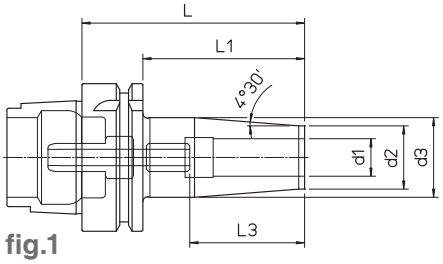


fig.1

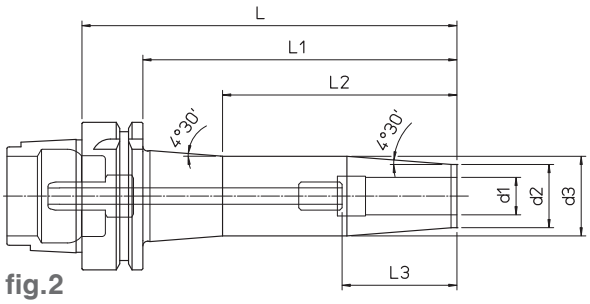


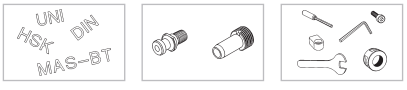
fig.2

- Supplied with coolant tube
- Lieferung inklusive Kühlmittelrohr
- Completo con racor para el refrigerante
- Pourvu de raccord pour liquide d'arrosage
- Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	d_1	d_2	d_3	L	L_1	L_2	L_3	kg	fig.
63	HSK-A63 CT06.80	71HSKA063CT0608	6	21	27	80	54	–	22 / 32	0.8	1
	HSK-A63 CT06.120	71HSKA063CT0612				120	94			1	
	HSK-A63 CT06.160	71HSKA063CT0616				160	134	100		1.2	2
	HSK-A63 CT08.80	71HSKA063CT0808	8			80	54	–	26 / 36	0.8	1
	HSK-A63 CT08.120	71HSKA063CT0812				120	94			1	
	HSK-A63 CT08.160	71HSKA063CT0816				160	134	100		1.2	2
	HSK-A63 CT10.85	71HSKA063CT1008	10	24	32	85	59	–	31 / 41	0.9	1
	HSK-A63 CT10.120	71HSKA063CT1012				120	94			1.1	
	HSK-A63 CT10.160	71HSKA063CT1016				160	134	100		1.4	2
	HSK-A63 CT12.90	71HSKA063CT1209	12			90	64	–	36 / 46	0.9	1
	HSK-A63 CT12.120	71HSKA063CT1212				120	94			1.1	
	HSK-A63 CT12.160	71HSKA063CT1216				160	134	100		1.3	2
	HSK-A63 CT14.90	71HSKA063CT1409	14	27	34	90	64	–		0.9	1
	HSK-A63 CT14.120	71HSKA063CT1412				120	94			1.1	
	HSK-A63 CT14.160	71HSKA063CT1416				160	134	100		1.4	2
	HSK-A63 CT16.95	71HSKA063CT1609	16			95	69	–	39 / 49	0.9	1
	HSK-A63 CT16.120	71HSKA063CT1612				120	94			1.1	
	HSK-A63 CT16.160	71HSKA063CT1616				160	134	100		1.4	2
	HSK-A63 CT18.95	71HSKA063CT1809	18	33	42	95	69	–		1.1	1
	HSK-A63 CT18.120	71HSKA063CT1812				120	94			1.4	
	HSK-A63 CT18.160	71HSKA063CT1816				160	134	100		1.8	2
	HSK-A63 CT20.100	71HSKA063CT2010	20			100	74	–	41 / 51	1.4	1
	HSK-A63 CT20.120	71HSKA063CT2012				120	94			1.3	
	HSK-A63 CT20.160	71HSKA063CT2016				160	134	100		1.8	2
	HSK-A63 CT25.120	71HSKA063CT2512	25	44	53	120	94	–	47 / 57	1.8	1
	HSK-A63 CT25.160	71HSKA063CT2516				160	134			2.5	

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- **SHRINK FIT CHUCKS**
- **SCHRUMPFSPANNFUTTER**
- **MANDRILA EMPALME TERMICO**
- **MANDRINS POUR FRETTAGE**
- **MANDRINI A CALETTAMENTO TERMICO**

DIN 69893 HSK-A100

CT

0.003

RPM 12.000



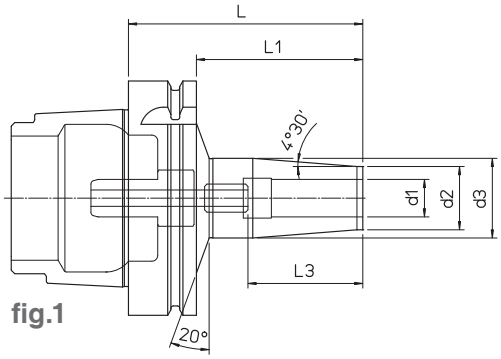


fig.1

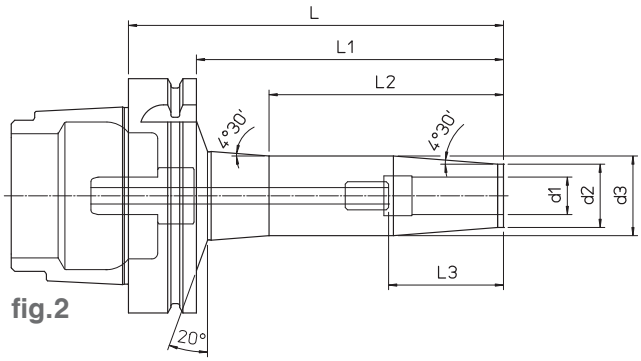


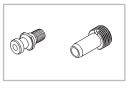
fig.2

- Supplied with coolant tube
- Lieferung inklusive Kühlmittelrohr
- Completo con racor para el refrigerante
- Pourvu de raccord pour liquide d'arrosage
- Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	d_1	d_2	d_3	L	L_1	L_2	L_3	kg	fig.
100	HSK-A100 CT06.85	71HSKA100CT0608	6	21	27	85	56	–	22 / 32	2.2	1
	HSK-A100 CT06.120	71HSKA100CT0612				120	91			2.4	
	HSK-A100 CT06.160	71HSKA100CT0616				160	131	100		2.5	2
	HSK-A100 CT08.85	71HSKA100CT0808	8			85	56	–	26 / 36	2.2	1
	HSK-A100 CT08.120	71HSKA100CT0812				120	91			2.4	
	HSK-A100 CT08.160	71HSKA100CT0816				160	131	100		2.5	2
	HSK-A100 CT10.90	71HSKA100CT1009	10	24	32	90	61	–	31 / 41	2.3	1
	HSK-A100 CT10.120	71HSKA100CT1012				120	91			2.5	
	HSK-A100 CT10.160	71HSKA100CT1016				160	131	100		2.7	2
	HSK-A100 CT12.95	71HSKA100CT1209	12			95	66	–	36 / 46	2.3	1
	HSK-A100 CT12.120	71HSKA100CT1212				120	91			2.5	
	HSK-A100 CT12.160	71HSKA100CT1216				160	134	100		2.7	2
	HSK-A100 CT14.95	71HSKA100CT1409	14	27	34	95	66	–		2.3	1
	HSK-A100 CT14.120	71HSKA100CT1412				120	91			2.5	
	HSK-A100 CT14.160	71HSKA100CT1416				160	131	100		2.8	2
	HSK-A100 CT16.100	71HSKA100CT1610	16			100	71	–	39 / 49	2.3	1
	HSK-A100 CT16.120	71HSKA100CT1612				120	91			2.5	
	HSK-A100 CT16.160	71HSKA100CT1616				160	131	100		2.8	2
	HSK-A100 CT18.100	71HSKA100CT1810	18	33	42	100	71	–		2.5	1
	HSK-A100 CT18.120	71HSKA100CT1812				120	91			2.8	
	HSK-A100 CT18.160	71HSKA100CT1816				160	131	100		3.1	2
	HSK-A100 CT20.120	71HSKA100CT2012	20			120	91	–	41 / 51	2.7	1
	HSK-A100 CT20.160	71HSKA100CT2016				160	131	100		3.1	2
	HSK-A100 CT25.120	71HSKA100CT2512	25	44	53	120	91	–	47 / 57	3.1	1
	HSK-A100 CT25.160	71HSKA100CT2516				160	131	100		3.8	2
	HSK-A100 CT32.120	71HSKA100CT3212	32			120	91	–	51 / 61	2.9	1
	HSK-A100 CT32.160	71HSKA100CT3216				160	131	100		3.5	2

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MONOd' CT

- SHRINK FIT CHUCKS
- SCHRUMPFSPANNFUTTER
- MANDRILA EMPALME TERMICO
- MANDRINS POUR FRETTAGE
- MANDRINI A CALETTAMENTO TERMICO

ISO 26623-1 PSC63

CT

	0.003

RPM 25.000



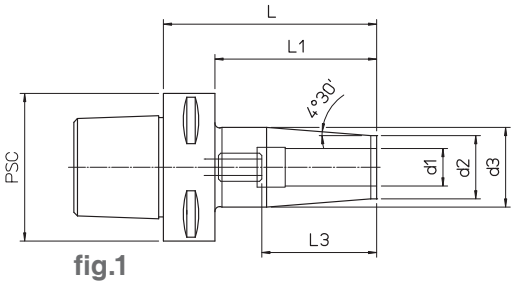


fig.1

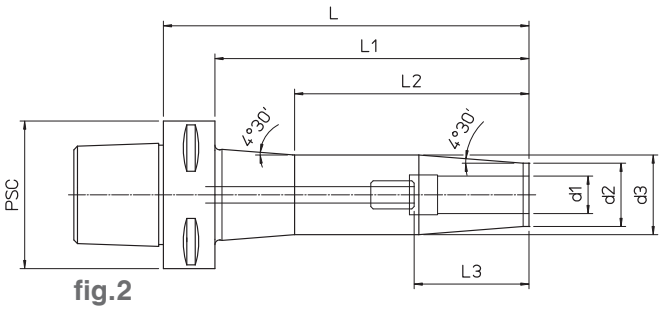


fig.2

PSC	REF.	CODE	d1	d2	d3	L	L1	L2	L3	kg	fig.
63	PSC 63 CT06.80	71PSC-063CT0608	6	21	27	80	55	–	22 / 32	0.8	1
	PSC 63 CT06.120	71PSC-063CT0612				120	95			1	
	PSC 63 CT06.160	71PSC-063CT0616				160	135	100		1.2	2
	PSC 63 CT08.80	71PSC-063CT0808	8			80	55	–	26 / 36	0.8	1
	PSC 63 CT08.120	71PSC-063CT0812				120	95			1	
	PSC 63 CT08.160	71PSC-063CT0816				160	135	100		1.2	2
	PSC 63 CT10.80	71PSC-063CT1008	10	24	32	80	55	–	31 / 41	0.9	1
	PSC 63 CT10.120	71PSC-063CT1012				120	95			1.1	
	PSC 63 CT10.160	71PSC-063CT1016				160	135	100		1.4	2
	PSC 63 CT12.85	71PSC-063CT1208	12			85	60	–	36 / 46	0.9	1
	PSC 63 CT12.120	71PSC-063CT1212				120	95			1.1	
	PSC 63 CT12.160	71PSC-063CT1216				160	135	100		1.3	2
	PSC 63 CT14.85	71PSC-063CT1408	14	27	34	85	60	–		0.9	1
	PSC 63 CT14.120	71PSC-063CT1412				120	95			1.1	
	PSC 63 CT14.160	71PSC-063CT1416				160	135	100		1.4	2
	PSC 63 CT16.85	71PSC-063CT1608	16			85	60	–	39 / 49	0.9	1
	PSC 63 CT16.120	71PSC-063CT1612				120	95			1.1	
	PSC 63 CT16.160	71PSC-063CT1616				160	135	100		1.4	2
	PSC 63 CT18.90	71PSC-063CT1809	18	33	42	90	65	–		1.1	1
	PSC 63 CT18.120	71PSC-063CT1812				120	95			1.4	
	PSC 63 CT18.160	71PSC-063CT1816				160	135	100		1.8	2
	PSC 63 CT20.90	71PSC-063CT2009	20			90	65	–	41 / 51	1.4	1
	PSC 63 CT20.120	71PSC-063CT2012				120	95			1.3	
	PSC 63 CT20.160	71PSC-063CT2016				160	135	100		1.8	2
	PSC 63 CT25.120	71PSC-063CT2512	25	44	53	120	95	–	47 / 57	1.4	1
	PSC 63 CT25.160	71PSC-063CT2516				160	135			1.8	

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- **SHRINK FIT CHUCKS**
- **SCHRUMPFSPANNFUTTER**
- **MANDRILA EMPALME TERMICO**
- **MANDRINS POUR FRETTAGE**
- **MANDRINI A CALETTAMENTO TERMICO**

ISO 26623-1 PSC80

CT

0.003

RPM 12.000



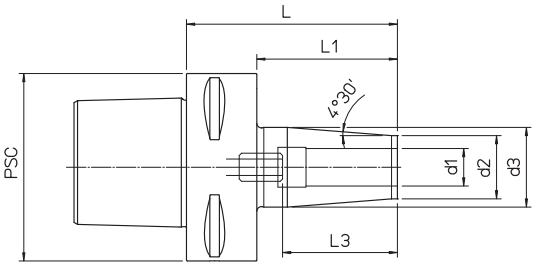


fig.1

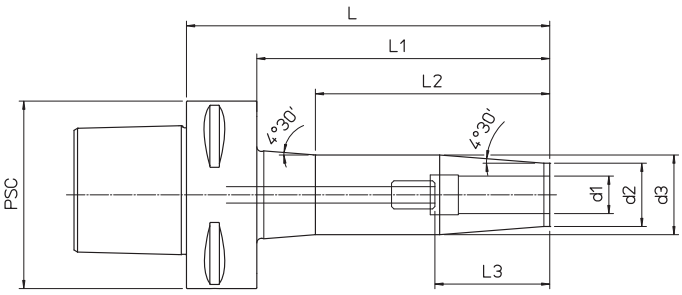


fig.2

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 / 32	2.2	1
	PSC 80 CT06.120	71PSC-080CT0612				120	90			2.4	
	PSC 80 CT06.160	71PSC-080CT0616				160	130	100		2.5	2
	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	2
	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	2
	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	2
	PSC 80 CT14.90	71PSC-080CT1409	14	27	34	90	60	–		2.3	1
	PSC 80 CT14.120	71PSC-080CT1412				120	90			2.5	
	PSC 80 CT14.160	71PSC-080CT1416				160	130	100		2.8	2
	PSC 80 CT16.90	71PSC-080CT1609	16			90	60	–	39 / 49	2.3	1
	PSC 80 CT16.120	71PSC-080CT1612				120	90			2.5	
	PSC 80 CT16.160	71PSC-080CT1616				160	130	100		2.8	2
	PSC 80 CT18.95	71PSC-080CT1809	18	33	42	95	65	–		2.5	1
	PSC 80 CT18.120	71PSC-080CT1812				120	90			2.8	
	PSC 80 CT18.160	71PSC-080CT1816				160	130	100		3.1	2
	PSC 80 CT20.95	71PSC-080CT2009	20			95	65	–	41 / 51	2.5	1
	PSC 80 CT20.120	71PSC-080CT2012				120	90			2.8	
	PSC 80 CT20.160	71PSC-080CT2016				160	130	100		3.1	2
	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		3.8	2
	PSC 80 CT32.120	71PSC-080CT3212	32			120	90	–	51 / 61	2.9	1
	PSC 80 CT32.160	71PSC-080CT3216				160	130	100		3.5	2

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MONOd' CT

- SHRINK FIT CHUCKS
- SCHRUMPFSPANNFUTTER
- MANDRILA EMPALME TERMICO
- MANDRINS POUR FRETTAGE
- MANDRINI A CALETTAMENTO TERMICO

DIN 69871 AD+B40

CT

0.003

RPM 25.000



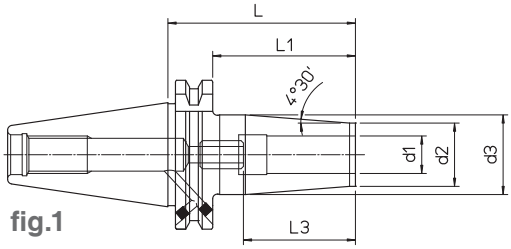


fig.1

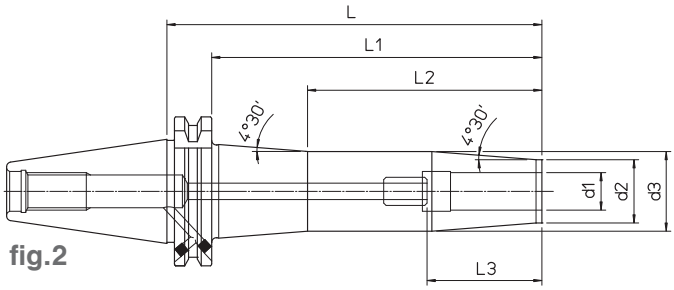
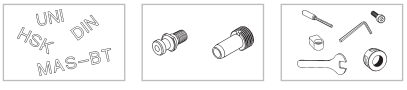


fig.2

DIN	REF.	CODE	d_1	d_2	d_3	L	L_1	L_2	L_3	kg	fig.
40	DIN69871-AD+B40 CT06.80	71DIN-B40CT0608	6	21	27	80	61	–	22 / 32	0.8	1
	DIN69871-AD+B40 CT06.120	71DIN-B40CT0612				120	101			1	
	DIN69871-AD+B40 CT06.160	71DIN-B40CT0616				160	141	100		1.2	2
	DIN69871-AD+B40 CT08.80	71DIN-B40CT0808	8			80	61	–	26 / 36	0.8	1
	DIN69871-AD+B40 CT08.120	71DIN-B40CT0812				120	101			1	
	DIN69871-AD+B40 CT08.160	71DIN-B40CT0816				160	141	100		1.2	2
	DIN69871-AD+B40 CT10.80	71DIN-B40CT1008	10	24	32	80	61	–	31 / 41	0.9	1
	DIN69871-AD+B40 CT10.120	71DIN-B40CT1012				120	101			1.1	
	DIN69871-AD+B40 CT10.160	71DIN-B40CT1016				160	141	100		1.4	2
	DIN69871-AD+B40 CT12.80	71DIN-B40CT1208	12			80	61	–	36 / 46	0.9	1
	DIN69871-AD+B40 CT12.120	71DIN-B40CT1212				120	101			1.1	
	DIN69871-AD+B40 CT12.160	71DIN-B40CT1216				160	141	100		1.3	2
	DIN69871-AD+B40 CT14.80	71DIN-B40CT1408	14	27	34	80	61	–		0.9	1
	DIN69871-AD+B40 CT14.120	71DIN-B40CT1412				120	101			1.1	
	DIN69871-AD+B40 CT14.160	71DIN-B40CT1416				160	141	100		1.4	2
	DIN69871-AD+B40 CT16.80	71DIN-B40CT1608	16			80	61	–	39 / 49	0.9	1
	DIN69871-AD+B40 CT16.120	71DIN-B40CT1612				120	101			1.1	
	DIN69871-AD+B40 CT16.160	71DIN-B40CT1616				160	141	100		1.4	2
	DIN69871-AD+B40 CT18.80	71DIN-B40CT1808	18	33	42	80	61	–		1.1	1
	DIN69871-AD+B40 CT18.120	71DIN-B40CT1812				120	101			1.4	
	DIN69871-AD+B40 CT18.160	71DIN-B40CT1816				160	141	100		1.8	2
	DIN69871-AD+B40 CT20.80	71DIN-B40CT2008	20			80	61	–	41 / 51	1.4	1
	DIN69871-AD+B40 CT20.120	71DIN-B40CT2012				120	101			1.3	
	DIN69871-AD+B40 CT20.160	71DIN-B40CT2016				160	141	100		1.8	2
	DIN69871-AD+B40 CT25.100	71DIN-B40CT2510	25	44	53	100	81	–	47 / 57	1.8	1

249 240 223



DIN 69871 AD+B50

CT

0.003

RPM 12.000



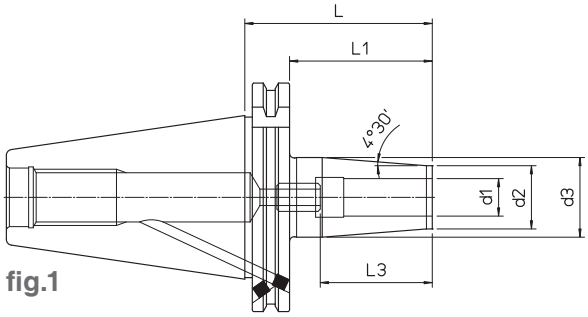


fig.1

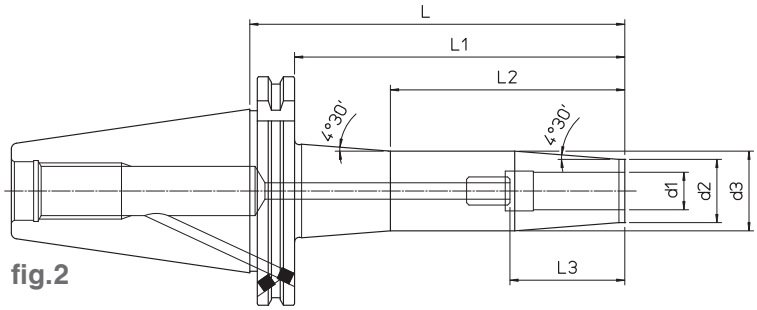
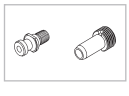


fig.2

DIN	REF.	CODE	d_1	d_2	d_3	L	L_1	L_2	L_3	kg	fig.
50	DIN69871-AD+B50 CT06.80	71DIN-B50CT0608	6	21	27	80	61	–	22 / 32	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 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 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 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 CT14.80	71DIN-B50CT1408	14	27	34	80	61	–		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 CT18.80	71DIN-B50CT1808	18	33	42	80	61	–		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 CT25.120	71DIN-B50CT2512	25	44	53	120	101	–	47 / 57	3.1	1
	DIN69871-AD+B50 CT25.160	71DIN-B50CT2516				160	141	100		3.8	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	2

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MAS 403 BT40 AD+B
CT

0.003

RPM 25.000



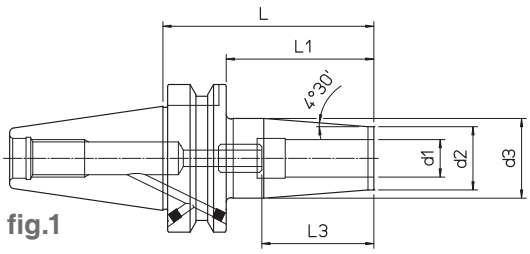


fig.1

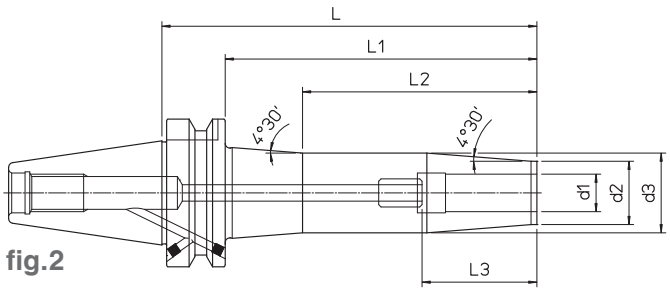
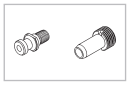


fig.2

DIN	REF.	CODE	d_1	d_2	d_3	L	L_1	L_2	L_3	kg	fig.
40	MAS403 BT40-AD+B CT06.90	71MBT-B40CT0609	6	21	27	90	63	–	22 / 32	0.8	1
	MAS403 BT40-AD+B CT06.120	71MBT-B40CT0612				120	93			1	
	MAS403 BT40-AD+B CT06.160	71MBT-B40CT0616				160	133	100		1.2	2
	MAS403 BT40-AD+B CT08.90	71MBT-B40CT0809	8			90	63	–	26 / 36	0.8	1
	MAS403 BT40-AD+B CT08.120	71MBT-B40CT0812				120	93			1	
	MAS403 BT40-AD+B CT08.160	71MBT-B40CT0816				160	133	100		1.2	2
	MAS403 BT40-AD+B CT10.90	71MBT-B40CT1009	10	24	32	90	63	–	31 / 41	0.9	1
	MAS403 BT40-AD+B CT10.120	71MBT-B40CT1012				120	93			1.1	
	MAS403 BT40-AD+B CT10.160	71MBT-B40CT1016				160	133	100		1.4	2
	MAS403 BT40-AD+B CT12.90	71MBT-B40CT1209	12			90	63	–	36 / 46	0.9	1
	MAS403 BT40-AD+B CT12.120	71MBT-B40CT1212				120	93			1.1	
	MAS403 BT40-AD+B CT12.160	71MBT-B40CT1216				160	133	100		1.3	2
	MAS403 BT40-AD+B CT14.90	71MBT-B40CT1409	14	27	34	90	63	–		0.9	1
	MAS403 BT40-AD+B CT14.120	71MBT-B40CT1412				120	93			1.1	
	MAS403 BT40-AD+B CT14.160	71MBT-B40CT1416				160	133	100		1.4	2
	MAS403 BT40-AD+B CT16.90	71MBT-B40CT1609	16			90	63	–	39 / 49	0.9	1
	MAS403 BT40-AD+B CT16.120	71MBT-B40CT1612				120	93			1.1	
	MAS403 BT40-AD+B CT16.160	71MBT-B40CT1616				160	133	100		1.4	2
	MAS403 BT40-AD+B CT18.90	71MBT-B40CT1809	18	33	42	90	63	–		1.1	1
	MAS403 BT40-AD+B CT18.120	71MBT-B40CT1812				120	93			1.4	
	MAS403 BT40-AD+B CT18.160	71MBT-B40CT1816				160	133	100		1.8	2
	MAS403 BT40-AD+B CT20.90	71MBT-B40CT2009	20			90	63	–	41 / 51	1.4	1
	MAS403 BT40-AD+B CT20.120	71MBT-B40CT2012				120	93			1.3	
	MAS403 BT40-AD+B CT20.160	71MBT-B40CT2016				160	133	100		1.8	2
	MAS403 BT40-AD+B CT25.100	71MBT-B40CT2510	25	44	53	100	73	–	47 / 57	1.8	1

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MAS 403 BT50 AD+B
CT

0.003

RPM 12.000



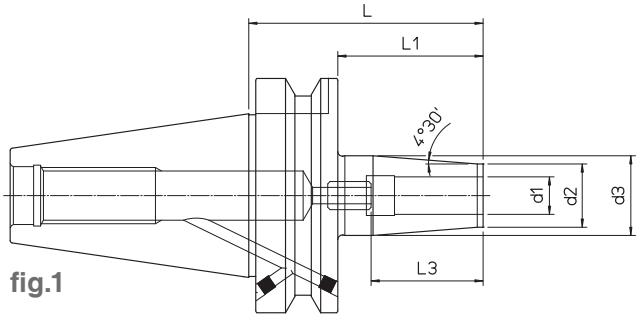


fig.1

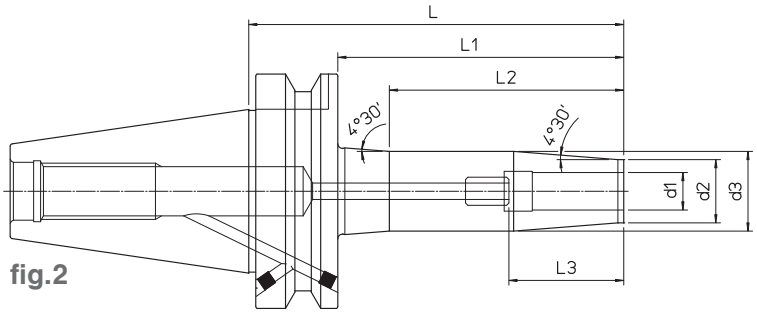


fig.2

DIN	REF.	CODE	d_1	d_2	d_3	L	L_1	L_2	L_3	kg	fig.
50	MAS403 BT50-AD+B CT06.100	71MBT-B50CT0610	6	21	27	100	62	–	22 / 32	2.2	1
	MAS403 BT50-AD+B CT06.160	71MBT-B50CT0616				160	122	100		2.5	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 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 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 CT14.100	71MBT-B50CT1410	14	27	34	100	62	–		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 CT18.100	71MBT-B50CT1810	18	33	42	100	62	–		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 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 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

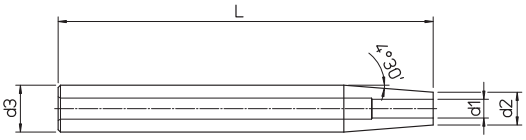
223 240 249

MONOd' CT

- SHRINK FIT EXTENSIONS
- SCHRUMPFVERLÄNGERUNGEN
- ENCHUFE ALARGADOR CON ACOPLAMIENTO TÉRMICO.
- RALLONGES À FRETTAGE THERMIQUE
- PROLUNGHE A CALETTAMENTO TERMICO

PR CT N



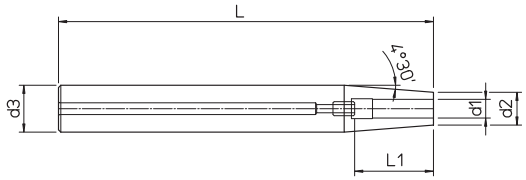


REF.	CODE	d_1	d_2	d_3	L	kg
PR.CT.N D12.03.160	49DC11612030	3	8	12	160	0.09
PR.CT.N D12.04.160	49DC11612040	4				
PR.CT.N D16.03.160	49DC11616030	3	10	16		0.14
PR.CT.N D16.04.160	49DC11616040	4				
PR.CT.N D16.05.160	49DC11616050	5				0.15
PR.CT.N D16.06.160	49DC11616060	6	12			0.16
PR.CT.N D16.08.160	49DC11616080	8	14			
PR.CT.N D20.05.160	49DC11620050	5		20		0.27
PR.CT.N D20.06.160	49DC11620060	6				0.26
PR.CT.N D20.08.160	49DC11620080	8				
PR.CT.N D20.10.160	49DC11620100	10	16			0.21
PR.CT.N D20.12.160	49DC11620120	12	18			0.22

- **SHRINK FIT EXTENSIONS WITH AXIAL ADJUSTMENT**
- **SCHRUMPFVERLÄNGERUNG MIT AXIALER EINSTELLUNG**
- **ENCHUFE ALARGADOR CON ACOPLAMIENTO TÉRMICO DE REGULACIÓN AXIAL**
- **RALLONGES À FRETTAGE THERMIQUE À RÉGLAGE AXIAL**
- **PROLUNGHE A CALETTAMENTO TERMICO A REGOLAZIONE ASSIALE**

PR CT R





REF.	CODE	d_1	d_2	d_3	L	L_1	kg
PR.CT.R D16.06.130	49DC21316060	6	10	16	130	22 / 32	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	8				26 / 36	0.25
PR.CT.R D20.06.160	49DC21620060	6			160	22 / 32	0.33
PR.CT.R D20.08.160	49DC21620080	8				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				36 / 46	0.48
PR.CT.R D25.14.160	49DC21625140	14	22				0.47
PR.CT.R D25.16.160	49DC21625160	16				39 / 49	0.43
PR.CT.R D25.08.200	49DC22025080	8	19		200	26 / 36	0.67
PR.CT.R D25.10.200	49DC22025100	10	20			31 / 41	0.64
PR.CT.R D25.12.200	49DC22025120	12				36 / 46	0.60
PR.CT.R D25.16.200	49DC22025160	16	22			39 / 49	0.52
PR.CT.R D32.16.160	49DC21632160		27	32	160		0.78
PR.CT.R D32.18.160	49DC21632180	18					0.77
PR.CT.R D32.20.160	49DC21632200	20				41 / 51	0.67
PR.CT.R D32.16.200	49DC22032160	16			200	39 / 49	1.81
PR.CT.R D32.20.200	49DC22032200	20				41 / 51	0.87

FORCE GH - VT

- SEALING DEVICE FOR HIGH PRESSURE COOLANT SUPPLY
- DICHTVORRICHTUNG FÜR HOCHDRUCK-KÜHLMITTELZUFUHR
- DISPOSITIVOS DE RETENCIÓN PARA REFRIGERANTE A ALTA PRESIÓN
- SYSTÈME D'ÉTANCHÉITÉ POUR L'ALIMENTATION DE REFROIDISSEMENT HAUTE PRESSION
- DISPOSITIVI A TENUTA PER REFRIGERANTE AD ALTA PRESSIONE

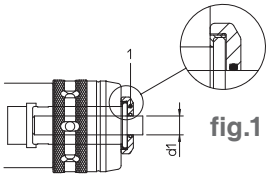


fig.1

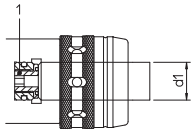


fig.2

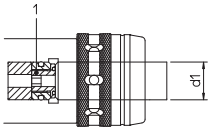
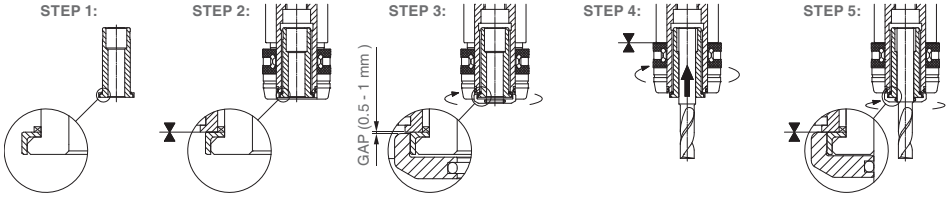


fig.3

fig.	REF.	CODE 1	d_1
1	GH 20 MONOforce 20 HSK63 MHD'50 / DIN/BT-40-50	38 20 42 020061	6
		38 20 42 020081	8
		38 20 42 020101	10
		38 20 42 020121	12
		38 20 42 020141	14
		38 20 42 020161	16
2	VT 20.20 MONOforce 20 DIN/BT-40-50 HSK63-100	38 20 42 020201	20
1	GH 32 MONOforce 32 DIN/BT-40-50 / HSK63-100 MHD'63	38 20 42 032061	6
		38 20 42 032081	8
		38 20 42 032101	10
		38 20 42 032121	12
		38 20 42 032141	14
		38 20 42 032161	16
		38 20 42 032181	18
		38 20 42 032201	20
		38 20 42 032251	25
2	VT 32.32 MONOforce 32 DIN/BT-40 HSK63-100	38 20 42 032321	32
3	VT 32.32.100 MONOforce 32 DIN/BT-50	38 20 42 032322	32



FORCE VCR

- SETTING SCREW FOR INTERNAL COOLANT SUPPLY
- EINSTELLSCHRAUBE FÜR INNERE KÜHLMITTELZUFUHR
- TORNILLO REGULACIÓN PASO REFRIGERANTE
- VIS DE RÉGLAGE POUR L'ALIMENTATION DE REFROIDISSEMENT
- VITE REGOLAZIONE CON PASSAGGIO REFRIGERANTE

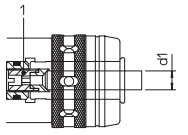


fig.1

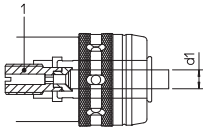
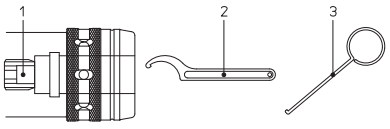


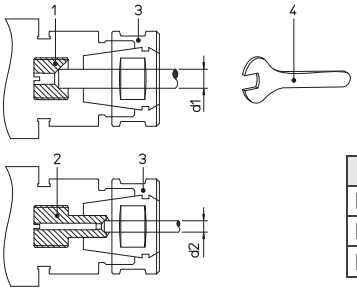
fig.2

fig.	REF.	CODE 1	d_1
1	VCR 20 MONOforce 20 HSK63-100 MHD'50	38 20 41 020032	3 ~ 5
		38 20 41 020062	6 ~ 12
		38 20 41 020142	14 ~ 20
1	VCR 32 MONOforce 32 HSK63-100 MHD'63	38 20 41 032033	3 ~ 5
		38 20 41 032063	6 ~ 12
		38 20 41 032143	14 ~ 20
		38 20 41 032253	25 ~ 32
2	VCR 20 MONOforce 20 DIN/BT-40-50	38 20 41 020031	3 ~ 5
		38 20 41 020061	6 ~ 12
		38 20 41 020141	14 ~ 20
2	VCR 32 MONOforce 32 DIN/BT-40	38 20 41 032031	3 ~ 5
		38 20 41 032061	6 ~ 12
		38 20 41 032141	14 ~ 20
		38 20 41 032251	25 ~ 32
2	VCR 32 MONOforce 32 DIN/BT-50	38 20 41 032032	3 ~ 5
		38 20 41 032062	6 ~ 12
		38 20 41 032142	14 ~ 20
		38 20 41 032252	25 ~ 32

FORCE

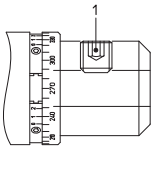


REF.	CODE 1	CODE 2	CODE 3
FORCE 12	20 010 019 1014	10 150 04 0 0028	201271600400
FORCE 20	20 010 019 1615	10 150 04 0 0050	
FORCE 32		10 150 04 0 0075	



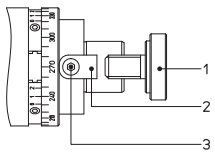
TOPRUN - ER

REF.	CODE 1	d1	CODE 2	d2	CODE 3	CODE 4
ER 16	20 108 20 10 001	5 ~ 10	20 108 20 10 002	1 ~ 4	20 104 19 100 01	20 127 150 2200
ER 25	20 108 20 18 001	8 ~ 16	20 108 20 18 002	2 ~ 7	20 104 30 100 02	20 127 150 3400
ER 32	20 108 20 22 001	8 ~ 20	20 108 20 22 002	3 ~ 7	20 104 40 150 01	20 127 150 4500



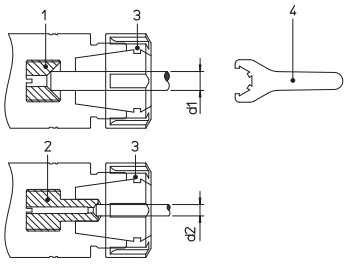
TOPRUN - WLD

REF.	CODE 1	REF.	CODE 1
WLD 06	20 010 019 0610	WLD 16	20 010 019 1414
WLD 08	20 010 019 0810	WLD 20	20 010 019 1616
WLD 10	20 010 019 1010	WLD 25	20 010 019 1820
WLD 12	20 010 019 1212	WLD 32	20 010 019 2020



TOPRUN - PFS

REF.	CODE 1	CODE 2	CODE 3
PFS 16	20 108 03 08 001	20 110 18 008 01	10 005 1 030 008
PFS 22	20 108 03 10 001	20 110 18 010 02	10 005 1 040 010
PFS 27	20 108 03 12 001	20 110 18 012 02	10 005 1 050 012
PFS 32	20 108 03 16 001	20 110 18 014 02	10 005 1 060 016



MONOd' - ER

REF.	CODE 1	d1	CODE 2	d2	CODE 3	CODE 4
ER 16 M	20 108 20 10 001	5 ~ 10	20 108 20 10 002	1 ~ 4	10 045 1 01 16 00	10 150 10 0 1600
ER 25	20 108 20 18 001	8 ~ 16	20 108 20 18 002	2 ~ 7	10 045 1 03 25 00	10 150 10 0 2501
ER 32	20 108 20 22 001	8 ~ 20	20 108 20 22 002	3 ~ 7	10 045 1 03 32 00	10 150 10 0 3201
ER 40	20 108 20 28 001	9 ~ 26	20 108 20 28 002	4 ~ 8	10 045 1 03 40 00	10 150 10 0 4001

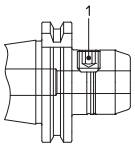


fig.1

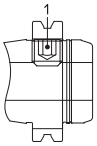
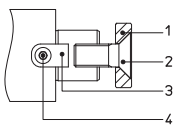


fig.2

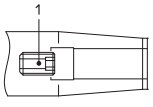
MONOd' - WD

fig.	REF.	CODE 1	fig.	REF.	CODE 1
1	WD 06	20 010 019 0610	1	WD 20	20 010 019 1616
	WD 08	20 010 019 0810	2		20 010 019 1613
	WD 10	20 010 019 1010	1	WD 25	20 010 019 1820
	WD 12	20 010 019 1212	2		20 010 019 1821
	WD 14		1	WD 32	20 010 019 2020
	WD 16	20 010 019 1414		WD 40	
	WD 18				



MONOd' - PF

REF.	CODE 1	CODE 2	CODE 3	CODE 4
PF 16	20 101 0085 01 0	10 010 1 080 025	20 110 18 008 01	10 005 1 030 008
PF 22	20 101 0105 03 0	10 010 1 100 025	20 110 18 010 02	10 005 1 040 010
PF 27	20 101 0125 03 0	10 010 1 120 030	20 110 18 012 02	10 005 1 050 012
PF 32	20 101 0165 02 0	10 010 1 160 035	20 110 18 014 02	10 005 1 060 016



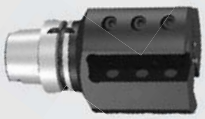
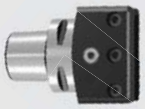
MONOd' CT

REF.	CODE 1	REF.	CODE 1
CT 06	20 010 019 0520	CT 16	20 010 019 1221
CT 08	20 010 019 0620	CT 18	
CT 10	20 010 019 0820	CT 20	20 010 019 1620
CT 12	20 010 019 1018	CT 25	
CT 14		CT 32	

D'ANDREA

MCD' HSK-PSC

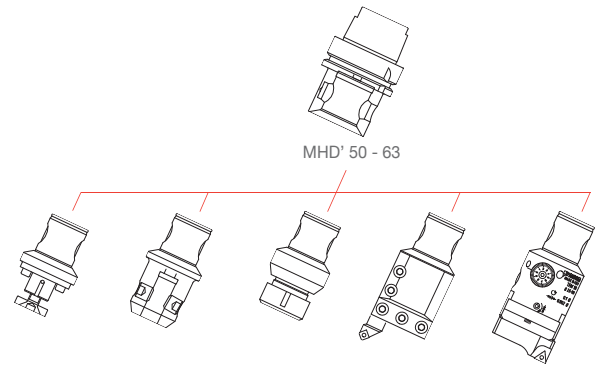
- INDEX
- **INHALTSVERZEICHNIS**
- ÍNDICE
- **INDEX**
- INDICE

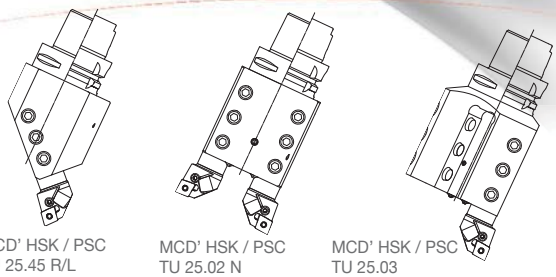
HSK		PSC	
	p. 226		p. 230
	p. 227		p. 231
	p. 228		p. 232
	p. 228		p. 232
	p. 229		p. 233
	p. 229		p. 233
	p. 229		p. 233

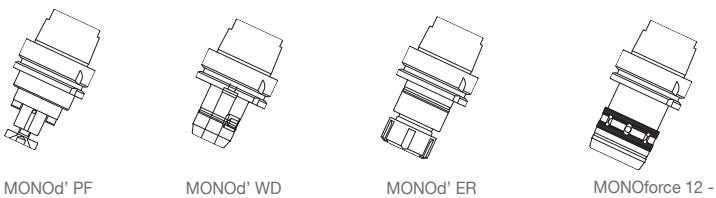


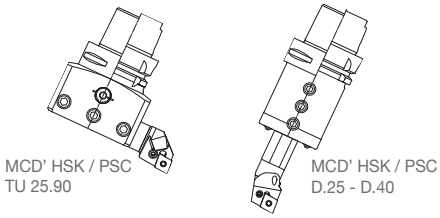


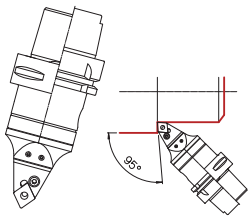
Turning operations



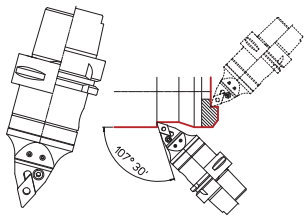




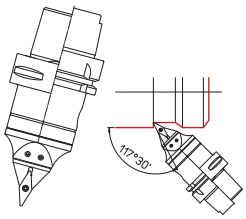




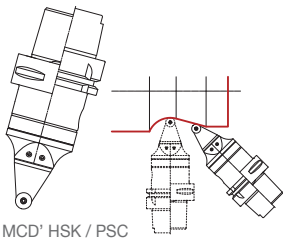
MCD' HSK / PSC
PCMNN



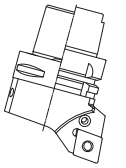
MCD' HSK / PSC
PDNNN



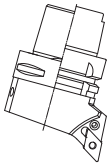
MCD' HSK / PSC
SVVBN



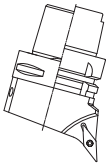
MCD' HSK / PSC
SRDCN



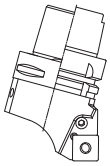
MCD' HSK / PSC
PCLNR/L



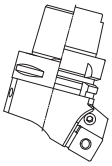
MCD' HSK / PSC
PDJNR/L



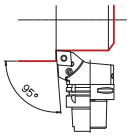
MCD' HSK / PSC
SVHBR/L

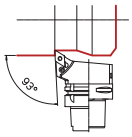


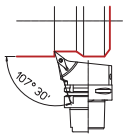
MCD' HSK / PSC
PSKNR/L

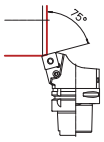


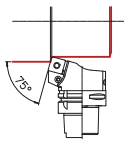
MCD' HSK / PSC
PSRNR/L











- **TURNING TOOLS**
- **DREHENWERKZEUGE**
- **HERRAMIENTAS DE TORNEADO**
- **OUTILS DE TOURNAGE**
- **UTENSILI DI TORNITURA**

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 composed of toolholders 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

D MCD' ist eine Werkzeug- und Werkzeughalterlinie für Drehmaschinen nach den Normen ISO 26623-1 PSC und HSK-T63 mit DIN 69893-T, ICTM-Bautoleranzen (ISO 12164-3), die für die Anbringung auf den Spindeln von MULTI-TASK-Maschinen empfohlen werden. Das MCD' Programm wird hergestellt und besteht aus Werkzeughaltern und austauschbaren Einsatzhaltersitzen. Das Produktangebot umfasst auch Werkzeughalter, die die Montage von Werkzeugen für die Innen- und Außenbearbeitung, für Schnitt und Gewindebearbeitung der verschiedenen, auf dem Markt erhältlichen Standardprogramme ermöglichen.

E MCD' es la línea de herramientas y portaherramientas para torno, realizados conforme a las normas ISO 26623-1 PSC y HSK-T63 con tolerancias de construcción DIN 69893-T, ICTM (ISO 12164-3) recomendadas para la aplicación en husillos de máquinas MULTI-TASK. El programa MCD' y está compuesto por portaherramientas y asientos portaplaquitas intercambiables. La gama presenta portaherramientas que permiten el montaje de herramientas para el mecanizado interno, externo, corte y roscado de los diferentes programas estándar disponibles en el mercado.

F MCD' est la ligne d'outils et porte-outils pour le tour, réalisés selon les normes ISO 26623-1 PSC et HSK-T63 avec des tolérances de fabrication DIN 69893-T, ICTM (ISO 12164-3) recommandées pour l'application sur les broches des machines MULTI-TASK. Le programme MCD' est composé de porte-outils et logements porte-plaquette interchangeables. La gamme est complétée par le porte-outils permettant l'installation d'outils pour intérieurs, extérieurs, le découpage et le filetage des différents programmes standard existants sur le marché.

I MCD' è la linea di utensili e portautensili da tornio, realizzati seguendo le norme ISO 26623-1 PSC e HSK-T63 con tolleranze costruttive DIN 69893-T, ICTM (ISO 12164-3) raccomandate per l'applicazione sui mandrini di macchine MULTI-TASK. Il programma MCD' è composto da portautensili e seggi porta inserto intercambiabili. La gamma è completa di portautensili che permettono il montaggio di utensili per interni, esterni, taglio e filettatura dei vari programmi standard esistenti sul mercato.

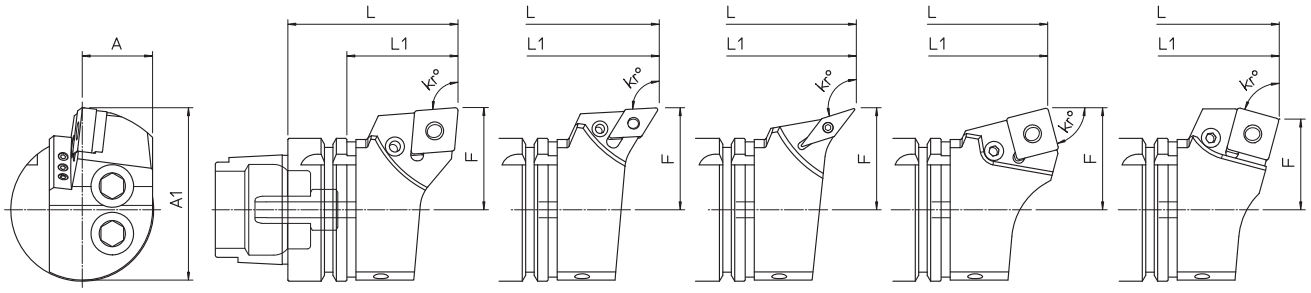
MCD' HSK-T63

DIN 69893
MCD' HSK-T63





HP



PCLNR/L | PDJNR/L | SVHBR/L | PSKNR/L | PSRNR/L

- Supplied with coolant tube
- Lieferung inklusive Kühlmittelrohr
- Completo con racor para el refrigerante
- Pourvu de raccord pour liquide d'arrosage
- Completo di raccordo per il refrigerante

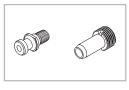
- Available on request HP = High Pressure
- Auf Anfrage HP = High Pressure
- Disponible bajo pedido HP = Alta presión
- Disponible sur demande HP = Haute pression
- Fornibili a richiesta HP = Alta Pressione

HSK-T	REF.	CODE	A	A_1	F	L	L_1	K_r 1)	γ 2)	λ 3)		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										
	MCD'HSK-T63 PDJNR 45075-15	6H06PDJNR40715N						93°			DNM..1506..	
	MCD'HSK-T63 PDJNL 45075-15	6H06PDJNL40715N										
	MCD'HSK-T63 SVHBR 45075-16	6H06SVHBR40716N						107° 30'	0°	0°	VBM..1604..	
	MCD'HSK-T63 SVHBL 45075-16	6H06SVHBL40716N										
	MCD'HSK-T63 PSKNR 45073-19	6H06PSKNR40719N				73	47	75°	6°	6°	SNM..1906..	
	MCD'HSK-T63 PSKNL 45073-19	6H06PSKNL40719N										
	MCD'HSK-T63 PSRNR 40075-19	6H06PSRNR40719N		71	40	75	49					
	MCD'HSK-T63 PSRNL 40075-19	6H06PSRNL40719N										

- Right hand tool holder shown. 1) Side cutting edge angle. 2) True rake angle. 3) Cutting edge inclination
- Adapter für Drehklemmhalter. 1) Einstellungswinkel. 2) Obere Freifläche. 3) Neigungswinkel
- Adaptadores porta-herramientas. 1) Ángulo de registro. 2) Ángulo de desprendimiento superior. 3) Ángulo de inclinación
- Adapteurs porte outils. 1) Angle d'enregistrement. 2) Angle de dépouille supérieure. 3) Angle d'inclinaison
- In figura portautensile destro. 1) Angolo di registrazione. 2) Angolo di spoglia superiore. 3) Angolo di inclinazione

248 240 235-236





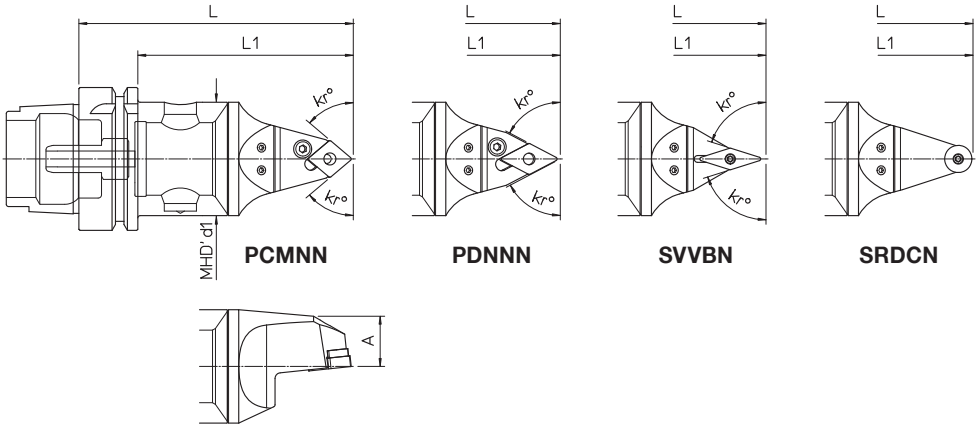


DIN 69893
MCD' HSK-T63





HP



- Supplied with coolant tube
- Lieferung inklusive Kühlmittelrohr
- Completo con racor para el refrigerante
- Pourvu de raccord pour liquide d'arrosage
- Completo di raccordo per il refrigerante

- Available on request HP = High Pressure
- Auf Anfrage HP = High Pressure
- Disponible bajo pedido HP = Alta presión
- Disponible sur demande HP = Haute pression
- Fornibili a richiesta HP = Alta Pressione

HSK-T	REF.	CODE	MHD'd_1	A	L	L_1	K_r [1]	γ [2]	λ [3]		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'	0°		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) Einstellungswinkel. 2) Obere Freifläche. 3) Neigungswinkel
- 1) Ángulo de registro. 2) Ángulo de desprendimiento superior. 3) Ángulo de inclinación
- 1) Angle d'enregistrement. 2) Angle de dépouille supérieure. 3) Angle d'inclinaison
- 1) Angolo di registrazione. 2) Angolo di spoglia superiore. 3) Angolo di inclinazione

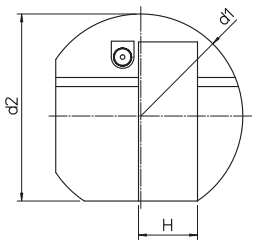
236 240 248

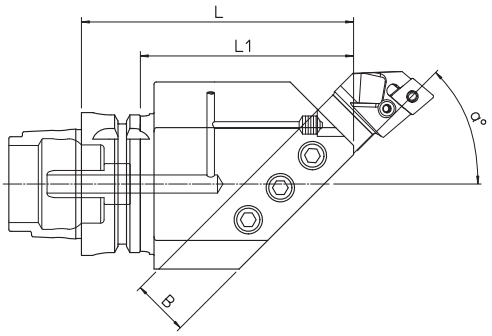
MCD' HSK-T63

- EXTERNAL TURNING TOOL HOLDERS
- ADAPTER FÜR DRECHSELN WERKZEUGHALTERUNGEN
- ADAPTADORES PORTA-HERRAMIENTAS PARA TORNEADO
- ADAPTEURS PORTE OUTILS DE TOURNAGE
- ADATTATORI PORTAUTENSILI DI TORNITURA

DIN 69893
MCD' HSK-T63



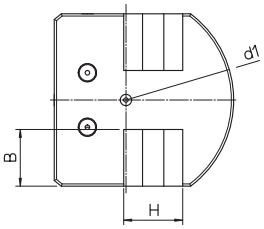


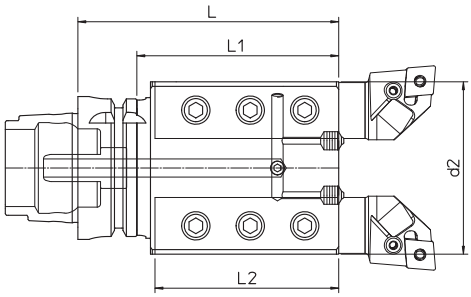


- Right hand tool holder shown. Supplied with coolant tube. Without bit-holders and clamping wrenches. A standard application requires left hand tools with right hand adapters.
- Adapter für Drehklemmhalter. Lieferung inklusive Kühlmittelrohr. Werkzeuge und Anzugsschlüssel nicht inbegriffen. Die normale Anwendung erfordert ein linkes Werkzeug in einem rechten Adapter.
- Adaptadores porta-herramientas. Completo con racor para el refrigerante. No incluye los asientos ni las llaves de apriete. El uso normal requiere una herramienta izquierda en una adaptador derecho.
- Adapteurs porte outils. Pourvu de raccord pour liquide d'arrosage. Logements et vis de serrage exlcus. L'utilisation normale nécessite un outil gauche dans un adapteur droit.
- In figura portautensile destro. Completo di raccordo per il refrigerante. Seggi e chiavi di serraggio esclusi. L'utilizzo normale richiede un utensile sinistro in un adattatore destro.

HSK-T	REF.	CODE	L	L_1	d_1	d_2	a°	BxH	kg
63	MCD' HSK-T63 TU25.45R	71HSKA63T2545R1	120	94	90	82.5	45°	25x25	3.4
	MCD' HSK-T63 TU25.45L	71HSKA63T2545L1							





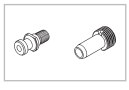


- Supplied with coolant tube. Without bit-holders and clamping wrenches
- Lieferung inklusive Kühlmittelrohr. Werkzeuge und Anzugsschlüssel nicht inbegriffen
- Completo con racor para el refrigerante. No incluye los asientos ni las llaves de apriete.
- Pourvu de raccord pour liquide d'arrosage. Logements et vis de serrage exlcus
- Completo di raccordo per il refrigerante. Seggi e chiavi di serraggio esclusi

HSK-T	REF.	CODE	L	L_1	L_2	d_1	d_2	BxH	kg
63	MCD' HSK-T63 TU25.02N	71HSKA63T2502N1	115	89	80	95	76	25x25	3.5

248 240 237

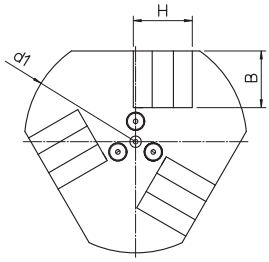


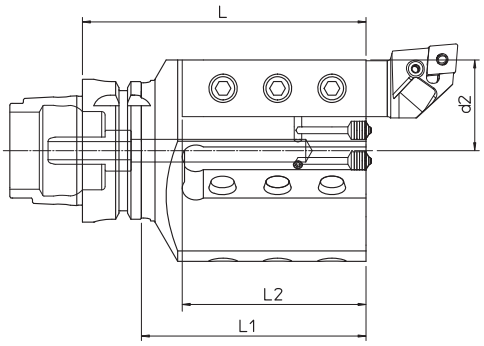




DIN 69893
MCD' HSK-T63



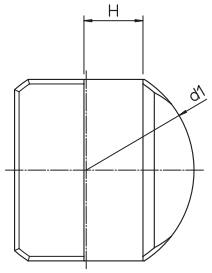


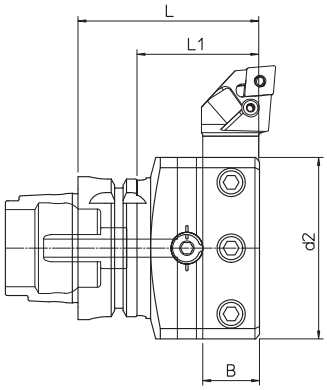


- Supplied with coolant tube. Without bit-holders and clamping wrenches
- Lieferung inklusive Kühlmittelrohr. Werkzeuge und Anzugsschlüssel nicht inbegriffen
- Completo con racor para el refrigerante. No incluye los asientos ni las llaves de apriete.
- Pourvu de raccord pour liquide d'arrosage. Logements et vis de serrage exlcus
- Completo di raccordo per il refrigerante. Seggi e chiavi di serraggio esclusi

HSK-T	REF.	CODE	L	L_1	L_2	d_1	d_2	BxH	kg
63	MCD' HSK-T63 TU25.03R	71HSKA63T2503R1	125	99	80	98	40	25x25	4
	MCD' HSK-T63 TU25.03L	71HSKA63T2503L1							



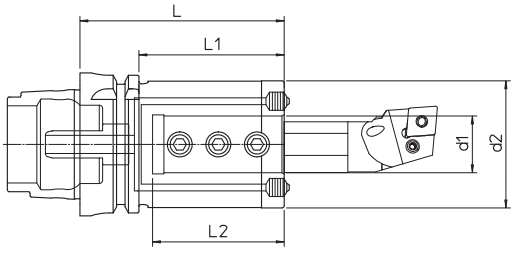




- Supplied with coolant tube. Without bit-holders and clamping wrenches
- Lieferung inklusive Kühlmittelrohr. Werkzeuge und Anzugsschlüssel nicht inbegriffen
- Completo con racor para el refrigerante. No incluye los asientos ni las llaves de apriete.
- Pourvu de raccord pour liquide d'arrosage. Logements et vis de serrage exlcus
- Completo di raccordo per il refrigerante. Seggi e chiavi di serraggio esclusi

HSK-T	REF.	CODE	L	L_1	d_1	d_2	BxH	kg
63	MCD' HSK-T63 TU25.90	71HSKA63T259001	80	54	95	80	25x25	5.1



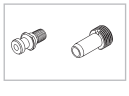


- Supplied with coolant tube. Without bit-holders and clamping wrenches. **Reduction bushes on request**.
- Lieferung inklusive Kühlmittelrohr. Werkzeuge und Anzugsschlüssel nicht inbegriffen. **Einsatzhülse auf Anfrage**.
- Completo con racor para el refrigerante. No incluye los asientos ni las llaves de apriete. **Casquillos reductores bajo pedido**.
- Pourvu de raccord pour liquide d'arrosage. Logements et vis de serrage exlcus. **Douilles de réduction sur demande.**
- Completo di raccordo per il refrigerante. Seggi e chiavi di serraggio esclusi. **Bussole di riduzione a richiesta.**

HSK-T	REF.	CODE	d_1^{H7}	d_2	L	L_1	L_2	kg
63	MCD' HSK-A63 D.25x90	71HSKA63D250901	25	56	90	64	58	1.6
	MCD' HSK-A63 D.40x135	71HSKA63D401301	40	80	135	109	85	3.9

237 240 248





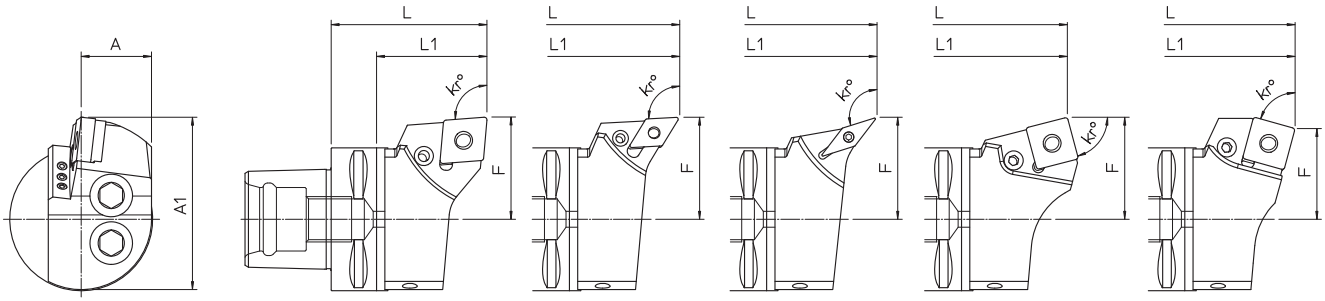


ISO 26623-1
MCD' PSC





HP



PCLNR/L PDJNR/L SVHBR/L PSKNR/L PSRNR/L

- Available on request HP = High Pressure
- Auf Anfrage HP = High Pressure
- Disponible bajo pedido HP = Alta presión
- Disponible sur demande HP = Haute pression
- Fornibili a richiesta HP = Alta Pressione

PSC	REF.	CODE	A	A_1	F	L	L_1	K_r [1]	γ [2]	λ [3]		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°	6°	SNM..1906..	
	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°	6°	SNM..1906..	
	MCD' PSC 80 PSRNR/L 45080-19	6P08PSRNR/L40819N		85	45	80	50					

- Right hand tool holder shown. 1) Side cutting edge angle. 2) True rake angle. 3) Cutting edge inclination
- Adapter für Drehklemmhalter. 1) Einstellungswinkel. 2) Obere Freifläche. 3) Neigungswinkel
- Adaptadores porta-herramientas. 1) Ángulo de registro. 2) Ángulo de desprendimiento superior. 3) Ángulo de inclinación
- Adapteurs porte outils. 1) Angle d'enregistrement. 2) Angle de dépouille supérieure. 3) Angle d'inclinaison
- In figura portautensile destro. 1) Angolo di registrazione. 2) Angolo di spoglia superiore. 3) Angolo di inclinazione

252 235-236



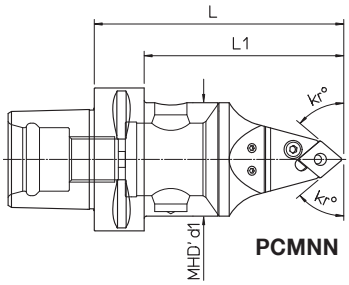


ISO 26623-1
MCD' PSC

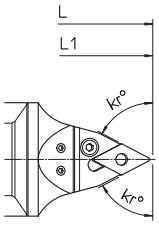




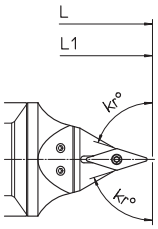
HP



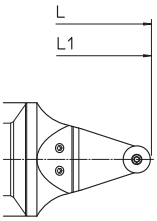
PCMNN



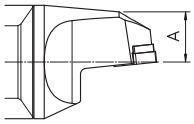
PDNNN



SVVBN



SRDCN



- Available on request HP = High Pressure
- Auf Anfrage HP = High Pressure
- Disponible bajo pedido HP = Alta presión
- Disponible sur demande HP = Haute pression
- Fornibili a richiesta HP = Alta Pressione

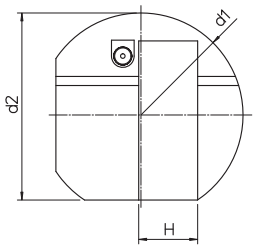
PSC	REF.	CODE	MHD'd_1	A	L	L_1	K_r [1]	γ [2]	λ [3]		kg
40	MCD' PSC 40 PCMNN 00090-12	6P04PCMNN00912N	40	22.5	90	70	50	6°	0°	CNM..1204..	0.7
	MCD' PSC 40 PDNNN 00090-15	6P04PDNNN00915N					62.5			DNM..1506..	
	MCD' PSC 40 SVVBN 00090-16	6P04SVVBN00916N					72.5	0°		VBM..1604..	
	MCD' PSC 40 SRDCN 00090-10	6P04SRDCN00910N					-			RCM..10T3..	
50	MCD' PSC 50 PCMNN 00110-12	6P05PCMNN01112N	50	22.1	110	88	50	6°	0°	CNM..1204..	1.2
	MCD' PSC 50 PDNNN 00110-15	6P05PDNNN01115N					62.5			DNM..1506..	
	MCD' PSC 50 SVVBN 00110-16	6P05SVVBN01116N					72.5	0°		VBM..1604..	
	MCD' PSC 50 SRDCN 00110-12	6P05SRDCN01112N					-			RCM..1204..	
63	MCD' PSC 63 PCMNN 00110-12	6P06PCMNN01112N					50	6°	0°	CNM..1204..	1.6
	MCD' PSC 63 PDNNN 00110-15	6P06PDNNN01115N					62.5			DNM..1506..	
	MCD' PSC 63 SVVBN 00110-16	6P06SVVBN01116N					72.5	0°		VBM..1604..	
	MCD' PSC 63 SRDCN 00110-12	6P06SRDCN01112N					-			RCM..1204..	
80	MCD' PSC 80 PCMNN 00140-12	6P08PCMNN01412N	63	28.5	140	110	50	6°	0°	CNM..1204..	3.3
	MCD' PSC 80 PDNNN 00140-15	6P08PDNNN01415N					62.5			DNM..1506..	
	MCD' PSC 80 SVVBN 00140-16	6P08SVVBN01416N					72.5	0°		VBM..1604..	
	MCD' PSC 80 SRDCN 00140-16	6P08SRDCN01416N					-			RCM..1606..	

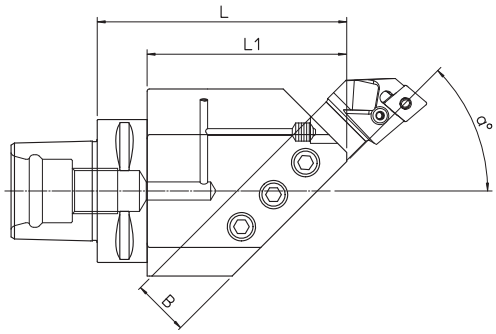
- 1) Side cutting edge angle. 2) True rake angle. 3) Cutting edge inclination
- 1) Einstellungswinkel. 2) Obere Freifläche. 3) Neigungswinkel
- 1) Ángulo de registro. 2) Ángulo de desprendimiento superior. 3) Ángulo de inclinación
- 1) Angle d'enregistrement. 2) Angle de dépouille supérieure. 3) Angle d'inclinaison
- 1) Angolo di registrazione. 2) Angolo di spoglia superiore. 3) Angolo di inclinazione

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ISO 26623-1
MCD' PSC



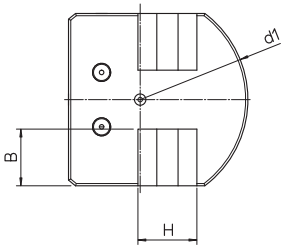


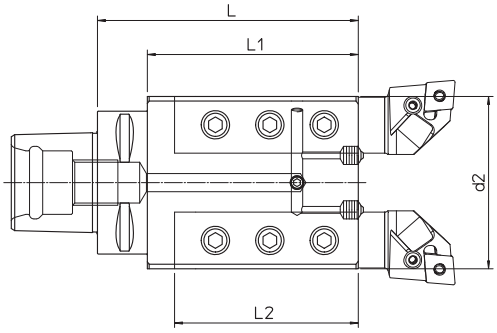


• Right hand tool holder shown. Without bit-holders and clamping wrenches. A standard application requires left hand tools with right hand adapters.
• Adapter für Drehklemmhalter. Werkzeuge und Anzugsschlüssel nicht inbegriffen. Die normale Anwendung erfordert ein linkes Werkzeug in einem rechten Adapter.
• Adaptadores porta-herramientas. No incluye los asientos ni las llaves de apriete. El uso normal requiere una herramienta izquierda en una adaptador derecho.
• Adapteurs porte outils. Logements et vis de serrage exlcus. L'utilisation normale nécessite un outil gauche dans un adapteur droit.
• In figura portautensile destro. Seggi e chiavi di serraggio esclusi. L'utilizzo normale richiede un utensile sinistro in un adattatore destro.

PSC	REF.	CODE	L	L_1	d_1	d_2	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
• Werkzeuge und Anzugsschlüssel nicht inbegriffen
• No incluye los asientos ni las llaves de apriete.
• Logements et vis de serrage exlcus
• Seggi e chiavi di serraggio esclusi

PSC	REF.	CODE	L	L_1	L_2	d_1	d_2	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

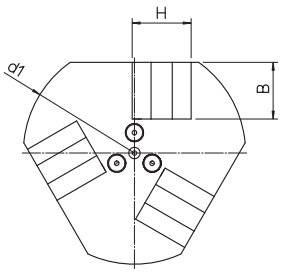
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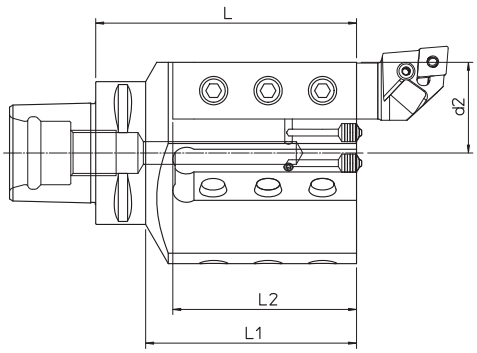




ISO 26623-1
MCD' PSC



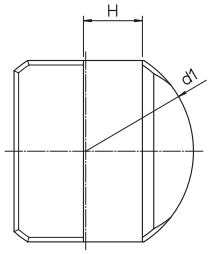


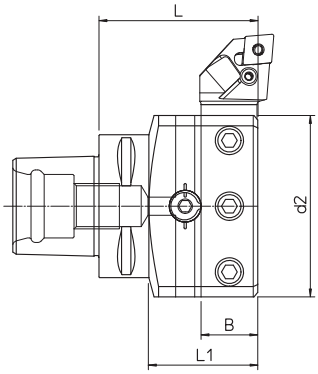


- Without bit-holders and clamping wrenches
- Werkzeuge und Anzugsschlüssel nicht inbegriffen
- No incluye los asientos ni las llaves de apriete.
- Logements et vis de serrage exlcus
- Seggi e chiavi di serraggio esclusi

PSC	REF.	CODE	L	L_1	L_2	d_1	d_2	BxH	kg
63	**MCD' PSC 63 TU25.03R**	71PSC063T2503R1	115	93	80	98	40	25x25	4
	MCD' PSC 63 TU25.03L	71PSC063T2503L1							



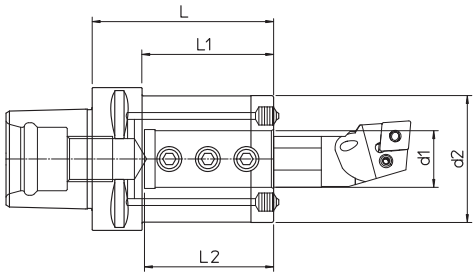




- Without bit-holders and clamping wrenches
- Werkzeuge und Anzugsschlüssel nicht inbegriffen
- No incluye los asientos ni las llaves de apriete.
- Logements et vis de serrage exlcus
- Seggi e chiavi di serraggio esclusi

PSC	REF.	CODE	L	L_1	d_1	d_2	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	80	50	115	90	32x32	4.4





- Without bit-holders and clamping wrenches. **Reduction bushes on request.**
- Werkzeuge und Anzugsschlüssel nicht inbegriffen. **Einsatzhülse auf Anfrage.**
- No incluye los asientos ni las llaves de apriete. **Casquillos reductores bajo pedido.**
- Logements et vis de serrage exlcus. **Douilles de réduction sur demande.**
- Seggi e chiavi di serraggio esclusi. **Bussole di riduzione a richiesta.**

PSC	REF.	CODE	d_1^{H7}	d_2	L	L_1	L_2	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

237 252





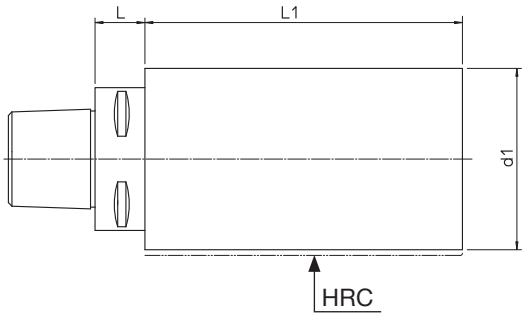
MCD'PSC

- SEMIFINISHED CHUCK HOLDERS
- WERKZEUGAUFNAHMEROHLING
- ADAPTADORES SEMIELABORADOS
- ADAPTATEURS SEMI-FINIS
- ADATTATORI SEMILAVORATI

ISO 26623-1

PSC-NS-H28-42

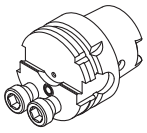




PSC	REF.	CODE	d_1	L	L_1	kg	HRC
40	PSC 40 - NS 50.160/140 H.28	71PSC040Z205014	50	20	140	2.4	28
	PSC 40 - NS 63.160/140 H.28	71PSC040Z206314	63			3.6	
	PSC 40 - NS 80.160/140 H.28	71PSC040Z208014	80			5.7	
50	PSC 50 - NS 63.160/140 H.28	71PSC050Z206314	63			3.8	
	PSC 50 - NS 80.160/140 H.28	71PSC050Z208014	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	

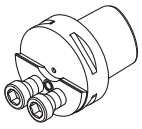
PSC	REF.	CODE	d_1	L	L_1	kg	HRC
40	PSC 40 - NS 50.160/140 H.42	71PSC040Z405014	50	20	140	2.4	42
	PSC 40 - NS 63.160/140 H.42	71PSC040Z406314	63			3.6	
	PSC 40 - NS 80.160/140 H.42	71PSC040Z408014	80			5.7	
50	PSC 50 - NS 63.160/140 H.42	71PSC050Z406314	63			3.8	
	PSC 50 - NS 80.160/140 H.42	71PSC050Z408014	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	

MCD' HSK

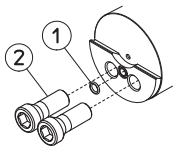


REF. MCD'	CODE
HSK-T63 F30 RL	71HSKA63F030RL1

MCD' PSC

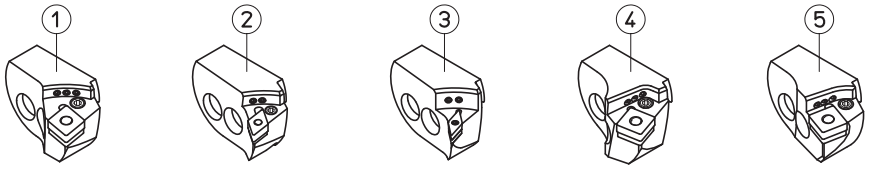


REF. MCD'	CODE
PSC 40 F20 RL	71PSC040F020RL1
PSC 50 F20 RL	71PSC050F020RL1
PSC 63 F20 RL	71PSC063F020RL1
PSC 80 F30 RL	71PSC080F030RL1



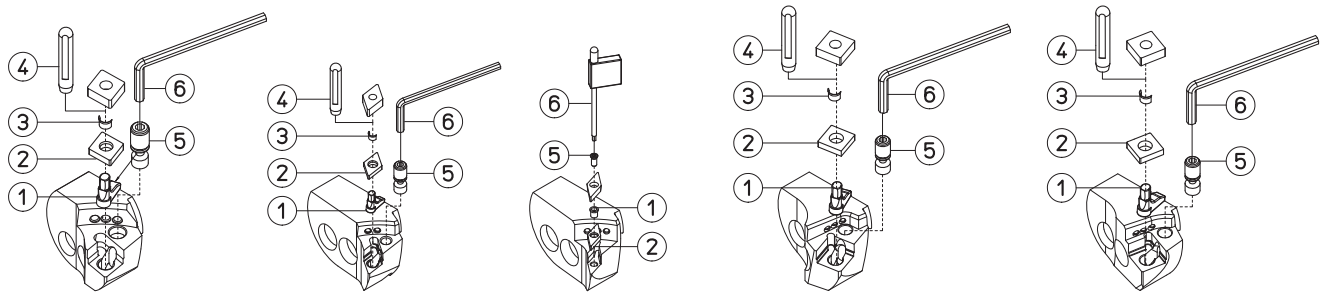
REF. MCD'	CODE 1	CODE 2
PSC 40	10 125 4 004515	20 010 017 0620
PSC 50		20 010 017 0820
HSK-T63 / PSC 63	10 125 4 005515	20 010 017 1225
PSC 80		20 010 017 1631

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/L203 12 N	7504PDJNR/L203 15 N	-	7504PSKNR/L203 12 N	7504PSRNR/L203 12 N
MCD' 50	7505PCLNR/L304 12 N	7505PDJNR/L304 15 N		7505PSKNR/L304 12 N	7505PSRNR/L204 12 N
MCD' 63	7506PCLNR/L404 19 N	7506PDJNR/L404 15 N	7506SVHBR/L404 16 N	7506PSKNR/L404 19 N	7506PSRNR/L404 19 N
MCD' 80	7508PCLNR/L505 19 N	7508PDJNR/L505 15 N	7508SVHBR/L505 16 N	7508PSKNR/L505 19 N	7508PSRNR/L405 19 N



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	49 11 1 0000002	49 20 3 0003012	10 065 5 065 060	10 150 13 0 7100	49 43 1 0080230	10 150 01 0 0400
	PCLNR/L ... - 19	49 11 1 1190600	49 20 3 1190600	10 065 5 095 112	10 150 13 0 1408	49 43 1 1190600	
◇	PDJNR/L ... - 15	49 11 1 0000003	49 20 3 0003015	10 065 5 065 060	10 150 13 0 7100	49 43 1 0080260	10 150 01 0 0300
◇	SVHBR/L ... - 16	49 20 1 0000508	49 20 3 0003016	-	-	49 42 1 0035070	10 150 09 0 1500
◻	PSKNR/L ... - 12	49 11 1 0000002	49 20 3 5120400	10 065 5 065 060	10 150 13 0 7100	49 43 1 0080230	10 150 01 0 0400
	PSKNR/L ... - 19	49 11 1 1190600	49 20 3 5190600	10 065 5 095 112	10 150 13 0 1408	49 43 1 1190600	
◻	PSRNR/L ... - 12	49 11 1 0000002	49 20 3 5120400	10 065 5 065 060	10 150 13 0 7100	49 43 1 0080230	10 150 01 0 0400
	PSRNR/L ... - 19	49 11 1 1190600	49 20 3 5190600	10 065 5 095 112	10 150 13 0 1408	49 43 1 1190600	

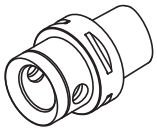
MCD' HSK



HSK-A	REF.	CODE
63	HSK-A63 MHD'50.66	41 6 50 15 063 20

• Complete range of cones on page 61 • Komplette Konusreihe auf Seite 61 • Gama completa de los conos en la pág. 61
• Gamme complète des cônes à la page 61 • Gamma completa dei coni a pag.61

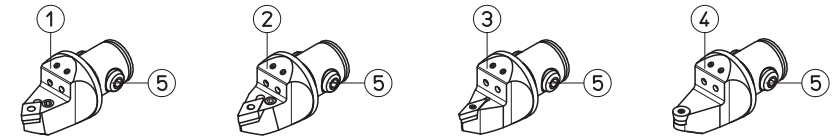
MCD' PSC



PSC	REF.	CODE
40	PSC 40 - MHD' 40.45	41 6 40 26 040 04
50	PSC 50 - MHD' 50.55	41 6 50 26 050 05
63	PSC 63 - MHD' 50.55	41 6 50 26 063 05
80	PSC 80 - MHD' 63.70	41 6 63 26 080 07

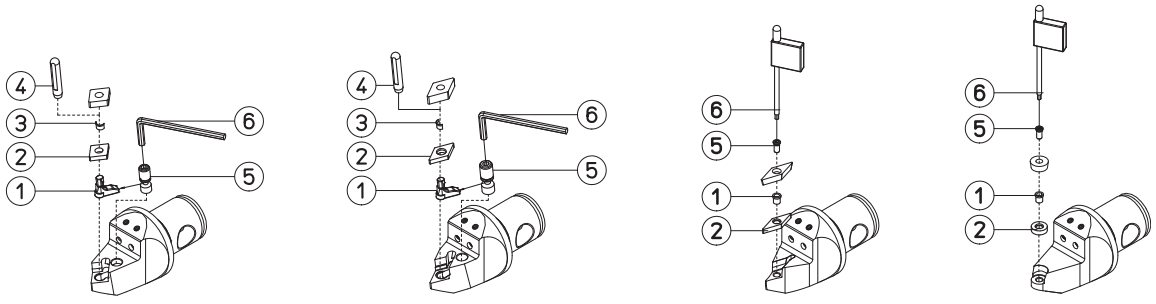
• Complete range of cones on page 63 • Komplette Konusreihe auf Seite 63 • Gama completa de los conos en la pág. 63
• Gamme complète des cônes à la page 63 • Gamma completa dei coni a pag.63

MCD' HSK / PSC



PCMNN PDNNN SVVBN SRDCN

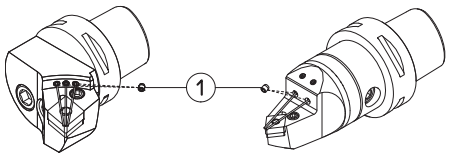
REF.	CODE 1		CODE 2		CODE 3		CODE 4		CODE 5
MCD' MHD' 40	65 75 40 001120	12	65 75 40 002150	15	65 75 40 003160	16	65 75 40 004100	10	38 17 25 001401
MCD' MHD' 50	65 75 50 001120		65 75 50 002150		65 75 50 003160		65 75 50 004120	12	38 17 25 001501
MCD' MHD' 63	65 75 63 001120		65 75 63 002150		65 75 63 003160		65 75 63 004160	16	38 17 25 001002



PCMNN PDNNN SVVBN SRDCN

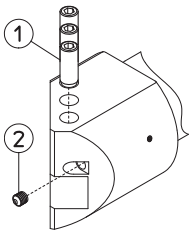
REF	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5	CODE 6
PCMNN ... - 12	49 11 1 0000002	49 20 3 0003012	10 065 5 065 060	10 150 13 0 7100	49 43 1 0080230	10 150 01 0 0400
PDNNN ... - 15	49 11 1 0000003	49 20 3 0003015	10 065 5 065 060	10 150 13 0 7100	49 43 1 0080260	10 150 01 0 0300
SVVBN ... - 16	49 20 1 0000508	49 20 3 0003016	-	-	49 42 1 0035070	10 150 09 0 1500
SRDCN ... - 10	49 20 1 0000508	49 20 3 4100300	-	-	49 42 1 0035070	10 150 09 0 1500
SRDCN ... - 12		49 20 3 0003013				
SRDCN ... - 16	49 20 1 4160600	49 20 3 4160600			49 42 1 4160600	10 150 09 0 2000

MCD' HSK / PSC HP



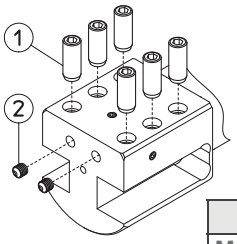
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MCD' HSK / PSC HP	10 058 01 10 450

MCD' HSK / PSC



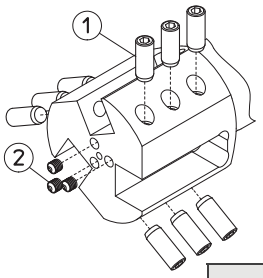
REF.	CODE 1	CODE 2
MCD' HSK-T63 TU25.45R/L	10 023 1 120 025	10 058 5 010 800
MCD' PSC 50 TU20.45R/L		
MCD' PSC 63 TU25.45R/L		
MCD' PSC 80 TU32.45R/L		

MCD' HSK / PSC



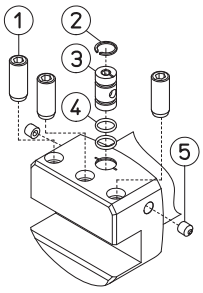
REF.	CODE 1	CODE 2
MCD' HSK-T63 TU25.02	10 023 1 120 025	10 058 5 010 800
MCD' PSC 50 TU20.02		
MCD' PSC 63 TU25.02		
MCD' PSC 80 TU32.02		

MCD' HSK / PSC



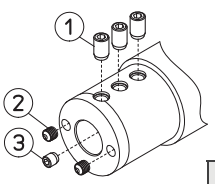
REF.	CODE 1	CODE 2
MCD' HSK-T63 TU25.03R/L	10 023 1 120 025	10 058 5 010 800
MCD' PSC 63 TU25.03R/L		

MCD' HSK / PSC



REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
MCD' PSC 50 TU20.90	10 023 1 120 025	10 090 03 014 00	20 146 250 1400	10 125 1 002043	10 058 0 610 180
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	10 023 1 100 016	10 058 5 010 800	-
MCD' HSK-T63 / PSC 63 D.25x80			
MCD' HSK-T63 / PSC 63 D.40x125	10 023 1 120 020		10 023 1 080 008
MCD' PSC 80 D.25x85	10 023 1 100 016		-
MCD' PSC 80 D.40x125	10 023 1 120 020		10 023 1 080 008

ACCESSORIES

- ACCESSORIES
- ZUBEHÖRTEILE
- ACCESORIOS
- ACCESSOIRES
- ACCESSORI





ACCESSORIES

- ACCESSORIES
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ISO 7388/2 A - DIN 69872



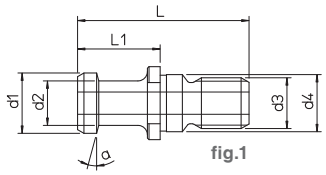


fig.1

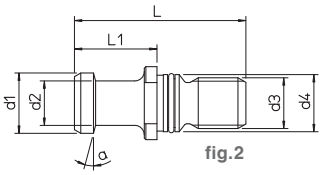


fig.2

REF.	CODE	ISO	d_1	d_2	d_3	d_4	L	L_1	a	fig.
ISO 7388/2 A DIN 69872	20 143 025 0401	40	19	14	M16	17	54	26	15°	1
	20 143 025 0451	45	23	17	M20	21	65	30		
	20 143 025 0501	50	28	21	M24	25	74	34		
	20 143 025 0400	40	19	14	M16	17	54	26		2
	20 143 025 0500	50	28	21	M24	25	74	34		
	20 143 025 0600	60	40	30	M30	32	90	40		

ISO 7388/2 B - ANSI B.5 50



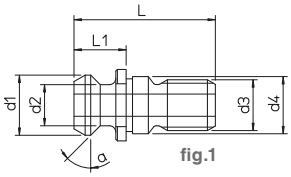


fig.1

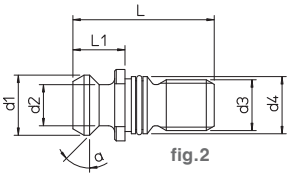
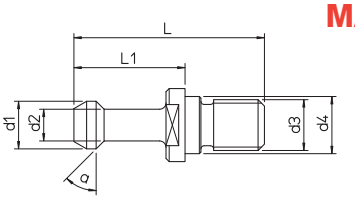


fig.2

REF.	CODE	ISO	d_1	d_2	d_3	d_4	L	L_1	a	fig.
ISO 7388/2 B ANSI B.5 50	20 143 025 1401	40	18.95	12.95	M16	17	44.50	16.40	45°	1
	20 143 025 1451	45	24.05	16.30	M20	21	56	20.95		
	20 143 025 1501	50	29.10	19.60	M24	25	65.50	25.55		
	20 143 025 1400	40	18.95	12.95	M16	17	44.50	16.40		2
	20 143 025 1500	50	29.10	19.60	M24	25	65.50	25.55		

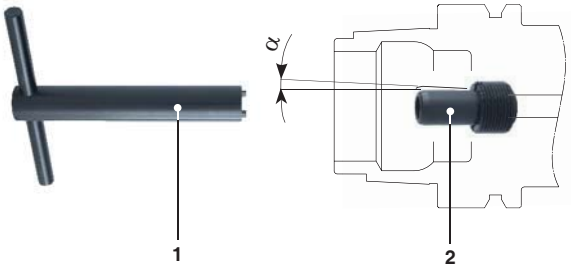
MAS 403 BT - 30° - 45°





REF.	CODE	ISO	d_1	d_2	d_3	d_4	L	L_1	a
MAS 403 BT 30°	20 143 025 2301	30	11	7	M12	12.5	43	23	30°
	20 143 025 2401	40	15	10	M16	17	60	35	
	20 143 025 2451	45	19	14	M20	21	70	40	
	20 143 025 2501	50	23	17	M24	25	85	45	
	20 143 025 2601	60	32	24	M30	31	115	65	
MAS 403 BT 45°	20 143 025 2302	30	11	7	M12	12.5	43	23	45°
	20 143 025 2402	40	15	10	M16	17	60	35	
	20 143 025 2452	45	19	14	M20	21	70	40	
	20 143 025 2502	50	23	17	M24	25	85	45	
	20 143 025 2602	60	32	24	M30	31	115	65	

HSK



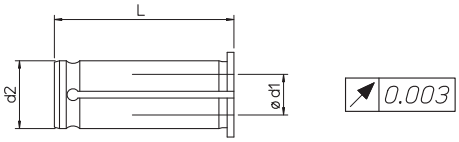
REF.	CODE	α	CODE
HSK-A40	10 150 11 0 1000	± 1°	38 20 19 008001
HSK-A50	10 150 11 0 1400		38 20 19 010001
HSK-A63 / HSK-T63	10 150 11 0 1600		38 20 19 012001
HSK-A80	10 150 11 0 1800		38 20 19 014001
HSK-A100	10 150 11 0 2200		38 20 19 016001

- **ACCESSORIES**
- **ZUBEHÖRTEILE**
- **ACCESORIOS**
- **ACCESSOIRES**
- **ACCESSORI**

- **BUSHES FOR ULTRA-TIGHT SPINDLE**
- **SPANNHÜLSEN FÜR AUFNAHMEN MIT HOHER KLEMMKRAFT**
- **PINZAS PARA MANDRINO DE GRAN APRIETE**
- **DOUILLES POUR MANDRIN À SERRAGE FORT**
- **BUSSOLE PER MANDRINO A FORTE SERRAGGIO**

RC





FORCE (d_2)	REF.	CODE	d_1	L
12	**RC 12.03**	49 70 8 0012030	3	44
	RC 12.04	49 70 8 0012040	4	
	RC 12.06	49 70 8 0012060	6	
	RC 12.08	49 70 8 0012080	8	
	RC 12.10	49 70 8 0012100	10	
20	**RC 20.03**	49 70 8 0020030	3	50
	RC 20.04	49 70 8 0020040	4	
	RC 20.05	49 70 8 0020050	5	
	RC 20.06	49 70 8 0020060	6	
	RC 20.08	49 70 8 0020080	8	
	RC 20.10	49 70 8 0020100	10	
	RC 20.12	49 70 8 0020120	12	
	RC 20.14	49 70 8 0020140	14	
	RC 20.16	49 70 8 0020160	16	
32	**RC 32.03**	49 70 8 0032030	3	63
	RC 32.04	49 70 8 0032040	4	
	RC 32.05	49 70 8 0032050	5	
	RC 32.06	49 70 8 0032060	6	
	RC 32.08	49 70 8 0032080	8	
	RC 32.10	49 70 8 0032100	10	
	RC 32.12	49 70 8 0032120	12	
	RC 32.14	49 70 8 0032140	14	
	RC 32.16	49 70 8 0032160	16	
	RC 32.18	49 70 8 0032180	18	
	RC 32.20	49 70 8 0032200	20	
	RC 32.25	49 70 8 0032250	25	

- RC 12 SEALED bushes supplied upon request
- Auf Anfrage RC 12 Dichtbuchsen lieferbar
- Suministrables bajo pedido casquillos RC 12... ESTANCOS
- Disponibles sur demande douilles RC12 étanches
- Fornibili su richiesta bussole RC 12. . . a TENUTA

- **REDUCTIONS**
- **REDUZIERUNGEN**
- **REDUCCIONES**
- **RÉDUCTIONS**
- **RIDUZIONE**

D



fig.1

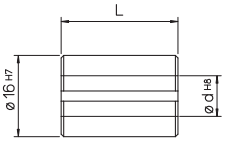
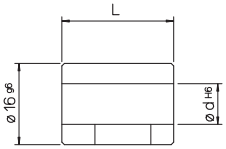




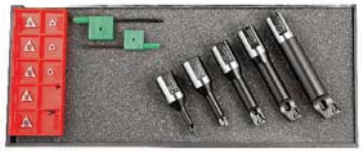
fig.2



REF.	CODE	L	Ø d	fig.
D04.16	20 056 01 16 04 0	23	4	1
D08.16	20 056 01 16 08 2	22	8	2
D10.16	20 056 01 16 10 0	23	10	1
D12.16	20 056 01 16 12 0		12	

KIT

Ø 6 ~ 30

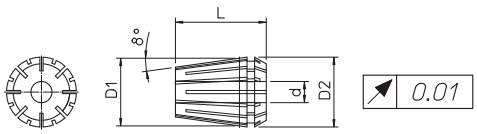


K20.50	
1 B3.06	
1 B3.08	
1 B3.11	
1 B3.16	5 TPGX 090202L
1 B3.22	3 WCGT 020102L

REF.	CODE	Ø
K20.50	65 50 001 0020 0	6 ~ 30

ER DIN 6499-B





REF.	d	D_1	D_2	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

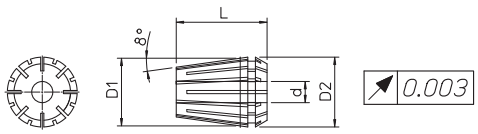
RANGE	ER11	ER16	ER20	ER25	ER32	ER40
1 - 0.5	49 60 8 0111010	49 60 8 0116010	-	-	-	-
1.5 - 1	49 60 8 0111015	49 60 8 0116015	-	-	-	-
2 - 1	-	-	49 60 8 0120020	49 60 8 0125020	-	-
2 - 1.5	49 60 8 0111020	49 60 8 0116021	-	-	-	-
2.5 - 2	49 60 8 0111025	49 60 8 0116025	-	-	-	-
3 - 2		49 60 8 0116030	49 60 8 0120030	49 60 8 0125030	49 60 8 0132030	-
3 - 2.5	49 60 8 0111030	-	-	-	-	-
3.5 - 3	49 60 8 0111035	-	-	-	-	-
4 - 3		49 60 8 0116040	49 60 8 0120040	49 60 8 0125040	49 60 8 0132040	49 60 8 0140040
4 - 3.5	49 60 8 0111040	-	-	-	-	-
4.5 - 4	49 60 8 0111045	-	-	-	-	-
5 - 4		49 60 8 0116050	49 60 8 0120050	49 60 8 0125050	49 60 8 0132050	49 60 8 0140050
5 - 4.5	49 60 8 0111050	-	-	-	-	-
5.5 - 5	49 60 8 0111055	-	-	-	-	-
6 - 5		49 60 8 0116060	49 60 8 0120060	49 60 8 0125060	49 60 8 0132060	49 60 8 0140060
6 - 5.5	49 60 8 0111060	-	-	-	-	-
6.5 - 6	49 60 8 0111065	-	-	-	-	-
7 - 6		49 60 8 0116070	49 60 8 0120070	49 60 8 0125070	49 60 8 0132070	49 60 8 0140070
7 - 6.5	49 60 8 0111070	-	-	-	-	-
8 - 7	-	49 60 8 0116080	49 60 8 0120080	49 60 8 0125080	49 60 8 0132080	49 60 8 0140080
9 - 8	-	49 60 8 0116090	49 60 8 0120090	49 60 8 0125090	49 60 8 0132090	49 60 8 0140090
10 - 9	-	49 60 8 0116100	49 60 8 0120100	49 60 8 0125100	49 60 8 0132100	49 60 8 0140100
11 - 10	-	-	49 60 8 0120110	49 60 8 0125110	49 60 8 0132110	49 60 8 0140110
12 - 11	-	-	49 60 8 0120120	49 60 8 0125120	49 60 8 0132120	49 60 8 0140120
13 - 12	-	-	49 60 8 0120130	49 60 8 0125130	49 60 8 0132130	49 60 8 0140130
14 - 13	-	-	-	49 60 8 0125140	49 60 8 0132140	49 60 8 0140140
15 - 14	-	-	-	49 60 8 0125150	49 60 8 0132150	49 60 8 0140150
16 - 15	-	-	-	49 60 8 0125160	49 60 8 0132160	49 60 8 0140160
17 - 16	-	-	-	-	49 60 8 0132170	49 60 8 0140170
18 - 17	-	-	-	-	49 60 8 0132180	49 60 8 0140180
19 - 18	-	-	-	-	49 60 8 0132190	49 60 8 0140190
20 - 19	-	-	-	-	49 60 8 0132200	49 60 8 0140200
21 - 20	-	-	-	-	-	49 60 8 0140210
22 - 21	-	-	-	-	-	49 60 8 0140220
23 - 22	-	-	-	-	-	49 60 8 0140230
24 - 23	-	-	-	-	-	49 60 8 0140240
25 - 24	-	-	-	-	-	49 60 8 0140250
26 - 25	-	-	-	-	-	49 60 8 0140260

SET ER	REF.	Ø	CODE
	SET ER11/13	0.5 ~ 7	49 60 8 0111000
	SET ER16/10	0.5 ~ 10	49 60 8 0116000
	SET ER20/12	1 ~ 13	49 60 8 0120000
	SET ER25/15	1 ~ 16	49 60 8 0125000
	SET ER32/18	2 ~ 20	49 60 8 0132000
	SET ER40/23	3 ~ 26	49 60 8 0140000

- **ER ULTRA-PRECISE COLLET**
- **PRÄZISIONSSPANNZANGEN ER**
- **PINZAS ER ULTRA-PRECISAS**
- **PINCES ER EXTRAPRÉCISES**
- **PINZE ER EXTRAPRECISE**

ER DIN 6499-B





REF.	d	D_1	D_2	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		49 60 8 0016010	-	-	-
1.5 - 1	•	49 60 8 0016015	-	-	-
2 - 1.5		49 60 8 0016020	49 60 8 0025020	-	-
2.5 - 2	•	49 60 8 0016025	49 60 8 0025025	49 60 8 0032025	-
3 - 2.5		49 60 8 0016030	49 60 8 0025030	49 60 8 0032030	-
3.5 - 3	•	49 60 8 0016035	49 60 8 0025035	49 60 8 0032035	-
4 - 3.5		49 60 8 0016040	49 60 8 0025040	49 60 8 0032040	49 60 8 0040040
4.5 - 4	•	49 60 8 0016045	49 60 8 0025045	49 60 8 0032045	49 60 8 0040045
5 - 4.5		49 60 8 0016050	49 60 8 0025050	49 60 8 0032050	49 60 8 0040050
5.5 - 5	•	49 60 8 0016055	49 60 8 0025055	49 60 8 0032055	49 60 8 0040055
6 - 5.5		49 60 8 0016060	49 60 8 0025060	49 60 8 0032060	49 60 8 0040060
6.5 - 6	•	49 60 8 0016065	49 60 8 0025065	49 60 8 0032065	49 60 8 0040065
7 - 6.5		49 60 8 0016070	49 60 8 0025070	49 60 8 0032070	49 60 8 0040070
7.5 - 7	•	49 60 8 0016075	49 60 8 0025075	49 60 8 0032075	49 60 8 0040075
8 - 7.5		49 60 8 0016080	49 60 8 0025080	49 60 8 0032080	49 60 8 0040080
8.5 - 8	•	49 60 8 0016085	49 60 8 0025085	49 60 8 0032085	49 60 8 0040085
9 - 8.5		49 60 8 0016090	49 60 8 0025090	49 60 8 0032090	49 60 8 0040090
9.5 - 9	•	49 60 8 0016095	49 60 8 0025095	49 60 8 0032095	49 60 8 0040095
10 - 9.5		49 60 8 0016100	49 60 8 0025100	49 60 8 0032100	49 60 8 0040100
10.5 - 10	•	-	49 60 8 0025105	49 60 8 0032105	49 60 8 0040105
11 - 10.5		-	49 60 8 0025110	49 60 8 0032110	49 60 8 0040110
11.5 - 11	•	-	49 60 8 0025115	49 60 8 0032115	49 60 8 0040115
12 - 11.5		-	49 60 8 0025120	49 60 8 0032120	49 60 8 0040120
12.5 - 12	•	-	49 60 8 0025125	49 60 8 0032125	49 60 8 0040125
13 - 12.5		-	49 60 8 0025130	49 60 8 0032130	49 60 8 0040130
13.5 - 13	•	-	49 60 8 0025135	49 60 8 0032135	49 60 8 0040135
14 - 13.5		-	49 60 8 0025140	49 60 8 0032140	49 60 8 0040140
14.5 - 14	•	-	49 60 8 0025145	49 60 8 0032145	49 60 8 0040145
15 - 14.5		-	49 60 8 0025150	49 60 8 0032150	49 60 8 0040150
15.5 - 15	•	-	49 60 8 0025155	49 60 8 0032155	49 60 8 0040155
16 - 15.5		-	49 60 8 0025160	49 60 8 0032160	49 60 8 0040160
16.5 - 16	•	-	-	49 60 8 0032165	49 60 8 0040165
17 - 16.5		-	-	49 60 8 0032170	49 60 8 0040170
17.5 - 17	•	-	-	49 60 8 0032175	49 60 8 0040175
18 - 17.5		-	-	49 60 8 0032180	49 60 8 0040180
18.5 - 18	•	-	-	49 60 8 0032185	49 60 8 0040185
19 - 18.5		-	-	49 60 8 0032190	49 60 8 0040190
19.5 - 19	•	-	-	49 60 8 0032195	49 60 8 0040195
20 - 19.5		-	-	49 60 8 0032200	49 60 8 0040200
20.5 - 20	•	-	-	-	49 60 8 0040205
21 - 20.5		-	-	-	49 60 8 0040210
21.5 - 21	•	-	-	-	49 60 8 0040215
22 - 21.5		-	-	-	49 60 8 0040220
22.5 - 22	•	-	-	-	49 60 8 0040225
23 - 22.5		-	-	-	49 60 8 0040230
23.5 - 23	•	-	-	-	49 60 8 0040235
24 - 23.5		-	-	-	49 60 8 0040240
24.5 - 24	•	-	-	-	49 60 8 0040245
25 - 24.5		-	-	-	49 60 8 0040250
25.5 - 25	•	-	-	-	49 60 8 0040255
26 - 25.5		-	-	-	49 60 8 0040260

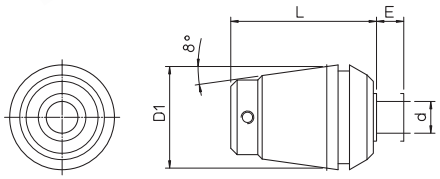
• On request • Auf Anfrage • A petición • Sur demande • Fornibili su richiesta

ACCESSORIES

ET-1- ER

- **TAPPING COLLETS WITH AXIAL COMPENSATION**
- **SPANNZANGE MIT AXIALAUSGLEICH FÜR GEWINDEBOHRER**
- **PINZAS PARA ROSCADO CON COMPENSACIÓN AXIAL**
- **PINCES DE TARAUDAGE AVEC COMPENSATION AXIALE**
- **PINZE DI MASCHIATURA CON COMPENSAZIONE ASSIALE**





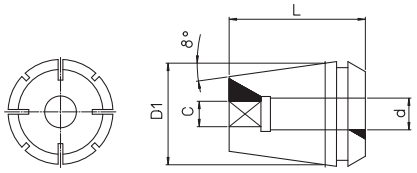
REF.	CODE	d	D_1	L	E	
ET-1-ER25 (M2 ~ M12)	49 60 8 6125280	2.8	26	34	8	10 045 1 01 25 00
	49 60 8 6125350	3.5				
	49 60 8 6125450	4.5				
	49 60 8 6125600	6				
	49 60 8 6125700	7				
	49 60 8 6125900	9				
ET-1-ER32 (M4 ~ M16)	49 60 8 6132450	4.5	33	43	10	10 045 1 03 32 00
	49 60 8 6132600	6				
	49 60 8 6132700	7				
	49 60 8 6132900	9				
	49 60 8 6132110	11				
	49 60 8 6132120	12				
ET-1-ER40 (M8 ~ M20)	49 60 8 6140600	6	41	54	13	10 045 1 03 40 00
	49 60 8 6140700	7				
	49 60 8 6140900	9				
	49 60 8 6140110	11				
	49 60 8 6140120	12				
	49 60 8 6140140	14				
	49 60 8 6140160	16				

• On request • Auf Anfrage • A petición • Sur demande • Fornibili su richiesta

ER - GB

- **TAPPING COLLETS WITHOUT AXIAL COMPENSATION**
- **SPANNZANGE ZUM STARREN GEWINDESCHNEIDEN**
- **PINZAS PARA ROSCADO RÍGIDO**
- **PINCES DE TARAUDAGE SANS COMPENSATION AXIALE**
- **PINZE PER MASCHIATURA RIGIDA**





REF.	CODE	(d Ø x c ⊿)	DIN 371	DIN 374-376	D_1	L	
ER 16-GB (M4 ~ M10)	49 60 8 5116045	4.5 x 3.4	M4	M6	16	27.5	10 045 1 01 16 00
	49 60 8 5116055	5.5 x 4.3	-	M7			
	49 60 8 5116060	6 x 4.9	M5	M8			
			M6				
	49 60 8 5116070	7 x 5.5	M6	M10			
ER 25-GB (M4 ~ M16)	49 60 8 5125045	4.5 x 3.4	M4	M6	25	34	10 045 1 01 25 00
	49 60 8 5125055	5.5 x 4.3	-	M7			
	49 60 8 5125060	6 x 4.9	M5	M8			
			M6				
	49 60 8 5125070	7 x 5.5	-	M10			
	49 60 8 5125090	9 x 7	-	M12			
	49 60 8 5125110	11 x 9	-	M14			
	49 60 8 5125120	12 x 9	-	M16			
ER 32-GB (M4 ~ M20)	49 60 8 5132045	4.5 x 3.4	M4	M6	32	40	10 045 1 03 32 00
	49 60 8 5132055	5.5 x 4.3	-	M7			
	49 60 8 5132060	6 x 4.9	M5	M8			
			M6				
	49 60 8 5132070	7 x 5.5	-	M10			
	49 60 8 5132090	9 x 7	-	M12			
	49 60 8 5132110	11 x 9	-	M14			
	49 60 8 5132120	12 x 9	-	M16			
	49 60 8 5132140	14 x 11	-	M18			
	49 60 8 5132160	16 x 12	-	M20			
ER 40-GB (M10 ~ M27)	49 60 8 5140070	7 x 5.5	-	M10	40	46	10 045 1 03 40 00
	49 60 8 5140090	9 x 7	-	M12			
	49 60 8 5140110	11 x 9	-	M14			
	49 60 8 5140120	12 x 9	-	M16			
	49 60 8 5140140	14 x 11	-	M18			
	49 60 8 5140160	16 x 12	-	M20			
	49 60 8 5140180	18 x 14.5	-	M22			
			-	M24			
	49 60 8 5140200	20 x 16	-	M27			

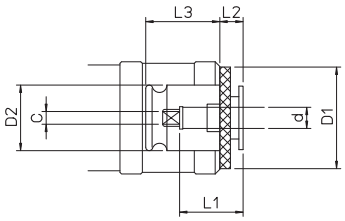
• On request • Auf Anfrage • A petición • Sur demande • Fornibili su richiesta

- For TOPRUN spindles, use ring-nuts shown in the chart
- Bei Verwendung von TOPRUN-Aufnahmen, die in der Tabelle angegebenen Spannmuttern verwenden
- Para el empleo en los mandrinos TOPRUN se precisa utilizar las tuercas indicadas en la tabla
- Sur mandrins TOPRUN utiliser les bagues indiquées dans le tableau
- Per l'utilizzo su mandrini TOPRUN utilizzare ghiere indicate in tabella

BFC

- QUICK CHANGE TAP HOLDERS WITHOUT TORQUE CLUTCH
- SCHNELLWECHSELFUTTER FÜR GEWINDEBOHRER OHNE DREHMOMENTKUPPLUNG
- MANGUITOS DE CAMBIO RÁPIDO SIN LIMITACIÓN DE PAR
- ADAPTATEURS PORTE-TARAUD SANS LIMITEUR DE COUPLE
- BUSSOLE A CAMBIO RAPIDO SENZA LIMITAZIONE DI COPPIA





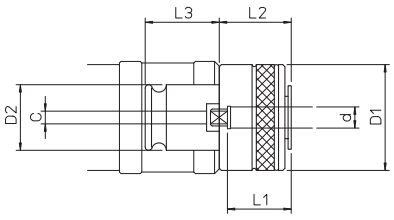
REF.	CODE	(d Ø x c ⍁)	DIN 371	DIN 374	DIN 376	D_1	D_2	L_1	L_2	L_3
BFC1 (M3 ~ 12)	49 50 6 1035027	3.5 x 2.7	M3	M5	M5	30	19	17	7	21.5
	49 50 6 1045034	4.5 x 3.4	M4	M6	M6					
	49 50 6 1055043	5.5 x 4.3	-	M7	M7					
	49 50 6 1060049	6 x 4.9	M5	M8	M8					
			M6							
	49 50 6 1070055	7 x 5.5	-	M10	M10					
	49 50 6 1090070	9 x 7	-	M12	M12					
BFC2 (M6 ~ 20)	49 50 6 2060049	6 x 4.9	M5	M8	M8	48	31	30	11	35
			M6							
	49 50 6 2070055	7 x 5.5	-	M10	M10					
	49 50 6 2090070	9 x 7	-	M12	M12					
	49 50 6 2110090	11 x 9	-	M14	M14					
	49 50 6 2120090	12 x 9	-	M16	M16					
	49 50 6 2140110	14 x 11	-	M18	M18					
	49 50 6 2160120	16 x 12	-	M20	M20					
BFC3 (M14 ~ 33)	49 50 6 3110090	11 x 9	-	M14	M14	70	48	44	14	55.5
	49 50 6 3120090	12 x 9	-	M16	M16					
	49 50 6 3140110	14 x 11	-	M18	M18					
	49 50 6 3160120	16 x 12	-	M20	M20					
	49 50 6 3180145	18 x 14.5	-	M22	M22					
			-	M24	M24					
	49 50 6 3200160	20 x 16	-	M27	M27					
	49 50 6 3220180	22 x 18	-	M30	M30					
	49 50 6 3250200	25 x 20	-	M33	M33					

• On request • Auf Anfrage • A petición • Sur demande • Fornibili su richiesta

BFS

- QUICK CHANGE TAP HOLDERS WITH TORQUE CLUTCH
- SCHNELLWECHSELFUTTER FÜR GEWINDEBOHRER MIT DREHMOMENTKUPPLUNG
- MANGUITOS DE CAMBIO RÁPIDO CON LIMITACIÓN DE PAR
- ADAPTATEURS PORTE-TARAUD AVEC LIMITEUR DE COUPLE
- BUSSOLE A CAMBIO RAPIDO CON LIMITAZIONE DI COPPIA



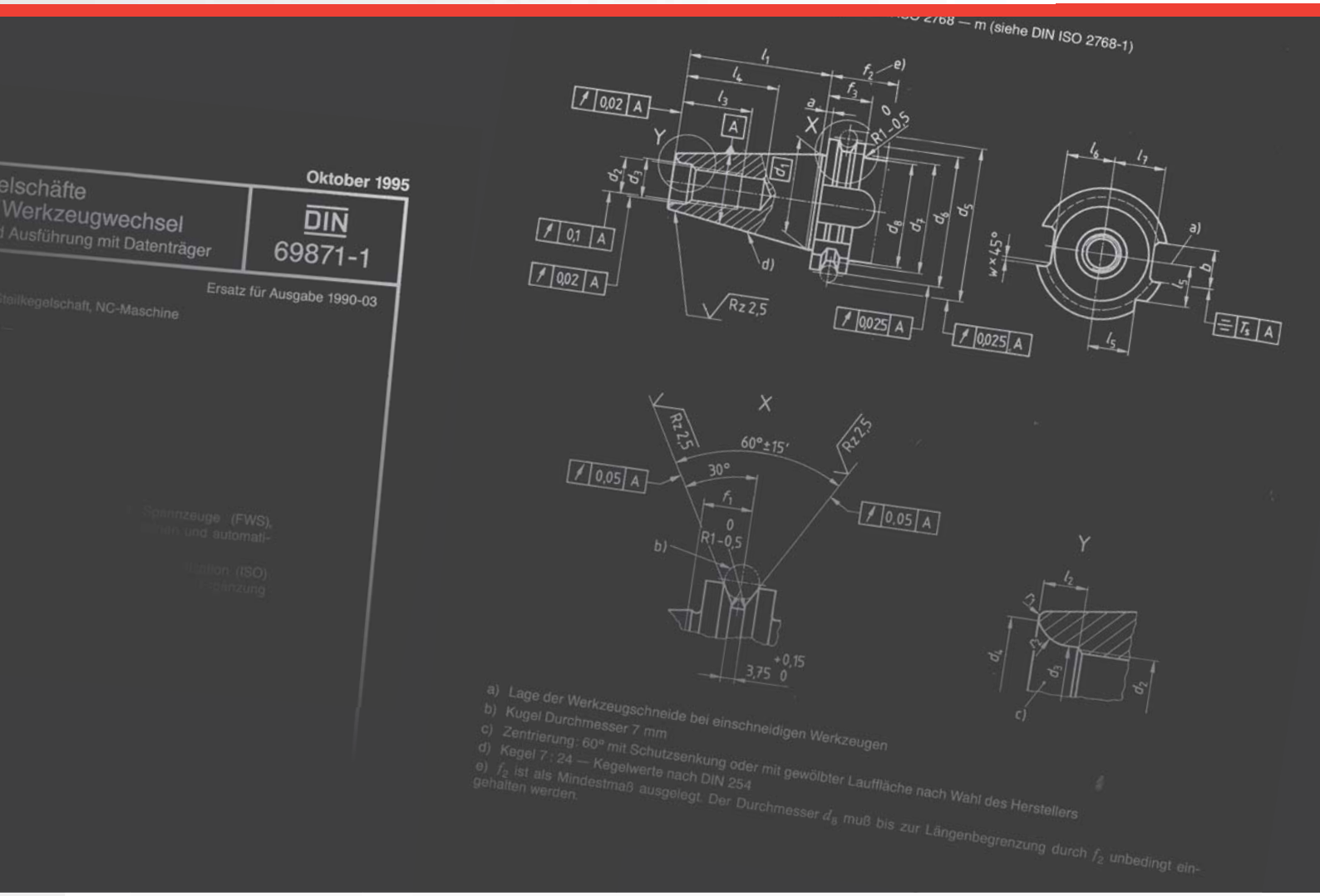


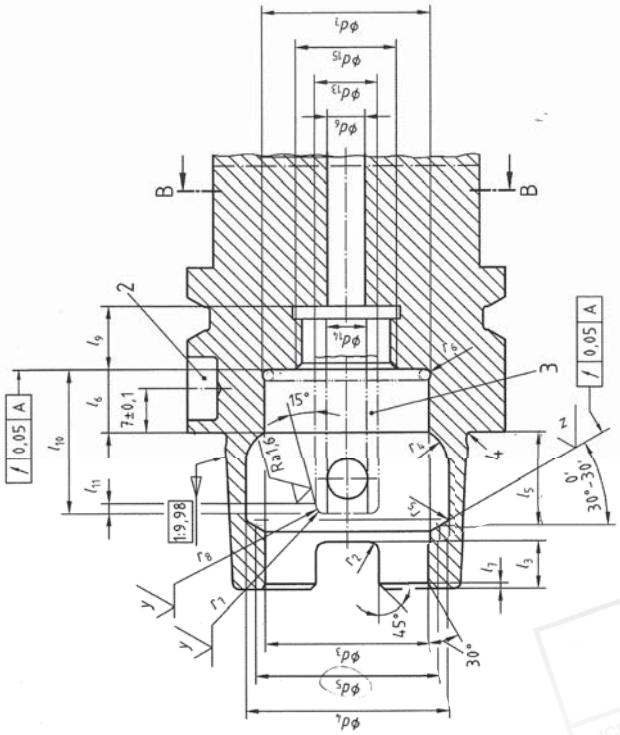
REF.	CODE	(d Ø x c ⍁)	DIN 371	DIN 374	DIN 376	D_1	D_2	L_1	L_2	L_3
BFS1 (M3 ~ 12)	49 50 7 1035027	3.5 x 2.7	M3	M5	M5	32	19	17	25	21.5
	49 50 7 1040030	4 x 3	M3.5	-	-					
	49 50 7 1045034	4.5 x 3.4	M4	M6	M6					
	49 50 7 1055043	5.5 x 4.3	-	M7	M7					
	49 50 7 1060049	6 x 4.9	M5	M8	M8					
			M6							
	49 50 7 1070055	7 x 5.5	-	M10	M10					
	49 50 7 1080062	8 x 6.2	M8	-	-					
	49 50 7 1090070	9 x 7	-	M12	M12					
	49 50 7 1100080	10 x 8	M10	-	-					
BFS2 (M6 ~ 20)	49 50 7 2060049	6 x 4.9	M5	M8	M8	50	31	30	34	35
			M6							
	49 50 7 2070055	7 x 5.5	-	M10	M10					
	49 50 7 2080062	8 x 6.2	M8	-	-					
	49 50 7 2090070	9 x 7	-	M12	M12					
	49 50 7 2100080	10 x 8	M10	-	-					
	49 50 7 2110090	11 x 9	-	M14	M14					
	49 50 7 2120090	12 x 9	-	M16	M16					
	49 50 7 2140110	14 x 11	-	M18	M18					
	49 50 7 2160120	16 x 12	-	M20	M20					
BFS3 (M14 ~ 33)	49 50 7 3110090	11 x 9	-	M14	M14	72	48	44	45	55.5
	49 50 7 3120090	12 x 9	-	M16	M16					
	49 50 7 3140110	14 x 11	-	M18	M18					
	49 50 7 3160120	16 x 12	-	M20	M20					
	49 50 7 3180145	18 x 14.5	-	M22	M22					
			-	M24	M24					
	49 50 7 3200160	20 x 16	-	M27	M27					
	49 50 7 3220180	22 x 18	-	M30	M30					
	49 50 7 3250200	25 x 20	-	M33	M33					

• On request • Auf Anfrage • A petición • Sur demande • Fornibili su richiesta

TECHNICAL DATA

- **TECHNICAL DATA**
- **TECHNISCHE DATEN**
- **DATOS TÉCNICOS**
- **DONNÉES TECHNIQUES**
- **DATI TECNICI**





Mai 2003

DIN 69893-1

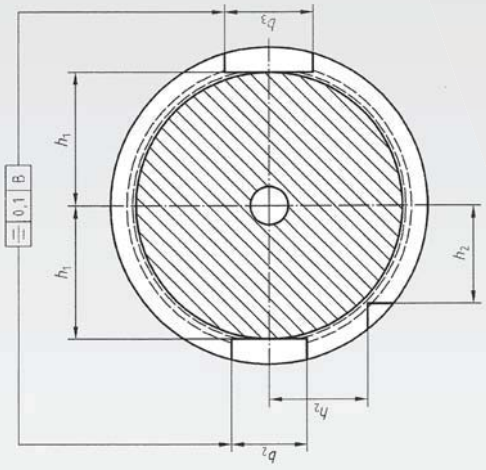
Kegel-Hohlschäfte mit Plananlage
Teil 1: Kegel-Hohlschäfte Form A und Form C
Maße und Ausführung

Ersatz für DIN 69893-1:1996-01

ICS 25.060.20

face — Part 1: Hollow taper

Queues

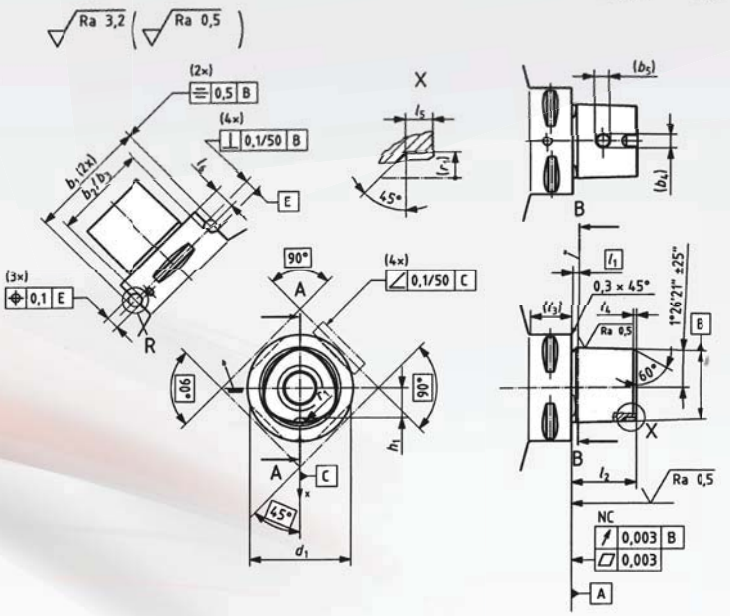


INTERNATIONAL STANDARD

ISO 26623-1

First edition
2006-11-15

Dimensions in millimetres

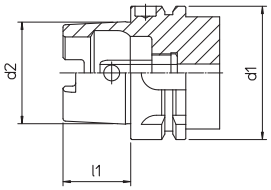


TECHNICAL DATA

- ARBORS STANDARDS
- NORMEN FÜR GRUNDAUFNAHMEN
- NORMAS ACOPLAMIENTOS BASE
- NORMES MANDRINS
- NORME ATTACCHI BASE

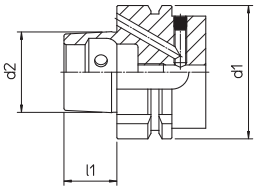
DIN 69893

HSK-A



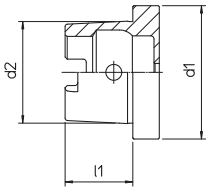
HSK-A	d1	d2	l1
32	32	24	16
40	40	30	20
50	50	38	25
63	63	48	32
80	80	60	40
100	100	75	50

HSK-B



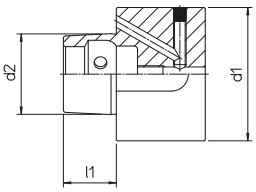
HSK-B	d1	d2	l1
-	-	-	-
40	40	24	16
50	50	30	20
63	63	38	25
80	80	48	32
100	100	60	40

HSK-C



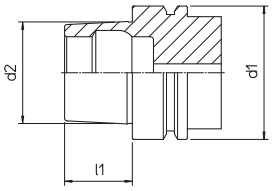
HSK-C	d1	d2	l1
32	32	24	16
40	40	30	20
50	50	38	25
63	63	48	32
80	80	60	40
100	100	75	50

HSK-D



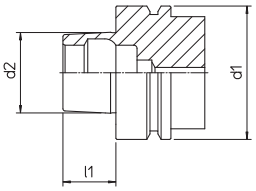
HSK-D	d1	d2	l1
-	-	-	-
40	40	24	16
50	50	30	20
63	63	38	25
80	80	48	32
100	100	60	40

HSK-E



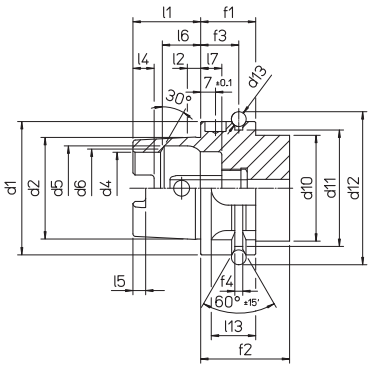
HSK-E	d1	d2	l1
32	32	24	16
40	40	30	20
50	50	38	25
63	63	48	32
-	-	-	-

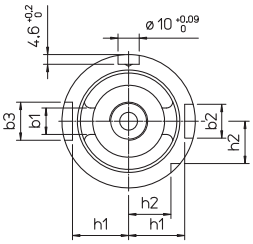
HSK-F

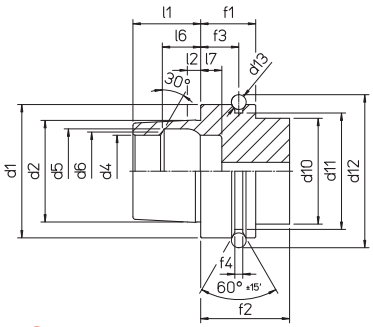


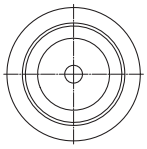
HSK-F	d1	d2	l1
-	-	-	-
-	-	-	-
50	50	30	20
63	63	38	25
80	80	48	32

HSK-A HSK-E



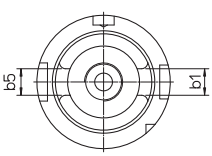






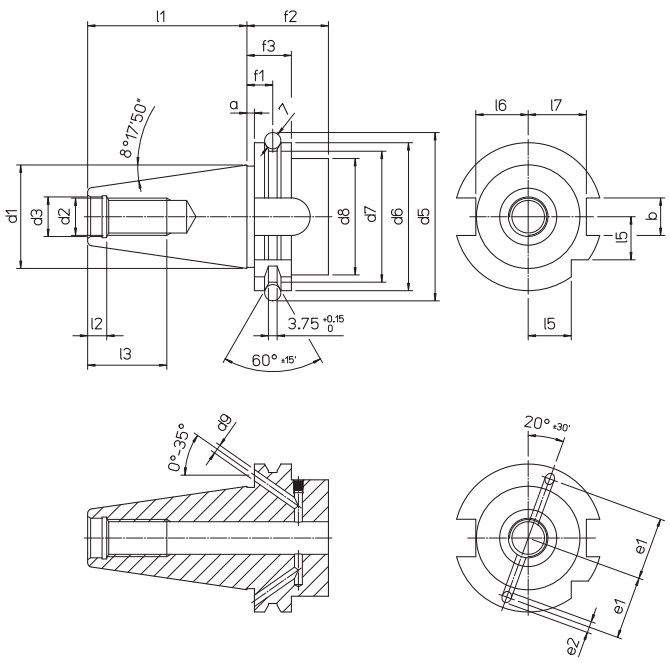
HSK	32	40	50	63	80	100
b1 +0.04 -0.04	7.05	8.05	10.54	12.54	16.04	20.02
b2 H10	7	9	12	16	18	20
b3 H10	9	11	14	18	20	22
d1 h10	32	40	50	63	80	100
d2	24 +0.007 +0.005	30 +0.007 +0.005	38 +0.009 +0.006	48 +0.011 +0.007	60 +0.013 +0.008	75 +0.015 +0.009
d4 H10	17	21	26	34	42	53
d5 H11	21	25.5	32	40	50	63
d6	19	23	29	37	46	58
d10 max.	26	34	42	53	67	85
d11 0 -0.01	26.5	34.8	43	55	70	92
d12 0 -0.01	37	45	59.3	72.3	88.8	109.75
d13	4		7			
f1 0 -0.01	20		26			29
f2 min.	35		42			45
f3 ± 0.01	16		18			20
f4 +0.15 0	2		3.75			
h1 0 -0.2	13	17	21	26.5	34	44
h2 0 -0.13	9.5	12	15.5	20	25	31.5
l1 0 -0.2	16	20	25	32	40	50
l2	3.2	4	5	6.3	8	10
l4 +0.2 0	5	6	7.5	10	12	15
l5 +0.2 0	3	3.5	4.5	6	8	10
l6 JS10	8.92	11.42	14.13	18.13	22.85	28.56
l7 0 -0.1	8		10	10	12.5	12.5
l13	12		19	21	22	24

HSK-T



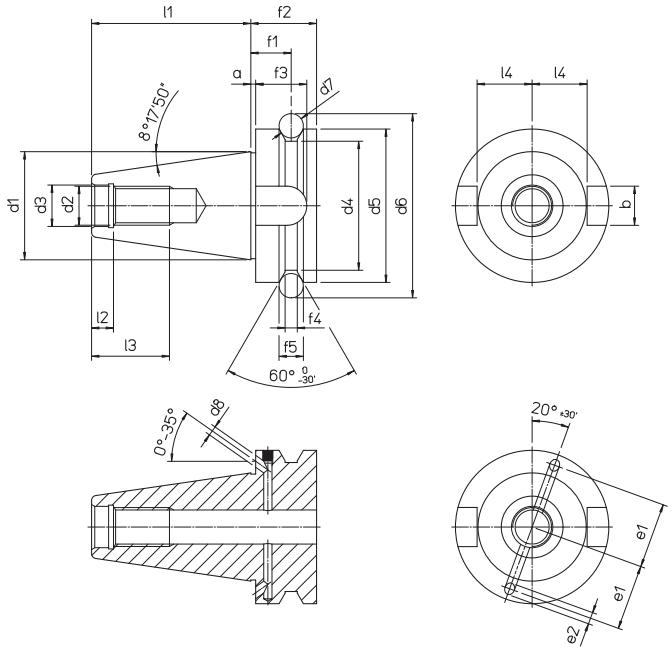
HSK-T	32	40	50	63	80	100
b1 +0.04 -0.04	7.05	8.05	10.54	12.54	16.04	20.02
b5	6.932	7.932	10.425	12.425	15.93	19.91
	+ 0.03 0		+ 0.035 0			

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 0 -0.1	50	63.55	82.55	97.50	155
d7 0 -0.5	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 0 -0.1	19.1				
l1 0 -0.3	47.8	68.4	82.7	101.75	161,80
l2 +0.5 0	5.5	8.2	10	11.5	14
l3 min.	24	32	40	47	59
l5 0 -0.3	15	18.5	24	30	49
l6 0 -0.4	16.4	22.8	29.1	35.5	54,5
l7 0 -0.4	19	25	31.3	37.7	59,3

MAS 403 BT A-B

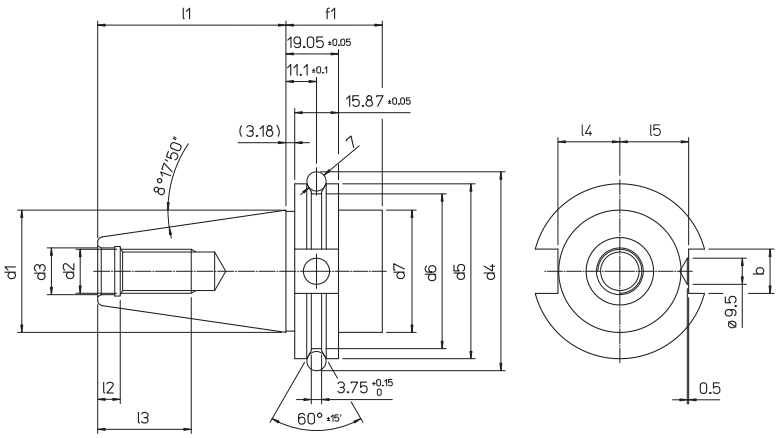


ISO	30	35	40	45	50	60
a ± 0.04	2			3		
b H12	16.1			19.3	25.7	25,7
d1	31.75	38.10	44.45	57.15	69.85	107,95
d2	M 12		M 16	M 20	M 24	M30
d3 H8	12.5		17	21	25	31
d4	38	43	53	73	85	135
d5 h8	46	53	63	85	100	155
d6	56.144	65.680	75.679	100.215	119.019	180,359
d7	8	10		12	15	20
d8	4			5	6	8
e1 ± 0.1	21	23	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 +0.1 0	8	10		12	15	20
l1 ± 0.2	48.4	56.4	65.4	82.8	101.8	161,8
l2 +0.5 0	7		9	11	13	16
l3 min.	24		30	38	45	56
l4 0 -0.2	16.3	19.6	22.6	29.1	35.4	60,1

TECHNICAL DATA

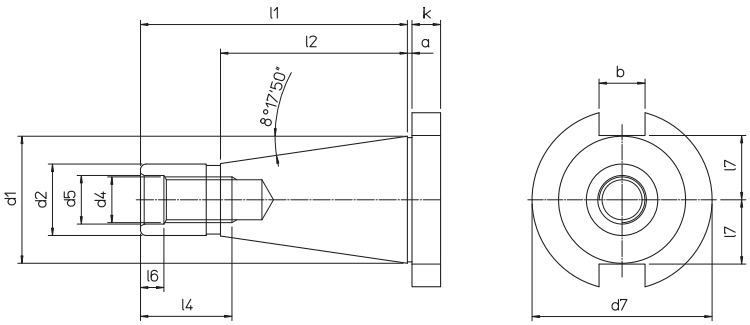
- ARBORS STANDARDS
- NORMEN FÜR GRUNDAUFNAHMEN
- NORMAS ACOPLAMIENTOS BASE
- NORMES MANDRINS
- NORME ATTACCHI BASE

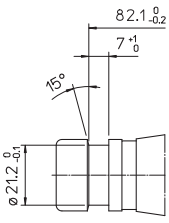
ANSI/CAT



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 ±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 ±0.25	44.45	57.15	69.85
f1 ±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



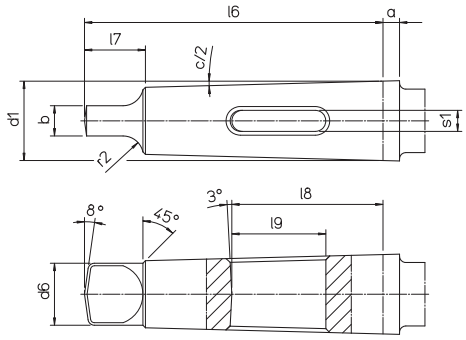


ISO 40 OTT

DIN 2080				
ISO	30	40	45	50
a ±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 ±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 ±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

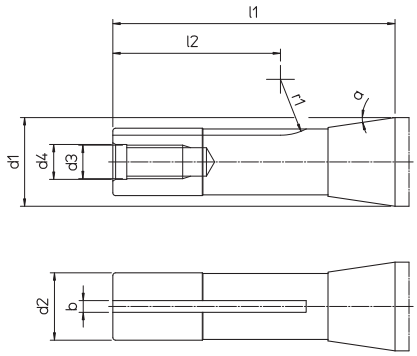
- ARBORS STANDARDS
- NORMEN FÜR GRUNDAUFNAHMEN
- NORMAS ACOPLAMIENTOS BASE
- NORMES MANDRINS
- NORME ATTACCHI BASE

DIN 228/B DIN 1806



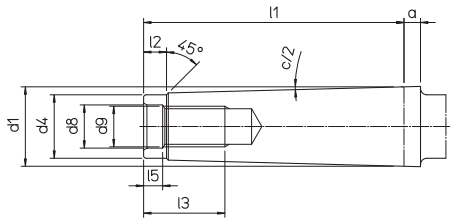
MORSE	4	5
a	6.5	
b H13	11.9	15.9
c/2	1°29'15"	1°30'26"
d1	31.267	44.399
d6 max.	24.5	35.7
l6 $^{0}_{-1}$	117.5	149.5
l7 max.	24	29
l8	59.5	64
l9	37	42
r2	8	10
s1	8.3	12.4

R8



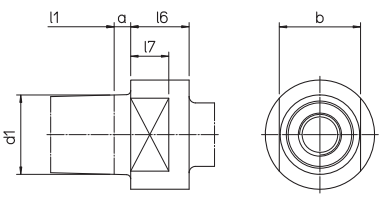
R8	
a	8°25'30"
b ± 0.1	4.2
d1	31.750
d2	24.109
d3 $^{-0.007}_{-0.020}$	M 12
d4	12.5
l1	101
l2 min.	60
r1	20

DIN 228/A



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 $^{+0.5}_{0}$	8.2	
l6	15	
l7	23	

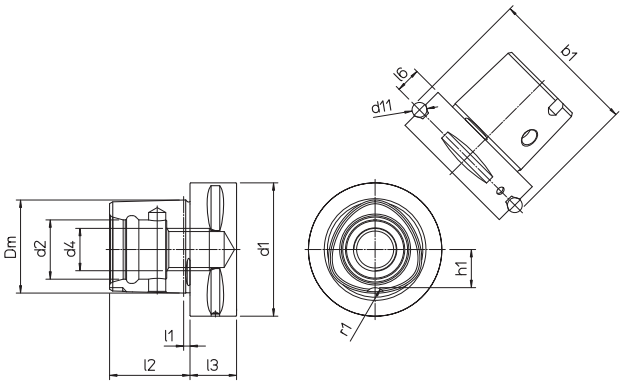
DIN 2207



TECHNICAL DATA

- ARBORS STANDARDS
- NORMEN FÜR GRUNDAUFNAHMEN
- NORMAS ACOPLAMIENTOS BASE
- NORMES MANDRINS
- NORME ATTACCHI BASE

ISO 26623-1



PSC	40	50	63	80	100
b1 ±0.1	46	59.3	70.7	86	110
Dm	28	35	44	55	72
d1 ±0.1	40	50	63	80	100
d2 $^{+0.1}_{-0.05}$	18	21	28	32	43.025
d4	M14x1.5	M16x1.5	M20x2		M24x2
d11	5	7			10
l1	2.5	3			
l2 ±0.1	24	30	38	48	60
l3 min	20		22	30	36
l6 ±0.15	8	10	12		16
h1 ±0.1	11	14	18	22.2	29
r1 $^{+2}_{0}$	3	4	5	6	8

WINTOOL

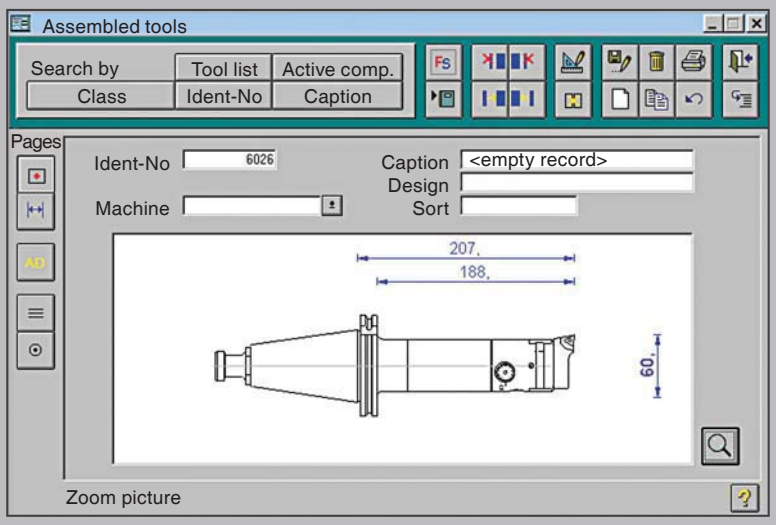
GB It allows to be graphically constructed in a short period of time, showing the complete composition of the Modulhard'Andrea tools, including dimensions, weight and the list of components.

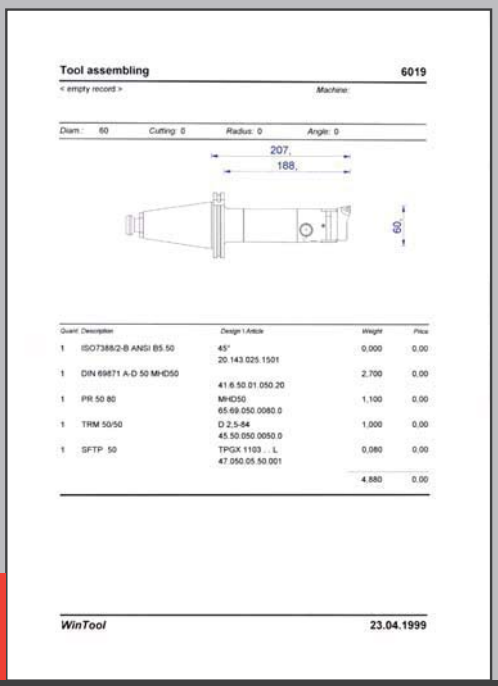
D Der Grafikgenerator ermöglicht in kurzer Zeit das Zusammenstellen kompletter Werkzeuge mit MODULHARD'ANDREA-Elementen, indem er die Abmessungen, das Gewicht und die Liste der Bauteile angibt.

E Generador gráfico que permite componer en breve tiempo herramientas completas con elementos del MODULHARD'ANDREA, indicando las dimensiones, el peso y la lista de los componentes.

F Générateur graphique qui permet de composer, en peu de temps, des outils complets avec des éléments du MODULHARD'ANDREA, tout en indicant les dimensions, le poids et la liste des composants.

I Generatore grafico che permette di comporre in breve tempo utensili completi con elementi del MODULHARD'ANDREA, indicando le dimensioni, il peso e la lista dei componenti.







D'ANDREA
Lainate - Milano

D'ANDREA Molise
Castel del Giudice - Isernia

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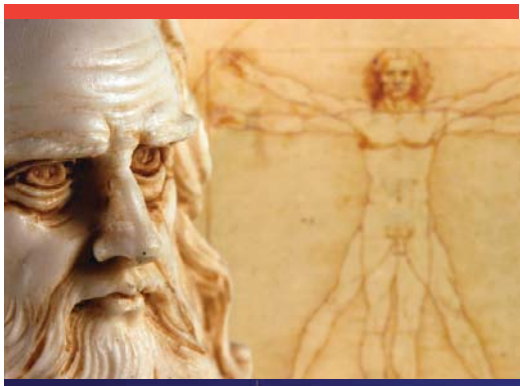




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Wir warten auf euch in Italien
Os esperamos en Italia
Nous vous attendons en Italie
Vi aspettiamo in Italia

Ermenno D'Andrea















01/10/2014
Cod. 18 10 41 001 000

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cod. 18 10 41 001 000 10/14

TR-ELETTRA 50



Finish Boring Head
with 0.002 mm/Ø
Setting Accuracy

IP67 | **2µm**

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TR-Elettra, PRECISION FINISH BORING HEAD





*The **TR-Elettra** is a fine boring head in which the radial slide traverse is displayed on a built-in digital display, ensuring the machine operator the possibility to adjust quickly and precisely.*

GENERAL FEATURES:

- *Use the modular MHD' adaptable to any machine tool that uses standards-base arbors*
- *Highest precision through direct measuring of the movement*
- *Single button operation for functions 'On', 'Reset', and to change between mm/inch*
- *Display resolution Ø 0.002 mm*
- *Energy saving function, the display switches off after 30 seconds and stores last display value*
- *Internal coolant*
- *Level of protection IP67*

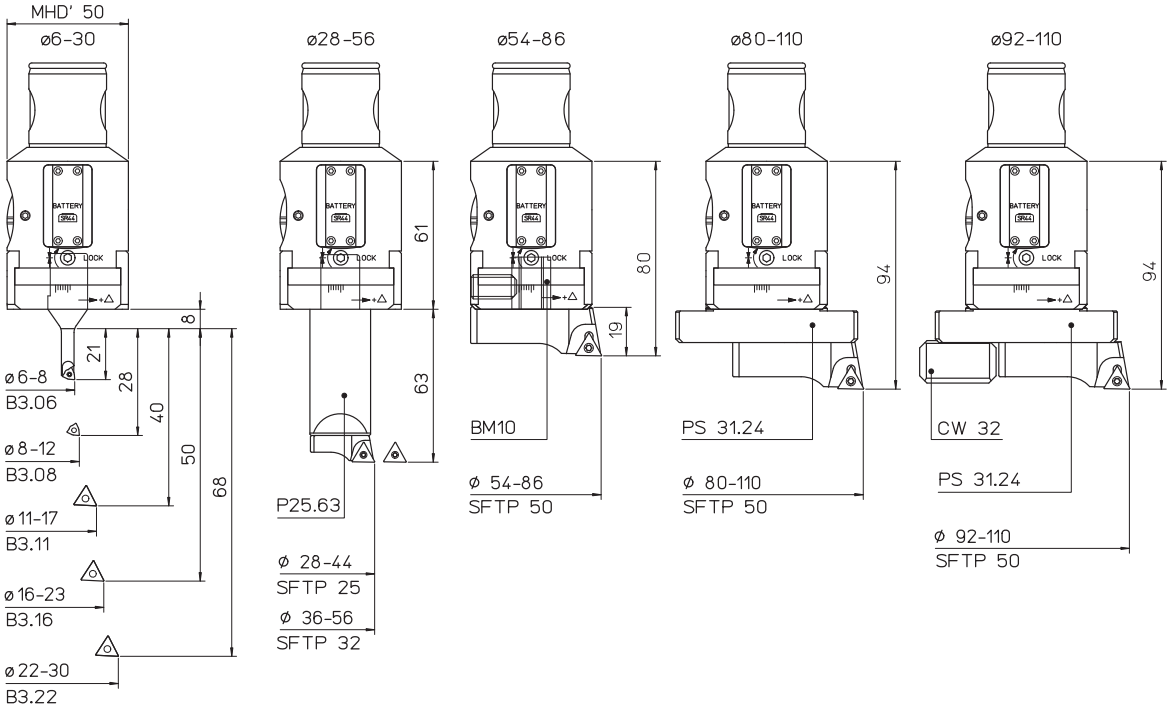
La **TR-Elettra** è una testina per alesare in cui lo spostamento radiale della slitta portautensile viene visualizzato su un display digitale incorporato, garantendo all'operatore la massima velocità e precisione di regolazione.

CARATTERISTICHE GENERALI:

- Utilizza il sistema modulare MHD' adattabile ad ogni macchina utensile che utilizza attacchi base standard
- Altissima precisione attraverso la misura diretta dello spostamento
- Pulsante unico per funzioni 'On', 'Reset', e per la scelta mm/inch
- Risoluzione display Ø 0.002 mm
- Funzione di risparmio energetico, automaticamente il display si spegne dopo 30 secondi e memorizza l'ultimo valore visualizzato
- Passaggio interno refrigerante
- Livello di protezione IP67

Ø6 ~ 110

WORKING RANGE KIT
CAMPO DI LAVORO



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