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D'ANDREA

2008

TOOLHOLDERS
WERKZEUGAUFNAHMEN
ИСТРУМЕНТАЛЬНАЯ ОСНАСТКА
PORTE-OUTILS
PORTAUTENSILI

D'ANDREA®
TECHNOLOGY FOR HIGH PRECISION

CASTEL DEL GIUDICE, ISERNIA (ITALY)

LAINATE, MILANO (ITALY)

Technology for high precision

D'ANDREA is the Italian company, world leader in the manufacture of high precision machine tool accessories. Known worldwide for the quality of its products, D'ANDREA has been developing increasingly effective technologies since 1951 , keeping pace with the modern demands of the mechanical industry.
The entire D'ANDREA range comes from the headquarters in Lainate, just outside Milan: SENSITIV T-TA, U-TRONIC, U-CENTER facing and boring heads and AUTORADIAL, the high precision modular toolholder system MODULHARD'ANDREA and the high precision monobloc toolholders system for high speed applications TOPRUN. From here, thanks to a modern and efficient logistics system and a capillary, skilled distribution network, D'ANDREA products arrive in workshops throughout Italy and the world.
D'ANDREA vast range of heads and toolholders, available in different versions and sizes, is enhanced by attentive before-and after-sales service, always focused on meeting the specific technical and commercial needs of the customer.
The entire D'ANDREA production, guaranteed by engineering, manufacturing and sales procedures in compliance with ISO 9001 standards, is accompanied by a training and information system that involves the user in every new feature.
Facing, boring, milling, tapping and drilling: D'ANDREA responds to any application requirement with high precision technology.

Technologie in höchster präzision

D'Andrea ist ein italienisches Unternehmen, das im Bereich der Produktion von Hochpräzisionszubehör für Werkzeugmaschinen Weltführer ist. Der Name D'Andrea wird in der ganzen Welt aufgrund der herausragenden Qualität der Produkte geschätzt; D'ANDREA konzentriert sich seit 1951 auf die Entwicklung von effizienten und fortschrittlichen technischen Lösungen, die entsprechend den ständig steigenden Anforderungen der mechanischen Industrie entwickelt werden. Im Betrieb in Lainate, im Hinterland Mailands, entsteht die gesamte D'ANDREA Produktpalette: Die Ausdrehköpfe zum Plandrehen und Feinbohren SENSITIV T-TA, U-TRONIC, U-CENTER und AUTORADIAL, das modulare Hochpräzisi onwerkzeughalterssystem MODULHARD'ANDREA und das System der auswuchtbaren Werkzeughalter für Hochge schwindigkeitsbearbeitung TOPRUN. Über ein modernes und effizientes Logistiksystem sowie ein kompetentes, verzweigtes Vertriebsnetz werden die D'ANDREA-Erzeugnisse in Italien, sowie in die ganze Welt geliefert.
Zur breiten Produktpalette der Ausdrehköpfe und Werkzeughalter, die in zahlreichen Ausführungen und unterschiedlichen Größen angeboten werden, kommt ein zuverlässiger Kundendienst hinzu, der sich auf die Zeit vor und nach dem Verkauf sowie auf die gezielte Beratung entsprechend der spezifischen technischen und wirtschaftlichen Anforderungen des Kunden richtet. Alle Phasen der Planung, der Herstellung und des Vertriebs der D'ANDREA-Erzeugnisse werden im Rahmen der Qualitätssicherung nach ISO 9001 kontrolliert und von einem Programm der Weiterbildung und Information begleitet, das dem Anwender die neuesten Innovationen vorstellt und erläutert.
Plandrehen, Feinbohren, Fräsen, Gewindeschneiden und Bohren: Für alle Anforderungen bietet D'ANDREA die ideale technische Lösung in höchster Präzision.

Технология для высокой точности

D'ANDREA - итальянская компания, мировой лидер в производстве высокоточной станочной оснастки.
Известная во всем мире качеством своей продукции, D'ANDREA с 1951 года развивает эффективные технологии, идя в ногу с современными требованиями обрабатывающей промышленности.
Вся существующая программа D'ANDREA выходит с головного завода в Лаинате, рядом с Миланом: SENSITIV T-TA, U-TRONIC, U-CENTER и AUTORADIAL торцовочные и расточные головки, высокоточная модульная система инструментальной оснастки MODULHARD'ANDREA, а также высокоточная моноблочная система оснастки для высокоскоростной обработки TOPRUN.
Отсюда, благодаря современной и эффективной системе логистики, а также разветвленной и квалифицированной дилерской сети, продукция D'ANDREA поступает в цеха в Италии и во всем мире.
Обширная программа головок и оснастки D'ANDREA, существующая в различных размерах и исполнениях дополнена чутким пред- и пост-продажным обслуживанием, сфокусированным на специфических технических и коммерческих потребностях заказчика.
Вся продукция D'ANDREA обеспечивается процессами разработки, производства и поставки соответствующим стандартам ISO 9001 и сопровождается системой стажировок и информационных семинаров с привлечением конечного потребителя к созданию нового продукта.
Торцевание, растачивание, фрезерование, нарезание резьбы и сверление: на все требования по применению D'ANDREA отвечает технологией высокой точности.

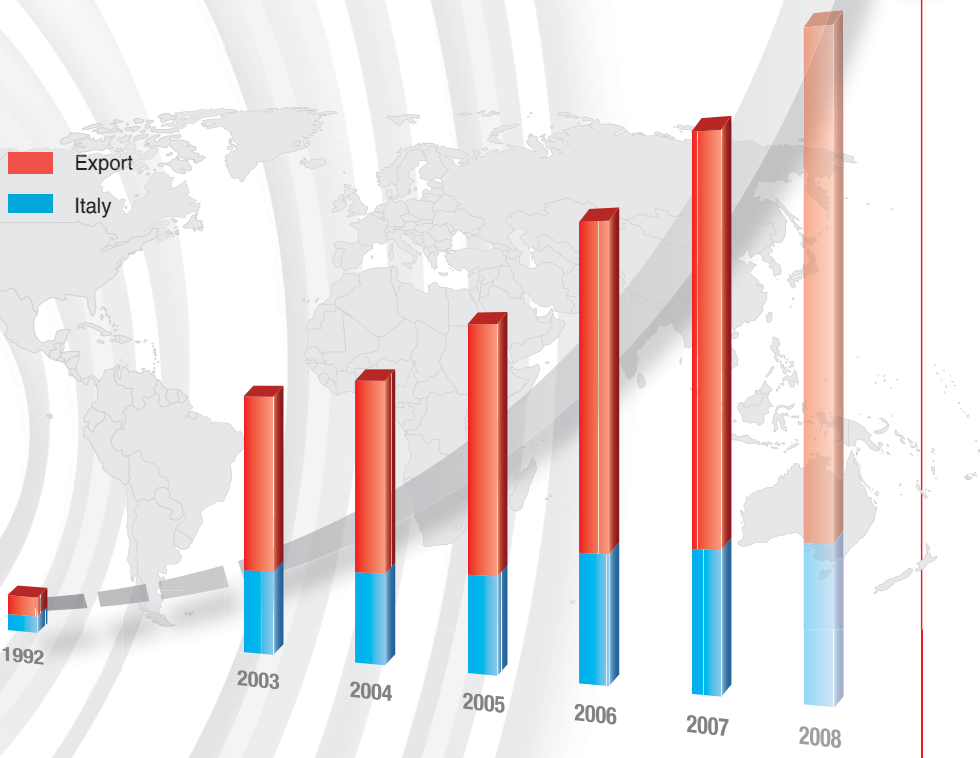
La tecnologie de haute précision

D'ANDREA est la société italienne leader mondial pour la production d'accessoires de haute précision pour machines-outils.
Connue dans le monde entier pour la qualité de ses produits, D'ANDREA s'est engagé depuis 1951 dans le développement de solutions technologiques toujours plus efficaces, en harmonie avec les exigences modernes de l'industrie mécanique.
Dans le siège de Lainate, aux portes de Milan, naît l'entière production D'ANDREA: les têtes à surfacer et aléser SENSITIV T-TA, U-TRONIC, U-CENTER et AUTORADIAL, le système modulaire de porte-outils de haute précision MODULHARD'ANDREA et le système de porte-outils monobloc et équilibrables pour la haute vitesse TOPRUN.
A partir de là, grâce à un système logistique moderne et efficace et à un réseau de distribution capillaire et compétent, les produits D'ANDREA rejoignent les ateliers dans tous les coins d'Italie et du monde.
La vaste gamme de têtes et de porte-outils D'ANDREA, disponibles en différentes versions et mesures, est intégrée grâce à un service attentif de pré et post-vente orienté en fonction des exigences techniques et commerciales spécifiques à chaque client.
L'entière production D'ANDREA est garantie par la procédure de conception, de fabrication et de commercialisation conforme à la norme ISO 9001 et elle est accompagnée d'un système de formation et d'information qui intéresse l'utilisateur à chaque nouveauté.
Le surfaçage, l'alésage, le fraisage, le taraudage et le perçage: à chaque type d'application requis, la société D'ANDREA répond par une technologie de haute précision.

La tecnologia dell'alta precisione

D'ANDREA è l'azienda italiana leader mondiale nella produzione di accessori di alta precisione per macchine utensili.
Conosciuta in tutto il mondo per la qualità dei suoi prodotti, D'ANDREA è impegnata sin dal 1951 nello sviluppo di soluzioni tecnologiche sempre più efficaci, al passo con le moderne esigenze dell'industria meccanica.
Nella sede di Lainate, alle porte di Milano, nasce l'intera produzione D'ANDREA: le teste per sfacciare e alesare SENSITIV T-TA, U-TRONIC, U-CENTER e AUTORADIAL, il sistema modulare di portautensili di alta precisione MODULHARD'ANDREA e il sistema di portautensili integrali bilanciabili per alta velocità TOPRUN.
Dallo stabilimento, grazie a un sistema logistico moderno ed efficiente e ad una rete di distribuzione diffusa e capillare, i prodotti D'ANDREA raggiungono le officine di ogni angolo d'Italia e del mondo.
L'ampia gamma di teste e portautensili D'ANDREA, disponibile secondo versioni e misure diverse, è integrata da un attento servizio pre e post vendita sempre orientato verso le specifiche esigenze tecniche e commerciali del cliente.
L'intera produzione D'Andrea, garantita da procedure di progettazione, fabbricazione e commercializzazione conformi alla norma ISO 9001, è accompagnata da un sistema di formazione e informazione che coinvolge l'utente in ogni novità.
Sfacciatura, alesatura, fresatura, maschiatura e foratura: ad ogni requisito applicativo risponde D'ANDREA con la tecnologia dell'alta precisione.

Worldwide sales
Weltweite verkäufe
Продажи в мире
Les ventes mondiaux
Le vendite nel mondo



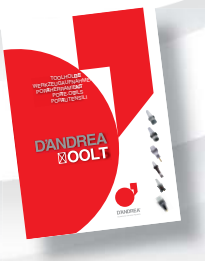
D'Andrea products

D'Andrea produkte

Продукция D'Andrea

Les produits D'Andrea

I prodotti di D'Andrea



MONOd'

MONOforce

TOPRUN

MODULHARD'

GRINTA

MCD'

SENSITIV

AUTORADIAL

U-CENTER

U-TRONIC

SINCERT
CERTO
UNI EN ISO 9001:2000
CERTIFICATO N°769

Golden Compass award for industrial design

Marino D'Andrea the founder

The skill of long tradition

The history of D'ANDREA began in 1951, with the development of the first facing and boring head SENSITIV T-TA, with automatic and manual advancement, which has evolved over the years and is still in production today.
In 1975, a new model of NC head arrived, in medium and large sizes, for boring machines: U-TRONIC.
The third model of facing and boring head came along in 1981:
U-CENTER, numerically controlled for machining centres.
In 1992 came the launch of MODULHARD'ANDREA, the high precision modular toolholder system for boring, milling, drilling and tapping.
1998 was the year of the AUTORADIAL automatic facing heads and the new line of high precision monobloc toolholders system, TOPRUN.
In 2001 D'ANDREA expanded the TOPRUN range with FORCE, the ultra-tight balanceable toolholder.
In 2002, to meet the growing market demand, D'ANDREA inaugurates its new Lainate headquarters and manufacturing plant in Castel Del Giudice, in Upper Molise. Over 6000 m^2 of work space, executive offices and training facilities, at the service of the skill of long tradition.

Kompetenz durch jahrzehntelange erfahrung

Die Erfolgsgeschichte von D'ANDREA beginnt im Jahre 1951 mit der Einführung des ersten Plan- und Ausdrehkopfes SENSITIV T-TA mit automatischem und manuellem Vorschub. Dieses fortschrittliche Produkt, das im Laufe der Jahre ständig weiter entwickelt wurde, wird auch heute noch angeboten.
1975 stellte D'ANDREA mit U-TRONIC einen neuen Ausdrehkopf zum Plandrehen und Feinbohren über NC-Steuerung für mittelgroße und große Maschinen vor.
1981 wird mit dem U-CENTER die dritte Version eines Ausdrehkopfes zum Plandrehen und Feinbohren für NC-gesteuerte Bearbeitungszentren eingeführt.
1992 ist das Jahr der Einführung von MODULHARD'ANDREA, dem modularen

Опыт долгих традиций

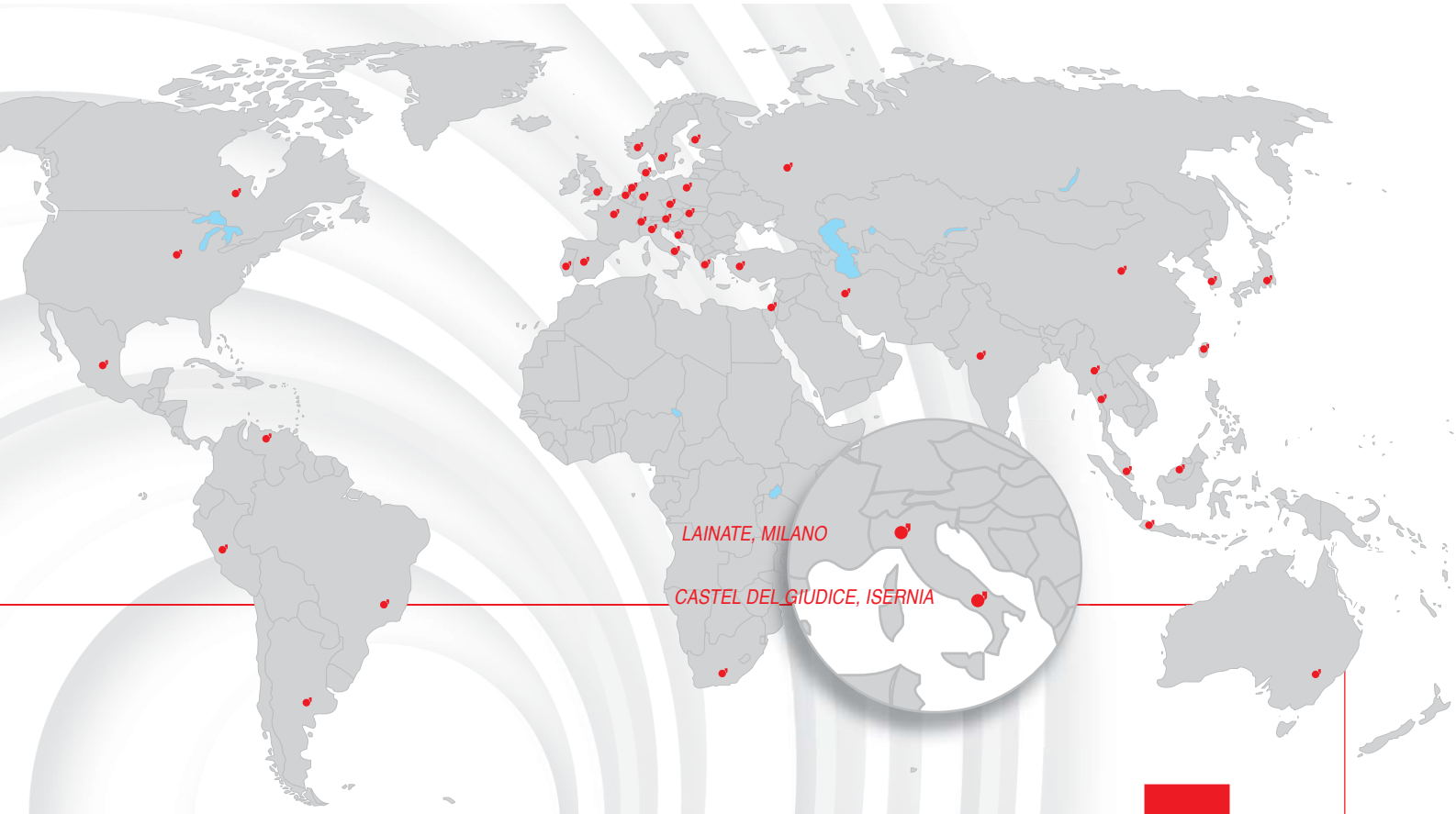
История фирмы D'ANDREA началась в 1951г. с создания первой торцовочной и расточной головки SENSISTIV T-TA, с автоматической и ручной подачами, которая дорабатывалась годами и производится до сих пор.
В 1975г. появилась новая модель головки с программным управлением для расточных станков U-TRONIC.
Третья модель торцовочных и расточных головок была представлена в1981:
U-CENTER - программно управляемая для обрабатывающих центров.
В 1992 году был осуществлен выпуск MODULHARD'ANDREA - высокоточной модульной системы инструментальной оснастки для растачивания, фрезерования, сверления и нарезания резьбы.
1998 явился годом автоматических торцовочных головок AUTORADIAL и новой линии высокоточной моноблочной системы оснастки, - TOPRUN.
В 2001 D'ANDREA расширила TOPRUN программой FORCE особо жесткой балансируемой оснастки и FITMILL балансируемой оснастки для фрезерных головок с резьбовым соединением.
В 2002, в ответ на растущий спрос на продукцию, были открыты новое головное предприятие в Лаинате и завод в Кастель Дель Гудиче, в Верхнем Молизе. Более 6000 $м^2$ производственных помещений, офисов и помещений для обучения к услугам опыта долгих традиций.

La compétence d'une longue tradition

L'histoire de la société D'ANDREA débute en 1951, avec la mise au point de la première tête à surfacer et aléser SENSITIV T-TA avec avance automatique et manuelle, en évolution constante, elle est encore aujourd'hui en production.
En 1975 arrive un nouveau modèle de tête à commande numérique de moyennes et de grandes dimensions pour aléseuses: U-TRONIC.
En 1981 arrive le troisième modèle de tête à surfacer et aléser: les têtes U-CENTER, à commande numérique pour centres d'usinage.
En 1992 arrive sur le marché le MODULHARD'ANDREA, le système modulaire de porte-outils de haute précision pour les opérateurs d'alésage, fraisage, perçage et taraudage.
1998 est l'année des têtes automatiques pour surfacer AUTORADIAL et de la nouvelle ligne des porte-outils monobloc equilibrables TOPRUN.
En 2001, D'ANDREA étend la gamme TOPRUN avec FORCE, le nouveau porte-outils à fort serrage équilibrable.
En 2002, pour faire face à une demande croissante du marché, D'ANDREA inaugure le nouveau siège de Lainate et l'unité de production de Castel Del Giudice, dans le haut Molise. Plus de 6000 mètres carrés d'ateliers, de bureaux de direction et d'espaces de formation au service d'une compétence d'une longue tradition.

La competenza di una lunga tradizione

La storia di D'ANDREA ha inizio nel 1951, con la messa a punto della prima testa per sfacciare e alesare SENSITIV T-TA con avanzamento automatico e manuale, evolutasi nel corso degli anni e tutt'oggi in produzione.
Nel 1975 arriva un nuovo modello di testa a controllo numerico di medie e grandi dimensioni per alesatrici: U-TRONIC.
Nel 1981 giunge il terzo modello di testa per sfacciare e alesare: U-CENTER, a controllo numerico per centri di lavoro.
Nel 1992 viene lanciato MODULHARD'ANDREA, il sistema modulare di portautensili di alta precisione per operazioni di alesatura, fresatura, foratura e maschiatura.
Il 1998 è l'anno delle teste automatiche per sfacciare AUTORADIAL e della nuova linea di portautensili integrali bilanciabili TOPRUN.
Nel 2001 D'ANDREA amplia la gamma TOPRUN con FORCE, il nuovo portautensili a forte serraggio bilanciabile.
È il 2002: per far fronte alle crescenti richieste del mercato, D'ANDREA inaugura la nuova sede di Lainate e l'unità produttiva di Castel Del Giudice, nell'Alto Molise. Oltre 6000 mq di officine, uffici direzionali e spazi per la formazione al servizio della competenza di una lunga tradizione.



The first D'Andrea logotype (1961)
Das erste D'Andrea Logo (1961)
Первый логотип D'Andrea (1961)
Le premier logotype D'Andrea (1961)
Il primo logotipo di D'Andrea (1961)

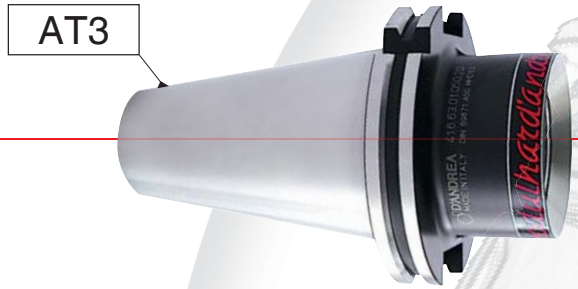
D'ANDREA®

TECHNOLOGY FOR HIGH PRECISION

D'Andrea s.p.a. logo

SENSITIV T-TA: the first boring and facing head
Der erste Ausdrehkopf zum Plandrehen und Feinbohren SENSITIV T-TA
Первая расточная головка и торцовочная головка SENSITIV T-TA
La première tête à surfacer et aléser SENSITIV T-TA
La prima testa per sfacciare e alesare SENSITIV T-TA

MONOd' • MONOforce • TOPRUN • MODULHARD'



AT3

RUN-OUT

G 6.3 x RPM

PF COOLANT

0.005

General features	Allgemeine merkmale	Основные характеристики	Caracteristiques générales	Caratteristiche generali
All arbors are manufactured according AT3 tolerance, wich guarantees an optimum coupling with the machine spindle.	Alle Aufnamekegel werden mit Toleranzen innerhalb AT3 produziert und das garantiert eine optimale Kupplung mit der Spindelmaschine	Все державки MONOd изготавливаются в соответствии с классом точности AT3, который обеспечивает оптимальное соединение со шпинделем станка.	Tous les cônes ont été fabriqués avec tolérance AT3. Ça garantit un accouplement optimal avec la broche-machine.	Tutti i coni sono realizzati con tolleranze AT3. Ciò garantisce un ottimale accoppiamento con il mandrino macchina.
The concentricity between arbors and the tool seat is below 0,003 mm, wich guarantees an improved surface finish.	Die Rundlaufgenauigkeit zwischen Kegel und Werkzeugsitz ist immer niedriger als 0,003 mm und das garantiert eine verbesserte Oberflächenfertigung.	Соосность между державкой и посадочным местом инструмента составляет 0,003 мм, что гарантирует повышенную чистоту обработки.	La concentricité entre les cônes et le logement de l'outil est inférieure à 0,003 mm à garantie d'une meilleure qualité des surfaces usinées.	La concentricità tra i coni e la sede di alloggiamento dell'utensile è inferiore a 0,003 mm a garanzia di una migliore qualità delle superfici lavorate.
All toolholders are designed to be balanced and they guarantee a G 6.3 balancing level when spinning at 8.000 RPM. MONOd' ER and Monoforce G 6.3 at 12.000 RPM	Alle Werkzeugaufnahmen sind ausgewuchtet und sie versichern eine Wuchtgüte von G 6,3 bei 8.000 Spindeldrehzahl. MONOd' ER und Monoforce G 6,3 bei 12.000 Spindeldrehzahl.	Все оправки разработаны с возможностью последующей балансировки и гарантируют уровень балансировки G6,3 при 8.000 ER MONOd' и MONOFORCE G6,3 при 12.000 об/мин.	Tous les porte-outils sont équilibrés selon le projet et ils garantissent une valeur d'équilibrage G 6,3 à 8.000 tours/min. MONOd' ER et Monoforce G 6,3 à 12.000 tours/min.	Tutti i portautensili sono equilibrati di progetto, garantendo un valore di equilibratura G 6,3 a 8.000 giri/min. MONOd' ER e Monoforce G 6,3 a 12.000 giri/min.
All PF mill holders are manufactured to use milling body cutter equipped with holes for coolant through.	Alle Werkzeugaufnahmen für Aufsteckfräser PF werden zur Benutzung von Aufsteckfräsern mit Kühlmittel -austrittlöchern hergestellt.	Все державки для насадных фрез производятся для использования корпусов, оснащенных каналами для подвода СОЖ.	Tous les porte-outils PF ont été fabriqués pour employer corps de fraises avec trous d'arrosage.	Tutti i portautensili PF sono costruiti per impiegare corpi frese con fori per il passaggio del liquido refrigerante.
The concentricità precision is below 5 micron.	Die Rundlaufgenauigkeit ist niedriger als 5 Mikron.	Точность соосности выше 5 микрон.	La précision de concentricité est inférieure à 5 micromètres.	La precisione di concentricità è inferiore a 5 micron.

D'ANDREA®

TECHNOLOGY FOR HIGH PRECISION

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www.dandrea.com • info@dandrea.com

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MONOforce 30

TOPRUN 38

MODULHARD’ 56

GRINTA 200

MCD’ 208

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226

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MONOd'

Toolholders **Werkzeugaufnahmen** **Державки** **Porte-outils** **Portautensili**

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Toolholders

MONOd' is a new line of monobloc toolholders by D'Andrea, which has been designed in addition to the worldwide well known Modulhard'Andrea and Toprun toolholder systems. Entirely produced by D'Andrea, the complete MONOd' range is guaranteed by design, manufacturing sales procedures according ISO 9001 standard.
MONOd' line represents the perfect solution for all machine tool equipment: it guarantees users the advantages of excellent quality and a remarkable level of precision, while maintaining a highly competitive price.
MONOd', available in HSK 63, DIN 69871 and MAS-BT spindle versions, size ISO 40 and 50, comprises ER collet chuck holders, WD Weldon toolholders, PF mill holders, CM morse taper toolholders and MS tapping toolholders.

MONOd' AD+B
The entire program ISO 40 and 50 is built in the AD+B version.
For using it in version B, remove the plugs from pos. B and utilise pull studs without hole (page 228).
All of the mill-holders are equipped for coolants to be introduced.

Werkzeugaufnahmen

MONOd' ist D'Andrea neue Serie von Monoblock –Werkzeughaltern, die zur Erweiterung der zwei bereits bekannten Werkzeughaltersysteme Modulhard'Andrea und Toprun entworfen worden ist. Die Reihe von MONOd' Werkzeughaltern wird ganz bei D'Andrea Produktionsanlagen unter der Entwurfs-, Herstellungs- und Verkaufsstandards der ISO 9001 Bescheinigung konstruiert und sie verkörpert die ideale Lösung für die Ausrüstung jeder Werkzeugmaschine.
MONOd' garantiert dem Benutzer die Vorteile herausragender Qualität und höchster Genauigkeit zu einem absolut wettbewerbsfähigen Preis. Das Komplettprogramm für Werkzeugspindeln HSK 63, DIN 69871 und MAS-BT in den Gröâen ISO 40 und 50 umfasst Spannzangenfutter ER, Werkzeugaufnahmen für Weldon WD, Werkzeugaufnahmen für Aufsteckfräser PF, Werkzeugaufnahmen für Morsekegel CM sowie Aufnahmen mit Gewindeschneidschnellw echselfutter MS.

MONOd' AD+B
Das gesamte Programm ISO 40 und 50 wird in Version AD+B gebaut.
Zur Verwendung in Version B muss man die Stopfen von Pos. B entfernen und Anzugsbolzen ohne Bohrung benutzen (Seite 228).
Alle Fräsenhalterungen sind für den Durchlauf des Kühlmittels bestimmt.

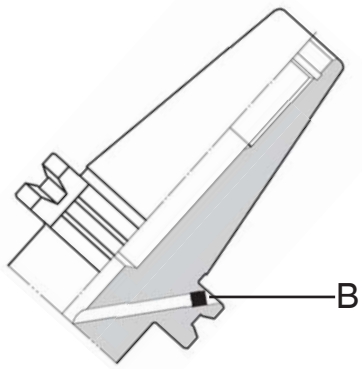
MONOd' - новая прграмма стандартных державок от D'Andrea, разработанная в дополнение к всемирно известным системам державок Toprun и Modulhard'Andrea.
Всецело производимая компанией D'Andrea, вся прогамма MONOd' полностью соответствует стандартам, предусмотренным ISO 9001 в части разработки, производства и организации сбыта. Программа MONOd' представляет собой совершенное решение для всей станочной оснастки: она обеспечивает пользователю преимущества высокого качества и замечательный уровень точности исполнения в сочетании с очень конкурентоспособными ценами.
Программа MONOd' поставляется для систем крепления HSK63, DIN 69871, MAS-BT и CAT, размеров ISO 40 и 50, и включает в себя цанговые патроны ER различной длины, патроны WD для инструмента с креплением Weldon, PF оправки для насадных фрез, CM державки для инструмента с конусом Морзе и MS державки для метчиков.
Вся программа ISO 40 и 50 выпускается в исполнении AD+B. Для использования с радиальным подводом СОЖ извлеките заглушку в положении B и используйте штревель без отверстия (стр.228). Все патроны и оправки для фрез имеют сквозной канал подвода СОЖ.

MONOd' est la nouvelle ligne de porte-outils monobloc D'Andrea qui complète les systèmes de porte-outils modulhard'andrea e Toprun, déjà connus dans le monde entier. Entièrement produit par D'Andrea, le système de porte-outils MONOd' est certifié selon les procédures d'étude, de fabrication et de vente des normes ISO 9001.
MONOd' représente la solution idéale pour l'équipement de toutes les machines outils.
MONOd' est en mesure d'assurer à l'utilisateur une excellente qualité et un remarquable degré de précision, associés à un prix hautement concurrentiel.
Le programme MONOd' en version HSK 63, DIN 69871 et MAS-BT de la grandeur ISO 40 et 50, comprend : porte-pinces ER, porte-outils Weldon WD, porte-fraises PF, porte-outils de taraudage MS.

MONOd' AD+B
Tout le programme ISO 40 et 50 est fait en version AD+B.
Pour l'utilisation en versionB, il faut enlever les bouchons de pos. B et utiliser les tirettes sans trou (page 228).
Tous les porte fraises sont prédisposés pour le passage du liquide réfrigérant.

MONOd' è la nuova linea di portautensili monoblocco D'Andrea, progettata a completamento dei due sistemi già noti in tutto il mondo, Modulhard'Andrea e Toprun. Interamente prodotta in D'Andrea, la gamma dei portautensili MONOd' è garantita da procedure di progettazione, fabbricazione e vendita conformi alla norma ISO 9001.
La linea di portautensili MONOd' rappresenta la soluzione ideale per attrezzare ogni tipo di macchina utensile.
MONOd' garantisce all'utilizzatore i vantaggi dell'elevata qualità e dell'alto grado di precisione ad un prezzo di mercato altamente concorrenziale.
Il programma MONOd' nelle versioni HSK 63, DIN 69871 e MAS-BT a grandezza ISO 40 e 50 comprende portapinze ER, in differenti lunghezze, Weldon WD, portafrese PF, riduzioni CM e maschiatori MS.

MONOd' AD+B
Tutto il programma ISO 40 e 50 è costruito in versione AD+B.
Per l'impiego in versione B, togliere i tappi da pos.B ed utillizzare tiranti senza foro (pag.228).
Tutti i Portafrese sono predisposti per il passaggio del liquido refrigerante.



AD + B

ER

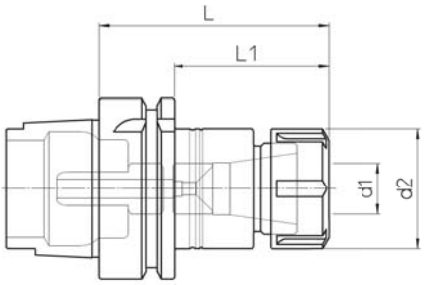


fig.1

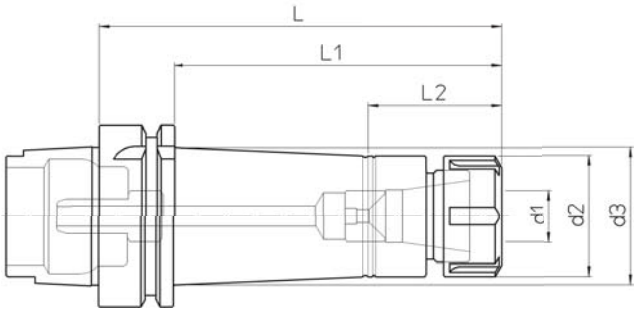


fig.2

Supplied with coolant tube - without collets and clamping wrenches

Lieferung inklusive Kühlmittelrohr. Ohne Spannzangen und Spannschlüssel.

Поставляется с каналом СОЖ, без цанг и зажимного ключа.

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	L	L_1	L_2	kg	fig.
63	HSK-A63 ER16.80	71HSKA063ER1608	ER 16 M	0.5 ~ 10	24	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

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DIN 69893 HSK-A

WD - DIN 1835-B

Weldon toolholder	Werkzeugaufnahme für Weldon	Патроны для инструмента с креплением Weldon	Porte-outil Weldon	Portautensile Weldon

WD

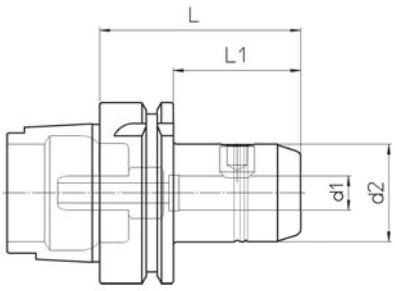

fig.1

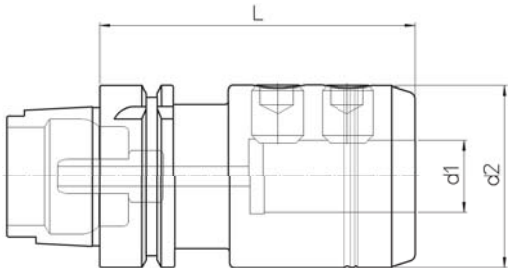

fig.2

Supplied with coolant tube	Lieferung inklusive Kühlmittelrohr	Поставляется с каналом СОЖ	Pourvu de raccord pour liquide d'arrosage	Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	d_1 H5	d_2	L	L_1	kg	fig.
63	HSK-A63 WD06.60	71HSKA063WD0606	6	23	60	34	0.8	1
	HSK-A63 WD08.65	71HSKA063WD0806	8	26	65	39	1.1	
	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	

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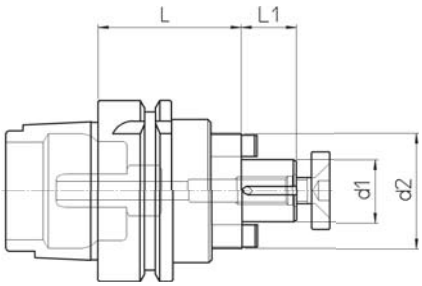
Mill holder	Werkzeugaufnahme für Aufsteckfräser	Оправки для насадных фрез	Porte-fraises	Portafresa

PF



Supplied with coolant tube	Lieferung inklusive Kühlmittelrohr.	Поставляется с каналом СОЖ	Pourvu de raccord pour liquide d'arrosage.	Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	d_1	d_2	L	L_1	kg
63	HSK-A63 PF16.50	71HSKA063PF1605	16	32	50	17	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

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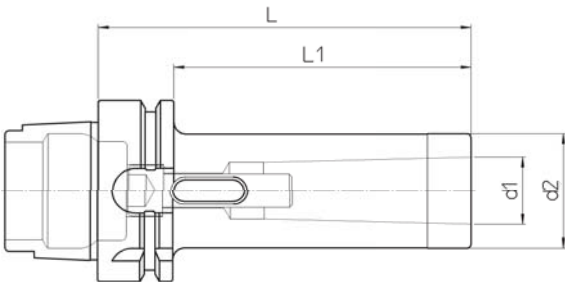
DIN 69893 HSK-A

CM - DIN 228 AB

Morse taper toolholder | Werkzeugaufnahme für Morsekegel | Державки для инструмента с конусом Морзе | Porte-outil cone morse | Portautensile cono morse

CM



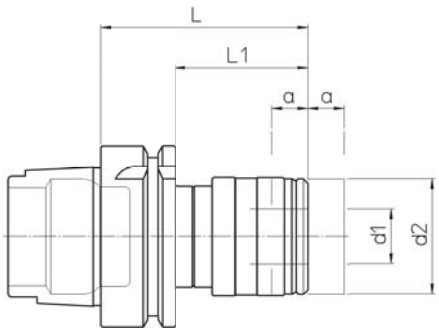
HSK-A	REF.	CODE	MORSE	d_1	d_2	L	L_1	kg
63	HSK-A63 CM2.110 A-B	71HSKA063CMB211	2	17.780	32	110	84	2
	HSK-A63 CM3.130 A-B	71HSKA063CMB313	3	23.825	40	130	104	2.2
	HSK-A63 CM4.155 A-B	71HSKA063CMB415	4	31.267	48	155	129	2.6

DIN 69893 HSK-A

MS

Tapping toolholder | Aufnahme mit Gewindeschneidschnellwechselfutter | Патроны резьбонарезные | Porte-outil de taraudage | Portautensile maschiatore

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

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ER

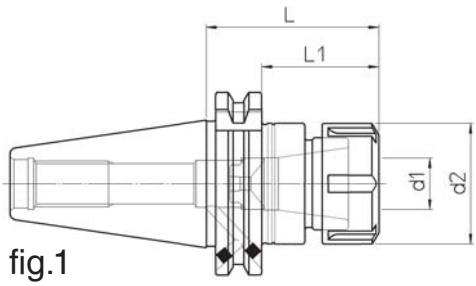

fig.1

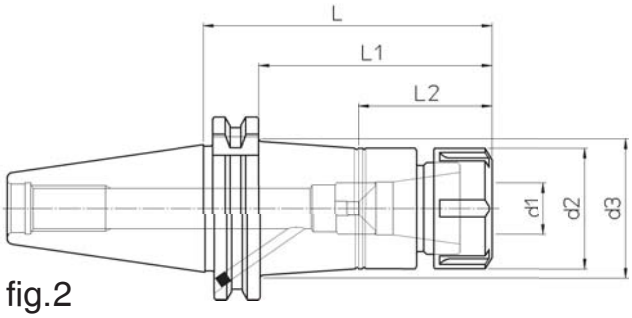

fig.2

Supplied without collets and clamping wrenches | Ohne Spannzangen und Spannschlüssel. | Поставляется без цанг и зажимного ключа. | 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	24	–	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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ER

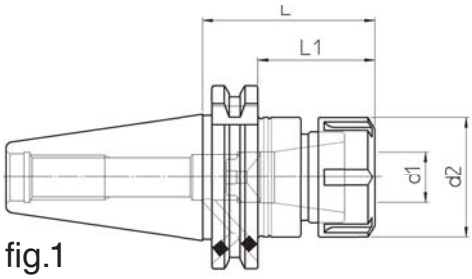

fig.1

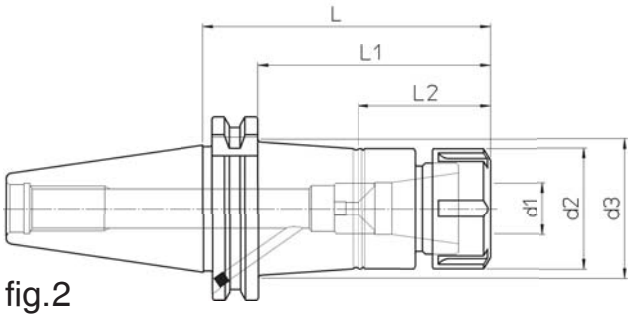

fig.2

Supplied without collets and clamping wrenches | Ohne Spannzangen und Spannschlüssel. | Поставляется без цанг и зажимного ключа. | 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	24	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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WD

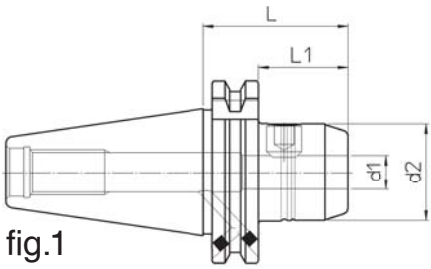

fig.1

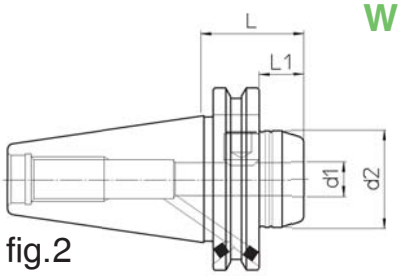

fig.2

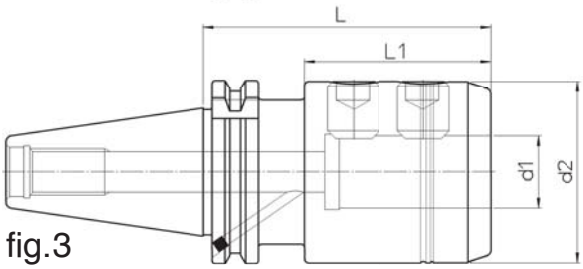

fig.3

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

D'ANDREA

Weldon toolholder	Werkzeugaufnahme für Weldon	Патроны для инструмента с креплением Weldon	Porte-outil Weldon	Portautensile Weldon

WD

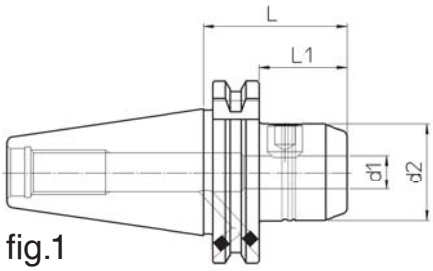

fig.1

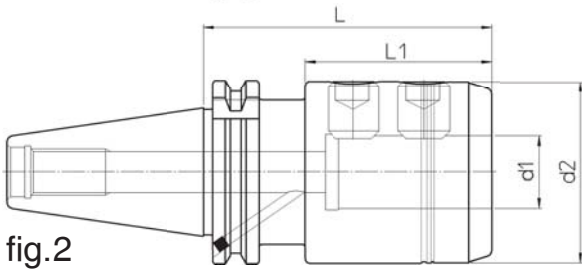

fig.2

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	
	DIN69871-AD+B50 WD40.160	71DIN-B50WD4016			160	141	6.5	

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PF

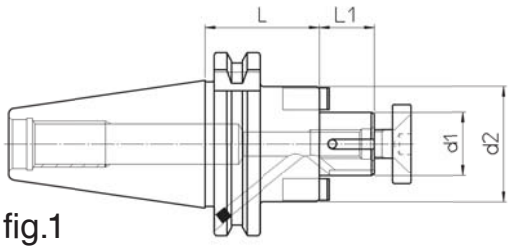
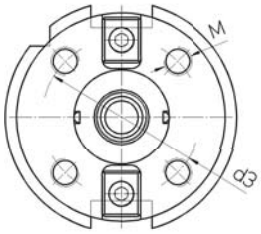


fig.1



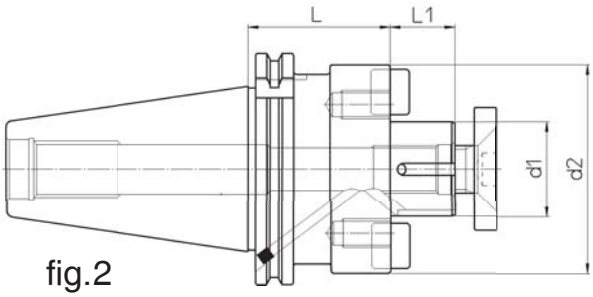


fig.2

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	

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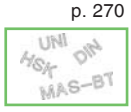
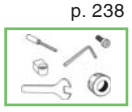
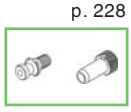




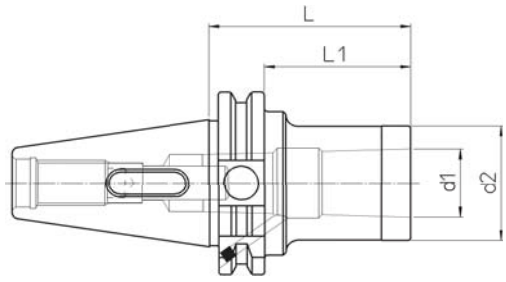


DIN 69871 AD+B

CM - DIN 228 AB

Morse taper toolholder | Werkzeugaufnahme für Morsekegel | Державки для инструмента с конусом Морзе | Porte-outil cone morse | Portautensile cono morse

CM



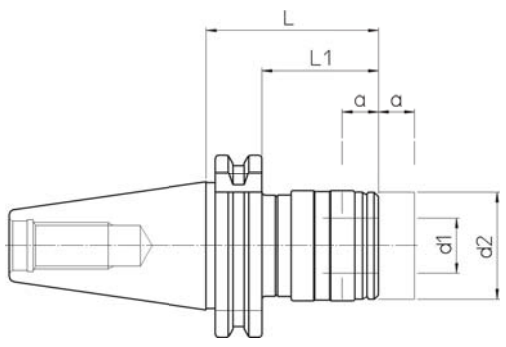
DIN	REF.	CODE	MORSE	d_1	d_2	L	L_1	kg
40	DIN69871-AD+B40 CM2.50 A-B	71DIN-B40CMB205	2	17.780	32	50	31	1
	DIN69871-AD+B40 CM2.125 A-B	71DIN-B40CMB212				125	106	1.4
	DIN69871-AD+B40 CM3.70 A-B	71DIN-B40CMB307	3	23.825	40	70	51	1.1
	DIN69871-AD+B40 CM3.140 A-B	71DIN-B40CMB314			42	140	121	1.5
50	DIN69871-AD+B50 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

DIN 69871 A

MS

Tapping toolholder | Aufnahme mit Gewindeschneidschnellwechselfutter | Патроны резьбонарезные | Porte-outil de taraudage | Portautensile maschiatore

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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ER

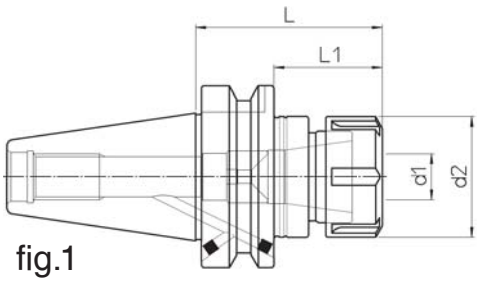

fig.1

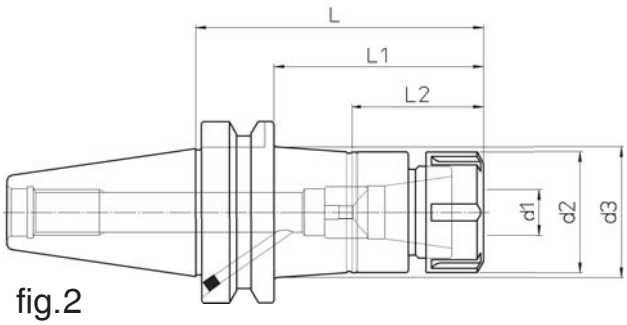

fig.2

Supplied without collets and clamping wrenches | Ohne Spannzangen und Spannschlüssel. | Поставляется без цанг и зажимного ключа. | 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	24	–	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	

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MAS 403 BT50 AD+B

ER - DIN 6499

Collet chuck holder | Spannzangenfutter | Патроны цанговые | Porte-pinces | Portapinze

ER

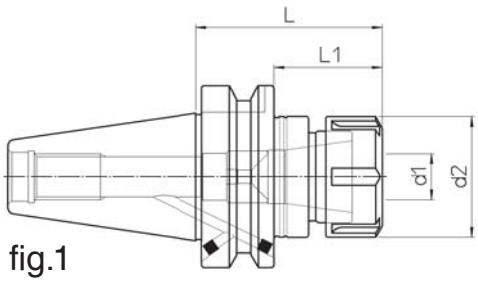

fig.1

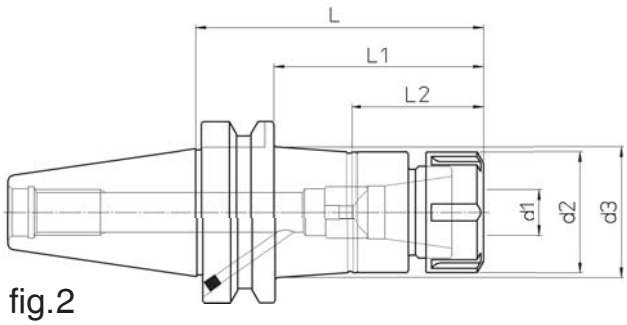

fig.2

Supplied without collets and clamping wrenches | Ohne Spannzangen und Spannschlüssel. | Поставляется без цанг и зажимного ключа. | 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	24	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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WD

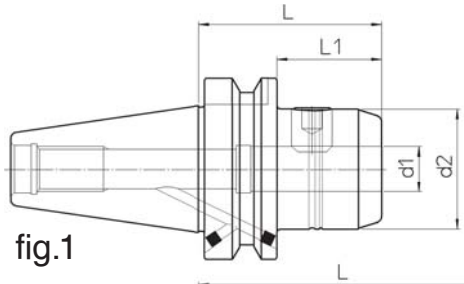

fig.1

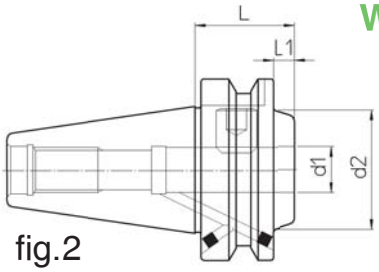

fig.2

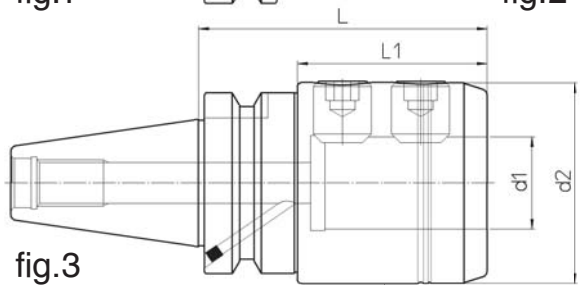

fig.3

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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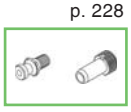

MAS 403 BT50 AD+B WD - DIN 1835-B

WD

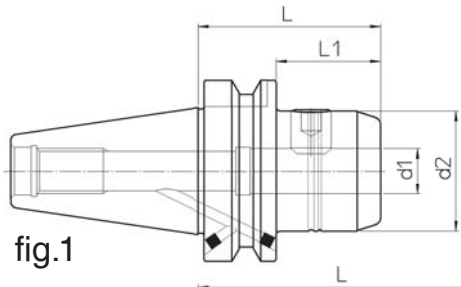

fig.1

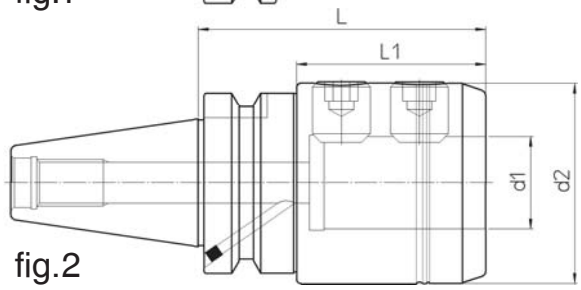

fig.2

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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PF

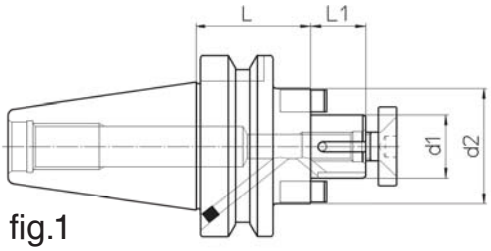
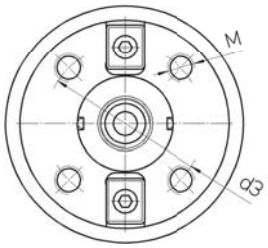


fig.1



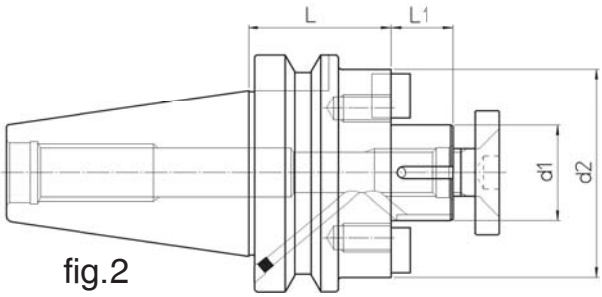


fig.2

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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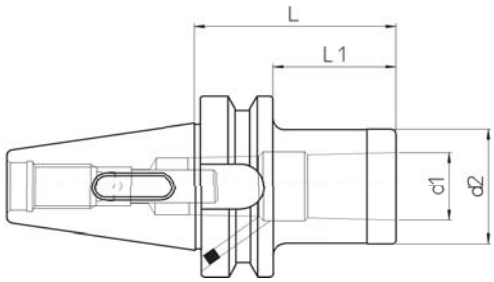
MAS 403 BT AD+B

CM - DIN 228 AB

Morse taper toolholder | Werkzeugaufnahme für Morsekegel | Патроны для инструмента с креплением Weldon | Porte-outil cone morse | Portautensile cono morse

CM



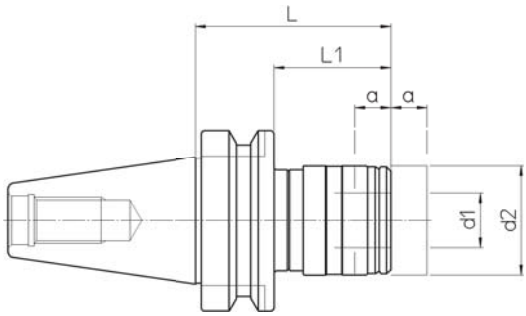
BT	REF.	CODE	MORSE	d_1	d_2	L	L_1	kg
40	MAS403 BT40-AD+B CM2.50 A-B	71MBT-B40CMB205	2	17.780	32	50	23	1
	MAS403 BT40-AD+B CM2.125 A-B	71MBT-B40CMB212				125	98	1.3
	MAS403 BT40-AD+B CM3.70 A-B	71MBT-B40CMB307	3	23.825	40	70	43	1.1
	MAS403 BT40-AD+B CM3.140 A-B	71MBT-B40CMB314				140	113	1.5
50	MAS403 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

MAS 403 BT

MS

Tapping toolholder | Aufnahme mit Gewindeschneidschnellwechselfutter | Патроны резьбонарезные | Porte-outil de taraudage | Portautensile maschiatore

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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MONOforce

High precision ultra-tight toolholder

Präzisionsspannzangenfutter mit hochfester Werkzeugspannung

Высокоточные сверхжесткие патроны

Porte-outil de précision à serrage fort

Portautensile di precisione a forte serraggio

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HSK / DIN / BT

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MONOforce

High precision ultra-tight toolholder

MONOforce is a new 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. 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.

Präzisionsspannzangenfutter mit hochfester Werkzeugspannung

MONOforce ist eine weitere Ergänzung der D'Andrea – Werkzeughalterpalette, welche die existierende, auswuchtbare FORCE-Spannzange aus der Toprun-Familie vervollständigt.
Diese neue Futter bietet eine wirtschaftliche und innovative Lösung der Werkzeugspannung, wo Präzision und hole Spannkraft für Fräswerkzeuge erforderlich sind.
MONOforce gibt es sowohl mit Aufnahmekegeln nach DIN 69871, MAS-BT beide in ISO 40 und ISO 50, als auch in HSK 63.
Das Futter kann durch Reduzierhülsen für Fräser von Ø 3-25 mm eingesetzt werden.
MONOforce wird auch in Kit-Form angeboten, welcher einen Satz Reduzierhülsen und Klemmschrauben beinhaltet. MONOforce Werkzeughalter werden in den modernen Produktionsräumen bei D'Andrea in Italien hergestellt.

Высокоточные сверхжесткие патроны

MONOforce - новое расширение программы инструментальных державок от D'Andrea, дополняющее существующие балансируемые патроны FORCE из семейства TOPRUN. Новые патроны представляют экономичное и инновационное решение в области крепления инструмента, для тех случаев, когда требуется точность и большая сила зажима.
Программа MONOforce поставляется для систем крепления HSK63, DIN 69871, MAS-BT и CAT, размеров ISO 40 и 50.
В патронах используются переходные втулки для крепления инструмента Ø 3-25мм. Патроны MONOforce также могут поставлятся в форме наборов, включающих собственно патрон, комплект переходных втулок и зажимной ключ.
Патроны MONOforce производятся фирмой D'Andrea на ее современных заводах в Италии.

Porte-outil de précision à serrage fort

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. 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.

Portautensile di precisione a forte serraggio

MONOforce rappresenta la nuova 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, 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.

High precision ultra-tight toolholder

Präzisionsspannzangenfutter mit hochfester Werkzeugspannung

Высокоточные сверхжесткие патроны

Porte-outil de précision à serrage fort

Portautensile di precisione a forte serraggio

INSTRUCTIONS
- After lightly tightening by hand, tighten furter by spanner (fig.1).
- Tighten by hand. Don't use hammer!
- Only for finishing operations and when higher run-out accuracy is required, return chuck ring just a little 1°-2° after face contact (fig. 2).
- Don't clamp without end mill

GEBRAUCHSANLEITUNG
- Nach leichtem Anziehen von Hand, weiter mit dem Schlüssel anziehen. (fig. 1).
- Ziehen Sie mit der Hand an. Verwenden Sie keinen Hammer!
- Drehen Sie nur für Schlichtbearbeitungen und wenn eine höhere Rundlaufgenauigkeit gefordert wird, die Spannmutte nachdem Flächenkontakt ein wenig max. 1°-2° zurück (fig. 2).
- Klemmen Sie die Spannmutter nicht ohne einen Schaftfräser

ИНСТРУКЦИИ
- После ручной затяжки затянуть патрон ключом (рис. 1)
- При ручной затяжке не используйте молоток!
- Только для чистовых операций и когда требуется минимальное биение, после полной затяжки патрона (касания поверхности) отпустите гайку на1°-2°.
- Не затягивайте патрон без режущего инструмента внутри.

INSTRUCCIONES
- Après un léger serrage manuel, continuez à serrer à l'aide de la clé de serrage. (fig. 1).
- Serrer à la main. Ne pas utiliser un marteau!
- Seulement pour des opérations de finition et uniquement lorsqu'une plus grande précision est requise, faire tourner très légèrement le joint du mandrin, 1°-2° maximum, après le contact (fig. 2).
- Ne serrer pas le joint du mandrin sans la fraise.

ISTRUZIONI
- Dopo aver serrato a mano la ghiera, bloccare a fondo con l'apposita chiave di serraggio (fig.1).
- Serrare a mano. Non usare mai martello o tubo di prolunga!
- Solo per operazioni di finitura, ove è richiesto una maggiore precisione di run-out, dopo il serraggio con l'apposita chiave, allentare nuovamente di 1°-2° dopo il contatto (fig. 2).
- Non serrare la ghiera senza utensile inserito.

fig.1

fig.2

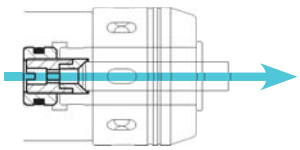
SETTING SCREW FOR INTERNAL COOLANT SUPPLY

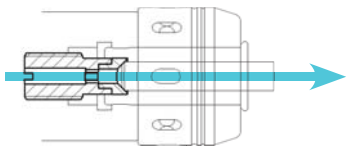
EINSTELLSCHRAUBE FÜR INNERE KÜHLMITTELZUFUHR

УСТАНОВОЧНЫЙ ВИНТ ДЛЯ ВНУТРЕННЕГО ПОДВОДА СОЖ

VIS DE RÉGLAGE POUR L'ALIMENTATION DE REFROIDISSEMENT

VITE REGOLAZIONE CON PASSAGGIO REFRIGERANTE





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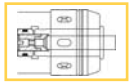


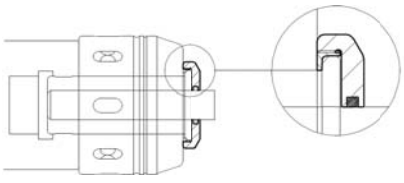
SEALING DEVICE FOR HIGH PRESSURE COOLANT SUPPLY (max. 40 BAR)

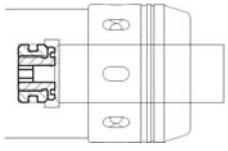
DICHTVORRICHTUNG FÜR HOCHDRUCK-KÜHLMITTELZUFUHR (max. 40 BAR)

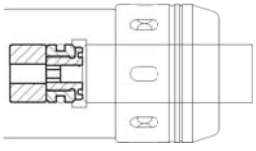
УПЛОТНИТЕЛЬНАЯ МАНЖЕТА ДЛЯ ПОДВОДА СОЖ ПОД ДАВЛЕНИЕМ (max. 40 Бар)

SYSTÈME D'ÉTANCHÉITÉ POUR L'ALIMENTATION DE REFROIDISSEMENT HAUTE PRESSION (max. 40 BAR)

DISPOSITIVI A TENUTA PER REFRIGERANTE AD ALTA PRESSIONE (max. 40 BAR)







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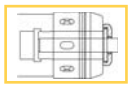

USING THE GH RING-NUT AND THE VCR THE MAXIMUM PRESSURE IS 40 BAR

DURCH ANWENDUNG DES GEWINDERINGS GH UND DES VCR BETRÄGT DER MAXIMALDRUCK 40 BAR

ИСПОЛЬЗУЯ МАНЖЕТУ GH И ВИНТ VCR, МАКСИМАЛЬНОЕ ДАВЛЕНИЕ 40 Бар

EN UTILISANT LA FRETTE GH ET LE VCR LA PRESSION MAXIMUM EST DE 40 BAR

IMPIEGANDO LA GHIERA GH E IL VCR LA PRESSIONE MAX È DI 40 BAR

MONOforce

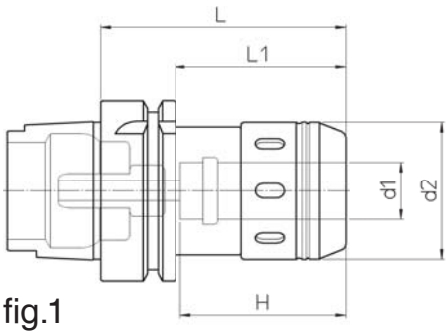

fig.1

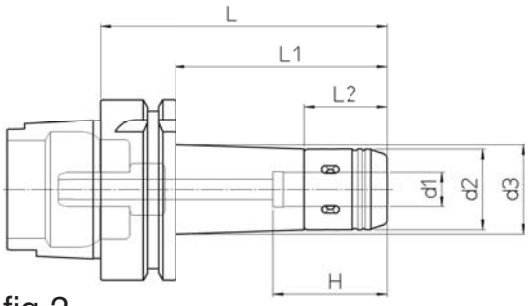

fig.2

Supplied with coolant tube - Without clamping wrench | Lieferung inklusive Kühlmittelrohr. Ohne Spannzangen und Spannschlüssel. | Поставляются с каналом подвода СОЖ, без зажимного ключа. | 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

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DIN 69871 AD+B

D'ANDREA

High precision ultra-tight toolholder	Präzisionsspannzangenfutter mit hochfester Werkzeugspannung	Высокоточные сверхжесткие патроны	Porte-outil de précision à serrage fort	Portautensile di precisione a forte serraggio

MONOforce

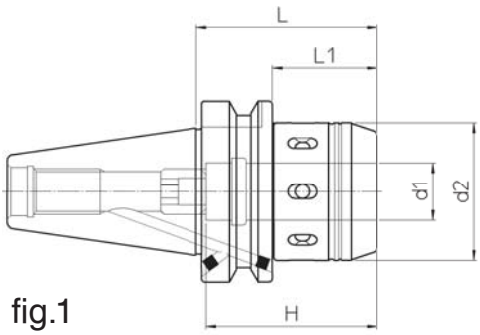

fig.1

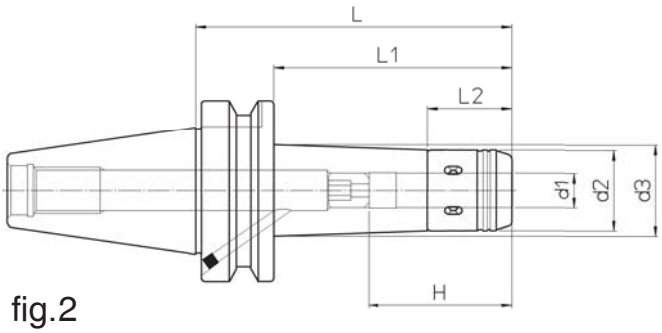

fig.2

Without clamping wrench	Ohne Spannschlüssel.	Поставляются без зажимного ключа.	Sans clef de serrage	Chiave di serraggio esclusa

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

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High precision ultra-tight toolholder | Präzisionsspannzangenfutter mit hochfester Werkzeugspannung | Высокоточные сверхжесткие патроны | Porte-outil de précision à serrage fort | Portautensile di precisione a forte serraggio

MONOforce

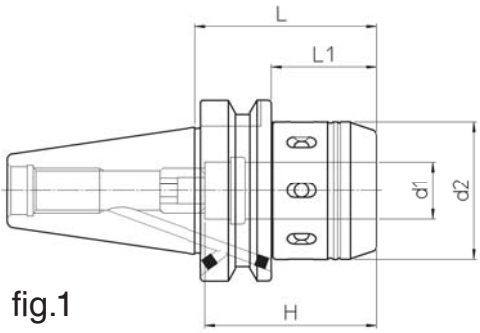

fig.1

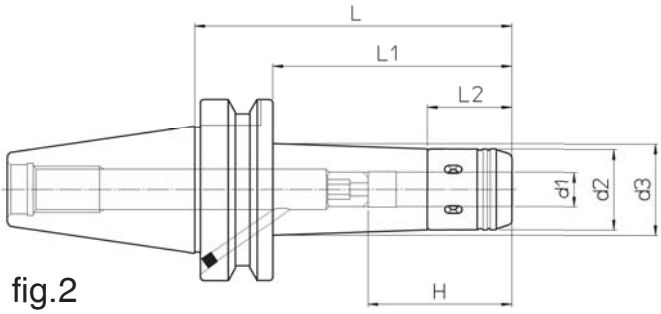

fig.2

Without clamping wrench | Ohne Spannschlüssel. | Поставляются без зажимного ключа | 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

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MONOforce

HSK

KIT K01
MONO force 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
MONO force 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
MONO force 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

DIN

BT

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

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

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

TOPRUN

High speed balanceable toolholders

Auswuchtbare Werkzeugaufnahmen für Hochgeschwindigkeitbearbeitung

Высокоскоростные балансируемые патроны

Porte-outils équilibrables pour haute vitesse

Portautensili bilanciabili per alta velocità

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TOPRUN

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MAS 403 BT

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KIT FORCE

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The purpose of a toolholder's balancing is to improve the masses' distribution of its body in order to produce centrifugal forces within a prescribed limit, when spinning at a given spindle speed.

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°.

Um die vorgegebenen Grenzen der auftretenden Zentrifugalkräfte bei gegebener Spindeldrehzahl nicht zu überschreiten, werden Werkzeuge durch Optimierung der Massenverteilung aller beteiligten Elemente ausgewuchtet.

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.

Высокоточные цельные державки для обрабатывающих центров, балансируемые для высокоскоростной обработки.

Использование балансируемых державок TOPRUN обеспечивает следующие преимущества:
- многократное продление срока службы подшипников шпинделя;
- многократное продление срока службы инструмента;
- повышение точности и чистоты обрабатываемой поверхности;
- ощутимое снижение вибрации и уровня шума обрабатывающего центра.

Для использования державок TOPRUN при высокоскоростной обработке, два противовеса, расположенные в градуированном пазу (запатентованный принцип) должны быть установлены согласно показаниям электронной балансировочной машины; быстрая и простая балансировка державки завершается при помощи затяжного винта и инструмента в соответствии со стандартом ISO 1940/1. Для работы на скоростях до 8000 об/мин. достаточно установить противовесы в позиции 0° и 180°.

L'équilibrage d'un porte-outils a pour but de mieux répartir les masses des différents éléments, ceci afin d'éviter que la force centrifuge ne soit supérieure à la valeur limite admissible lors d'une rotation à une vitesse donnée.

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°.

Lo scopo dell'equilibratura di un portautensile è quello di migliorare la distribuzione delle masse del suo corpo in modo che esso ruoti senza creare forze centrifughe superiori ad un valore limite ammissibile.

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; questo garantisce una rapida equilibratura del portautensile completo di tirante e di utensile rispettando le specifiche ISO 1940/1.
Per lavorare sino a 8.000 RPM è sufficiente posizionare i tasselli a 0° e a 180°.

0.003

0.003

0.003

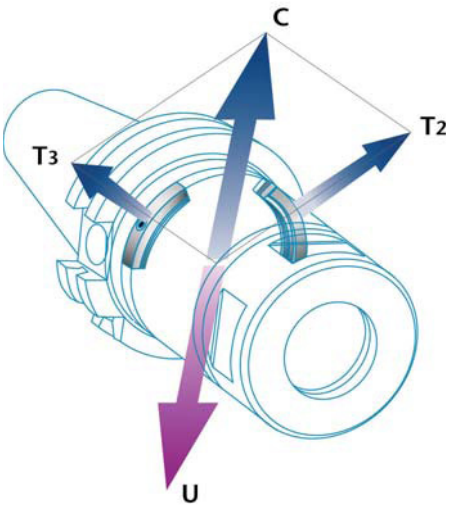
The balancing operation has the aim to bring the original unbalance “U” within the maximum admissible level “G”. The manufacturers of high speed milling machines usually prescribe a balancing level “G 1” or “G 2.5” for the toolholders to be used on their machines according to the ISO 1940/1 standard. From the value of the maximum admissible unbalance level “G” and the spindle RPM, the value “e” can be calculated, corresponding to the balancing defect (expressed in g´mm/kg) or the toolholder runout (expressed in µm).
The patented TOPRUN balancing system allows a quick, easy and accurate achievement of high balancing standards of the toolholder, within 0.5 g´mm/kg, without any need to remove or add material.
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”. The operator is guided by the balancing unit for the appropriate positioning of the two masses.

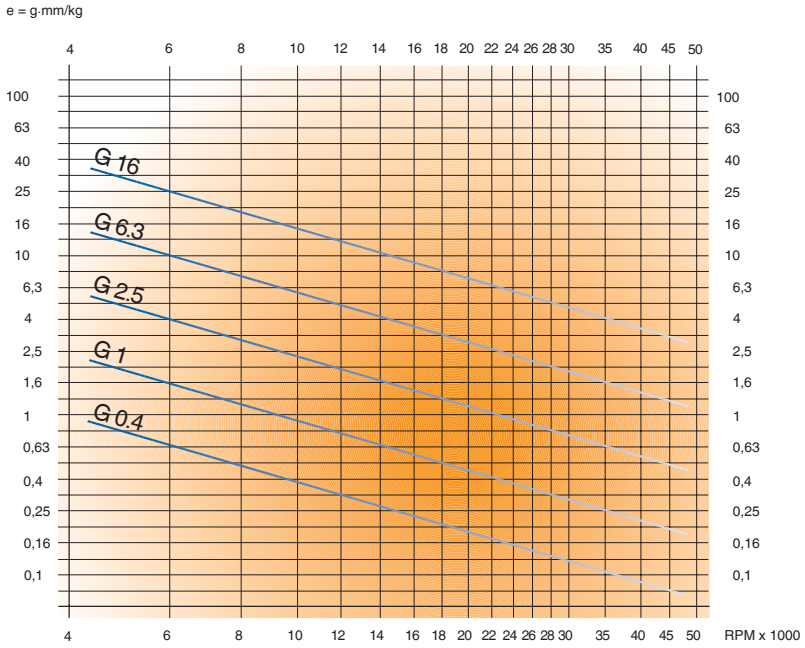
Das Ziel des Auswuchtens von Werkzeughaltern ist, die ursprüngliche Unwucht “U” auf das maximale zugelassene “G” Niveau zu reduzieren. Die Hersteller von Hochgeschwindigkeits-fräsmaschinen schreiben eine Wuchtgüte von “G1” oder “G2,5” entsprechend ISO 1940/1 Standard für die verwendeten Werkzeuge ihrer Maschinen vor. Mit dem maximalen zulässigen Wert der Unwucht “G” und der Spindel-Drehzahl läßt sich der Wert “e” berechnen. Dieser Wert drückt die Unwucht in g´mm/kg oder Rundlauffehler in µm aus.
Die patentierten, auswuchtbaren TOPRUN Werkzeugaufnahmen erlauben ein schnelles, genaues und einfaches Auswuchten der Werkzeuge innerhalb von 0,5 g´mm/kg ohne Bohrungen und zusätzlichen Gewichte an Werkzeugaufnahmen.
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.
Der Maschinenbediener ist mit Hilfe des Auswuchtgerätes in der Lage, die zwei Gewichte an den richtigen Stellen zu positionieren.

Цель балансировки привести изначальный дисбаланс “U” в рамки максимально допустимого значения “G”. Для высокоскоростных фрезерных станков стандарта ISO 1940/1 уровень балансировки для державок предписывают G1 или G 2,5. Из значения максимально допустимого уровня дисбаланса “G” и скорости вращения шпинделя, может быть вычислено значение “e”, соответствующее дефекту балансировки (в г мм/кг) или биение державки (в мкм).
Запатентованная система балансировки TOPRUN обеспечивает быстрое, простое и точное достижение высоких стандартов балансировки державки в пределах 0,5 г мм/кг без необходимости удаления или добавления материала.
В частности, начальный дисбаланс инструмента и державки “U” нейтрализуется результирующей центробежной силой “C”, создаваемой двумя балансирующими массами “T1” и “T2”.
Для соответствующего расположения двух масс, оператор руководствуется указаниями балансировочной машины. Державки класса TOPRUN необходимы для высокоскоростной обработки, они повышают возможности современных машин и инструмента, улучшают стандарты качества.

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. À partir du grade G et de la vitesse de rotation de la broche, la valeur “e” peut être calculée; elle correspond au défaut d’équilibrage (exprimé en g´mm/kg) et de concentricité (exprimé en µm).
Le système d’équilibrage TOPRUN (breveté) permet d’obtenir, avec rapidité, facilité et précision, un équilibrage de qualité inférieur à 0,5 g´mm/kg, sans avoir à ajouter ou retirer du matériel.
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”.
L’opérateur est guidé par l’unité électronique d’équilibrage pour positionner correctement les deux masses.

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” che fa riferimento alla norma ISO 1940/1. Dalla norma, conoscendo il grado “G” da rispettare e il valore di RPM, si ricava “e” che corrisponde al difetto di equilibratura in g´mm/kg o all’eccentricità in µm del portautensile.
Il sistema di bilanciamento del TOPRUN (brevettato) permette il rapido, preciso, semplice ed economico raggiungimento di ottime tolleranze, inferiori a 0,5 g´mm/kg, senza dover asportare o aggiungere materiale al portautensile.
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.
Il vantaggio di questo sistema è che l’operatore si deve limitare a posizionare i tasselli senza dover effettuare nessun calcolo.





Balanceable collet chucks holder | Auswuchtbares Präzisionsspannzangenfutter | Балансируемые цанговые патроны | Porte-pinces de précision équilibrable | Portapinze di precisione bilanciabile

ER

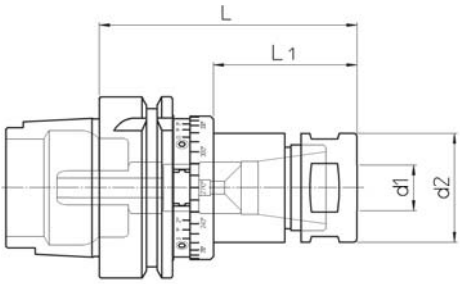


fig.1

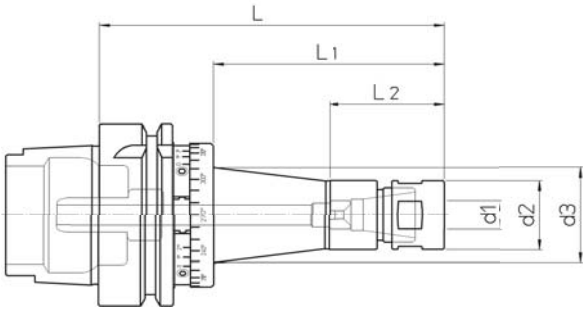


fig.2

Supplied with coolant tube - Without collets and clamping wrenches | Lieferung inklusive Kühlmittelrohr. Ohne Spannzangen und Spannschlüssel. | Поставляются с каналом подвода СОЖ, без зажимного ключа | 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	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
100	HSK-A100 ER25.95	41 0 10 25 599 20	ER 25	1 ~ 16	38		95	50		2.7	
	HSK-A100 ER25.140	41 0 12 25 599 20				53	140	95	50	3.1	2
	HSK-A100 ER32.100	41 0 10 32 599 20	ER 32	2 ~ 20	50	–	100	55	–	3	1
	HSK-A100 ER32.150	41 0 12 32 599 20				60	150	105	55	3.8	2
	HSK-A100 ER40.110	41 0 10 40 599 20	ER 40	3 ~ 26	63	–	110	65	–	3.2	1
	HSK-A100 ER40.160	41 0 12 40 599 20				68	160	115	65	4.5	2

The ring-nuts of the Toprun spindles allow the use of the ER collets with a working range of 0,5 mm. | Die Spannmuttern dieser Toprun-Aufnahmen sind für ER Spannzangen mit einem Arbeitsbereich von 0,5 mm vorgesehen. | Затяжные гайки патронов TOPRUN позволяют использовать ER цанги с рабочим диапазоном 0,5 мм. | Les bagues des mandrins Toprun permettent l'usage des pinces ER avec une capacité d'usinage de 0,5 mm. | Le ghiere dei mandrini Toprun permettono l'impiego delle pinze ER con un campo di lavoro di 0,5 mm.

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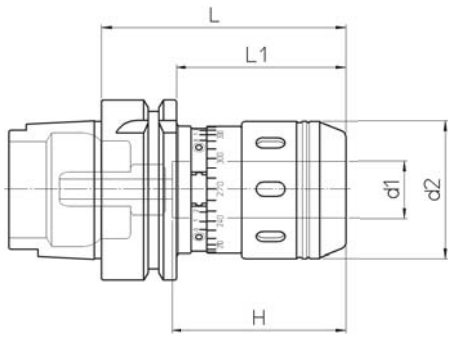
DIN 69893 HSK-A

High precision ultra-tight balanceable toolholder	Auswuchtbares Präzisionsspannzangenfutter mit hochfester Werkzeugspannung	Высокоточные балансируемые патроны с большим моментом затяжки	Porte-outil équilibrable de précision à serrage fort	Portautensile di precisione a forte serraggio bilanciabile

FORCE



Supplied with coolant tube - Without clamping wrench	Lieferung inklusive Kühlmittelrohr. Ohne Spannzangen und Spannschlüssel.	Поставляется с каналом подвода СОЖ, без зажимного ключа	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
100	HSK-A100 FORCE32.110	41 0 00 32 599 20					81	3.6

KIT FORCE

KIT K01 FORCE 20

1 FORCE 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 FORCE 32

1 FORCE 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

HSK-A	REF.	CODE
63	KIT K01 FORCE 20 HSK63	61 000 20 563 20
	KIT K01 FORCE 32 HSK63	61 000 32 563 20
100	KIT K01 FORCE 32 HSK100	61 000 32 599 20

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Balanceable Weldon toolholder | Auswuchtbare Werkzeugaufnahme für Weldon | Балансируемые патроны с хвостовиком Weldon | Porte-outil équilibrable Weldon | Portautensile Weldon bilanciabile

WLD

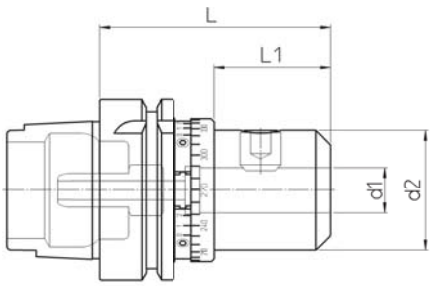

fig.1

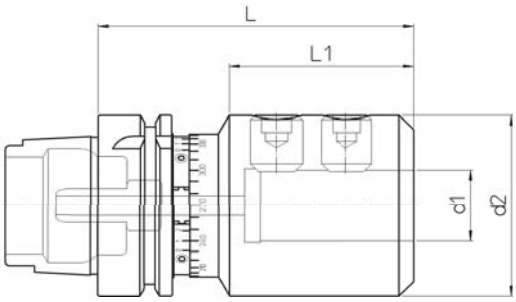

fig.2

Supplied with coolant tube | Lieferung inklusive Kühlmittelrohr | Поставляется с каналом подвода СОЖ | Pourvu de raccord pour liquide d'arrosage | Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	d_1 H5	d_2	L	L_1	kg	fig.
63	HSK-A63 WLD06.65	41 0 20 06 563 20	6	23	65	25	0.9	1
	HSK-A63 WLD08.65	41 0 20 08 563 20	8	25			1	
	HSK-A63 WLD10.70	41 0 20 10 563 20	10	27	70	30	1.1	
	HSK-A63 WLD12.70	41 0 20 12 563 20	12	34			1.2	
	HSK-A63 WLD16.80	41 0 20 16 563 20	16	42	80	40	1.3	
	HSK-A63 WLD20.80	41 0 20 20 563 20	20	50		–	1.4	
	HSK-A63 WLD25.110	41 0 20 25 563 20	25	63	110		2.2	2
	HSK-A63 WLD32.110	41 0 20 32 563 20	32	70			2.4	
100	HSK-A100 WLD10.80	41 0 20 10 599 20	10	27	80	35	2.8	1
	HSK-A100 WLD12.80	41 0 20 12 599 20	12	34			3	
	HSK-A100 WLD16.90	41 0 20 16 599 20	16	42	90	45	3.5	
	HSK-A100 WLD20.90	41 0 20 20 599 20	20	50			3.7	
	HSK-A100 WLD25.110	41 0 20 25 599 20	25	63	110	65	4.1	2
	HSK-A100 WLD32.110	41 0 20 32 599 20	32	70			4.3	
	HSK-A100 WLD40.120	41 0 20 40 599 20	40	80	120	–	4.7	

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DIN 69893 HSK-A

PFS

Balanceable face mill holder	Auswuchtbare Werkzeugaufnahme für Aufsteckfräser	Балансируемые оправки для насадных фрез	Porte-fraise à surfacer équilibrable	Portafresa a spianare bilanciabile

PFS

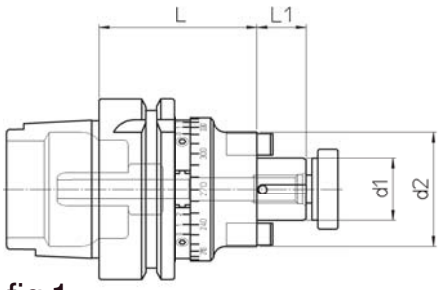
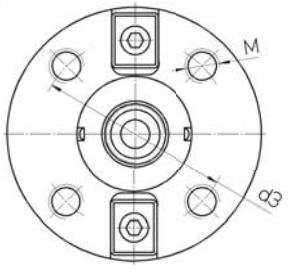


fig.1



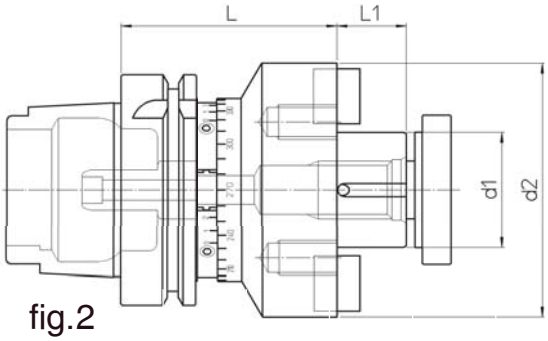


fig.2

Supplied with coolant tube	Lieferung inklusive Kühlmittelrohr	Поставляется с каналом подвода СОЖ	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 PFS16.50	41 0 50 16 563 20	16	32	–	–	50	15	1	1
	HSK-A63 PFS22.50	41 0 50 22 563 20	22	40				17	1.1	
	HSK-A63 PFS27.55	41 0 50 27 563 20	27	49.5			55	19	1.3	
	HSK-A63 PFS32.60	41 0 50 32 563 20	32	60			60	21.5	1.7	
100	HSK-A100 PFS22.60	41 0 50 22 599 20	22	40				17	2.8	
	HSK-A100 PFS27.60	41 0 50 27 599 20	27	50				19	3.0	
	HSK-A100 PFS32.60	41 0 50 32 599 20	32	60				21.5	3.2	
	HSK-A100 PFS40.70	41 0 50 40 599 20	40	88	66.7	M12	70	24.5	3.6	2

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Balanceable collet chucks holder | Auswuchtbares Präzisionsspannzangenfutter | Балансируемые цанговые патроны | Porte-pinces de précision équilibrable | Portapinze di precisione bilanciabile

ER

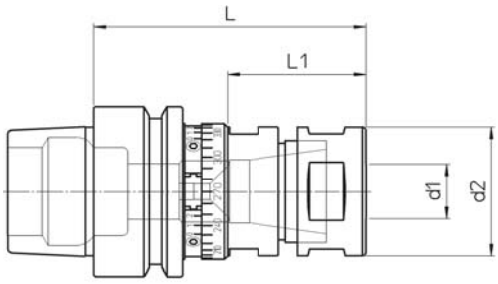

fig.1

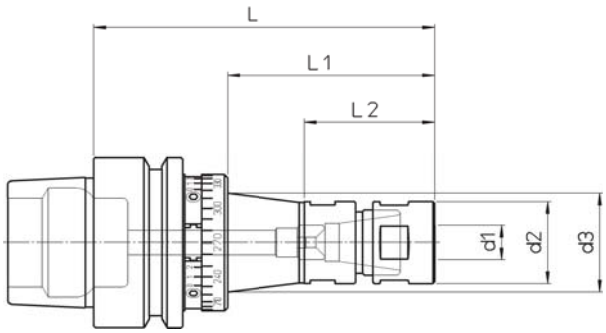

fig.2

Supplied without collets and clamping wrenches | Ohne Spannzangen und Spannschlüssel. | Поставляется без цанг и зажимного ключа | Sans pinces et clés de serrage | Pinze elastiche e chiavi di serraggio escluse

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

The ring-nuts of the Toprun spindles allow the use of the ER collets with a working range of 0,5 mm.

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

Затяжные гайки патронов TOPRUN позволяют использовать ER цанги с рабочим диапазоном 0,5 мм

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

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

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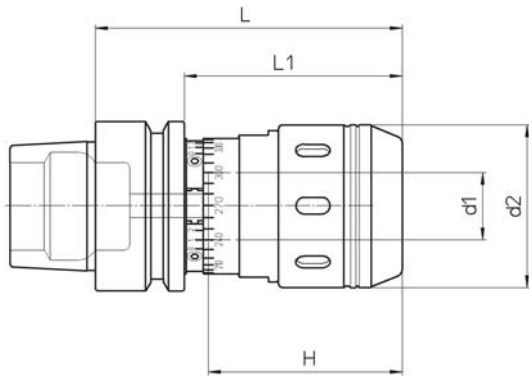
DIN 69893 HSK-E

High precision ultra-tight balanceable toolholder	Auswuchtbares Präzisionsspannzangenfutter mit hochfester Werkzeugspannung	Высокоточные балансируемые патроны с большим моментом затяжки	Porte-outil équilibrable de précision à serrage fort	Portautensile di precisione a forte serraggio bilanciabile

FORCE



Without clamping wrench	Ohne Spannschlüssel	Поставляется без зажимного ключа	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

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Balanceable collet chucks holder | Auswuchtbares Präzisionsspannzangenfutter | Балансируемые цанговые патроны | Porte-pinces de précision équilibrable | Portapinze di precisione bilanciabile

ER

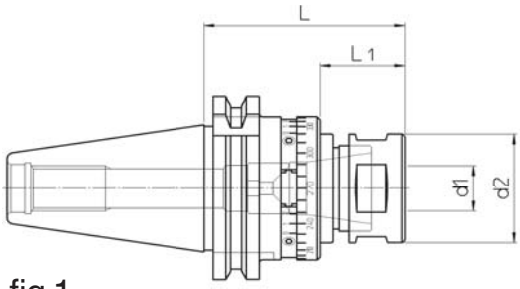

fig.1

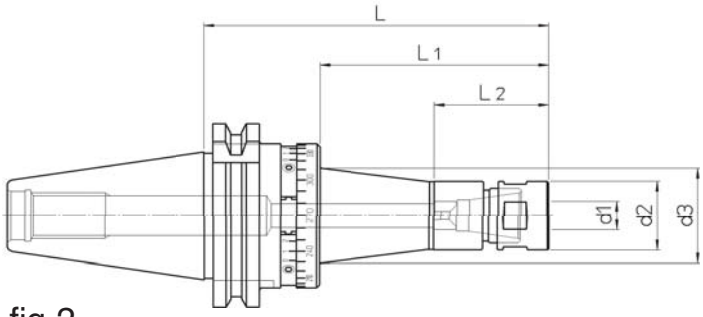

fig.2

Supplied without collets and clamping wrenches | Ohne Spannzangen und Spannschlüssel. | Поставляется без цанг и зажимного ключа | 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-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

The ring-nuts of the Toprun spindles allow the use of the ER collets with a working range of 0,5 mm.

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

Затяжные гайки патронов TOPRUN позволяют использовать ER цанги с рабочим диапазоном 0,5 мм

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

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

48

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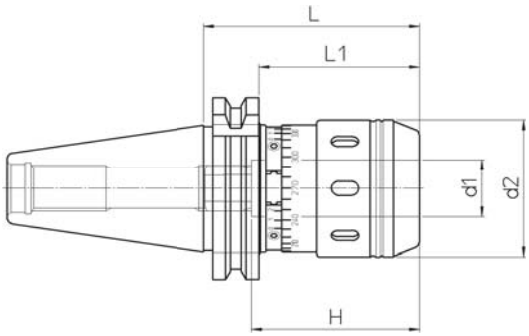
DIN 69871 A

High precision ultra-tight balanceable toolholder	Auswuchtbares Präzisionsspannzangenfutter mit hochfester Werkzeugspannung	Высокоточные балансируемые патроны с большим моментом затяжки	Porte-outil équilibrable de précision à serrage fort	Portautensile di precisione a forte serraggio bilanciabile

FORCE



Without clamping wrench	Ohne Spannschlüssel	Поставляется без зажимного ключа	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

KIT K01 FORCE 20

1 FORCE 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 FORCE 32

1 FORCE 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

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

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Balanceable Weldon toolholder | Auswuchtbare Werkzeugaufnahme für Weldon | Балансируемые патроны с хвостовиком Weldon | Porte-outil équilibrable Weldon | Portautensile Weldon bilanciabile

WLD

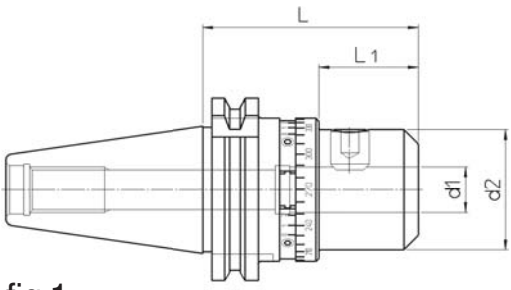

fig.1

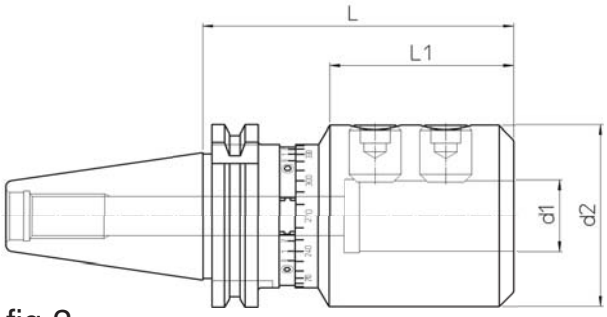

fig.2

DIN	REF.	CODE	d_1 H5	d_2	L	L_1	kg	fig.
40	DIN69871-A40 WLD06.65	41 0 20 06 140 20	6	23	65	25	1	1
	DIN69871-A40 WLD08.65	41 0 20 08 140 20	8	25			1.1	
	DIN69871-A40 WLD10.70	41 0 20 10 140 20	10	27	70	30	1.2	
	DIN69871-A40 WLD12.70	41 0 20 12 140 20	12	34			1.3	
	DIN69871-A40 WLD16.75	41 0 20 16 140 20	16	42	75	35	1.4	
	DIN69871-A40 WLD20.75	41 0 20 20 140 20	20	50		–	1.5	
	DIN69871-A40 WLD25.100	41 0 20 25 140 20	25	63	100		2.1	2
	DIN69871-A40 WLD32.110	41 0 20 32 140 20	32	70	110		2.7	

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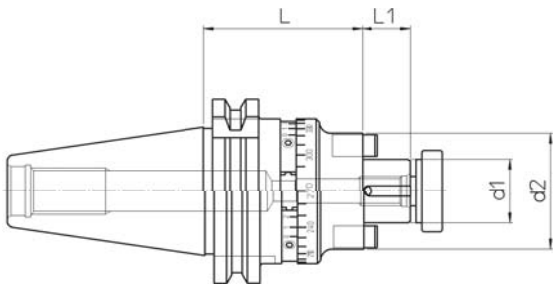
Balanceable face mill holder	Auswuchtbare Werkzeugaufnahme für Aufsteckfräser	Балансируемые оправки для насадных фрез	Porte-fraise à surfacer équilibrable	Portafresa a spianare bilanciabile

PFS



DIN	REF.	CODE	d_1	d_2	L	L_1	kg
40	DIN69871-A40 PFS16.50	41 0 50 16 140 20	16	32	50	15	1.2
	DIN69871-A40 PFS22.55	41 0 50 22 140 20	22	40	55	17	1.3
	DIN69871-A40 PFS27.60	41 0 50 27 140 20	27	50	60	19	1.5
	DIN69871-A40 PFS32.65	41 0 50 32 140 20	32	60	65	21.5	1.9

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Balanceable collet chucks holder | Auswuchtbares Präzisionsspannzangenfutter | Балансируемые цанговые патроны | Porte-pinces de précision équilibrable | Portapinze di precisione bilanciabile

ER

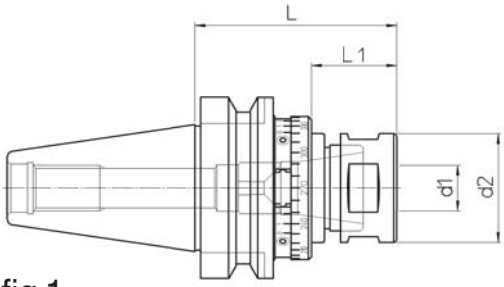

fig.1

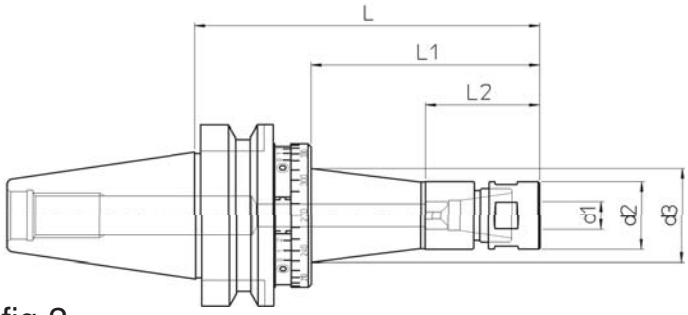

fig.2

Supplied without collets and clamping wrenches | Ohne Spannzangen und Spannschlüssel. | Поставляется без цанг и зажимного ключа | 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.
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

The ring-nuts of the Toprun spindles allow the use of the ER collets with a working range of 0,5 mm.

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

Затяжные гайки патронов TOPRUN позволяют использовать ER цанги с рабочим диапазоном 0,5 мм

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

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

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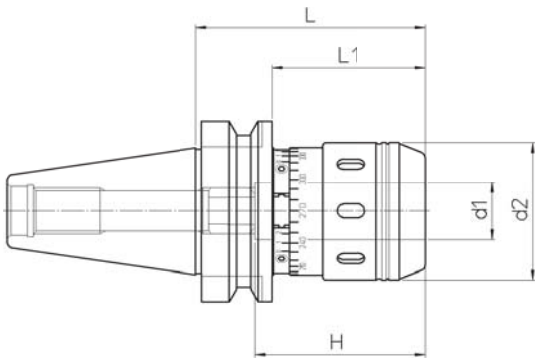
MAS 403 BT

High precision ultra-tight balanceable toolholder | Auswuchtbares Präzisionsspannzangenfutter mit hochfester Werkzeugspannung | Высокоточные балансируемые патроны с большим моментом затяжки | Porte-outil équilibrable de précision à serrage fort | Portautensile di precisione a forte serraggio bilanciabile

FORCE



Without clamping wrench | Ohne Spannschlüssel | Поставляется без зажимного ключа | 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

KIT K01 FORCE 20

1 FORCE 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 FORCE 32

1 FORCE 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

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

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Balanceable Weldon toolholder | Auswuchtbare Werkzeugaufnahme für Weldon | Балансируемые патроны для инструмента с хвостовиком Weldon | Porte-outil équilibrable Weldon | Portautensile Weldon bilanciabile

WLD

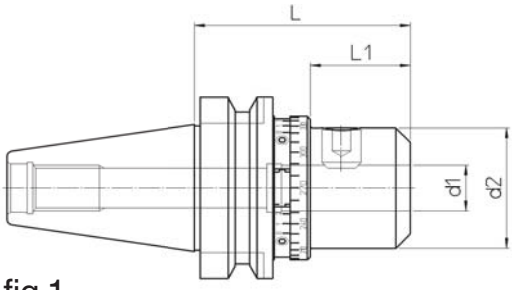

fig.1

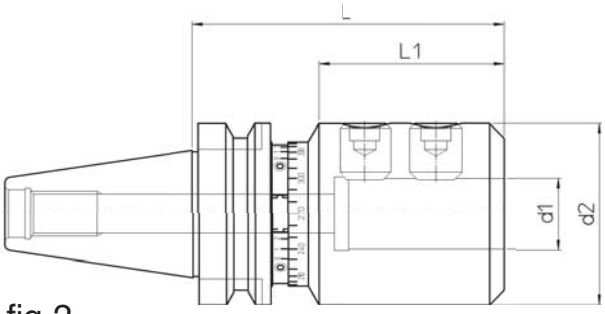

fig.2

BT	REF.	CODE	d_1 H5	d_2	L	L_1	kg	fig.
40	MAS403 BT40 WLD06.65	41 0 20 06 140 30	6	23	65	25	1	1
	MAS403 BT40 WLD08.65	41 0 20 08 140 30	8	25			1.1	
	MAS403 BT40 WLD10.70	41 0 20 10 140 30	10	27	70	30	1.2	
	MAS403 BT40 WLD12.70	41 0 20 12 140 30	12	34			1.3	
	MAS403 BT40 WLD16.75	41 0 20 16 140 30	16	42	75	35	1.4	
	MAS403 BT40 WLD20.75	41 0 20 20 140 30	20	50		48	1.5	
	MAS403 BT40 WLD25.100	41 0 20 25 140 30	25	63	100	–	2.1	2
	MAS403 BT40 WLD32.110	41 0 20 32 140 30	32	70	110		2.8	

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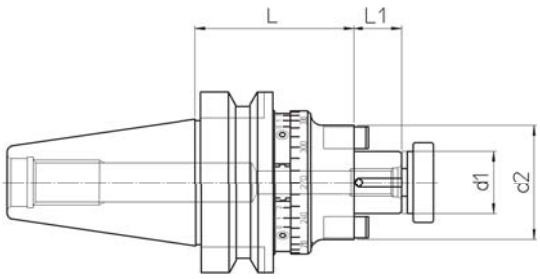
MAS 403 BT

PFS

Balanceable face mill holder	Auswuchtbare Werkzeugaufnahme für Aufsteckfräser	Балансируемые оправки для насадных фрез	Porte-fraise à surfacer équilibrable	Portafresa a spianare bilanciabile

PFS



BT	REF.	CODE	d_1	d_2	L	L_1	kg
30	MAS403 BT30 PFS16.45	41 0 50 16 130 30	16	32	45	15	0.9
	MAS403 BT30 PFS22.45	41 0 50 22 130 30	22	39.5		17	1
40	MAS403 BT40 PFS16.50	41 0 50 16 140 30	16	32	50	15	1.2
	MAS403 BT40 PFS22.55	41 0 50 22 140 30	22	40	55	17	1.3
	MAS403 BT40 PFS27.60	41 0 50 27 140 30	27	50	60	19	1.5
	MAS403 BT40 PFS32.65	41 0 50 32 140 30	32	60	65	21.5	1.9

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MODULHARD'ANDREA

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MODULHARD'ANDREA

What is MHD'?

A modular toolholder system for boring, milling, drilling, tapping.
A rigid high precision system, conceived and manufactured with the most advanced design and production facilities, backed by an experience over many decades in boring operations.
A system of extreme flexibility and simplicity suitable for machine tools, machining centres and flexible manufacturing systems.
A system for machining to closest tolerances with a high degree of surface finish.
A system with internal coolant supply in all its components.
A system available in 9 sizes with full interchangeability of all components.

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.

Was ist das MHD'?

Ein modulares Werkzeughalterssystem zum Ausdrehen, Fräsen, Bohren und Gewindeschneiden.
Ein starres Hochpräzisionssystem,das mit den modernsten Entwurfs- und Fertigungsmitteln aufgrund unserer jahrzehntelangen Erfahrung im Ausdrehen entwickelt und hergestellt worden ist.
Ein System extremer Flexibilität und Einfachheit für Werkzeugmaschinen, Bearbeitungszentren und flexible Fertigungsbetriebe.
Ein System für Bearbeitungen auf engste Toleranzen mit hoher Oberflächengüte.
Ein System mit innerer Kühlmittelzufuhr in allen Elementen.
Ein in 9 Größen lieferbares System, das die volle Austauschbarkeit gestattet.

Die MHD' Kupplung

ist der Schwerpunkt des MODULHARD'ANDREA, da sie maximale Starrheit und Konzentrizität beim Fräsen und Bohren sichert. Das wird durch die (patentierten) zylindrisch-konische Passfläche und den radialen Spreizbolzen für Axialspannung und Mitnahme erreicht.

Что такое MHD'?

Модульная система державок для растачивания, фрезерования, сверления и нарезания резьб. Жесткая высокоточная система созданная с использованием передовых разработок и современных производственных возможностей, опирающихся на многолетний опыт специалистов по операциям растачивания. Система позволяет задавать очень узкие поля допусков и получать высочайшую степень чистоты обрабатываемых поверхностей. Примененные в системе запатентованные цилиндро-конические соединения и радиальный разжимной винт, обеспечивают ее жесткость и соосность. Все компоненты имеют внутренние каналы подачи СОЖ. Система представлена в 9 различных размерах при полной взаимозаменяемости всех ее компонентов.

Принцип сочленения частей системы, использованный в MHD', является ее сердцем, так как гарантирует максимальную жесткость и соосность при операциях фрезерования и растачивания.

Qu'est-ce que le MHD'?

Un système modulaire de porte-outils pour aléser, fraiser, percer, tarauder.
Un système rigide de haute précision, réalisé en utilisant le matériel de conception et de fabrication le plus avancé et une expérience pluridécennale dans le secteur de l'alésage.
Un système d'extrême souplesse et simplicité apte aux machines-outils, aux centres d'usinage et aux atéliers flexibles.
Un système à tolèrances serrées avec surfaces de haute qualité.
Un système avec alimentation interne du liquide d'arrosage dans tous ses éléments.
Un système livrable en 9 tailles avec interchangeabilité totale des composants.

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.

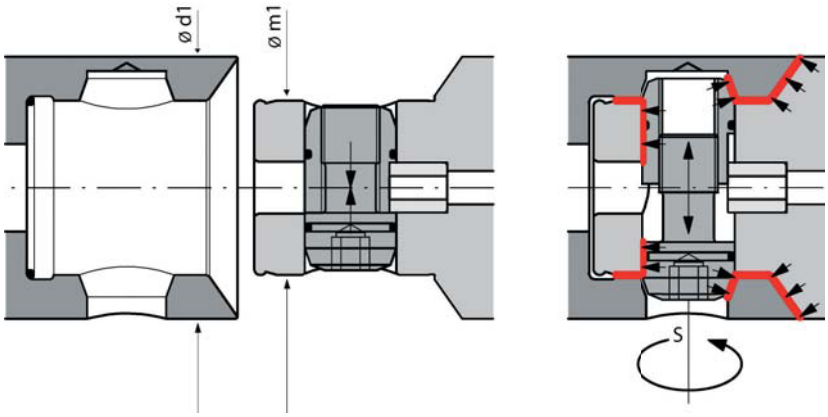
Cos'è l'MHD'?

Un sistema modulare di portautensili per alesare, fresare, forare, maschiare.
Un sistema rigido, di alta precisione, studiato e realizzato con il contributo dei mezzi più avanzati di progettazione e fabbricazione e di un'esperienza pluridecennale nel campo dell'alesatura.
Un sistema di estrema flessibilità e semplicità, adatto per macchine utensili, centri di lavoro e sistemi di produzione flessibile.
Un sistema per lavorazioni a strettissime tolleranze con superfici di alta qualità.
Un sistema con alimentazione interna del refrigerante in tutti i suoi elementi. Un sistema fornibile in 9 grandezze con massima intercambiabilità degli elementi.

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.

Sizes and driving torque | **Abmessung und Anziehdrehmoment** | **Соединение частей модульной системы** | **Dimensions et couple de serrage** | **Dimensioni e coppia di serraggio**



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	80 - 90
MHD' 80	80			

GENERAL INFORMATIONS

• Assembly
- Secure the arbor to a rigid support.
- Fit the requiredcomponent (adaptor, extension, double-bit boring bar, 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.

• Maintenance
- The conical and cylindrical surfaces of each component should be cleaned and lubricated at periodic intervals.
- The expanding radial pin should be treated regularly with an anti-souff lubricant.
- The slide guideway of the micrometric boring bars should be cleaned and lubricated at periodic intervals.

GENERALITES

• Montage
- Die Grundaufnahme in einer Halterung befestigen.
- Gewünschtes Element (Reduzierung,Verlängerun, Zweischneiderbohrstange, Ausdrehkopf usw.) einsetzen. Darauf achten, dass der radiale Spreizbolzen nicht aus dem zylindrischen Teil herausragt.
- Element durch Rechtsdrehen des Spreizbolzens mit dem mitgelieferten Sechskantschlüssel oder einem Drehmomentschlüssel festklemmen.

• Demontage
- Grundaufnahme in einer Halterung befestigen.
- Spreizbolzen durch Linksdrehen lösen.

• Wartung
- Zylindrische und konische Flächen der Elemente von Zeit zu Zeit reinigen und schmieren.
- Den radialen Spreizbolzen mit einem Schmiermittel periodisch abschmieren.
- Schlittenführung der mikrometrischen Bohrstangen von Zeit zu Zeit reinigen und schmieren.

ОСНОВНАЯ ИНФОРМАЦИЯ

• Монтаж
- Закрепите державку на жесткой подставке.
- Вставьте требуемую часть (переходник, удлинитель, расточную оправку, расточную головку и т.д.) в державку, убедившись, что радиальный разжимной винт не выступает из цилиндрической части.
- Закрепите компоненты между собой, поворачивая разжимной винт по часовой стрелке шестигранным или динамометрическим ключом.

• Разборка
- Закрепите державку на жесткой подставке.
- Освободите разжимной винт, поворачивая его против часовой стрелки.

• Обслуживание
- Конические и цилиндрические поверхности компонентов должны периодически очищаться и покрываться смазкой.
- Разжимной винт необходимо периодически смазывать.
- Скользящие направляющие микрометрических расточных оправок должны периодически очищаться и покрываться смазкой.

INFORMACIONES GENERALES

• Montage
- Fixer le mandrin dans un support.
- Monter l'élément désiré (réduction, rallonge, barre d'alésage à deux coupants, 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.

• Entretien
- Nettoyer et lubrifier périodiquementles surfaces coniques et cylindriques des composants.
- Traiter périodiquement la tige radiale expandible avec un produit anti-grippage.
- Nettoyer et lubrifier périodiquement le guide du coulisseau des barres d'alésage micrométriques.

INFORMAZIONI GENERALI

• Montaggio
- Assicurare l'attacco base in un supporto.
- Montare l'elemento desiderato (riduzione, prolunga, bareno bitagliente, 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.

• Manutenzione
- Mantenere pulite e lubrificate le parti cilindrico-coniche degli elementi.

- Mantenere lubrificato con un prodotto antigrippante il perno radiale espandibile.

- Mantenere pulita e lubrificata la guida di scorrimento della slitta dei bareni micrometrici.

MODULHARD'ANDREA

Arbors Extensions Reductions

ARBORS
Arbors are manufactured in accordance with DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A and are made of carburized steel, hardened and ground to AT3 tolerance. Arbor size MHD' 80 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.

Grundaufnahmen Verlängerungen Reduzierungen

GRUNDAUFNAHMEN
Die Grundaufnahmen entsprechen den Normen DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A. 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 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 Elemente einer kleineren MHD' Größe. Damit sind umfassendere Austauschbarkeit und größere Steifigkeit gegeben.

Державки Удлинители Переходники

ДЕРЖАВКИ
Производятся в соответствии с DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A и изготавливаются из углеродистой стали, закаленной и вышлифованной в соответствии с классом точности AT3. Программа включает в себя три размера MHD' 50, MHD' 63 и MHD' 80. Хвостовик ISO 40 рекомендован только для MHD' 50. Размер державки MHD' 80 рекомендован для тяжелых фрезерных операций и растачивания отверстий глубиной более 250 мм, имеющих диаметр 125 мм.

УДЛИНИТЕЛИ
Программа включает в себя удлинители различных размеров для каждого размера MHD и позволяет обрабатывать значительный ряд размеров.

ПЕРЕХОДНИКИ
Компоненты MHD меньших размеров могут быть использованы с переходными втулками, которые обеспечивают широкую взаимозаменяемость и гарантируют жесткость инструмента

Mandrins Rallonges Réductions

MANDRINS
Les mandrins, conformes aux normes DIN 69871 A-B, MAS 403 BT, DIN 2080, AINSI-CAT, DIN 69893-A, sont fabriqués en acier de cémentation trempé et rectifié à la tolérance AT3.
La taille MHD' 80 est 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.

Attacchi base Prolunghe Riduzioni

ATTACCHI BASE
Gli attacchi sono realizzati secondo le norme DIN 69871 A-B, MAS 403 BT, DIN 2080, ANSI-CAT, DIN 69893-A e sono costruiti in acciaio cementato, temperato e rettificato secondo la tabella AT3.
L'impiego di attacchi con grandezza MHD' 80 è consigliato 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.

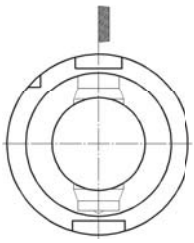
PROLUNGHE
Per ogni grandezza di MHD' esistono prolunghe di differenti lunghezze che consentono di ottimizzare le profondità di lavorazione desiderate.

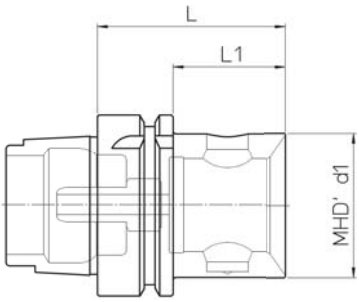
RIDUZIONI
Le riduzioni permettono di utilizzare componenti di una grandezza MHD' più piccola e quindi avere maggiore intercambiabilità e stabilità dell'utensile.

DIN 69893 HSK-A

Arbors | Grundaufnahmen | Державки | Mandrins | Attacchi base

HSK-A

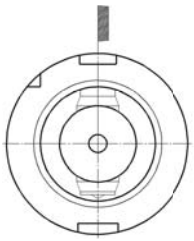


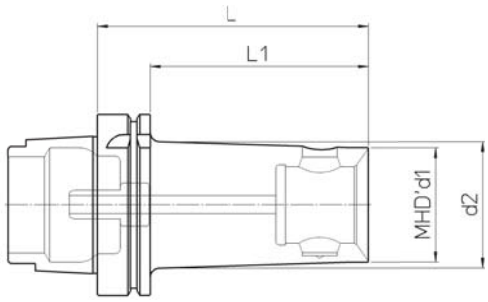


Supplied with coolant tube | Lieferung inklusive Kühlmittelrohr | Поставляются с каналом подвода СОЖ | Pourvu de raccord pour liquide d'arrosage | Completo di raccordo per il refrigerante

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

HSK-A





Supplied with coolant tube | Lieferung inklusive Kühlmittelrohr | Поставляются с каналом подвода СОЖ | 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

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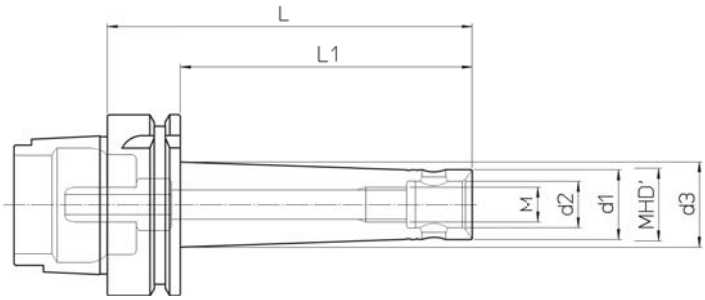
HSK-A F-MHD'



Supplied with coolant tube | Lieferung inklusive Kühlmittelrohr | Поставляются с каналом подвода СОЖ | Pourvu de raccord pour liquide d'arrosage | Completo di raccordo per il refrigerante

HSK-A	REF.	CODE	MHD'	d_1	d_2	d_3	M	L	L_1	kg
63	HSK-A63 F-MHD'16.63	41 6 16 06 563 20	16	15.5	10	17	M 8	63	37	0.7
	HSK-A63 F-MHD'16.100	41 6 16 10 563 20				19.5		100	74	0.8
	HSK-A63 F-MHD'20.63	41 6 20 06 563 20	20	19.5	13	-	M 10	63	37	0.6
	HSK-A63 F-MHD'20.90	41 6 20 09 563 20				22.5		90	64	0.8
	HSK-A63 F-MHD'20.125	41 6 20 12 563 20				25		125	99	0.9
	HSK-A63 F-MHD'25.63	41 6 25 06 563 20	25	24	16	-	M 12	63	37	0.7
	HSK-A63 F-MHD'25.90	41 6 25 09 563 20				27		90	64	0.9
	HSK-A63 F-MHD'25.125	41 6 25 12 563 20				29.5		125	99	1
	HSK-A63 F-MHD'32.90	41 6 32 09 563 20	32	31	20	33.5	M 16	90	64	1
	HSK-A63 F-MHD'32.125	41 6 32 12 563 20				36		125	99	1.2

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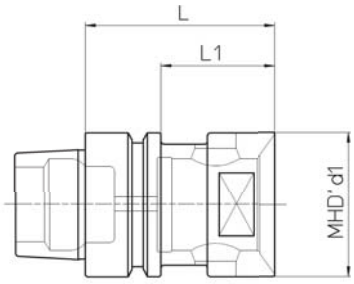
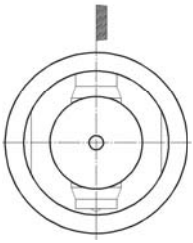
DIN 69893 HSK

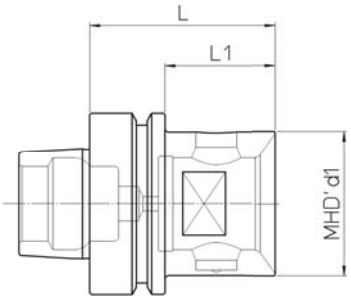
HSK-E



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

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

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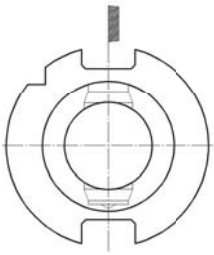
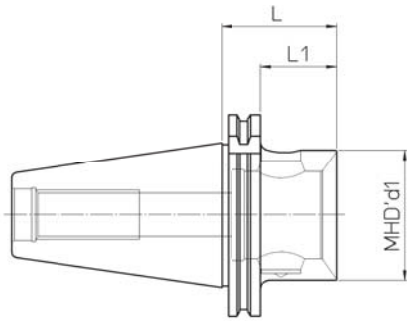
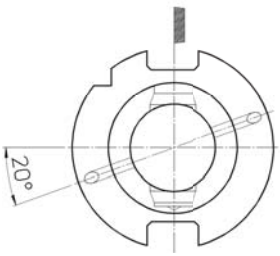
AD

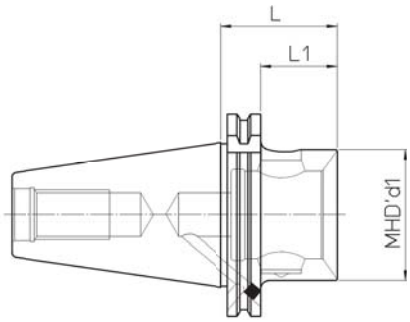




DIN	REF.	CODE	MHD' d_1	L	L_1	kg
30	DIN69871-A30 MHD'32.30	41 6 32 01 030 20	32	30	10.5	0.4
	DIN69871-A30 MHD'50.60	41 6 50 01 030 20	50	60	–	0.6
40	DIN69871-A40 MHD'40.45	41 6 40 01 040 20	40	45	26	0.5
	DIN69871-A40 MHD'50.48	41 6 50 01 040 20	50	48	29	0.9
	DIN69871-A40 MHD'63.80	41 6 63 01 040 20	63	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

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

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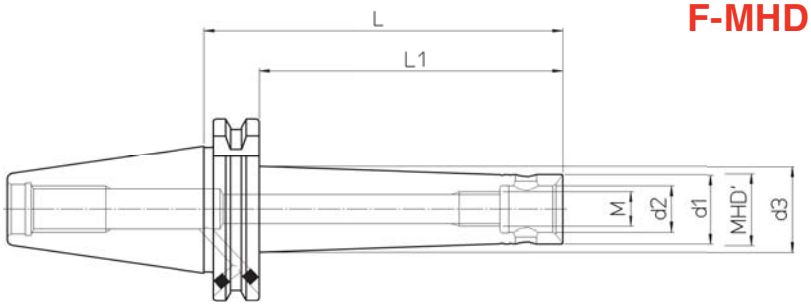
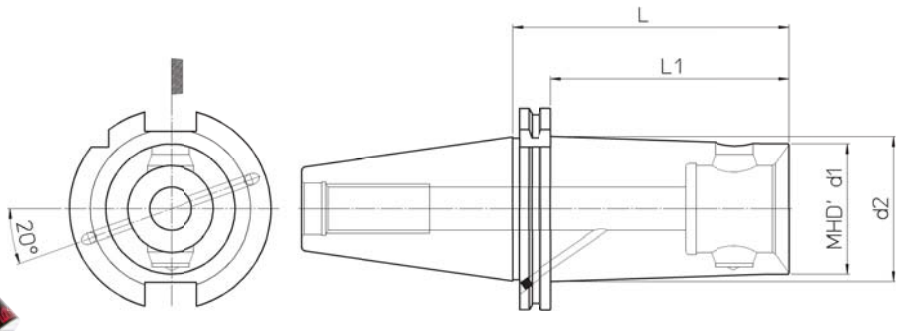
DIN 69871

AD+B F-MHD'



DIN	REF.	CODE	MHD'	d_1	d_2	d_3	M	L	L_1	kg
40	DIN69871-AD+B40 F-MHD'16.40	41 6 16 04 140 21	16	15.5	10	–	M 8	40	21	0.7
	DIN69871-AD+B40 F-MHD'16.63	41 6 16 06 140 21				17.5		63	44	0.8
	DIN69871-AD+B40 F-MHD'16.100	41 6 16 10 140 21				20		100	81	0.9
	DIN69871-AD+B40 F-MHD'20.50	41 6 20 05 140 21	20	19.5	13	–	M 10	50	31	0.8
	DIN69871-AD+B40 F-MHD'20.80	41 6 20 08 140 21				22.5		80	61	0.9
	DIN69871-AD+B40 F-MHD'20.125	41 6 20 12 140 21				25.5		125	106	1
	DIN69871-AD+B40 F-MHD'25.50	41 6 25 05 140 21	25	24	16	–	M 12	50	31	0.9
	DIN69871-AD+B40 F-MHD'25.80	41 6 25 08 140 21				27		80	61	1
	DIN69871-AD+B40 F-MHD'25.125	41 6 25 12 140 21				30		125	106	1.1
	DIN69871-AD+B40 F-MHD'32.50	41 6 32 05 140 21	32	31	20	–	M 16	50	31	1
	DIN69871-AD+B40 F-MHD'32.80	41 6 32 08 140 21				33.5		80	61	1.1
	DIN69871-AD+B40 F-MHD'32.125	41 6 32 12 140 21				36.5		125	106	1.2

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

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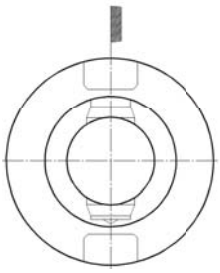
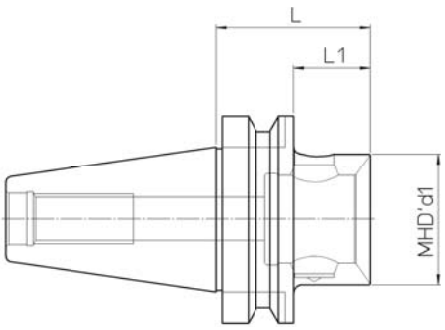
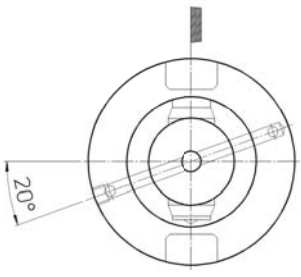
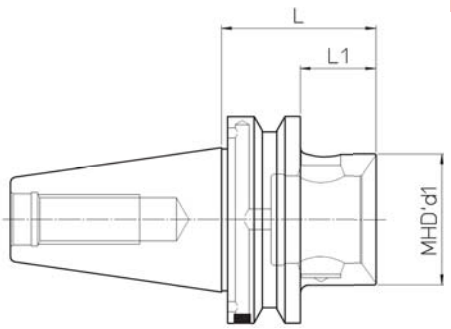




BT	REF.	CODE	MHD' d_1	L	L_1	kg
30	MAS403 BT30 MHD'32.32	41 6 32 01 030 30	32	32	10.6	0.5
	MAS403 BT30 MHD'50.60	41 6 50 01 030 30	50	60	–	0.7
35	MAS403 BT35 MHD'50.60	41 6 50 01 035 30			36	0.8
40	MAS403 BT40 MHD'40.45	41 6 40 01 040 30	40	45	18	0.6
	MAS403 BT40 MHD'50.38	41 6 50 01 040 39	50	38	11	0.8
	MAS403 BT40 MHD'50.48	41 6 50 01 040 30		48	21	0.9
	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

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

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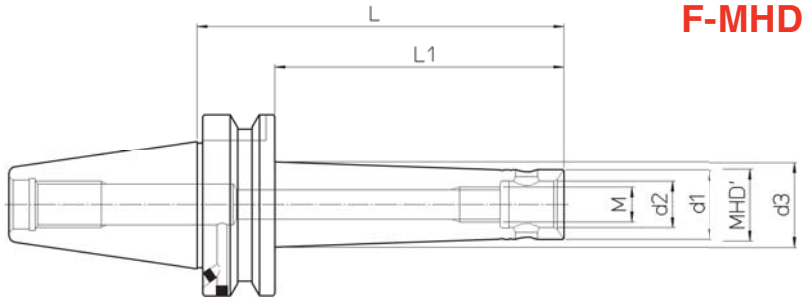
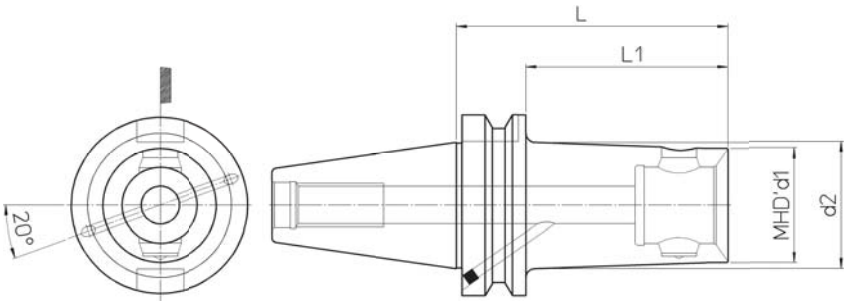
MAS 403 BT

AD+B F-MHD'



BT	REF.	CODE	MHD'	d_1	d_2	d_3	M	L	L_1	kg
40	MAS403 BT40-AD+B F-MHD'16.45	41 6 16 04 140 31	16	15.5	10	–	M 8	45	18	0.8
	MAS403 BT40-AD+B F-MHD'16.63	41 6 16 06 140 31				17		63	36	0.9
	MAS403 BT40-AD+B F-MHD'16.100	41 6 16 10 140 31				19.5		100	73	1
	MAS403 BT40-AD+B F-MHD'20.50	41 6 20 05 140 31	20	19.5	13	–	M 10	50	23	0.9
	MAS403 BT40-AD+B F-MHD'20.80	41 6 20 08 140 31				22		80	53	1
	MAS403 BT40-AD+B F-MHD'20.125	41 6 20 12 140 31				25		125	98	1.1
	MAS403 BT40-AD+B F-MHD'25.50	41 6 25 05 140 31	25	24	16	–	M 12	50	23	1
	MAS403 BT40-AD+B F-MHD'25.80	41 6 25 08 140 31				26.5		80	53	1.1
	MAS403 BT40-AD+B F-MHD'25.125	41 6 25 12 140 31				29.5		125	98	1.2
	MAS403 BT40-AD+B F-MHD'32.50	41 6 32 05 140 31	32	31	20	–	M 16	50	23	1.1
	MAS403 BT40-AD+B F-MHD'32.80	41 6 32 08 140 31				33		80	53	1.2
	MAS403 BT40-AD+B F-MHD'32.125	41 6 32 12 140 31				36		125	98	1.4

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

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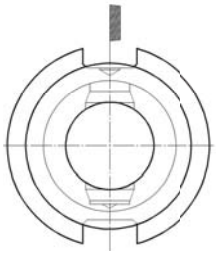
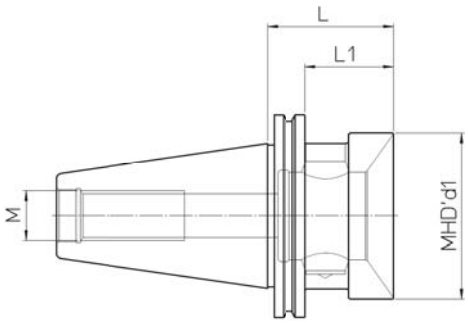
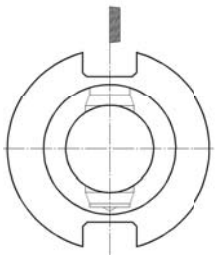
ANSI/CAT

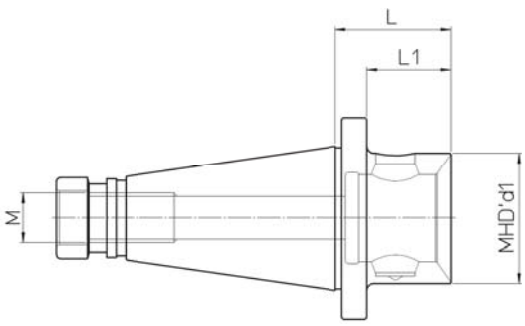




ANSI/CAT	REF.	CODE	MHD' d_1	L	L_1	M	kg
40	ANSI/CAT40 MHD'50.66	41 6 50 01 040 40	50	66	47	M16	1.1
	ANSI/CAT40 MHD'63.100	41 6 63 01 040 40	63	100	–		1.9
45	ANSI/CAT45 MHD'50.48	41 6 50 01 045 40	50	48	29	M20	1.7
	ANSI/CAT45 MHD'63.75	41 6 63 01 045 40	63	75	56		2.1
	ANSI/CAT45 MHD'80.80	41 6 80 01 045 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

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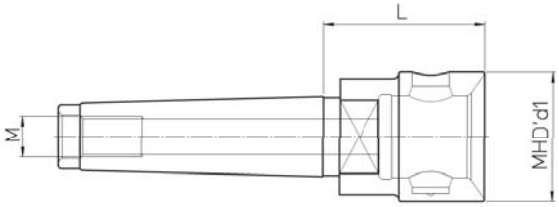
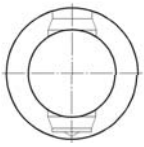
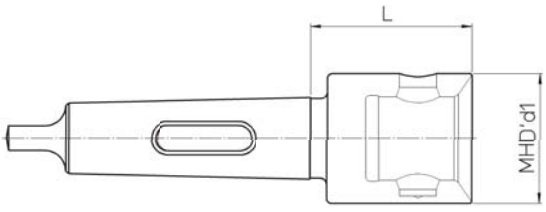
DIN 228/A 2207



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

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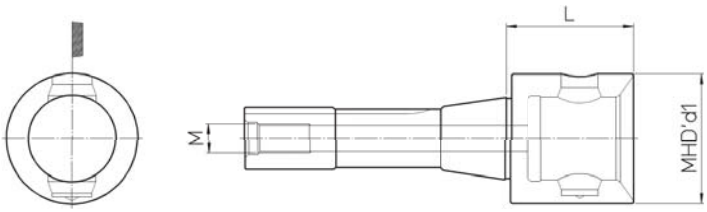
R8



REF.	CODE	MHD' d1	L	M	kg
R 8	41 6 50 05 008 00	50	50	M12x1.75	0.8

BR

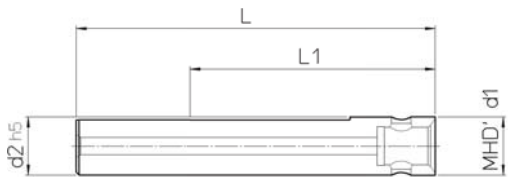


fig.1

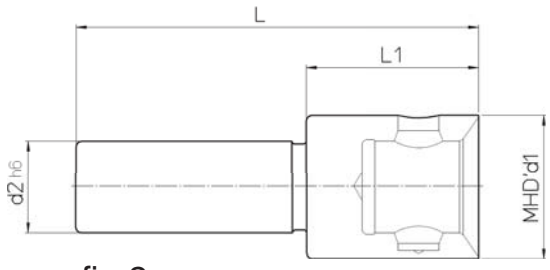


fig.2

REF.	CODE	MHD' d_1	L	L_1	d_2	kg	fig.
BR 16/16.100	65 70 816 0100 1	16	100	66	16	0.15	1
BR 20/20.125	65 70 820 0125 1	20	125	85	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	

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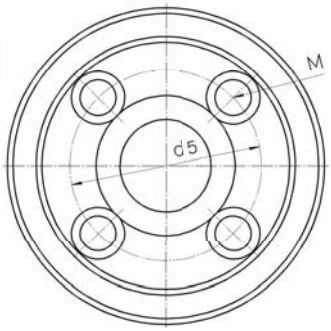
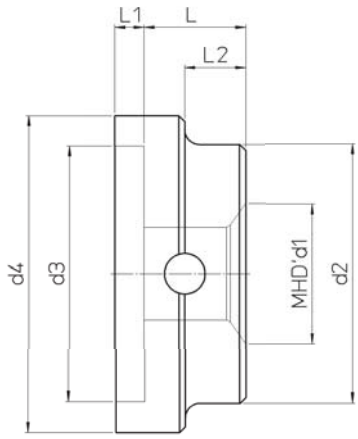
UNI DIN HSK MAS-BT

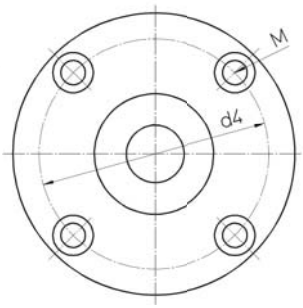
DIN 2079

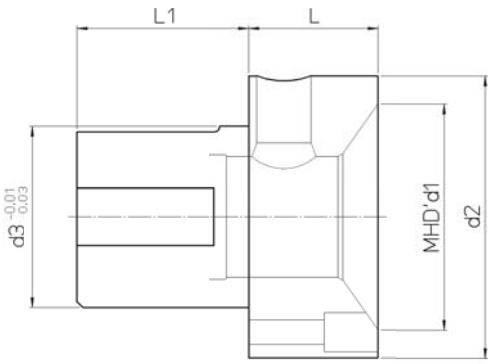




REF.	CODE	MHD' d_1	d_2	d_3	d_4	d_5	L	L_1	L_2	M	kg
DIN 2079-40.50	41 6 50 20 040 00	50	90	88.89	110	66.7	35	10	21	M12	1.8
DIN 2079-40.63	41 6 63 20 040 00	63					47		31		2
DIN 2079-50.63	41 6 63 20 050 00		135	128.57	150	101.6	45	12		M16	5.4
DIN 2079-50.80	41 6 80 20 050 00	80					50		36		5.3

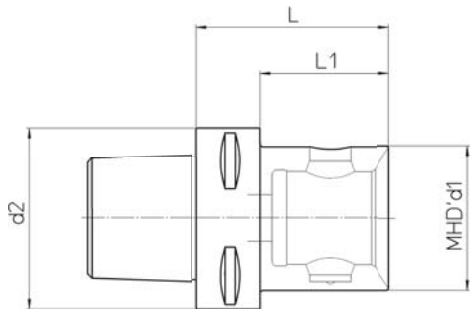
MR





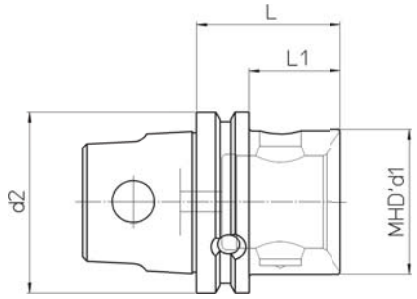
REF.	CODE	MHD' d1	d_2	d_3	d_4	L	L_1	M	kg
MR 50/80.80	45 02 080 0106 0	63 ~ 80	80	50	65	45	50	M6	1.5
MR 63/98.80	45 02 098 0106 0		98	63	80		60	M8	3.1
MR 80/130.80	45 02 130 0124 0		130	80	104.6		80	M10	6.1

COROMANT CAPTO



CAPTO	REF.	CODE	MHD' d_1	d_2	L	L_1	kg
C5	RD C5 - MHD' 50.55	65 70 950 0055 0	50	50	55	–	0.8
C6	RD C6 - MHD' 50.67	65 70 950 0105 0		63	67	45	1.1
	RD C6 - MHD' 63.77	65 70 963 0115 0	63		77	–	1.8
C8	RD C8 - MHD' 50.60	65 70 950 0065 0	50	80	60	29	2
	RD C8 - MHD' 63.70	65 70 963 0070 0	63		70	39	2.3
	RD C8 - MHD' 80.75	65 70 980 0075 0	80		75	–	2.6

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

MODULHARD'ANDREA

Carbide bars | **Hartmetall-Bohrstangen** | **Твердосплавные оправки** | **Barres carbure** | **Barre in metallo duro**

CARBIDE BARS FOR DEEP-HOLE MACHINING

D'Andrea solves the deep-hole boring machining by means of a wide programme of BMD carbide bars having diameter 16, 20, 25, 32 mm and ending with MHD' arbor.
BMD bars are built in three different working lengths for the machining of holes, whose depth is 6.3, 8 and 10 times the diameter/bar.
On BMD bars can be mounted: TS double-bit roughing heads, TRD-TRC-TRM Testarossa finishing heads, PE chucking tools for ER collets and GRINTA milling heads.

HARTMETALL-BOHRSTANGEN FÜR TIEFLOCH-BEARBEITUNGEN

D'Andrea löst das Problem der Tiefloch-Bohrbearbeitungen durch eine große Auswahl an BMD Hartmetall-Bohrstangen mit Durchmessern 16, 20, 25 und 32 mm, die mit einer MHD' Grundaufnahme enden. BMD Bohrstangen werden in drei unterschiedlichen Längen zur Bearbeitung von Bohrungen angeboten, deren Tiefen bis zum 6,3-8 oder 10-fachen des Bohrstangendurchmessers gehen können. An BMD Bohrstangen können folgende Aufsätze montiert werden: TS Zweischneiderschruppköpfe, TRD-TRC-TRM Testarossa Schlichtköpfe, PE Spannzangenfutter für ER Spannzangen und Fräsköpfe GRINTA.

ТВЕРДОСПЛАВНЫЕ ОПРАВКИ ДЛЯ ОБРАБОТКИ ГЛУБОКИХ ОТВЕРСТИЙ

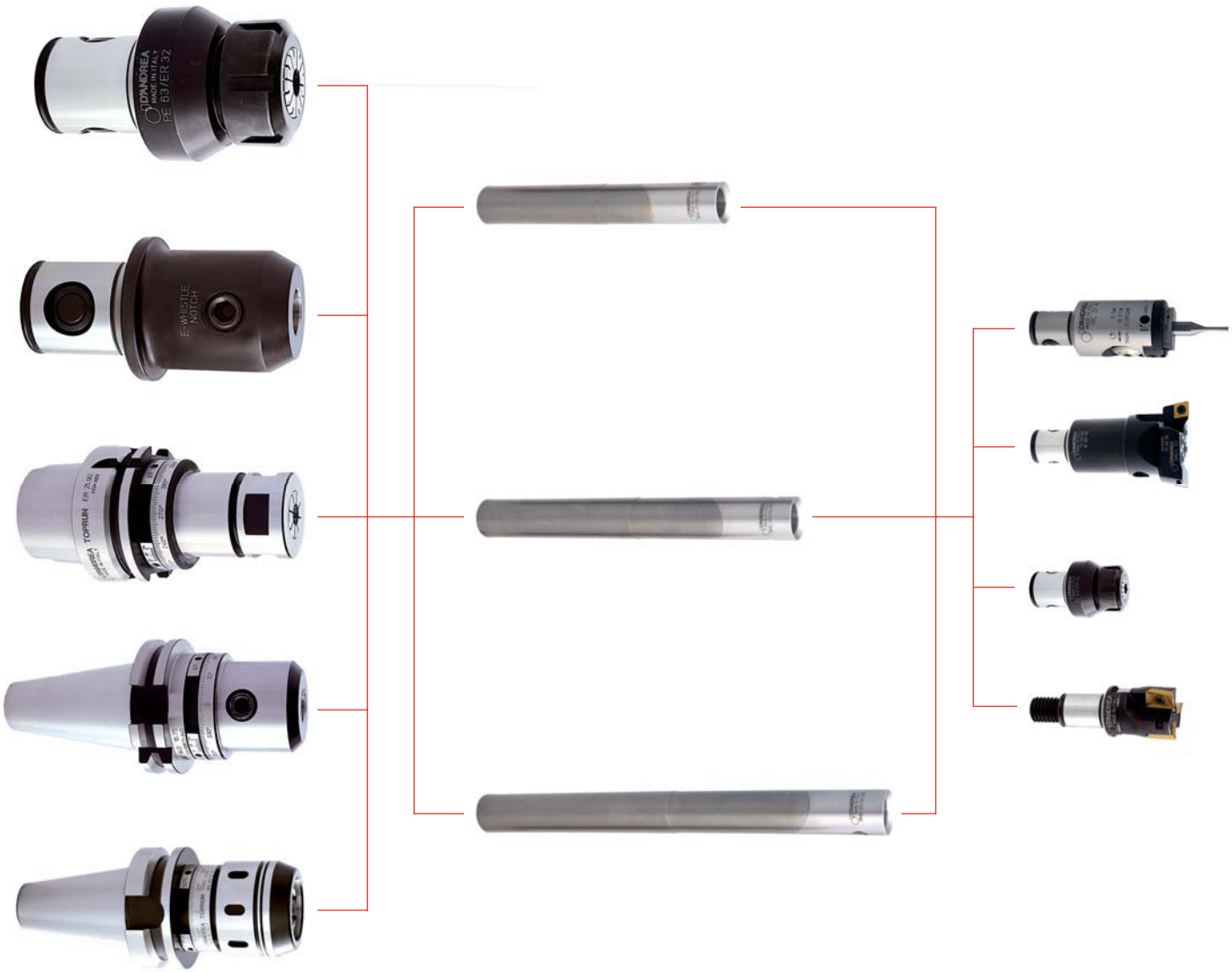
D'Andrea решает вопрос обработки глубоких отверстий посредством широкой программы твердосплавных оправок BMD, имеющих диаметры 16, 20, 25 и 32 мм и заканчивающихся державкой MHD.
Оправки изготавливаются трех различных длин, для обработки отверстий, чья глубина составляет 6,3 - 8 - 10 диаметров оправки.
На опраках BMD могут крепится: двурезцовые головки для чернового растачивания, головки TRM Testarossa для чистовой обработки и зажимные патроны PE для цанг типа ER.

BARRES CARBURE POUR USINAGES DE TROUS PROFONDS

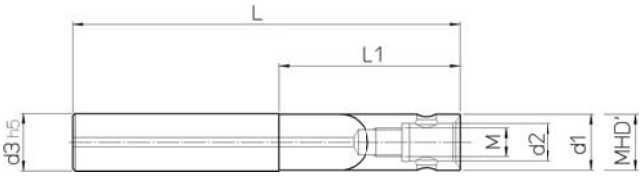
Pour accomplir les alésages de trous profonds, D'Andrea a projecté un ample programme de barres carbure BMD de diamètre 16,20, 25 et 32 mm, avec au bout l'accouplement MHD'.
Elles sont fabriquées en trois longueurs pour usiner trous profonds 6,3 – 8 – 10 fois le diamètre/barre.
Sur les barres BMD on monte: têtes d'ébauche à deux coupants TS, têtes de finissage Testarossa TRD-TRC-TRM, adaptateurs PE pour pinces ER et les têtes de fraisage GRINTA.

BARRE IN METALLO DURO PER LAVORAZIONI DI FORI PROFONDI

Per risolvere le lavorazioni di alesatura di fori profondi D'Andrea ha realizzato un ampio programma di barre in metallo duro BMD di diametro 16, 20,25 e 32 mm, terminanti con l'attacco MHD'.
Sono costruite in tre lunghezze per lavorare fori profondi 6,3-8-10 volte il diametro/barra.Sulle barre BMD si montano: le testine di sgrossatura bitaglienti TS, le testine di finitura Testarossa TRD-TRC-TRM, gli adattatori PE per pinze elastiche ER e le testine di fresatura GRINTA.



BMD

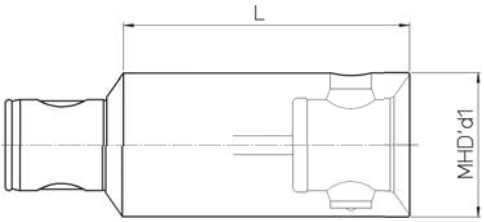


REF.	CODE	MHD'	d_1	d_2	d_3	M	L	L_1	kg
BMD 16/16.110	65 70 816 0110 5	16	15.5	10	16	M 8	110	50	0.3
BMD 16/16.140	65 70 816 0140 5						140	63	0.4
BMD 16/16.170	65 70 816 0170 5						170	80	0.5
BMD 20/20.135	65 70 820 0135 5	20	19.5	13	20	M 10	135	63	0.6
BMD 20/20.170	65 70 820 0170 5						170	80	0.75
BMD 20/20.210	65 70 820 0210 5						210	100	0.9
BMD 25/25.160	65 70 825 0160 5	25	24	16	25	M 12	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	31	20	32	M 16	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 | Удлинители | 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

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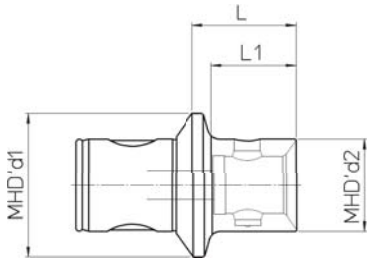
RD



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

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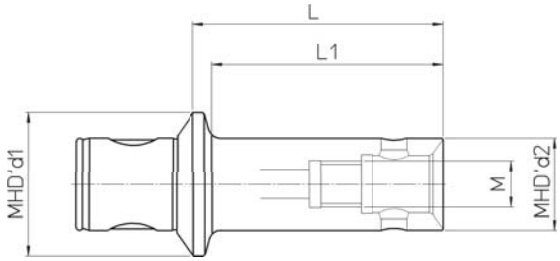
MODULHARD'ANDREA

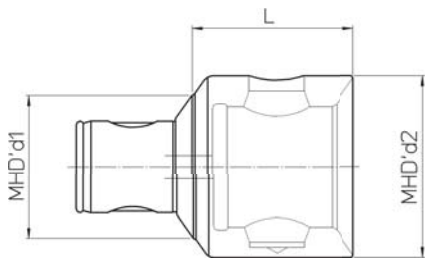
Reductions | Reduzierungen | Переходники | Réductions | Riduzioni

RD



REF.	CODE	MHD' d_1	MHD' d_2	M	L	L_1	kg
RD 50/16.40	65 70 050 0016 2	50	16	M 8	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	M 10	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	M 12	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	M 16	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

RD



REF.	CODE	MHD'd1	MHD'd2	L	kg
RD 50/63.56	65 70 050 0063 0	50	63	56	1.1

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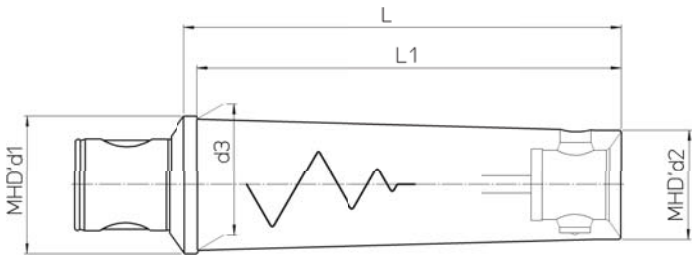
RAV



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

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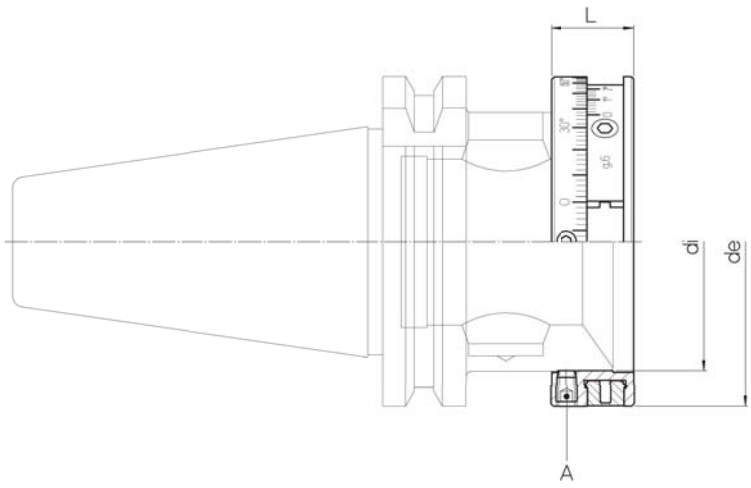
MODULHARD'ANDREA

Balancing rings | Auswuchtringe | Балансировочные кольца | Bagues d'équilibrage | Anelli di bilanciatura

BLC



REF.	CODE	MHD'	de	di (G 6)	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

ASSEMBLY

-Remove the plastic guard ring
-Insert the BLC ring and lock the A screws.

MONTAGE

-Schutzring aus Kunststoff entfernen.
-Auswuchtring BLC einsetzen und Schrauben A spannen.

СБОРКА

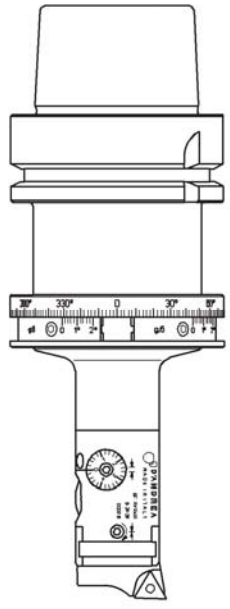
-Удалите плпастмассовое предохранительное кольцо
-Установите балансировочное кольцо и затяните винты A.

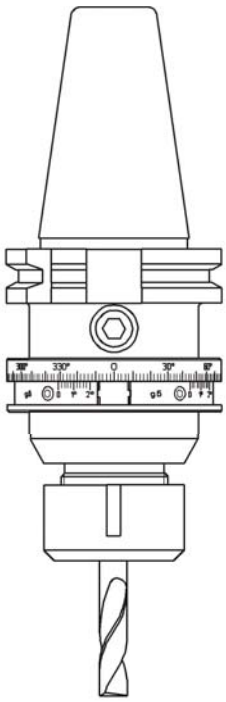
MONTAGE

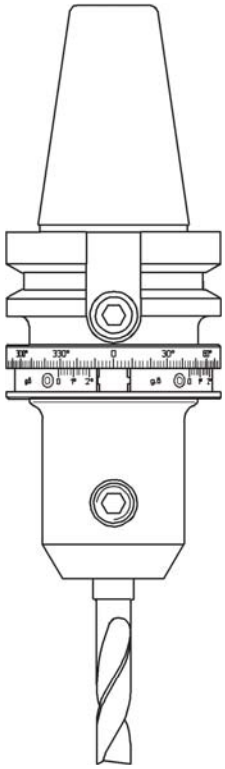
-Enlever la bague de protection en plastique
-Insérer la bague BLC et bloquer les clefs A.

MONTAGGIO

-Togliere l'anello di protezione in plastica
-Inserire l'anello BLC e bloccare le viti A.







Balancing rings

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.

The purpose of the balancing of a toolholder is to improve the distribution of the masses of the different elements in order to produce centrifugal forces within a prescribed limit, when spinning at a given spindle speed (RPM).
The balancing operation for a toolholder has the aim to bring the original unbalance within the maximum admissible level "G" prescribed by the ISO 1940/1 standards.

Auswuchtringe

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.

Um die vorgegebenen Grenzen der auftretenden Zentrifugalkräfte bei gegebener Spindeldrehzahl nicht zu überschreiten, werden Werkzeuge durch Optimierung der Massenverteilung aller beteiligten Elemente ausgewuchtet.
Das Ziel des Auswuchtens von Werkzeughaltern ist, die ursprüngliche Unwucht auf das max. zugelassene "G" Niveau entsprechend der ISO 1940/1 Norm zu reduzieren.

Балансировочные кольца

Балансировочные кольца BCL посредством установки двух вмонтированных градуированных противовесов позволяют балансировать точным и экономичным путем державки, на которых они закреплены. Использование балансировочных колец BLC обеспечивает следующие преимущества:
• Улучшенные точность и чистота обрабатываемых поверхностей
• Значительное продление срока службы инструмента
• Значительное продление срока службы подшипников шпинделя
• Ощутимое снижение вибрации и уровня шума производимых обрабатывающим центром.

Назначением балансировки державок является улучшение распределения массы корпуса для образования центробежных сил в пределах, установленных для данной скорости вращения шпинделя. Цель балансировки - привести изначальный дисбаланс в рамки максимально допустимого значения "G", предписываемого стандартами ISO 1940/1.

Bagues d'équilibrage

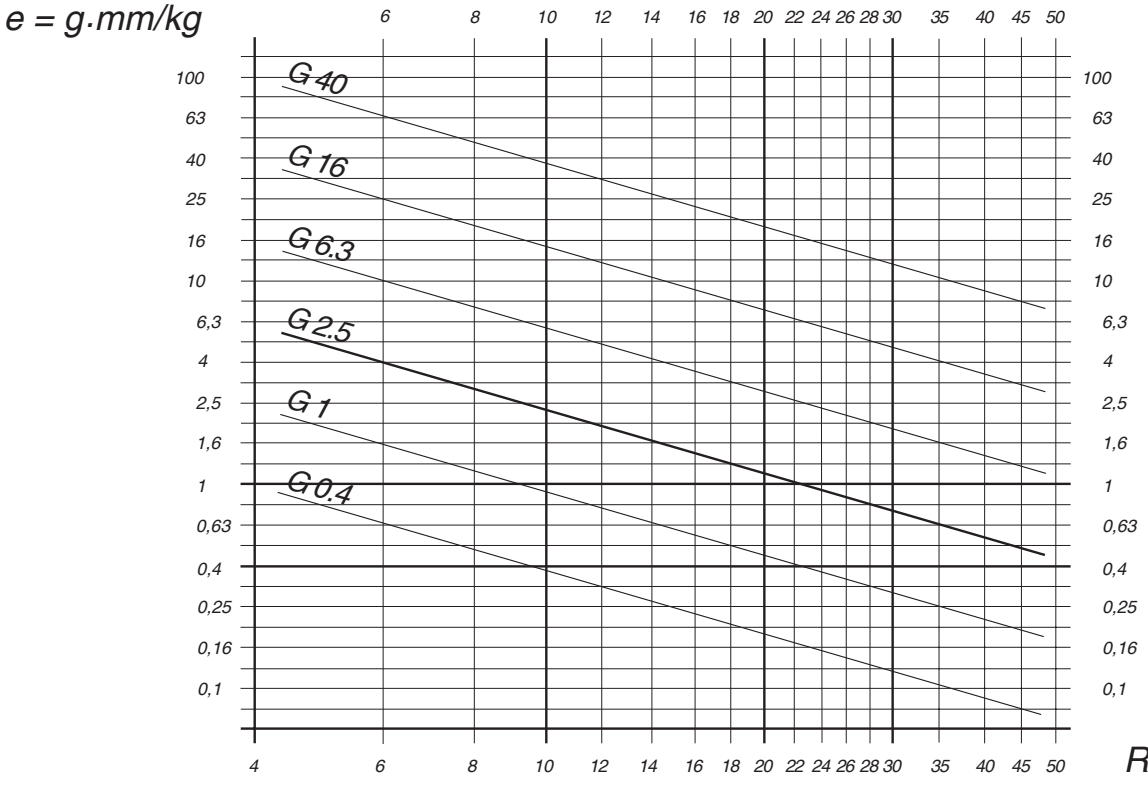
La bague d'équilibrage BLC, par simple réglage des deux contrepoids gradués incorporés, permet d'équilibrer le porte-outil d'une manière précise et économique.
L'utilisation de la bague BLC apporte les avantages suivants:
- amélioration de la précision et meilleur état de surface
- meilleure durée de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

L'équilibrage d'un porte-outil a pour but de mieux répartir les masses des différents éléments, ceci afin d'éviter que la force centrifuge soit supérieure à la valeur limite admissible lors d'une rotation à une vitesse donnée (RPM).
L'équilibrage d'un porte-outil consiste à porter le manque d'équilibrage d'origine au grade "G" maximum admissible prescrit par les normes ISO 1940/1.

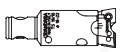
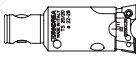
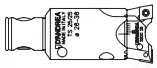
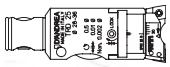
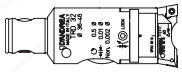
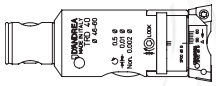
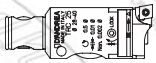
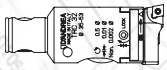
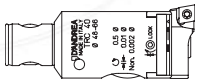
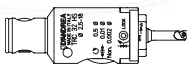
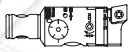
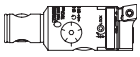
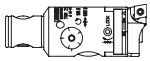
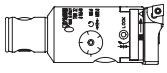
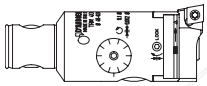
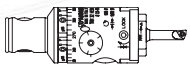
Anelli di bilanciatura

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.

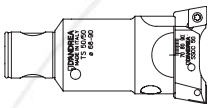
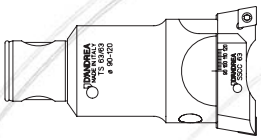
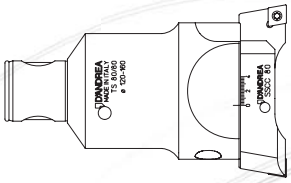
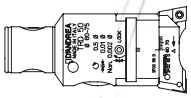
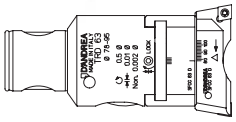
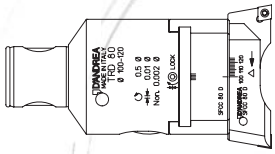
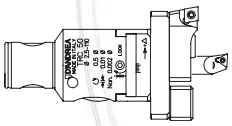
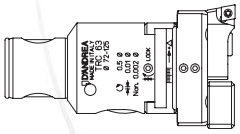
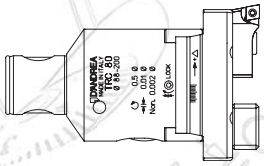
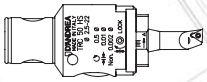
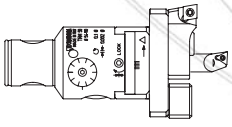
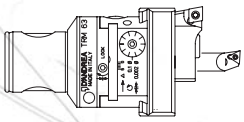
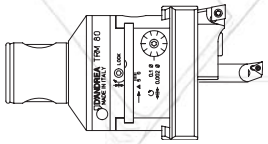
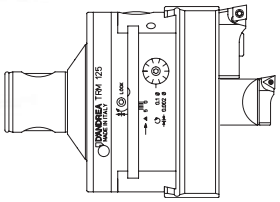
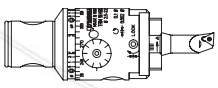
Lo scopo dell'equilibratura di un utensile è quello di migliorare la distribuzione delle masse del suo corpo in modo che esso ruoti senza creare forze centrifughe superiori ad un valore limite ammissibile.
L'operazione di equilibratura consiste nel ridurre lo squilibrio esistente nel portautensile, portandolo entro il valore massimo ammissibile definito dal grado di equilibratura "G" della norma 1940/1.

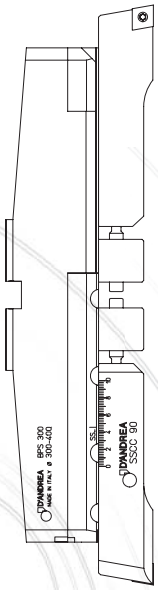


BORING SYSTEM

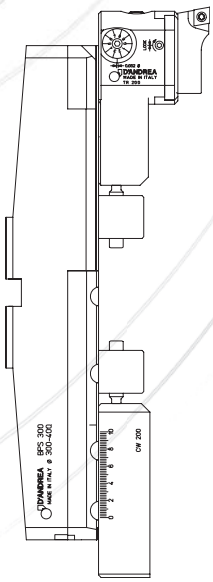
	14	16	20	25	32	40
TS - BPS Ø 18 ~ 800		TS 16/16 Ø 18 ~ 22 	TS 20/20 Ø 22 ~ 28 	TS 25/25 Ø 28 ~ 38 	TS 32/32 Ø 35.5 ~ 50	TS 40/40 Ø 50 ~ 68
TRD Ø 28 ~ 120 **10 µm**				TRD 25 Ø 28 ~ 36 	TRD 32 Ø 36 ~ 46 	TRD 40 Ø 46 ~ 60 
TRC Ø 2.5 ~ 200 **10 µm**	TRC 14 Ø 14.5 ~ 18	TRC 16 Ø 18 ~ 24	TRC 20 Ø 22 ~ 30	TRC 25 Ø 28 ~ 40 	TRC 32 Ø 35 ~ 53 	TRC 40 Ø 48 ~ 66 
TRC HS Ø 2.5 ~ 22 **10 µm**					TRC 32 HS Ø 2.5 ~ 18 	
TRM Ø 2.5 ~ 800 **2 µm**		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 HSB Ø 2.5 ~ 22 **2 µm**					TRM 32 HSB Ø 2.5 ~ 18 	

BORING SYSTEM

50	63	80	125
TS 50/50 Ø 68 ~ 90	**TS 50/63** **TS 63/63** Ø 90 ~ 120	**TS 80/80** Ø 120 ~ 200	
			
TRD 50 Ø 60 ~ 75	**TRD 63** Ø 75 ~ 95	**TRD 80** Ø 95 ~ 120	
			
TRC 50 Ø 2.5 ~ 110	**TRC 63** Ø 72 ~ 125	**TRC 80** Ø 88 ~ 200	
			
TRC 50 HS Ø 2.5 ~ 22			
			
TRM 50 Ø 2.5 ~ 108	**TRM 50/63** **TRM 63/63** Ø 6 ~ 125	**TRM 50/80** **TRM 80/80** Ø 6 ~ 160	**TRM 80/125** Ø 36 ~ 500
			
TRM 50 HSB Ø 2.5 ~ 22			
			



BPS 200 Ø 200 ~ 300
BPS 300 Ø 300 ~ 400
BPS 400 Ø 400 ~ 500
BPS 500 Ø 500 ~ 600
BPS 600 Ø 600 ~ 700
BPS 700 Ø 700 ~ 800



Double-bit heads | Beidseitig schneidende Köpfe | Головки и двурезцовые расточные оправки | Têtes à double tranchant | Testine bitaglienti

COMPONENTS
1. Body
2. Setting screws
3. Expanding pin
4. Coolant outlets
5. Bit holders
6. Tools clamp screws

BAUTEILE
1. Körper
2. Einstellschraube
3. Spreizbolzen
4. Kühlmittelaustrittlöcher
5. Plattenhalter
6. Werkzeugklemm-schrauben

КОМПОНЕНТЫ
1. Корпус
2. Установочный винт
3. Разжимной винт
4. Выходы каналов подачи СОЖ
5. Кассеты
6. Винты крепления кассет

COMPOSANTS
1. Corps
2. Vis de réglage
3. Tige radiale expansible
4. Sortie du liquide d'arrosage
5. Porte-plaquettes
6. Vis blocage outil

COMPONENTI
1. Corpo
2. Vite di regolazione
3. Perno radiale espandibile
4. Fori uscita refrigerante
5. Seggio portainserti
6. Viti bloccaggio utensile

TS

Ø 18 ~ 200

TS 16/16
Ø 18 ~ 22

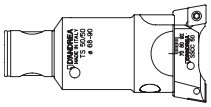
TS 20/20
Ø 22 ~ 28

TS 25/25
Ø 28 ~ 38

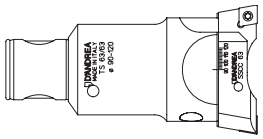
TS 32/32
Ø 35.5 ~ 50

TS 40/40
Ø 50 ~ 68

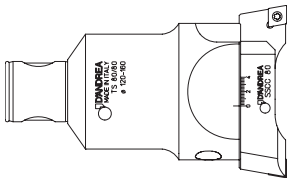
TS 50/50
Ø 68 ~ 90



TS 50/63
TS 63/63
Ø 90 ~ 120



TS 80/80
Ø 120 ~ 200



FEATURES

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.

MERKMALE

Die beidseitig schneidenden Köpfe sind einfach und extrem streif, Dank der großen gezahnten Kontaktflächen zwischen den Einsatzhalterungen und den Köpfen selbst, zusammen mit dem konstanten Abstand zwischen Klemmschraube des Sitzes und Schneide

ОСОБЕННОСТИ

Двурезцовые расточные оправки просты и очень стабильны благодаря зубчатым поверхностям соединения между кассетой и собственно расточной оправкой, а также неизменному расстоянию между зажимным винтом кассеты и режущей кромкой пластины.

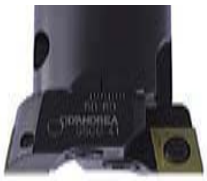
CARACTÉRISTIQUES

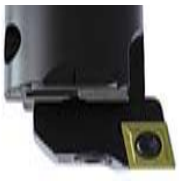
Les têtes à double tranchant sont simples et extrêmement rigides grâce aux grandes surfaces dentelées de contact entre les logements porte plaquette et les têtes elles-mêmes, ainsi qu'à la distance constante entre la vis de serrage du logement et le tranchant.

CARATTERISTICHE

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.

Double-bit heads | Beidseitig schneidende Köpfe | Головки и двурезцовые расточные оправки | Têtes à double tranchant | Testine bitaglienti





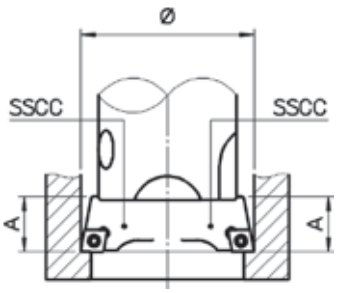


fig.1

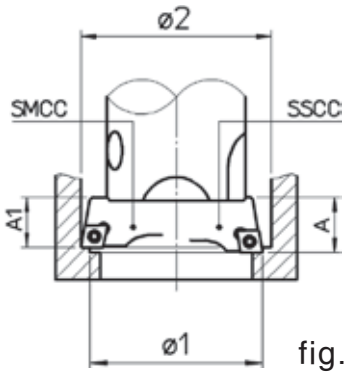


fig.2

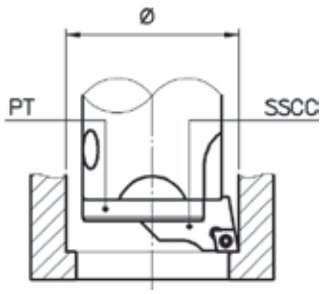


fig.3

Double-bit heads | Beidseitig schneidende Köpfe | Головки и двурезцовые расточные оправки | Têtes à double tranchant | Testine bitaglienti

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:
- (fig. 1) 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.
- (fig. 2) 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.
- (fig. 3) 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.

IMPORTANT NOTE

Bit holders and inserts should be firmly fixed.

In order to protect from the chips the part of the TS serration groove remaining exposed, it is advisable to use a PT protection plate (see page. 96).

EINSATZ

Die Durchmessereinstellung der Wendeplatten ist auf einem Maschinenwerkzeug-voreinstellgerät vorzunehmen.

Mit zwei Plattenhaltern werden die Bohrstangen für Schrupparbeiten mit starker Spanabnahme verwendet. Diese Bohrstangen können umfassen:
- (Abb. 1) zwei Plattenhalter SSCC auf gleicher Höhe mit der Schneidkante der Wendeplatten auf gleichem Durchmesser einstellen. Für Schrupparbeiten mit großem Vorschub.
- (Abb. 2) je einen Plattenhalter SSCC und SMCC auf verschiedener Höhe mit der Schneidkante der Wendeplatten auf verschiedenem Durchmesser einstellen für Schrupparbeiten mit großer Spantiefe.
- (Abb. 3) mit einem Plattenhalter werden die Bohrstangen für Schlicht- und Schrupparbeiten mit normaler Spanabnahme verwendet. PT Schutzplatte für die Kerbzahnfläche immer aufsetzen.

WICHTIGER HINWEIS

Bitte prüfen Sie, ob die Plattenhalter und Wendeplatten sicher festgespannt sind.

Zum Schutz der TS Kerbzahnfläche empfiehlt es sich die Anbringung der PT Schutzplatte (siehe seite 96).

ИСПОЛЬЗОВАНИЕ

Радиальная настройка режущих кромок должна выполняться на специальном устройстве.

Расточные оправки оснащены двумя кассетами для черновых операций с большим количеством снимаемого материала. Двурезцовые расточные оправки могут быть использованы следующим образом:
- (рис.1) с двумя кассетами SSCC, установленными в одной плоскости, соответственно с двумя пластинами, установленными с одинаковым радиальным вылетом,- для черновых операций с большим значением подачи;
- (рис.2) с кассетой SSCC и кассетой SMCC, установленными на разных уровнях, соответственно с двумя пластинами, установленными с разным радиальным вылетом,- для черновых операций с большой глубиной резания;
- (рис.3) с одной кассетой, для черновых и чистовых операций с нормальным количеством снимаемого материала. Пластина PT для предохранения зубчатой поверхности также должна быть установлена.

ВНИМАНИЕ

Кассеты и пластины на них должны быть надежно закреплены.
Для предохранения от стружки части зубчатой поверхности TS, остающейся открытой, мы рекомендуем использовать защитные пластины PT (см. стр. 96).

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:
- (fig.1) deux porte-plaquettes SSCC dans le même plan avec les coupants réglés sur le même diamètre pour l'ébauchage à haute vitesse d'avance.
- (fig.2) 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.
- (fig.3) 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.

NOTE IMPORTANTE

S'assurer que les porte-plaquettes et les plaquettes sont solidement bloqués.

Pour protéger des copeaux la partie de la tête TS qui reste découverte, il est convenable de monter un cache de protection PT (voir page 96).

IMPIEGO

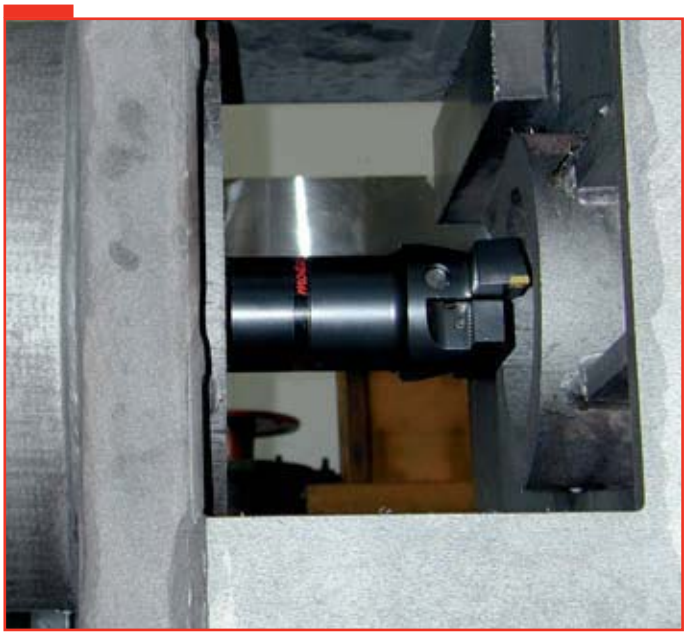
La regolazione diametrale dei taglienti va eseguita su un banco di presetting di utensili.

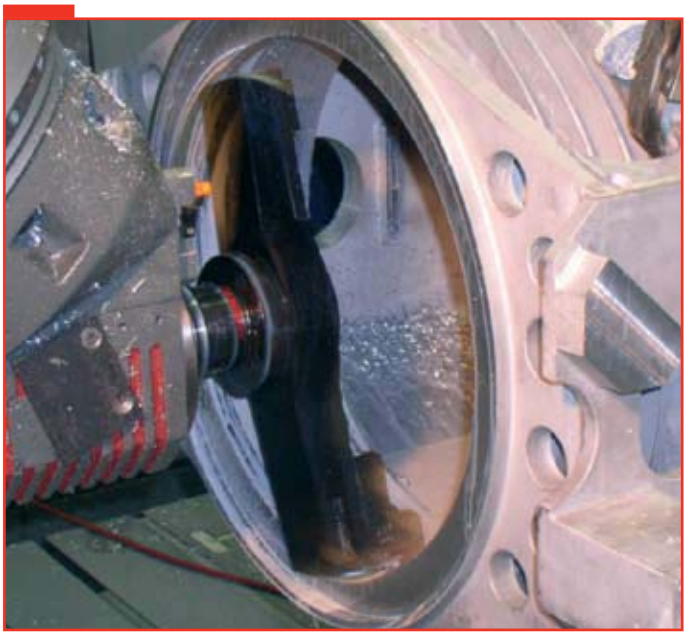
Si utilizzano con due seggi per operazioni di sgrossatura con forti asportazioni.
I bareni bitaglienti possono essere composti con:
- (fig. 1) due seggi SSCC allineati e con la punta degli inserti sullo stesso diametro per operazioni di sgrossatura con forti avanzamenti.
- (fig. 2) un seggio SSCC ed 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) 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.

ATTENZIONE

Assicurarsi che i seggi e gli inserti siano saldamente bloccati.

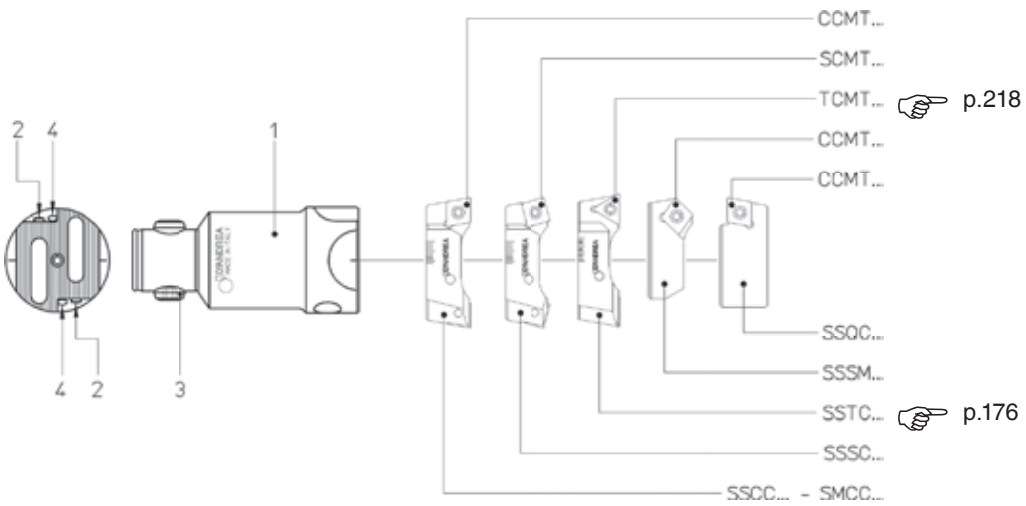
Per proteggere dai trucioli la parte rimasta scoperta dal millerighe della testina TS è opportuno montare una piastrina PT (vedi pag. 96).





TS ....

Ø 18 ~ 200



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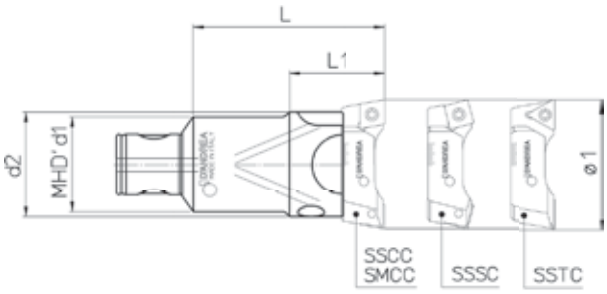

fig.1

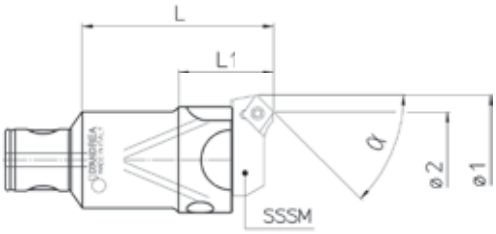

fig.2

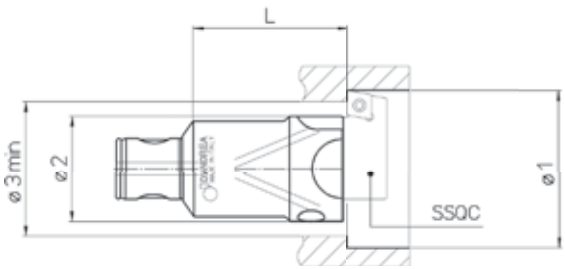

fig.3

fig.3 Ø3 min = (Ø1+Ø2+1) : 2

COMPONENTS
1. Body
2. Setting screws
3. Expanding pin
4. Coolant outlets

BAUTEILE
1. Körper
2. Einstellschraube
3. Spreizbolzen
4. Kühlmittelaustrittlöcher

КОМПОНЕНТЫ
1. Корпус
2. Установочный винт
3. Разжимной винт
4. Выходы каналов подачи СОЖ

COMPOSANTS
1. Corps
2. Vis de réglage
3. Tige radiale expansible
4. Sortie du liquide d'arrosage

COMPONENTI
1. Corpo
2. Vite di regolazione
3. Perno radiale espandibile
4. Fori uscita refrigerante

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fig.1

REF.	CODE	MHD'd_1	d_2	Ø$_1$	L	L_1	S...	⬡	⬢	△	kg
TS 16/16	45 55 016 0034 0	16	16	18 ~ 22	34	–	S... 16	•	–	–	0.05
TS 20/20	45 55 020 0040 0	20	20	22 ~ 28	40		S... 20	•	–	–	0.09
TS 25/25	45 55 025 0050 0	25	25	28 ~ 38	50		S... 25	•	–	–	0.2
TS 32/32	45 55 032 0063 0	32	32	35.5 ~ 50	63		S...32-33	•	•	–	0.35
TS 40/40	45 55 040 0080 0	40	40	50 ~ 68	80		S... 40-41	•	•	–	0.7
TS 50/50	45 53 050 0100 0	50	55	68 ~ 90	100	50	S... 50	•	•	–	1.5
TS 50/63	45 53 063 0080 0		72	90 ~ 120	80	60	S... 63	•	•	•	2
TS 63/63	45 53 063 0125 0	63			125	63					3
TS 80/80	45 54 080 0140 0	80	95	120 ~ 160	140	75	S... 80	•	•	•	5.3
				160 ~ 200			S... 90				

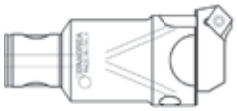


fig.2

REF.	CODE	MHD'd_1	d_2	Ø$_1$	Ø$_2$	α	L	L_1	SSSM ..	⬢	kg
TS 25/25	45 55 025 0050 0	25	25	26 ~ 38	23 ~ 35	15°	50	–	SSSM 25-15°	•	0.2
					19.5 ~ 31.5	30°			SSSM 25-30°		
					17.5 ~ 29.5	45°			SSSM 25-45°		
TS 32/32	45 55 032 0063 0	32	32	34.5 ~ 49	31.5 ~ 46	15°	63		SSSM 32-15°	•	0.35
					28 ~ 42.5	30°			SSSM 32-30°		
					26 ~ 40.5	45°			SSSM 32-45°		
TS 40/40	45 55 040 0080 0	40	40	46.5 ~ 66	41.5 ~ 61	15°	80		SSSM 40-15°	•	0.7
					37 ~ 56.5	30°			SSSM 40-30°		
					33.5 ~ 53	45°			SSSM 40-45°		
TS 50/50	45 53 050 0100 0	50	55	65 ~ 88	58.5 ~ 81.5	15°	100	50	SSSM 50-15°	•	1.5
					52 ~ 75	30°			SSSM 50-30°		
					47 ~ 77	45°			SSSM 50-45°		

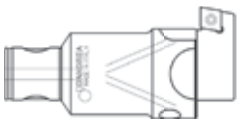
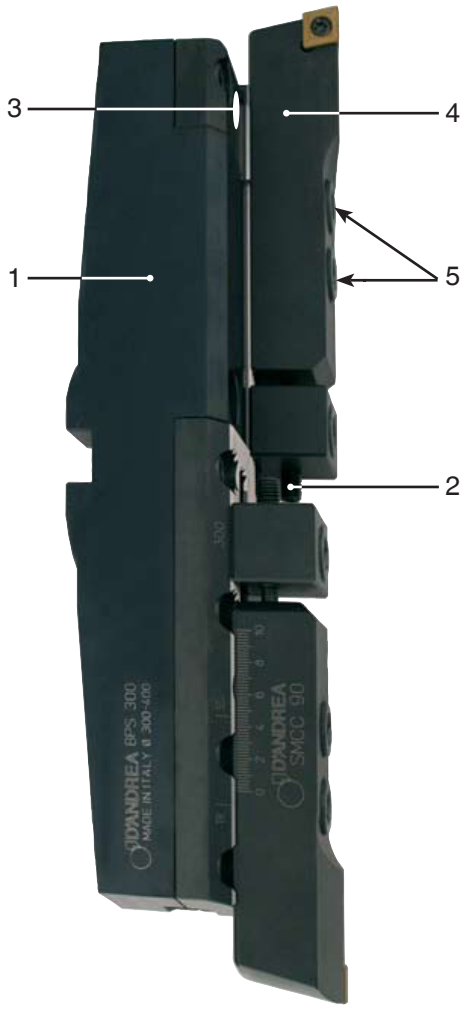


fig.3

REF.	CODE	MHD'd_1	Ø$_1$	Ø$_2$	L	SSQC ..	⬢	kg
TS 16/16	45 55 016 0034 0	16	20 ~ 24	16	27.5	SSQC 16	•	0.05
TS 20/20	45 55 020 0040 0	20	23.5 ~ 30	20	32.5	SSQC 20	•	0.09
TS 25/25	45 55 025 0050 0	25	29.5 ~ 40	25	39	SSQC 25	•	0.2
TS 32/32	45 55 032 0063 0	32	39 ~ 52	32	50	SSQC 33	•	0.35
TS 40/40	45 55 040 0080 0	40	51 ~ 70	40	63.5	SSQC 41	•	0.7
TS 50/50	45 53 050 0100 0	50	69 ~ 92	55	80.5	SSQC 50	•	1.5
TS 50/63	45 53 063 0080 0		91 ~ 122	72	55.5	SSQC 63	•	2
TS 63/63	45 53 063 0125 0	63			100.5			3
TS 80/80	45 54 080 0140 0	80	121 ~ 162	95	110.5	SSQC 80	•	5.3
			161 ~ 202			SSQC 90	•	

ALUMINIUM TOOLS LINE



COMPONENTS
1. Body
2. Setting screws
3. Coolant outlets
4. Bit holders
5. Tools clamp screws

BAUTEILE
1. Körper
2. Einstellschraube
3. Kühlmittelaustrittlöcher
4. Plattenhalter
5. Werkzeugklemm-schrauben

КОМПОНЕНТЫ
1. Корпус
2. Установочные винты
3. Выходы каналов подачи СОЖ
4. Кассеты
5. Винты крепления кассет

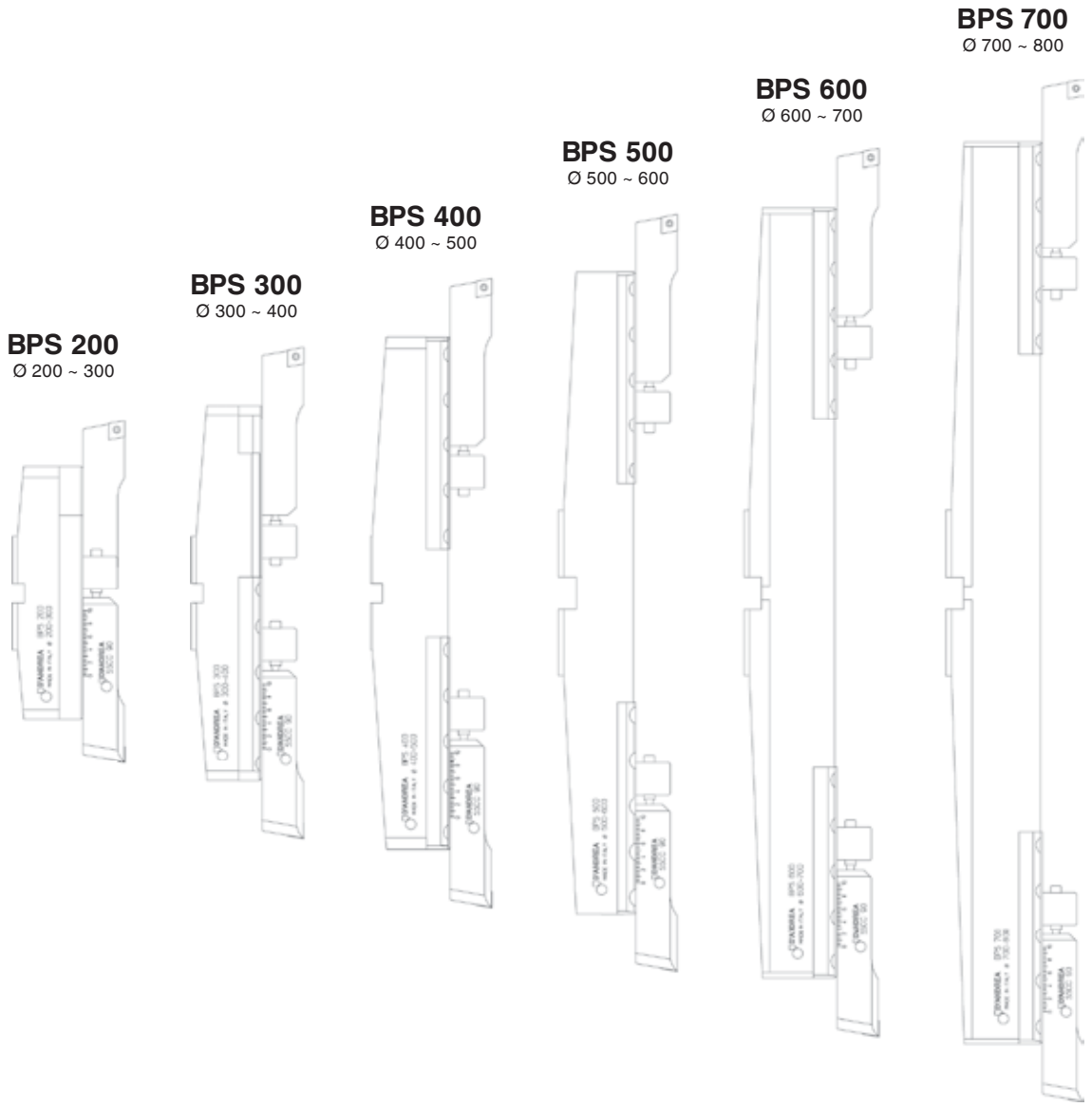
COMPOSANTS
1. Corps
2. Vis de réglage
3. Sortie du liquide d'arrosage
4. Porte-plaquettes
5. Vis blocage outil

COMPONENTI
1. Corpo
2. Vite di regolazione
3. Fori uscita refrigerante
4. Seggio portainserti
5. Viti bloccaggio utensile

ALUMINIUM TOOLS LINE

BPS

Ø 200 ~ 800



FEATURES

The BPS double-bit crossbars cover a working area from ø 200 -800 mm.
The BPS double-bit crossbars are constructed in alluminum and mounted on a steel double-bit plate.

MERKMALE

Die Sitzhalterungsbalken BPS bedecken ein Arbeitsfeld von ø 200 - 800 mm.
Die Sitzhalterungsbalken BPS bestehen aus Aluminium auf welches die Sitzhalterungsplatte aus Stahl befestigt wird.

ОСОБЕННОСТИ

Двурезцовые штанги BPS перекрывают диапазон от 200 до 800 мм. Корпуса штанг изготовлены из специального алюминиевого сплава и усилены стальными пластинами, на которых крепятся расточные кассеты.

CARACTÉRISTIQUES

Les barres porte logement BPS couvrent un intervalle de travail de 200 - 800 mm de diamètre.
Les barres porte logement BPS sont réalisées en aluminium sur lequel est fixée la plaquette porte logement en acier

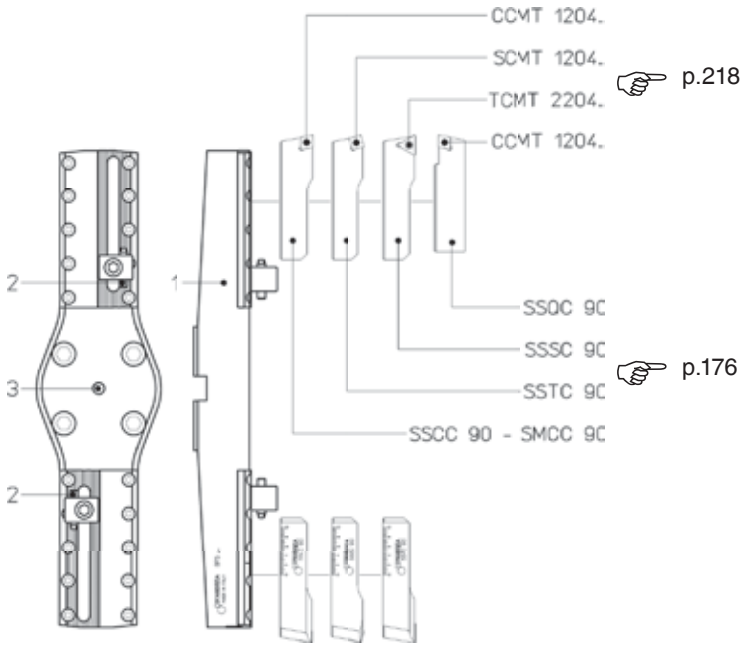
CARATTERISTICHE

La barre portaseggio BPS coprono un campo di lavoro da ø 200 - 800 mm.
Le barreportaseggio BPS sono costruite in alluminio sul quale viene fissata la piastra portaseggio in acciaio.

ALUMINIUM TOOLS LINE

BPS ...

Ø 200 ~ 800



92

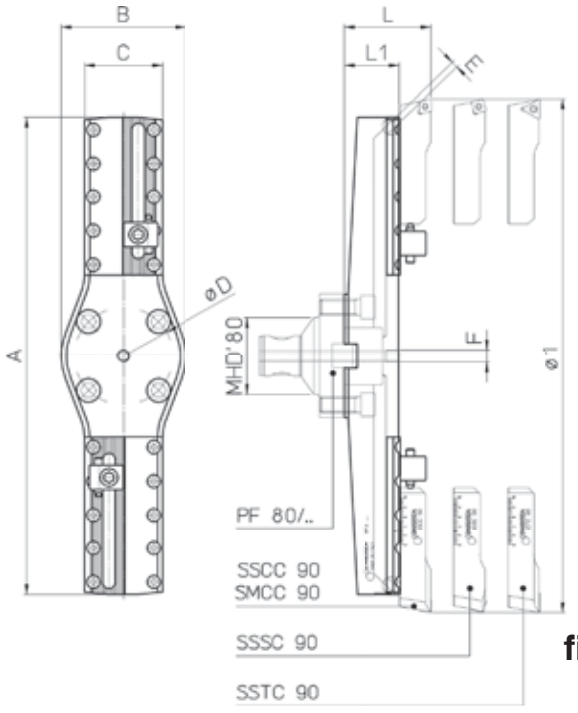


fig.1

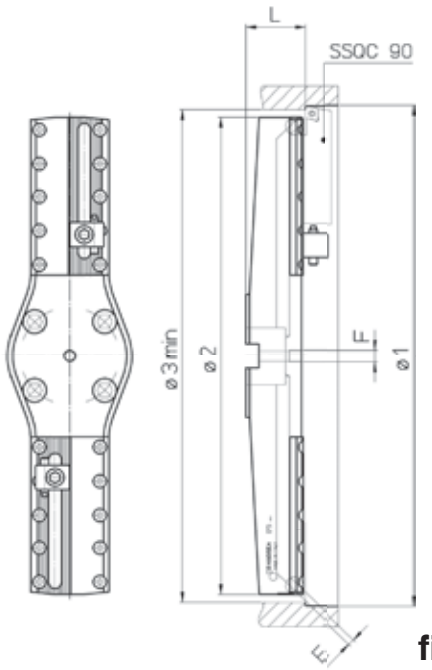


fig.2

fig.2 Ø3 min = (Ø1+Ø2+1) : 2

COMPONENTS
1. Body
2. Setting screws
3. Coolant outlets

BAUTEILE
1. Körper
2. Einstellschraube
3. Kühlmittelaustrittlöcher

КОМПОНЕНТЫ
1. Корпус
2. Установочные винты
3. Выходы каналов подачи СОЖ

COMPOSANTS
1. Corps
2. Vis de réglage
3. Sortie du liquide d'arrosage

COMPONENTI
1. Corpo
2. Vite di regolazione
3. Fori uscita refrigerante

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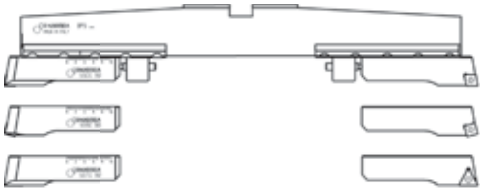
BPS

D'ANDREA

Double-bit boring crossbars | Zweischneiderbohrschienen | Двурезцовые расточные штанги | Semelles d'alésage à deux coupants | Barre portaseggio bitaglienti

fig.1



PF 80/.. excluded | Ohne PF 80/.. | Без PF 80/.. | Sauf PF 80/.. | PF 80/.. escluso

REF.	CODE	Ø1	A	L	L1	B	C	øD	øE	F	PF..	S...	kg
BPS 200	43 55 40 88 198 0	200 ~ 300	194	86	54	–	80	66.7	2.5	–	PF 80/40	SSCC 90	3.2
BPS 300	43 55 40 88 298 0	300 ~ 400	288										3.9
BPS 400	43 55 40 88 398 0	400 ~ 500	394	93	61				–	1/4 GAS		SMCC 90	6.9
BPS 500	43 55 60 88 494 0	500 ~ 600	494	101	69	128		101.6			PF 80/60	SSSC 90	9.4
BPS 600	43 55 60 88 594 0	600 ~ 700	594	103	71							SSTC 90	9.9
BPS 700	43 55 60 88 694 0	700 ~ 800	694	106	74								11.2

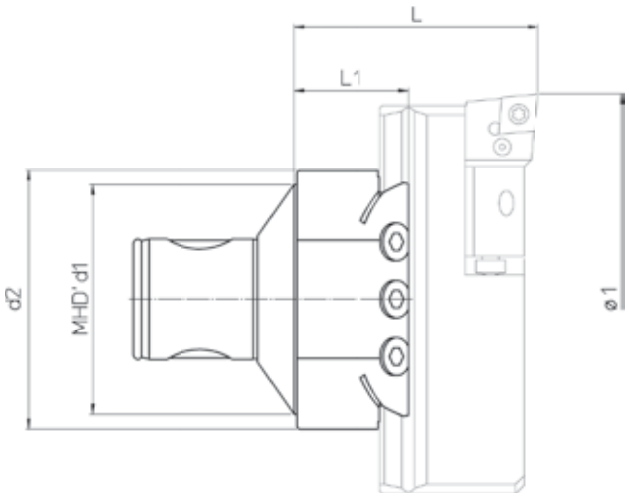
fig.2

PF 80/.. excluded | Ohne PF 80/.. | Без PF 80/.. | Sauf PF 80/.. | PF 80/.. escluso

REF.	CODE	Ø1	Ø2	L	B	C	øD	øE	F	PF..	SSQC	kg
BPS 200	43 55 40 88 198 0	202 ~ 302	194	56.5	–	80	66.7	2.5	–	PF 80/40	SSQC 90	3.2
BPS 300	43 55 40 88 298 0	302 ~ 402	288									3.9
BPS 400	43 55 40 88 398 0	402 ~ 502	394	63.5				–	1/4 GAS			6.9
BPS 500	43 55 60 88 494 0	502 ~ 602	494	71.5	128		101.6			PF 80/60		9.4
BPS 600	43 55 60 88 594 0	602 ~ 702	594	73.5								9.9
BPS 700	43 55 60 88 694 0	702 ~ 802	694	76.5								11.2

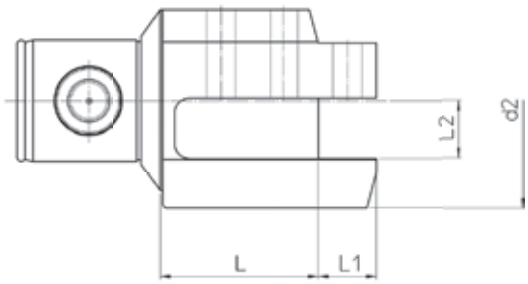
MODULHARD'ANDREA

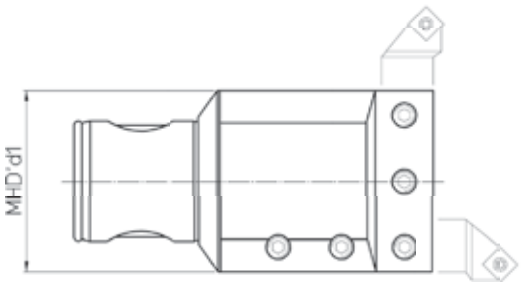
TP



REF.	CODE	MHD' d_1	d_2	Ø$_1$	L	L_1	PC..	kg
TP 80/90.50	46 04 080 50 0 01	80	90	100 ~ 140	85	40	PC 11.50	2.3
				140 ~ 210			PC 12.50	
TP 80/125.50	46 04 080 50 0 02		125	140 ~ 210			PC 12.50	3.2
				210 ~ 310			PC 13.50	
				310 ~ 410			PC 14.50	
				410 ~ 500			PC 15.50	

TU





REF.	CODE	MHD' d_1	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

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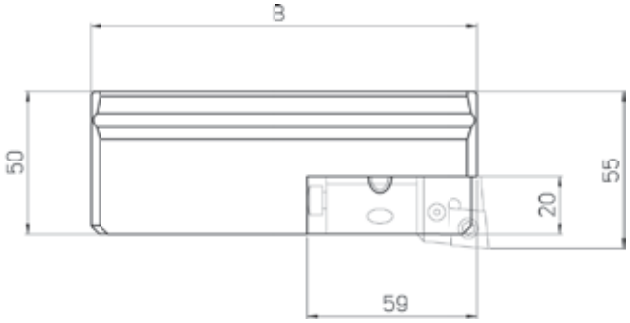
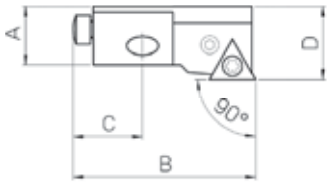
PC

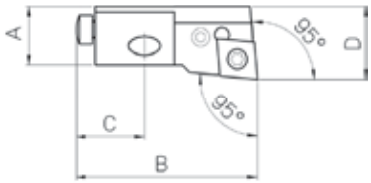


REF.	CODE	B	kg
PC 11.50	43 30 50 16 095 0	95	1.3
PC 12.50	43 30 50 16 135 0	135	2
PC 13.50	43 30 50 16 200 0	200	3.2
PC 14.50	43 30 50 16 300 0	300	4.8
PC 15.50	43 30 50 16 400 0	400	6.3

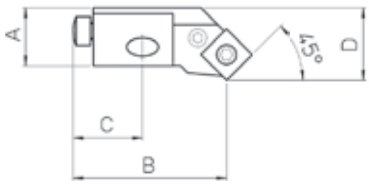
16CA ISO 5611



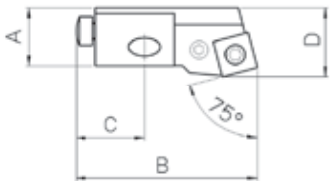
PTGNL 16CA-16



PCLNL 16CA-12



PSSNL 16CA-12



PSRNL 16CA-12

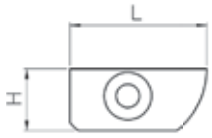
On request | Auf Anfrage | По запросу | Sur demande | Fornibili su richiesta

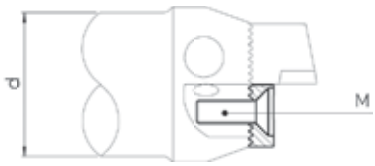
REF.	CODE	A	B	C	D	△
PTGNL 16CA-16	48 3 01 016 1 001	20	63	25	25	TNM. 1604..
PCLNL 16CA-12	48 3 01 016 1 002					CNM. 1204..
PSSNL 16CA-12	48 3 01 016 1 003					SNM. 1204..
PSRNL 16CA-12	48 3 01 016 1 004					SNM. 1204..

MODULHARD'ANDREA

Cover plates | Abdeckplatten | Предохранительные пластины | Caches de protection | Protezioni millerighe

PT

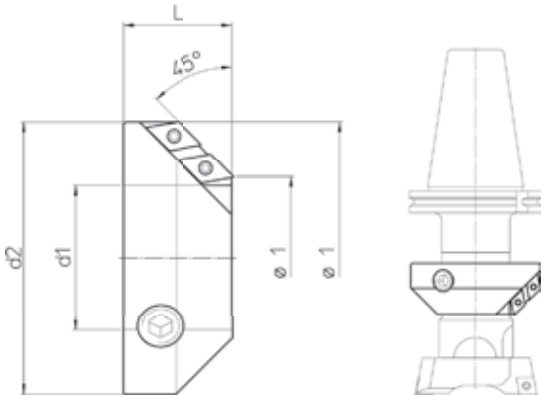




REF.	CODE	d	H	L	M
PT 16	38 47 65 000160	16	7	14	M 3x12
PT 20	38 47 65 000200	20	8.5	17	M 4x14
PT 25	38 47 65 000250	25	10.2	21	M 4x16
PT 32	38 47 65 000320	32	13.9	28	M 5x20
PT 40	38 47 65 000400	40	17.4	35	M 6x25
PT 50	38 47 65 000500	50	21.4	47.5	M 8x25
PT 63	38 47 65 000630	63	26.4	62	M 10x30
PT 80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

Chamfering tools | Fasringe | Инструмент для снятия фасок | Outil à chanfreiner | Anello per smussi

AS...45°



REF.	CODE	Ø$_1$	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	22 ~ 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 T25	2.3
AS 80.45	65 56 080 0058 0	95 ~ 165	80	165	58				5.2

MODULHARD'ANDREA

Testarossa | Testarossa | Микрометрические расточные головки Testarossa | Testarossa | Testarossa

FEATURES

The wide range of TRD - TRC testarossa heads is D'ANDREAs solution or finidhing in a field from 2,5 to 200 mm in diameter.

MERKMALE

Die vielzählige Reihe der Testarossa Köpfe TRD - TRC ist die Lösung D'ANDREA für Fertigbearbeitungen in einem Durchmesserbereich von 2,5 bis 200 mm.

ОСОБЕННОСТИ

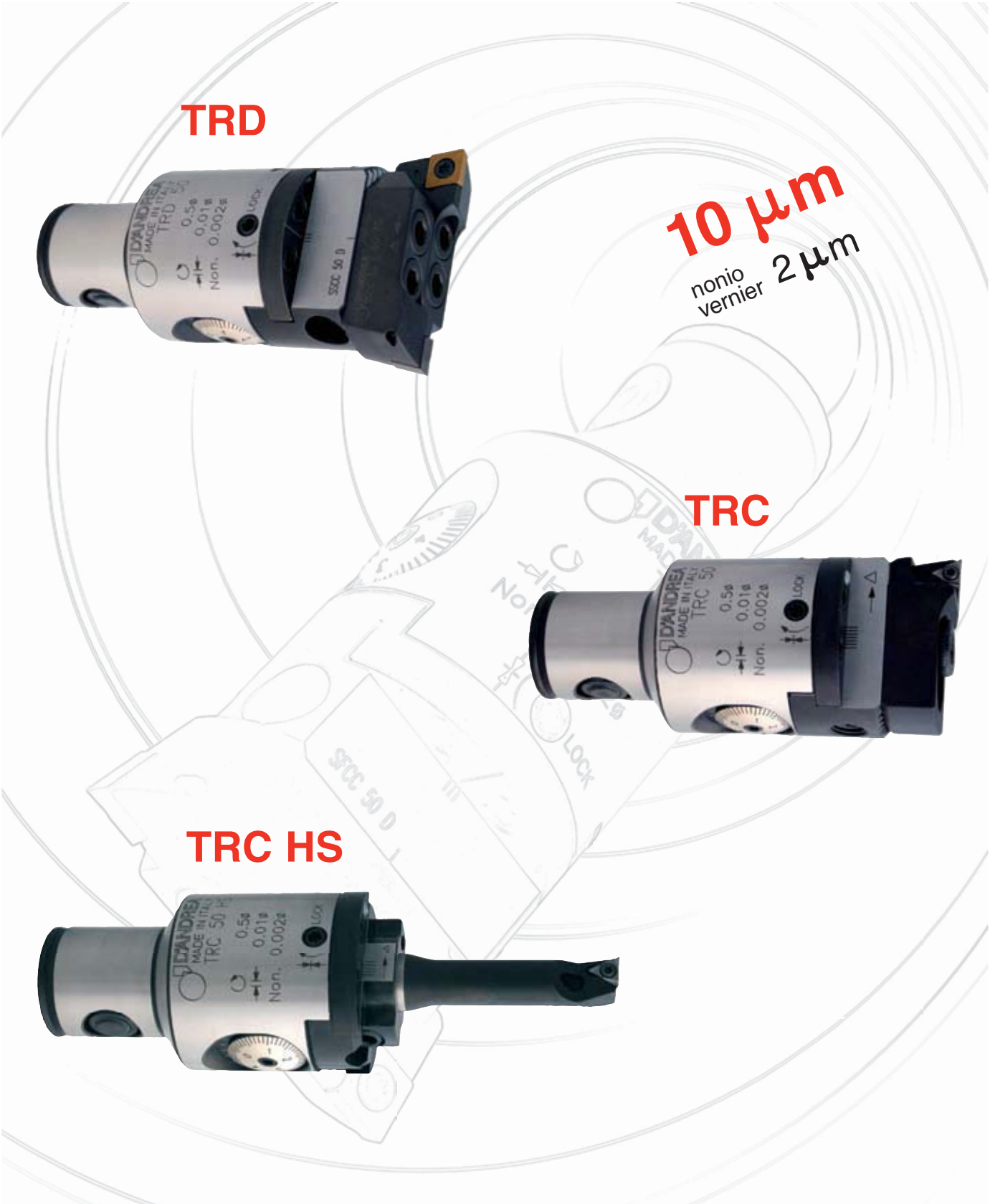
Для чистовой расточки отверстий от 2,5 до 200 мм D'Andrea предлагает широкий диапазон головок TRD-TRC Testarossa.

CARACTÉRISTIQUES

La vaste gamme des têtes testarossa TRD - TRC est la solution de D'ANDREA pour les finissages comprenant un intervalle de 2.5 à 200 mm de diamètre.

CARATTERISTICHE

La vasta gamma delle teste testarossa TRD - TRC è la soluzione di D'ANDREA per finiture in un campo da 2,5 a 200 mm di diametro.



FEATURES

The wide range of TRM testarossa heads is D'ANDREAs solution or finidhing in a field from 2,5 to 800 mm in diameter.

MERKMALE

Die vielzählige Reihe der Testarossa Köpfe TRM ist die Lösung D'ANDREA für Fertigbearbeitungen in einem Durchmesserbereich von 2,5 bis 800 mm.

ОСОБЕННОСТИ

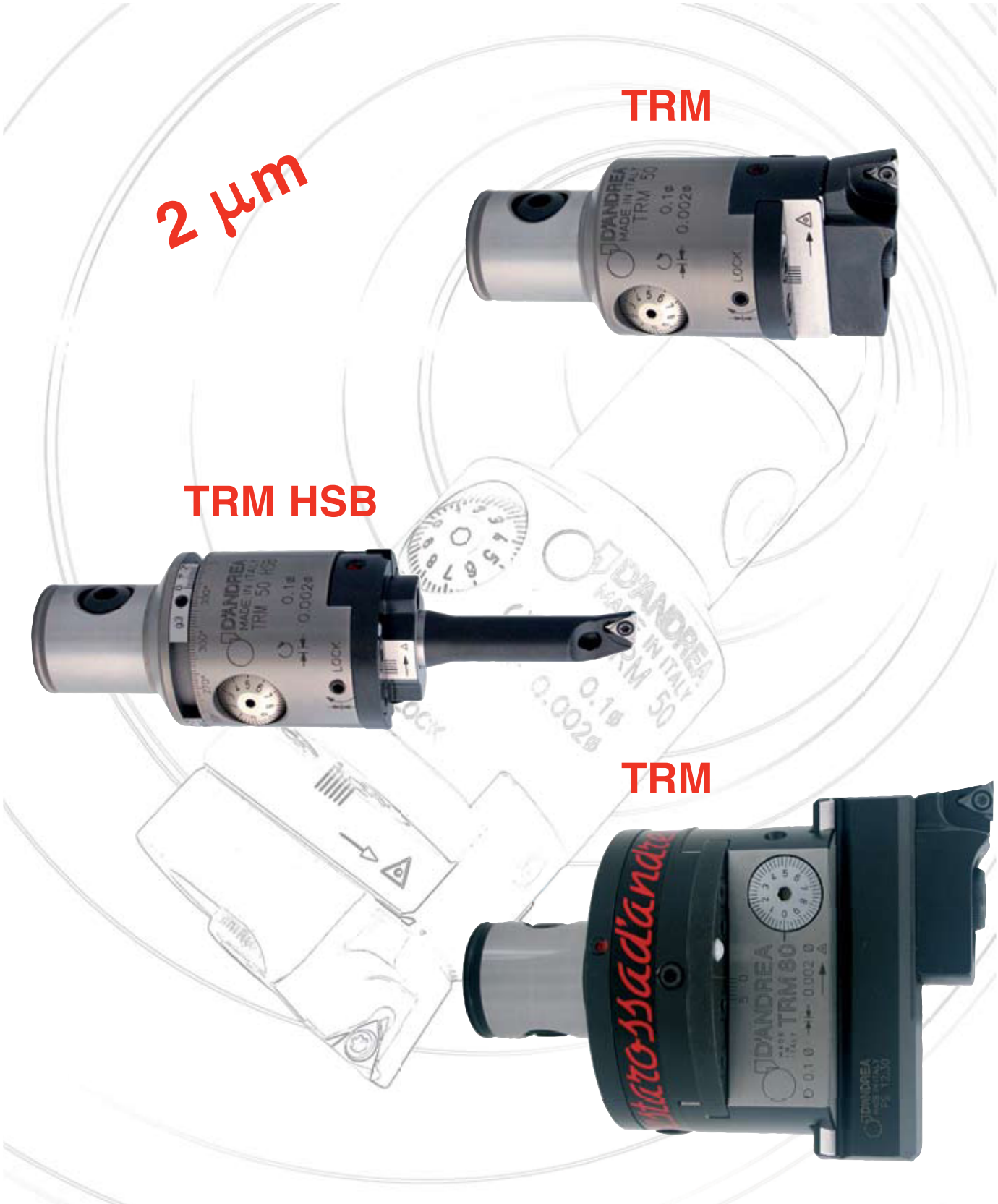
Для чистовой расточки отверстий от 2,5 до 800 мм D'Andrea предлагает широкий диапазон головок TRM Testarossa.

CARACTÉRISTIQUES

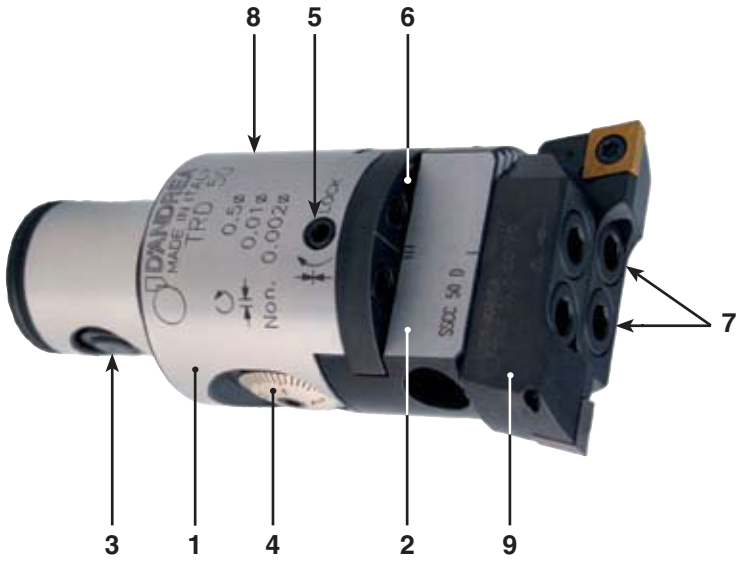
La vaste gamme des têtes testarossa TRM est la solution de D'ANDREA pour les finissages comprenant un intervalle de 2.5 à 800 mm de diamètre.

CARATTERISTICHE

La vasta gamma delle teste testarossa TRM è la soluzione di D'ANDREA per finiture in un campo da 2,5 a 800 mm di diametro.



Double-bit Testarossa | **Testarossa mit beidseitiger Schneide** | **Двухкассетные головки Testarossa** | **Double tranchant Testarossa** | **Testarossa Bitagliente**



Dom. Brev. Dep.
Patent Pending

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.
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.

COMPONENTS

1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Bit holder

MERKMALE

Die beidseitigen Schneideköpfe TRD ermöglichen kombinierte und hochpräzise Vorbearbeitungen und Fertigbearbeitungen Dank deren Steifheit, sowie der Empfindlichkeit des Schlittenverschubes mit Einstellung von 5 Mikron auf dem Radius, ablesbar auf dem Nonius und auch an der Maschine ausführbar.
Die Stärke der TRD liegt in der der unabhängigen Voreinstellung der auf den Schlitten montierten Sitze, welche das gleichzeitige Vor – und Fertigbearbeiten ermöglichen.

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.
9. Plattenhalter

ОСОБЕННОСТИ

Двухрезцовые головки TRD позволяют осуществлять и черновые и высокой точности чистовые операции благодаря своей жесткости и чувствительности механизма салазок, который позволяет достигать радиальной коррекции в 5 микрон.
Корректировка может быть осуществлена прямо на станке и легко считана по шкале нониуса.
Основным преимуществом головок TRD является независимая предварительная регулировка кассет, установленных на салазках.

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Держатель кассеты

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.
Le paragraphe fort des TRD est le pré-réglage indépendant des logements montés sur le chariot qui permettent d'effectuer en même temps des travaux de dégrossissage et de finition.

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Porte-plaquettes

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.
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.

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Seggio portainserti

TRD

Ø 28 ~ 120

TRD 25
Ø 28 ~ 36

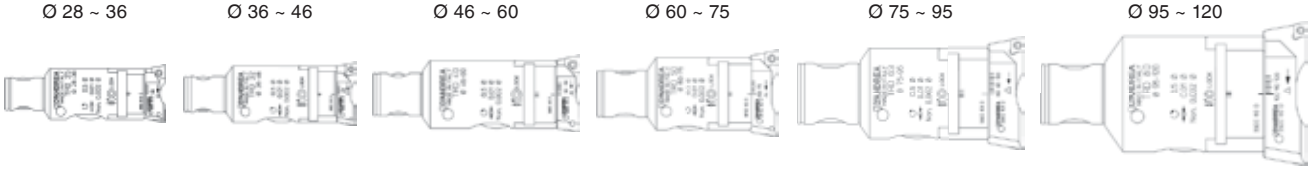
TRD 32
Ø 36 ~ 46

TRD 40
Ø 46 ~ 60

TRD 50
Ø 60 ~ 75

TRD 63
Ø 75 ~ 95

TRD 80
Ø 95 ~ 120



10 µm

nonio vernier 2 µm

Dom. Brev. Dep.
Patent Pending

IMPORTANT NOTE

- Take care that the tools and tool holders are solidly blocked on the slide. The only manoeuvring or adjusting screws to be used for the operations for the heads are those listed in the Components section.
- The screws not listed in the Components section should not be touched in order not to compromise the correct operation of boring bars and heads.
- The SSCC and SFTP bit holders should be assembled with the insert turned on the same direction nut (5). The SFCC and SFTP bit holders should be assembled with the insert opposite to the SSCC bit holder (see photo).
- Remember to loosen the screw (5) before the vernier setting(4). Fix the screw (5) at the end of the adjustment.

  The micrometric adjustment of POSITIVE is carried out by turning the vernier (4) counter-clockwise.

  The use of coolant on theTRD double-bit heads should be 40 BAR max.

WICHTIGER HINWEIS

- Sicherstellen, dass Werkzeuge und Werkzeughalterungen fest auf dem Schlitten angebracht sind. Die Manöver oder Einstellungsschrauben, welche für den Einsatz der Köpfe dienen, sind nur jene im Punkt Komponenten angegebene.
- Die nicht im Punkt Komponenten angegebenen Schrauben, dürfen nicht berührt werden, um die gute Funktion der Köpfe nicht zu beeinträchtigen.
- Der Sitz SSCC muss mit dem Einsatz gegen dieselbe Seite der Schraube (5) montiert werden.Die Sitze SFCC und SFTP müssen mit dem Einsatz in Entgegengesetzter Richtung des Sitzes SSCC montiert werden (siehe Abbildung)
- Sicherstellen, dass die Schraube (5) vor einer Einstellung des Nonius (4) gelöst wird. Schraube (5) am Ende der Einstellung wieder anziehen.

  Die mikrometrische POSITIVE Endeinstellung erfolgt durch Drehen in Uhrzeigersinn des Nonius (4).

  Der Einsatz des Kühlmittels auf den beidseitig schneidenden Köpfen TRD darf maximal 40 BAR betragen.

ВНИМАНИЕ

- Убедитесь, что инструменты или державки жестко закреплены в салазках. В качестве маневровых или регулировочных винтов могут быт использованы только перечисленные в разделе «Компоненты».
- Не прикасайтесь к винтам, не перечисленным в разделе «Компоненты», чтобы не нарушить внутренних заводских регулировок и тем самым точности расточных головок и штанг.
- Кассеты SCCC, SFCC и SFTP должны устанавливаться в соответствии с насечкой, выбитой на салазках головок.
- Всегда ослабляйте зажимной винт (5) перед установкой значения нониуса (4). Затяните винт (5) после окончания регулировки.
- Микрометрическая настройка в сторону увеличения размера осуществляется поворотом нониуса против часовой стрелки.
- Использование СОЖ в головках TRD должно осуществляться при максимальном давлении 40BAR.

NOTE IMPORTANTE

- S'assurer que les outils et les porte-outils sont solidement bloqués sur le chariot. Les vis de manœuvre ou de réglage utiles pour l'utilisation des têtes sont seulement celles indiquées au paragraphe Composants.
- Les vis non indiquées au paragraphe Composants ne doivent pas être touchées pour ne pas compromettre le bon fonctionnement des testes.
- Le logement SSCC doit être installé avec la plaquette vers le même coté de la vis (5). Les logements SFCC et SFTP doivent être installés avec la plaquette opposée au logement SSCC (voir la photo).
- Ne pas oublier de desserrer la vis (5) avant d'effectuer un réglage du nonius (4). Bloquer la vis (5) à la fin du réglage.

  Le réglage micrométrique POSITIF est effectué en tournant en sans anti-horaire le nonius (4).

  L'utilisation du réfrigérant sur les têtes à deux tranchants TRD doit être d'un max. de 40 BAR.

ATTENZIONE

- Assicurarsi che utensili e portautensili siano saldamente bloccati sulla slitta. Le viti di manovra o di regolazione utili per l'impiego delle testine sono solo quelle indicate nel punto Componenti.
- Le viti non indicate nel punto Componenti non devono essere toccate per non compromettere il buon funzionamento delle testine.
- Il seggio SSCC deve essere montato con l'inserto rivolto dalla stessa parte della vite (5). I seggi SFCC e SFTP devono essere montati con l'inserto opposto al seggio SSCC (vedere foto).
- Ricordarsi di allentare la vite (5) prima di eseguire una regolazione del nonio (4). Bloccare la vite (5) a fine regolazione.

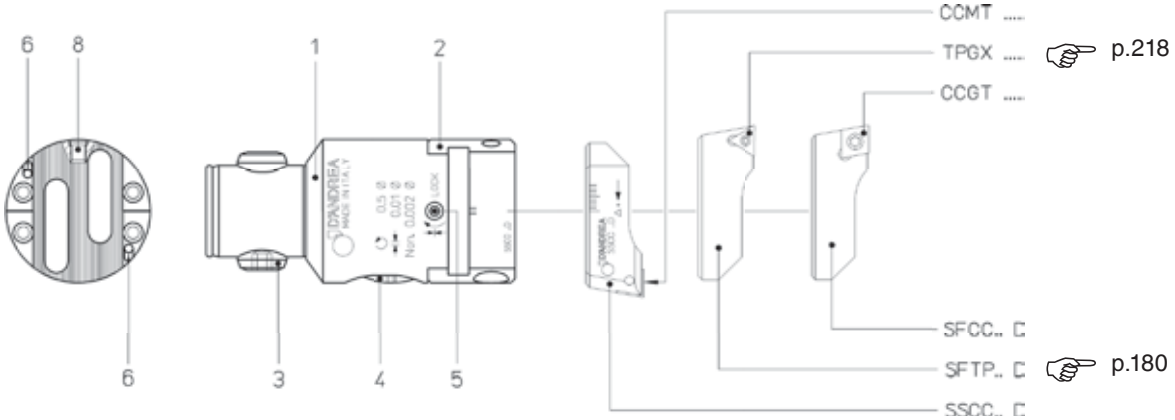
  La regolazione micrometrica POSITIVA si esegue ruotando in senso antiorario il nonio (4).

  L'impiego del refrigerante sulle testine bitaglienti TRD deve essere max. 40 BAR.

Double-bit Testarossa | Testarossa mit beidseitiger Schneide | Двухкассетные головки Testarossa | Double tranchant Testarossa | Testarossa Bitagliente

TRD 25
TRD 32
TRD 40
TRD 50
TRD 63
TRD 80

102



COMPONENTS

1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
8. Oiler

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
8. Schmiernippel Bohrstangen.

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
8. Масленка

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
8. Graisseur

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
8. Oliatore

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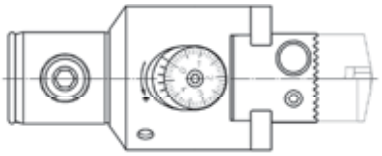
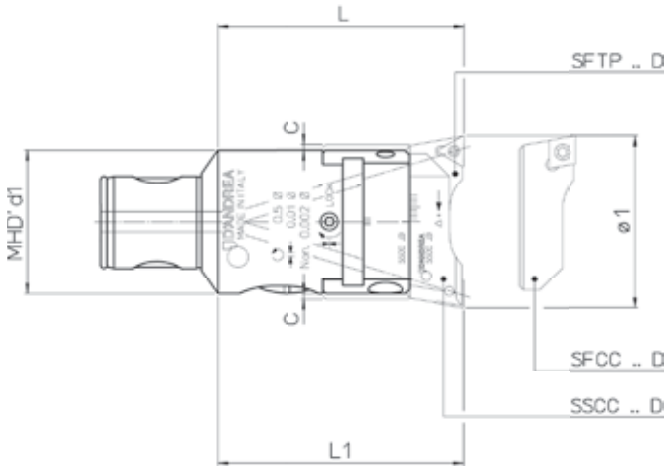
TRD 25
TRD 32
TRD 40
TRD 50
TRD 63
TRD 80

Ø 28 ~ 120





REF.	CODE	Ø1	MHD' d1	L	L1	C	S.... D			kg
TRD 25	45 50 225 0057 0	28 ~ 36	25	56.5	56.3	± 0.5	S... 25 D	•	•	0.2
TRD 32	45 50 232 0071 0	36 ~ 46	32	71	70.8	± 0.5	S... 32 D	•	•	0.35
TRD 40	45 50 240 0090 0	46 ~ 60	40	90	89.8	± 1	S... 40 D	•	•	0.7
TRD 50	45 50 250 0086 0	60 ~ 75	50	87	86.8	± 1	S... 50 D	•	•	1.5
TRD 63	45 50 263 0108 0	75 ~ 95	63	109	108.8	± 2	S... 63 D	•	•	2.7
TRD 80	45 50 280 0129 0	95 ~ 120	80	130	129.8	± 2	S... 80 D	•	•	4.8

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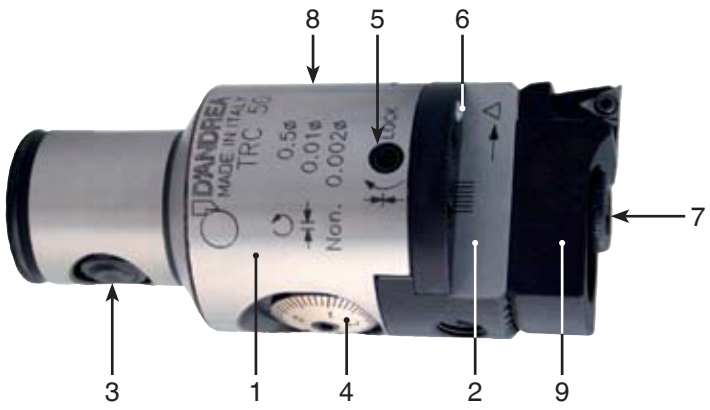


FEATURES

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.

COMPONENTS

1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Bit holder

MERKMALE

Die Köpfe TRC ermöglichen hochpräzise Bearbeitungen mit Tolleranzen Grad IT6 und hochwertiger Oberflächenbearbeitung. Sie besitzen eine Einstellungsfeinheit von 5 Mikron auf dem Radius, leicht auf dem Nonius ablesbar und auch in der Maschine ausführbar.

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.
9. Plattenhalter

ОСОБЕННОСТИ

Высокая точность обработки по классу точности IT6 с исключительно чистотой поверхности достигается при использовании расточных головок TRC и микрометрических расточных головок. Они очень чувствительны и радиальная коррекция в 5 микрон может быть осуществлена прямо на станке и легко считана со шкалы нониуса.

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Держатель кассеты

CARACTÉRISTIQUES

Les têtes TRC permettent des travaux de haute précision avec des tolérances de degré IT6 comprenant une finition superficielle optimum. Elles ont une sensibilité de réglage de 5 microns sur le rayon, facilement lisible sur le nonius et exécutable même en machine

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Porte-plaquettes

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.

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Seggio portainserti

TRC

Ø 2.5 ~ 200

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 72 ~ 125

TRC 80
Ø 88 ~ 200

10 µm
nonio vernier **2 µm**

IMPORTANT NOTE

- Take care that the tools and tool holders are blocked on the slide.
  The only maneuvering and adjustment screws to be used are those listed in the Components section.
- The screws not listed in the Components section should not be touched in order not to compromise the correct operation of boring bars and heads.
- Bit holders and boring bars should be assembled with the insert turned on the same direction as the screw (5) (see photo).
- Remember to loosen the screw (5) before adjusting the vernier setting(4). Block the screw (5) at the end of the adjustment.

  The micrometric adjustment of POSITIVE is carried out by turning the vernier (4) counter-clockwise.

  The use of coolant on the TRC double-bit heads should be 40 BAR max.

WICHTIGER HINWEIS

- Sicherstellen, dass Werkzeuge und Werkzeughalterungen fest auf dem Schlitten angebracht sind. Die Manöver oder Einstellungsschrauben, welche für den Einsatz der Köpfe dienen, sind nur jene im Punkt Komponenten angegebene.
- Die nicht im Punkt Komponenten angegebenen Schrauben, dürfen nicht berührt werden, um die gute Funktion der Köpfe nicht zu beeinträchtigen.
- Sitze und Bohrer müssen mit dem Einsatz gegen dieselbe Seite der Schraube (5) montiert werden.
- Sicherstellen, dass die Schraube (5) vor einer Einstellung des Nonius (4) gelöst wird. Schraube (5) am Ende der Einstellung wieder anziehen.

  Die mikrometrische POSITIVE Endeinstellung erfolgt durch Drehen in Uhrzeigersinn des Nonius (4).

  Der Einsatz des Kühlmittels auf den beidseitig schneidenden Köpfen TRC darf maximal 40 BAR betragen.

ВНИМАНИЕ

- Убедитесь, что инструменты или державки жестко закреплены в салазках. В качестве маневровых или регулировочных винтов могут быт использованы только перечисленные в разделе «Компоненты».
- Не прикасайтесь к винтам, не перечисленным в разделе «Компоненты», чтобы не нарушить внутренних заводских регулировок и тем самым точности расточных головок и штанг.
- Направление режущей пластины у кассет и оправок должно соответствовать маркировке, выбитой на салазках головки.
- Всегда ослабляйте зажимной винт (5) перед установкой значения нониуса (4). Затяните винт (5) после окончания регулировки.
- Микрометрическая настройка в сторону увеличения размера осуществляется поворотом нониуса против часовой стрелки.
- Использование СОЖ в головках TRD должно осуществляться при максимальном давлении 40BAR.

NOTE IMPORTANTE

- S'assurer que les outils et les porte-outils sont solidement bloqués sur le chariot. Les vis de manœuvre ou de réglage utiles pour l'utilisation des têtes sont seulement celles indiquées au paragraphe Composants.
- Les vis non indiquées au paragraphe Composants ne doivent pas être touchées pour ne pas compromettre le bon fonctionnement des testes.
- Les logements et les barres d'alésage doivent être installés avec la plaquette vers le même coté de la vis (5) (voir la photo)
- Se rappeler de desserrer la vis (5) avant d'effectuer un réglage du nonius (4). Bloquer la vis (5) à la fin du réglage.

  Le réglage micrométrique POSITIF est effectué en tournant en sans anti-horaire le nonius (4).

  L'utilisation du réfrigérant sur les têtes TRC doit être max. 40 BAR

ATTENZIONE

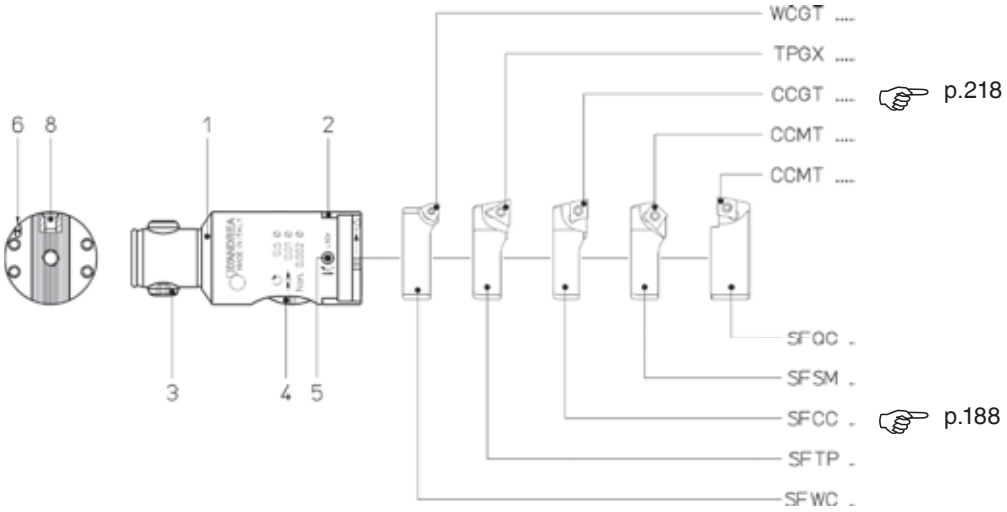
- Assicurarsi che utensili e portautensili siano saldamente bloccati sulla slitta. Le viti di manovra o di regolazione utili per l'impiego delle testine sono solo quelle indicate nel punto Componenti.
- Le viti non indicate nel punto Componenti non devono essere toccate per non compromettere il buon funzionamento delle testine.
- Seggi e bareni devono essere montati con l'inserto rivolto dalla stessa parte della vite (5) (vedere foto).
- Ricordarsi di allentare la vite (5) prima di eseguire una regolazione del nonio (4). Bloccare la vite (5) a fine regolazione.

  La regolazione micrometrica POSITIVA si esegue ruotando in senso antiorario il nonio (4).

  L'impiego del refrigerante sulle testine TRC deve essere max. 40 BAR.

TRC 14
TRC 16
TRC 20
TRC 25
TRC 32
TRC 40

Ø 14.5 ~ 66



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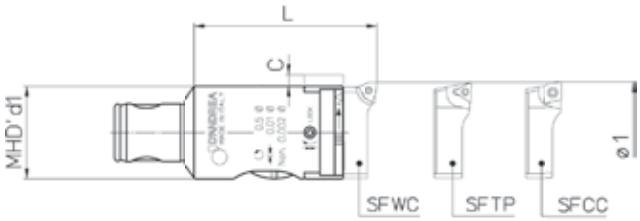

fig.1

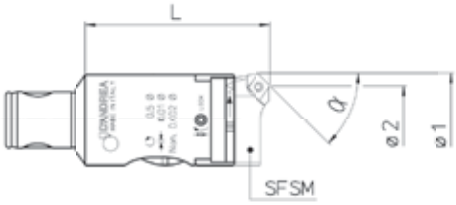

fig.2

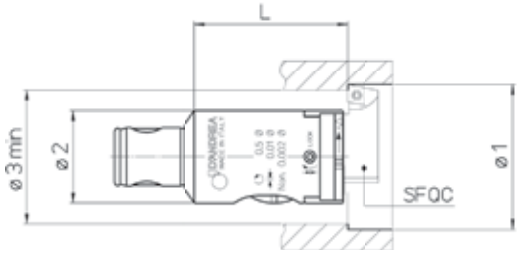

fig.3

fig.3 Ø3 min = (Ø1+Ø2+1) : 2

COMPONENTS
1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
8. Oiler

BAUTEILE
1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
8. Schmiernippel Bohrstangen.

КОМПОНЕНТЫ
1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Выходное отверстие канала подачи СОЖ
8. Масленка

COMPOSANTS
1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
8. Graisseur

COMPONENTI
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
8. Oliatore

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fig.1

REF.	CODE	MHD'd_1	Ø$_1$	L	C	SF..				kg
TRC 14	45 50 114 0030 0	14	14.5 ~ 18	30	1	SFWC 14	•	–	–	0.02
TRC 16	45 50 116 0034 0	16	18 ~ 24	34	1.5	SF.. 16	–	–	•	0.05
TRC 20	45 50 120 0040 0	20	22 ~ 30	40	2.5	SF.. 20	–	–	•	0.1
TRC 25	45 50 125 0050 0	25	28 ~ 40	50	3	SF.. 25	–	•	•	0.2
TRC 32	45 50 132 0063 0	32	35 ~ 53	63	4	SF.. 32	–	•	•	0.35
TRC 40	45 50 140 0080 0	40	48 ~ 66	80	5	SF.. 40	–	•	•	0.7

fig.2

REF.	CODE	MHD'd_1	Ø$_1$	Ø$_2$	α	L	C	SFSM ..		kg
TRC 25	45 50 125 0050 0	25	26.5 ~ 39.5	23 ~ 37	15°	50	3	SFSM 25-15°	•	0.2
				20 ~ 34	30°			SFSM 25-30°		
				18 ~ 32	45°			SFSM 25-45°		
TRC 32	45 50 132 0063 0	32	34 ~ 52	30.5 ~ 48.5	15°	63	4	SFSM 32-15°	•	0.35
				27.5 ~ 45.5	30°			SFSM 32-30°		
				25 ~ 42.5	45°			SFSM 32-45°		
TRC 40	45 50 140 0080 0	40	44.5 ~ 65.5	40 ~ 60.5	15°	80	5	SFSM 40-15°	•	0.7
				35.5 ~ 56.5	30°			SFSM 40-30°		
				32 ~ 52.5	45°			SFSM 40-45°		

fig.3

REF.	CODE	MHD'd_1	Ø$_1$	Ø$_2$	L	C	SFQC ..		kg
TRC 16	45 50 116 0034 0	16	20 ~ 26	16	27.5	1.5	SFQC 16	•	0.05
TRC 20	45 50 120 0040 0	20	24.5 ~ 33	20	33.5	2.5	SFQC 20	•	0.1
TRC 25	45 50 125 0050 0	25	31.5 ~ 42.5	25	41.5	3	SFQC 25	•	0.2
TRC 32	45 50 132 0063 0	32	38.5 ~ 53.5	32	53	4	SFQC 32	•	0.35
TRC 40	45 50 140 0080 0	40	50.5 ~ 67	40	68	5	SFQC 40	•	0.7

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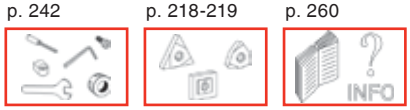

TRC 50

Ø 2.5 ~ 110

Ø 2.5 ~ 30
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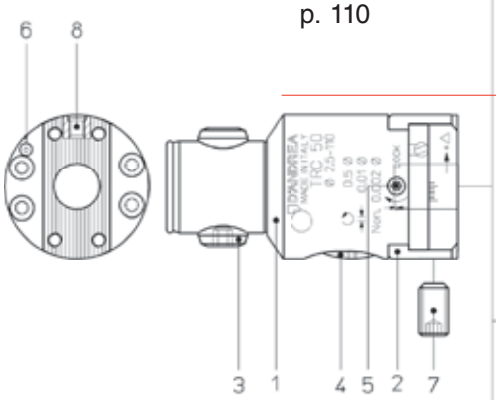
D 08.16 p.237
B1.02 - B1.04
B3... - B5... - B8.. p.182
B3... - B5... - B8..
TPGX 0902.
WCGT 0201. p.218

Ø 28 ~ 56
p. 110

TPGX 0902.
CCGT 0602.
SFCC 25 - SFCC 32 p.188
SFTP 25 - SFTP 32
P 25.63 - P 25.105 p.187



Ø 54 ~ 110
p. 111

TPGX 1103.
CCGT 09T3.
CCMT 09T3. p.218
CCMT 09T3.
SFOC 50
SFSM 50
SFCC 50 p.188
SFTP 50
BM10
CW 32 p.186
PS 31.24
9

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COMPONENTS
1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Toolholder lock screw

BAUTEILE
1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.
9. Werkzeughalter-spannschrauben

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6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Держатель кассеты

COMPOSANTS
1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Vis blocage porte-outils

COMPONENTI
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Viti bloccaggio portautensili

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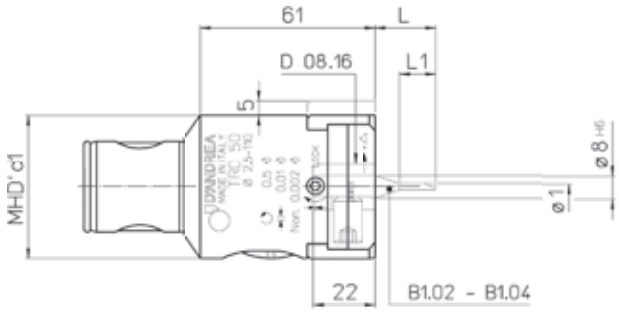
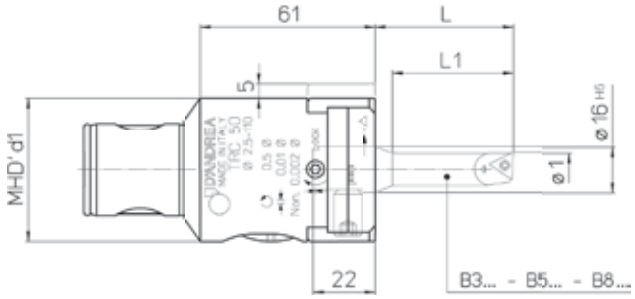
TRC 50
Ø 2.5 ~ 6



REF.	CODE	MHD'd1	Ø1	B...	L	L1	kg
TRC 50	45 50 150 0080 0	50	2.5 ~ 4	B1.02	21	12.5	1
			4 ~ 6	B1.04	24	–	

TRC 50
Ø 6 ~ 30



REF.	CODE	MHD'd1	Ø1	B...	L	L1	◬	◬	kg
TRC 50	45 50 150 0080 0	50	6 ~ 8	B3.06	29	21	•	–	1
				B5.06	36	–	•	–	
				B8.06	45		•	–	
			8 ~ 10	B3.08	36	28	•	–	
				B5.08	48	–	•	–	
				B8.08	60		•	–	
			10 ~ 12	B3.10	43	35	–	•	
				B5.10	60	–	–	•	
				B8.10	75		–	•	
			11 ~ 13	B3.11	48	40	–	•	
			12 ~ 14	B3.12	48	42	–	•	
				B5.12	72	–	–	•	
				B8.12	90		–	•	
			14 ~ 16	B3.14	52	50	–	•	
				B5.14	84	–	–	•	
				B8.14	105		–	•	
			16 ~ 18	B3.16	58	50	–	•	
				B5.16	96	–	–	•	
				B8.16	120		–	•	
			18 ~ 22	B3.18	63		–	•	
			22 ~ 30	B3.22	68		–	•	

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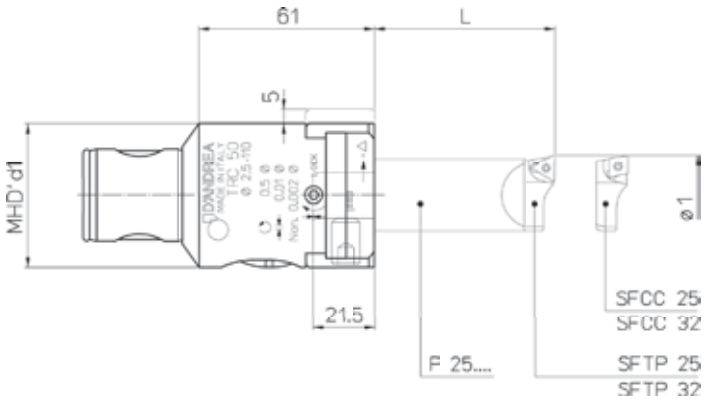
TRC 50

Ø 28 ~ 56



REF.	CODE	MHD'd_1	Ø$_1$	L	P 25..	SF..			kg
TRC 50	45 50 150 0080 0	50	28 ~ 44	63	P 25.63	SFTP 25 SFCC 25	•	•	1
				105	P 25.105				
			36 ~ 56	63	P 25.63	SFTP 32 SFCC 32	•	•	
				105	P 25.105				

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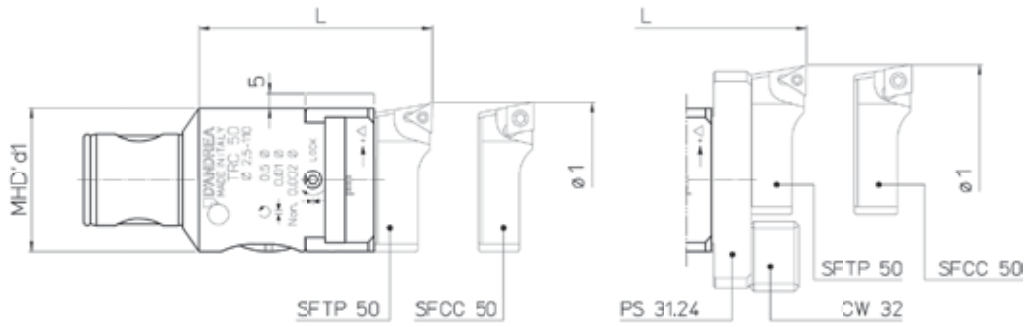
TRC 50

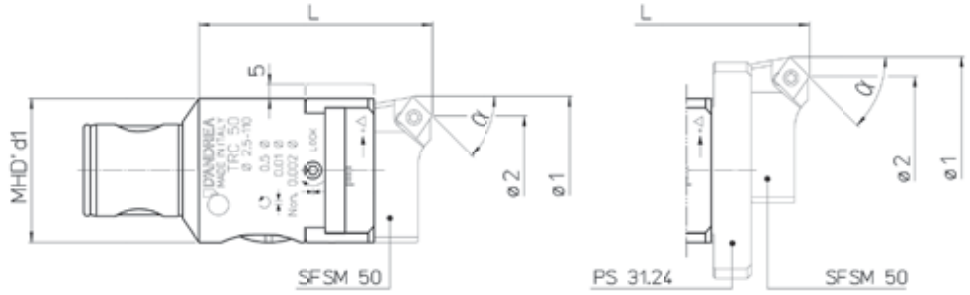
Ø 54 ~ 110



REF.	CODE	MHD'd1	Ø1	L	PS	SF..			kg
TRC 50	45 50 150 0080 0	50	54 ~ 86	80	–	SFTP 50 SFCC 50	•	•	1
			80 ~ 110	94	PS 31.24				
			92 ~ 110		PS 31.24+CW32				

TRC 50

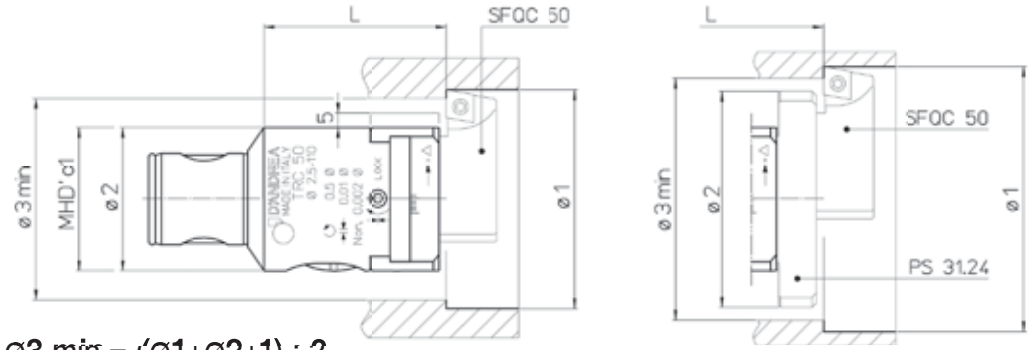
Ø 52 ~ 111



REF.	CODE	MHD'd1	Ø1	Ø2	α	L	PS	SFSM		kg
TRC 50	45 50 150 0080 0	50	52 ~ 86	47.5 ~ 81	15°	80	–	SFSM 50-15° SFSM 50-30° SFSM 50-45°	•	1
				43 ~ 76	30°					
				38.5 ~ 72	45°					
			77 ~ 111	72 ~ 106	15°	94	PS 31.24			
				67.5 ~ 101	30°					
				63.5 ~ 97	45°					

TRC 50

Ø 56 ~ 113



ø3 min = (ø1+ø2+1) : 2

REF.	CODE	MHD'd1	Ø1	Ø2	L	PS	SFQC		kg
TRC 50	45 50 150 0080 0	50	56 ~ 88.5	50	63	–	SFQC 50	•	1
			81 ~ 113.5	75	77	PS 31.24			

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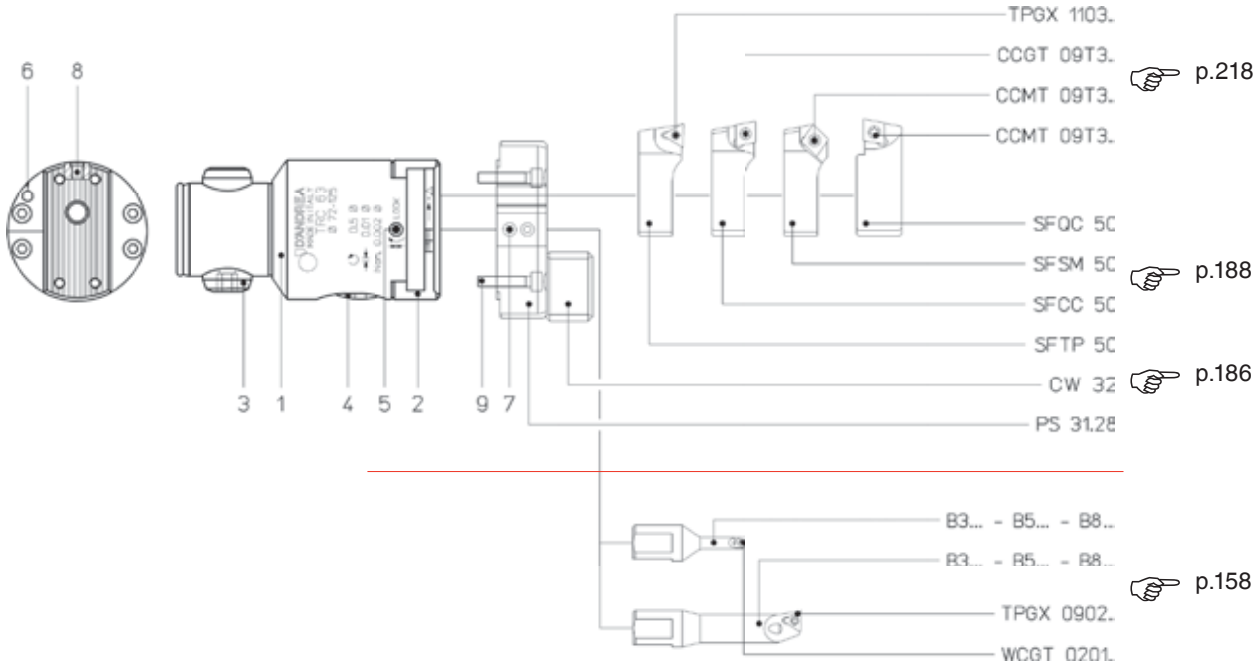
TRC 63



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COMPONENTS
1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Toolholder lock screw

BAUTEILE
1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.
9. Werkzeughalter-spannschrauben

КОМПОНЕНТЫ
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6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Держатель кассеты

COMPOSANTS
1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Vis bloccage porte-outils

COMPONENTI
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Viti bloccaggio portautensili

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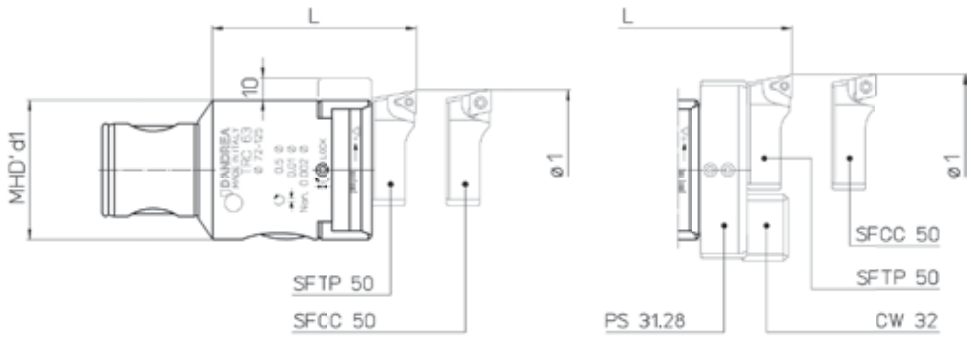
TRC 63

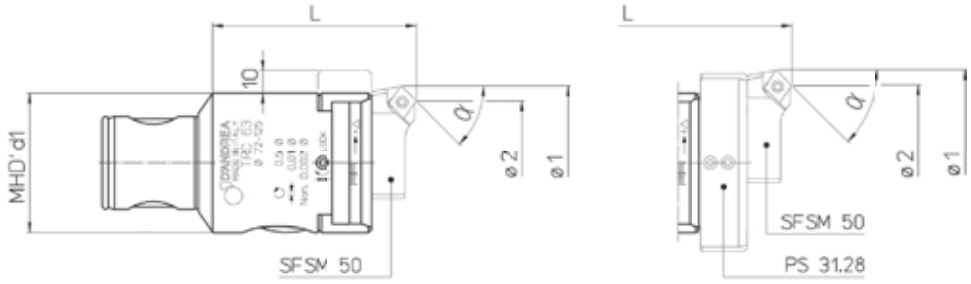
Ø 72 ~ 125



REF.	CODE	MHD'd1	Ø1	L	PS	SF..			kg
TRC 63	45 50 163 0100 0	63	72 ~ 110	88.5	–	SFTP 50 SFCC 50	•	•	2
			86 ~ 125	110	PS 31.28				

TRC 63

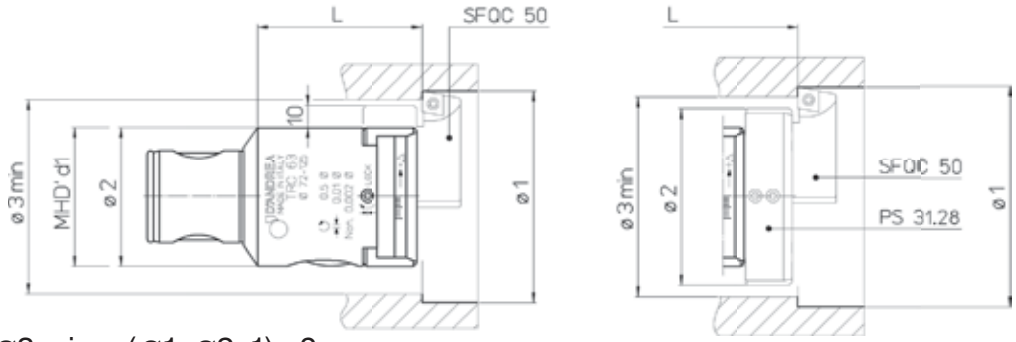
Ø 69 ~ 127



REF.	CODE	MHD'd1	Ø1	Ø2	α	L	PS	SFSM		kg
TRC 63	45 50 163 0100 0	63	69 ~ 113	64 ~ 108	15°	88.5	–	SFSM 50-15° SFSM 50-30° SFSM 50-45°	•	2
				60 ~ 104	30°					
				56 ~ 100	45°					
			83 ~ 127	78 ~ 122	15°	110	PS 31.28			
				74 ~ 118	30°					
				70 ~ 114	45°					

TRC 63

Ø 72.5 ~ 129.5



Ø3 min = (Ø1+Ø2+1) : 2

REF.	CODE	MHD'd1	Ø1	Ø2	L	PS	SFQC		kg
TRC 63	45 50 163 0100 0	63	72.5 ~ 115	63	71	–	SFQC 50	•	2
			86.5 ~ 129.5	80	93.5	PS 31.28			

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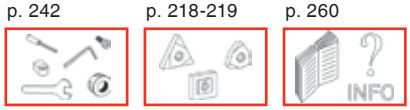
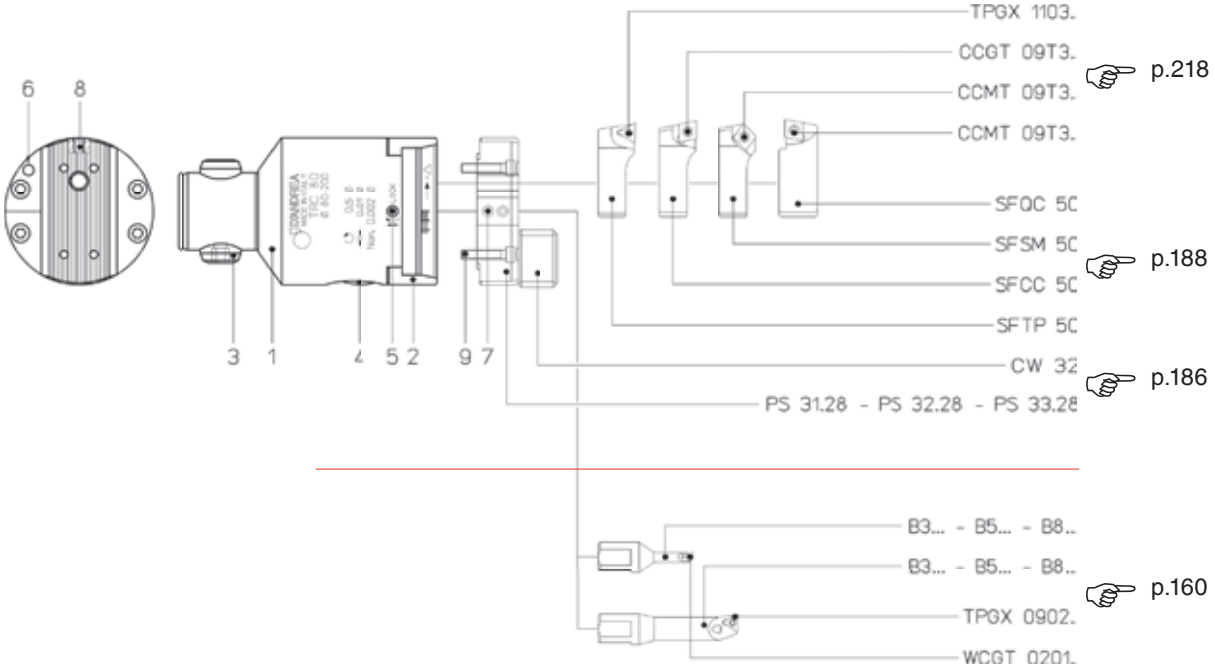


TRC 80



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COMPONENTS

1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Toolholder lock screw

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
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7. Винт фиксации инструмента
8. Масленка
9. Держатель кассеты

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Vis bloccage porte-outils

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Viti bloccaggio portautensili

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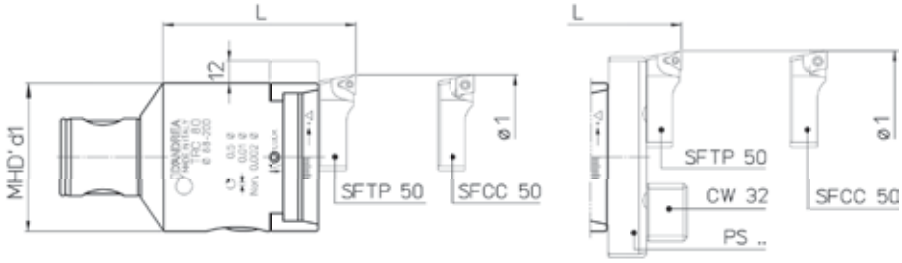
TRC 80

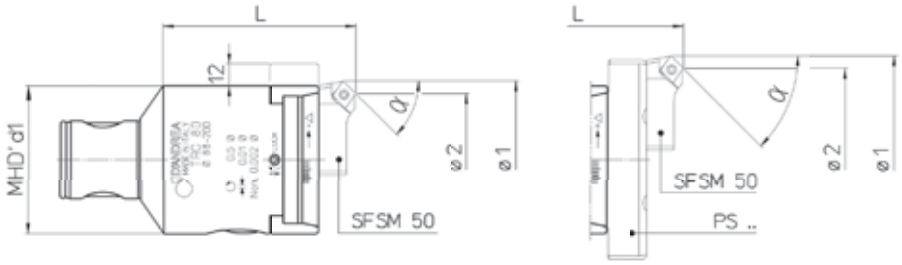
Ø 88 ~ 200



REF.	CODE	MHD'd_1	Ø$_1$	L	PS..	SF..			kg
TRC 80	45 50 180 0120 0	80	88 ~ 132	104	–	SFTP 50 SFCC 50	•	•	3.8
			115 ~ 160	125.5	PS 32.28				
			155 ~ 200		PS 33.28				

TRC 80

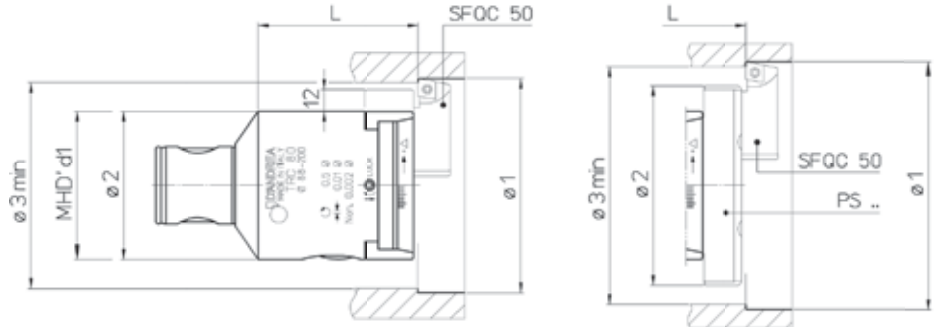
Ø 85 ~ 200



REF.	CODE	MHD'd_1	Ø$_1$	Ø$_2$	α	L	PS..	SFSM		kg
TRC 80	45 50 180 0120 0	80	85 ~ 133	80 ~ 128	15°	104	–	SFSM 50-15° SFSM 50-30° SFSM 50-45°	•	3.8
				76 ~ 124	30°					
				72.5 ~ 120.5	45°					
			112 ~ 160	107 ~ 155	15°	125.5	PS 32.28			
				102.5 ~ 150.5	30°					
				99 ~ 147	45°					
			152 ~ 200	147 ~ 195	15°		PS 33.28			
				143 ~ 191	30°					
				139 ~ 187	45°					

TRC 80

Ø 88.5 ~ 202.5



Ø3 min = (Ø1+Ø2+1) : 2

REF.	CODE	MHD'd_1	Ø$_1$	Ø$_2$	L	PS..	SFQC		kg
TRC 80	45 50 180 0120 0	80	88.5 ~ 135.5	80	87	–	SFQC 50	•	3.8
			115.5 ~ 162.5	108	108	PS 32.28			
			155.5 ~ 202.5	148		PS 33.28			

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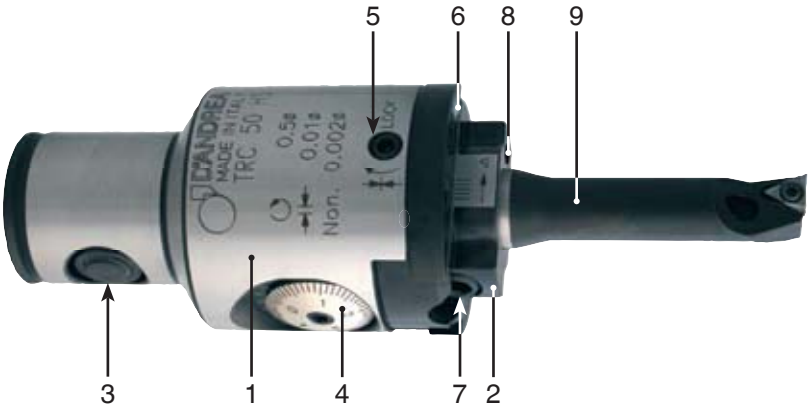


FEATURES

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.

COMPONENTS

1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Tool

MERKMALE

Die Köpfe TRC HS ermöglichen hochpräzise Bearbeitungen mit Tolleranzen Grad IT6 und hochwertiger Oberflächenbearbeitung. Sie besitzen eine Einstellungsfeinheit von 5 Mikron auf dem Radius, leicht auf dem Nonius ablesbar und auch in der Maschine ausführbar.

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.
9. Werkzeug

ОСОБЕННОСТИ

Высокая точность обработки по классу точности IT6 с исключительно чистотой поверхности достигается при использовании расточных головок TRC HS и микрометрических расточных головок. Они очень чувствительны и радиальная коррекция в 5 может быть осуществлена прямо на станке и легко считана со шкалы нониуса.

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Инструмент

CARACTÉRISTIQUES

Les têtes TRC HS permettent des travaux de haute précision avec des tolérances de degré IT6 avec finition superficielle optimum. Elles ont une sensibilité de réglage de 5 microns sur le rayon, facilement lisible sur le nonius et exécutable même en machine

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Outil

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.

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Utensile

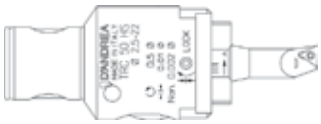
TRC HS

Ø 2.5 ~ 22

RPM MAX 12.000

TRC 32 HS
Ø 2.5 ~ 18

TRC 50 HS
Ø 2.5 ~ 22



10 µm

nonio vernier **2 µm**

IMPORTANT NOTE

- Take care that the tools and tool holders are solidly blocked on the slide. The only manoeuvring or adjusting screws to be used for the operations for the heads are those listed in the Components section.
- The screws not listed in the Components section should not be touched in order not to compromise the correct operation of the heads.
- Bit holders and boring bars should be assembled with the insert turned on the same direction as the screw (5) (see photo).
- Remember to loosen the screw (5) before adjusting the vernier etting(4). Block the screw (5) at the end of the adjustment.

  The micrometric adjustment of POSITIVE is carried out by turning the vernier (4) counter clockwise.

  The use of coolant on the TRC HS heads should be 40 BAR max.

WICHTIGER HINWEIS

- Sicherstellen, dass Werkzeuge und Werkzeughalterungen fest auf dem Schlitten angebracht sind. Die Manöver oder Einstellungsschrauben, welche für den Einsatz der Köpfe dienen, sind nur jene im Punkt Komponenten angegebene.
- Die nicht im Punkt Komponenten angegebenen Schrauben, dürfen nicht berührt werden, um die gute Funktion der Köpfe nicht zu beeinträchtigen.
- Sitze und Bohrer müssen mit dem Einsatz gegen dieselbe Seite der Schraube (5) montiert werden.
- Sicherstellen, dass die Schraube (5) vor einer Einstellung des Nonius (4) gelöst wird. Schraube (5) nach Beenden der Einstellung wieder anziehen.

  Die mikrometrische POSITIVE Endeinstellung erfolgt durch Drehen in Uhrzeigersinn des Nonius (4).

  Der Einsatz des Kühlmittels auf den beidseitig schneidenden Köpfen TRC HS darf maximal 40 BAR betragen.

ВНИМАНИЕ

- Убедитесь, что инструменты или державки жестко закреплены в салазках. В качестве маневровых или регулировочных винтов могут быт использованы только перечисленные в разделе «Компоненты».
- Не прикасайтесь к винтам, не перечисленным в разделе «Компоненты», чтобы не нарушить внутренних заводских регулировок и тем самым точности расточных головок и штанг.
- Направление режущей пластины у кассет и оправок должно соответствовать маркировке, выбитой на салазках головки.
- Всегда ослабляйте зажимной винт (5) перед установкой значения нониуса (4). Затяните винт (5) после окончания регулировки.
- Микрометрическая настройка в сторону увеличения размера осуществляется поворотом нониуса против часовой стрелки.
- Использование СОЖ в головках TRD должно осуществляться при максимальном давлении 40BAR.

NOTE IMPORTANTE

- S'assurer que les outils et les porte-outils sont solidement bloqués sur le chariot. Les vis de manœuvre ou de réglage utiles pour l'utilisation des têtes sont seulement celles indiquées au paragraphe Composants.
- Les vis non indiquées au paragraphe Composants ne doivent pas être touchées pour ne pas compromettre le bon fonctionnement des têtes.
- Les logements et les barres d'alésage doivent être installés avec la plaquette du même coté de la vis (5) (voir la photo)
- Ne pas oublier de desserrer la vis (5) avant d'effectuer un réglage du nonius (4). Bloquer la vis (5) à la fin du réglage.

  Le réglage micrométrique POSITIF est effectué en tournant en sans anti-horaire le nonius (4).

  L'utilisation du réfrigérant sur les têtes TRC HS doit être d'un max. de 40 BAR

ATTENZIONE

- Assicurarsi che utensili e portautensili siano saldamente bloccati sulla slitta. Le viti di manovra o di regolazione utili per l'impiego delle testine sono solo quelle indicate nel punto Componenti.
- Le viti non indicate nel punto Componenti non devono essere toccate per non compromettere il buon funzionamento delle testine.
- I bareni devono essere montati con l'inserto rivolto dalla stessa parte della vite (5) (vedere foto).
- Ricordarsi di allentare la vite (5) prima di eseguire una regolazione del nonio (4). Bloccare la vite (5) a fine regolazione.

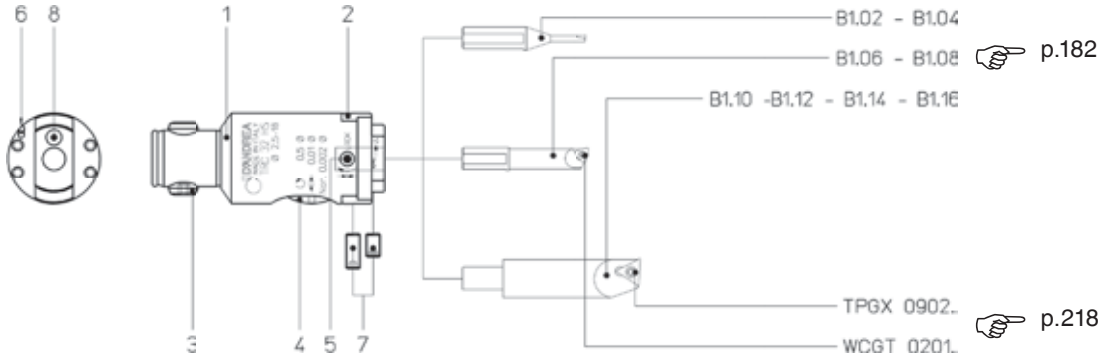
  La regolazione micrometrica POSITIVA si esegue ruotando in senso antiorario il nonio (4).

  L'impiego del refrigerante sulle testine TRC HS deve essere max. 40 BAR.

TRC 32 HS

Ø 2.5 ~ 18

RPM MAX 12.000



118

COMPONENTS

1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.

КОМПОНЕНТЫ

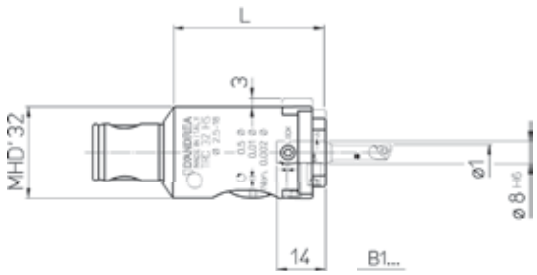
1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore



REF.	CODE	Ø1	L			kg
TRC 32 HS	45 50 332 0053 0	2.5 ~ 18	53	•	•	0.35

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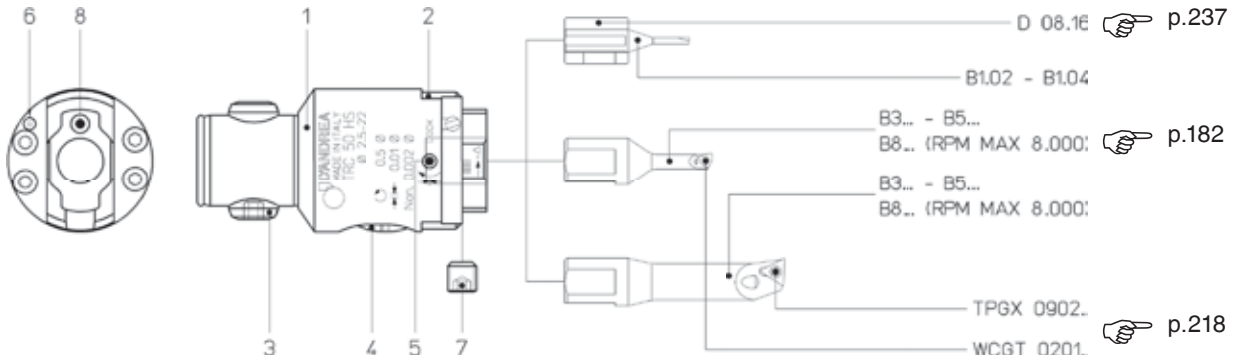
TRC 50 HS

Ø 2.5 ~ 22

RPM MAX 12.000



119

COMPONENTS

1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.

КОМПОНЕНТЫ

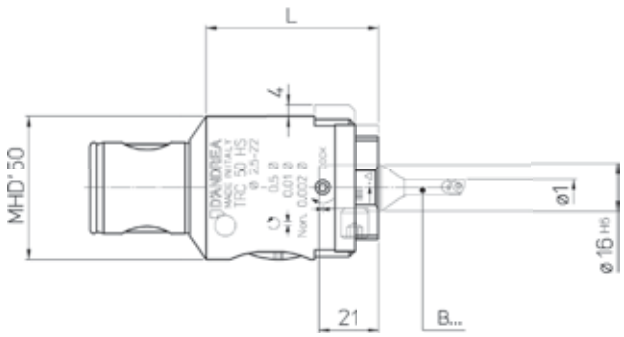
1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт крепления инструмента
8. Масленка

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore



REF.	CODE	Ø1	L			kg
TRC 50 HS	45 50 350 0060 0	2.5 ~ 22	59.5	•	•	1

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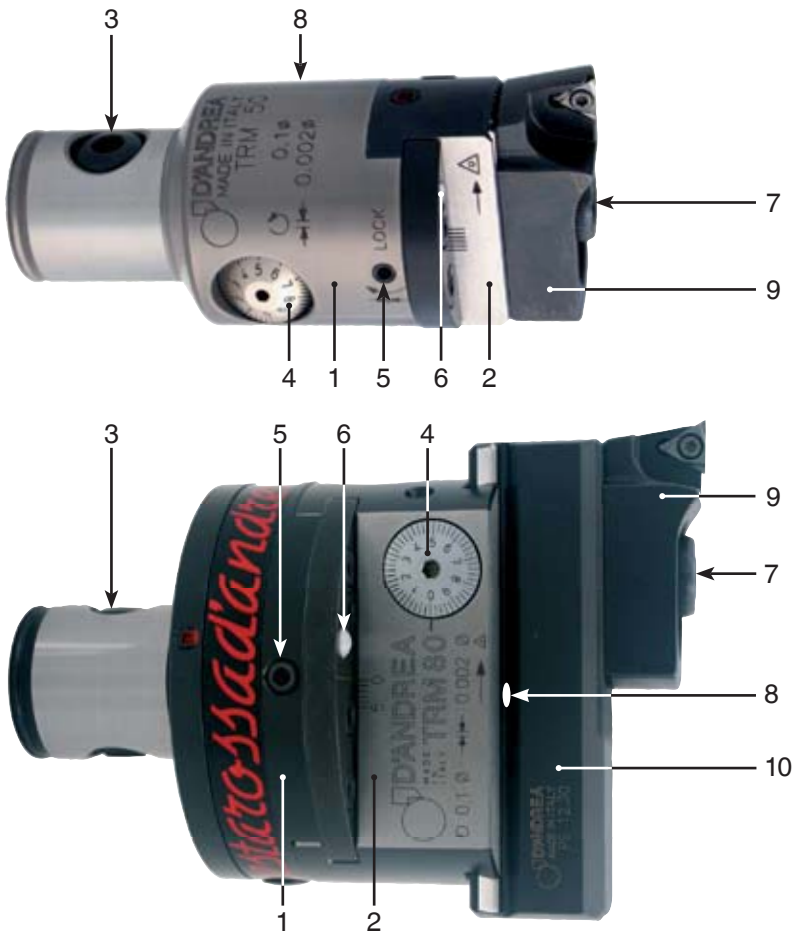
Testarossa Testarossa Микрометрические расточные головки Testarossa Testarossa Testarossa



FEATURES

The TRM heads in the new line Testarossa D'Andrea 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.

MERKMALE

Die Köpfe TRM der neuen Testarossa D'Andrea Linie haben einen antikorrosiven Oberflächenschutz
Die Köpfe TRM ermöglichen hochpräzise Bearbeitungen mit Tolleranzen Grad IT6 und hochwertiger Oberflächenbearbeitung. Sie besitzen eine Einstellungsfeinheit von 1 Mikron auf dem Radius, leicht auf dem Nonius ablesbar und auch in der Maschine ausführbar.

ОСОБЕННОСТИ

Высокая точность обработки по классу точности IT6 с исключительно чистотой поверхности достигается при использовании расточных головок TRC и микрометрических расточных головок. Они очень чувствительны и радиальная коррекция в 5 микрон может быть осуществлена прямо на станке и легко считана со шкалы нониуса.

CARACTÉRISTIQUES

Les têtes TRM de la nouvelle ligne Testarossa D'Andrea ont une protection superficielle anticorrosion. Les têtes TRM permettent des travaux de haute précision avec des tolérances de degré IT6 comprenant une finition superficielle optimum. Elles ont une sensibilité de réglage de 1 micron sur le rayon, facilement lisible sur le nonius et exécutable même en machine.

CARATTERISTICHE

Le testine TRM della nuova 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.

COMPONENTS

1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Bit holder
10. Tool holder

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.
9. Plattenhalter
10. Werkzeughalter

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Кассета
10. Держатель кассеты

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Porte-plaquettes
10. Porte-outil

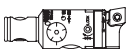
COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Seggio portainserti
10. Porta utensile

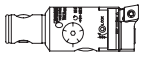
TRM

Ø 2.5 ~ 500

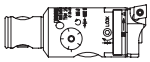
TRM 16
Ø 18 ~ 23



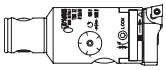
TRM 20
Ø 22 ~ 29



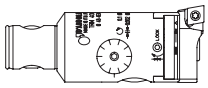
TRM 25
Ø 28 ~ 38



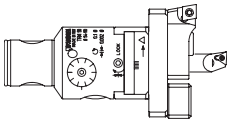
TRM 32
Ø 35.5 ~ 50



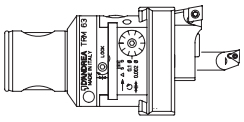
TRM 40
Ø 48 ~ 63



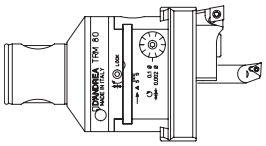
TRM 50
Ø 2.5 ~ 108



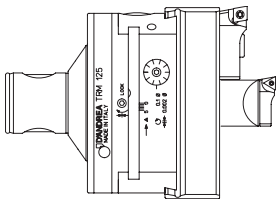
TRM 50/63
TRM 63/63
Ø 6 ~ 125



TRM 50/80
TRM 80/80
Ø 6 ~ 160



TRM 80/125
Ø 36 ~ 500



2 µm

IMPORTANT NOTE

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- The screws not listed in the Components section should not be touched in order not to compromise the correct operation of the heads.
- Bit holders and boring bars should be assembled with the insert turned on the same direction as the screw (5) (see photo).
- Remember to loosen the screw (5) before adjusting the vernier setting (4). Block the screw (5) at the end of the adjustment.

  The micrometric adjustment of POSITIVE Is carried out by turning the vernier (4) counter clockwise.

  The use of coolant on the TRM heads should be 40 BAR max.

WICHTIGER HINWEIS

- Sicherstellen, dass Werkzeuge und Werkzeughalterungen fest auf dem Schlitten angebracht sind. Die Manöver oder Einstellungsschrauben, welche für den Einsatz der Köpfe dienen, sind nur jene im Punkt Komponenten angegebene.
- Die nicht im Punkt Komponenten angegebenen Schrauben, dürfen nicht berührt werden, um die gute Funktion der Köpfe nicht zu beeinträchtigen.
- Sitze und Bohrer müssen mit dem Einsatz gegen dieselbe Seite der Schraube (5) montiert werden.
- Sicherstellen, dass die Schraube (5) vor einer Einstellung des Nonius (4) gelöst wird. Schraube (5) nach Beenden der Einstellung wieder anziehen.

  Die mikrometrische POSITIVE Endeinstellung erfolgt durch Drehen in Uhrzeigersinn des Nonius (4).

  Der Einsatz des Kühlmittels auf den beidseitig schneidenden Köpfen TRM darf maximal 40 BAR betragen.

ВНИМАНИЕ

- Убедитесь, что инструменты или державки жестко закреплены в салазках. В качестве маневровых или регулировочных винтов могут быт использованы только перечисленные в разделе «Компоненты».
- Не прикасайтесь к винтам, не перечисленным в разделе «Компоненты», чтобы не нарушить внутренних заводских регулировок и тем самым точности расточных головок и штанг.
- Направление режущей пластины у кассет и оправок должно соответствовать маркировке, выбитой на салазках головки.
- Всегда ослабляйте зажимной винт (5) перед установкой значения нониуса (4). Затяните винт (5) после окончания регулировки.
- Микрометрическая настройка в сторону увеличения размера осуществляется поворотом нониуса против часовой стрелки.
- Использование СОЖ в головках TRD должно осуществляться при максимальном давлении 40BAR.

NOTE IMPORTANTE

- S'assurer que les outils et les porte-outils sont solidement bloqués sur le chariot. Les vis de manœuvre ou de réglage utiles pour l'utilisation des têtes sont seulement celles indiquées au paragraphe Composants.
- Les vis non indiquées au paragraphe Composants ne doivent pas être touchées pour ne pas compromettre le bon fonctionnement des têtes.
- Les logements et les barres d'alésage doivent être installés avec la plaquette vers le même coté de la vis (5) (voir la photo)
- Ne pas oublier de desserrer la vis (5) avant d'effectuer un réglage du nonius (4). Bloquer la vis (5) à la fin du réglage.

  Le réglage micrométrique POSITIF est effectué en tournant en sans anti-horaire le nonius (4).

  L'utilisation du réfrigérant sur les têtes TRM doit être d'un max. de 40 BAR

ATTENZIONE

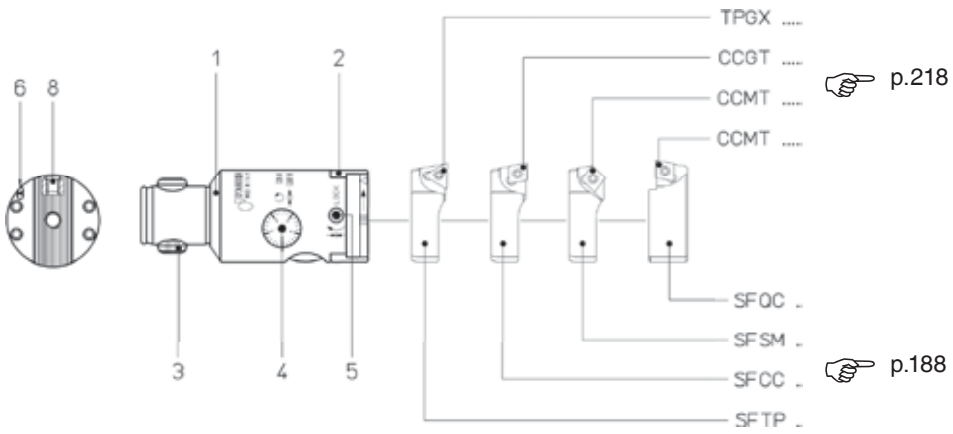
- Assicurarsi che utensili e portautensili siano saldamente bloccati sulla slitta. Le viti di manovra o di regolazione utili per l'impiego delle testine sono solo quelle indicate nel punto Componenti.
- Le viti non indicate nel punto Componenti non devono essere toccate per non compromettere il buon funzionamento delle testine.
- Seggi e bareni devono essere montati con l'inserto rivolto dalla stessa parte del nonio (4) (vedere foto).
- Ricordarsi di allentare la vite (5) prima di eseguire una regolazione del nonio (4). Bloccare la vite (5) a fine regolazione.

  La regolazione micrometrica POSITIVA si esegue ruotando in senso antiorario il nonio (4).

  L'impiego del refrigerante sulle testine TRM deve essere max. 40 BAR.

TRM 16
TRM 20
TRM 25
TRM 32
TRM 40

Ø 18 ~ 63



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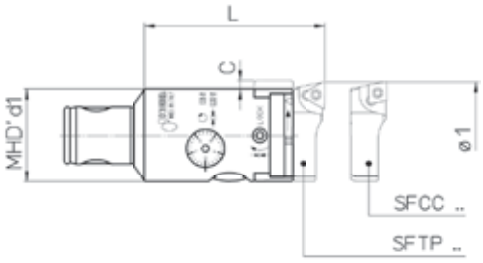

fig.1

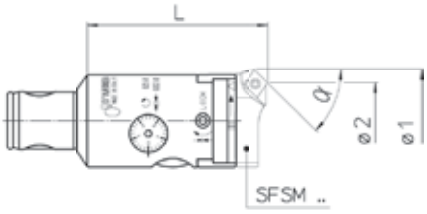

fig.2

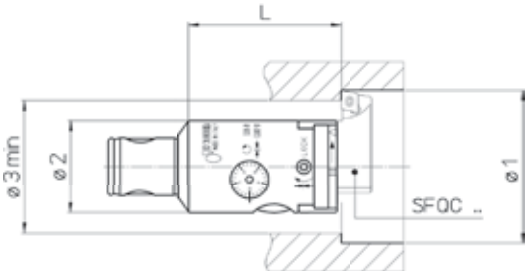

fig.3

fig.3 Ø3 min = (Ø1+Ø2+1) : 2

COMPONENTS

1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
8. Oiler

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
8. Schmiernippel Bohrstangen.

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
8. Масленка

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
8. Graisseur

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
8. Oliatore

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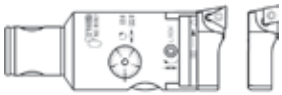
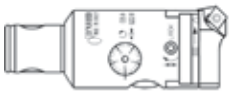
TRM

fig.1



REF.	CODE	MHD'd1	Ø1	L	C	SF..	△	▢	kg
TRM 16	45 50 016 0034 1	16	18 ~ 23	34	1	SF.. 16	–	•	0.05
TRM 20	45 50 020 0040 1	20	22 ~ 29	40	2	SF.. 20	–	•	0.1
TRM 25	45 50 025 0050 0	25	28 ~ 38	50		SF.. 25	•	•	0.2
TRM 32	45 50 032 0063 0	32	35.5 ~ 50	63	3	SF.. 32	•	•	0.35
TRM 40	45 50 040 0080 0	40	48 ~ 63	80	4	SF.. 40	•	•	0.7

fig.2



REF.	CODE	MHD'd1	Ø1	Ø2	α	L	C	SFSM ..	▢	kg
TRM 25	45 50 025 0050 0	25	26.5 ~ 37.5	23 ~ 35	15°	50	2	SFSM 25-15°	•	0.2
				20 ~ 32	30°			SFSM 25-30°		
				18 ~ 30	45°			SFSM 25-45°		
TRM 32	45 50 032 0063 0	32	34 ~ 50	30.5 ~ 46.5	15°	63	3	SFSM 32-15°	•	0.35
				27.5 ~ 43.5	30°			SFSM 32-30°		
				25 ~ 40.5	45°			SFSM 32-45°		
TRM 40	45 50 040 0080 0	40	44.5 ~ 63.5	40 ~ 58.5	15°	80	4	SFSM 40-15°	•	0.7
				35.5 ~ 54.5	30°			SFSM 40-30°		
				32 ~ 50.5	45°			SFSM 40-45°		

fig.3

REF.	CODE	MHD'd1	Ø1	Ø2	L	C	SFQC ..	▢	kg
TRM 16	45 50 016 0034 1	16	20 ~ 25	16	27.5	1	SFQC 16	•	0.05
TRM 20	45 50 020 0040 1	20	24.5 ~ 32	20	33.5	2	SFQC 20	•	0.1
TRM 25	45 50 025 0050 0	25	31.5 ~ 40.5	25	41.5		SFQC 25	•	0.2
TRM 32	45 50 032 0063 0	32	38.5 ~ 51.5	32	53	3	SFQC 32	•	0.35
TRM 40	45 50 040 0080 0	40	50.5 ~ 65	40	68	4	SFQC 40	•	0.7

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TRM 50

Ø 2.5 ~ 108

Ø 2.5 ~ 30
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Ø 28 ~ 54
p. 126

Ø 54 ~ 108
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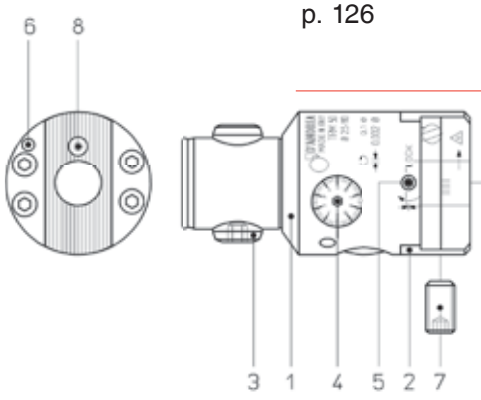

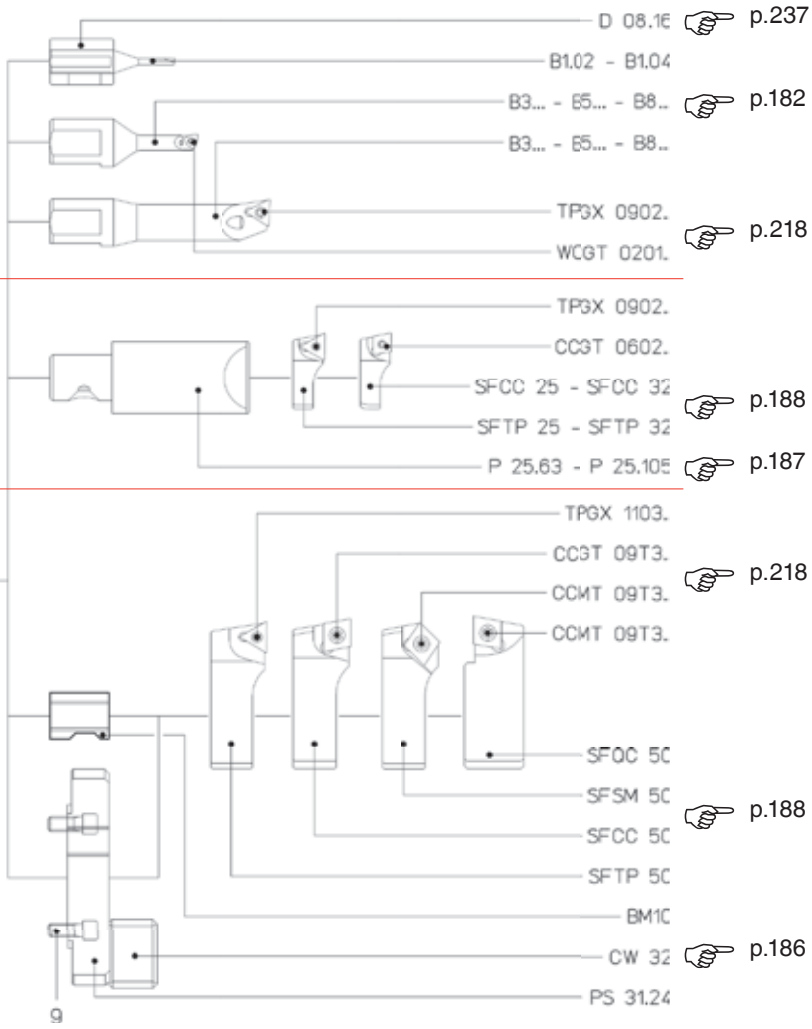

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COMPONENTS
1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Toolholder lock screw

BAUTEILE
1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.
9. Werkzeughalter-spannschrauben

КОМПОНЕНТЫ
1. Корпус
2. Салазки
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4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Держатель кассеты

COMPOSANTS
1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Vis bloccage porte-outils

COMPONENTI
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Viti bloccaggio portautensili

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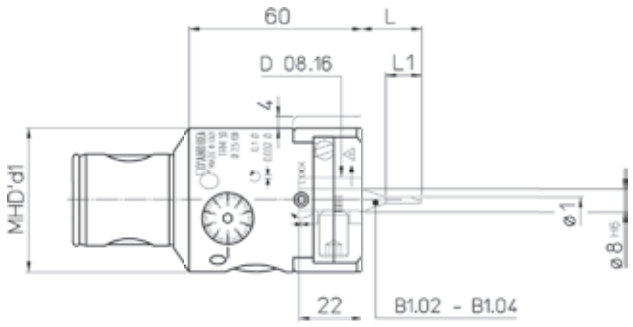
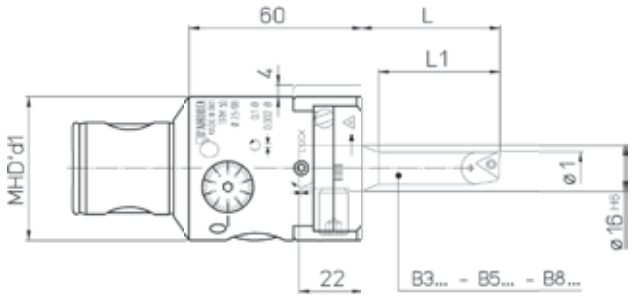
TRM

TRM 50
Ø 2.5 ~ 6



REF.	CODE	MHD'd1	Ø1	B...	L	L1	kg
TRM 50	45 50 050 0050 0	50	2.5 ~ 4	B1.02	21	12.5	1
			4 ~ 6	B1.04	24	–	

TRM 50
Ø 6 ~ 30



REF.	CODE	MHD'd1	Ø1	B...	L	L1			kg
TRM 50	45 50 050 0050 0	50	6 ~ 8	B3.06	29	21	•	–	1
				B5.06	36	–	•	–	
				B8.06	45		•	–	
			8 ~ 10	B3.08	36	28	•	–	
				B5.08	48	–	•	–	
				B8.08	60		•	–	
			10 ~ 12	B3.10	43	35	–	•	
				B5.10	60	–	–	•	
				B8.10	75		–	•	
			11 ~ 13	B3.11	48	40	–	•	
			12 ~ 14	B3.12	48	42	–	•	
				B5.12	72	–	–	•	
				B8.12	90		–	•	
			14 ~ 16	B3.14	52	50	–	•	
				B5.14	84	–	–	•	
				B8.14	105		–	•	
			16 ~ 18	B3.16	58	50	–	•	
				B5.16	96	–	–	•	
				B8.16	120		–	•	
			18 ~ 22	B3.18	63		–	•	
			22 ~ 30	B3.22	68		–	•	

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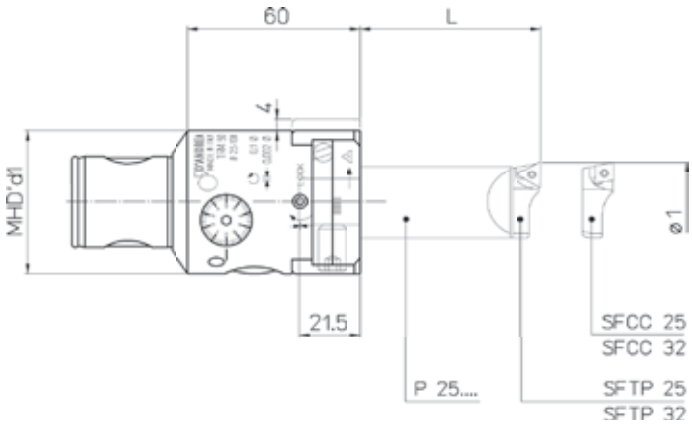
TRM 50

Ø 28 ~ 54



REF.	CODE	MHD'd_1	Ø$_1$	L	P 25..	SF..			kg
TRM 50	45 50 050 005 0 0	50	28 ~ 42	63	P 25.63	SFTP 25 SFCC 25	•	•	1
				105	P 25.105				
			36 ~ 54	63	P 25.63	SFTP 32 SFCC 32	•	•	
				105	P 25.105				

126

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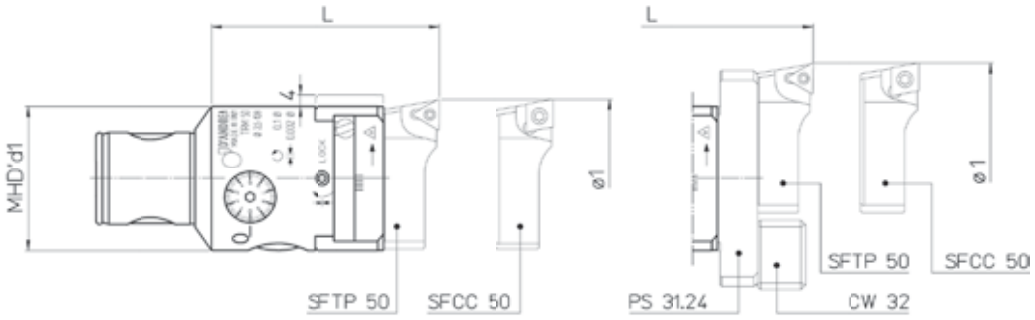
TRM 50

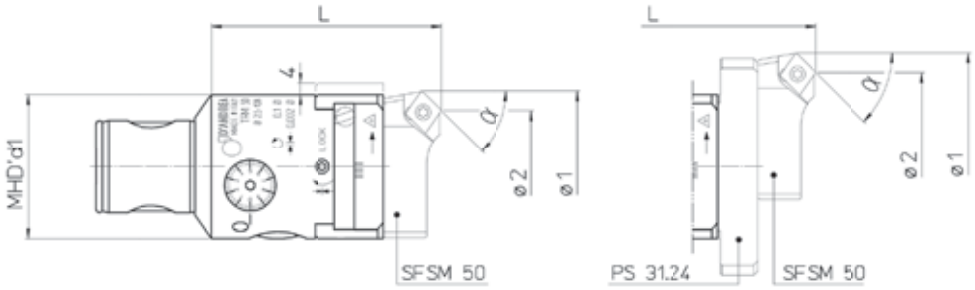
Ø 54 ~ 108



REF.	CODE	MHD'd1	Ø1	L	PS	SF..			kg
TRM 50	45 50 050 0050 0	50	54 ~ 84	79	–	SFTP 50 SFCC 50	•	•	1
			80 ~ 108	93	PS 31.24				
			92 ~ 108		PS 31.24+CW32				

TRM 50

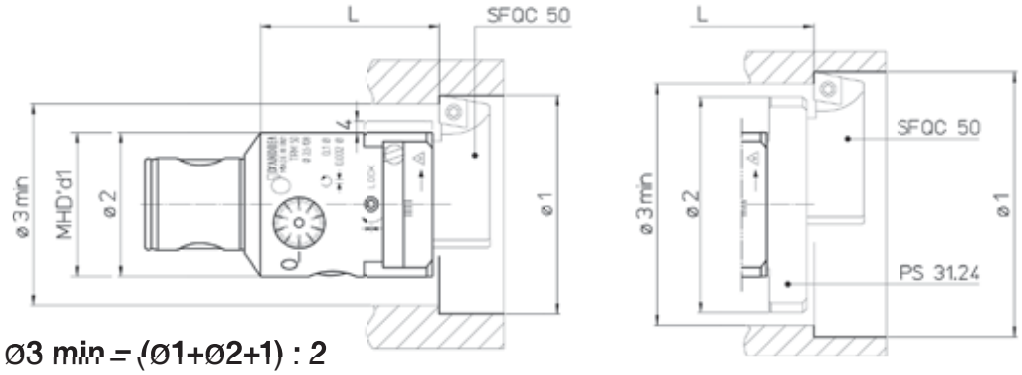
Ø 52 ~ 109



REF.	CODE	MHD'd1	Ø1	Ø2	α	L	PS	SFSM		kg
TRM 50	45 50 050 0050 0	50	52 ~ 84	47.5 ~ 79.5	15°	79	–	SFSM 50-15° SFSM 50-30° SFSM 50-45°	•	1
				43 ~ 74.5	30°					
				39 ~ 71.5	45°					
			77 ~ 109	72 ~ 104	15°	93	PS 31.24			
				67.5 ~ 99	30°					
				63.5 ~ 95	45°					

TRM 50

Ø 56 ~ 111



ø3 min = (ø1+ø2+1) : 2

REF.	CODE	MHD'd1	Ø1	Ø2	L	PS	SFQC		kg
TRM 50	45 50 050 0050 0	50	56 ~ 87	50	62	–	SFQC 50	•	1
			81 ~ 111	75	76	PS 31.24			

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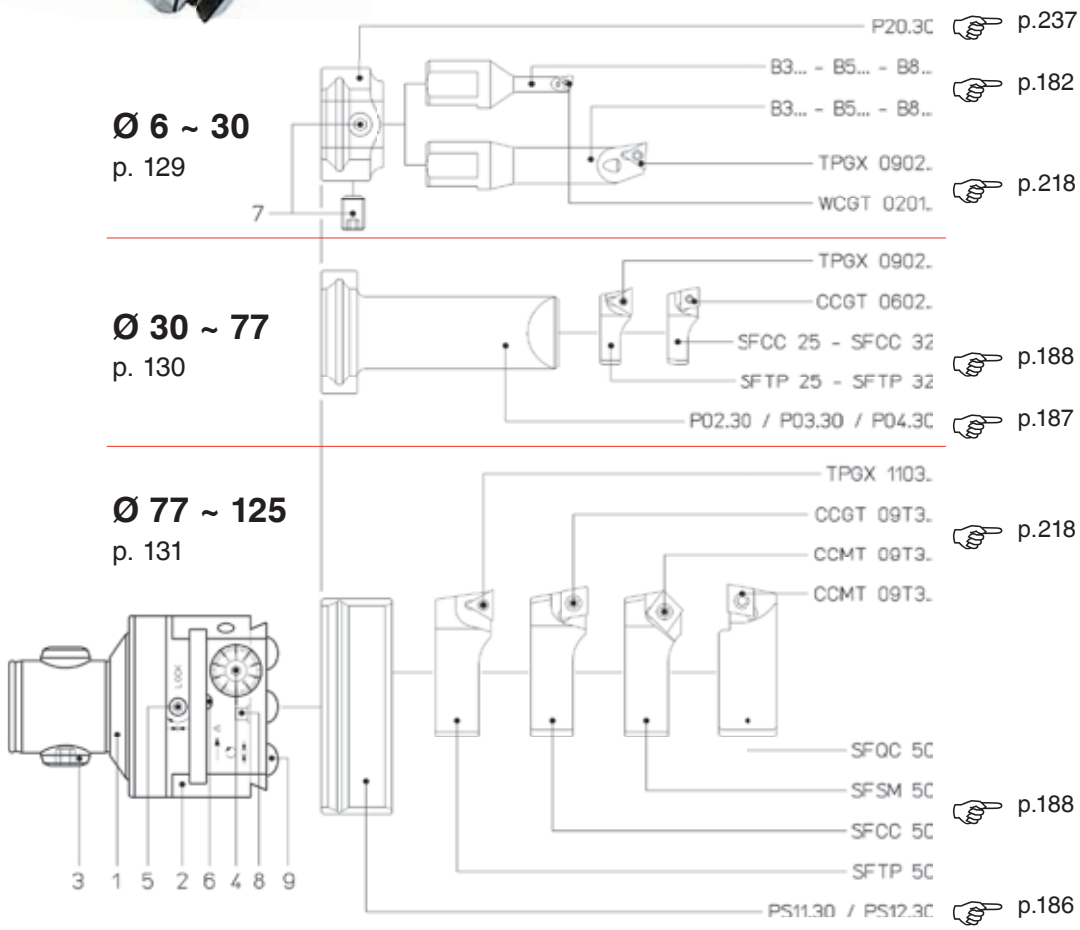
TRM 50/63
TRM 63/63

Ø 6 ~ 125



Ø 6 ~ 30
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Ø 30 ~ 77
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Ø 77 ~ 125
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COMPONENTS
1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Toolholder lock screw

BAUTEILE
1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.
9. Werkzeughalter-spannschrauben

КОМПОНЕНТЫ
1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Держатель кассеты

COMPOSANTS
1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Vis blocage porte-outils

COMPONENTI
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Viti bloccaggio portautensili

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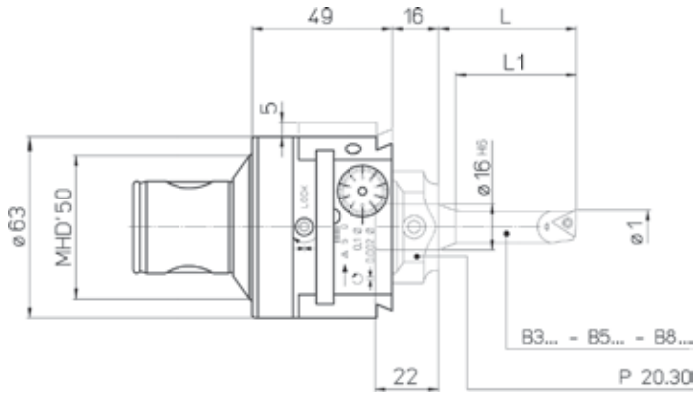
TRM 50/63
TRM 63/63

Ø 6 ~ 30



REF.	CODE	MHD'd_1	Ø$_1$	B...	L	L_1			kg
			6 ~ 8	B3.06	29	21	•	–	
				B5.06	36	–	•	–	
				B8.06	45	–	•	–	
			8 ~ 10	B3.08	36	28	•	–	
				B5.08	48	–	•	–	
				B8.08	60	–	•	–	
			10 ~ 12	B3.10	43	35	–	•	
				B5.10	60	–	–	•	
				B8.10	75	–	–	•	
TRM 50/63	45 50 050 0063 0	50	11 ~ 13	B3.11	48	40	–	•	1.1
TRM 63/63	45 50 063 0063 0	63	12 ~ 14	B3.12	48	42	–	•	1.5
				B5.12	72	–	–	•	
				B8.12	90	–	–	•	
			14 ~ 16	B3.14	52	50	–	•	
				B5.14	84	–	–	•	
				B8.14	105	–	–	•	
			16 ~ 18	B3.16	58	50	–	•	
				B5.16	96	–	–	•	
				B8.16	120	–	–	•	
			18 ~ 22	B3.18	63	–	–	•	
			22 ~ 30	B3.22	68	–	–	•	

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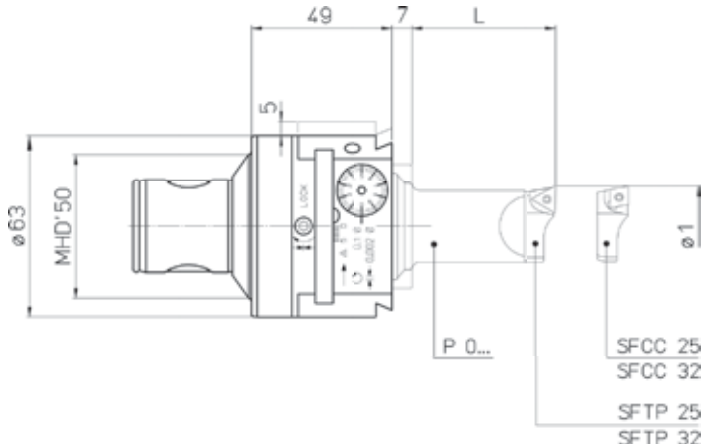
TRM 50/63
TRM 63/63

Ø 30 ~ 77



REF.	CODE	MHD'd_1	Ø$_1$	L	P 0...	SF..			kg
TRM 50/63	45 50 050 0063 0	50	30 ~ 66	50	P 02.30	SFTP 25 SFCC 25	•	•	1.1
				80	P 03.30				
				125	P 04.30				
TRM 63/63	45 50 063 0063 0	63	35.5 ~ 77	50	P 02.30	SFTP 32 SFCC 32	•	•	1.5
				80	P 03.30				
				125	P 04.30				

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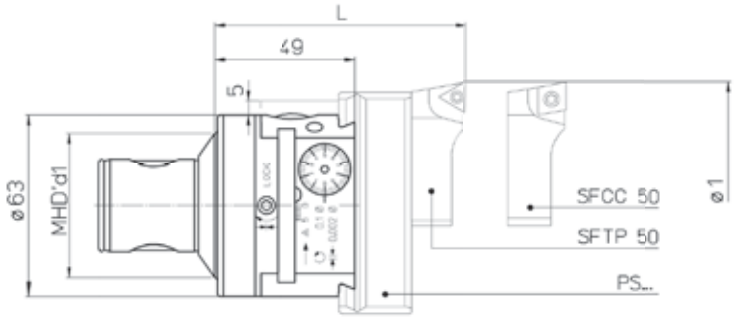
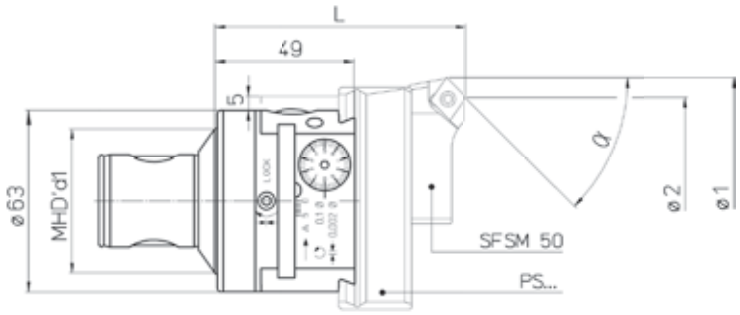
TRM 50/63
TRM 63/63
Ø 77~ 125



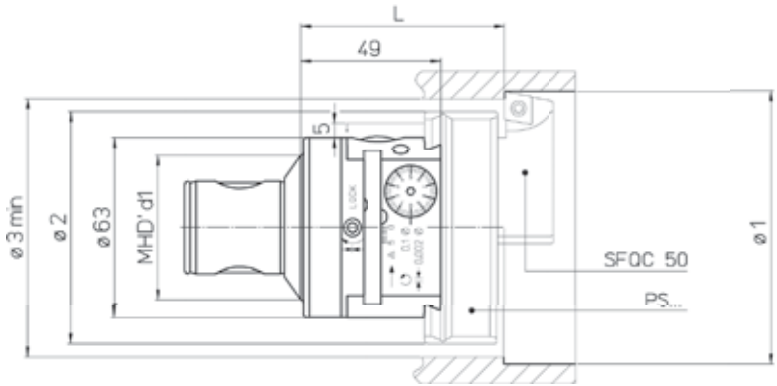
REF.	CODE	MHD'd1	Ø1	L	PS..	SF..			kg
TRM 50/63	45 50 050 0063 0	50	77 ~ 100	87.5	PS 11.30	SFTP 50	•		1.1
TRM 63/63	45 50 063 0063 0	63	95 ~ 125		PS 12.30	SFCC 50		•	1.5

TRM 50/63
TRM 63/63
Ø 77 ~ 125



REF.	CODE	MHD'd1	Ø1	Ø2	α	L	PS..	SFSM		kg
TRM 50/63	45 50 050 0063 0	50	77 ~ 100	72 ~ 95	15°	87.5	PS 11.30	SFSM 50-15°	•	1.1
TRM 63/63	45 50 063 0063 0	63		67 ~ 90	30°			SFSM 50-30°		1.5
				63.5 ~ 86.5	45°			SFSM 50-45°		
			95 ~ 125	90 ~ 120	15°		PS 12.30			
				85.5 ~ 115.5	30°					
				81.5 ~ 111.5	45°					

TRM 50/63
TRM 63/63
Ø 82 ~ 127



Ø3 min = (Ø1+Ø2+1) : 2

REF.	CODE	MHD'd1	Ø1	Ø2	L	PS..	SFQC		kg
TRM 50/63	45 50 050 0063 0	50	82 ~ 102	75	70.5	PS 11.30	SFQC 50	•	1.1
TRM 63/63	45 50 063 0063 0	63	100 ~ 127	93		PS 12.30			1.5

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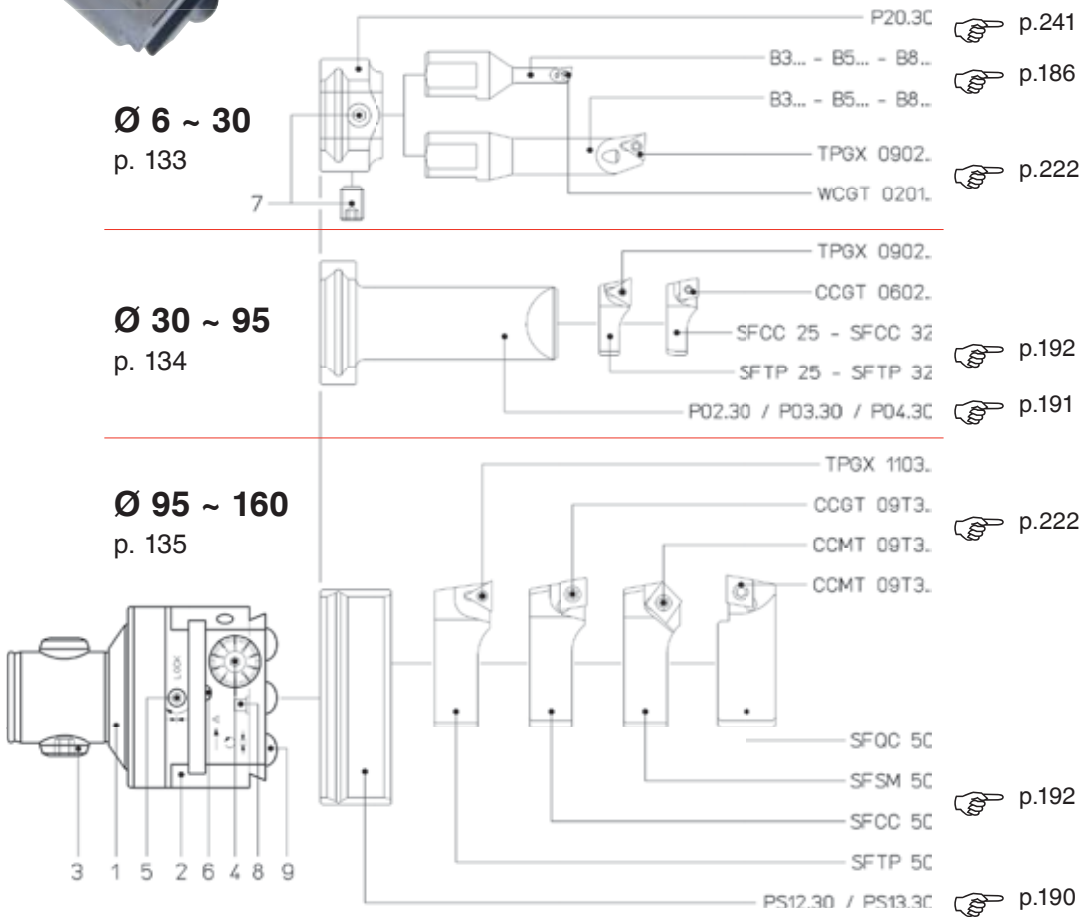
TRM 50/80
TRM 80/80

Ø 6 ~ 160



Ø 6 ~ 30
p. 133

p.241
p.186
p.222

Ø 30 ~ 95
p. 134

p.192
p.191

Ø 95 ~ 160
p. 135

p.222
p.192
p.190

COMPONENTS
1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Toolholder lock screw

BAUTEILE
1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.
9. Werkzeughalter-spannschrauben

КОМПОНЕНТЫ
1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Держатель кассеты

COMPOSANTS
1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Vis blocage porte-outils

COMPONENTI
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Viti bloccaggio portautensili

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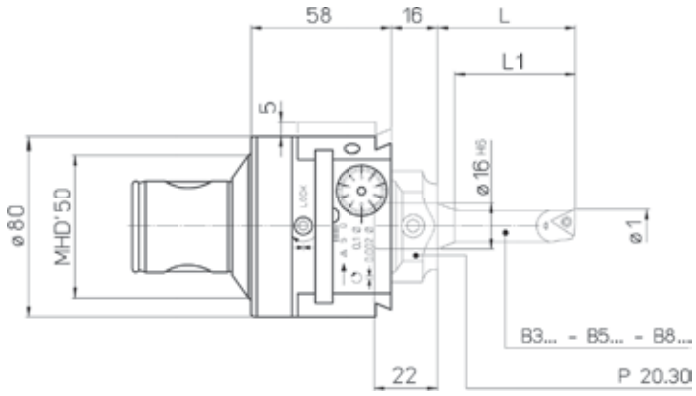
TRM 50/80
TRM 80/80
Ø 6 ~ 30



REF.	CODE	MHD'd_1	Ø$_1$	B...	L	L_1			kg
			6 ~ 8	B3.06	29	21	•	–	
				B5.06	36	–	•	–	
				B8.06	45	–	•	–	
			8 ~ 10	B3.08	36	28	•	–	
				B5.08	48	–	•	–	
				B8.08	60	–	•	–	
			10 ~ 12	B3.10	43	35	–	•	
				B5.10	60	–	–	•	
				B8.10	75	–	–	•	
TRM 50/80	45 50 050 0080 0	50	11 ~ 13	B3.11	48	40	–	•	2
TRM 80/80	45 50 080 0080 0	80	12 ~ 14	B3.12	48	42	–	•	2.5
				B5.12	72	–	–	•	
				B8.12	90	–	–	•	
			14 ~ 16	B3.14	52	50	–	•	
				B5.14	84	–	–	•	
				B8.14	105	–	–	•	
			16 ~ 18	B3.16	58	50	–	•	
				B5.16	96	–	–	•	
				B8.16	120	–	–	•	
			18 ~ 22	B3.18	63	–	–	•	
			22 ~ 30	B3.22	68	–	–	•	

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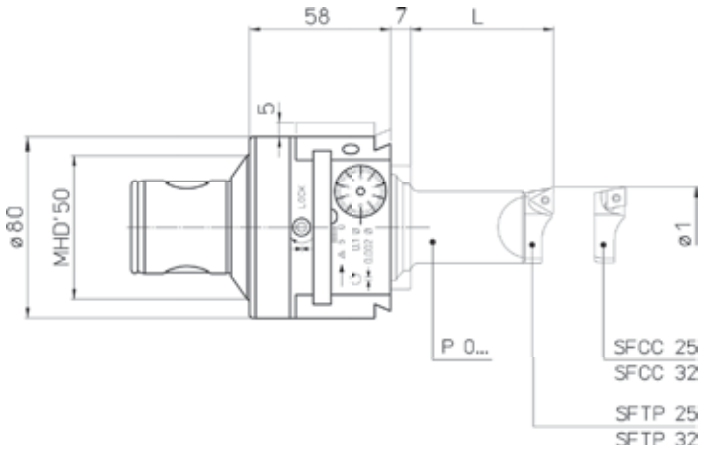
TRM 50/80
TRM 80/80

Ø 30 ~ 95



REF.	CODE	MHD'd_1	Ø$_1$	L	P 0...	SF..			kg
TRM 50/80 TRM 80/80	45 50 050 0080 0 45 50 080 0080 0	50 80	30 ~ 83	50	P 02.30	SFTP 25 SFCC 25	•	•	2 2.5
				80	P 03.30				
				125	P 04.30				
			35.5 ~ 95	50	P 02.30	SFTP 32 SFCC 32	•	•	
				80	P 03.30				
				125	P 04.30				

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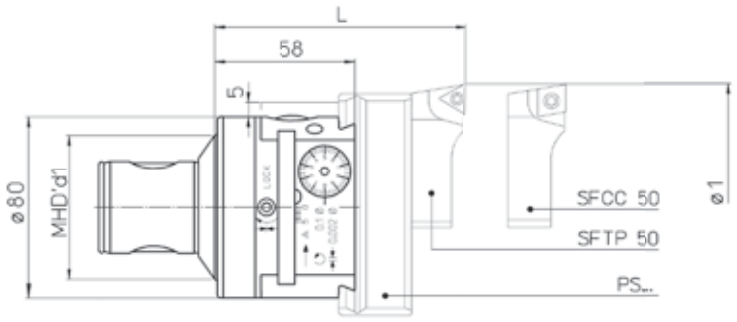
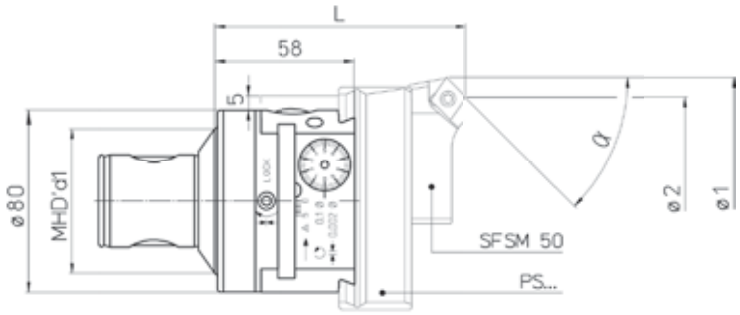
TRM 50/80
TRM 80/80
Ø 95~ 160



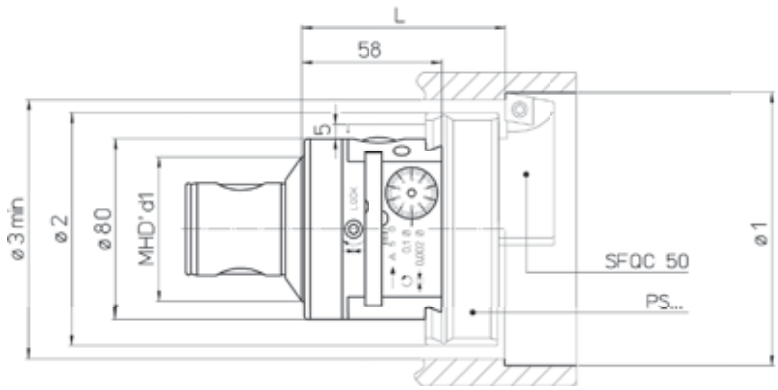
REF.	CODE	MHD'd1	Ø1	L	PS..	SF..			kg
TRM 50/80	45 50 050 0080 0	50	95 ~ 140	96.5	PS 12.30	SFTP 50	•		2
TRM 80/80	45 50 080 0080 0	80	140 ~ 160		PS 13.30	SFCC 50		•	2.5

TRM 50/80
TRM 80/80
Ø 95 ~ 160



REF.	CODE	MHD'd1	Ø1	Ø2	α	L	PS..	SFSM		kg
TRM 50/80	45 50 050 0080 0	50	95 ~ 140	90 ~ 135	15°	96.5	PS 12.30	SFSM 50-15°	•	2
TRM 80/80	45 50 080 0080 0	80		85.5 ~ 130.5	30°			SFSM 50-30°		2.5
				81.5 ~ 126.5	45°			SFSM 50-45°		
			140 ~ 160	135 ~ 155	15°		PS 13.30			
				130 ~ 150	30°					
				126.5 ~ 146.5	45°					

TRM 50/80
TRM 80/80
Ø 100 ~ 162



Ø3 min = (Ø1+Ø2+1) : 2

REF.	CODE	MHD'd1	Ø1	Ø2	L	PS..	SFQC		kg
TRM 50/80	45 50 050 0080 0	50	100 ~ 142	93	79.5	PS 12.30	SFQC 50	•	2
TRM 80/80	45 50 080 0080 0	80	142 ~ 162	135		PS 13.30			2.5

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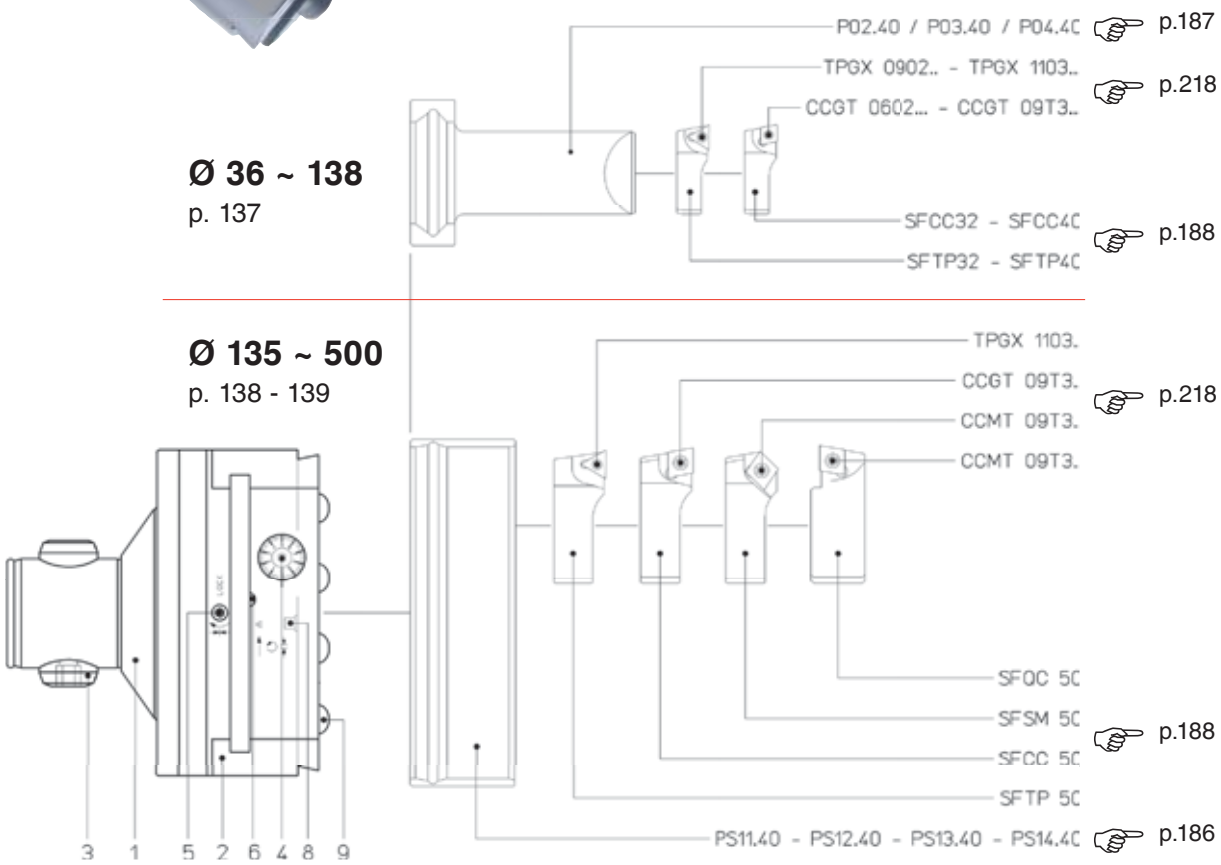
TRM 80/125

Ø 36 ~ 500



Ø 36 ~ 138
p. 137

Ø 135 ~ 500
p. 138 - 139

COMPONENTS
1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
8. Oiler
9. Toolholder lock screw

BAUTEILE
1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
8. Schmiernippel Bohrstangen.
9. Werkzeughalter-spannschrauben

КОМПОНЕНТЫ
1. Корпус
2. Салазки
3. Разжимной фиксируюший винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
8. Масленка
9. Держатель кассеты

COMPOSANTS
1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
8. Graisseur
9. Vis bloccage porte-outils

COMPONENTI
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
8. Oliatore
9. Vite bloccaggio portautensile

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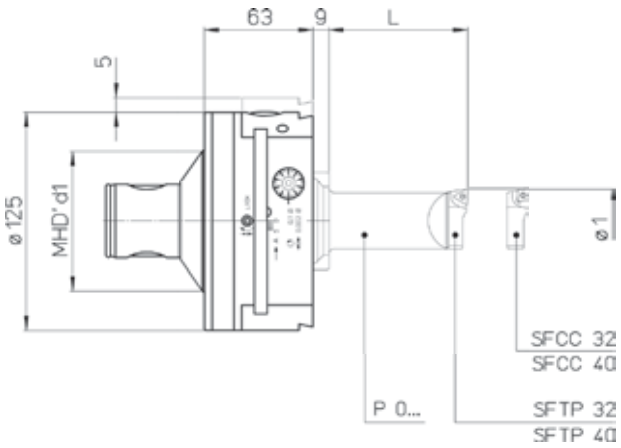
TRM 80/125

Ø 36 ~ 138



REF.	CODE	MHD'd_1	Ø$_1$	L	P 0...	SF..			kg
TRM 80/125	45 50 080 0125 0	80	36 ~ 125	80	P 02.40	SFTP 32 SFCC 32	•	•	5.5
				125	P 03.40				
				200	P 04.40				
			50 ~ 138	80	P 02.40	SFTP 40 SFCC 40	•	•	
				125	P 03.40				
				200	P 04.40				

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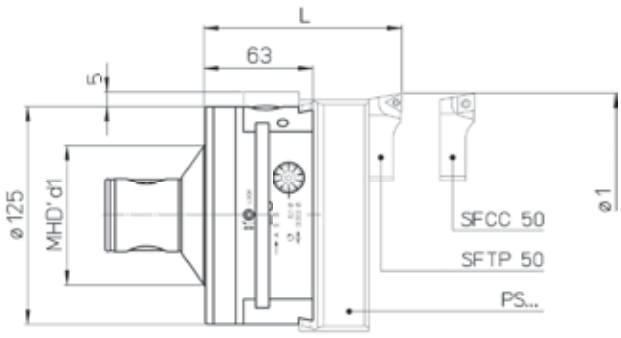
TRM 80/125

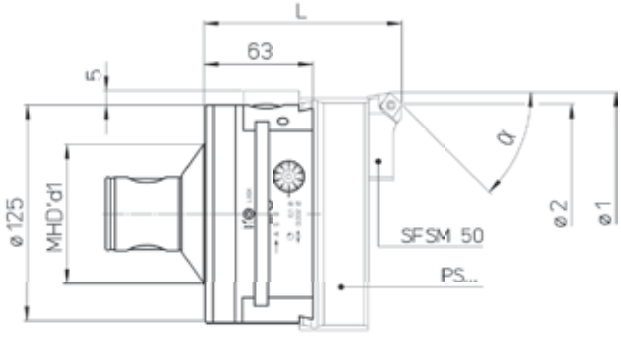
Ø 135 ~ 500



REF.	CODE	MHD'd1	Ø1	L	PS..	SF..			kg
TRM 80/125	45 50 080 0125 0	80	135 ~ 210	115	PS 11.40	SFTP 50 SFCC 50	•	•	5.5
			205 ~ 310		PS 12.40				
			305 ~ 410		PS 13.40				
			405 ~ 500		PS 14.40				

TRM 80/125

Ø 135 ~ 500



REF.	CODE	MHD'd1	Ø1	Ø2	α	L	PS..	SFSM		kg
TRM 80/125	45 50 080 0125 0	80	135 ~ 210	130 ~ 205	15°	115	PS 11.40	SFSM 50-15° SFSM 50-30° SFSM 50-45°	•	5.5
				125.5 ~ 200.5	30°					
				121.5 ~ 196.5	45°					
			205 ~ 310	200 ~ 305	15°		PS 12.40			
				195.5 ~ 300.5	30°					
				191.5 ~ 296.5	45°					
			305 ~ 410	300 ~ 405	15°		PS 13.40			
				295.5 ~ 400.5	30°					
				291.5 ~ 396.5	45°					
			405 ~ 500	400 ~ 495	15°		PS 14.40			
				395.5 ~ 490.5	30°					
				391.5 ~ 486.5	45°					

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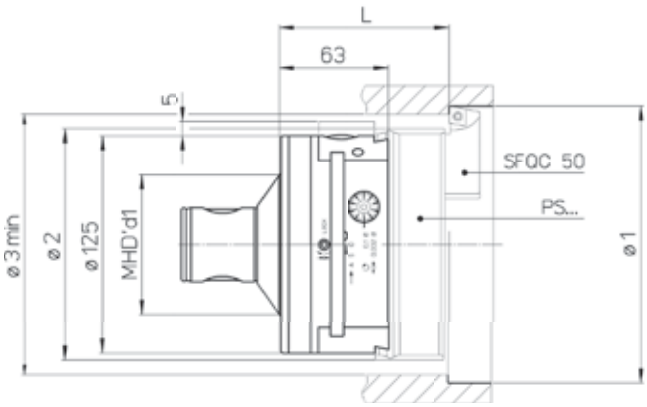
TRM

TRM 80/125

Ø 140 ~ 502



Ø3 min = (Ø1+Ø2+1) : 2

REF.	CODE	MHD'd_1	$Ø_1$	$Ø_2$	L	PS..	SFQC		kg
TRM 80/125	45 50 080 0125 0	80	140 ~ 212	133	98	PS 11.40	SFQC 50	•	5.5
			210 ~ 312	200		PS 12.40			
			310 ~ 410	300		PS 13.40			
			410 ~ 502	400		PS 14.40			

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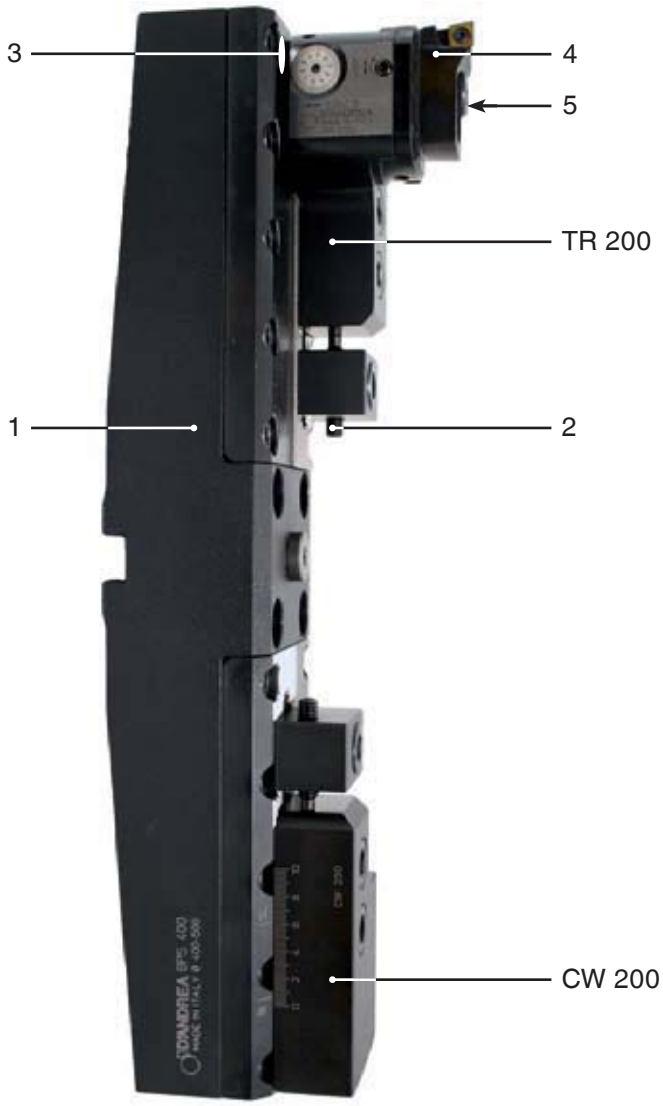
Double-bit crossbars for big diameters finish | Zweischneiderbohrstangen für Schlichtbearbeitungen großer Durchmesser | Двурезцовые расточные штанги для чистовой обработки больших диаметров | Semelles pour finissage grands diamètres | Barre portaseggio per finitura grandi diametri

ALUMINIUM TOOLS LINE



COMPONENTS
1. Body
2. Setting screws
3. Coolant outlets
4. Bit holders
5. Tools clamp screws

BAUTEILE
1. Körper
2. Einstellschraube
3. Kühlmittelaustrittlöcher
4. Plattenhalter
5. Werkzeugklemm-schrauben

КОМПОНЕНТЫ
1. Корпус
2. Установочный винт
3. Выходы каналов подачи СОЖ
4. Кассеты
5. Винты крепления кассет

COMPOSANTS
1. Corps
2. Vis de réglage
3. Sortie du liquide d'arrosage
4. Porte-plaquettes
5. Vis blocage outil

COMPONENTI
1. Corpo
2. Vite di regolazione
3. Fori uscita refrigerante
4. Seggio portainserti
5. Viti bloccaggio utensile

Double-bit crossbars for big diameters finish

Zweischneiderbohrstangen für Schlichtbearbeitungen großer Durchmesser

Двурезцовые расточные штанги для чистовой обработки больших диаметров

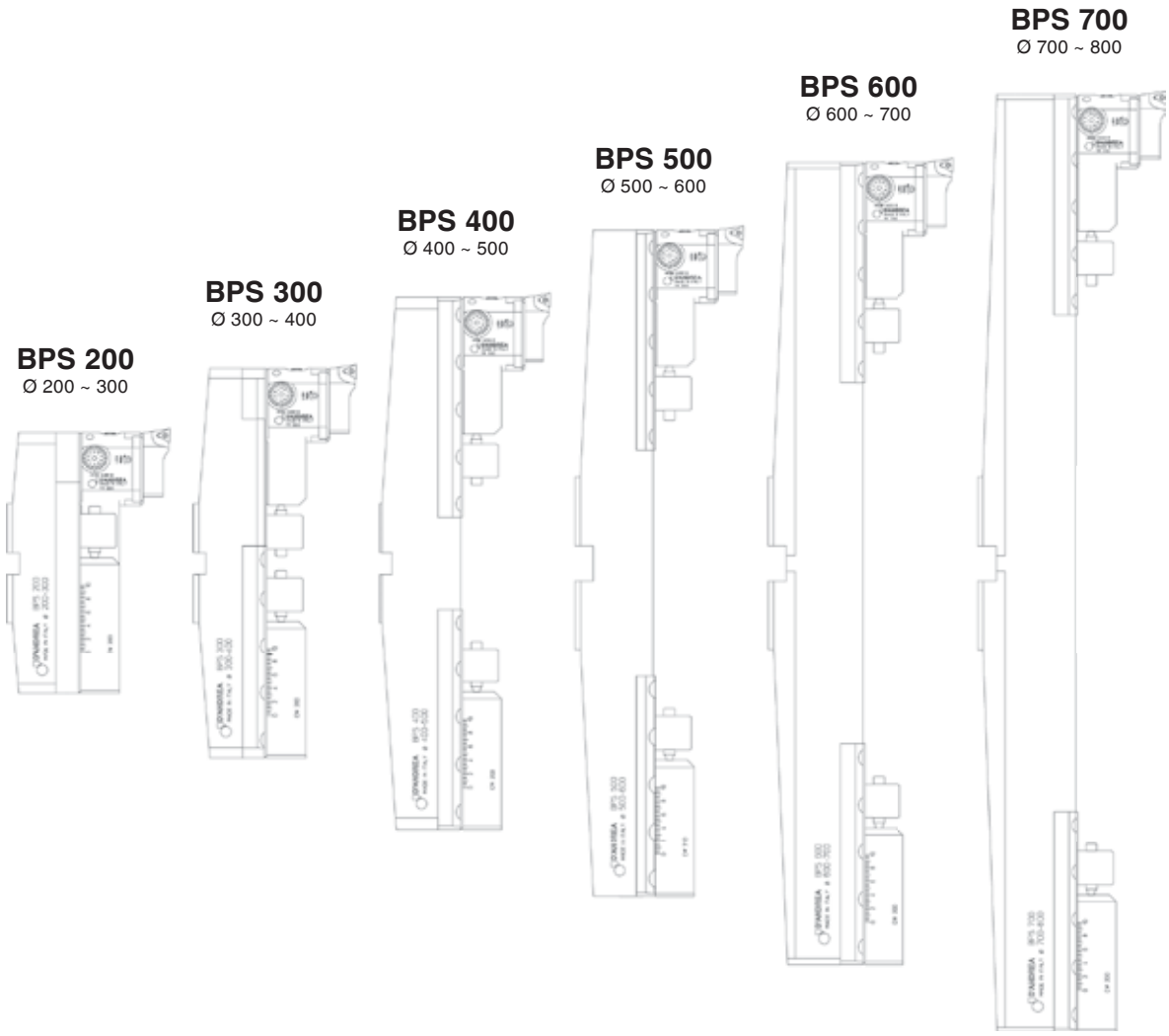
Semelles pour finissage grands diamètres

Barre portaseggio per finitura grandi diametri

ALUMINIUM TOOLS LINE

BPS

Ø 200 ~ 800



FEATURES

The BPS double-bit crossbars cover a working area from ø 200 - 800 mm.
The BPS double-bit crossbars are constructed in alluminum and mounted on a steel double-bit plate.

MERKMALE

Die Sitzhalterungsbalken BPS bedecken ein Arbeitsfeld von ø 200 - 800 mm.
Die Sitzhalterungsbalken BPS bestehen aus Aluminium auf welches die Sitzhalterungsplatte aus Stahl befestigt wird.

ОСОБЕННОСТИ

Двурезцовые штанги BPS перекрывают диапазон от 200 до 800 мм. Корпуса штанг изготовлены из специального алюминиевого сплава и усилены стальными пластинами, на которых крепятся расточные кассеты.

CARACTÉRISTIQUES

Les barres porte logement BPS couvrent un intervalle de travail de 200 - 800 mm de diamètre.
Les barres porte logement BPS sont réalisées en aluminium sur lequel est fixée la plaquette porte logement en acier

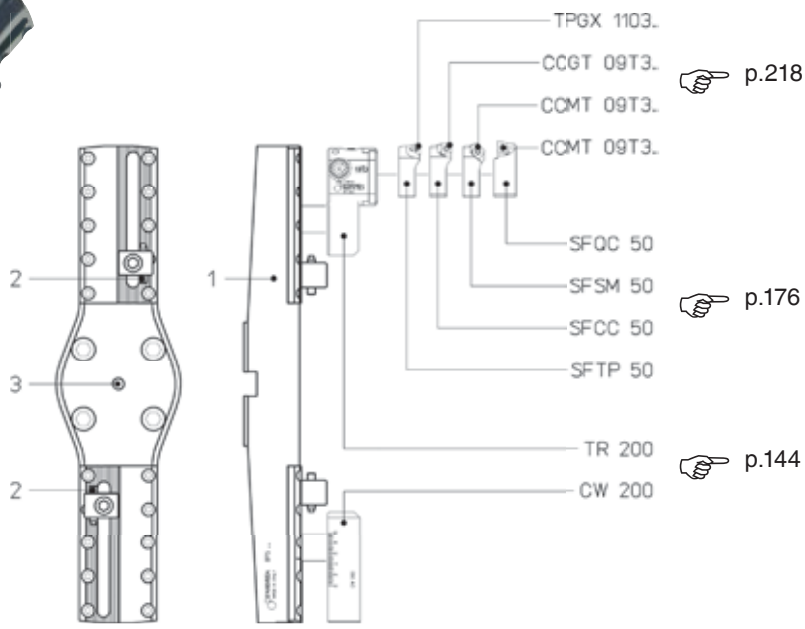
CARATTERISTICHE

La barre portaseggio BPS coprono un campo di lavoro da ø 200 - 800 mm.
Le barreportaseggio BPS sono costruite in alluminio sul quale viene fissata la piastra portaseggio in acciaio.

ALUMINIUM TOOLS LINE

BPS ...

Ø 200 ~ 800



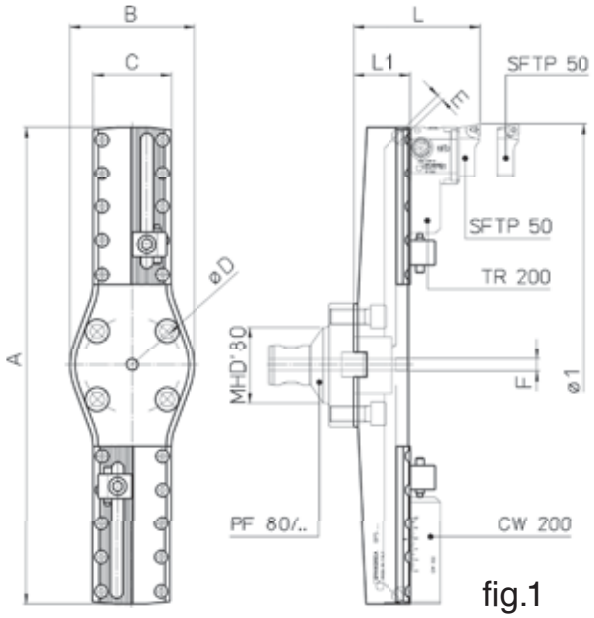


fig.1

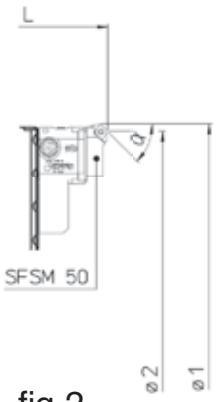


fig.2

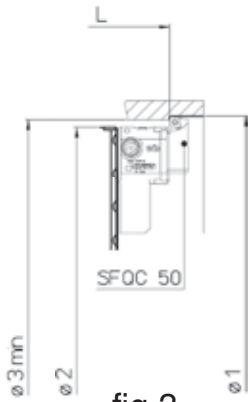


fig.3

fig.3 Ø3 min = (Ø1+Ø2+1) : 2

COMPONENTS
1. Body
2. Setting screws
3. Coolant outlets

BAUTEILE
1. Körper
2. Einstellschraube
3. Kühlmittelaustrittlöcher

КОМПОНЕНТЫ
1. Корпус
2. Установочный винт
3. Выходы каналов подачи СОЖ

COMPOSANTS
1. Corps
2. Vis de réglage
3. Sortie du liquide d'arrosage

COMPONENTI
1. Corpo
2. Vite di regolazione
3. Fori uscita refrigerante

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BPS

D'ANDREA

Double-bit crossbars for big diameters finish

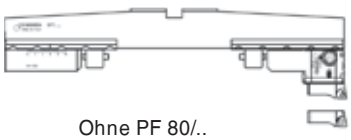
Zweischneiderbohrstangen für Schlichtbearbeitungen großer Durchmesser

Двурезцовые расточные штанги для чистовой обработки больших диаметров

Semelles pour finissage grands diamètres

Barre portaseggio per finitura grandi diametri

fig.1



PF 80/.. excluded | Ohne PF 80/.. | Без PF 80/.. | Sauf PF 80/.. | PF 80/.. escluso

REF.	CODE	Ø1	A	L	L1	B	C	øD	øE	F	PF..	SF...	kg
BPS 200	43 55 40 88 198 0	200 ~ 300	194	120	54	–	80	66.7	2.5	–	PF 80/40	SFTP 50 SFCC 50	3.2
BPS 300	43 55 40 88 298 0	300 ~ 400	288										3.9
BPS 400	43 55 40 88 398 0	400 ~ 500	394	127	61				–	1/4 GAS			6.9
BPS 500	43 55 60 88 494 0	500 ~ 600	494	135	69	128		101.6			PF 80/60		9.4
BPS 600	43 55 60 88 594 0	600 ~ 700	594	137	71								9.9
BPS 700	43 55 60 88 694 0	700 ~ 800	694	140	74								11.2

fig.2

PF 80/.. excluded | Ohne PF 80/.. | Без PF 80/.. | Sauf PF 80/.. | PF 80/.. escluso

REF.	CODE	Ø1	Ø2	α	A	L	L1	B	C	øD	øE	F	PF..	SFSM	kg
BPS 200	43 55 40 88 198 0	200 ~ 300	195 ~ 295	15°	194	120	54	–	80	66.7	2.5	–	PF 80/40	SFSM 50-15° SFSM 50-30° SFSM 50-45°	3.2
			190.5 ~ 280.5	30°											
			186.5 ~ 286.5	45°											
BPS 300	43 55 40 88 298 0	300 ~ 400	295 ~ 395	15°	288										3.9
			290.5 ~ 390.5	30°											
			286.5 ~ 386.5	45°											
BPS 400	43 55 40 88 398 0	400 ~ 500	395 ~ 495	15°	394	127	61				–	1/4 GAS			6.9
			390.5 ~ 490.5	30°											
			386.5 ~ 486.5	45°											
BPS 500	43 55 60 88 494 0	500 ~ 600	495 ~ 595	15°	494	135	69	128		101.8			PF 80/60		9.4
			490.5 ~ 590.5	30°											
			486.5 ~ 586.5	45°											
BPS 600	43 55 60 88 594 0	600 ~ 700	595 ~ 695	15°	594	137	71								9.9
			590.5 ~ 690.5	30°											
			586.5 ~ 686.5	45°											
BPS 700	43 55 60 88 594 0	700 ~ 800	695 ~ 795	15°	694	140	74								11.2
			690.5 ~ 790.5	30°											
			686.5 ~ 786.5	45°											

fig.3

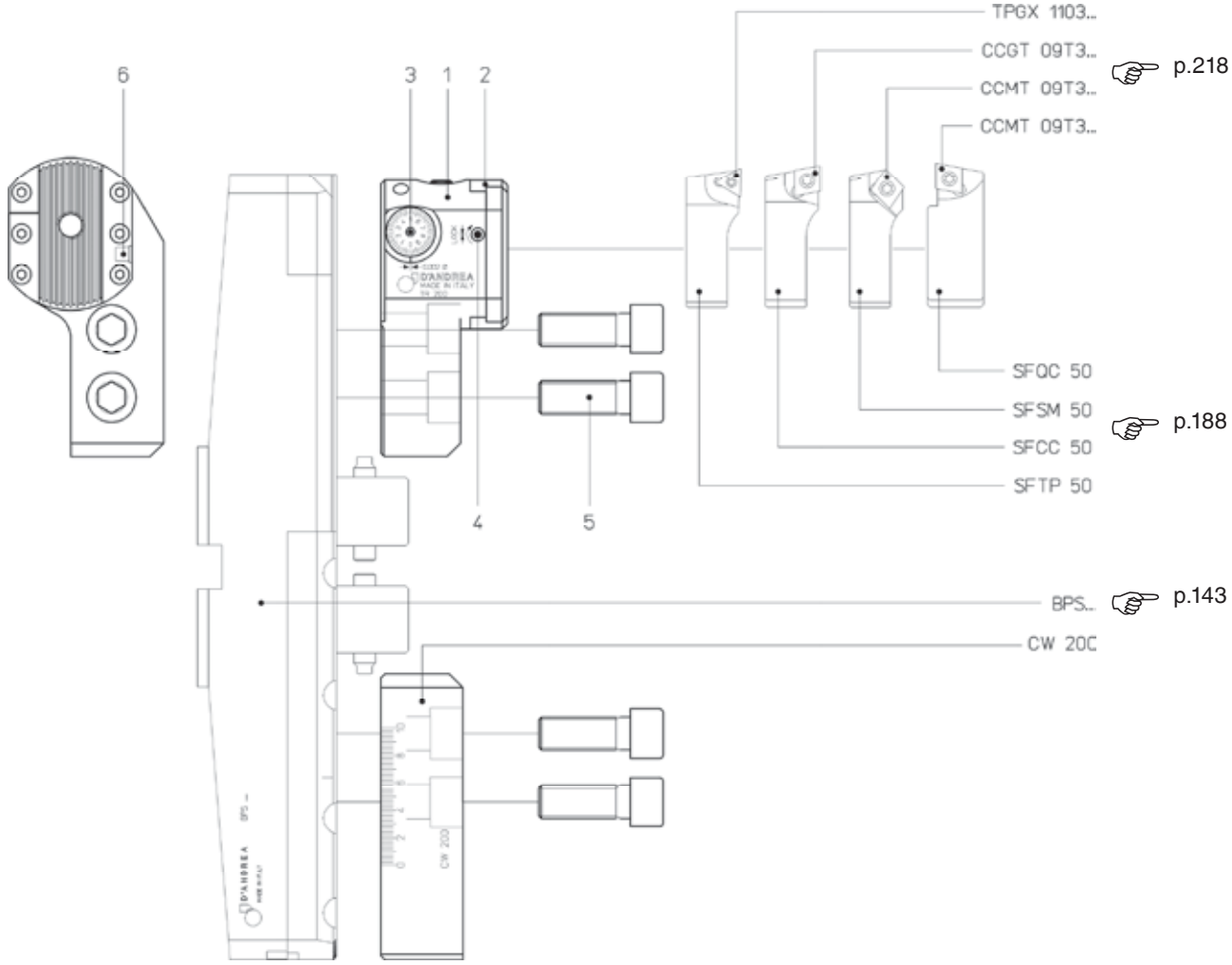
PF 80/.. excluded | Ohne PF 80/.. | Без PF 80/.. | Sauf PF 80/.. | PF 80/.. escluso

REF.	CODE	Ø1	Ø2	L	B	C	øD	øE	F	PF ..	SFQC	kg
BPS 200	43 55 40 88 198 0	202 ~ 302	194	103	–	80	66.7	2.5	–	PF 80/40	SFQC 50	3.2
BPS 300	43 55 40 88 298 0	302 ~ 402	288									3.9
BPS 400	43 55 40 88 398 0	402 ~ 502	394	110				–	1/4 GAS			6.9
BPS 500	43 55 60 88 494 0	502 ~ 602	494	118	128		101.6			PF 80/60		9.4
BPS 600	43 55 60 88 594 0	602 ~ 702	594	120								9.9
BPS 700	43 55 60 88 694 0	702 ~ 802	694	123								11.2

Micrometric head	Mikrometrischer Ausdrehkopf	Микрометрическая головка	Tête micrométrique	Testina micrometrica

TR 200

Ø 200 ~ 800



COMPONENTS

1. Body
2. Slide toolholder
3. Micrometric vernier scale
4. Slide clamp screw
5. Lock screw TR 200
6. Oiler

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Mikrometrischer Nonius
4. Schlittenklemmschraube
5. TR 200 Klemmschraube
6. Schmiernippel Bohrstangen.

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Микрометрическая шкала нониуса
4. Винт фиксации салазок
5. Зажимной винт
6. Масленка

COMPOSANTS

1. Corps
2. Coulisseau
3. Vernier micrométrique
4. Vis blocage coulisseau
5. Vis blocage TR 200
6. Graisseur

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Nonio micrometrico
4. Vite bloccaggio slitta
5. Vite bloccaggio TR200
6. Oliatore

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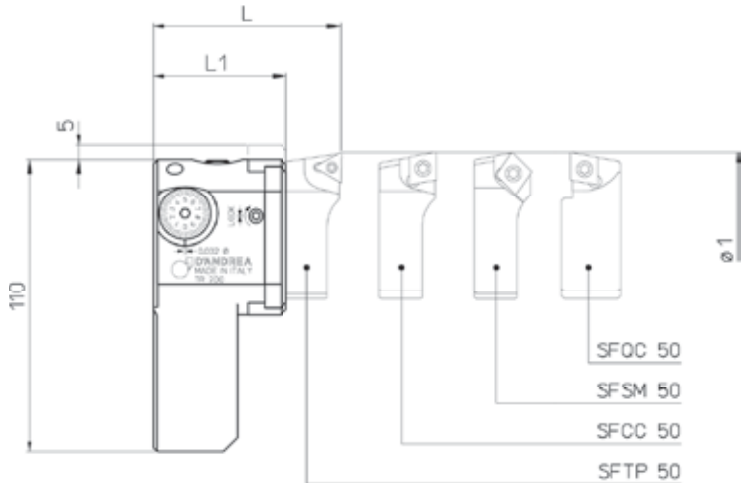
TR 200

Micrometric head | Mikrometrischer Ausdrehkopf | Микрометрическая головка | Tête micrométrique | Testina micrometrica

TR 200

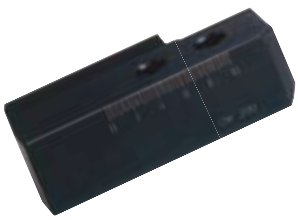
Ø 200 ~ 802

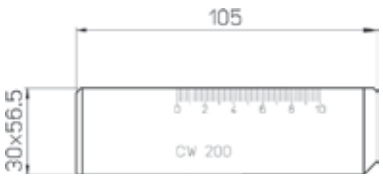


REF.	CODE	$Ø_1$	L	L_1	SF.. 50	△	◻	kg
TR 200	45 50 200 0200 0	200 ~ 800	66	47	SFTP 50 SFCC 50	•	•	1.3
		200 ~ 800			SFSM 50-15°	–	•	
					SFSM 50-30°			
					SFSM 50-45°			
		202 ~ 802			SFQC 50	–	•	

Counterweight | Gegengewicht | Противовес | Contrpoids | Contrappeso

CW 200





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

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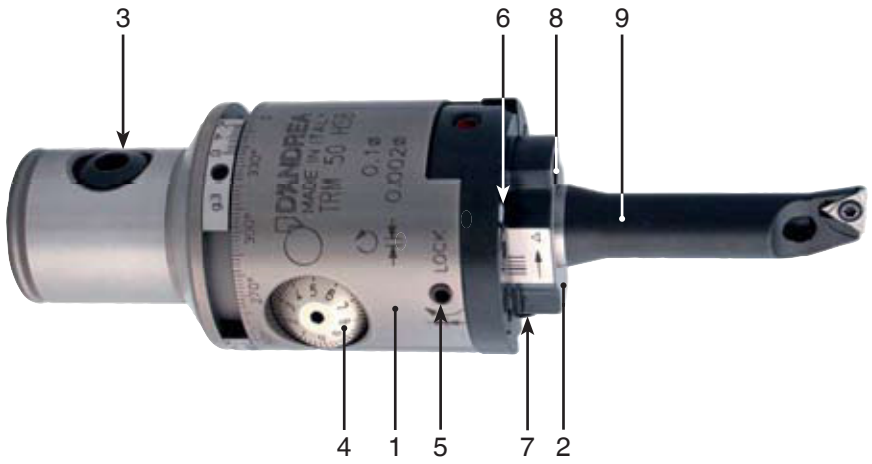
Balanceable Testarossa HSB | Auswuchtbarer Testarossa Feinstbohrkopf HSB | Балансируемые расточные головкиTestarossa HSB | Testarossa équilibrable HSB | Testarossa bilanciabile HSB



FEATURES

The TRM HSB heads in the new line Testarossa D'Andrea have protective rustproof coating.
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.

MERKMALE

Die Köpfe TRM HSB der neuen Testarossa D'Andrea Linie haben einen antikorrosiven Oberflächenschutz
Die Köpfe TRM HSB ermöglichen hochpräzise Bearbeitungen mit Tolleranzen Grad IT6 und hochwertiger Oberflächenbearbeitung.
Sie besitzen eine Einstellungsfeinheit von 1 Mikron auf dem Radius, leicht auf dem Nonius ablesbar und auch in der Maschine ausführbar.

ОСОБЕННОСТИ

На головки TRM HSB в новой линии Testarossa нанесено защитное покрытие. Высокая прочность обработки по классу точности IT6 с исключительной чистотой поверхности достигается при использовании расточных головок TRM HSB и микрометрических расточных головок.
Они очень чувствительны и радиальная коррекция в 1 микрон может быть осуществлена прямо на станке и легко считана со шкалы нониуса.

CARACTÉRISTIQUES

Les têtes TRM HSB de la nouvelle ligne Testarossa D'Andrea ont une protection superficielle anticorrosion.
Les têtes TRM HSB permettent des travaux de haute précision avec des tolérances de degré IT6 comprenant une finition superficielle optimum.
Elles ont une sensibilité de réglage de 1 micron sur le rayon, facilement lisible sur le nonius et exécutable même en machine.

CARATTERISTICHE

Le testine TRM HSB della nuova linea Testarossa D'Andrea hanno una protezione superficiale anticorrosiva.
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.

COMPONENTS

1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Tool

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.
9. Werkzeug

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходы каналов подачи СОЖ
7. Винт крепления инструмента
8. Масленка
9. Оправка

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Outil

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Utensile

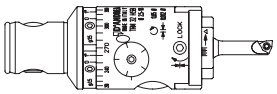
TRM HSB

TRM HSB

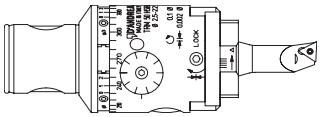
Ø 2.5 ~ 22

RPM MAX 20.000

TRM 32 HSB
Ø 2.5 ~ 18



TRM 50 HSB
Ø 2.5 ~ 22



2 µm

IMPORTANT NOTE

Take care that the tools and tool holders are solidly blocked on the slide.
The only manoeuvring or adjusting screws to be used for the operations for the heads are those listed in the Components section.

- The screws not listed in the Components section should not be touched in order not to compromise the correct operation of boring bars and heads.
- The boring bars should be assembled with the insert turned on the same direction of the vernier (4) scale (see photo).
- Remember to loosen the screw (5) before adjusting the vernier setting(4). Fix the screw (5) at the end of the adjustment.

The micrometric adjustment of POSITIVE is carried out by turning the vernier (4) counter-clockwise.

The use of coolant on the TRM HSB heads should be 40 BAR max.

WICHTIGER HINWEIS

- Sicherstellen, dass Werkzeuge und Werkzeughalterungen fest auf dem Schlitten angebracht sind.
  Die Manöver oder Einstellungsschrauben, welche für den Einsatz der Köpfe dienen, sind nur jene im Punkt Komponenten angegebene.
- Die nicht im Punkt Komponenten angegebenen Schrauben, dürfen nicht berührt werden, um die gute Funktion der Köpfe nicht zu beeinträchtigen.
- Bohrer müssen mit dem Einsatz gegen dieselbe Seite des Nonius (4) montiert werden. (siehe Abbildung)
- Sicherstellen, dass die Schraube (5) vor einer Einstellung des Nonius (4) gelöst wird. Schraube (5) nach Beenden der Einstellung wieder anziehen.

Die mikrometrische POSITIVE Endeinstellung erfolgt durch Drehen in Uhrzeigersinn des Nonius (4).

Der Einsatz des Kühlmittels auf den beidseitig schneidenden Köpfen TRM HSB darf maximal 40 BAR betragen.

ВНИМАНИЕ

- Убедитесь, что инструменты или державки жестко закреплены в салазках. В качестве маневровых или регулировочных винтов могут быт использованы только перечисленные в разделе «Компоненты».
- Не прикасайтесь к винтам, не перечисленным в разделе «Компоненты», чтобы не нарушить внутренних заводских регулировок и тем самым точности расточных головок и штанг.
- Направление режущей пластины у кассет и оправок должно соответствовать маркировке, выбитой на салазках головки.
- Всегда ослабляйте зажимной винт (5) перед установкой значения нониуса (4). Затяните винт (5) после окончания регулировки.
- Микрометрическая настройка в сторону увеличения размера осуществляется поворотом нониуса против часовой стрелки.
- Использование СОЖ в головках TRD должно осуществляться при максимальном давлении 40BAR.

NOTE IMPORTANTE

- S'assurer que les outils et les porte-outils sont solidement bloqués sur le chariot. Les vis de manœuvre ou de réglage utiles pour l'utilisation des têtes sont seulement celles indiquées au paragraphe Composants.
- Les vis non indiquées au paragraphe Composants ne doivent pas être touchées pour ne pas compromettre le bon fonctionnement des têtes.
- Les logements et les barres d'alésage doivent être installés avec la plaquette sur le même coté de la vis (4) (voir la photo)
- Ne pas oublier de desserrer la vis (5) avant d'effectuer un réglage du nonius (4). Bloquer la vis (5) à la fin du réglage.

Le réglage micrométrique POSITIF est effectué en tournant en sans anti-horaire le nonius (4).

L'utilisation du réfrigérant sur les têtes TRM HSB doit être d'un max. de 40 BAR

ATTENZIONE

- Assicurarsi che utensili e portautensili siano saldamente bloccati sulla slitta. Le viti di manovra o di regolazione utili per l'impiego delle testine sono solo quelle indicate nel punto Componenti.
- Le viti non indicate nel punto Componenti non devono essere toccate per non compromettere il buon funzionamento delle testine.
- I bareni devono essere montati con l'inserto rivolto dalla stessa parte del nonio (4) (vedere foto).
- Ricordarsi di allentare la vite (5) prima di eseguire una regolazione del nonio (4). Bloccare la vite (5) a fine regolazione.

La regolazione micrometrica POSITIVA si esegue ruotando in senso antiorario il nonio (4).

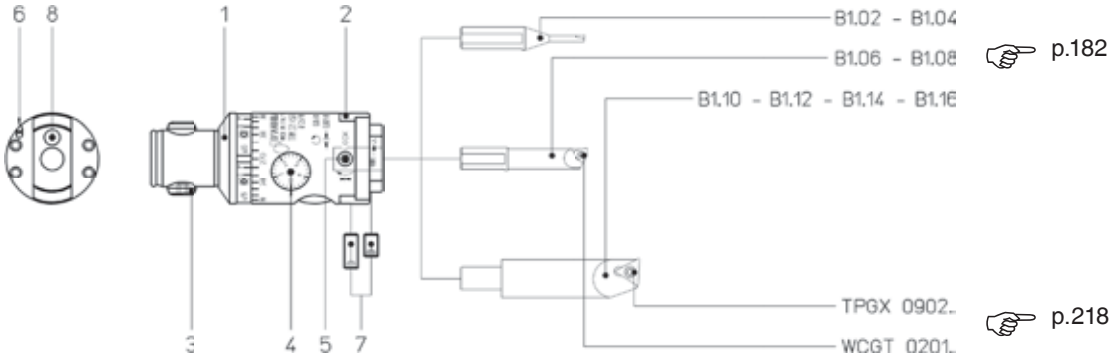
L'impiego del refrigerante sulle testine TRM HSB deve essere max. 40 BAR.

Balanceable Testarossa HSB | Auswuchtbarer Testarossa Feinstbohrkopf HSB | Балансируемые расточные головки Testarossa HSB | Testarossa équilibrable HSB | Testarossa bilanciabile HSB

TRM 32 HSB

Ø 2.5 ~ 18

RPM MAX 20.000



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COMPONENTS

1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.

КОМПОНЕНТЫ

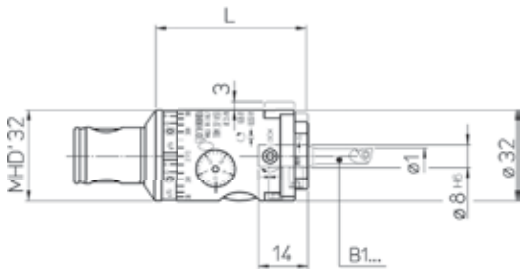
1. Корпус
2. Салазки
3. Разжимной винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходы каналов подачи СОЖ
7. Винт крепления инструмента
8. Масленка

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore



REF.	CODE	Ø1	L			kg.
TRM 32 HSB	45 51 032 0053 1	2.5 ~ 18	53	•	•	0.7

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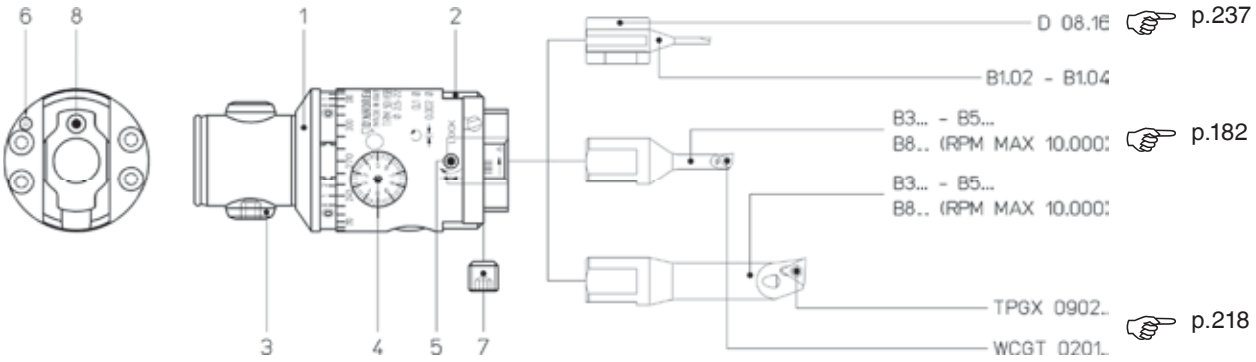
TRM HSB

Balanceable Testarossa HSB | Auswuchtbarer Testarossa Feinstbohrkopf HSB | Балансируемые расточные головки Testarossa HSB | Testarossa équilibrable HSB | Testarossa bilanciabile HSB

TRM 50 HSB

Ø 2.5 ~ 22

RPM MAX 20.000



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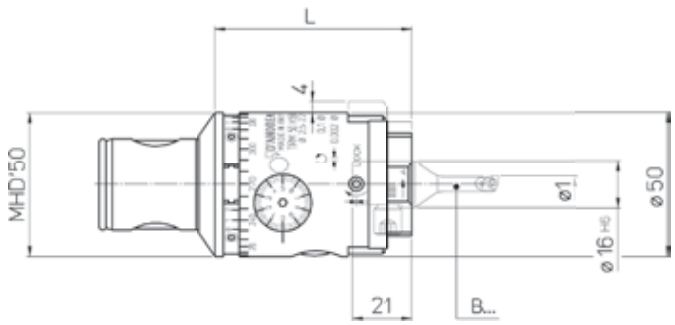
COMPONENTS
1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler

BAUTEILE
1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.

КОМПОНЕНТЫ
1. Корпус
2. Салазки
3. Разжимной винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходы каналов подачи СОЖ
7. Винт крепления инструмента
8. Масленка

COMPOSANTS
1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur

COMPONENTI
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore



REF.	CODE	Ø1	L			kg.
TRM 50 HSB	45 51 050 0070 1	2.5 ~ 22	68.5	•	•	1.4

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MODULHARD'ANDREA

Kit Testarossa | Set Testarossa | Наборы расточных головок Kit Testarossa | Kit Testarossa | Kit Testarossa

SUPPLY

The boring heads TRC TESTAROSSA are supplied in a box with a wide range of toolholders, tools, inserts and service wrenches.

LIEFERUMFANG

Die TESTAROSSA TRC Sets werden in einem Koffer mit einem umfassenden Sortiment von Werkzeugaufnahmen, Werkzeugen, Schneidplatten und Bedienungsschlüsseln geliefert.

ПОСТАВКА

Расточные головки TRC TESTAROSSA поставляются в чемодане с набором державок, оправок и ключей.

FOURNITURE

Les kit TESTAROSSA TRC sont livrés dans une boîte avec un ample assortiment de porte-outils, d'outils, de plaquettes et de clés de service.

FORNITURA

I kit TESTAROSSA TRC vengono forniti in una custodia con un ampio corredo di portautensili, utensili, inserti e chiavi di servizio.

KIT K01 TRC 32 HS
KIT K01 TRC 50 HS

10 µm

nonio vernier 2 µm

KIT K01 TRC 50

KIT K01 TRC 63
KIT K01 TRC 80

Kit Testarossa | Set Testarossa | Наборы расточных головок Kit Testarossa | Kit Testarossa | Kit Testarossa

SUPPLY

The boring heads TRM TESTAROSSA are supplied in a box with a wide range of toolholders, tools, inserts and service wrenches.

LIEFERUMFANG

Die TESTAROSSA TRM Sets werden in einem Koffer mit einem umfassenden Sortiment von Werkzeugaufnahmen, Werkzeugen, Schneidplatten und Bedienungsschlüsseln geliefert.

ПОСТАВКА

Расточные головки TRM TESTAROSSA поставляются в чемодане с набором державок, оправок и ключей.

FOURNITURE

Les kit TESTAROSSA TRM sont livrés dans une boîte avec un ample assortiment de porte-outils, d'outils, de plaquettes et de clés de service.

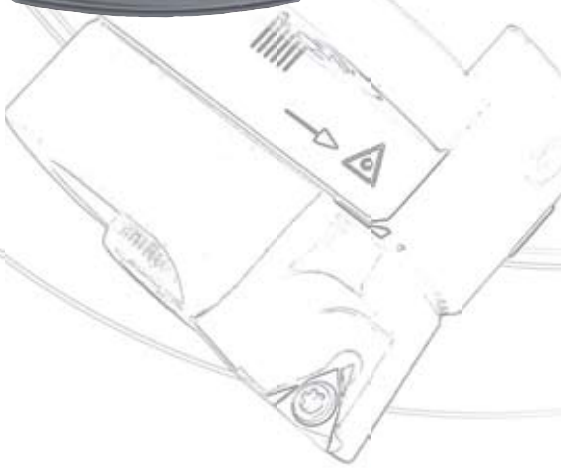
FORNITURA

I kit TESTAROSSA TRM vengono forniti in una custodia con un ampio corredo di portautensili, utensili, inserti e chiavi di servizio.

2 µm

KIT K01 TRM 32 HSB
KIT K01 TRM 50 HSB

KIT K01 TRM 50



KIT K01 TRM 50/63
KIT K01 TRM 63/63
KIT K01 TRM 50/80
KIT K01 TRM 80/80

K01 TRC 32 HS

Ø 2.5 ~ 12

Максимальноре число оборотов 12.000

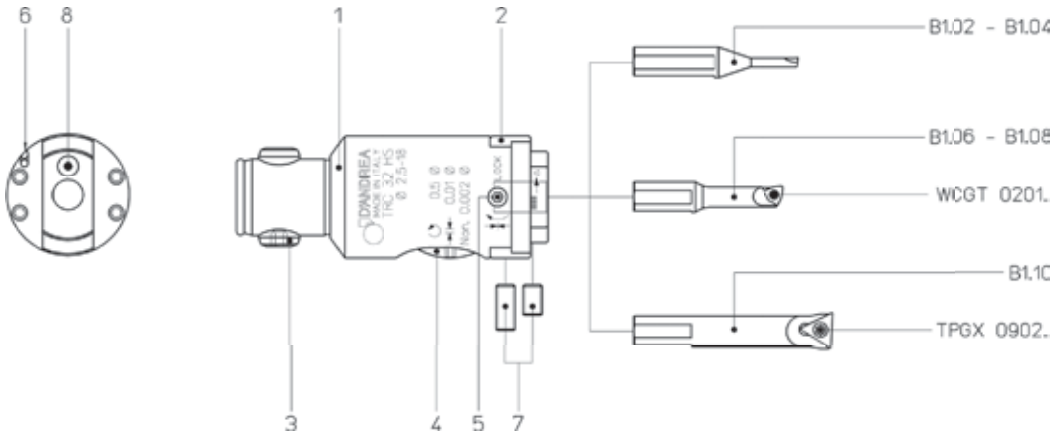
KIT K01 TRC 32 HS

1 TRC 32 HS
1 B1.02
1 B1.04
1 B1.06
1 B1.08
1 B1.10
5 TPGX 090202L DC100
2 WCGT 020102L DC100

10 µm
nonio vernier 2 µm

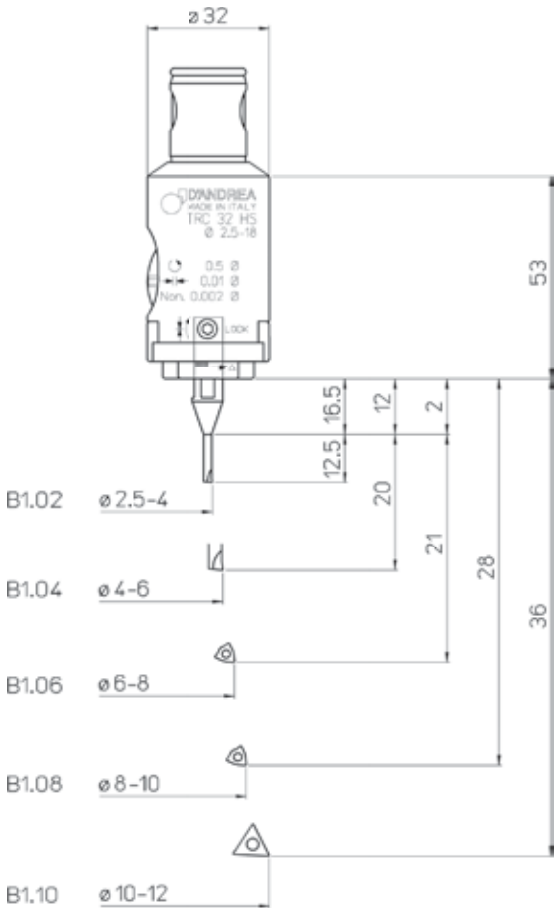
REF.	CODE	Ø
K01 TRC 32 HS	65 50 332 3032 1	2.5 ~ 12

TRC 32 HS COMPONENTS | **TRC 32 HS BAUTEILE** | **КОМПОНЕНТЫ TRC 32 HS** | **COMPOSANTS TRC 32 HS** | **COMPONENTI TRC 32 HS**



KIT - TRC

Working range | Arbeitsbereich | Рабочий диапазон | Capacité d'usinage | Campo di lavoro



COMPONENTS

1. Body
2. Tool slide
3. Expanding pin
4. Micrometric vernier scale
5. Slide lock screw
6. Coolant outlet
7. Tool lock screw
8. Oiler

The boring head TRC 32 HS bores diameters from 2.5 to 12 mm.

- Fit the tool B.. into seat and lock with screw (7). The cutting tool must be on the slide longitudinal axis.

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Werkzeugschlitten-klemmschraube
6. Kühlmittelaustritt
7. Werkzeugklemmschraube
8. Schmiernippel

Das Gerät TRC 32 HS dreht Durchmesser von 2,5 bis 12 mm aus.

- Werkzeug B.. in die Aufnahme einsetzen und mit Schraube (7) spannen. Versichern Sie sich, dass die Schneide der Wendeplatte auf der Längsachse des Schlittens liegt.

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка

Расточная головка TRC 32 HS предназначена для растачивания отверстий диаметром от 2,5 до 12 мм.

- Установите инструмент B.. в гнездо и затяните винт (7). Режущая кромка расточного инструмента должна совпадать с продольной осью салазок.

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radiale expansible
4. Vernier micrométrique
5. Vis bloccage coulisseau
6. Sortie du liquide d'arrosage
7. Vis bloccage outil
8. Graisseur

Le kit TRC 32 HS alèse des diamètres allant de 2,5 à 12 mm.

- Introduire l'outil B.. dans le logement et le bloquer au moyen de la vis (7) n'oubliant pas de vérifier si le taillant de l'élément intercalaire est disposé sur l'axe longitudinal du coulisseau.

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore

Con il Kit TRC 32 HS si alesano fori da Ø 2,5 a 12 mm.

- Inserire nell'alloggiamento l'utensile B.. bloccandolo con la vite (7) assicurandosi che il tagliente dell'inserto si trovi sull'asse longitudinale della slitta.

K01 TRC 50 HS

Ø 6 ~ 22

RPM MAX 12.000

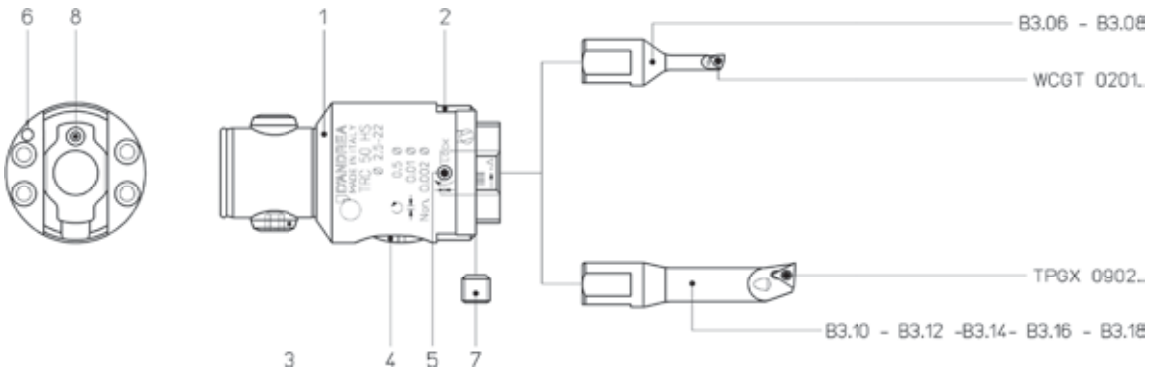
KIT K01 TRC 50 HS

1 TRC 50 HS
1 B3.06
1 B3.08
1 B3.10
1 B3.12
1 B3.14
1 B3.16
1 B3.18
5 TPGX 090202L DC100
2 WCGT 020102L DC100

10 µm
nonio vernier 2 µm

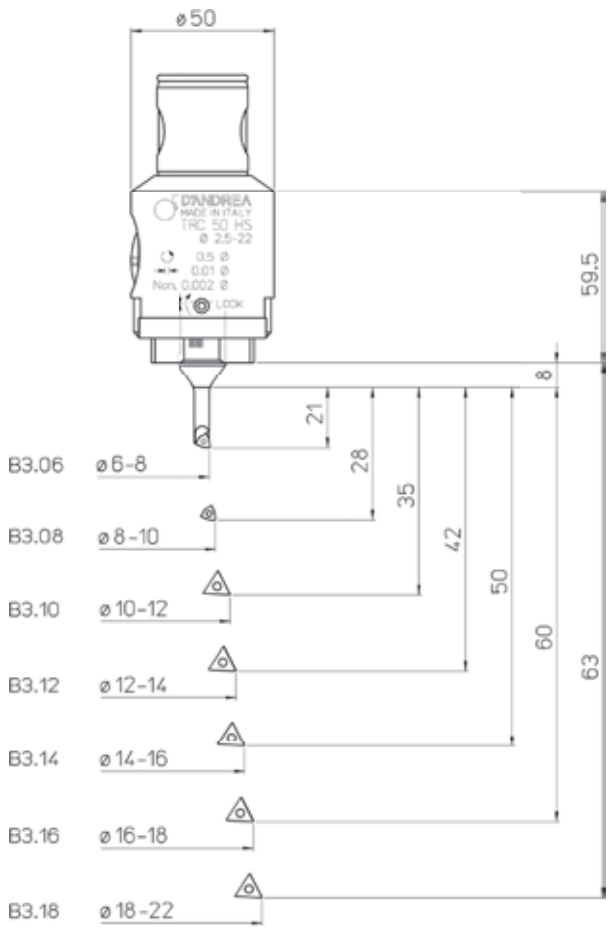
REF.	CODE	Ø
K01 TRC 50 HS	65 50 350 3050 1	6 ~ 22

TRC 50 HS COMPONENTS | **TRC 50 HS BAUTEILE** | **КОМПОНЕНТЫ TRC 50 HS** | **COMPOSANTS TRC 50 HS** | **COMPONENTI TRC 50 HS**



KIT - TRC

Working range | Arbeitsbereich | Рабочий диапазон | Capacité d'usinage | Campo di lavoro



COMPONENTS

1. Body
2. Tool slide
3. Expanding pin
4. Micrometric vernier scale
5. Slide lock screw
6. Coolant outlet
7. Tool lock screw
8. Oiler

The boring head TRC 50 HS bores diameters from 6 to 22 mm.

- Fit the tool B.. into seat and lock with screw (7). The cutting tool must be on the slide longitudinal axis.

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Werkzeugschlitten-klemmschraube
6. Kühlmittelaustritt
7. Werkzeugklemmschraube
8. Schmiernippel

Der Feinstbohrkopf TRC 50 HS dreht Durchmesser von 6 bis 22 mm aus.

- Werkzeug B.. in die Aufnahme einsetzen und mit Schraube (7) spannen. Versichern Sie sich, dass die Schneide der Wendeplatte auf der Längsachse des Schlittens liegt.

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка

Расточная головка TRC 50 HS предназначена для растачивания отверстий диаметром от 6 до 22 мм.

- Установите инструмент B.. в гнездо и затяните винт (7). Режущая кромка расточного инструмента должна совпадать с продольной осью салазок.

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radiale expansible
4. Vernier micrométrique
5. Vis bloccage coulisseau
6. Sortie du liquide d'arrosage
7. Vis bloccage outil
8. Graisseur

Le kit TRC 50 HS alèse des diamètres allant de 6 à 22 mm.

- Introduire l'outil B.. dans le logement et le bloquer au moyen de la vis (7) n'oubliant pas de vérifier si le taillant de l'élément intercalaire est disposé sur l'axe longitudinal du coulisseau.

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore

Con il Kit TRC 50 HS si alesano fori da Ø 6 a 22 mm.

- Inserire nell'alloggiamento l'utensile B.. bloccandolo con la vite (7) assicurandosi che il tagliente dell'inserto si trovi sull'asse longitudinale della slitta.

K01 TRC 50

Ø 6 ~ 86

KIT K01 TRC 50

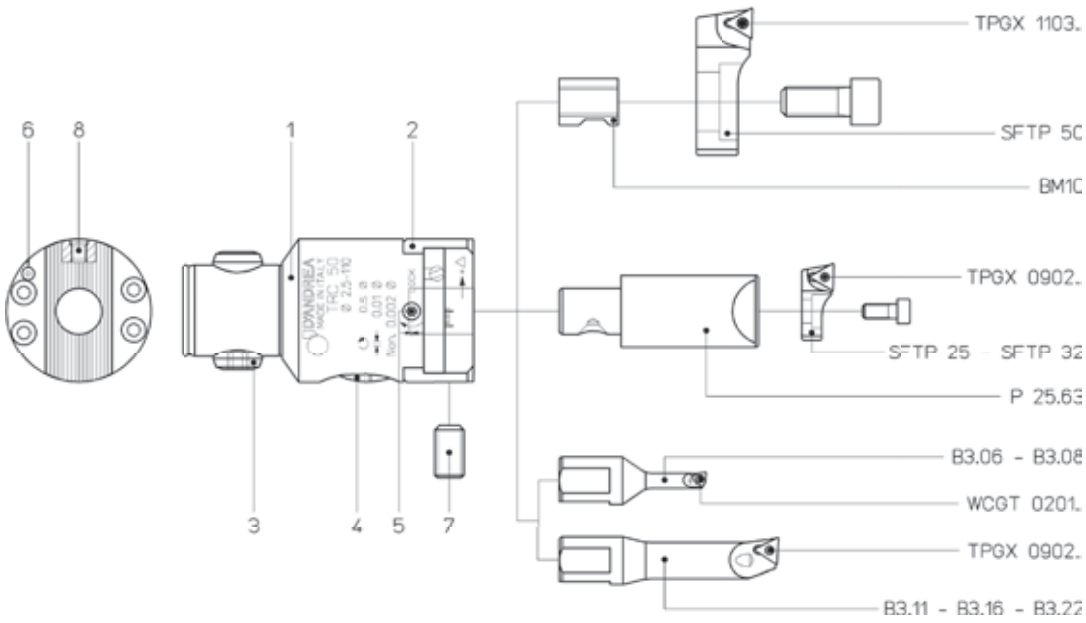
1 TRC 50
1 B3.06
1 B3.08
1 B3.11
1 B3.16
1 B3.22
1 P25.63
1 SFTP25
1 SFTP32
1 SFTP50
1 BM10

5 TPGX 090202L DC100
1 TPGX 110302L DC100
2 WCGT 020102L DC100

10 µm
nonio vernier 2 µm

REF.	CODE	Ø
K01 TRC 50	65 50 150 1050 1	6 ~ 86

TRC 50 COMPONENTS | **TRC 50 BAUTEILE** | **КОМПОНЕНТЫ TRC 50** | **COMPOSANTS TRC 50** | **COMPONENTI TRC 50**



COMPONENTS
1. Body
2. Tool slide
3. Expanding pin
4. Micrometric vernier scale
5. Slide lock screw
6. Coolant outlet
7. Tool lock screw
8. Oiler

BAUTEILE
1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Werkzeugschlitten-klemmschraube
6. Kühlmittelaustritt
7. Werkzeugklemmschraube
8. Schmiernippel

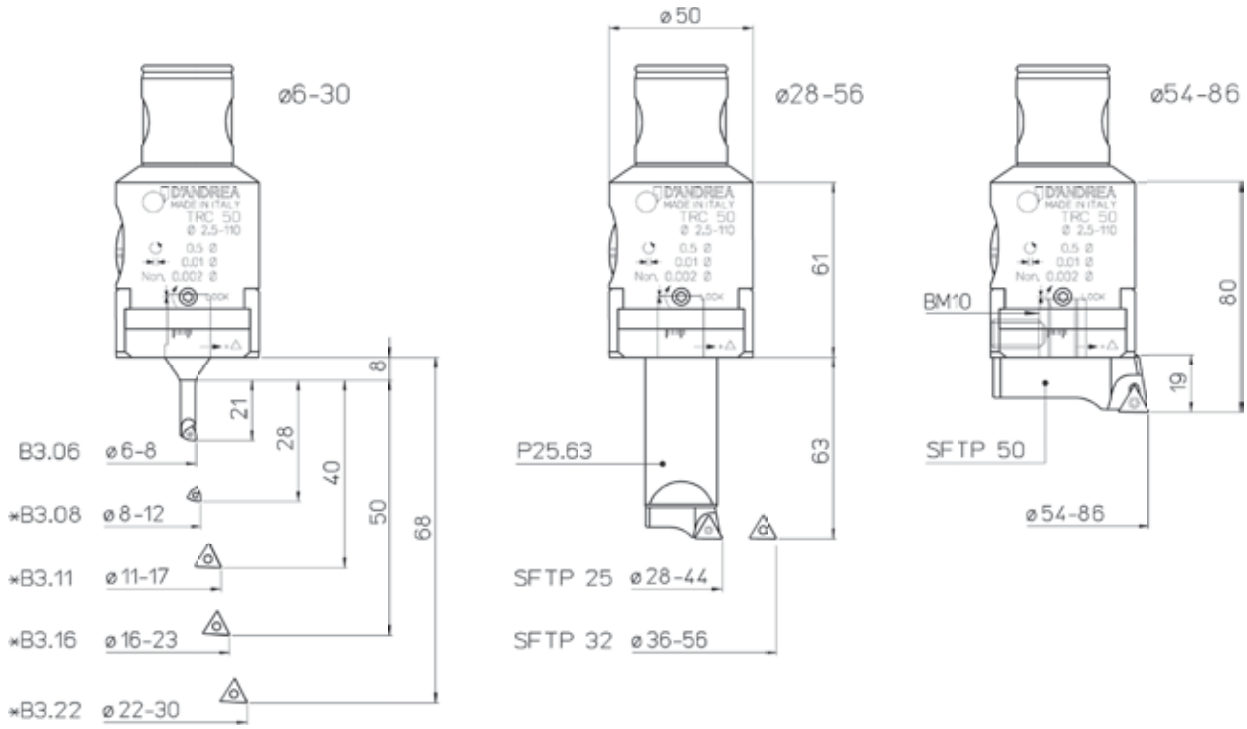
КОМПОНЕНТЫ
1. Корпус
2. Салазки
3. Фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка

COMPOSANTS
1. Corps
2. Coulisseau
3. Tige radiale expansible
4. Vernier micrométrique
5. Vis bloccage coulisseau
6. Sortie du liquide d'arrosage
7. Vis bloccage outil
8. Graisseur

COMPONENTI
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore

KIT - TRC

Working range | Arbeitsbereich | Рабочий диапазон | Capacité d'usinage | Campo di lavoro



The boring head TRC 50 bores diameters from 6 to 86 mm.

- For bores from Ø 6 to 30 mm fit the tool B.. into seat and lock with screw (7). The cutting tool must be on the slide longitudinal axis.
- For bores from Ø 28 to 56 mm fit extension P25.63 into seat and lock with screw (7).
- For bores from Ø 54 to 86 mm fit sleeve BM10 into seat. Before tightening the screw (7) make sure that the latter engages the recess provided in sleeve BM10 which shall not project from the tool slide; if so, fit the sleeve overturned into seat. Fit the bit holder SF.. and secure it by the appropriate screw.

* For a best flexibility of the TRC 50 kit, the working range of the B3.08, B3.11, B3.16, B3.22 tools is different from those suggested and reported on page 184.

Der Feinstbohrkopf TRC 50 dreht Durchmesser von 6 bis 86 mm aus.

- Bei Bohrungen mit Durchmesser von 6 bis 30 mm Werkzeug B.. in die Aufnahme einsetzen und mit Schraube (7) spannen. Versichern Sie sich, dass die Schneide der Wendeplatte auf der Längsachse des Schlittens liegt.
- Bei Bohrungen mit Durchmesser von 28 bis 56 mm Verlängerung P25.63 in die Aufnahme einsetzen und mit Schraube (7) spannen.
- Bei Bohrungen mit Durchmesser von 54 bis 86 mm Buchse BM10 in die Aufnahme einsetzen. Vor Anziehen der Schraube (7) darauf achten, dass sie im Einstich der Buchse BM10 eingreift und dass die Buchse aus dem Werkzeugschlitten nicht herausragt; sonst die Buchse umgekehrt einsetzen.Den Plattenhalter SF.. montieren und mit der passenden Schraube befestigen.

* Zur höheren Flexibilität des TRC 50 Sets ist der Arbeitsbereich der Werkzeuge B3.08, B3.11, B3.16, B3.22 anders als der, der auf Seite 184 empfohlen und angegeben ist.

Расточная головка Kit TRC 50 предназначена для растачивания отверстий диаметром от 6 до 110 мм.

- Для растачивания отверстий диаметром от 6 до 30 мм установите установите инструмент B.. в гнездо и затяните винт (7). Режущая кромка расточного инструмента должна совпадать с продольной осью салазок.
- Для растачивания отверстий диаметром от 28 до 56 мм установите удлинниттель P25.63 в гнездо и зафиксируйте винтом (7).
- Для растачивания отверстий диаметром от 54 до 84 мм вставте в гнездо переходную втулку BM10. Перед тем как затянуть винт (7), убедитесь, что втулка установлена правильно, т.е. винт (7) вошел в лыску втулки и втулка при этом не торчит из салазок. В противном случае переверните втулку и установите наоборот. Затем установите кассету SF.. и зажмите соответствующим винтом.

* Для большего удобства потребителя в наборе kit TRC 50 рабочий диапазон инструментов B3.08, B3.11, B3.16, B3.22 отличается от указанного на стр. 184

Le kit TRC 50 alèse des diamètres allant de 6 à 86 mm.

- Pour des alésages de Ø 6 à 30 mm, introduire l'outil B.. dans le logement et le bloquer au moyen de la vis (7) n'oubliant pas de vérifier si le taillant de l'élément intercalaire est disposé sur l'axe longitudinal du coulisseau.
- Pour des alésages de Ø 28 à 56 mm, introduire la rallonge P 25.63 dans le logement et la bloquer au moyen de la vis (7).
- Pour des alésages de Ø 54 à 86 mm, introduire la douille BM10 dans le logement. Avant de serrer la vis (7) s'assurer que la vis s'engage dans la niche prévue dans la douille BM10 et que celle-ci ne saillit pas du coulisseau, autrement l'introduire renversée. Monter le porte-plaquette SF.. et le bloquer au moyen de la vis appropriée.

* Pour une supérieure flexibilité du kit TRC 50 la capacité d'usinage des outils B3.08, B3.11, B3.16, B3.22 est différente de celui suggéré et indiqué à la page 184.

Con il Kit TRC 50 si alesano fori da Ø 6 a 86 mm.

- Per i fori da Ø 6 a 30 mm inserire nell'alloggiamento l'utensile B.. bloccandolo con la vite (7) assicurandosi che il tagliente dell'inserto si trovi sull'asse longitudinale della slitta.
- Per i fori da Ø 28 a 56 mm inserire nell'alloggiamento la prolunga P25.63 bloccandola con la vite (7).
- Per i fori da Ø 54 a 86 mm inserire nell'alloggiamento la bussola BM10. Prima di bloccare la vite (7) assicurarsi che la stessa entri nella nicchia ricavata nella bussola BM10 prestando attenzione che la bussola non sporga dalla slitta altrimenti va inserita capovolta. Montare il seggio SF.. bloccandolo con l'apposita vite.

* Per una maggiore flessibilità del Kit TRC 50 il campo di lavoro degli utensili B3.08, B3.11, B3.16, B3.22 è differente da quello suggerito e riportato a pag. 184.

K01 TRC 63

Ø 6 ~ 30
Ø 72 ~ 125

KIT K01 TRC 63

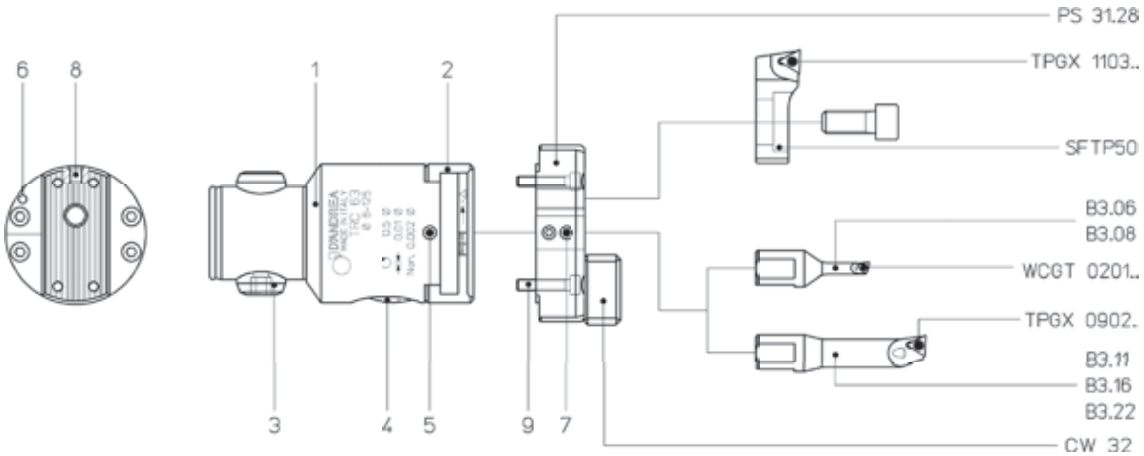
1 TRC 63
1 B3.06
1 B3.08
1 B3.11
1 B3.16
1 B3.22
1 PS31.28
1 SFTP50
1 CW 32

5 TPGX 090202L DC100
1 TPGX 110302L DC100
2 WCGT 020102L DC100

10 µm
nonio vernier 2 µm

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

TRC 63 COMPONENTS | **TRC 63 BAUTEILE** | **КОМПОНЕНТЫ TRC 63** | **COMPOSANTS TRC 63** | **COMPONENTI TRC 63**



COMPONENTS

1. Body
2. Tool slide
3. Expanding pin
4. Micrometric vernier scale
5. Slide lock screw
6. Coolant outlet
7. Tool lock screw
8. Oiler
9. Toolholder lock screws

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Werkzeugschlitten-klemmschraube
6. Kühlmittelaustritt
7. Werkzeugklemmschraube
8. Schmiernippel
9. Werkzeughalter-spannschrauben

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Винт фиксации оправок

COMPOSANTS

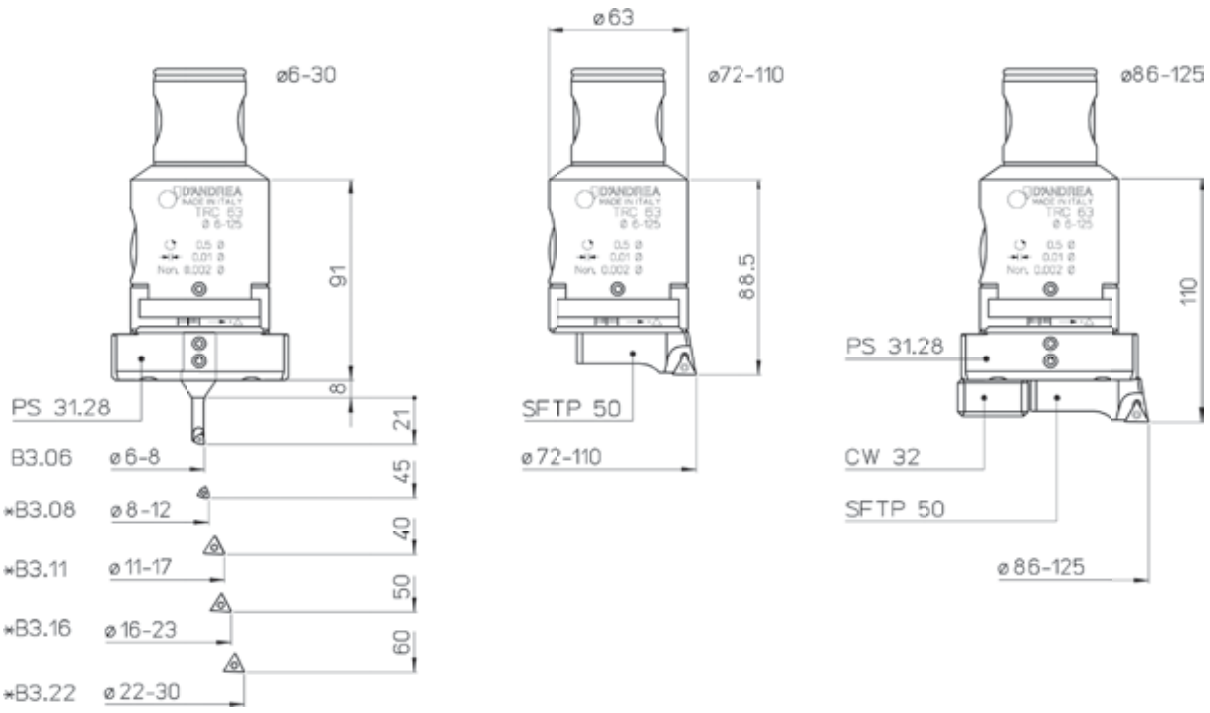
1. Corps
2. Coulisseau
3. Tige radiale expansible
4. Vernier micrométrique
5. Vis bloccage coulisseau
6. Sortie du liquide d'arrosage
7. Vis bloccage outil
8. Graisseur
9. Vis bloccage porte-outils

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Viti bloccaggio portautensili

KIT - TRC

Kit Testarossa | Set Testarossa | Рабочий диапазон | Kit Testarossa | Kit Testarossa



The boring head TRC 63 bores diameters from 6 to 125 mm.

- For bores from Ø 6 to 30 mm the toolholder PS 31.28 in the slide and secure it by screws (9) fit the tool B.. into seat and lock with screw (7). The cutting tool must be on the slide longitudinal axis.
- For bores from Ø 72 to 110 mm fit in the slide the bit holder SF.. and secure it by the screw.
- For bores from Ø 86 to 125 mm fit the toolholder PS 31.28 in the slide and secure it by screws (9). Fit the bit holder SF.. on the toolholder and secure it by the screw.

* For a best flexibility of the TRC 63 kit, the working range of the B3.08, B3.11, B3.16, B3.22 tools is different from those suggested and reported on page 184.

Mit dem Kit TRC 63 können Bohrungen von Ø 6 -125 mm vorgenommen werden.

- Für Bohrungen von Ø 6 bis 30 mm das Werkzeug PS 31.28 auf dem Schlitten anbringen und mit den Schrauben (9) befestigen. Werkzeug B in den Sitz einführen und mit Schraube (7) blockieren. Sicherstellen, dass sich die Schneide des Einsatzes auf der Längsachse des Schlittens befindet.
- Für Bohrungen von Ø 72 - 110 mm Sitz SF auf dem Schlitten anbringen und mit der Schraube befestigen.
- Für Bohrungen von Ø 86 - 125 mm, Werkzeughalterung PS 31.28 auf dem Schlitten anbringen und mit Schrauben (9) blockieren. Sitz SF auf die Werkzeughalterung montieren und mit den Schrauben befestigen.

* Zur höheren Flexibilität des Kits TRC 63 ist der Arbeitsbereich der Werkzeuge B3 08 B3 011 B3 16 B3 22 unterschiedlich als jener auf Seite 184 angegebenem.

Расточная головка Kit TRC 63 предназначена для растачивания отверстий диаметром от 6 до 125 мм.

- Для растачивания отверстий диаметром от 6 до 30 мм удлинниель PS 31.28 устанавливается на салазки и фиксируется винтом (9). Режущая кромка расточного инструмента должна совпадать с продольной осью салазок.
- Для растачивания отверстий диаметром от 72 до 110 мм установите кассету SF.. в гнездо и зафиксируйте винтом (7).
- Для растачивания отверстий диаметром от 86 до 125 мм установите удлинниель PS.. на салазки и затяните винт (9). Затем установите кассету SF.. и зажмите соответствующим винтом.

* Для большего удобства потребителя в наборе kit TRC 63 рабочий диапазон, инструментов B3.08, B3 B3.16, B3.22 отличается от указанного на стр. 184

Avec l'équipement TRC 63 on alèse des trous de 6 à 125 mm de diamètre.

- Pour les trous de 6 à 30 mm de diamètre positionner sur le chariot le porte outil PS 31.28 en le bloquant avec les vis (9), insérer dans le logement l'outil B en le bloquant avec la vis (7) et en s'assurant que le tranchant de la plaquette est sur l'axe longitudinal du chariot.
- Pour les trous de 72 à 110 mm de diamètre positionner sur le chariot le logement SF en le bloquant avec la vis.
- Pour les trous de 86 à 125 mm de diamètre positionner sur le chariot le porteplaquette PS 31.28 en le bloquant avec les vis (9).Installer sur le porteplaquette le logement SF en le bloquant avec la vis.

* Pour une meilleure flexibilité de l'équipement TRC 63 l'intervalle de travail des outils B3.08, B3.11,B3.16,B3.22 est différent de celui conseillé et indiqué à la page 184.

Con il Kit TRC 63 si alesano fori da Ø 6 a 125 mm.

- Per i fori da Ø 6 a 30 mm posizionare sulla slitta il portautensile PS 31.28 bloccandolo con le viti (9), inserire nell'alloggiamento l'utensile B.. bloccandolo con la vite (7) assicurandosi che il tagliente dell'inserto si trovi sull'asse longitudinale della slitta.
- Per i fori da Ø 72 a 110 mm posizionare sulla slitta il seggio SF.. bloccandolo con la vite.
- Per i fori da Ø 86 a 125 mm posizionare sulla slitta il portautensile PS 31.28 bloccandolo con le viti (9). Montare sul portautensile il seggio SF.. bloccandolo con la vite.

* Per una maggiore flessibilità del Kit TRC 63 il campo di lavoro degli utensili B3.08, B3.11, B3.16, B3.22 è differente da quello suggerito e riportato a pag. 184.

K01 TRC 80

Ø 6 ~ 30
Ø 88 ~ 200

KIT K01 TRC 80

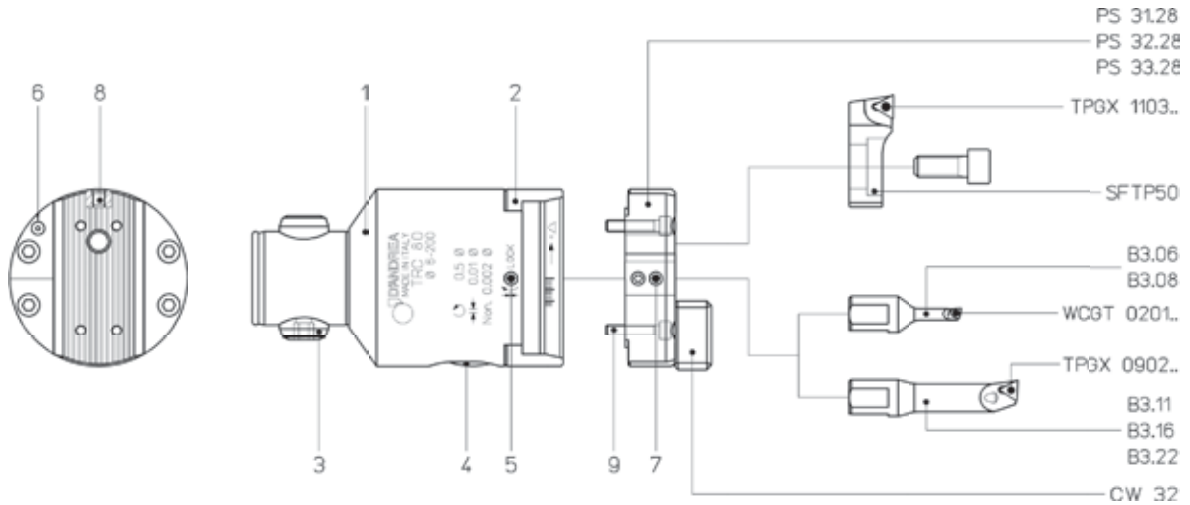
1 TRC 80
1 B3.06
1 B3.08
1 B3.11
1 B3.16
1 B3.22
1 PS31.28
1 PS32.28
1 PS33.28
1 SFTP50
1 CW 32

5 TPGX 090202L DC100
1 TPGX 110302L DC100
WCGT 020102L DC100

10 µm
nonio vernier 2 µm

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

TRC 80 COMPONENTS | **TRC 80 BAUTEILE** | **Компоненты TRC 80** | **COMPOSANTS TRC 80** | **COMPONENTI TRC 80**



COMPONENTS

1. Body
2. Tool slide
3. Expanding pin
4. Micrometric vernier scale
5. Slide lock screw
6. Coolant outlet
7. Tool lock screw
8. Oiler
9. Toolholder lock screws

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Werkzeugschlitten-klemmschraube
6. Kühlmittelaustritt
7. Werkzeugklemmschraube
8. Schmiernippel
9. Werkzeughalter-spannschrauben

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Винт фиксации оправок

COMPOSANTS

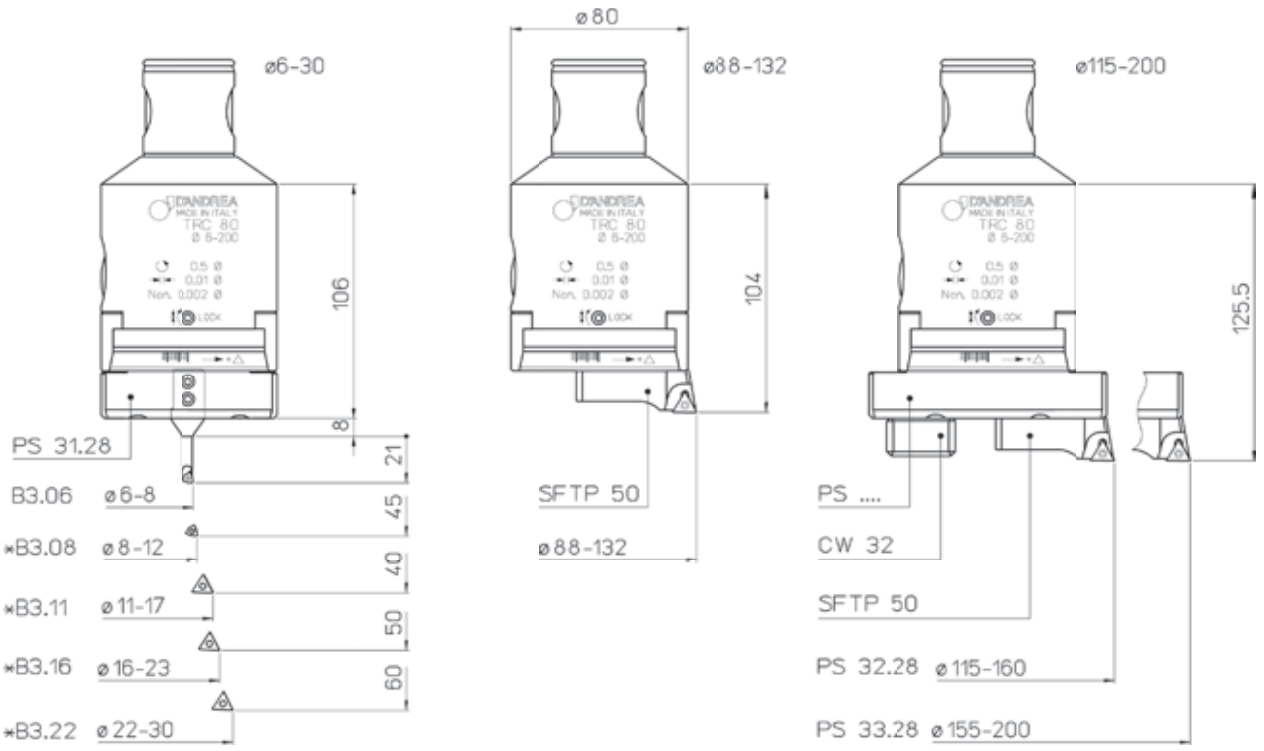
1. Corps
2. Coulisseau
3. Tige radiale expansible
4. Vernier micrométrique
5. Vis bloccage coulisseau
6. Sortie du liquide d'arrosage
7. Vis bloccage outil
8. Graisseur
9. Vis bloccage porte-outils

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Viti bloccaggio portautensili

KIT - TRC

Kit Testarossa | Set Testarossa | Рабочий диапазон | Kit Testarossa | Kit Testarossa



The boring head TRC 80 bores diameters from 6 to 200 mm.

- For bores from Ø 6 to 30 mm the toolholder PS 31.28 in the slide and secure it by screws (9) fit the tool B.. into seat and lock with screw (7). The cutting tool must be on the slide longitudinal axis.
- For bores from Ø 88 to 132 mm fit in the slide the bit holder SF.. and secure it by the screw.
- For bores from Ø 115 to 200 mm fit the toolholder PS .... in the slide and secure it by screws (9). Fit the bit holder SF.. on the toolholder and secure it by the screw.

* For a best flexibility of the TRC 80 kit, the working range of the B3.08, B3.11, B3.16, B3.22 tools is different from those suggested and reported on page 184.

Mit dem Kit TRC 80 können Bohrungen von Ø 6 - 200 mm vorgenommen werden.

- Für Bohrungen von Ø 6 bis 30 mm das Werkzeug PS 31.28 auf dem Schlitten anbringen und mit den Schrauben (9) befestigen. Werkzeug B in den Sitz einführen und mit Schraube (7) blockieren. Sicherstellen, dass sich die Schneide des Einsatzes auf der Längsachse des Schlittens befindet.
- Für Bohrungen von Ø 88 - 132 mm Sitz SF auf dem Schlitten anbringen und mit der Schraube befestigen.
- Für Bohrungen von Ø 115 - 200 mm, Werkzeughalterung PS…. auf dem Schlitten anbringen und mit Schrauben (9) blockieren. Sitz SF… auf die Werkzeughalterung montieren und mit den Schrauben befestigen.

* Zur höheren Flexibilität des Kits TRC 80 ist der Arbeitsbereich der Werkzeuge B3 08 B3 011 B3 16 B3 22 unterschiedlich als jener auf Seite 184 angegebenem.

Расточная головка Kit TRC 80 предназначена для растачивания отверстий диаметром от 6 до 200 мм.

- Для растачивания отверстий диаметром от 6 до 30 мм удлинниель PS 31.28 устанавливается на салазки и фиксируется винтом (9). Режущая кромка расточного инструмента должна совпадать с продольной осью салазок.
- Для растачивания отверстий диаметром от 88 до 132 мм установите кассету SF.. в гнездо и зафиксируйте винтом (7).
- Для растачивания отверстий диаметром от 86 до 125 мм установите удлинниель PS.. на салазки и затяните винт (9). Затем установите кассету SF.. и зажмите соответствующим винтом.

* Для большего удобства потребителя в наборе kit TRC 80 рабочий диапазон , инструментов B3.08, B3.11, B3.16, B3.22 отличается от указанного на стр. 184

Avec l'équipement TRC 80 on alèse des trous de 6 à 200 mm de diamètre.

- Pour les trous de 6 à 30 mm de diamètre positionner sur le chariot le porte outil PS 31.28 en le bloquant avec les vis (9), insérer dans le logement l'outil B en le bloquant avec la vis (7) et en s'assurant que le tranchant de la plaquette est sur l'axe longitudinal du chariot.
- Pour les trous de 88 à 132 mm de diamètre positionner sur le chariot le logement SF en le bloquant avec la vis.
- Pour les trous de 115 à 200 mm de diamètre positionner sur le chariot le porteplaquette PS 31.28 en le bloquant avec les vis (9).Installer sur le porteplaquette le logement SF en le bloquant avec la vis.

* Pour une meilleure flexibilité de l'équipement TRC 80 l'intervalle de travail des outils B3.08, B3.11,B3.16,B3.22 est différent de celui conseillé et indiqué à la page 184.

Con il Kit TRC 80 si alesano fori da Ø 6 a 200 mm.

- Per i fori da Ø 6 a 30 mm posizionare sulla slitta il portautensile PS 31.28 bloccandolo con le viti (9), inserire nell'alloggiamento l'utensile B.. bloccandolo con la vite (7) assicurandosi che il tagliente dell'inserto si trovi sull'asse longitudinale della slitta.
- Per i fori da Ø 88 a 132 mm posizionare sulla slitta il seggio SF.. bloccandolo con la vite.
- Per i fori da Ø 115 a 200 mm posizionare sulla slitta il portautensile PS .... bloccandoli con le viti (9). Montare sul portautensile il seggio SF.. bloccandolo con la vite.

* Per una maggiore flessibilità del Kit TRC 80 il campo di lavoro degli utensili B3.08, B3.11, B3.16, B3.22 è differente da quello suggerito e riportato a pag. 184.

K01 TRM 32 HSB

Ø 2.5 ~ 12

RPM MAX 20.000

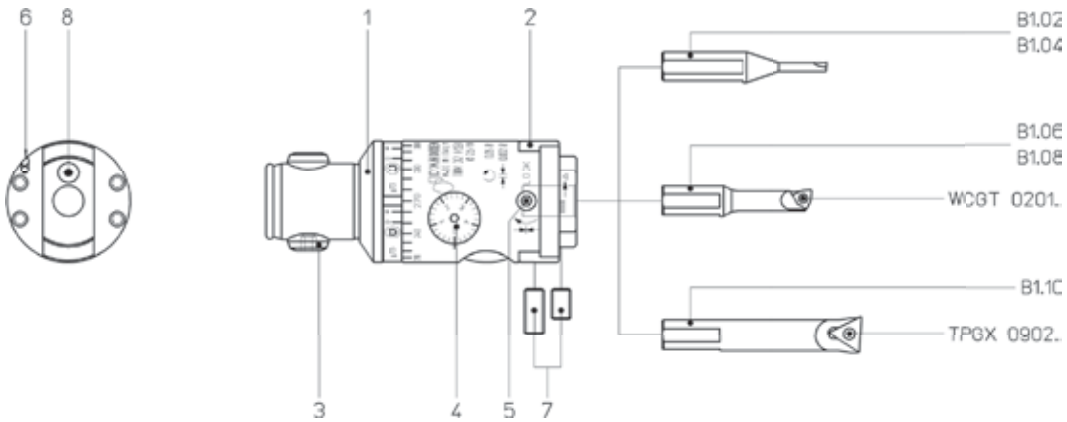
KIT K01 TRM 32 HSB

1 TRM 32 HSB
1 B1.02
1 B1.04
1 B1.06
1 B1.08
1 B1.10
5 TPGX 090202L DC100
2 WCGT 020102L DC100

2 µm

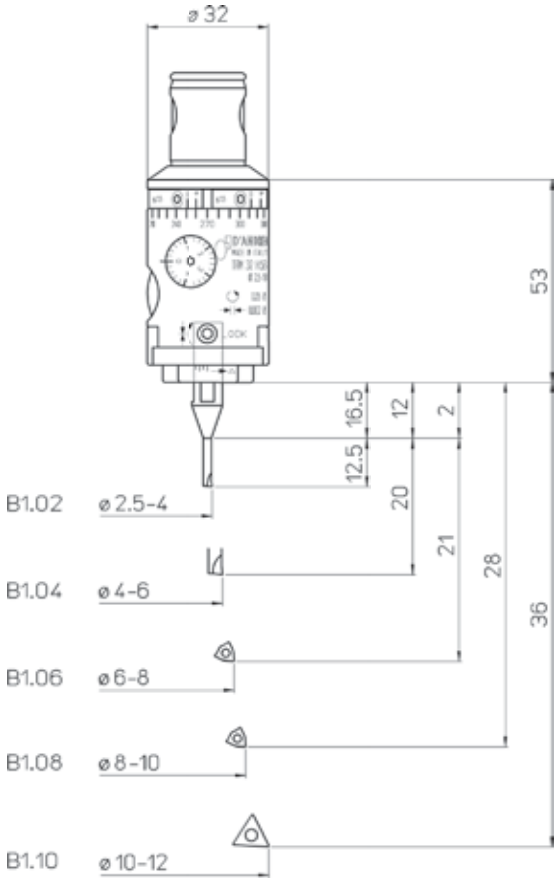
REF.	CODE	Ø
K01 TRM 32 HSB	65 50 032 3032 1	2.5 ~ 12

TRM 32 HSB COMPONENTS | **TRM 32 HSB BAUTEILE** | **КОМПОНЕНТЫ TRM 32 HSB** | **COMPOSANTS TRM 32 HSB** | **COMPONENTI TRM 32 HSB**



KIT - TRM

Working range | Arbeitsbereich | Рабочий диапазон | Capacité d'usinage | Campo di lavoro



COMPONENTS

1. Body
2. Tool slide
3. Expanding pin
4. Micrometric vernier scale
5. Slide lock screw
6. Coolant outlet
7. Tool lock screw
8. Oiler

The boring head TRM 32 HSB bores diameters from 2.5 to 12 mm.

- Fit the tool B.. into seat and lock with screw (7). The cutting tool must be on the slide longitudinal axis.

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Werkzeugschlitten-klemmschraube
6. Kühlmittelaustritt
7. Werkzeugklemmschraube
8. Schmiernippel

Das Gerät TRM 32 HSB dreht Durchmesser von 2,5 bis 12 mm aus.

- Werkzeug B.. in die Aufnahme einsetzen und mit Schraube (7) spannen. Versichern Sie sich, dass die Schneide der Wendeplatte auf der Längsachse des Schlittens liegt.

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка

Расточная головка Kit TRM 32 HSB предназначена для растачивания отверстий диаметром от 2,5 до 12 мм.

- Установите инструмент B.. в гнездо и затяните винт (7). Режущая кромка расточного инструмента должна совпадать с продольной осью салазок.

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radiale expansible
4. Vernier micrométrique
5. Vis bloccage coulisseau
6. Sortie du liquide d'arrosage
7. Vis bloccage outil
8. Graisseur

Le kit TRM 32 HSB alèse des diamètres allant de 2,5 à 12 mm.

- Introduire l'outil B.. dans le logement et le bloquer au moyen de la vis (7) n'oubliant pas de vérifier si le taillant de l'élément intercalaire est disposé sur l'axe longitudinal du coulisseau.

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore

Con il Kit TRM 32 HSB si alesano fori da Ø 2,5 a 12 mm.

- Inserire nell'alloggiamento l'utensile B.. bloccandolo con la vite (7) assicurandosi che il tagliente dell'inserto si trovi sull'asse longitudinale della slitta.

K01 TRM 50 HSB

Ø 6 ~ 22

RPM MAX 20.000

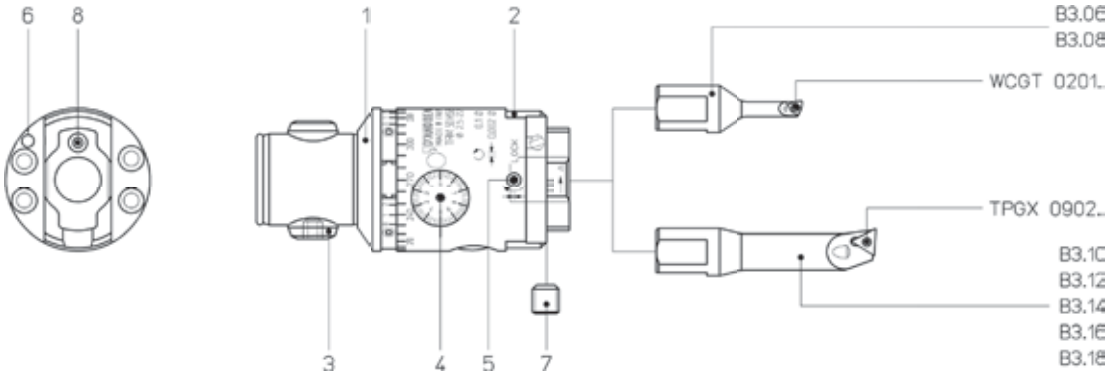
KIT K01 TRM 50 HSB

1 TRM 50 HSB
1 B3.06
1 B3.08
1 B3.10
1 B3.12
1 B3.14
1 B3.16
1 B3.18
5 TPGX 090202L DC100
2 WCGT 020102L DC100

2 µm

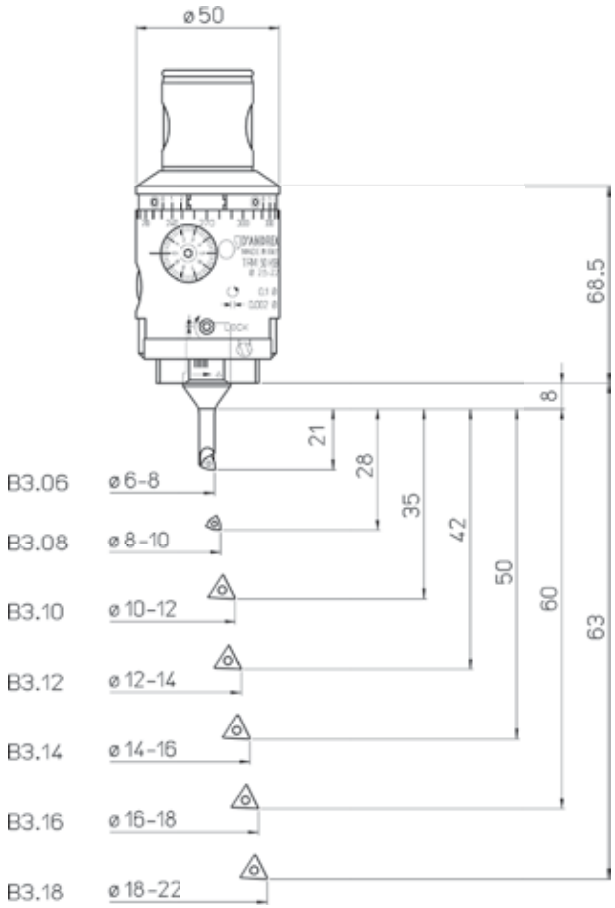
REF.	CODE	Ø
K01 TRM 50 HSB	65 50 050 3050 1	6 ~ 22

TRM 50 HSB COMPONENTS | **TRM 50 HSB BAUTEILE** | **КОМПОНЕНТЫ TRM 50 HSB** | **COMPOSANTS TRM 50 HSB** | **COMPONENTI TRM 50 HSB**



KIT - TRM

Working range | Arbeitsbereich | Рабочий диапазон | Capacité d'usinage | Campo di lavoro



COMPONENTS

1. Body
2. Tool slide
3. Expanding pin
4. Micrometric vernier scale
5. Slide lock screw
6. Coolant outlet
7. Tool lock screw
8. Oiler

The boring head TRM 50 HSB bores diameters from 6 to 22 mm.

- Fit the tool B.. into seat and lock with screw (7). The cutting tool must be on the slide longitudinal axis.

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Werkzeugschlitten-klemmschraube
6. Kühlmittelaustritt
7. Werkzeugklemmschraube
8. Schmiernippel

Der Feinstbohrkopf TRM 50 HSB dreht Durchmesser von 6 bis 22 mm aus.

- Werkzeug B.. in die Aufnahme einsetzen und mit Schraube (7) spannen. Versichern Sie sich, dass die Schneide der Wendeplatte auf der Längsachse des Schlittens liegt.

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка

Расточная головка Kit TRM 50 HSB предназначена для растачивания отверстий диаметром от 6 до 22 мм.

- Установите инструмент B.. в гнездо и затяните винт (7). режущая кромка расточного инструмента должна совпадать с продольной осью салазок.

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radiale expansible
4. Vernier micrométrique
5. Vis bloccage coulisseau
6. Sortie du liquide d'arrosage
7. Vis bloccage outil
8. Graisseur

Le kit TRM 50 HSB alèse des diamètres allant de 6 à 22 mm.

- Introduire l'outil B.. dans le logement et le bloquer au moyen de la vis (7) n'oubliant pas de vérifier si le taillant de l'élément intercalaire est disposé sur l'axe longitudinal du coulisseau.

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore

Con il Kit TRM 50 HSB si alesano fori da Ø 6 a 22 mm.

- Inserire nell'alloggiamento l'utensile B.. bloccandolo con la vite (7) assicurandosi che il tagliente dell'inserto si trovi sull'asse longitudinale della slitta.

K01 TRM 50

Ø 6 ~ 84

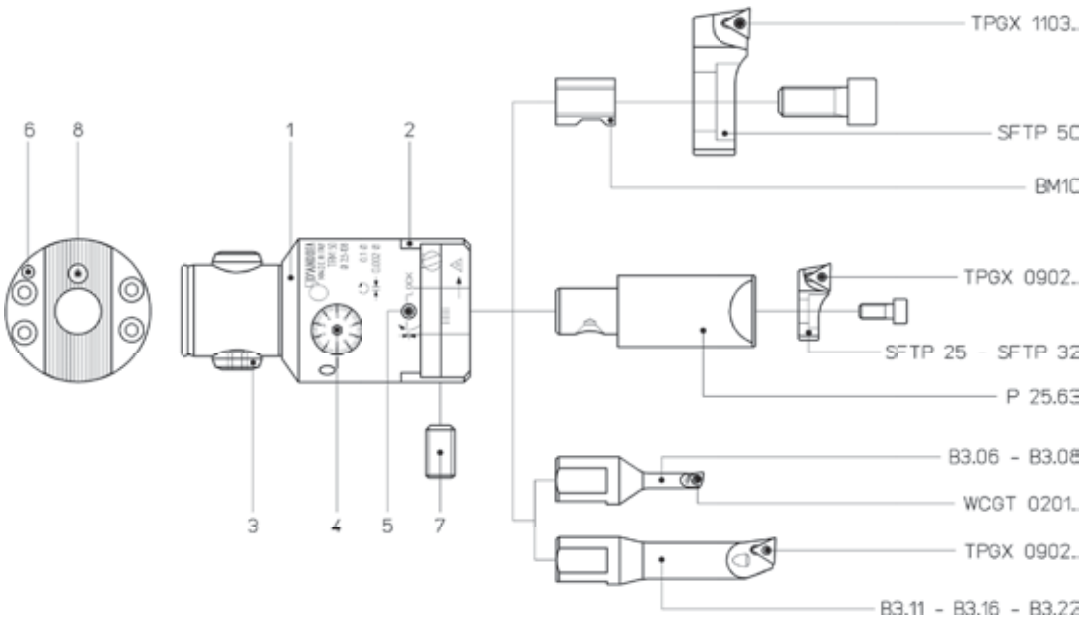
KIT K01 TRM 50

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

2 µm

REF.	CODE	Ø
K01 TRM 50	65 50 050 1050 1	6 ~ 84

TRM 50 COMPONENTS | **TRM 50 BAUTEILE** | **КОМПОНЕНТЫ TRM 50** | **COMPOSANTS TRM 50** | **COMPONENTI TRM 50**



COMPONENTS
1. Body
2. Tool slide
3. Expanding pin
4. Micrometric vernier scale
5. Slide lock screw
6. Coolant outlet
7. Tool lock screw
8. Oiler

BAUTEILE
1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Werkzeugschlitten-klemmschraube
6. Kühlmittelaustritt
7. Werkzeugklemmschraube
8. Schmiernippel

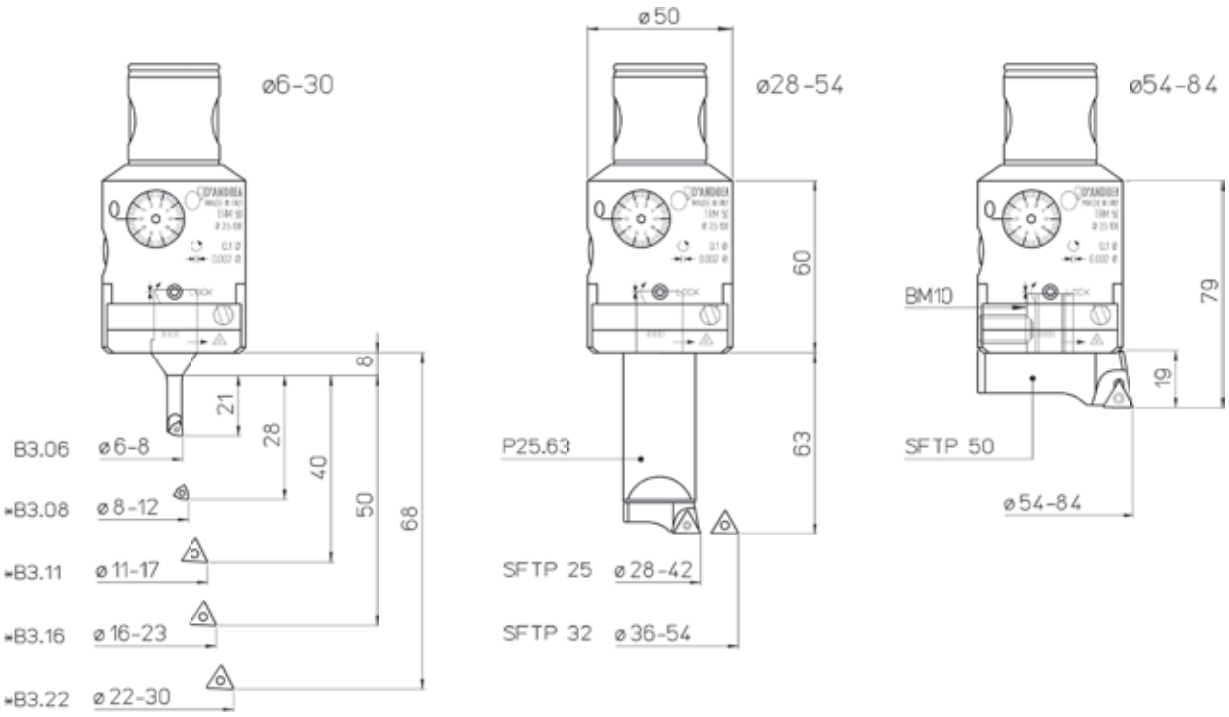
КОМПОНЕНТЫ
1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка

COMPOSANTS
1. Corps
2. Coulisseau
3. Tige radiale expansible
4. Vernier micrométrique
5. Vis bloccage coulisseau
6. Sortie du liquide d'arrosage
7. Vis bloccage outil
8. Graisseur

COMPONENTI
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore

KIT - TRM

Working range | Arbeitsbereich | Рабочий диапазон | Capacité d'usinage | Campo di lavoro



The boring head TRM 50 bores diameters from 6 to 84 mm.

- For bores from Ø 6 to 30 mm fit the tool B.. into seat and lock with screw (7). The cutting tool must be on the slide longitudinal axis.
- For bores from Ø 28 to 54 mm fit extension P25.63 into seat and lock with screw (7).
- For bores from Ø 54 to 84 mm fit sleeve BM10 into seat. Before tightening the screw (7) make sure that the latter engages the recess provided in sleeve BM10 which shall not project from the tool slide; if so, fit the sleeve overturned into seat. Fit the bit holder SF.. and secure it by the appropriate screw.

* For a best flexibility of the TRM 50 kit, the working range of the B3.08, B3.11, B3.16, B3.22 tools is different from those suggested and reported on page 184.

Der Feinstbohrkopf TRM 50 dreht Durchmesser von 6 bis 84 mm aus.

- Bei Bohrungen mit Durchmesser von 6 bis 30 mm Werkzeug B.. in die Aufnahme einsetzen und mit Schraube (7) spannen. Versichern Sie sich, dass die Schneide der Wendeplatte auf der Längsachse des Schlittens liegt.
- Bei Bohrungen mit Durchmesser von 28 bis 54 mm Verlängerung P25.63 in die Aufnahme einsetzen und mit Schraube (7) spannen.
- Bei Bohrungen mit Durchmesser von 54 bis 84 mm Buchse BM10 in die Aufnahme einsetzen. Vor Anziehen der Schraube (7) darauf achten, dass sie im Einstich der Buchse BM10 eingreift und dass die Buchse aus dem Werkzeugschlitten nicht herausragt; sonst die Buchse umgekehrt einsetzen.Den Plattenhalter SF.. montieren und mit der passenden Schraube befestigen.

* Zur höheren Flexibilität des TRM 50 Sets ist der Arbeitsbereich der Werkzeuge B3.08, B3.11, B3.16, B3.22 anders als der, der auf Seite 184 empfohlen und angegeben ist.

Расточная головка Kit TRM 50 предназначена для растачивания отверстий диаметром от 6 до 84 мм.

- Для растачивания отверстий диаметром от 6 до 30 мм установите инструмент B.. в гнездо и затяните винт (7). Режущая кромка расточного инструмента длжна совпадать с продольной осью салазок.
- Для растачивания отверстий диаметром от 28 до 54 мм установите удлиннтитель P25.63 в гнездо и зафиксируйте винтом (7).
- Для растачивания отверстий диаметром от 54 до 84 мм вставьте в гнездо переходную втулку BM10. Перед тем как затянуть винт (7), убедитесь, что втулка установлена правильно, т.е. винт (7) вошел в лыску втулки и втулка при этом не торчит из салазок. В противном случае переверните втулку и установите наоборот. Затем установите кассету SF... и зажмите соответствующим винтом.

* Для большего удобства потребителя в наборе kit TRM 50 рабочий диапазон, инструментов B3.08, B3.11, B3.16, B3.22 отличается от указанного на стр. 184

Le kit TRM 50 alèse des diamètres allant de 6 à 84 mm.

- Pour des alésages de Ø 6 à 30 mm, introduire l'outil B.. dans le logement et le bloquer au moyen de la vis (7) n'oubliant pas de vérifier si le taillant de l'élément intercalaire est disposé sur l'axe longitudinal du coulisseau.
- Pour des alésages de Ø 28 à 54 mm, introduire la rallonge P 25.63 dans le logement et la bloquer au moyen de la vis (7).
- Pour des alésages de Ø 54 à 84 mm, introduire la douille BM10 dans le logement. Avant de serrer la vis (7) s'assurer que la vis s'engage dans la niche prévue dans la douille BM10 et que celle-ci ne saillit pas du coulisseau, autrement l'introduire renversée. Monter le porte-plaquette SF.. et le bloquer au moyen de la vis appropriée.

* Pour une supérieure flexibilité du kit TRM 50 la capacité d'usinage des outils B3.08, B3.11, B3.16, B3.22 est différente de celui suggéré et indiqué à la page 184.

Con il Kit TRM 50 si alesano fori da Ø 6 a 84 mm.

- Per i fori da Ø 6 a 30 mm inserire nell'alloggiamento l'utensile B.. bloccandolo con la vite (7) assicurandosi che il tagliente dell'inserto si trovi sull'asse longitudinale della slitta.
- Per i fori da Ø 28 a 54 mm inserire nell'alloggiamento la prolunga P25.63 bloccandola con la vite (7).
- Per i fori da Ø 54 a 84 mm inserire nell'alloggiamento la bussola BM10. Prima di bloccare la vite (7) assicurarsi che la stessa entri nella nicchia ricavata nella bussola BM10 prestando attenzione che la bussola non sporga dalla slitta altrimenti va inserita capovolta. Montare il seggio SF.. bloccandolo con l'apposita vite.

* Per una maggiore flessibilità del Kit TRM 50 il campo di lavoro degli utensili B3.08, B3.11, B3.16, B3.22 è differente da quello suggerito e riportato a pag. 184.

K01 TRM 50/63
K01 TRM 63/63

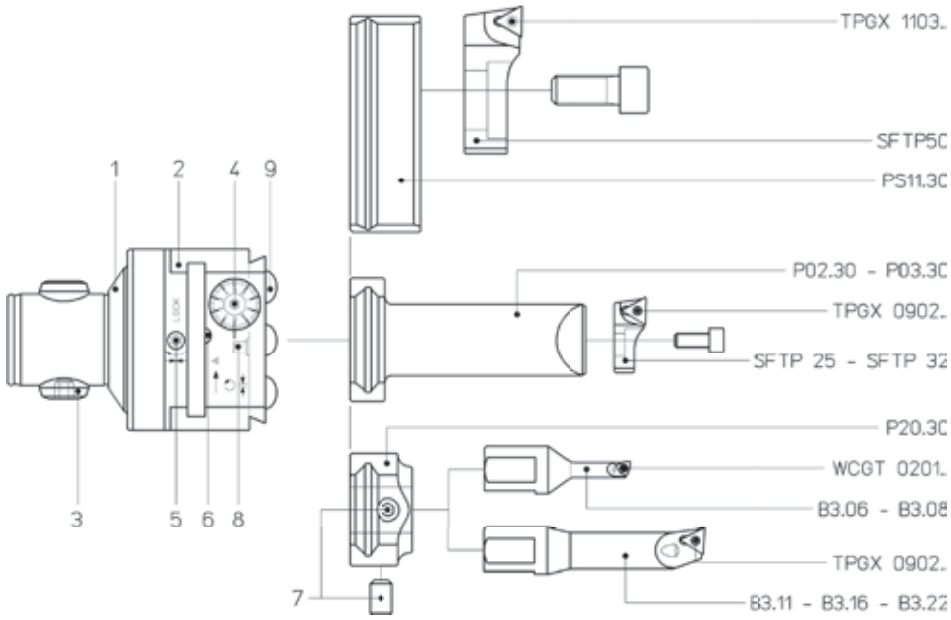
Ø 6 ~ 125

KIT K01 TRM 50/63 - 63/63

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

2 µm

REF.	CODE	Ø
K01 TRM 50/63	65 50 050 1063 1	6 ~ 125
K01 TRM 63/63	65 50 063 1063 1	



COMPONENTS

1. Body
2. Tool slide
3. Expanding pin
4. Micrometric vernier scale
5. Slide lock screw
6. Coolant outlet
7. Tool lock screw
8. Oiler
9. Toolholder lock screws

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Werkzeugschlitten-klemmschraube
6. Kühlmittelaustritt
7. Werkzeugklemmschraube
8. Schmiernippel
9. Werkzeughalter-spannschrauben

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Винт фиксации кассеты

COMPOSANTS

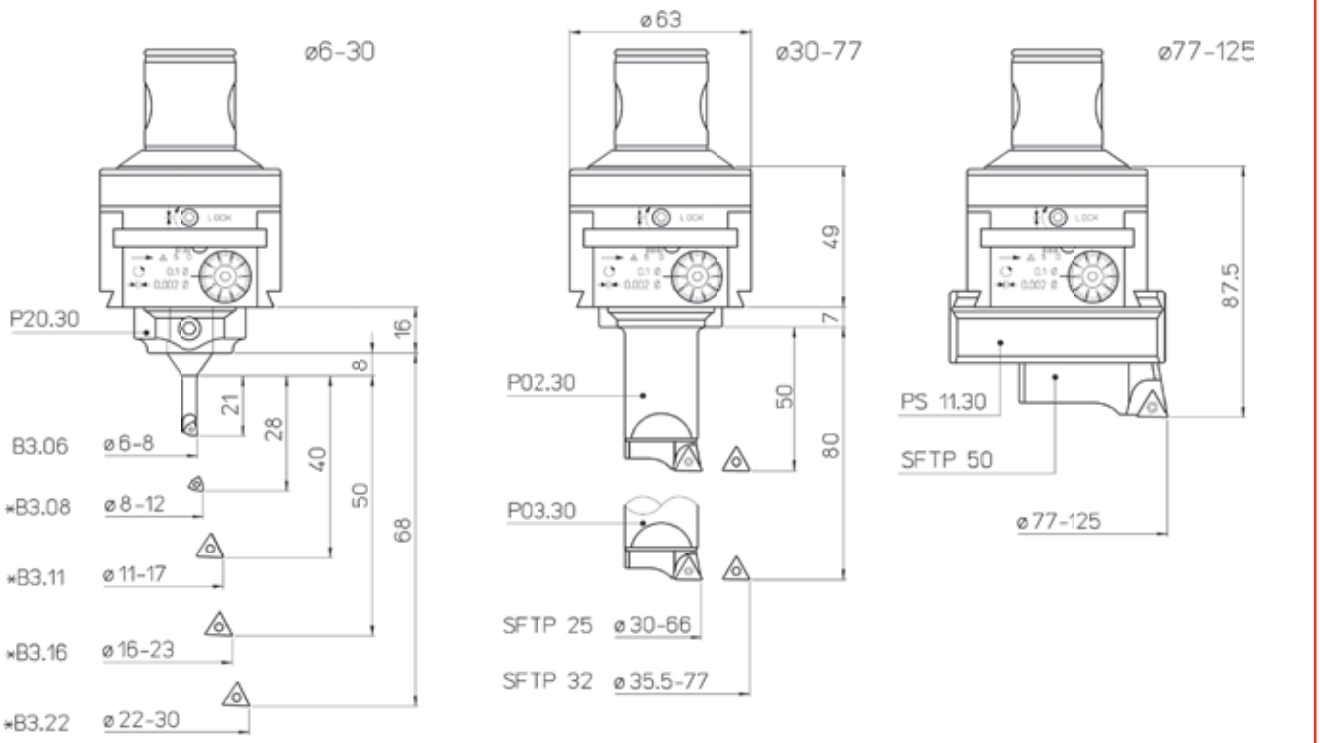
1. Corps
2. Coulisseau
3. Tige radiale expansible
4. Vernier micrométrique
5. Vis bloccage coulisseau
6. Sortie du liquide d'arrosage
7. Vis bloccage outil
8. Graisseur
9. Vis bloccage porte-outils

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Viti bloccaggio portautensili

KIT - TRM

Working range | Arbeitsbereich | Рабочий диапазон | Capacité d'usinage | Campo di lavoro



The boring head TRM 63 bores diameters from 6 to 125 mm.

- For bores from Ø 6 to 30 mm fit the toolholder P20.30 at the centre of the slide and secure it by screws (9). Fit the tool B.. and secure it by screws (7). The cutting tool must be on the slide longitudinal axis.
- For bores from Ø 30 to 77 mm fit the toolholder P.. in the slide and secure it by screws (9).
- For bores from Ø 77 to 125 mm fit the toolholder PS11.30 in the slide and secure it by screws (9). Fit the bit holder SF.. on the toolholder and secure it by the screw.

* For a best flexibility of the TRM 50/63 and 63/63 kits, the working range of the B3.08, B3.11, B3.16, B3.22 tools is different from those suggested and reported on page 184.

Der Feinstbohrkopf TRM 63 dreht Durchmesser von 6 bis 125 mm aus.

- Bei Bohrungen mit Durchmesser von 6 bis 30 mm den Werkzeughalter P20.30 in die Mitte des Schlittens einsetzen und mit Schraube (9) spannen. Werkzeug B.. montieren und mit Schrauben (7) spannen. Versichern Sie sich, dass die Schneide der Wendeplatte auf der Längsachse des Schlittens liegt.
- Bei Bohrungen mit Durchmesser von 30 bis 77 mm den Werkzeughalter P.. in den Schlitten einsetzen und mit Schrauben (9) spannen.
- Bei Bohrungen mit Durchmesser von 77 bis 125 mm den Werkzeughalter PS11.30 in den Schlitten einsetzen und mit Schrauben (9) spannen. Den Plattenhalter SF.. am Werkzeughalter montieren und mit Schraube spannen.

* Zur höheren Flexibilität des TRM 50/63 und 63/63 Sets ist der Arbeitsbereich der Werkzeuge B3.08, B3.11, B3.16, B3.22 anders als der, der auf Seite 184 empfohlen und angegeben ist.

Расточная головка Kit TRM 63 предназначена для растачивания отверстий диаметром от 6 до 125 мм.

- Для растачивания отверстий диаметром от 6 до 30 мм установите державку P20.30 в центре салазок и зафиксируйте винтами (9). Установите инструмент B.. и зафиксируйте винтом (7). Режущая кромка расточного инструмента должна совпадать с продольной осью салазок.
- Для растачивания отверстий диаметром от 28 до 80 мм установите державку P.. на салазках и зафиксируйте винтом (9).
- Для растачивания отверстий диаметром от 77 до 125 мм установите державку P11.30 на салазках и затяните винтом (9). Затем установите кассету SF.. на державку и закрепите винтом.

* Для большего удобства потребителя в наборе kit TRM 63 рабочий диапазон , инструментов B3.08, B3.11, B3.16, B3.22 отличается от указанного на стр. 184

Le kit TRM 63 alèse des diamètres allant de 6 à 125 mm.

- Pour des alésages de Ø 6 à 30 mm, introduire le porte-outils P20.30 au centre du coulisseau et le bloquer au moyen des vis (9). Poser ensuite l'outil B.. et le bloquer au moyen des vis (7), n'oubliant pas de vérifier si le taillant de l'élément intercalaire est disposé sur l'axe longitudinal du coulisseau.
- Pour des alésages de Ø 30 à 77 mm, introduire le porte-outils P.. dans le coulisseau et le bloquer au moyen des vis (9).
- Pour des alésages de Ø 77 à 125 mm, introduire le porte-outils PS11.30 dans le coulisseau et le bloquer au moyen des vis (9). Monter le porte-plaquette SF.. sur le porte-outils et le bloquer au moyen de la vis.

* Pour une supérieure flexibilité du kit 50/63 et 63/63 la capacité d'usinage des outils B3.08, B3.11, B3.16, B3.22 est différente de celui suggéré et indiqué à la page 184.

Con i Kit TRM 63 si alesano fori da Ø 6 a 125 mm.

- Per i fori da Ø 6 a 30 mm inserire al centro della slitta il portautensili P20.30 bloccandolo con le viti (9). Montare l'utensile B.. bloccandolo con le viti (7) assicurandosi che il tagliente dell'inserto si trovi sull'asse longitudinale della slitta.
- Per i fori da Ø 30 a 77 mm inserire nella slitta i portautensili P.. bloccandoli con le viti (9).
- Per i fori da Ø 77 a 125 mm inserire nella slitta il portautensile PS11.30 bloccandolo con le viti (9). Montare sul portautensili il seggio SF.. bloccandolo con la vite.

* Per una maggiore flessibilità dei Kit TRM 50/63 e 63/63 il campo di lavoro degli utensili B3.08, B3.11, B3.16, B3.22 è differente da quello suggerito e riportato a pag. 184.

K01 TRM 50/80
K01 TRM 80/80

Ø 6 ~ 220

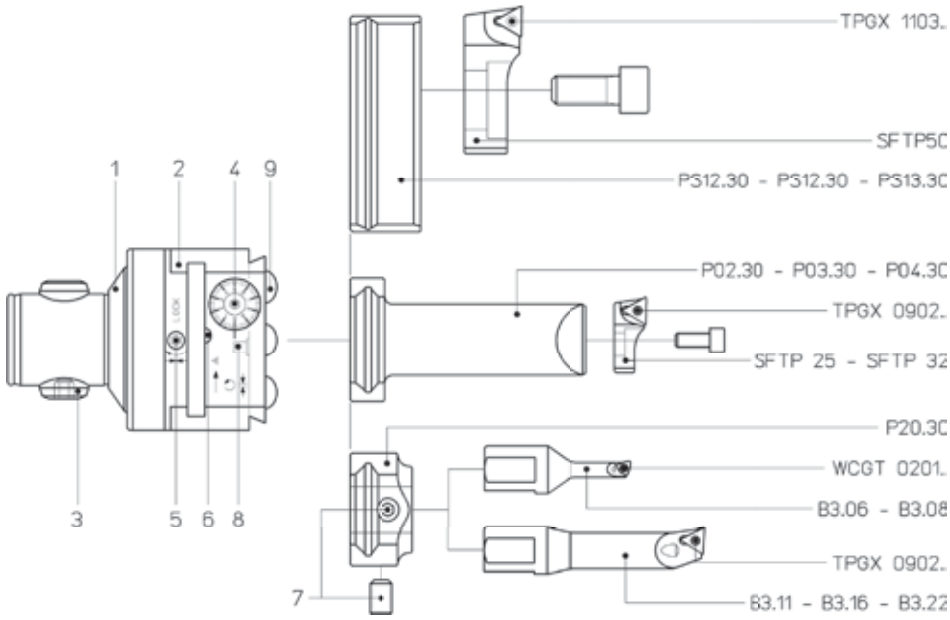
KIT K01 TRM 50/80 - 80/80

1 TRM ../80
1 B3.06
1 B3.08
1 B3.11
1 B3.16
1 B3.22
1 P20.30
1 P02.30
1 P03.30
1 P04.30
1 PS12.30
1 PS13.30
1 SFTP25
1 SFTP32
1 SFTP50
5 TPGX 090202L DC100
1 TPGX 110302L DC100
2 WCGT 020102L DC100

2 µm

REF.	CODE	Ø
K01 TRM 50/80	65 50 050 1080 1	6 ~ 220
K01 TRM 80/80	65 50 080 1080 1	

TRM 50/80 - 80/80 COMPONENTS | **TRM 50/80 - 80/80 BAUTEILE** | **КОМПОНЕНТЫ TRM 50/80 - 80/80** | **COMPOSANTS TRM 50/80 - 80/80** | **COMPONENTI TRM 50/80 - 80/80**



COMPONENTS

1. Body
2. Tool slide
3. Expanding pin
4. Micrometric vernier scale
5. Slide lock screw
6. Coolant outlet
7. Tool lock screw
8. Oiler
9. Toolholder lock screws

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Werkzeugschlitten-klemmschraube
6. Kühlmittelaustritt
7. Werkzeugklemmschraube
8. Schmiernippel
9. Werkzeughalter-spannschrauben

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Винт фиксации кассеты

COMPOSANTS

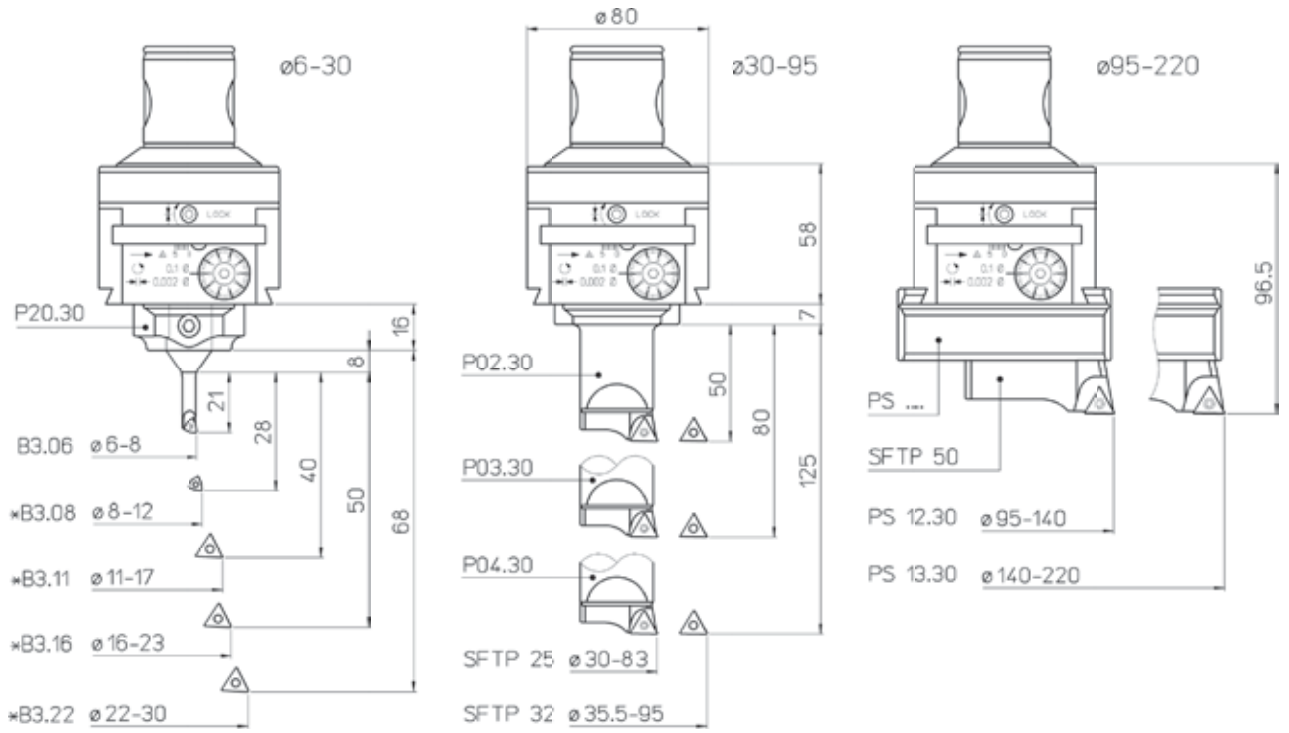
1. Corps
2. Coulisseau
3. Tige radiale expansible
4. Vernier micrométrique
5. Vis bloccage coulisseau
6. Sortie du liquide d'arrosage
7. Vis bloccage outil
8. Graisseur
9. Vis bloccage porte-outils

COMPONENTI

1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Viti bloccaggio portautensili

KIT - TRM

Working range | Arbeitsbereich | Рабочий диапазон | Capacité d'usinage | Campo di lavoro



The boring head TRM 80 bores diameters from 6 to 220 mm.

- For bores from Ø 6 to 30 mm fit the toolholder P20.30 at the centre of the slide and secure it by screws (9). Fit the tool B.. and secure it by screws (7). The cutting tool must be on the slide longitudinal axis.
- For bores from Ø 30 to 95 mm fit the toolholder in the slide and secure it by screws (9).
- For bores from Ø 95 to 220 mm fit the toolholder PS.. in the slide and secure it by screws (9). Fit the bit holder SF.. on the toolholder and secure it by the screw.

* For a best flexibility of the TRM 50/80 and 80/80 kits, the working range of the B3.08, B3.11, B3.16, B3.22 tools is different from those suggested and reported on page 184.

Der Feinstbohrkopf TRM 80 dreht Durchmesser von 6 bis 220 mm aus.

- Bei Bohrungen mit Durchmesser von 6 bis 30 mm den Werkzeughalter P20.30 in die Mitte des Schlittens einsetzen und mit Schrauben (9) spannen. Werkzeug B.. montieren und mit Schrauben (7) spannen. Versichern Sie sich, dass die Schneide der Wendeplatte auf der Längsachse des Schlittens liegt.
- Bei Bohrungen mit Durchmesser von 30 bis 95 mm den Werkzeughalter P.. in den Schlitten einsetzen und mit Schrauben (9) spannen.
- Bei Bohrungen mit Durchmesser von 95 bis 220 mm den Werkzeughalter PS.. in den Schlitten einsetzen und mit Schrauben (9) spannen. Den Plattenhalter SF.. am Werkzeughalter montieren und mit Schraube spannen.

* Zur höheren Flexibilität des TRM 50/80 und 80/80 Sets ist der Arbeitsbereich der Werkzeuge B3.08, B3.11, B3.16, B3.22 anders als der, der auf Seite 184 empfohlen und angegeben ist.

Расточная головка Kit TRM 80 предназначена для растачивания отверстий диаметром от 6 до 220 мм.

- Для растачивания отверстий диаметром от 6 до 30 мм установите державку P20.30 в центре салазок и зафиксируйте винтами (9). Установите инструмент B.. и зафиксируйте винтом (7). Режущая кромка расточного инструмента длжна совпадать с продольной осью салазок.
- Для растачивания отверстий диаметром от 30 до 96 мм установите державку P.. на слазках и зафиксируйте винтом (9).
- Для растачивания отверстий диаметром от 95 до 220 мм установите державку PS.. на салазки и затяните винт (9). Затем установите кассету SF.. и зажмите соответствующим винтом.

* Для большего удобства потребителя в наборе kit TRM 80 рабочий диапазон, инструментов B3.08, B3.11, B3.16, B3.22 отличается от указанного на стр. 184

Le kit TRM 80 alèse des diamètres allant de 6 à 220 mm.

- Pour des alésages de Ø 6 à 30 mm, introduire le porte-outils P20.30 au centre du coulisseau et le bloquer au moyen des vis (9). Poser ensuite l'outil B..et le bloquer au moyen des vis (7), n'oubliant pas de vérifier si le taillant de l'élément intercalaire est disposé sur l'axe longitudinal du coulisseau.
- Pour des alésages de Ø 30 à 95 mm, introduire le porte-outils P.. dans le coulisseau et le bloquer au moyen des vis (9).
- Pour des alésages de Ø 95 à 220 mm, introduire le porte-outils PS.. dans le coulisseau et le bloquer au moyen des vis (9). Monter le porte-plaquette SF.. sur le porte-outils et le bloquer au moyen de la vis.

* Pour une supérieure flexibilité du kit 50/80 et 80/80 la capacité d'usinage des outils B3.08, B3.11, B3.16, B3.22 est différente de celui suggéré et indiqué à la page 184.

Con i Kit TRM 80 si alesano fori da Ø 6 a 220 mm.

- Per i fori da Ø 6 a 30 mm inserire al centro della slitta il portautensili P20.30 bloccandolo con le viti (9). Montare l'utensile B.. bloccandolo con le viti (7) assicurandosi che il tagliente dell'inserto si trovi sull'asse longitudinale della slitta.
- Per i fori da Ø 30 a 95 mm inserire nella slitta i portautensili P.. bloccandoli con le viti (9).
- Per i fori da Ø 95 a 220 mm inserire nella slitta i portautensili PS.. bloccandoli con le viti (9). Montare sul portautensili il seggio SF.. bloccandolo con la vite.

* Per una maggiore flessibilità dei Kit TRM 50/80 e 80/80 il campo di lavoro degli utensili B3.08, B3.11, B3.16, B3.22 è differente da quello suggerito e riportato a pag. 184.

K03 (TRM 80/125)

Ø 36 ~ 410

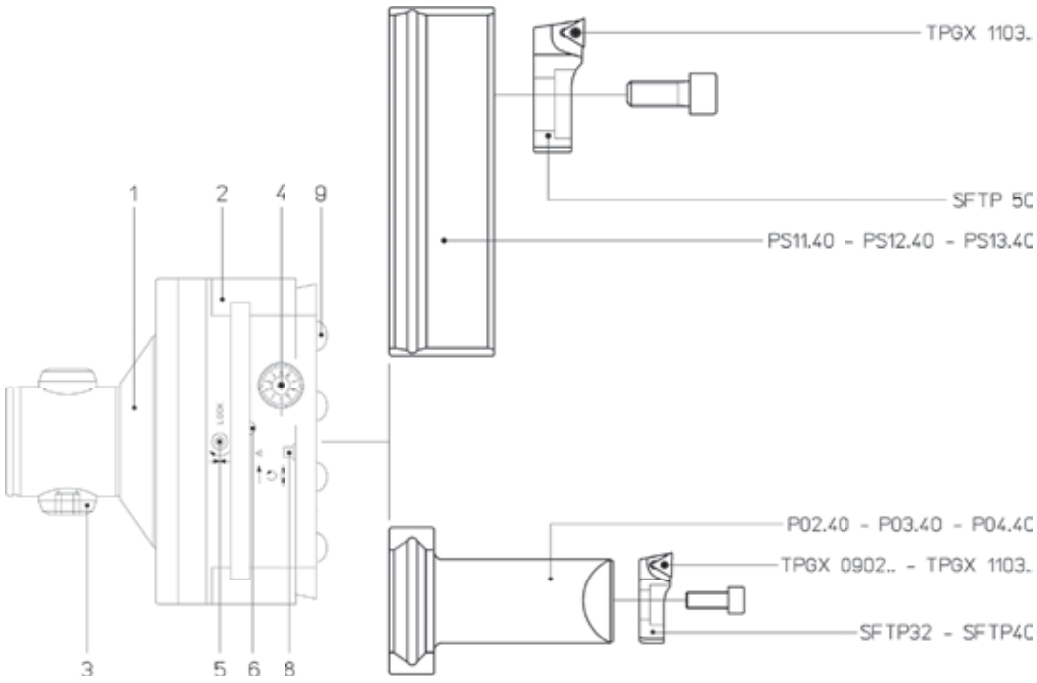
K03 TRM 80/125

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

2 µm

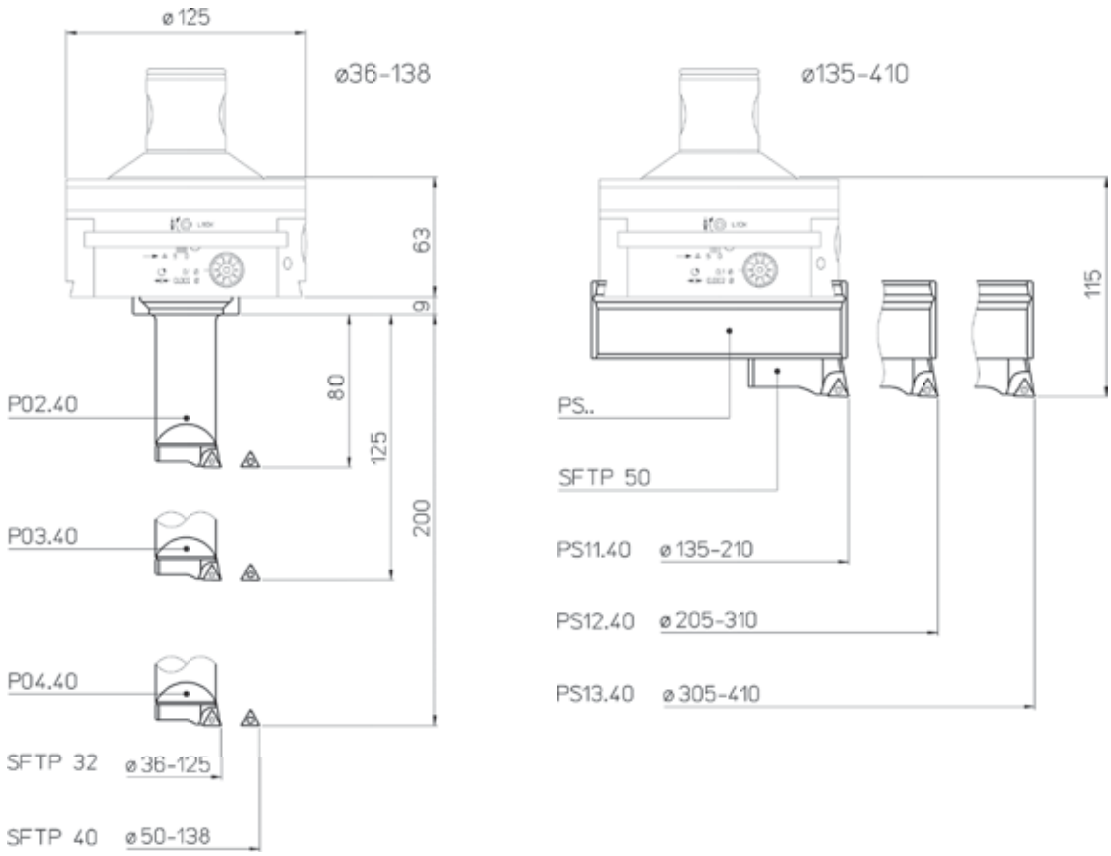
REF.	CODE	Ø
K01 TRM 80/125	65 50 125 0003 1	36 ~ 410

TRM 80/125 COMPONENTS | **TRM 80/125 BAUTEILE** | **КОМПОНЕНТЫ TRM 80/125** | **COMPOSANTS TRM 80/125** | **COMPONENTI TRM 80/125**



KIT - TRM

Working range | Arbeitsbereich | Рабочий диапазон | Capacité d'usinage | Campo di lavoro



COMPONENTS

1. Body
2. Tool slide
3. Expanding pin
4. Micrometric vernier scale
5. Slide lock screw
6. Coolant outlet
8. Oiler
9. Toolholder lock screws

The boring head TRM 125 bores diameters from 36 to 410 mm.

- For bores from Ø 36 to 138 mm fit the toolholder P.. in the slide and secure it by screws (9).
- For bores from Ø 135 to 410 mm fit the toolholder PS.. in the slide and secure it by screws (9). Fit the bit holder SF.. on the toolholder and secure it by the screw.

BAUTEILE

1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Werkzeugschlitten-klemmschraube
6. Kühlmittelaustrittloch
8. Schmiernippel
9. Werkzeughalter-spannschrauben

Der Feinstbohrkopf TRM 125 dreht Durchmesser von 36 bis 410 mm aus.

-Bei Bohrungen mit Durchmesser von 36 bis 138 mm den Werkzeughalter P.. in den Schlitten einsetzen und mit Schrauben (9) spannen.

-Bei Bohrungen mit Durchmesser von 135 bis 410 mm den Werkzeughalter PS.. in den Schlitten einsetzen und mit Schrauben (9) spannen. Den Plattenhalter SF.. am Werkzeughalter montieren und mit Schraube spannen.

КОМПОНЕНТЫ

1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
8. Масленка
9. Винт фиксации кассеты

Расточная головка TRM 125 растачивает отверстия диаметром от 36 до 550 мм.

- Для растачивания отверстий диаметром от 36 до 138 мм установите державку P.. на слазках и зафиксируйте винтом (9).
- Для растачивания отверстий диаметром от 135 до 410 мм установите державку PS.. на салазки и затяните винт (9). Затем установите кассету SF.. и зажмите соответствующим винтом.

COMPOSANTS

1. Corps
2. Coulisseau
3. Tige radiale expansible
4. Vernier micrométrique
5. Vis bloccage coulisseau
6. Sortie du liquide d'arrosage
8. Graisseur
9. Vis bloccage porte-outils

Le kit TRM 125 alèse des diamètres allant de 36 à 410 mm.

- Pour des alésages de Ø 36 à 138 mm, introduire le porte-outils P.. dans le coulisseau et le bloquer au moyen des vis (9).
- Pour des alésages de Ø 135 à 410 mm, introduire le porte-outils PS.. dans le coulisseau et le bloquer au moyen des vis (9). Monter le porte-plaquette SF.. sur le porte-outils et le bloquer au moyen de la vis.

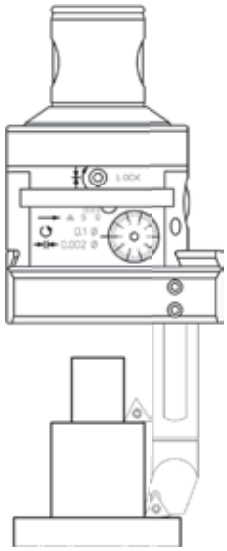
COMPONENTI

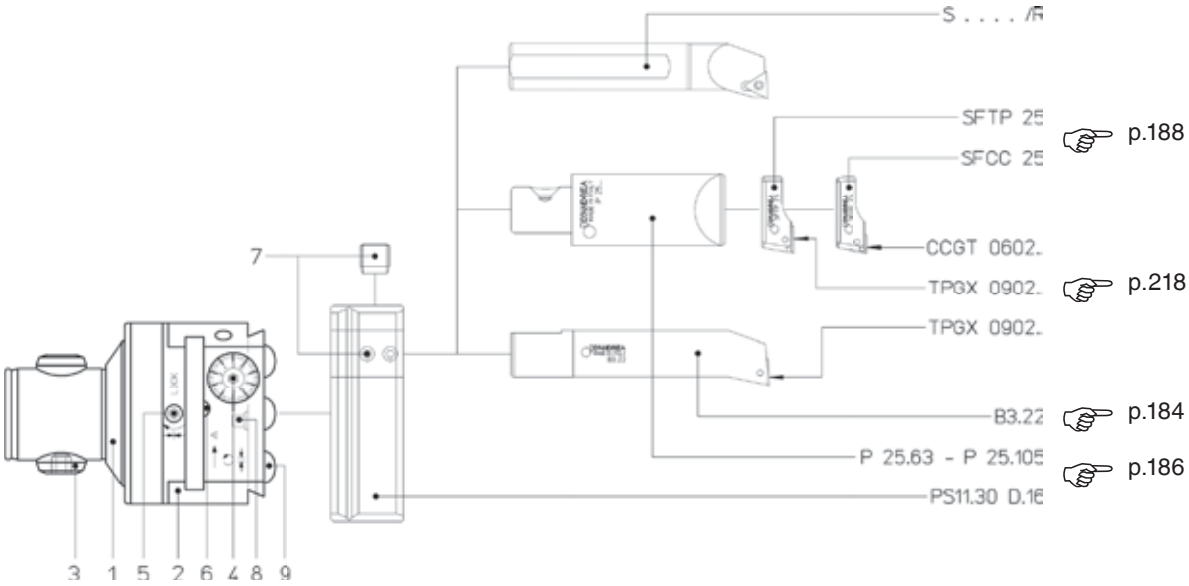
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Ugello uscita refrigerante
8. Oliatore
9. Viti bloccaggio portautensili

Con il Kit TRM 125 si alesano fori daØ 36 a 410 mm.

- Per i fori da Ø 36 a 138 mm inserire nella slitta i portautensili P.. bloccandoli con le viti (9).
- Per i fori da Ø 135 a 410 mm inserire nella slitta i portautensili PS.. bloccandoli con le viti (9). Montare sul portautensili il seggio SF.. bloccandolo con la vite.

TRM 50/63
TRM 63/63





COMPONENTS
1. Body
2. Slide toolholder
3. Expanding radial pin
4. Micrometric vernier scale
5. Slide clamp screw
6. Coolant outlet
7. Tool clamp screw
8. Oiler
9. Toolholder lock screw

BAUTEILE
1. Körper
2. Werkzeugschlitten
3. Spreizbolzen
4. Mikrometrischer Nonius
5. Schlittenklemmschraube
6. Kühlmittelaustrittloch
7. Werkzeugklemmschraube
8. Schmiernippel Bohrstangen.
9. Werkzeughalter-pannschrauben

КОМПОНЕНТЫ
1. Корпус
2. Салазки
3. Разжимной фиксирующий винт
4. Микрометрическая шкала нониуса
5. Винт фиксации салазок
6. Выходное отверстие канала подачи СОЖ
7. Винт фиксации инструмента
8. Масленка
9. Держатель кассеты

COMPOSANTS
1. Corps
2. Coulisseau
3. Tige radial expansible
4. Vernier micrométrique
5. Vis blocage coulisseau
6. Sortie du liquide d'arrosage
7. Vis blocage outil
8. Graisseur
9. Vis bloccage porte-outils

COMPONENTI
1. Corpo
2. Slitta portautensili
3. Perno radiale espandibile
4. Nonio micrometrico
5. Vite bloccaggio slitta
6. Uscita refrigerante
7. Vite bloccaggio utensili
8. Oliatore
9. Viti bloccaggio portautensili

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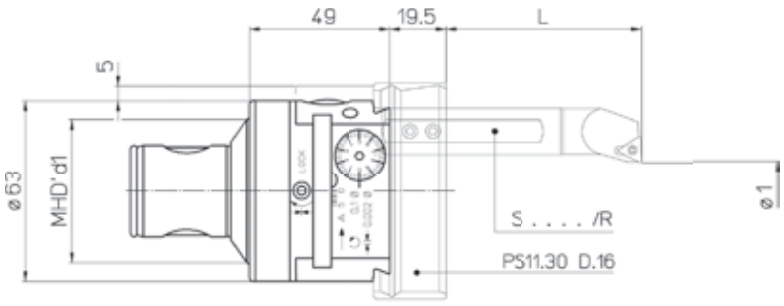
TRM

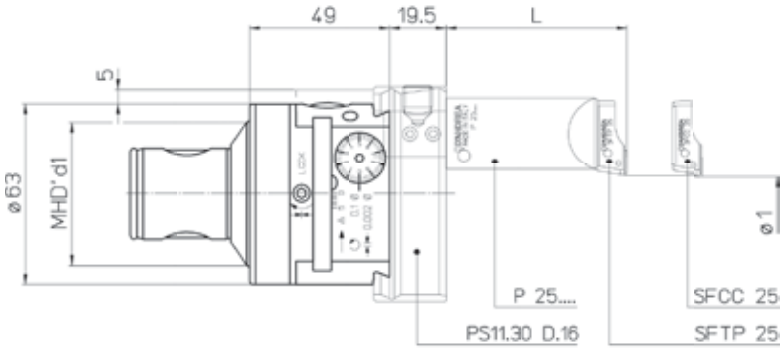
Testarossa external turning | Testarossa Aussendrehen | Testarossa для наружного точения | Testarossa Tournage extérieur | Testarossa tornitura esterna

TRM 50/63
TRM 63/63
Ø 5 ~ 35



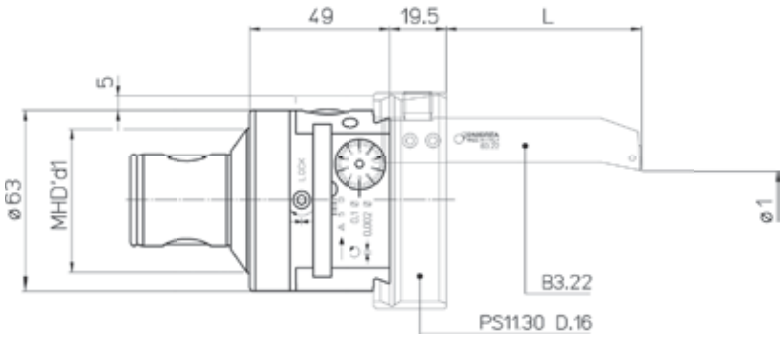
REF.	CODE	MHD'd_1	Ø$_1$	L	kg
TRM 50/63 TRM 63/63	45 50 050 0063 0 45 50 063 0063 0	50 63	5 ~ 35	68	1.1 1.5

TRM 50/63
TRM 63/63
Ø 5 ~ 35



REF.	CODE	MHD'd_1	Ø$_1$	L	P 25..	SF.. 25	△	▢	kg
TRM 50/63 TRM 63/63	45 50 050 0063 0 45 50 063 0063 0	50 63	5 ~ 35	63 105	P 25.63 P 25.105	SFTP 25 SFCC 25	•	•	1.1 1.5

TRM 50/63
TRM 63/63
Ø 5 ~ 35



REF.	CODE	MHD'd_1	Ø$_1$	L	B..	△	kg
TRM 50/63 TRM 63/63	45 50 050 0063 0 45 50 063 0063 0	50 63	5 ~ 35	68	B3.22	•	1.1 1.5

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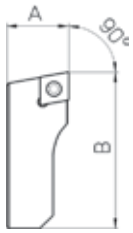
SSCC



REF.	CODE	Ø1	A	B				kg
SSCC 16	47 050 05 16 201	18 ~ 22	8	15	CCMT 0602..	TS 25	TORX T08	0.003
SSCC 20	47 050 05 20 201	22 ~ 28	9.5	19				0.006
SSCC 25	47 050 05 25 201	28 ~ 38	12.5	23				0.01
SSCC 32	47 050 05 32 201	35.5 ~ 50	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	50 ~ 68	19	40				0.06
SSCC 41	47 050 05 40 204				CCMT 1204..	TS 5	TORX T25	0.06
SSCC 50	47 050 05 50 204	68 ~ 90	22	54				0.1
SSCC 63	47 050 05 63 201	90 ~ 120	27	70.5				0.2
SSCC 80	47 050 05 80 201	120 ~ 160	32	94.5				0.5
SSCC 90	47 050 05 90 201	160 ~ 800		130				0.7

SMCC

REF.	CODE	Ø1	A1	B				kg
SMCC 25	47 050 05 25 203	28 ~ 38	12.3	23	CCMT 0602..	TS 25	TORX T08	0.01
SMCC 32	47 050 05 32 203	35.5 ~ 50	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	50 ~ 68	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	68 ~ 90	21.7	54				0.1
SMCC 63	47 050 05 63 203	90 ~ 120	26.7	70.5				0.2
SMCC 80	47 050 05 80 203	120 ~ 160	31.7	94.5				0.5
SMCC 90	47 050 05 90 203	160 ~ 800		130				0.7

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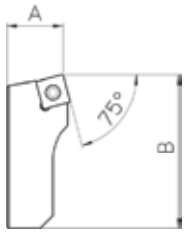
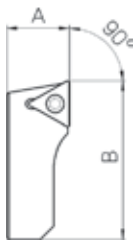
SSSC



REF.	CODE	Ø1	A	B				kg
SSSC 32	47 050 05 32 202	35.5 ~ 50	15	32	SCMT 09T3..	TS 4	TORX T15	0.02
SSSC 40	47 050 05 40 202	50 ~ 68	19	40				0.06
SSSC 50	47 050 05 50 202	68 ~ 90	22	54	SCMT 1204..	TS 5	TORX T25	0.1
SSSC 63	47 050 05 63 202	90 ~ 120	27	70.5				0.2
SSSC 80	47 050 05 80 202	120 ~ 160	32	94.5				0.5
SSSC 90	47 050 05 90 202	160 ~ 800		130				0.7

SSTC



REF.	CODE	Ø1	A	B				kg
SSTC 63	47 050 05 63 206	90 ~ 120	27	70.5	TCMT 2204..	TS 5	TORX T25	0.2
SSTC 80	47 050 05 80 206	120 ~ 160	32	94.5				0.5
SSTC 90	47 050 05 90 206	160 ~ 800		130				0.7

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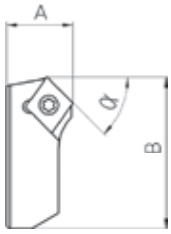
MODULHARD'ANDREA

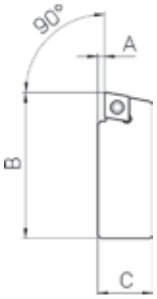
Bit-holders for double-bit items | Plattenhalter für Zweischneiderwerkzeuge | Кассеты для двухрезцовых расточных головок | Porte-plaquettes pour produits à deux coupants | Seggi per bitaglienti

SSSM



REF.	CODE	α	Ø1	A	B				kg
SSSM 25	47 050 05 25 211	15°	26 ~ 38	12.5	23	CCMT 0602..	TS 25	TORX T08	0.01
	47 050 05 25 213	30°							
	47 050 05 25 215	45°							
SSSM 32	47 050 05 32 211	15°	34.5 ~ 49	15	31				0.025
	47 050 05 32 213	30°							
	47 050 05 32 215	45°							
SSSM 40	47 050 05 40 211	15°	46.5 ~ 66	19	39	CCMT 09T3..	TS 4	TORX T15	0.06
	47 050 05 40 213	30°							
	47 050 05 40 215	45°							
SSSM 50	47 050 05 50 211	15°	65 ~ 88	22	53	CCMT 1204..	TS 5	TORX T25	0.1
	47 050 05 50 213	30°							
	47 050 05 50 215	45°							

SSQC



REF.	CODE	Ø1	A	B	C				kg
SSQC 16	47 050 05 16 261	20 ~ 24	2	16	10	CCMT 0602..	TS 25	TORX T08	0.005
SSQC 20	47 050 05 20 261	23.5 ~ 30	1.5	19.5	11				0.008
SSQC 25	47 050 05 25 261	29.5 ~ 40	2.5	24	14.5				0.02
SSQC 33	47 050 05 33 261	39 ~ 52	3	32	17	CCMT 09T3..	TS 4	TORX T15	0.03
SSQC 41	47 050 05 41 261	51 ~ 70	3.5	42	21	CCMT 1204..	TS 5	TORX T25	0.08
SSQC 50	47 050 05 50 261	69 ~ 92		57	24.5				0.15
SSQC 63	47 050 05 63 261	91 ~ 122		76	28.5				0.3
SSQC 80	47 050 05 80 261	121 ~ 162		101	31.5				0.6
SSQC 90	47 050 05 90 261	161 ~ 802		122					0.8

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SSCC D

REF.	CODE	Ø1	A	B				kg
SSCC 25 D	47 050 05 25 220	28 ~ 36	10	24	CCMT 0602..	TS 25	TORX T08	0.008
SSCC 32 D	47 050 05 32 220	36 ~ 46	11.5	30				0.015
SSCC 40 D	47 050 05 40 220	46 ~ 60	14	40	CCMT 09T3..	TS 4	TORX T15	0.03
SSCC 50 D	47 050 05 50 220	60 ~ 75	19	54				0.06
SSCC 63 D	47 050 05 63 220	75 ~ 95	24.5	68				0.15
SSCC 80 D	47 050 05 80 220	95 ~ 120	29.5	87				0.3

SFCC D

REF.	CODE	Ø1	A1	B				kg
SFCC 25 D	47 050 05 25 020	28 ~ 36	9.8	24	CCGT 0602..	TS 25	TORX T08	0.008
SFCC 32 D	47 050 05 32 020	36 ~ 46	11.3	30				0.015
SFCC 40 D	47 050 05 40 020	46 ~ 60	13.8	40	CCGT 09T3..	TS 4	TORX T15	0.03
SFCC 50 D	47 050 05 50 020	60 ~ 75	18.8	54				0.06
SFCC 63 D	47 050 05 63 020	75 ~ 95	24.3	68				0.15
SFCC 80 D	47 050 05 80 020	95 ~ 120	29.3	87				0.3

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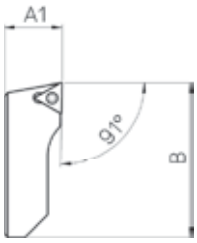
SFTP D



REF.	CODE	Ø1	A1	B				kg
SFTP 25 D	47 050 05 25 030	28 ~ 36	9.8	24	TPGX 0902..	CS 250T	TORX T08	0.008
SFTP 32 D	47 050 05 32 030	36 ~ 46	11.3	30				0.015
SFTP 40 D	47 050 05 40 030	46 ~ 60	13.8	40	TPGX 1103..	CS 300890T		0.03
SFTP 50 D	47 050 05 50 030	60 ~ 75	18.8	54				0.06
SFTP 63 D	47 050 05 63 030	75 ~ 95	24.3	68				0.15
SFTP 80 D	47 050 05 80 030	95 ~ 120	29.3	87				0.3

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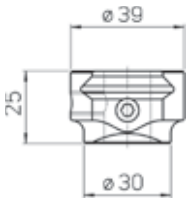
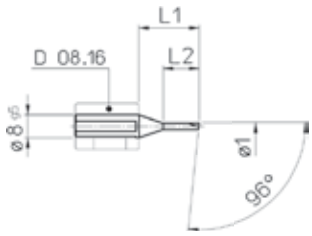
INFO

P20.30



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

B1...



Carbide tools | Bohrstange aus Hartmetall | Твердосплавный инструмент | Outils carbure | Utensili in metallo duro

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	–	

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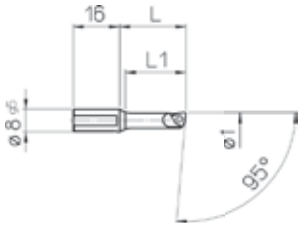
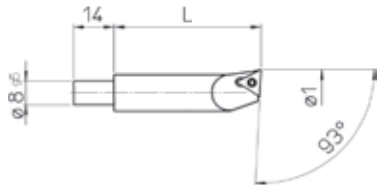
B1...



Tools | Bohrstange | Инструмент | Outils | Utensili

REF.	CODE	Ø1	L	L1					kg
B1.06	57 201 05 06 000	6 ~ 8	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...



Tools | Bohrstange | Инструмент | Outils | Utensili

REF.	CODE	Ø1	L				kg
B1.12	57 201 05 12 000	12 ~ 14	42	TPGX 0902..	CS 250 T	TORX T08	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

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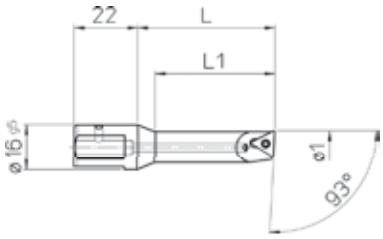
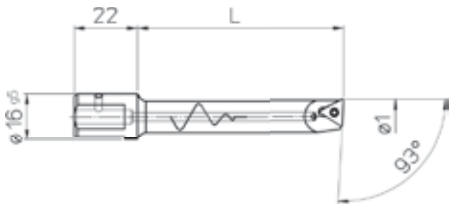
B3...



Tools | Bohrstan ge | Инструмент | Outils | Utensili

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...



Vibration-damping tools | Vibrationsarme Bohrstangen | Виброгасящие оправки | Outils anti-vibratoires | Utensili antivibranti

REF.	CODE	Ø1	L					kg
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

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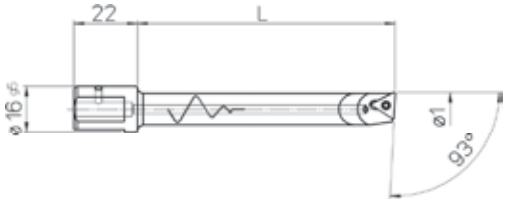
B8...



Tools with carbide shank | Bohrstangen mit Hartmetallschaft | Твердосплавные оправки | Outils avec queue carbure | Utensili con stelo in metallo duro

REF.	CODE	Ø1	L					kg
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

K20.50

Ø 6 ~ 30

K 20.50

1 B3.06
1 B3.08
1 B3.11
1 B3.16
1 B3.22
5 TPGX090202L
3 WCGT020102L

REF.	CODE	Ø
K20.50	65 50 001 0020 0	6 ~ 6

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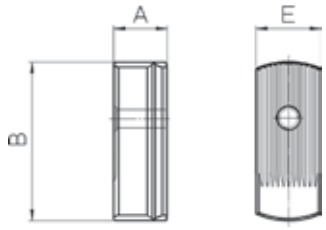
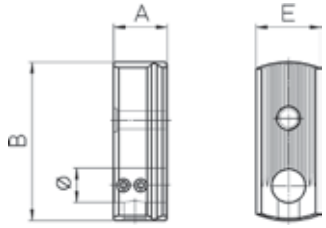
PS ..



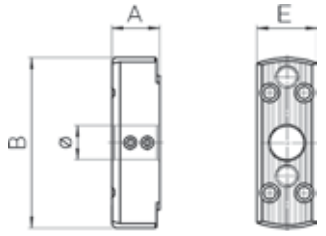
REF.	CODE	A	B	E	kg
PS 11.30	43 30 30 26 075 0	25	75	30.5	0.4
PS 12.30	43 30 30 26 095 0		93		0.5
PS 13.30	43 30 30 26 140 0		135		0.7
PS 11.40	43 30 40 35 150 0	40	133	40	1.5
PS 12.40	43 30 40 35 230 0		200		2.4
PS 13.40	43 30 40 35 330 0		300		3.5
PS 14.40	43 30 40 35 400 0		400		4.6

PS 11.30 D.16



REF.	CODE	Ø H6	A	B	E	kg
PS 11.30 D.16	43 30 30 26 075 5	16	25	75	30.5	0.4

PS ..



REF.	CODE	Ø H6	A	B	E	kg
PS 31.24	43 30 24 14 075 1	–	14.5	75	24	0.2
PS 31.28	43 30 28 22 080 1	16	22.5	80	28	0.3
PS 32.28	43 30 28 22 108 1	–		108		0.5
PS 33.28	43 30 28 22 148 1			148		0.6

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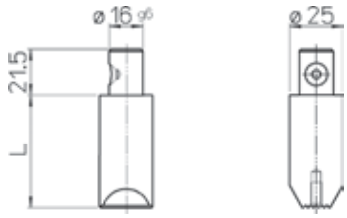
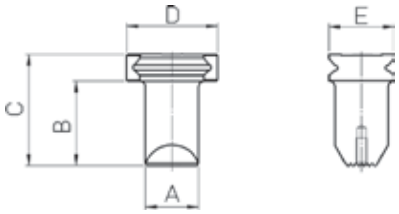
P 25....



REF.	CODE	L	kg
P25.63	43 51 16 25 063 0	53	0.5
P25.105	43 51 16 25 105 0	95	0.8

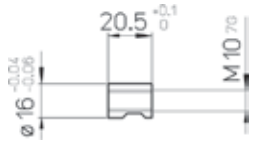
P0..



REF.	CODE	A	B	C	D	E	kg.
P02.30	43 10 30 25 040 0	25	40	52.5	43	30.5	0.3
P03.30	43 10 30 25 070 0	25	70	82.5			0.4
P04.30	43 10 30 25 115 0	27	115	127.5			0.7
P02.40	43 10 40 32 070 0	32	69	86	56	40	0.7
P03.40	43 10 40 32 115 0	32	114	131			1
P04.40	43 10 40 32 190 0	38	189	206			2

Blocking bit-holder sleeve | Sitzblockierungsbuchse | Стопор | Douille de blocage du logement | Bussola bloccaggio seggio

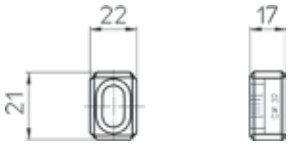
BM 10



REF.	CODE	kg
BM 10	20 104 10 150 02	0.02

Counterweight | Gegengewicht | Противовес | Contrpoids | Contrappeso

CW 32



REF.	CODE	kg
CW 32	39 20 110 032 01	0.5

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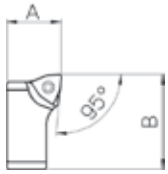
MODULHARD'ANDREA

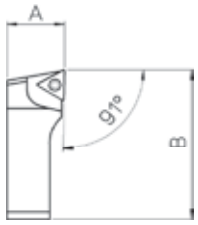
Bit-holders for Testarossa | Plattenhalter für Testarossa | Кассеты для Testarossa | Porte-plaquettes pour Testarossa | Seggi per Testarossa

SFWC



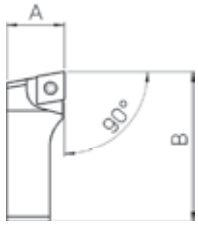
REF.	CODE	Ø1	A	B				kg.
SFWC 14	47 050 05 14 002	14.5 ~ 18	8	14	WCGT 0201..	TS 211	TORX T06	0.003

SFTP



REF.	CODE	Ø1	A	B				kg.
SFTP 25	47 050 05 25 001	28 ~ 40	10	26.5	TPGX 0902..	CS 250T	TORX T08	0.01
SFTP 32	47 050 05 32 001	35 ~ 53	11.5	34.5				0.02
SFTP 40	47 050 05 40 001	48 ~ 66	14	44	TPGX 1103..	CS 300890T		0.04
SFTP 50	47 050 05 50 001	54 ~ 800	19	52				0.08

SFCC



REF.	CODE	Ø1	A	B				kg.
SFCC 16	47 050 05 16 002	18 ~ 24	8	17	CCGT 0602..	TS 25	TORX T08	0.003
SFCC 20	47 050 05 20 002	22 ~ 30	8.5	21				0.005
SFCC 25	47 050 05 25 002	28 ~ 40	10	26.5				0.01
SFCC 32	47 050 05 32 002	35 ~ 53	11.5	34.5				0.02
SFCC 40	47 050 05 40 002	48 ~ 66	14	44	CCGT 09T3..	TS 4	TORX T15	0.04
SFCC 50	47 050 05 50 002	54 ~ 800	19	52				0.08

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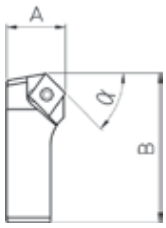
SFSM



REF.	CODE	α	Ø1	A	B				kg.
SFSM 25	47 050 05 25 011	15°	28 ~ 40	10	25.5	CCMT 0602..	TS 25	TORX T08	0.01
	47 050 05 25 013	30°							
	47 050 05 25 015	45°							
SFSM 32	47 050 05 32 011	15°	35 ~ 53	11.5	33.5				0.02
	47 050 05 32 013	30°							
	47 050 05 32 015	45°							
SFSM 40	47 050 05 40 011	15°	48 ~ 66	14	42.5	CCMT 09T3..	TS 4	TORX T15	0.03
	47 050 05 40 013	30°							
	47 050 05 40 015	45°							
SFSM 50	47 050 05 50 011	15°	54 ~ 800	19	50.5				0.07
	47 050 05 50 013	30°							
	47 050 05 50 015	45°							

SFQC

REF.	CODE	Ø1	A	B	C				kg.
SFQC 16	47 050 05 16 062	20 ~ 26	2	18	10	CCMT 0602..	TS 25	TORX T08	0.005
SFQC 20	47 050 05 20 062	24.5 ~ 33		22.5	10.5				0.008
SFQC 25	47 050 05 25 062	31.5 ~ 42	2.5	28.5	12				0.01
SFQC 32	47 050 05 32 062	39 ~ 55		35.5	13.5				0.03
SFQC 40	47 050 05 40 062	51 ~ 68	3	46	16.5	CCMT 09T3..	TS 4	TORX T15	0.06
SFQC 50	47 050 05 50 062	56 ~ 802		53	20.5				0.1

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MODULHARD'ANDREA

Chucking tools | Spannzeuge | Станочная оснастка | Adaptateurs | Adattatori

CHUCKING TOOLS
Combi-toolholders Weldon (DIN 1835 B) and Whistle Notch (DIN 1835 E) with axial adjustment screw.

WERKZEUGAUFNAHMEN
Werkzeugaufnahme für Weldon (nach DIN 1835-B) und Whistle Notch (nach DIN 1835-E) mit Axialverstellschraube.

СТАНОЧНАЯ ОСНАСТКА
Комбинированные держатели инструмента Weldon (DIN 1835 B) и Whistle Notch (DIN 1835 E) с осевым регулировочным винтом.

ADAPTATEURS
Adaptateurs combinés Weldon (DIN 1835 B) et Whistle Notch (DIN 1835 E) avec vis de réglage axial.

ADATTATORI
Adattatori combinati Weldon (DIN 1835 B) e Whistle Notch (DIN 1835 E) con vite di regolazione assiale.

Chucking tools

PE
Collet chucks to DIN 6499 sizes ER 11, ER 16, ER 20, ER 25, ER 32, ER 40, including axial adjustment screw. Supplied without collets.

AM
Tapping chuck holders for high production thread cutting.
Large length compensation in response to tension and compression.
With quick-change clutch for tap holders with or without torque clutch.

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.

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

NS
Semi-finished toolholders for special tools with hardened and ground MHD' coupling part and cylindrical part with hardness HRC 22-25.

ACR
Coolant chucking tools.

Spannzeuge

PE
Spannzangenfutter nach DIN 6499, Größen ER 11, ER 16, ER 20, ER 25, ER 32, ER 40 mit Axialverstell-schraube. Sie werden ohne Spannzangen geliefert.

AM
Gewindeschneid-spannfutter für höchste Beanspruchung in der Serienfertigung. Großer Längenausgleich auf Zug und Druck, mit Schnellwechselkupplung für Gewindebohrerhalter mit oder ohne Drehmoment-kupplung.

PF
Kombiaufsteckfräsdorne für Scheibenfräser und Planfräser.

CM
Werkzeugaufnahmen mit Morseinnenkegel für Werkzeuge mit Rückzuggewinde nach DIN 228-A und Lappen nach DIN 228-B.

B16
Bohrerfutteraufnahme mit Innenkegel B16 nach DIN 238.

NS
Werkzeugaufnahmenrohlinge mit gehärtetem und geschliffenem MHD' Kupplungsteil und zylindrischem Teil mit Härte HRC 22-25.

ACR
Kühlmittelspannzeuge.

Станочная оснастка

PE
Цанговые патроны по DIN 6499 размерности ER 11, ER 16, ER 20, ER 25, ER 32, ER 40 с осевым регулировочным винтом. Цанги в комплект поставки патронов не входят.

AM
Держатели под резьбонарезные патроны для высокопроизводительного нарезания резьбы. Широкий диапазон компенсации осевых нагрузок (прямого и обратного хода). Быстроразъемное соединение для держателей метчиков с предохранительной муфтой или без нее.

PF
Универсальные фрезерные оправки для дисковых и торцовых фрез.

CM
Оправки с внутренним конусом морзе для инструментов с резьбой по DIN 228-A или с лапкой DIN 228-B.

B16
Оправки для сверлильных патронов с внутренним конусом B16 по DIN 238.

NS
Заготовки оправок для нестандартных инструментов с закаленным и отшлифованным соединением MHD' с одной стороны и цилиндрической частью с твердостью HRC 22-25 с другой.

ACR
Оснастка для подвода СОЖ.

Adaptateurs

PE
Adaptateurs porte-pinces DIN 6499 tailles ER 11, ER 16, ER 20, ER 25, ER 32, ER 40 avec vis de réglage axial. Les adaptateurs sont fournies sans pinces.

AM
Adaptateurs de taraudage pour forte fabrication en série.
Grande compensation de longueur en traction et compression, avec adaptateurs à changement rapide, pour porte-tarauds avec ou sans limiteur de couple.

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.

B16
Adaptateurs pour mandrins porte-forets avec filetage B16 DIN 238.

NS
Adaptateurs semi-finis pour outils spéciaux avec la partie d'accouplement MHD' trempée et rectifiée et la partie cylindrique avec dureté HRC 22-25.

ACR
Adaptateurs pour liquide d'arrosage.

Adattatori

PE
Adattatori portapinze elastiche DIN 6499 grandezze ER 11, ER 16, ER 20, ER 25, ER 32, ER 40 completi di vite per la regolazione assiale. Gli adattatori vengono forniti senza pinze elastiche.

AM
Adattatori di maschiatura per forte produzione. Grande compensazione assiale sia in compressione sia in trazione. Possibilità di utilizzare bussole a cambio rapido, con e senza limitazione di coppia.

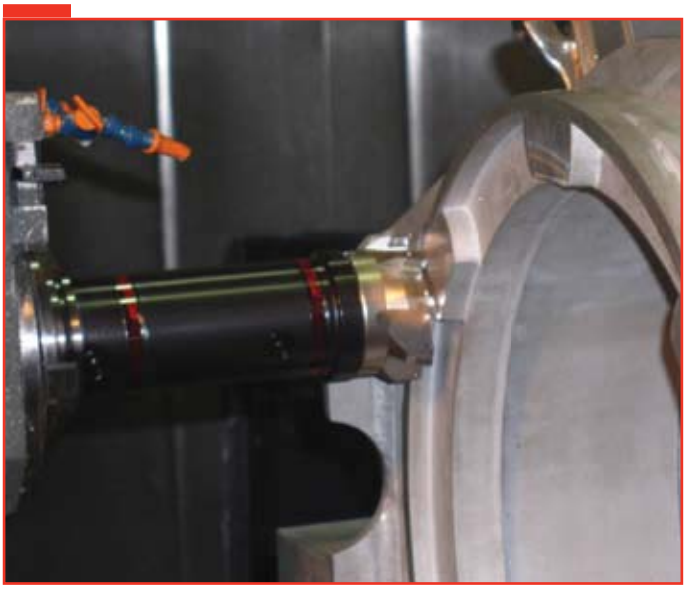
PF
Adattatori portafrese combinati per frese a disco e spianare.

CM
Adattatori combinati per cono morse con foro filettato DIN 228-A e con dente DIN 228-B.

B16
Adattatori per mandrini portapunte con attacco B16 DIN 238.

NS
Adattatori semilavorati per utensili speciali, realizzati con la parte dell'accoppiamento MHD' temprata e rettificata e la parte cilindrica neutra con durezza HRC 22-25.

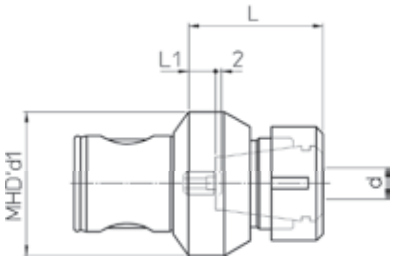
ACR
Adduttori per liquido refrigerante.



MODULHARD'ANDREA

Collets chucking tools | Spannzangenfutter | Цанговая патроны | Adaptateurs pour pinces de serrage | Adattatori per pinze elastiche

PE
ER DIN 6499



Supplied without collets and clamping wrenches | Ohne Spannzangen und Spannschlüssel. | Поставляется без цанг и зажимных ключей. | 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

Collet chucks to DIN 6499 sizes ER 11, ER 16, ER 20, ER 25, ER 32, ER 40 supplied with axial adjustment screw and without collets.

Spannzangenfutter nach DIN 6499, Größen ER 11, ER 16, ER 20, ER 25, ER 32, ER 40 mit Axialverstellschraube. Sie werden ohne Spannzangen geliefert.

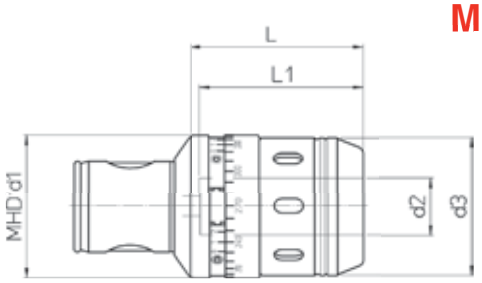
Цанговые патроны по DIN 6499 размерности ER 11, ER 16, ER 20, ER 25, ER 32, ER 40, поставляются с осевым регулировочным винтом, без цанг.

Adaptateurs porte-fraises flottants DIN 6499, tailles ER 11, ER 16, ER 20, ER 25, ER 32, ER 40 avec vis de réglage axial. Les adaptateurs sont pourvus sans pinces.

Adattatori portapinze elastiche DIN 6499 grandezze ER 11, ER 16, ER 20, ER 25, ER 32, ER 40 completi di vite per la regolazione assiale. Gli adattatori vengono forniti senza pinze elastiche.

Ultra-tight toolholder FORCE | FORCE Spannzangenfutter mit hochfester Werkzeugspannung | Патрон с высоким моментом затяжки FORCE | Adaptateurs à serrage fort FORCE | Adattatori a forte serraggio FORCE

MHD' FORCE



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

Supplied without collets and clamping wrenches | Ohne Spannzangen und Spannschlüssel. | Без зажимного ключа. | Sans pinces et clés de serrage | Pinze elastiche e chiavi di serraggio escluse

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AW
DIN 1835 B-E

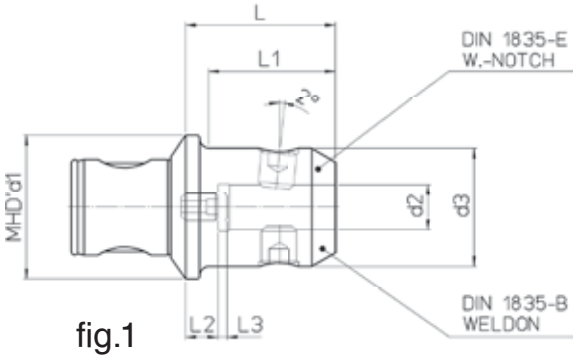

fig.1

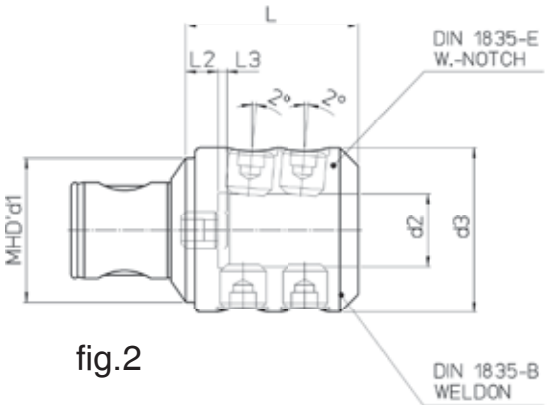

fig.2

REF.	CODE	MHD' d_1	d_{2H5}	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	

Combi-toolholders Weldon (DIN 1835 B) and Whistle Notch (DIN 1835 E) with axial adjustment screw.

Werkzeugaufnahme Weldon (nach DIN 1835-B) und Whistle Notch (nach DIN 1835-E) mit Axialverstellschraube.

Комбинированны патроны Weldon(DIN 1835 B) и Whistle Notch (DIN 1835 E) с осевым регулировочным винтом.

Adaptateurs combinés Weldon (DIN 1835 B) et Whistle Notch (DIN 1835 E) avec vis de réglage axial.

Adattatori combinati Weldon (DIN 1835 B) e Whistle Notch (DIN 1835 E) con vite di regolazione assiale.

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MODULHARD'ANDREA

Disc and facing cutter holders | Scheiben- und Planfräseraufsteckdorne | Оправки для дисковых и торцовых фрез | Adaptateurs pour fraises à disque et à surfacer | Adattatori per frese a disco e a spianare

PF

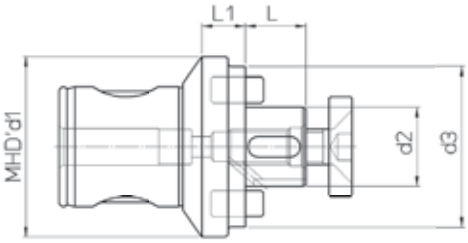
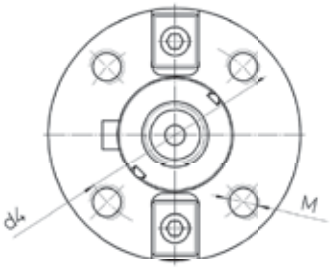


fig.1



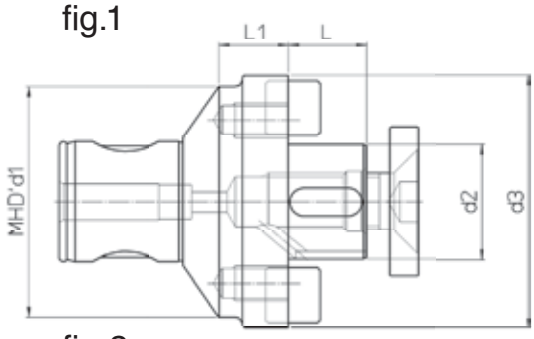
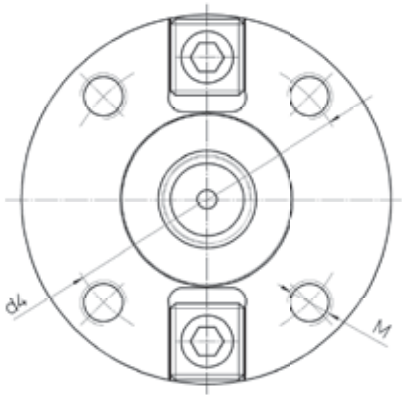


fig.2



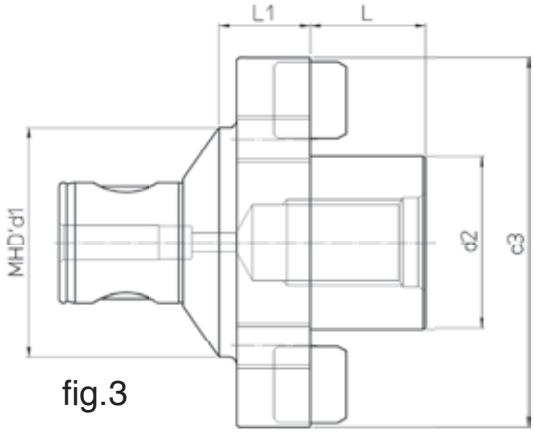


fig.3

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	1.9	
PF 80/40	65 59 080 0040 0		40	88	66.7	M12	27		2.1	2
PF 80/60	65 59 080 0060 0		60	128.5	101.6	M16	40	31.5	3.5	3

Combi-chucking tools for disc and facing cutter holders. | Kombiaufsteckfräsdorne für Scheibenfräser und Planfräser. | Комбинированные оправки для дисковых и торцовых фрез. | Adaptateurs combinés pour fraises à disque et à surfacer. | Adattatori portafrese combinati per frese a disco e a spianare.

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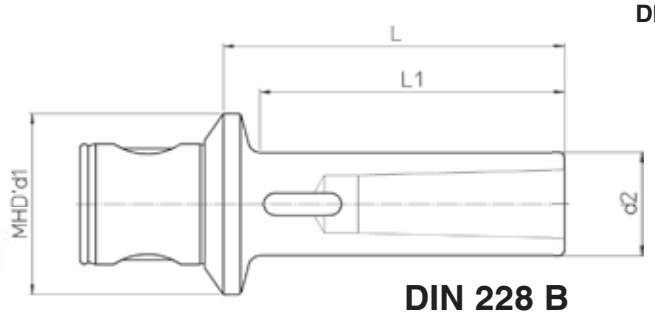
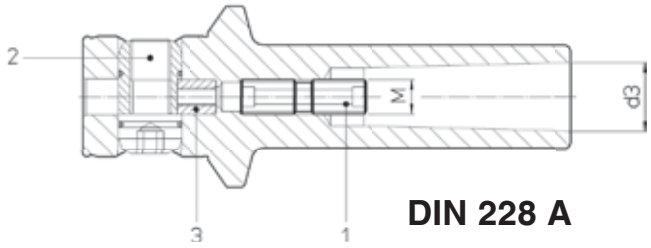
CM

DIN 228 A-B



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

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.

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 MorseinnenkegelfürWerkzeuge mit Rückzuggewinde nach DIN 228-A und Austreiberlappen nach DIN 228-B.

CM DIN 228-A

Для крепоения инструмента с конусом морзе, выполните следующее:
a. Заверните винт 1.
b. Выньте разжимной штифт 2 и втулку 3 для обеспечения доступа гаечного ключа.
c. Вставьте инструмент и затяните винт 1 по часовой стрелке.
d. Установите в первоначальное положение разжимной штифт 2 и втулку 3.

CM DIN 228-B

Для зажима инструмента с конусом морзе и лапкой, выверните винт 1. Комбинированные оправки с внутренным конусом морзе для инструментов с резьбой по DIN 228-A или с лапкой DIN 228-B.

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

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

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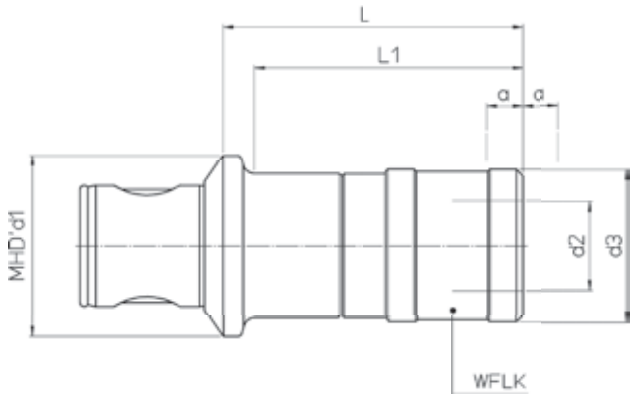
MODULHARD'ANDREA

Tapping chuck holders | Gewindeschneidspannfutter | Оправки для резьбонарезных патронов | Adaptateurs de taraudage | Adattatori di maschiatura

AM



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

Tapping chuck holders suitable for high production. Great axial adjustment both in compression and tension. There is the possibility of using quick change clutches with or without torque clutch.

Gewindeschneid-spannfutter für hohe Beanspruchung in der Serienfertigung. Großer Längenausgleich auf Zug und Druck, mit Schnellwechselkupplung für Gewindebohrfutter mit oder ohne Drehmomentkupplung.

Держатели под резьбонарезные патроны для высокопроизводительного нарезания резьбы. Широкий диапазон компенсации осевых нагрузок (прямого и обратного хода). Быстроразъемное соединение для держателей метчиков с предохранительной муфтой или без нее.

Adaptateurs de taraudage pour forte production. Grande compensation assiale en traction et compression, avec adaptateurs à changement rapide, pour porte-tarauds avec ou sans limiteur de couple.

Adattatori di maschiatura per forte produzione. Grande compensazione assiale sia in compressione sia in trazione. Possibilità di utilizzare bussole a cambio rapido, con e senza limitazione di coppia.

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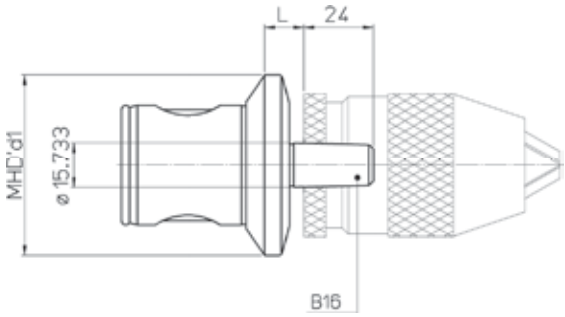
B16
DIN 238



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

Drilling chuck holders with B16 DIN 238 thread.

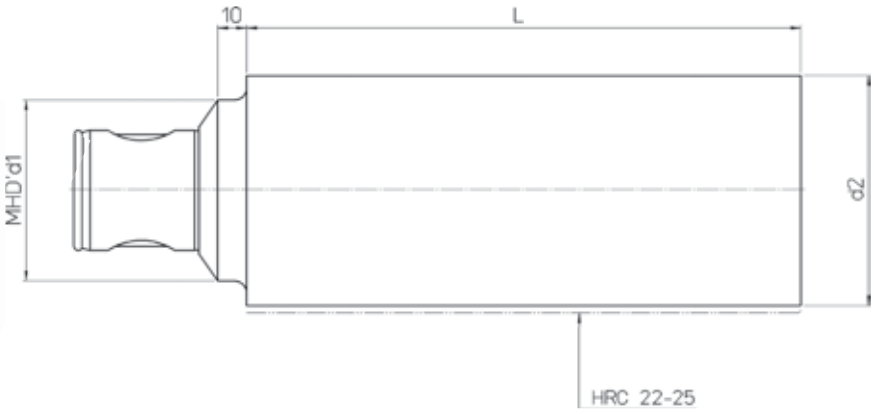
Bohrfutteraufnahme mit Innenkegel B16 nach DIN 238.

Оправки для сверлильных патронов с внутренним конусом B16 DIN 238.

Adaptateurs pour mandrin porte-forets avec cône B16 DIN 238.

Adattatori per mandrini portapunte con attacco B16 DIN 238.

NS



REF.	CODE	MHD' d1	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

Semifinished chucking holders for special tools, manufactured with the tempered and ground part of the MHD' coupling and the cylindrical neutral part with a hardness of HRC 22-25.

Werkzeugaufnahmenrohlige mit gehärtetem und geschliffenem MHD' Kupplungsteil und zylindrischem Teil mit Härte HRC 22-25.

Заготовки оправок для нестандартных инструментов с закаленным и отшлифованным соединением MHD' с одной стороны и цилиндрической частью с твердостью HRC 22-25 с другой.

Adaptateurs semi-finis pour outils spéciaux, realisés avec la partie de l'accouplement MHD' temprée et rectifiée et la partie cylindrique neutre avec dureté HRC 22-25.

Adattatori semilavorati per utensili speciali, realizzati con la parte dell'accoppiamento MHD' temprata e rettificata e la parte cilindrica neutra con durezza HRC 22-25.

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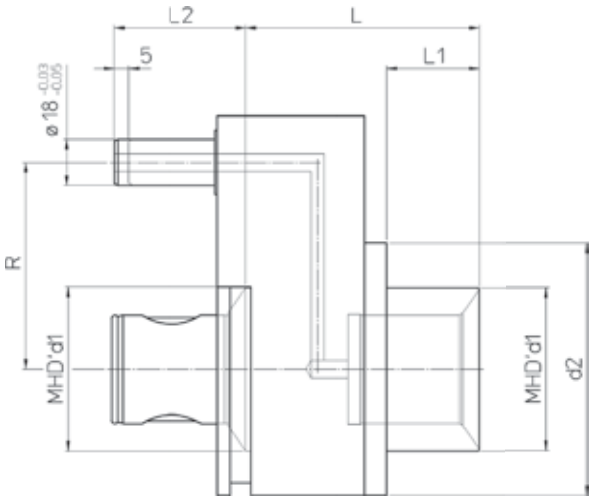
MODULHARD'ANDREA

Coolant chucking tools | Aufnahme mit Kühlmittelübergabe | Оснастка для подвода СОЖ | Adaptateurs pour liquide d'arrosage | Adattatori per liquido refrigerante

ACR/NC



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

IMPORTANT NOTE

Activate the coolant before the chuck ROTATION not to damage internal gaskets.

WICHTIGER HINWEIS

Das Kühlmittel vor der SPINDELUMDREHUNG einschalten, um die inneren Dichtungen nicht zu beschädigen.

ВНИМАНИЕ

Включайте подачу СОЖ до начала вращения патрона с целью предупреждения выхода из строя внутренних прокладок.

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.

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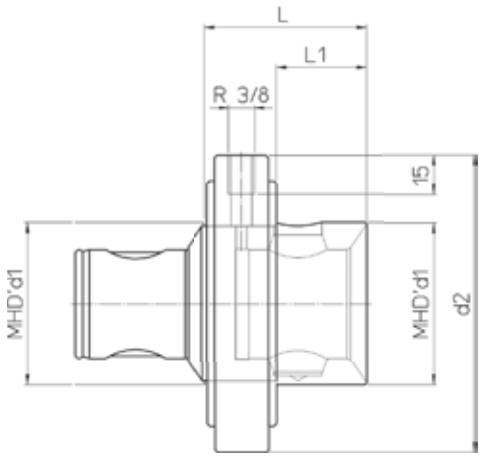
ACR



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

IMPORTANT NOTE

Activate the coolant before the chuck ROTATION not to damage internal gaskets.

WICHTIGER HINWEIS

Das Kühlmittel vor der SPINDELUMDREHUNG einschalten, um die inneren Dichtungen nicht zu beschädigen.

ВНИМАНИЕ

Включайте подачу СОЖ до начала вращения патрона с целью предупреждения выхода из строя внутренних прокладок.

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.

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GRINTA

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F-MHD’ 16 - 20 - 25 - 32

GRINTA is a new D’Andrea solution for milling operations. The program comprises a series of milling cutter bodies that utilize classical milling cutter geometry styles and ISO inserts, thereby increasing the working range of the MHD’ Modular System.
The MHD’ Modular System, already known worldwide for its roughing and finishing boring tools, now makes available to the milling operation its large-capacity and its inherent perfect concentricity and extreme resistance to torsion.
At the heart of the system is the coupling: for diameters from 16mm to 32mm the **GRINTA** system takes advantage of dual couplings, that is, the milling heads have a threaded end along with a ground guide accompanied by the modular MHD’ connection.
For cutter diameters 40mm, 50mm and 63mm, the cutter bodies incorporate the modular MHD’ connection.

GRINTA ist eine neue D'Andrea Lösung für Fräsbearbeitungen. Das Programm beinhaltet eine Fräser Linie, welche die klassische Fräsergeometrie und ISO Wendeschneidplatten verwendet, dadurch vergrößert sich der Verwendungsbereich des modularen MHD' Systems.
Das modulare MHD' System, weltweit bekannt durch seine Schrupp- und Feinstbohrköpfe, stellt jetzt für Fräsbearbeitungen sein großes Leistungsvermögen, dem dazugehörigen perfekten Rundlauf und die extreme Verdrehfestigkeit zur Verfügung. Das Herz des Systems ist die Kupplung: Für die Durchmesser 16mm bis 32mm verwendet das **GRINTA** System den Vorteil einer Doppel-Kupplung, die Fräsköpfe werden durch den geschliffenen MHD' Anschluß geführt und haben am Ende ein Einschraubgewinde. Bei den Fräsdurchmessern 40mm, 50mm und 63mm werden die Fräskörper über den modulare MHD' Anschluß verbunden.

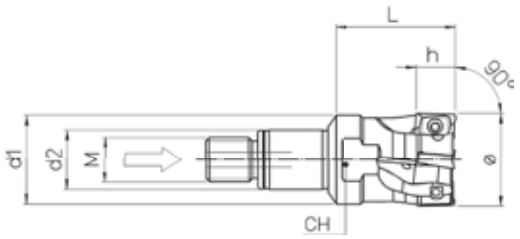
GRINTA - новое решение компании D'Andrea для операций фрезерования. Программа включает серию корпусов фрез, с которыми используются пластины классической геометрии, а также пластины, кодифицированные по ISO, тем самым, расширяя возможности модульной системы MHD'. Модульная система MHD', известная во всём мире, благодаря своим инструментам для чернового и прецизионного растачивания, теперь может использоваться и для операций фрезерования, сохраняя и для них свои основные преимущества высокой соосности, жесткости системы и передаваемого крутящего момента. Основой системы все также является соединение: для диаметров от 16 до 32 мм преимуществом **GRINTA** является двойное соединение фрезы, то есть торцовое резьбовое соединение, дополненное шлифованной направляющей с модульным соединением MHD'. Для фрез диаметрами 40, 50 и 63 мм корпуса имеют модульное соединение MHD'.

GRINTA est une nouvelle solution D'Andréa pour les opérations de fraisage. Le programme comprend une série de porte-outils qui utilisent des géométries de fraisage classiques et des plaquettes ISO, ce qui augmente la capacité d'usinage du système modulaire MHD'.
Le système modulaire MHD' déjà mondialement connu pour ses outils d'ébauche et de finition, met sa grande capacité, sa concentricité et sa grande résistance à la torsion au service du fraisage.
Un accouplement se trouve au cour du système, : pour les diamètres de 16 à 32 mm, le système **GRINTA** tire profit des accouplement en duo, ce qui signifie que les têtes de fraisage ont une extrémité filetée prolongée par un guide de base utilisé en parallèle avec le système d'assemblage modulaire MHD.
Pour les fraises d'un diamètre de 40 mm, 50 mm et 63 mm les porte-outils intègrent l'assemblage modulaire MHD.

GRINTA è la nuova soluzione D'Andrea per la fresatura. Il programma è composto da una serie di corpi fresa che utilizzano le classiche geometrie di taglio ed inserti ISO. Cresce così la possibilità di lavorazioni con il sistema MHD' degli utensili di barenatura a sgrossare e finire, già noti in tutto il mondo e ciò per rendere disponibili anche in fresatura le grandi capacità del sistema modulare MHD' inerenti sia alla perfetta concentricità del sistema MHD' che alla estrema resistenza alla torsione.
Cuore del sistema è l'attacco: per i Ø da 16 mm a Ø 32 mm. il sistema **GRINTA** sfrutta il doppio attacco, ovvero testine di fresatura filettate con perno di guida rettificato e cono di accoppiamento MHD' modulare, mentre per i diametri maggiori da 40 mm, 50 mm e 63 mm i corpi fresa sono realizzati con l'attacco diretto
modulare MHD'.

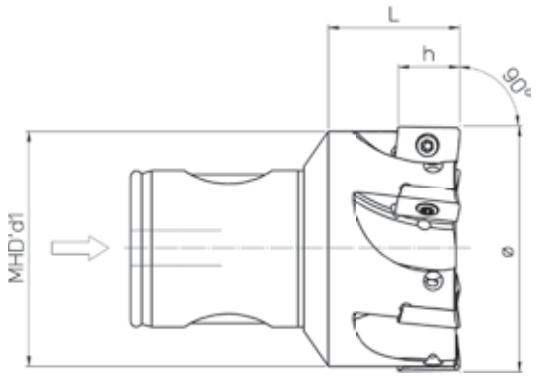
MHD' 40 - 50 - 63

F-MHD' AP



REF.	CODE	Ø	M	d_1	d_2	L	h	z	CH			
F-MHD16 AP10-Z2	7516AP10Z220	16	M8	15	10	20	10	2	13	APKT 1003	DG12255	TORX T08
F-MHD20 AP10-Z3	7520AP10Z325	20	M10	19	13	25		3	16			
F-MHD25 AP10-Z4	7525AP10Z432	25	M12	24	16	32		4	21			
F-MHD32 AP10-Z5	7532AP10Z540	32	M16	31	20	40		5	27			

MHD' AP



REF.	CODE	Ø	MHD'd_1	L	h	z			
MHD'40 AP16-Z4	7540AP16Z435	42	40	35	17	4	APKT 1604	DGC04011	TORX T15
MHD'50 AP16-Z5	7550AP16Z535	52	50			5			
MHD'63 AP16-Z6	7563AP16Z635	66	63			6			

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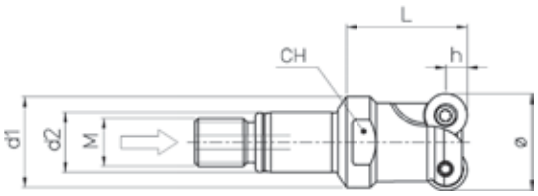
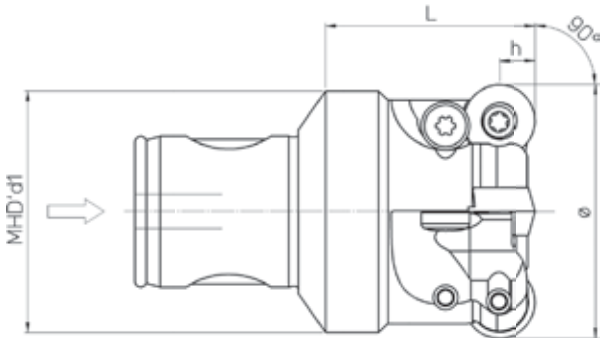
F-MHD' RD



REF.	CODE	Ø	M	d_1	d_2	L	h	z	CH			
F-MHD16 RD07-Z2	7516RD07Z220	16	M8	15	10	20	3.5	2	13	RDHX 0702	DG122549	TORX T07
F-MHD20 RD07-Z3	7520RD07Z325	20	M10	19	13	25		3	16			
F-MHD25 RD10-Z3	7525RD10Z332	25	M12	24	16	32	5	3	21	RDHX 1003	DG123507	TORX T15
F-MHD32 RD10-Z4	7532RD10Z440	32	M16	31	20	40		4	27			

MHD' RD



REF.	CODE	Ø	MHD'd_1	L	h	z			
MHD'40 RD12-Z4	7540RD12Z435	42	40	35	6	4	RDHX 12T3	DG123509	TORX T15
MHD'50 RD12-Z5	7550RD12Z535	52	50			5			
MHD'63 RD16-Z5	7563RD16Z535	66	63		8				

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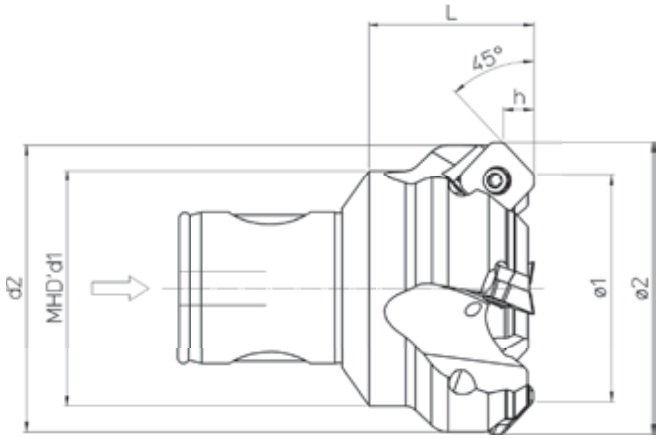
MHD' SE



REF.	CODE	Ø1	Ø2	MHD'd1	d2	L	h	z			
MHD'40 SE13-Z3	7540SE13Z335	40	53	40	51	35	6	3	SEET 13T3	DG123512P	TORX T15
MHD'50 SE13-Z4	7550SE13Z435	50	63	50	61			4			
MHD'63 SE13-Z5	7563SE13Z535	63	76	63	74			5			

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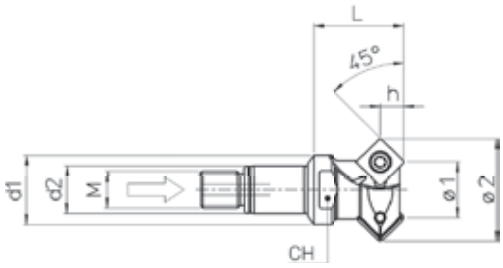
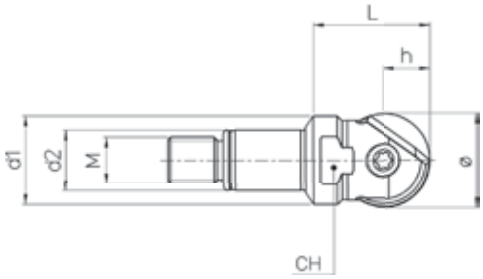
F-MHD' SP



REF.	CODE	Ø1	Ø2	M	d1	d2	L	h	z	CH			
F-MHD'20 SP09-Z2	7520SP09Z225	16	28	M10	19	13	25	5.8	2	16	SPEW 09T3	DG123509	TORX T15
F-MHD'25 SP12-Z2	7525SP12Z232	25	41.5	M12	24	16	32	8		21	SPEW 1204	DG124510	TORX T20

Milling cutters spheric head | Mit kugelkopf | Фрезы со сферической рабочей частью | Fraises à tête sphérique | Frese a testa sferica

F-MHD' RA



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F-MHD20 RA20-Z1	7520RA20Z125	20	M10	19	13	25	10		16	RAD 20.50	DG12RA20	TORX T20
F-MHD25 RA25-Z1	7525RA25Z132	25	M12	24	16	32	12.5		21	RAD 25.60	DG12RA25	TORX T30
F-MHD32 RA32-Z1	7532RA32Z140	32	M16	31	20	40	16		27	RAD 32.70	DG12RA32	TORX T40

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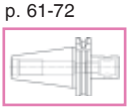
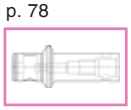

ModulCutD'Andrea

Turning tools | **Drehenwerkzeuge** | **Токарные инструменты для многоцелевых обрабатывающих центров** | **Outils de tournage** | **Utensili di tornitura**

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Turning tools | Drehenwerkzeuge | Токарные инструменты для многоцелевых обрабатывающих центров | Outils de tournage | Utensili di tornitura

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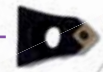
PCLNR/L 065.12 p. 212

PCJNR/L 070.15 p. 212

SVHBR/L 065.16 p. 212



MCD' HSK-A63 F.77 N p. 213

PCMNN 130.12 p. 213

PDNNN 140.15 p. 213

SRDCN 130.12 p. 213

SVVBN 140.16 p. 213

MCD' HSK-A63 TU 20.45R/L p. 214

MCD' HSK-A63 TU 25.02N p. 214

MCD' HSK-A63 D.32x64 p. 215

MCD' HSK-A63 D.40x85 p. 215

Turning tools

Drehenwerkzeuge

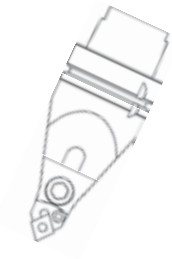
MCD' is the new line of tools and tool holders for lathes, built following HSK-A63 standards with constructive tolerance recommended ICTM for the application on spindles of MULTI-TASK machinery.
The MCD' is produced in modular versions, and is composed of tool holders with HSK coupling module and interchangeable bit holders.
The range is complete with tool holders which permit the mounting of tools for internal, external, cut and threading of the various standard programs on the market.

MCD' ist die neue Drehbank Werkzeuglinie, hergestellt gemäß der Normen HSK - A 63 mit für Spindelanbringung auf Maschinen MULTI TASK empfohlenen Konstruktionstolleranzen ICTM. Das MCD' Programm ist in Modularausführung hergestellt und besteht aus Werkzeughalterungen mit HSK Anschluss und austauschbaren Einsatzhalterungssitzen. Die komplette Reihe von Werkzeughalterungen zum Ermöglichen der Werkzeugmontage für Innen, Außen, Schnitt und Gewindebearbeitungen der verschiedenen, auf dem Markt erhältlichen Standardprogramme.

MCD' HSK-A63 F.26
PCLNR/L 065.12

MCD' HSK-A63 F.26
PDJNR/L 070.15

MCD' HSK-A63 F.26
SVHBR/L 065.16



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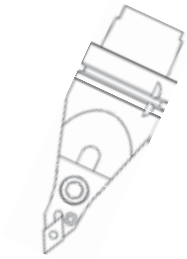
PCMNN 130.12



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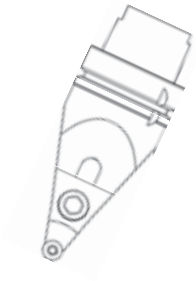
PDNNN 140.15



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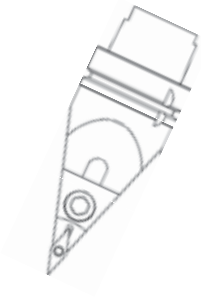

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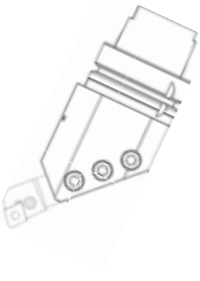
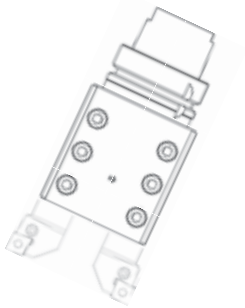
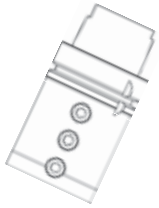


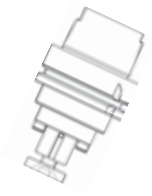
MCD' HSK-A63
TU 20.45 R/L



MCD' HSK-A63
TU 25.02

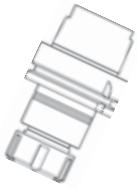


MCD' HSK-A63 D.32
MCD' HSK-A63 D.40

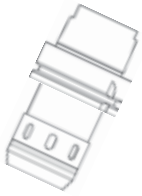


MONOd' PF

MONOd' WD



MONOd' ER



MONOforce20 - 32

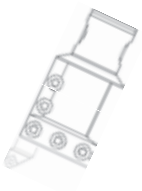
MHD' 50 - 63

MHD' GRINTA

MHD' PF

MHD' WD

MHD' ER



MHD' TU

MHD' TRM

Токарные инструменты

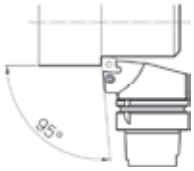
MCD' - новая программа инструментов и державок для токарных станков, создаваемых в соответствии со стандартами HSKA63 и ISTM для применения в шпинделях многоцелевых станков. MCD' производится в модульном исполнении и состоит из основы с хвостовиком HSK и сменного модуля державки. Программа укомплектована державками, позволяющими закреплять инструменты для внутреннего и наружного точения, а также для нарезания резьбы различных стандартов.

Outils de tournage

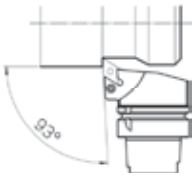
MCD' est la nouvelle ligne d'outils et porte-outils pour le tour, réalisés selon les normes HSK-A63 avec des tolérances de fabrication ICTM recommandées pour l'application sur les mandrins de machines MULTI-TASK.
Le programme MCD' est produit en version modulaire et il est composé de porte-outils avec attache HSK et logements porte plaquette interchangeables.
La gamme est complétée avec le porte-outils permettant l'installation d'outils pour l'intérieur, l'extérieur, le découpage et filetage des différents programmes standards existants sur le marché

Utensili di tornitura

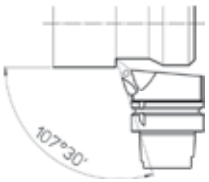
MCD' è la nuova linea di utensili e portautensili da tornio, realizzati seguendo le norme HSK-A63 con tolleranze costruttive ICTM raccomandate per l'applicazione sui mandrini di macchine MULTI-TASK.
Il programma MCD' è prodotto in versione modulare, ed è composto da portautensili con attacco HSK e seggi 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.



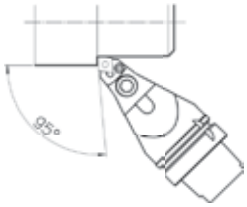
MCD' HSK-A63 F.26
PCLNR/L 065.12



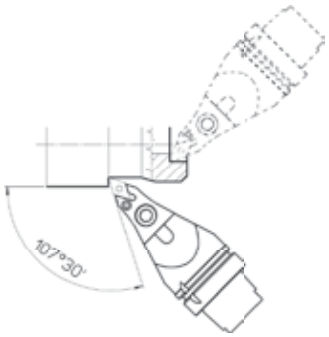
MCD' HSK-A63 F.26
PDJNR/L 070.15



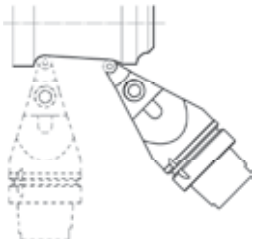
MCD' HSK-A63 F.26
SVHBR/L 065.16



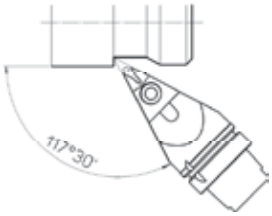
MCD' HSK-A63 F.77
PCMNN 130.12



MCD' HSK-A63 F.77
PDNNN 140.15

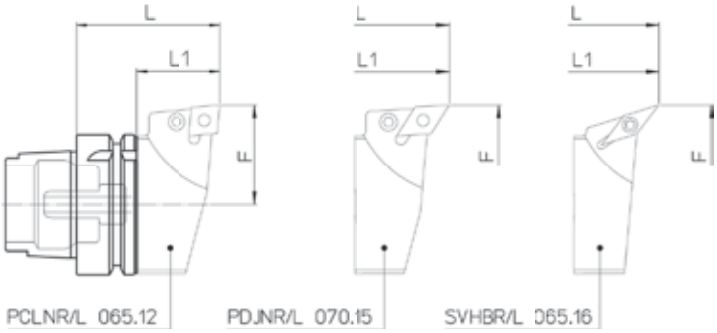


MCD' HSK-A63 F.77
SRDCN 130.12



MCD' HSK-A63 F.77
SVVBN 140.16

Turning tools | Drehenwerkzeuge | Токарные державки | Outils de tournage | Utensili di tornitura



Supplied with coolant tube - Without bit-holders and clamping wrenches

Lieferung inklusive Kühlmittelrohr - Sitze und Anzugsschlüssel nicht inbegriffen

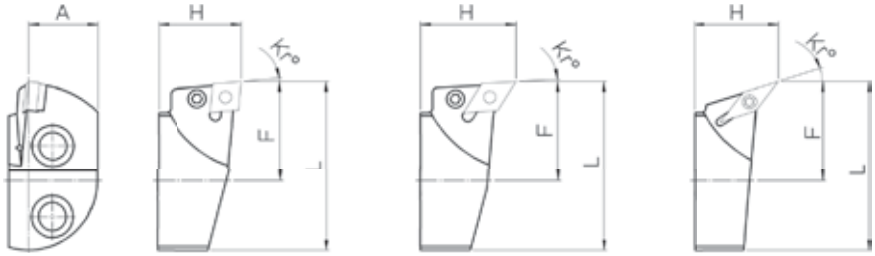
Поставляются с трубками подвода СОЖ, без кассет и ключей

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

REF.	CODE	L		L_1	F	kg
MCD' HSK-A63 F.26 RL DIN69893	71HSKA63F026RL1	PCLNR/L 065.12	65	39	45	0.8
		PDJNR/L 070.15	70	44		
		SVHBR/L 065.16	65	39		

Turning bit-holders | Drehsitze | Кассеты | Logements de tournage | Seggi di Tornitura



Right hand bit-holders shown

Auf der Abbildung, rechte Sitze

Изображены правые

Dans la figure les logements droites

In figura seggi destri

REF.	CODE	A	F	H	L	K_r [1]	γ [2]	λ_s [3]				kg
MCD' PCLNR 065.12	7501PCLNR065121	31	45	38	76	5°	6°	6°	CNM..1204..	–	–	0.4
MCD' PCLNL 065.12	7501PCLNL065121											
MCD' PDJNR 070.15	7501PDJNR070151			43		3°			DNM..1506..			0.35
MCD' PDJNL 070.15	7501PDJNL070151											
MCD' SVHBR 065.16	7501SVHBR065161			38		17°30'	0°	0°	VBM..1604..	DMC US63	TORX 15	0.3
MCD' SVHBL 065.16	7501SVHBL065161											

1) Side cutting edge angle
2) True rake angle
3) Cutting edge inclination

1) Einstellungswinkel
2) Obere Freifläche
3) Neigungswinkel

1) Угол в плане
2) Передний угол
3) Угол наклона режущей кромки

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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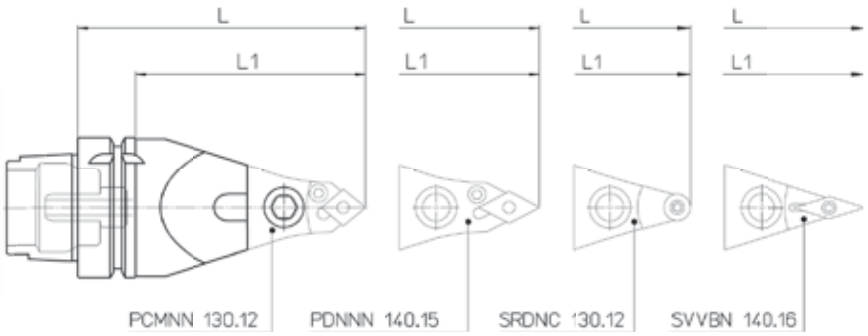


Supplied with coolant tube - Without bit-holders and clamping wrenches

Lieferung inklusive Kühlmittelrohr - Sitze und Anzugsschlüssel nicht inbegriffen

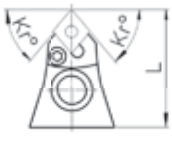
Поставляются с трубками подвода СОЖ, без кассет и ключей.

Pourvu de raccord pour liquide d'arrosage - Logements et vis de serrage exlcus

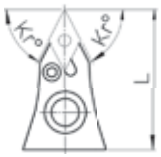
Completo di raccordo per il refrigerante - Seggi e chiavi di serraggio esclusi

REF.	CODE	L		L1	kg
MCD' HSK-A63 F.77 N DIN69893	71HSKA63F077N01	PCMNN 130.12	130	104	1.7
		PDNNN 140.15	140	114	
		SRDCN 130.12	130	104	
		SVVBN 140.16	140	114	

Turning bit-holders | Drehsitze | Кассеты | Logements de tournage | Seggi di Tornitura

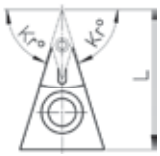


PCMNN 130.12



PDNNN 140.15

SRDCN 130.12



SVVBN 140.16

REF.	CODE	A	L	K_r 1)	γ 2)	λ_s 3)				kg
MCD' PCMNN 130.12	7505PCMNN130121	31	53	50°	6°	0°	CNM..1204..	–	–	0.2
MCD' PDNNN 140.15	7505PDNNN140151		63	62°30'			DNM..1506..			
MCD' SRDCN 130.12	7505SRDCN130121		53	–	0°	0°	RCM..1204..	DMC US63	TORX 15	
MCD' SVVBN 140.16	7505SVVBN140161		63	72°30'			VBM..1604..			

1) Side cutting edge angle
2) True rake angle
3) Cutting edge inclination

1) Einstellungswinkel
2) Obere Freifläche
3) Neigungswinkel

1) Угол в плане
2) Передний угол
3) Угол наклона режущей кромки

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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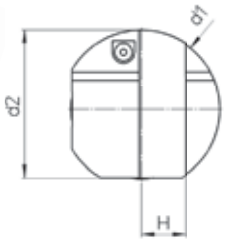
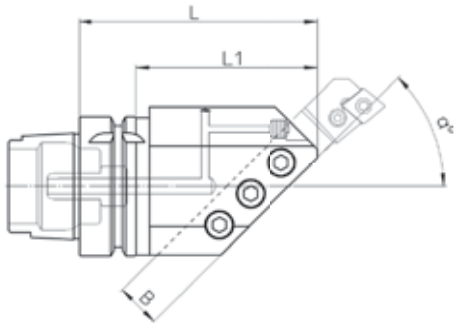
External turning tool holders | Adapter für Werkzeughalterungen | Державки для наружного точения | Adapteurs porte outils | Adattatori Portautensili





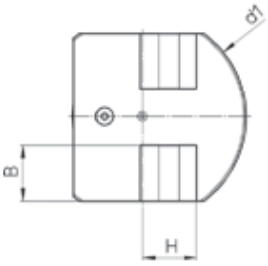
Right hand tool holder shown | Adapter für Werkzeughalterungen | Изображена правая | Adapteurs porte outils | In figura portautensile destro

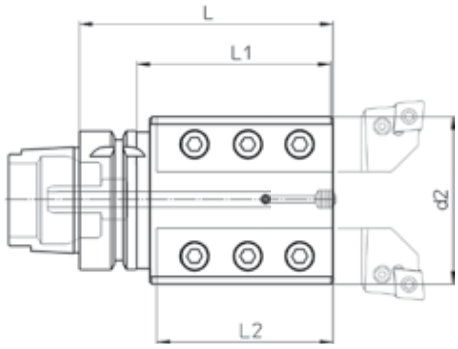
Supplied with coolant tube - Without bit-holders and clamping wrenches | Lieferung inklusive Kühlmittelrohr - Sitze und Anzugsschlüssel nicht inbegriffen | Поставляются с трубками подвода СОЖ, без кассет и ключей. | Pourvu de raccord pour liquide d'arrosage - Logements et vis de serrage exlcus | Completo di raccordo per il refrigerante - Seggi e chiavi di serraggio esclusi

REF.	CODE	L	L_1	d_1	d_2	a	BxH	kg
MCD' HSK-A63 TU20.45R DIN69893	71HSKA63T2045R1	108	82	72	67	45°	20x20	2.7
MCD' HSK-A63 TU20.45L DIN69893	71HSKA63T2045L1							

A standard application requires left hand tools with right hand adapters | Die normale Anwendung erfordert ein linkes Werkzeug in einem rechten Adapter | Стандартное применнение требует использовать левосторонний инструмент с правосторонними адапторами. | L'utilisation normale nécessite un outil gauche dans un adapteur droit | L'utilizzo normale richiede un utensile sinistro in un adattatore destro

External turning tool holders | Adapter für Werkzeughalterungen | Державки для наружного точения | Adapteurs porte outils | Adattatori Portautensili





Supplied with coolant tube - Without bit-holders and clamping wrenches | Lieferung inklusive Kühlmittelrohr - Sitze und Anzugsschlüssel nicht inbegriffen | Поставляются с трубками подвода СОЖ, без кассет и ключей. | 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

REF.	CODE	L	L_1	L_2	d_1	d_2	BxH	kg
MCD' HSK-A63 TU25.02N DIN69893	71HSKA63T2502N1	115	89	80	95	76	25x25	3.0

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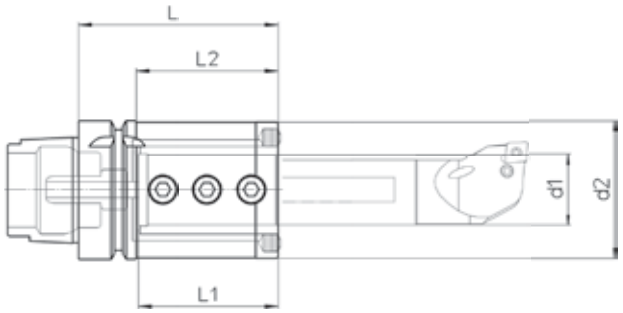

Supplied with coolant tube - Without bit-holders and clamping wrenches

Lieferung inklusive Kühlmittelrohr - Sitze und Anzugsschlüssel nicht inbegriffen

Поставляются с трубками подвода СОЖ, без кассет и ключей.

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

REF.	CODE	d_1^{H5}	d_2	L	L_1	L_2	kg
MCD' HSK-A63 D.32x64 DIN69893	71HSKA63D326401	32	62	90	64	64	2.3
MCD' HSK-A63 D.40x85 DIN69893	71HSKA63D408501	40	80	125	85	93	2.5

- Reduction bushes on request
- Einsatzhülse auf Anfrage
- Переходная втулка по дополнительному запросу
- Douilles de réduction sur demande
- Bussole di riduzione a richiesta

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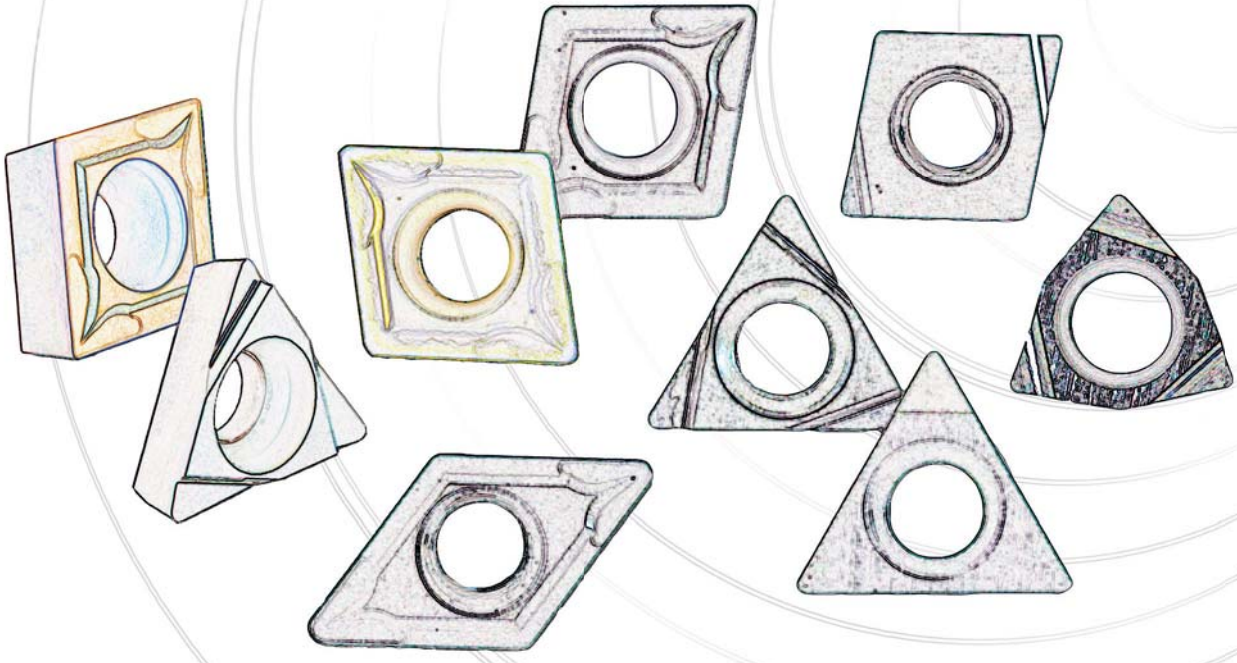
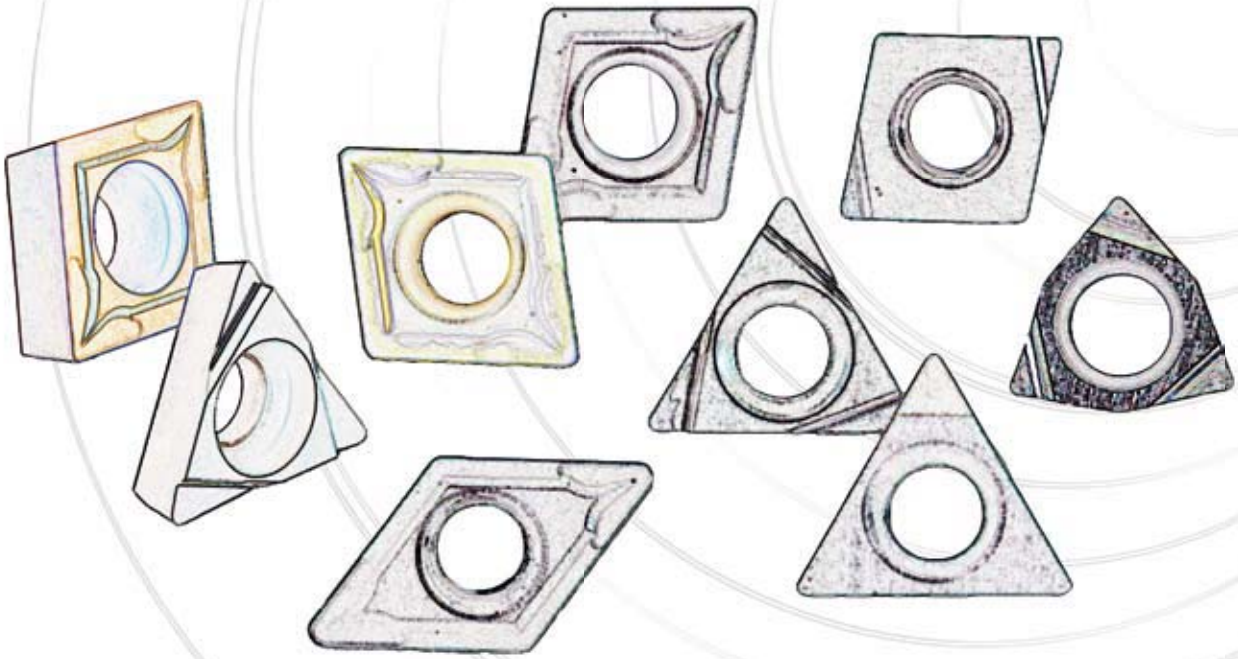
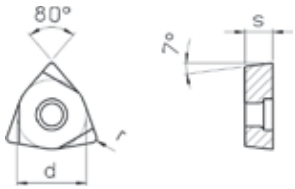


Inserts
Wendeplatten
Сменные пластины
Plaquettes
Inserti



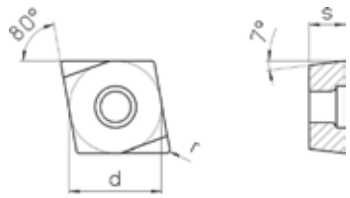
WCGT○○○○○○L



REF.	d	s	r			CARBIDE HARTMETALL ТВЕРДЫЙ СПЛАВ CARBURE METALLO DURO DP300	CARBIDE HARTMETALL ТВЕРДЫЙ СПЛАВ CARBURE METALLO DURO DK100	CERMET KEPMET DC100	COATED CERMET CERMET BESCHICHTET КЕРМЕТ С ПОКРЫТИЕМ CERMET REVÊTU CERMET RIVESTITO DC100T
WCGT 020102 L	3.97	1.59	0.2	TS 21-TS 211 *	TORX T06	•	•	•	•
WCGT 020104 L			0.4			•	•	•	•

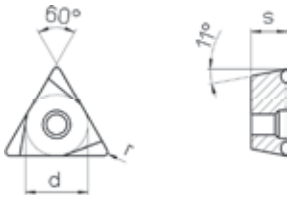
* TS21 : B...06 / TS211 : B...0 8

CCGT○○○○○○L



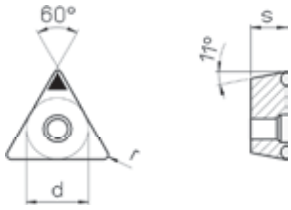
REF.	d	s	r			CARBIDE HARTMETALL ТВЕРДЫЙ СПЛАВ CARBURE METALLO DURO DP300	CARBIDE HARTMETALL ТВЕРДЫЙ СПЛАВ CARBURE METALLO DURO DK100	CERMET KEPMET DC100	COATED CERMET CERMET BESCHICHTET КЕРМЕТ С ПОКРЫТИЕМ CERMET REVÊTU CERMET RIVESTITO DC100T
CCGT 060200 L10°	6.35	2.38	0	TS 25	TORX T08	•	•	•	•
CCGT 060202 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



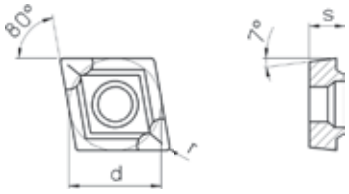
REF.	d	s	r			CARBIDE HARTMETALL ТВЕРДЫЙ СПЛАВ CARBURE METALLO DURO DP300	CARBIDE HARTMETALL ТВЕРДЫЙ СПЛАВ CARBURE METALLO DURO DK100	CERMET KEPMET DC100	COATED CERMET CERMET BESCHICHTET КЕРМЕТ С ПОКРЫТИЕМ CERMET REVÊTU CERMET RIVESTITO DC100T
TPGX 090200 L10°	5.56	2.38	0	CS250T	TORX T08	•	•	•	•
TPGX 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○○○○○○



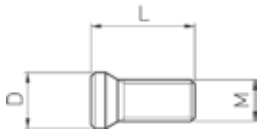
REF.	d	s	r			SINTERED DIAMOND SINTERDIAMANT СИНТЕТИЧЕСКИЙ АЛМАЗ DIAMANT DIAMANTE SINTERIZZATO D20 MDC	CUBIC BORON NITRIDE KUBISCHES BORNITRID КУБИЧЕСКИЙ НИТРИД БОРА NITRURE DE BORE CUBIQUE NITRURO CUBICO DI BORO D20 CBN	D25 CBN
TPGX 090202	5.56	2.38	0.2	CS250T	TORX T08	•	•	•
TPGX 090204			0.4			•	•	•
TPGX 110302	6.35	3.18	0.2	CS300890T	TORX T08	•	–	•
TPGX 110304			0.4			•	•	•

CCMT○○○○○○



REF.	d	s	r			CARBIDE HARTMETALL ТВЕРДЫЙ СПЛАВ CARBURE METALLO DURO DP300	CVD COATED CARBIDE HARTMETALL CVD BESCHICHTET ТВЕРДЫЙ СПЛАВ С ПОКРЫТИЕМ CARBURE REVÊTU CVD METALLO DURO RIVESTITO CVD 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			•	•

TORX



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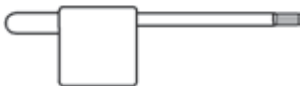
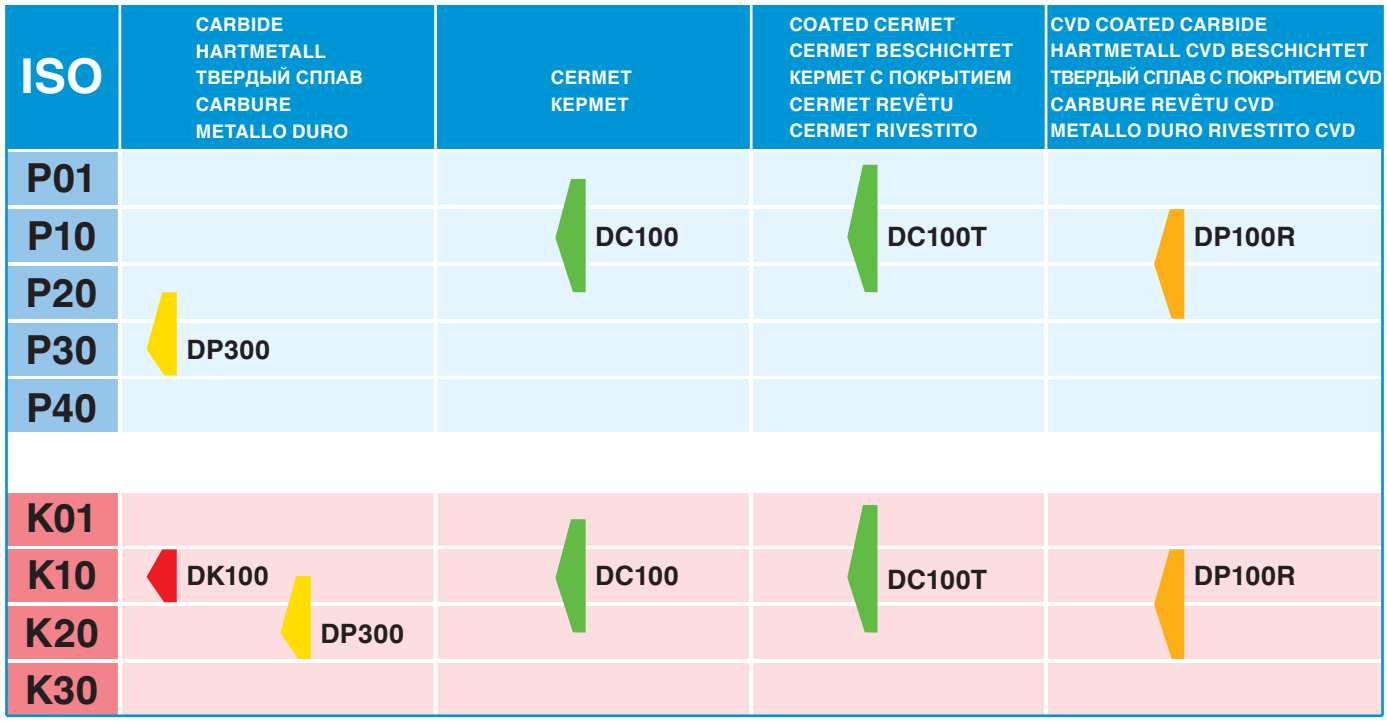
TS 211	49 40 1 0002040		4	
CS 250 T	49 40 1 0002565	M 2.5x0.45	6	3.7
CS 300890 T	49 40 1 0003008	M 3x0.5	8	4.1
TS 25	49 40 1 0002555	M 2.5x0.45	5.7	3.45
TS 4	49 40 1 0004008	M 4x0.7	10	5.5
TS 5	49 40 1 0005009	M 5x0.8	11.5	7
DMC US63	49 42 3 0003016		12.7	5.5

TORX

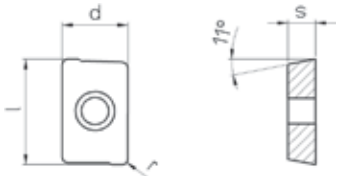


REF.	CODE
TORX TO6	10 150 09 0 0600
TORX TO8	10 150 09 0 0800
TORX T15	10 150 09 0 1500
TORX T25	10 150 09 0 2500
TORX T15	10 150 09 0 1500



DP300	Roughing and finishing. Low carbon steel - stainless steels	Schruppen und Schlichten. Stahl mit niedrigem Kohlenstoffgehalt - rostfreier Stahl	Черновое и чистовое. Низкоуглеродистые стали Нержавеющие стали	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	Черновое и чистовое. Алюминиевы сплавы Чугун	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	Черновое. Чугун, Конструкционные и Легированные стали	Ébauche. Aciers, alliage acier et fonte	Sgrossatura. Acciai, acciai legati e ghise
DC100	Finishing. Alloy steels and cast iron	Schlichten. Legierter Stahl und Gusseisen	Чистовое. Легированные стали Чугун	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	Чистовое. Чугун, Конструкционные и Легированные стали	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	Чистовое. Алюминиевы сплавы Цветные металлы и неметаллы	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)	Чистовое. Особо твердые стали (>50 HRC) и прерывистое точение	Finition. Acier à haute dureté, superieure 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)	Чистовое. Особо твердые стали (>50 HRC) и прерывистое точение	Finition. Acier à haute dureté, superieure 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)

APKT

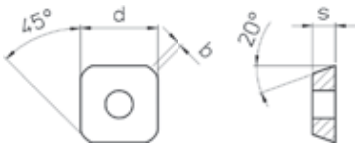


REF.	l	d	s	r			CVD COATED CARBIDE HARTMETALL CVD BESCHICHTET ТВЕРДЫЙ СПЛАВ С ПОКРЫТИЕМ CVD CARBURE REVÊTU CVD METALLO DURO RIVESTITO CVD DP200 R	PVD COATED CARBIDE HARTMETALL PVD BESCHICHTET ТВЕРДЫЙ СПЛАВ С ПОКРЫТИЕМ PVD CARBURE REVÊTU PVD METALLO DURO RIVESTITO PVD DP250 P
APKT 1003 PDER-M	11,000	6.7	3.5	0.5	DG12255	TORX T08	•	•
APKT 1604 PDR-GM	17,272	9.44	5.6	0.8	DGC04011	TORX T15	•	•

RDHX

REF.	d	s			PVD COATED CARBIDE HARTMETALL PVD BESCHICHTET ТВЕРДЫЙ СПЛАВ С ПОКРЫТИЕМ PVD CARBURE REVÊTU PVD METALLO DURO RIVESTITO PVD DP100 P	PVD COATED CARBIDE HARTMETALL PVD BESCHICHTET ТВЕРДЫЙ СПЛАВ С ПОКРЫТИЕМ PVD CARBURE REVÊTU PVD METALLO DURO RIVESTITO PVD DP300 P
RDHX 0702 MOT	7.00	2.38	DG122549	TORX T07	•	•
RDHX 1003 MOT	10.00	3.18	DG123507	TORX T15	•	•
RDHX 12T3 MOT	12.00	3.97	DG123509		•	•
RDHX 1604 MOT	16.00	4.76	DG124510	TORX T20	•	•

SEET



REF.	d	s	b~			CVD COATED CARBIDE HARTMETALL CVD BESCHICHTET ТВЕРДЫЙ СПЛАВ С ПОКРЫТИЕМ CVD CARBURE REVÊTU CVD METALLO DURO RIVESTITO CVD DP200 R	PVD COATED CARBIDE HARTMETALL PVD BESCHICHTET ТВЕРДЫЙ СПЛАВ С ПОКРЫТИЕМ PVD CARBURE REVÊTU PVD METALLO DURO RIVESTITO PVD DP250 P
SEET 13T3 M-PM	13.4	3.97	2,55	DG123512P	TORX T15	•	•

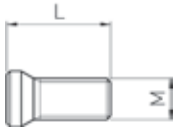
SPEW

REF.	l	d	s			PVD COATED CARBIDE HARTMETALL PVD BESCHICHTET ТВЕРДЫЙ СПЛАВ С ПОКРЫТИЕМ PVD CARBURE REVÊTU PVD METALLO DURO RIVESTITO PVD DP400 P
SPEW 09T304	9.52	9.52	3.97	DG123509	TORX T15	•
SPEW 1204 ADEN	12.7	12.7	4.76	DG124510	TORX T20	•

RAD

REF.	d	s	r	H			PVD COATED CARBIDE HARTMETALL PVD BESCHICHTET ТВЕРДЫЙ СПЛАВ С ПОКРЫТИЕМ PVD CARBURE REVÊTU PVD METALLO DURO RIVESTITO PVD DP100 P	DP300 P
RAD 16.40	16	4.00	8	12	DG12RA16	TORX T15	•	•
RAD 20.50	20	5.00	10	15	DG12RA20	TORX T20	•	•
RAD 25.60	25	6.00	12.5	18.5	DG12RA25	TORX T30	•	–
RAD 32.70	32	7.00	16	23.5	DG12RA32	TORX T40	•	–

TORX



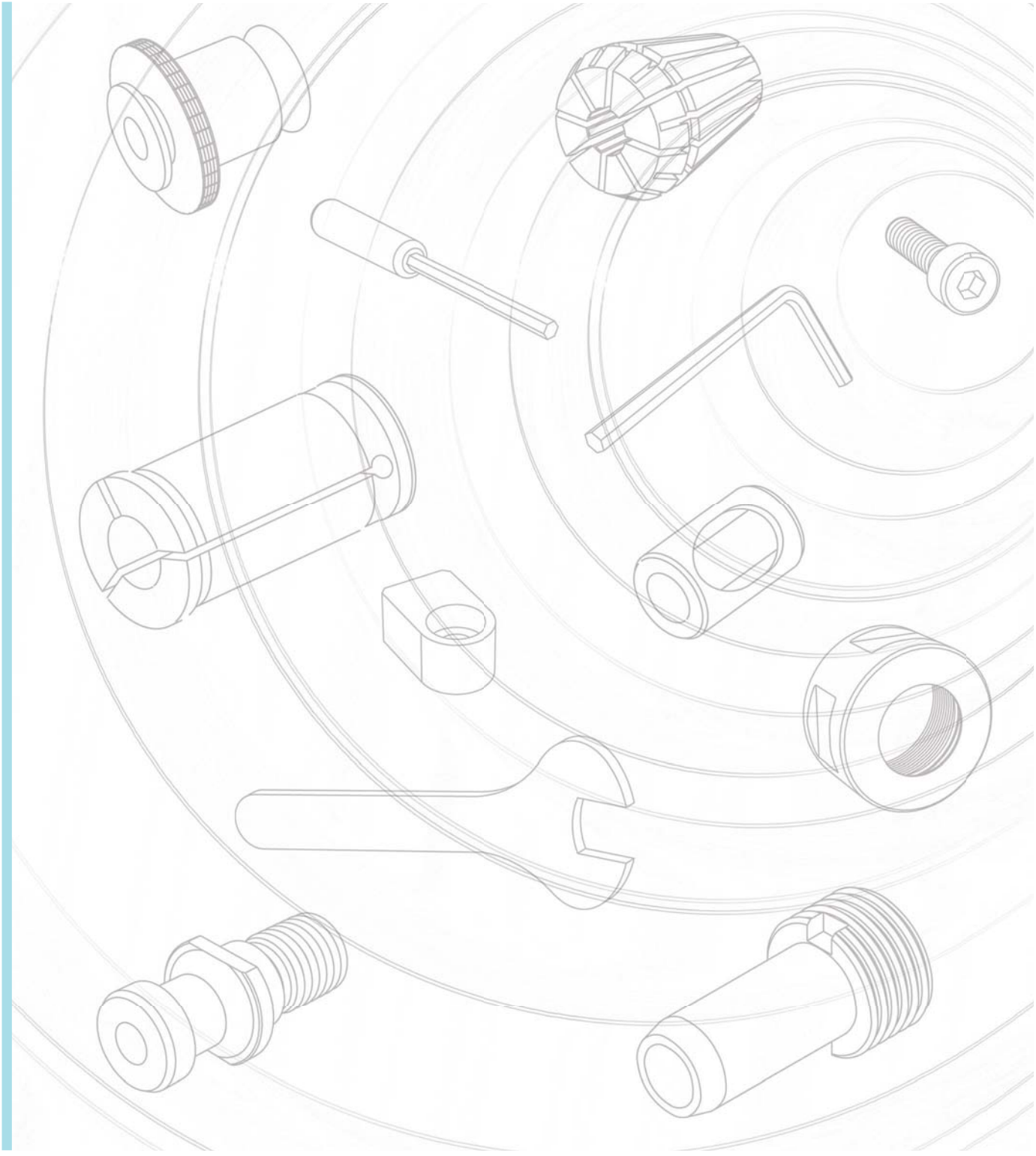
REF.	CODE	M	L
DG12255	49 41 1 0002205	M 2.2	5
DGC04011	49 41 1 0004010	M 4	10.5
DG122549	49 41 1 0002505	M 2.5	5
DG123507	49 41 1 0003507	M 3.5	7.2
DG123509	49 41 1 0003508		8.6
DG124510	49 41 1 0004510	M 4.5	10.5
DG123512P	49 41 1 0003512	M 3.5	12.1
DG12RA16	49 41 1 0004013	M 4	13.3
DG12RA20	49 41 1 0005016	M 5	16.2
DG12RA25	49 41 1 0006020	M 6	20
DG12RA32	49 41 1 0008025	M 8	25

TORX

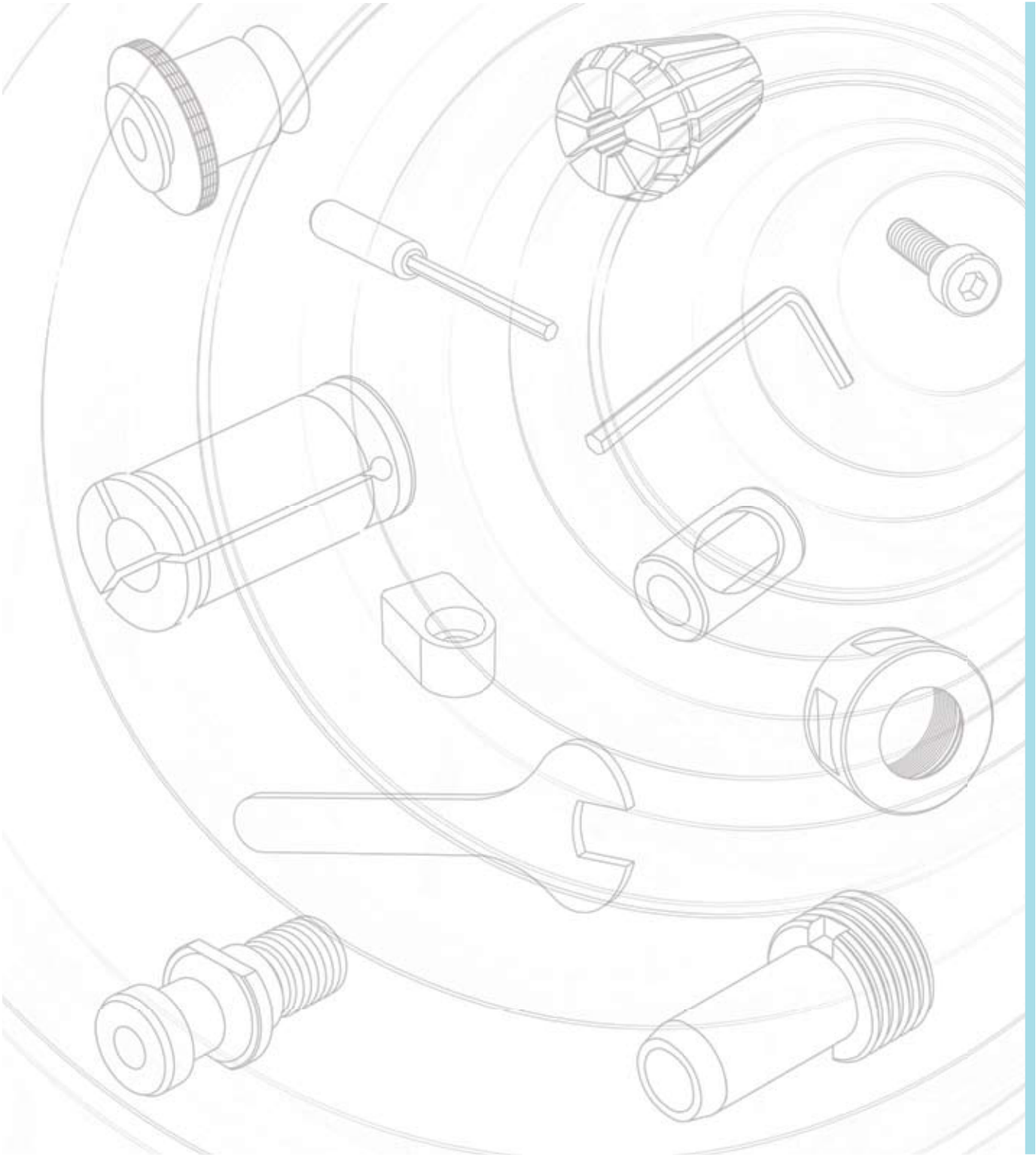
REF.	CODE	CODE	CODE
TORX T08	10 150 09 0 0800	–	10 150 09 0 0802
TORX T15	10 150 09 0 1500		10 150 09 0 1502
TORX T07	10 150 09 0 0700		10 150 09 0 0702
TORX T15	10 150 09 0 1500		10 150 09 0 1502
TORX T20	10 150 09 0 2000		10 150 09 0 2002
TORX T15	10 150 09 0 1500	10 150 09 0 1501	10 150 09 0 1502
TORX T20	–	10 150 09 0 2001	–
TORX T30		10 150 09 0 3001	
TORX T40		10 150 09 0 4001	

ISO	CVD	PVD
P01		
P10		DP100P
P20	DP200R	DP250P
P30		DP300P, DP400P
P40		
P50		
M01		
M10		DP100P
M20	DP200R	DP250P, DP300P
M30		DP400P
M40		
K01		
K10		DP100P
K20	DP200R	DP250P, DP300P
K30		DP400P
K40		
N01		
N10		DP100P
N20		DP250P
N30		
N40		
S01		
S10		
S20		DP250P, DP400P
S30		
S40		
H01		
H10		DP100P
H20		
H30		
H40		

	Milling grade	Frässorten-Übersicht	Материалы для фрезерования	Qualità de fraisage	Qualità di fresatura
DP200R	This grade is suitable for high cutting speeds operations. This grade is primarily recommended for operations without using any coolant. It can be used from medium up to higher chip thicknesses removed under high cutting speeds, machining of common carbon and alloy steels and mainly cast irons.	Diese Hartmetallqualität ist für die Trockenbearbeitung bei hohen Schnittgeschwindigkeiten und unter guten Einsatzbedingungen gedacht. Besonders geeignet ist diese Qualität für die Zerspanung von Grauguss, Kohlenstoffstählen und niedriglegierten Stählen bei mittleren bis hohen Spanquerschnitten und hohen Schnittgeschwindigkeitn.	Сплав предназначен для операций на высоких скоростях резания. В основном рекомендован для фрезерования без использования СОЖ. Может использоваться для фрезерования на средних и значительных глубинах резания при высоких скоростях. Обработка простых конструкционных и легированных сталей и, в основном, чугуна.	Cette nuance est prévue pour des conditions de coupe à haute vitesse. Cette qualité est principalement recommandée pour des utilisations sans lubri?cation. Il peut être utilisé pour des copeaux d'épaisseur variable enlevés à haute vitesse, usinage de l'acier carbone et de l'acier allié , et principalement de la fonte.	Qualità adatta ad operazioni con alta velocità di taglio. Particolarmente ef?cace nella lavorazione di acciai al carbonio e legati e delle ghise in generale. E' consigliata nelle lavorazioni a secco, ma ottiene buoni risultati anche con refrigerante.
DP100P	Wear resistant PVD coated grade for milling operation of steel and stainless steels. Also exellent for hardened steels. Performs well with coolant.	Verschleißfeste PVD-beschichtete Hartmetallqualität für das Kopierfräsen von Stahl und rostfreien Stählen. Auch hervorragend für gehärtete Stähle verwendbar. Außerdem gut für die Nassbearbeitung geeignet.	Сплав с износостойким покрытием PVD для фрезерования сталей и нержавеющих сталей. Также хорош для закаленных сталей. Хорошо работает с подачей СОЖ.	Le PVD est très résistant à l'usure et est utilisé pour le fraisage tant pour les aciers que pour les aciers inox, est excellent aussi pour l'acier trempé. Donne d'excellents résultats avec la lubri?cation.	Qualità molto resistente all'usura utilizzata nella fresatura d'acciai, acciai inox ed acciai temprati. Offre le migliori prestazioni se usata con refrigerante.
DP250P	This grade has a predominant application field for milling of stainless materials, more difficult machinable alloys and cast irons, but it can also be used for machining of steels with high strength, and for machining of non-ferrous metals. This grade can be also used for milling of heat treated materials.	Diese Hartmetallqualität wird hauptsächlich bei schwerzerspanbaren Werkstoffen wie korrosionsbeständigen Materialien und hochlegierten Werkstoffen eingesetzt. Sie kann aber auch bei hochfesten Stählen, Grauguss und Nichteisenmetallen Verwendung finden.	Основное назначение сплава обработка нержавеющих сталей, труднообрабатываемых сплавов и чугунов, но может быть использован и для обработки сталей высокой прочности, цветных металлов. Кроме того может использоваться для фрезерования материалов, прошедших термообработку.	Cette nuance est utilisée pour le fraisage de l'acier inoxidable, des aciers alliés dif?ciles et de la fonte, mais il peut aussi être utilisé pour l'usinage des aciers, des outils et des métaux non ferreur. Cette nuance peut éventuellement être utilisée pour l'usinage aciers traités.	Qualità base per la fresatura di acciaio, di fucinati e fusioni a medio avanzamento e ad alta e media velocità. E' adatta nella fresatura di acciaio inossidabile e delle ghise. Scegliendo inserti con le appropriate geometrie si utilizza per fresare metalli non ferrosi quali alluminio e rame.
DP300P	Universal PVD-coated grade for milling operations in of steels and stainless steels. Recommended for milling with medium feeds and middle to high cutting speeds.	Universell einsetzbare Hartmetallqualität mit PVD-Beschichtung zur Fräsbearbeitung von Stählen und rostbeständigen Stählen. Besonders für das Kopierfräsen mit mittleren Vorschüben und mittleren bis hohen Schnittgeschwindigkeitn.	Универсальный сплав с PVD покрытием для обработки сталей и нержавеющих сталей. Рекомендуется использовать для фрезерования со средними подачами и на скоростях резания от средних до высоких.	PVD universel pour l'usinage de l'acier et de l'inox. Recommandé pour le fraisage avec avance moyenne, ainsi que des vitesses de coupe variables.	Qualità universale che unisce un'ottima resistenza all'usura con una buona tenacità. E' la prima scelta per la fresatura di acciai legati e di acciai inox. Raccomandata per medi avanzamenti con velocità medio/alte.
DP400P	It is intended for applications where the cutting edge will be subject to high mechanical stresses. Its predominant field of application is milling of steels corrosion-resistant steels and super-alloys. It also can be used for the machining of other materials under extreme engagement conditions.	Sehr zähe Hartmetallqualität für die Bearbeitung von rostbeständigen Stählen und Superlegierungen. Diese Qualität kann bei besonders rauen Einsatzbedingungen auch in anderen Werkstoffen eingesetzt werden.	Предназначен для использования в условиях, когда режущая кромка пластины подвержена сильным механическим стрессам. Преимущественно для фрезерования коррозионно-стойких сталей и супер-сплавов. Также может использоваться для обработки других материалов с тяжелыми условиями врезания.	Une nuance prévue pour des applications pour une coupe robuste. Ses champs d'applications sont le fraisage des aciers à haute résistance à la corrosion ainsi que des aciers super alliés. Il peut aussi être utilisé pour le fraisage dans des conditions extrêmes.	Una qualità estremamente tenace che presenta taglienti molto robusti. Per fresatura di acciai resistenti alle alte temperature, di acciai temprati, di leghe speciali e di super?ci con scorie di fusione e di fucinatura.



ACCESSORIES AND SPARE PARTS
ZUBEHÖRTEILE UND ERSATZTEILE
ПРИНАДЛЕЖНОСТИ И ЗАПАСНЫЕ ЧАСТИ
ACCESSOIRES ET PIÈCES DETACHÉES
ACCESSORI E PARTI DI RICAMBIO



ISO 7388/2 A - DIN 69872

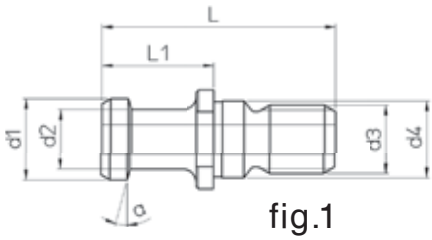


fig.1

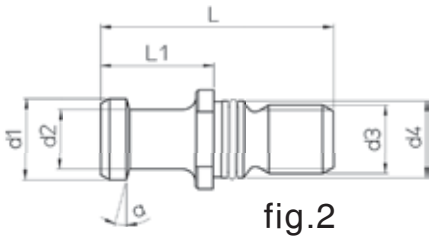


fig.2

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	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		

ISO 7388/2 B - ANSI B.5 50

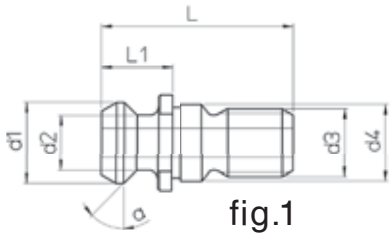

fig.1

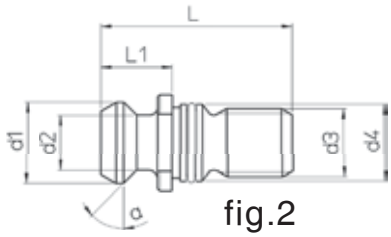

fig.2

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
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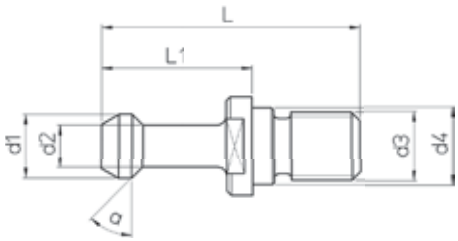
MAS 403 BT - 30° - 45°



REF.	CODE	ISO	d_1	d_2	d_3	d_4	L	L_1	a
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	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	
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	
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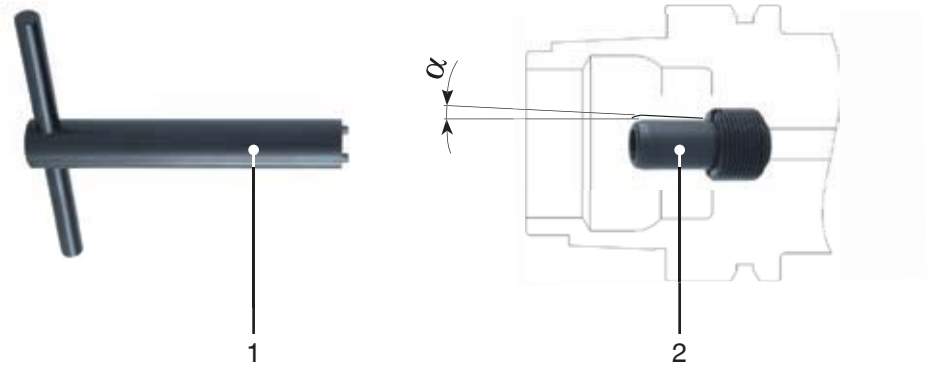
HSK



REF.	CODE 1	α	CODE 2
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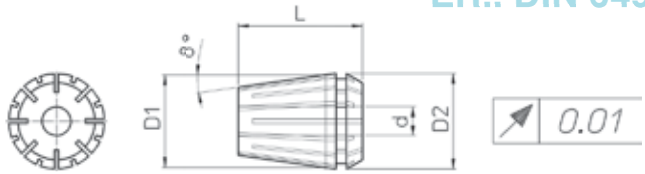
HSK-A63	10 150 11 0 1600		38 20 19 012001
HSK-A80	10 150 11 0 1800		38 20 19 014001
HSK-A100	10 150 11 0 2200		38 20 19 016001

ER.. DIN 6499-B

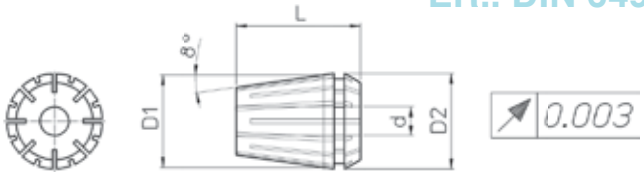


REF.	d	D_1	D_2	L
ER 11	0.5 ~ 7	11	11.5	18
ER 16	0.5 ~ 10	16	17	27.5
ER 20	1 ~ 13	20	21	31.5
ER 25	1 ~ 16	25	26	34
ER 32	2 ~ 20	32	33	40
ER 40	3 ~ 26	40	41	46

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.. DIN 6499-B

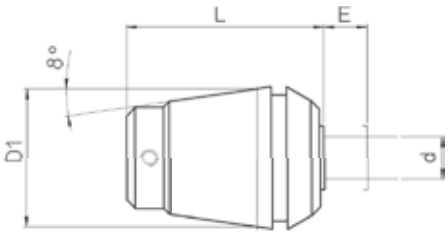


REF.	d	D_1	D_2	L
ER 16.UP	0.5 ~ 10	16	17	27.5
ER 25.UP	1 ~ 16	25	26	34
ER 32.UP	2 ~ 20	32	33	40
ER 40.UP	3 ~ 26	40	41	46

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	49 60 8 0040035
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 • По запросу • Sur demande • Fornibili su richiesta

ET-1- ER..



For TOPRUN spindles, use ring-nuts shown in the chart | Bei Verwendung von TOPRUN-Aufnahmen, die in der Tabelle angegebenen Spannmuttern verwenden | Для патронов toprun используйте гайки, указанные в таблице | Sur mandrins TOPRUN utiliser les bagues indiquées dans le tableau | Per l'utilizzo su mandrini TOPRUN utilizzare ghiere indicate in tabella

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				

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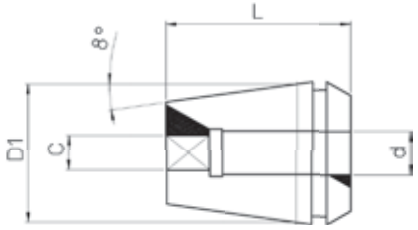
Tapping collets without axial compensation | Spannzange zum starren Gewindeschneiden | Принадлежности и запасные части - вставки для метчиков с осевой компенсацией | Pinces de taraudage sans compensation axiale | Pinze per maschiatura rigida

ER.. - GB

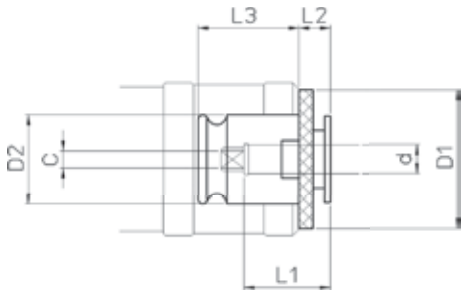


For TOPRUN spindles, use ring-nuts shown in the chart | Bei Verwendung von TOPRUN-Aufnahmen, die in der Tabelle angegebenen Spannmuttern verwenden | Для патронов toprun используйте гайки, указанные в таблице | Sur mandrins TOPRUN utiliser les bagues indiquées dans le tableau | Per l'utilizzo su mandrini TOPRUN utilizzare ghiere indicate in tabella

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 | По запросу | Sur demande | Fornibili su richiesta

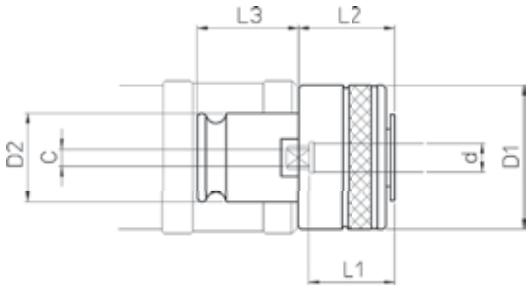
BFC



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 | По запросу | Sur demande | Fornibili su richiesta

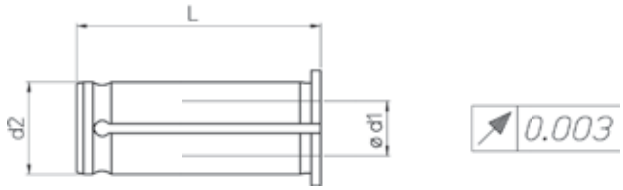
BFS



REF.	CODE	(dØ x c ⍁)	DIN 371	DIN 374	DIN 376	D1	D2	L1	L2	L3
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 | По запросу | Sur demande | Fornibili su richiesta

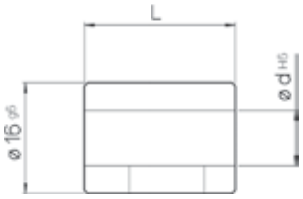
RC



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	

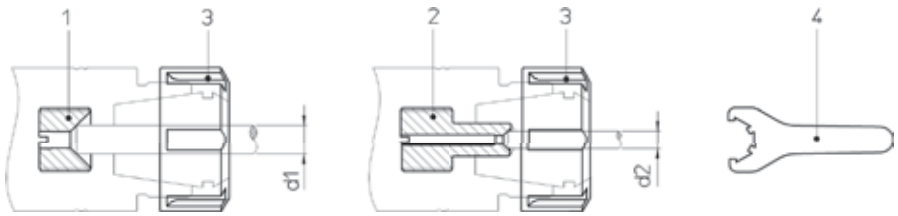
RC 12 SEALED bushes supplied upon request | Auf Anfrage RC 12 Dichtbuchsen lieferbar | RC 12 с уплотнениями поставляются по запросу | Disponibles sur demande douilles RC12 étanches | Fornibili su richiesta bussole RC 12. . . a TENUTA

D..



REF.	CODE	L	Ø d H_6
D04.16	20 056 01 16 04 0	23	4
D08.16	20 056 01 16 08 2	22	8
D10.16	20 056 01 16 10 0	23	10
D12.16	20 056 01 16 12 0		12

ER



REF.	CODE 1	d_1	CODE 2	d_2	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

WD

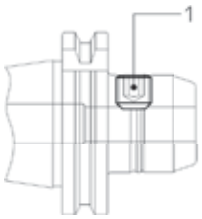


fig.1

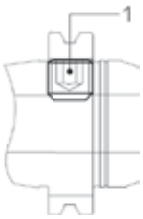
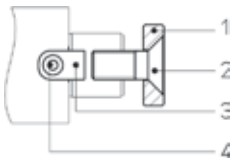


fig.2

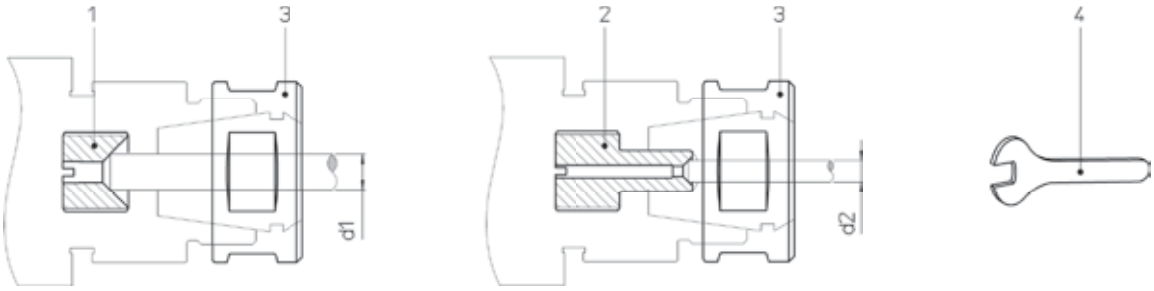
fig.	REF.	CODE 1
1	WD 06	20 010 019 0610
	WD 08	20 010 019 0810
	WD 10	20 010 019 1010
	WD 12	20 010 019 1212
	WD 14	
	WD 16	20 010 019 1414
	WD 18	
1	WD 20	20 010 019 1616
2		20 010 019 1613
1	WD 25	20 010 019 1820
2		20 010 019 1821
1	WD 32	20 010 019 2020
	WD 40	

PF



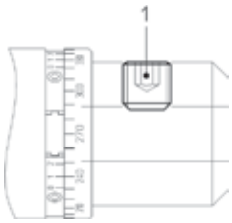
REF.	CODE 1	CODE 2	CODE 3	CODE 4
PF 16	20 101 0085 01 0	10 010 1 080 025	20 110 18 008 01	10 005 1 030 008
PF 22	20 101 0105 03 0	10 010 1 100 025	20 110 18 010 02	10 005 1 040 010
PF 27	20 101 0125 03 0	10 010 1 120 030	20 110 18 012 02	10 005 1 050 012
PF 32	20 101 0165 02 0	10 010 1 160 035	20 110 18 014 02	10 005 1 060 016
PF 40	20 101 0210 01 0	10 010 1 200 045	20 110 18 016 06	10 005 1 060 018
PF 60	-	-	20 110 18 025 10	10 005 1 120 025

ER



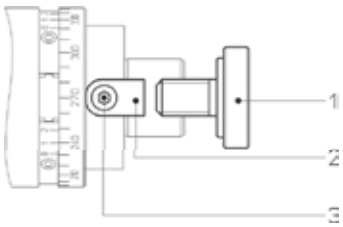
REF.	CODE 1	d_1	CODE 2	d_2	CODE 3	CODE 4
ER 16	20 108 20 10 001	5 ~ 10	20 108 20 10 002	1 ~ 4	20 104 19 100 01	20 127 150 2200
ER 25	20 108 20 18 001	8 ~ 16	20 108 20 18 002	2 ~ 7	20 104 30 100 02	20 127 150 3400
ER 32	20 108 20 22 001	8 ~ 20	20 108 20 22 002	3 ~ 7	20 104 40 150 01	20 127 150 4500
ER 40	20 108 20 28 001	9 ~ 26	20 108 20 28 002	4 ~ 8	20 104 50 150 01	20 127 150 5500

WLD



REF	CODE 1
WLD 06	20 010 019 0610
WLD 08	20 010 019 0810
WLD 10	20 010 019 1010
WLD 12	20 010 019 1212
WLD 16	20 010 019 1414
WLD 20	20 010 019 1616
WLD 25	20 010 019 1820
WLD 32	20 010 019 2020
WLD 40	

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
PFS 40	20 108 03 20 001	20 110 18 016 03	10 005 1 060 018

Setting screw for internal coolant supply | Einstellschraube für innere Kühlmittelzufuhr | Установочный винт для внутреннего подвода СОЖ | Vis de réglage pour l'alimentation de refroidissement. | Vite regolazione con passaggio refrigerante

VCR

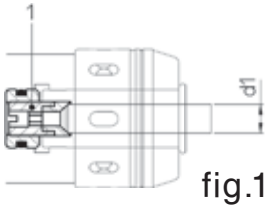


fig.1

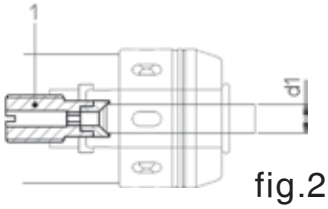
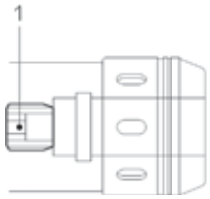
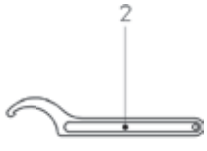


fig.2

fig.	REF	CODE 1	d1
1	VCR 20 MONOforce 20 HSK63 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 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 ~ 05
		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
FORCE 12	20 010 019 1014	10 150 04 0 0028
FORCE 20	20 010 019 1615	10 150 04 0 0050
FORCE 32		10 150 04 0 0075

Sealing device for high pressure coolant supply | Dichtvorrichtung für Hochdruck-Kühlmittelzufuhr | Манжета для подвода СОЖ под высоким давлением | Système d'étanchéité pour l'alimentation de refroidissement haute pression. | Dispositivi a tenuta per refrigerante ad alta pressione

GH - VT

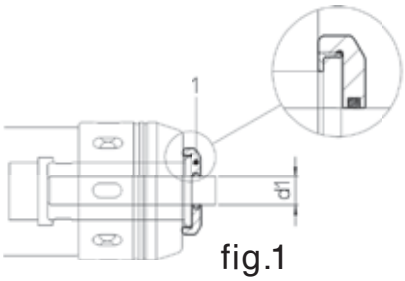


fig.1

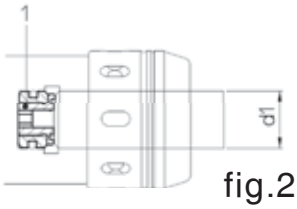


fig.2

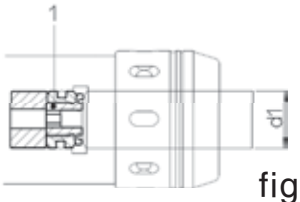
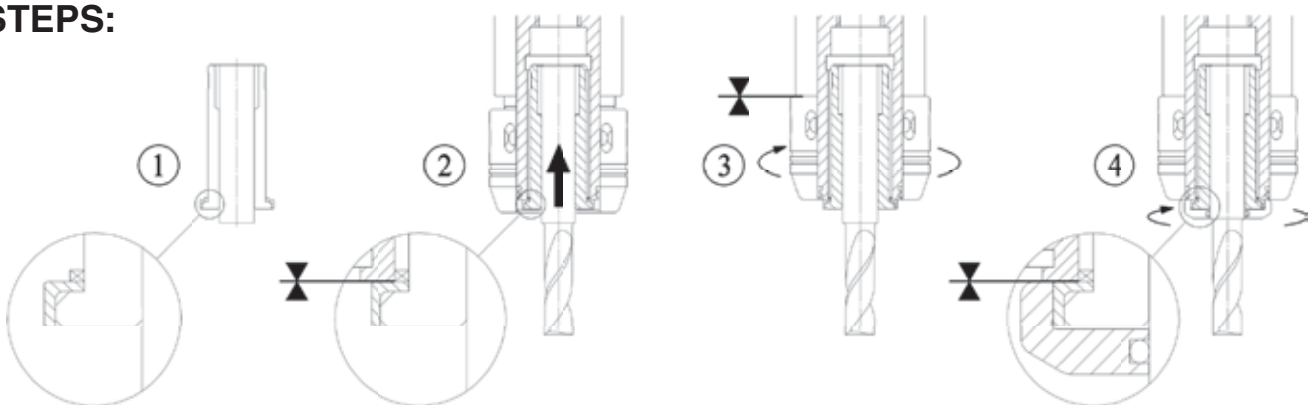


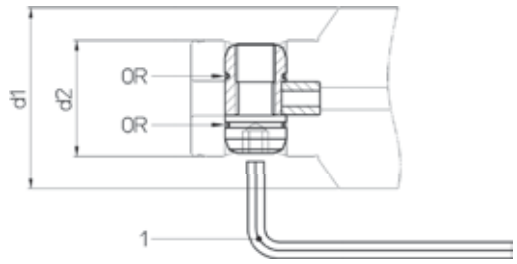
fig.3

fig.	REF	CODE 1	d1
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	38 20 42 020201	20
1	GH 32 MONOforce 32 DIN/BT-40-50 / HSK63 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 HSK/63	38 20 42 032321	32
3	VT 32.32.100 MONOforce 32 DIN/BT-50	38 20 42 032322	32

STEPS:

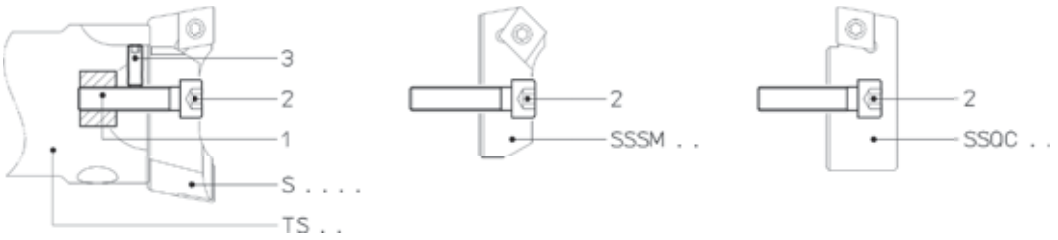


SYSTEM MHD'



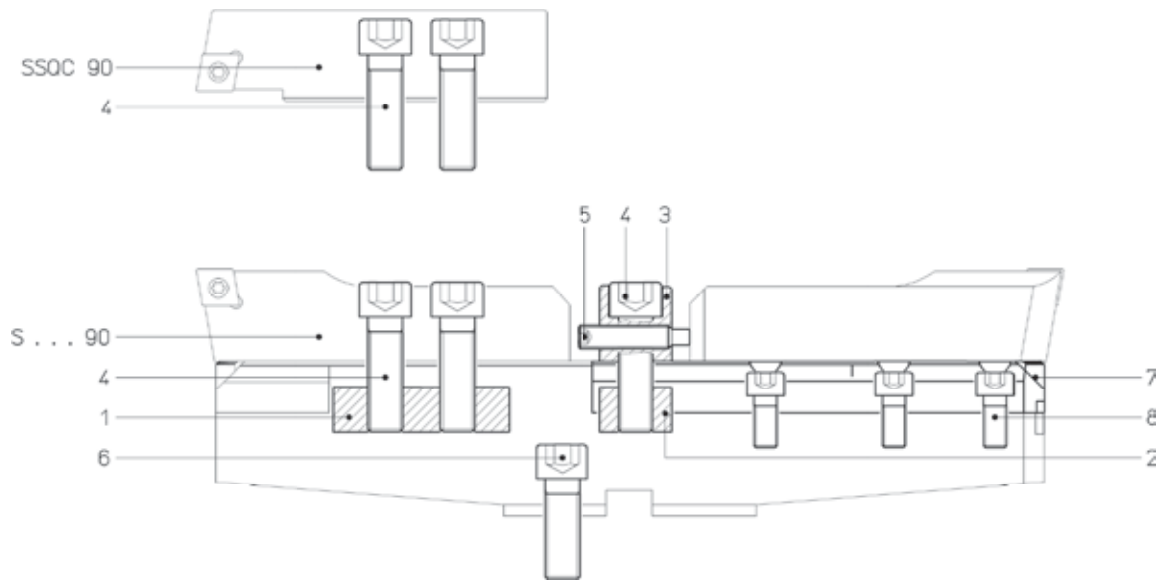
REF.	CODE	d_1	d_2	CODE 1	CODE OR
MHD' 14	38 17 25 001161	14	10	10 150 01 0 0250	-
MHD' 16		16			
MHD' 20	38 17 25 001201	20	13	10 150 01 0 0300	
MHD' 25	38 17 25 001251	25	16		
MHD' 32	38 17 25 001321	32	20	10 150 01 0 0400	10 125 4 007510
MHD' 40	38 17 25 001401	40	25	10 150 01 0 0500	10 125 4 010010
MHD' 50 (RD50/..)	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

TS - BS



REF.	CODE 1	CODE 2	CODE 3
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
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

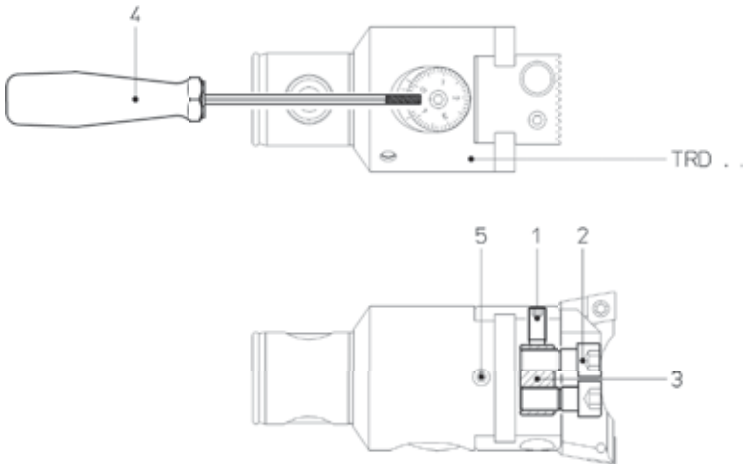
BPS



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				

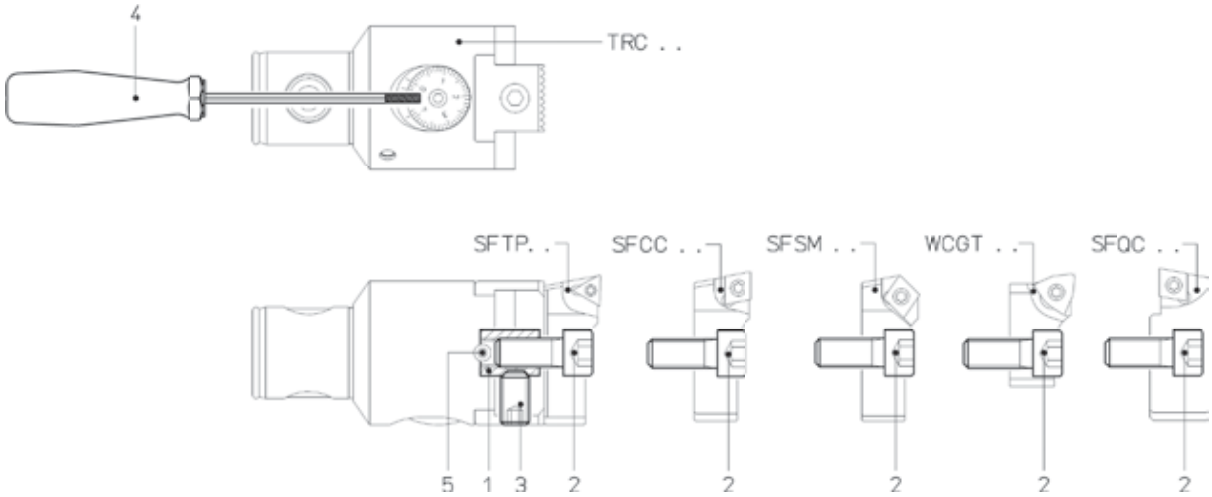
REF.	CODE 5	CODE 6	CODE 7	CODE 8
BPS 200-300	10 025 1 080 040	10 005 1 120 035	20 065 5 0157 01	10 005 1 080 025
BPS 400			20 065 5 0163 01	10 005 1 080 020
BPS 500-600-700		10 005 1 160 050		10 005 1 080 025

TRD



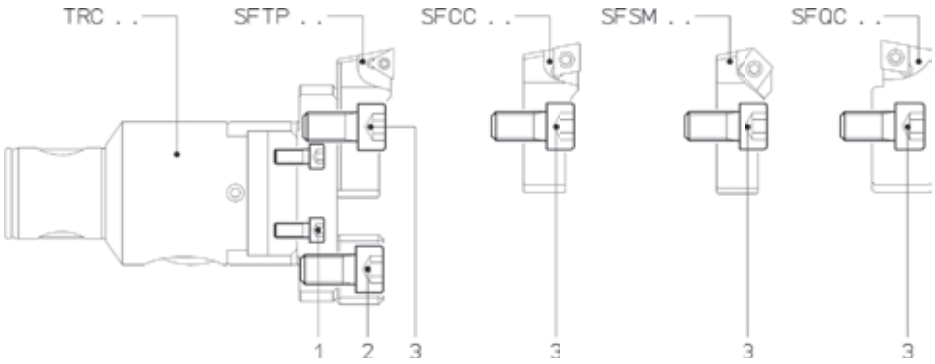
REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
TRD 25	10 023 1 040 008	20 010 0 15 0411	20 143 011 0024	10 150 08 0 0200	10 023 1 040 005
TRD 32	10 023 1 050 010	20 010 0 15 0512	20 143 011 0023	10 150 08 0 0250	10 023 1 050 005
TRD 40	10 023 1 060 012	20 010 0 15 0616	20 143 017 0001	10 150 08 0 0300	10 023 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

TRC



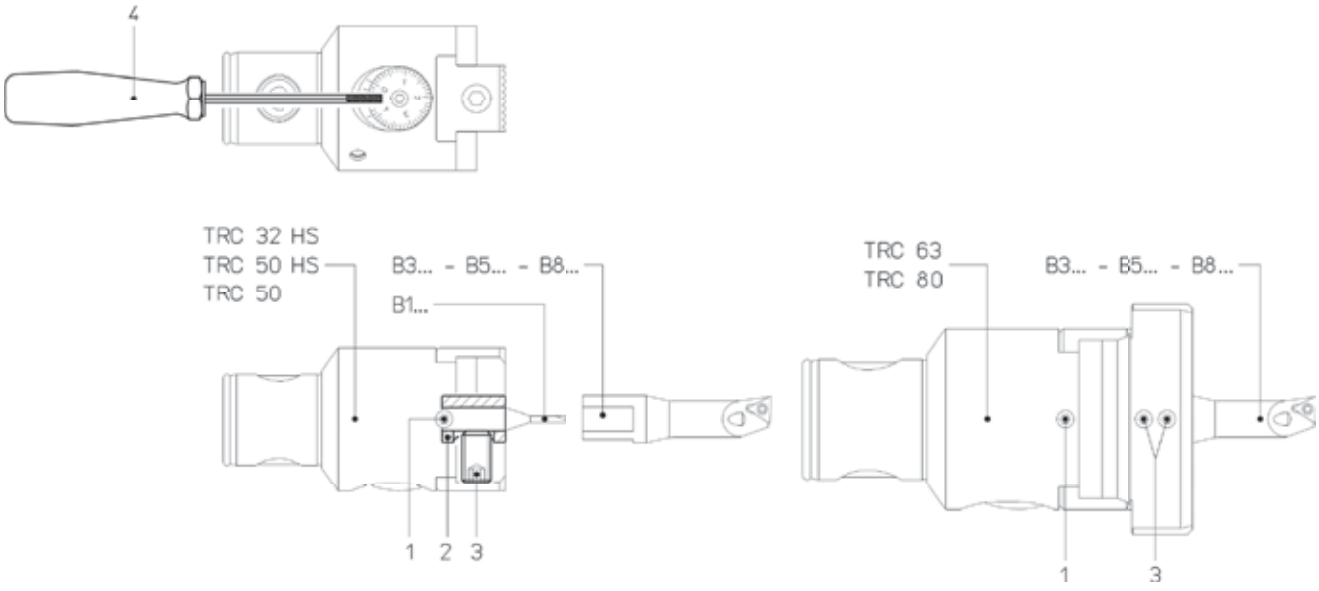
REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
TRC 14	-	10 005 1 030 006	-	10 150 08 0 0150	20 010 0 19 0302
TRC 16					20 010 0 19 0301
TRC 20		10 005 1 040 008			
TRC 25		10 005 1 050 010			10 023 1 040 004
TRC 32		10 005 1 060 012		10 150 08 0 0250	10 023 1 050 005
TRC 40		10 005 1 080 014		10 150 08 0 0300	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



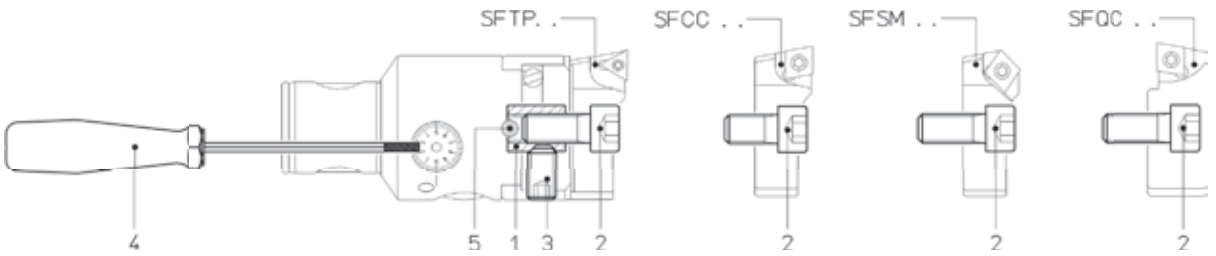
REF.	CODE 1	CODE 2	CODE 3
TRC 50	10 005 1 050 012	10 005 1 100 020	10 005 1 100 025
TRC 63	10 005 1 050 025		
TRC 80			

TRC



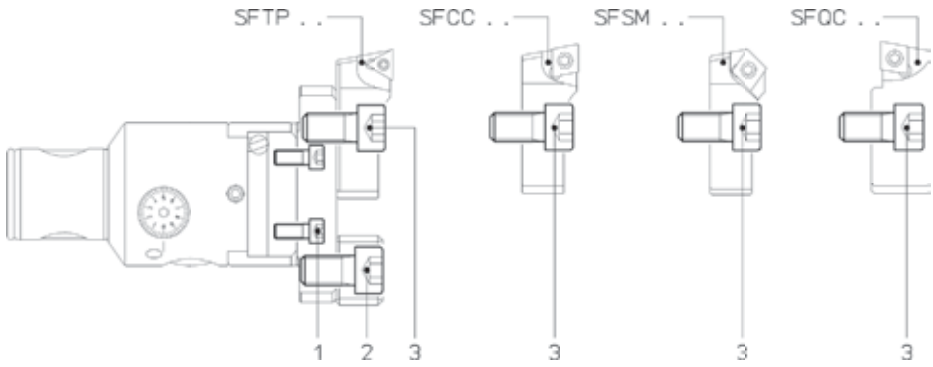
REF.	CODE 1	CODE 2	CODE 3	CODE 4
TRC 32 HS	10 023 1 050 005	-	10 023 1 050 008 10 023 1 050 012	10 150 08 0 0250
TRC 50 HS	10 023 1 060 008	20 056 01 16 08 2	10 023 1 100 010	10 150 08 0 0300
TRC 50				
TRC 63		-	10 023 1 060 006	
TRC 80	10 023 1 060 012			

TRM



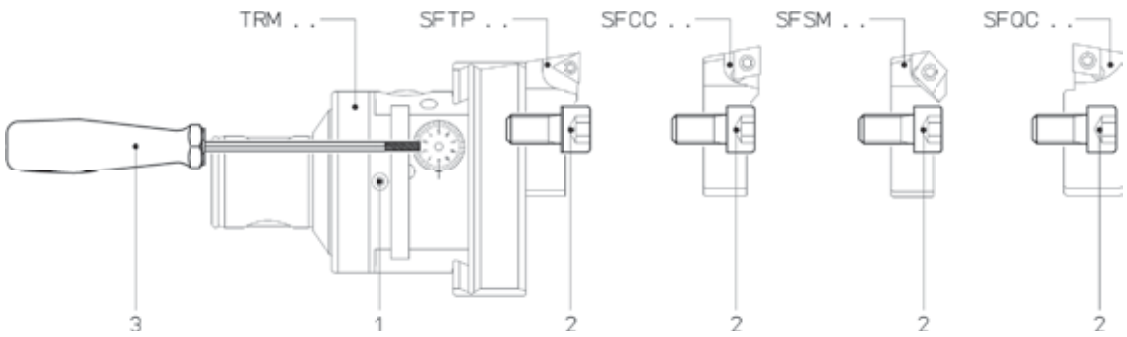
REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5
TRM 16	-	10 005 1 030 006	-	10 150 08 0 0150	20 010 0 19 0301
TRM 20		10 005 1 040 008			
TRM 25		10 005 1 050 010		10 150 08 0 0200	10 023 1 040 004
TRM 32		10 005 1 060 012			10 023 1 040 005
TRM 40		10 005 1 080 014		10 150 08 0 0250	10 023 1 050 006
TRM 50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

TRM



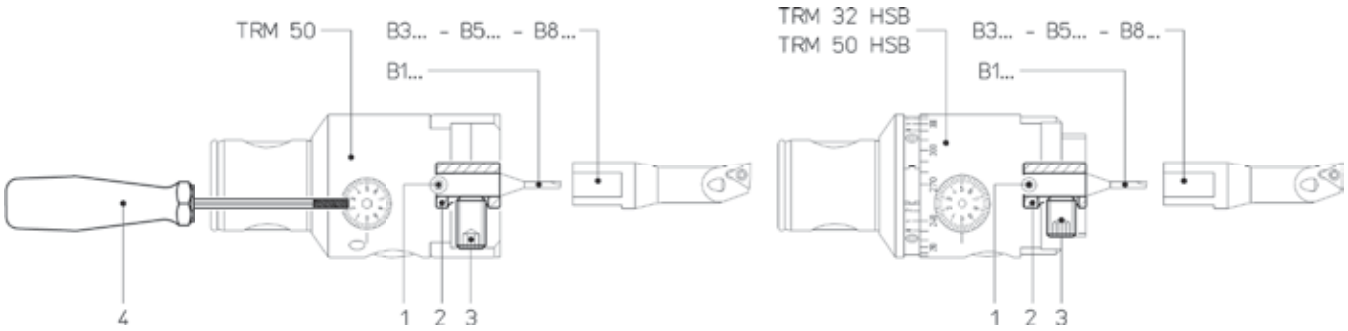
REF.	CODE 1	CODE 2	CODE 3
TRM 50	10 005 1 050 012	10 005 1 100 020	10 005 1 100 025

TRM



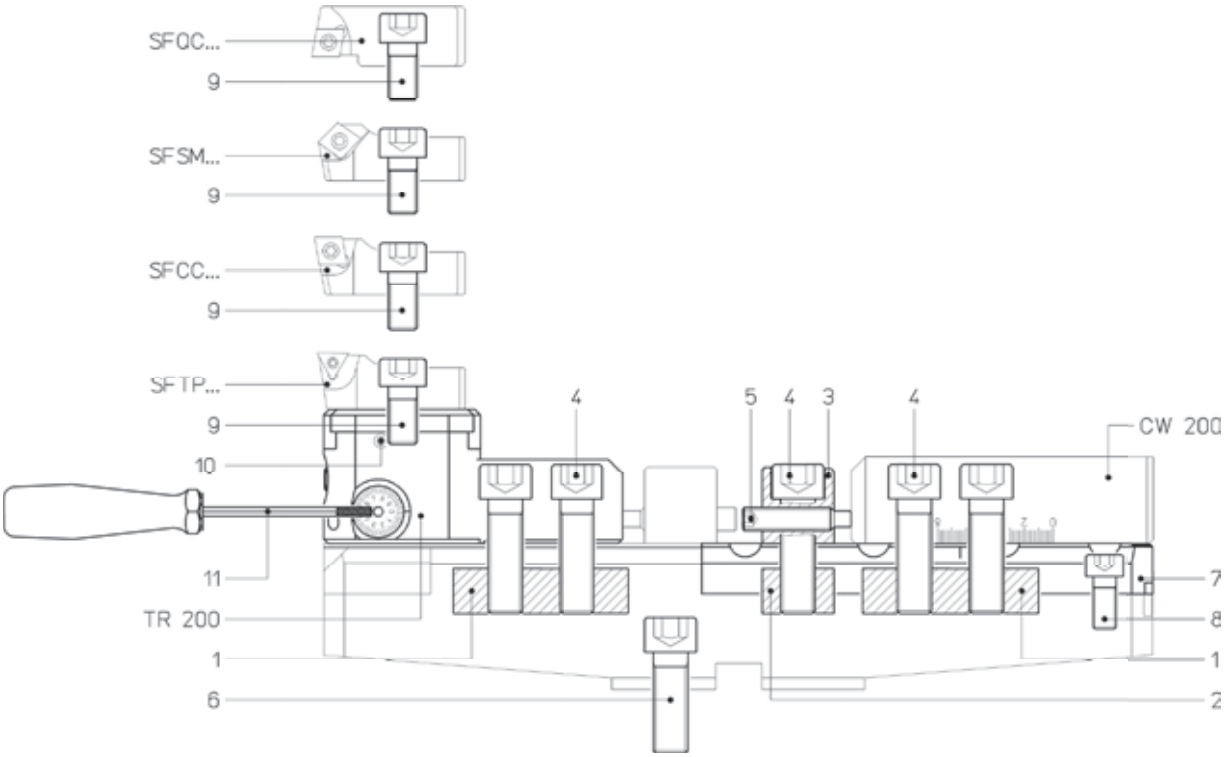
REF.	CODE 1	CODE 2	CODE 3
TRM 63	10 025 1 060 010	10 005 1 100 025	10 150 08 0 0300
TRM 80	10 025 1 060 014		
TRM 125	10 025 1 060 022		

TRM



REF.	CODE 1	CODE 2	CODE 3	CODE 4
TRM 50	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

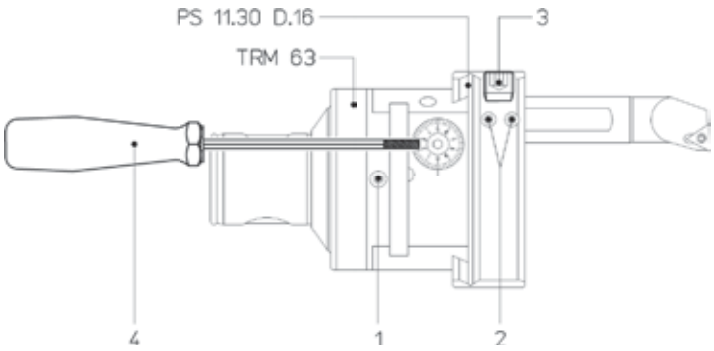
BPS



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					

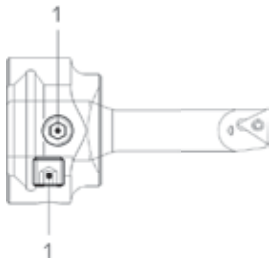
REF.	CODE 6	CODE 7	CODE 8	CODE 9	CODE 10	CODE 11
BPS 200-300	10 005 1 120 035	20 065 5 0157 01	10 005 1 080 025	10 005 1 100 020	10 025 1 060 008	10 150 08 0 0300
BPS 400		20 065 5 0163 01	10 005 1 080 020			
BPS 500-600-700	10 005 1 160 050		10 005 1 080 025			

TRM



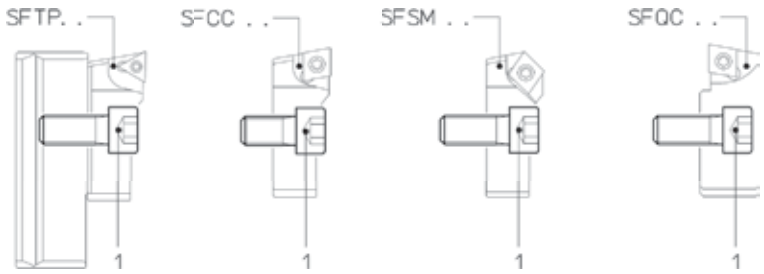
REF.	CODE 1	CODE 2	CODE 3	CODE 4
TRM 63	10 025 1 060 010	10 023 1 050 006	10023 1 100 010	10 150 08 0 0300

P 20.30



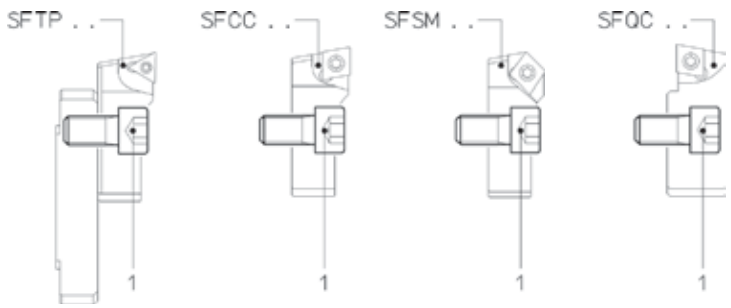
REF.	CODE 1
P20.30	10 025 1 080 008

PS..



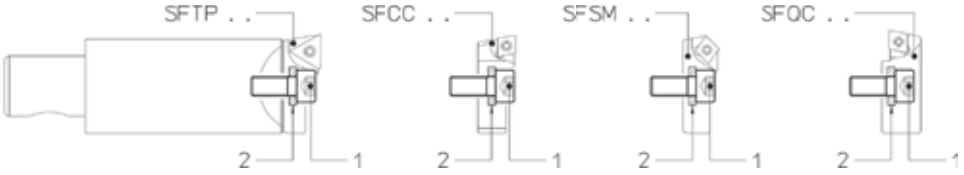
REF.	CODE 1
PS 11.30	10 005 1 100 018
PS 12.30	
PS 13.30	
PS 11.40	10 005 1 100 025
PS 12.40	
PS 13.40	
PS 14.40	

PS..



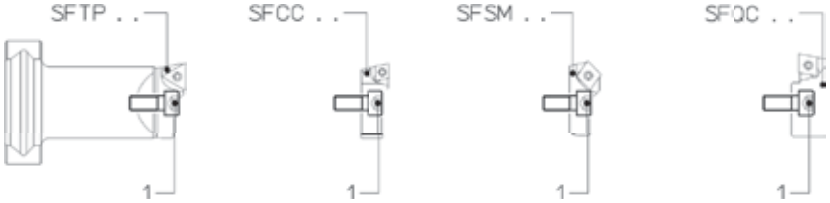
REF.	CODE 1
PS 31.24	10 005 1 100 020
PS 31.28	10 005 1 100 025
PS 32.28	
PS 33.28	

P 25..



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

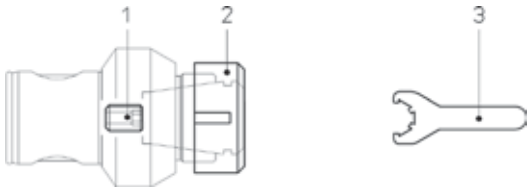
P..



REF.	CODE 1
P 02.30	10 005 1 050 012
P 03.30	
P 04.30	
P 02.40	10 005 1 060 018
P 03.40	
P 04.40	

PE

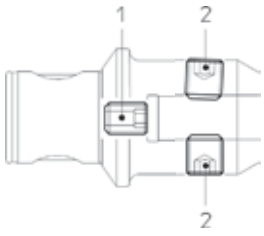
ER DIN 6499



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 03 25 00	10 150 10 0 2500
PE 40 / ER25	20 010 019 0808		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

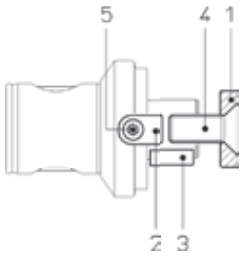
AW

DIN 1835 B-E



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	

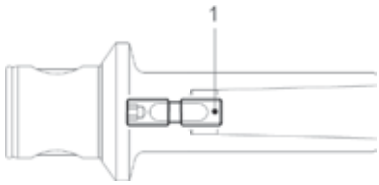
PF



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 63/27	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 80/60	-	20 110 18 025 10	-	-	10 005 1 120 025

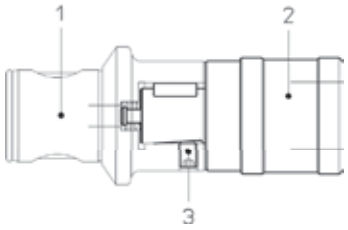
CM

DIN 228 A



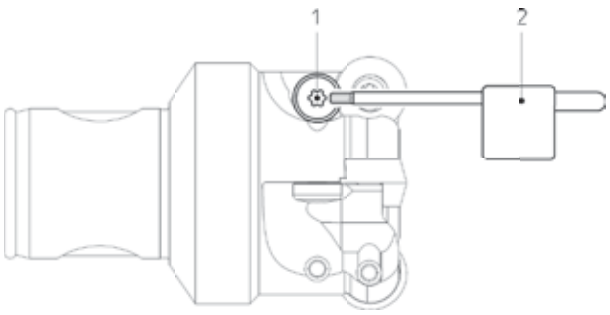
REF.	CODE 1
CM 50/1	20 108 15 06 003
CM 50/2	20 108 15 10 002
CM 50/3	20 108 15 12 004
CM 63/3	
CM 63/4	20 108 15 16 001

AM



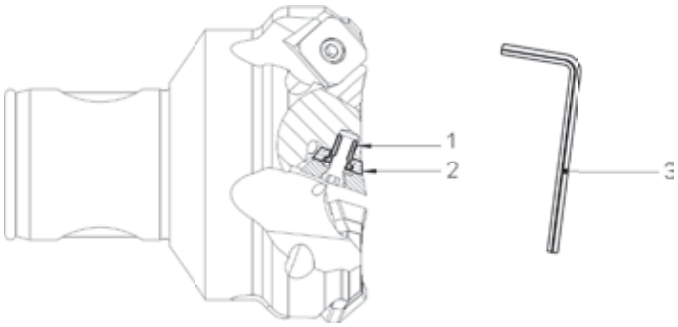
REF.	REF. 1	CODE 1	REF. 2	CODE 2	CODE 3
AM 50/M3-12	RAM 50/M3-12	45 65 050 0010 0	WFLK 115B/A 308	49 50 9 0010312	10 023 1 060 008
AM 50/M8-20	RAM 50/M8-20	45 65 050 0020 0	WFLK 225B/A 308	49 50 9 0020820	10 023 1 080 012
AM 63/M3-12	RAM 63/M3-12	45 65 063 0010 0	WFLK 115B/A 308	49 50 9 0010312	10 023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

MDH' RD



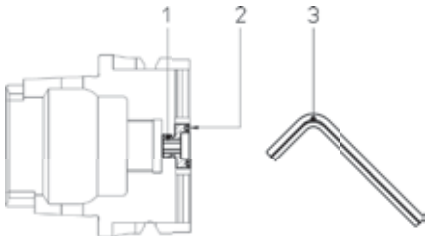
REF.	CODE 1	CODE 2
MHD'40 RD12-Z4	49 10 1 0002435	10 150 09 0 1500
MHD'50 RD12-Z5		
MHD'63 RD16-Z5	49 10 1 0002445	10 150 09 0 2000

MDH' SE



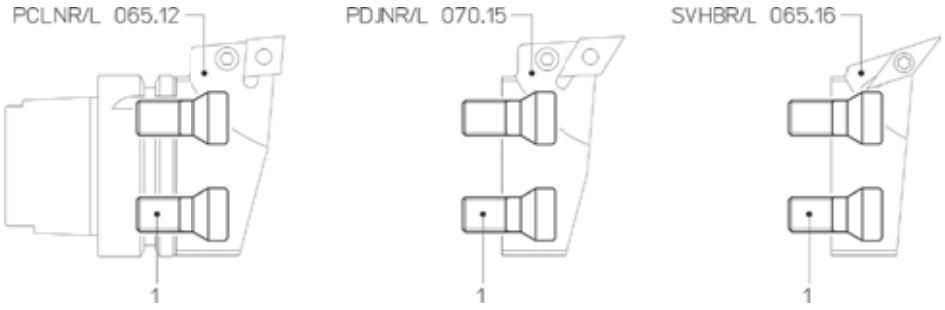
REF.	CODE 1	CODE 2	CODE 3
MHD'40 SE13-Z3	49 20 1 0003512	49 20 3 0003512	10 150 01 00350
MHD'50 SE13-Z4			
MHD'63 SE13-Z5			

MCD'



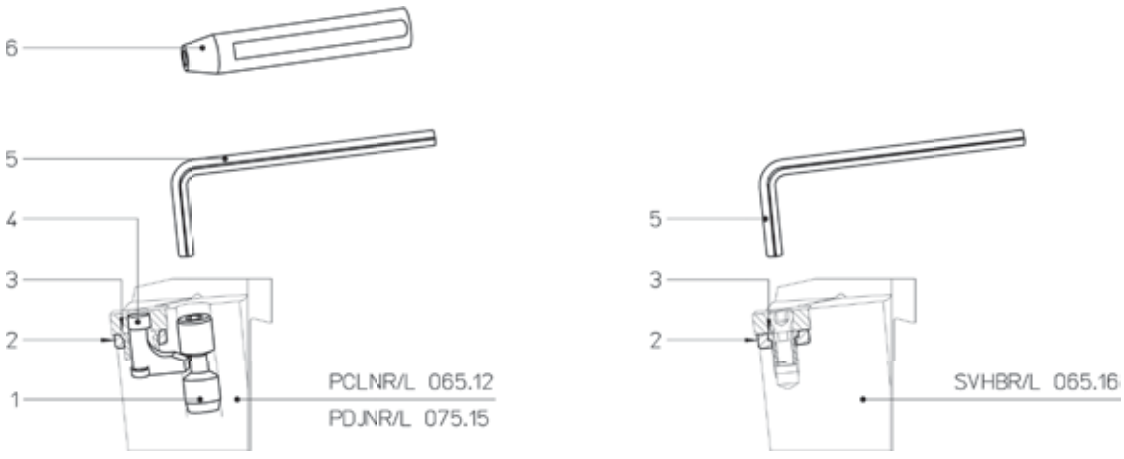
REF.	CODE 1	CODE 2	CODE 3
MCD' HSK-A63 F.26 RL DIN69893	20 146 211 0155	10 125 1 002043	10 150 01 0 1000

MCD'



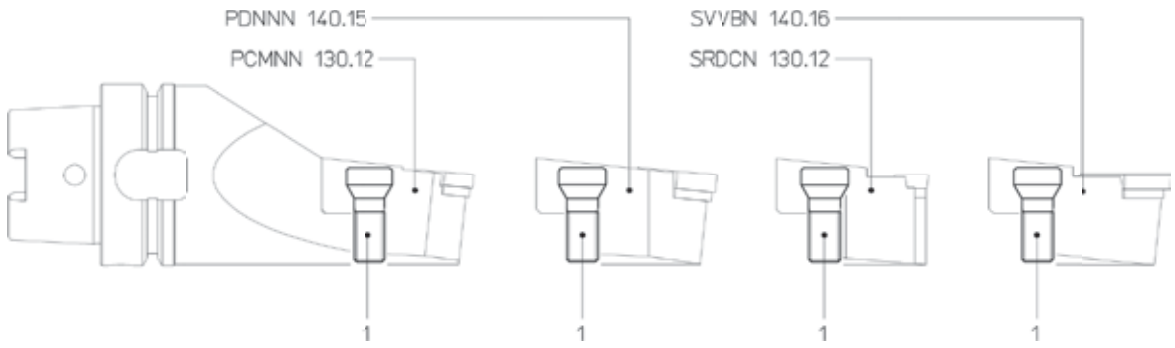
REF.	CODE 1
MCD' HSK-A63 F.26 RL DIN69893	20 010 017 1220

MCD'



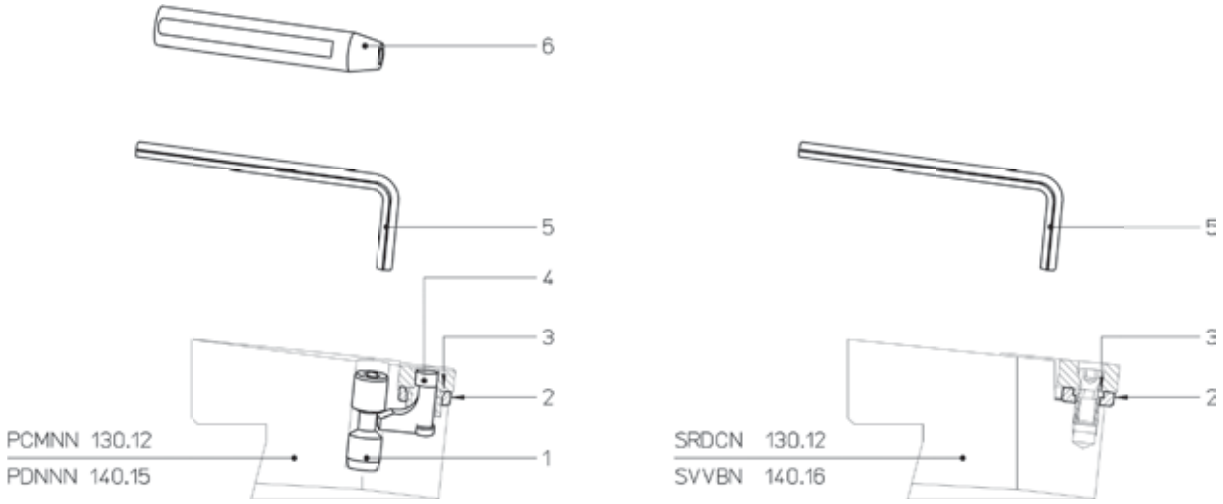
REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5	CODE 6
MCD' PCLNR/L 065.12	49 43 1 0080230	49 20 3 0003012	10 065 5 065 060	49 11 1 0000002	10 150 01 0 0400	10 150 13 0 7100
MCD' PDJNR/L 070.15	49 43 1 0080260	49 20 3 0003015		49 11 1 0000003		
MCD' SVHBR/L 065.16	-	49 20 3 0003016	49 20 1 0000508	-	10 150 01 0 0350	-

MCD'



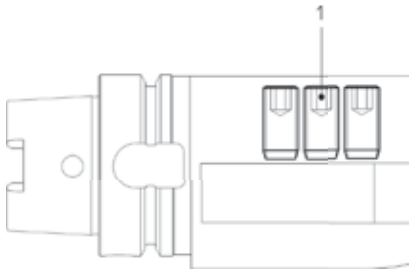
REF.	CODE 1
MCD' HSK-A63 F.77 N DIN69893	20 010 017 1220

MCD'



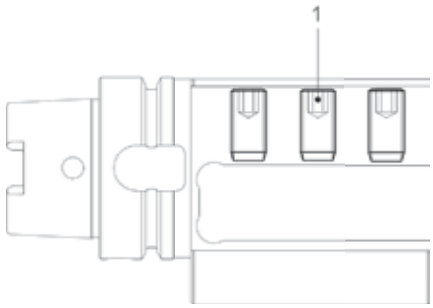
REF.	CODE 1	CODE 2	CODE 3	CODE 4	CODE 5	CODE 6
MCD' PCMNN 130.12	49 43 1 0080230	49 20 3 0003012	10 065 5 065 060	49 11 1 0000002	10 150 01 0 0400	10 150 13 0 7100
MCD' PDNNN 140.15	49 43 1 0080260	49 20 3 0003015		49 11 1 0000003		
MCD' SRDCN 130.12	-	49 20 3 0003013	49 20 1 0000508	-	10 150 01 0 0350	-
MCD' SVVBN 140.16						

MCD'



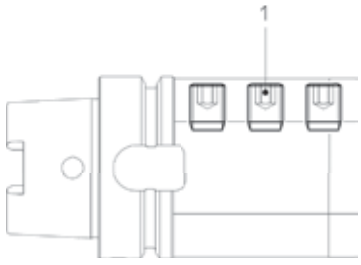
REF.	CODE 1
MCD' HSK-A63 TU20.45R DIN69893	10 023 1 120 025
MCD' HSK-A63 TU20.45L DIN69893	

MCD'



REF.	CODE 1
MCD' HSK-A63 TU25.02N DIN69893	10 023 1 120 025

MCD'



REF.	CODE 1
MCD' HSK-A63 D.32x64 DIN69893	10 023 1 120 016
MCD' HSK-A63 D.40x85 DIN69893	

TECHNICAL DATA | **TECHNISCHE DATEN** | **ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ** | **DONNÉES TECHNIQUES** | **DATI TECNICI**

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CUTTING CONDITIONS
SCHNITTWERTE
РЕЖИМЫ РЕЗАНИЯ
CONDITIONS DE COUPE
DATI DI TAGLIO

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ARBORS STANDARDS
VORSCHRIFTEN FÜR GRUNDAUFNAHMEN
СТАНДАРТЫ ДЕРЖАВОК
NORMES MANDRINS
NORME ATTACCHI BASE

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WINTOOL

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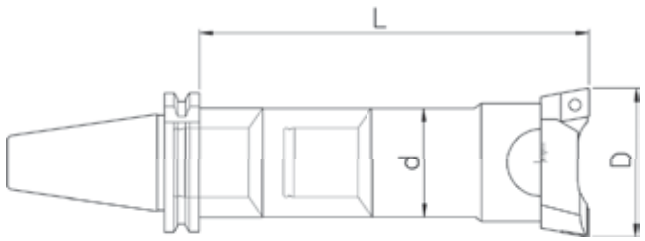
MODULHARD'ANDREA

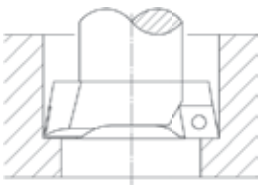
Recommended cutting conditions for roughing operations with Double-bit heads TS

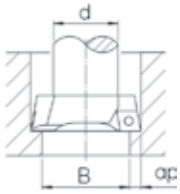
Рекомендуемые режимы резания для операций чернового растачивания двурезцовыми расточными оправками

material материал	boring bar dimensions размеры расточной оправки	working conditions условия работы	cutting speed Vc= m/min. скорость резания Vc= m/min. diameter диаметр			feed fn= mm/rev (twin cutters) подача, мм/об. insert radius радиус пластины		
			D < 38	D = 38~120	D > 120	R = 0.2	R = 0.4	R = 0.8
carbon steel углеродистая сталь HB ? 200	L / d = 2.5	good хорошие	120 - 180	140 - 200	160 - 250	-	0.2 - 0.4	0.3 - 0.5
	L / d = 4	normal норма	100 - 160	120 - 180	140 - 200	-	0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficult тяжелые	70 - 100	70 - 100	70 - 100	0.15 - 0.3	0.2 - 0.4	-
carbon steel углеродистая сталь HB > 200	L / d = 2.5	good хорошие	100 - 160	120 - 180	140 - 200	-	0.2 - 0.4	0.3 - 0.5
	L / d = 4	normal норма	80 - 140	100 - 160	120 - 180	-	0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficult тяжелые	60 - 90	70 - 100	70 - 100	0.15 - 0.3	0.2 - 0.4	-
stainless steel нержавеющая сталь AISI 304 - 316	L / d = 2.5	good хорошие	80 - 110	90 - 120	100 - 140	-	0.2 - 0.4	0.3 - 0.5
	L / d = 4	normal норма	70 - 100	80 - 110	90 - 120	-	0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficult тяжелые	60 - 90	60 - 90	60 - 90	0.15 - 0.3	0.2 - 0.4	-
cast iron чугун	L / d = 2.5	good хорошие	90 - 120	100 - 140	120 - 160	-	0.2 - 0.4	0.3 - 0.5
	L / d = 4	normal норма	70 - 100	90 - 120	100 - 140	-	0.2 - 0.4	0.3 - 0.5
	L / d = 6.3	difficult тяжелые	60 - 90	60 - 90	60 - 90	0.15 - 0.3	0.2 - 0.4	-
aluminium алюминий	L / d = 2.5	good хорошие	160 - 250	200 - 300	250 - 350	-	0.3 - 0.5	0.4 - 0.6
	L / d = 4	normal норма	140 - 200	160 - 250	200 - 300	-	0.3 - 0.5	0.4 - 0.6
	L / d = 6.3	difficult тяжелые	100 - 150	100 - 150	100 - 150	0.2 - 0.4	0.3 - 0.5	-

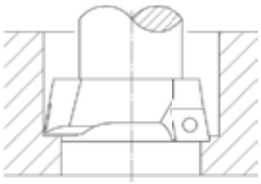


Twin cutters at the same cutting diameter
Резцы на одинаковом диаметре резания



cutting depth глубина резания ap = mm	working range рабочий диапазон Ø = mm	max. cutting depth макс. глубина резания steel сталь	cast iron, aluminium чугун, алюминий
	18 - 28	1.5 - 2	2 - 2.5
	28 - 50	2 - 3	2.5 - 3.5
	50 - 68	3 - 4	3.5 - 5
	68 - 200	4 - 5	5 - 7
	200 - 500	5 - 6	6 - 8

Twin cutters at different cutting diameters
Резцы на разных диаметрах резания



ATTENTION: For boring operations at different diameters, reduce to a half the feed indicated on the above table.

ВНИМАНИЕ: Для операций растачивания на разных диаметрах резания, значения подачи, указанные выше, должны быть снижены вдвое.

It's advisable to start with B hole ? the boring bar diameter d.
Рекомендуется начинать с отверстия B, которое больше диаметра d.

Recommended cutting conditions for boring operations with Double-bit Testarossa TRD

Рекомендуемые режимы резания для операций растачивания головками Testarossa и расточными оправками

material материал	boring bar dimensions размеры расточной оправки	working conditions Условия работы	cutting speed Vc= m/min. Скорость резания Vc= m/min.	feed fn= mm/rev подача fn= мм/об insert radius радиус пластины		quality insert материал пластины чистовая finishing	 черновая roughing	cutting depth глубина резания чистовая finishing	 черновая roughing		
				R = 0.2	R = 0.4				ø28 ø46	ø46 ø75	ø75 ø120
carbon steel углеродистая сталь HB ≤ 200	L / d = 2.5	good хорошие	160 - 250	-	0.1 - 0.2	DC100 DC300	DP300 DP100R	0.15 - 0.3	1.5	2	2.5
	L / d = 4	normal норма	120 - 180	-	0.1 - 0.2						
	L / d = 6.3	difficult тяжелые	70 - 100	*0.1 - 0.15	0.1 - 0.2						
carbon steel углеродистая сталь HB > 200	L / d = 2.5	good хорошие	140 - 200	-	0.1 - 0.2	DC100	DP300 DP100R	0.15 - 0.3	1.5	2	2.5
	L / d = 4	normal норма	100 - 160	-	0.1 - 0.2						
	L / d = 6.3	difficult тяжелые	70 - 100	*0.1 - 0.15	0.1 - 0.2						
stainless steel нержавеющая сталь AISI 304 - 316	L / d = 2.5	good хорошие	100 - 140	-	0.1 -0.2	DP300	DP300	0.15 - 0.3	1.5	2	2.5
	L / d = 4	normal норма	80 - 110	-	0.1 -0.2						
	L / d = 6.3	difficult тяжелые	60 - 90	*0.1 - 0.15	0.1 - 0.2						
cast iron чугун	L / d = 2.5	good хорошие	120 - 160	-	0.1 -0.2	DK100 DC100	DP100R	0.15 - 0.3	2	2.5	3
	L / d = 4	normal норма	90 - 120	-	0.1 -0.2						
	L / d = 6.3	difficult тяжелые	60 - 90	*0.1 - 0.15	0.1 - 0.2						
aluminium алюминий	L / d = 2.5	good хорошие	250 - 350	-	0.1 - 0.2	DK100	-	0.15 - 0.3	2	2.5	3
	L / d = 4	normal норма	160 - 250	-	0.1 - 0.2						
	L / d = 6.3	difficult тяжелые	100 - 150	*0.1 - 0.15	0.1 - 0.2						

*** Only for finishing inserts**

*** Только для чистовой обработки**

MODULHARD'ANDREA

Recommended cutting conditions for boring operations with Testarossa TRC - TRM
Рекомендуемые режимы резания для операций растачивания Testarossa TRC - TRM

material материал	boring bar dimensions размер расточной оправки	working conditions Условия работы	cutting speed Vc= m/min. скорость резания Vc= м/мин	feed fn= mm/rev подача, мм/об insert radius радиус пластины			quality insert материал пластины	cutting depth глубина резания
				R = 0.0	R = 0.2	R = 0.4		
carbon steel углеродистая сталь HB ≤ 200	L / d = 2.5	good хорошие	200 - 300	-	0.05 - 0.08	0.07 - 0.1	DC100	 0.1-0.25 mm
	L / d = 4	normal норма	160 - 250	-	0.05 - 0.08	0.07 - 0.1		
	L / d = 6.3	difficult тяжелые	70 - 100	0.05 - 0.08	0.05 - 0.08	-	DP300	
carbon steel углеродистая сталь HB > 200	L / d = 2.5	good хорошие	160 - 250	-	0.05 - 0.08	0.07 - 0.1	DC100	
	L / d = 4	normal норма	150 - 200	-	0.05 - 0.08	0.07 - 0.1		
	L / d = 6.3	difficult тяжелые	70 - 100	0.05 - 0.08	0.05 - 0.08	-		
stainless steel нержавеющая сталь AISI 304 - 316	L / d = 2.5	good хорошие	120 - 160	-	0.05 - 0.08	0.07 - 0.1	DP300	
	L / d = 4	normal норма	100 - 140	-	0.05 - 0.08	0.07 - 0.1		
	L / d = 6.3	difficult тяжелые	70 - 100	0.05 - 0.08	0.05 - 0.08	-		
cast iron чугун	L / d = 2.5	good хорошие	120 - 160	-	0.05 - 0.08	0.07 - 0.1	DC100	
	L / d = 4	normal норма	100 - 140	-	0.05 - 0.08	0.07 - 0.1		
	L / d = 6.3	difficult тяжелые	70 - 100	0.05 - 0.08	0.05 - 0.08	-	DK100	
aluminium алюминий	L / d = 2.5	good хорошие	300 - 400	-	0.05 - 0.08	0.07 - 0.1	DK100	
	L / d = 4	normal норма	250 - 350	-	0.05 - 0.08	0.07 - 0.1		
	L / d = 6.3	difficult тяжелые	100 - 150	0.05 - 0.08	0.05 - 0.08	-		
steel сталь HCR > 50	L / d = 2.5	good хорошие	80 - 100	-	0.04 - 0.06	0.05 - 0.07	D20CBN	
	L / d = 4	normal норма	80 - 100	-	0.04 - 0.06	0.05 - 0.07		

CALCULATION FORMULAS FOR BORING
РАСЧЕТНЫЕ ФОРМУЛЫ ДЛЯ ОПЕРАЦИЙ РАСТАЧИВАНИЯ

Vc cutting speed (m/min.)
скорость резания (м/мин)

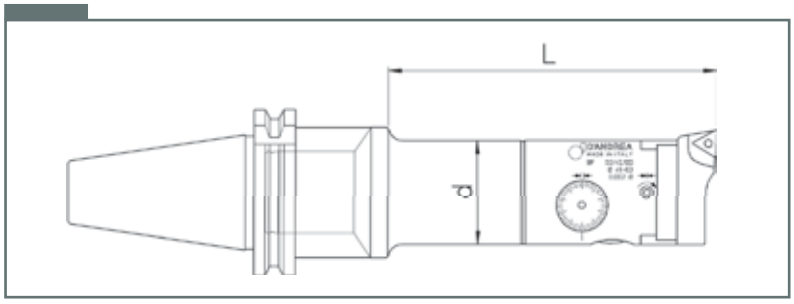
D diameter of workpiece (mm)
диаметр заготовки (мм)

n number of revolutions / min' (giri/min)
обороты шпинделя (об/мин)

Vf feed rate (mm/min.)
скорость подачи (мм/мин)

fn feed / rev. (mm/rev)
подача (мм/об)

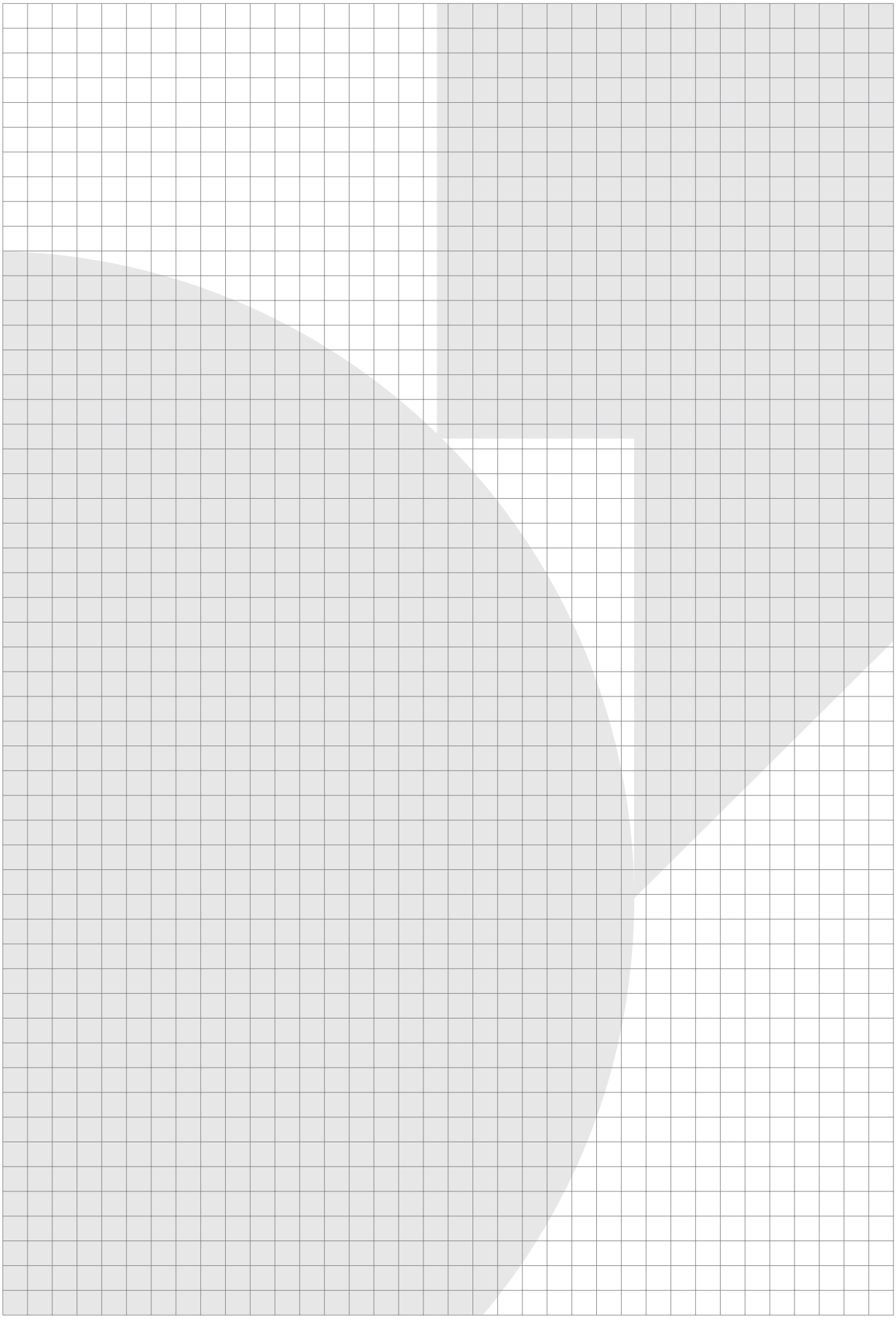
π **3.14**



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

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

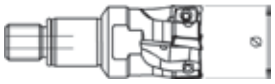
$$Vf = n \cdot fn$$



Recommended cutting conditions for milling
Рекомендованные режимы резания для фрезерования

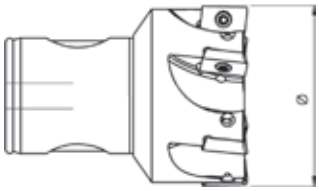
F-MHD' AP

APKT



Ø	d
16	6.7
20	6.7
25	6.7
32	6.7

MHD' AP



Ø	d
42	9.44
52	9.44
66	9.44

ISO		HB	fz = mm		Vc = m/min.			
					DP200 R		DP250 P	
			d = 6.7	d = 9.44	d = 6.7	d = 9.44	d = 6.7	d = 9.44
P	Unalloyed steel Нелегированные стали	125 - 300	0.10 - 0.25	0.20 - 0.35	325 - 255	270 - 225	250 - 210	210 - 190
	Low-alloyed steel Низколегированные стали	180 - 350	0.10 - 0.25	0.20 - 0.35	275 - 235	220 - 205	200 - 190	180 - 170
	Alloyed steel Легированные стали	200 - 325	0.10 - 0.25	0.20 - 0.35	255 - 205	240 - 180	180 - 160	160 - 140
M	Stainless steel Нержавеющие стали	180 - 230	0.10 - 0.25	0.20 - 0.35	195 - 120	160 - 105	150 - 95	125 - 80
K	Grey cast iron Серый чугун	180 - 260	0.10 - 0.25	0.20 - 0.35	305 - 240	255 - 220	235 - 200	195 - 170
	Nodular cast iron Высокопрочный чугун	160 - 250	0.10 - 0.25	0.20 - 0.35	255 - 220	205 - 200	195 - 180	175 - 150
	Malleable cast iron Ковкий чугун	130 - 230	0.10 - 0.25	0.20 - 0.35	235 - 190	185 - 170	165 - 150	155 - 130
N	Aluminium Алюминий	-	-	-	-	-	-	-
S	High-temperature alloys Жаропрочные сплавы	-	-	-	-	-	-	-
	Titanium alloys Титановые сплавы	-	-	-	-	-	-	-
H	Hardened steel Закаленные стали	-	-	-	-	-	-	-

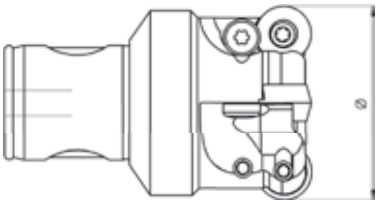
Recommended cutting conditions for milling
Рекомендуемые режимы резания для фрезерования

F-MHD' RD

RDHX

Ø	d
16	7.00
20	7.00
25	10.00
32	10.00

MHD' RD

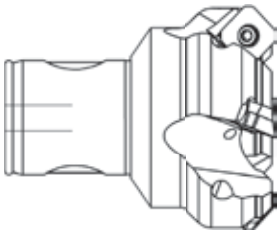


Ø	d
42	12.00
52	12.00
66	16.00

ISO		HB	fz = mm		Vc = m/min.			
					DP100 P		DP300 P	
			d = 7 - 10	d = 12 - 16	d = 7 - 10	d = 12 - 16	d = 7 - 10	d = 12 - 16
P	Unalloyed steel Нелегированные стали	125 - 300	0.10 - 0.35	0.15 - 0.50	290 - 240	280 - 240	325 - 255	265 - 225
	Low-alloyed steel Низколегированные стали	180 - 350	0.10 - 0.35	0.15 - 0.50	240 - 220	235 - 220	275 - 235	215 - 205
	Alloyed steel Легированные стали	200 - 325	0.10 - 0.35	0.15 - 0.50	220 - 190	210 - 190	255 - 205	195 - 175
M	Stainless steel Нержавеющие стали	180 - 230	0.10 - 0.35	0.15 - 0.50	170 - 110	165 - 110	195 - 120	155 - 105
K	Grey cast iron Серый чугун	180 - 260	0.10 - 0.35	0.15 - 0.50	275 - 230	265 - 230	305 - 240	250 - 200
	Nodular cast iron Высокопрочный чугун	160 - 250	0.10 - 0.35	0.15 - 0.50	225 - 210	215 - 200	255 - 220	200 - 180
	Malleable cast iron Ковкий чугун	130 - 230	0.10 - 0.35	0.15 - 0.50	205 - 180	195 - 180	235 - 190	180 - 165
N	Aluminium Алюминий	-	-	-	-	-	-	-
S	High-temperature alloys Жаропрочные сплавы	-	-	-	-	-	-	-
	Titanium alloys Титановые сплавы	-	-	-	-	-	-	-
H	Hardened steel Закаленные стали	-	-	-	-	-	-	-

Recommended cutting conditions for milling
Рекомендованные режимы резания для фрезерования

MHD' SE SEET

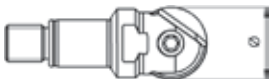


ISO		HB	fz = mm	Vc = m/min.	
				DP200 R	DP250 P
P	Unalloyed steel Нелегированные стали	125 - 300	0.17 - 0.40	235 - 205	230 - 190
	Low-alloyed steel Низколегированные стали	180 - 350	0.17 - 0.40	200 - 185	190 - 170
	Alloyed steel Легированные стали	200 - 325	0.17 - 0.40	180 - 155	170 - 150
M	Stainless steel Нержавеющие стали	180 - 230	0.17 - 0.40	140 - 90	135 - 90
K	Grey cast iron Серый чугун	180 - 260	0.17 - 0.40	220 - 185	215 - 180
	Nodular cast iron Высокопрочный чугун	160 - 250	0.17 - 0.40	185 - 165	180 - 160
	Malleable cast iron Ковкий чугун	130 - 230	0.17 - 0.40	165 - 145	160 - 140
N	Aluminium Алюминий	-	-	-	-
S	High-temperature alloys Жаропрочные сплавы	-	0.10 - 0.25	-	65 - 50
	Titanium alloys Титановые сплавы	-	0.10 - 0.25	-	45 - 30
H	Hardened steel Закаленные стали	-	0.10 - 0.25	45 - 30	45 - 30

Recommended cutting conditions for milling
Рекомендованные режимы резания для фрезерования

F-MHD' RA

RAD



Ø	d
16	16
20	20
25	25
32	32

ISO		HB	fz = mm				Vc = m/min.	
			d = 16	d = 20	d = 25	d = 32	DP100 P	DP300 P
P	Unalloyed steel Нелегированные стали	125 - 300	0.10 - 0.40	0.10 - 0.40	0.10 - 0.50	0.10 - 0.50	290 - 190	310 - 200
	Low-alloyed steel Низколегированные стали	180 - 350	0.10 - 0.40	0.10 - 0.40	0.10 - 0.50	0.10 - 0.50	250 - 170	260 - 180
	Alloyed steel Легированные стали	200 - 325	0.10 - 0.40	0.10 - 0.40	0.10 - 0.50	0.10 - 0.50	200 - 150	240 - 150
M	Stainless steel Нержавеющие стали	180 - 230	0.10 - 0.30	0.10 - 0.30	0.10 - 0.30	0.10 - 0.30	180 - 100	200 - 100
K	Grey cast iron Серый чугун	180 - 260	0.10 - 0.30	0.10 - 0.30	0.10 - 0.30	0.10 - 0.30	270 - 170	285 - 180
	Nodular cast iron Высокопрочный чугун	160 - 250	0.10 - 0.30	0.10 - 0.30	0.10 - 0.30	0.10 - 0.30	230 - 150	245 - 160
	Malleable cast iron Ковкий чугун	130 - 230	0.10 - 0.30	0.10 - 0.30	0.10 - 0.30	0.10 - 0.30	190 - 140	225 - 140
N	Aluminium Алюминий	-	-	-	-	-	-	-
S	High-temperature alloys Жаропрочные сплавы	-	-	-	-	-	-	-
	Titanium alloys Титановые сплавы	-	-	-	-	-	-	-
H	Hardened steel Закаленные стали							

General formulas | Основные формулы | Formule generali

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

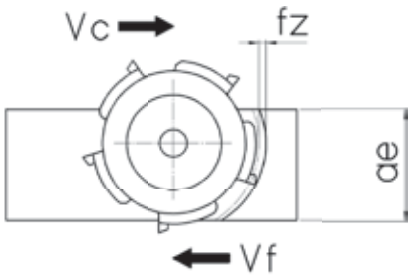
$$n = \frac{Vc \cdot 1000}{\pi \cdot D}$$

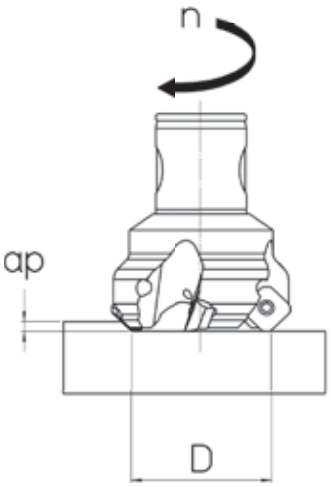
$$Vf = fz \cdot n \cdot z$$

$$fn = fz \cdot n$$

$$fz = \frac{Vf}{n \cdot z}$$

$$Q = \frac{ae \cdot ap \cdot Vf}{1000}$$





ae cutting-parting width (mm)
ширина врезания (мм)
larghezza della fresatura (mm)

ap depth of axial cutting (mm)
глубина врезания (мм)
profondità della fresatura (mm)

D milling diameter (mm)
диаметр фрезы (мм)
diametro della fresa (mm)

fn feed / rev. (mm/rev)
подача на оборот (мм/об.)
avanzamento al giro (mm/giro)

fz feed per tooth (mm/tooth)
подача на зуб (мм/зуб)
avanzamento al dente (mm/dente)

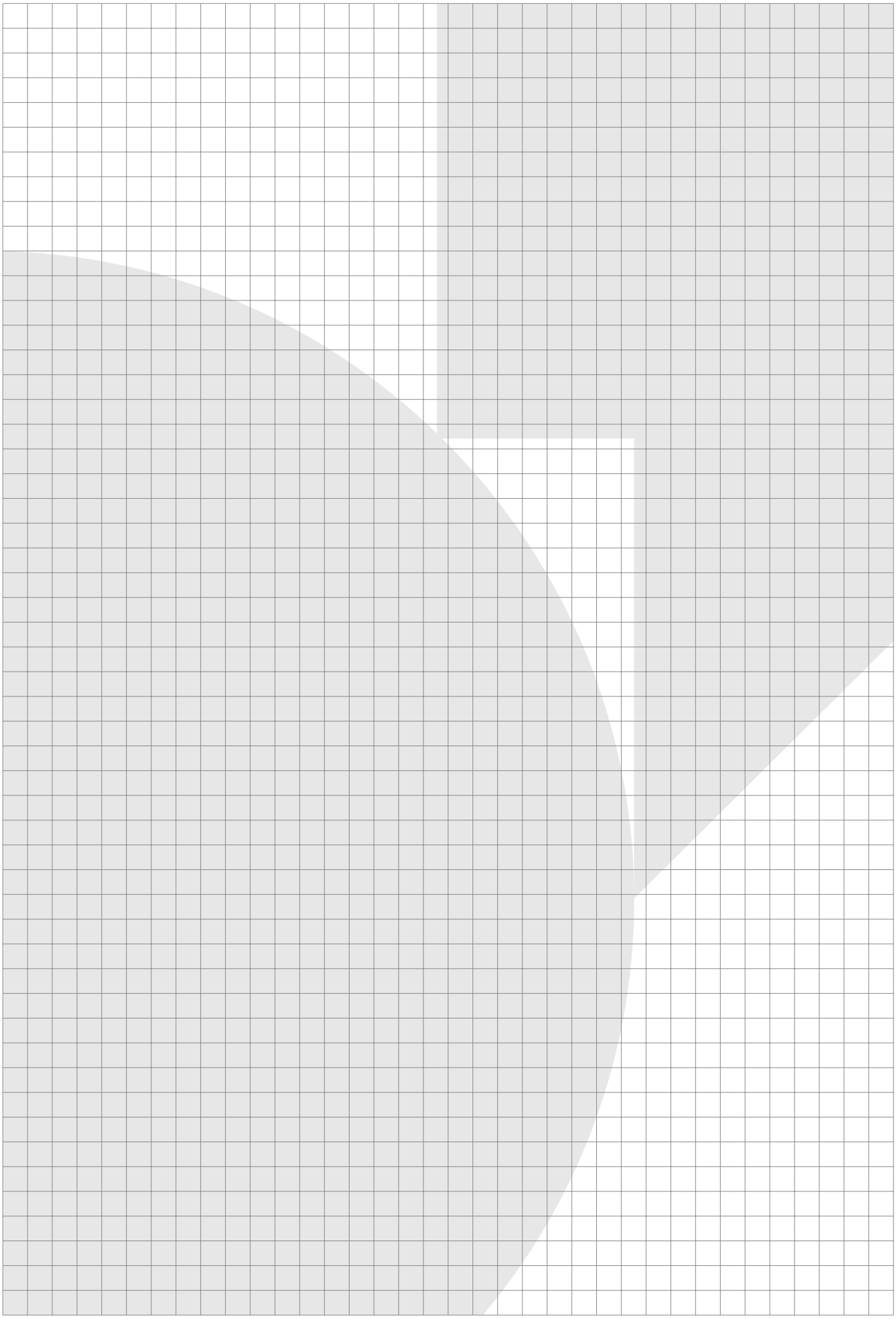
n number of revolutions / min' (giri/min)
число оборотов (об./мин)
numeri di giri al minuto (giri/min)

Q volume of chip removed (cm^3/min)
объем удаляемого материала ($см^3$/мин)
volume del truciolo asportato (cm^3/min)

Vc cutting speed (m/min.)
скорость резания (м/мин)
velocità di taglio (m/min.)

Vf feed rate (mm/min.)
подача (мм/мин)
velocità avanzamento (mm/min.)

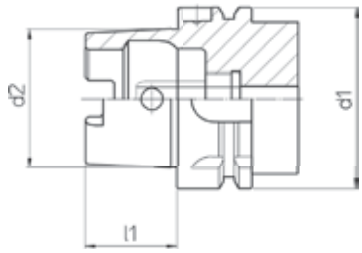
z number of teeth
количество зубьев
numero denti della fresa



DIN 69893

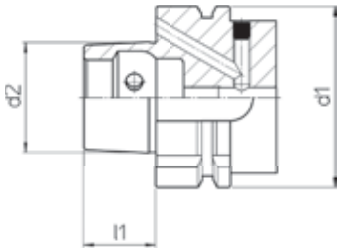
Arbors standards | Normen für Grundaufnahmen | Стандарты державок | Normes mandrins | Norme attacchi base

HSK-A



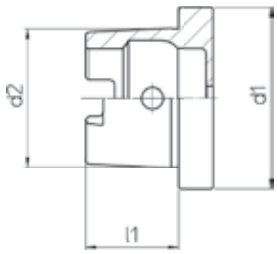
HSK-A	d_1	d_2	l_1
32	32	24	16
40	40	30	20
50	50	38	25
63	63	48	32
80	80	60	40
100	100	75	50

HSK-B



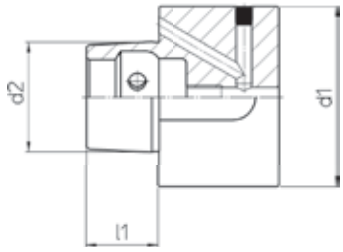
HSK-B	d_1	d_2	l_1
-	-	-	-
40	40	24	16
50	50	30	20
63	63	38	25
80	80	48	32
100	100	60	40

HSK-C



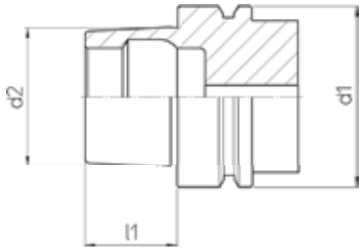
HSK-C	d_1	d_2	l_1
32	32	24	16
40	40	30	20
50	50	38	25
63	63	48	32
80	80	60	40
100	100	75	50

HSK-D



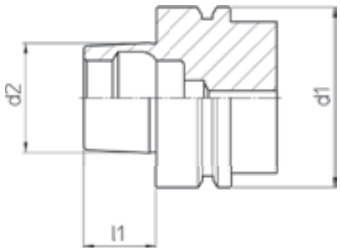
HSK-D	d_1	d_2	l_1
-	-	-	-
40	40	24	16
50	50	30	20
63	63	38	25
80	80	48	32
100	100	60	40

HSK-E



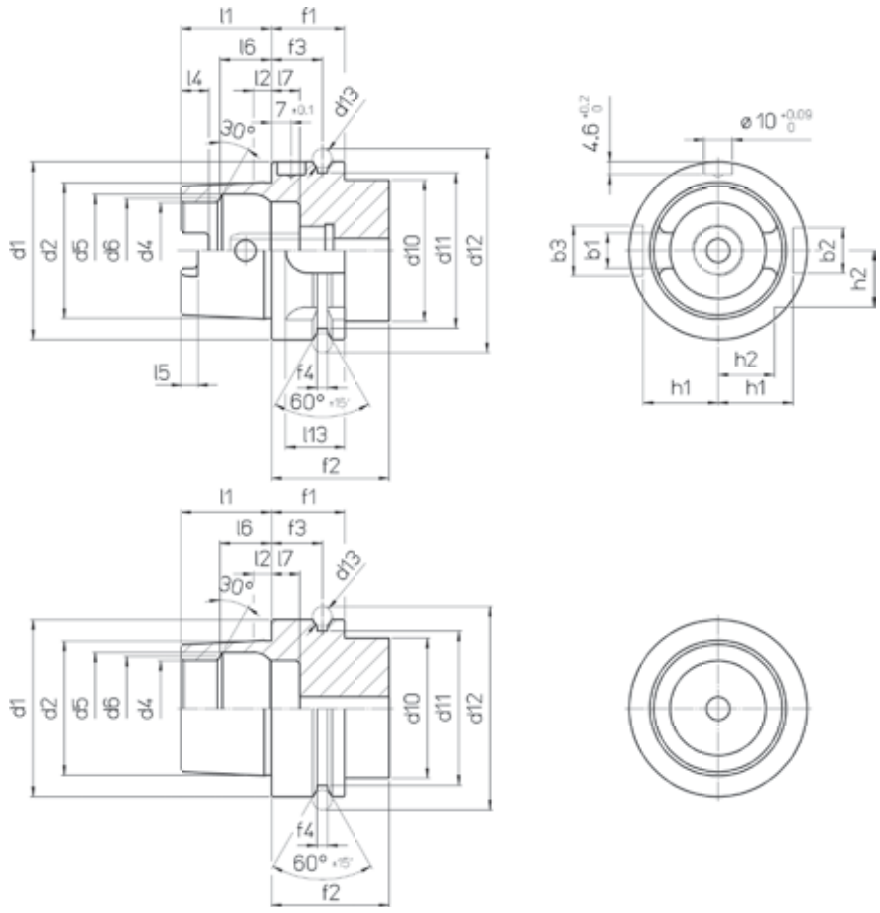
HSK-E	d_1	d_2	l_1
32	32	24	16
40	40	30	20
50	50	38	25
63	63	48	32
-	-	-	-

HSK-F



HSK-F	d_1	d_2	l_1
-	-	-	-
-	-	-	-
50	50	30	20
63	63	38	25
80	80	48	32

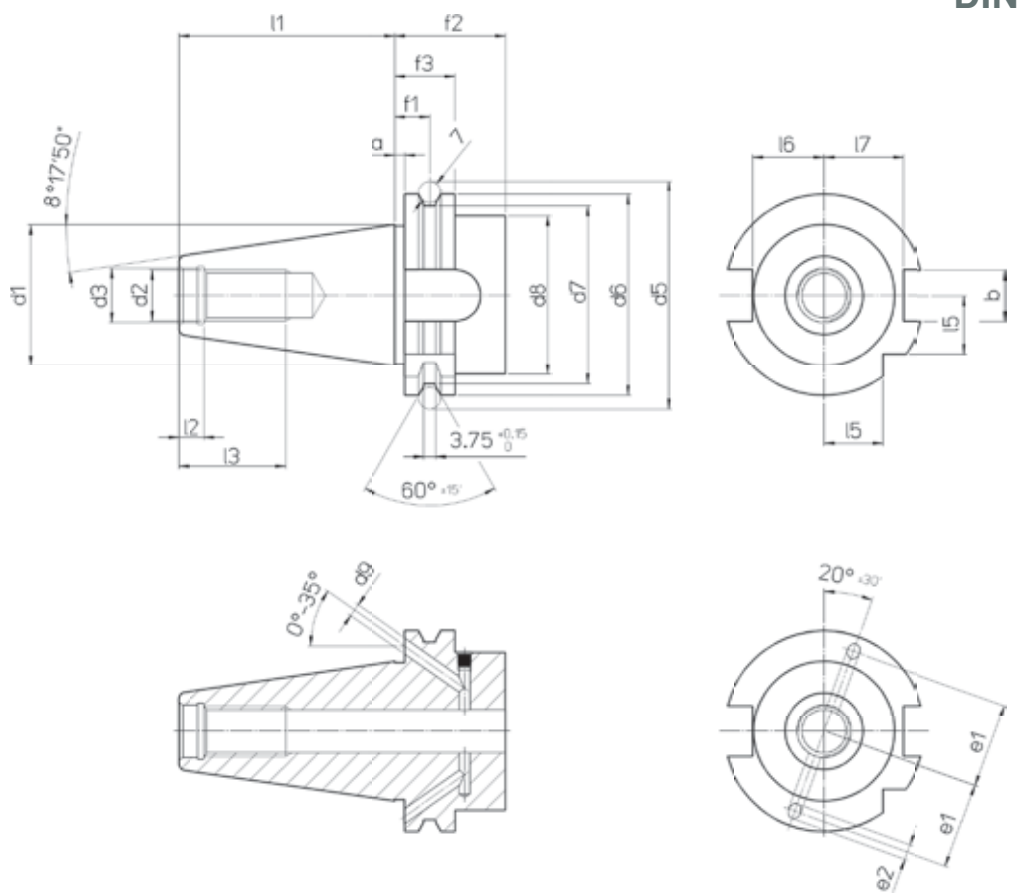
HSK-A
HSK-E



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 $^{0}_{-0.1}$	26.5	34.8	43	55	70	92
d12 $^{0}_{-0.1}$	37	45	59.3	72.3	88.8	109.75
d13	4	4	7	7	7	7
f1 $^{0}_{-0.1}$	20	20	26	26	26	29
f2 min.	35	35	42	42	42	45
f3 ± 0.1	16	16	18	18	18	20
f4 $^{+0.15}_{0}$	2	2	3.75	3.75	3.75	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	8	10	10	12.5	12.5
l13	12	12	19	21	22	24

DIN 69871

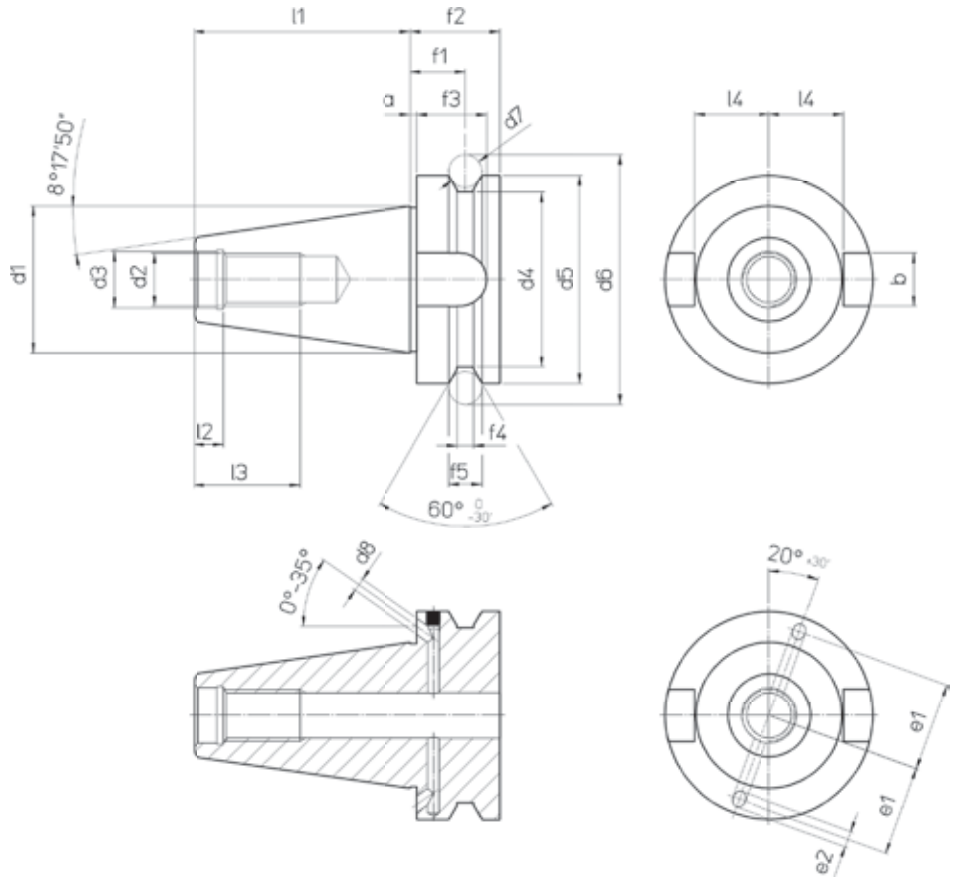
DIN 69871 A-B



ISO	30	40	45	50
a ±0.1	3.2	3.2	3.2	3.2
b H12	16.1	16.1	19.3	25.7
d1	31.75	44.45	57.15	69.85
d2	M12	M16	M20	M24
d3 H7	13	17	21	25
d5 ±0.05	59.3	72.3	91.35	107.25
d6 $^{0}_{-0.1}$	50	63.55	82.55	97.50
d7 $^{0}_{-0.5}$	44.3	56.25	75.25	91.25
d8 max.	45	50	63	80
d9	4	4	5	6
e1 ±0.1	21	27	35	42
e2 max.	5	5	6	7
f1 ±0.1	11.1	11.1	11.1	11.1
f2 min.	35	35	35	35
f3 $^{0}_{-0.1}$	19.1	19.1	19.1	19.1
l1 $^{0}_{-0.3}$	47.8	68.4	82.7	101.75
l2 $^{+0.5}_{0}$	5.5	8.2	10	11.5
l3 min.	24	32	40	47
l5 $^{0}_{-0.3}$	15	18.5	24	30
l6 $^{0}_{-0.4}$	16.4	22.8	29.1	35.5
l7 $^{0}_{-0.4}$	19	25	31.3	37.7

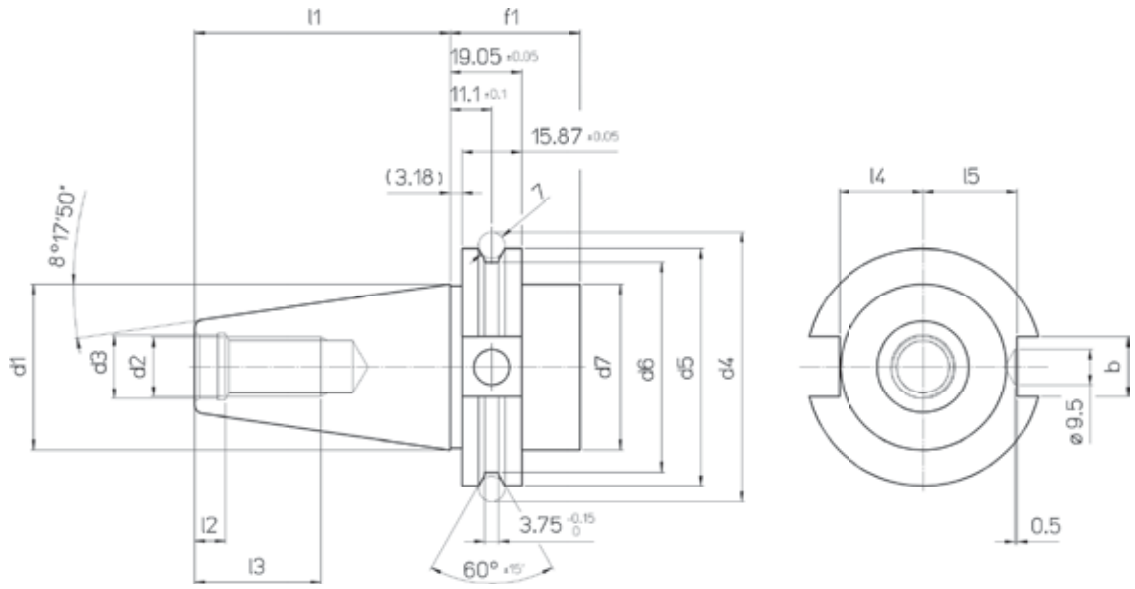
MAS 403 BT

MAS 403 BT A-B



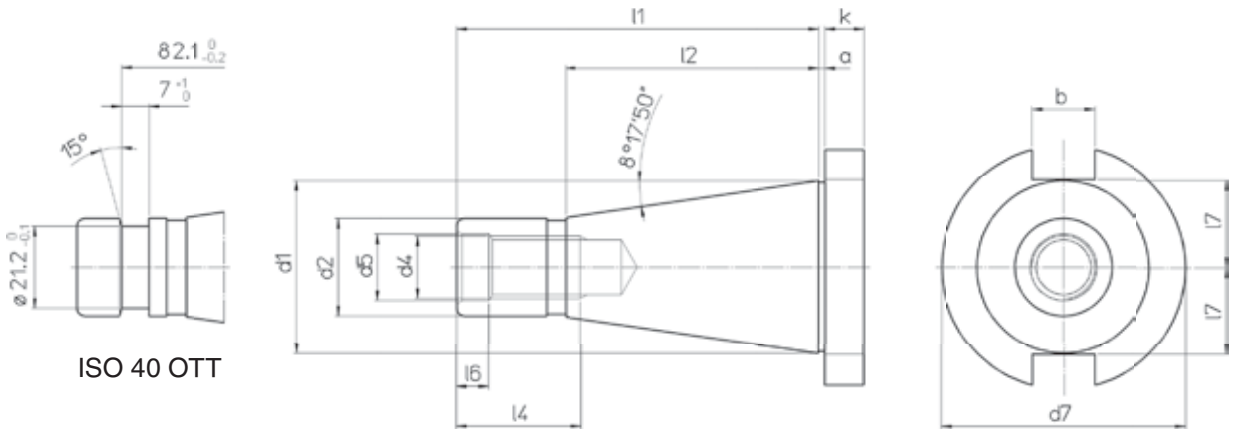
ISO	30	35	40	45	50
a ±0.4	2	2	2	3	3
b H12	16.1	16.1	16.1	19.3	25.7
d1	31.75	38.10	44.45	57.15	69.85
d2	M 12	M 12	M 16	M 20	M 24
d3 H8	12.5	12.5	17	21	25
d4	38	43	53	73	85
d5 H8	46	53	63	85	100
d6	56.144	65.680	75.679	100.215	119.019
d7	8	10	10	12	15
d8	4	4	4	5	6
e1 ±0.1	21	23	27	35	42
e2 max.	5	5	5	6	7
f1 ±0.1	13.6	14.6	16.6	21.2	23.2
f2	22	24	27	33	38
f3 min.	17	20	21	26	31
f4	4	5	5	6	7
f5 $^{+0.1}_{0}$	8	10	10	12	15
l1 ±0.2	48.4	56.4	65.4	82.8	101.8
l2 $^{+0.5}_{0}$	7	7	9	11	13
l3 min.	24	24	30	38	45
l4 $^{0}_{-0.2}$	16.3	19.6	22.6	29.1	35.4

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	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 $^{0}_{-0.4}$	26	32.5	40.40

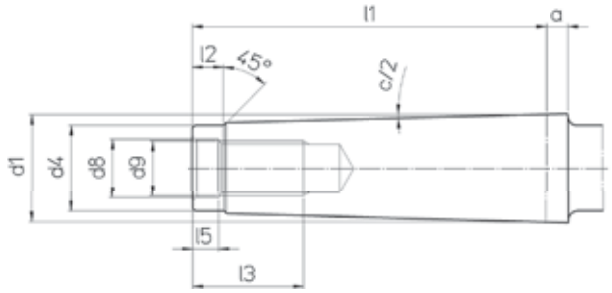
DIN 2080

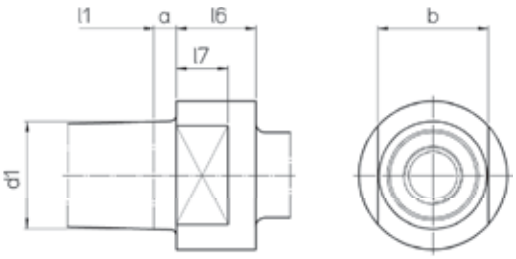


DIN 2080				
ISO	30	40	45	50
a ±0.2	1.6	1.6	3.2	3.2
b H12	16.1	16.1	19.3	25.7
d1	31.75	44.45	57.15	69.85
d2 a10	17.4	25.3	32.4	39.6
d4	M 12	M 16	M 20	M 24
d5	13	17	21	26
d7 0 −0.4	50	63	80	97.5
k ±0.15	8	10	12	12
l1	68.4	93.4	106.8	126.8
l2	48.4	65.4	82.8	101.8
l4	24	32	40	47
l6 +0.5 0	5.5	8.2	10	11.5
l7 max.	16.2	22.5	29	35.3

DIN 228/A

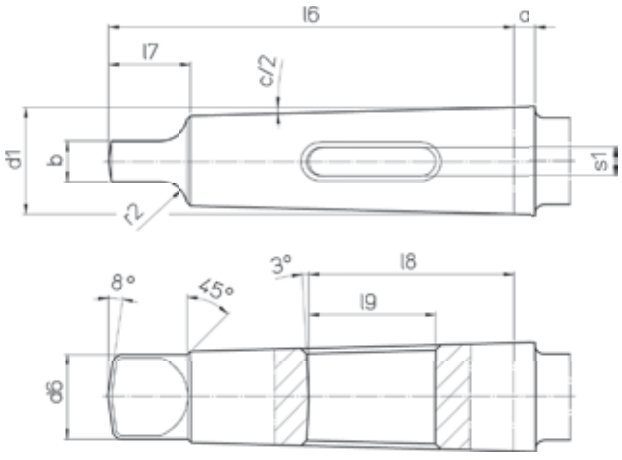
DIN 2207





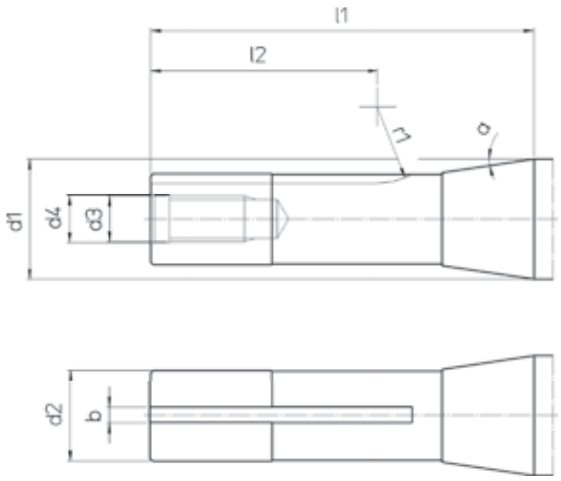
MORSE	4	4 SIP
a	6.5	6.5
b d9	32	32
c/2	1°29’15”	1°29’15”
d1	31.267	31.267
d4 max.	25	25
d8	17	17
d9	M 16	M 14
l1 max.	102.5	102.5
l2	9	9
l3 min.	32	45
l5 $^{+0.5}_{0}$	8.2	8.5
l6	15	15
l7	23	23

DIN 228/B DIN 1806



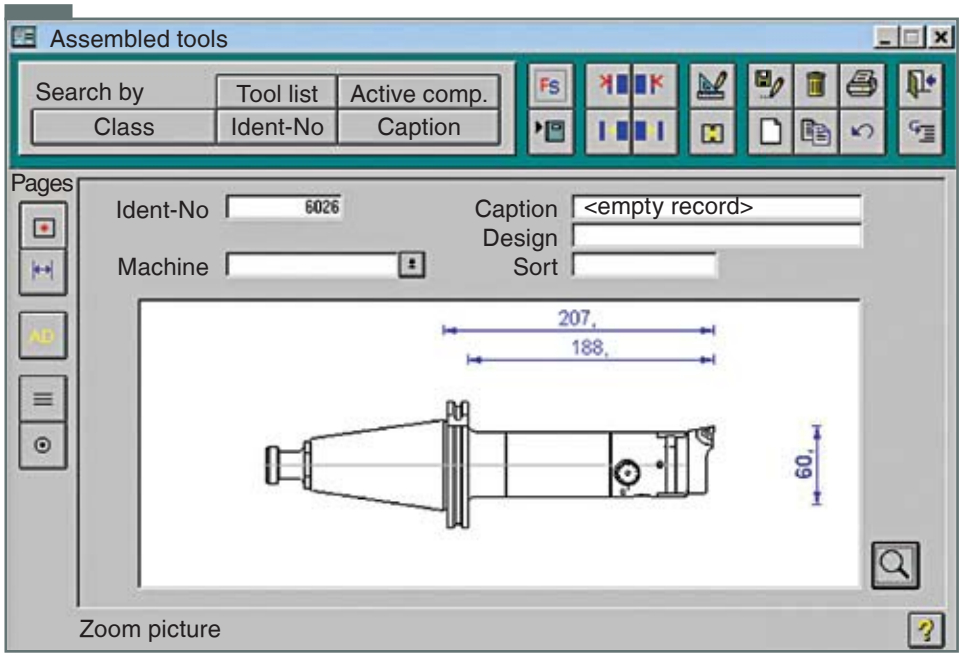
MORSE	4	5
a	6.5	6.5
b H13	11.9	15.9
c/2	1°29’15”	1°30’26”
d1	31.267	44.399
d6 max.	24.5	35.7
l6 $^{0}_{-1}$	117.5	149.5
l7 max.	24	29
l8	59.5	64
l9	37	42
r2	8	10
s1	8.3	12.4

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

WINTOOL



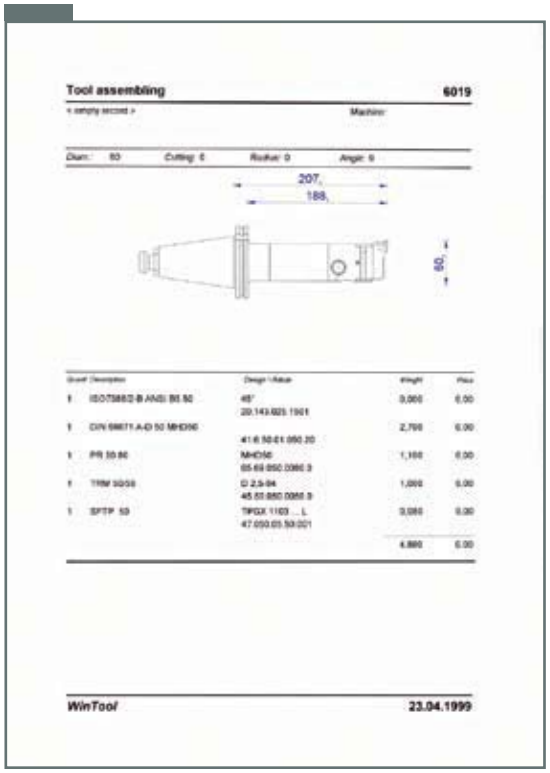
It allows to be graphically constructed in a short period of time, showing the complete composition of the MODULHARD'ANDREA tools, including dimensions, weight and the list of components.

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.

Программа позволяет за короткое время подобрать MODULHARD'ANDREA включая размеры, вес и список компонентов.

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.

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.


Tool assembling 6019

207,
188,
60,

WinTool 23.04.1999

01/2008
Cod. 18.10.41.001.001

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2008

New Line
D'ANDREA
HEADS

D'ANDREA®
TECHNOLOGY FOR HIGH PRECISION

CASTEL DEL GIUDICE, ISERNIA (ITALY)

LAINATE, MILANO (ITALY)

Technology for high precision

D'ANDREA is the Italian company, world leader in the manufacture of high precision machine tool accessories.
Known worldwide for the quality of its products, D'ANDREA has been developing increasingly effective technologies since 1951 , keeping pace with the modern demands of the mechanical industry.
The entire D'ANDREA range comes from the headquarters in Lainate, just outside Milan: SENSITIV T-TA, U-TRONIC, U-CENTER facing and boring heads and AUTORADIAL, the high precision modular toolholder system MODULHARD'ANDREA and toolholders system TOPRUN,MONOd', MONOforce, GRINTA and MCD'.
From here, thanks to a modern and efficient logistics system and a capillary, skilled distribution network, D'ANDREA products arrive in workshops throughout Italy and the world.
D'ANDREA vast range of heads and toolholders, available in different versions and sizes, is enhanced by attentive before- and after-sales service, always focused on meeting the specific technical and commercial needs of the customer.
The entire D'Andrea production, guaranteed by engineering, manufacturing and sales procedures in compliance with ISO 9001 standards, is accompanied by a training and information system that involves the user in every new feature.
Facing, boring, milling, tapping and drilling: D'ANDREA responds to any application requirement with high precision technology.

La tecnologia dell'alta precisione

D'ANDREA è l'azienda italiana leader mondiale nella produzione di accessori di alta precisione per macchine utensili.
Conosciuta in tutto il mondo per la qualità dei suoi prodotti, D'ANDREA è impegnata sin dal 1951 nello sviluppo di soluzioni tecnologiche sempre più efficaci, al passo con le moderne esigenze dell'industria meccanica.
Nella sede di Lainate, alle porte di Milano, nasce l'intera produzione D'ANDREA: le teste per sfacciare e alesare SENSITIV T-TA, U-TRONIC, U-CENTER e AUTORADIAL, il sistema modulare di portautensili di alta precisione MODULHARD'ANDREA e i sistemi di portautensili integrali TOPRUN, MONOd', MONOforce, GRINTA e MCD'.
Dallo stabilimento, grazie a un sistema logistico moderno ed efficiente e ad una rete di distribuzione diffusa e capillare, i prodotti D'ANDREA raggiungono le officine di ogni angolo d'Italia e del mondo.
L'ampia gamma di teste e portautensili D'ANDREA, disponibile secondo versioni e misure diverse, è integrata da un attento servizio pre e post vendita sempre orientato verso le specifiche esigenze tecniche e commerciali del cliente.
L'intera produzione D'Andrea, garantita da procedure di progettazione, fabbricazione e commercializzazione conformi alla norma ISO 9001, è accompagnata da un sistema di formazione e informazione che coinvolge l'utente in ogni novità.
Sfacciatura, alesatura, fresatura, maschiatura e foratura: ad ogni requisito applicativo risponde D'ANDREA con la tecnologia dell'alta precisione.

SINCERT
CERTO
UNI EN ISO 9001:2000
CERTIFICATO N°769

TA-SENSITIV
U-COMAX
TA-CENTER
TA-TRONIC
U-TRONIC

News 2008

D'ANDREA®

TECHNOLOGY

FOR HIGH PRECISION

U-TRONIC

U-CENTER

AUTORADIAL

SENSITIV

MCD'

GRINTA

MODULHARD'ANDREA

TOPRUN

MONOforce

MONOd'

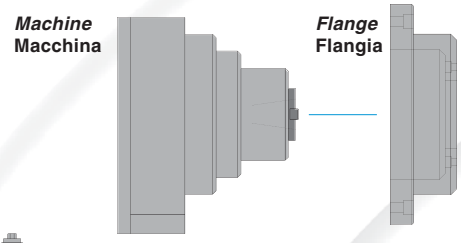
D'ANDREA *Family*

New Line HEADS

TA-SENSITIV
Ø max. 200

Boring and facing heads with manual regulation and automatic feed.

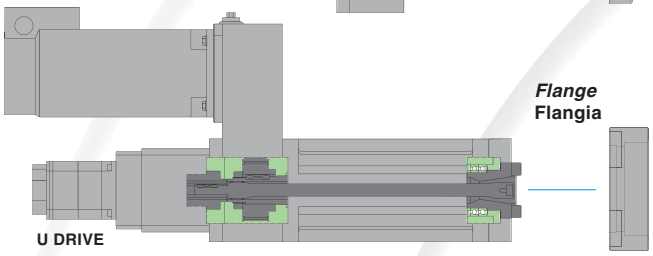
Teste per sfacciare ed alesare con regolazione manuale e avanzamento automatico.



U-COMAX
Ø max. 250

NC Boring and facing heads for Transfer machines and special machines.

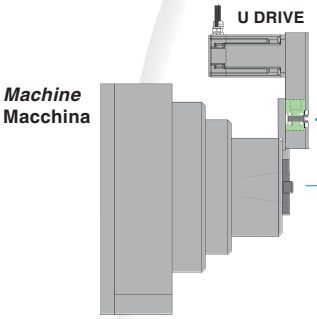
Teste per sfacciare ed alesare a controllo numerico per macchine transfer e unità speciali.



TA-CENTER
Ø max. 320

NC Boring and facing heads for machining centres and special machines.

Teste per sfacciare ed alesare a controllo numerico per centri di lavoro e macchine speciali.



TA-TRONIC
Ø max. 400

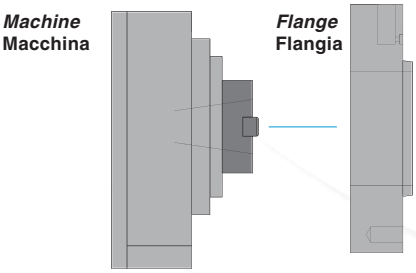
NC Boring and facing heads for machining centres and special machines with manual or automatic application.

Teste per sfacciare ed alesare a controllo numerico per centri di lavoro e macchine speciali, con applicazione manuale o automatica.

U-TRONIC
Ø max. 2000

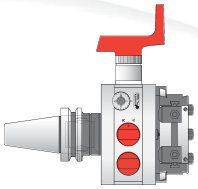
NC Boring and facing heads for boring machines, machining centres and special machines with manual, automatic, or palletized systems application.

Teste per sfacciare ed alesare a controllo numerico per alesatrici, centri di lavoro e macchine speciali, con applicazione manuale, automatica o con sistemi palettizzati.

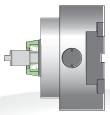


New Line HEADS

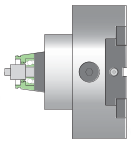
TA-S 120
Ø max 200



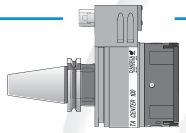
U-CX 125
Ø max 200



U-CX 160
Ø max 250



TA-C 100
Ø max 160



TA-C 125
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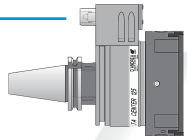

TA-C 160
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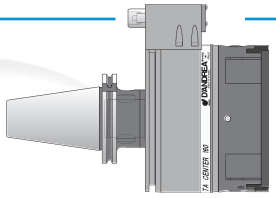
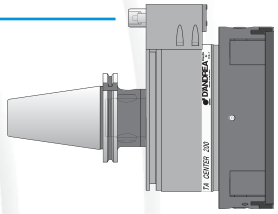
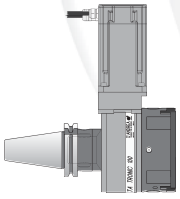


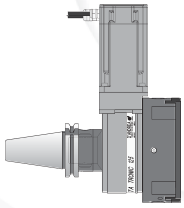
TA-C 200
Ø max 320



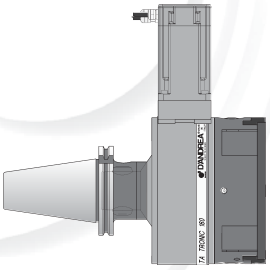
TA-T 100
Ø max 200



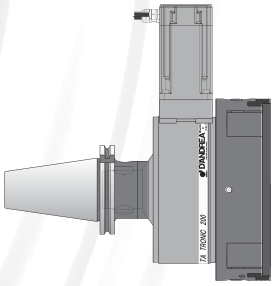
TA-T 125
Ø max 250



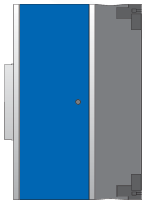
TA-T 160
Ø max 320



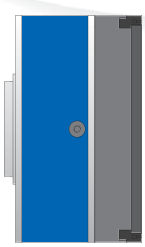
TA-T 200
Ø max 400



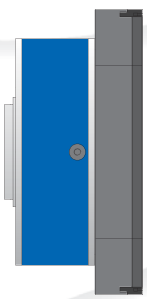
UT 3/360 S
Ø max 800



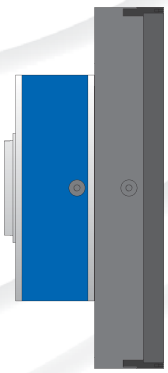
UT 5/500 S
Ø max 1000



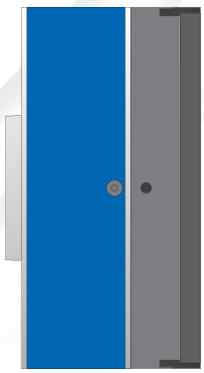
UT 5/630 S
Ø max 1250



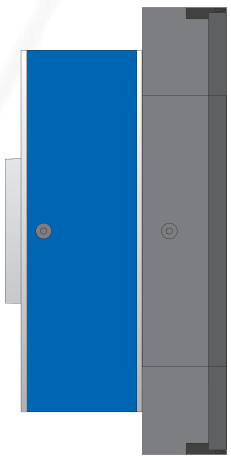
UT 5/800 S
Ø max 1400



UT 8/800 S
Ø max 1600



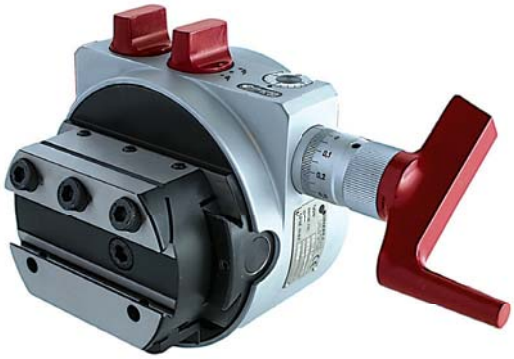
UT 8/1000 S
Ø max 2000

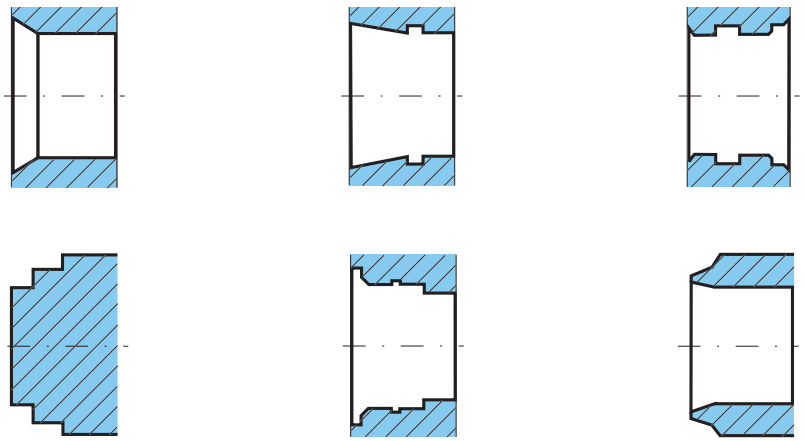


TA-SENSITIV 120

Facing and boring heads with automatic feed and return during the rotation of the machine spindle, for outer, inner, back-facing machining, cylindrical and conical boring, and internal and external grooving operations. These can be applied to milling machines, boring machines, jig boring machines, and radial drills with a taper attachment to the interchangeable machine. On the slide with a dovetail guide a wide range of tool holders may be used.

Testa per sfacciare ed alesare con avanzamento e ritorno automatico durante la rotazione del mandrino macchina, per lavorazioni di sfacciature esterne, interne e sottosquadra, alesature cilindriche e coniche, gole interne ed esterne.
Si applicano a fresatrici, alesatrici, tracciatrici e trapani radiali con cono di attacco alla macchina intercambiabile. Sulla slitta con guida a coda di rondine è applicabile una vasta gamma di portautensili.

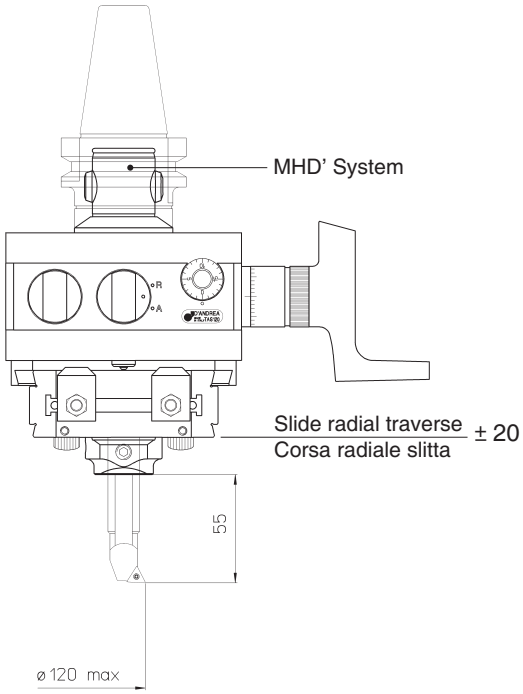


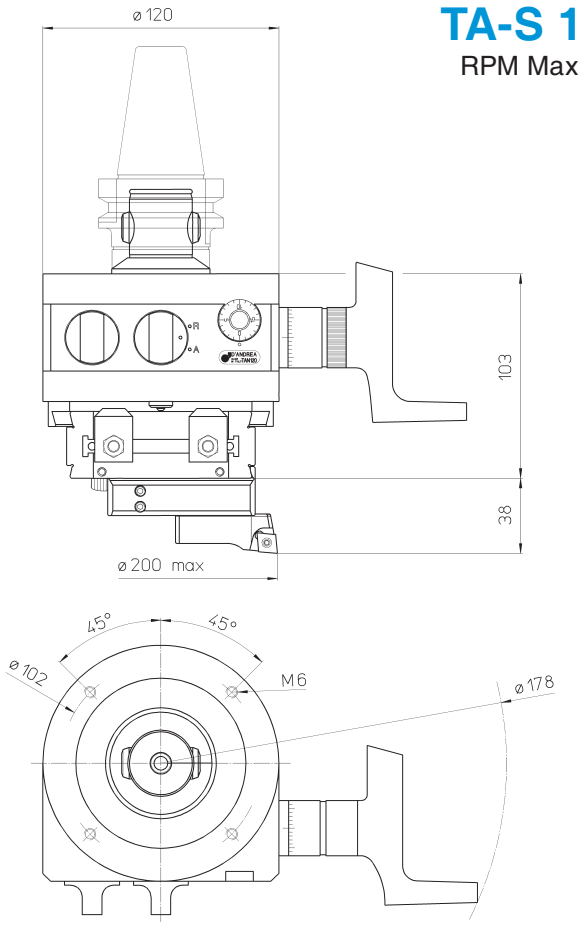


TA-SENSITIV 120

TA-S 120

RPM Max 800



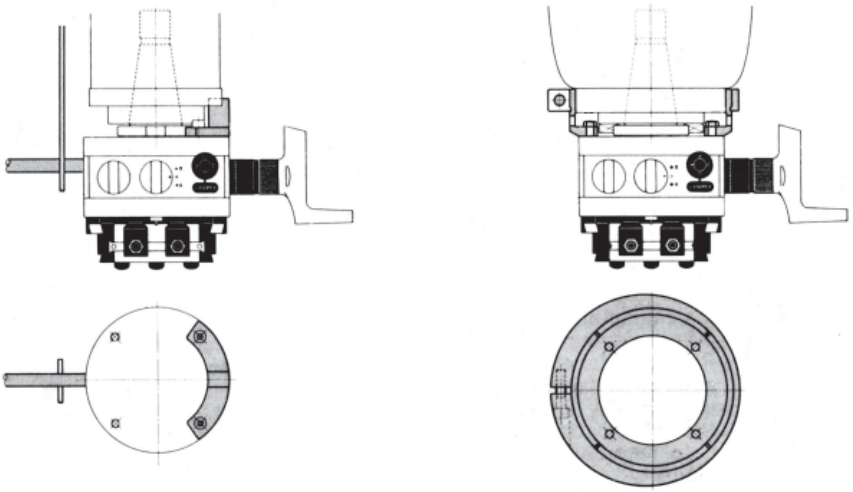


Assembly

Assembly calls for connecting to the spindle of the machine tool by means of a cone for rotation of the rotating head and a flange for fastening the fixed body on to the fixed part of the machine is provided for. For lighter tasks one may use a simple anti-rotation pin or a retaining rod that is blocked to the fixed part of the machine.
The flanges can be easily constructed by the client or by D'Andrea if required.

Applicazioni

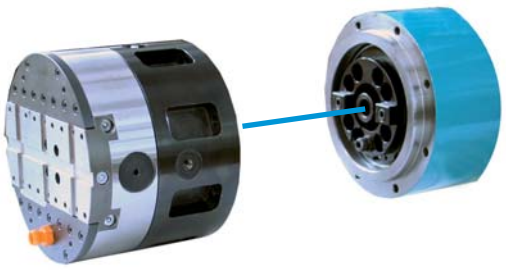
L'applicazione prevede il collegamento con il mandrino della macchina utensile mediante un cono per la rotazione del corpo rotante e una flangia per il fissaggio del corpo fisso sulla parte fissa della macchina. Per operazioni poco gravose è possibile usare un semplice perno di antirotazione o un asta di ritegno comunque bloccata alla parte fissa della macchina.
Le flangie possono essere facilmente costruite dal cliente o richieste alla D'Andrea.

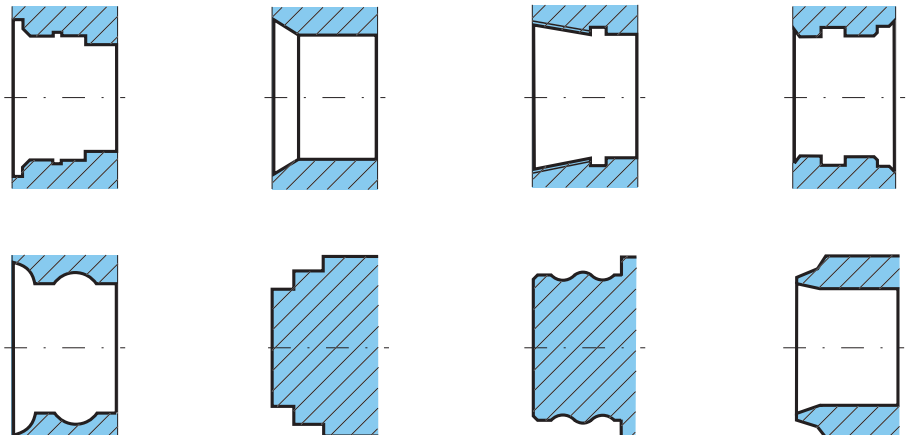


U-COMAX

U-Comax boring and facing heads are axial control heads designed to be used on transfer machines, machining units, and special machinery.
The feed control of the tool holder slide is commanded, also during rotation, by a U-Drive drive unit and is managed directly by the numerical control of the machine.
U-Comax heads are used for inner facing, outer facing, and back-facing machining, internal and external turning operations, grooves, complex profiles, cylindrical and conical threading, conical and variable boring, concave and convex radius machining, through the interpolation with the other axles of the machine.

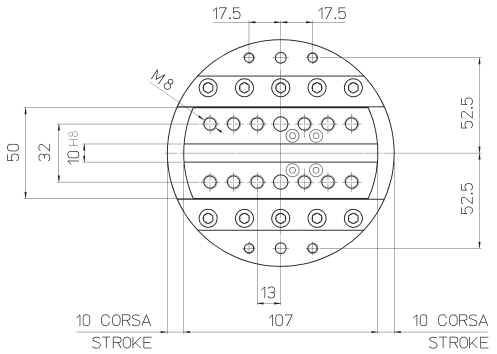
Le teste per alesare e sfacciare U-Comax sono teste a comando assiale destinate all'impiego su macchine transfer, unità operatrici e macchine speciali.
Il controllo dell'avanzamento della slitta portautensili anche durante la rotazione è comandato da un gruppo di motorizzazione U-Drive, gestito direttamente dal controllo numerico della macchina.
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, mediante interpolazione con gli altri assi della macchina.

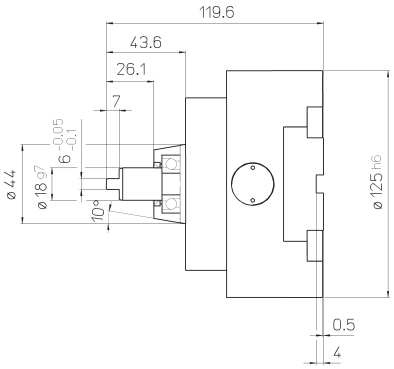




U-CX 125

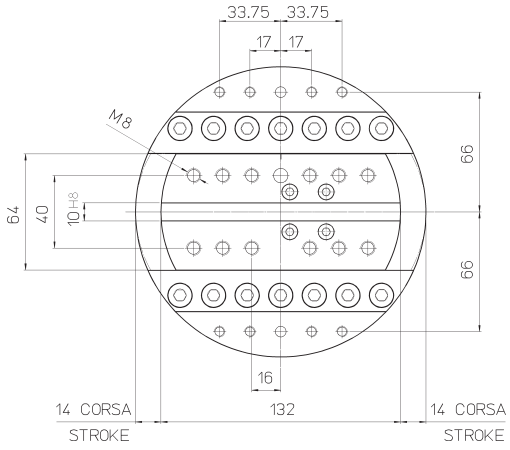
Ø max 200
RPM Max 2500

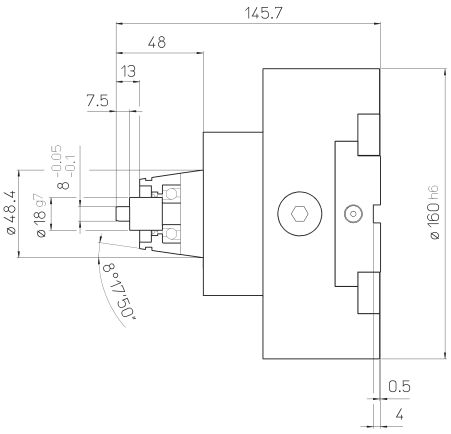




U-CX 160

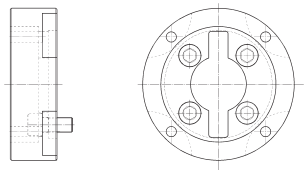
Ø max 250
RPM Max 2000





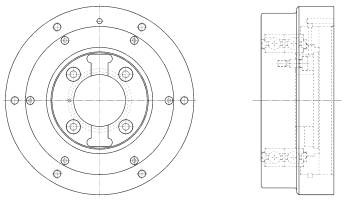
Adapter flange for the machine upon request.

Flangia di adattamento alla macchina a richiesta



Flange with a bearing adapter for the machine upon request.

Flangia con cuscinetto di adattamento alla macchina a richiesta



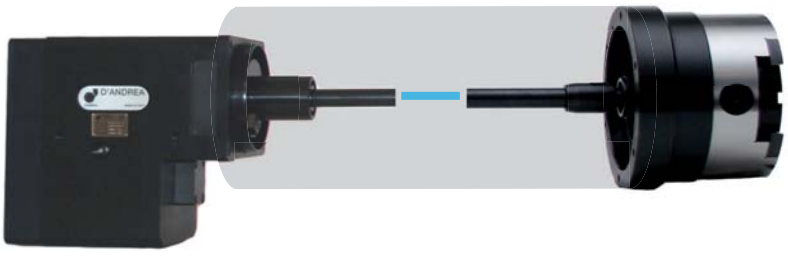
U-Drive

The U-Drive drive unit for U-Comax heads is mounted behind the spindle of the machine. It is controlled by an axle of the numeric 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.

U-Drive

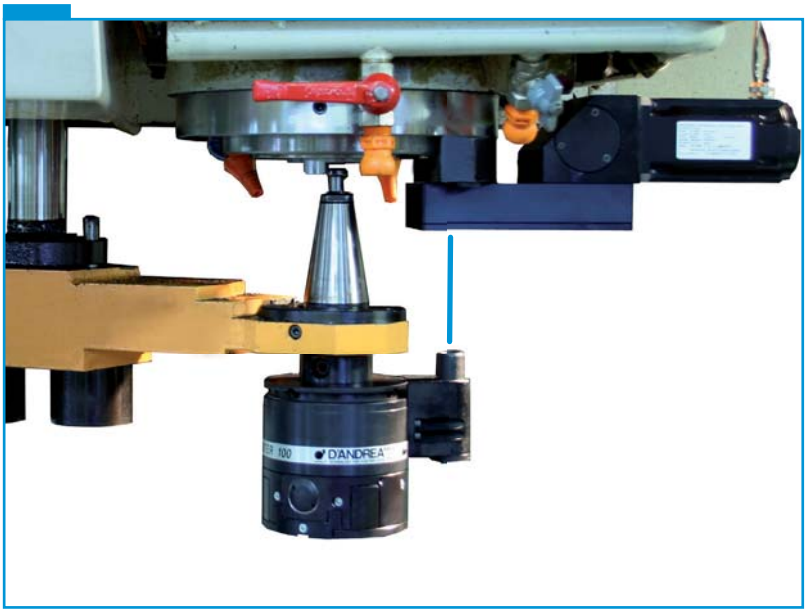
La motorizzazione U-Drive per le teste U-Comax viene montata posteriormente al mandrino della macchina, viene gestito da un asse del controllo numerico e collegata meccanicamente alla presa di moto della teste U-Comax con un albero di trasmissione che attraversa il mandrino della macchina stessa.
La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

U-DRIVE



U-CX

TA-CENTER



TA-CENTER boring and facing heads are made to be used on automatic tool changers, and therefore on just about all machining centres. The feed rate, the tool holder slide and the tool positioner controls are controlled, even during rotation, by a U-DRIVE drive unit.
This unit is managed directly by an axle called "U" by the numeric control of the machining centre. A machining centre arranged in this way permits various machining solutions like inner and outer turning operations, grooves, conical and variable boring, concave and convex radius machining, cylindrical and conical threading, complex profiles, etc.

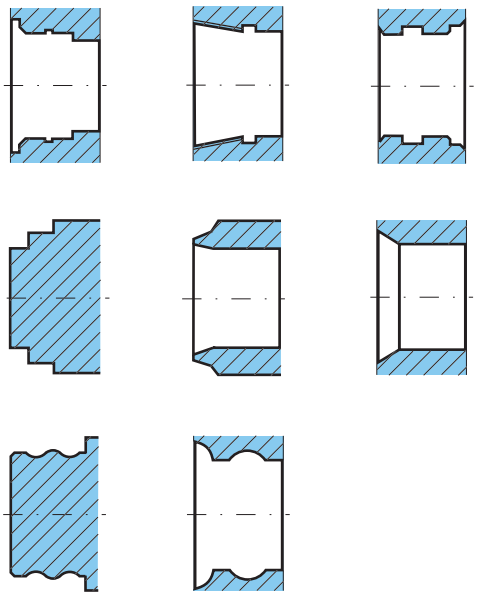
Balancing

TA- CENTER heads have been designed with two counter-weights for automatic balancing.

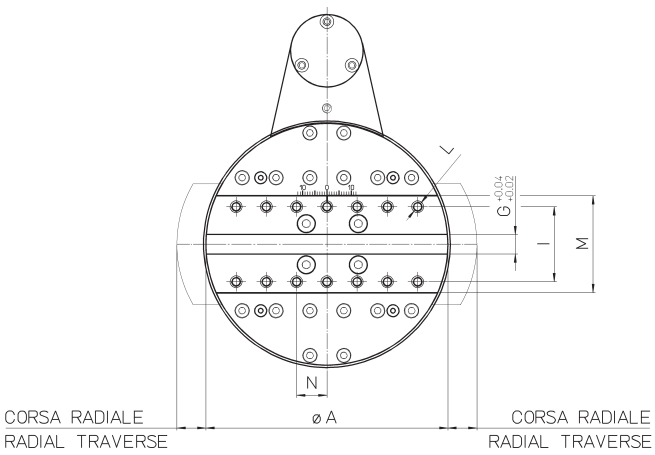
Le teste per alesare e sfacciare TA-CENTER nascono per essere impiegate su macchine con cambio utensili automatico, dunque essenzialmente su tutti i centri di lavoro. Il controllo dell'avanzamento, della slitta portautensili e della posizione utensile, anche durante la rotazione, è comandato da un gruppo 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 ecc.

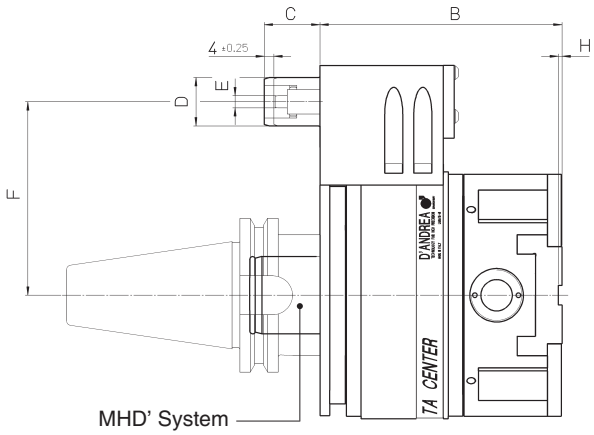
Bilanciatura

Le teste TA-CENTER sono state progettate con due contrappesi per il bilanciamento automatico.



TA-CENTER





Technical Data	Dati Tecnici	TA-C 100	TA-C 125	TA-C 160	TA-C 200
A	A	100	125	160	200
B	B	100	105	136	140
C	C	19	19	19	19
D	D	20	20	20	20
E	E	5	5	5	5
F	F	80/110	80/110	110	110
G	G	8	8	10	10
H	H	1.5	1.5	2	2
I	I	31	31	40	40
L	L	M 4	M 4	M 5	M 5
M	M	40	40	56	56
N	N	12.5	12.5	12.5	12.5
Ø max.		160	200	250	320
MHD' System		50		80	
Radial traverse	Corsa radiale	± 12	± 20	± 25	± 35
RPM Max.		2000	1800	1600	1400
Weight with shank	Peso con Cono	Kg. 6	Kg. 8	Kg. 18.5	Kg. 23.5

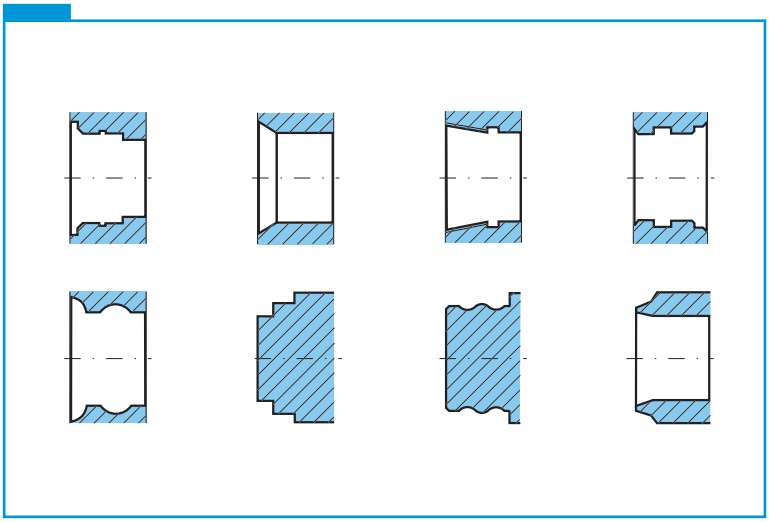
U-Drive

U-DRIVE must be mounted on the machining centre in a suitable position that will guarantee a mechanic connection with the TA-CENTER head.
A motor and a mechanical unit are included for an automatic hook up to the TA-CENTER drive.

U-Drive

La U-DRIVE deve essere montata sul centro di lavoro in una posizione adeguata in modo da assicurare il collegamento meccanico con la testa TA-CENTER.
Essa comprende un motore ed un gruppo meccanico per l'aggancio automatico alla presa di moto della TA-CENTER.

TA-TRONIC



TA-Tronic boring and facing heads can be applied manually or automatically 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.

Control Unit

Two possibilities are available for the control unit of the TA-Tronic head:
- The first possibility provides for a direct connection to the U axis of the NC in the tooling machine which allows for boring machining, inner facing, outer facing, back –facing, grooving, complex profiles, threading and taper boring, taper and variable boring, concave and convex radius machining through the interpolation with the other axles.
- The second possibility is with a simple positioner that can be connected to the M function of the machine to receive signals directly from the CNC. It consists of a compact portable unit containing the drive and wireless U-Control control unit which is connected to the drive using wireless technology.
This solution allows for boring machining, inner facing, outer facing, back-facing, inner and outer turning operations, grooves, complex profiles, threading, and taper boring.

Balancing

TA- TRONIC heads have been designed with two counter-weights for automatic balancing.

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 di antirotazione.

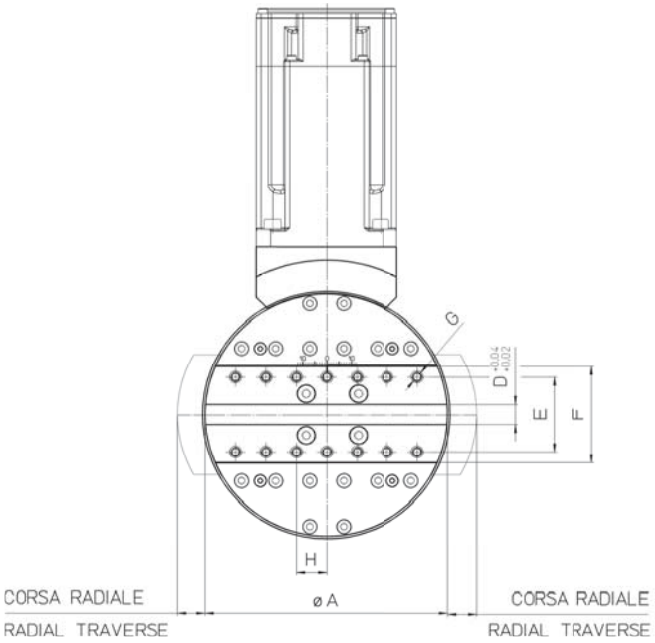
Comando

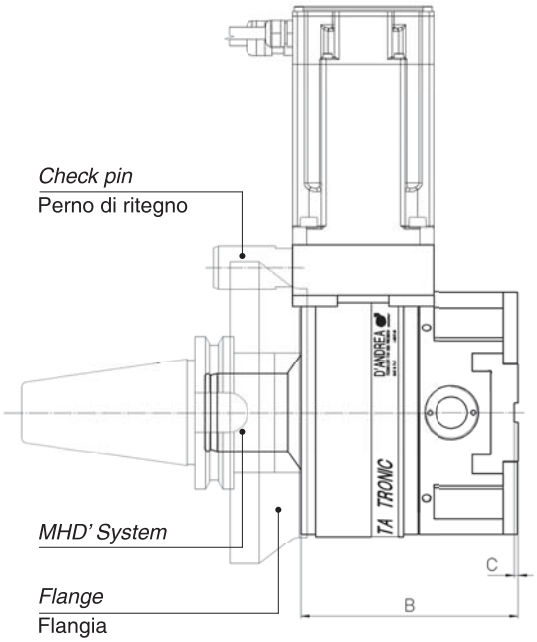
Per il comando delle teste TA-Tronic esistono due possibilità:
- La prima prevede il collegamento diretto all'asse U del controllo numerico della macchina utensile che permette lavorazioni di alesatura, sfacciatura interna, esterna e sottosquadra, tornitura interna ed esterna, canalini, spirali fonografiche, filettature e alesature coniche, alesature coniche anche variabili, raggiature concave e convesse mediante l'interpolazione con gli altri assi.
- La seconda con un semplice posizionatore che può essere collegato alle funzioni M della macchina per ricevere segnali direttamente dal CNC, composto da un modulo portatile molto compatto contenente l'azionamento e da un unità di comando U-Control senza cavi, collegata all'azionamento tramite la tecnologia wireless.
Questa soluzione permette lavorazioni di alesatura, sfacciatura interna, esterna e sottosquadra, tornitura interna ed esterna, canalini, spirali fonografiche, filettature e alesature coniche.

Bilanciatura

Le teste TA-TRONIC sono state progettate con due contrappesi per il bilanciamento automatico.

TA-TRONIC





Technical Data	Dati Tecnici	TA-T 100	TA-T 125	TA-T 160	TA-T 200
A	A	100	125	160	200
B	B	89	94	125	129
C	C	1.5	1.5	2	2
D	D	8	8	10	10
E	E	31	31	40	40
F	F	40	40	56	56
G	G	M 4	M 4	M 5	M 5
H	H	12.5	12.5	12.5	12.5
Ø max.		200	250	320	400
MHD' System		50		80	
Radial traverse	Corsa radiale	± 12	± 20	± 25	± 35
RPM Max		2000	1800	1600	1400
Weight with shank	Peso con Cono	Kg. 7.5	Kg. 9.5	Kg. 20	Kg. 25

Wireless Control

Where it is impossible to connect the TA-Tronic to the CNC of the tooling machine, D'Andrea can provide a simple and pratical wireless U-Control positioner that can be easily programmed and connected to the tooling machine by the client.

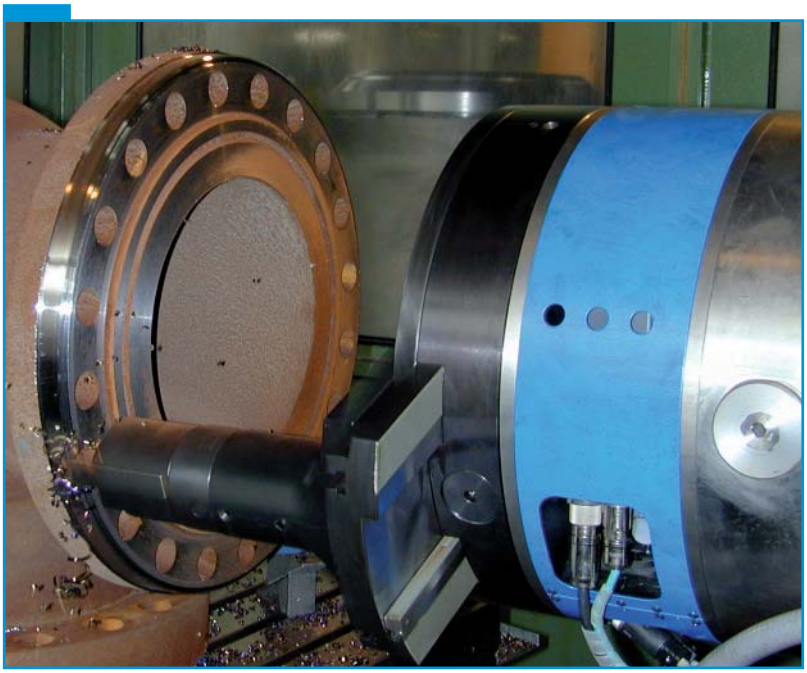
Comando Wireless

Dove non è possibile l'applicazione della TA-Tronic con collegamento al CNC della macchina utensile, D'Andrea ha previsto un pratico e semplice posizionatore U-Control senza cavi con comando wireless che può essere usato e programmato in modo estremamente facile direttamente dal cliente.

TA-T

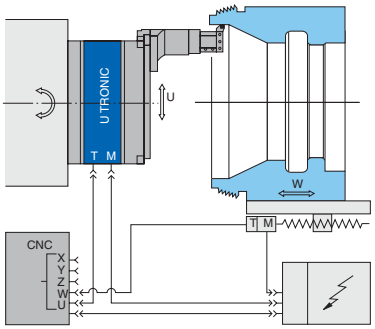
Remote Control

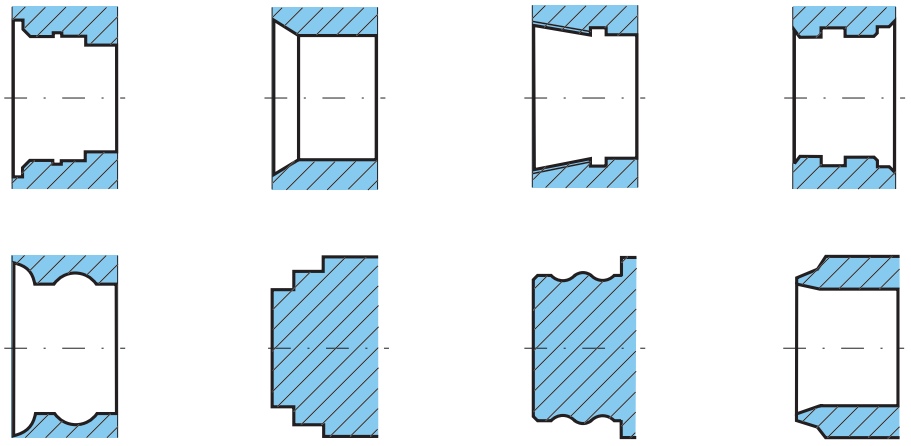
U-TRONIC



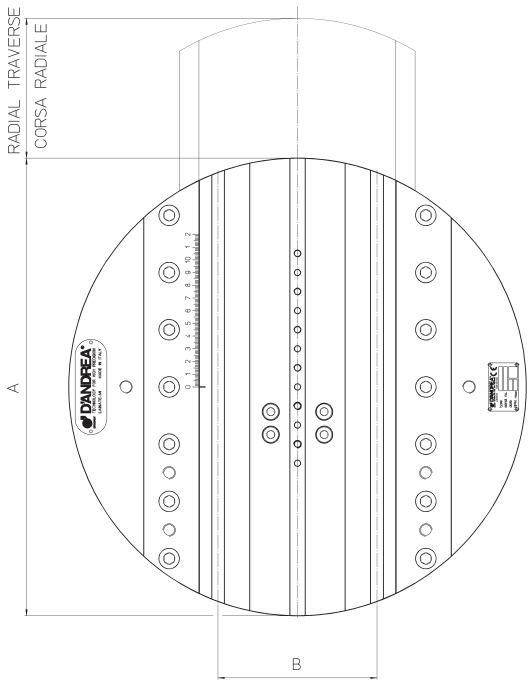
U-TRONIC are medium and large sized CN heads that are connected to the U axis of the CNC in the tooling machine for outer facing, inner facing, back-facing, cylindrical and conical boring and threading, concave and convex radius machining through the interpolation with the other axles of the tooling 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 models from ø 360 to 1000 mm. All these include an internal passage for coolant. Special versions of U-TRONIC, 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.

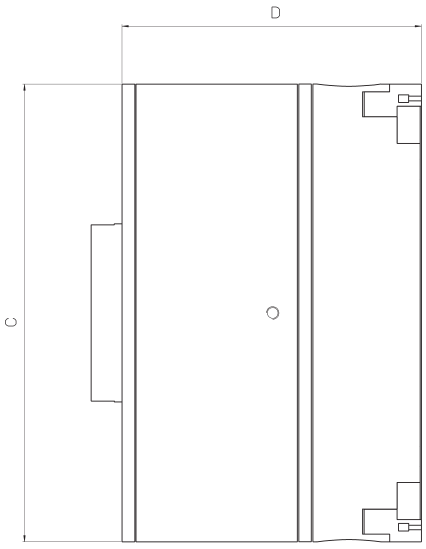
Le U-TRONIC sono teste a CN di medie e grandi dimensioni che si collegano all'asse U del CNC della macchina utensile per lavorazioni di sfacciature esterne, interne e sottosquadra, alesature e filettature cilindriche e coniche, raggiature concave e convesse, mediante l'interpolazione con gli altri assi della macchina utensile.
Si applicano manualmente, automaticamente e con sistemi pallettizzati su alesatrici, centri di lavoro e macchine speciali.
Sono costruite in 6 modelli da Ø 360 a 1000 mm tutte con passaggio interno del liquido refrigerante.
U-TRONIC in versioni speciali, 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.





U-TRONIC





Technical Data	Dati Tecnici	UT 3/360S	UT 5/500S	UT 5/630S	UT 5/800S	UT 8/800S	UT 8/1000S
A	A	360	500	630	800	800	1000
B	B	125	160	160	200	200	200
C	C	360	500	500	500	800	800
D	D	235	278.5	278.5	370	400	412.5
Ø max.		800	1000	1250	1400	1600	2000
Radial traverse	Corsa radiale	120	160	200	250	280	350
RPM Max		500	315	250	200	200	160
Weight	Peso	160	230	350	600	1200	1500

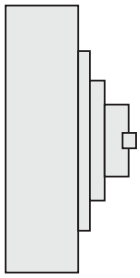
Control

The other U-TRONIC, fitted with rotation plate in place of the taper, are applied:
a. manually, with a camlock flange for quick fastening
b. automatically with palletized systems and special connectors.

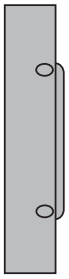
Applicazioni

Le U-TRONIC con sedi di chiavette per il trascinamento (o rotazione) si applicano:
a. manualmente mediante una flangia camlock
b. automaticamente con sistemi pallettizzati e appositi connettori.

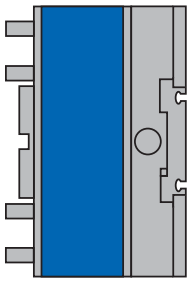
Machine
Macchina



Flange
Flangia



U TRONIC



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