BAH

TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3

TÜV SÜD ISO 9001

DMG TESTE MULTIPLE

Made in Italy

Sistemi di foratura

L'azienda O.M.G. Srl e lieta di presentare in questa unica soluzione grafica tutti i suoi prodotti, interamente progettati e costruiti al suo interno.
Chi ci concsce da un po' di tempo avra' potuto notare l'evoluzione tecnica e strutturale di cui l'azienda è protagonista.

La nostra gamma di prodotti si è ampliata e migliorata:
- **serie TA,** teste ad angolo
- **serie MO,** moltiplicatori di giri
- **serie HT,** torrette a revolver
- **serie VH,** teste multiple ad interassi variabili
- **serie TSI-TSX,** teste multiple per spuntatura ingranaggi
- **serie T,** teste multiple a giunti universali

e dove i prodotti di serie non arrivano, le esecuzioni speciali serie **MT, TC, TC3, TFS** ogni volta studiate e personalizzate renderanno possibili le più svariate applicazioni.
La sfida più recente per OMG risponde al nome di **BAH**, teste ad angolo per grosse asportazioni. Con il lancio di questa nuova serie l'azienda si affaccia nel mondo in piena propulsione della grande industria militare, navale, aerospaziale, ecc.
È una dichiarazione d'intenti, l'esplicitazione della nostra mission: creatività e consulenza tecnica al servizio del cliente per aiutarlo a migliorare la propria produttività, affidabilità del servizio pre e post vendita con la garanzia di un'assistenza tempestiva e una sempre maggiore puntualità nelle consegne.
Ringraziamo con l'occasione tutti i clienti che hanno scelto i prodotti O.M.G., contribuendo così all'evoluzione degli stessi; un gradito benvenuto a tutti quelli che si rivolgeranno con fiducia a O.M.G., certi di avere un'azienda attenta alle singole esigenze e partecipe nelle più diverse attività produttive.

Un po' di storia.
L'azienda O.M.G. nasce negli anni '6O come laboratorio di piccole dimensioni specializzato nella progettazione e fabbricazione di teste multiple. La produzione era indirizzata, allora, verso tre prodotti: mandrini a maschiare, teste multiple a giunti universali e teste multiple ad assi variabili.
In seguito, sintonizzandosi con la grande evoluzione dell'industria metalmeccanica, anche l'azienda O.M.G. cresce e si sviluppa, partecipando alla diffusione di nuovi prodotti con le proposte più innovative e d'avanguardia in questo settore di ricerca e produzione.
Le tecnologie d'avanguardia nei processi produttivi e l'impiego di nuove tecniche computerizzate firmano la notorietà e l'immagine del marchio O.M.G.; un nome diffuso e conosciuto da tutte le aziende, piccole e grandi, un'immagine mai smentita ma sottolineata nelle numerose campagne pubblicitarie realizzate.

Ringraziamo per l'attenzione,
O.M.G. Srl

O.M.G. Srl is pleased to present, in a single graphic solution, its entire range of products, all designed and built inside its production facility.
Those of you who have known us for some time will be well aware of the technical and organizational evolution that distinguishes our company.

Our range of products has been extended and upgraded:

- **series TA,** angle heads
- **series MO,** spindle speeders
- **series HT** revolver turret heads
- **series VH,** variable centre distance multispindle heads
- **series TSI-TSX,** gear chamfering multispindle heads
- **series T,** universal joint multispindle heads

and where standard products are not enough, we can also offer a range of special products series **MT, TC, TC3, TFS** purposely designed and customized for various types of applications.

The most recent challenge of O.M.G. is named **"BAH"**, angle angle heads for big machine tools. With the launch of this new series we strongly break into the big industry applications such as naval, aerospace, military etc.
Our mission involves a declaration of intent: creativity and technical advice at the service of customers to enable them to upgrade their output and their before and after-sales service reliability through prompt assistance and increasingly more punctual delivery.
Allow us to take this opportunity to thank all those customers who have chosen O.M.G. products, thereby contributing to their evolution; a warm welcome too to those who turn with confidence to O.M.G. , a company that caters for individual requirements and is involved in a range of different manufacturing activities.

O.M.G. history
O.M.G. was established in the 1960s as a small workshop specialised in designing and manufacturing multispindle heads. At that time, production centred on three products: tapping spindles, adjustable joint multispindle heads and variable centre distance multispindle heads.
Later on, in line with the evolution of the mechanical engineering industry, O.M.G. expanded and developed, taking part in the diffusion of new products with innovative and cutting-edge proposals for this research and production sector.
The cutting-edge technologies employed inthe manufacturing processes and the use of new computerised methods resulted inthe O.M.G. brand name and image becoming widely known to small and large companies alike, an image sustained by a long series of advertising campaigns.

Thank you for your attention,
O.M.G. Srl

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serie BAH

The Big Technology for the Big Industry

Le teste ad angolo qui esposte, sono state progettate e costruite per soddisfare le esigenze di equipaggiamento di macchine utensili di grandi dimensioni utilizzate in diversi settori:
Trasporto Pesante, Aeronautico, Navale, Militare, Ferroviario, Energetico, Stampi, Automotive.
Costruire queste tipologie di prodotti significa avere capacità progettuali, approfondita conoscenza del prodotto stesso e relative problematiche, capacità di investimento, macchine utensili e attrezzature dedicate, personale altamente qualificato.
La tecnologia applicata, i materiali, i componenti, il montaggio sono ai massimi livelli ed i collaudi statici e dinamici certificati garantiscono nel tempo le migliori performance. Sono solitamente prodotti speciali studiati su esigenze del produttore di macchine utensili o per retrofitting di macchine utensili già operativi nei settori di competenza.
Le caratteristiche principali di questi prodotti, si possono così sinteticamente riassumere:

- corpo in fusione di ghisa o ricavato dal pieno per ottenere la massima precisione e stabilità
- la trasmissione del moto è con ingranaggi Gleason ad evolvente rettificato. Normalmente il rapporto di trasmissione è 1:1, ma può essere sia in moltiplica che in riduzione a seconda delle esigenze di trasmissione di coppia
- attacchi portautensili standard: DIN69871 - DIN 2080 - BT - HSK - Coromant Capto o altri a richiesta
- il bloccaggio del portautensile sul mandrino può essere di due tipologie: manuale o automatico. Se automatico il bloccaggio è meccanico e lo sbloccaggio idraulico
- la adduzione del refrigerante può essere per il centro del portautensile. La pressione oggi raggiungibile è di 70 Bar ed è prevista la pulizia del portautensile tramite aria. In ogni caso, attorno al mandrino, vi sono sempre alcuni ugelli direzionabili. Inoltre il mandrino è sempre pressurizzato onde evitare intrusioni
- cuscinetti mandrino a contatto obliquo di precisione lubrificati con grasso long life
- ingranaggi normalmente lubrificati a grasso, separato dal grasso cuscinetti. In caso di alte velocità la lubrificazione è a circolazione di olio
- il bloccaggio degli assi delle teste con rotazione automatica avviene tramite corone Hirth, con divisione standard di 2,5° ed a richiesta di 1°
- tutti i controlli elettrici, sugli assi e sui mandrini, sono interni alla testa e con accesso facilitato.

Questi prodotti sono testati staticamente su macchina di misura tridimensionale e dinamicamente, ai regimi concordati, sul nostro banco prova BP05 che simula appieno le condizioni di utilizzo rispettando le normative del prodotto.

The angle heads exhibited here are designed and built to satisfy the tooling requirements of very large machines used in a variety of industries:
Heavy goods vehicles, Aeronautics, Shipping, Military, Railroad, Energy, Moulds and Automotive.
To build these types of products, one needs design expertise, thorough knowledge of the product itself and related problems, investment strength, specific machine tools and equipment as well as highly qualified personnel.
The applied technology, the materials, the parts and assembly all ensure top levels; the certified static and dynamic tests guarantee the best possible performance over time.
They are usually special products, tailor-made for the specific requirements of the manufacturer of machine tools or for retrofitting machines already at work in the specific industries.
The main features of these products may be summarised as follows:

- *body made of cast iron or obtained from the full piece to ensure maximum precision and stability*
- *motion transmitted by means of Gleason ground involute gears. The transmission ratio is normally 1:1, but it may be in both multiplication and in reduction based on torque transmission requirements*
- *standard tool-holder couplings: DIN69871 - DIN 2080 - BT - HSK - Coromant Capto or others on request*
- *the tool holder can be locked on the spindle in two ways: manually or automatically. If automatic, it is locked mechanically and released hydraulically*
- *the coolant may be supplied in the centre of the tool holder. The pressure currently reached is 70 Bar and the tool holder is cleaned with air. Whatever the case, there are always some turning nozzles around the spindle. Furthermore, the spindle is always pressurised to avoid intrusions*
- *spindle oblique contact precision bearings lubricated with long life grease*
- *gears normally lubricated with grease separated from the grease of the bearings. For high speeds, the lubrication system is oil circulation*
- *the axes of the heads with automatic rotation are locked by means of Hirth crowns, with standard division of 2.5° and 1° on request*
- *all the electrical control devices on the axes and the spindles are inside the head and are easily accessed.*

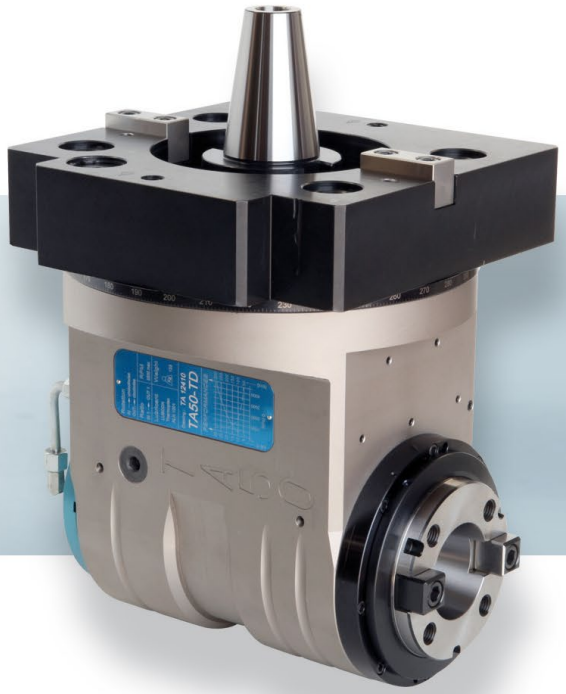
These products are tested statically on 3D measuring machines and dynamically, at the agreed rates, on our BP05 test bench that fully simulates the conditions of use in compliance with the product standards.

SERIE [BAH]

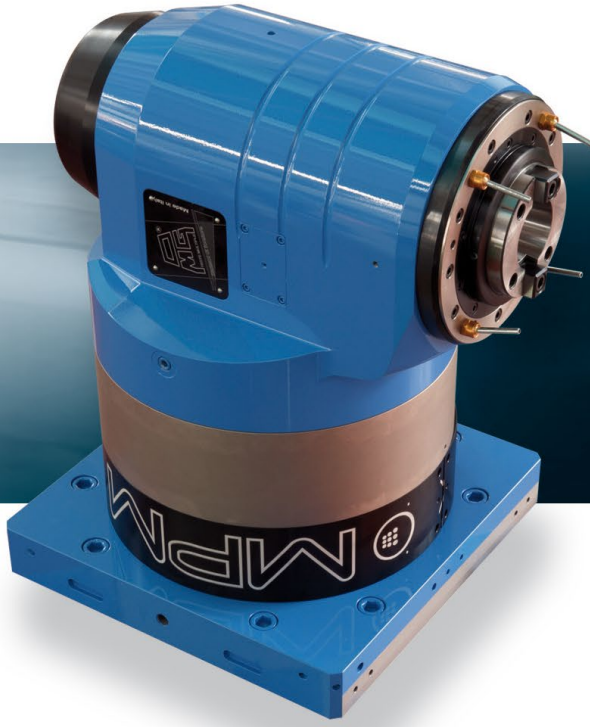
[BAH]

Prolunghe mandrino,
Teste ad angolo,
Teste ad angolo con movimento assi automatico

Extensions Spindle,
Angle heads,
Angle heads with automatic axis movement



SPECIAL EXECUTIONS



serie TA CP

teste ad angolo
angle heads

LIGHT DUTY

NUOVA GENERAZIONE DI TESTE AD ANGOLO LIGHT DUTY SERIE CP

Questa nuova generazione di Teste ad Angolo inaugura una linea innovativa nata per tutte le macchine utensili, anche di piccole dimensioni e dagli ingombri contenuti, dove si richiedono performances elevate nonostante la capacità di peso limitata sul cambio utensile. Quindi Teste ad Angolo più leggere ma con qualità e affidabilità tipiche dei nostri prodotti.

L'obiettivo di contenere il peso è stato raggiunto costruendo il corpo in lega di alluminio aeronautico e adottando un sistema antirotante semplificato e alleggerito, pur rimanendo inalterata la modularità dei coni di attacco tipica della serie Heavy Duty.

La caratteristica principale di questa nuova generazione di Teste ad Angolo è di potere eseguire forature, maschiature e lamature su quelle macchine utensili dove il peso del cambio utensile ha forti limitazioni o quando i costi di produzione devono essere estremamente competitivi.

Caratteristiche comuni della nuove Teste ad Angolo serie CP sono:

- perno antirotante conico come tutta la produzione O.M.G. che, al contrario dei perni cilindrici, elimina i giochi angolari
- possibilità di utilizzo su macchine dove già presente Stop-Block della serie Heavy Duty per una perfetta compatibilità di tutta la gamma
- sistema di orientamento testa ad angolo in macchina ottimizzato, per una più facile e rapida registrazione
- ingranaggi Gleason con evolvente rettificato
- lubrificazione a vita
- peso estremamente ridotto per Teste ad Angolo con queste capacità di lavoro
- utilizzo su centri di lavoro di piccole dimensioni
- versioni anche prolungate per una maggiore flessibilità di gamma
- coni disponibili: DIN69871, BT, BBT, HSK, CAT .

NEW GENERATION OF LIGHT DUTY ANGLE HEADS

The new generation of TA.CP angle heads introduces an innovative line targeting all the small machine-tools with restrained size, but with high performances despite limited weight on tool changer. Therefore TA.CP angle heads are lighter but with both quality and reliability typical of our products.

The goal of containing the weight has been reached by making the head body in aeronautical aluminium alloy and by engineering a simplified and lightened torque-arm system, yet maintaining unchanged the back-end shank modularity characteristic of our Heavy Duty range.

The major feature of this new generation of angle heads is to be able to perform drilling, tapping and reaming operations on machine-tools with high limitations on tool changer weight, or when production costs must be extremely competitive.

The major specifications of the new TA.CP range are:

- *conical (V-shape) torque-arm pin like all OMG heads which eliminates any angular backlashes, unlike cylindrical type of pins*
- *possibility of using them on machines which are already equipped with a Stop-Block of the Heavy Duty range, getting them fully compatible with our complete range*
- *optimized indexing set-up for an easier and faster adjustment on machine-tools*
- *lubricated-for-life*
- *ground involute Gleason type gears*
- *extremely reduced weight in comparison to the capabilities and performances of this new range of angle heads*
- *usable on small size machining centres*
- *extended length versions available further completing this new range*
- *DIN69871, BT, BBT, HSK and CAT back-end shanks available*

testa ad angolo - *angle head*

TA07.CP

caratteristiche/*features*

ø 7 | M6

1-1 | 8000

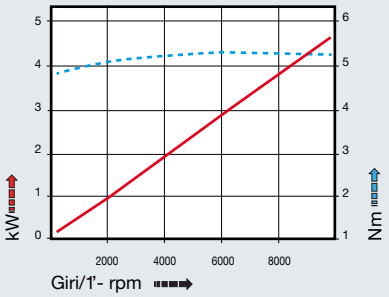
peso/*weight*

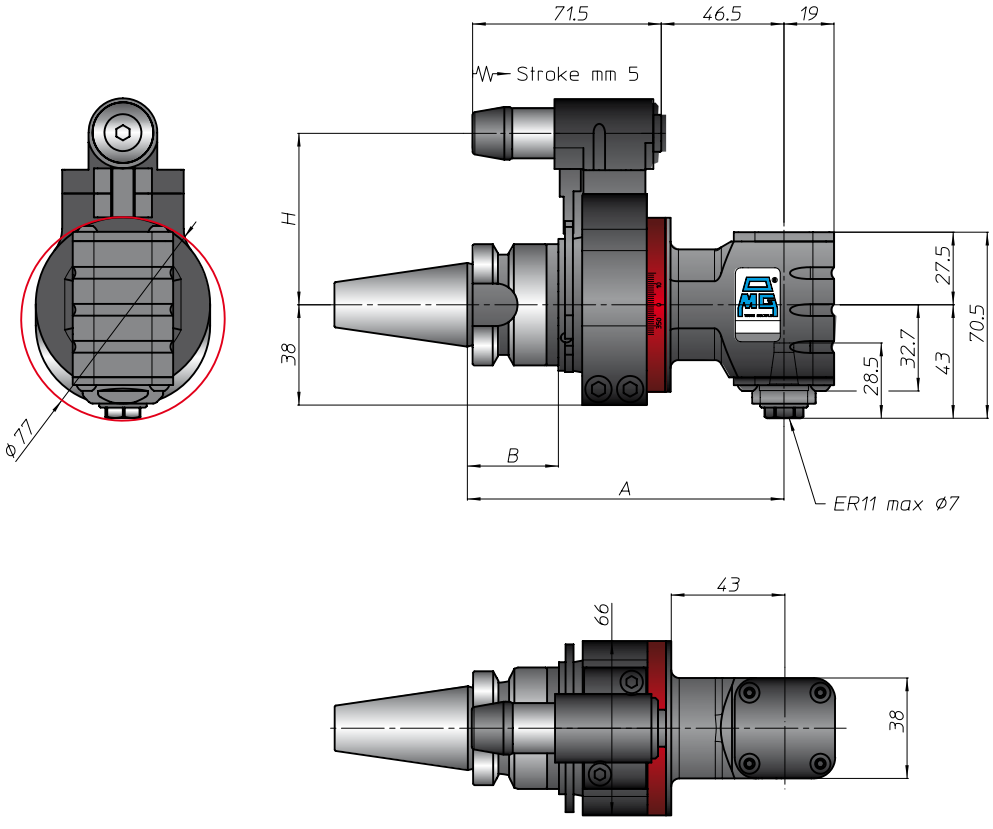
2,1 kg | 2,5 kg

rotazione/*rotation*

input | output

prestazioni/*performances*





CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	120	35	65	-
	40				
	-			-	
	-				
CAT ANSIB5.50	40			65	-
	-			-	
BT	30			65	-
	40				
HSK DIN69893	63	129	44	65	-
	-		-	-	
	-				
CAPTO ISO26623	-				
	-				
	-				
KM	-				
	-				
	-				
DIN2080	-				
	-				
	-				
	-				
NMTB ANSIB5.18	-				
	-				

TA10.CP

caratteristiche/*features*

ø 10 | M8

1-1 | 7000

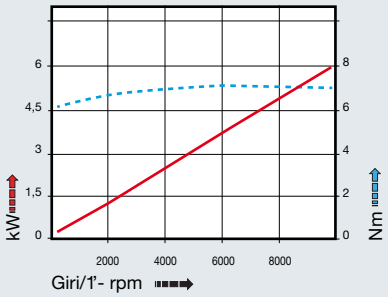
peso/*weight*

30: 2,2 kg | 40: 2,5 kg

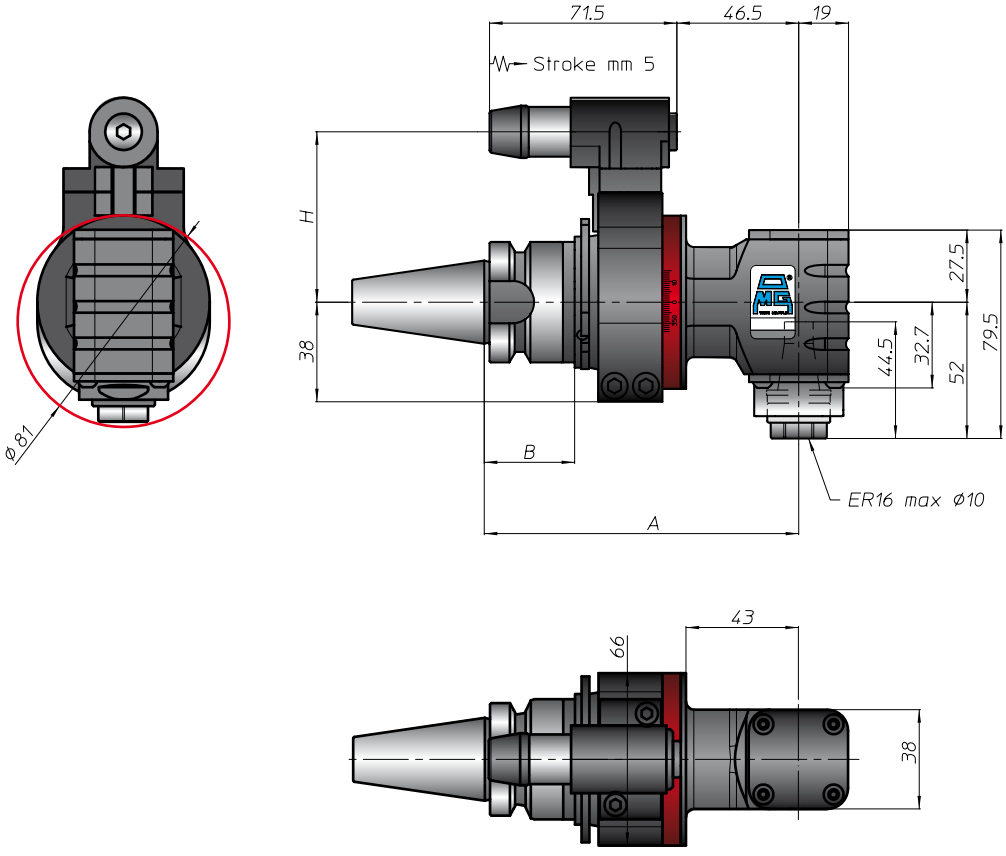
rotazione/*rotation*

IN (input) → OUT (output)

prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	120	35	65	-
	40				
	-			-	
	-				
ANSIB5.50 CAT	40			65	-
	-			-	
BT	30			65	-
	40				
DIN69893 HSK	63	129	44	65	-
	-		-	-	
	-				
ISO26623 CAPTO	-				
	-				
	-				
KM	-				
	-				
	-				
DIN2080	-				
	-				
	-				
	-				
ANSIB5.18 NMTB	-				
	-				



testa ad angolo - *angle head*

TA13.CP

caratteristiche/*features*

ø 13 — M10

1-1 — 6000

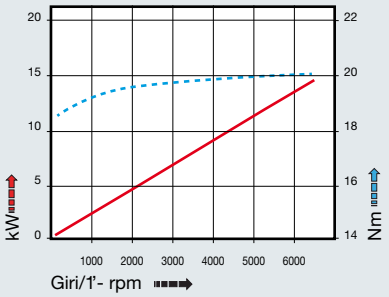
peso/*weight*

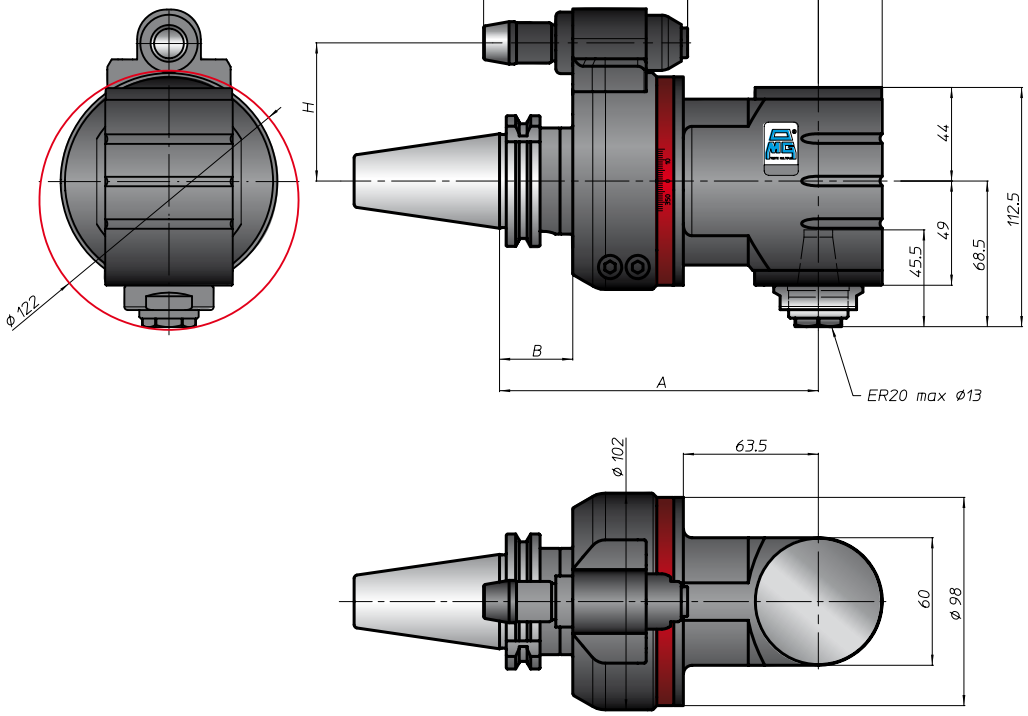
5 kg — 7,5 kg

rotazione/*rotation*

input — output

prestazioni/*performances*



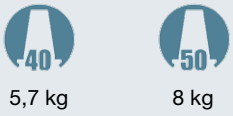


CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	150	35	65	-
	40				
	45			80	
	50				
CAT ANSIB5.50	40			65	-
	50			80	
BT	40			65	
	50	158	45	80	
HSK DIN69893	63	159	44	65	
	80		46	80	
	100				
CAPTO ISO26623	-				
	-				
	-				
KM	-				
	-				
	-				
DIN2080	-				
	-				
	-				
	-				
NMTB ANSIB5.18	-				
	-				

TA13.CPL

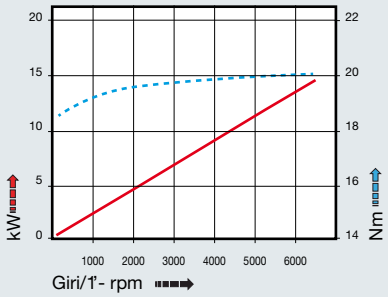
caratteristiche/*features*

peso/*weight*

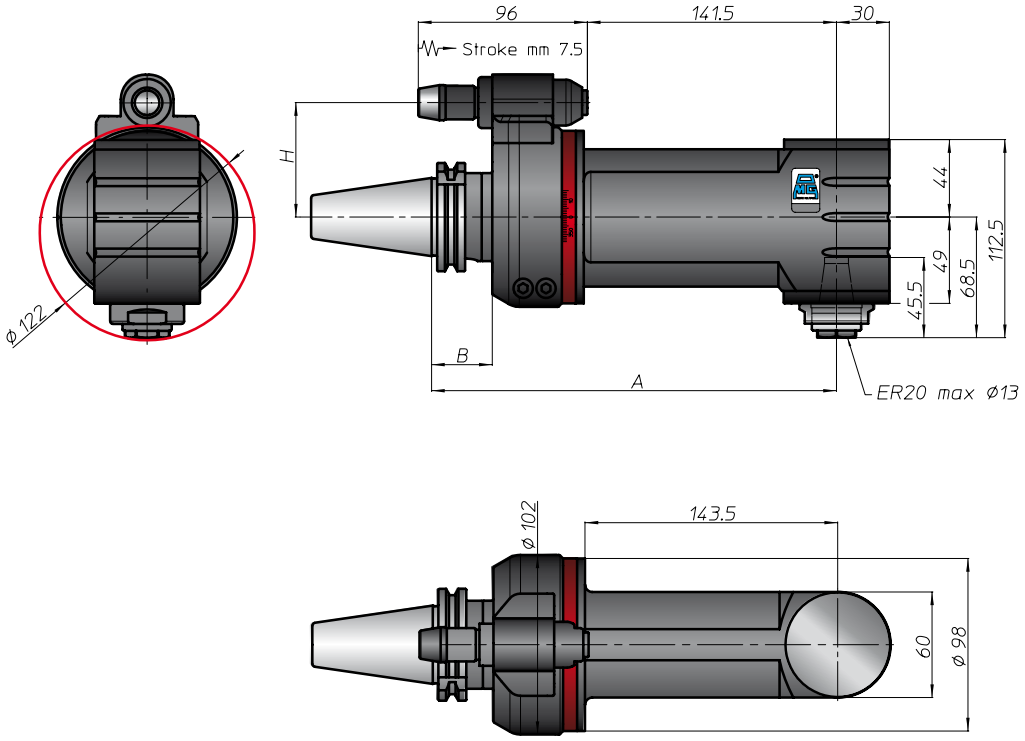


rotazione/*rotation*

prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	230	35	65	-
	40				
	45			80	
	50				
CAT ANSIB5.50	40			65	-
	50			80	
BT	40			65	
	50	238	45	80	
HSK DIN69893	63	239	44	65	
	80		46	80	
	100				
CAPTO ISO26623	-				
	-				
	-				
KM	-				
	-				
	-				
DIN2080	-				
	-				
	-				
	-				
NMTB ANSIB5.18	-				
	-				



testa ad angolo - *angle head*

TA16.CP

caratteristiche/*features*

ø 16 | M12

1-1 | 4000

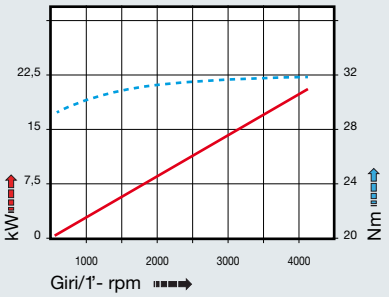
peso/*weight*

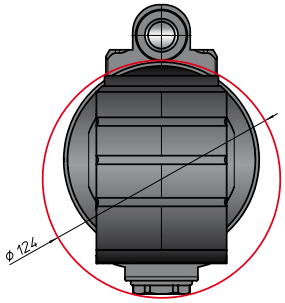
5 kg | 7,5 kg

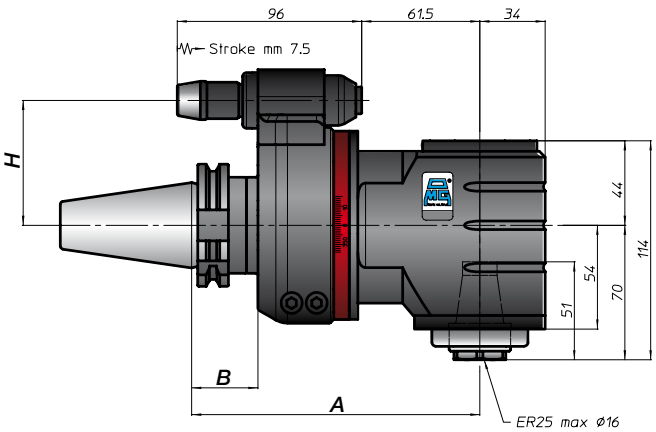
rotazione/*rotation*

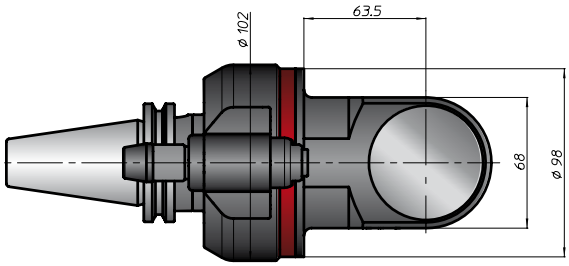
input | output

prestazioni/*performances*









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	45			80	
	50				
CAT ANSIB5.50	40			65	-
	50			80	
BT	40			65	-
	50	158	45	80	
HSK DIN69893	63	159	44	65	-
	80		46	80	
	100				
CAPTO ISO26623	-				
	-				
	-				
KM	-				
	-				
	-				
DIN2080	-				
	-				
	-				
	-				
NMTB ANSIB5.18	-				
	-				

TA16.CPL

caratteristiche/*features*

ø 16 | M12

1-1 | 4000

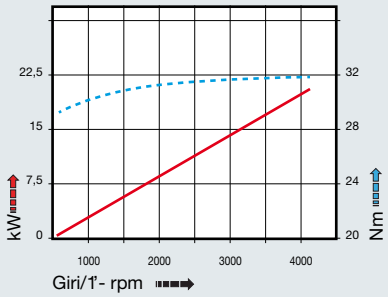
peso/*weight*

6,5 kg | 8,5 kg

rotazione/*rotation*

input | output

prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
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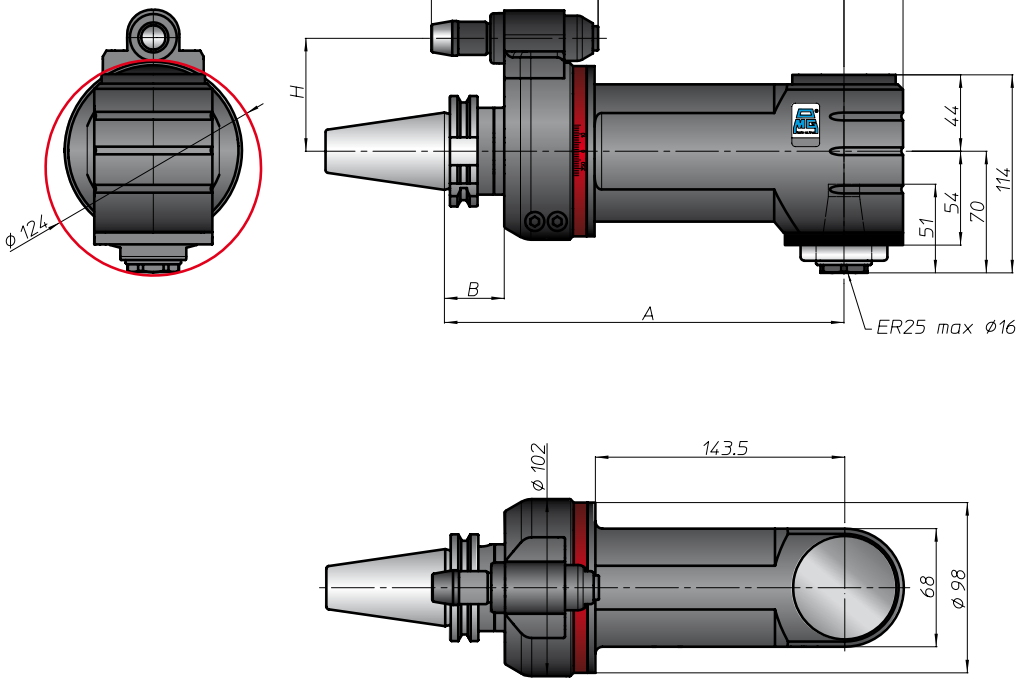
	50	238	45	80	
HSK DIN69893	63	239	44	65	-
	80		46	80	
	100				
CAPTO ISO26623	-				
	-				
	-				
KM	-				
	-				
	-				
DIN2080	-				
	-				
	-				
	-				
NMTB ANSIB5.18	-				
	-				

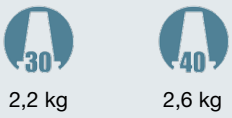


testa ad angolo - *angle head*

TAV07.CP

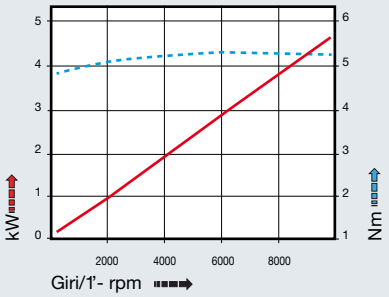
caratteristiche/*features*

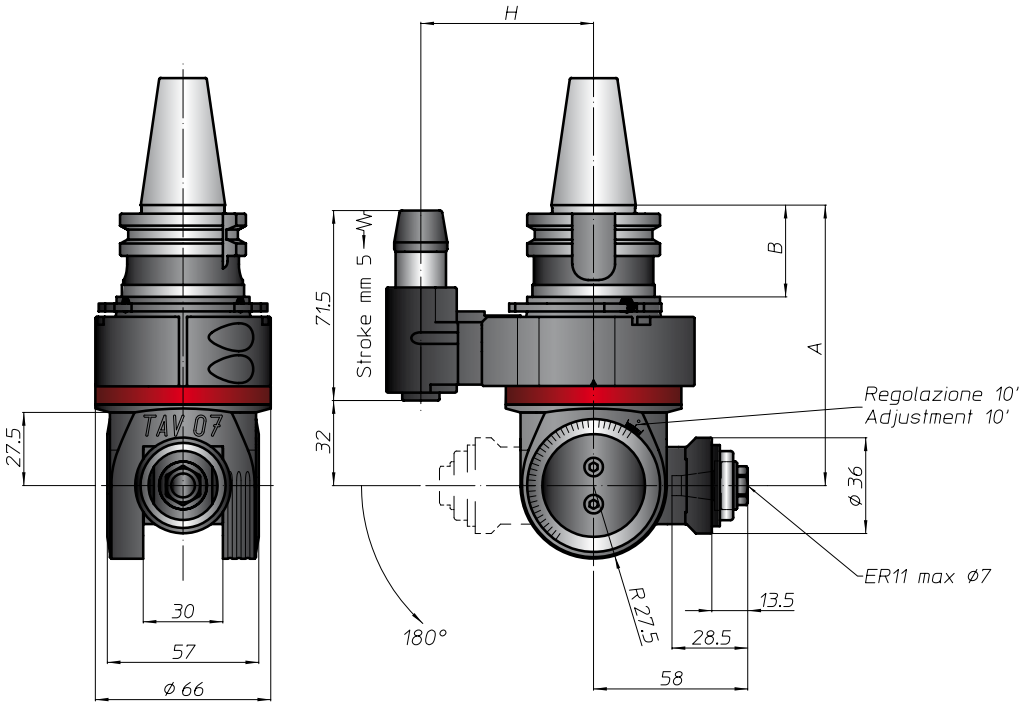
peso/*weight*



rotazione/*rotation*

prestazioni/*performances*





CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	105,5	35	65	-
	40				
	-			-	
	-				
CAT ANSIB5.50	40			65	-
	-			-	
BT	30			65	-
	40				
HSK DIN69893	63	114,5	44	65	-
	-		-	-	
	-				
CAPTO ISO26623	-				
	-				
	-				
KM	-				
	-				
	-				
DIN2080	-				
	-				
	-				
	-				
NMTB ANSIB5.18	-				
	-				

Gallery

Antirotante
Torque arm

Il gruppo antirotante ricopre una funzione di fondamentale importanza nella qualità di lavorazione della testa ad angolo. Per questo motivo i tecnici della OMG hanno studiato e messo a punto un antirotante di nuova concezione i cui punti salienti sono:

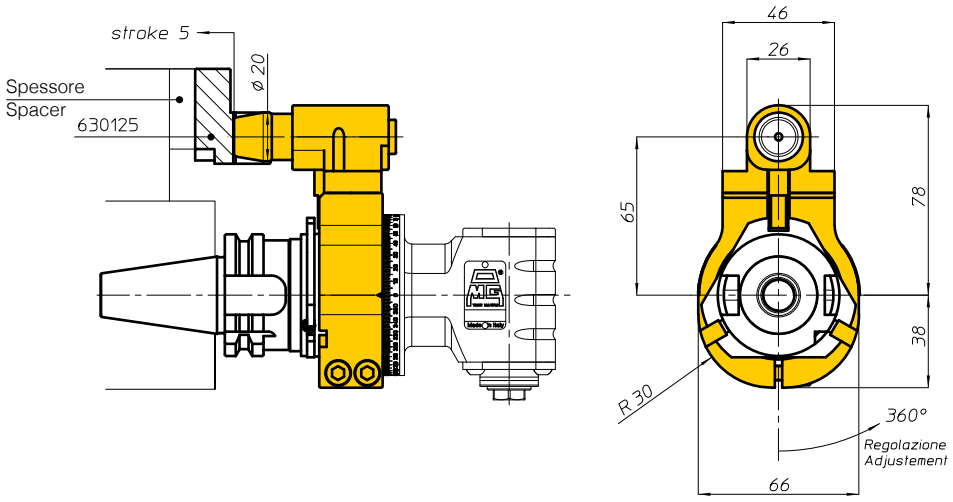
- il perno conico
- registrazione flangia di fasatura semplice, veloce e precisa.

Il perno conico permette una maggiore rigidità del sistema antirotante rispetto ai tradizionali, dotati di perni di Ø18 mm, perché si eliminano i giochi. Conseguenza un miglioramento della rigidità sia angolare che assiale.

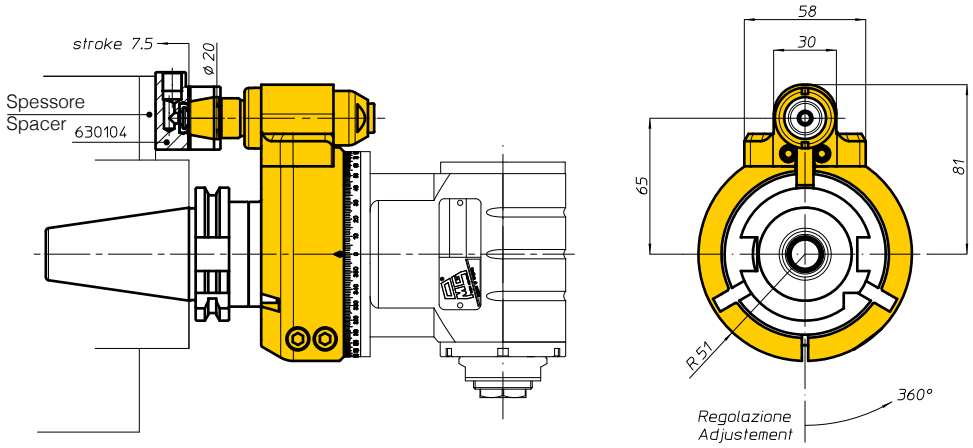
Il perno conico è forato e perciò predisposto per il passaggio del liquido refrigerante ad un max di 10 bar. Qualora il cliente volesse portare il liquido vicino all'utensile, occorre semplicemente installare un piccolo tubo.

Quando possibile, nella Vostra applicazione, posizionate il perno conico dalla parte opposta al mandrino della testa ad angolo.

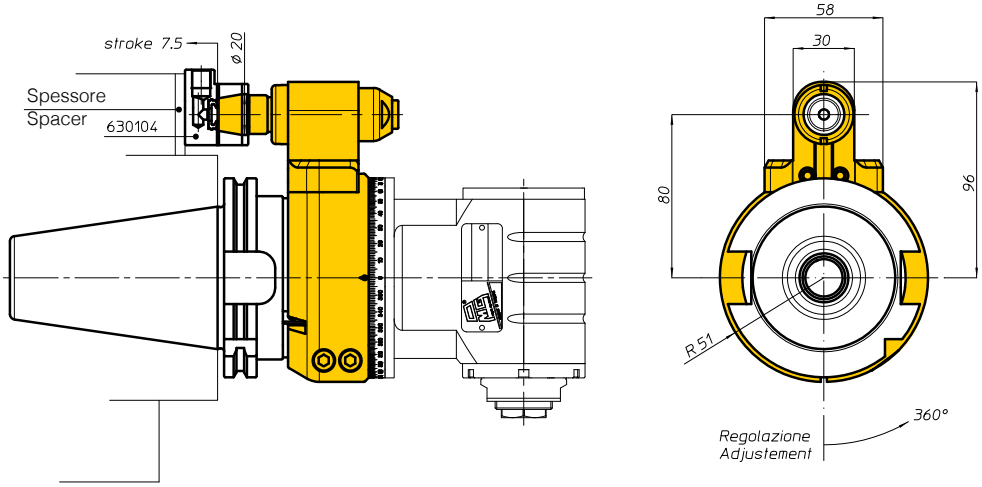
Teste ad angolo TA07.CP, TAV07.CP
Angle heads TA07.CP, TAV07.CP



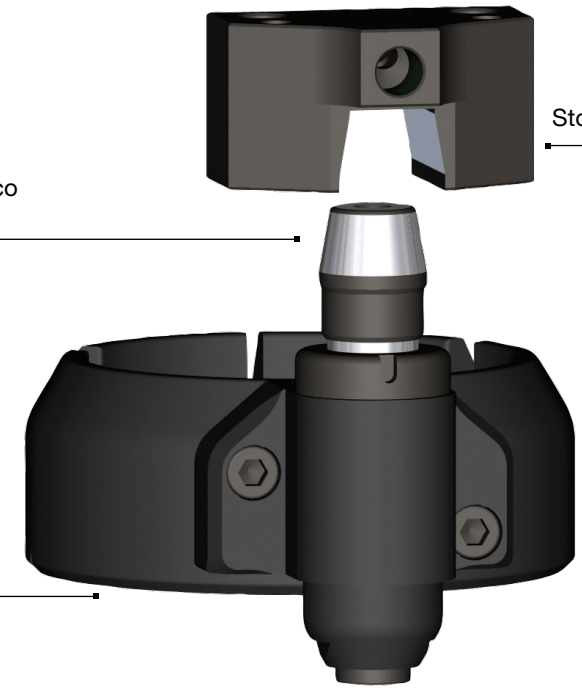
Teste ad angolo TA13.CP, TA16.CP con interasse H=65
Angle heads TA13.CP, TA16.CP with centre distance H=65



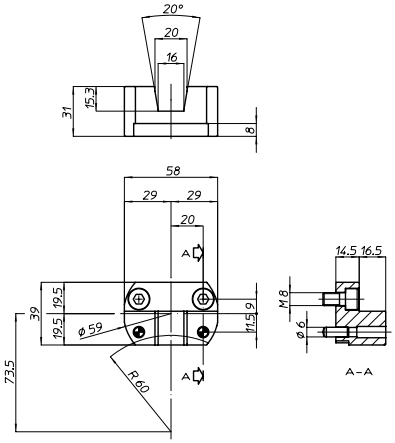
Teste ad angolo TA13.CP, TA16.CP con interasse H=80
Angle heads TA13.CP, TA16.CP with centre distance H=80



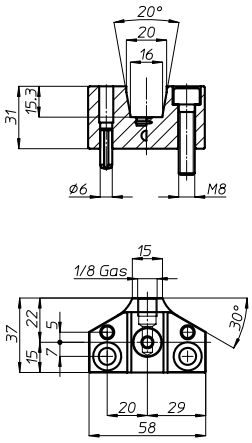
Stop-block



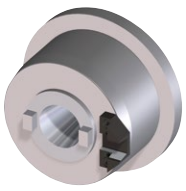
Stop-block (cod. 630125)



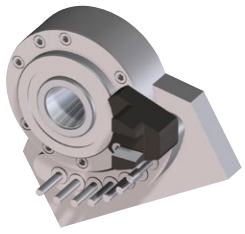
Stop-block (cod. 630104)



Stop-block preparati per
Stop-block made for

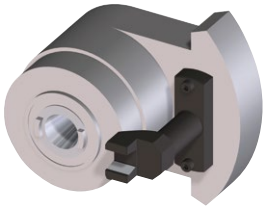


HAAS

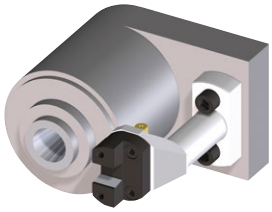


DMG Milltap

Mectron



Brother



Fanuc Robodrill

The torque-arm system is fundamental to achieve high quality machining results.

This is why the OMG technicians have engineered and fine tuned a new generation torque-arm system with following characteristics:

- *conical (V-shape) timing pin*
- *simple, fast and precise timing pin adjustment*

The conical (V-shaped) pin ensures a higher rigidity to the torque-arm system (than the traditional ones equipped with ø18 mm pins) because cancelling backlashes. The result is the enhancement of both angular and axial rigidity.

The conical timing pin is equipped with a hole and therefore prepared to let coolant through it up to max 10 bar. When customer needs coolant close to the tool, he can install just a small pipe.

Position the conical pin on the opposite side of the angle head spindle when possible in your application.

serie

teste ad angolo
angle heads

HEAVY DUTY

Un prodotto fondamentale che grazie alla riduzione dei piazzamenti in lavorazione, vanta un contributo prezioso per l'aumento della produttività necessaria per competere su tutti i mercati: parliamo della Testa ad Angolo, da considerare come parte integrante del parco utensili della macchina.

- **Esperienza** - E' dall'inizio degli anni '60 che O.M.G. crea prodotti. L'esperienza non si acquista, si acquisisce. La realizzazione fin dai primi anni di prodotti speciali ha formato le competenze per lo sviluppo di una gamma di Teste ad Angolo articolata e performante, idonea alla clientela più esigente che crede negli investimenti per conquistare nuovi mercati.

- **Tradizione** - Il termine "qualità" viene spesso citato, ma non significa soltanto utilizzare macchine utensili tecnologicamente avanzate per ottenere lavorazioni precise. La qualità è il risultato di esperienze pratiche, di calcoli matematici, di sfide vinte e perse ma comunque accettate, di cui fare grande tesoro.

- **Innovazione** - Le Teste ad Angolo Speciali di ultima generazione offrono prestazioni superiori a tuttigli standard e condizionano spesso la produzione fino al punto da divenire indispensabili nel completamento del processo produttivo. Da queste OMG continua a trarne grande beneficio e soddisfazione con soluzioni tecniche poi riproposte sulle Teste ad Angolo Standard a catalogo.

- **Modularità** – Indispensabile oggi la flessibilità produttiva, ancora maggiore negli investimenti. In questa ottica gli elementi modulari delle Teste ad Angolo consentono di ridurre i costi ed aumentare i benefici.

- **Personalizzazione** – Se l'ampia gamma di Teste ad Angolo standard non risponde all'esigenza specifica, siamo pronti a progettare e costruire il prodotto speciale, forti dell'esperienza di centinaia di soluzioni operative volte alle più svariate attività produttive.

An ultimate product that gives a valuable contribution to the productivity increase by reducing the management of the pieces to be machined, necessary condition to compete in the markets all over the world: we are talking about the Angle Heads, to be considered an integrant part of the machine tools range.

- ***Experience** - O.M.G. engineers its products since the beginning of the '60's. The experience cannot be bought but it is acquired. Since that time the achievement of special products gave us the expertise to develop a range of Angle Heads very broad and performing, suitable to the most demanding customers believing in investments to gain new market shares.*

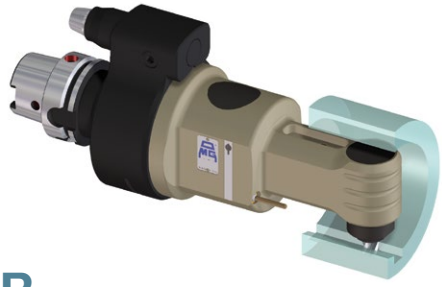
- ***Tradition** - The word "quality" is often mentioned, but it does not mean just to use technologically advanced machine tools to get accurate machining. The quality is the result of practical experiences, of mathematical calculations, of won and lost challenges, anyway accepted, which are treasured.*

- ***Innovation** - The last generation Special Angle Heads offers performances much higher than all standards, and they often affect the production cycles until becoming indispensable when completing production stages. O.M.G. keeps getting beneficial results from his special range which is also reflected into the standard Angle Heads range.*

- ***Modularity** - Nowadays the productivity flexibility is mandatory, and even more in the investments. Towards this goal the O.M.G. Angle Heads modular system allows cost reductions and to increase profits.*

- ***Customization** - And if the wide range of standard Angle Heads will not meet your requirements, we are ready to engineer and to manufacture a new Special Angle Head product, always supported by our experience of hundreds of solutions done for many different industrial activities.*

Panoramica prodotti
Product owerview



TAR

Piccole per piccoli spazi.

Tiny for narrow spaces.

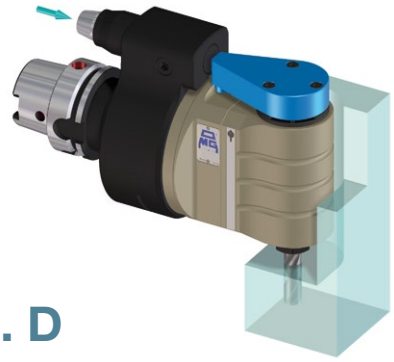
Pagina/*Page:* 3-10

TA

Lavorazione singola di foratura e fresatura.

Drilling and milling machining.

Pagina/*Page:* 3-18

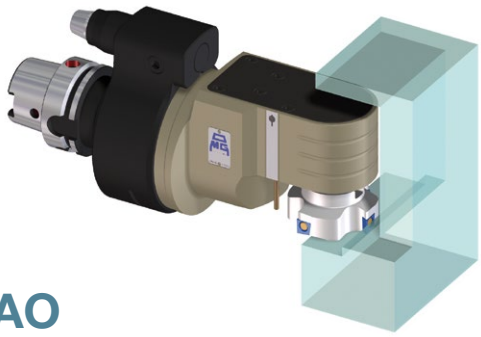


TA... D

Input refrigerante attraverso lo stop-block e uscita attraverso il centro utensile.

Input coolant from stop-block, and output through tool spindle.

Pagina/*Page:* 3-38

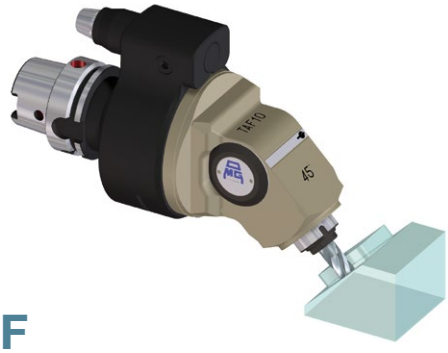


TAO

Mandrino offset, lavorazione in spazi ristretti ed ottima performance in fresatura.

Offset spindle, machining in narrow spaces, and excellent results in milling operations.

Pagina/*Page:* 3-48



TAF

Mandrino fisso, angolo su richiesta del cliente.

Fixed spindle with custom angle.

Pagina/*Page:* 3-67

Simboli/Icons

Capacità di foratura
Drilling capacity

Pressione
Pressure

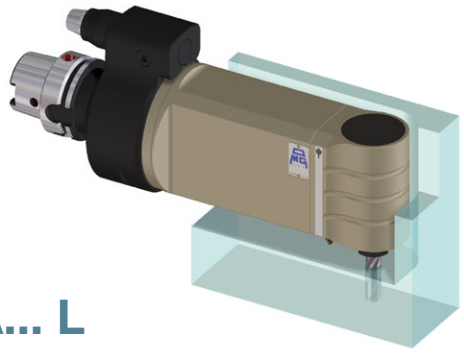
Maschiatura
Tapping

Peso
Weight

Rapporto entrata/uscita
Ratio input/output

N° max giri in uscita
Max output RPM

Panoramica prodotti
Product owerview



TA... L

Versione allungata per lavorazioni singole di foratura e fresatura.

Length stretched version for drilling and milling single machining operations.

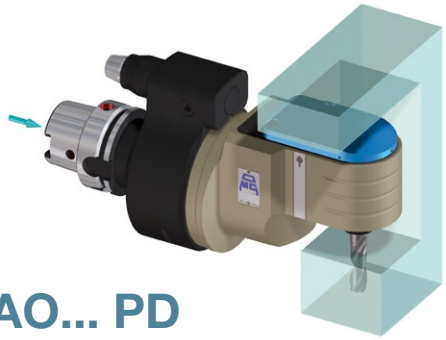
Pagina/*Page:* 3-11

TA... 2P

Due mandrini contrapposti di 180°.

180° two opposed spindles.

Pagina/*Page:* 3-32

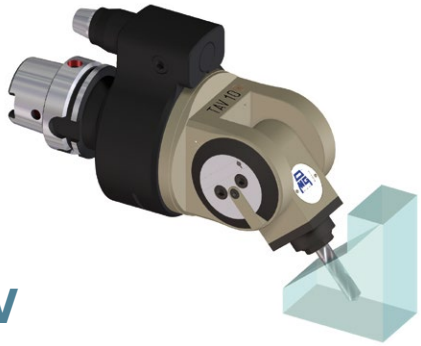


TAO... PD

Mandrino offset, input refrigerante attraverso il centro cono, uscita attraverso centro utensili con pressione 70 bar.

Offset spindle, input coolant through machine taper, output through tool spindle at 70 bar pressure.

Pagina/*Page:* 3-49



TAV

Mandrino variabile ±90°.

±90° adjustable spindle.

Pagina/*Page:* 3-56

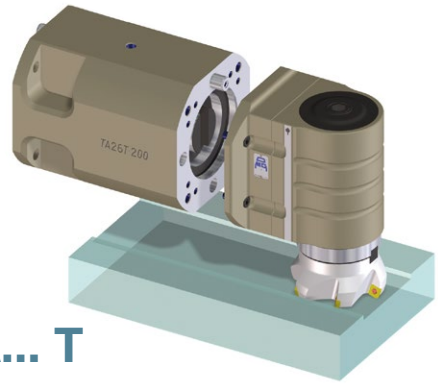
Simboli/Icons

Peso con cono 40
Weight with size 40 shank

Peso con cono 50
Weight with size 50 shank

Rotazione in ingresso
Input rotation

Rotazione in uscita
Output rotation



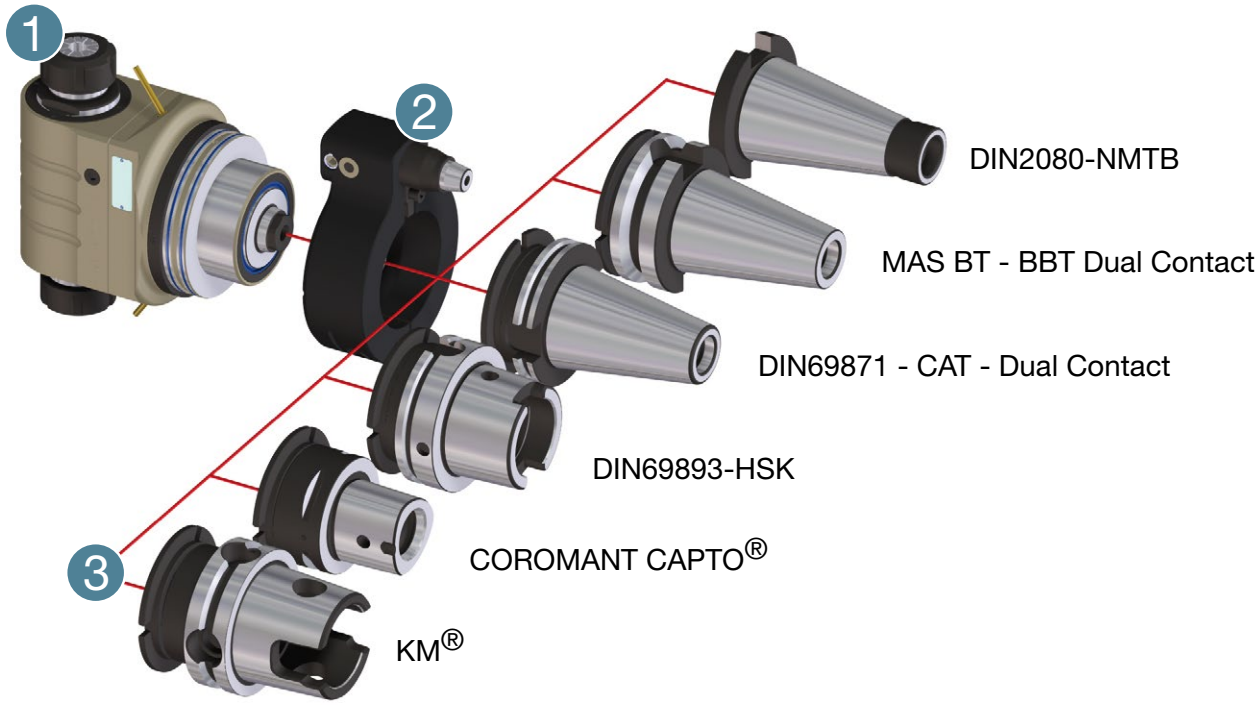
TA... T

Connessione alla macchina tramite flangia.

To be connected to the machine by flange.

Pagina/*Page:* 3-72

Sistema modulare per applicazioni flessibili
Modular system for flexible application



1. Testa ad angolo con presa utensile ER standard, oppure vedi tipi Mandrino.
Angle Head with standard ER tool connection, or check other spindle types.

2. Antirotante standard “senza gioco”, oppure su specifico design per la vostra macchina utensile.
No backlash standard torque arm, or under specific design for your machine tool.

3. Coni macchina standard o speciali su richiesta.
Standard or on-demand machine tapers.

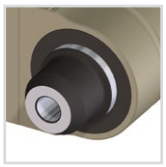
Modularità Coni – Sono disponibili tutti i tipi di coni macchina, da sostituire tramite un esclusivo accoppiamento di precisione che crea un sistema rigido pari ai coni integrali, ma con i pregi dell’intercambiabilità.
Modularità Antirotanti – esistono fondamentalmente tre dimensioni unificate di interasse tra il centro cono ed il centro perno antirotante: 65 mm per i cono grandezza 40, 80 mm per i coni grandezza 50 ed in alcuni casi anche 110 mm. Sono disponibili tutte le dimensioni e sostituire il gruppo antirotante è una operazione banale.

Taper modularity *- All the different machine tapers are available, and can be replaced with an exclusive precision coupling system generating a rigid system equal to integral tapers, but with additional interchangeability quality.*
Torque arm modularity *- Essentially three unified dimensions between taper and torque-arm centers exist: 65 mm for the taper size 40, 80 mm for the taper size 50 and also 110 mm in some cases. All sizes are available and torque-arm replacement is very simple.*

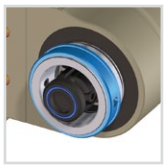
Prese utensili - tipi mandrino
Clamping systems and spindle types

1 DIN6388-ER

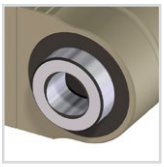
2 Albero portafrese
Milling shaft



3 Weldon
Whistle-Notch

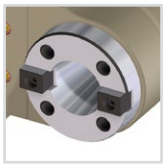


4 DIN69893-HSK



5 COROMANT
CAPTO®

6 ABS
Licenza KOMET®



7 ISO-DIN2079
NMTB-BT

Refrigerante utensile
Coolant tool

STANDARD

TA... PD
max 10 bar

TAO... PD
max 70 bar

TAF... PD
max 70 bar

TAV... PD
max 70 bar

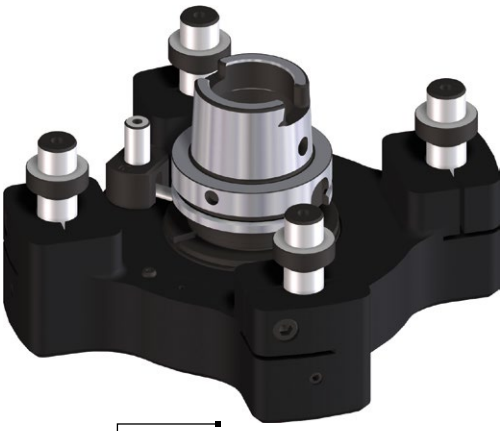
Il circuito refrigerante è standard - Tutte le teste sono provviste di canalizzazione interna, che parte dal perno dell'antirotante e termina sull'ugello vicino all'utensile, senza alcun costo aggiuntivo.
Refrigerante da cono macchina - La costruzione offset delle Teste ad Angolo serie TAO consente il montaggio di tenute ad alta pressione affidabili nel tempo ed isolate dalle parti vitali della Testa ad Angolo, per un sicuro utilizzo di utensili con passaggio refrigerante interno.

***Coolant system is standard** - All our Angle Heads are supplied with an internal channel system, which starts from the torque-arm pin and ends on the nozzles next to the tool, without additional cost.*
***Coolant system from machine taper** - The offset construction of the TAO Angle Head series allows to fit high pressure seals which are time reliable and isolated from the vital parts of the Angle Heads, for a safe usage of tools with internal coolant transit.*

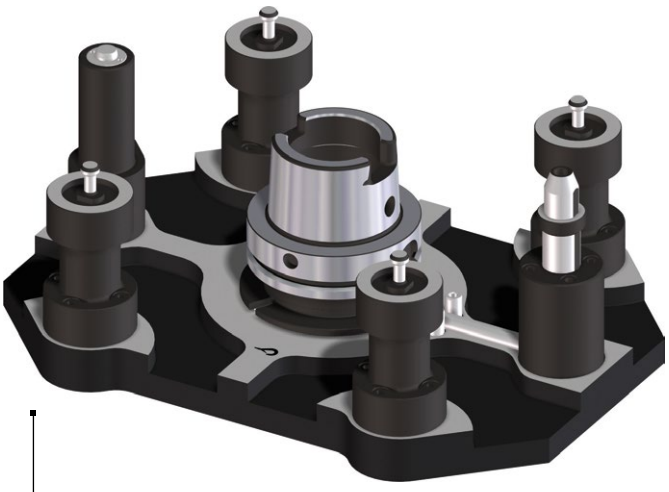
Antirotante
Torque arm

STANDARD

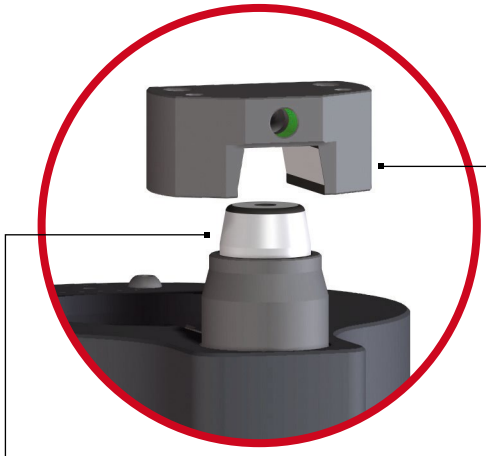
TriBlock®



QuadBlock®



Studiato e realizzato su specifica richiesta.
Customized design according to your application.



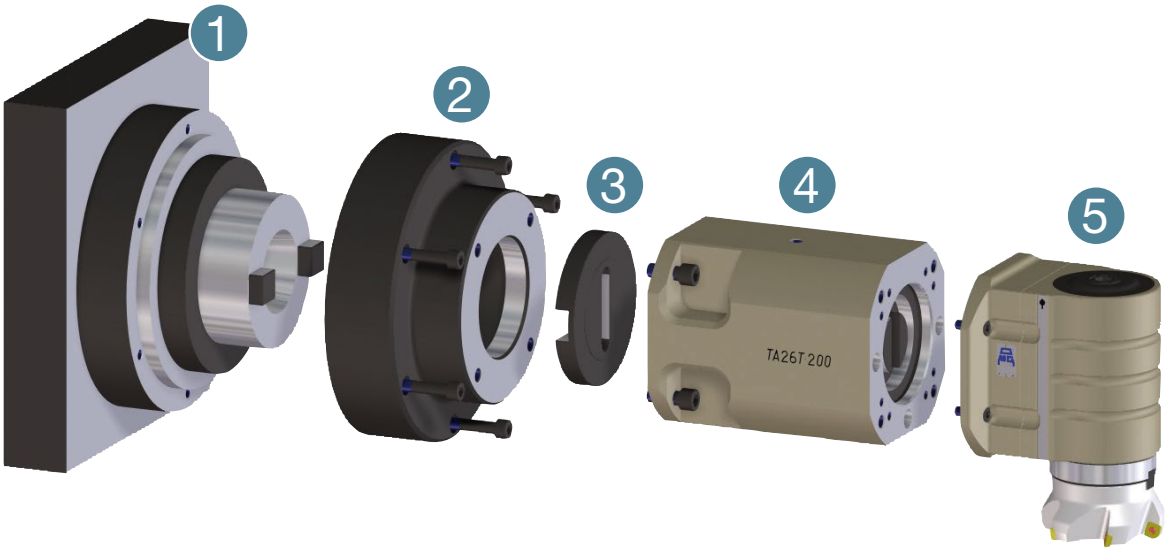
Stop-block

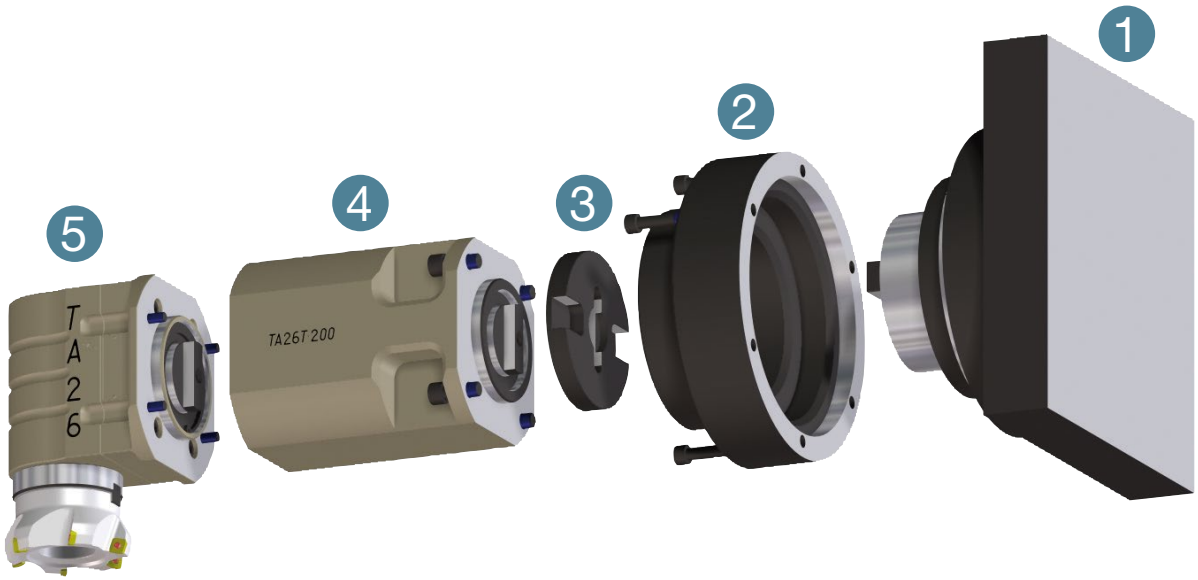
Perno conico
Conical pin

Prestazioni superiori - L'antirotante standard permette di cambiare la testa in automatico. Il sistema di accoppiamento fra perno conico regolabile assialmente e lo stop-block con sede a "V", permette di annullare la tolleranza tra le parti creando un sistema rigido, senza giochi. Evidenti sono i vantaggi: maggiore durata degli utensili, maggiore durata dei cuscinetti, risparmi in termini di manutenzione con conseguente riduzione dei costi.
Massima stabilità - I sistemi antirotanti **TriBlock** e **QuadBlock** di O.M.G. con perni regolabili permettono di contrastare al meglio le spinte radiali e assiali con la possibilità di affrontare in sicurezza lavorazioni di fresatura o finitura fino a ora mai effettuate con le teste ad angolo, destinate inizialmente a diversi piazzamenti pezzo.

Higher performances *- The standard torque arm allows an automatic change of the head. The coupling system between the conical pin, which can be axial adjusted, and the "V"-housing of the stop-block, allows to cancel any tolerance between those parts generating a rigid and backlash free system. The advantages are evident: longer life of tools, longer life of bearings, maintenance savings with consequent cost reductions.*
Maximum stability *- The O.M.G.* **TriBlock** *and* **QuadBlock** *torque arm systems with adjustable pin allow to oppose both radial and axial thrusts at their best, with the possibility of milling or finishing with total security, which was not possible until nowadays because requiring several changes of placement of the piece to be machined.*

Connessione alla macchina tramite flangia
Machine connection by flange





1	Macchina	*Machine*
2	Flangia di connessione	*Connection flange*
3	Giunto ISO 40/50	*Driving joint ISO 40/50*
4	Estensione	*Extension*
5	Testa ad angolo TA... T	*Angle head TA... T*

Qualità dei componenti
Quality of components

CORPO/*BODY*

Corpo testa in acciaio: massima rigidità e minima dilatazione termica.

Heady body in steel: maximum rigidity and minimum thermal expansion.

CUSCINETTI/*BEARINGS*

Cuscinetti obliqui in classe di precisione ABEC7/9.

Angular contact ball bearings of precision class ABEC7/9

INGRANAGGI/*GEARS*

Ingranaggi Gleason con evolvente rettificato: massime performances e minori vibrazioni.

Gleason rectified gearings: maximum performances and minimum vibration.

DESIGN

Design compatto, che insieme alle specifiche sopra descritte, consente: alte performances, elevate velocità, lunga durata degli utensili.

Compact design that, along with above mentioned described specifications, allows: high performances, high speeds, long life of tools.

Materiali - Tutte le teste ad angolo standard sono in acciaio ricavate dal pieno per fresatura a pareti sottili, minimo ingombro e minor peso. Hanno il corpo trattato con niploy, trattamento anticorrosione, che garantisce alta protezione contro la ruggine, lubrorefrigeranti aggressivi e acidi.
Componenti - Tutte le teste montano cuscinetti di precisione, oppure conici nelle versioni per grandi asportazioni. Si utilizzano solo cinematismi trattati termicamente e coppie coniche Gleason con dentatura rettificata. Lubrificazione con grasso long-life.

Materials *- All our standard Angle Heads are made from solid steel for thin wall milling, resulting with the minimum possible size and less weight. Body is niploy treated and anti-corrosion coated giving the guarantee of high protection against rust as well as acid and aggressive lubricant-coolants.*
Components *- All our Angle Heads integrate precision bearings, or tapered roller bearings when models are for big removal machining. We only use thermal treated cinematic components and Gleason bevel gears with rectified teeth. Lubrication is with long-life grease.*

Packaging

Le Teste ad Angolo sono racchiuse in robusta valigetta di materiale termoplastico e corredate di una completa dotazione di accessori:
- Stop-block standard con passaggio refrigerante
- Confezione di chiavi per messa in funzione e manutenzione
- Grasso di mantenimento
- Manuale istruzioni dettagliato per messa in funzione e manutenzione

The Angle Heads are packed in a strong thermoplastic case together with a complete set of accessories:
- *Standard stop-block with coolant way*
- *Set of keys for operation and maintenance*
- *Grease tube*
- *Operation and maintenance manual*

testa ad angolo - *angle head*

TAR03.P

caratteristiche/*features*

ø 3 M3

1-1 8000

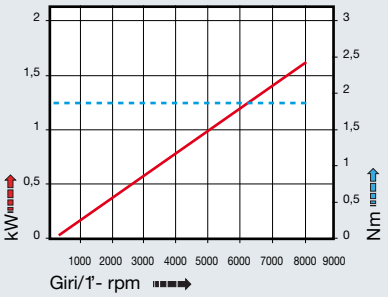
peso/*weight*

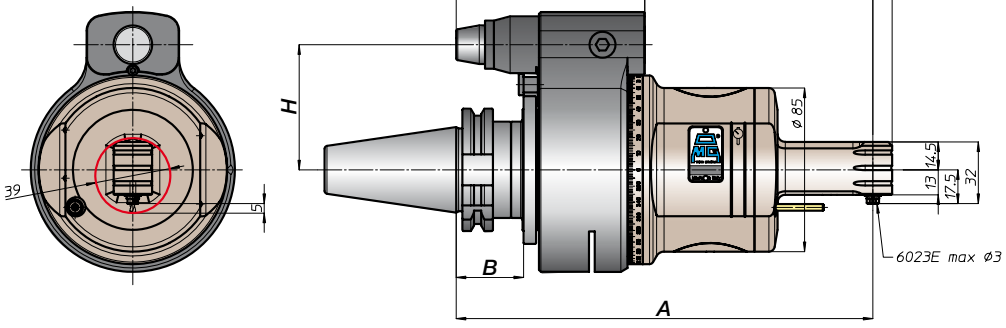
6,7 kg 9,1 kg

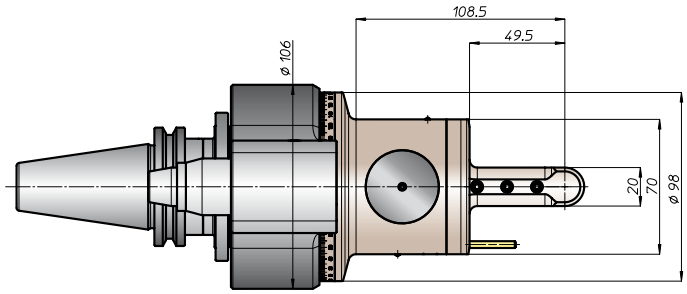
rotazione/*rotation*

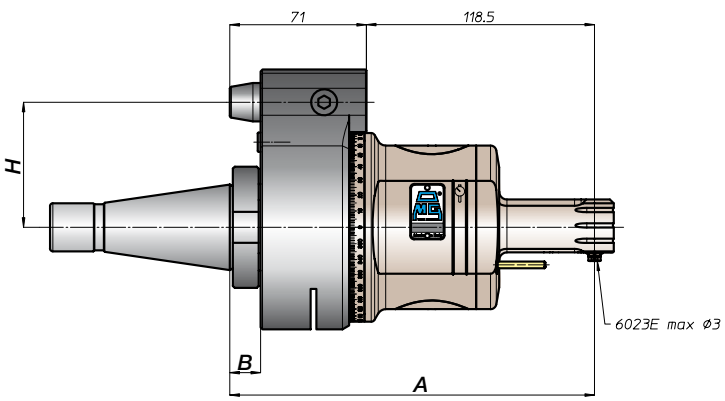
input output

prestazioni/*performances*







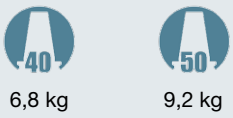


CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	216,5	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	224,5	45	80	110
HSK DIN69893	63	225,5	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	220,5	39	65	
	C6				
	C8			80	110
KM	63	216,5		65	
	80			80	110
	100				
DIN2080	-	186,5	13	65	-
	40				
	-	189,5	16	80	110
	50				
NMTB ANSIB5.18	40	186,5	13	65	-
	50	189,5	16	80	110

TAR03.PL

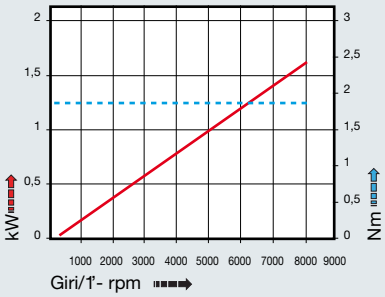
caratteristiche/*features*

peso/*weight*

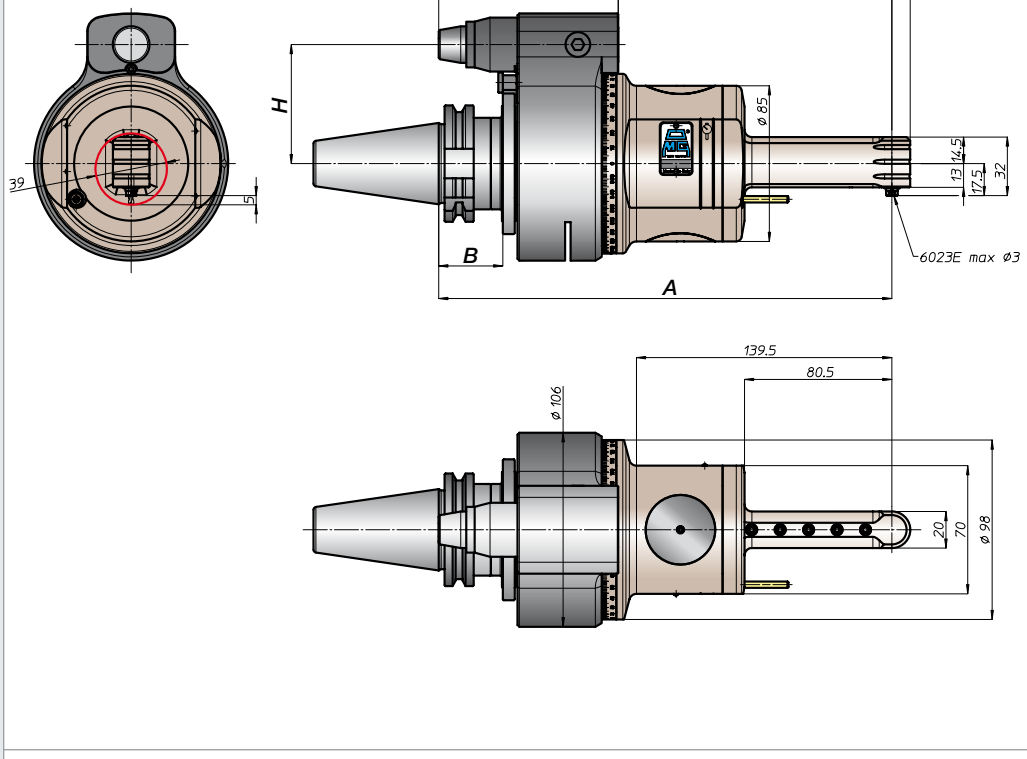


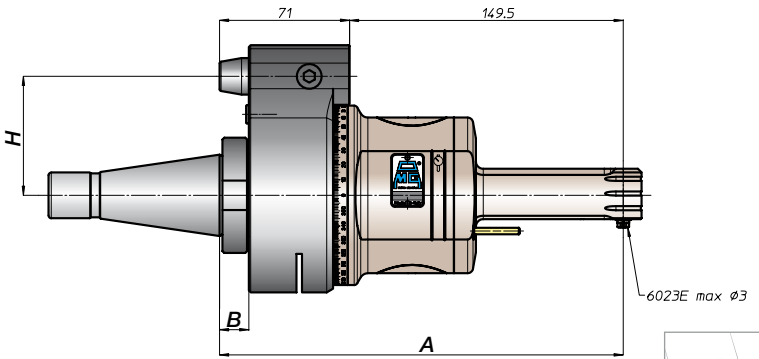
rotazione/*rotation*

prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	247,5	35	65	-
	40				
	45			80	110
	50				
ANSIB5.50 CAT	40			65	-
	50			80	110
BT	40			65	
	50	255,5	45	80	110
DIN69893 HSK	63	256,5	44	65	
	80		46	80	110
	100				
ISO26623 CAPTO	C5	251,5	39	65	
	C6				
	C8			80	110
KM	63	247,5		65	
	80			80	110
	100				
DIN2080	-	217,5	13	65	-
	40				
	-	220,5	16	80	110
	50				
ANSIB5.18 NMTB	40	217,5	13	65	-
	50	220,5	16	80	110





testa ad angolo - *angle head*

TAR04.P

caratteristiche/*features*

ø 4 | M3 | 1-1 | 8000

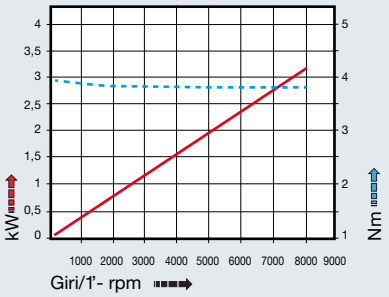
peso/*weight*

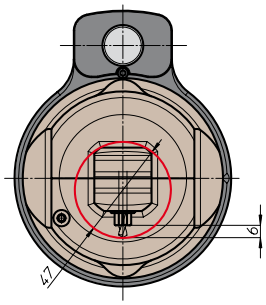
40 — 7 kg | 50 — 9,4 kg

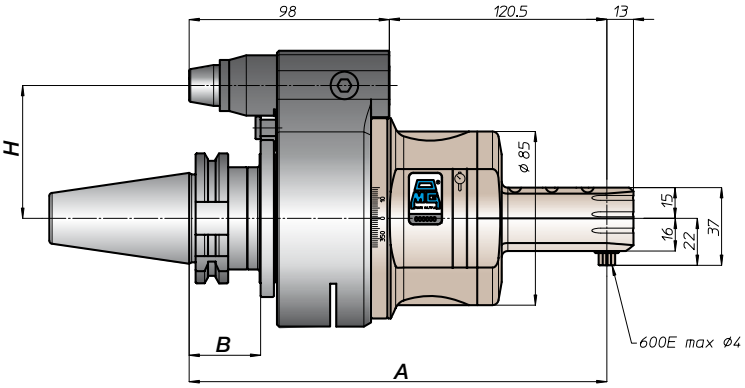
rotazione/*rotation*

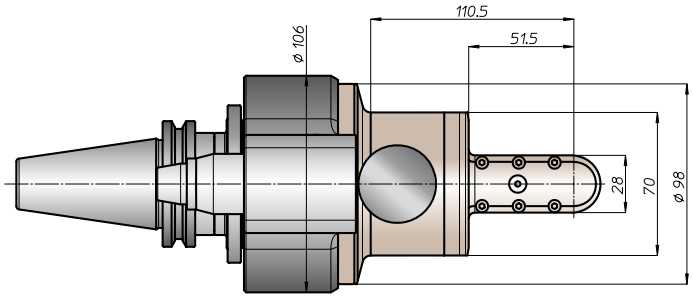
IN — input | OUT — output

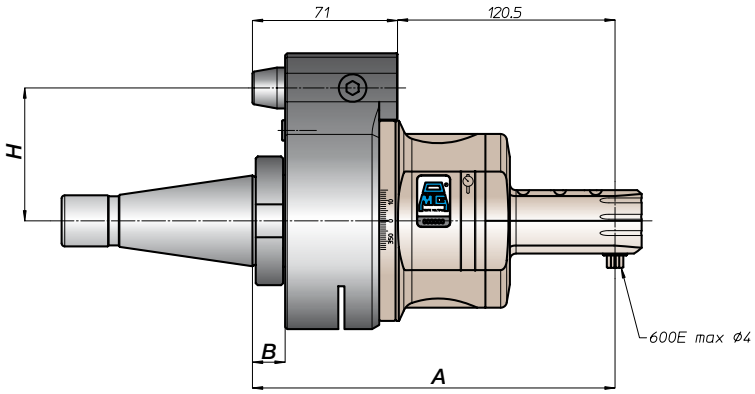
prestazioni/*performances*











CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	218,5	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	226,5	45	80	110
HSK DIN69893	63	227,5	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	222,5		65	
	C6		39		
	C8			80	110
KM	63	218,5		65	
	80			80	110
	100				
DIN2080	-	188,5	13	65	-
	40				
	-	191,5	16	80	110
	50				
NMTB ANSIB5.18	40	188,5	13	65	-
	50	191,5	16	80	110

TAR04.PL

caratteristiche/*features*

ø 4 | M3

1-1 | 8000

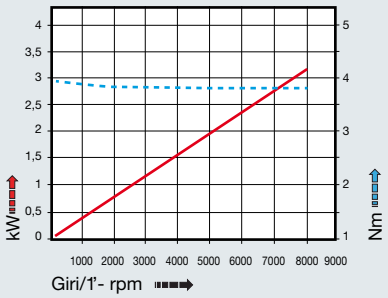
peso/*weight*

7,1 kg | 9,5 kg

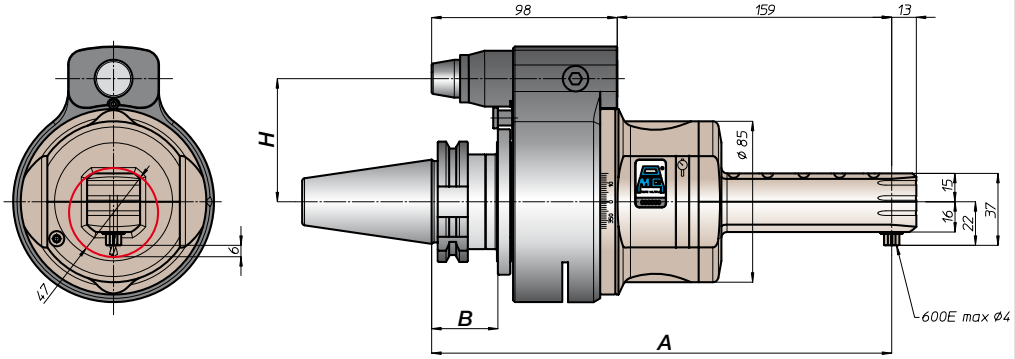
rotazione/*rotation*

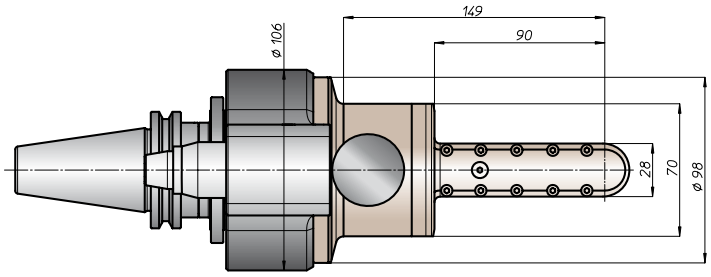
input | output

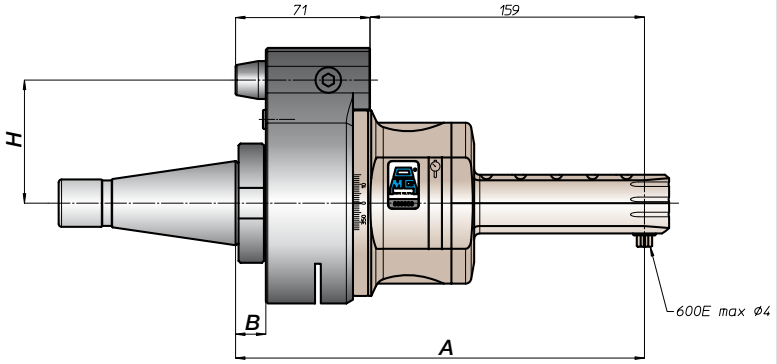
prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	257	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	265	45	80	110
HSK DIN69893	63	266	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	261		65	
	C6		39		
	C8			80	110
KM	63	257		65	
	80			80	110
	100				
DIN2080	-	227	13	65	-
	40				
	-	230	16	80	110
	50				
NMTB ANSIB5.18	40	227	13	65	-
	50	230	16	80	110







testa ad angolo - *angle head*

TAR06.P

caratteristiche/*features*

ø 6 | M5

1-1 | 8000

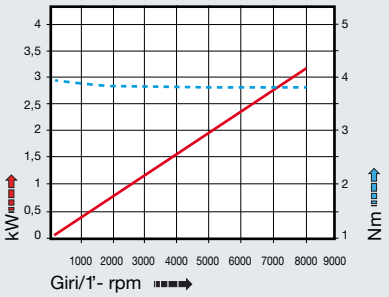
peso/*weight*

7,2 kg | 9,6 kg

rotazione/*rotation*

input | output

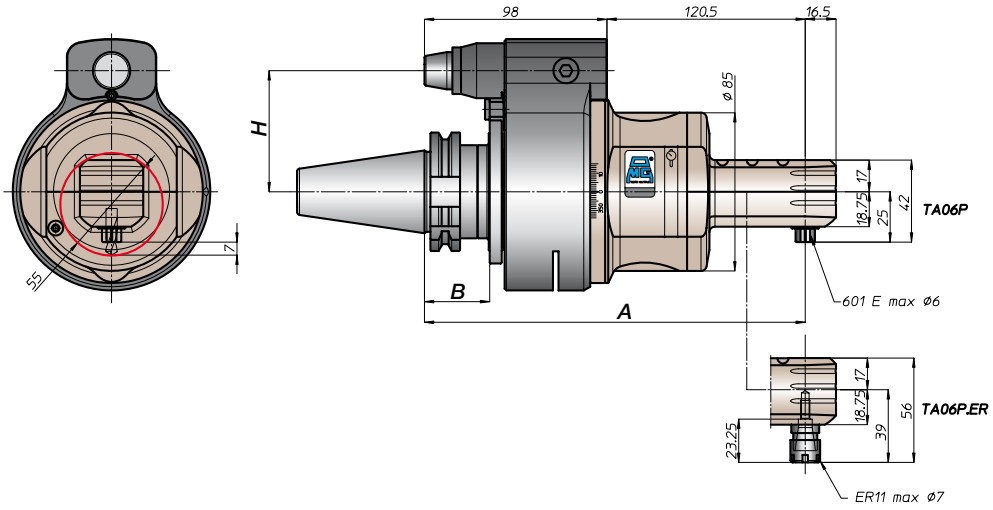
prestazioni/*performances*

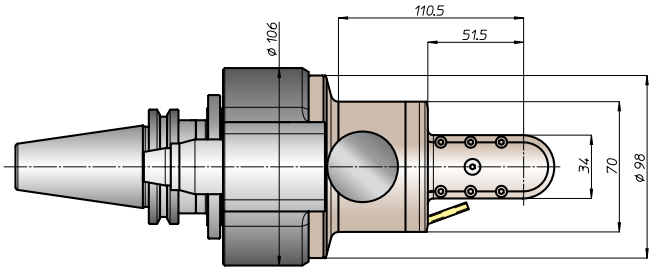


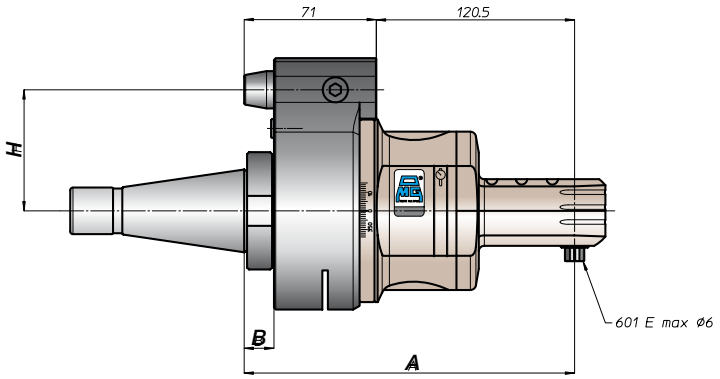
tipi mandrino disponibili / *available spindle types*

3 Weldon Whistle-Notch

Ø6







CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	218,5	35	65	-
	40				
	45			80	110
	50				
ANSIB5.50 CAT	40			65	-
	50			80	110
BT	40			65	
	50	226,5	45	80	110
DIN69893 HSK	63	227,5	44	65	
	80		46	80	110
	100				
ISO26623 CAPTO	C5	222,5		65	
	C6		39		
	C8			80	110
KM	63	218,5		65	
	80			80	110
	100				
DIN2080	-	188,5	13	65	-
	40				
	-	191,5	16	80	110
	50				
ANSIB5.18 NMTB	40	188,5	13	65	-
	50	191,5	16	80	110

TAR06.PL

caratteristiche/*features*

ø 6 | M5 | 1-1 | 8000

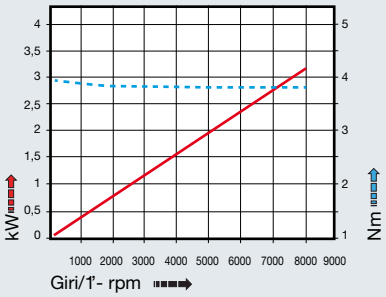
peso/*weight*

40: 7,3 kg | 50: 9,7 kg

rotazione/*rotation*

IN (input) → OUT (output)

prestazioni/*performances*

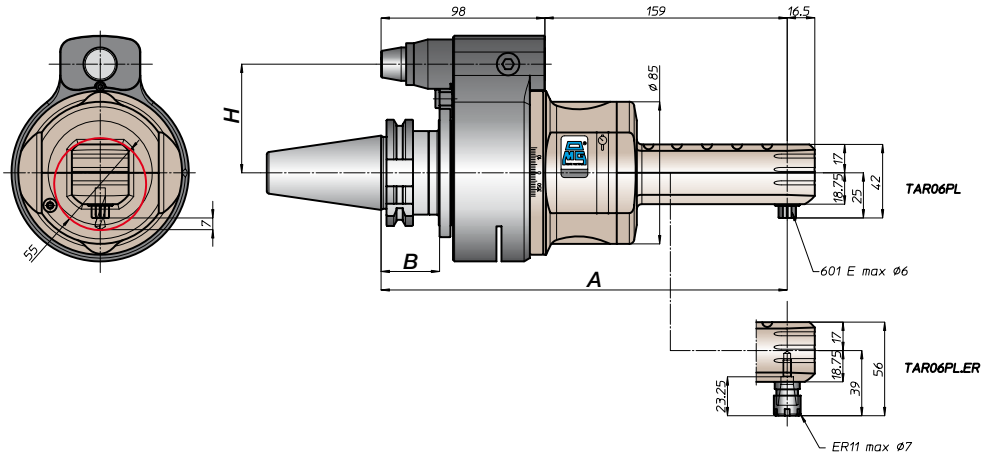


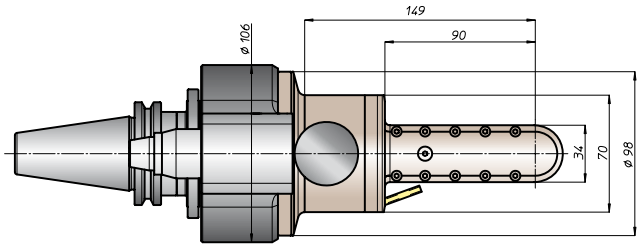
CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	257	35	65	-
	40				
	45			80	110
	50				
ANSIB5.50 CAT	40			65	-
	50			80	110
BT	40			65	
	50	265	45	80	110
DIN69893 HSK	63	266	44	65	
	80		46	80	110
	100				
ISO26623 CAPTO	C5	261		65	
	C6		39		
	C8			80	110
KM	63	257		65	
	80			80	110
	100				
DIN2080	-	227	13	65	-
	40				
	-	230	16	80	110
	50				
ANSIB5.18 NMTB	40	227	13	65	-
	50	230	16	80	110

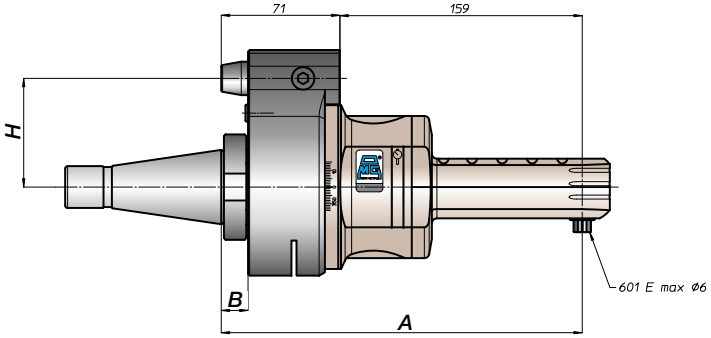
tipi mandrino disponibili / *available spindle types*

3 Weldon Whistle-Notch

Ø6







testa ad angolo - *angle head*

TAR10.P

caratteristiche/*features*

ø 10 | M8

1-1 | 6000

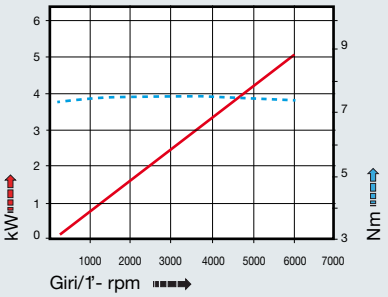
peso/*weight*

7 kg | 9 kg

rotazione/*rotation*

input | output

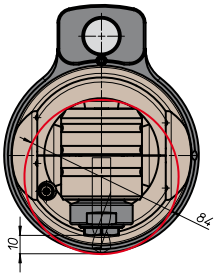
prestazioni/*performances*

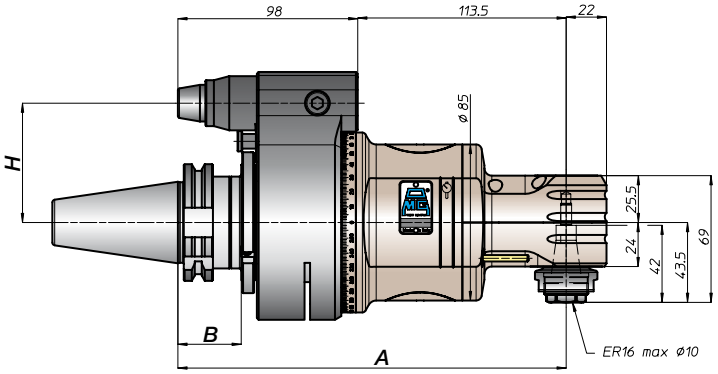


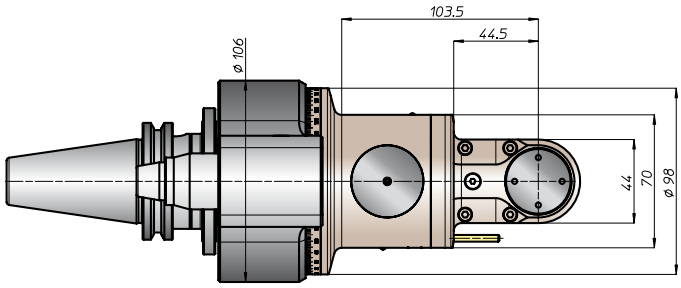
tipi mandrino disponibili / *available spindle types*

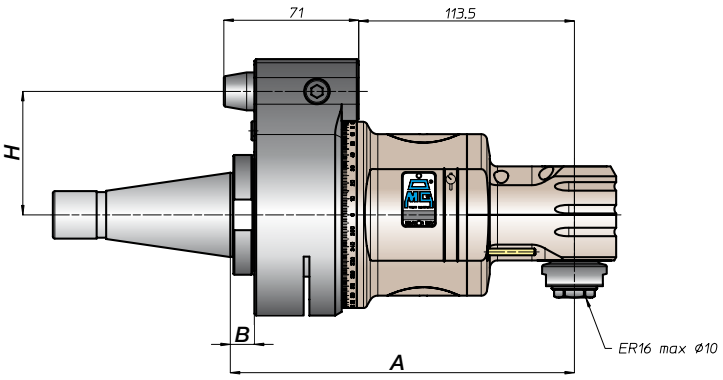
3 Weldon Whistle-Notch

Ø12









CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	211,5	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	219,5	45	80	110
HSK DIN69893	63	220,5	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	215,5		65	
	C6		39		
	C8			80	110
KM	63	211,5		65	
	80			80	110
	100				
DIN2080	-	181,5	13	65	-
	40				
	-	184,5	16	80	110
	50				
NMTB ANSIB5.18	40	181,5	13	65	-
	50	184,5	16	80	110

TAR10.PL

caratteristiche/*features*

ø 10 | M8

1-1 | 6000

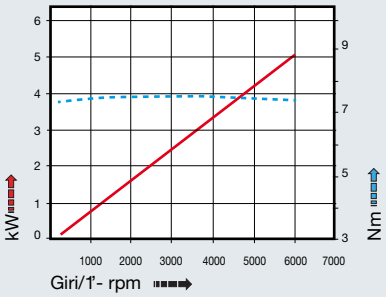
peso/*weight*

7,5 kg | 9,3 kg

rotazione/*rotation*

input | output

prestazioni/*performances*

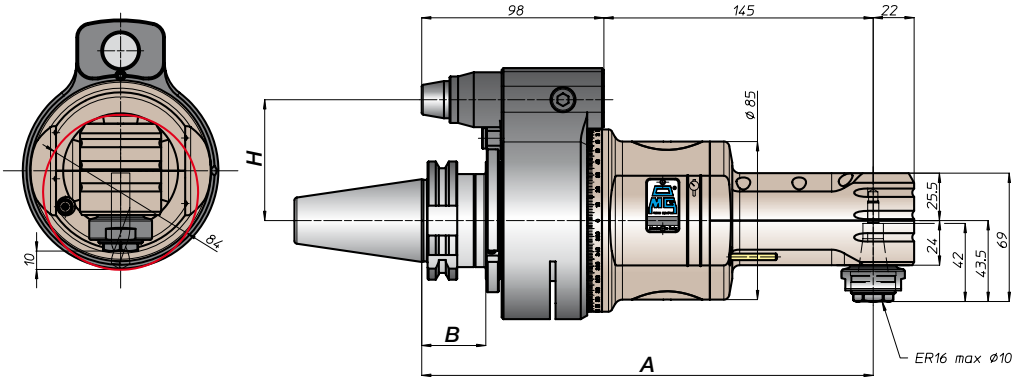


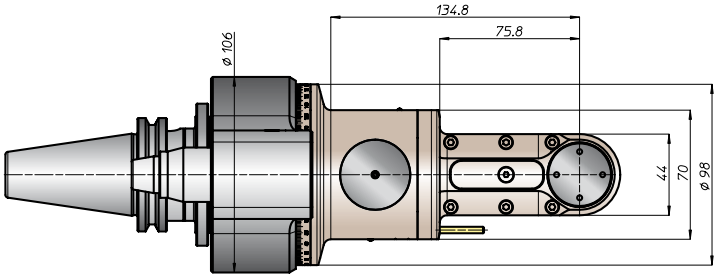
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	243	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	251	45	80	110
HSK DIN69893	63	252	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	247		65	
	C6		39		
	C8			80	110
KM	63	243		65	
	80			80	110
	100				
DIN2080	-	213	13	65	-
	40				
	-	216	16	80	110
	50				
NMTB ANSIB5.18	40	213	13	65	-
	50	216	16	80	110

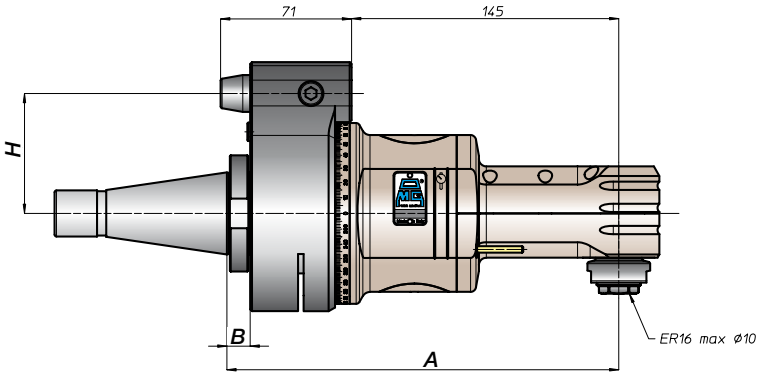
tipi mandrino disponibili / *available spindle types*

3 Weldon Whistle-Notch

Ø12







testa ad angolo - *angle head*

TA07.P

caratteristiche/*features*

ø 7 | M6

1-1 | 10000

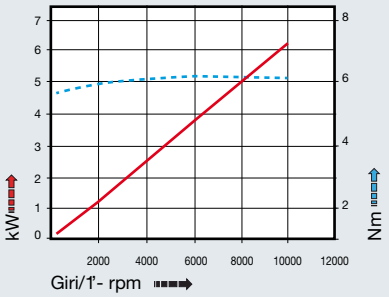
peso/*weight*

5,5 kg | 7,5 kg

rotazione/*rotation*

input | output

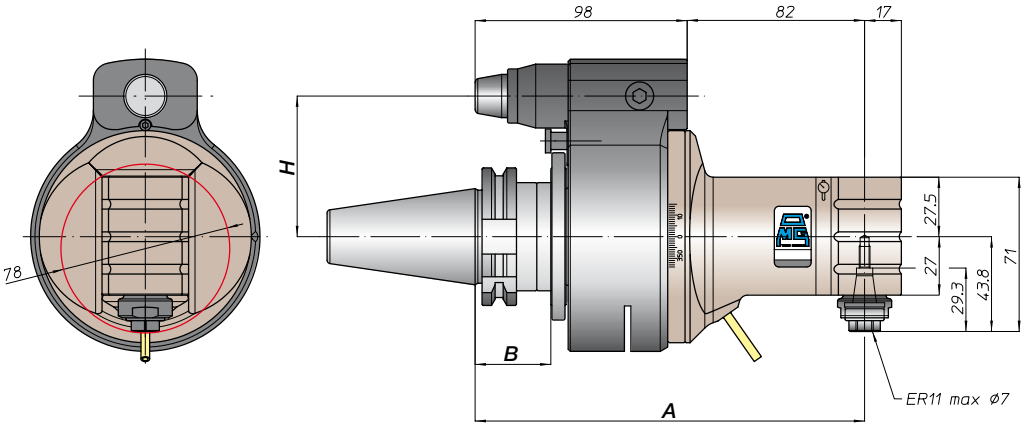
prestazioni/*performances*

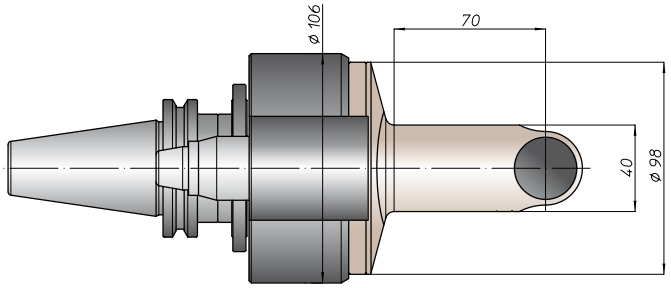


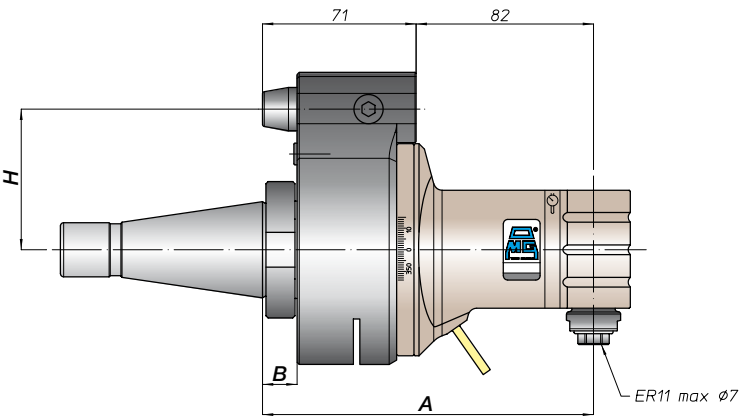
tipi mandrino disponibili / *available spindle types*

3 Weldon Whistle-Notch

Ø8-Ø10







CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	180	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	188	45	80	110
HSK DIN69893	63	189	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	184		65	
	C6		39		
	C8			80	110
KM	63	180		65	
	80			80	110
	100				
DIN2080	-	150	13	65	-
	40				
	-	153	16	80	110
	50				
NMTB ANSIB5.18	40	150	13	65	-
	50	153	16	80	110

TA07.PL

caratteristiche/*features*

ø 7 | M6

1-1 | 10000

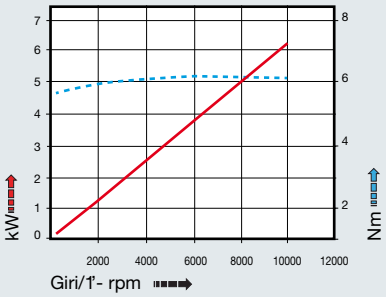
peso/*weight*

40: 6,5 kg | 50: 8,8 kg

rotazione/*rotation*

IN (input) → OUT (output)

prestazioni/*performances*

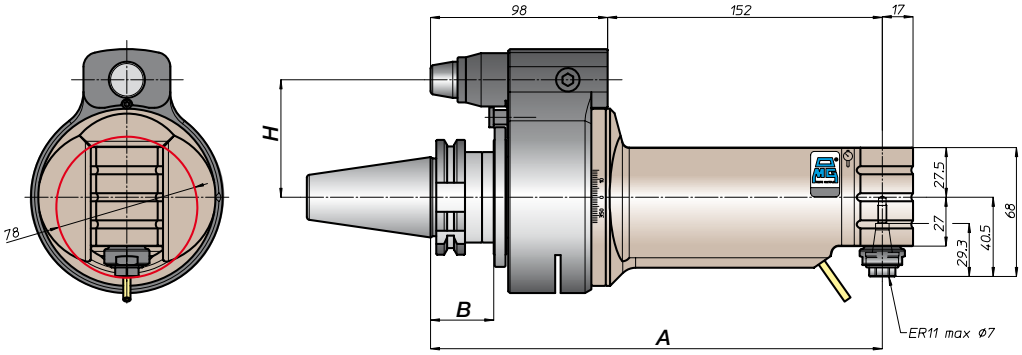


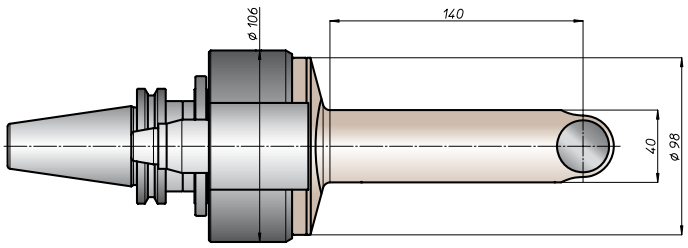
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	250	35	65	-
	40				
	45			80	110
	50				
ANSIB5.50 CAT	40			65	-
	50			80	110
BT	40			65	
	50	258	45	80	110
DIN69893 HSK	63	259	44	65	
	80		46	80	110
	100				
ISO26623 CAPTO	C5	254		65	
	C6		39		
	C8			80	110
KM	63	250		65	
	80			80	110
	100				
DIN2080	-	220	13	65	-
	40				
	-	223	16	80	110
	50				
ANSIB5.18 NMTB	40	220	13	65	-
	50	223	16	80	110

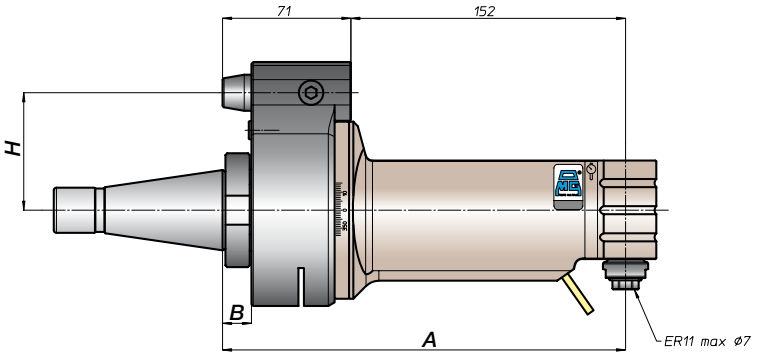
tipi mandrino disponibili / *available spindle types*

3 Weldon Whistle-Notch

Ø8-Ø10







testa ad angolo - *angle head*

TA10.P

caratteristiche/*features*

ø 10 | M8

1-1 | 10000

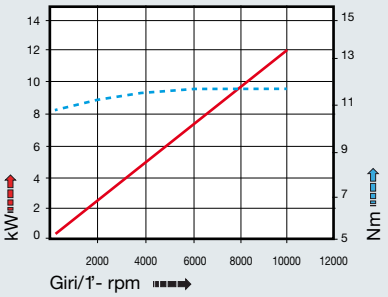
peso/*weight*

5,8 kg | 8 kg

rotazione/*rotation*

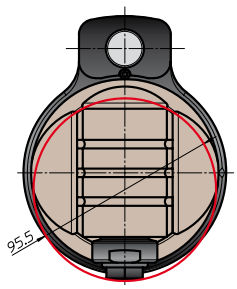
input | output

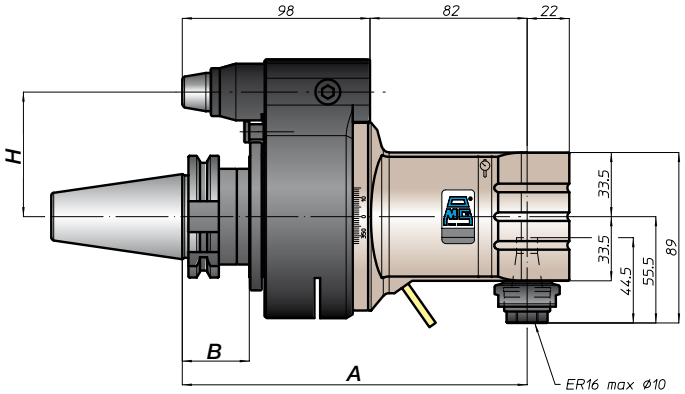
prestazioni/*performances*

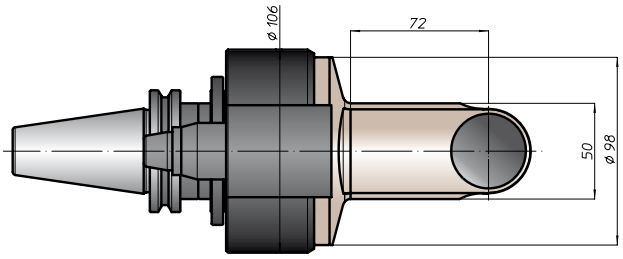


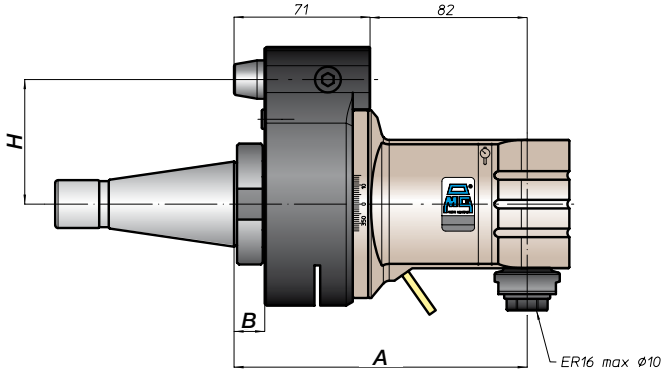
tipi mandrino disponibili / *available spindle types*

1	2	3
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch
ER20	**Ø16**	**Ø10**









CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	180	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	188	45	80	110
HSK DIN69893	63	189	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	184		65	
	C6		39		
	C8			80	110
KM	63	180		65	
	80			80	110
	100				
DIN2080	-	150	13	65	-
	40				
	-	153	16	80	110
	50				
NMTB ANSIB5.18	40	150	13	65	-
	50	153	16	80	110

TA10.PL

caratteristiche/*features*

ø 10 | M8

1-1 | 10000

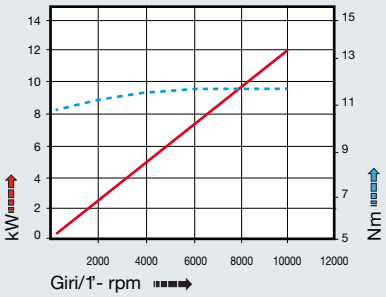
peso/*weight*

7,5 kg | 9,8 kg

rotazione/*rotation*

input | output

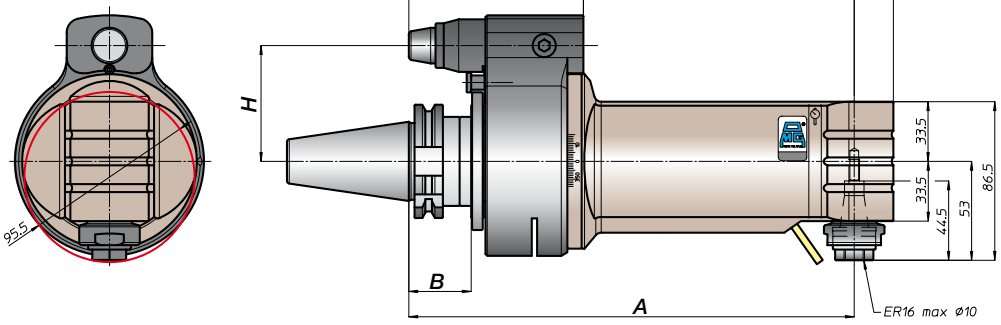
prestazioni/*performances*

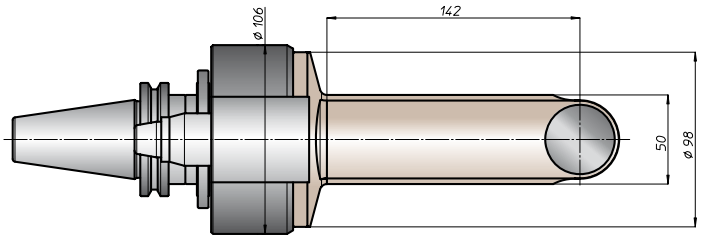


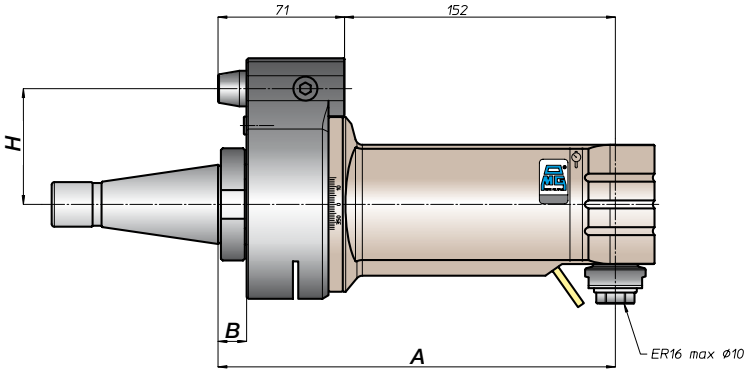
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	250	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	258	45	80	110
HSK DIN69893	63	259	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	254		65	
	C6		39		
	C8			80	110
KM	63	250		65	
	80			80	110
	100				
DIN2080	-	220	13	65	-
	40				
	-	223	16	80	110
	50				
NMTB ANSIB5.18	40	220	13	65	-
	50	223	16	80	110

tipi mandrino disponibili / *available spindle types*

1	2	3
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch
ER20	**Ø16**	**Ø10**







testa ad angolo - *angle head*

TA13.P

caratteristiche/*features*

ø 13 | M10

1-1 | 8000

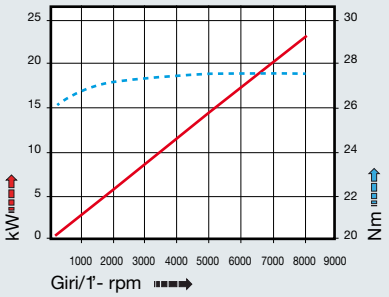
peso/*weight*

6,5 kg | 9 kg

rotazione/*rotation*

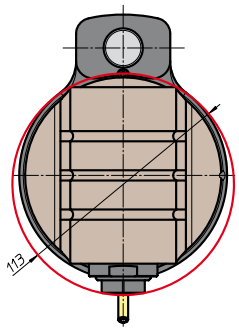
input | output

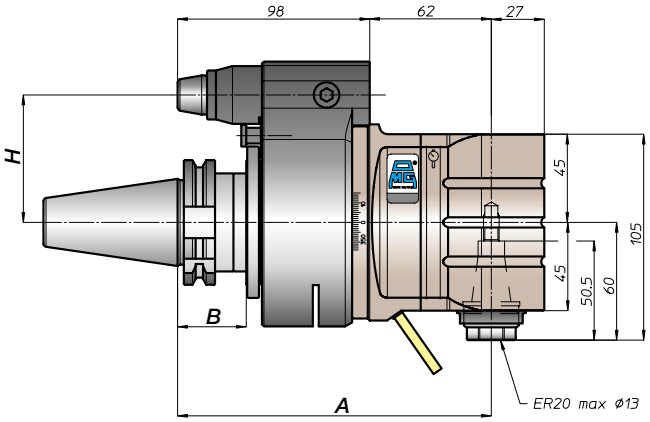
prestazioni/*performances*

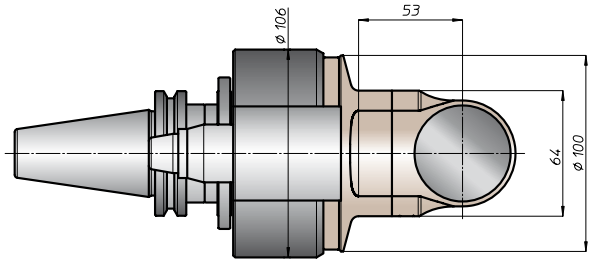


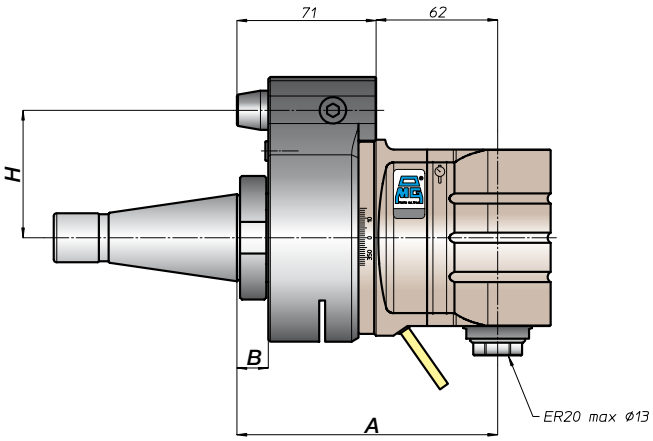
tipi mandrino disponibili / *available spindle types*

1	2	3
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch
ER25	**Ø16-Ø22**	**Ø16**









CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	160	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	168	45	80	110
HSK DIN69893	63	169	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	164		65	
	C6		39		
	C8			80	110
KM	63	160		65	
	80			80	110
	100				
DIN2080	-	130	13	65	-
	40				
	-	133	16	80	110
	50				
NMTB ANSIB5.18	40	130	13	65	-
	50	133	16	80	110

TA13.PL

caratteristiche/*features*

ø 13 | M10 | 1-1 | 8000

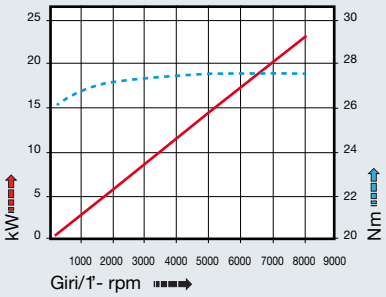
peso/*weight*

40: 9,5 kg | 50: 12 kg

rotazione/*rotation*

IN (input) → OUT (output)

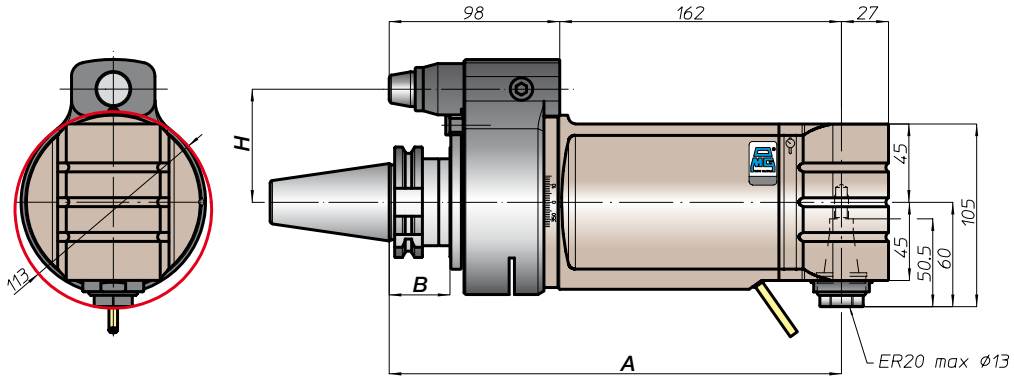
prestazioni/*performances*

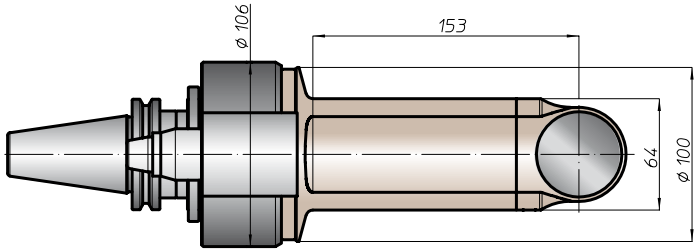


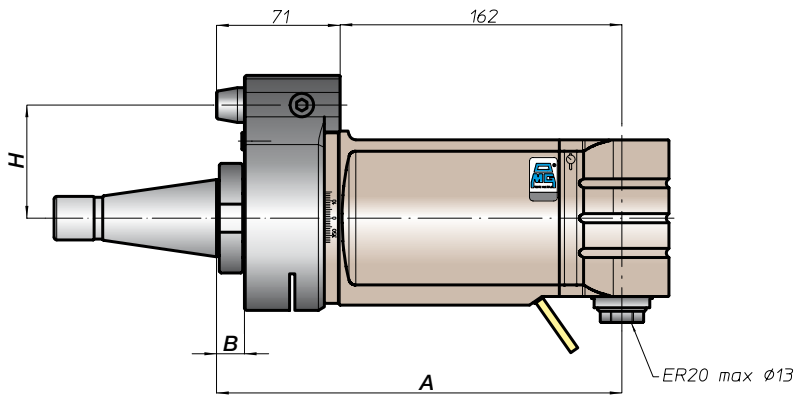
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	260	35	65	-
	40				
	45			80	110
	50				
ANSIB5.50 CAT	40			65	-
	50			80	110
BT	40			65	
	50	268	45	80	110
DIN69893 HSK	63	269	44	65	
	80		46	80	110
	100				
ISO26623 CAPTO	C5	264		65	
	C6		39		
	C8			80	110
KM	63	260		65	
	80			80	110
	100				
DIN2080	-	230	13	65	-
	40				
	-	233	16	80	110
	50				
ANSIB5.18 NMTB	40	230	13	65	-
	50	233	16	80	110

tipi mandrino disponibili / *available spindle types*

1	2	3
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch
ER25	**Ø16-Ø22**	**Ø16**







TA16.P

caratteristiche/*features*

ø 16 | M12

1-1 | 5000

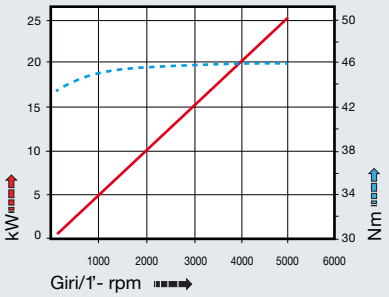
peso/*weight*

7,7 kg | 11,7 kg

rotazione/*rotation*

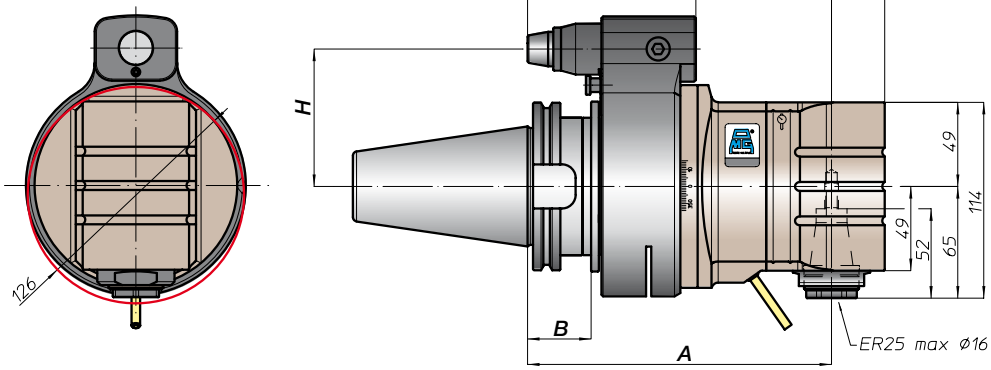
input | output

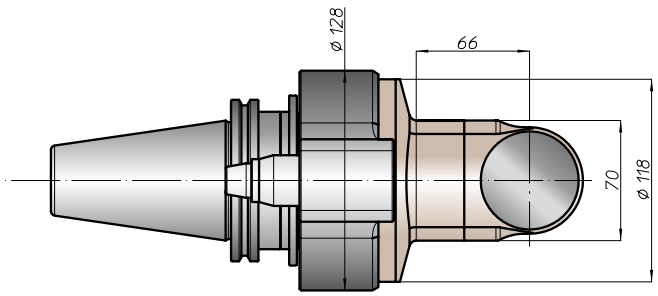
prestazioni/*performances*

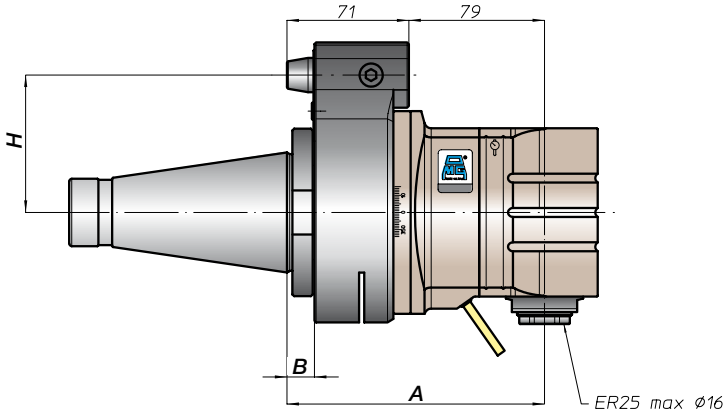


tipi mandrino disponibili / *available spindle types*

1	2	3	4	5	6
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch	DIN69893-HSK	COROMANT CAPTO®	ABS Licenza KOMET®
ER32	Ø16-Ø22-Ø27-Ø32	Ø20	HSK32	C3	ABS32







CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	172	35	65	-
	40				
	45	177		80	110
	50				
CAT ANSIB5.50	40	172		65	-
	50	177		80	110
BT	40	172		65	
	50	185	45	80	110
HSK DIN69893	63	181	44	65	
	80	186	46	80	110
	100				
CAPTO ISO26623	C5	176		65	
	C6	181	39		
	C8			80	110
KM	63	172		65	
	80	177		80	110
	100				
DIN2080	-	147	13	65	-
	40				
	-	150	16	80	110
	50				
NMTB ANSIB5.18	40	142	13	65	-
	50	150	16	80	110

TA16.PL

caratteristiche/*features*

ø 16 | M12 | 1-1 | 5000

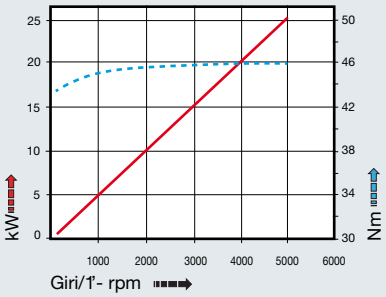
peso/*weight*

15,5 kg

rotazione/*rotation*

input → output

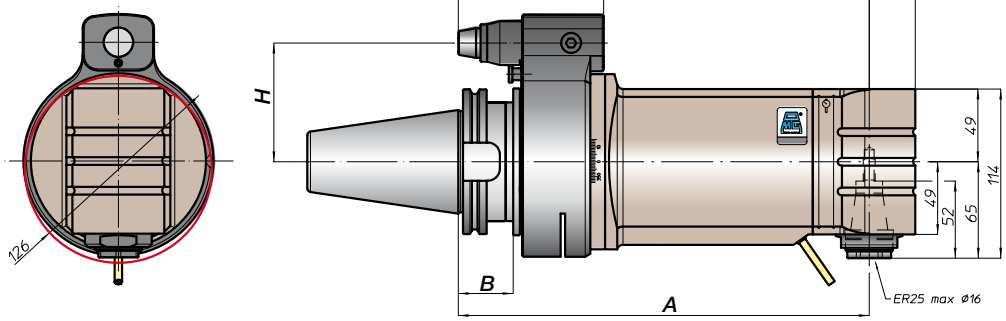
prestazioni/*performances*

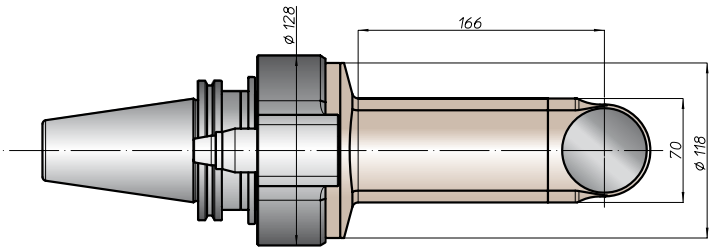


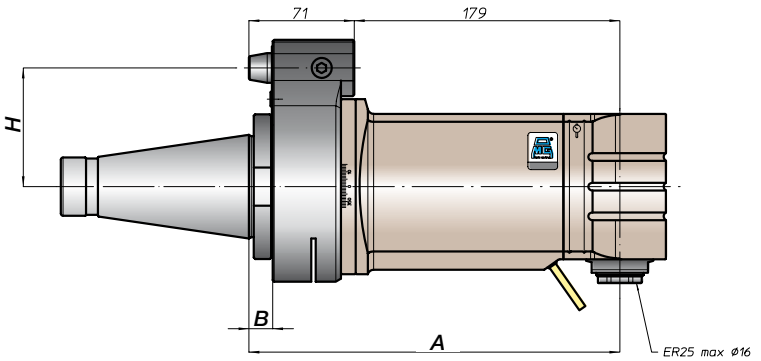
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	-		-	-
	-				
	45	277	35	80	110
	50				
CAT ANSIB5.50	-	-		-	-
	50	277		80	110
BT	-	-	-	-	-
	50	285	45	80	110
HSK DIN69893	-	-	-	-	-
	80	286	46	80	110
	100				
CAPTO ISO26623	-	-	-	-	-
	C6	281	39	80	110
	C8				
KM	-	-	-	-	-
	80	277		80	110
	100				
DIN2080	-	-	-	-	-
	-				
	-	250	16	80	110
	50				
NMTB ANSIB5.18	-	-	-	-	-
	50	250	16	80	110

tipi mandrino disponibili / *available spindle types*

1	2	3	4	5	6
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch	DIN69893-HSK	COROMANT CAPTO®	ABS Licenza KOMET®
ER32	Ø16-Ø22-Ø27-Ø32	Ø20	HSK32	C3	ABS32







testa ad angolo - *angle head*

TA20.P

caratteristiche/*features*

ø 20 | M14

1-1 | 3500

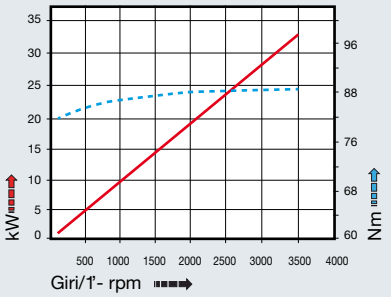
peso/*weight*

14,5 kg

rotazione/*rotation*

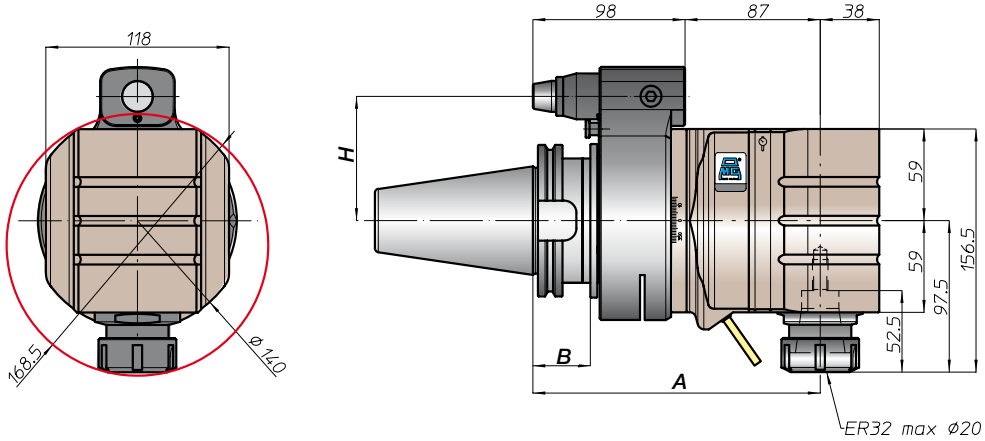
input | output

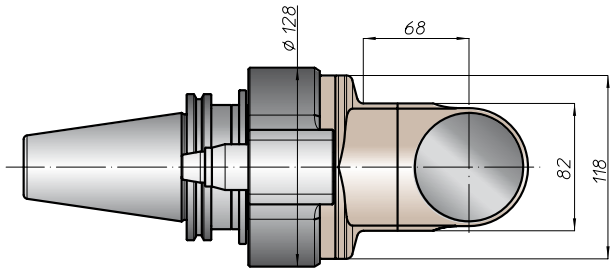
prestazioni/*performances*

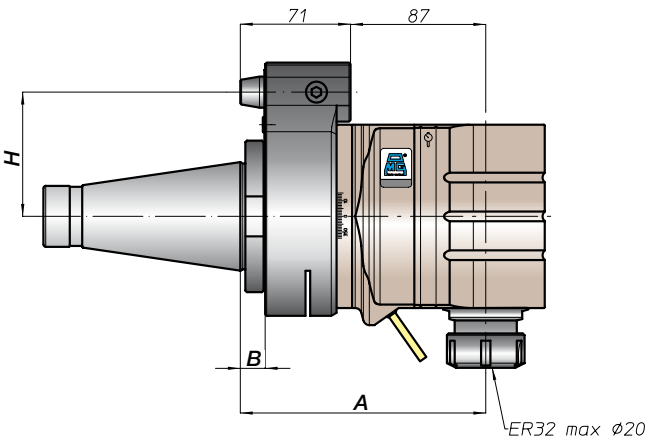


tipi mandrino disponibili / *available spindle types*

1	2	3	4	5	6
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch	DIN69893-HSK	COROMANT CAPTO®	ABS Licenza KOMET®
ER40	**Ø22-Ø27-Ø32**	**Ø20-Ø25-Ø32**	**HSK40**	**C4**	**ABS40**







CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	185	35	-	-
	-				
	45			80	110
	50				
CAT ANSIB5.50	-			-	-
	50			80	110
BT	-			-	
	50	193	45	80	110
HSK DIN69893	-	194	-	-	
	80		46	80	110
	100				
CAPTO ISO26623	-	189		-	
	-			80	110
	C8				
KM	-	185		-	
	80			80	110
	100				
DIN2080	-		-	-	-
	-				
	-	158	16	80	110
	50				
NMTB ANSIB5.18	-		-	-	-
	50	158	16	80	110

TA20.PL

caratteristiche/*features*

ø 20 — M14

1-1 — 3500

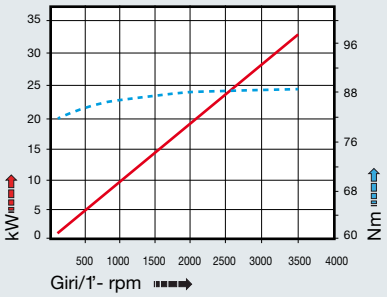
peso/*weight*

16,5 kg

rotazione/*rotation*

input — output

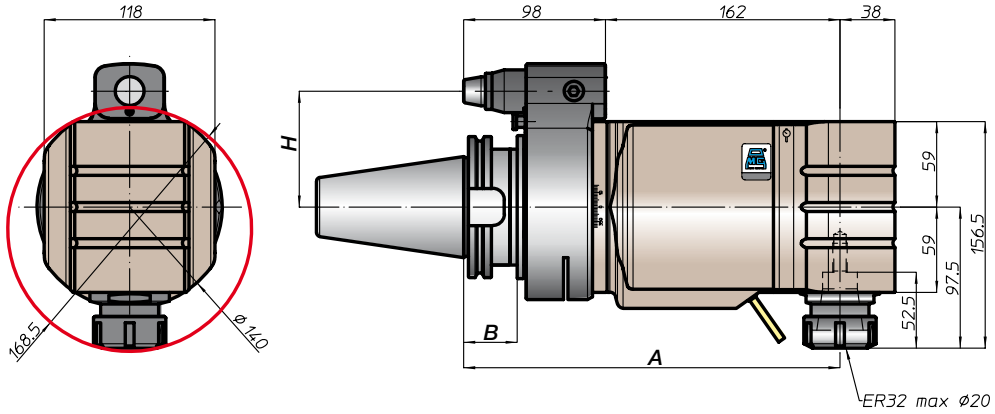
prestazioni/*performances*

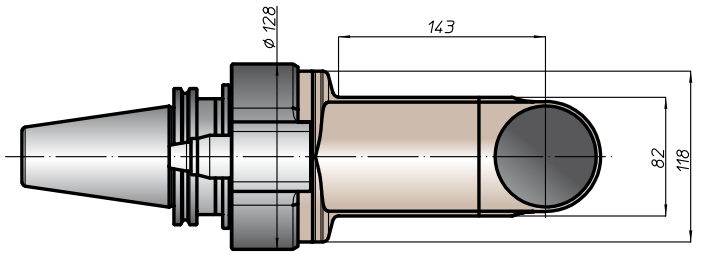


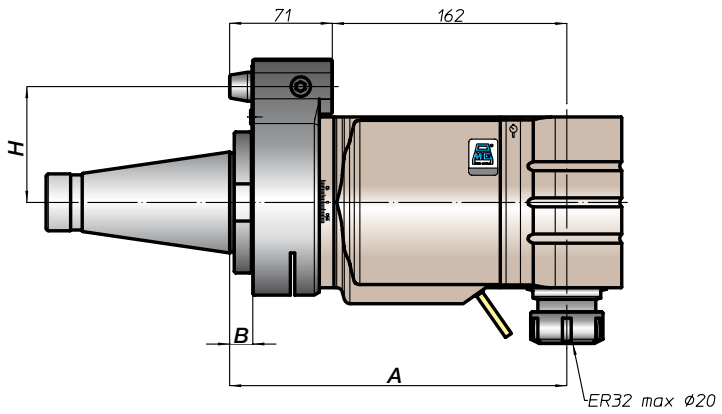
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	185	35	-	-
	-				
	45			80	110
	50				
CAT ANSIB5.50	-			-	-
	50			80	110
BT	-			-	
	50	193	45	80	110
HSK DIN69893	-	194	-	-	
	80		46	80	110
	100				
CAPTO ISO26623	-	189		-	
	-			80	110
	C8				
KM	-	185		-	
	80			80	110
	100				
DIN2080	-		-	-	-
	-				
	-	158	16	80	110
	50				
NMTB ANSIB5.18	-		-	-	-
	50	158	16	80	110

tipi mandrino disponibili / *available spindle types*

1	2	3	4	5	6
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch	DIN69893-HSK	COROMANT CAPTO®	ABS Licenza KOMET®
ER40	**Ø22-Ø27-Ø32**	**Ø20-Ø25-Ø32**	**HSK40**	**C4**	**ABS40**







TA Extended Gallery

TA20.30

caratteristiche/*features*

ø 20 — M14

1-1 — 3500

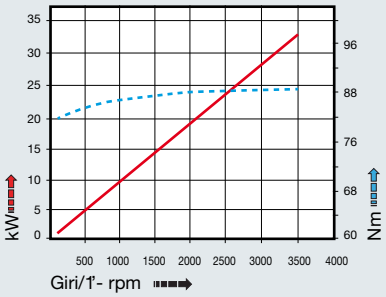
peso/*weight*

14,7 kg

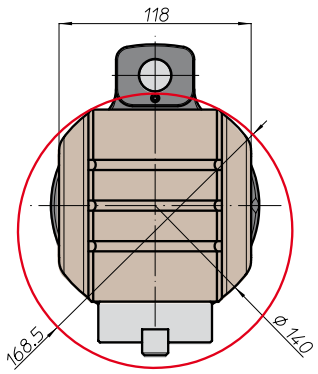
rotazione/*rotation*

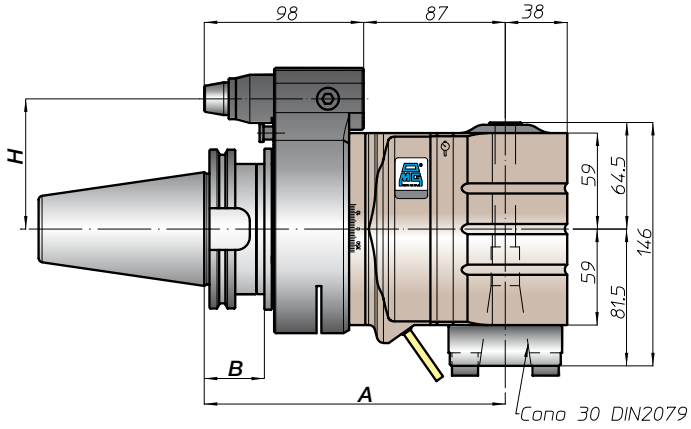
input — output

prestazioni/*performances*



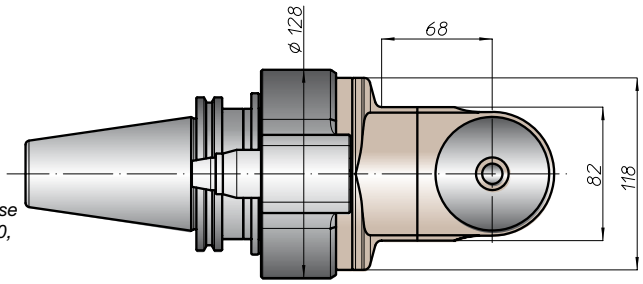
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	185	35	-	-
	-				
	45			80	110
	50				
CAT ANSIB5.50	-			65	-
	50			80	110
BT	-			-	
	50	193	45	80	110
HSK DIN69893	-		-	-	
	80	194	46	80	110
	100				
CAPTO ISO26623	-	189		-	
	-			80	110
	C8				
KM	-	185		-	
	80			80	110
	100				
DIN2080	-		-	-	-
	-				
	-	158	16	80	110
	50				
NMTB ANSIB5.18	-		-	-	-
	50	158	16	80	110

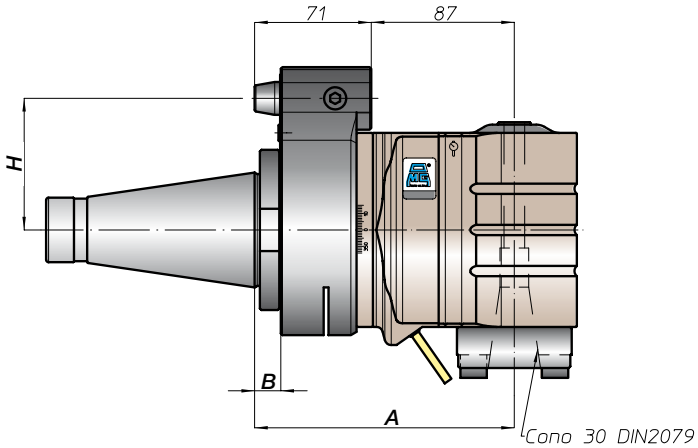




Nota:
- nel mandrino DIN2079 si possono utilizzare coni DIN2080-30, DIN69871-A30, MAS403-BT30

Note:
- *on the spindle DIN2079 you can use shank DIN2080-30, DIN69871-A30, MAS403-BT30*





testa ad angolo - *angle head*

TA26.P

caratteristiche/*features*

ø 26 | M20

1-1 | 2500

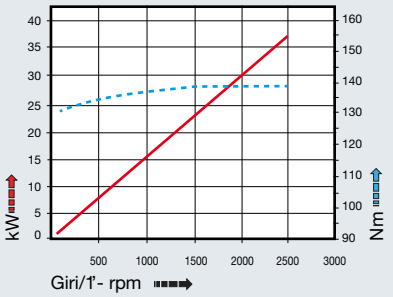
peso/*weight*

22 kg

rotazione/*rotation*

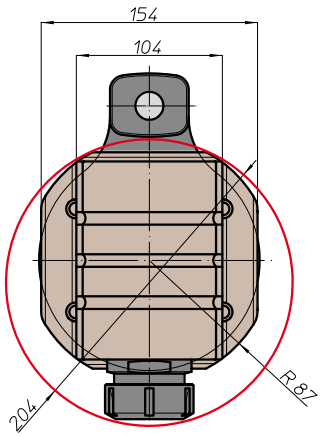
input | output

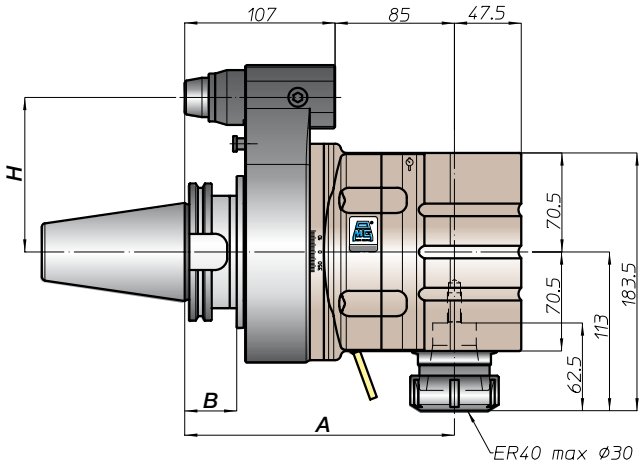
prestazioni/*performances*

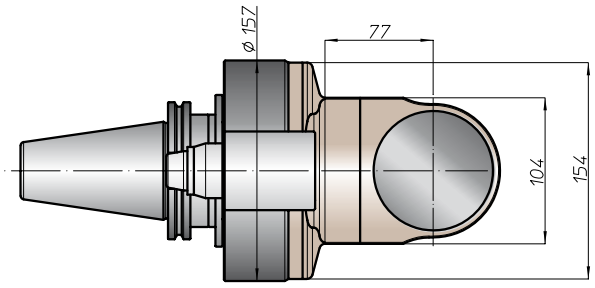


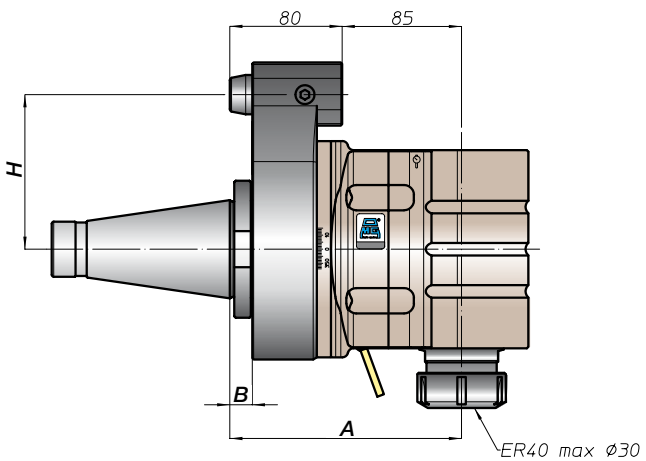
tipi mandrino disponibili / *available spindle types*

2	3	4	5	6
Albero portafrese Milling shaft	Weldon Whistle-Notch	DIN69893-HSK	COROMANT CAPTO®	ABS Licenza KOMET®
Ø16-Ø27-Ø32	**Ø32**	**HSK63**	**C4**	**ABS50**









CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	192	35	-	-
	-				
	45			110	-
	50				
CAT ANSIB5.50	-			-	-
	50			110	-
BT	-			-	
	50	200	45	110	-
HSK DIN69893	-		-	-	
	80	201	46	110	-
	100				
CAPTO ISO26623	-	196		-	
	-			110	-
	C8				
KM	-	192		-	
	-			110	-
	100				
DIN2080	-		-	-	-
	-				
	-	165	16	110	-
	50				
NMTB ANSIB5.18	-		-	-	-
	50	165	16	110	-

TA26.40

caratteristiche/*features*

ø 26

M20

1-1

2500

peso/*weight*

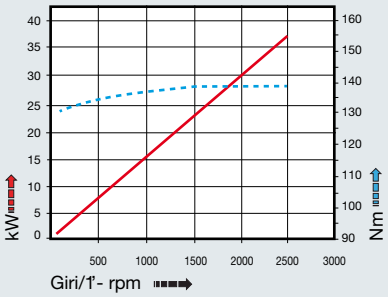
22 kg

rotazione/*rotation*

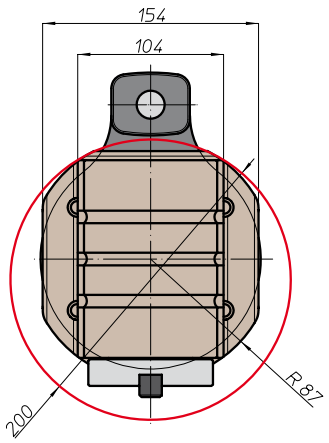
input

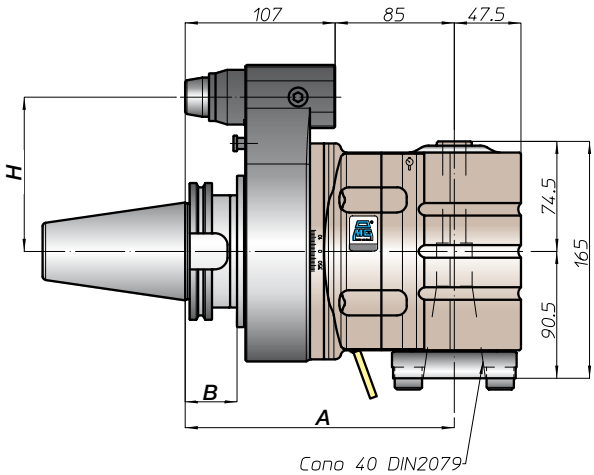
output

prestazioni/*performances*



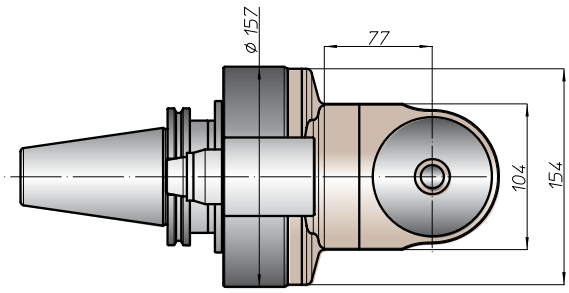
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	192	35	-	-
	-				
	45			110	-
	50				
CAT ANSIB5.50	-			-	-
	50			110	-
BT	-			-	
	50	200	45	110	-
HSK DIN69893	-		-	-	
	80	201	46	110	-
	100				
CAPTO ISO26623	-	196		-	
	-			110	-
	C8				
KM	-	192		-	
	-			110	-
	100				
DIN2080	-		-	-	-
	-				
	-	165	16	110	-
	50				
NMTB ANSIB5.18	-		-	-	-
	50	165	16	110	-

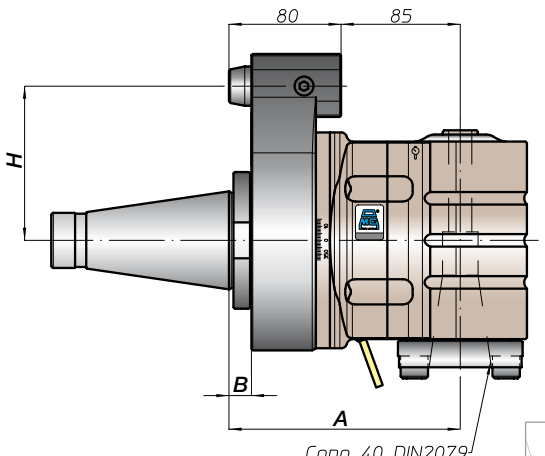




Nota:
- nel mandrino DIN2079 si possono utilizzare coni DIN2080-40, DIN69871-A40, MAS403-BT40

Note:
- *on the spindle DIN2079 you can use shank DIN2080-40, DIN69871-A40, MAS403-BT40*





testa ad angolo - *angle head*

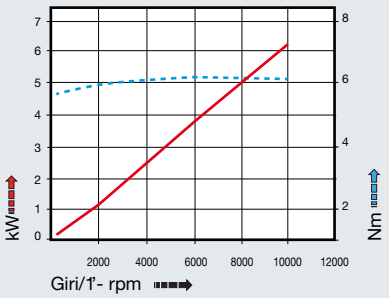
TA07.2P

caratteristiche/*features*

peso/*weight*

rotazione/*rotation*

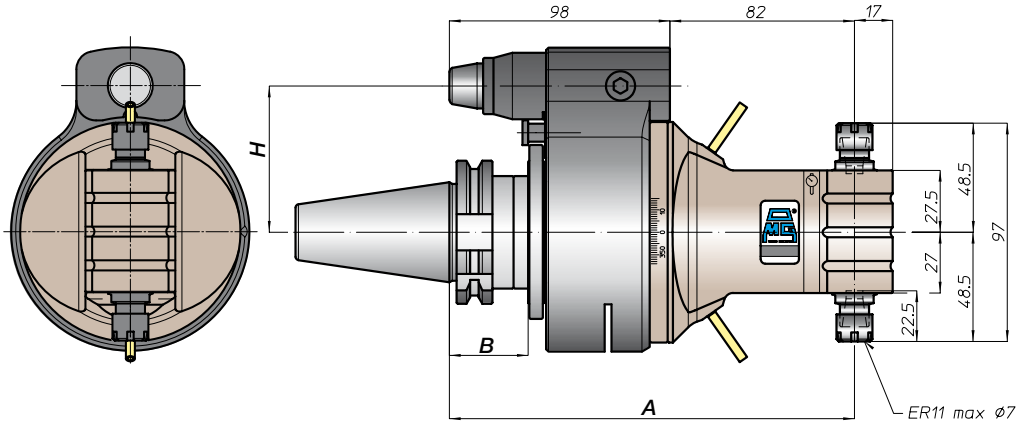
prestazioni/*performances*

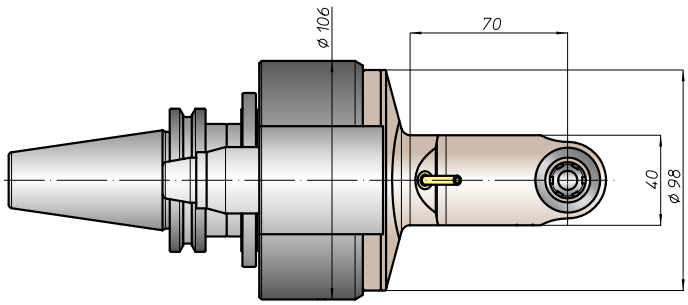


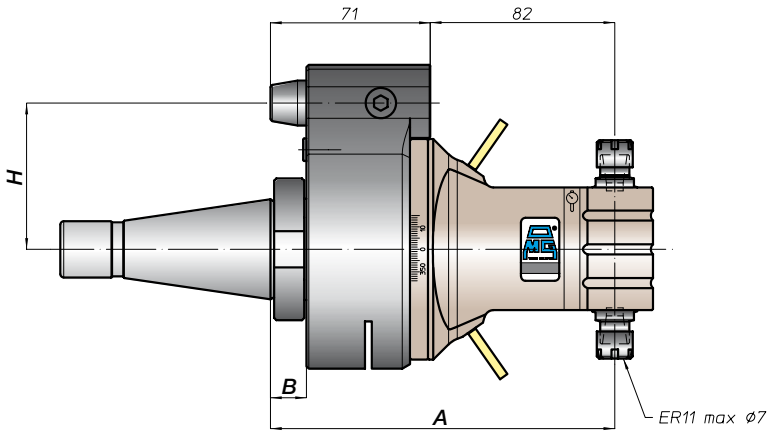
tipi mandrino disponibili / *available spindle types*

3 Weldon Whistle-Notch

Ø10







CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	150	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	158	45	80	110
HSK DIN69893	63	159	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	154		65	
	C6		39		
	C8			80	110
KM	63	150		65	
	80			80	110
	100				
DIN2080	-	120	13	65	-
	40				
	-	123	16	80	110
	50				
NMTB ANSIB5.18	40	120	13	65	-
	50	123	16	80	110

TA10.2P

caratteristiche/*features*

ø 10 | M8

1-1 | 10000

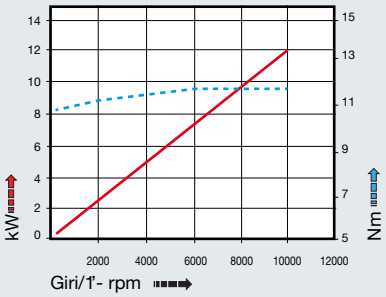
peso/*weight*

5,5 kg | 7,5 kg

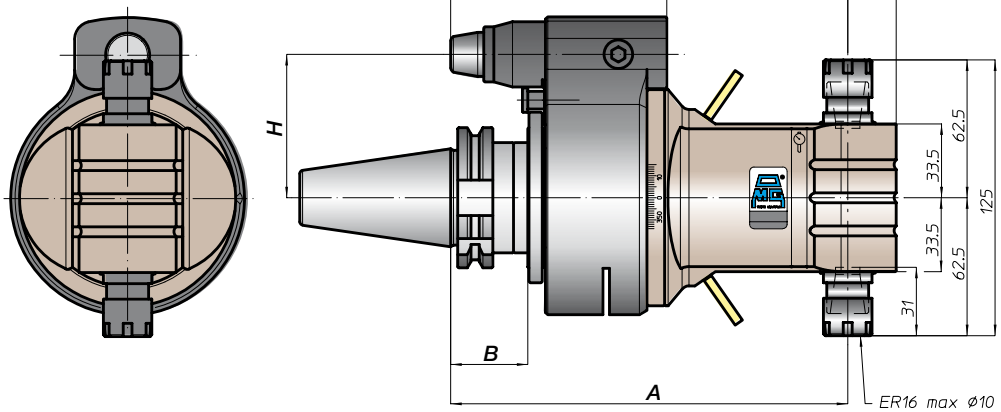
rotazione/*rotation*

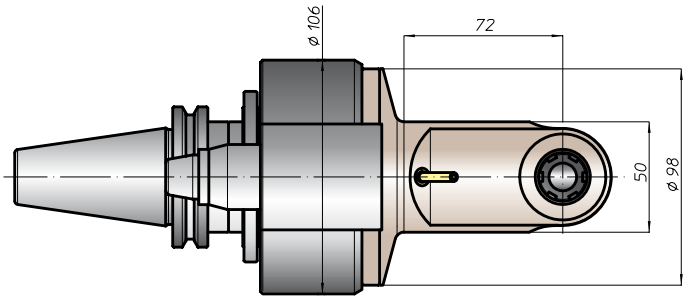
input | output

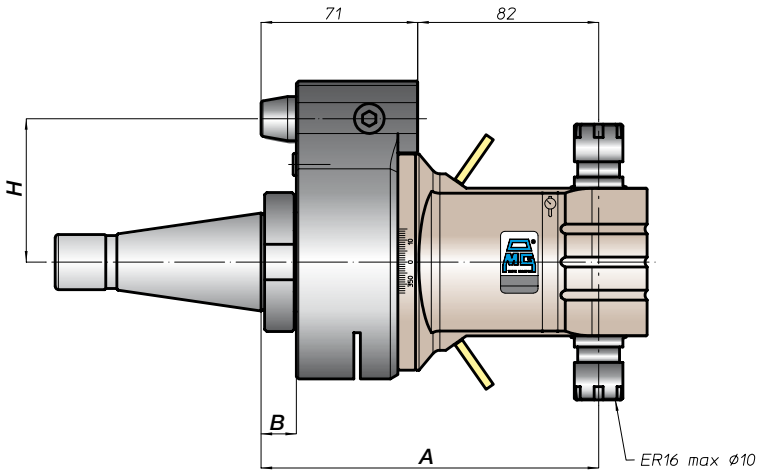
prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	180	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	188	45	80	110
HSK DIN69893	63	189	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	184		65	
	C6		39		
	C8			80	110
KM	63	180		65	
	80			80	110
	100				
DIN2080	-	150	13	65	-
	40				
	-	153	16	80	110
	50				
NMTB ANSIB5.18	40	150	13	65	-
	50	153	16	80	110







testa ad angolo - *angle head*

TA13.2P

caratteristiche/*features*

ø 13 | M10

1-1 | 8000

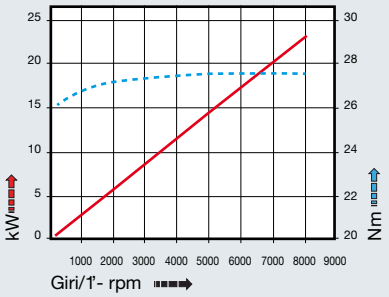
peso/*weight*

6,5 kg | 9 kg

rotazione/*rotation*

input | output

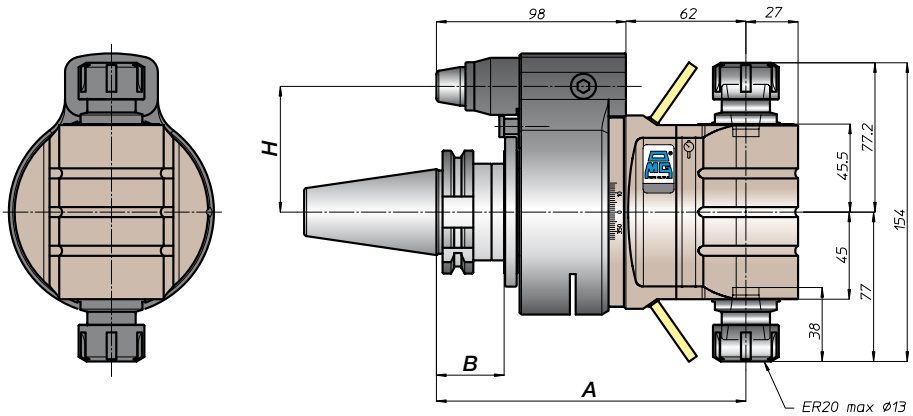
prestazioni/*performances*

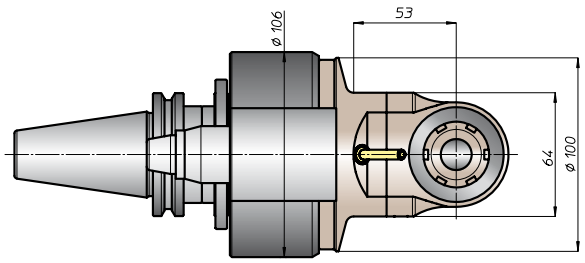


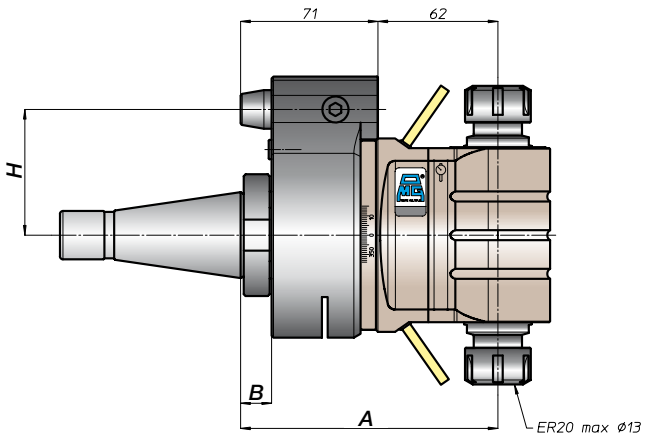
tipi mandrino disponibili / *available spindle types*

1 DIN6388-ER

ER25







CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	160	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	168	45	80	110
HSK DIN69893	63	169	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	164		65	
	C6		39		
	C8			80	110
KM	63	160		65	
	80			80	110
	100				
DIN2080	-	130	13	65	-
	40				
	-	133	16	80	110
	50				
NMTB ANSIB5.18	40	130	13	65	-
	50	133	16	80	110

TA16.2P

caratteristiche/*features*

ø 16 — M12

1-1 — 5000

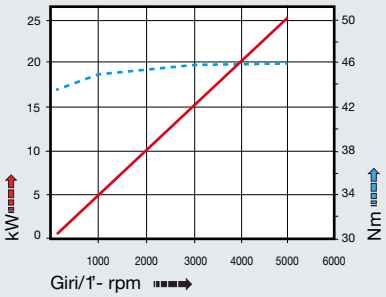
peso/*weight*

7,7 kg — 12,2 kg

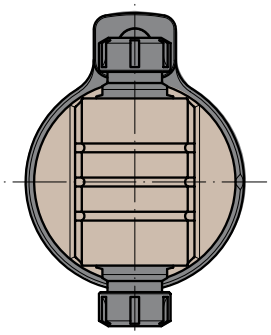
rotazione/*rotation*

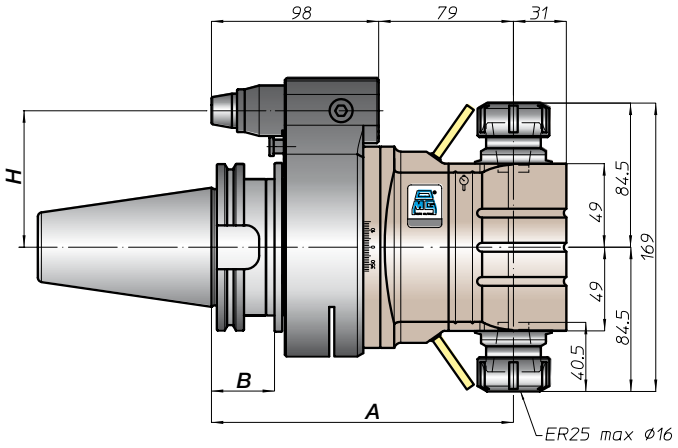
input — output

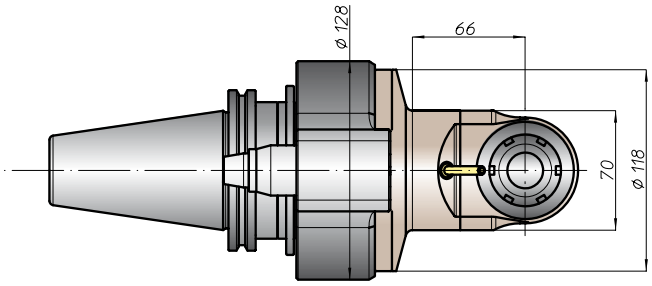
prestazioni/*performances*

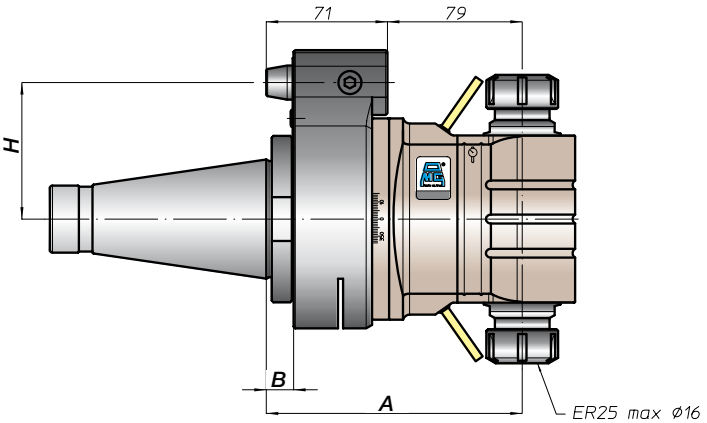


CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	172	35	65	-
	40				
	45	177		80	110
	50				
ANSIB5.50 CAT	40	172		65	-
	50	177		80	110
BT	40	172		65	
	50	185	45	80	110
DIN69893 HSK	63	181	44	65	
	80	186	46	80	110
	100				
ISO26623 CAPTO	C5	176		65	
	C6	181	39		
	C8			80	110
KM	63	172		65	
	80	177		80	110
	100				
DIN2080	-	147	13	65	-
	40				
	-	150	16	80	110
	50				
ANSIB5.18 NMTB	40	142	13	65	-
	50	150	16	80	110









testa ad angolo - *angle head*

TA20.2P

caratteristiche/*features*

ø 20 | M14

1-1 | 3500

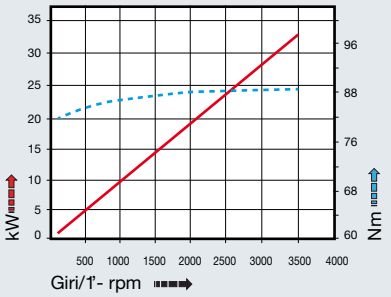
peso/*weight*

15 kg

rotazione/*rotation*

input | output

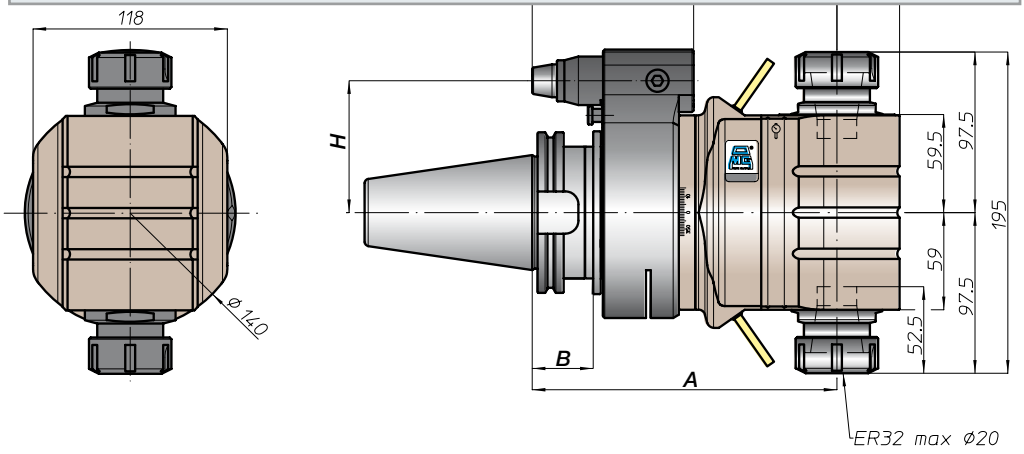
prestazioni/*performances*

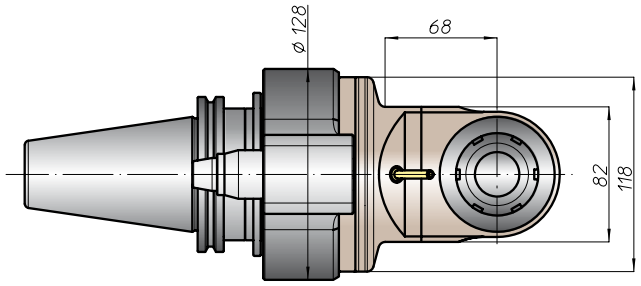


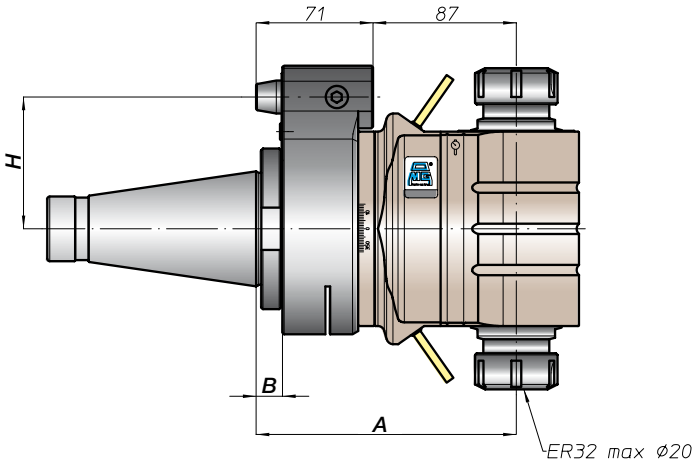
tipi mandrino disponibili / *available spindle types*

2 Albero portafrese / Milling shaft — Ø32

3 Weldon / Whistle-Notch — Ø20







CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	185	35	-	-
	-				
	45			80	110
	50				
CAT ANSIB5.50	-			-	-
	50			80	110
BT	-			-	
	50	193	45	80	110
HSK DIN69893	-	194	-	-	
	80		46	80	110
	100				
CAPTO ISO26623	-	189		-	
	-			80	110
	C8				
KM	-	185		-	
	80			80	110
	100				
DIN2080	-		-	-	-
	-				
	-	158	16	80	110
	50				
NMTB ANSIB5.18	-		-	-	-
	50	158	16	80	110

TA26.2P

caratteristiche/*features*

ø 26 | M20

1-1 | 2500

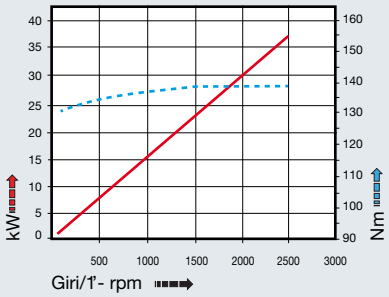
peso/*weight*

22,5 kg

rotazione/*rotation*

input → output

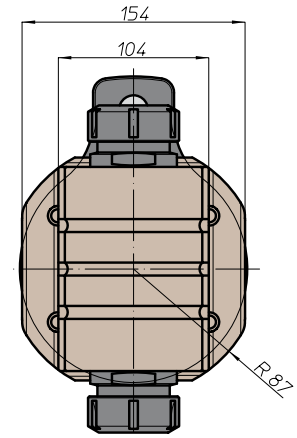
prestazioni/*performances*

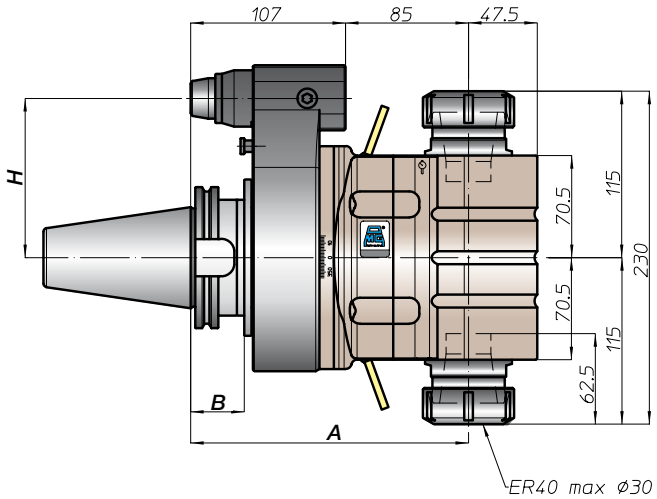


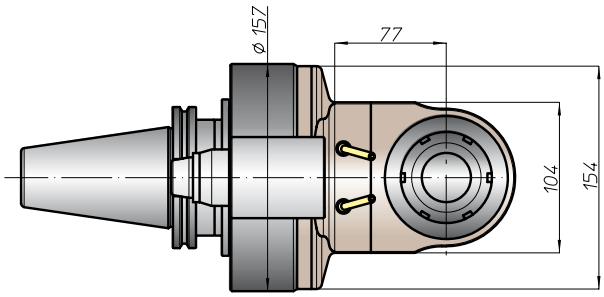
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	192	35	-	-
	-				
	45			110	-
	50				
ANSIB5.50 CAT	-			-	-
	50			110	-
BT	-			-	
	50	200	45	110	-
DIN69893 HSK	-		-	-	
	80	201	46	110	-
	100				
ISO26623 CAPTO	-	196		-	
	-			110	-
	C8				
KM	-	192		-	
	-			110	-
	100				
DIN2080	-		-	-	-
	-				
	-	165	16	110	-
	50				
ANSIB5.18 NMTB	-		-	-	-
	50	165	16	110	-

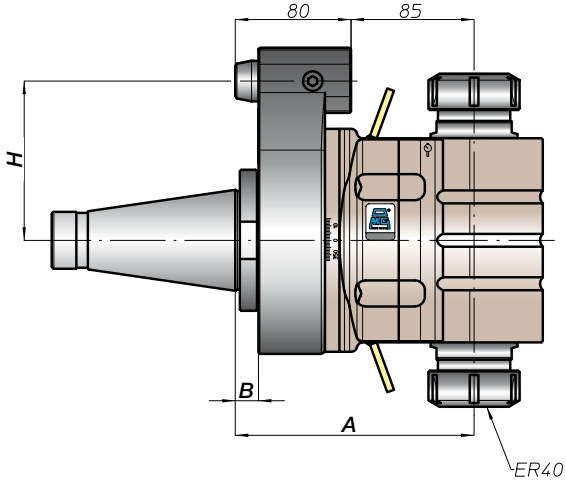
tipi mandrino disponibili / *available spindle types*

2 Albero portafrese Milling shaft	3 Weldon Whistle-Notch	6 ABS Licenza KOMET®
Ø16-Ø27-Ø32	**Ø32**	**ABS32**









testa ad angolo - *angle head*

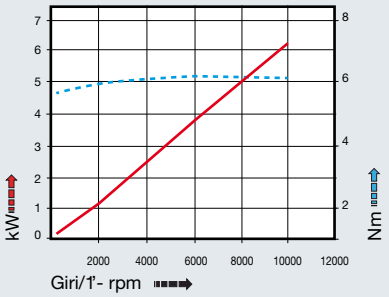
TA07.PD

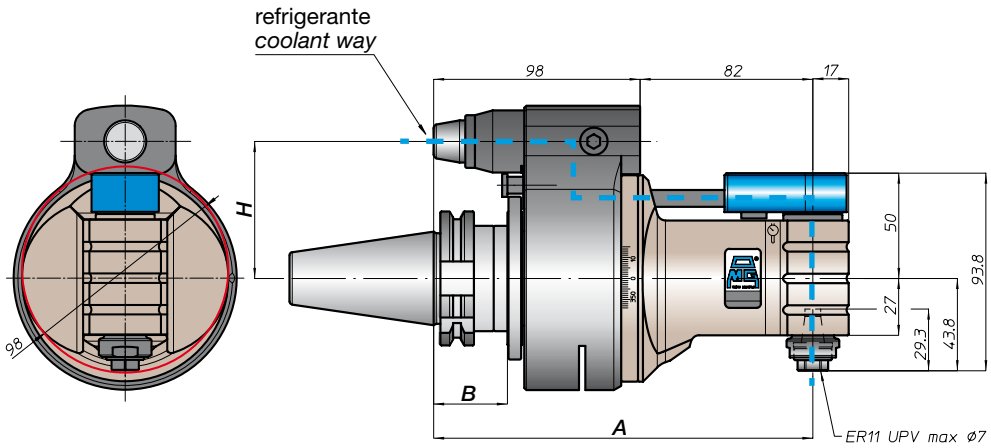
caratteristiche/*features*

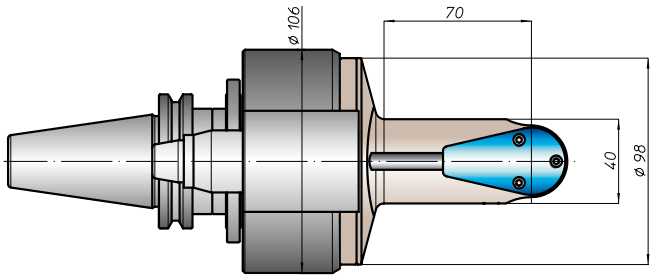
peso/*weight*

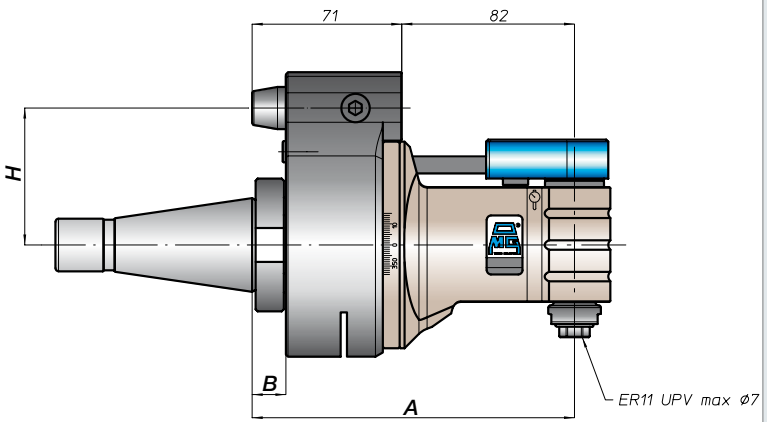
rotazione/*rotation*

prestazioni/*performances*









CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	150	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	158	45	80	110
HSK DIN69893	63	159	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	154		65	
	C6		39		
	C8			80	110
KM	63	150		65	
	80			80	110
	100				
DIN2080	-	120	13	65	-
	40				
	-	123	16	80	110
	50				
NMTB ANSIB5.18	40	120	13	65	-
	50	123	16	80	110

TA07.PDL

caratteristiche/*features*

ø 7 | M6 | 1-1

10000 rpm | 10 bar

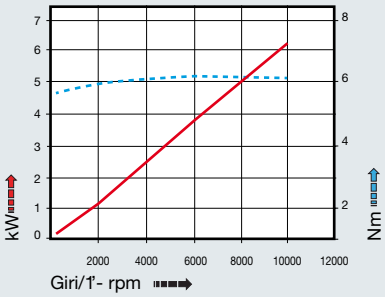
peso/*weight*

40: 6,7 kg | 50: 9 kg

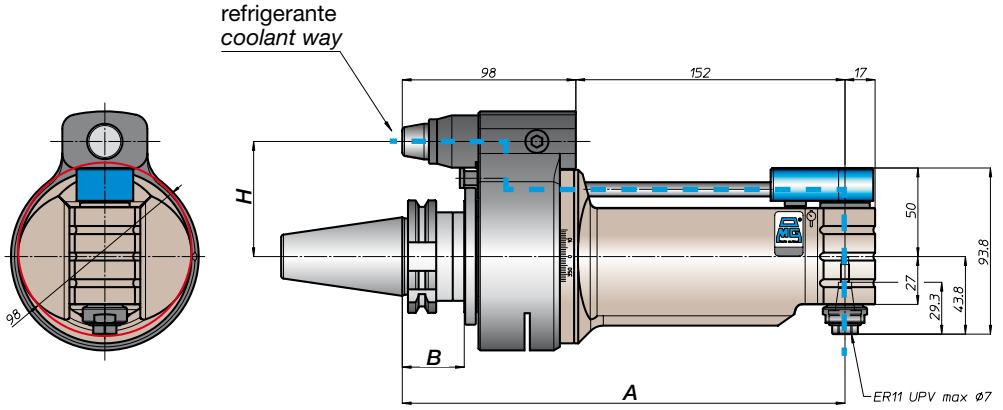
rotazione/*rotation*

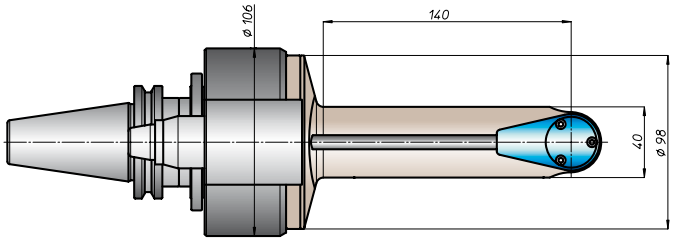
IN (input) → OUT (output)

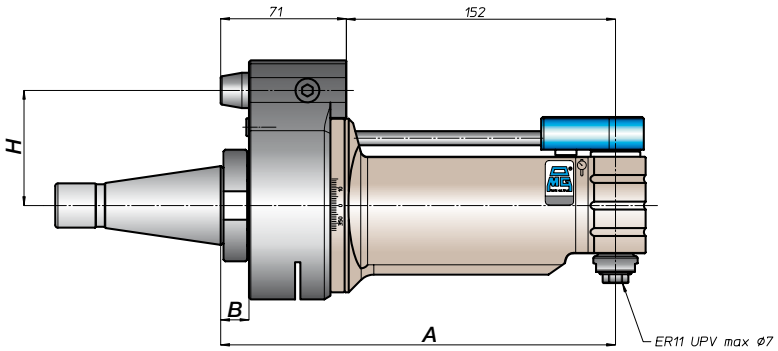
prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	250	35	65	-
	40				
	45			80	110
	50				
ANSIB5.50 CAT	40			65	-
	50			80	110
BT	40			65	
	50	258	45	80	110
DIN69893 HSK	63	259	44	65	
	80		46	80	110
	100				
ISO26623 CAPTO	C5	254		65	
	C6		39		
	C8			80	110
KM	63	250		65	
	80			80	110
	100				
DIN2080	-	220	13	65	-
	40				
	-	223	16	80	110
	50				
ANSIB5.18 NMTB	40	220	13	65	-
	50	223	16	80	110







testa ad angolo - *angle head*

TA10.PD

caratteristiche/*features*

ø 10 | M8 | 1-1

10000 rpm | 10 bar

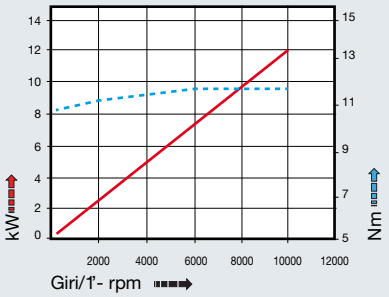
peso/*weight*

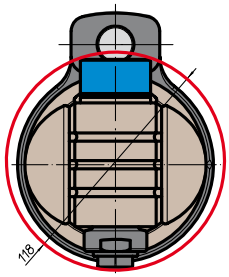
5,8 kg (40) | 8 kg (50)

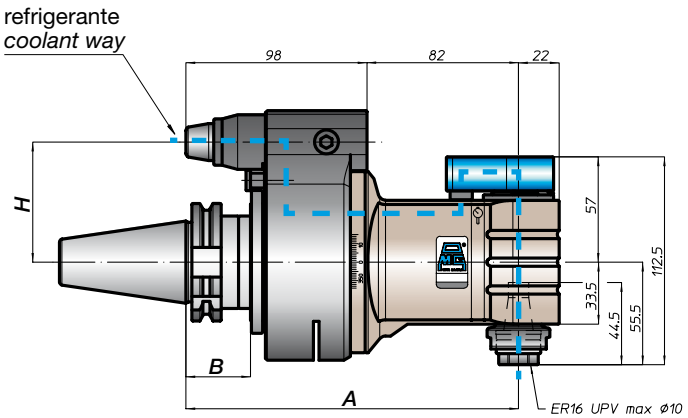
rotazione/*rotation*

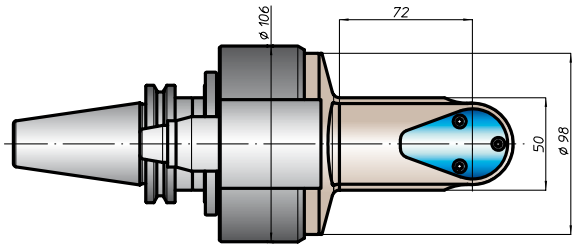
input (IN) → output (OUT)

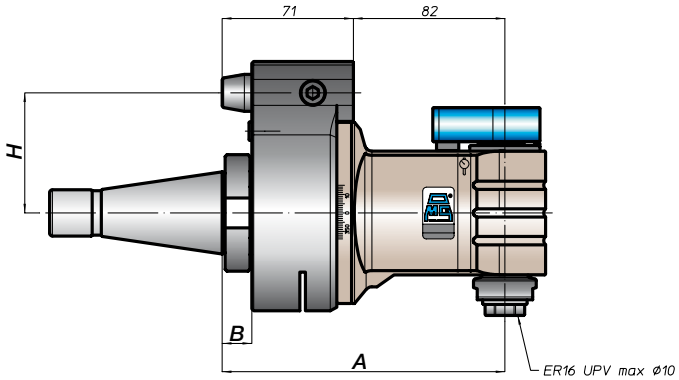
prestazioni/*performances*











CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	180	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	188	45	80	110
HSK DIN69893	63	189	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	184		65	
	C6		39		
	C8			80	110
KM	63	180		65	
	80			80	110
	100				
DIN2080	-	150	13	65	-
	40				
	-	153	16	80	110
	50				
NMTB ANSIB5.18	40	150	13	65	-
	50	153	16	80	110

TA10.PDL

caratteristiche/*features*

ø 10 | M8 | 1-1

10000 rpm | 10 bar

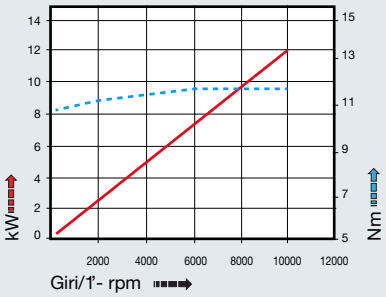
peso/*weight*

7,7 kg | 10 kg

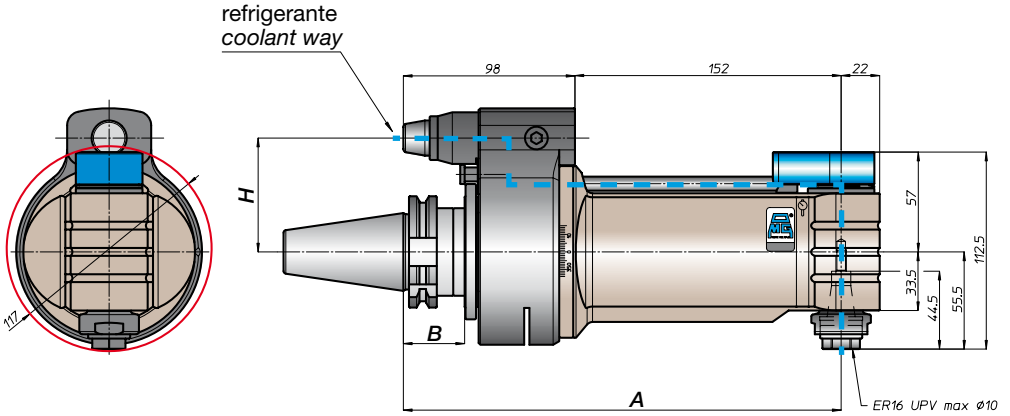
rotazione/*rotation*

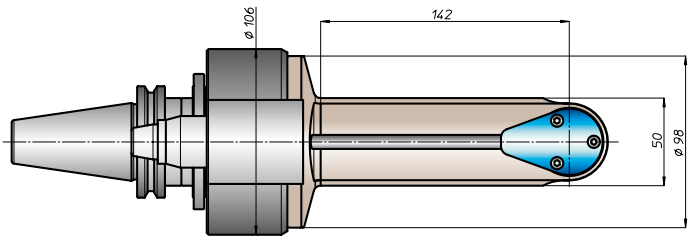
input | output

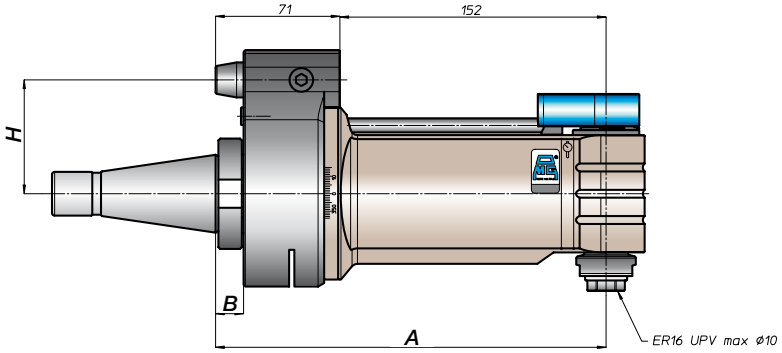
prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	250	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	258	45	80	110
HSK DIN69893	63	259	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	284		65	
	C6		39		
	C8			80	110
KM	63	250		65	
	80			80	110
	100				
DIN2080	-	220	13	65	-
	40				
	-	223	16	80	110
	50				
NMTB ANSIB5.18	40	220	13	65	-
	50	223	16	80	110





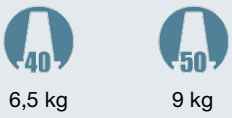


testa ad angolo - *angle head*

TA13.PD

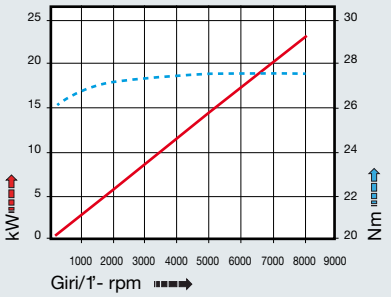
caratteristiche/*features*

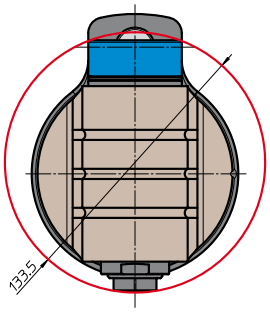
peso/*weight*

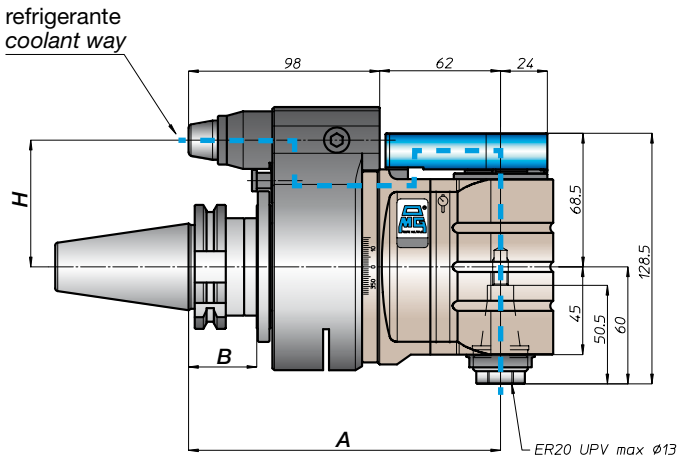


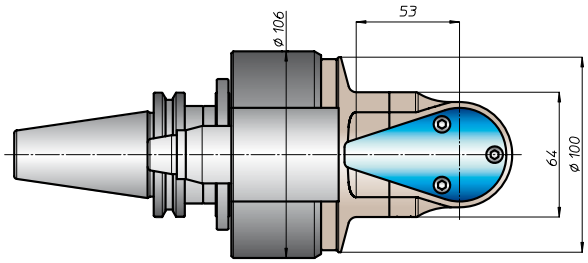
rotazione/*rotation*

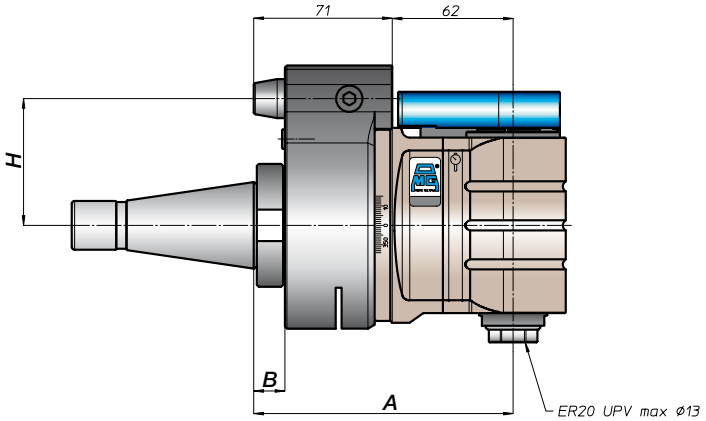
prestazioni/*performances*











CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	160	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	168	45	80	110
HSK DIN69893	63	169	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	164		65	
	C6		39		
	C8			80	110
KM	63	160		65	
	80			80	110
	100				
DIN2080	-	130	13	65	-
	40				
	-	133	16	80	110
	50				
NMTB ANSIB5.18	40	130	13	65	-
	50	133	16	80	110

TA16.PD

caratteristiche/*features*

ø 16 | M12 | 1-1

5000 rpm | 10 bar

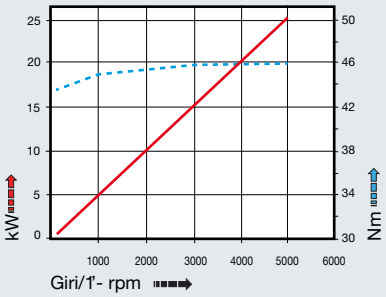
peso/*weight*

40: 7,7 kg | 50: 12 kg

rotazione/*rotation*

IN (input) → OUT (output)

prestazioni/*performances*

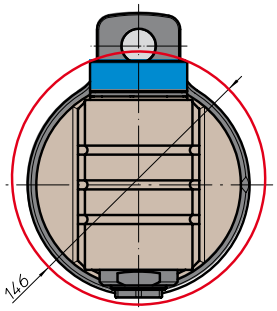


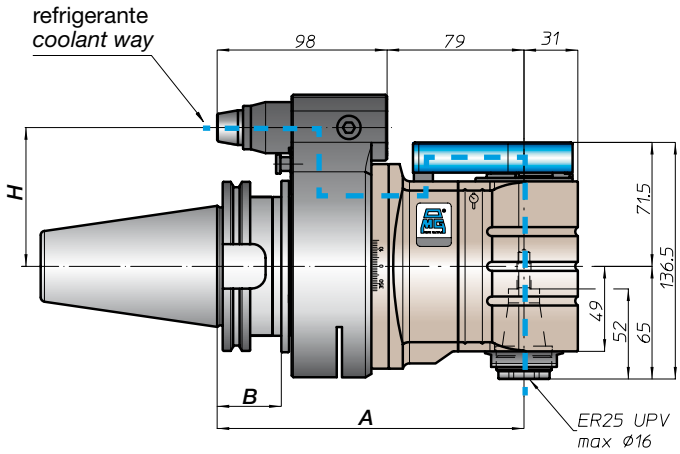
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	172	35	65	-
	40				
	45	177		80	110
	50				
CAT ANSIB5.50	40	172		65	-
	50	177		80	110
BT	40	172		65	
	50	185	45	80	110
HSK DIN69893	63	181	44	65	
	80	186	46	80	110
	100				
CAPTO ISO26623	C5	176		65	
	C6	181	39		
	C8			80	110
KM	63	172		65	
	80	177		80	110
	100				
DIN2080	-	147	13	65	-
	40				
	-	150	16	80	110
	50				
NMTB ANSIB5.18	40	142	13	65	-
	50	150	16	80	110

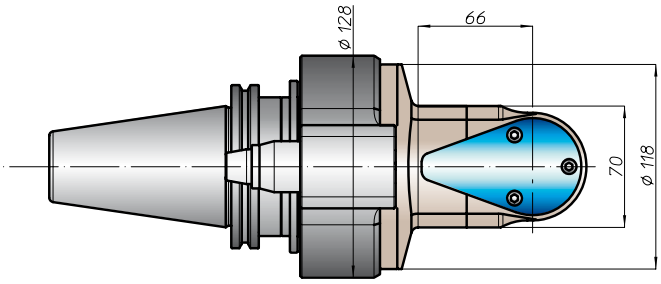
tipi mandrino disponibili / *available spindle types*

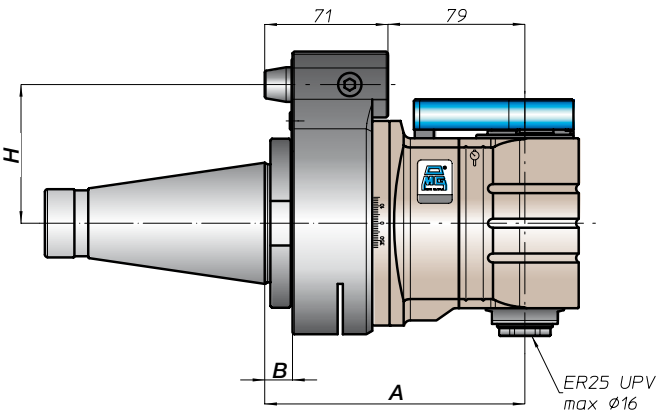
1 DIN6388-ER

ER32









testa ad angolo - *angle head*

TA20.PD

caratteristiche/*features*

ø 20 | M14 | 1-1

3500 rpm | 10 bar

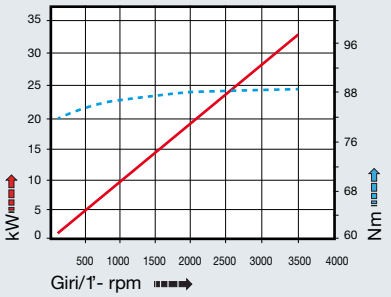
peso/*weight*

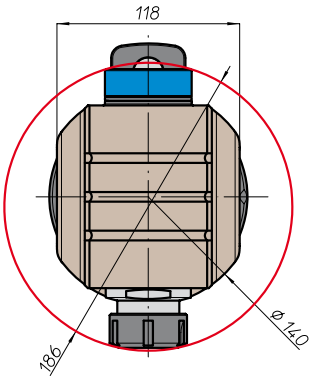
14,5 kg

rotazione/*rotation*

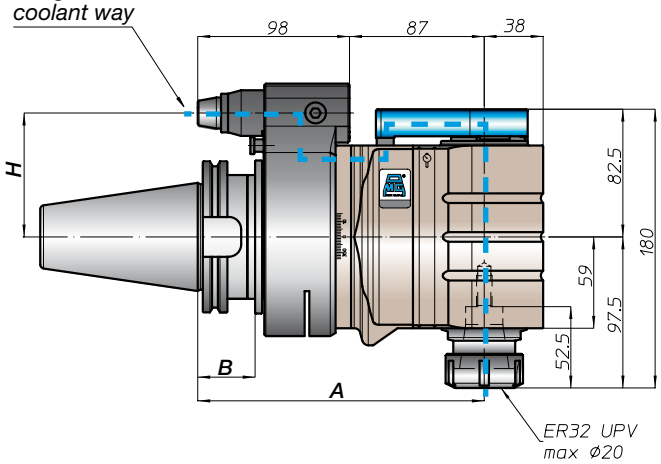
input | output

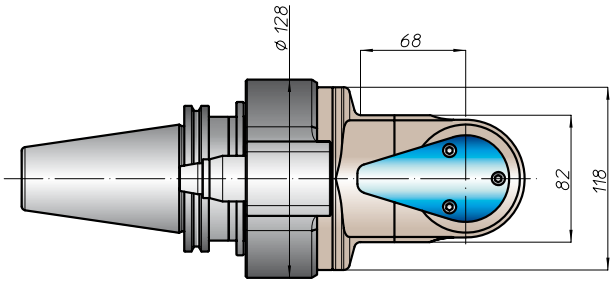
prestazioni/*performances*

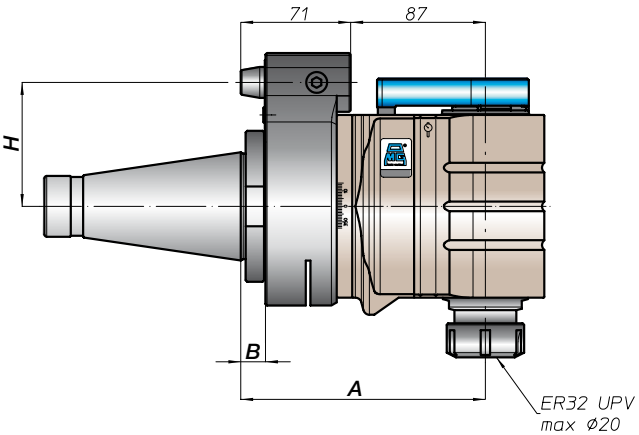




refrigerante
coolant way







CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	185	35	-	-
	-				
	45			80	110
	50				
CAT ANSIB5.50	-			-	-
	50			80	110
BT	-			-	
	50	193	45	80	110
HSK DIN69893	-	194	-	-	
	80		46	80	110
	100				
CAPTO ISO26623	-	189		-	
	-			80	110
	C8				
KM	-	185		-	
	80			80	110
	100				
DIN2080	-		-	-	-
	-				
	-	158	16	80	110
	50				
NMTB ANSIB5.18	-		-	-	-
	50	158	16	80	110

TA26.PD

caratteristiche/*features*

ø 26 | M20 | 1-1

2500 rpm | 10 bar

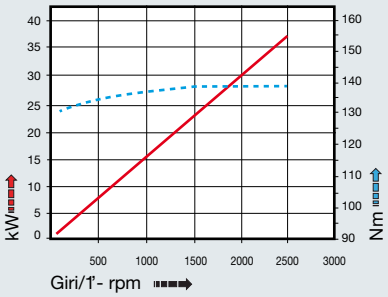
peso/*weight*

22 kg

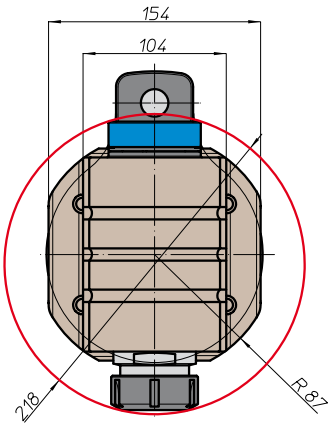
rotazione/*rotation*

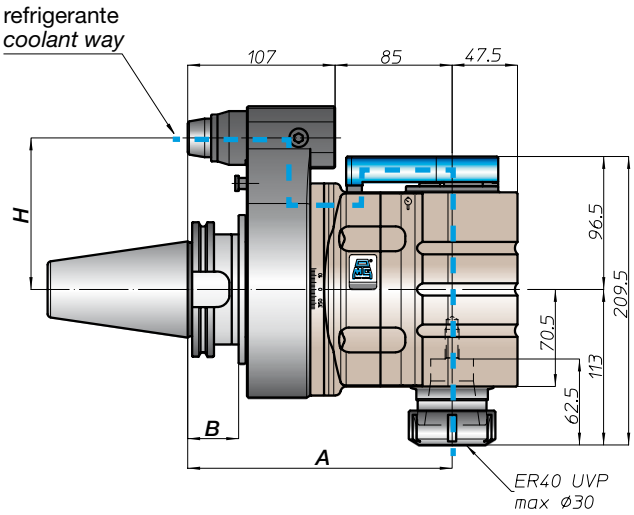
input | output

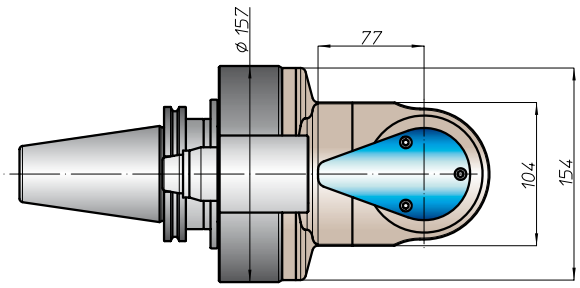
prestazioni/*performances*

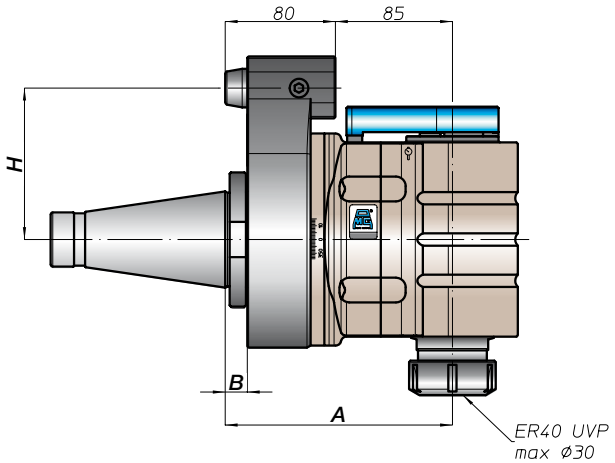


CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	192	35	-	-
	-				
	45			110	-
	50				
CAT ANSIB5.50	-			-	-
	50			110	-
BT	-			-	
	50	200	45	110	-
HSK DIN69893	-		-	-	
	80	201	46	110	-
	100				
CAPTO ISO26623	-	196		-	
	-			110	-
	C8				
KM	-	192		-	
	-			110	-
	100				
DIN2080	-		-	-	-
	-				
	-	165	16	110	-
	50				
NMTB ANSIB5.18	-		-	-	-
	50	165	16	110	-









testa ad angolo - *angle head*

TA26.40.D

caratteristiche/*features*

ø 26 M20 1-1

2500 rpm 40 bar

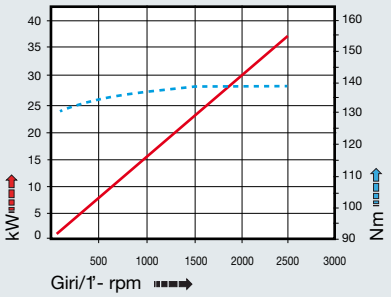
peso/*weight*

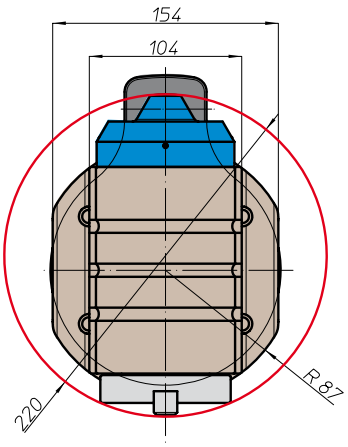
22 kg

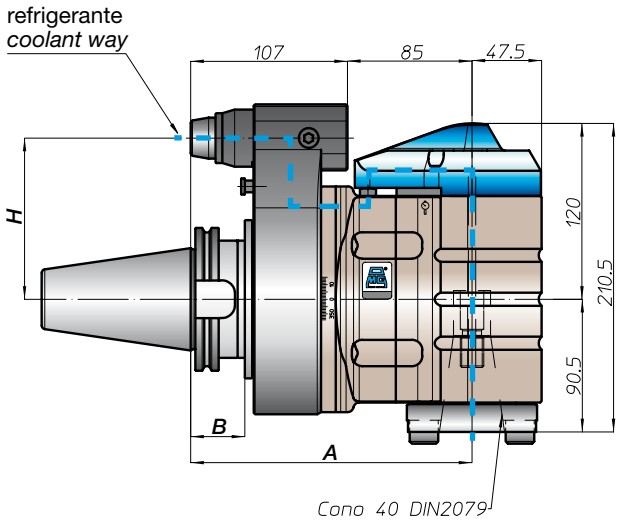
rotazione/*rotation*

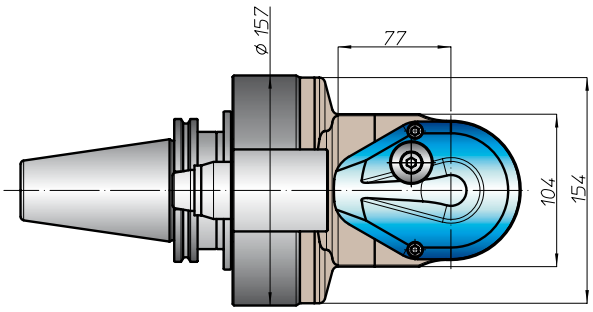
input IN output OUT

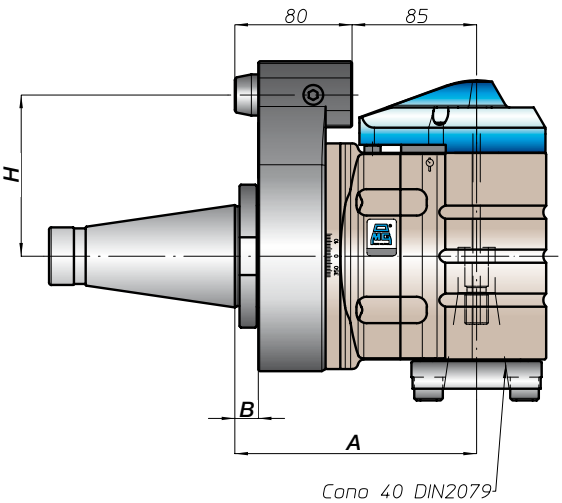
prestazioni/*performances*











CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	192	35	-	-
	-				
	45			110	-
	50				
CAT ANSIB5.50	-			-	-
	50			110	-
BT	-			-	
	50	200	45	110	-
HSK DIN69893	-		-	-	
	80	201	46	110	-
	100				
CAPTO ISO26623	-	196		-	
	-			110	-
	C8				
KM	-	192		-	
	-			110	-
	100				
DIN2080	-		-	-	-
	-				
	-	165	16	110	-
	50				
NMTB ANSIB5.18	-		-	-	-
	50	165	16	110	-

testa ad angolo - *angle head*

TAO10.P

caratteristiche/*features*

ø 10 | M8 | 1-1 | 6000

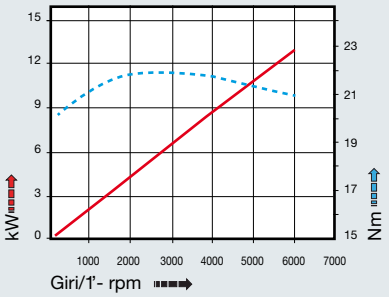
peso/*weight*

6,2 kg | 8,7 kg

rotazione/*rotation*

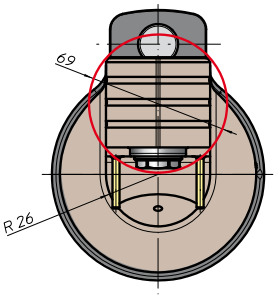
input | output

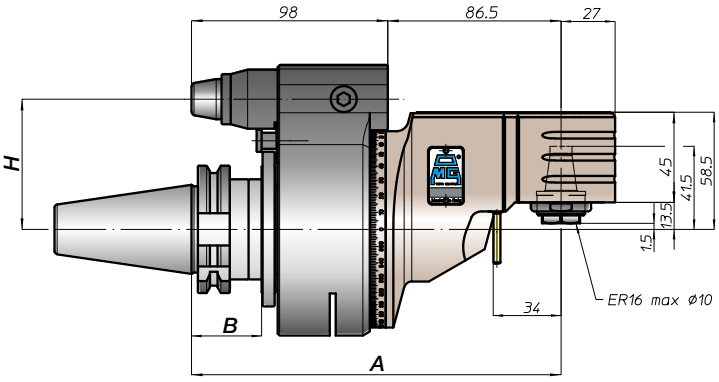
prestazioni/*performances*

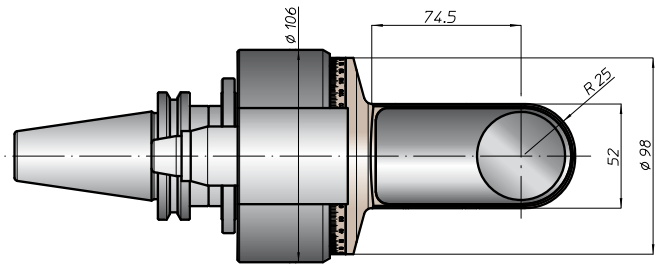


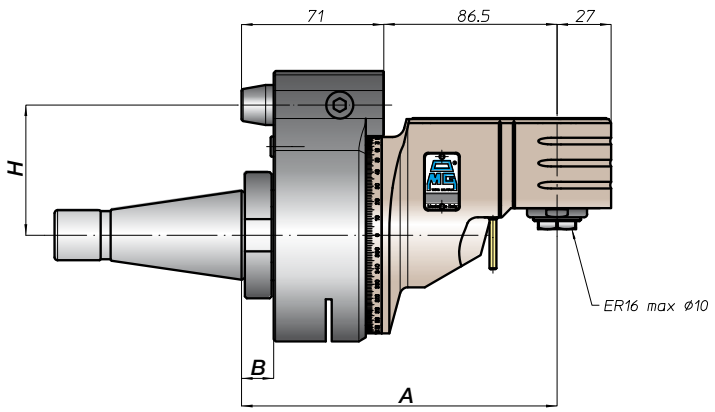
tipi mandrino disponibili / *available spindle types*

2 Albero portafrese / Milling shaft	4 DIN69893-HSK
Ø16	HSK25









CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	184,5	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	192,5	45	80	110
HSK DIN69893	63	193,5	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	188,5	39	65	
	C6				
	C8			80	110
KM	63	184,5		65	
	80			80	110
	100				
DIN2080	-	157,5	13	65	-
	40				
	-	160,5	16	80	110
	50				
NMTB ANSIB5.18	40	157,5	13	65	-
	50	160,5	16	80	110

TAO10.PD

caratteristiche/*features*

ø 10 | M8 | 1-1

6000 rpm | 70 bar

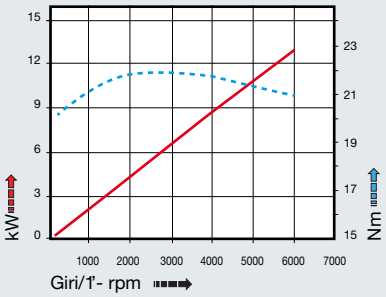
peso/*weight*

6,2 kg | 8,7 kg

rotazione/*rotation*

input | output

prestazioni/*performances*

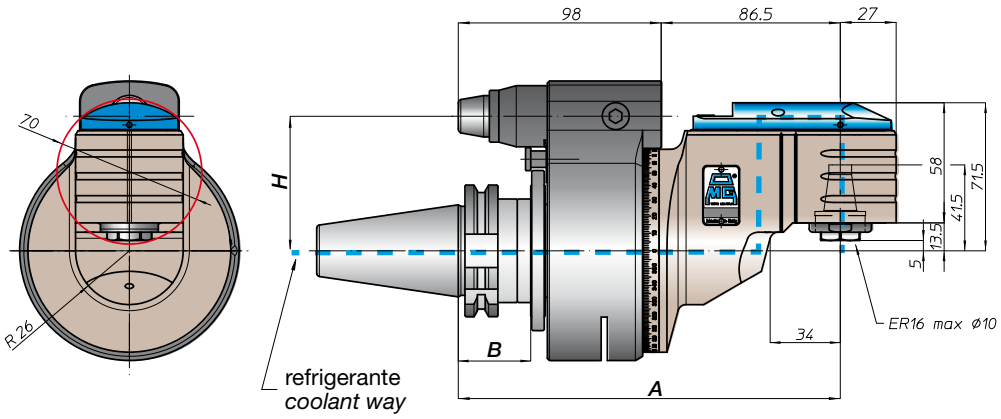


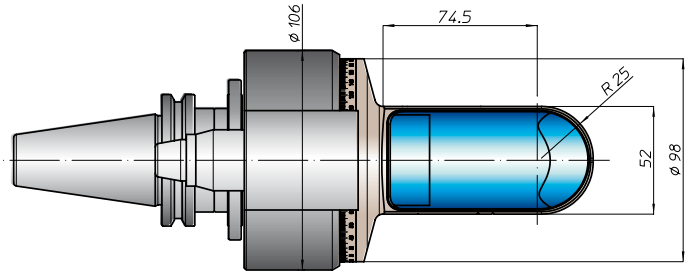
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	184,5	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	192,5	45	80	110
HSK DIN69893	63	193,5	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	188,5		65	
	C6		39		
	C8			80	110
KM	63	184,5		65	
	80			80	110
	100				
DIN2080	-			-	-
	-				
	-			-	-
	-				
NMTB ANSIB5.18	-			-	-
	-			-	-

tipi mandrino disponibili / *available spindle types*

2 Albero portafrese / Milling shaft — **Ø16**

4 DIN69893-HSK — **HSK25**





testa ad angolo - *angle head*

TAO13.P

caratteristiche/*features*

ø 13 — M10

1-1 — 4500

peso/*weight*

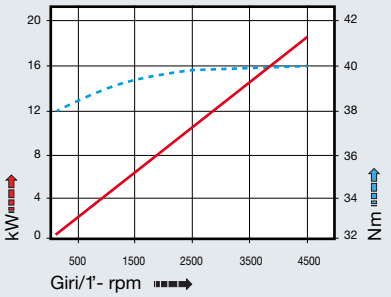
40 — 7,5 kg

50 — 10,5 kg

rotazione/*rotation*

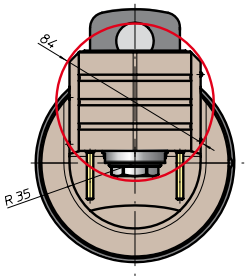
IN (input) → OUT (output)

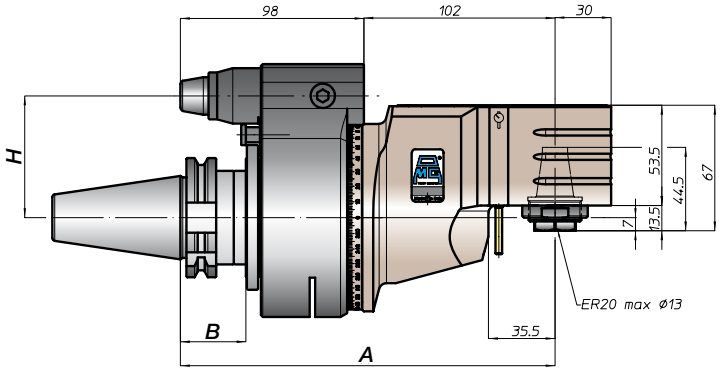
prestazioni/*performances*

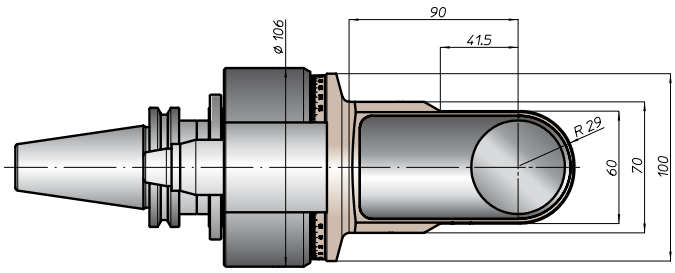


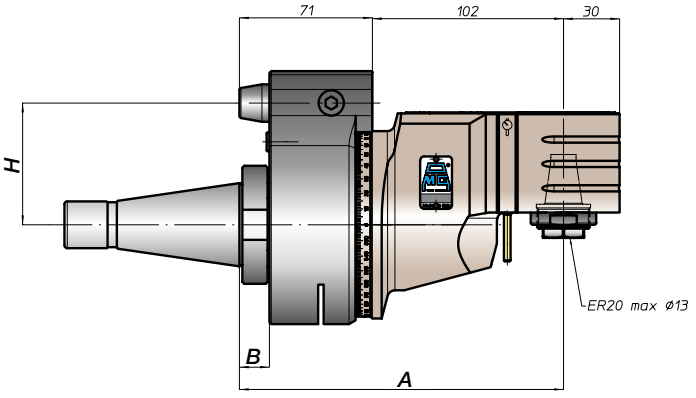
tipi mandrino disponibili / *available spindle types*

2 Albero portafrese Milling shaft	3 Weldon Whistle-Notch	4 DIN69893-HSK
Ø16	Ø12	HSK32









CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	200	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	208	45	80	110
HSK DIN69893	63	209	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	204	39	65	
	C6				
	C8			80	110
KM	63	200		65	
	80			80	110
	100				
DIN2080	-	170	13	65	-
	40				
	-	176	16	80	110
	50				
NMTB ANSIB5.18	40	173	13	65	-
	50	176	16	80	110

TAO13.PD

caratteristiche/*features*

ø 13 | M10 | 1-1

4500 rpm | 70 bar

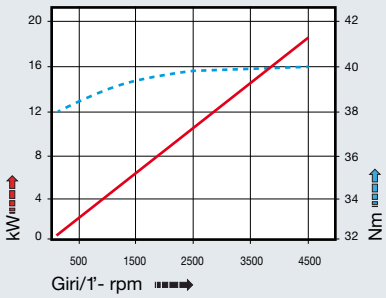
peso/*weight*

7,5 kg | 10,5 kg

rotazione/*rotation*

input | output

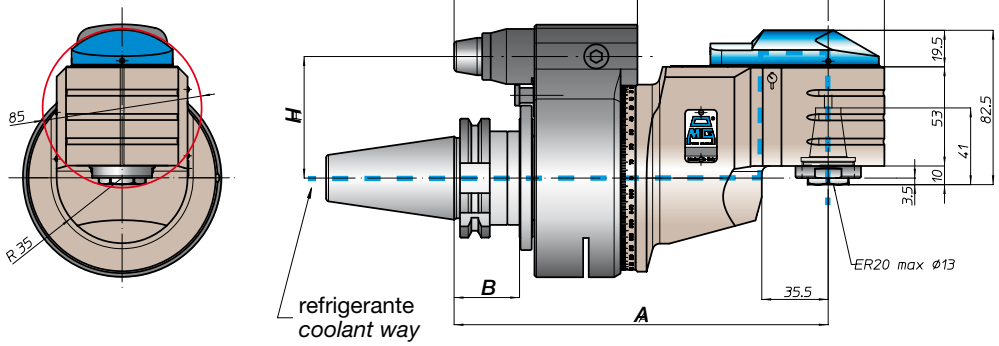
prestazioni/*performances*

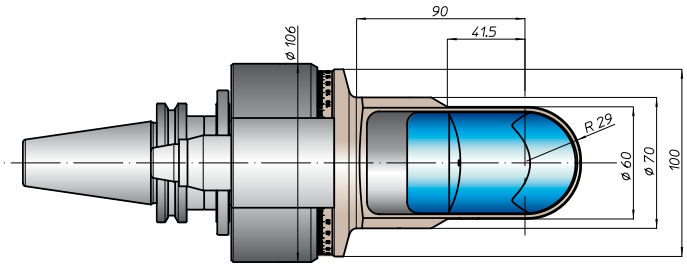


CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	200	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	208	45	80	110
HSK DIN69893	63	209	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	204		65	
	C6		39		
	C8			80	110
KM	63	200		65	
	80			80	110
	100				
DIN2080	-			-	-
	-				
	-			-	-
	-				
NMTB ANSIB5.18	-			-	-
	-			-	-

tipi mandrino disponibili / *available spindle types*

2	3	4
Albero portafrese Milling shaft	Weldon Whistle-Notch	DIN69893-HSK
Ø16	Ø12	HSK32





testa ad angolo - *angle head*

TAO16.P

caratteristiche/*features*

ø 16 | M12

1-1 | 4000

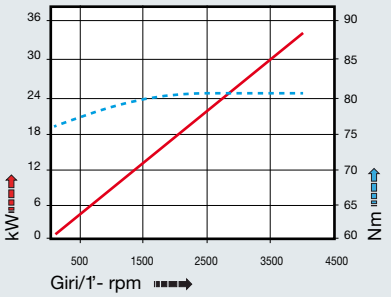
peso/*weight*

11,7 kg

rotazione/*rotation*

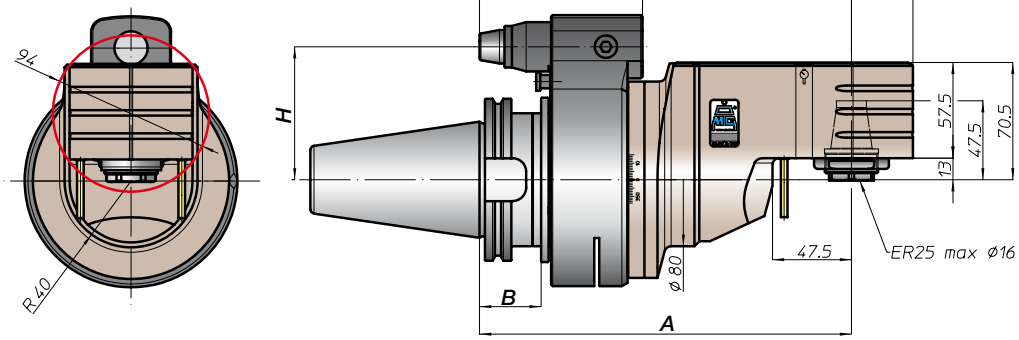
input | output

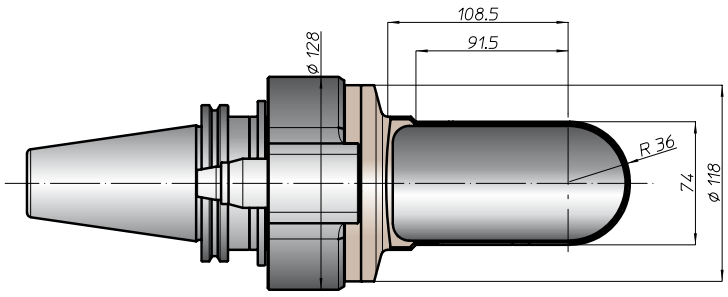
prestazioni/*performances*

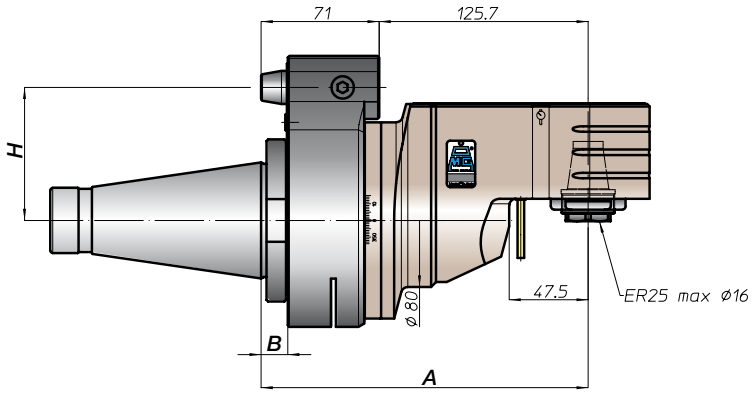


tipi mandrino disponibili / *available spindle types*

2 Albero portafrese Milling shaft	3 Weldon Whistle-Notch	4 DIN69893-HSK
Ø16-Ø22-Ø27	**Ø16**	**HSK40**







CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	223,5	35	-	-
	-				
	45			80	110
	50				
CAT ANSIB5.50	-			65	-
	50			80	110
BT	-			65	
	50	231,5	45	80	110
HSK DIN69893	-		-	-	
	80	232,5	46	80	110
	100				
CAPTO ISO26623	-	227,5	-	-	-
	-			80	110
	C8				
KM	-	223,5	-	-	-
	80			80	110
	100				
DIN2080	-	-	-	-	-
	-				
	-	199,5	16	80	110
	50				
NMTB ANSIB5.18	-	-	-	-	-
	50	199,5	16	80	110

TAO16.PD

caratteristiche/*features*

ø 16 | M12 | 1-1

4000 rpm | 70 bar

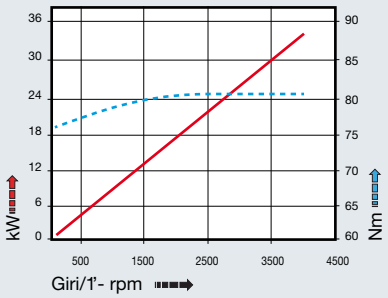
peso/*weight*

11,7 kg

rotazione/*rotation*

input → output

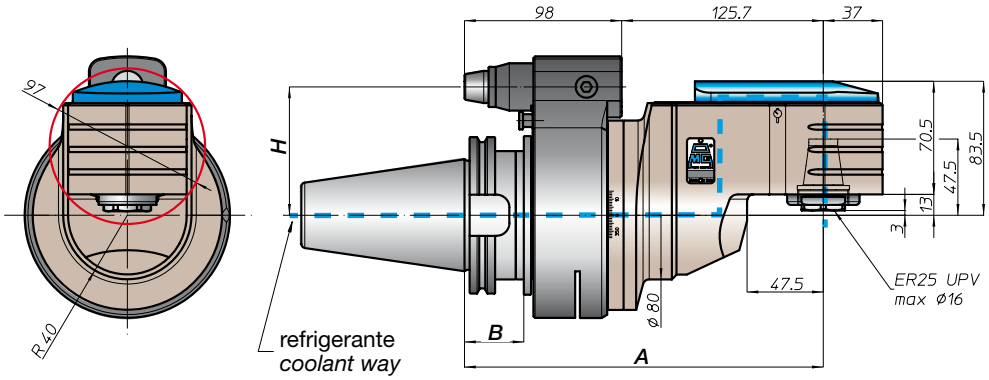
prestazioni/*performances*

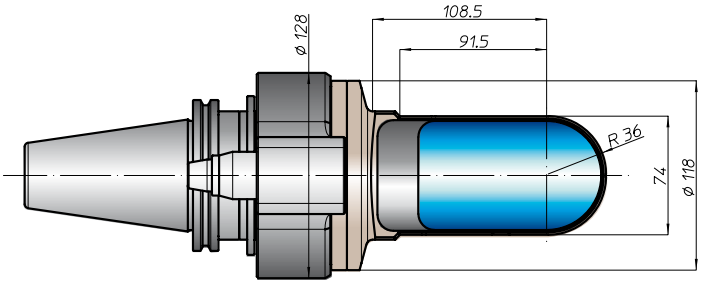


CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	223,5	35	-	-
	-				
	45			80	110
	50				
CAT ANSIB5.50	-			65	-
	50			80	110
BT	-			65	
	50	231,5	45	80	110
HSK DIN69893	-		-	-	
	80	232,5	46	80	110
	100				
CAPTO ISO26623	-	227,5	-	-	-
	-			80	110
	C8				
KM	-	223,5	-	-	-
	80			80	110
	100				
DIN2080	-	-	-	-	-
	-				
	-	-	-	-	-
	-				
NMTB ANSIB5.18	-	-	-	-	-
	-	-	-	-	-

tipi mandrino disponibili / *available spindle types*

2 Albero portafrese Milling shaft	3 Weldon Whistle-Notch	4 DIN69893-HSK
Ø16-Ø22-Ø27	**Ø16**	**HSK40**





testa ad angolo - *angle head*

TAO20.P

caratteristiche/*features*

ø 20 | M14

1-1 | 3500

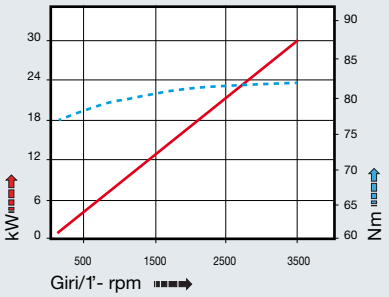
peso/*weight*

14,5 kg

rotazione/*rotation*

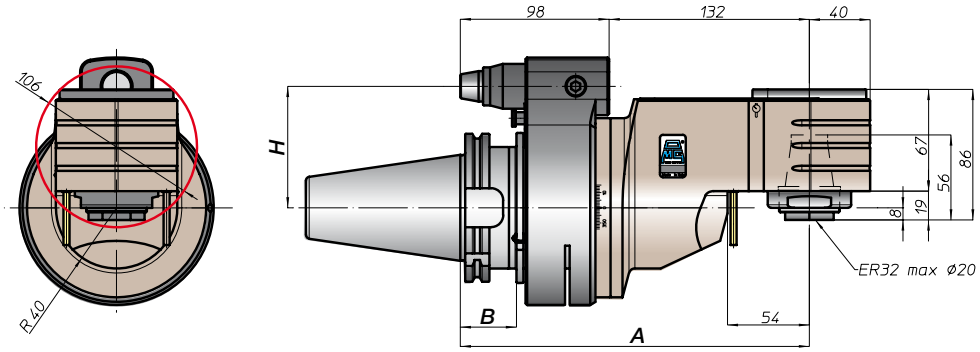
input | output

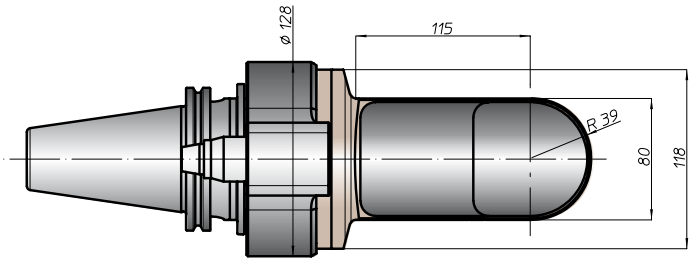
prestazioni/*performances*

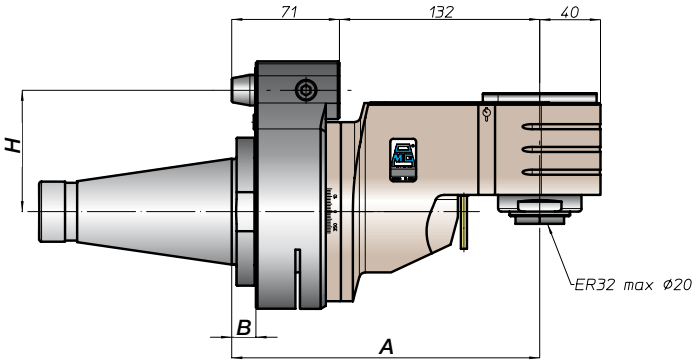


tipi mandrino disponibili / *available spindle types*

2 Albero portafrese Milling shaft	3 Weldon Whistle-Notch	4 DIN69893-HSK
Ø22-Ø27-Ø32	**Ø16-Ø20**	**HSK50**







CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	230	35	-	-
	-				
	45			80	110
	50				
CAT ANSIB5.50	-			-	-
	50			80	110
BT	-			65	
	50	238	45	80	110
HSK DIN69893	-		-	-	
	80	239	46	80	110
	100				
CAPTO ISO26623	-	234		-	
	-			80	110
	C8				
KM	-	230		-	
	80			80	110
	100				
DIN2080	-		-	-	-
	-				
	-	203	16	80	110
	50				
NMTB ANSIB5.18	-		-	-	-
	50	203	16	80	110

TAO20.PD

caratteristiche/*features*

ø 20 | M14 | 1-1

3500 rpm | 70 bar

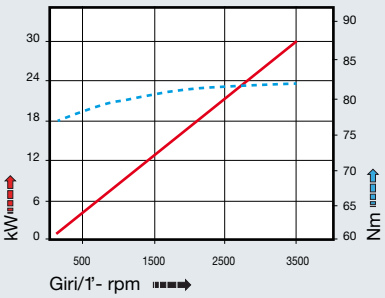
peso/*weight*

14,5 kg

rotazione/*rotation*

input | output

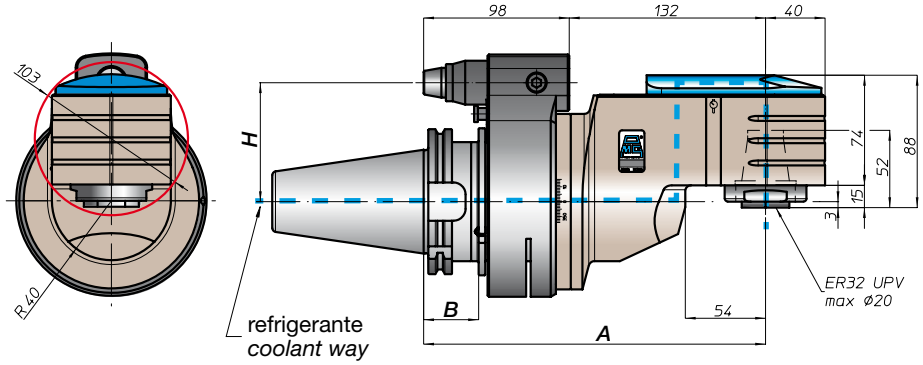
prestazioni/*performances*

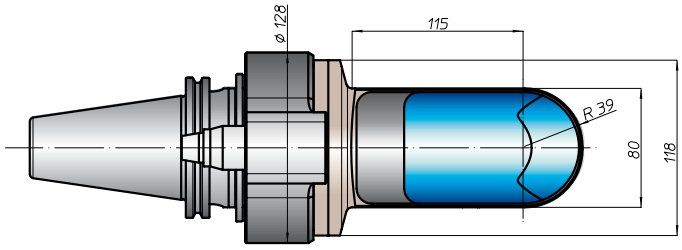


CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	230	35	-	-
	-				
	45			80	110
	50				
CAT ANSIB5.50	-			-	-
	50			80	110
BT	-			65	
	50	238	45	80	110
HSK DIN69893	-		42	-	
	80	239	46	80	110
	100				
CAPTO ISO26623	-	234		-	
	-			80	110
	C8				
KM	-	230		-	
	80			80	110
	100				
DIN2080	-			-	-
	-				
	-			-	-
	-				
NMTB ANSIB5.18	-			-	-
	-			-	-

tipi mandrino disponibili / *available spindle types*

2 Albero portafrese Milling shaft	3 Weldon Whistle-Notch	4 DIN69893-HSK
Ø22-Ø27-Ø32	**Ø16-Ø20**	**HSK50**





testa ad angolo - *angle head*

TAV10.P

caratteristiche/*features*

ø 10 | M8

1-1 | 4000

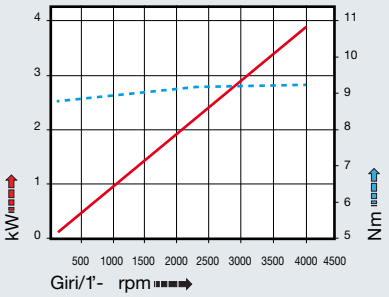
peso/*weight*

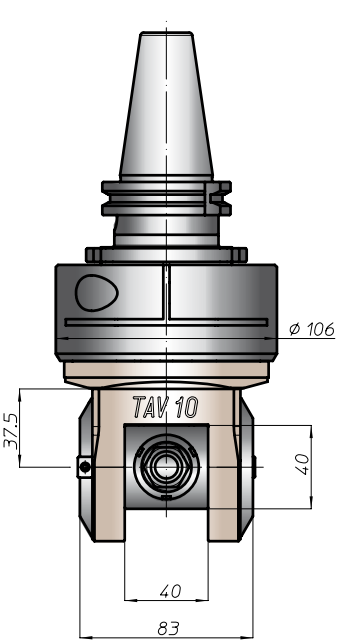
6,4 kg | 8,5 kg

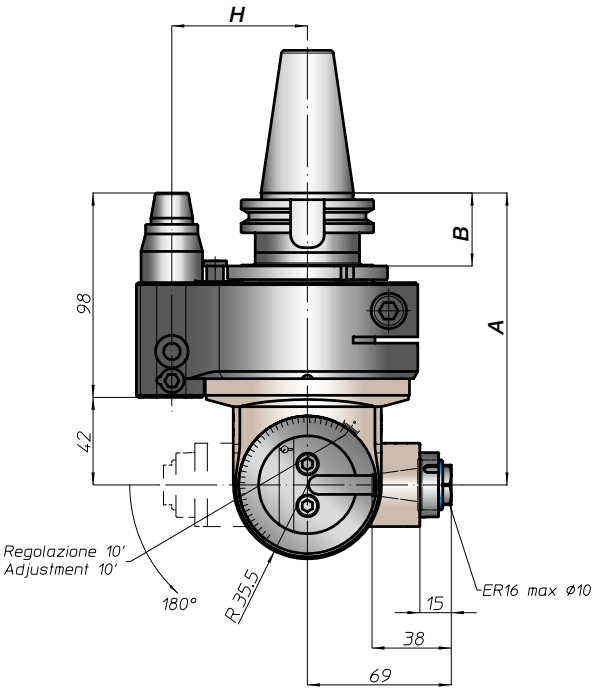
rotazione/*rotation*

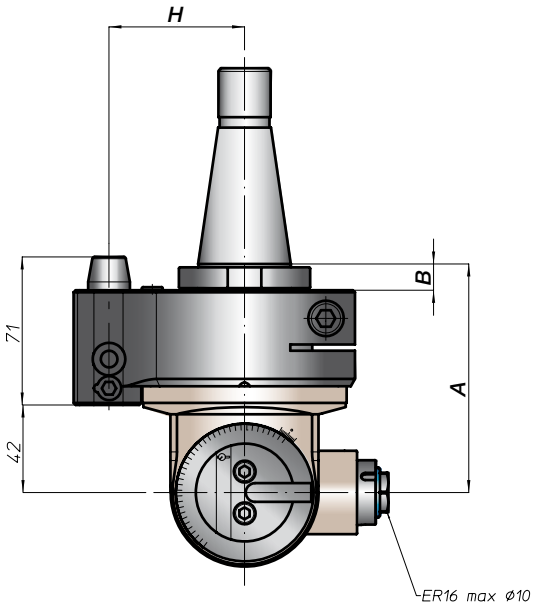
input | output

prestazioni/*performances*







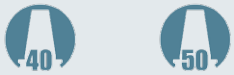


CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	140	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	148	45	80	110
HSK DIN69893	63	149	44	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	144		65	
	C6		39		
	C8			80	110
KM	63	140		65	
	80			80	110
	100				
DIN2080	-	113	13	65	-
	40				
	-	116	16	80	110
	50				
NMTB ANSIB5.18	40	113	13	65	-
	50	116	16	80	110

TAV10.PD

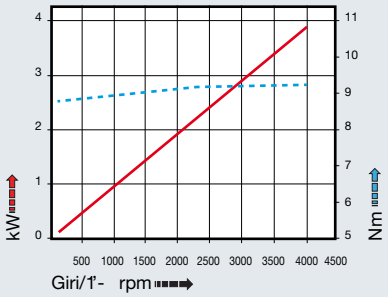
caratteristiche/*features*

peso/*weight*

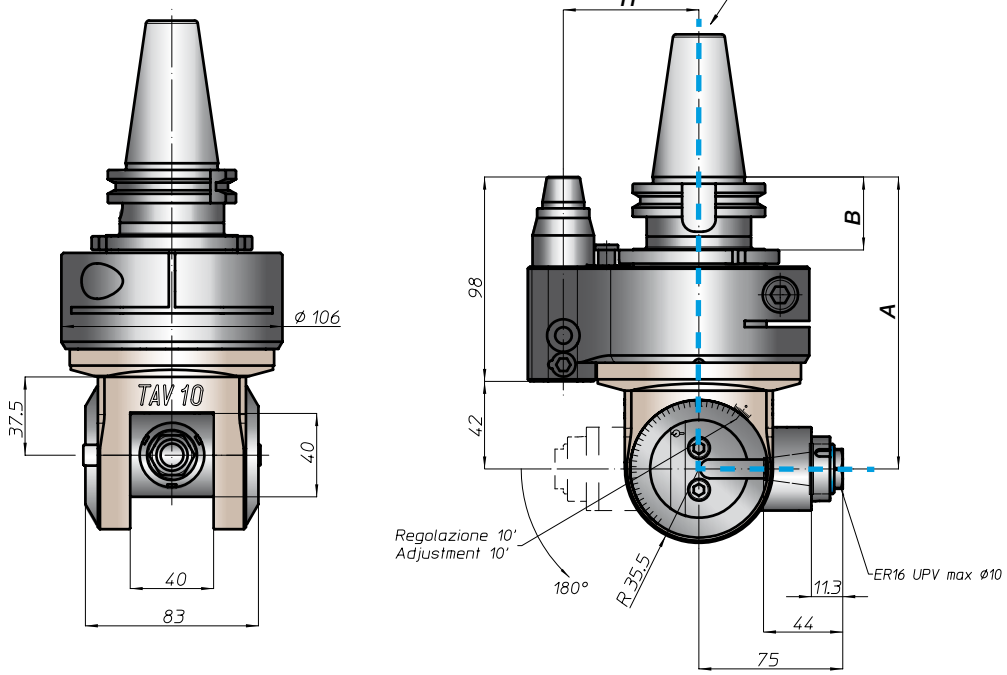


rotazione/*rotation*

prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	140	35	65	-
	40				
	45			80	110
	50				
ANSIB5.50 CAT	40			65	-
	50			80	110
BT	40			65	
	50	148	45	80	110
DIN69893 HSK	63	149	44	65	
	80		46	80	110
	100				
ISO26623 CAPTO	C5	144	39	65	
	C6				
	C8			80	110
KM	63	140		65	
	80			80	110
	100				
DIN2080	-	-	-	-	-
	-				
	-	-	-	-	-
	-				
ANSIB5.18 NMTB	-	-	-	-	-
	-	-	-	-	-



testa ad angolo - *angle head*

TAV13.P

caratteristiche/*features*

ø 13 | M10

1-1 | 3000

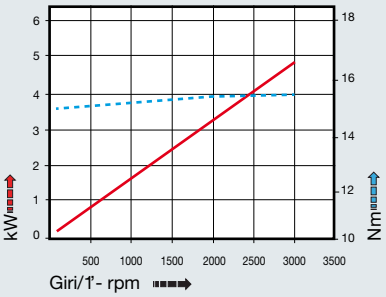
peso/*weight*

7,8 kg | 10,5 kg

rotazione/*rotation*

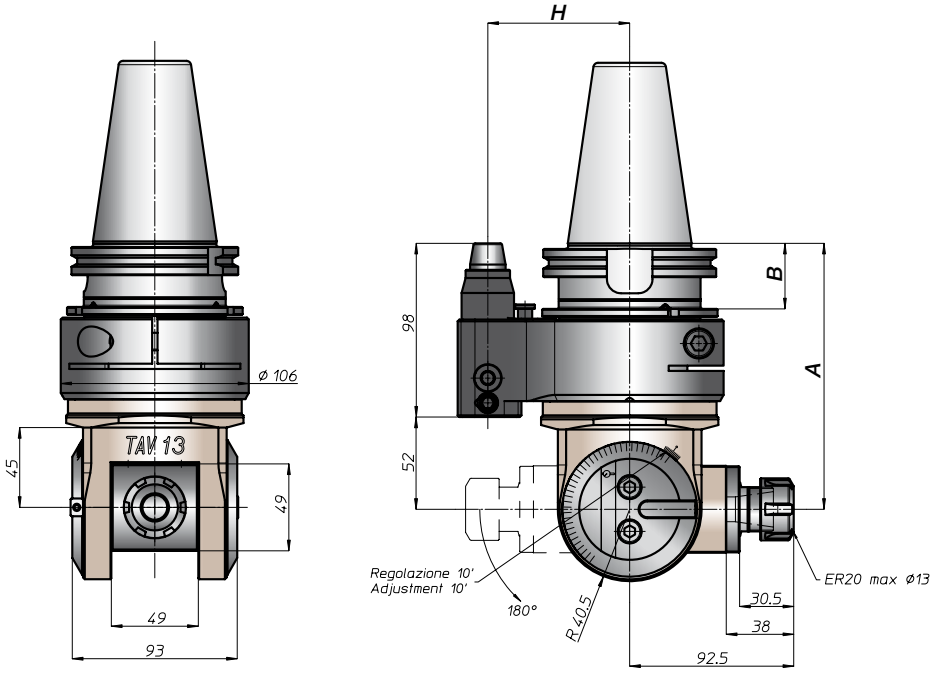
input | output

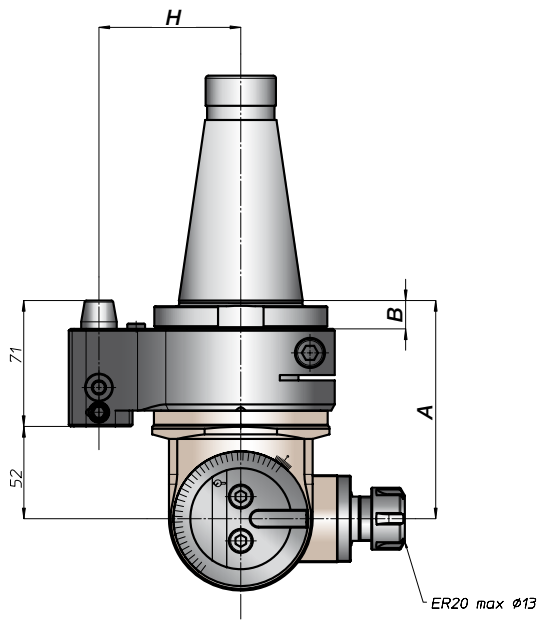
prestazioni/*performances*



tipi mandrino disponibili / *available spindle types*

1 DIN6388-ER	3 Weldon Whistle-Notch
ER25	**Ø16**





CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	150	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	158	45	80	110
HSK DIN69893	63	159	42	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	154		65	
	C6		39		
	C8			80	110
KM	63	150		65	
	80			80	110
	100				
DIN2080	-	120	13	65	-
	40				
	-	123	16	80	110
	50				
NMTB ANSIB5.18	40	120	13	65	-
	50	123	16	80	110

TAV13.PD

caratteristiche/*features*

ø 13 | M10 | 1-1

3000 rpm | 70 bar

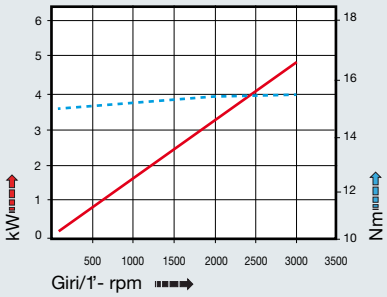
peso/*weight*

40: 7,8 kg | 50: 10,5 kg

rotazione/*rotation*

IN (input) → OUT (output)

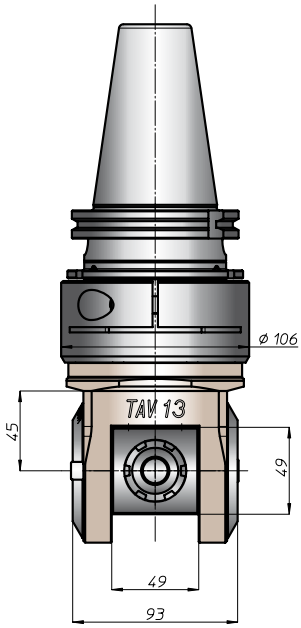
prestazioni/*performances*

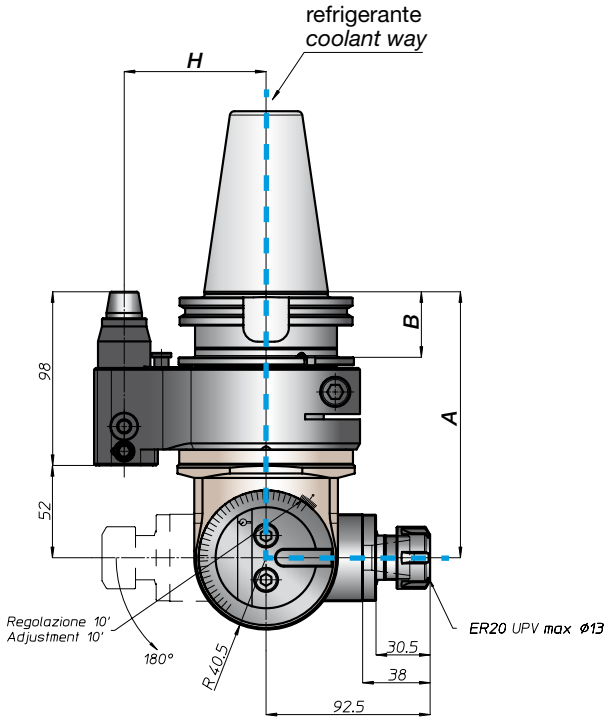


CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	150	35	65	-
	40				
	45			80	110
	50				
ANSIB5.50 CAT	40			65	-
	50			80	110
BT	40			65	
	50	158	45	80	110
DIN69893 HSK	63	159	42	65	
	80		46	80	110
	100				
ISO26623 CAPTO	C5	154		65	
	C6		39		
	C8			80	110
KM	63	150		65	
	80			80	110
	100				
DIN2080	-	120	13	65	-
	40				
	-	-	-	-	-
	-				
ANSIB5.18 NMTB	-	-	-	-	-
	-	-	-	-	-

tipi mandrino disponibili / *available spindle types*

1 DIN6388-ER	3 Weldon Whistle-Notch
ER25	**Ø16**





testa ad angolo - *angle head*

TAV20.P

caratteristiche/*features*

ø 20 | M16

1-1 | 2500

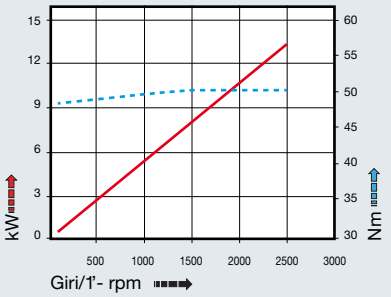
peso/*weight*

22 kg

rotazione/*rotation*

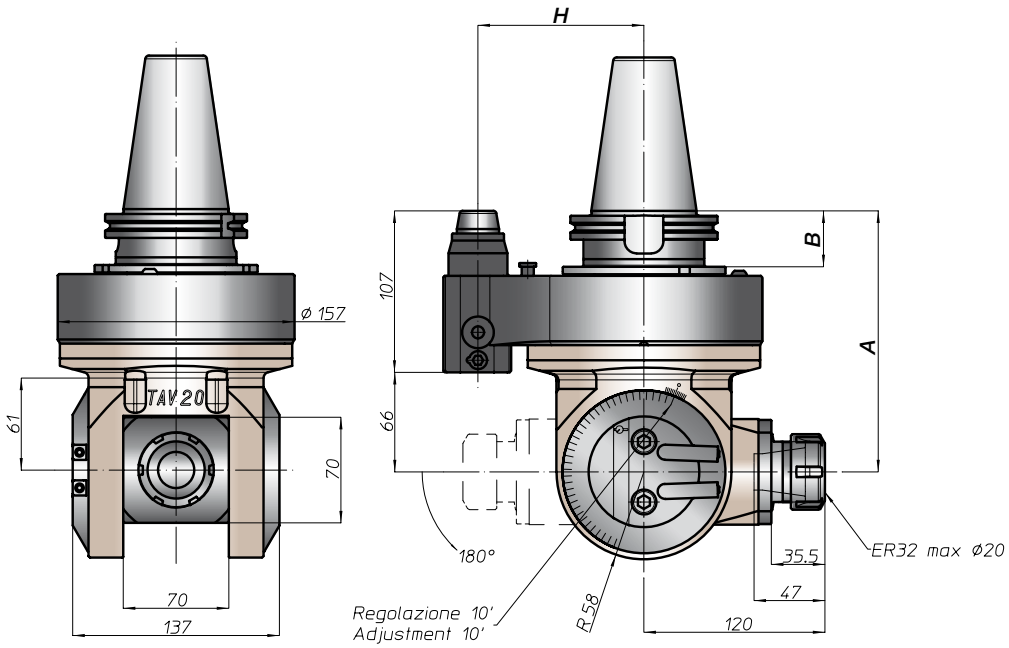
input | output

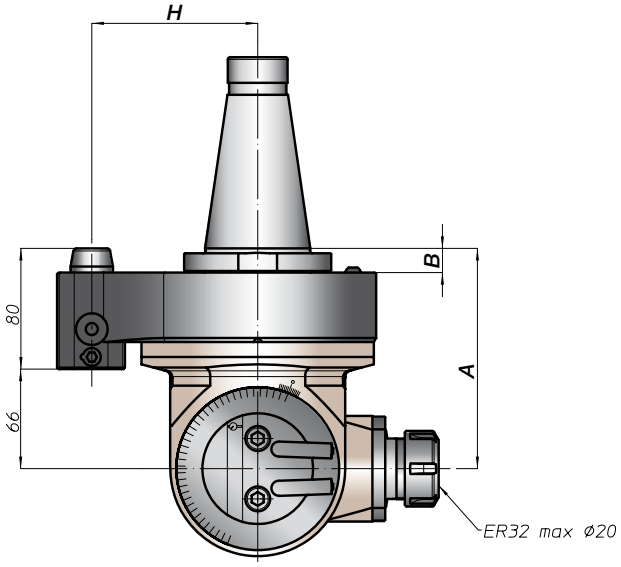
prestazioni/*performances*



tipi mandrino disponibili / *available spindle types*

1	2	3	4	6
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch	DIN69893-HSK	ABS Licenza KOMET®
ER40	**Ø32**	**Ø20-Ø25**	**HSK50**	**ABS50**





CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	173	35	-	-
	-				
	-			110	-
	50				
CAT ANSIB5.50	-			-	-
	50			110	-
BT	-			-	-
	50	181	45	110	-
HSK DIN69893	-	182	-	-	-
	80		46	110	-
	100				
CAPTO ISO26623	-	177	-	-	-
	-			110	-
	C8				
KM	-	173	-	-	-
	-			110	-
	100				
DIN2080	-	-	-	-	-
	-				
	-	149	16	110	-
	50				
NMTB ANSIB5.18	-	-	-	-	-
	50	149	16	110	-

TAV20.PD

caratteristiche/*features*

ø 20 | M16 | 1-1

2500 rpm | 70 bar

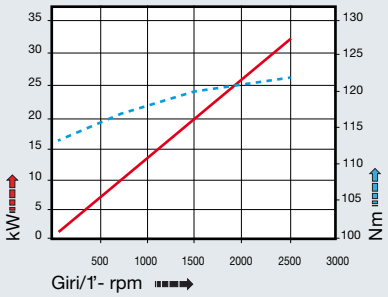
peso/*weight*

22 kg

rotazione/*rotation*

input → output

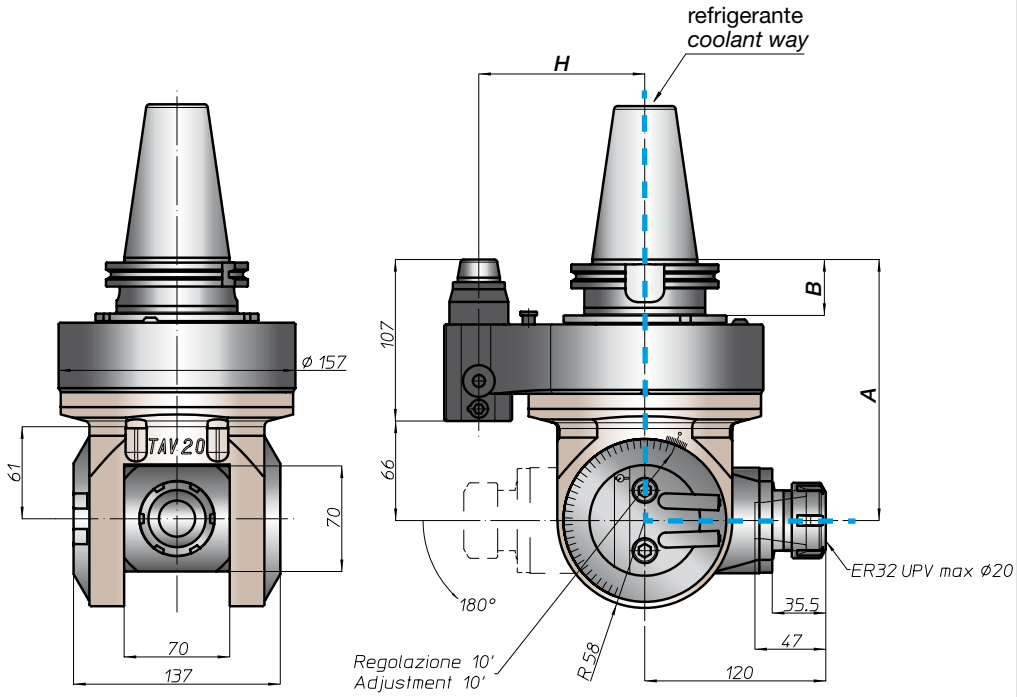
prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	173	35	-	-
	-				
	-			110	-
	50				
CAT ANSIB5.50	-			-	-
	50			110	-
BT	-			-	-
	50	181	45	110	-
HSK DIN69893	-	182	-	-	-
	80		46	110	-
	100				
CAPTO ISO26623	-	177	-	-	-
	-			110	-
	C8				
KM	-	173	-	-	-
	-			110	-
	100				
DIN2080	-	-	-	-	-
	-				
	-	-	-	-	-
	-				
NMTB ANSIB5.18	-	-	-	-	-
	-	-	-	-	-

tipi mandrino disponibili / *available spindle types*

1 DIN6388-ER	3 Weldon Whistle-Notch	4 DIN69893-HSK	6 ABS Licenza KOMET®
ER40	**Ø20-Ø25**	**HSK50**	**ABS50**



testa ad angolo - *angle head*

TAV30.P

caratteristiche/*features*

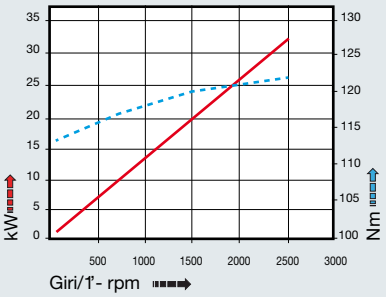
peso/*weight*

42 kg

rotazione/*rotation*

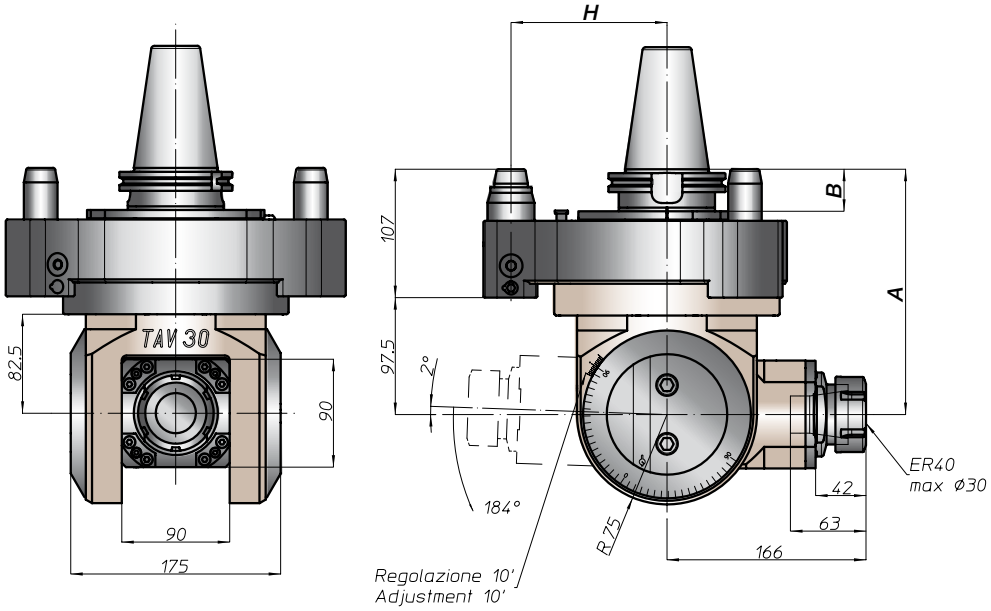
input output

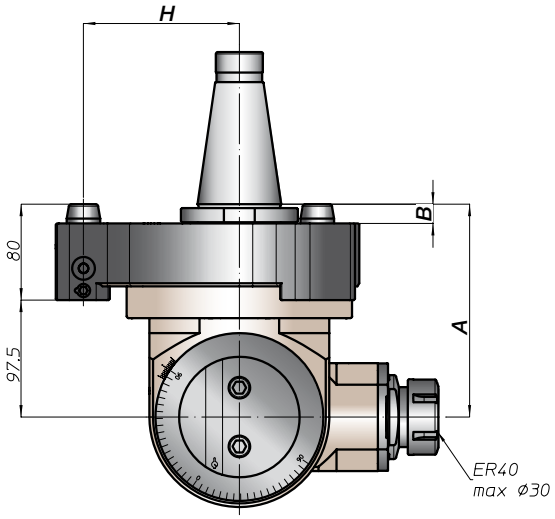
prestazioni/*performances*



tipi mandrino disponibili / *available spindle types*

1 DIN6388-ER	2 Albero portafrese Milling shaft	4 DIN69893-HSK	6 ABS Licenza KOMET®
ER50	**Ø32-Ø40**	**HSK63**	**ABS63**





CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	204,5	35	-	-
	-				
	-			130	-
	50				
CAT ANSIB5.50	-			-	-
	50			130	-
BT	-			-	
	50	212,5	45	130	-
HSK DIN69893	-	213,5	42	-	
	-		46	130	-
	100				
CAPTO ISO26623	-	208,5	-	-	
	-			130	-
	C8				
KM	-	204,5	-	-	
	-			130	-
	100				
DIN2080	-	-	-	-	-
	-				
	-	177,5	16	130	-
	50				
NMTB ANSIB5.18	-	-	-	-	-
	50	177,5	16	130	-

TAV Gallery

testa ad angolo - *angle head*

TAV40.T

caratteristiche/*features*

ø 32 | M26

1-2 | 5000 OUTPUT

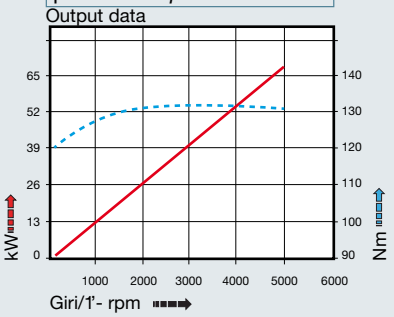
peso/*weight*

70 kg

rotazione/*rotation*

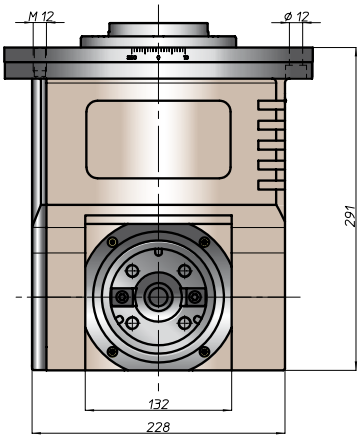
input | output

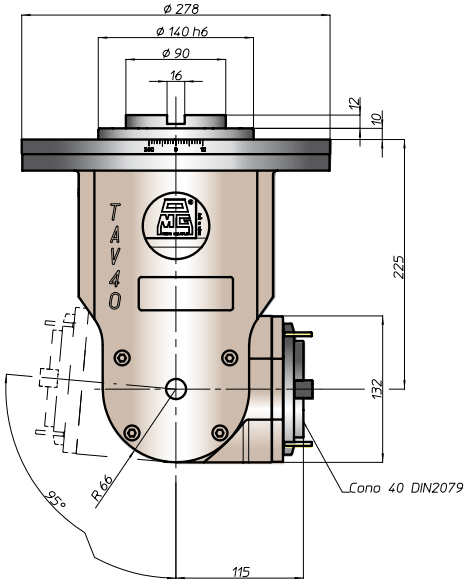
prestazioni/*performances*

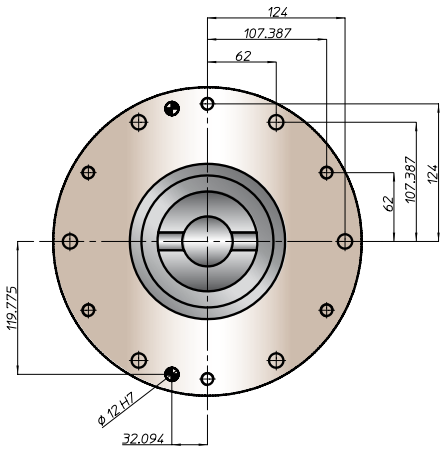


tipi mandrino disponibili / *available spindle types*

4 DIN69893-HSK	5 COROMANT CAPTO®
HSK63	**C5**



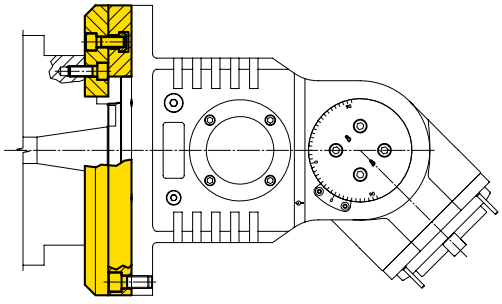




Equipaggiamento standard:
- pressurizzazione mandrinio
- n. 4 ugelli orientabili vicino al mandrino
- regolazione angolare mandrino libera
- nel mandrino DIN2079 si possono utilizzare coni DIN2080-40, DIN69871-A40, MAS403-BT40

Standard equipment:
- *spindle front pressurization*
- *nr 4 adjustable nozzle near the spindle*
- *free angle spindle adjustment*
- *on the spindle DIN2079 you can use shank DIN2080-40, DIN69871-A40, MAS403-BT40*

esempio di collegamento - *connection example*



TAV50.T

caratteristiche/*features*

ø 45 — M36

1-2 — 4000 OUTPUT

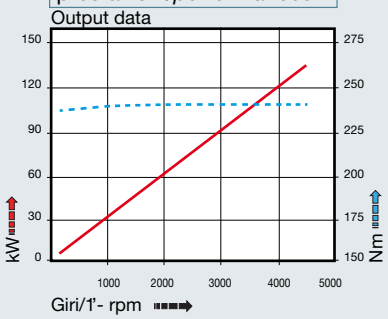
peso/*weight*

145 kg

rotazione/*rotation*

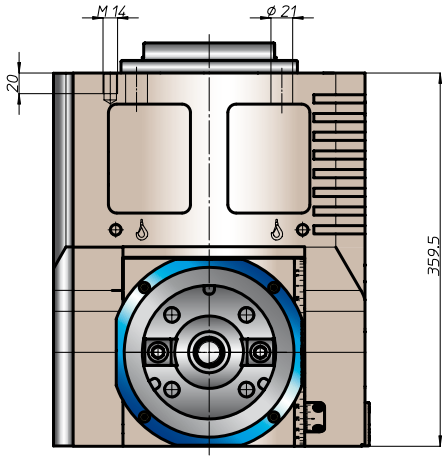
input — output

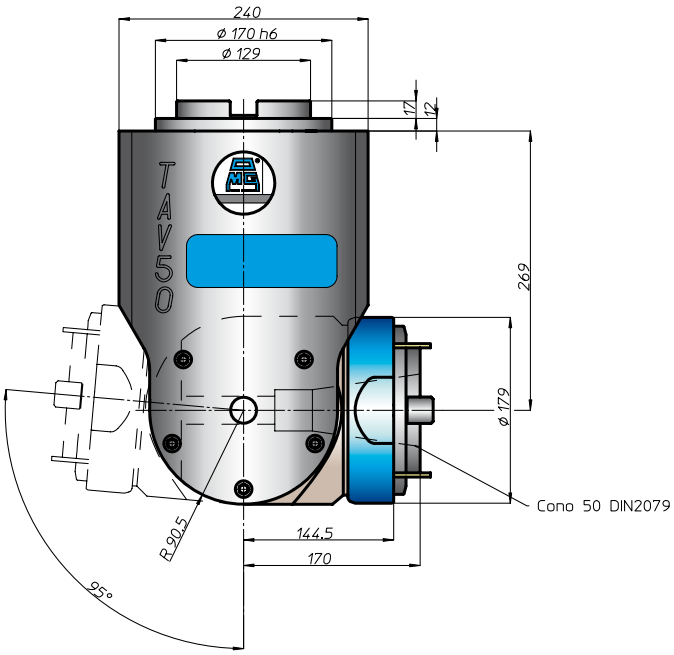
prestazioni/*performances*

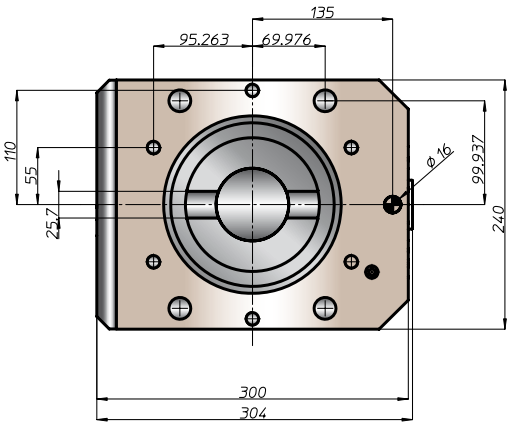


tipi mandrino disponibili / *available spindle types*

4 DIN69893-HSK	5 COROMANT CAPTO®
A100	**C8**







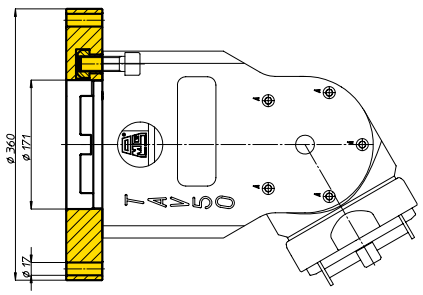
Equipaggiamento standard:

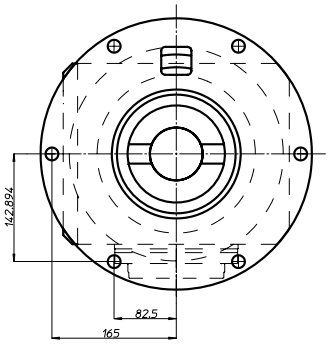
- pressurizzazione mandrinio
- n. 4 ugelli orientabili vicino al mandrino
- regolazione angolare mandrino libera o posizionabile ogni 15°
- nel mandrino DIN2079 si possono utilizzare coni DIN69871-A50, MAS403-BT50

Standard equipment:

- *spindle front pressurization*
- *nr 4 adjustable nozzle near the spindle*
- *free angle spindle adjustment or by pin each 15°*
- *on the spindle DIN2079 you can use shank DIN69871-A50, MAS403-BT50*

esempio di collegamento - *connection example*



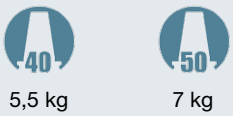


TAF Gallery

TAF10.P

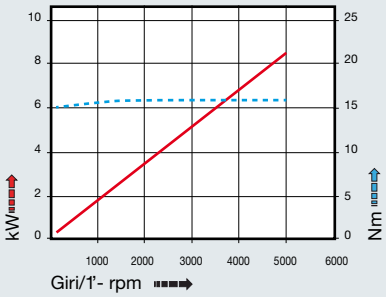
caratteristiche/*features*

peso/*weight*

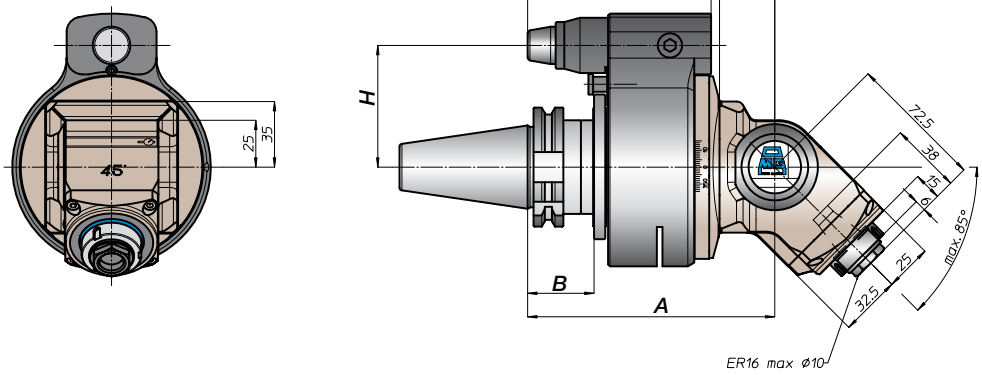


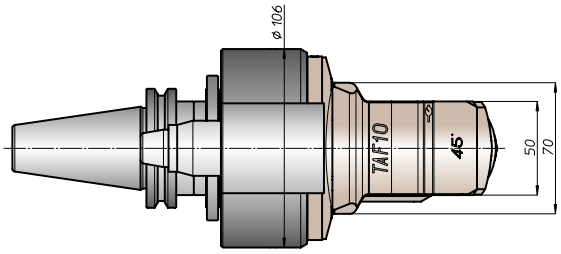
rotazione/*rotation*

prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	132	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	140	45	80	110
DIN69893 HSK	63	141	42	65	
	80		46	80	110
	100				
ISO26623 CAPTO	C5	136	39	65	
	C6				
	C8			80	110
KM	63	132		65	
	80			80	110
	100				
DIN2080	-			-	-
	-				
	-			-	-
	-				
ANSIB5.18 NMTB	-			-	-
	-			-	-





testa ad angolo - *angle head*

TAF13.P

caratteristiche/*features*

ø 13 | M10

1-1 | 4000

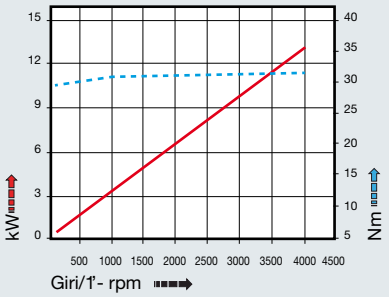
peso/*weight*

40 — 6,5 kg | 50 — 8,5 kg

rotazione/*rotation*

IN — input | OUT — output

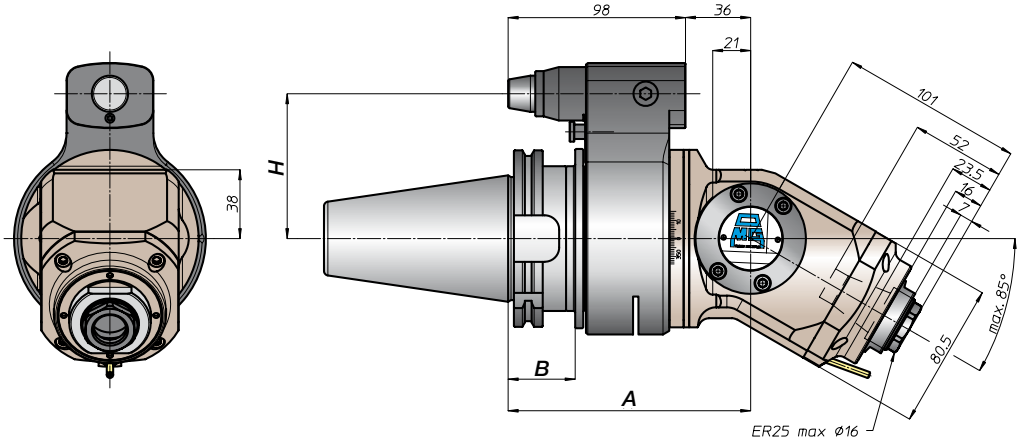
prestazioni/*performances*

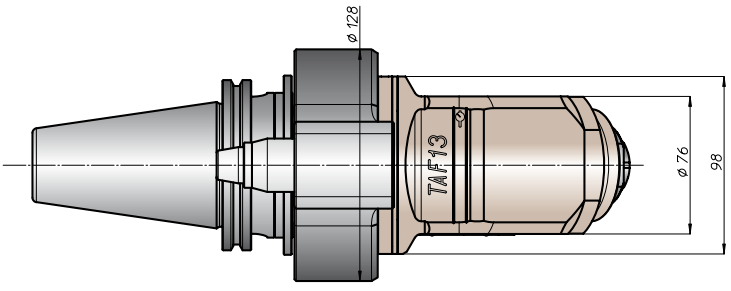


tipi mandrino disponibili / *available spindle types*

4 DIN69893-HSK

HSK32





CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	134	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	142	45	80	110
HSK DIN69893	63	143	42	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	138	39	65	
	C6				
	C8			80	110
KM	63	134		65	
	80			80	110
	100				
DIN2080	-			-	-
	-				
	-			-	-
	-				
NMTB ANSIB5.18	-			-	-
	-			-	-

TAF13.PD

caratteristiche/*features*

ø 13 | M10 | 1-1

4000 rpm | 70 bar

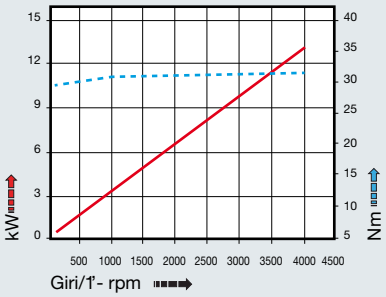
peso/*weight*

40: 6,5 kg | 50: 8,5 kg

rotazione/*rotation*

IN (input) → OUT (output)

prestazioni/*performances*

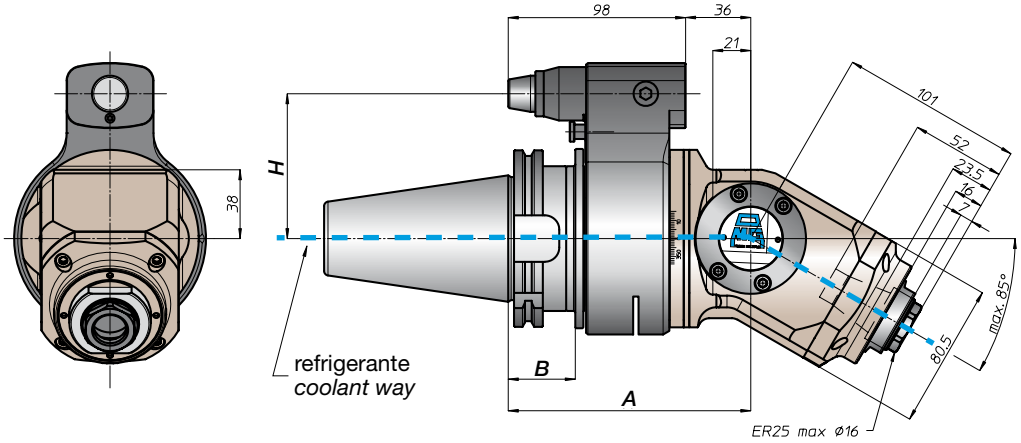


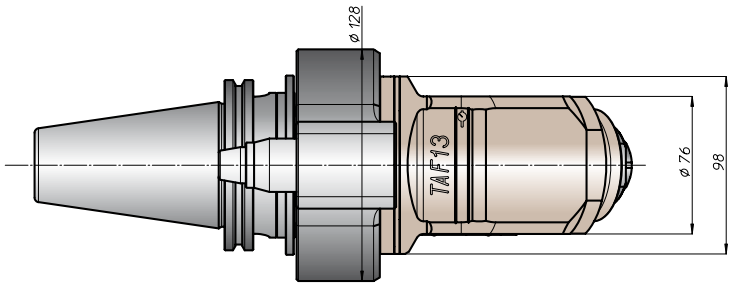
CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	134	35	65	-
	40				
	45			80	110
	50				
CAT ANSIB5.50	40			65	-
	50			80	110
BT	40			65	
	50	142	45	80	110
HSK DIN69893	63	143	42	65	
	80		46	80	110
	100				
CAPTO ISO26623	C5	138		65	
	C6		39		
	C8			80	110
KM	63	134		65	
	80			80	110
	100				
DIN2080	-			-	-
	-				
	-			-	-
	-				
NMTB ANSIB5.18	-			-	-
	-			-	-

tipi mandrino disponibili / *available spindle types*

4 DIN69893-HSK

HSK32





testa ad angolo - *angle head*

TAF20.P

caratteristiche/*features*

ø 20 | M16

1-1 | 3000

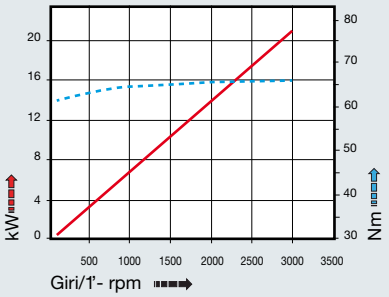
peso/*weight*

13,5 kg

rotazione/*rotation*

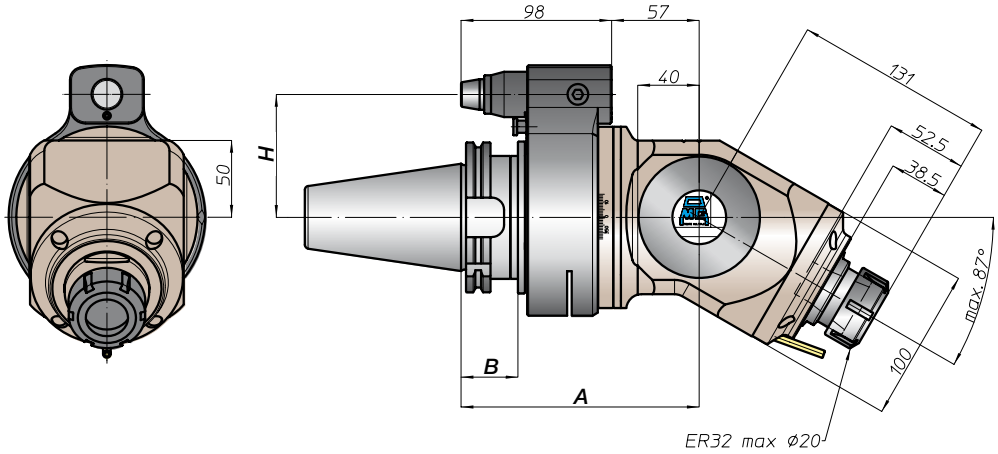
input | output

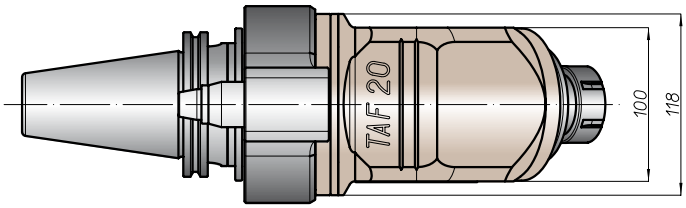
prestazioni/*performances*



tipi mandrino disponibili / *available spindle types*

1	2	3	4	6
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch	DIN69893-HSK	ABS Licenza KOMET®
ER40	**Ø32**	**Ø20**	**HSK50**	**ABS50**





CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	155	35	-	-
	-				
	45			80	110
	50				
CAT ANSIB5.50	-			-	-
	50			80	110
BT	-			-	
	50	163	45	80	110
HSK DIN69893	-	164	42	-	
	80		46	80	110
	100				
CAPTO ISO26623	-	159		-	
	C6			80	110
	C8				
KM	-	155		-	
	80			80	110
	100				
DIN2080	-			-	-
	-				
	-			-	-
	-				
NMTB ANSIB5.18	-			-	-
	-			-	-

TAF20.PD

caratteristiche/*features*

ø 20 | M16 | 1-1

3000 rpm | 70 bar

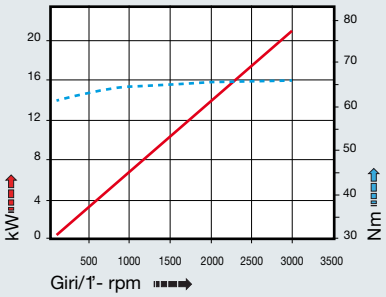
peso/*weight*

13,5 kg

rotazione/*rotation*

input → output

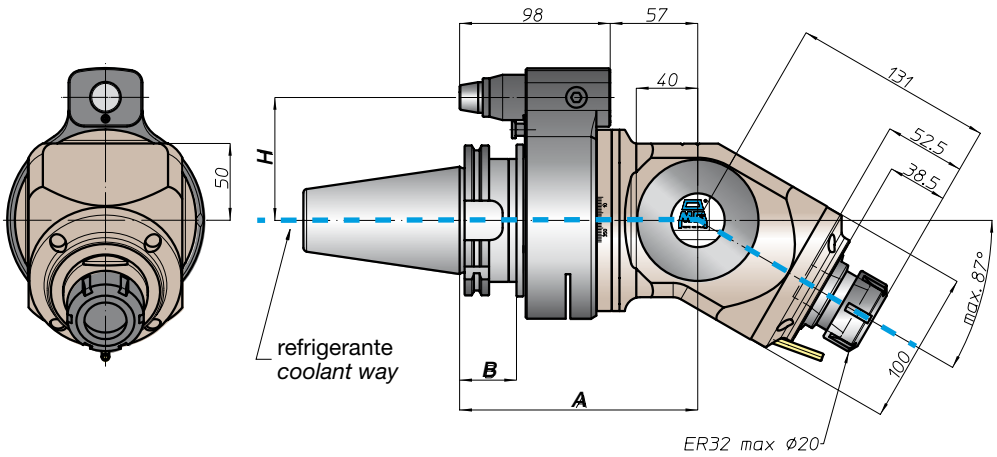
prestazioni/*performances*

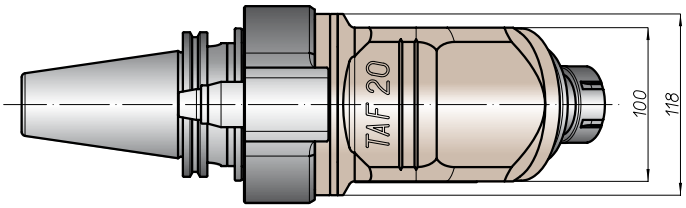


CONO SHANK	size	A	B	H standard	H optional
DIN69871	-	155	35	-	-
	-				
	45			80	110
	50				
CAT ANSIB5.50	-			-	-
	50			80	110
BT	-			-	
	50	163	45	80	110
HSK DIN69893	-	164	42	-	
	80		46	80	110
	100				
CAPTO ISO26623	-	159		-	
	C6			80	110
	C8				
KM	-	155		-	
	80			80	110
	100				
DIN2080	-			-	-
	-				
	-			-	-
	-				
NMTB ANSIB5.18	-			-	-
	-			-	-

tipi mandrino disponibili / *available spindle types*

1 DIN6388-ER	3 Weldon Whistle-Notch	4 DIN69893-HSK	6 ABS Licenza KOMET®
ER40	Ø20	HSK50	ABS50





testa ad angolo - *angle head*

TA07P.T

caratteristiche/*features*

ø 7 | M6

1-1 | 10000

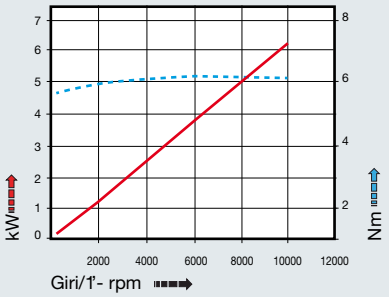
peso/*weight*

head 1,5 kg | extension L 100=2,2 kg L 200=3,6 kg

rotazione/*rotation*

IN input | OUT output

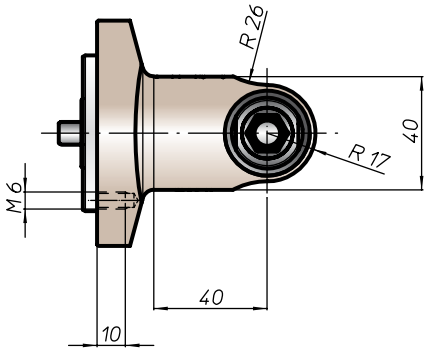
prestazioni/*performances*

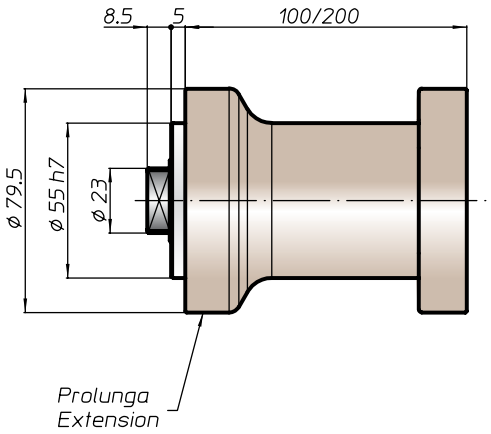


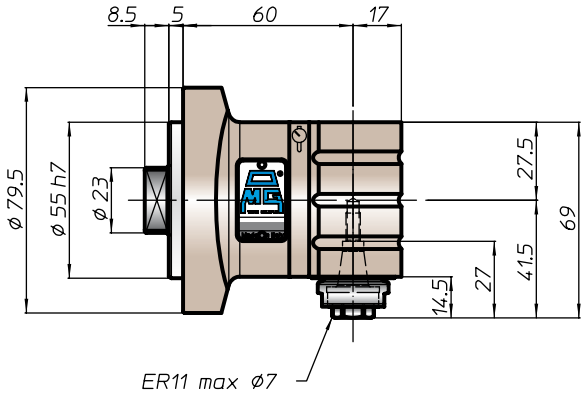
tipi mandrino disponibili / *available spindle types*

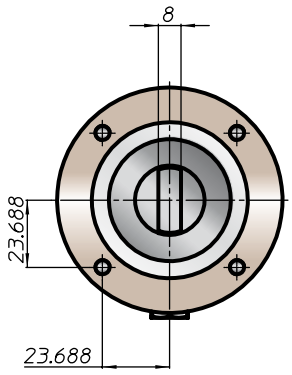
3 Weldon Whistle-Notch

Ø8-Ø10

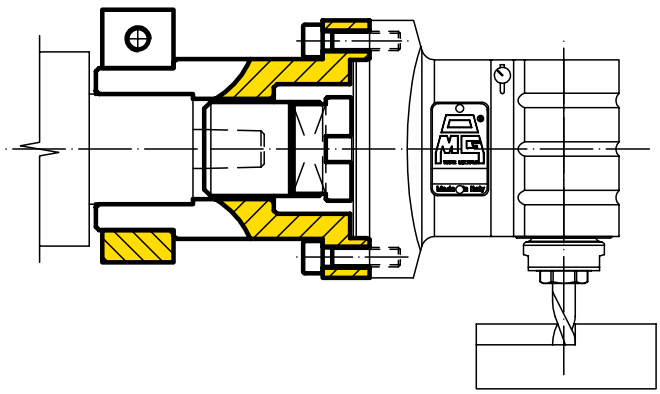








esempio di collegamento - *connection example*



TA10P.T

caratteristiche/*features*

ø 10 | M8

1-1 | 10000

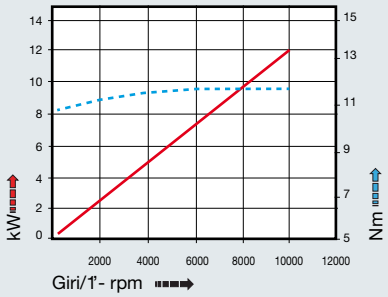
peso/*weight*

head 2,7 kg | extension L 100=2,2 kg, L 200=3,6 kg

rotazione/*rotation*

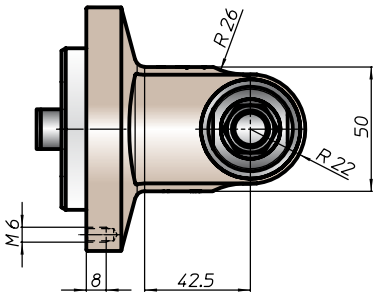
input | output

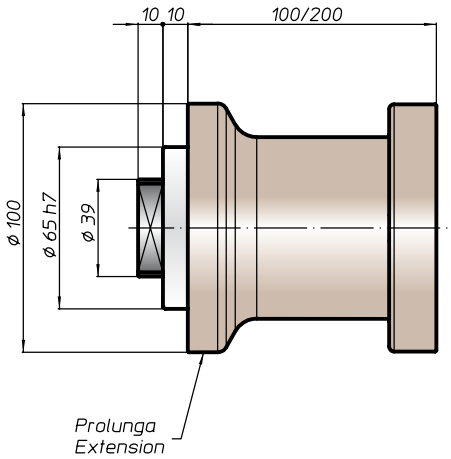
prestazioni/*performances*

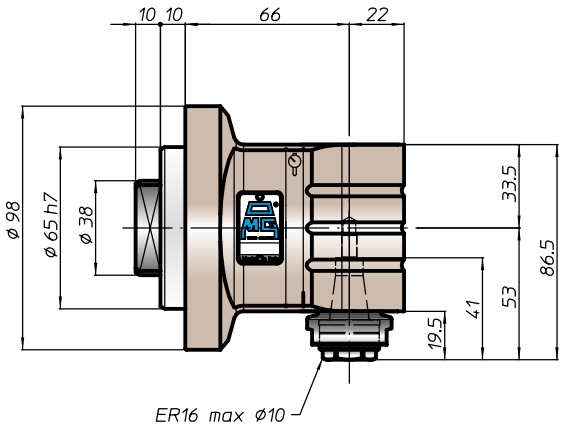


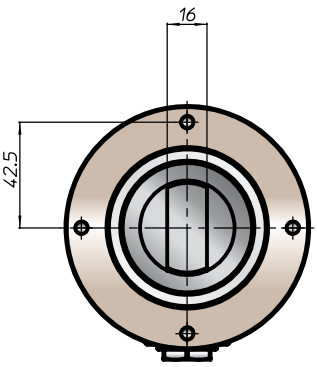
tipi mandrino disponibili / *available spindle types*

1	2	3
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch
ER20	**Ø16**	**Ø10**

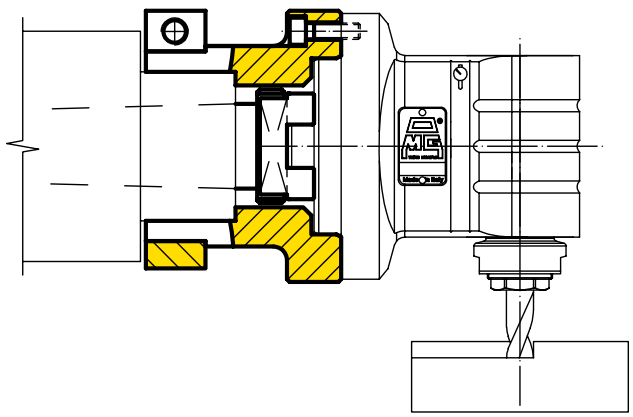








esempio di collegamento - *connection example*



testa ad angolo - *angle head*

TA13P.T

caratteristiche/*features*

ø 13 | M10

1-1 | 8000

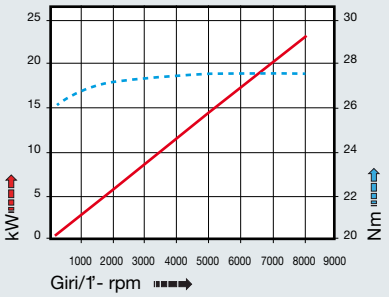
peso/*weight*

3,5 kg

rotazione/*rotation*

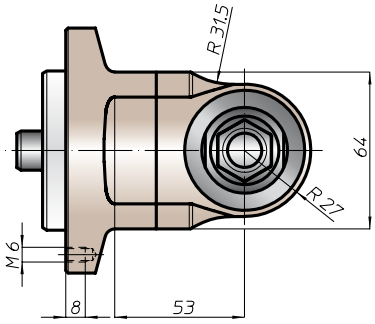
input | output

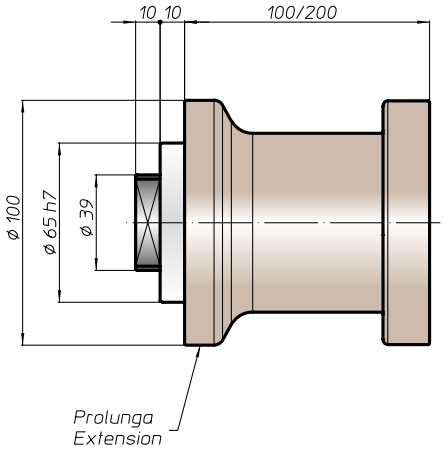
prestazioni/*performances*

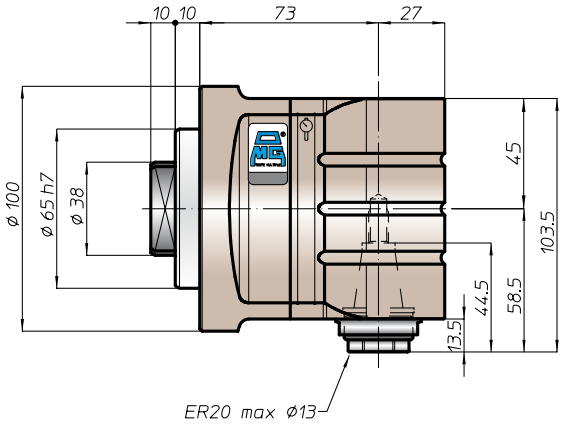


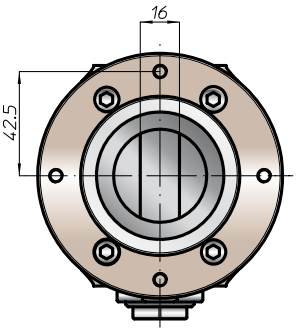
tipi mandrino disponibili / *available spindle types*

1 DIN6388-ER	2 Albero portafrese Milling shaft	3 Weldon Whistle-Notch
ER25	**Ø16-Ø22**	**Ø16**

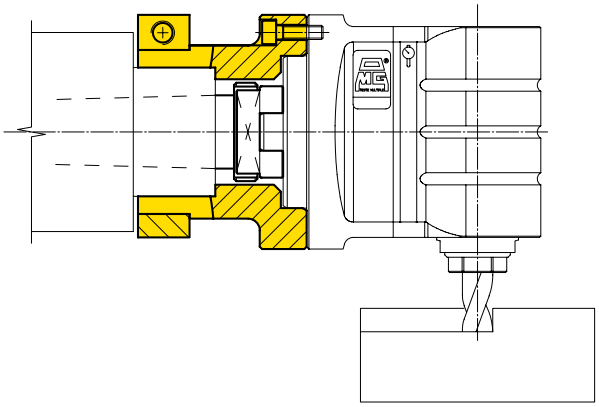








esempio di collegamento - *connection example*



TA16P.T

caratteristiche/*features*

ø 16 — M12

1-1 — 5000

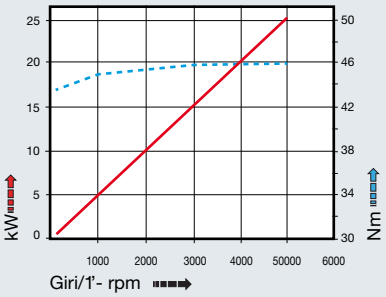
peso/*weight*

head 5 kg — extension L 100=5 kg, L 200=8,5 kg

rotazione/*rotation*

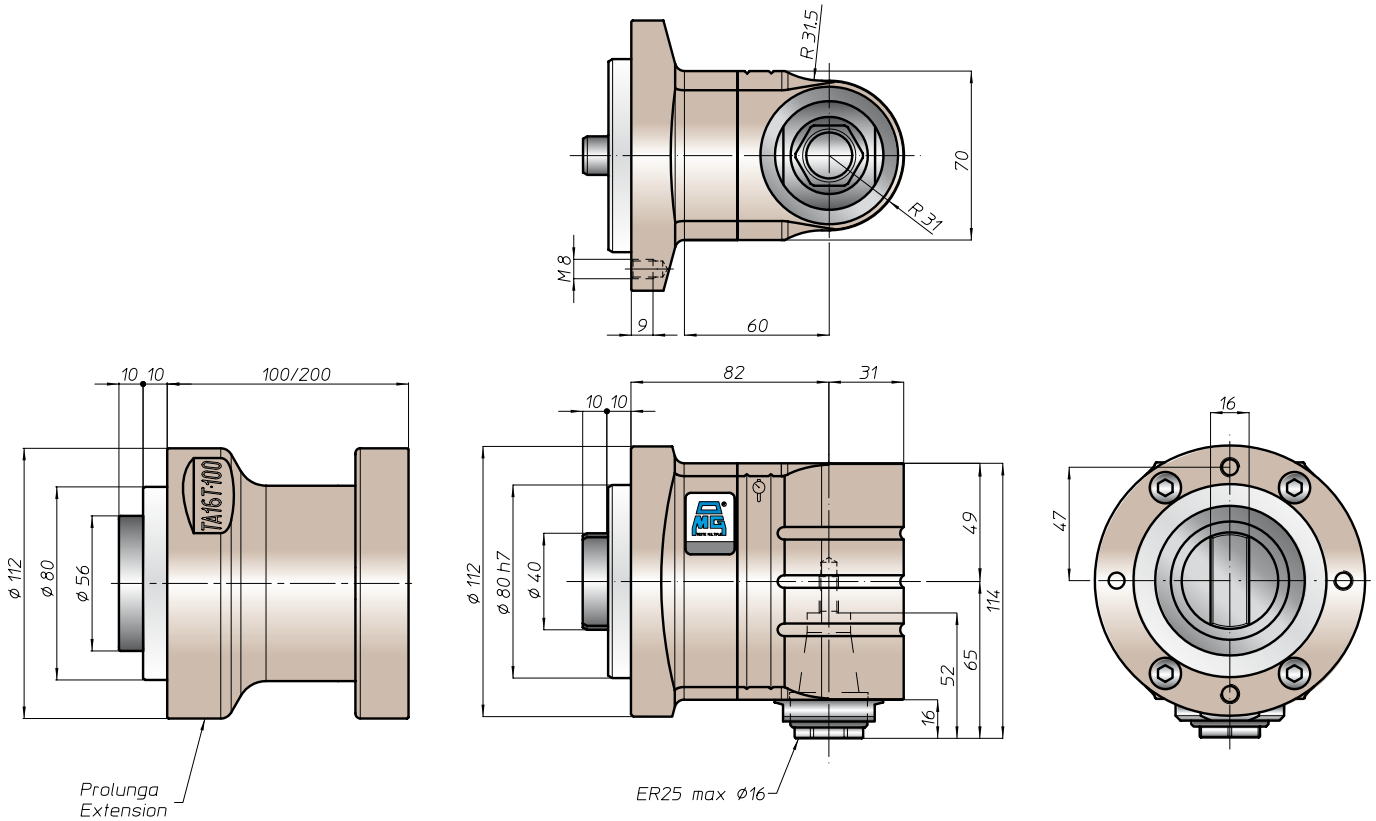
input — output

prestazioni/*performances*

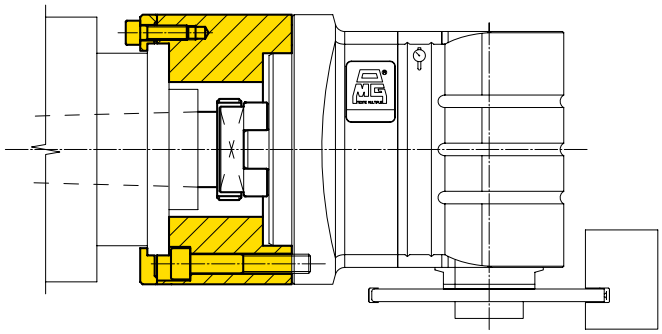


tipi mandrino disponibili / *available spindle types*

1 DIN6388-ER	2 Albero portafrese Milling shaft	3 Weldon Whistle-Notch	4 DIN69893-HSK	5 COROMANT CAPTO®	6 ABS Licenza KOMET®
ER32	Ø16-Ø22-Ø27-Ø32	Ø20	HSK32	C3	ABS32



esempio di collegamento - *connection example*



testa ad angolo - *angle head*

TA20.PT

caratteristiche/*features*

ø 20 | M14

1-1 | 3500

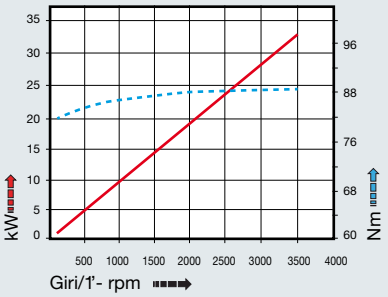
peso/*weight*

head 7,5 kg | extension L 100=7,5 kg, L 200=15 kg

rotazione/*rotation*

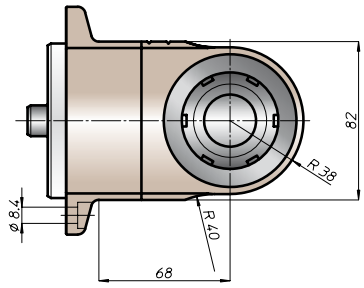
IN input → OUT output

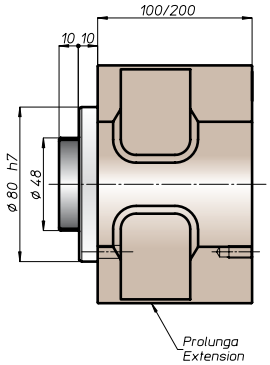
prestazioni/*performances*

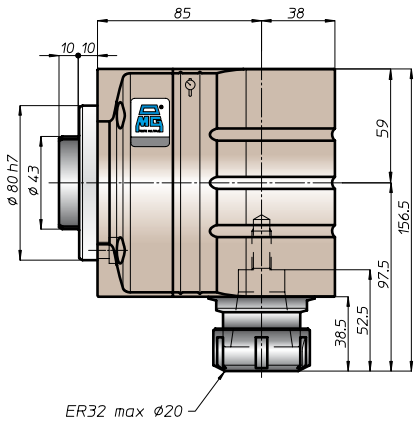


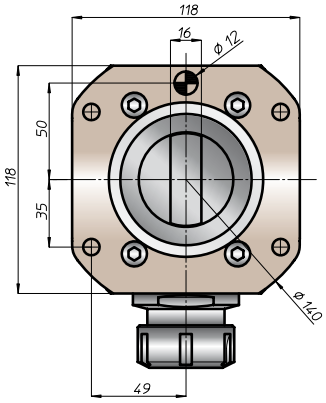
tipi mandrino disponibili / *available spindle types*

1	2	3	4	5	6
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch	DIN69893-HSK	COROMANT CAPTO®	ABS Licenza KOMET®
ER40	**Ø22-Ø27-Ø32**	**Ø20-Ø25**	**HSK40**	**C4**	**ABS40**

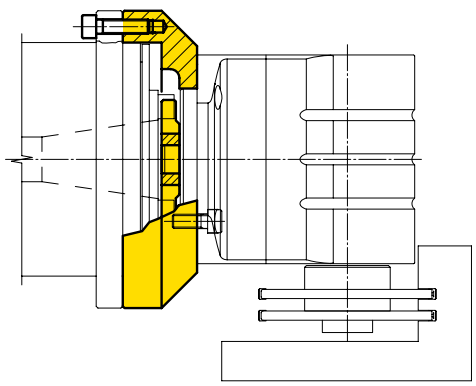








esempio di collegamento - *connection example*



TA20.30.T

caratteristiche/*features*

ø 20 | M14

1-1 | 3500

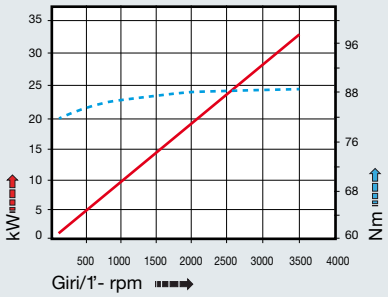
peso/*weight*

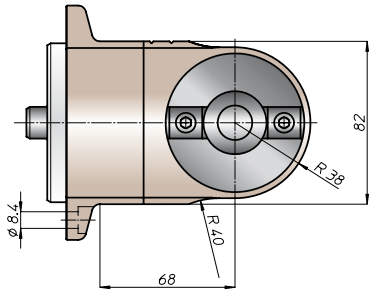
head 7,5 kg | extension L 100=7,5 kg, L 200=15 kg

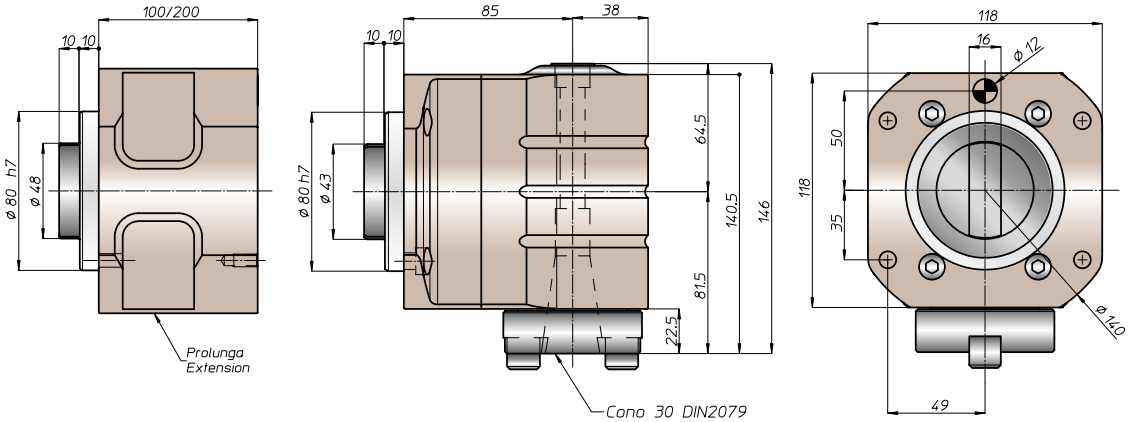
rotazione/*rotation*

IN input → OUT output

prestazioni/*performances*



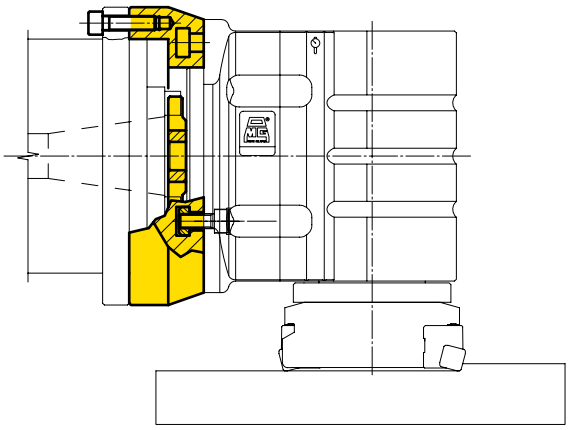




Nota:
- nel mandrino DIN2079 si possono utilizzare coni DIN2080-30, DIN69871-A30, MAS403-BT30

Note:
- *on the spindle DIN2079 you can use shank DIN2080-30, DIN69871-A30, MAS403-BT30*

esempio di collegamento - *connection example*



testa ad angolo - *angle head*

TA26.PT

caratteristiche/*features*

ø 26 | M20

1-1 | 2500

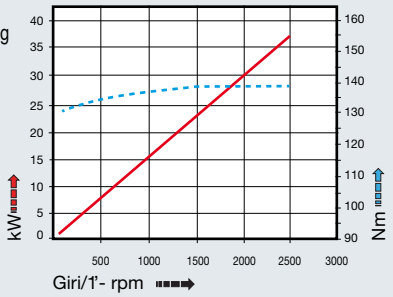
peso/*weight*

head 13,5 kg | extension L 100=12,5 kg, L 200=24 kg

rotazione/*rotation*

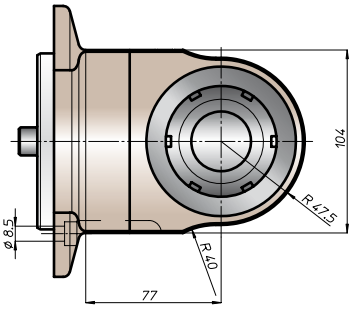
IN input → OUT output

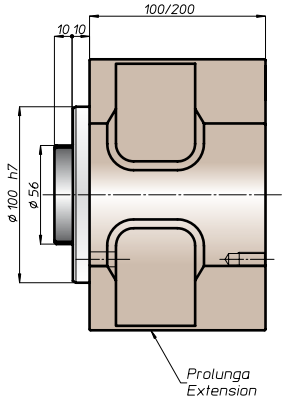
prestazioni/*performances*

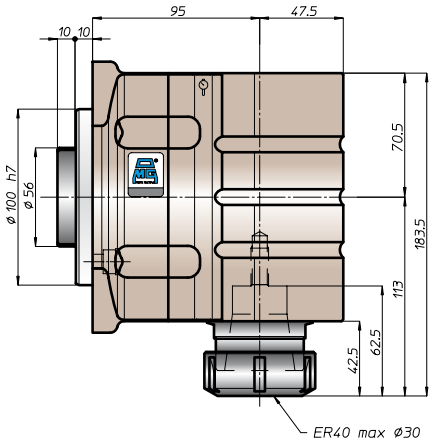


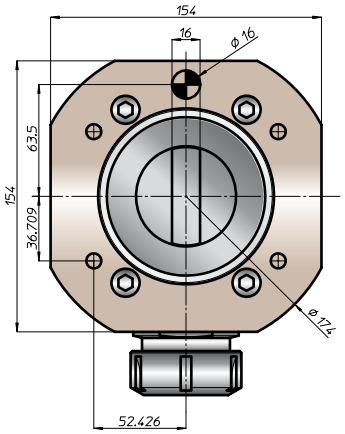
tipi mandrino disponibili / *available spindle types*

2	3	4	5	6
Albero portafrese Milling shaft	Weldon Whistle-Notch	DIN69893-HSK	COROMANT CAPTO®	ABS Licenza KOMET®
Ø16-Ø27-Ø32	**Ø32**	**HSK63**	**C4**	**ABS50**

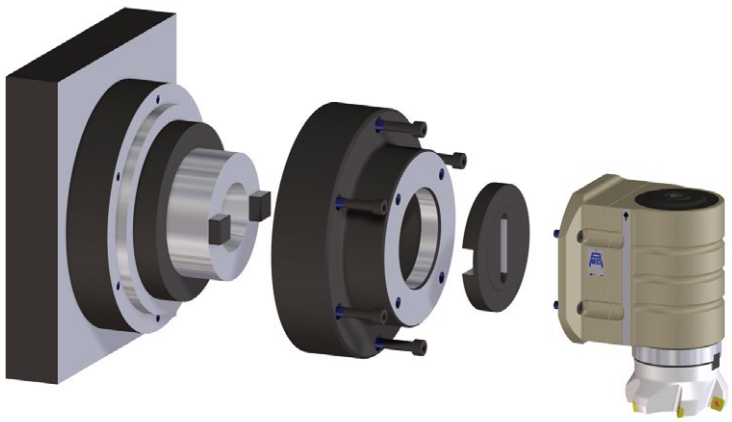








esempio di collegamento - *connection example*



TA26.40.T

caratteristiche/*features*

ø 26

M20

1-1

2500

peso/*weight*

head 13,5 kg

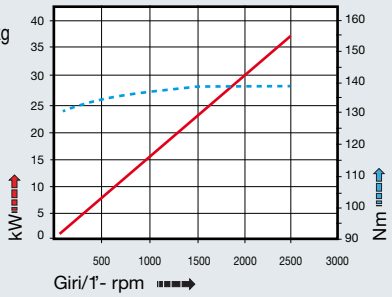
extension L 100=12,5 kg L 200=24 kg

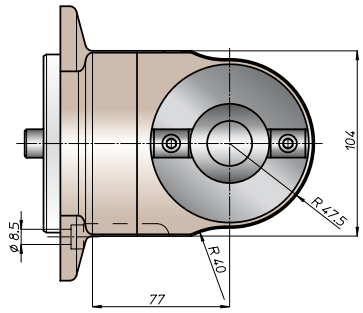
rotazione/*rotation*

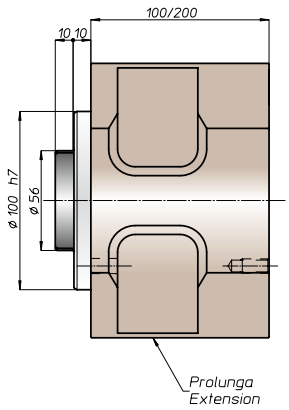
input

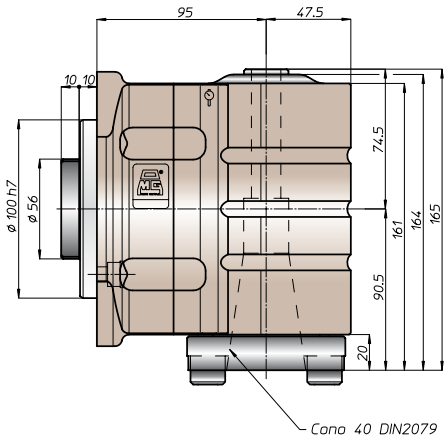
output

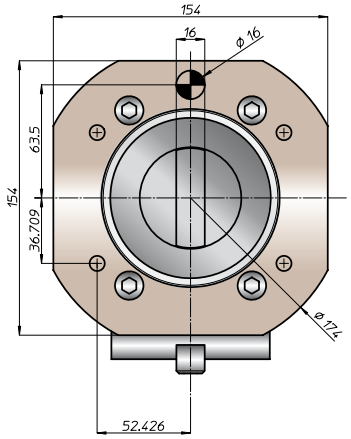
prestazioni/*performances*











Nota:
- nel mandrino DIN2079 si possono utilizzare coni DIN2080-40, DIN69871-A40, MAS403-BT40

Note:
- *on the spindle DIN2079 you can use shank DIN2080-40, DIN69871-A40, MAS403-BT40*

esempio di collegamento - *connection example*

testa ad angolo - *angle head*

TA40.T

caratteristiche/*features*

ø 32 | M26

1-1 | 5000

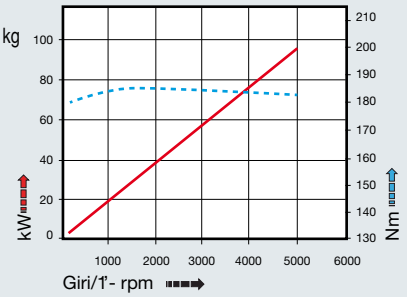
peso/*weight*

head 33 kg | extension | L 200=26,5 kg

rotazione/*rotation*

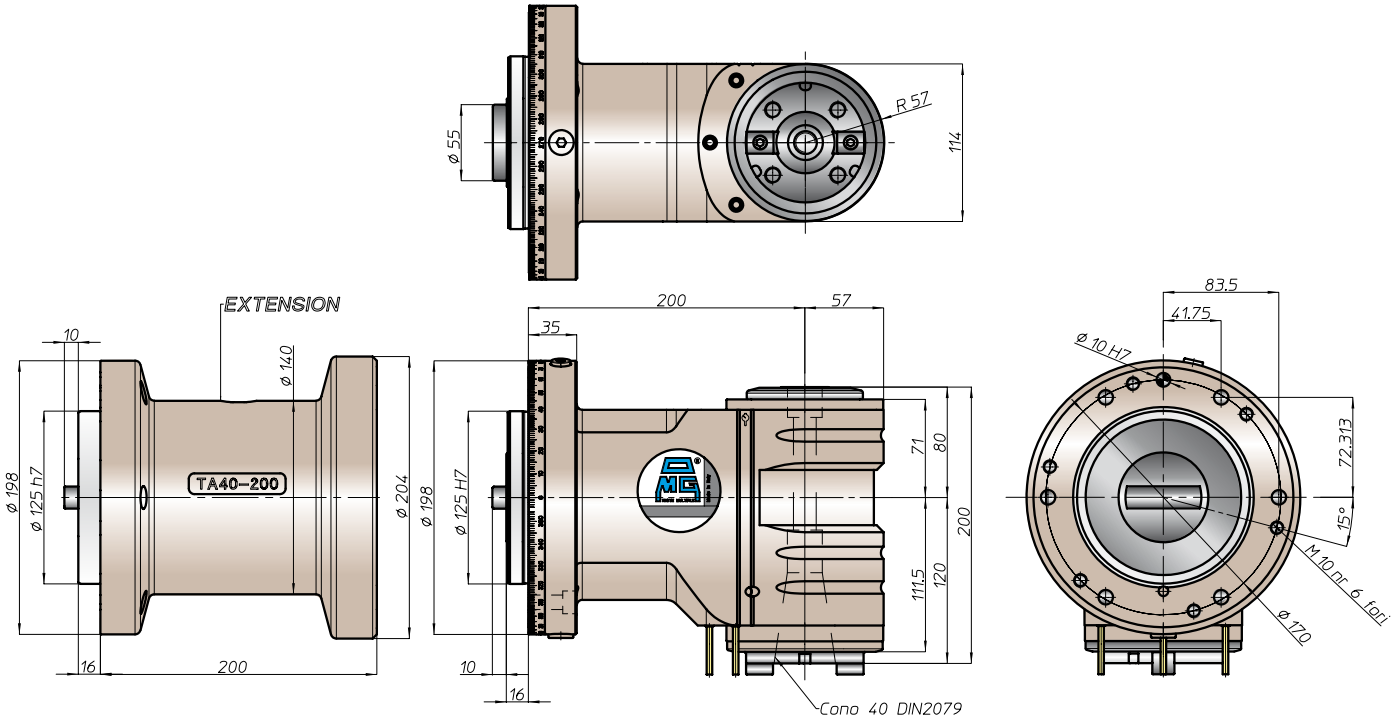
IN (input) → OUT (output)

prestazioni/*performances*



tipi mandrino disponibili / *available spindle types*

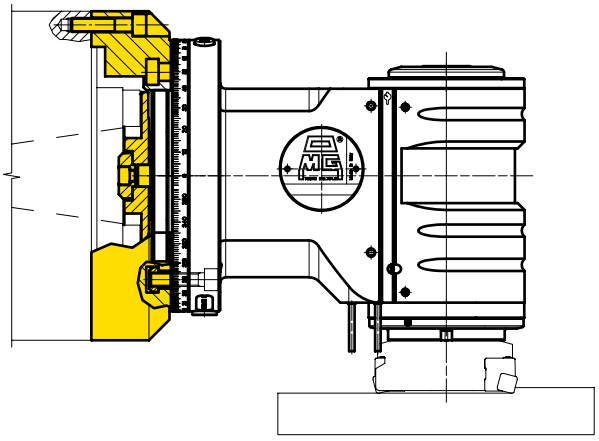
4 DIN69893-HSK	5 COROMANT CAPTO®
HSK63	**C5**



Equipaggiamento standard:
- pressurizzazione mandrino
- n. 3 ugelli orientabili vicino al mandrino
- nel mandrino DIN2079 si possono utilizzare coni DIN2080-40, DIN69871-A40, MAS403-BT40

Standard equipment:
- *spindle front pressurization*
- *nr 3 adjustable nozzle near the spindle*
- *on the spindle DIN2079 you can use shank DIN2080-40, DIN69871-A40, MAS403-BT40*

esempio di collegamento - *connection example*



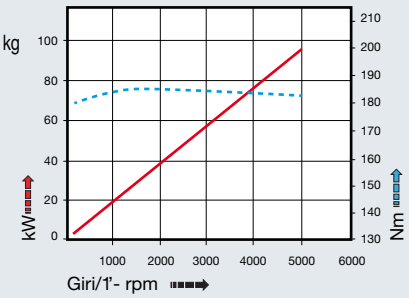
TA40.TD

caratteristiche/*features*

peso/*weight*

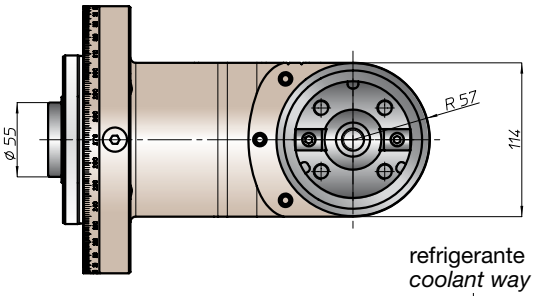
rotazione/*rotation*

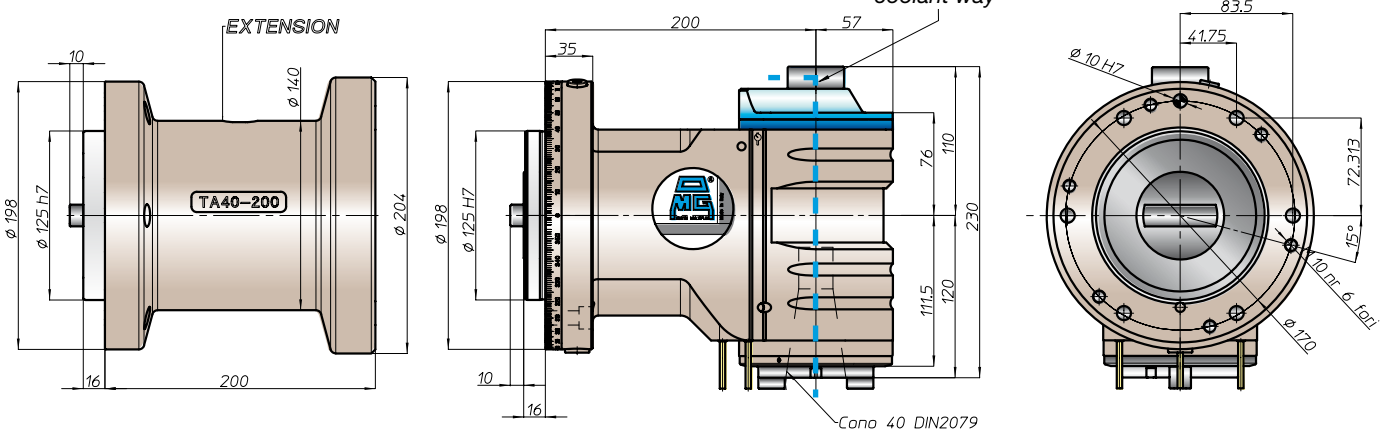
prestazioni/*performances*



tipi mandrino disponibili / *available spindle types*

4 DIN69893-HSK	5 COROMANT CAPTO®
HSK63	**C5**

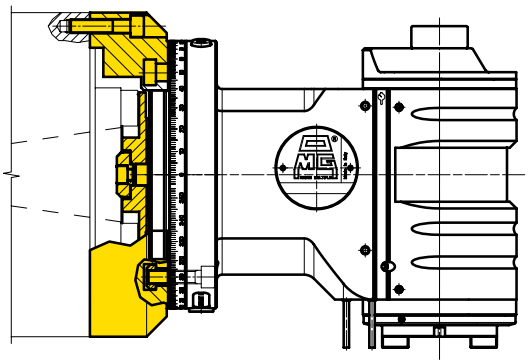




Equipaggiamento standard:
- pressurizzazione mandrino
- n. 3 ugelli orientabili vicino al mandrino
- nel mandrino DIN2079 si possono utilizzare coni DIN2080-40, DIN69871-A40, MAS403-BT40

Standard equipment:
- *spindle front pressurization*
- *nr 3 adjustable nozzle near the spindle*
- *on the spindle DIN2079 you can use shank DIN2080-40, DIN69871-A40, MAS403-BT40*

esempio di collegamento - *connection example*



testa ad angolo - *angle head*

TA50.T

caratteristiche/*features*

ø 45 | M36

1-1 | 2500/4000 rpm

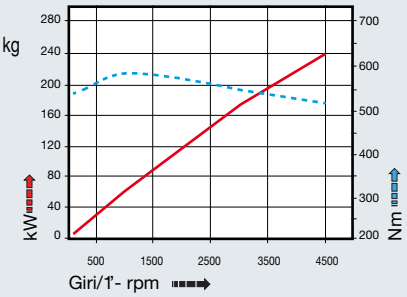
peso/*weight*

head 95 kg | extension | L 300=110 kg

rotazione/*rotation*

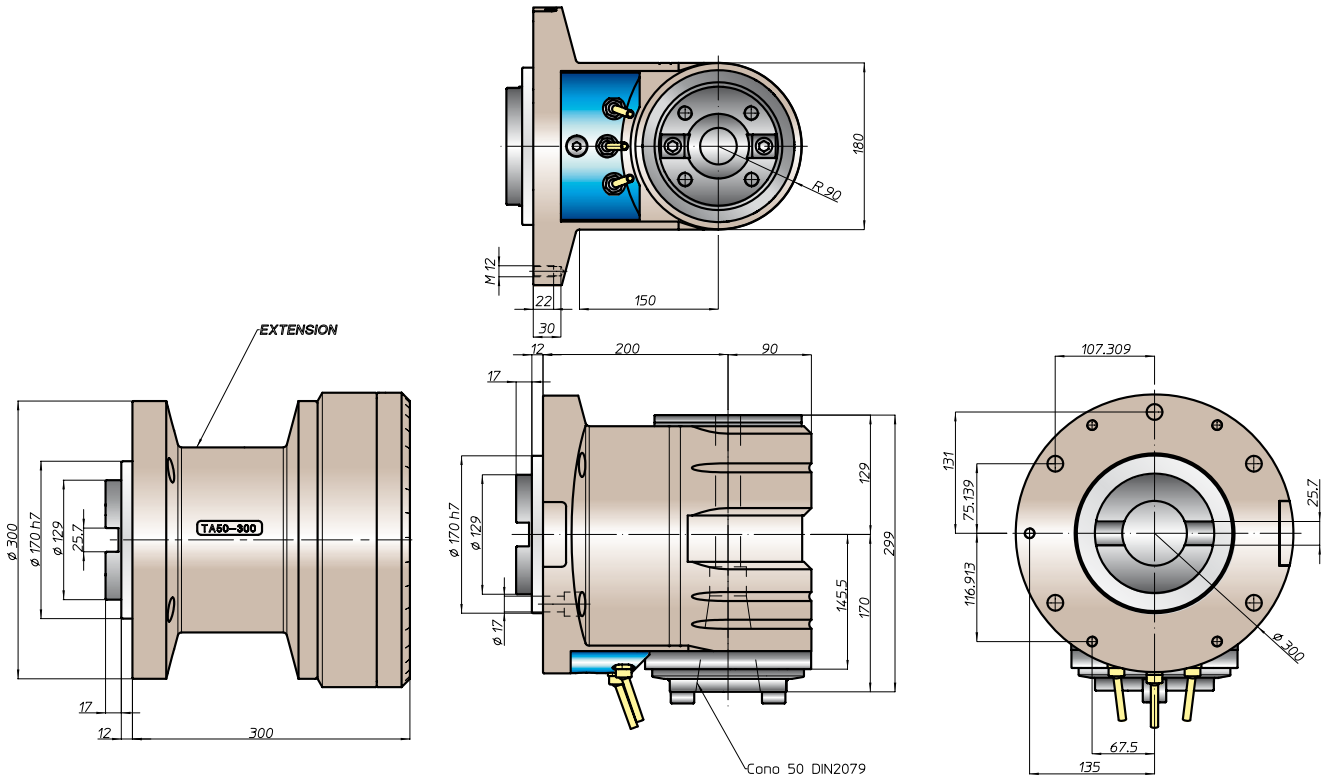
IN (input) → OUT (output)

prestazioni/*performances*



tipi mandrino disponibili / *available spindle types*

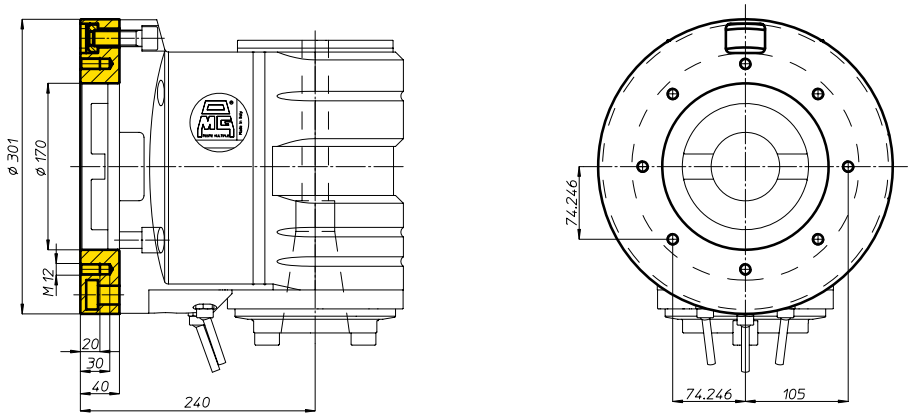
4 DIN69893-HSK	5 COROMANT CAPTO®
HSK100	**C8**



Equipaggiamento standard:
- pressurizzazione mandrino
- n. 3 ugelli orientabili vicino al mandrino
- nel mandrino DIN2079 si possono utilizzare coni DIN2080-50, DIN69871-A50, MAS403-BT50

Standard equipment:
- *spindle front pressurization*
- *nr 3 adjustable nozzle near the spindle*
- *on the spindle DIN2079 you can use shank DIN2080-50, DIN69871-A50, MAS403-BT50*

esempio di collegamento - *connection example*



TA50.TD

caratteristiche/*features*

ø 45 | M36 | 1-1

2500 / 4000 rpm | 50 bar

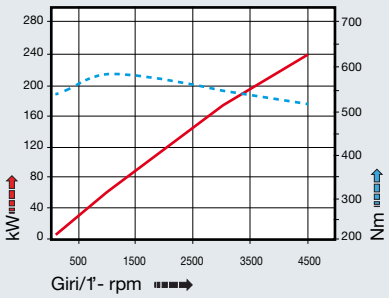
peso/*weight*

head 95 kg | extension L 300=110 kg

rotazione/*rotation*

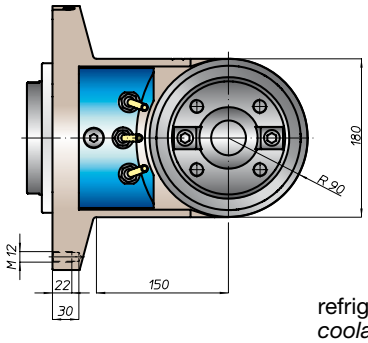
input | output

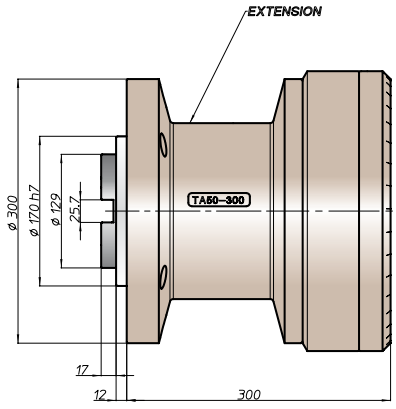
prestazioni/*performances*



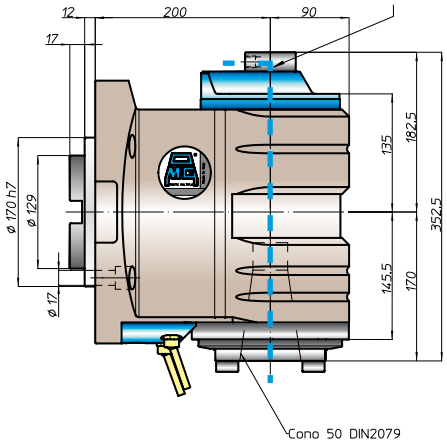
tipi mandrino disponibili / *available spindle types*

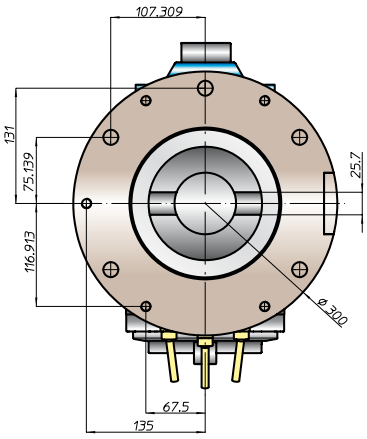
4 DIN69893-HSK	5 COROMANT CAPTO®
HSK100	**C8**





refrigerante
coolant way

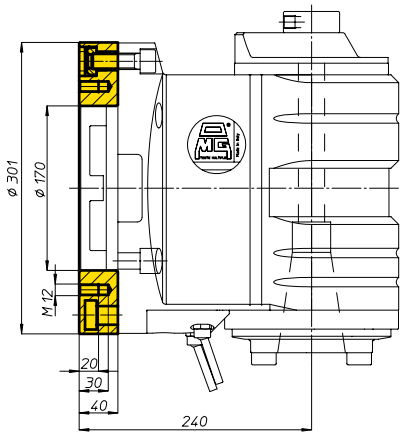


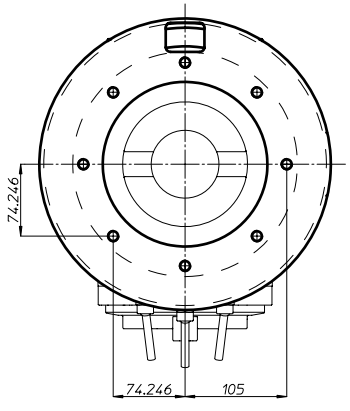


Equipaggiamento standard:
- pressurizzazione mandrino
- n. 3 ugelli orientabili vicino al mandrino
- nel mandrino DIN2079 si possono utilizzare coni DIN69871-A50, MAS403-BT50

Standard equipment:
- *spindle front pressurization*
- *nr 3 adjustable nozzle near the spindle*
- *on the spindle DIN2079 you can use shank DIN69871-A50, MAS403-BT50*

esempio di collegamento - *connection example*





TA..T Extended Gallery

TA..T Extended Gallery

testa ad angolo - *angle head*

TA13.PVDI

caratteristiche/*features*

ø 13 | M10

1-1 | 8000

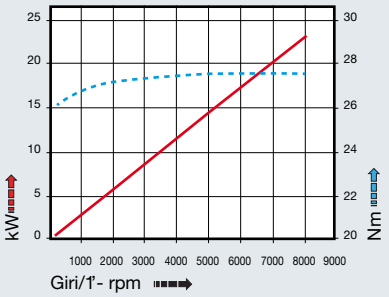
peso/*weight*

4,5 kg

rotazione/*rotation*

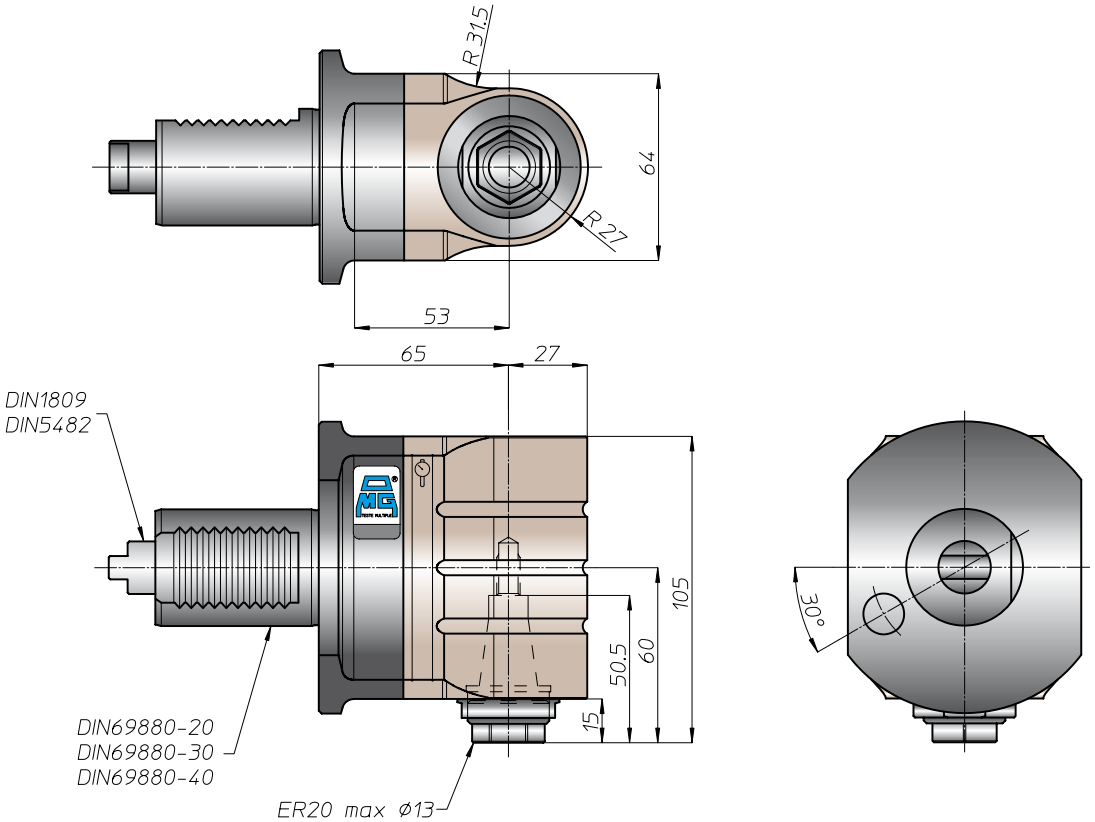
input | output

prestazioni/*performances*

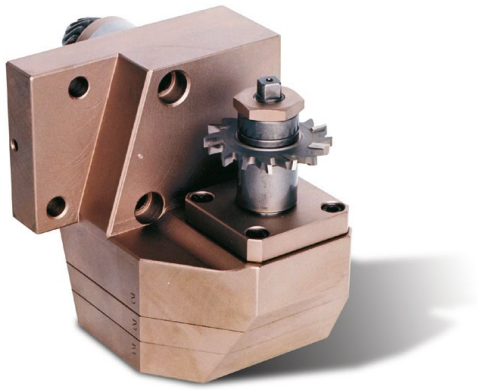


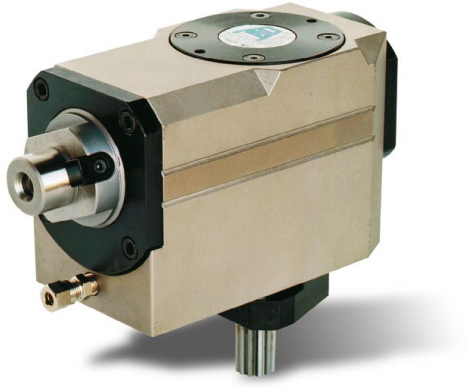
tipi mandrino disponibili / *available spindle types*

1	2	3
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch
ER25	**Ø16-Ø22**	**Ø16**



soluzioni speciali - *special solutions*





TA16.PVDI

caratteristiche/*features*

ø 16 — M12

1-1 — 5000

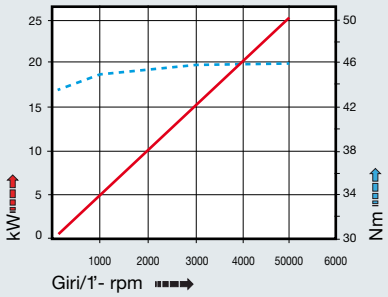
peso/*weight*

6,5 kg

rotazione/*rotation*

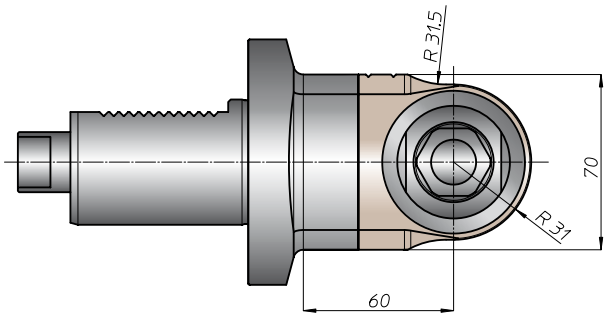
input — output

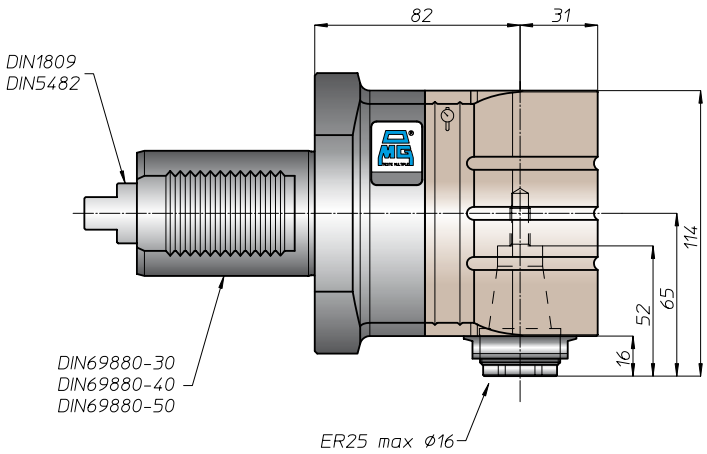
prestazioni/*performances*

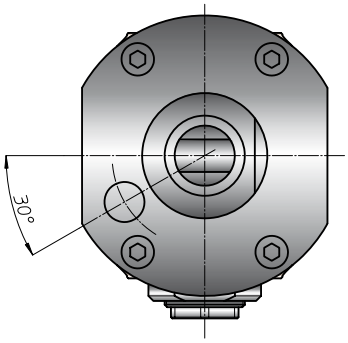


tipi mandrino disponibili / *available spindle types*

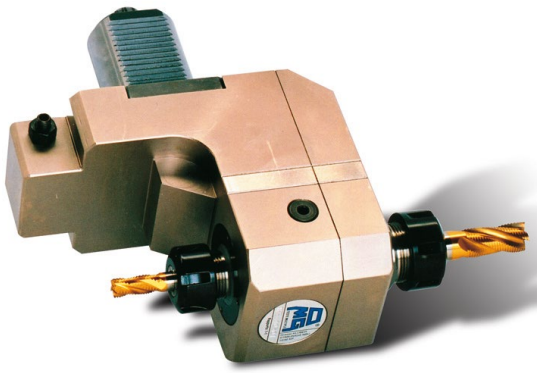
1	2	3	4	5	6
DIN6388-ER	Albero portafrese Milling shaft	Weldon Whistle-Notch	DIN69893-HSK	COROMANT CAPTO®	ABS Licenza KOMET®
ER32	**Ø16-Ø27-Ø32**	**Ø20**	**HSK32**	**C3**	**ABS32**

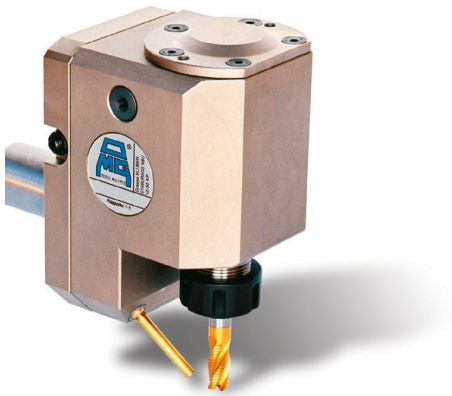






soluzioni speciali - *special solutions*





testa ad angolo - *angle head*

TAV10.PVDI

caratteristiche/*features*

ø 10

M8

1-1

4000

peso/*weight*

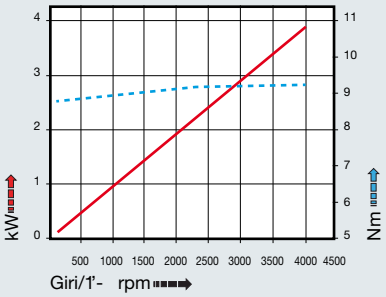
3,5 kg

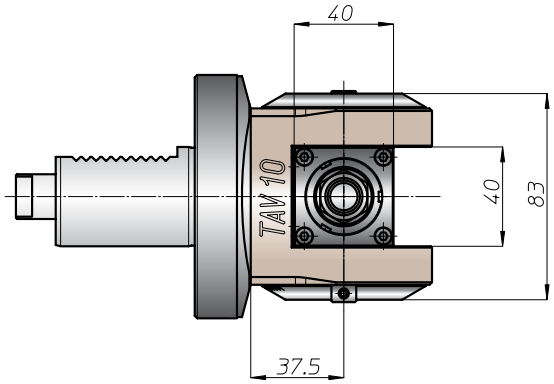
rotazione/*rotation*

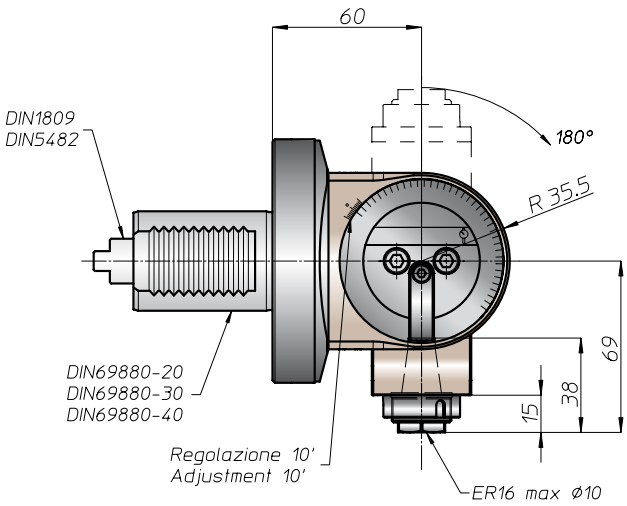
input

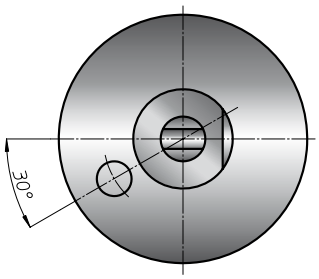
output

prestazioni/*performances*









soluzioni speciali - *special solutions*

TAV13.PVDI

caratteristiche/*features*

ø 13 — M10

1-1 — 3000

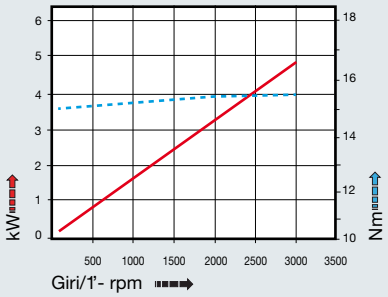
peso/*weight*

5,5 kg

rotazione/*rotation*

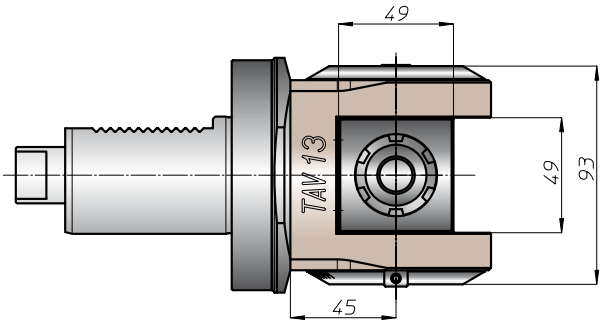
input — output

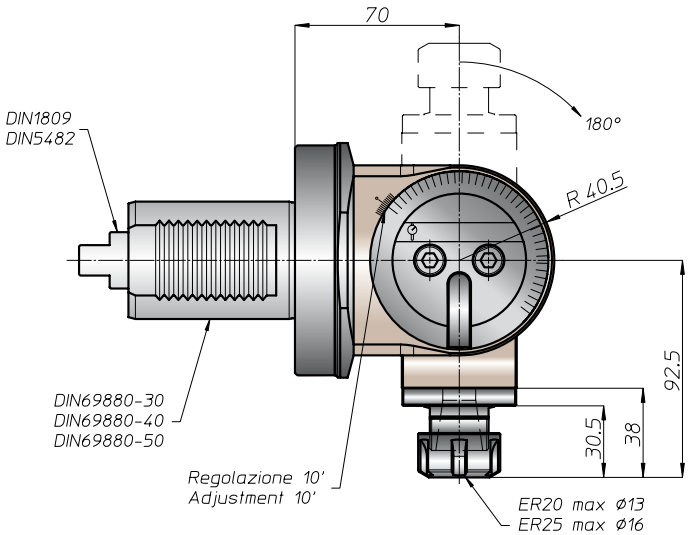
prestazioni/*performances*

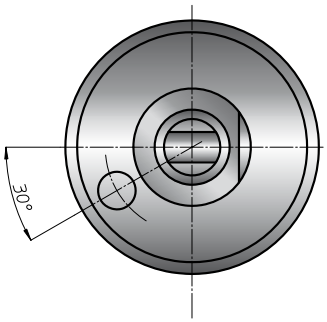


tipi mandrino disponibili / *available spindle types*

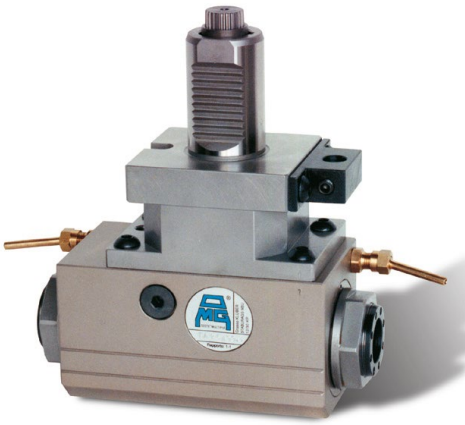
1 DIN6388-ER	3 Weldon Whistle-Notch
ER25	**Ø16**

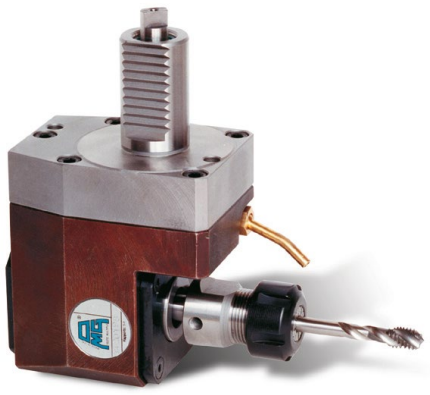






soluzioni speciali - *special solutions*





Antirotante
Torque arm

Il gruppo antirotante ricopre una funzione di fondamentale importanza nella qualità di lavorazione della testa ad angolo. Per questo motivo i tecnici della OMG hanno studiato e messo a punto un antirotante di nuova concezione i cui punti salienti sono:

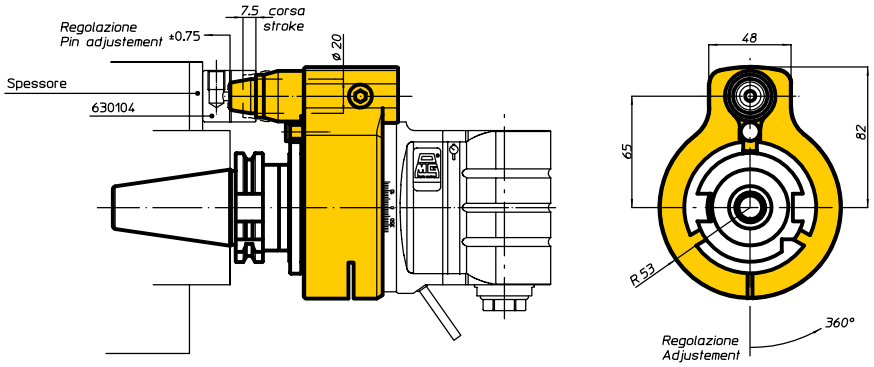
- Il perno conico
- La registrazione assiale del perno
- Adduzione del liquido passante per il corpo testa

Il perno conico e la propria registrazione assiale di mm 1.5 permettono una maggiore rigidità del sistema antirotante rispetto ai tradizionali, dotati di perni di Ø18 mm perché si eliminano i giochi con conseguente miglioramento della rigidità sia angolare che assiale.

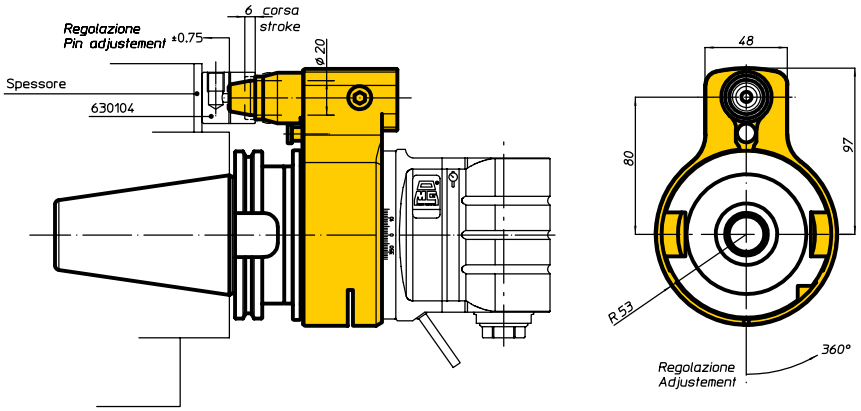
L'adduzione del liquido passante per il corpo testa, la cui uscita avviene tramite un ugello direzionabile, offre il vantaggio di non avere tubi "volanti" che possono muoversi durante le lavorazioni.

Quando possibile, nella Vostra applicazione, posizionate il perno conico dalla parte opposta al mandrino della testa ad angolo.

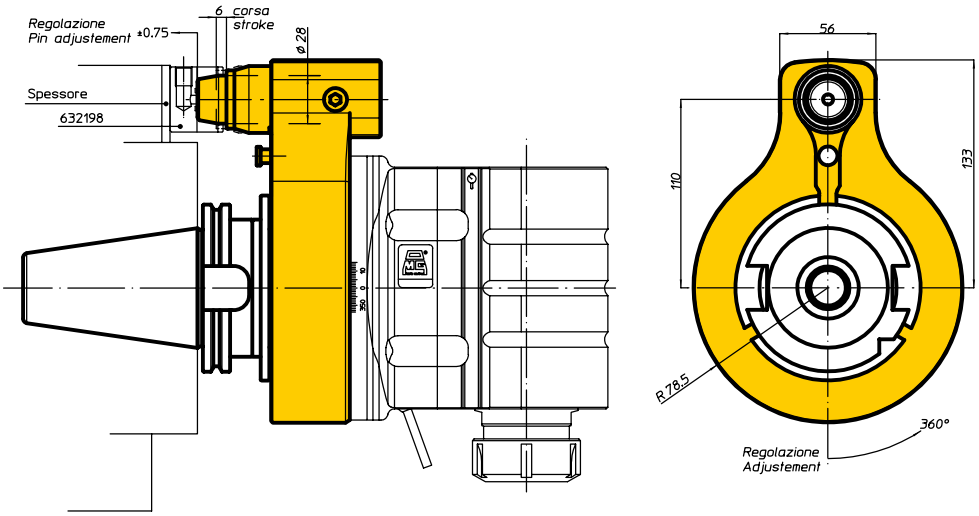
Teste ad angolo con interasse H=65
Angle heads with centre distance H=65



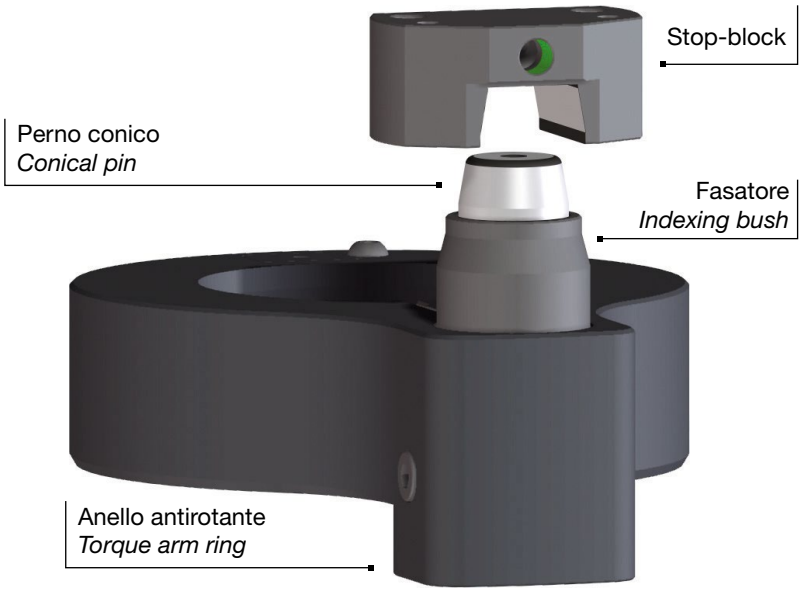
Teste ad angolo con interasse H=80
Angle heads with centre distance H=80



Teste ad angolo con interasse H=110
Angle heads with centre distance H=110



Stop-block



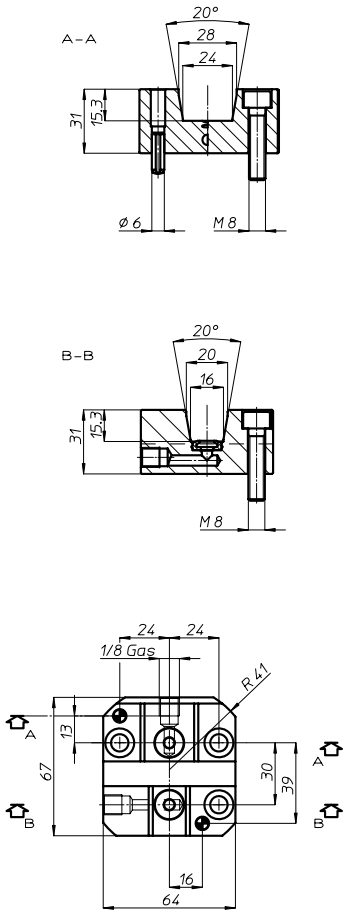
The torque arm system is crucial as far as angle-head machining quality is concerned. For this reason OMG technicians have designed and developed a new system with the following characteristics:

- *conical pin*
- *axial pin adjustment*
- *coolant through the head body*

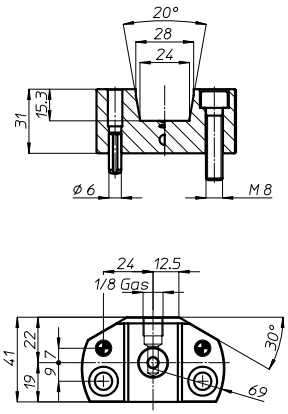
The conical pin and its 1.5 mm axial adjustment ensure upgraded antirotation system strength compared to traditional systems, featuring Ø 18 mm pin, because play is eliminated, thereby improving both angular and axial strength.

By the pin the coolant through the head, thanks to an adjustable nozzle, the added advantage is achieved of eliminating "free" pipes that could move during machining operations.

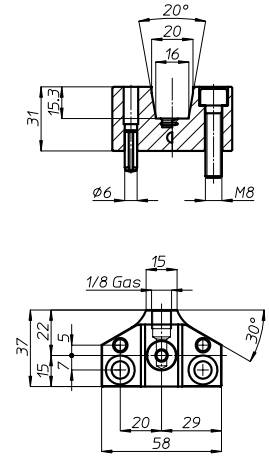
Double Stop-block (cod. 632199)



Stop-block (cod. 632198)



Stop-block (cod. 630104)



Position the conical pin on the opposite side of the angle head spindle when possible in your application.

Antirotante/*Torque arm*

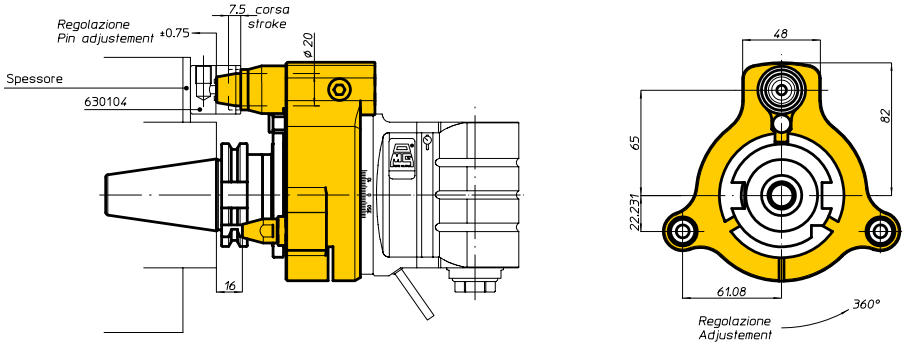
TriBlock®

Il gruppo antirotante **TriBlock** ricopre una funzione di fondamentale importanza quando alla testa ad angolo è richiesto di:

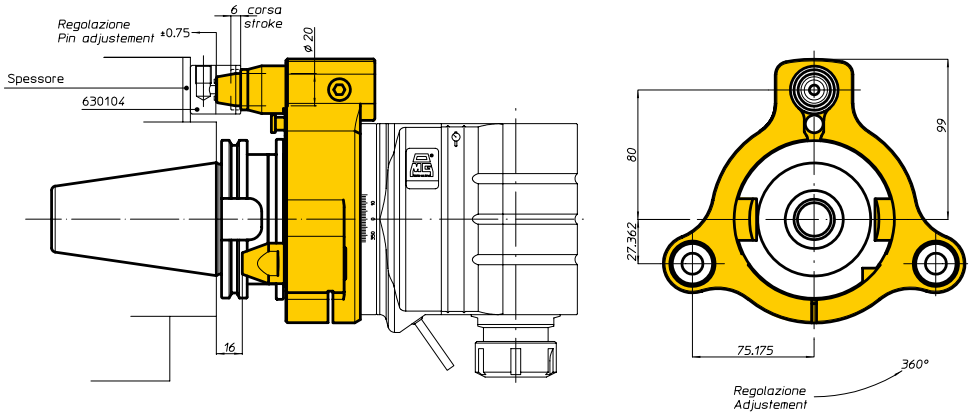
- eseguire una lavorazione più pesante
- essere più lunga dello standard
- finitura superficiale eccellente

Il **TriBlock** è dotato di tre punti di appoggio di cui uno è lo standard come nei precedenti e due supplementari da registrare tramite un rasamento. Questi tre punti, allargando l'appoggio di base della testa ad angolo, consentono di ottenere una rigidità superiore allo standard. Quando poi si richiede alla testa di essere immagazzinata su di un supporto esterno al magazzeno standard, ecco che il **TriBlock** utilizza i propri tre punti per posizionare la testa.

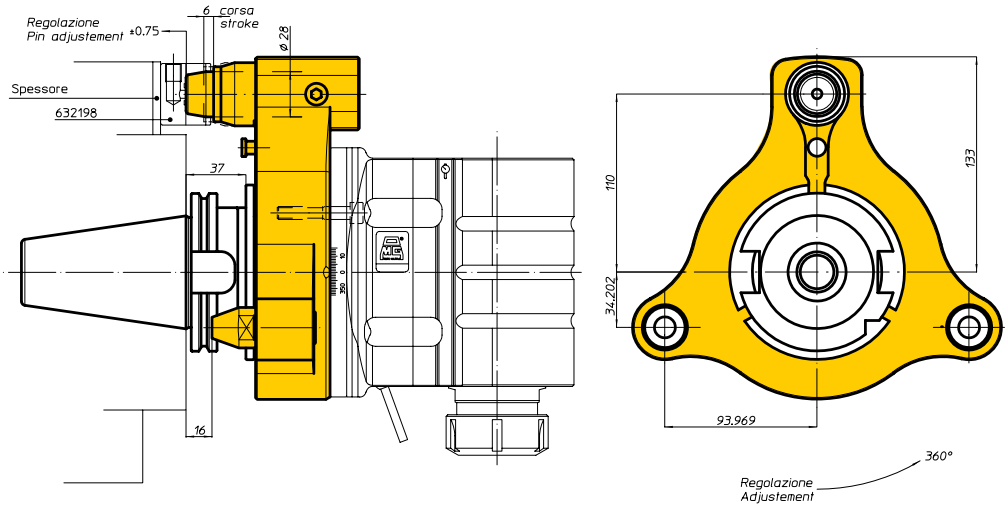
Teste ad angolo con interasse H=65
Angle heads with centre distance H=65



Teste ad angolo con interasse H=80
Angle heads with centre distance H=80



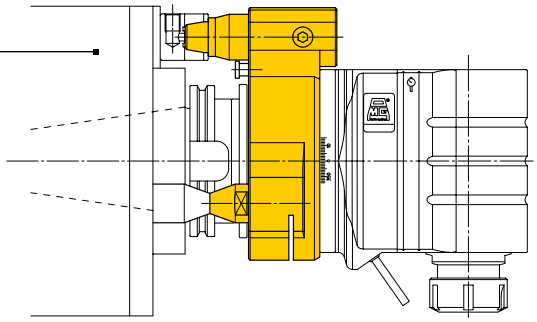
Teste ad angolo con interasse H=110
Angle heads with centre distance H=110



Antirotante/*Torque arm*

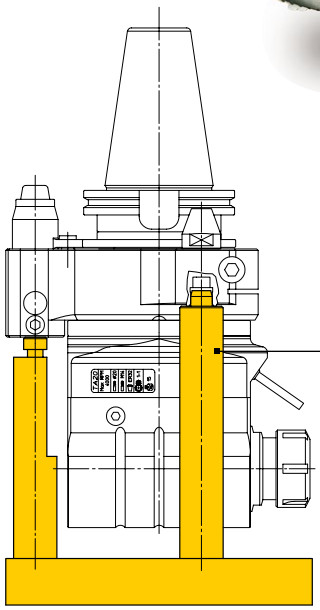
TriBlock®

Sul mandrino macchina
On spindle machine



TFS 19907
Testa ad angolo per fresatura componente motore a reazione.
Peso Kg 45,5
Milling angle head for jet engine.
Weight Kg 45,5

TFS 39195
Testa bimandrino di fresatura n° 2 frese Ø 100 peso Kg 33
Twin milling head, nr. 2 milling cutter Ø 100 weight Kg 33



Sul supporto da tavola
On rack table

The **TriBlock** *system is of crucial importance when it comes to:*

- *doing difficult jobs*
- *having a head that is longer than standard*
- *achieving an excellent surface finish*

The **TriBlock** *system features three supporting points, one of which is standard, as in the previous version, plus two additional ones that need adjusting by means of a spacer. These three points, by extending the angle-head supporting base, provide above-average standards of strength.*

When the head has to be stored on a rack table outside the standard magazine, the **TriBlock** *system uses the three points to storage the angle heads.*

Antirotante/*Torque arm*

QuadBlock®

Il sistema antirotante **QuadBlock** è un sistema all'avanguardia per equipaggiare Teste ad Angolo dove si richiede alta asportazione e alta rigidità dell'insieme "testa ad angolo-macchina". Utilizzabile nel montaggio manuale, esso consiste in un anello antirotante completo di quattro perni di contrasto suddivisi equamente sui 360°. Tale disposizione consente di poter ruotare la Testa ad Angolo in automatico con un semplice movimento della macchina, se questa ne ha le capacità. Il vantaggio di poter lavorare quattro facce del pezzo senza sostituire la Testa ad Angolo si concretizza con la riduzione dei costi previsti per gli utensili.

L'evoluzione del sistema **QuadBlock** per le macchine con cambio automatico, consente di utilizzare la Testa ad Angolo come un prolungamento del mandrino macchina ruotato dei gradi richiesti dal cliente. È possibile inoltre sostituire il portautensile in automatico ed ampliare infinitamente la versatilità della macchina utensile avendo a disposizione quei servizi normalmente presenti sul mandrino macchina:

- Aria pulizia del portautensile
- Liquido refrigerante centro utensile alta pressione
- Liquido refrigerante esterno utensile
- Liquido bloccaggio-sbloccaggio utensile
- Controllo presenza utensile

Tutto ciò per consentire l'utilizzo di portautensili tipo Capto, HSK, DIN69871. Mettiamo a disposizione il nostro ufficio tecnico e la nostra esperienza per personalizzare al meglio il Vostro sistema.

TAS13609
Fresatura su corpo in fusione di ghisa. Peso kg 36.
Milling on cast iron pump's body. Weight 36 kg.

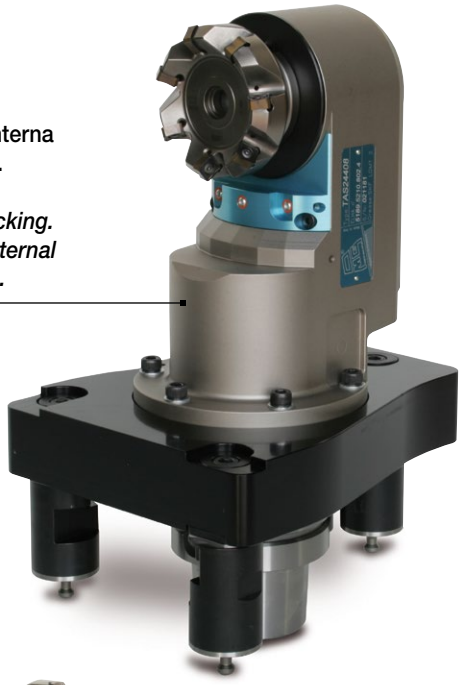
TAS13209
Lavorazione di finitura interna culle motore idraulico. Peso kg 36.
Internal finishing work for hydraulic motor's body. Weight 21 kg.

TAS16209
Linee di servizio per il mandrino HSK63F con cambio automatico dell'utensile, sensore presenza utensile in radiofrequenza.
Peso kg 28.
Utility line for HSK63F spindle with automatic tool change, radio-frequency switch to verify tool presence. Weight 28 kg.

Antirotante/*Torque arm*

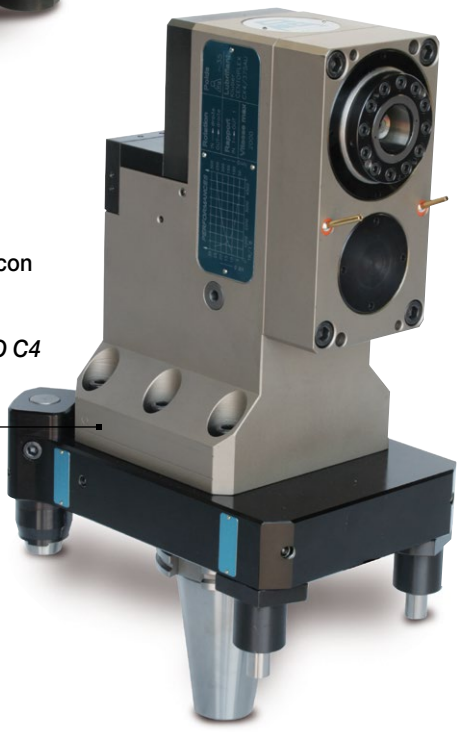
QuadBlock®

TAS24408
Lavorazione di fresatura interna corpo pinza freno in ghisa.
Peso Kg 28.
Triblock with automatic locking. Cast iron brake housing internal milling work. Weight 28 kg.



TA12907
Lavorazione di fresatura generica struttura elettrosaldata di acciaio.
Peso Kg 48.
Special Quadblock with automatic locking. General milling work on electro-welded steel structure. Weight 48 kg.

TAS08606
Servizi per mandrino CAPTO C4 con cambio automatico dell'utensile.
Peso kg 36.
Spindle with utility line for CAPTO C4 with automatic tool change. Weight kg 36.



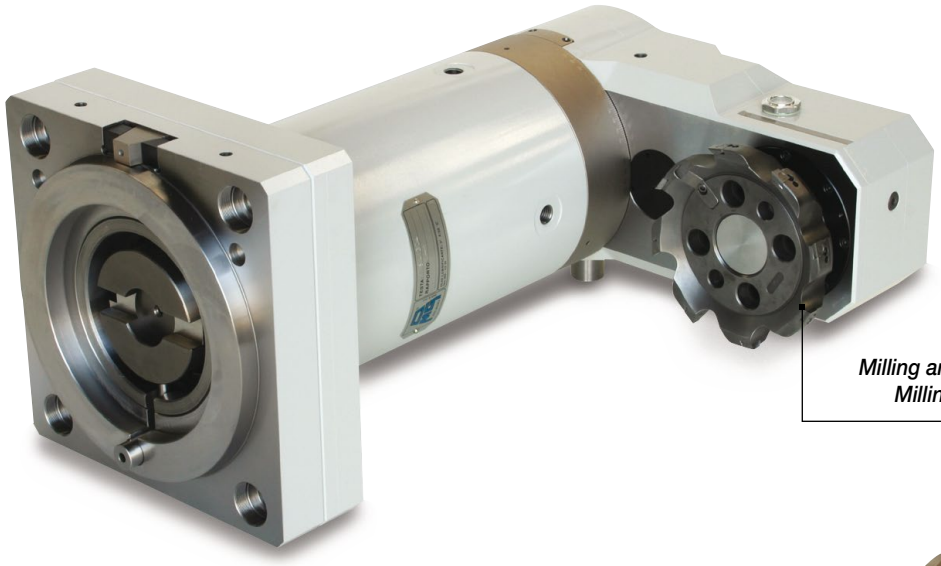
The **QuadBlock** *torque arm is a forefront system to equip Angle Heads which are requested with a high removal machining capacity and with extremely high rigidity in coupling with the machine tool. It can be used with a manual tool change and is made by a torque arm ring complete with four counterposed pins with same distance each other on the 360°. Such a layout allows an automatic rotation of the Angle Head with a simple movement of the machine if featured to do it. The possibility of machining four faces of the piece without replacing the Angle Head is giving the advantage of reducing costs of tools equipment.*

The evolution of the **QuadBlock** *system on automatic tool change machines allows to use the Angle Head like an extension of the machine spindle with the degree rotations required by the customer. It is also possible to automatically change the tool holder and to infinitely widen the versatility of the machine tool getting those utilities normally available on the machine spindle:*

- *tool-holder cleaning air*
- *through-tool high pressure coolant*
- *side-tool coolant*
- *tool locking-unlocking liquid*
- *tool presence control*

All these to allow using tool-holders like Capto, HSK, DIN69871. Our R&D department is at your disposal with his experience to customize your system at its best.

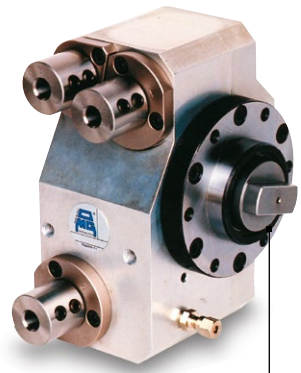
Teste ad angolo speciali
Special angle heads



TFS 41304
Testa ad angolo di fresatura con mandrino ribaltato. Fresa Ø 200. Peso Kg 327,5.
Milling angle head with reverse spindle. Milling tool Ø 200. Weight Kg 327,5.

TFS 05303
Testa ad angolo di fresatura con fresa diam. 7 peso Kg 8
Milling angle head with milling cutter diam. 7 weight Kg 8

TAS 15505
Testa ad angolo di foratura e fresatusa, attacco utensile CAPTO C4 automatico. Peso Kg 130.
Drilling and milling angle head, automatic tools changer CAPTO C4. Weight Kg 130.



TFS 23301
Testa ad angolo di foratura a tre mandrini peso kg 5,9
Drilling angle head with three spindles weight kg 5,9

TFS 39998
Testa ad angolo universale. Presa utensili ISO50, peso kg 580
Angle head with tool shank ISO50, weight kg 580

Teste ad angolo speciali
Special angle heads

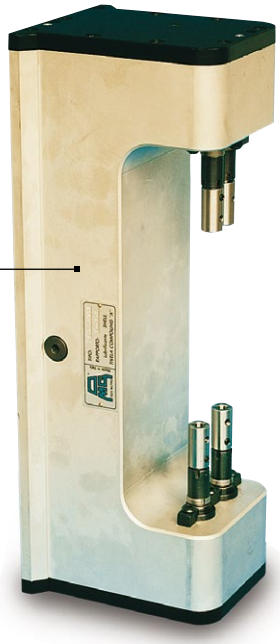
TFS 36699
Testa ad angolo bimandrino registrabile, peso kg 29
Adjustable twin angle head, weight kg 29

TFS 34004
Testa ad angolo di foratura a 3 mandrini a 120°.
Peso Kg 18.
Drilling angle head, n 3 spindles at 120°.
Weight Kg 18.

TAF 37503
Doppia testa ad angolo di foratura.
Twin drilling angle head.

TA 09603
Testa ad angolo di alesatura con utensile Ø 160 peso Kg 77
Boring angle head with tools Ø 160 weight Kg 77

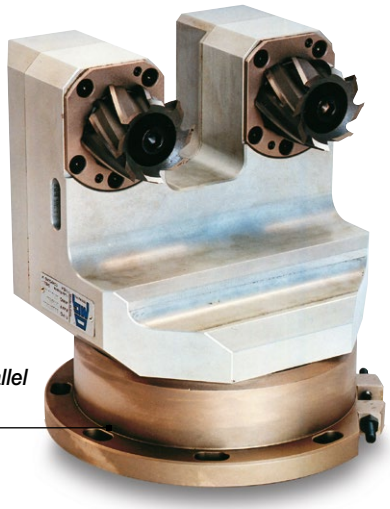
TFS 08993
Testa ad angolo speciale con doppia coppia di mandrini contrapposti peso kg 18
Angle head with two opposite twin spindles weight kg 18



TFS 06003
Testa ad angolo di fresatura con fresa Ø 110 peso Kg 210
Milling angle head with milling cutter Ø 110 weight Kg 210

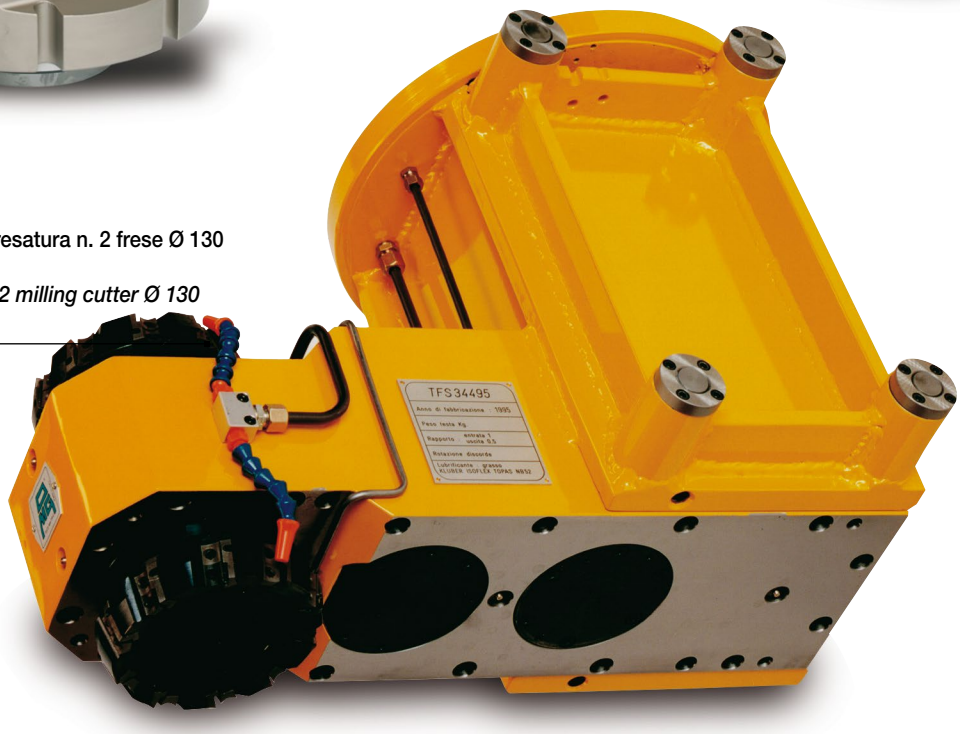
Teste ad angolo speciali
Special angle heads

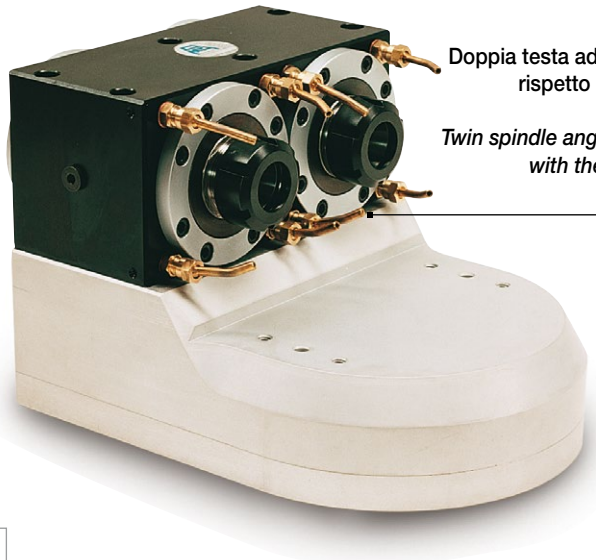
TAS 33206
Testa bimandrino di fresatura
per frese Ø 160 peso kg 63
Twin milling head with
milling cutter Ø 160 weight kg 63



TFS 21701
Testa di fresaturaa due mandrini
paralleli, peso kg 14
Milling angle head with two parallel
spindles, weight kg 14

TFS 34495
Testa bimandrino di fresatura n. 2 frese Ø 130
peso kg 290
Twin milling head, nr. 2 milling cutter Ø 130
weight kg 290





TFS 16696
Doppia testa ad angolo disassata
rispetto all'asse macchina
peso kg 24
Twin spindle angle head not in line
with the machine spindle
weight kg 24

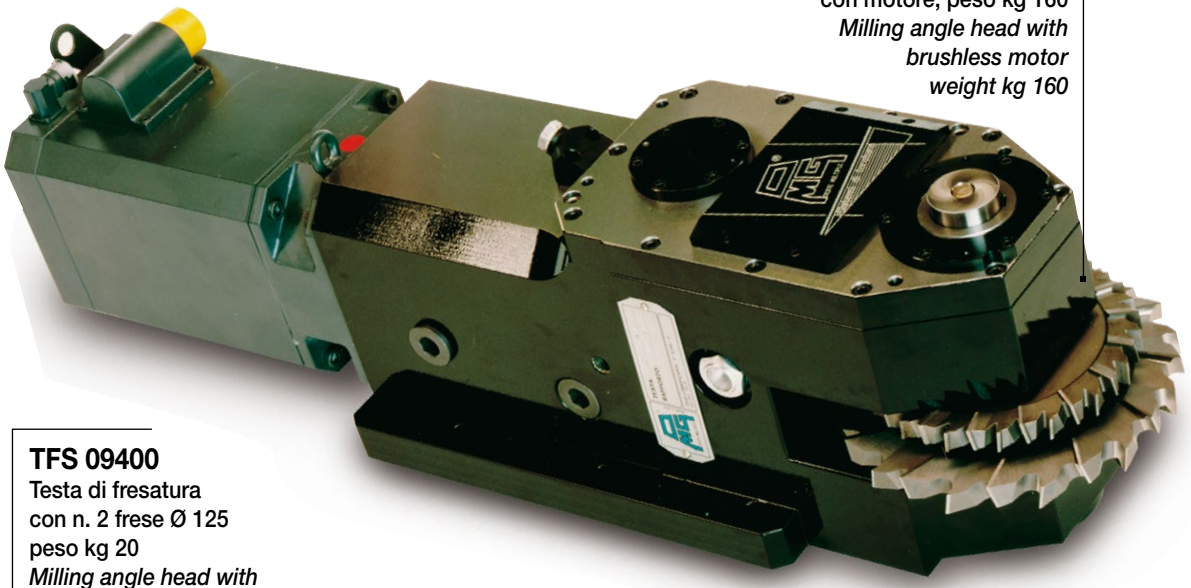
TFS 36994
Testa bimandrino di fresatura
n. 2 frese Ø 60, peso kg 15,5
Twin milling head, nr. 2 milling
cutter Ø 60, weight kg 15,5

Teste ad angolo speciali
Special angle heads

TFS 12101
Testa di fresatura con cono ISO30
peso kg 16
Milling angle head with ISO30
weight kg 16

TFS 13094
Testa ad angolo disassata rispetto all'asse macchina
peso kg 17
Angle head not in line with the machine spindle
weight kg 17

TFS 50900
Testa di fresatura con motore, peso kg 160
Milling angle head with brushless motor
weight kg 160



TFS 09400
Testa di fresatura con n. 2 frese Ø 125
peso kg 20
Milling angle head with nr. 2 milling cutter Ø 125
weight kg 20

TFS 24196
Testa ad angolo bimandrino per fresatura su scatola del cambio
peso kg 70
Twin milling spindle angle head on gear box weight kg 70

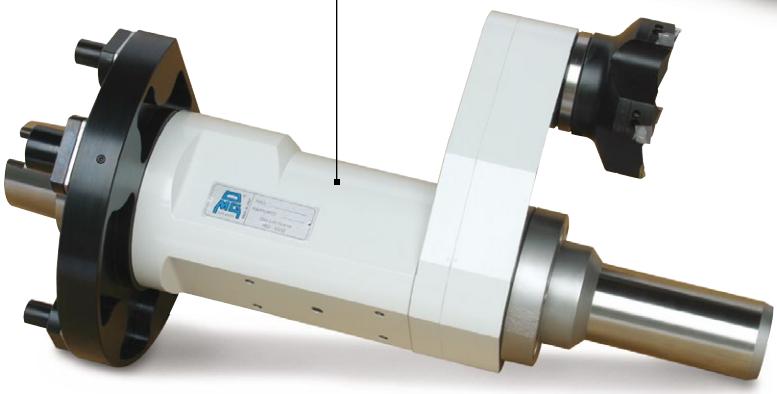
Teste ad angolo speciali
Special angle heads

TAS 41504
Testa ad angolo mandrino di fresatura. Peso Kg 338.
Twin milling angle head. Weight Kg 338.

TFS 35698
Testa ad angolo di fresatura con fresa Ø 100 peso Kg34
Milling angle head, with milling cutter Ø 100 weight Kg 34

TFS 28603
Testa di fresatura con n. 4 frese a disco Ø 125. Peso Kg 218.
Milling head, nr. 4 milling disc cutter Ø 125. Weight Kg 218.

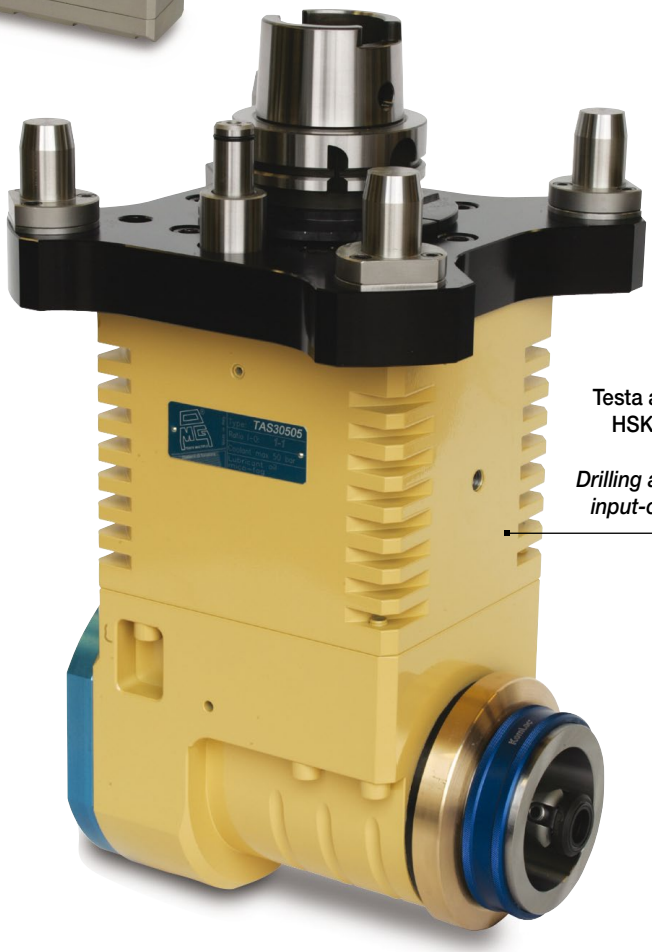
TFS 12005
Testa ad angolo disassata per fresature Ø 150. Peso Kg 48.
Shift spindle angle head, milling tools Ø 150. Weight Kg 48.



Teste ad angolo speciali
Special angle heads

TFS 33303
Testa ad angolo disassata per foratura. Peso Kg 9,4.
Angle head with shift drilling spendle. Weight Kg 9,4.

TFS 12095
Testa ad angolo di foratura peso kg 5
Drilling angle head weight Kg 5



TAS 30505
Testa ad angolo di foratura HSK100 entrata e uscita.
Peso Kg 50.
Drilling angle head, HSK 100 input-output. Weight Kg 50

TFS 33503
Testa ad angolo di lucidatura con doppia rotazione, sia corpo che utensile.
Peso kg 6,5.
Polish angle head with duble rotation: body and tools. Weight Kg 6,5.

TFS 13198
Testa ad angolo disassata per foratura peso kg 5
Angle head with shift spindle weight kg 5

Teste ad angolo speciali
Special angle heads

TFS 39997
Testa ad angolo speciale bimandrino per foratura e maschiatura peso kg 16
Twin angle head for drilling and tapping weight kg 16

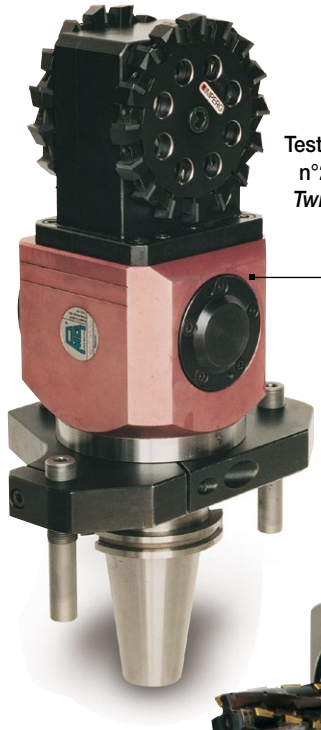
TAS 13806
Testa bimandrino Capto C5 manuale, peso kg 33
Twin angle head with Capto C5 manual clamping tool weight kg 33

TAS 39806
Testa di foratura a due mandrini con refrigerante attraverso il centro utensile a 50 Bar peso kg 21
Twin drilling angle head with coolant through the centre tool at 50 Bar, weight kg 21

TAS 08606
Testa fresatura conica su acciaio peso kg 23
Milling angle head with conical tool weight kg 23

TFS 40601
Testa ad angolo bimandrino, angolo tra i due mandrini 176°, peso Kg 13
Twin angle head, angle 176° between spindles, weight Kg 13

Teste ad angolo speciali
Special angle heads



TFS 20298
Testa bimandrino di fresatura
n°2 frese Ø 120 peso kg 25
Twin milling angle head, nr.2 milling cutter Ø 120 weight kg 25

TA 05500
Testa ad angolo di fresatura
con fresa Ø125 peso kg 17
Milling angle head with milling cutter Ø 125, weight kg 17

TAS 39706
Testa di fresatura per
supporto motore frese
Ø160/180 peso kg 31
Milling head for engine's bracket milling cutter Ø160/180 weight kg 31

TAS 20706
Testa per fresatura interna
pinza freno peso Kg 23
Angle milling head for brake housing weight Kg 23

TA 34397
Testa ad angolo
di fresatura
con cono ISO20
peso kg 0,9
Milling angle head with shank ISO20 weight kg 0,9

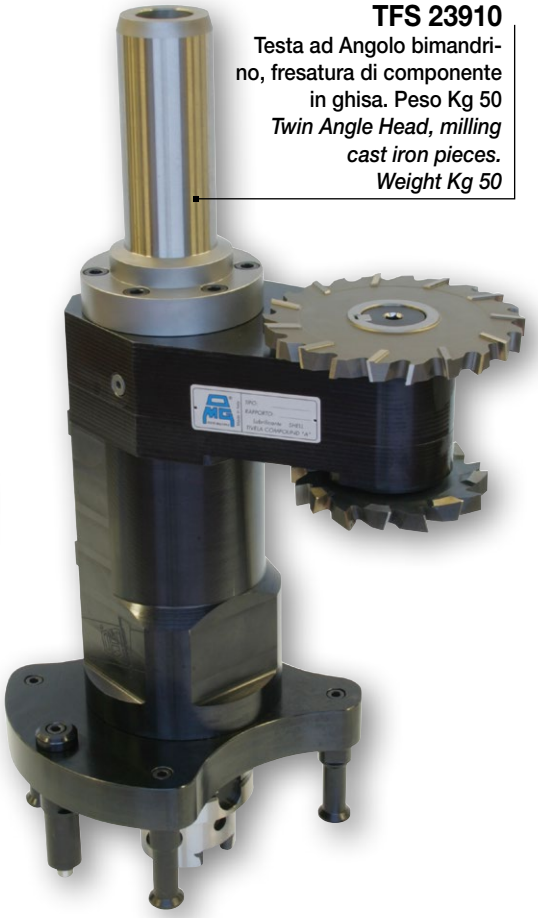
TFS 39999
Testa ad angolo
speciale fresatura
su plastica peso kg 4
Milling angle head for plastic weight kg 4

TA 17292
Testa ad angolo di fresatura
n. 2 frese per legno
peso kg 3
Twin angle head with nr. 2 milling cutter for wood weight kg 3

Teste ad angolo speciali
Special angle heads

TAS 37806
Testa ad Angolo di fresatura componente aeronautico, materiale Inconel. Peso Kg 40
Milling Angle Head for aeronautic piece, Inconel alloy material. Weight Kg 40

TFS 23910
Testa ad Angolo bimandrino, fresatura di componente in ghisa. Peso Kg 50
Twin Angle Head, milling cast iron pieces. Weight Kg 50

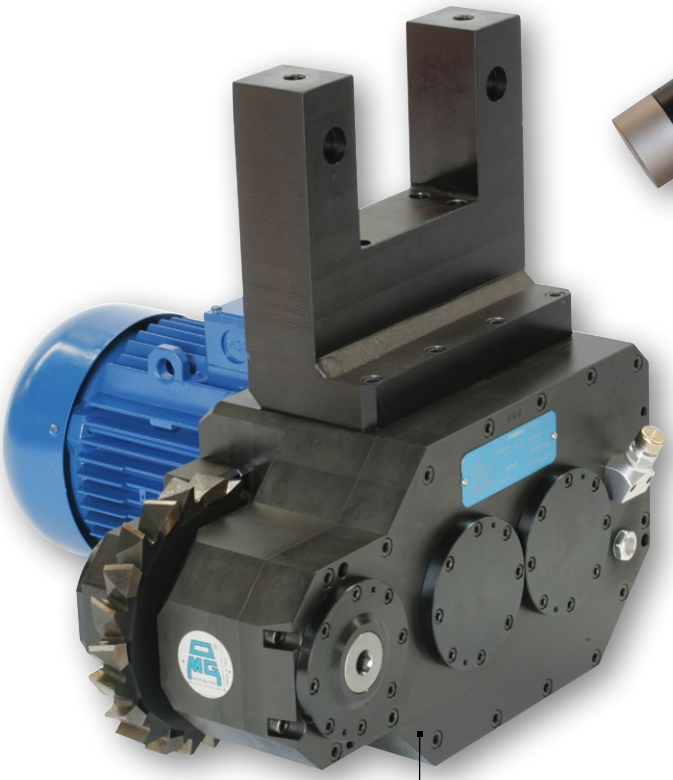


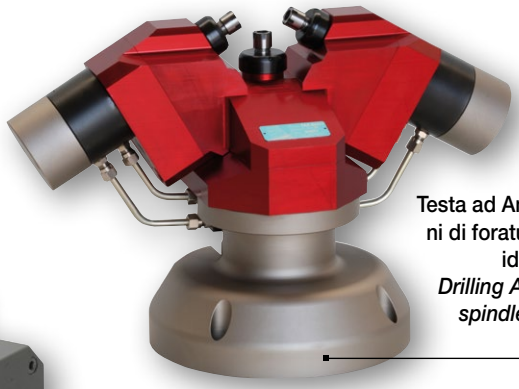
TFS 31110
Testa ad Angolo di foratura con mandrino HSK50 ribaltato. Peso Kg 31
Drilling Angle Head with HSK50 reverse spindle. Weight Kg 31

TAS 10708
Testa ad Angolo lunghezza mm 1.000, fresatura di cave su acciaio. Peso Kg 216
Angle Head overall lenght mm 1.000, milling key-way on steel. Weight Kg 216

TAS 13910
Testa ad Angolo di foratura con mandrino ER25.
Peso Kg 31
Drilling Angle Head with ER25 spindle.
Weight Kg 31

Teste ad angolo speciali
Special angle heads





TAS 08411
Testa ad Angolo con tre mandrini di foratura con avanzamento idraulico. Peso Kg 17,5
Drilling Angle Head with three spindles, hydraulic spindles feed. Weight Kg 17,5

TFS 26908
Testa ad Angolo bimandrino di foratura per macchina transfer. Peso Kg 9,5
Twin drilling Angle Head for transfer machine. Weight Kg 9,5

TFS 05609
Testa ad Angolo di fresatura per tornio verticale.
Peso Kg 286
Milling Angle Head for vertical lathe. Weight Kg 286

TAS 19610
Testa ad Angolo di fresatura per macchina transfer.
Peso Kg 35
Milling Angle Head for transfer machine. Weight Kg 35

TAS 28010
Testa ad Angolo con tre assi a regolazione manuale.
Peso Kg 590
Angle Head with three manual movement axis. Weight Kg 590

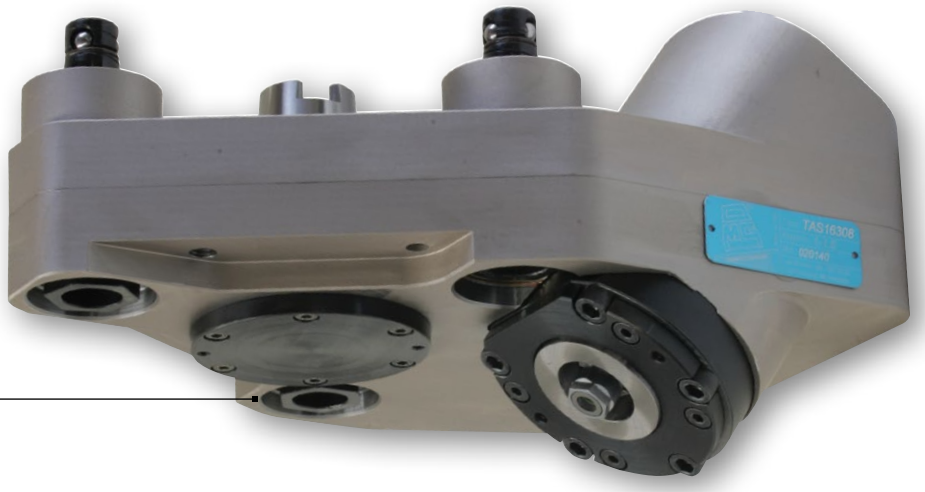
Teste ad angolo speciali
Special angle heads

TAS 19010
Testa ad Angolo di foratura per macchina transfer. Max RPM 20.000. Peso Kg 5
Drilling Angle Head for transfer machine. Max RPM 20.000. Weight Kg 5

TAS 26810
Testa ad Angolo TAO20, utilizzata in fresatura su torretta a revolver HT250. Peso Kg 14
Milling Angle Head TAO20, assembled on HT250 turret head. Weight Kg 14

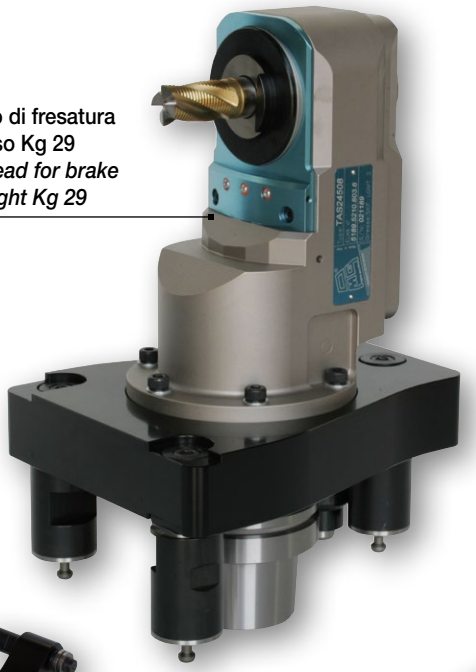
TFS 06906
Testa ad Angolo di foratura scatola sterzo. Peso Kg 10
Drilling Angle Head for steering body. Weight Kg 10

TAS 09407
Testa ad Angolo per fresatura canna di fucile. Peso Kg 6,5
Milling Angle Head for rile barrel. Weight Kg 6,5

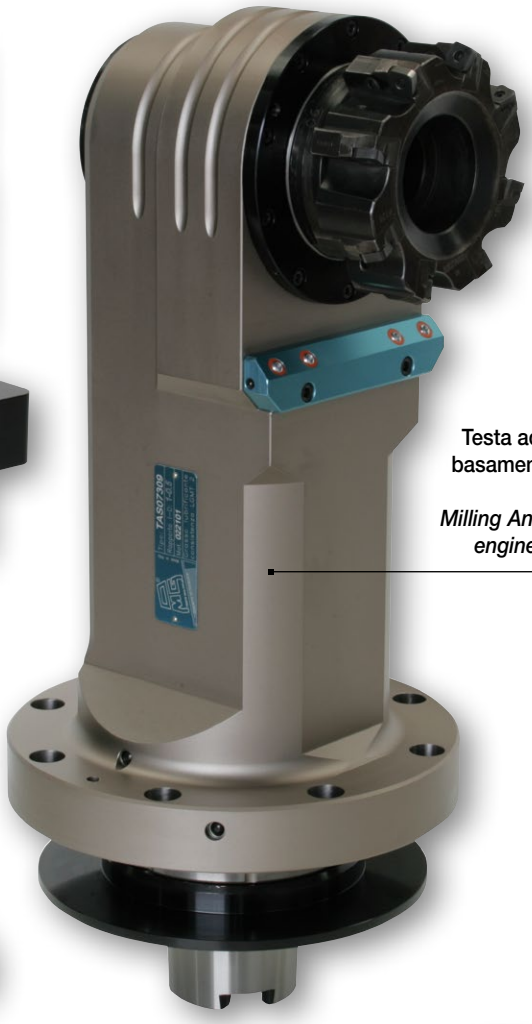


TAS 16308
Testa ad Angolo di foratura con mandrino HSK32 a cambio automatico utensile. Peso Kg 13,5
Drilling Angle Head with spindle HSK32 with automatic tool changer. Weight Kg 13,5

Teste ad angolo speciali
Special angle heads

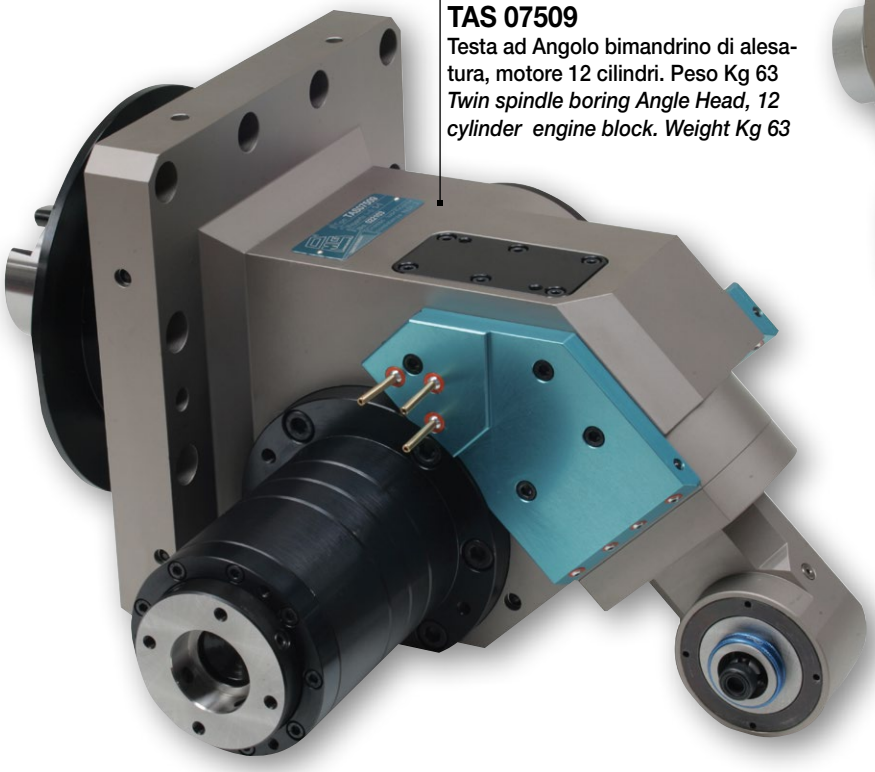


TAS 24508
Testa ad Angolo di fresatura pinza freno. Peso Kg 29
Milling Angle Head for brake truck body. Weight Kg 29



TAS 07309
Testa ad Angolo di fresatura, basamento motore 12 cilindri. Peso Kg 60
Milling Angle Head, 12 cylinder engine block. Weight Kg 60

TAS 24010
Testa ad Angolo di foratura componente aeronautico in alluminio. Peso Kg 13,5
Drilling Angle Head for aluminium aeronautic component. Weight Kg 13,5



TAS 07509
Testa ad Angolo bimandrino di alesatura, motore 12 cilindri. Peso Kg 63
Twin spindle boring Angle Head, 12 cylinder engine block. Weight Kg 63

TAS 28606
Testa ad Angolo di foratura componente aeronautico con mandrino HSK50, materiale Inconel. Peso Kg 27
Drilling Angle Head with HSK50 spindle for aeronautic piece, Inconel alloy material. Weight Kg 27

moltiplicatori di giri
spindle speeders

I **moltiplicatori di giri** serie **"MO"** sono stati studiati e definiti con l'intento di offrire un prodotto che possa assicurare la massima affidabilità e precisione nelle operazioni di fresatura e foratura.
Dalla progettazione al controllo statico e dinamico del prodotto finito, i nostri **moltiplicatori di giri** sfruttano le più avanzate conoscenze tecniche e tecnologiche.

- Giri max 35.000
- Utilizzati specialmente in operazioni di finitura
- Possibilità di montaggio manuale o automatico
- Consentono alla macchina di ruotare a bassi regimi di giri
- Possibilità di utilizzare utensili in metallo duro

La costruzione compatta, i componenti in acciaio trattato termicamente, gli ingranaggi rettificati sull'evolvente permettono la trasmissione di potenze elevate con ottimi livelli di silenziosità. Il mandrino è supportato da cuscinetti a sfere di precisione a contatto obliquo precaricati che gli conferiscono un'elevata rigidità e precisione di rotazione entro mm. 0,01.

- Due ingranaggi satelliti per elevate potenze trasmissibili
- Attacco utensile speciale a richiesta (Komet, DIN 1835, ecc…)
- Adduzione liquido refrigerante attraverso il centro utensile standard o a richiesta
- Attacco macchina speciale a richiesta (Cono Morse, DIN 69880, ecc…)
- Perno antirotante intercambiabile e perciò personalizzabile dal cliente

I **moltiplicatori di giri** possono essere montati su macchine tradizionali o con cambio utensile automatico.
La lubrificazione è assicurata con grasso a base sintetica a lunga vita che non richiede praticamente interventi di manutenzione.
Il certificato di collaudo che troverete allegato ad ogni **moltiplicatore di giri** garantisce la qualità del prodotto.
Robustezza, versatilità, facilità d'impiego e di manutenzione sono caratteristiche che hanno sempre contraddistinto la nostra produzione ed i **moltiplicatori di giri** ne sono una conferma.

The **"MO"** series of **spindle speeders** has been designed and developed to offer a product that ensures maximum reliability and precision in milling and drilling. From design to static and dynamic testing of the finished product, our **spindle speeders** use the most advanced technical and technological know-how.

- Max 35.000 rpm
- Used in particular for finishing operations
- Manual or automatic tool change option
- Allow the machine to rotate at low rpm
- Possibility of using hard metal tools

The compact construction, the heat-treated steel parts and the ground gears on the involute guarantee transmission of high power ratings with amazingly low noise levels. The spindle is supported by a set of preloaded precision ball bearings with oblique contact that ensure greater strength and rotation precision less than 0,01 mm.

- Two planetary gears for high transmission powe ratings
- Special tool attachment on request (Komet, DIN 1835, etc.)
- Coolant through the tool centre standard or on request
- Special machine shank connection, on request (Morse Cone, DIN 69880 etc.)
- Interchangeable anti-rotating pin which can therefore be customized by the customer

The MO **spindle speeders** series can be mounted on traditional machines and on machines with automatic tool change.
The MO **spindle speeders** series is lubricated with a long-life synthetic grease that is practically maintenance free.
The test certificate enclosed to each spindle speeders guarantees the quality of the product.
Our products have always stood out for their sturdiness, flexibility and easy use and maintenance and the MO **spindle speeders** series is an additional proof of such outstanding features.

MO10.HS..... 4-2
MO10..... 4-3
MO13..... 4-4
MO16..... 4-5
MO26..... 4-6
MO34..... 4-7
Stop Block..... 4-8
Collaudo/*Test result*..... 4-9
Soluzioni speciali/*Special executions*.... 4-10

Accessori/*Accessories* 10-1

Simboli/Icons

Pinza tipo ER
Spring collet ER type

Refrigerante centro cono-mandrino
Coolant through the centre shank-spindle

Refrigerante centro perno-ugello
Coolant through the pin-nozzle

Rapporto entrata/uscita
Ratio input/output

N° max giri in uscita
Max output RPM

Peso con cono 40
Weight with size 40 shank

Peso con cono 50
Weight with size 50 shank

Rotazione in ingresso
Input rotation

Rotazione in uscita
Output rotation

moltiplicatore di giri - *spindle speeders*

MO10.HS

caratteristiche/*features*

ER16 | 10 bar | 1-8

35000 rpm

optional 70 bar

peso/*weight*

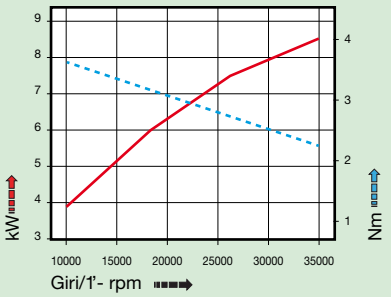
40 — 5,8 kg

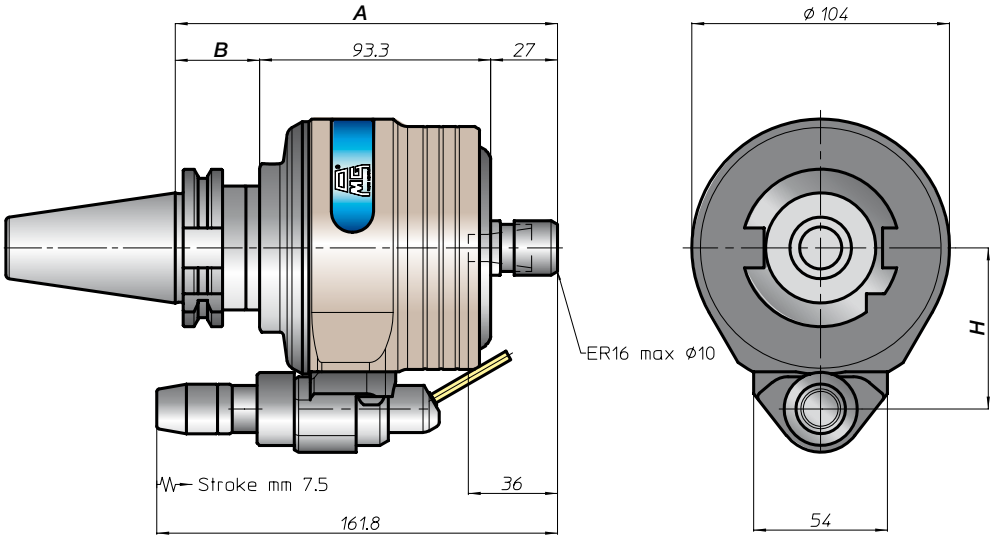
50 — 8 kg

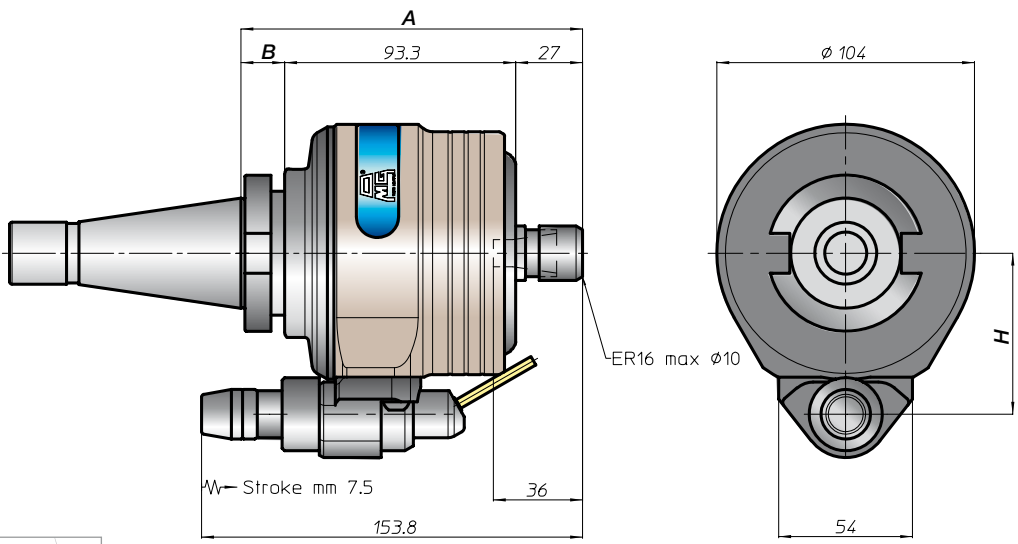
rotazione/*rotation*

IN — input → OUT — output

prestazioni/*performances*





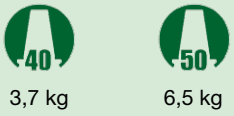


CONO SHANK	size	A	B	H standard	H optional
DIN69871	30	154	35	65	-
	40				
	45		42	80	
	50				
ANSIB5.50 CAT	40		35	65	-
	50		42	80	
BT	40		35	65	-
	50	162	50	80	
DIN69893 HSK	63	163	42	65	-
	80	167		80	
	100		52		
ISO26623 CAPTO	C5	162	-	65	-
	C6			80	
	C8				
KM	63	158	-	65	-
	80			80	
	100				
DIN2080	40	125	17,5	65	-
	50	128	20,5	80	
ANSIB5.18 NMTB	40	125	17,5	65	-
	50	128	20,5	80	

MO10

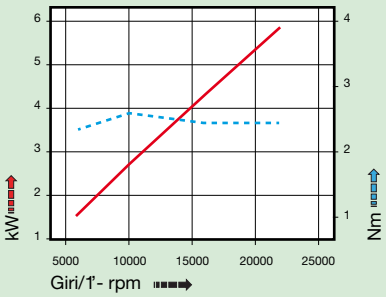
caratteristiche/*features*

peso/*weight*



rotazione/*rotation*

prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
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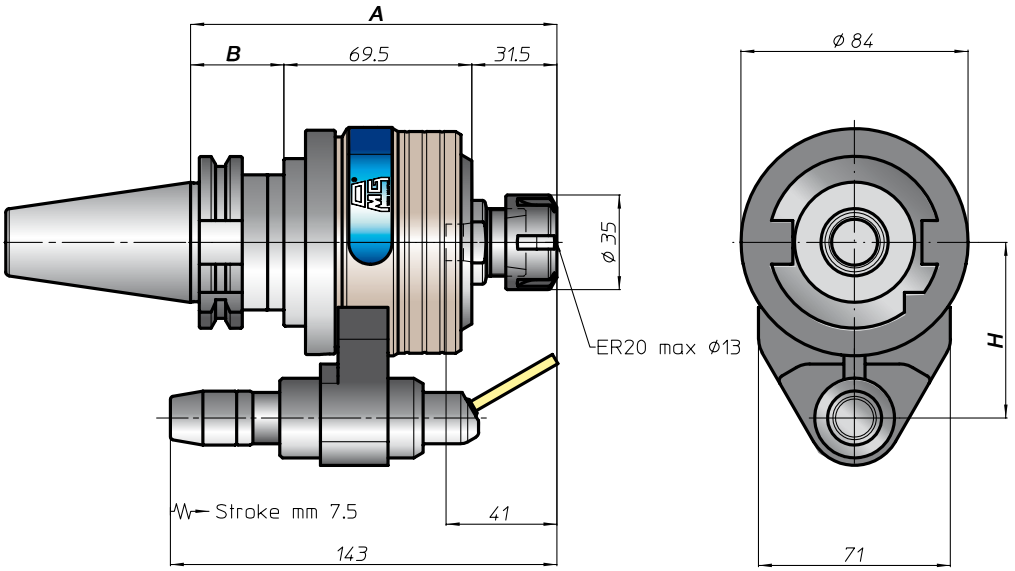
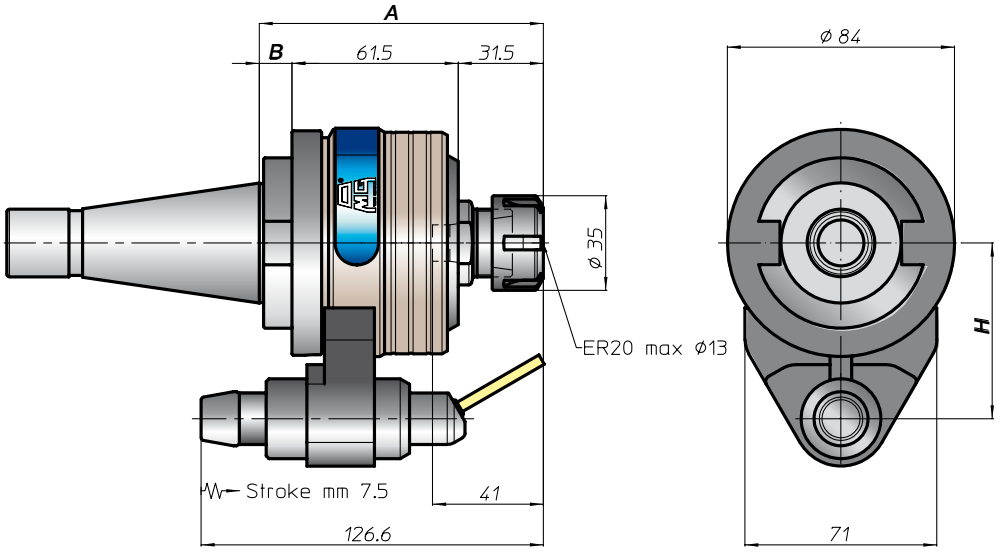
	40				
	45		42	80	
	50				
ANSIB5.50 CAT	40		35	65	-
	50		42	80	
BT	40		35	65	-
	50	139,5	50	80	
DIN69893 HSK	63	140,5	42	65	-
	80	144,5		80	
	100		51		
ISO26623 CAPTO	C5	139,5	-	65	-
	C6			80	
	C8				
KM	63	135,5	-	65	-
	80			80	
	100				
DIN2080	40	101	12	65	-
	50	104,5	15	80	
ANSIB5.18 NMTB	40	101	12	65	-
	50	104,5	15	80	





moltiplicatore di giri - *spindle speeders*

MO13

caratteristiche/*features*

ER25 — 10 bar

1-6 — 15000

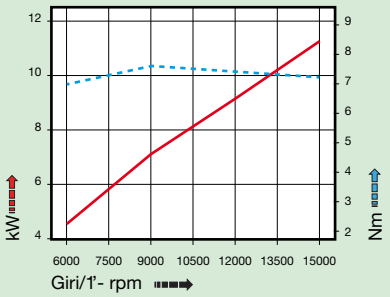
peso/*weight*

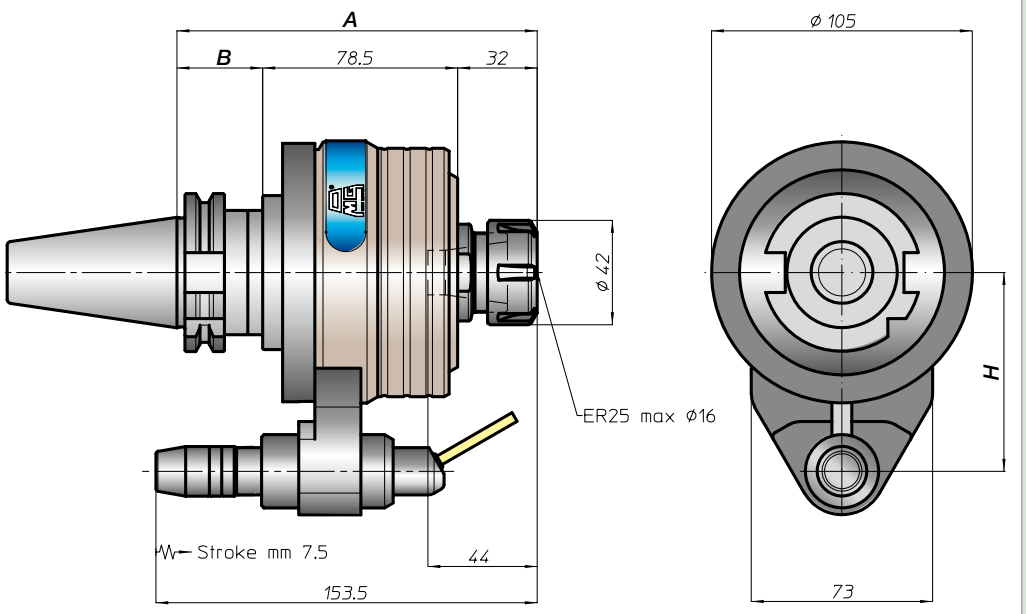
5 kg — 7,5 kg

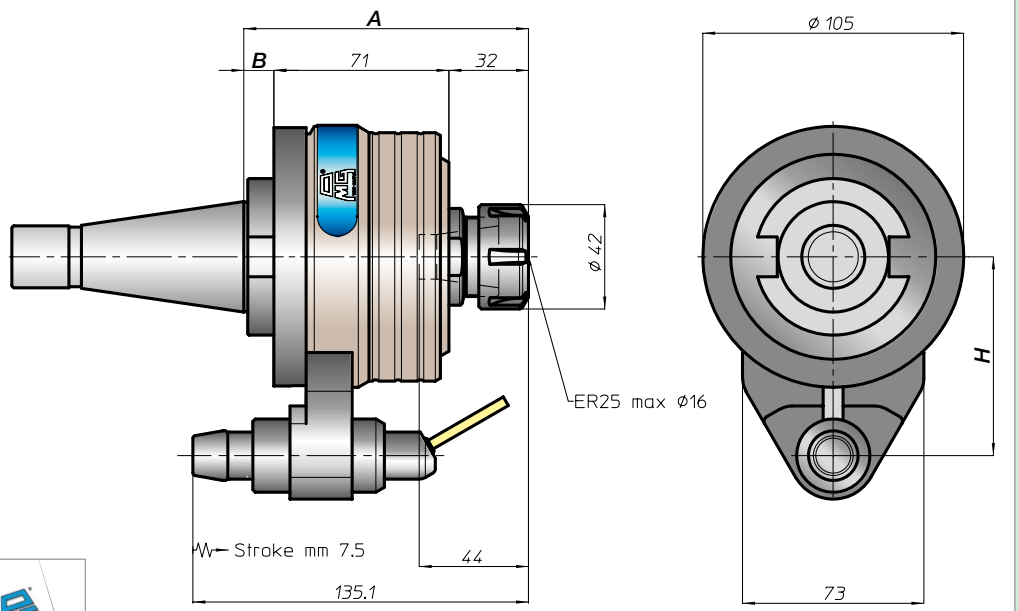
rotazione/*rotation*

input — output

prestazioni/*performances*







CONO SHANK	size	A	B	H standard	H optional
DIN69871	40	143	35	80	-
	45		42		
	50				
CAT ANSIB5.50	40		35	80	-
	50		42		-
BT	40		35	80	-
	50	151	50		-
HSK DIN69893	63	152	42	80	-
	80	156			
	100		52		
CAPTO ISO26623	C5	151	-	80	-
	C6				
	C8				
KM	63	147	-	80	-
	80				
	100				
DIN2080	40	112,5	11,5	80	-
	50	116	15		-
NMTB ANSIB5.18	40	112,5	11,5	80	-
	50	116	15		-

MO16

caratteristiche/*features*

ER32 — 10 bar

1-6 — 12000

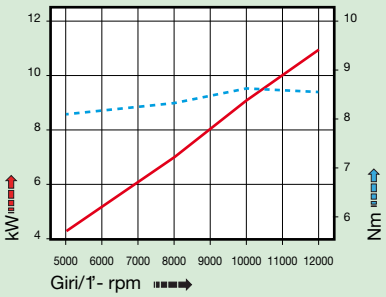
peso/*weight*

9 kg — 10 kg

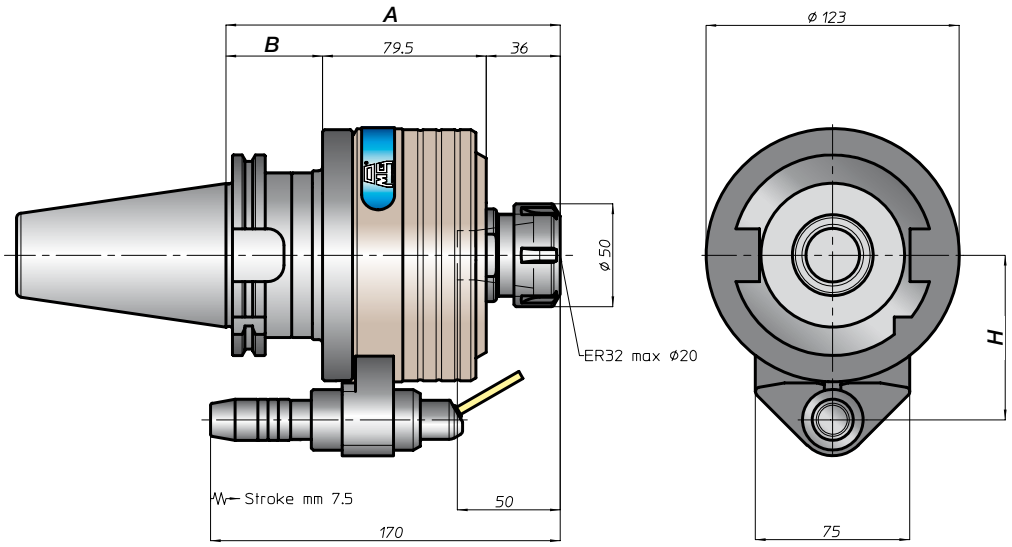
rotazione/*rotation*

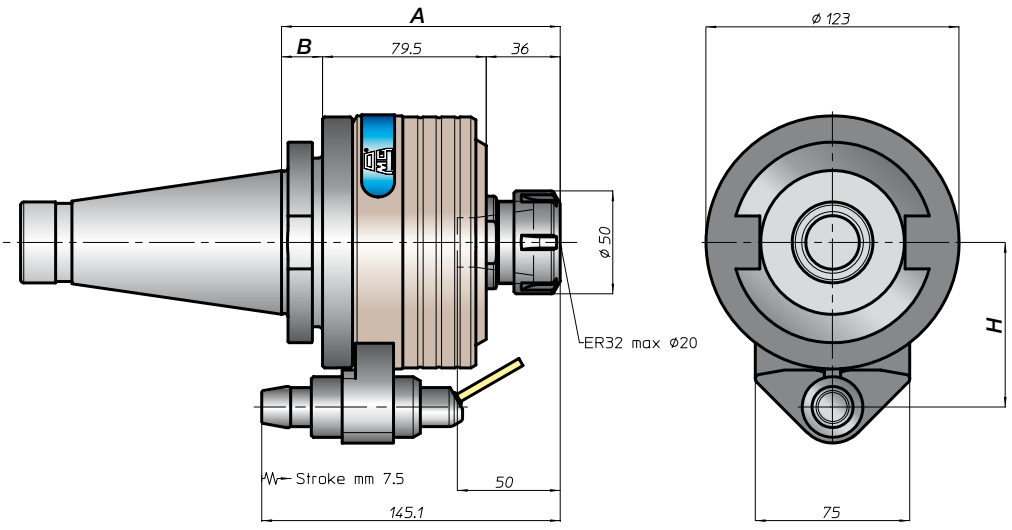
input — output

prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	45	158,5	35	80	-
DIN69871	50		42		
CAT ANSIB5.50	50		35	80	-
BT	50	164,5	50	80	-
HSK DIN69893	80	165,5	42	80	-
HSK DIN69893	100		55		
CAPTO ISO26623	C6	164,5	-	80	-
CAPTO ISO26623	C8				
KM	80	160,5	-	80	-
KM	100				
DIN2080	40	128	11,5	80	-
DIN2080	50	131,5	20		-
NMTB ANSIB5.18	40	128	11,5	80	-
NMTB ANSIB5.18	50	131,5	20		-





moltiplicatore di giri - *spindle speeders*

MO26

caratteristiche/*features*

ER40 | 10 bar | 1-4,2

10000 rpm | optional 70 bar

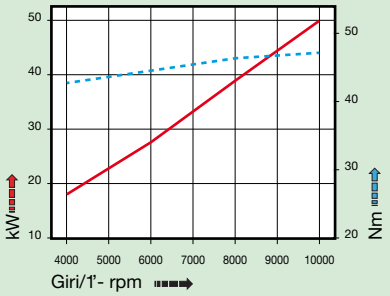
peso/*weight*

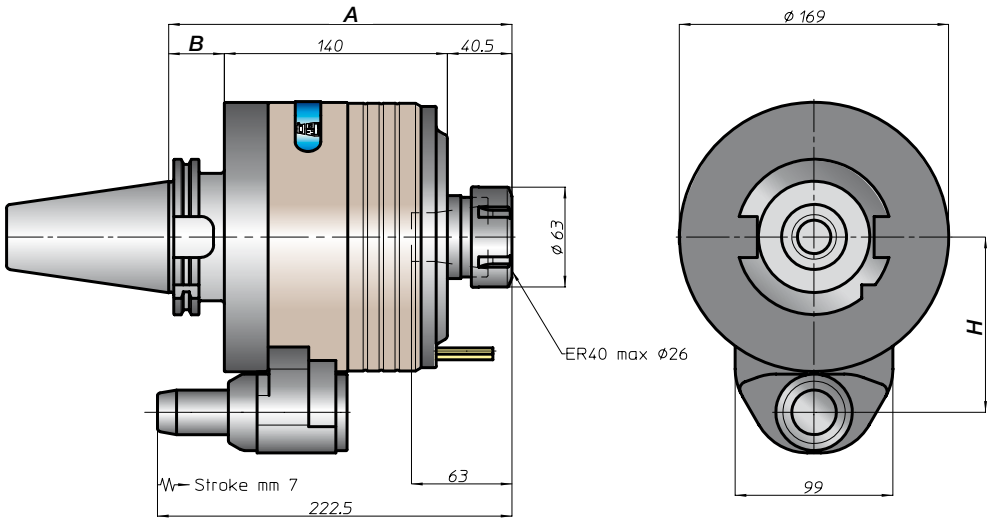
24 kg

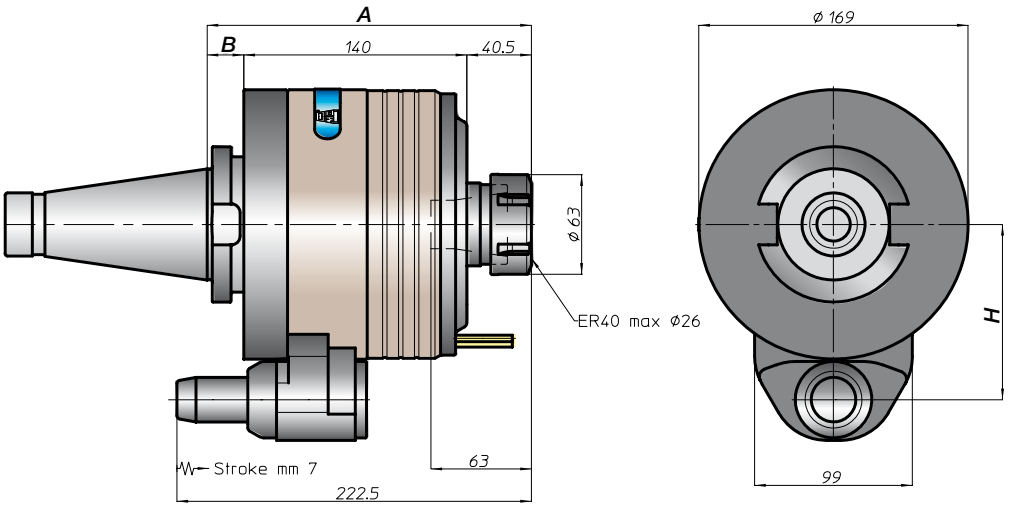
rotazione/*rotation*

input (IN) → output (OUT)

prestazioni/*performances*



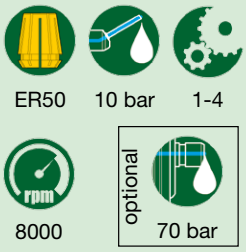




CONO SHANK	size	A	B	H standard	H optional
DIN69871	50	215,5	35	110	-
DIN69871	60	231	50	110	-
CAT ANSIB5.50	50	231,5	35	110	-
BT	50	231,5	51	110	-
HSK DIN69893	100	234	53	110	-
CAPTO ISO26623	C8	229	-	110	-
KM	100	225	-	110	-
DIN2080	50	203,5	23	110	-
NMTB ANSIB5.18	50	203,5	23	110	-

MO34

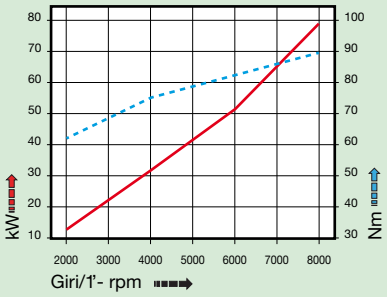
caratteristiche/*features*



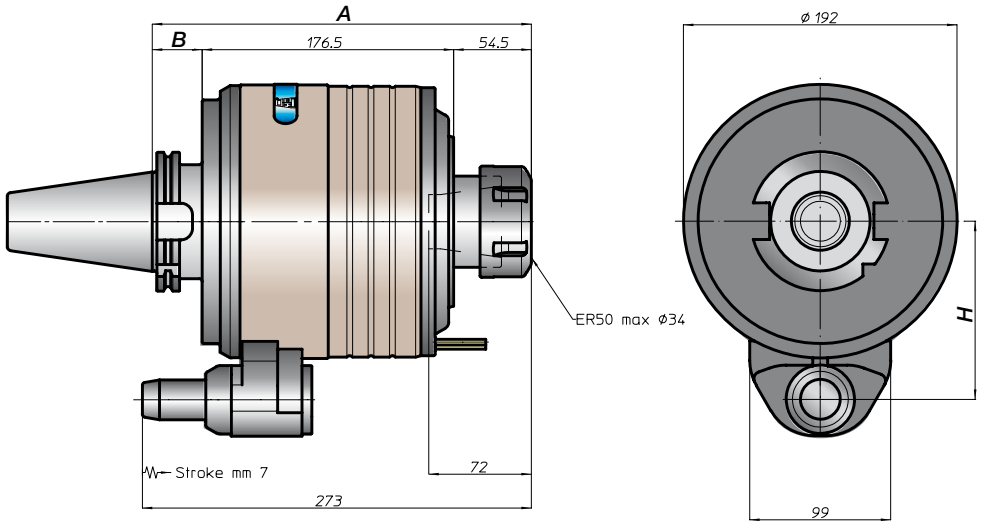
peso/*weight*

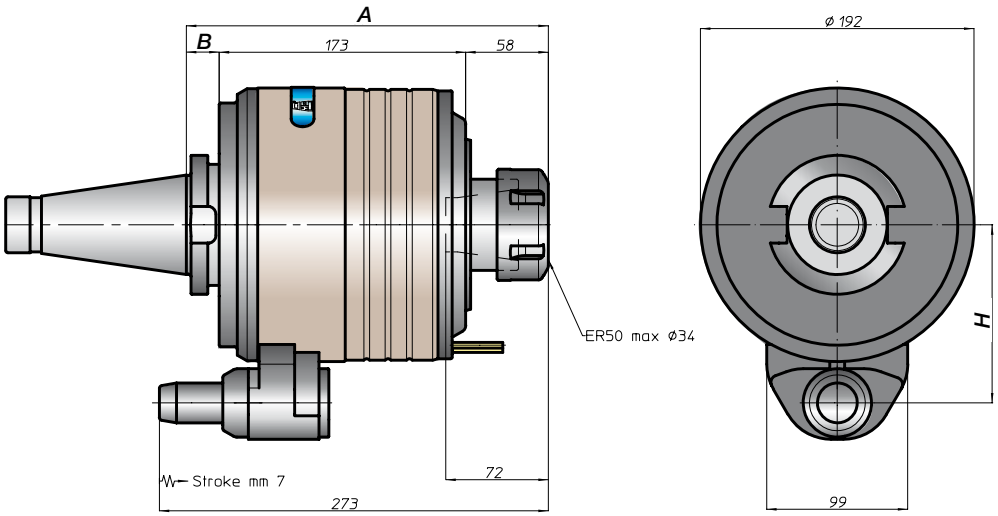
rotazione/*rotation*

prestazioni/*performances*



CONO SHANK	size	A	B	H standard	H optional
DIN69871	50	266	35	125	-
DIN69871	60	282	51	125	-
CAT ANSIB5.50	50	282	36	125	-
BT	50	282	51	125	-
HSK DIN69893	100	284	46	125	-
CAPTO ISO26623	C8	278	42	125	-
KM	100	275	-	125	-
DIN2080	50	254	23	125	-
NMTB ANSIB5.18	50	254	23	125	-

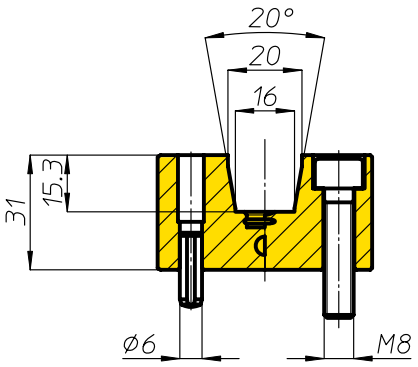


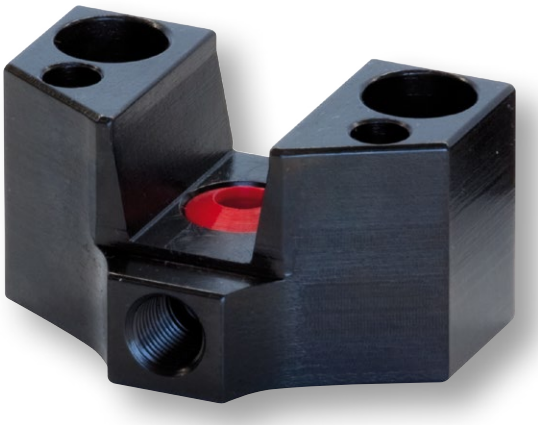


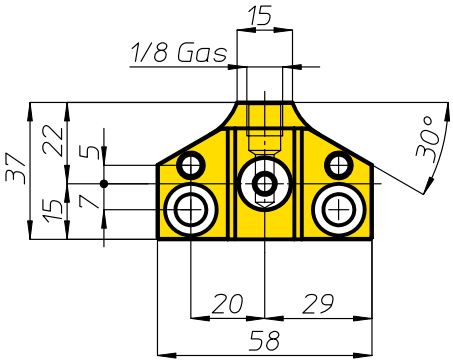
Stop-block

MO10.HS - MO10 - MO13 - MO16

Stop-block (cod. 630104)

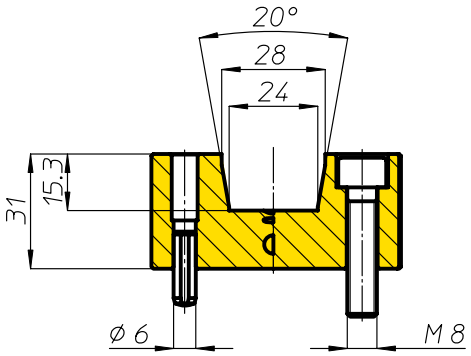


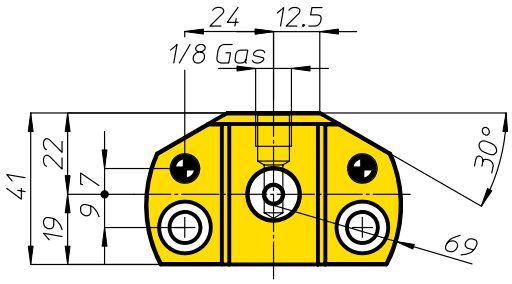


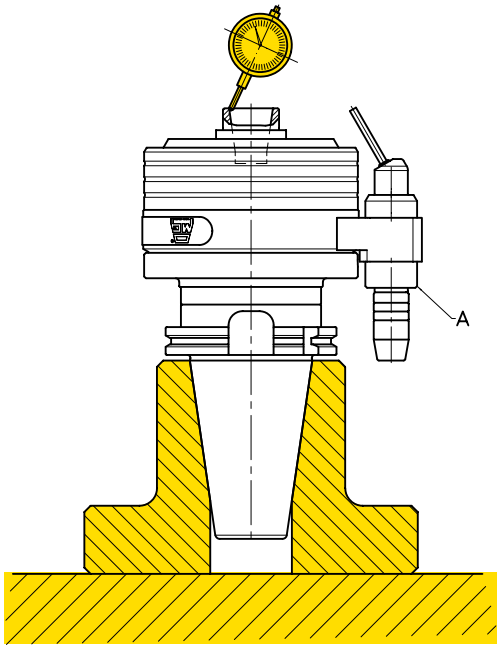


MO26 - MO34

Stop-block (cod. 632198)







COLLAUDO

Ogni moltiplicatore di giri ha allegato il proprio certificato di collaudo dove sono riportate le proprie caratteristiche tecniche, il numero di matricola, i risultati ottenuti dai test eseguiti sul nostro banco prova BP03, il valore della concentricità tra il cono e la sede pinza il cui valore massimo è mm 0.01. Per verificare il valore della concentricità occorre disporre il moltiplicatore come in fig. 1, fermare il perno A e ruotare il cono. Il valore letto sul comparatore millesimale è la concenticità tra l'asse del cono e l'asse del mandrino.

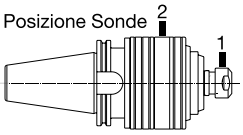
TEST

Every spindle speeder has his test certificate in which there are the technical characteristics, the serial number, the results of the tests made on our BP03 testing bench, the concentricity value between the shank and the collet (max. value 0,01 mm). To verify the concentricity value it is necessary to have the spindle speeder as from picture N°. 1, stopping the pin "A" and rotating the shank. The value on the dial indicator is the concentricity between the shank axe and the spindle axe.

CERTIFICATO DI COLLAUDO

Banco prova BP03
Data prova: 10/07/2011
Articolo: MO10 Matricola: 1315

Posizione Sonde



N° Max Giri Uscita: 22.000
Rapporto Entrata-Uscita: 1:6
N° Giri Uscita = N° Giri Entrata * Rapporto

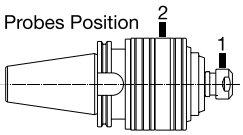
Prova	N° Giri Entrata	Temp.(°C) Sonda 1	Temp.(°C) Sonda 2	Temp. Ambiente
1	1000	45,40	43,20	24,60
2	1500	40,80	36,80	24,60
3	2000	44,20	42,00	24,80
4	2500	48,80	42,00	24,80
5	3000	49,20	38,60	25,00

Concentricità Max Cono - Mandrino: 0,006

TEST REPORT

Testing bench BP03
Test date: 10/07/2011
Item: MO10 SN: 1315

Probes Position



Max Output RPM: 22.000
Ratio Input-Output: 1:6
Output RPM = Input RPM * Ratio

Test	Input RPM	Temp.(°C) Probe 1	Temp.(°C) Probe 2	Enviroment Temp.
1	1000	45,40	43,20	24,60
2	1500	40,80	36,80	24,60
3	2000	44,20	42,00	24,80
4	2500	48,80	42,00	24,80
5	3000	49,20	38,60	25,00

Max Runout between Shank and Spindle: 0,006

Moltiplicatori di giri speciali
Special spindle speeders

MO 26310
Riduttore di giri, rapporto 6-1, input max 15.000 RPM, attacco HSK63, mandrino ER20
Spindle reducer, ratio 6-1, input max 15.000 RPM, shank HSK63, ER20 spindle

MO 28910
MO16 con attacco CAPTO C8 e mandrino ER25 prolungato
MO16 with CAPTO C8 shank and extended ER25 spindle

MO 12110
Rapporto/Ratio 1-4
RPM max 4.500
Torque 1.150 Nm
Output DIN69871-A50
Peso/Weight Kg 240

Moltiplicatori di giri speciali
Special spindle speeders

TFS 09011
Riduttore di giri per maschiatura con compensazione assiale mandrino, corsa compensazione ±7 mm, rapporto 6-1, input max 10.000 RPM, attacco HSK-F63, mandrino per bussola porta maschio grandezza 1
Tapping spindle reducer with axial compensation, stroke ±7 mm, ratio 6-1, input max 10.000 RPM, shank HSK-F63, spindle for tapping bush size 1

VDI 16610
MO13 rinviato di 90° con attacco VDI30
MO13 with VDI30 shank at 90°

MO 16210
MO13 con attacco VDI40
MO13 with VDI40 shank

MO26 con cono DIN69871-A60, mandrino Weldon Ø25 e liquido refrigerante utensile passante dal centro stop-block/centro mandrino
MO26 with DIN69871-A60 shank, output spindle Weldon Ø25, coolant trough the stop-block/ spindle centre

serie HT

torrette a revolver
turret heads

Caratteristiche tecniche/Features 5-2
Applicazioni/Applications 5-3

Le torrette a revolver serie **HT** sono una novità della produzione O.M.G. Nate dall'esigenza di aumentare la flessibilità delle macchine utensili, possono eseguire lavorazioni di foratura, filettatura, alesatura, fresatura. Trovano collocazione direttamente sul mandrino della macchina o, con motorizzazione propria, montate su slitte a uno o più assi di movimento.
Disponibili in tre grandezze, hanno la possibilità di montare teste multiple, teste ad angolo e moltiplicatori di giri per aumentare la velocità dell'utensile. Tutte le versioni utilizzano un sistema di posizionamento tramite corona Hirth; questa soluzione costruttiva permette grande precisione, grande rigidità nelle lavorazioni di fresatura e alesatura di finitura, grande ripetitività.

- Costruzione torretta in acciaio e ghisa.
- Mandrini montati su cuscinetti di precisione.
- Mandrini con diverso attacco utensile (DIN55058, Komet, HSK, ecc) intercambiabili sulla stessa torretta.
- Mandrini in presa diretta con la presa di forza per sfruttare appieno la potenza
- Sistema idraulico di bloccaggio-sbloccaggio corona Hirth.
- La stessa motorizzazione permette la rotazione della torretta e la rotazione dei mandrini.
- Rotazione torretta bidirezionale per ricercare più velocemente il mandrino necessario alla lavorazione da eseguire.
- Refrigerante indipendente per ogni mandrino.
- Possibilità del refrigerante di passare attraverso il centro del mandrino.
- Lubrificazione effettuata a grasso o con miscela olio-aria.
- Pressurizzazione torretta
- Connettore unico per l'interscambio dati tra la torretta ed il cnc.

La serie **HT**, quindi, conferma la capacità di O.M.G. di affinare la gamma degli strumenti ad elevata affidabilità per le lavorazioni industriali e di puntare al centro delle esigenze della propria clientela offrendo sempre, come risorsa per l'innovazione, la versatilità dei propri prodotti.

*The **HT** series of turret heads are a novelty in the O.M.G. production range. Inspired by the need to increase the flexibility of machine tools, they are able to perform drilling, tapping, boring and milling. They can be installed directly on the machine spindle or, with their own drive, mounted on slides with one or more movement axes.*
Available in three sizes, they can be fitted with multispindle heads, angle heads and multipliers for greater tool velocity.
All versions use a positioning system based on a Hirth crown gear, providing utmost precision, excellent strength in milling and finishing boring and outstanding repeatability.

- *Turret made of steel and cast iron*
- *Spindles mounted on precision bearings*
- *Spindles with different tool connections (HSK, Komet, DIN55058, etc.) which can be interchanged on the same turret*
- *Spindles directly engaged with p.t.o. to exploit power to the full*
- *Hydraulic Hirth crown gear locking-release system*
- *Single drive rotates both turret and spindles*
- *Two-way turret rotation for quicker retrieval of the spindle needed for the next process*
- *Separate coolant for each spindle*
- *Coolant through the spindle centre*
- *Lubrication with grease or oil-air mixture*
- *Pressurised turret*
- *Single connector for data exchange between turret and cnc.*

*The **HT** series once more reflects O.M.G.'s ability to constantly perfect its range of highly reliable tools for industrial machining and to target the exact needs of its customers, offering product versatility as a resource for innovation.*

HT 160

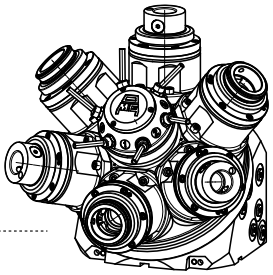
F1 **circuito olio per bloccaggio-sbloccaggio torretta**
oil circuit for turret locking-release

F2 **entrata refrigerante utensili**
coolant tools

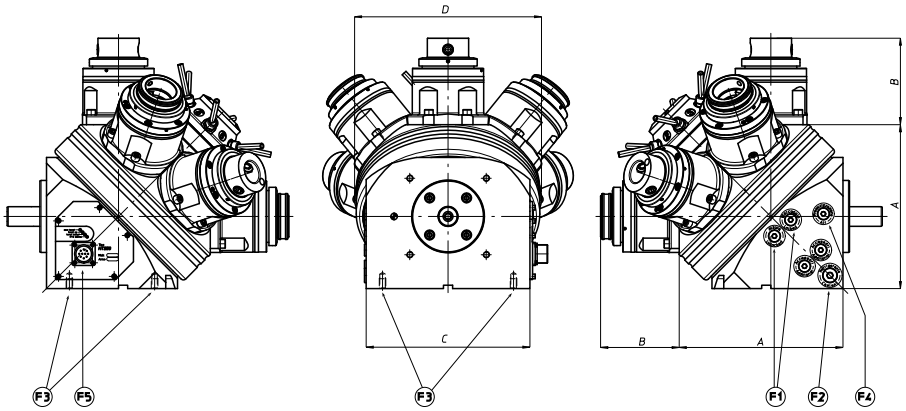
F3 **fori fissaggio torretta**
turret fixing holes

F4 **entrata olio-aria**
input oil-air

F5 **connettore elettrico**
electric connector



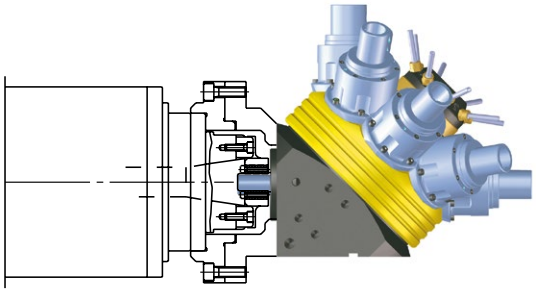
HT 200

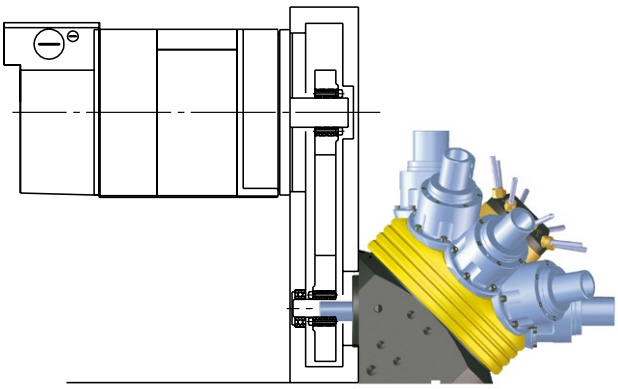


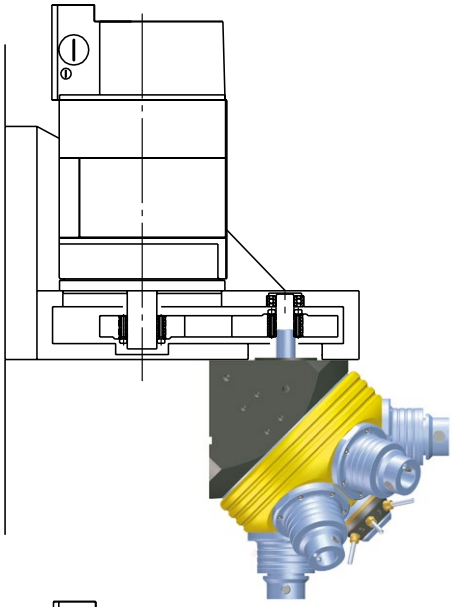
HT 250

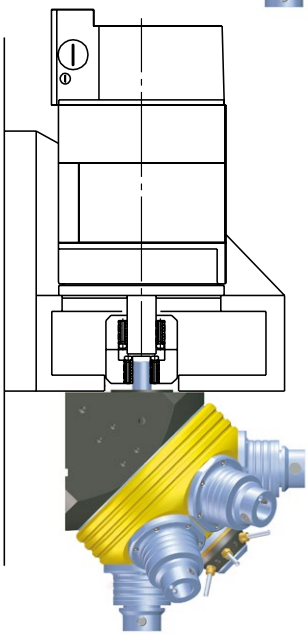
HT 360

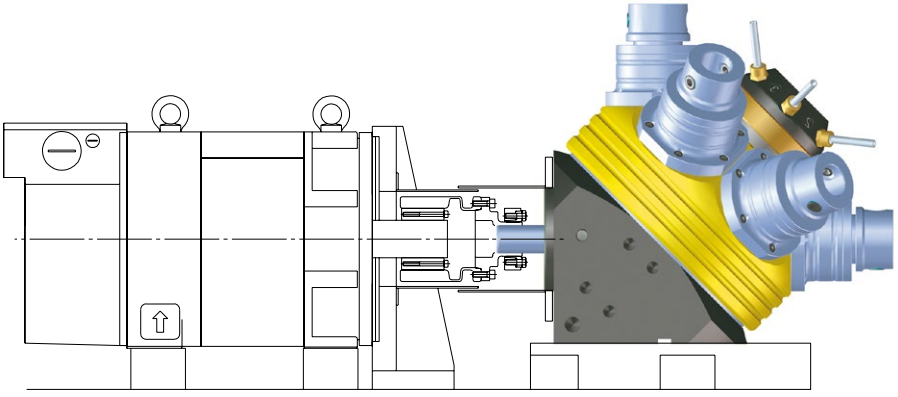
		HT 160	HT 200	HT 250	HT 360
n° di posizioni max max nr. of position		6	6	6-8	6-8-12
coppia trasmissibile al mandrino transmitting torque by spindle	Nm	80	200	300	800
n° giri max mandrino max rpm spindle		12.000	10.000	10.000	8.000
precisione di posizione mandrini precision of spindles positioning		± 3”	± 3”	± 3”	± 3”
potenza motore motor power	approx Kw	4	5	6,5	16
tempo di rotazione (1/6 di giro) indexing time 1/6 of rotation	sec	0,9	1	1,1	1,5
diametro corona Hirth dimension rings Hirth	mm	160	200	250	350
A		160	200	250	360
B dipende dal tipo di mandrino *to depend on the spindle type*	approx mm	70/80	100/150	100/150	120/170
C		160	200	250	350
D		180	228	290	400
tipi di mandrini disponibili type of spindles		ABS, HSK, ER, DIN 55058			
peso weight	kg	35	60	140	300

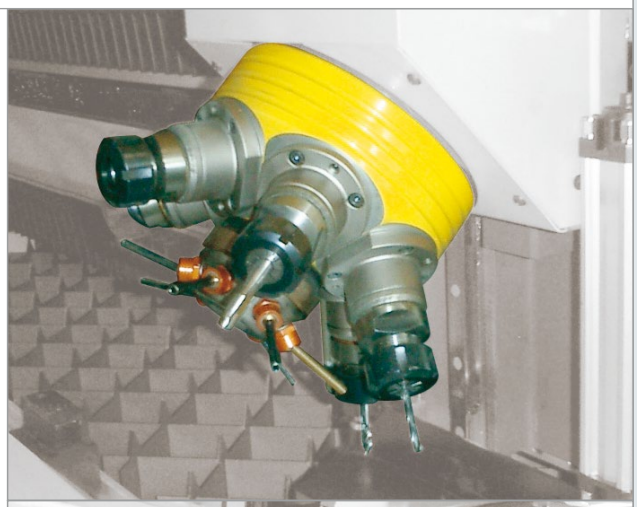


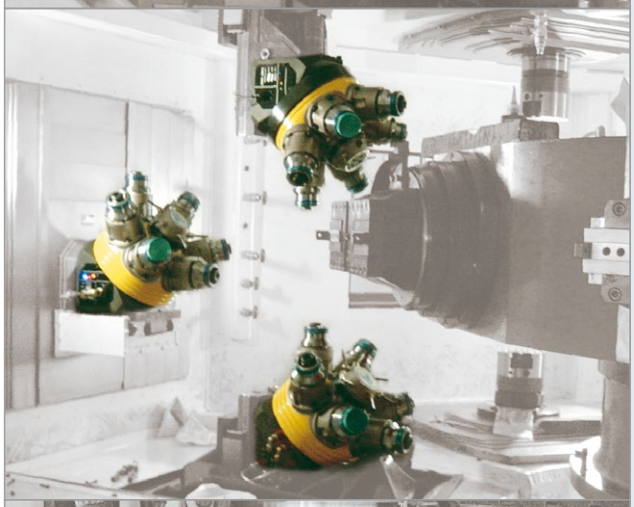


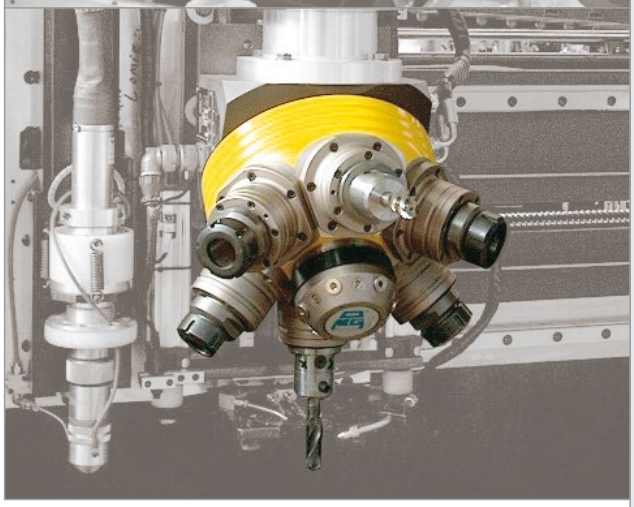




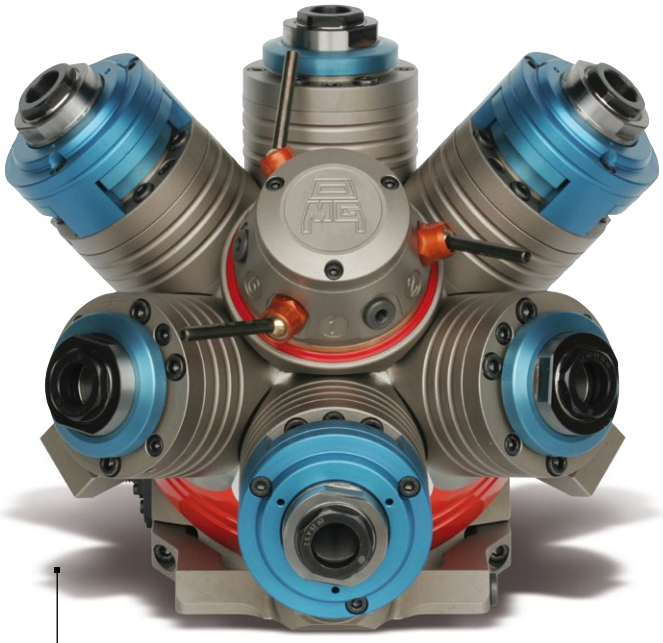




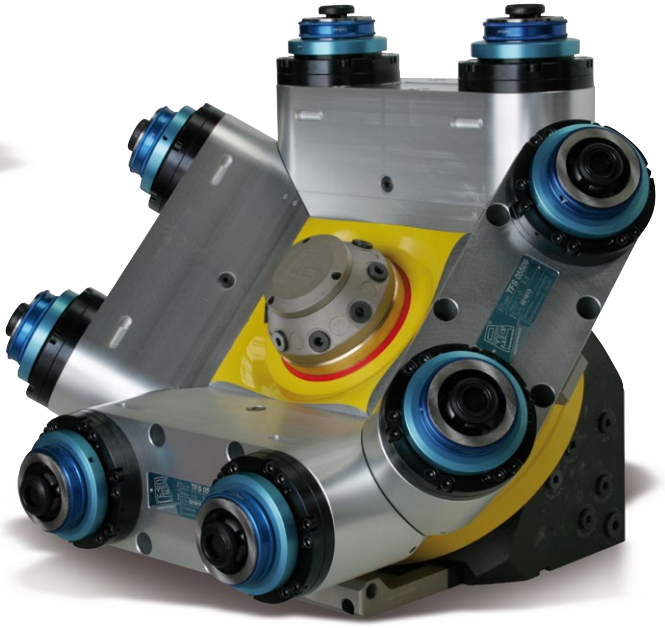




Gallery

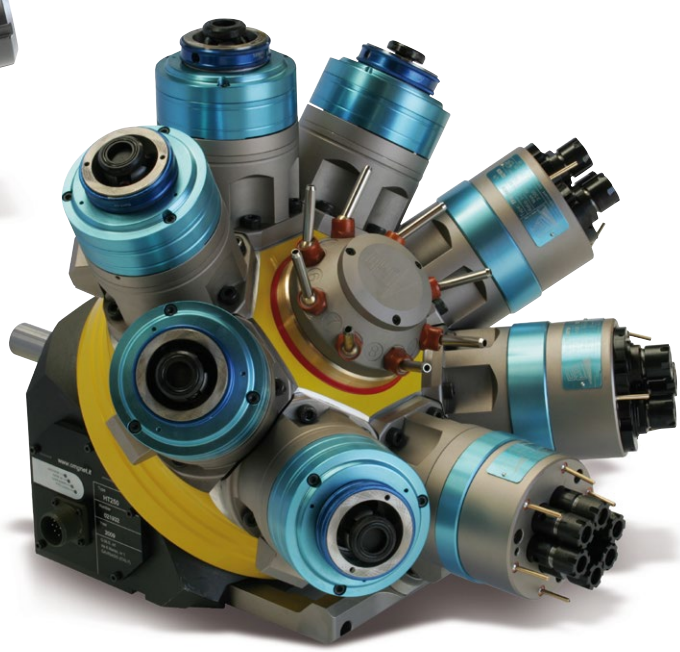


HT 05007



HT 05209

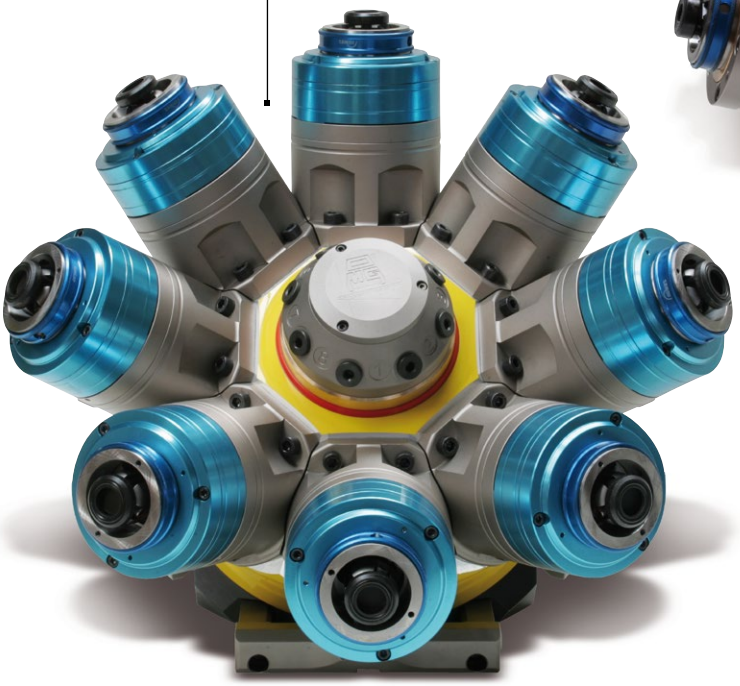
HT 31808

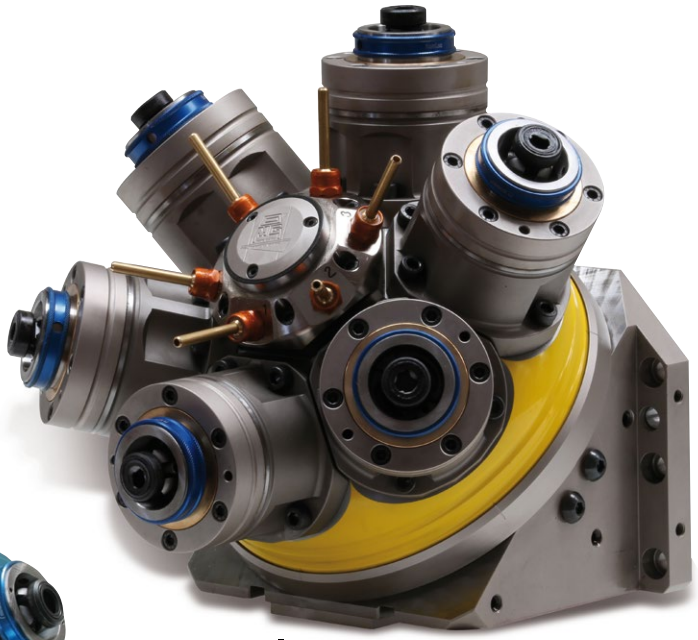


HT 08509

Gallery

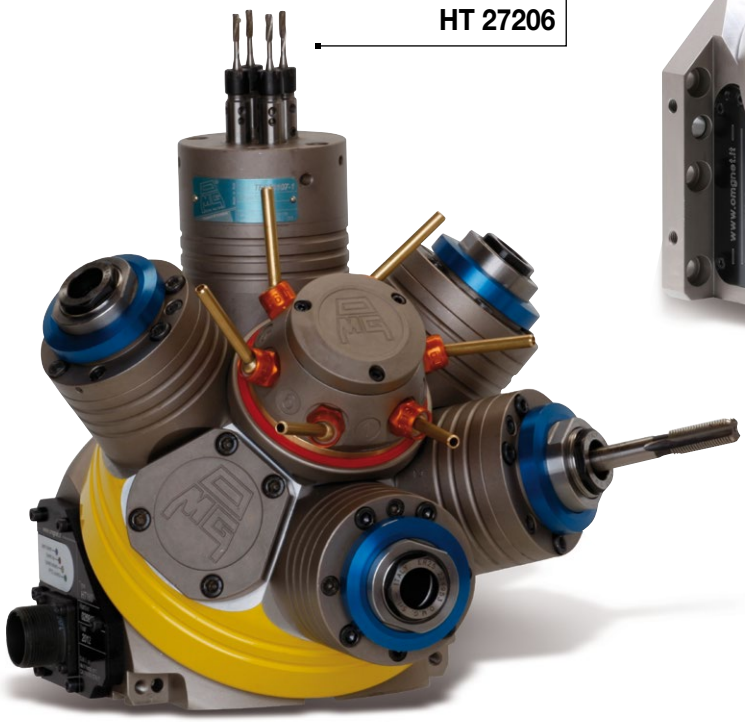
HT 35907

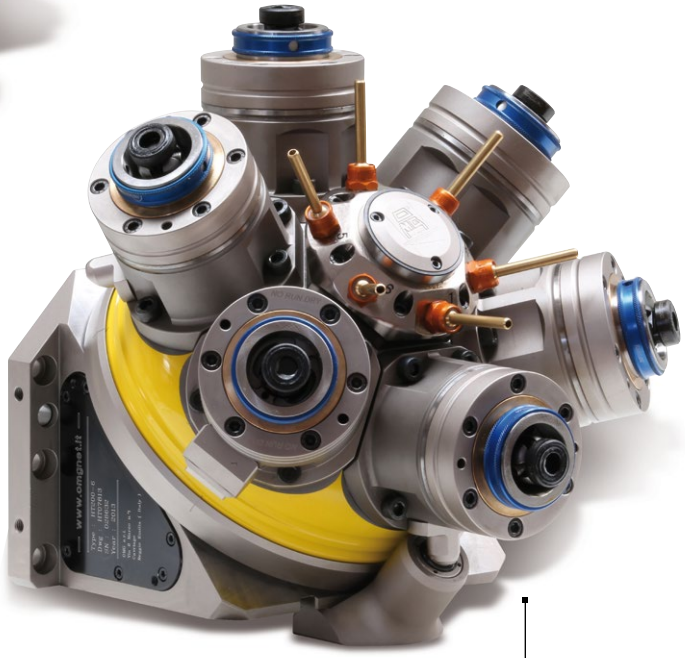




HT 07313

HT 27206



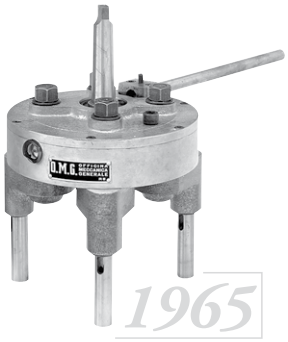


HT 07813

serie

VH

teste multiple ad assi variabili
variable axis heads



Lo sviluppo della serie TE, una linea completa di teste ad assi variabili, rappresenta l'innovazione degli anni '70 che sancisce a pieni voti il successo e la notorietà del marchio O.M.G.

Gli anni '80 sono dedicati al perfezionamento della linea TE e all'introduzione di due nuove serie; la TEM e la TEF. Il risultato é la messa a punto della più completa gamma di teste ad assi variabili presenti sul mercato nazionale ed internazionale.
Le tecnologie d'avanguardia nei processi produttivi e l'impiego di nuove tecniche computerizzate firmano la notorietà e l'immagine del marchio O.M.G.: un nome diffuso e conosciuto da tutte le aziende, piccole e grandi, un'immagine mai smentita ma sottolineata nelle numerose campagne pubblicitarie realizzate.

L'ultima generazione, la serie VH, racchiude gli elementi di tecnologia e know how delle teste multiple ad interassi fissi. Si tratta di strumenti ad alta prestazione che consentono agli utilizzatori l'impiego ottimale di tutte le più avanzate tecnologie applicate agli utensili.
La VH rappresenta una serie completamente diversa, sia sotto il profilo tecnologico che estetico: un prodotto per il quale anche la ricerca ergonomica é stata assolutamente meticolosa.

The TE series, a complete range of variable axes heads, represented a major company achievement in the seventies: it was a success and brought OMG into the limelight.

The eighties were characterised by upgrades to the TE range and the addition of two new series TEM and TEF.
Together this forms the most complete range of variable axis heads on domestic and international markets.
Cutting-edge technologies in production processes and the use of new computerised methods are the hallmarks of the O.M.G. brand name and image thanks to which the company has won renown among small and large enterprises alike, an image that has never lost its importance but which is, instead, stressed by frequent advertising campaigns.

The latest generation, the VH series, bears witness to the technology and "know how" of multispindle heads with fixed centres and allows the end user to fully exploit the latest developments in tool manufacturing.
This new VH series, so different in terms of technology and aesthetics, is also the result of meticulous ergonomic research.

VH 04 6-2
VH 06 6-4
VH 08 6-6
VH 10 6-8
VH 13 6-10
VH 18 6-12
VH 25 6-14
VH 101 6-16
VH 181 6-17
Regolazione utensili/*Tool settings* 6-18
Esecuzioni speciali/*Special executions* 6-19
Galleria fotografica/*Photographic gallery* 6-20

Accessori/*Accessories* 10-1

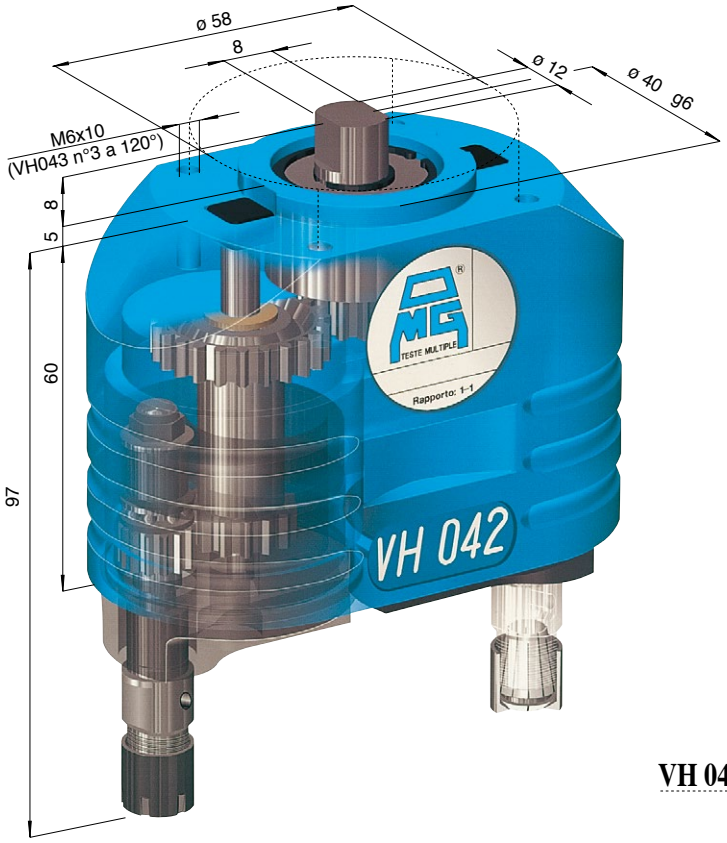
Dimensione mandrini/*Spindle dimensions* ... 11-3

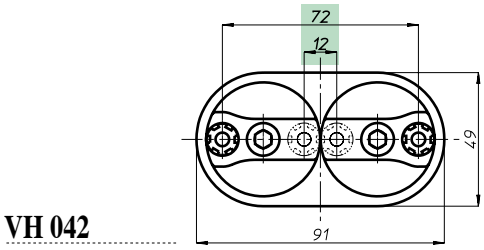
Teste multiple ad assi variabili ○ Variable axis heads

CAPACITA' FORATURA *DRILLING CAPACITY* ø 5

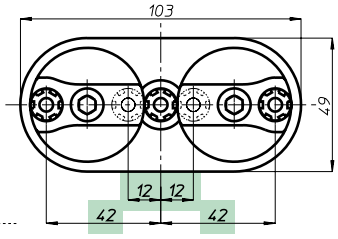
VH

modello 04

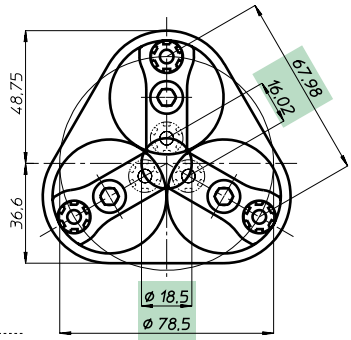




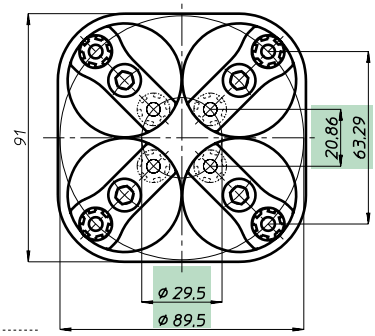
VH 042



VH 043 L



VH 043



VH 044

Testa modello *Head type*		**VH 042**	**VH 043 L**	**VH 043**	**VH 044**
Articolo *Item*		**VH 042 PV**	**VH 043 LP**	**VH 043 P**	**VH 044 P**
Attacco utensile *Spindle type*		ER 8 - max ø 5			
Articolo *Item*					
Attacco utensile *Spindle type*					
N. mandrini *Spindles nr.*		2	3	3	4
Campo di lavoro *Centre distances*	**min.**	12	12 + 12	ø 18,5	ø 29,5
	max.	72	42 + 42	ø 78,5	ø 89,5
Capacità foratura *Drilling capacity*		Acciaio Rm 500 N/mm² - **ø 4**			
		Ghisa GG25 - **ø 5**			
Maschiatura *Tapping*		M 3			
Rapporto *Ratio*		1 - 1			
Velocità *RPM*		4.000			
Peso *Weight*	*Kg.*	0,95	1,05	1,4	1,9

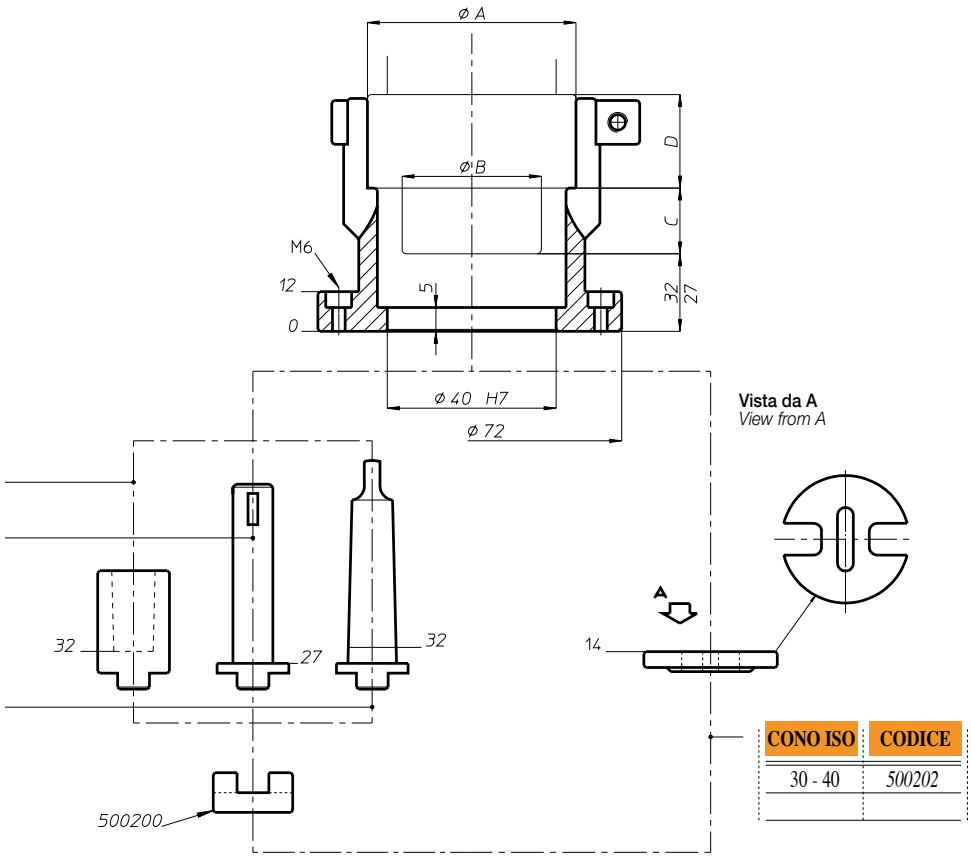
MANICOTTO DI COLLEGAMENTO - *CONNECTION COLLAR*

NOTA: A.B.C.D. dati macchina
NOTE: A.B.C.D. machine features

DIN 238	CODICE
B 10	*011277*
B 12	*011278*
B 16	*011279*
B 18	*011280*

DIN 55058	CODICE
16	*525405*
20	*525406*
28	*525407*

DIN 228	CODICE
CM 1	*011115*
CM 2	*011120*
CM 3	*011125*



CONO ISO	CODICE
30 - 40	*500202*

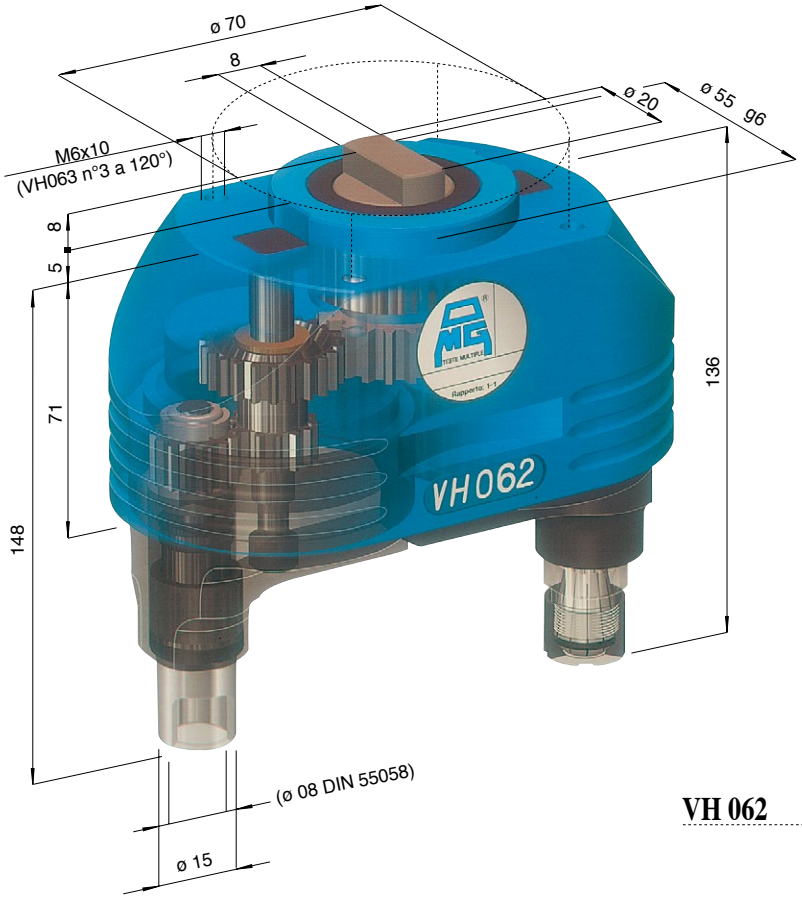
Teste multiple ad assi variabili • Variable axis heads

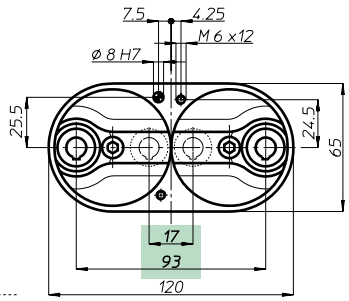
Teste multiple ad assi variabili ○ Variable axis heads

CAPACITA' FORATURA ø 7
DRILLING CAPACITY

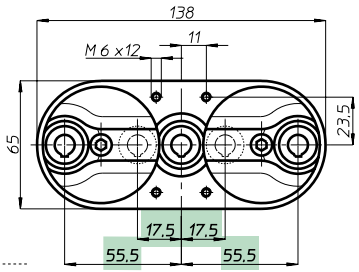
VH

modello 06

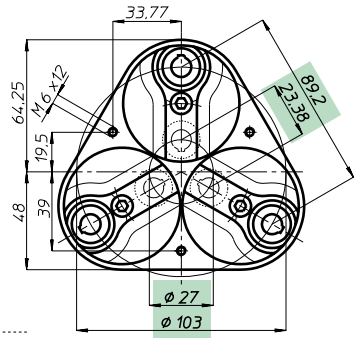




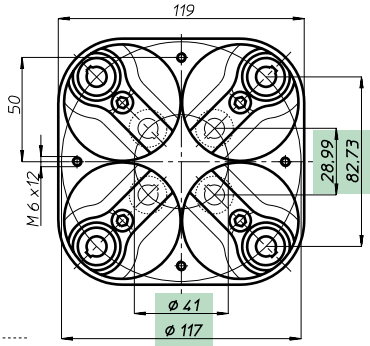
VH 062



VH 063 L



VH 063



VH 064

Testa modello *Head type*	VH 062	VH 063 L	VH 063	VH 064
Articolo *Item*	VH 062 P	VH 063 LP	VH 063 P	VH 064 P
Attacco utensile *Spindle type*	ER 11 - max ø 7			
Articolo *Item*	VH 062 D	VH 063 LD	VH 063 D	VH 064 D
Attacco utensile *Spindle type*	DIN 55058 - ø 8			
N. mandrini *Spindles nr.*	2	3	3	4
Campo di lavoro *Centre distances* **min.**	17	17,5 + 17,5	ø 27	ø 41
	max. 93	55,5 + 55,5	ø 103	ø 117
Capacità foratura *Drilling capacity*	Acciaio Rm 500 N/mm² - **ø 6**			
	Ghisa GG25 - **ø 7**			
Maschiatura *Tapping*	M 5			
Rapporto *Ratio*	1 - 1			
Velocità *RPM*	4.000			
Peso *Weight* *Kg.*	1,65	1,95	2,3	3,1

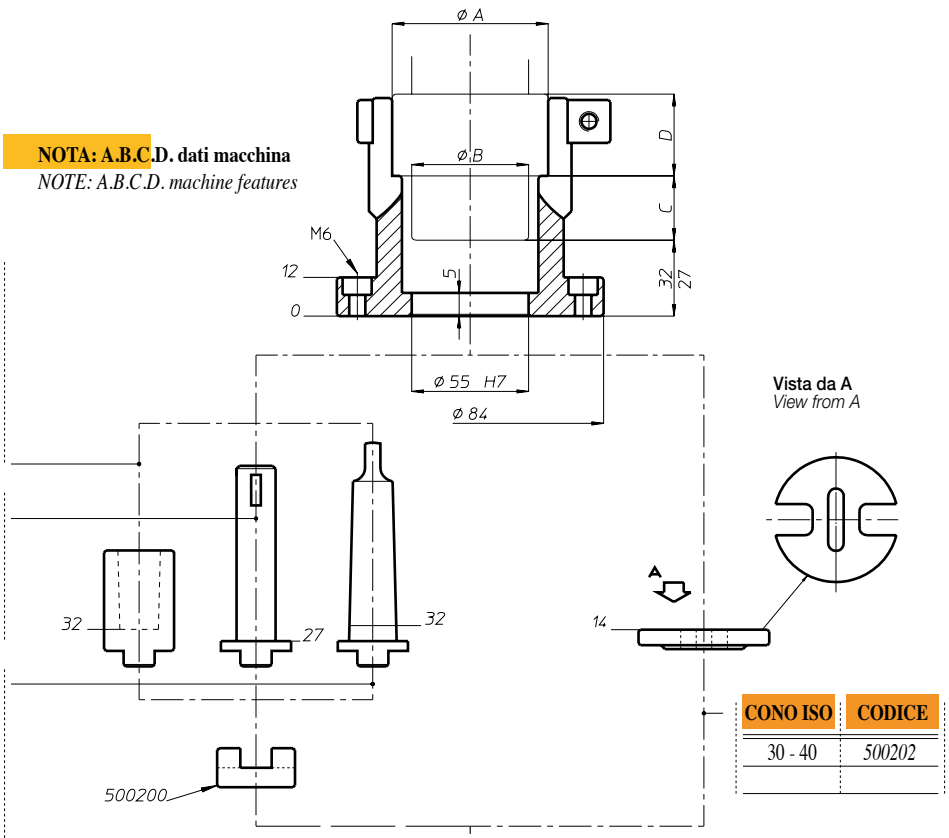
MANICOTTO DI COLLEGAMENTO - *CONNECTION COLLAR*

NOTA: A.B.C.D. dati macchina
NOTE: A.B.C.D. machine features

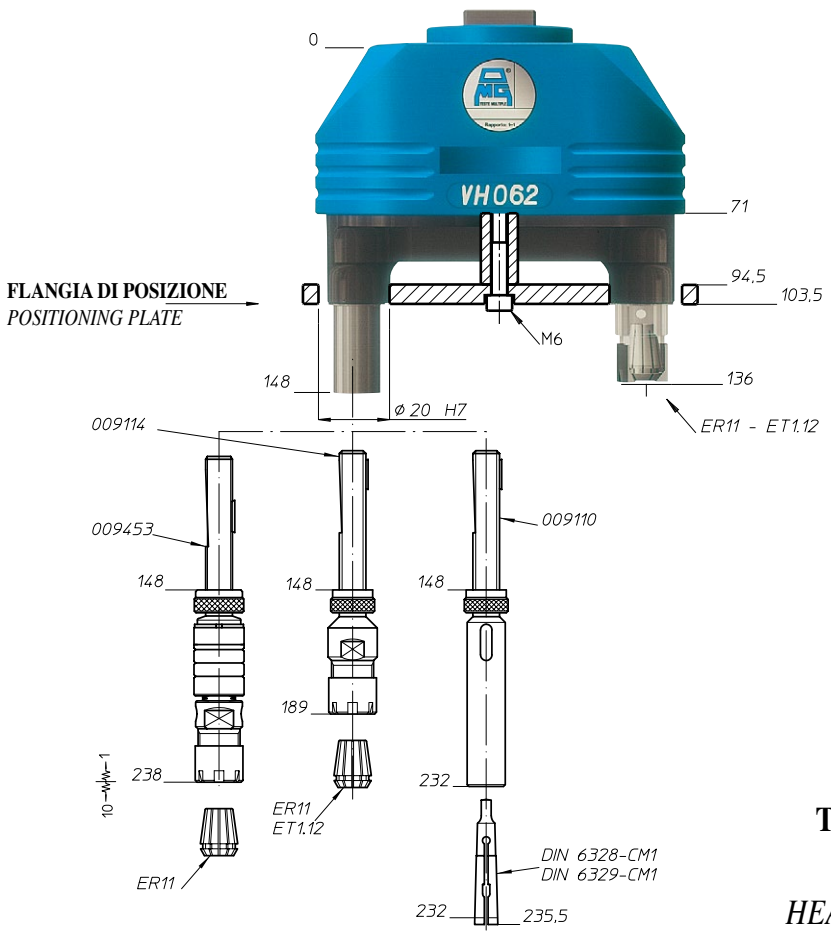
DIN 238	CODICE
B 10	*011277*
B 12	*011278*
B 16	*011279*
B 18	*011280*
B 22	*011281*
B 24	*011282*

DIN 55058	CODICE
16	*525405*
20	*525406*
28	*525407*
36	*525408*

DIN 228	CODICE
CM 1	*011115*
CM 2	*011120*
CM 3	*011125*
CM 4	*011130*
CM 5	*011135*



CONO ISO	CODICE
30 - 40	*500202*



FLANGIA DI POSIZIONE
POSITIONING PLATE

ACCESSORI PER TESTE MULTIPLE

MULTISPINDLE HEADS ACCESSORIES

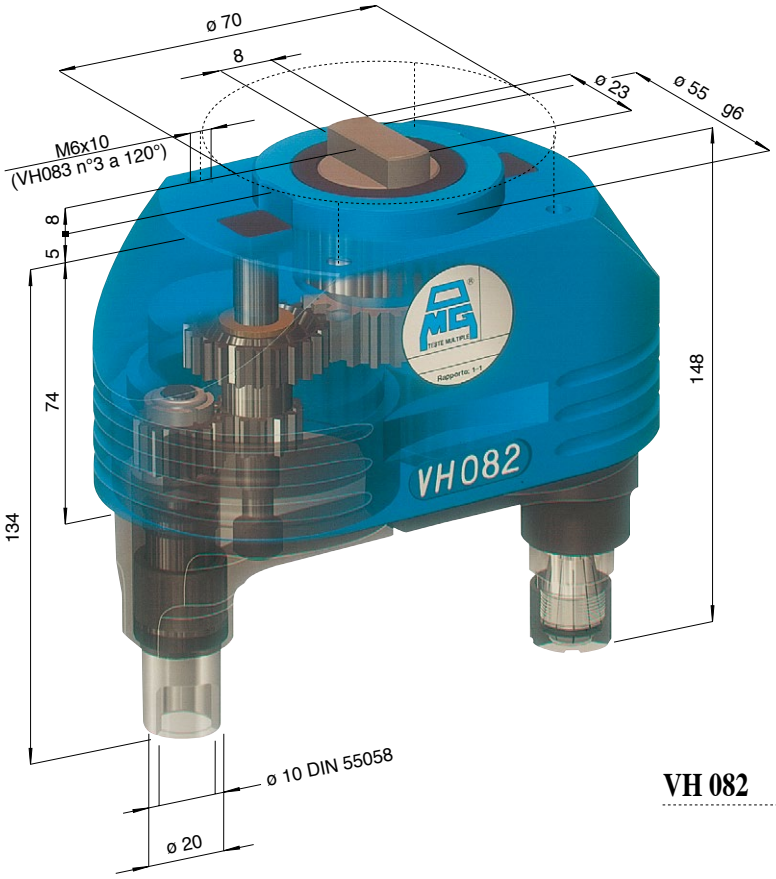
Teste multiple ad assi variabili - Variable axis heads

Teste multiple ad assi variabili ○ Variable axis heads

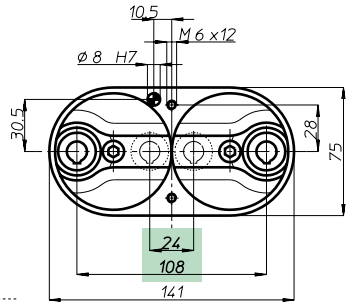
CAPACITA' FORATURA *DRILLING CAPACITY* ø 10

VH

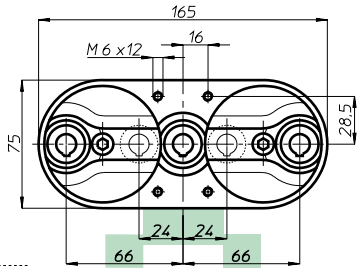
modello 08



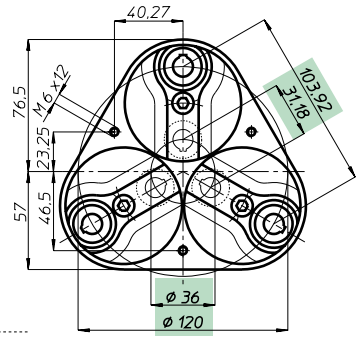
Testa modello *Head type*	VH 082	VH 083 L	VH 083	VH 084
Articolo *Item*	VH 082 P	VH 083 LP	VH 083 P	VH 084 P
Attacco utensile *Spindle type*	ER 16 - max ø 10			
Articolo *Item*	VH 082 D	VH 083 LD	VH 083 D	VH 084 D
Attacco utensile *Spindle type*	DIN 55058 - ø 10			
N. mandrini *Spindles nr.*	2	3	3	4
Campo di lavoro *Centre distances* **min.**	24	24 + 24	ø 36	ø 53,5
	max. 108	66 + 66	ø 120	ø 137,5
Capacità foratura *Drilling capacity*	Acciaio Rm 500 N/mm² - **ø 8**			
	Ghisa GG25 - **ø 10**			
Maschiatura *Tapping*	M 6			
Rapporto *Ratio*	1 - 1			
Velocità *RPM*	4.000			
Peso *Weight* *Kg.*	2,2	2,9	3,4	4,6



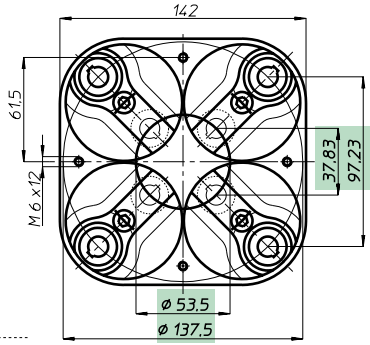
VH 082



VH 083 L



VH 083



VH 084

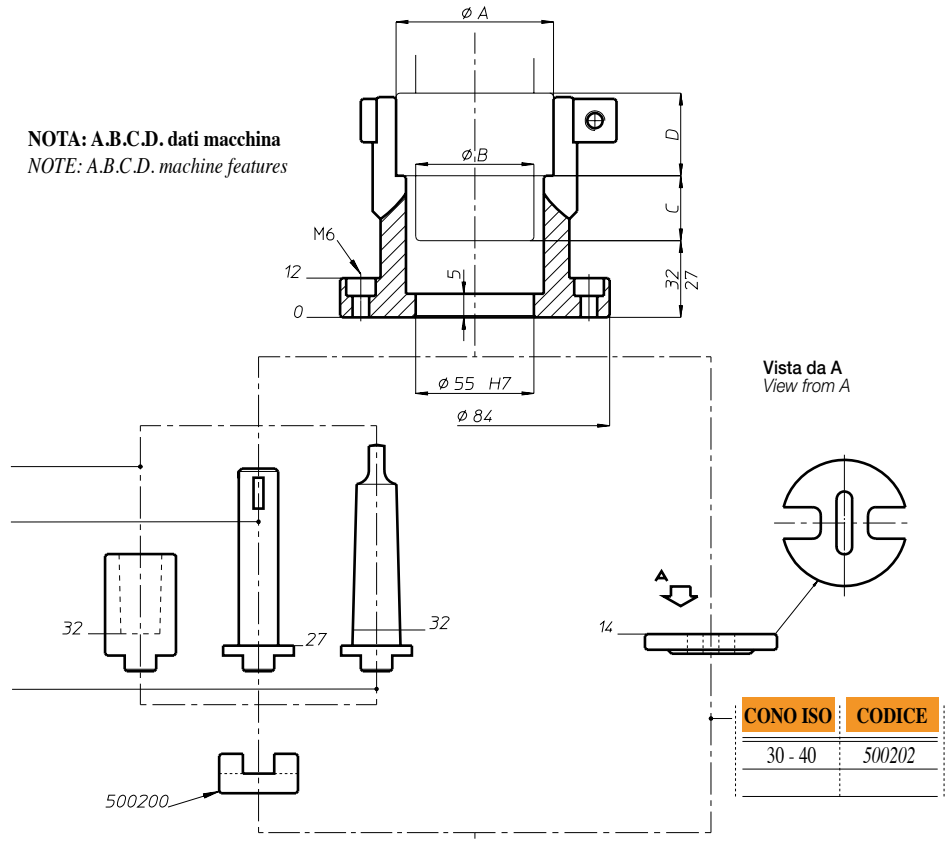
MANICOTTO DI COLLEGAMENTO - *CONNECTION COLLAR*

NOTA: A.B.C.D. dati macchina
NOTE: A.B.C.D. machine features

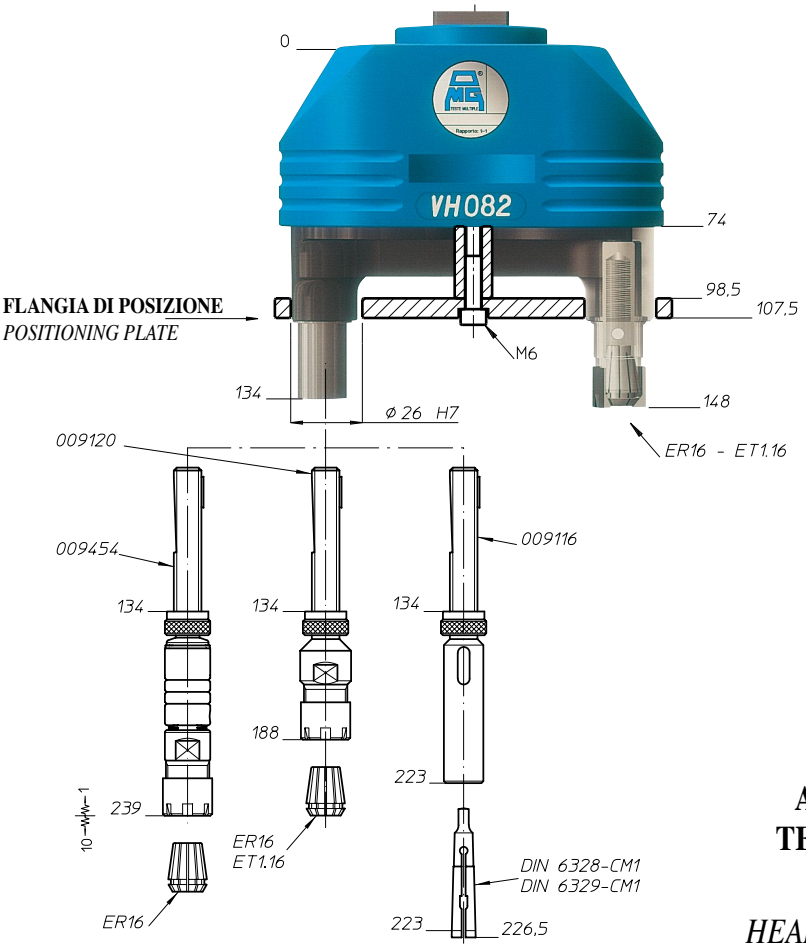
DIN 238	CODICE
B 10	*011277*
B 12	*011278*
B 16	*011279*
B 18	*011280*
B 22	*011281*
B 24	*011282*

DIN 55058	CODICE
16	*525405*
20	*525406*
28	*525407*
36	*525408*

DIN 228	CODICE
CM 1	*011115*
CM 2	*011120*
CM 3	*011125*
CM 4	*011130*
CM 5	*011135*



CONO ISO	CODICE
30 - 40	*500202*



FLANGIA DI POSIZIONE
POSITIONING PLATE

ACCESSORI PER TESTE MULTIPLE

MULTISPINDLE HEADS ACCESSORIES

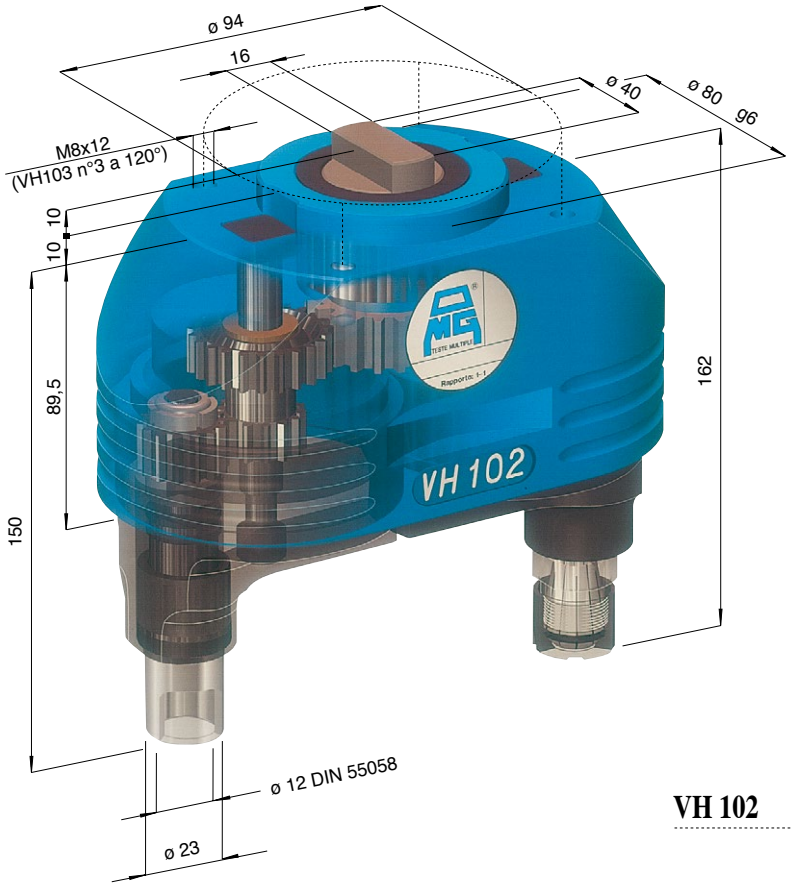
Teste multiple ad assi variabili • Variable axis heads

Teste multiple ad assi variabili ○ Variable axis heads

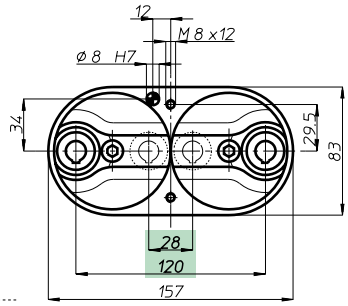
CAPACITA' FORATURA ø 12
DRILLING CAPACITY

VH

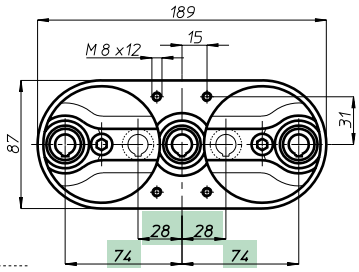
modello 10



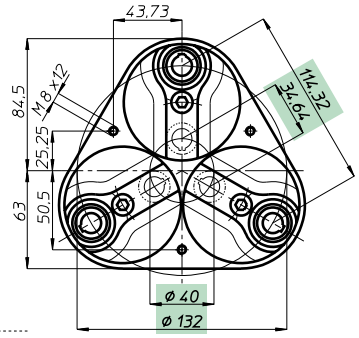
Testa modello *Head type*	VH 102	VH 103 L	VH 103	VH 104
Articolo *Item*	VH 102 P	VH 103 LP	VH 103 P	VH 104 P
Attacco utensile *Spindle type*	ER 16 - max ø 10			
Articolo *Item*	VH 102 D	VH 103 LD	VH 103 D	VH 104 D
Attacco utensile *Spindle type*	DIN 55058 - ø 12			
N. mandrini *Spindles nr.*	2	3	3	4
Campo di lavoro *Centre distances* **min.**	28	28 + 28	ø 40	ø 60
	max. 120	74 + 74	ø 132	ø 152
Capacità foratura *Drilling capacity*	Acciaio Rm 500 N/mm² - **ø 10**			
	Ghisa GG25 - **ø 12**			
Maschiatura *Tapping*	M 8			
Rapporto *Ratio*	1 - 1			
Velocità *RPM*	3.500			
Peso *Weight* *Kg.*	3,5	4,9	4,9	7,2



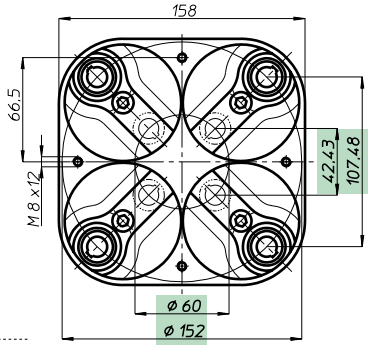
VH 102



VH 103 L



VH 103



VH 104

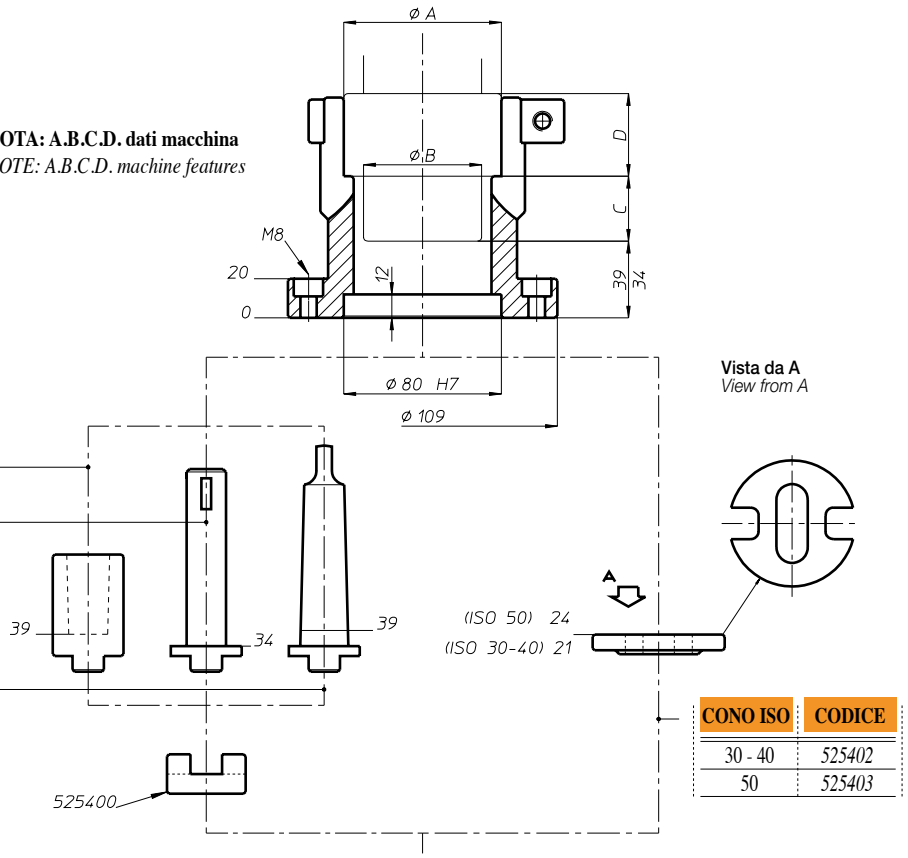
MANICOTTO DI COLLEGAMENTO - *CONNECTION COLLAR*

NOTA: A.B.C.D. dati macchina
NOTE: A.B.C.D. machine features

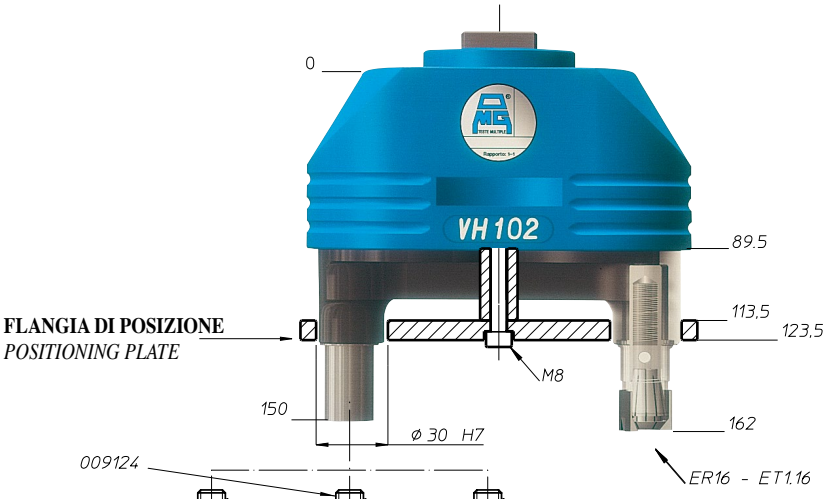
DIN 238	CODICE
B 10	*011277*
B 12	*011278*
B 16	*011279*
B 18	*011280*
B 22	*011281*
B 24	*011282*

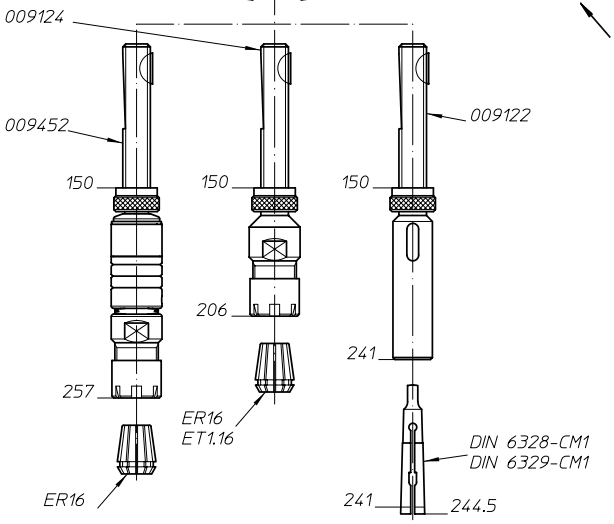
DIN 55058	CODICE
16	*525405*
20	*525406*
28	*525407*
36	*525408*

DIN 228	CODICE
CM 1	*011115*
CM 2	*011120*
CM 3	*011125*
CM 4	*011130*
CM 5	*011135*



CONO ISO	CODICE
30 - 40	*525402*
50	*525403*





ACCESSORI PER TESTE MULTIPLE

MULTISPINDLE HEADS ACCESSORIES

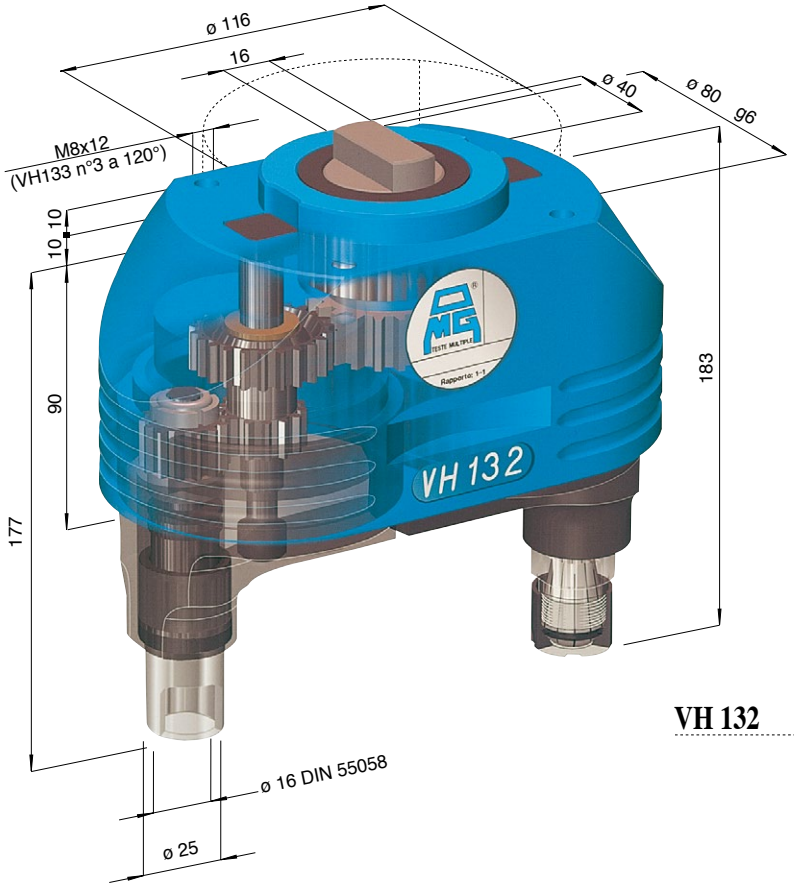
Teste multiple ad assi variabili • Variable axis heads

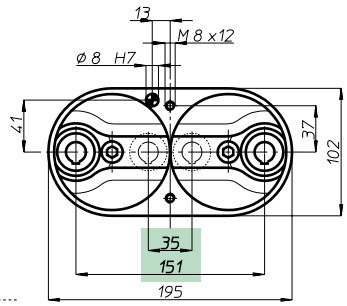
Teste multiple ad assi variabili ○ Variable axis heads

CAPACITA' FORATURA *DRILLING CAPACITY* ø 14

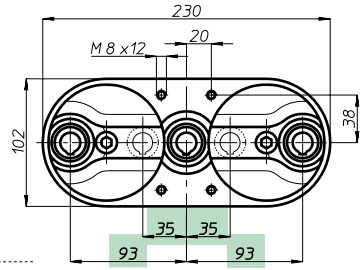
VH

modello 13

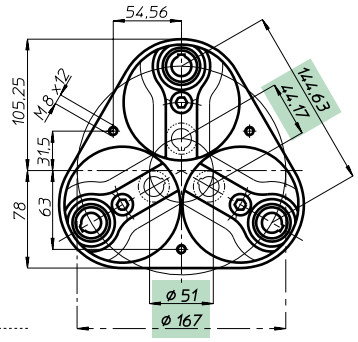




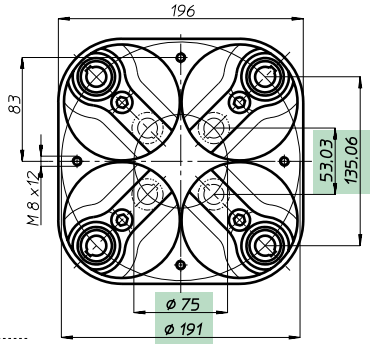
VH 132



VH 133 L



VH 133



VH 134

Testa modello *Head type*	**VH 132**	**VH 133 L**	**VH 133**	**VH 134**
Articolo *Item*	**VH 132 P**	**VH 133 LP**	**VH 133 P**	**VH 134 P**
Attacco utensile *Spindle type*	ER 20 - max ø 13			
Articolo *Item*	**VH 132 D**	**VH 133 LD**	**VH 133 D**	**VH 134 D**
Attacco utensile *Spindle type*	DIN 55058 - ø 16			
N. mandrini *Spindles nr.*	2	3	3	4
Campo di lavoro *Centre distances* **min.**	35	35 + 35	ø 51	ø 75
	max. 151	93 + 93	ø 167	ø 191
Capacità foratura *Drilling capacity*	Acciaio Rm 500 N/mm² - **ø 13**			
	Ghisa GG25 - **ø 14**			
Maschiatura *Tapping*	M 12			
Rapporto *Ratio*	1 - 1			
Velocità *RPM*	3.000			
Peso *Weight* *Kg.*	5,3	7,2	7	10,8

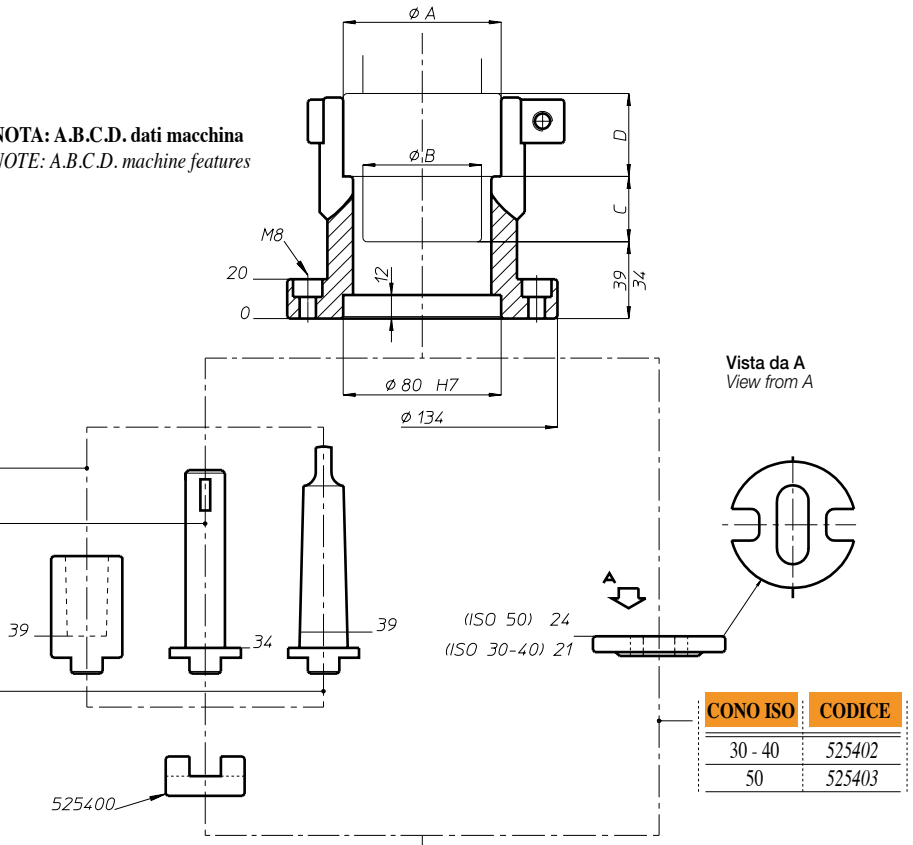
MANICOTTO DI COLLEGAMENTO - *CONNECTION COLLAR*

NOTA: A.B.C.D. dati macchina
NOTE: A.B.C.D. machine features

DIN 238	CODICE
B 16	*011279*
B 18	*011280*
B 22	*011281*
B 24	*011282*

DIN 55058	CODICE
16	*525405*
20	*525406*
28	*525407*
36	*525408*

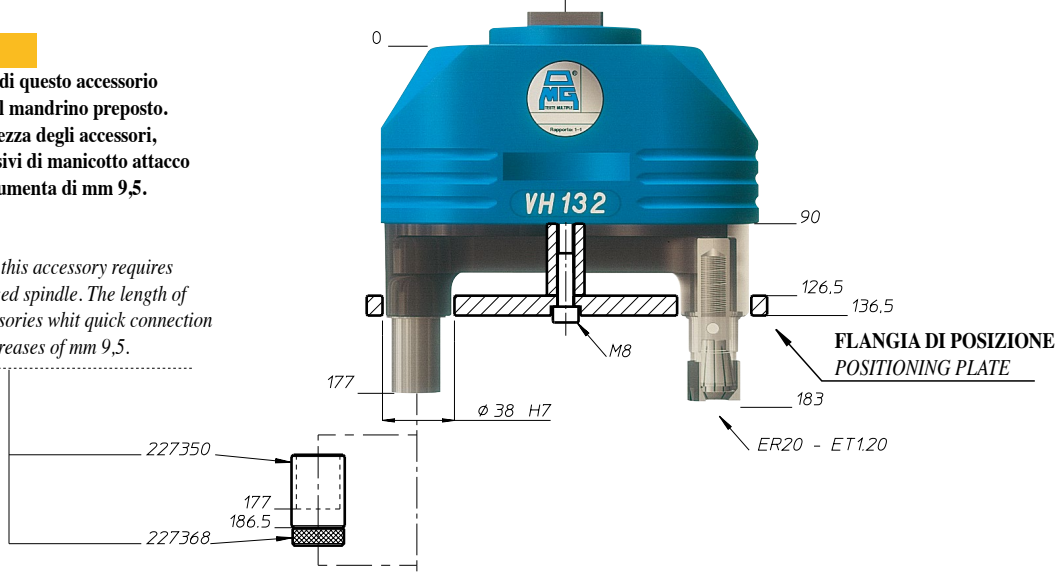
DIN 228	CODICE
CM 2	*011120*
CM 3	*011125*
CM 4	*011130*
CM 5	*011135*

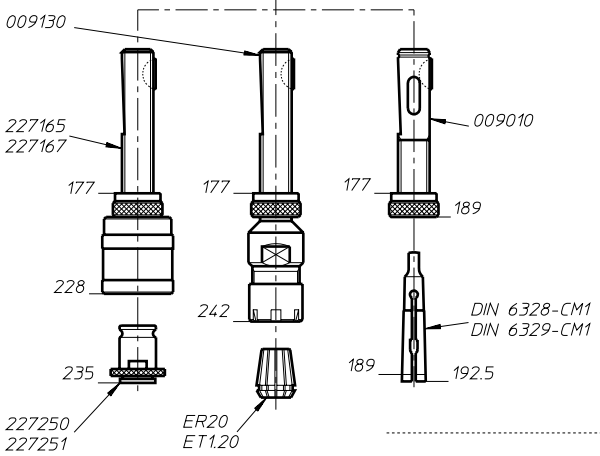


CONO ISO	CODICE
30 - 40	*525402*
50	*525403*

NOTA:
l'utilizzo di questo accessorio richiede il mandrino preposto. La lunghezza degli accessori, comprensivi di manicotto attacco rapido, aumenta di mm 9,5.

NOTE:
the use of this accessory requires prearranged spindle. The length of this accessories whit quick connection sleeve increases of mm 9,5.





ACCESSORI PER TESTE MULTIPLE

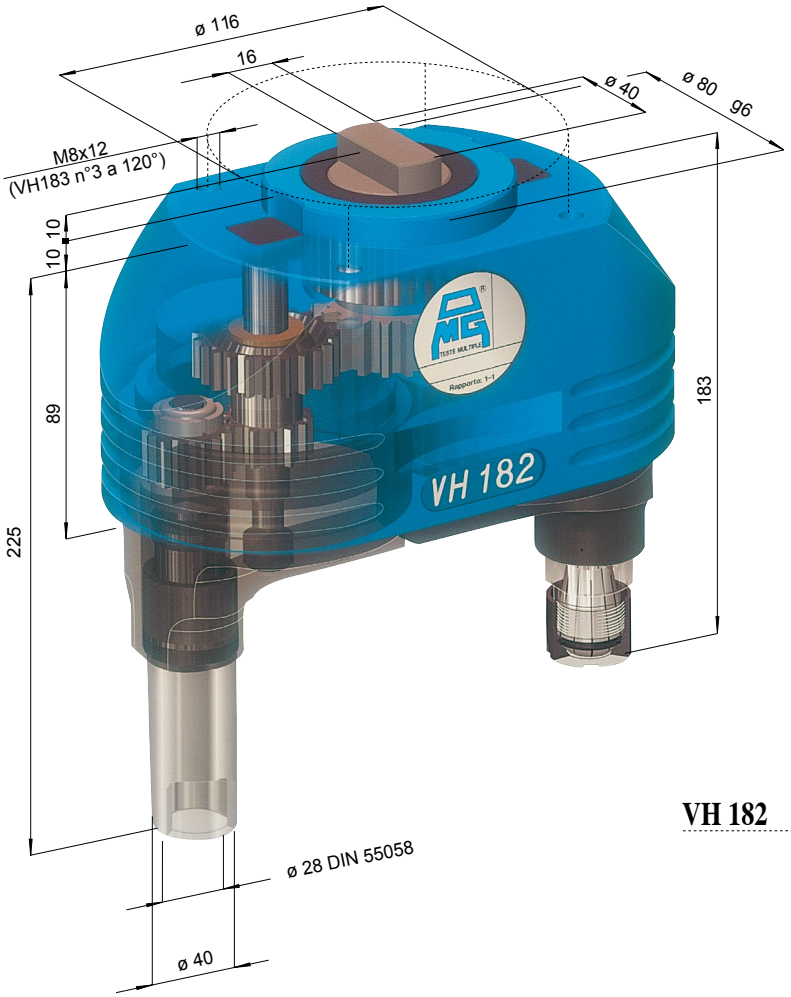
MULTISPINDLE HEADS ACCESSORIES

Teste multiple ad assi variabili ○ Variable axis heads

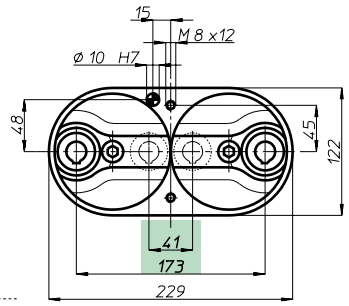
CAPACITA' FORATURA *DRILLING CAPACITY* ø 20

VH

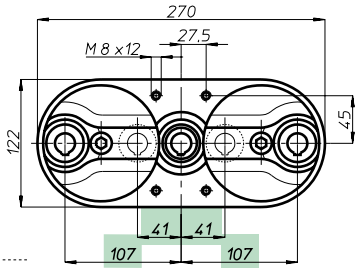
modello 18



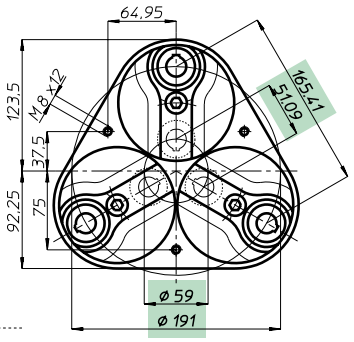
Testa modello *Head type*		VH 182	VH 183 L	VH 183	VH 184
Articolo *Item*		VH 182 P	VH 183L P	VH 183 P	VH 184 P
Attacco utensile *Spindle type*		ER 25 - max ø 16			
Articolo *Item*		VH 182 D	VH 183 LD	VH 183 D	VH 184 D
Attacco utensile *Spindle type*		DIN 55058 - ø 28			
N. mandrini *Spindles nr.*		2	3	3	4
Campo di lavoro *Centre distances*	**min.**	41	41 + 41	ø 59	ø 86
	max.	173	107 + 107	ø 191	ø 218
Capacità foratura *Drilling capacity*		Acciaio Rm 500 N/mm² - **ø 18**			
		Ghisa GG25 - **ø 20**			
Maschiatura *Tapping*		M 14			
Rapporto *Ratio*		1 - 1			
Velocità *RPM*		2.500			
Peso *Weight*	*Kg.*	8,3	10,75	12	15,75



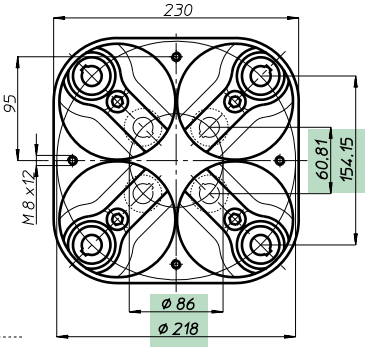
VH 182



VH 183 L



VH 183



VH 184

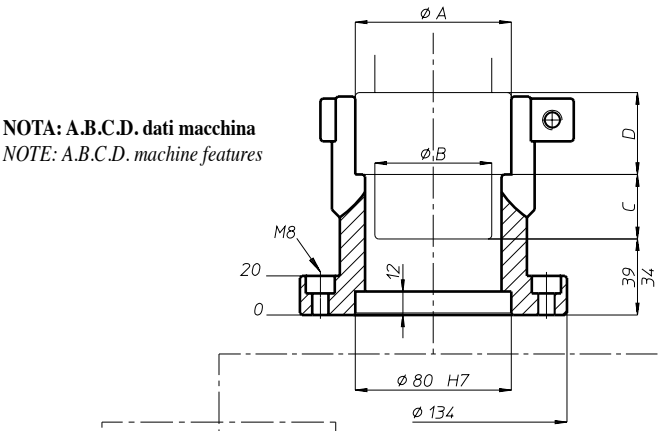
MANICOTTO DI COLLEGAMENTO - *CONNECTION COLLAR*

NOTA: A.B.C.D. dati macchina
NOTE: A.B.C.D. machine features

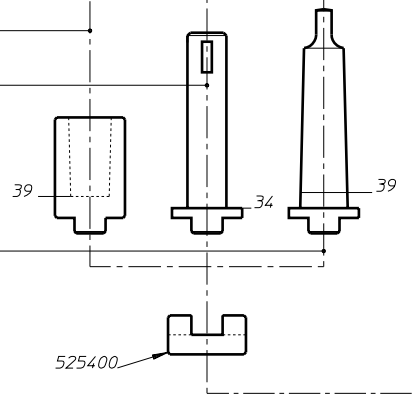
DIN 238	CODICE
B 16	*011279*
B 18	*011280*
B 22	*011281*
B 24	*011282*

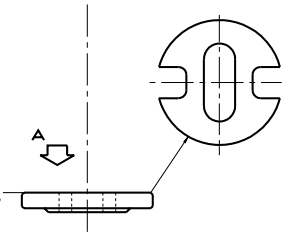
DIN 55058	CODICE
16	*525405*
20	*525406*
28	*525407*
36	*525408*

DIN 228	CODICE
CM 3	*011125*
CM 4	*011130*
CM 5	*011135*



Vista da A
View from A

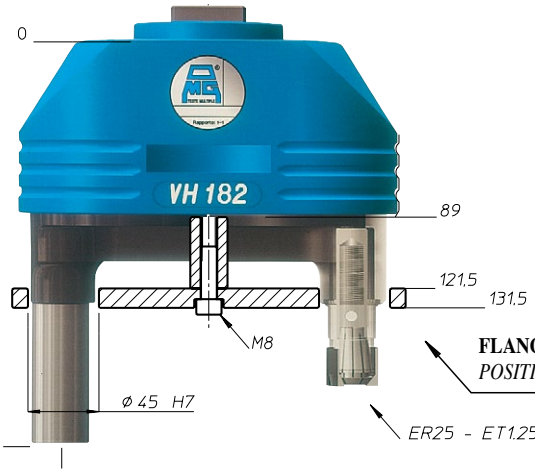




CONO ISO	CODICE
30 - 40	*525402*
50	*525403*

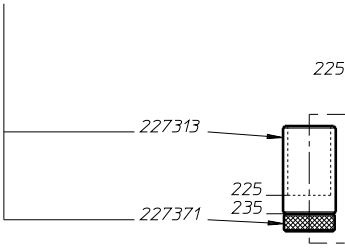
NOTA:
la lunghezza degli accessori, comprensivi di manicotto attacco rapido, aumenta di mm 10.

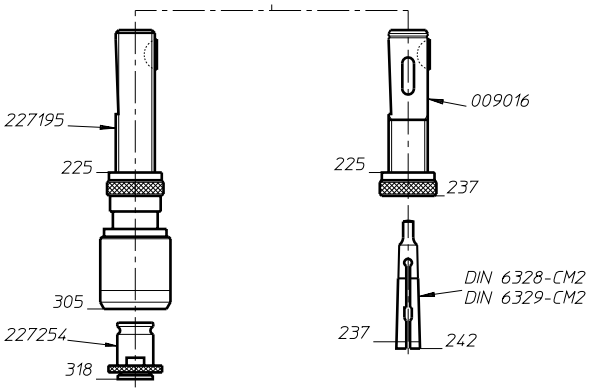
NOTE:
the length of this accessories whit quick connection sleeve increases of mm 10.



FLANGIA DI POSIZIONE
POSITIONING PLATE

ER25 - ET1.25





ACCESSORI PER TESTE MULTIPLE

MULTISPINDLE HEADS ACCESSORIES

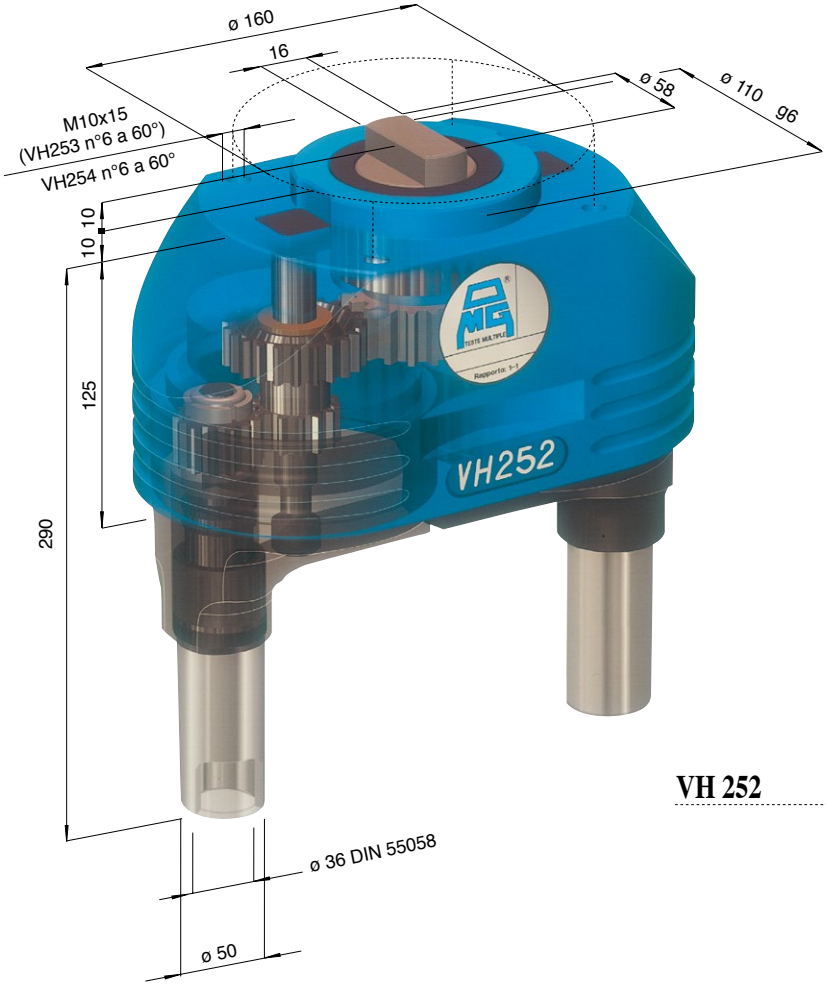
Teste multiple ad assi variabili - Variable axis heads

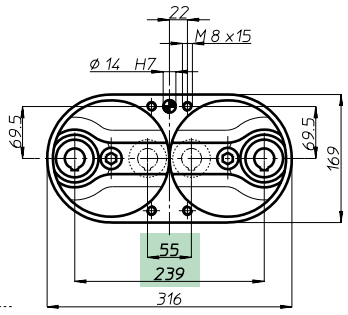
Teste multiple ad assi variabili ○ Variable axis heads

CAPACITA' FORATURA *DRILLING CAPACITY* ø 28

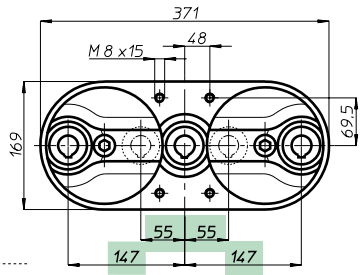
VH

modello 25

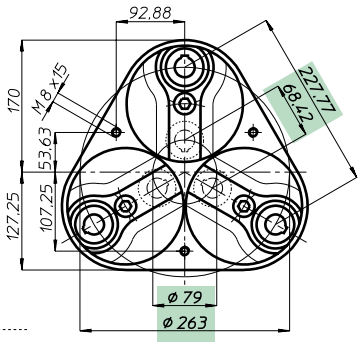




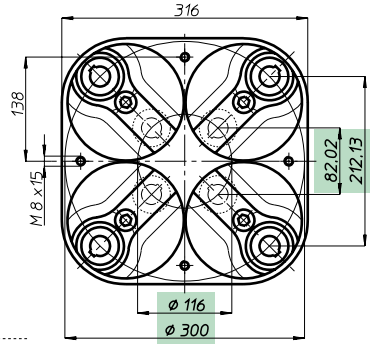
VH 252



VH 253 L



VH 253

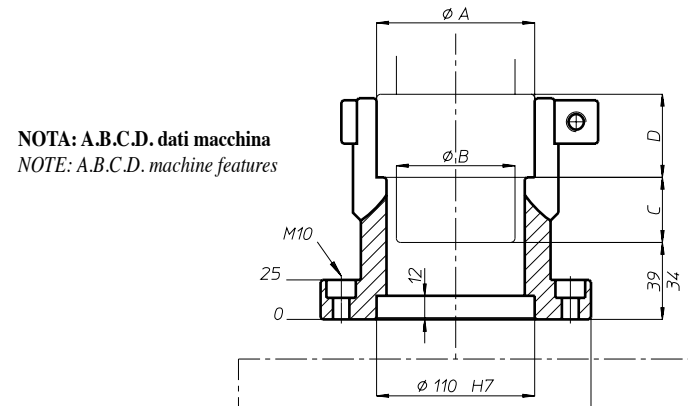


VH 254

Testa modello *Head type*		**VH 252**	**VH 253 L**	**VH 253**	**VH 254**
Articolo *Item*					
Attacco utensile *Spindle type*					
Articolo *Item*		**VH 252 D**	**VH 253 LD**	**VH 253 D**	**VH 254 D**
Attacco utensile *Spindle type*		DIN 55058 - ø 36			
N. mandrini *Spindles nr.*		2	3	3	4
Campo di lavoro *Centre distances*	**min.**	55	55 + 55	ø 79	ø 116
	max.	239	147 + 147	ø 263	ø 300
Capacità foratura *Drilling capacity*		Acciaio Rm 500 N/mm² - **ø 25**			
		Ghisa GG25 - **ø 28**			
Maschiatura *Tapping*		M 20			
Rapporto *Ratio*		1 - 1			
Velocità *RPM*		2.000			
Peso *Weight*	*Kg.*	27	32	39,5	52

MANICOTTO DI COLLEGAMENTO - *CONNECTION COLLAR*

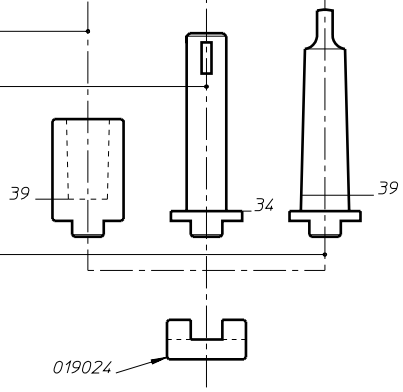
NOTA: A.B.C.D. dati macchina
NOTE: A.B.C.D. machine features



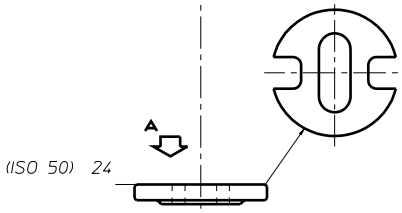
DIN 238	CODICE
B 18	011280
B 22	011281
B 24	011282

DIN 55058	CODICE
16	525405
20	525406
28	525407
36	525408

DIN 228	CODICE
CM 3	011125
CM 4	011130
CM 5	011135



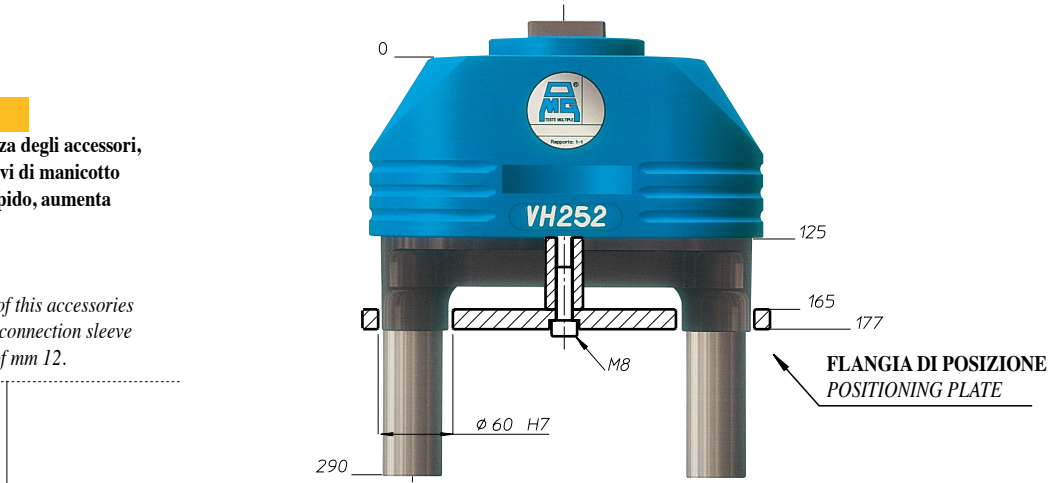
Vista da A
View from A



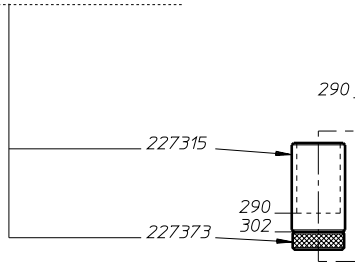
CONO ISO	CODICE
50	525403

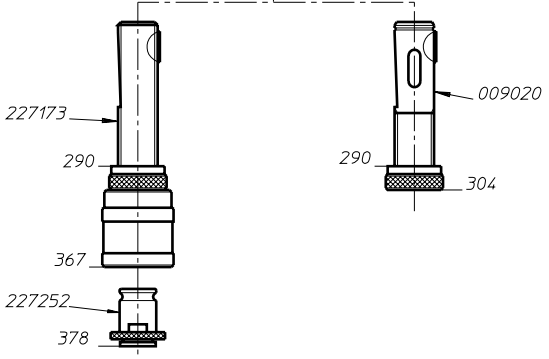
NOTA:
la lunghezza degli accessori, comprensivi di manicotto attacco rapido, aumenta di mm 12.

NOTE:
the length of this accessories whit quick connection sleeve increases of mm 12.



FLANGIA DI POSIZIONE
POSITIONING PLATE





ACCESSORI PER TESTE MULTIPLE

MULTISPINDLE HEADS ACCESSORIES

Teste multiple ad assi variabili ○ Variable axis heads

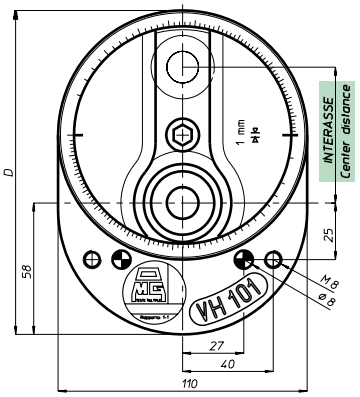
CAPACITA' FORATURA *DRILLING CAPACITY* ø 12

VH

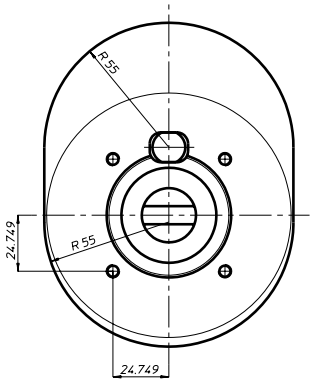
modello 101

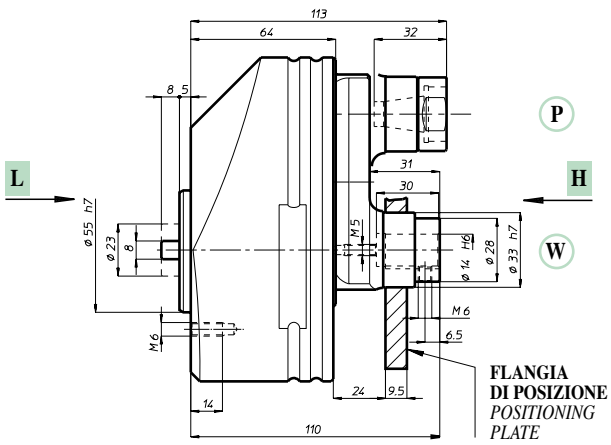
Testa modello *Head type*	**VH 101**	
Articolo *Item*	**VH 101 P**	
Attacco utensile *Spindle type*	ER16 - max ø 10	
Articolo *Item*	**VH 101 W14**	
Attacco utensile *Spindle type*	ø 14	
N. mandrini *Spindles nr.*	1	
Campo di lavoro *Centre distances* **min.**	0	
	max. 60	
D	143	
Capacità foratura	Acciaio Rm 500 N/mm² - **ø 10**	
Drilling capacity	Ghisa GG25 - **ø 12**	
Maschiatura *Tapping*	M 10	
Rapporto *Ratio*	1 - 1	
Velocità *RPM*	3.000	
Peso *Weight* *Kg.*	2,8	

VISTA *VIEW* **H**



VISTA *VIEW* **L**





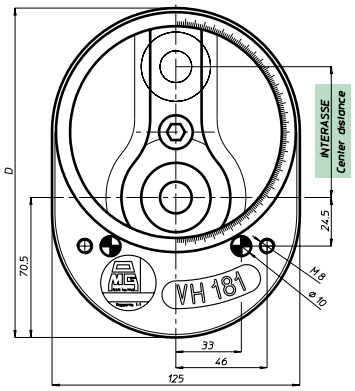
FLANGIA DI POSIZIONE *POSITIONING PLATE*

VH

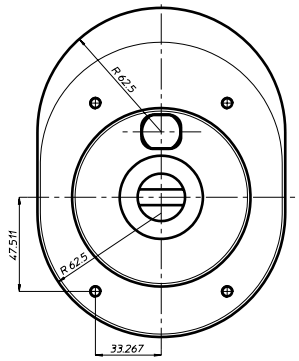
modello 181

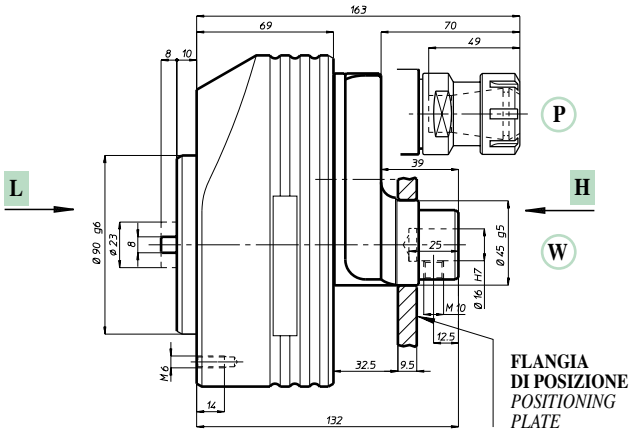
Testa modello *Head type*	**VH 181**	**VH 181-122**
Articolo *Item*	**VH 181 P**	**VH 181-122-P**
Attacco utensile *Spindle type*	ER25 - max ø 16	
Articolo *Item*	**VH 181 W16**	**VH 181-122-W16**
Attacco utensile *Spindle type*	ø 16	
N. mandrini *Spindles nr.*	1	1
Campo di lavoro min.	0	56
Centre distances **max.**	66	122
D	166	222
Capacità foratura	Acciaio Rm 500 N/mm² - **ø 18**	
Drilling capacity	Ghisa GG25 - **ø 20**	
Maschiatura *Tapping*	M 14	
Rapporto *Ratio*	1 - 1	
Velocità *RPM*	2.500	
Peso *Weight* *Kg.*	4,1	6,4

VISTA *VIEW* **H**



VISTA *VIEW* **L**

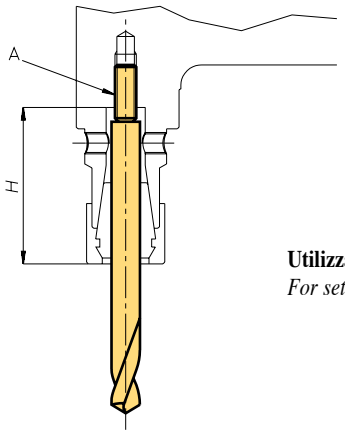




FLANGIA DI POSIZIONE *POSITIONING PLATE*

Teste multiple ad assi variabili • Variable axis heads

FORATURA CON PINZE ER
DRILLING WITH ER COLLETS

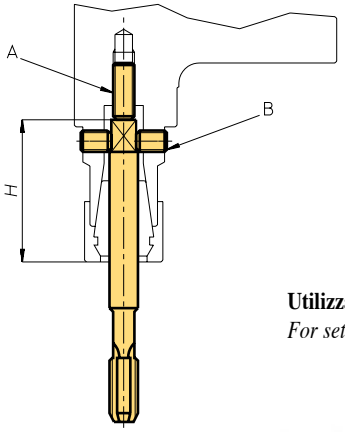


Testa *Head*	VH 04	VH 06	VH 08	VH 10	VH 13	VH 18
H max	23	27	44	44	52	49

NOTA: nella testa VH04 e VH06 la vite A non è presente
NOTE: in the head VH04 and VH06 there isn't the screw A

Utilizzare la vite A sinistra per registrare l'altezza utensile
For setting the tool lenght, use the left screw A

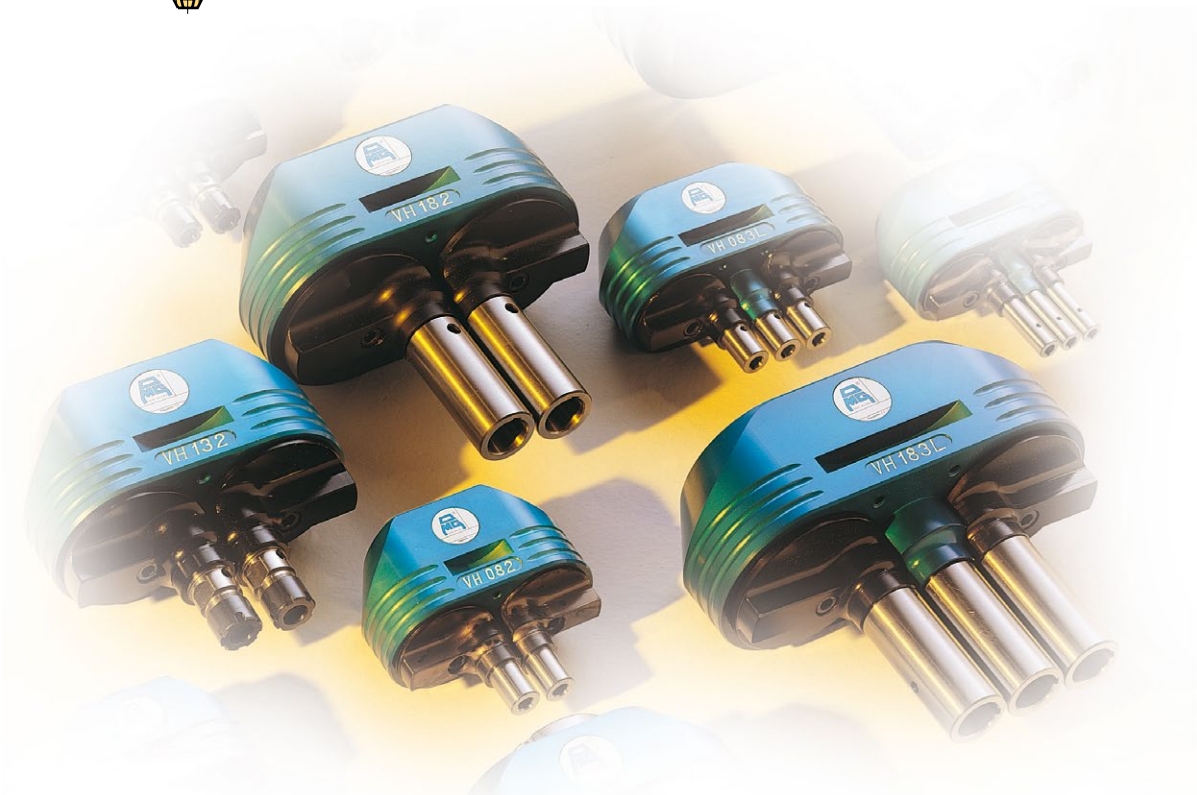
MASCHIATURA CON PINZE ER
TAPPING WITH ER COLLETS



Testa *Head*	VH 04	VH 06	VH 08	VH 10	VH 13	VH 18
H max	23	27	38	38	44	49

NOTA: nella testa VH04 e VH06 la vite A non è presente
NOTE: in the head VH04 and VH06 there isn't the screw A

Utilizzare la vite A per registrare l'altezza utensile e le viti B per bloccare il quadro del maschio
For setting the tool lenght, use the screw A; locking the tap square with the screws B



esecuzioni speciali

VH 042 LP	n° 2 mandrini a pinza, min. 24 max. 84	*2 spindles for spring collets min. 24 max. 84*
VH 042P R. 1-2	n° 2 mandrini a pinza, min. 12 max. 72 rapp. 1-2	*2 spindles for spring collets min. 12 max. 72 ratio 1-2*
VH 062 LP	n° 2 mandrini a pinza, min. 35 max. 111	*2 spindles for spring collets min. 35 max. 111*
VH 062 LD	n° 2 mandrini DIN 55058-8 min. 35 max. 111	*2 spindles DIN 55058-8 min. 35 max. 111*
VH 062/1	n° 1 mandrino a pinza, min. 8,5 max. 46,5	*1 spindle for spring collets min. 8,5 max. 46,5*
VH 062P R.1-2	n° 2 mandrini a pinza min. 17 max. 93 rapp. 1-2, 067	*2 spindles for spring collets min. 17 max. 93 ratio 1-2,067*
VH 062P CNC40	n° 2 mandrini a pinza min. 17 max. 93 completa di cono ISO 40	*2 spindles for spring collets min. 17 max. 93 with shank ISO 40*
VH 063P CNC40	n° 3 mandrini a 120° a pinza min. 27 max. 103 completa di cono ISO 40	*3 spindles at 120° for spring collets min. 27 max. 103 with shank ISO 40*
VH 064P CNC40	n° 4 mandrini a 90° a pinza min. 41 max. 117 completa di cono ISO 40	*4 spindles at 90° for spring collets min. 41 max. 117 with shank ISO 40*
VH 064/3P	n° 3 mandrini a pinza min. 41 max. 117	*3 spindles for spring collets min. 41 max. 117*
VH 081 P	n° 1 mandrino a pinza min. 0 max. 42	*1 spindle for spring collets min. 0 max. 42*
VH 082 LP	n° 2 mandrini a pinza min. 48 max. 132	*2 spindles for spring collets min. 48 max. 132*
VH 082 LD	n° 2 mandrini DIN 55058 - 10 min. 48 max. 132	*2 spindles DIN 55058 - 10 min. 48 max. 132*
VH 082 P R. 1-2	n° 2 mandrini a pinza min. 24 max. 108 rapp. 1-2	*2 spindles for spring collets min. 24 max. 108 ratio 1-2*
VH 082P CNC 40	n° 2 mandrini a pinza min. 24 max. 108 completa di cono ISO 40	*2 spindles for spring collets min. 24 max. 108 with shank ISO 40*
VH 082PFM	n° 2 mandrini a pinza min. 24 max. 108 fora/maschia	*2 spindles for spring collets min. 24 max. 108 drilling and tapping*
VH 083 LP CNC40	n° 3 mandrini in linea a pinza min. 24+24 max. 66+66 completa di cono ISO 40	*3 spindles on line for spring collets min. 24+24 max. 66+66 with shank ISO 40*
VH 084P CNC 40	n° 4 mandrini a pinza min. 53,5 max. 137,5 completa di cono ISO 40	*4 spindles for spring collets min. 53,5 max. 137,5 with shank ISO 40*
VH 084/3P	n° 3 mandrini a pinza min. 53,5 max. 137,5	*3 spindles for spring collets min. 53,5 max. 137,5*
VH 102 LP	n° 2 mandrini a pinza min. 56 max. 148	*2 spindles for spring collets min. 56 max. 148*
VH 102 LD	n° 2 mandrini DIN 55058-12 min. 56 max. 148	*2 spindles DIN 55058-12 min. 56 max. 148*
VH 102 P CNC 40	n° 2 mandrini a pinza min. 28 max. 120 completa di cono ISO 40	*2 spindles for spring collets min. 28 max. 120 with shank ISO 40*
VH 102P R. 1-2	n° 2 mandrini a pinza min. 28 max. 120 rapporto 1-2	*2 spindles for spring collets min. 28 max. 120 ratio 1-2*
VH 102 PFM	n° 2 mandrini a pinza min. 28 max. 120 fora/maschia	*2 spindles for spring collets min. 28 max. 120 drilling and tapping*
VH 102-220 P	n° 2 mandrini a pinza min. 128 max. 220	*2 spindles for spring collets min. 128 max. 220*
VH 102-300 P	n° 2 mandrini a pinza min. 208 max. 300	*2 spindles for spring collets min. 208 max. 300*
VH 104D R.1-2	n° 4 mandrini a 90° DIN 55058-12 min. 60 max. 152 rapp. 1-2	*4 spindles at 90° DIN 55058-12 min. 60 max. 152 ratio 1-2*
VH 104P CNC50	n° 4 mandrini a 90° a pinza min. 60 max. 152 completa di cono ISO 50	*4 spindles at 90° for spring collets min. 60 max. 152 with shank ISO 50*
VH 132 LP	n° 2 mandrini a pinza min. 70 max. 186	*2 spindles for spring collets min. 70 max. 186*
VH 132 LD	n° 2 mandrini DIN 55058-16 min. 70 max. 186	*2 spindles DIN55058-16 min. 70 max. 186*
VH 132D CNC50	n° 2 mandrini DIN 55058-16 min. 35 max. 151 completa di cono ISO 50	*2 spindles DIN55058-16 min. 35 max. 151 with shank ISO 50*
VH 132P CNC50	n° 2 mandrini a pinza min. 35 max. 151 completa di cono ISO 50	*2 spindles for spring collets min. 35 max. 151 with shank ISO 50*
VH 132 W12	n° 2 mandrini foro cilindrico diam. 12 min. 35 max. 151	*2 spindles diam. 12 min. 35 max. 151*
VH 132-260 D	n° 2 mandrini DIN 55058-16 min. 144 max. 260	*2 spindles DIN 55058-16 min. 144 max. 260*
VH 134P CNC50	n° 4 mandrini a 90° a pinza, min. 75 max. 191 completa di cono ISO 50	*4 spindles at 90° for spring collets,min. 75 max. 191 with shank ISO 50*
VH 181 R 1-2	n° 1 mandrino diam. 16 min. 16,5 max. 82,5 rapp. 1-2	*1 spindle diam. 16, min. 16,5 max. 82,5 ratio 1-2*
VH 182 LP	n° 2 mandrini a pinza, min. 82 max. 214	*2 spindles for spring collets, min. 82 max. 214*
VH 182 LD	n° 2 mandrini DIN 55058-28 min. 82 max. 214	*2 spindles DIN 55058-28 min. 82 max. 214*
VH 182 W16	n° 2 mandrini foro cilindrico diam. 16 min. 41 max. 173	*2 spindles diam 16, min. 41 max. 173*
VH 182 P CNC 50	n° 2 mandrini a pinza, min. 41 max. 173 completa di cono ISO 50	*2 spindles for spring collets, min. 41 max. 173 with shank ISO 50*
VH 182 P R.1-2	n° 2 mandrini a pinza, min. 41 max. 173 173 rapp. 1-2	*2 spindles for spring collets, min. 41 max. 173 ratio 1-2*
VH 182D R. 1-2	n° 2 mandrini DIN 55058-28 min. 41 max. 173 rapp. 1-2	*2 spindles DIN 55058-28, min. 41 max. 173 ratio 1-2*
VH 183 L W16	n° 3 mandrini foro cilindrico diam. 16 min. 41+41 max. 107+107	*3 spindles diam.16 min. 41+41 max. 107+107*
VH 252 LD	n° 2 mandrini DIN 55058-36 min. 110 max. 294	*2 spindles DIN 55058-36, min. 110 max. 294*

Teste multiple ad assi variabili • Variable axis heads

galleria fotografica

photo gallery

Teste multiple ad assi variabili • Variable axis heads

TSI TSX

teste di fresatura
twin spindle milling heads

Le teste multiple ad asii variabili serie **TSI-TSX** progettate a due mandrini paralleli o convergenti, sono adatte in lavorazioni di fresatura ed in particolare per la smussatura dei denti di ingranaggi. Durante lo studio di queste teste, la nostra attenzione si e' concenmtrata sulla disposizione dei cuscinetti del mandrino, poiche' nella smussatura di ingranaggi si utilizzano anche utensili in metalllo duro ed il tutto deve sopportare un elevato numero di urti. Ne e' derivata una costruzione solida, compatta, affidabile e di aspetto gradevole.

Varie sono le caratteristiche tecniche delle teste multiple ad asii variabili serie **TSI-TSX** e sintetizzandone solamente alcune possiamo dire che: il corpo e' in lega di alluminio, i supporti mandrino in ghisa e la loro regolazione avviene con un'unica azione dell' operatore, i mandrini possono ruotare concordi o discordi e la lubrificazione della testa e' a grasso. La loro realizzazione si e' resa possibile in virtu' dell'esperienza acquisita nella costruzione di teste multiple, della conoscenza dei processi produttivi e dalla capacita' di saper proporre, per ogni particolare esigenza, prodotti qualificati.

*The adjustable multispindle heads **TSI and TSX** series with two parallel or convergent spindles are suitable to mill and to chamfering the gear teeth. Special care has been taken with the spindles bearing layout, because the hard metal tools are also used for chamferering and the entire machine has to withstand many knocks and bumps. The result is a solid, compact, reliable unit taht also has an appening look.*

*The adjustable multispindle heads **TSI and TSX** series have many different features among which: an aliminium body, cast iron spindle support, simply and easy adjusted by the operator. The spindles may turn in the same direction or in apposite direction and the adjustment of both spindles is achieved thanks to a single act. The tool connection may be cylindric or with spring collets. The lubrication is by long life grease. The production of our twin adjustable multispindle head was made possible thanks to the experience acquired in the construction of multispindle heads, our knowledge of production process and our ability to kow how to cater for individual requirements with qualified products.*

TSI 1646 7-2
TSI 1681 7-2
TSI 16180 7-3
TSI 16210 7-3
TSX 13C 7-4
TSX 13D 7-4
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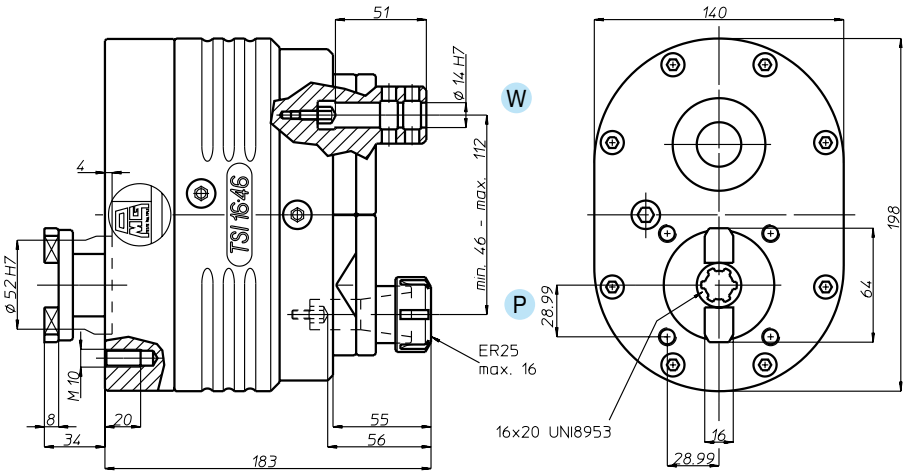
testa di fresatura - *twin spindle milling head*

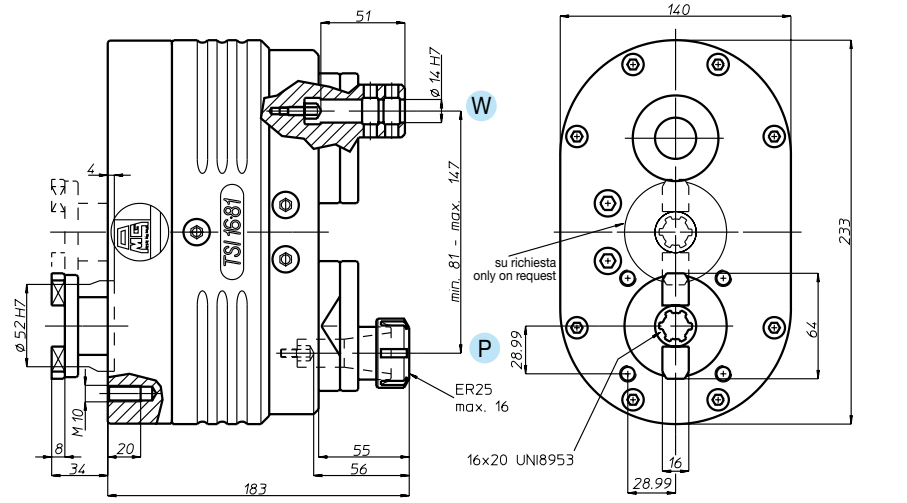
TSI 1646



	TSI 16-46C-P TSI 16-46C-W	TSI 16-46D-P TSI 16-46D-W
rotazione mandrini *spindle rotation*	↷ ↷	↷ ↶
rapporto *ratio*	1-2	1-2
giri max *rpm*	3.000	3.000
peso *weight*	12 kg	12 kg

testa di fresatura - *twin spindle milling head*

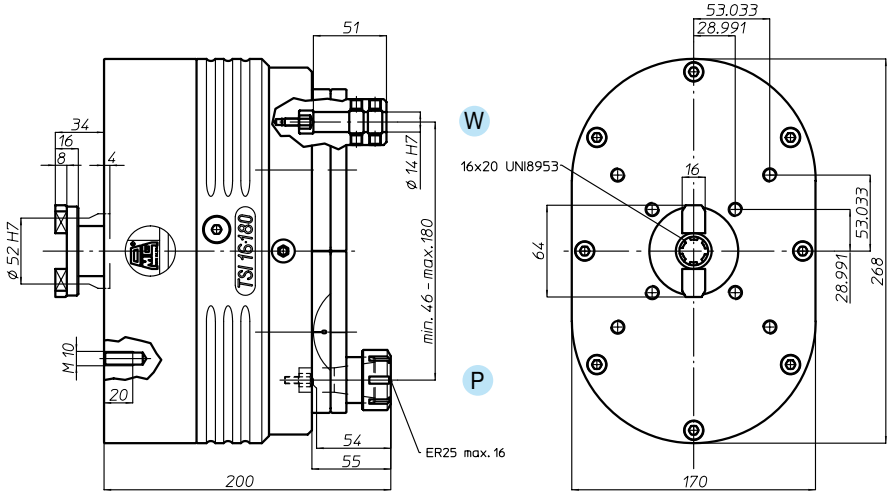
TSI 1681



	TSI 16-81C-P TSI 16-81C-W	TSI 16-81D-P TSI 16-81D-W
rotazione mandrini *spindle rotation*	↷ ↷	↷ ↶
rapporto *ratio*	1-2	1-2
giri max *rpm*	3.000	3.000
peso *weight*	13,5 kg	13,5 kg

testa di fresatura - *twin spindle milling head*

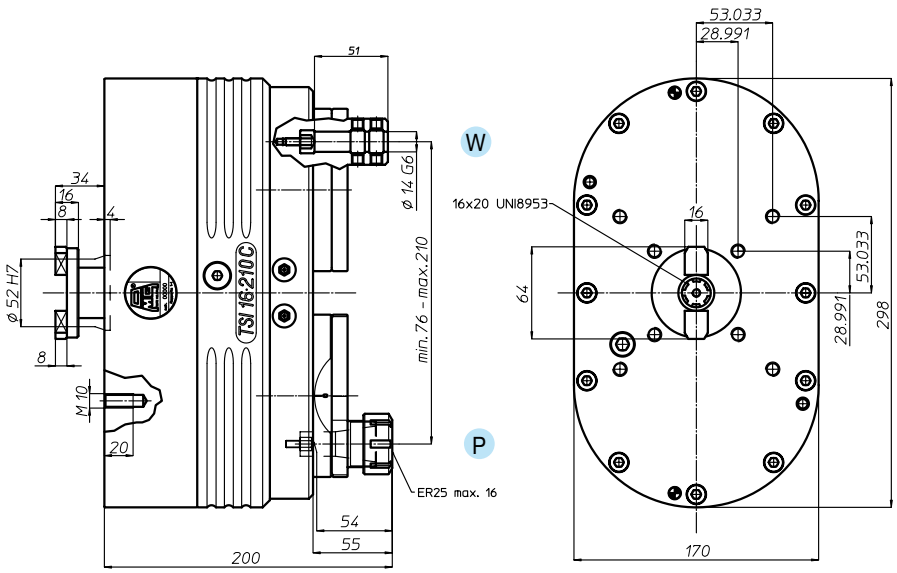
TSI 16180



	TSI 16-180C-P TSI 16-180C-W	TSI 16-180D-P TSI 16-180D-W
rotazione mandrini *spindle rotation*		
rapporto *ratio*	1-1	1-1
giri max *rpm*	3.000	3.000
peso *weight*	22,5 kg	22,5 kg

testa di fresatura - *twin spindle milling head*

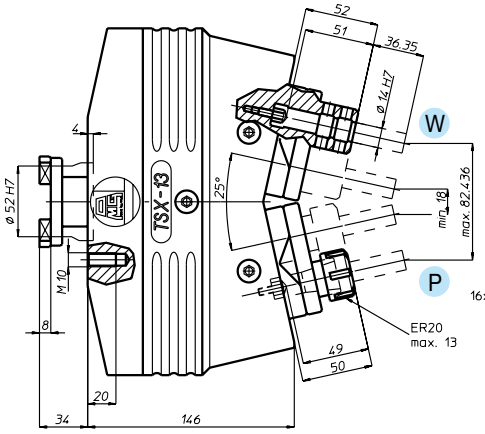
TSI 16210

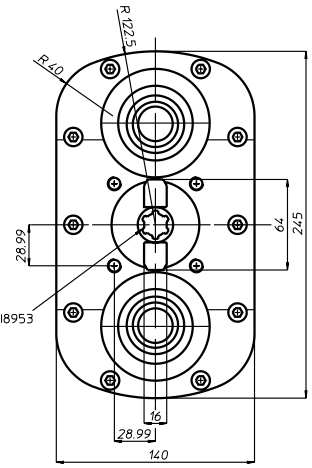


	TSI 16-210C-P TSI 16-210C-W	TSI 16-210D-P TSI 16-210D-W
rotazione mandrini *spindle rotation*		
rapporto *ratio*	1-1	1-1
giri max *rpm*	3.000	3.000
peso *weight*	22,5 kg	22,5 kg

testa di fresatura - *twin spindle milling head*

TSX 13C

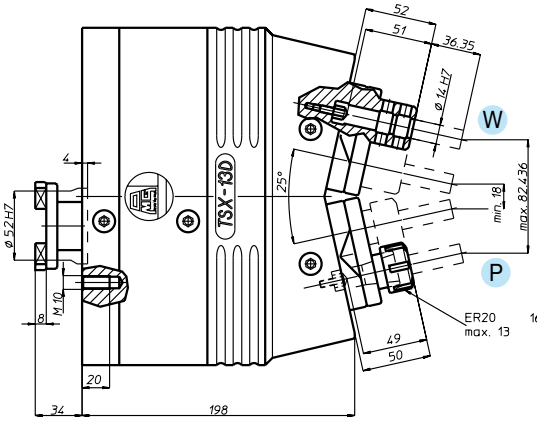


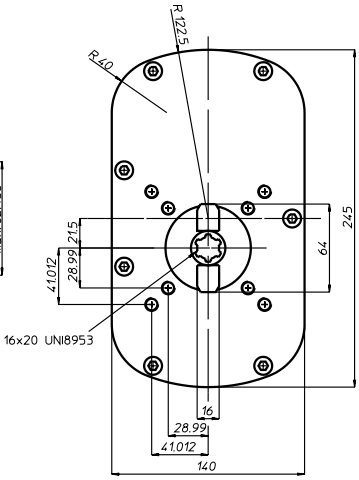


	TSX 13C-P TSX 13C-W
rotazione mandrini *spindle rotation*	
rapporto *ratio*	1-1
giri max *rpm*	3.000
peso *weight*	15,5 kg

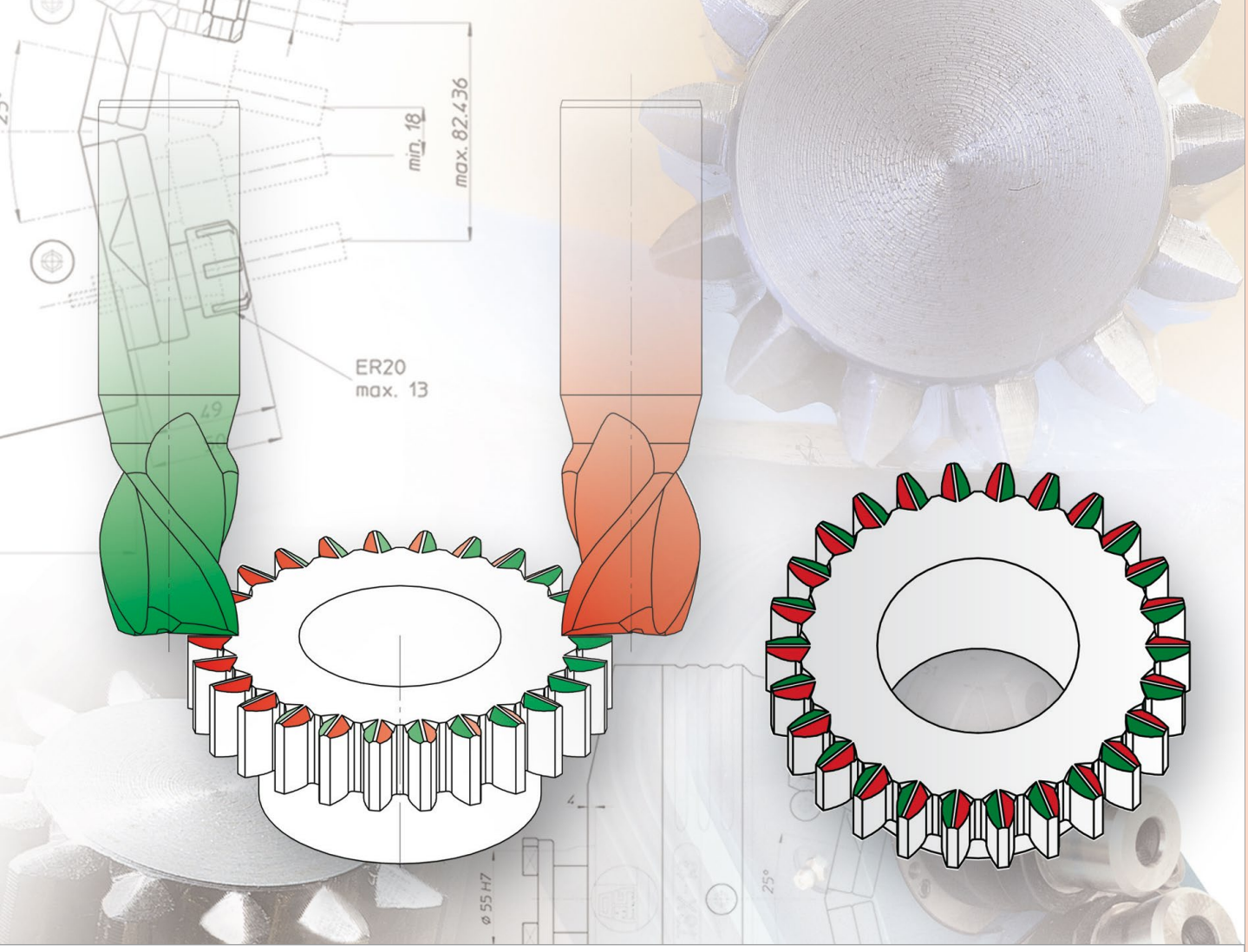
testa di fresatura - *twin spindle milling head*

TSX 13D





	TSX 13D-P TSX 13D-W
rotazione mandrini *spindle rotation*	
rapporto *ratio*	1-1
giri max *rpm*	3.000
peso *weight*	21 kg



esecuzioni speciali - *special executions*

TFS 23801
Testa di spuntatura con angolo di 34°
Fixed twin-spindle milling head with 34° from the axis

TS 31588
Testa di spuntatura ad assi variabili, interasse min. 55 max 205,24
Adjustable twin multispindle milling head, centre distance min. 55 max 205,24

TFS 20205
Testa di spuntatura ad assi sghembi, angolo di 25°
Fixed twin-spindle milling head with skew axis at 25°

TFS 14005
Testa di spuntatura ad assi fissi e paralleli, distanza mm 40
Fixed twin-spindle milling head, axis distance mm 40

serie T

teste multiple a giunti universali
adjustable joint multispindle heads

Le teste multiple a giunti universali sono in produzione dal 1961; nel corso degli anni hanno subito modifiche e aggiornamenti, confermando però la validità dell'idea e lasciando inalterate le caratteristiche salienti:

- possibilità di utilizzo sia in foratura che in maschiatura
- possibilità di posizionamento nello spazio dei gruppi mandrino, vincolato soltanto dalle dimensioni dello stesso e dall'area di lavoro
- adattabilità a tutti i tipi di trapani o a soluzioni speciali
- vantaggiose soprattutto quando è necessario modificare di frequente gli interassi dei fori
- ampia gamma di modelli per le diverse esigenze

Sono disponibili a magazzino le seguenti versioni:

- serie T-TS a base circolare per l'esecuzione di massimo 12 fori; massima capacità di foratura diam. mm 22, interasse minimo mm 15 e massimo mm 350
- serie TL a base lineare per l'esecuzione di massimo 12 fori; massima capacità di foratura diam. mm 22, interasse minimo mm 17 e massimo mm 610
- serie TR a base rettangolare per l'esecuzione di massimo 16 fori; massima capacità di foratura diam. mm 22, interasse minimo mm 32 e massimo mm 395x345
- serie TM-TRM a base circolare e rettangolare per l'esecuzione di massimo 26 fori; grazie alle loro caratteristiche tecniche possono eseguire i più diversi schemi di foratura e maschiatura su macchine con potenza adeguata.

Il catalogo è congegnato per avere un preciso riscontro delle caratteristiche di tutte le teste a giunti universali e delle varie soluzioni possibili con esse; le nuove schede tecniche, gli esempi di attrezzature, gli accessori e le tabelle Vi guideranno nella scelta opportuna.
Qualora il Vs. lavoro non sia eseguibile con questa serie di teste, il Ns. ufficio tecnico Vi fornirà la soluzione alternativa con la serie VH ad interassi variabili o con teste ad assi fissi appositamente disegnate e costruite.

The universal joint multispindle heads have been in production since 1961; over the years they have been modified and updated, without however refuting the goodness of the idea and always leaving major features unaltered:

- *possibility of using for both drilling and tapping*
- *possibility of multi-positioning the spindle units, restricted only by the size of the spindle and of the working area*
- *suitable for all types of drills or for special solutions*
- *especially useful when the need arises to frequently change the hole centre distances*
- *broad range of models for different requirements*

The following versions are in stock:

- *series T-TS with round base for making up to 12 holes; max drilling capacity dia. 22 mm, minimum centre distance 15 mm, max centre distance 350 mm*
- *series TL with linear base for making up to 12 holes; max drilling capacity dia. 22 mm, minimum centre distance 17 mm, max centre distance 610 mm*
- *series TR with rectangular base for making up to 16 holes; max drilling capacity dia. 22 mm, minimum centre distance 32 mm, max centre distance 395x345 mm*
- *series TM-TRM with round and rectangular base for making up to 26 holes; thanks to their technical features, they are able to execute a series of different drilling and tapping patterns on machines of adequate power.*

The catalogue is compiled so as to provide a precise reference for all the adjustable joint heads and the various possible solutions these offer. Thanks to the new technical sheets, equipment examples, accessories and charts, you will find making the right choice much easier.
In the event of this series of heads not providing the solution for your job, our technical department can provide alternative solutions with the variable centre distance VH series or fixed-axis heads, specially designed and made for you.

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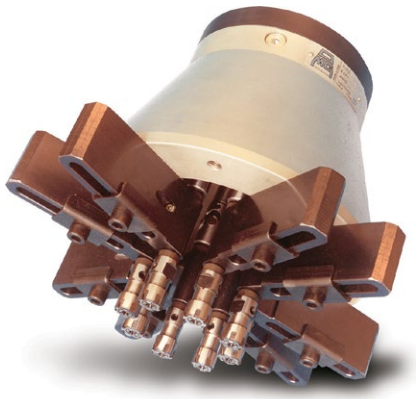
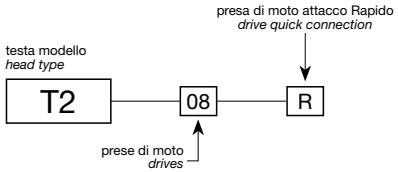
testa multipla a giunti universali - *adjustable joint multispindle head*

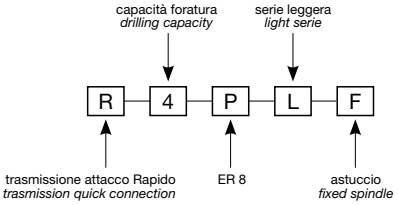


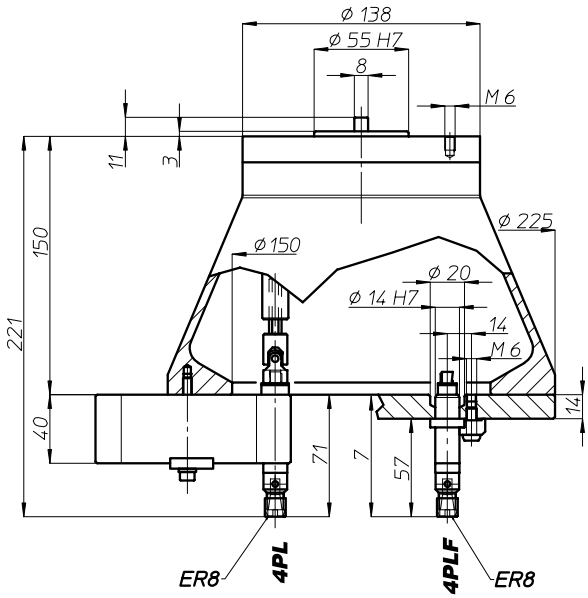
T2

Codice testa *Head code*	Codice mandrino *Spindle code*

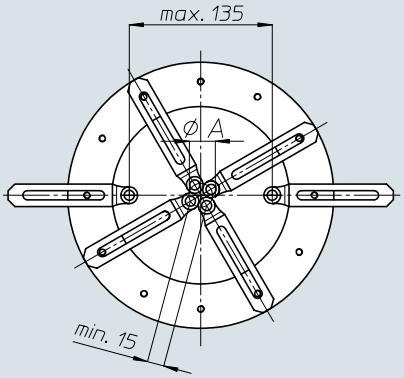
	N° prese di moto *Nr. spindle drives*	08
	Rapporto *Ratio*	1-1
	Capacità di foratura *Drilling capacity*	4
	Maschiatura *Tapping*	M4
	Attacco utensile *Type of spindle*	ER8
	Peso gruppo testa *Head weight*	Kg 3,25
	Peso gruppo mandrino *Spindle-set weight*	Kg 0,3



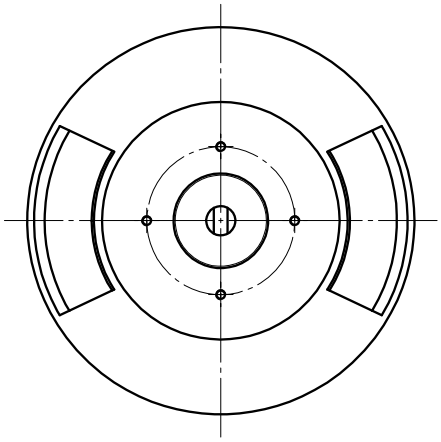




area di lavoro *working area*

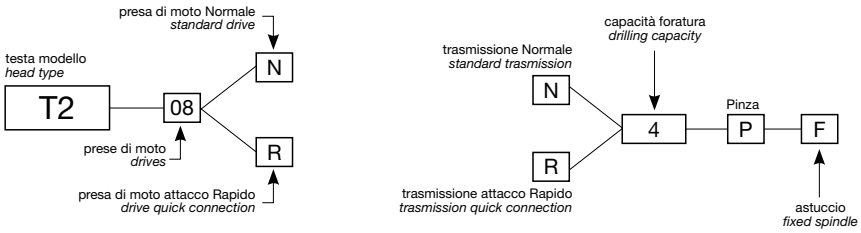


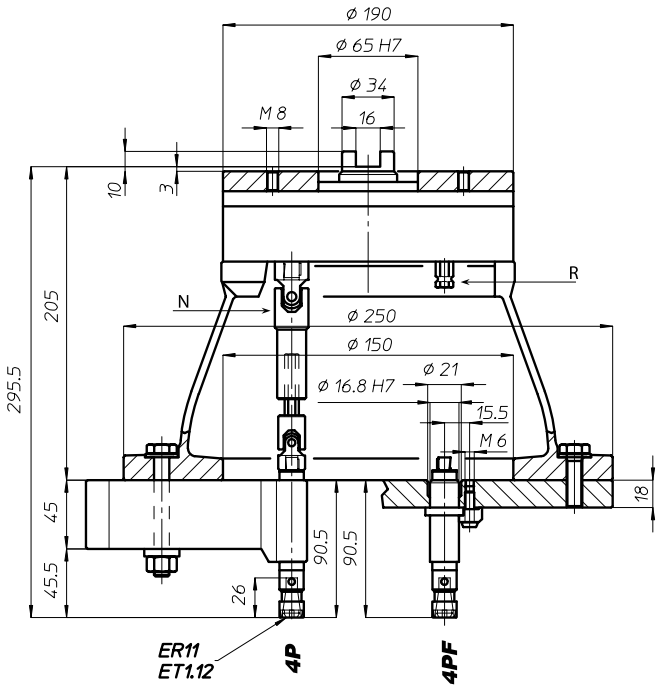
ø A	n° mandrini *n° spindles*
15	2
17,5	3
21,5	4
26	5
30	6
35	7
39,5	8

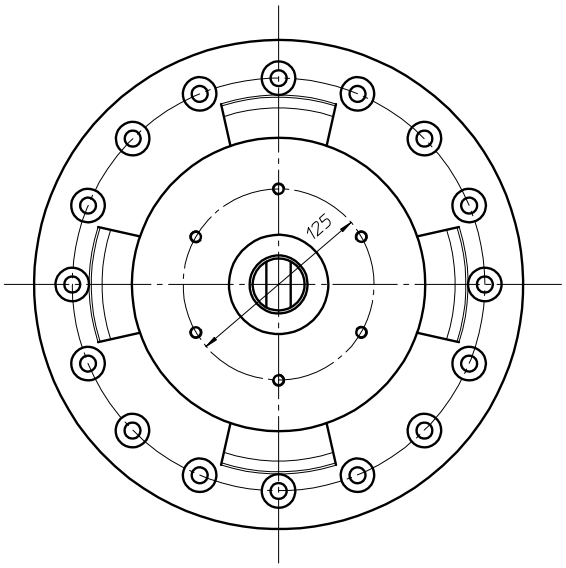


T4

Codice testa *Head code*	Codice mandrino *Spindle code*

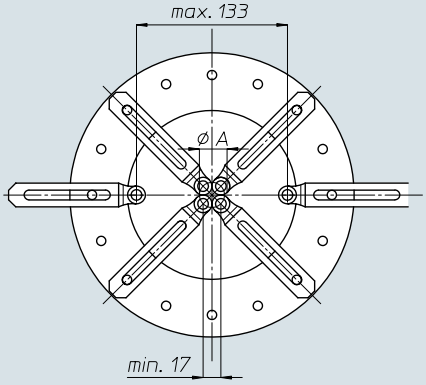






	N° prese di moto *Nr. spindle drives*	08-12
	Rapporto *Ratio*	1-1
	Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 4 5
	Maschiatura *Tapping*	M4
	Attacco utensile *Type of spindle* P	 ER11
	Peso gruppo testa *Head weight*	Kg 9,5
	Peso gruppo mandrino *Spindle-set weight*	Kg 1

area di lavoro
working area

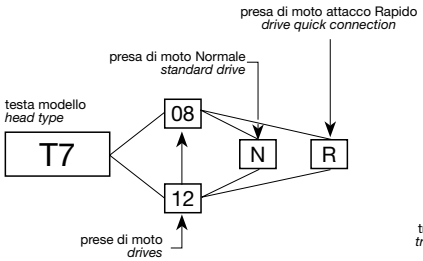


ø A	n° mandrini *n° spindles*
20	3
24,5	4
29,5	5
34,5	6
39,5	7
45	8

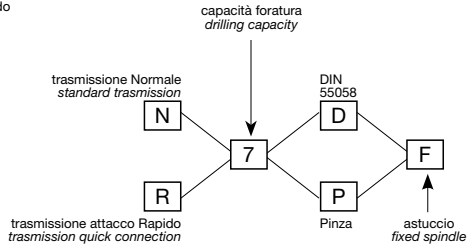
T7

N° prese di moto *Nr. spindle drives*	08-12
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 6 7
Maschiatura *Tapping*	M5
Attacco utensile *Type of spindle* D P	 DIN 55058 Ø10 ER11
Peso gruppo testa *Head weight*	Kg 10
Peso gruppo mandrino *Spindle-set weight*	Kg 1,1

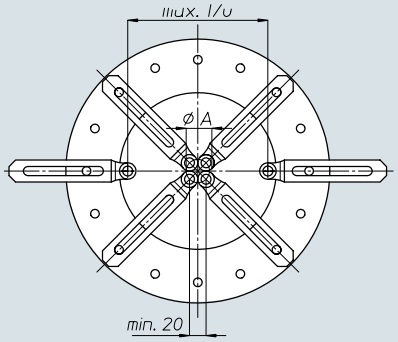
Codice testa
Head code



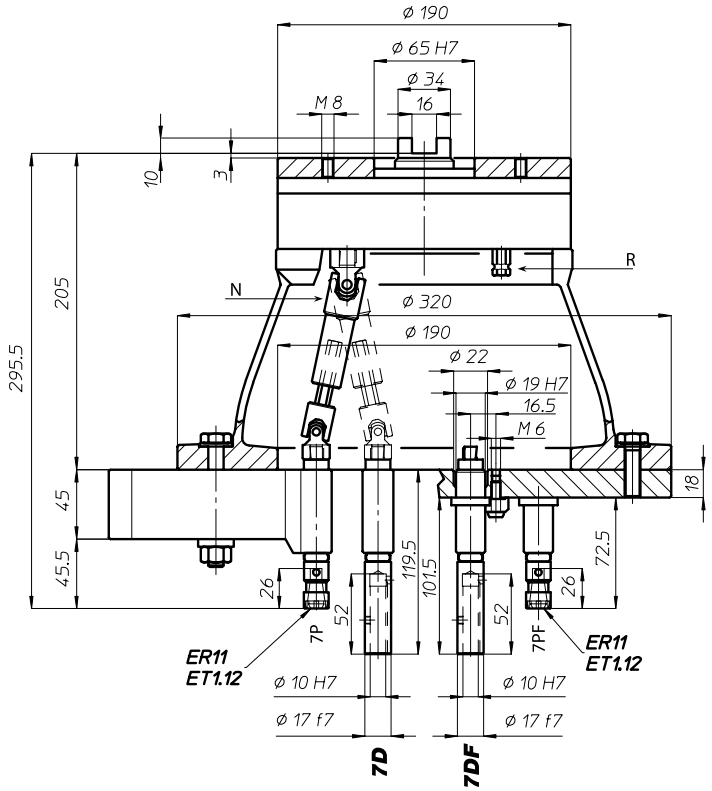
Codice mandrino
Spindle code

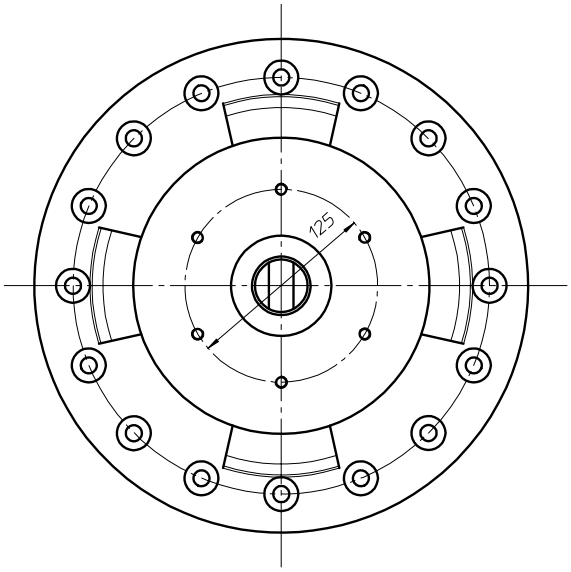


area di lavoro
working area



ø A	n° mandrini *n° spindles*
23,5	3
28,5	4
34,5	5
40,5	6
46,5	7
52,5	8
59	9
65,5	10
71,5	11
77,5	12

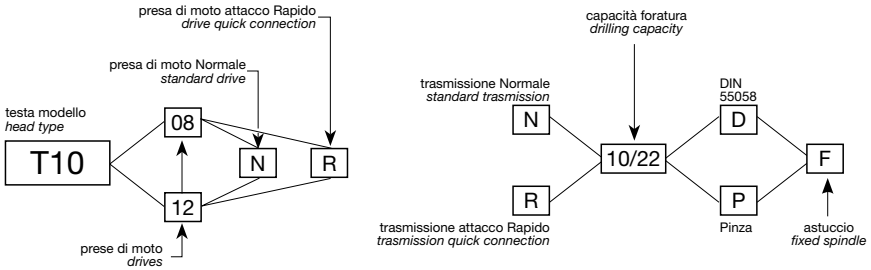


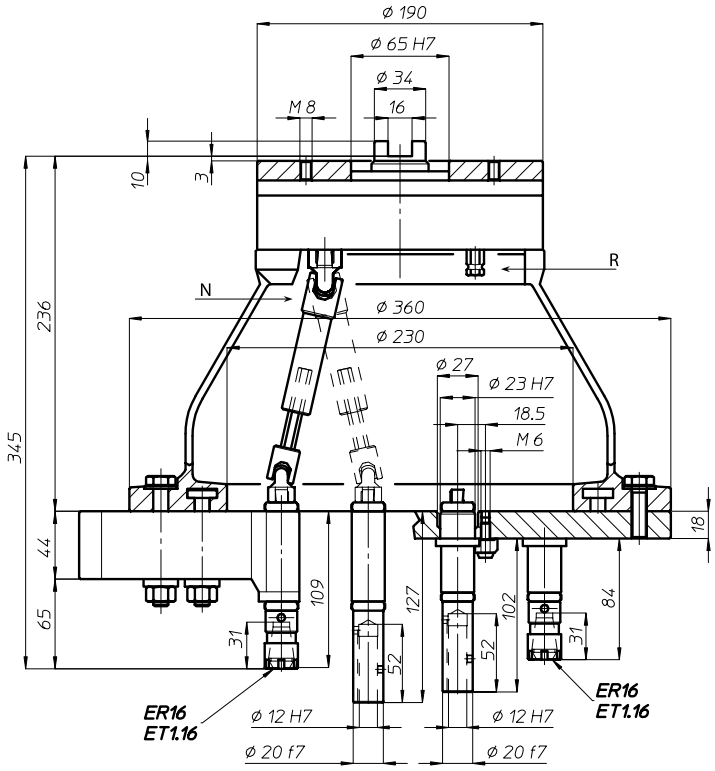


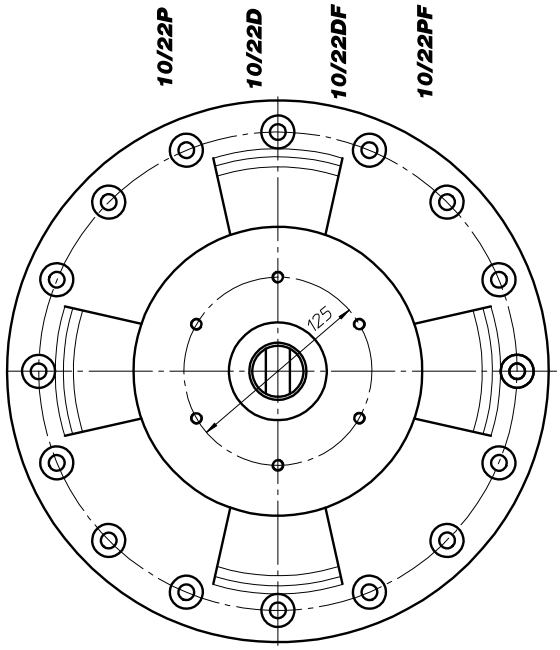
T10

Codice testa
Head code

Codice mandrino
Spindle code

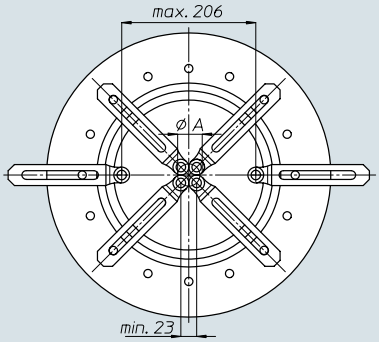






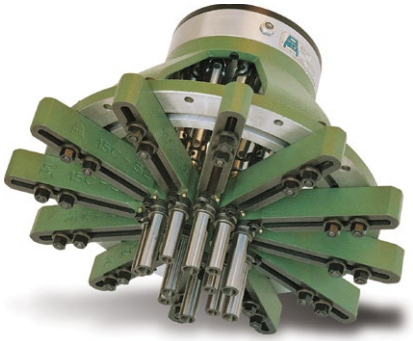
N° prese di moto *Nr. spindle drives*	08-12
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 8 10
Maschiatura *Tapping*	M6
Attacco utensile *Type of spindle* D P	 DIN 55058 Ø12 ER16
Peso gruppo testa *Head weight*	Kg 12
Peso gruppo mandrino *Spindle-set weight*	Kg 1,5

area di lavoro
working area

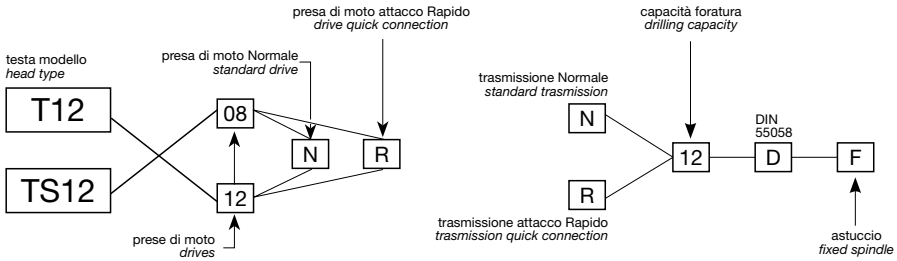


ø A	n° mandrini *n° spindles*
27	3
33	4
39,5	5
46,5	6
53,5	7
60,5	8
67,5	9
75	10
82	11
89,5	12

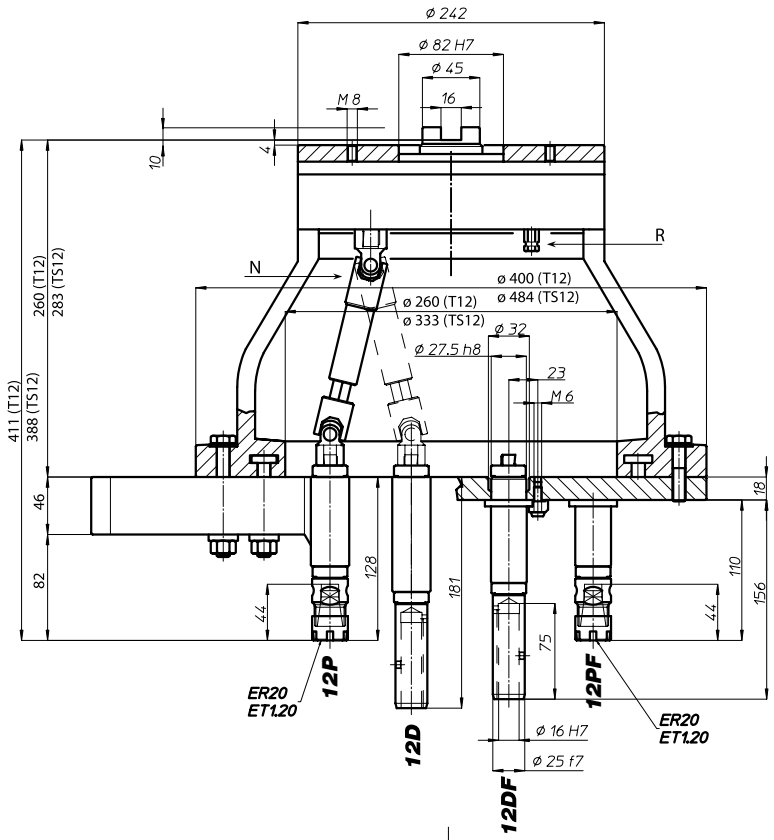
T12-TS12



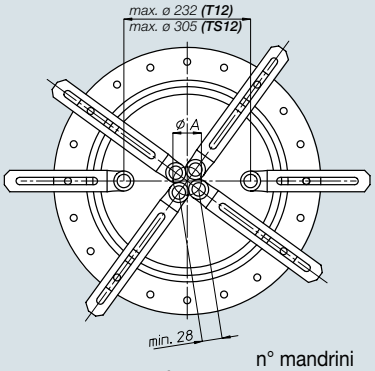
Codice testa *Head code*	
Codice mandrino *Spindle code*	



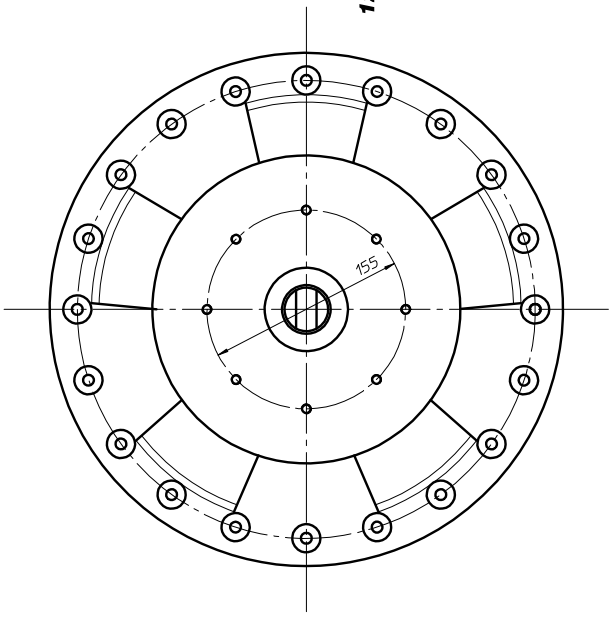
N° prese di moto *Nr. spindle drives*	08-12
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 10 12
Maschiatura *Tapping*	M8
Attacco utensile *Type of spindle* D P	 DIN 55058 Ø16 ER20
Peso gruppo testa *Head weight*	T12: Kg 20 TS12: Kg 22,5
Peso gruppo mandrino *Spindle-set weight*	Kg 2



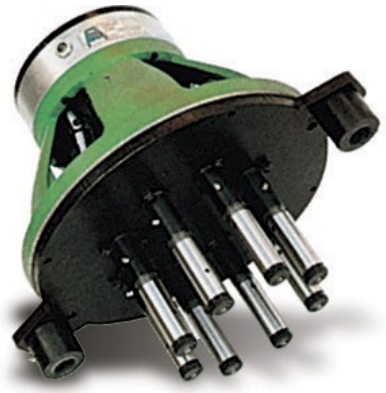
area di lavoro
working area



ø A	n° mandrini *n° spindles*
33	3
40	4
48	5
56,5	6
65	7
74	8
82,5	9
91	10
100	11
108,5	12

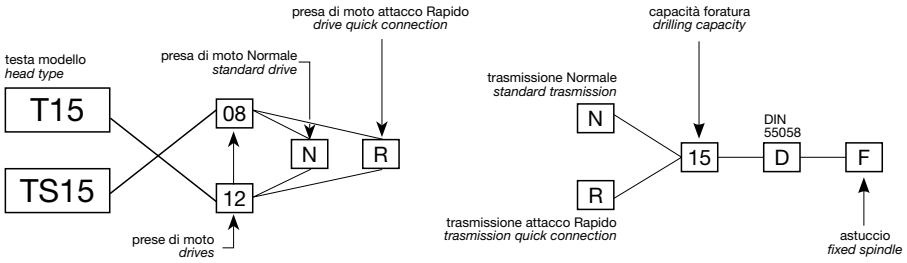


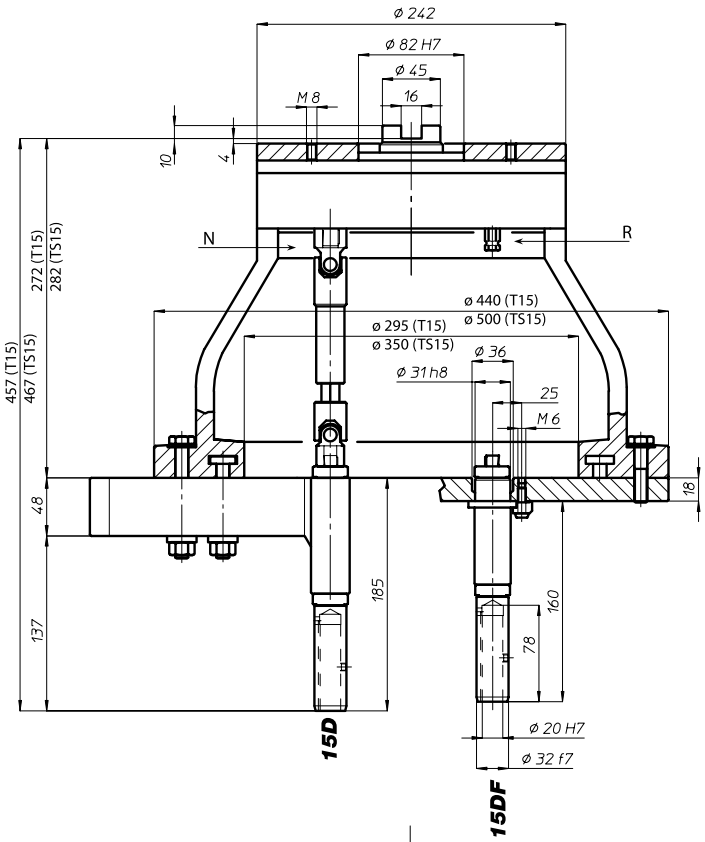
T15-TS15

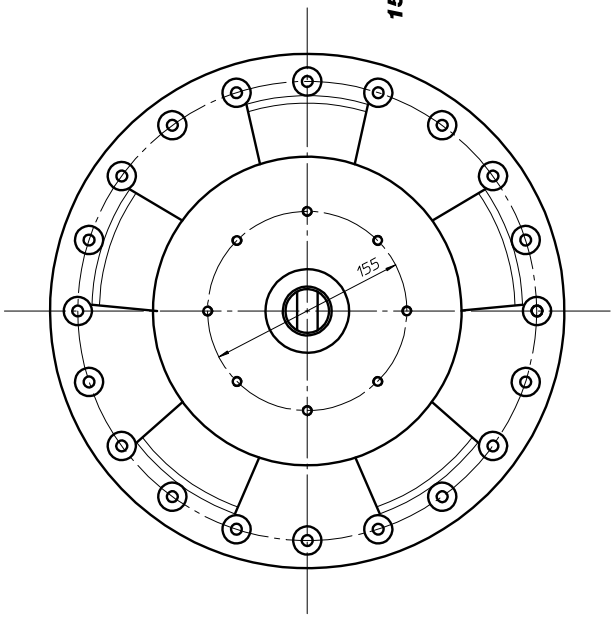


Codice testa
Head code

Codice mandrino
Spindle code

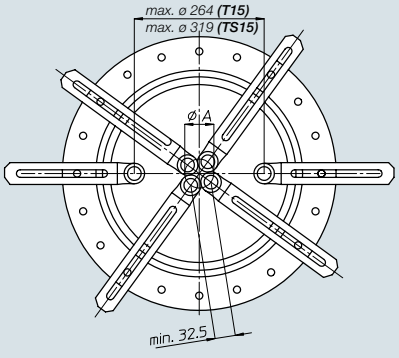






N° prese di moto *Nr. spindle drives*	08-12
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 13 15
Maschiatura *Tapping*	M12
Attacco utensile *Type of spindle* D	DIN 55058 Ø20
Peso gruppo testa *Head weight*	T15: Kg 21,5 TS15: Kg 24,5
Peso gruppo mandrino *Spindle-set weight*	Kg 2,6

area di lavoro
working area



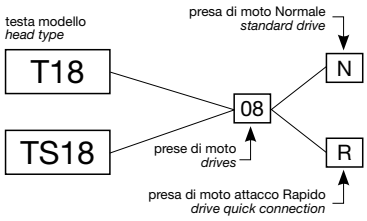
ø A	n° mandrini *n° spindles*
38	3
46,5	4
56	5
65,5	6
75,5	7
85,5	8
95,5	9
105,5	10
116	11
126	12

testa multipla a giunti universali - *adjustable joint multispindle head*

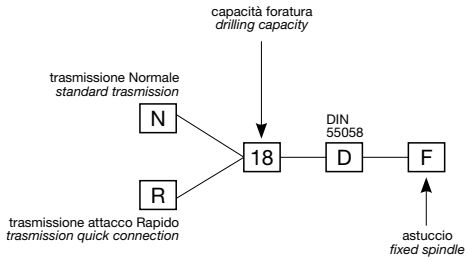
T18-TS18

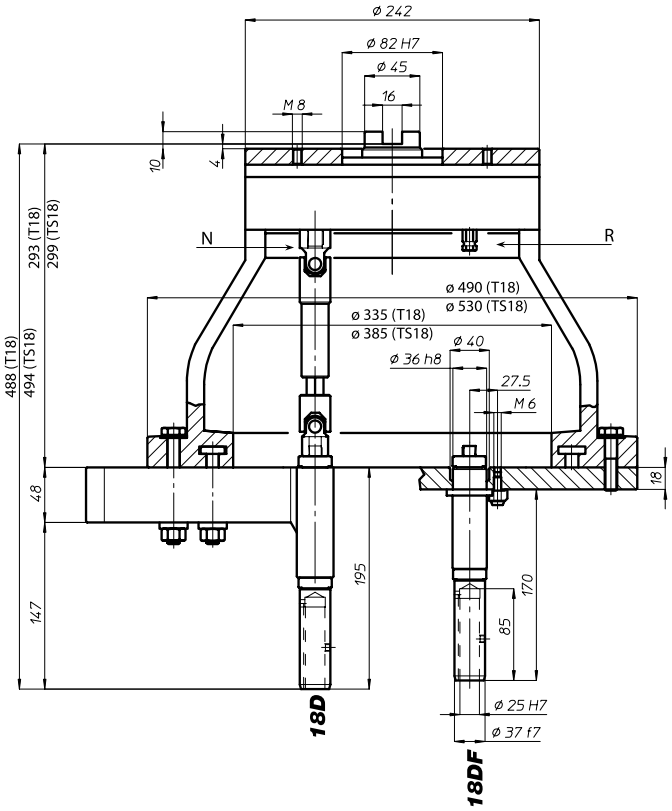
N° prese di moto *Nr. spindle drives*	08
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 16 18
Maschiatura *Tapping*	M14
Attacco utensile *Type of spindle* D	 DIN 55058 Ø25
Peso gruppo testa *Head weight*	T18: Kg 25 TS18: Kg 26,5
Peso gruppo mandrino *Spindle-set weight*	Kg 3,3

Codice testa
Head code

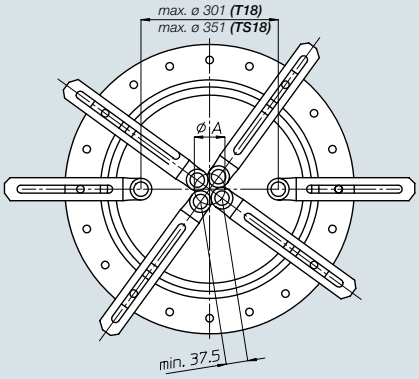


Codice mandrino
Spindle code

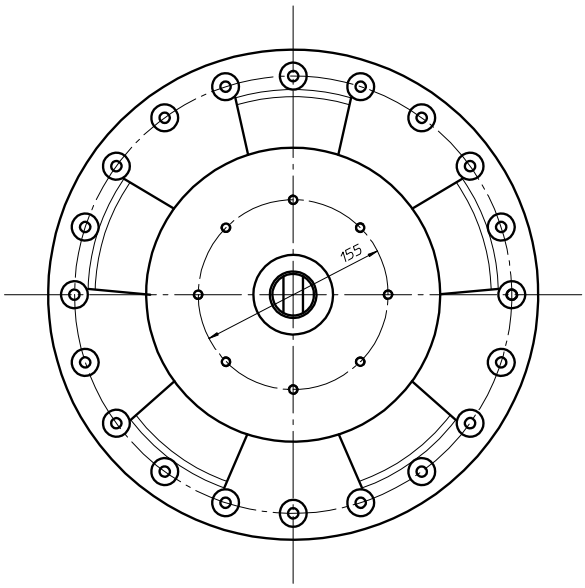




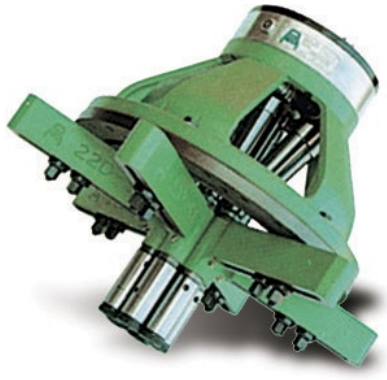
area di lavoro
working area



ø A	n° mandrini *n° spindles*
44	3
53,5	4
64,5	5
75,5	6
87	7
98,5	8

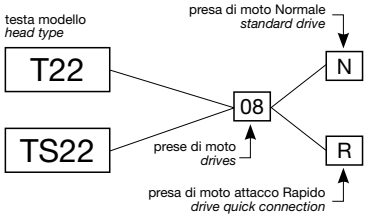


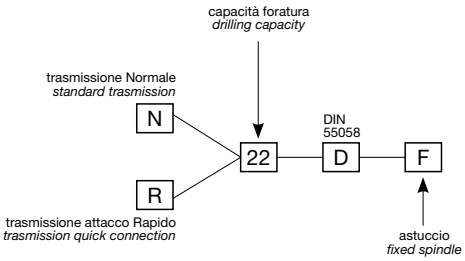
T22-TS22

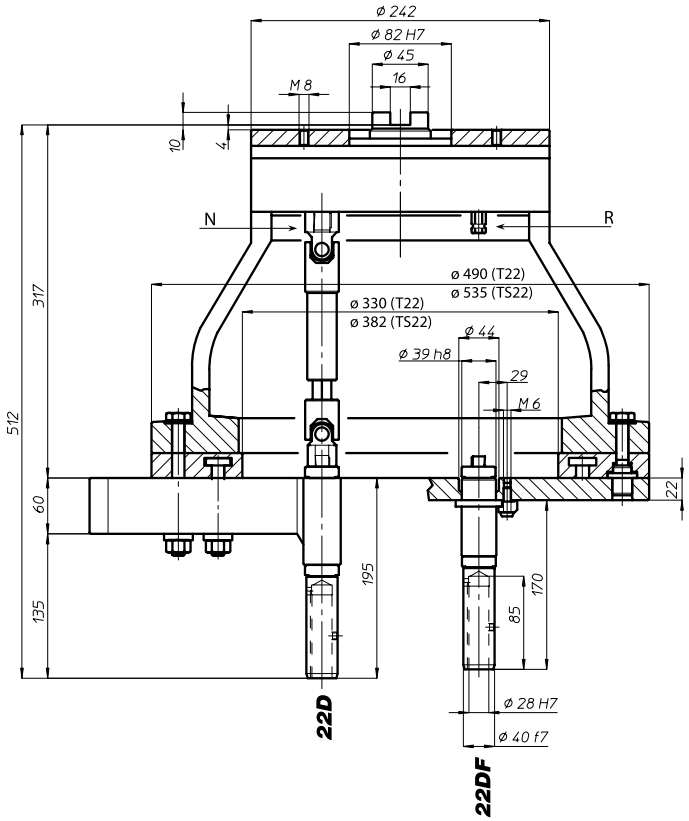


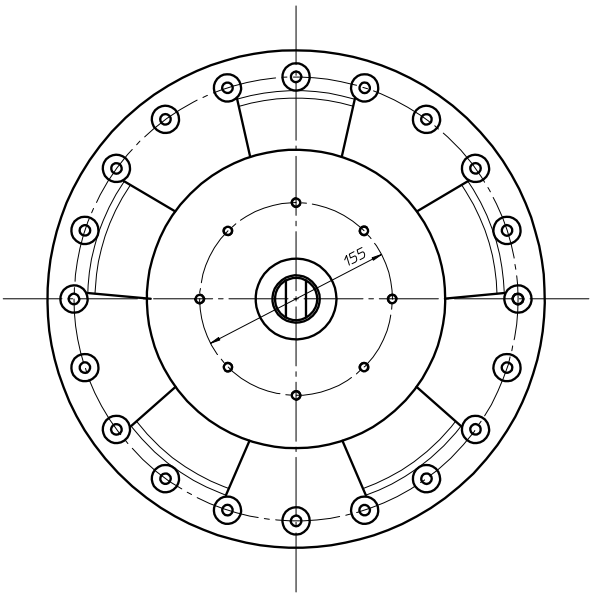
Codice testa
Head code

Codice mandrino
Spindle code



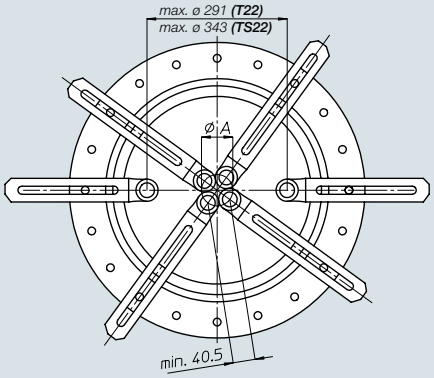






N° prese di moto *Nr. spindle drives*	08
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 20 22
Maschiatura *Tapping*	M16
Attacco utensile *Type of spindle* D	 DIN 55058 Ø28
Peso gruppo testa *Head weight*	T22: Kg 38,5 TS22: Kg 41
Peso gruppo mandrino *Spindle-set weight*	Kg 5,5

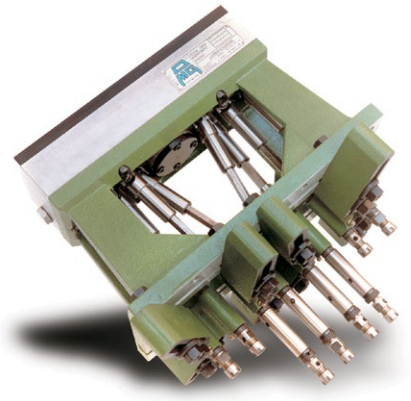
area di lavoro
working area



ø A	n° mandrini *n° spindles*
47,5	3
58	4
69,5	5
81,5	6
94	7
106,5	8

testa multipla a giunti universali - *adjustable joint multispindle head*

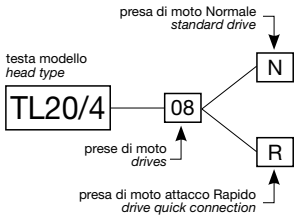
TL20/4

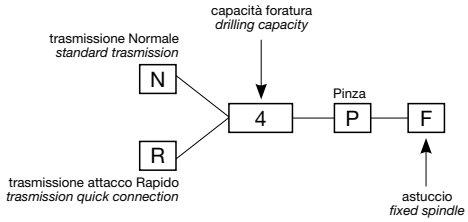


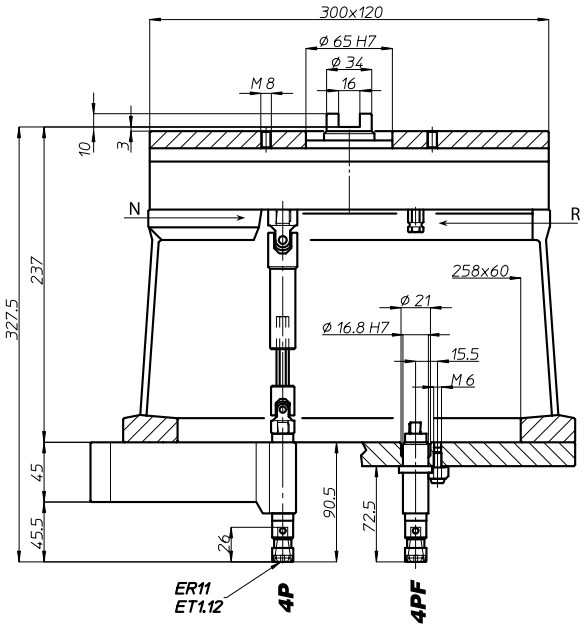
N° prese di moto *Nr. spindle drives*	08
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 4 5
Maschiatura *Tapping*	M4
Attacco utensile *Type of spindle* P	 ER11
Peso gruppo testa *Head weight*	Kg 13,5
Peso gruppo mandrino *Spindle-set weight*	Kg 1

Codice testa
Head code

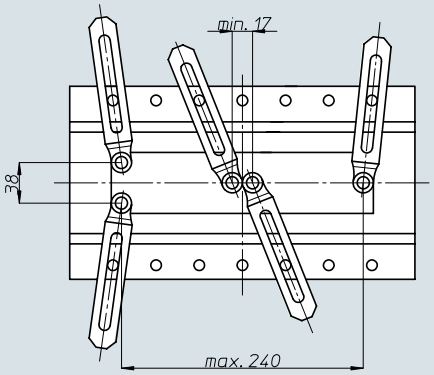
Codice mandrino
Spindle code

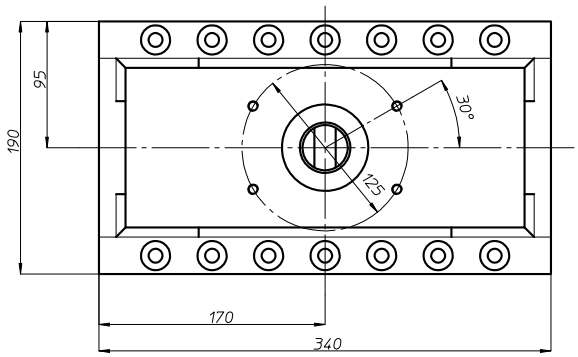




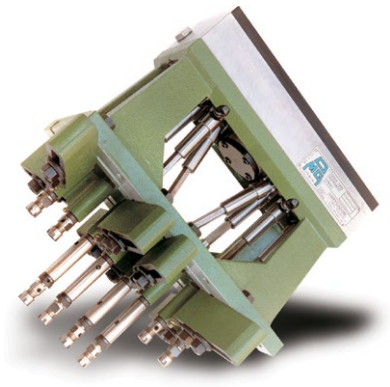


area di lavoro
working area

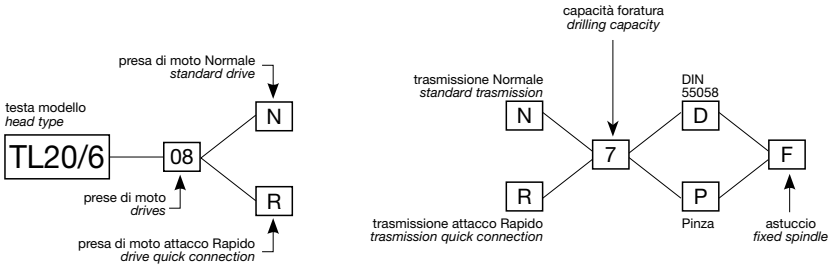




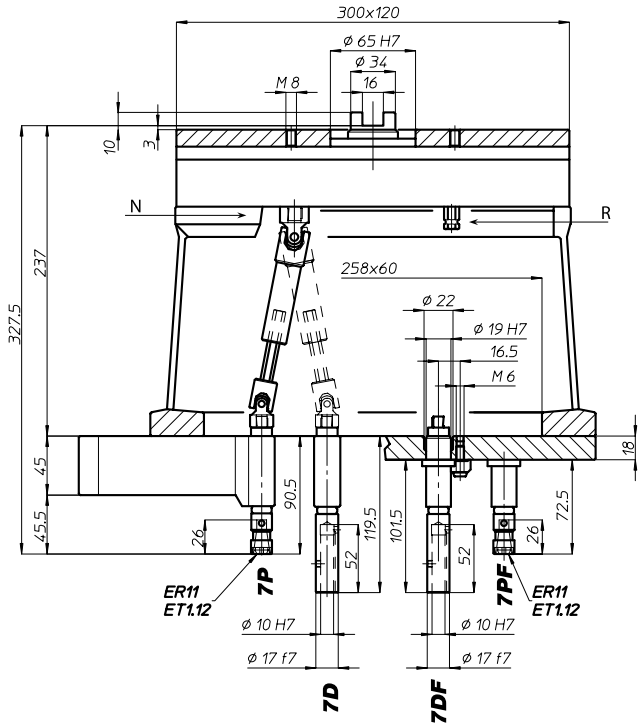
TL20/6

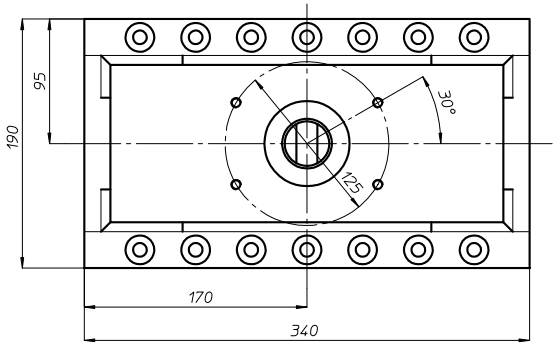


Codice testa *Head code*	Codice mandrino *Spindle code*

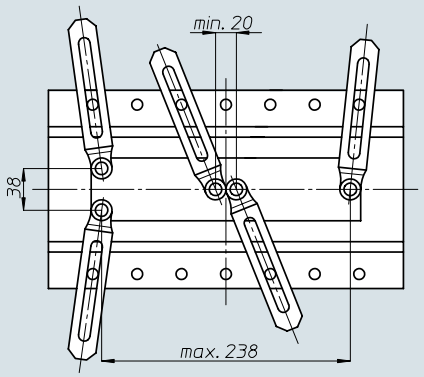


N° prese di moto *Nr. spindle drives*	08
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 6 7
Maschiatura *Tapping*	M5
Attacco utensile *Type of spindle* D P	 DIN 55058 Ø10 ER11
Peso gruppo testa *Head weight*	Kg 13,5
Peso gruppo mandrino *Spindle-set weight*	Kg 1

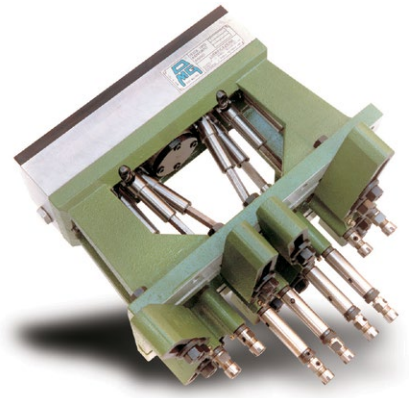




area di lavoro
working area



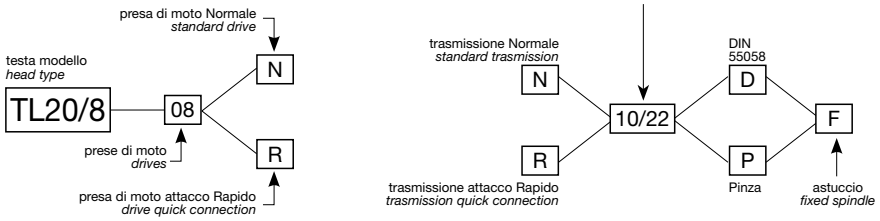
TL20/8

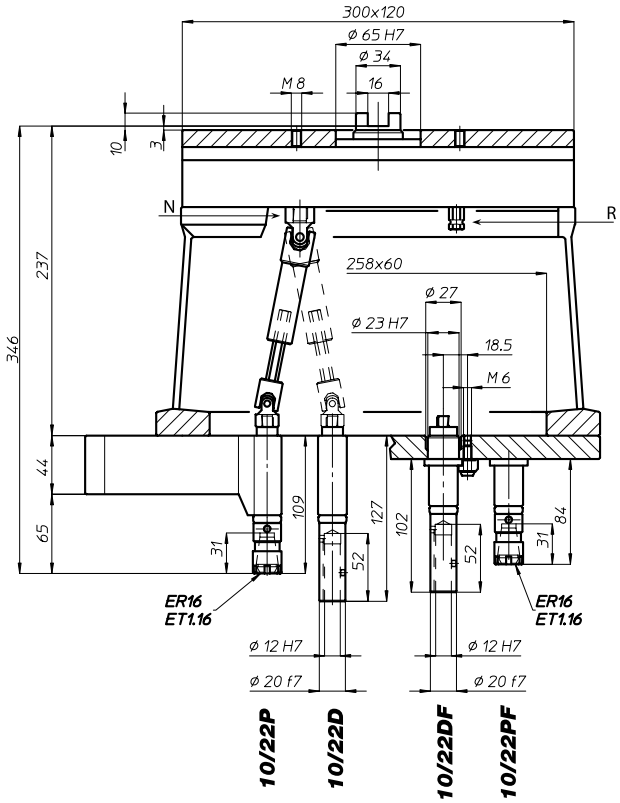


N° prese di moto *Nr. spindle drives*	08
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 8 10
Maschiatura *Tapping*	M6
Attacco utensile *Type of spindle* D P	 DIN 55058 Ø12 ER16
Peso gruppo testa *Head weight*	Kg 13,5
Peso gruppo mandrino *Spindle-set weight*	Kg 1,5

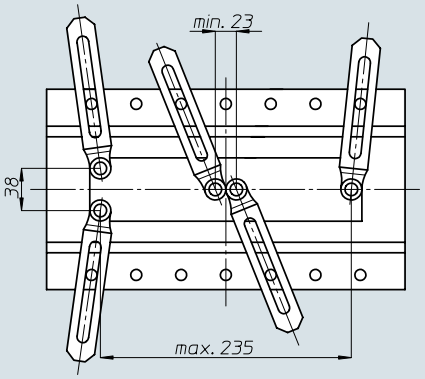
Codice testa
Head code

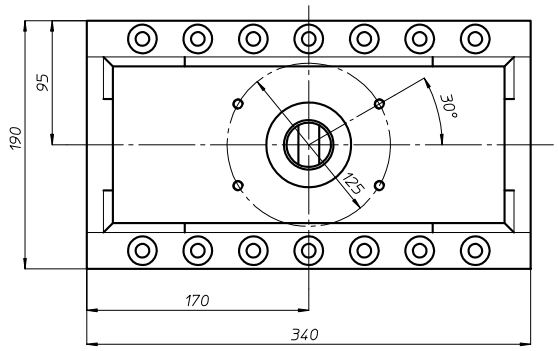
Codice mandrino
Spindle code





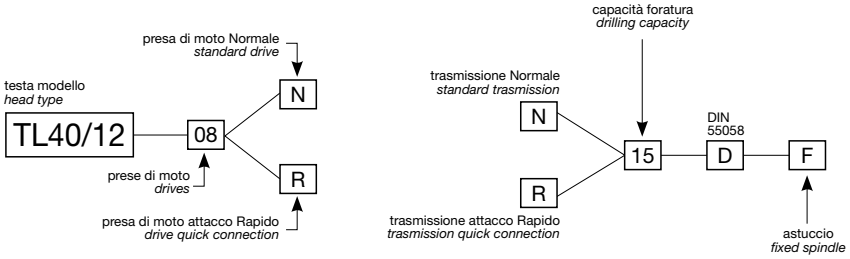
area di lavoro
working area



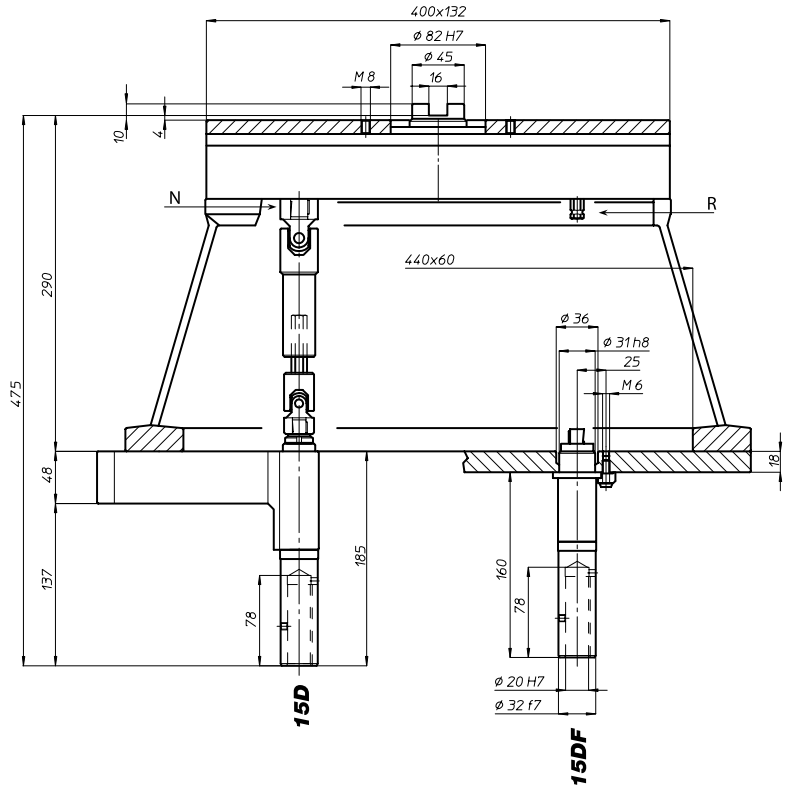


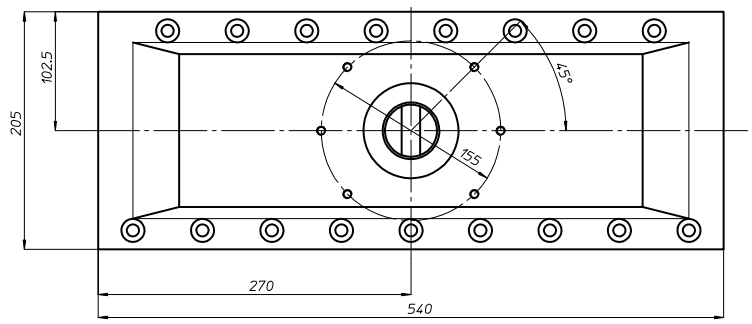
TL40/12

Codice testa *Head code*	Codice mandrino *Spindle code*

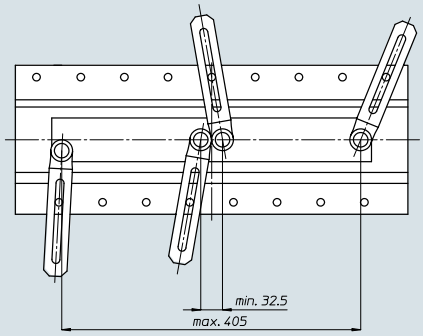


N° prese di moto *Nr. spindle drives*	08
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 13 15
Maschiatura *Tapping*	M12
Attacco utensile *Type of spindle* D	 DIN 55058 Ø20
Peso gruppo testa *Head weight*	Kg 25
Peso gruppo mandrino *Spindle-set weight*	Kg 2,5





area di lavoro
working area



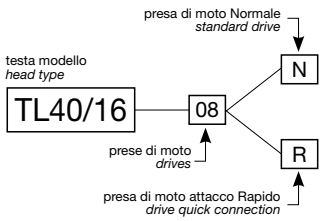
testa multipla a giunti universali - *adjustable joint multispindle head*

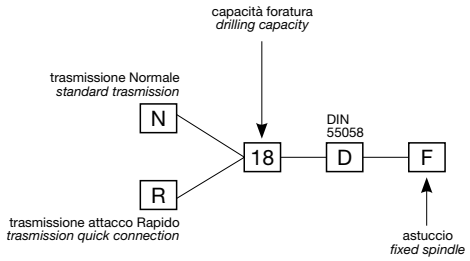
TL40/16

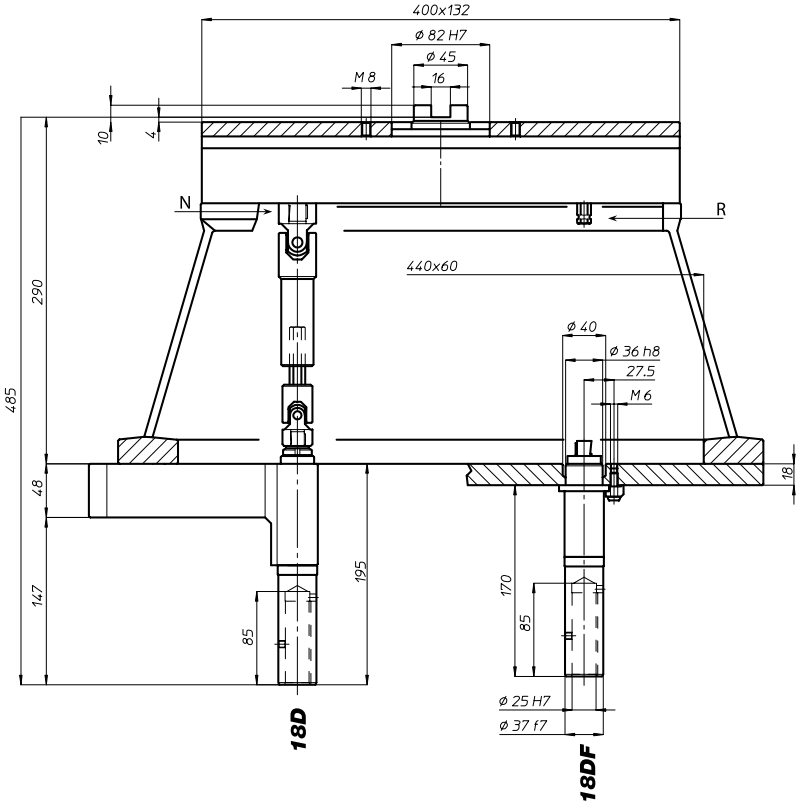
N° prese di moto *Nr. spindle drives*	08
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 16 18
Maschiatura *Tapping*	M14
Attacco utensile *Type of spindle* D	 DIN 55058 Ø25
Peso gruppo testa *Head weight*	Kg 26
Peso gruppo mandrino *Spindle-set weight*	Kg 2,5

Codice testa
Head code

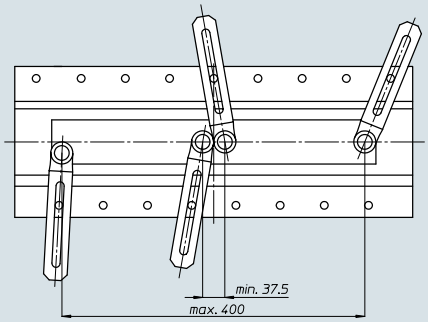
Codice mandrino
Spindle code

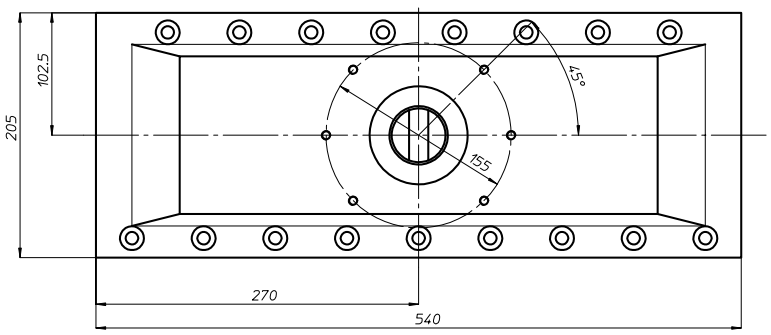






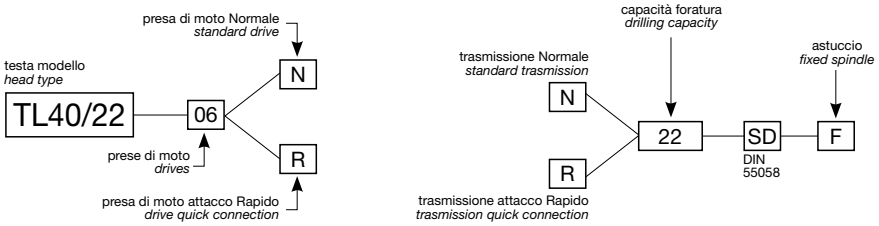
area di lavoro
working area

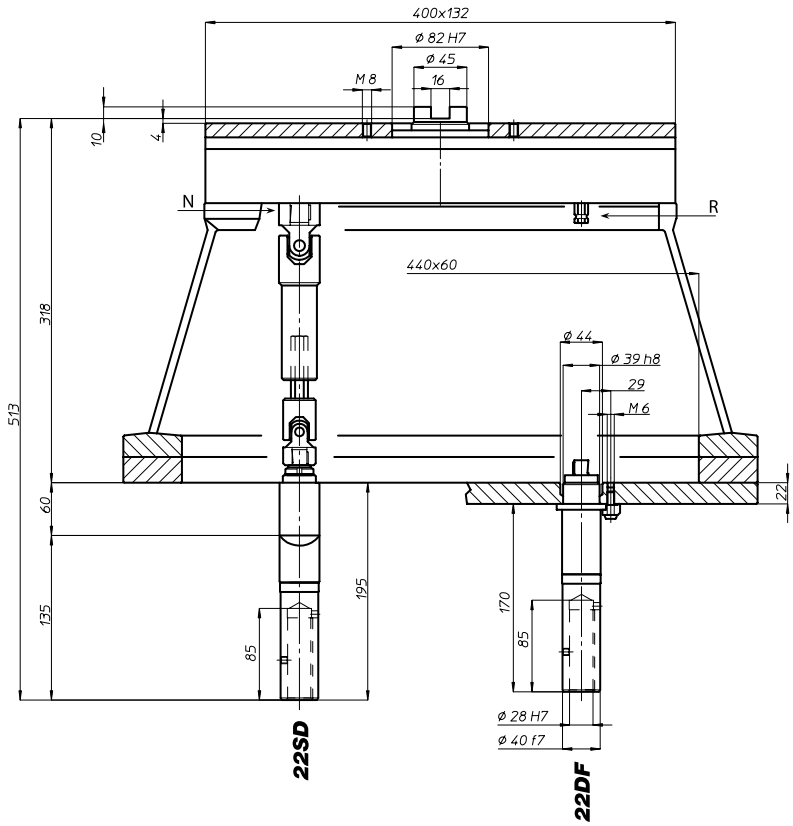


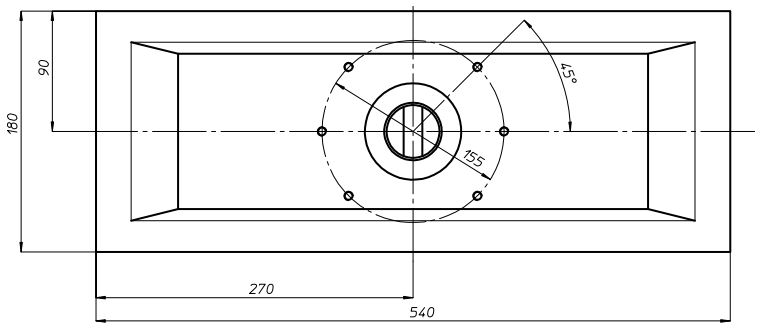


TL40/22

Codice testa *Head code*	Codice mandrino *Spindle code*

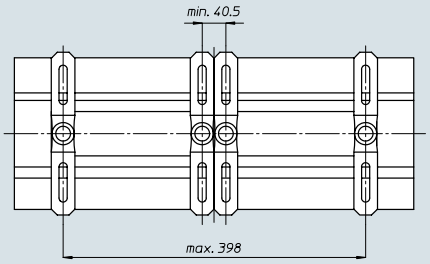






N° prese di moto *Nr. spindle drives*	06
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 20 22
Maschiatura *Tapping*	M16
Attacco utensile *Type of spindle* D	 DIN 55058 Ø28
Peso gruppo testa *Head weight*	Kg 37
Peso gruppo mandrino *Spindle-set weight*	Kg 5

area di lavoro
working area

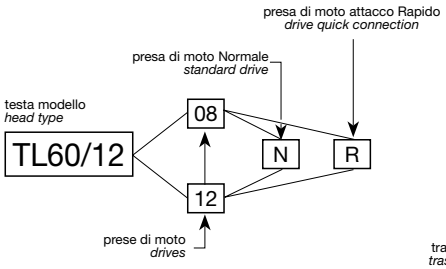


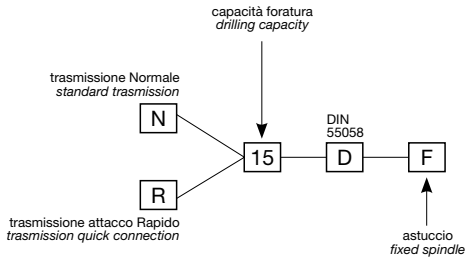
TL60/12

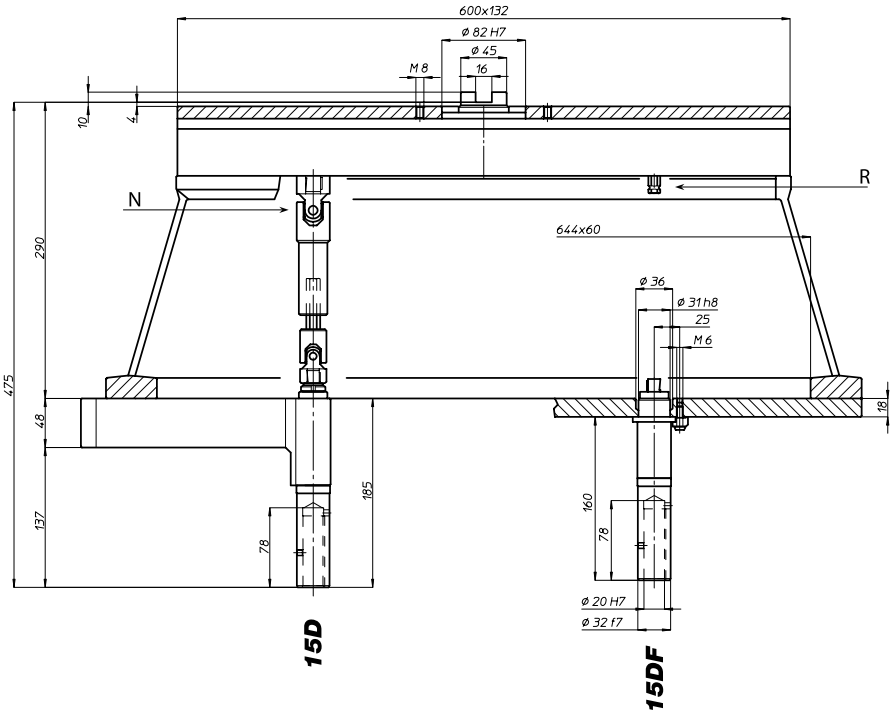
N° prese di moto *Nr. spindle drives*	08-12
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 13 15
Maschiatura *Tapping*	M12
Attacco utensile *Type of spindle* D	 DIN 55058 Ø20
Peso gruppo testa *Head weight*	Kg 34,5
Peso gruppo mandrino *Spindle-set weight*	Kg 2,5

Codice testa
Head code

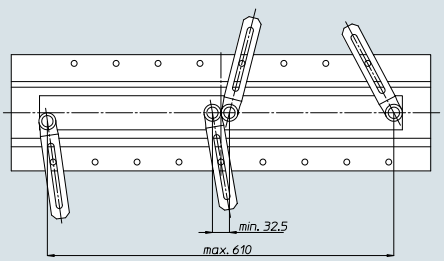
Codice mandrino
Spindle code

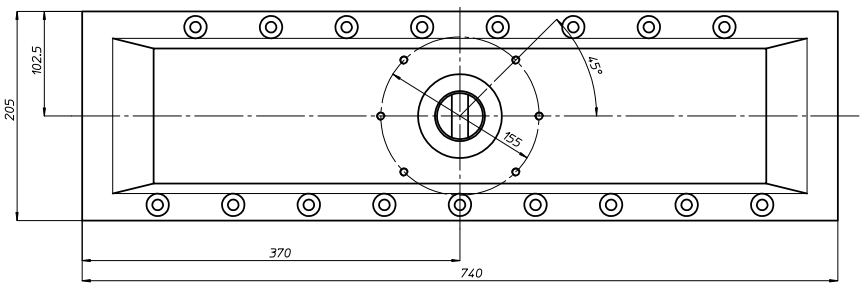






area di lavoro
working area

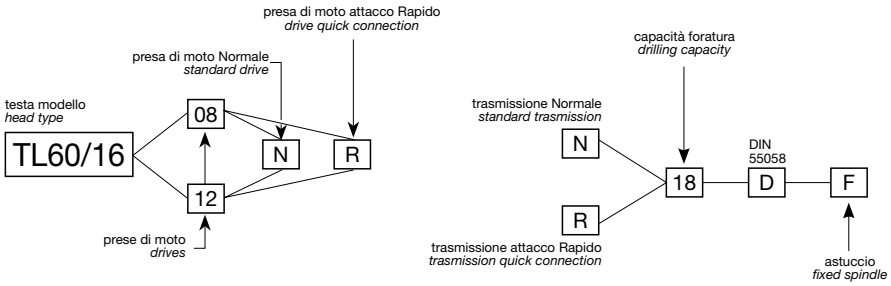




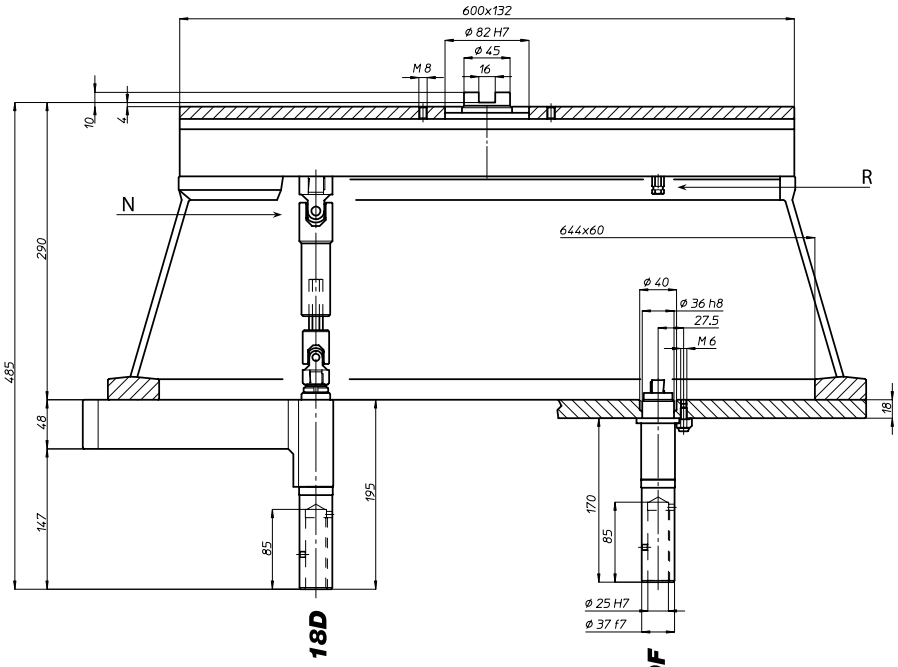
TL60/16

Codice testa
Head code

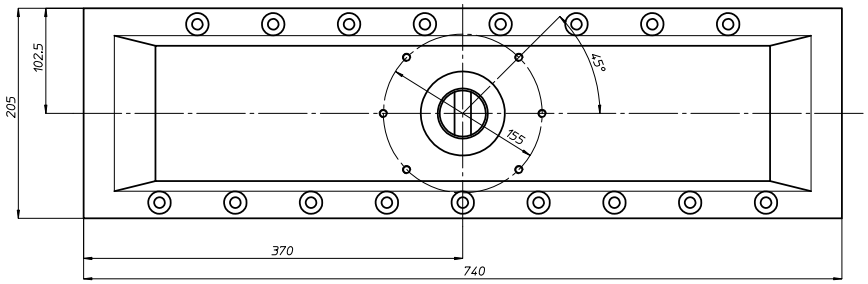
Codice mandrino
Spindle code

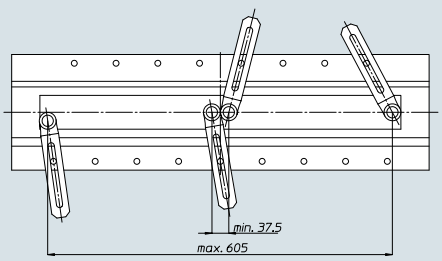


N° prese di moto *Nr. spindle drives*	08-12
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 16 18
Maschiatura *Tapping*	M14
Attacco utensile *Type of spindle* D	 DIN 55058 Ø25
Peso gruppo testa *Head weight*	Kg 36
Peso gruppo mandrino *Spindle-set weight*	Kg 2,5



area di lavoro
working area



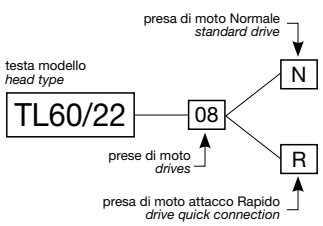


testa multipla a giunti universali - *adjustable joint multispindle head*

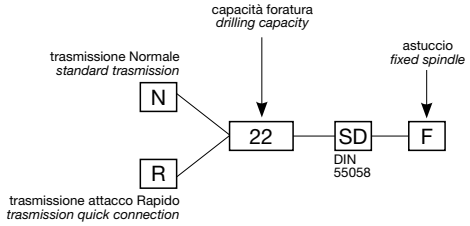
TL60/22

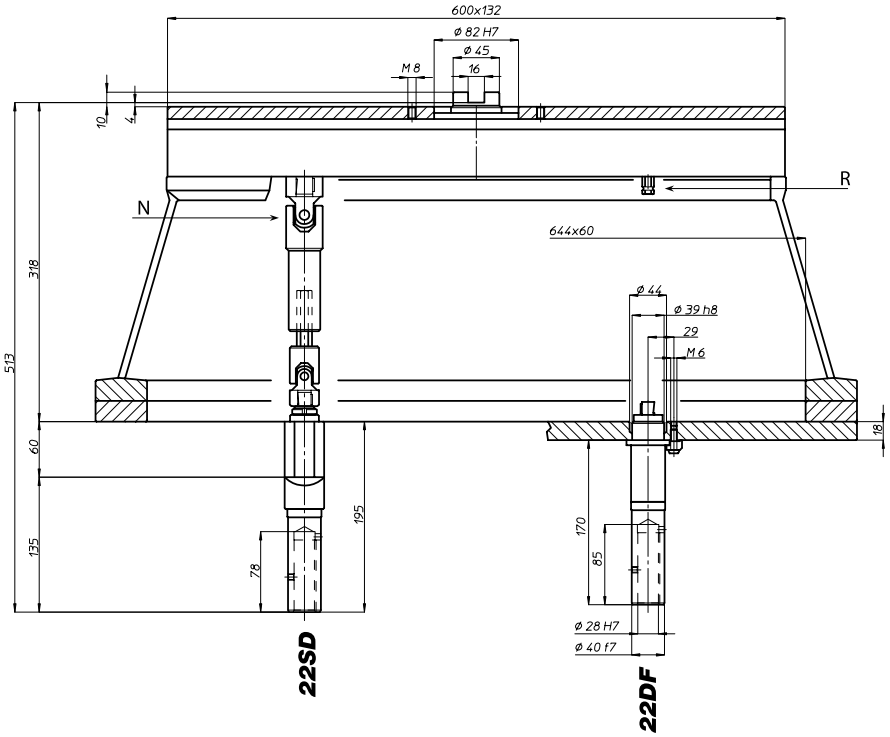
N° prese di moto *Nr. spindle drives*	08
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 20 22
Maschiatura *Tapping*	M16
Attacco utensile *Type of spindle* D	 DIN 55058 Ø28
Peso gruppo testa *Head weight*	Kg 47,5
Peso gruppo mandrino *Spindle-set weight*	Kg 5

Codice testa
Head code

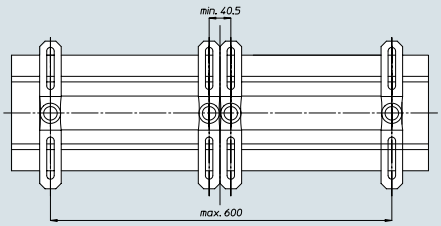


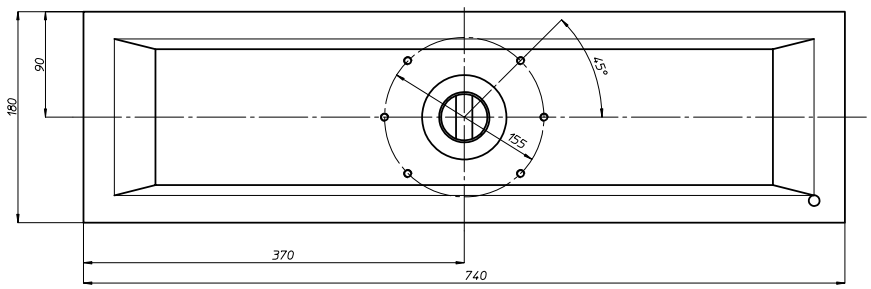
Codice mandrino
Spindle code



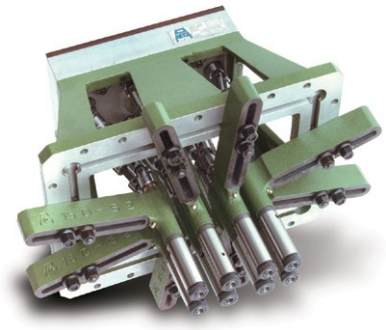


area di lavoro
working area



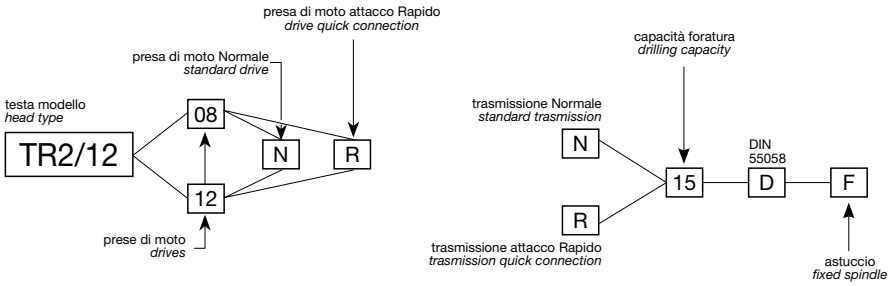


TR2/12

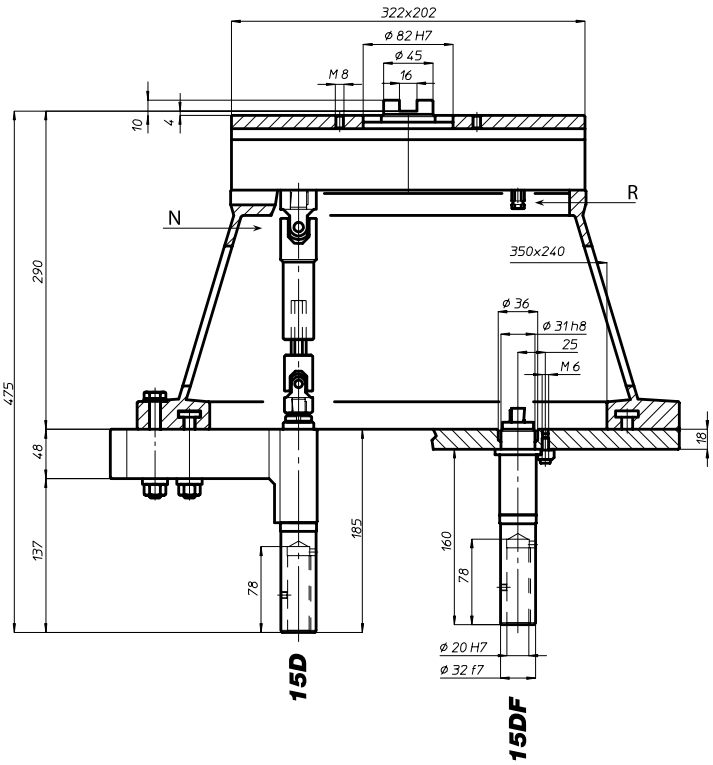


Codice testa
Head code

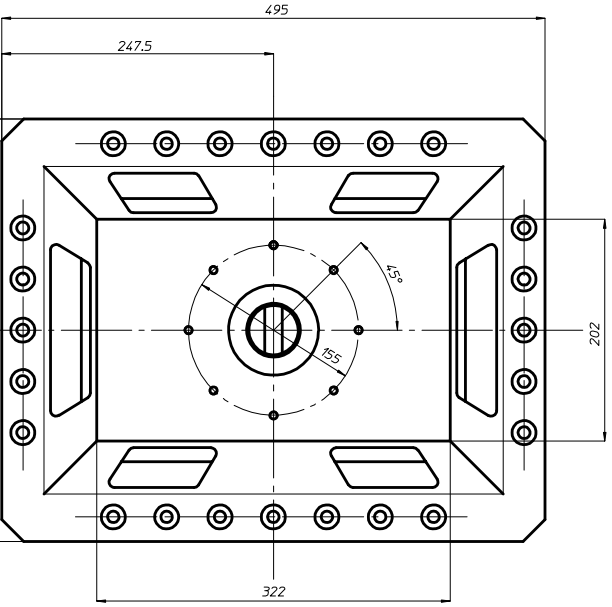
Codice mandrino
Spindle code

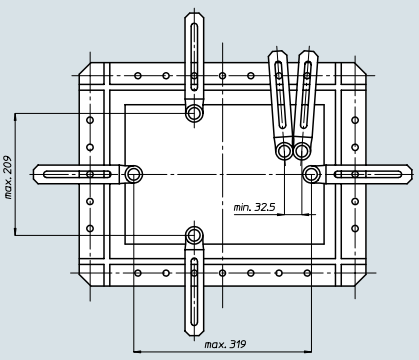


N° prese di moto *Nr. spindle drives*	08-12
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 13 15
Maschiatura *Tapping*	M12
Attacco utensile *Type of spindle* D	 DIN 55058 Ø20
Peso gruppo testa *Head weight*	Kg 30
Peso gruppo mandrino *Spindle-set weight*	Kg 2,6

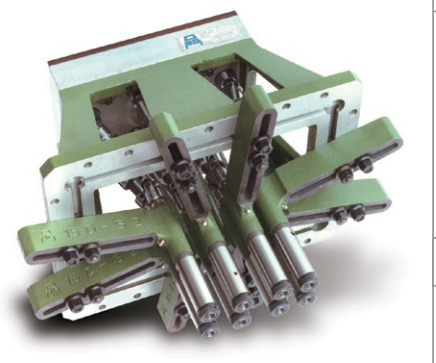


area di lavoro
working area



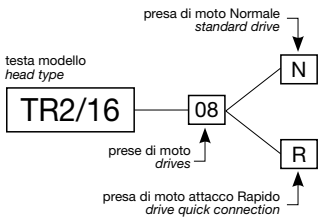


TR2/16

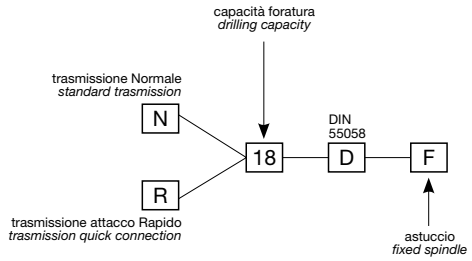


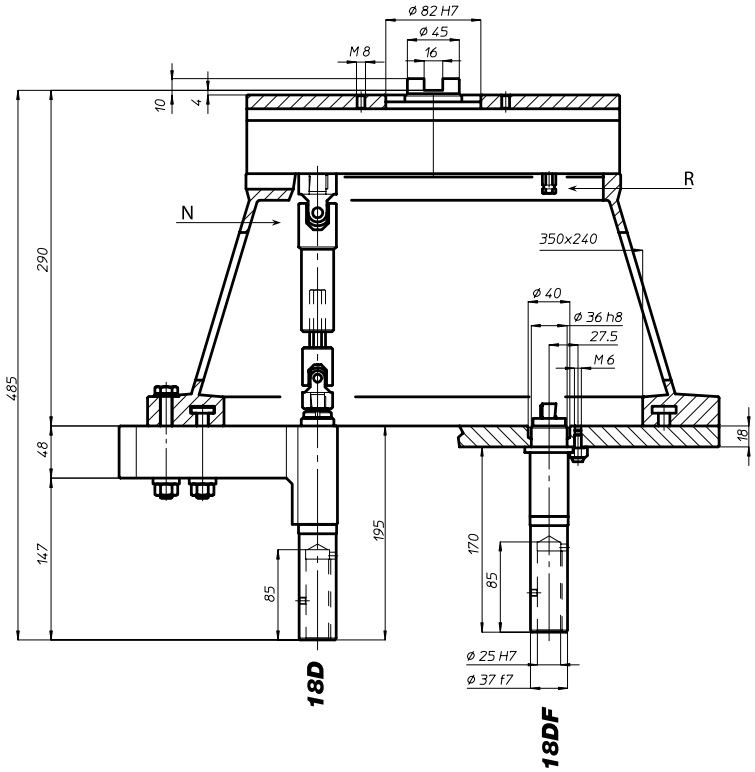
N° prese di moto *Nr. spindle drives*	10
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 16 18
Maschiatura *Tapping*	M14
Attacco utensile *Type of spindle* D	 DIN 55058 Ø25
Peso gruppo testa *Head weight*	Kg 31
Peso gruppo mandrino *Spindle-set weight*	Kg 3,3

Codice testa
Head code

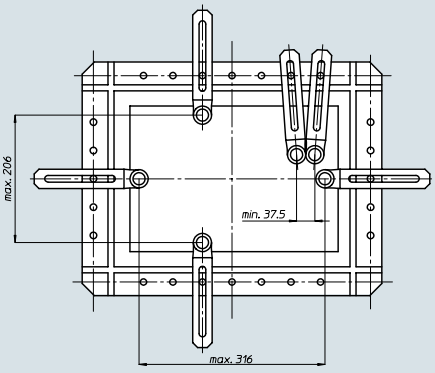


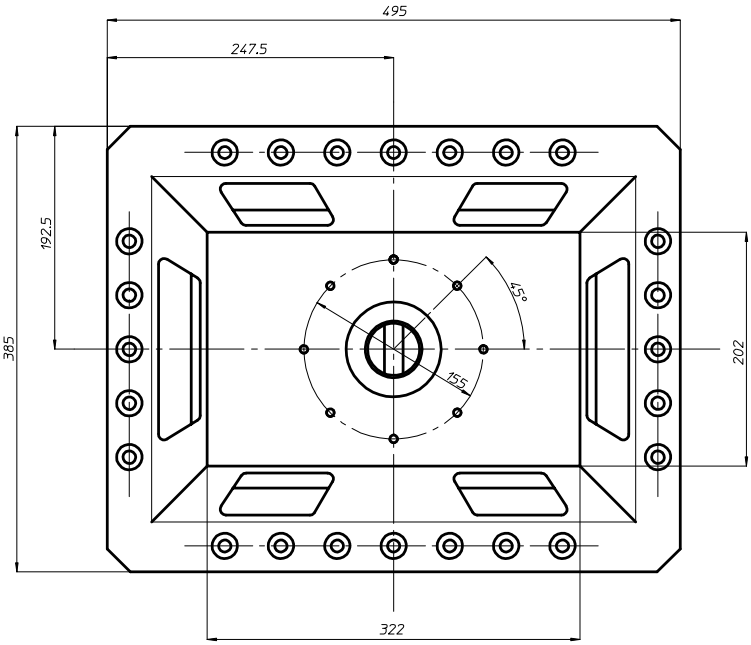
Codice mandrino
Spindle code





area di lavoro
working area

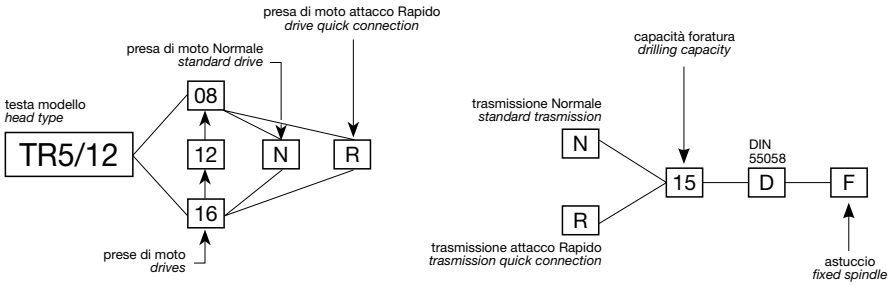


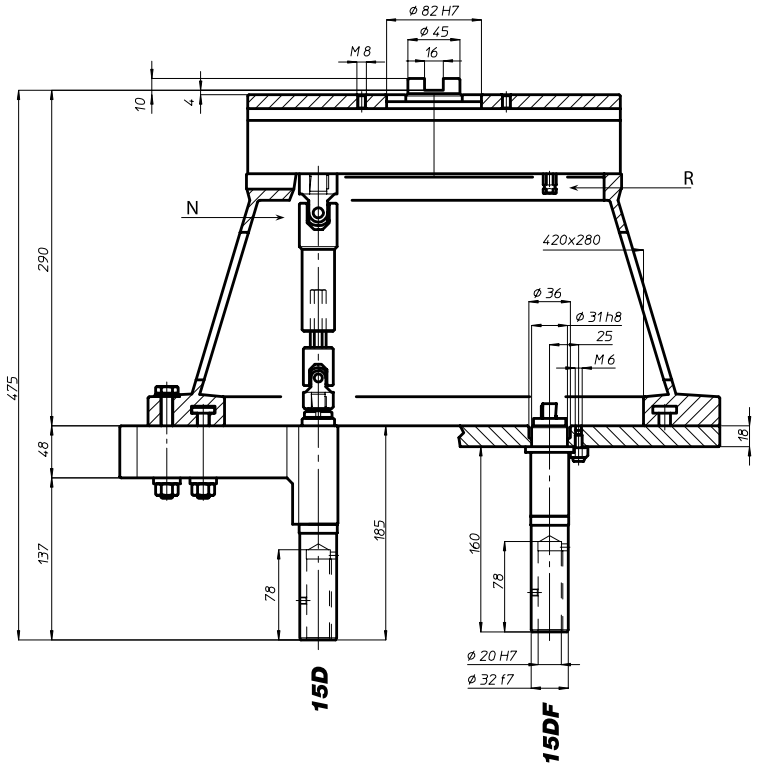


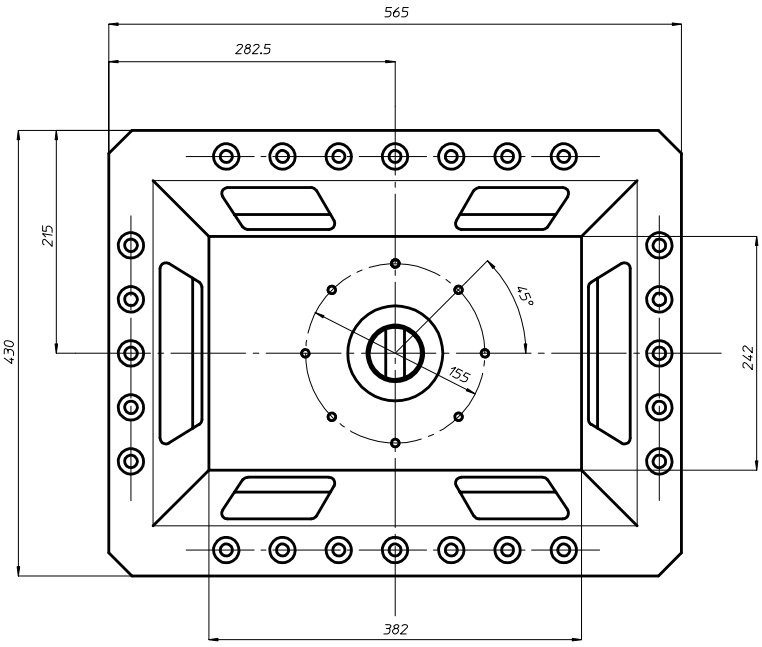
TR5/12

Codice testa
Head code

Codice mandrino
Spindle code

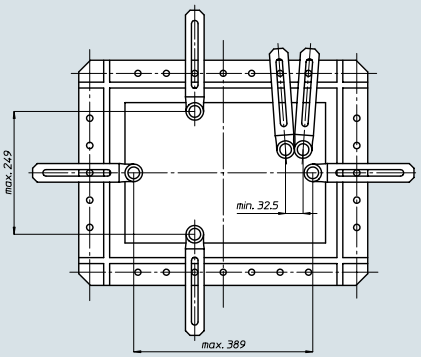






N° prese di moto *Nr. spindle drives*	08-12-16
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 13 15
Maschiatura *Tapping*	M12
Attacco utensile *Type of spindle* D	 DIN 55058 Ø20
Peso gruppo testa *Head weight*	Kg 34,5
Peso gruppo mandrino *Spindle-set weight*	Kg 2,6

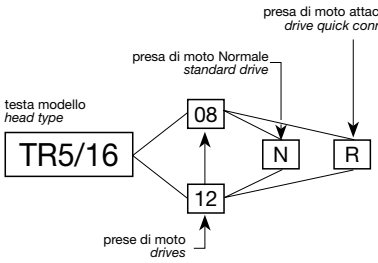
area di lavoro
working area



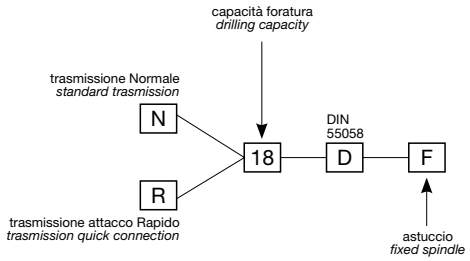
TR5/16

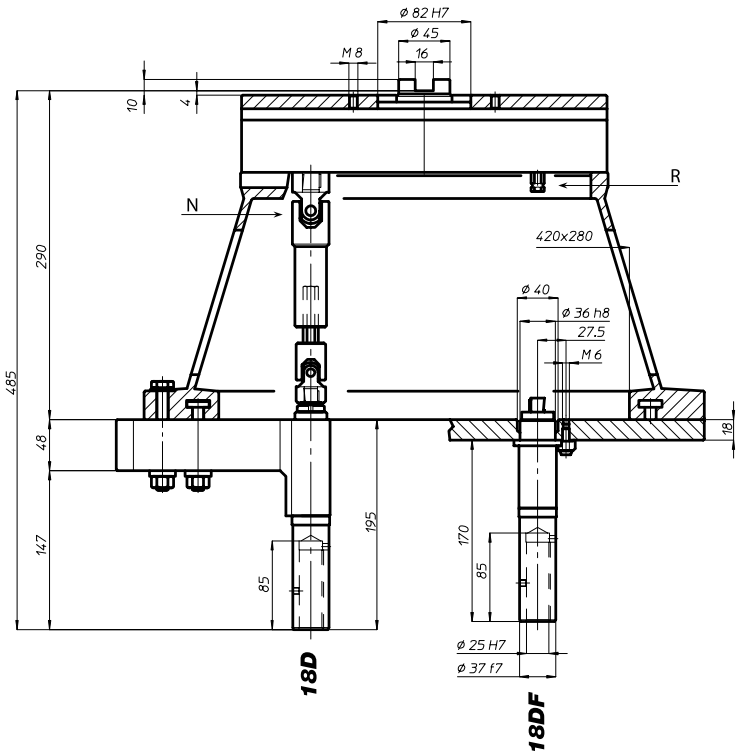
N° prese di moto *Nr. spindle drives*	08-12
Rapporto *Ratio*	1-1
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 16 18
Maschiatura *Tapping*	M14
Attacco utensile *Type of spindle* D	 DIN 55058 Ø25
Peso gruppo testa *Head weight*	Kg 36
Peso gruppo mandrino *Spindle-set weight*	Kg 3,3

Codice testa
Head code

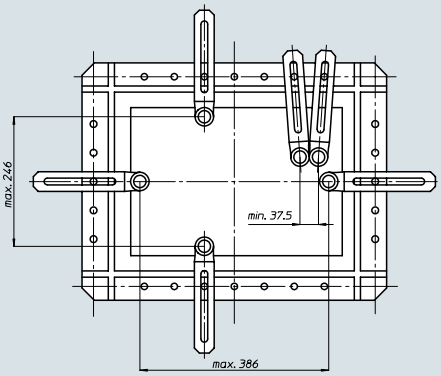


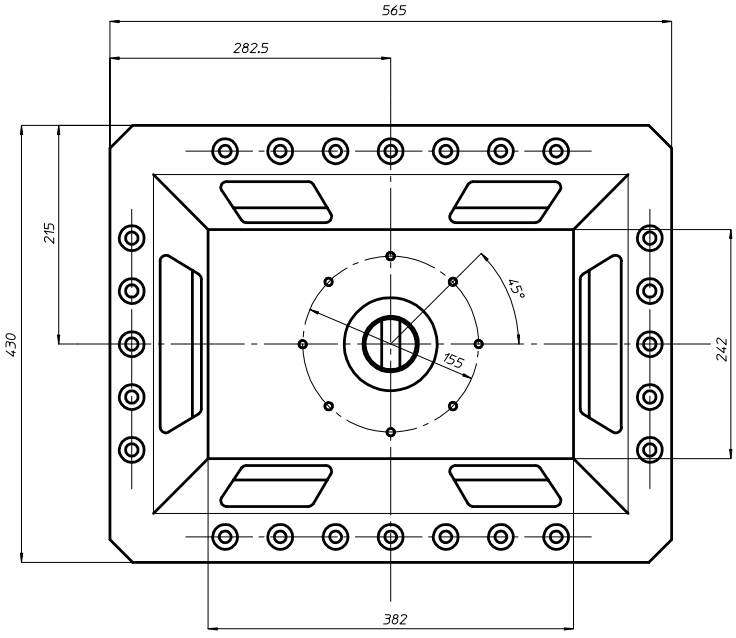
Codice mandrino
Spindle code





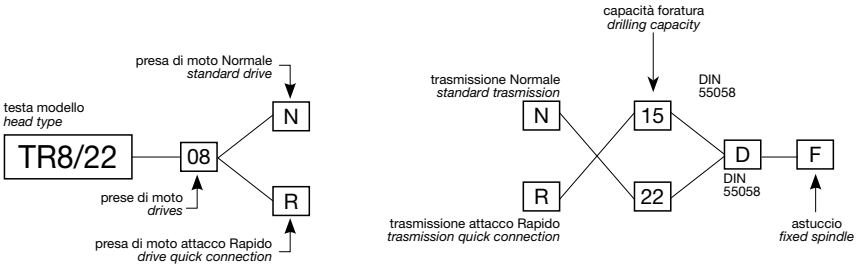
area di lavoro
working area

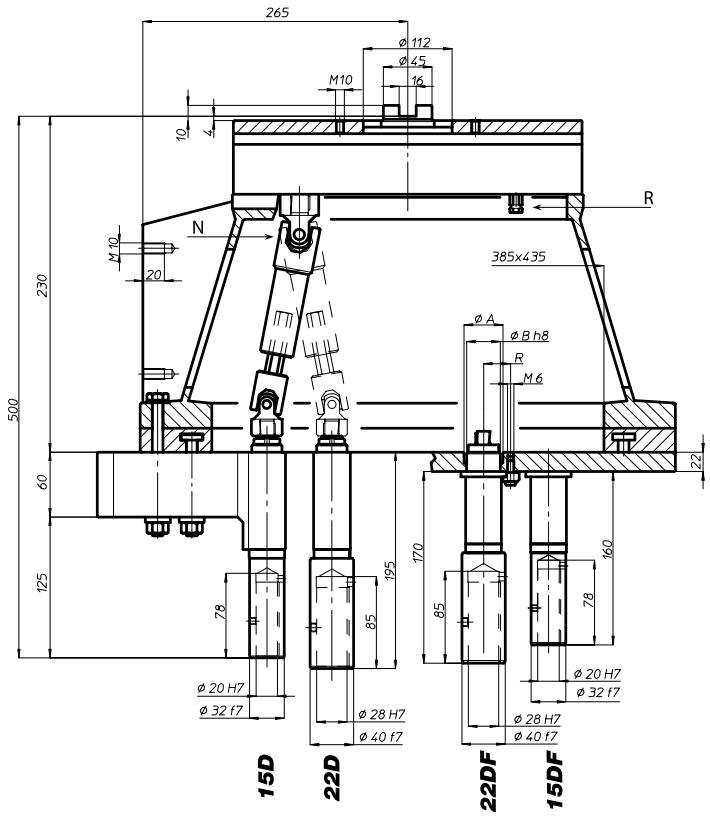


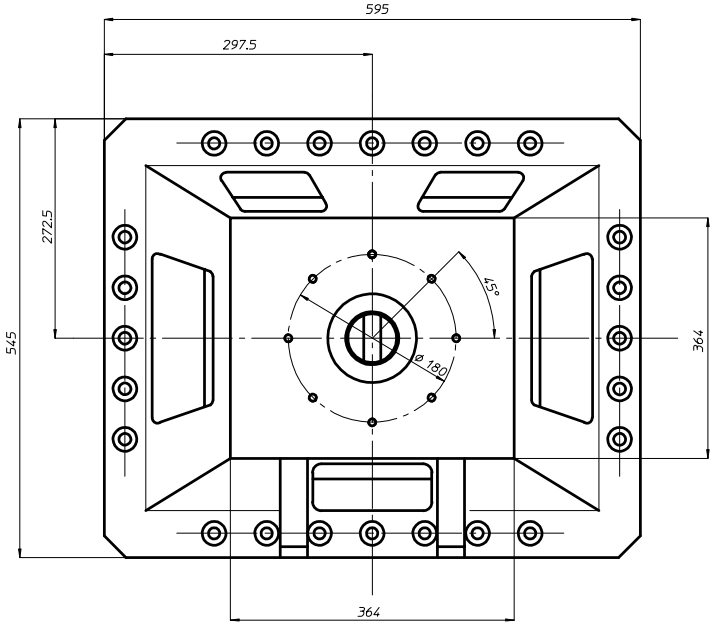


TR8/22

Codice testa *Head code*	Codice mandrino *Spindle code*

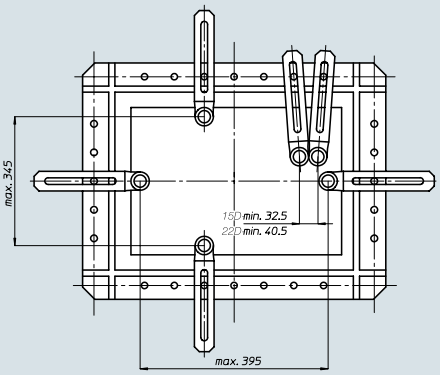






N° prese di moto *Nr. spindle drives*	12
Rapporto *Ratio*	1-1,5
Capacità di foratura *Drilling capacity* acciaio R=500 N/mm² ghisa: GG25	 15D: 13 22D: 20 15D: 15 22D: 22
Maschiatura *Tapping*	15D: M12 22D: M16
Attacco utensile *Type of spindle* D	 DIN 55058 Ø20-Ø28
Peso gruppo testa *Head weight*	Kg 86
Peso gruppo mandrino *Spindle-set weight*	15D: Kg 4 22D: Kg 5,5

area di lavoro
working area



testa multipla a giunti universali - *adjustable joint multispindle head*

TM400

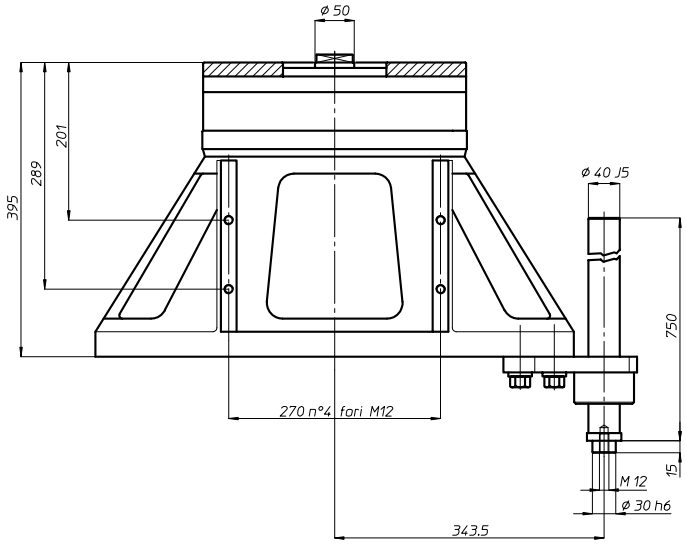
Codice testa
Head code

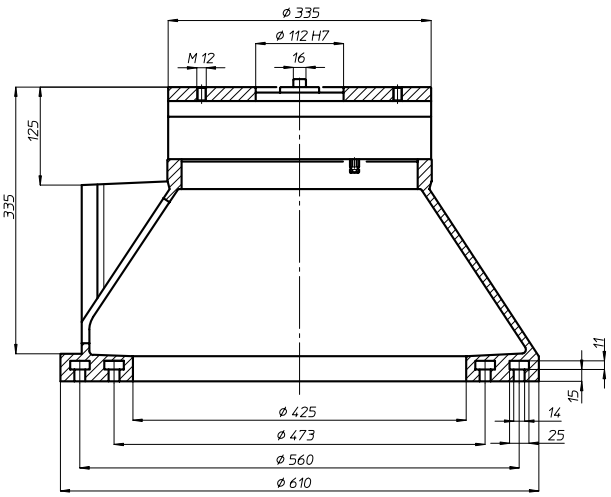
testa modello
head type

TM400 — 12 — R

12: prese di moto *drives*

R: presa di moto attacco Rapido *drive quick connection*

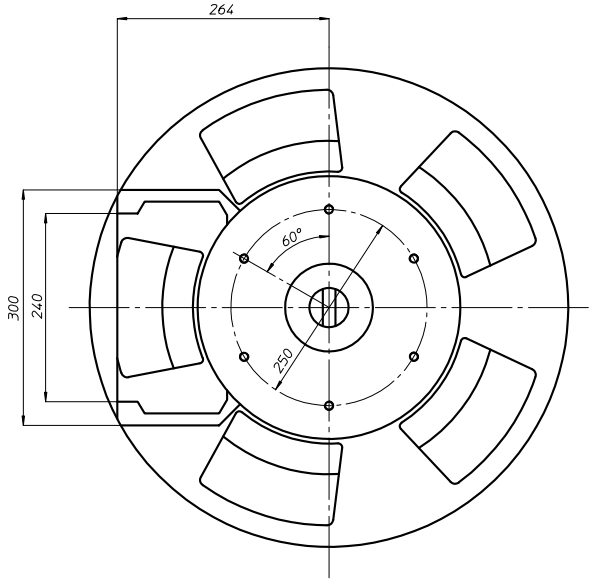




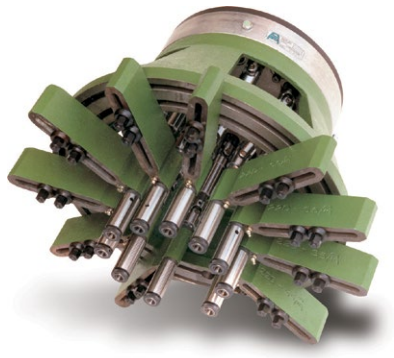
N° prese di moto *Nr. spindle drives*	**12**
Rapporto *Ratio*	**1-1**
Peso *Weight*	**Kg 105**

area di lavoro
working area

Ø 385



TM500



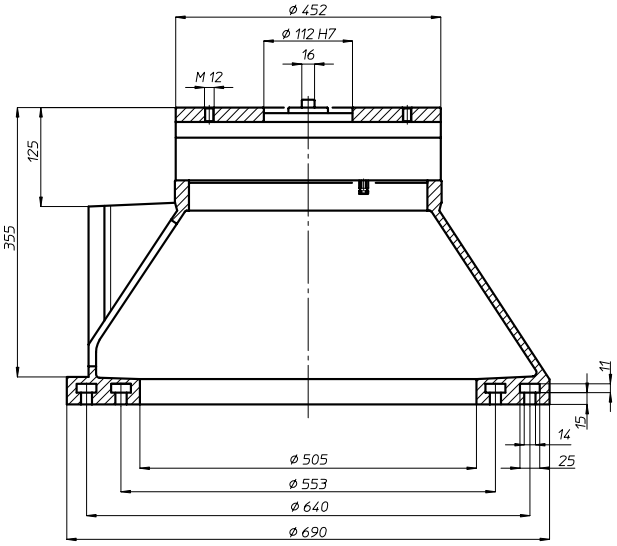
Codice testa
Head code

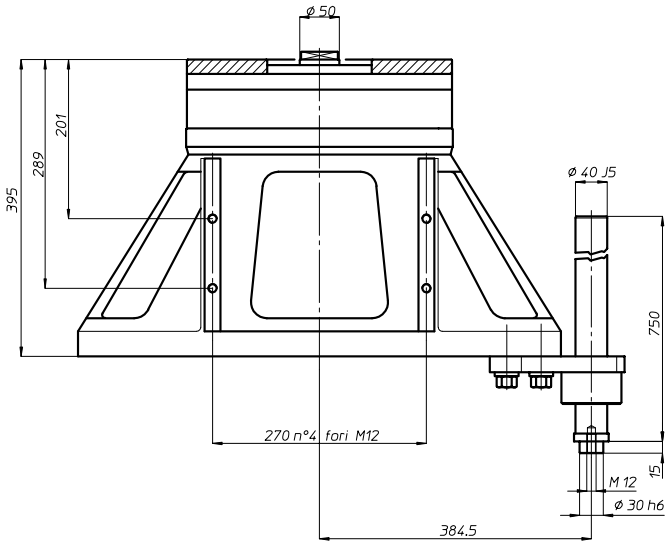
testa modello
head type

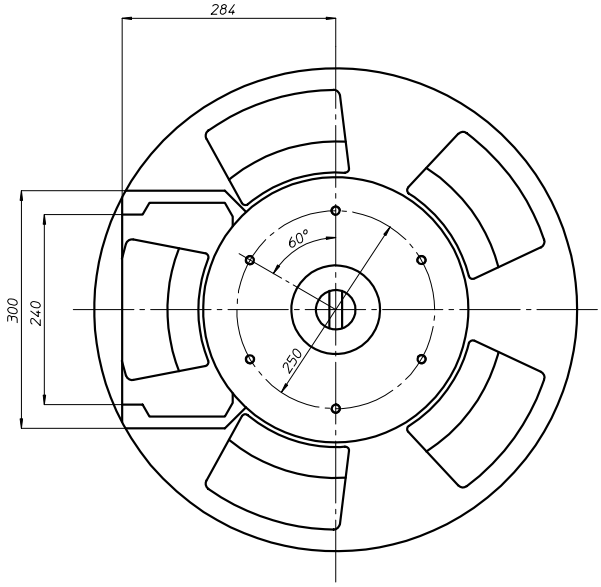
TM500 — 18 — R

18: prese di moto *drives*

R: presa di moto attacco Rapido *drive quick connection*





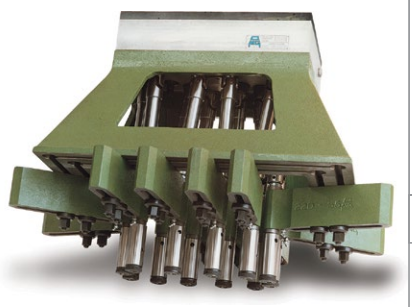


N° prese di moto *Nr. spindle drives*	**18**
Rapporto *Ratio*	**1-1**
Peso *Weight*	**Kg 145**

area di lavoro
working area

Ø 465

TRM43



Codice testa
Head code

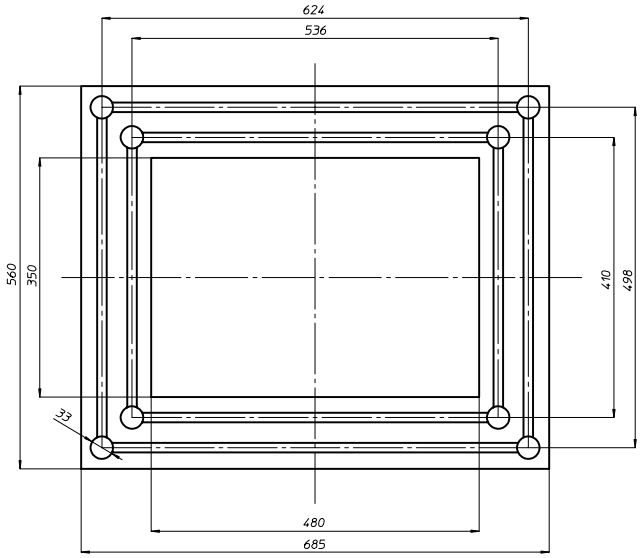
testa modello
head type

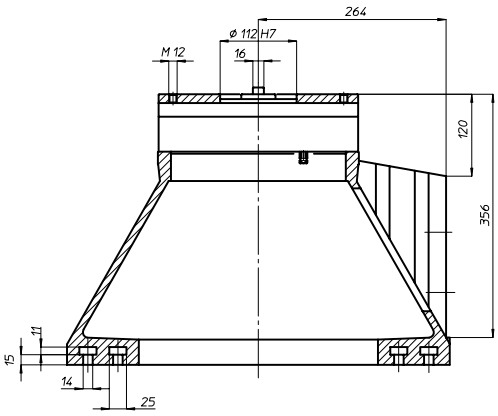
TRM43 — 16 — R

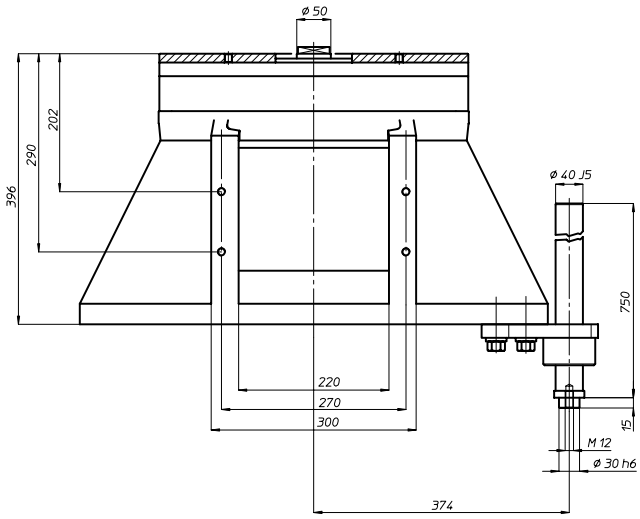
16: prese di moto *drives*

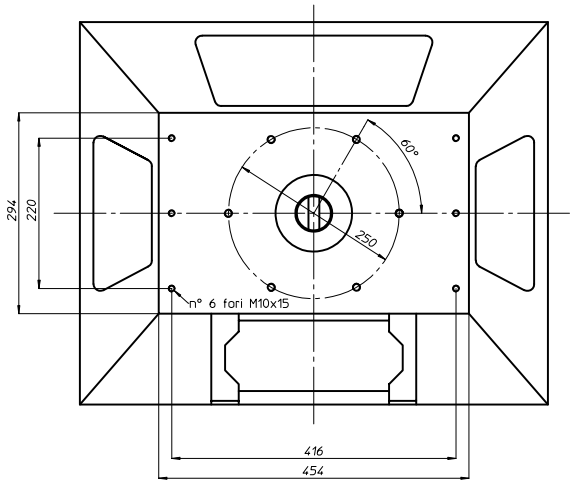
R: presa di moto attacco Rapido *drive quick connection*

N° prese di moto *Nr. spindle drives*	**16**
Rapporto *Ratio*	**1-1**
Peso *Weight*	**Kg 135**









area di lavoro
working area

300 x 440

TRM73

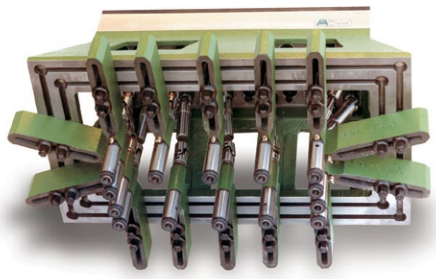
Codice testa
Head code

testa modello
head type

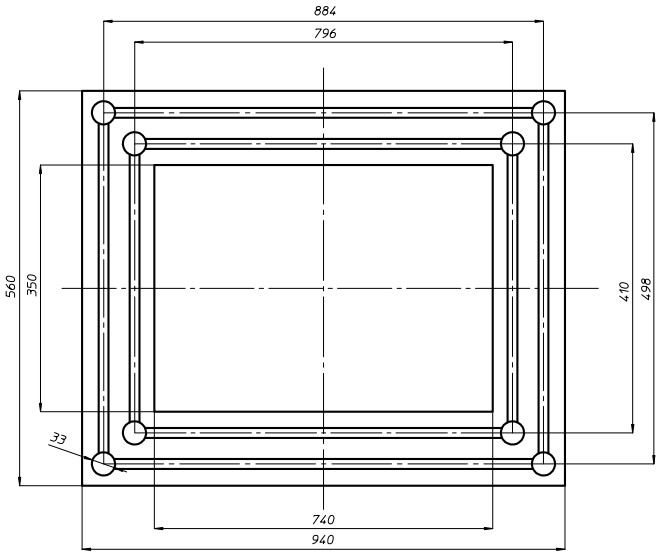
TRM73 — 26 — R

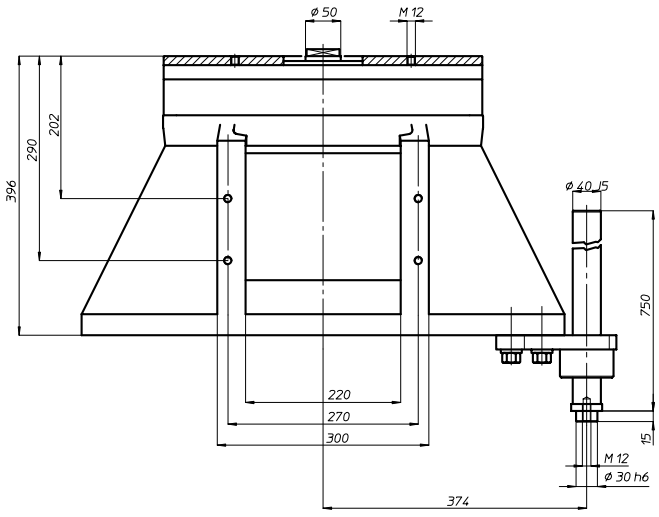
26: prese di moto *drives*

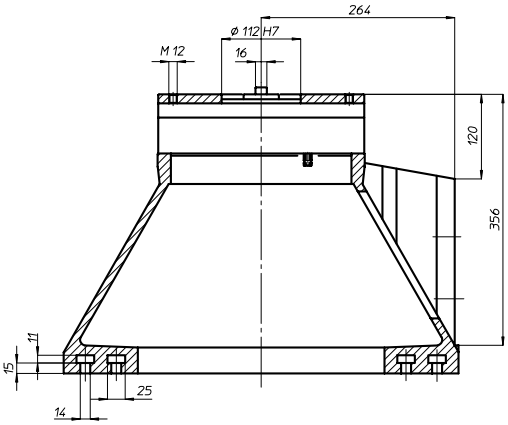
R: presa di moto attacco Rapido *drive quick connection*

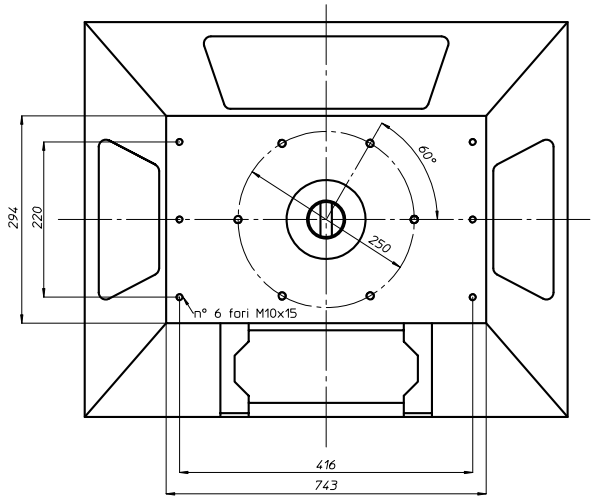


N° prese di moto *Nr. spindle drives*	**26**
Rapporto *Ratio*	**1-1**
Peso *Weight*	**Kg 210**





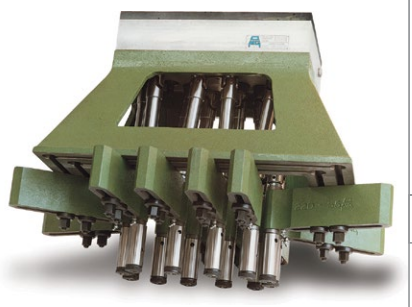




area di lavoro
working area

300 x 700

TRM43-2P



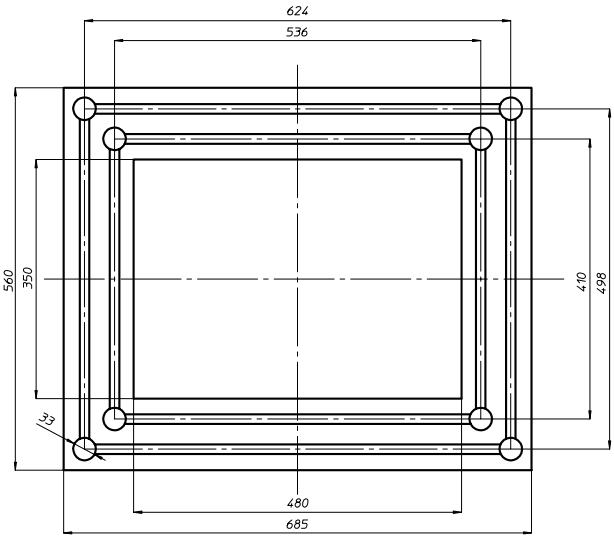
Codice testa
Head code

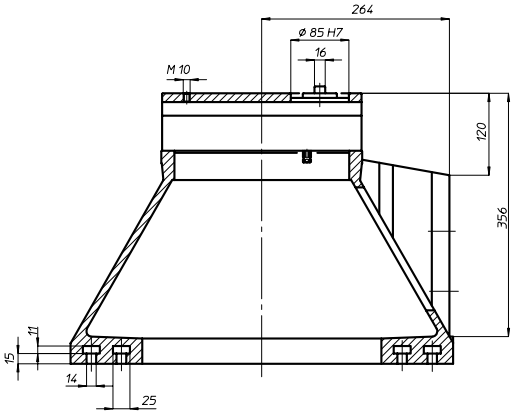
testa modello
head type

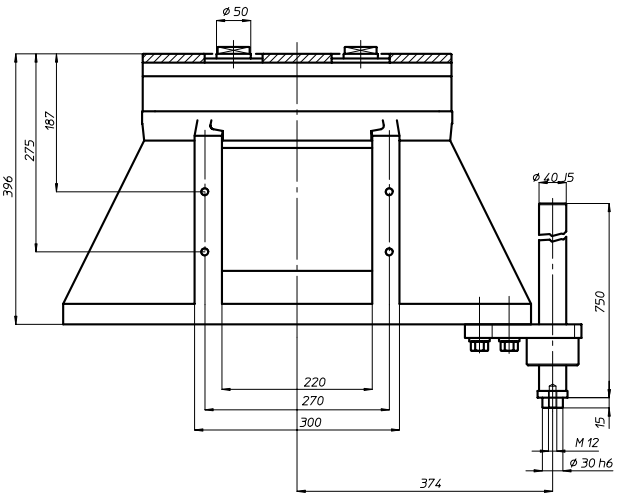
TRM43 — 16 — R — 2P

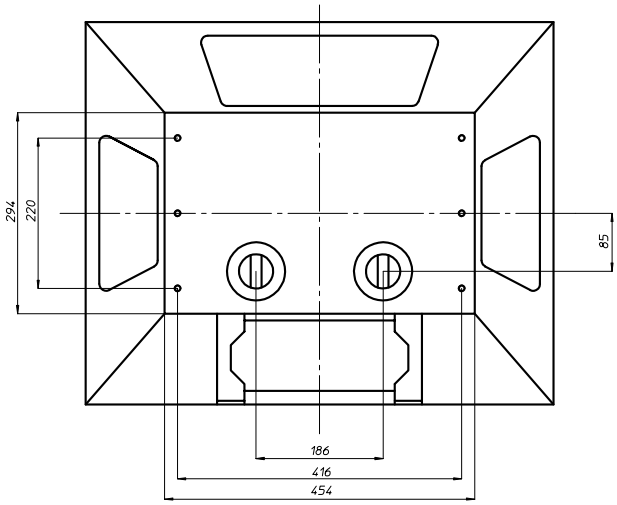
- 16: prese di moto *drives*
- R: presa di moto attacco Rapido *drive quick connection*
- 2P: n.2 prese di forza *nr. 2 central drives*

N° prese di moto *Nr. spindle drives*	8+8
Rapporto *Ratio*	1-1
Peso *Weight*	Kg 140







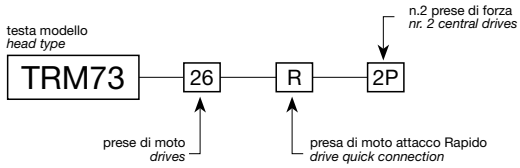


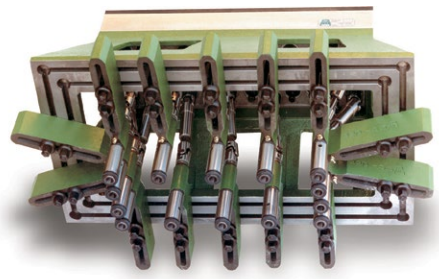
area di lavoro
working area

300 x 440

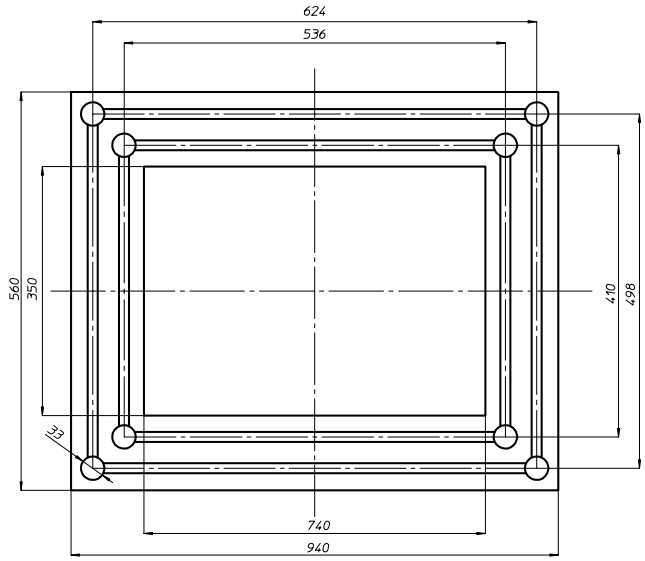
TRM73-2P

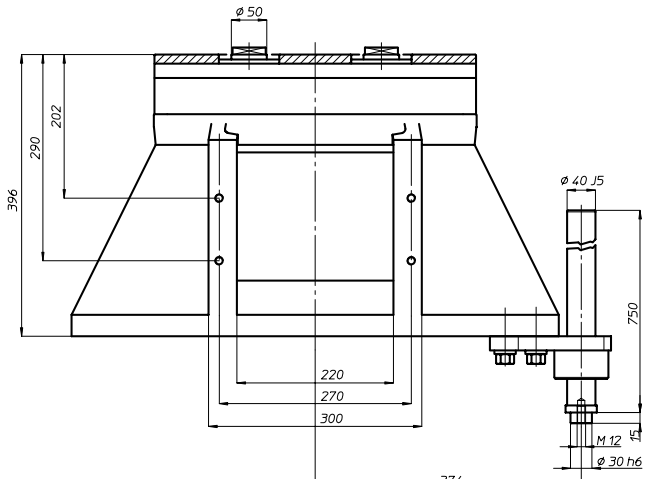
Codice testa
Head code

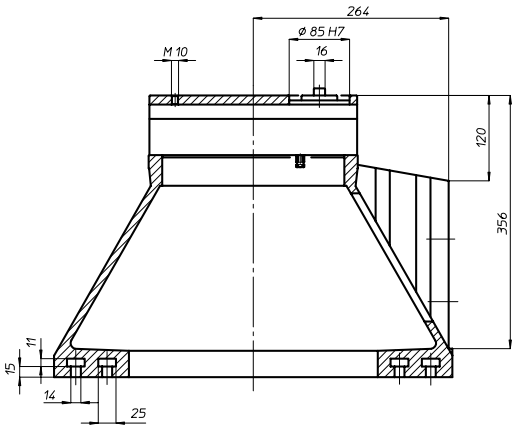


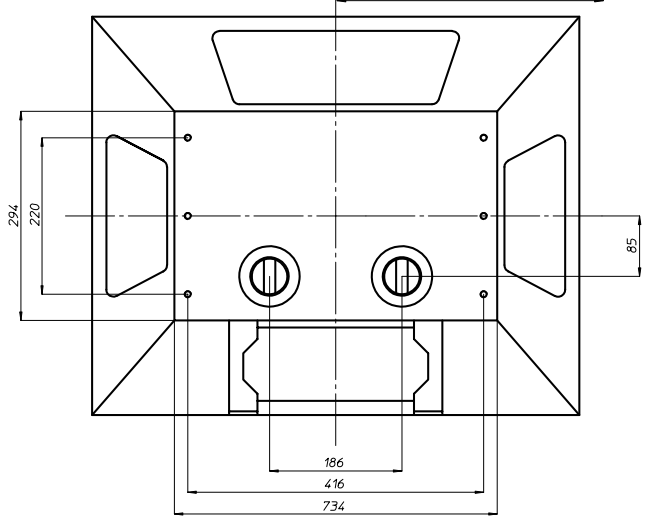


N° prese di moto *Nr. spindle drives*	**13+13**
Rapporto *Ratio*	**1-1**
Peso *Weight*	**Kg 210**







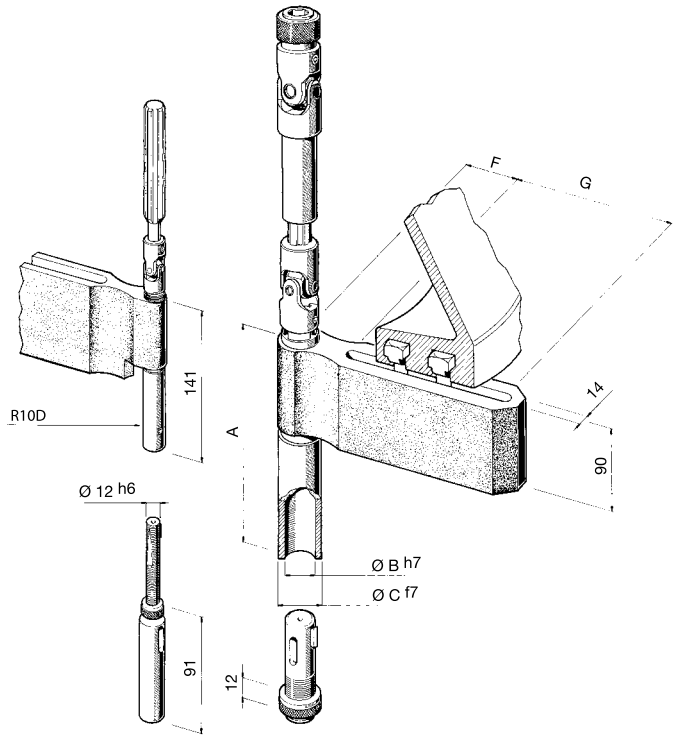


area di lavoro
working area

300 x 700

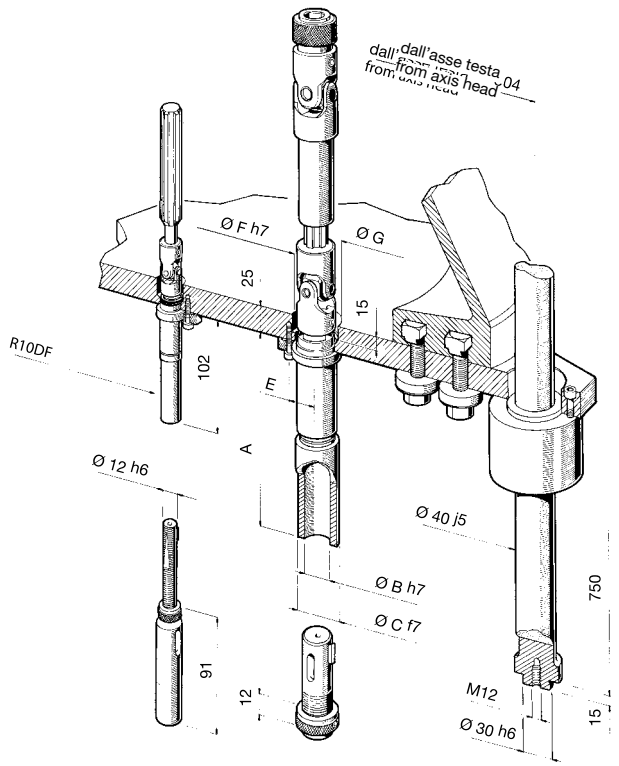
solo per teste TM-TRM
for TM-TRM heads only

su staffa - *on arm*



Tipi mandrini *spindles type*	10D	12D	15D	18D	22D	25D
Codice *code*	R10D-S5 R10D-S6	R12D-S5 R12D-S6	R15D-S5 R15D-S6	R18D-S5 R18D-S6	R22D-S5 R22D-S6	R25D-S5 R25D-S6
Capacità foratura *drilling capacity*	8	10	13	16	20	22
acciaio R=500 N/mm ghisa: GG25	10	12	15	18	22	25
Capacità maschiatura *tapping*	M6	M8	M12	M14	M16	M18
A	127	181	185	194	195	232
ØB h7	12	16	20	25	28	32
ØC f7	20	25	32	37	40	45
F	59	55	55	55	55	60
G	200 270	200 270	200 270	200 270	200 270	200 270
Interasse minimo *center distance*	23	28	32,5	37,5	40,5	50
Peso kg *weight*	4,0 4,5	4,7 5,2	5,2 5,7	5,5 6,3	6,6 7,4	8,6 9,5

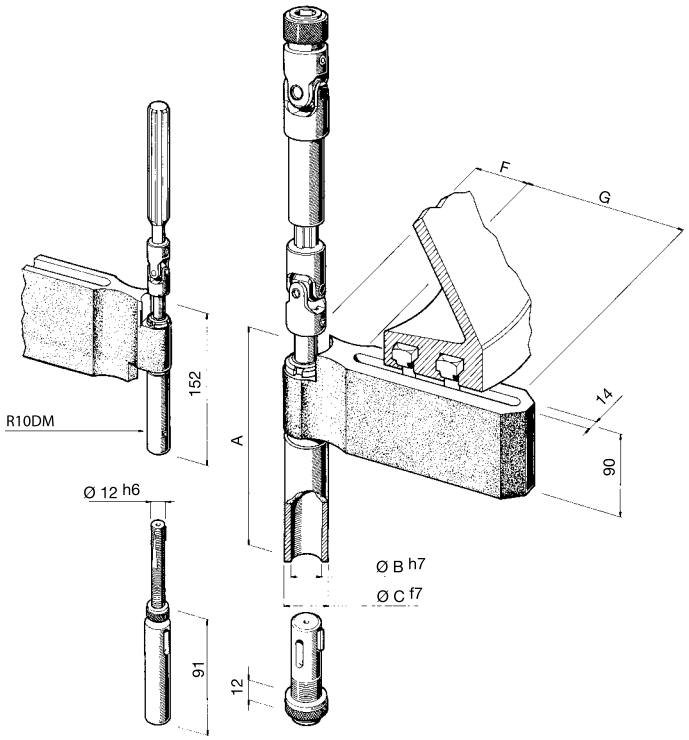
su astuccio per flangia fissa - *fixed plate spindle*



Tipi mandrini *spindles type*	10D	12D	15D	18D	22D	25D
Codice *code*	R10DF	R12DF	R15DF	R18DF	R22DF	R25DF
Capacità foratura *drilling capacity*	8	10	13	16	20	22
acciaio R=500 N/mm ghisa: GG25	10	12	15	18	22	25
Capacità maschiatura *tapping*	M6	M8	M12	M14	M16	M18
A	102	156	160	169	170	207
ØB h7	12	16	20	25	28	32
ØC f7	20	25	32	37	40	45
E Interasse vite M6 *distance screw M6*	18,5	23	25	27,5	29	34
ØF h7	23	27,5	31	36	39	50
ØG	27	32	36	40	44	56
Interasse minimo *center distance*	23,5	28	32,5	37,5	40,5	50,5
Peso kg *weight*	2,0	2,3	2,6	3,4	3,8	5,2

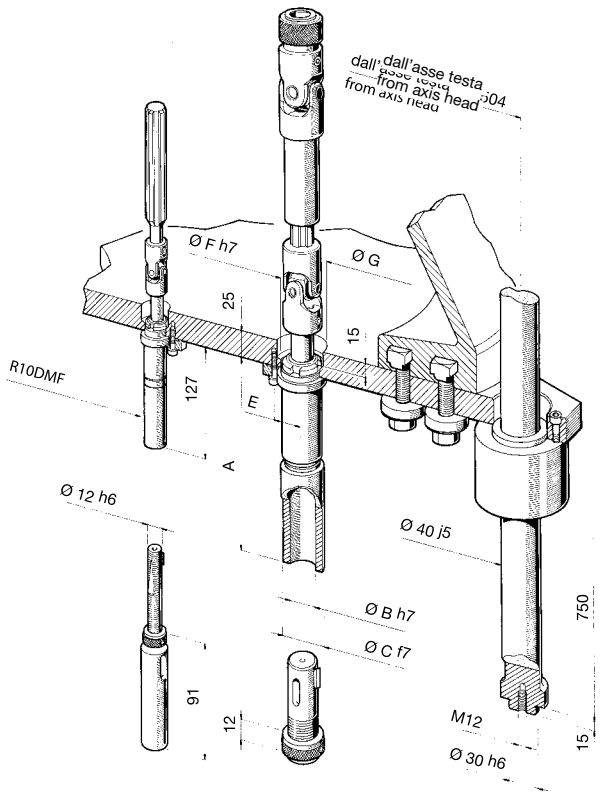
solo per teste TM-TRM
for TM-TRM heads only

su staffa - *on arm*



Tipi mandrini *spindles type*	10DM	15DM	22DM
Codice *code*	R10DM-S5 R10DM-S6	R15DM-S5 R15DM-S6	R22DM-S5 R22DM-S6
Capacità maschiatura *tapping*	M6	M12	M16
Corsa maschiatura *Tapping stroke*	40	40	40
A	152	208	217
ØB h7	12	20	28
ØC f7	20	32	40
F	59	55	55
G	200 270	200 270	200 270
Interasse minimo *center distance*	23	32,5	40,5
Peso kg *weight*	4,0 4,5	5,2 5,7	6,6 7,4

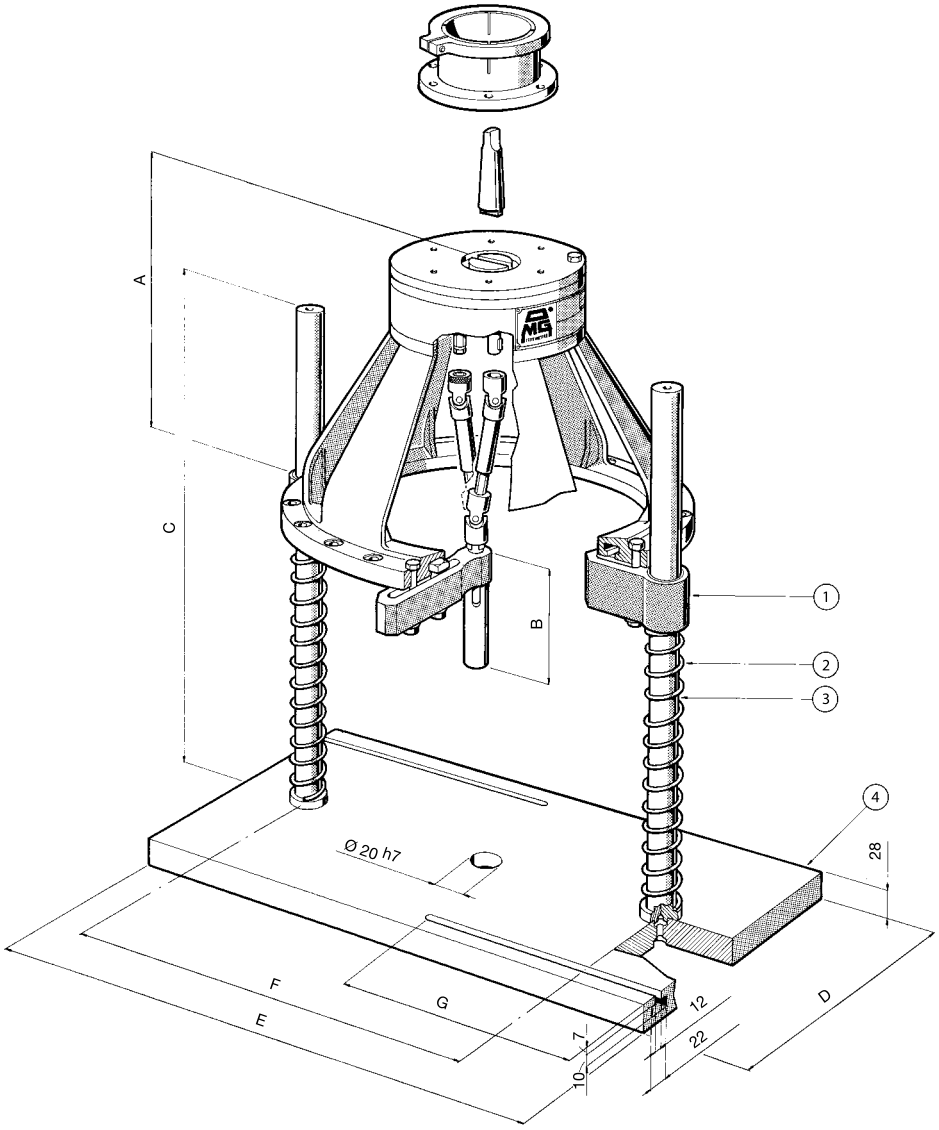
su astuccio per flangia fissa - *fixed plate spindle*



Tipi mandrini *spindles type*	10DM	15DM	22DM
Codice *code*	R10DMF	R15DMF	R22DMF
Capacità maschiatura *tapping*	M6	M12	M16
Corsa maschiatura *Tapping stroke*	40	40	40
A	127	183	192
ØB h7	12	20	28
ØC f7	20	32	40
E Interasse vite M6 *distance crew M6*	18,5	25	29
ØF f7	23	31	39
ØG	27	36	44
Interasse minimo *center distance*	23,5	32,5	40,5
Peso kg *weight*	2,0	2,6	3,8

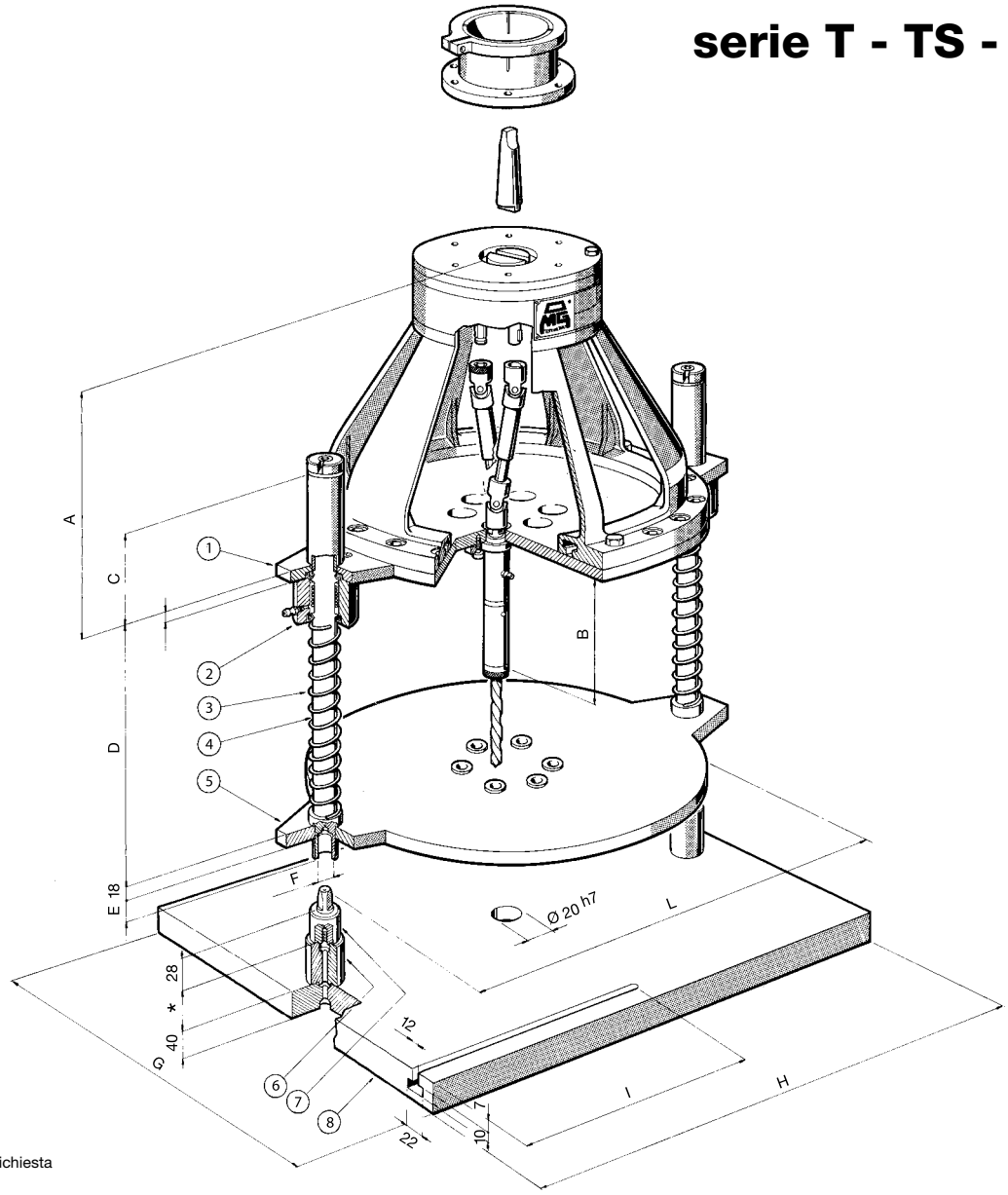
attrezzature per teste multiple
multispindle heads equipment

serie T - TS - TL - TR



Modello testa *head type*	A	B		C	D	E	F	G	1 supporto di guida *guide bush*	2 molla *spring*	3 colonna *column*	4 base *base*
		DIN 55058	Pinza ER									
T4	205	91,5	76	500	250	500	280	300	076123	076126	076120	076081
T7	205	101,5	76				350					076082
T10	236	109	94,5				404					076083
T12	260	172		650	300	650	454	350	076133	076136	076130	076084
TS12	283	172					542					076088
T15	272	175					492					076085
TS15	282	175					552					076089
T18	293	185					540					076086
TS18	299	85					582					076090
T22	317	185					540					076087
TS22	317	185					582					076091
TL20/4	237	91,5	76	500	250	500	400	300	076123	076126	076120	076092
TL20/6	237	101,5	76									
TL20/8	237	109	94,5									
TL40/12	290	175		650	300	650	604	350	076133	076136	076130	076093
TL40/16	290	185										
TL40/22	318	185										
TL60/12	290	175				850	804	450	076133	076136	076130	076094
TL60/16	290	185										
TL60/22	318	185										
TR2/12	290	175				650	548		076133	076136	076130	076095
TR2/16	290	185										
TR5/12	290	175					629					076096
TR5/16	290	185										

serie T - TS - TL - TR



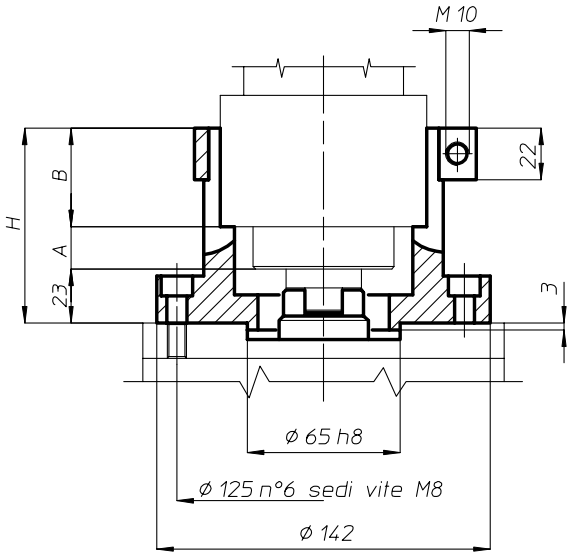
* a richiesta

Modello testa *head type*	A	B		C	D	E	ØFh7	G	H	I	L	1 *flangia fissa fixed plate*	2 *cartuccia di guida guide bush*	3 *molla spring*	4 *colonna column*	5 *maschera drilling jig*	6 *distanziale spacer*	7 *puntale push-rod*	8 *base base*
		DIN 55058	Pinza ER																
T4	205	91,5	76								280	076001				076051			076081
T7	205	101,5	76	70	280	22	10	250	500	300	350	076002	076122	076126	076121	076052	-	076127	076082
T10	236	109	94,5								404	076003				076053			076083
T12	260	172									454	076004				076054			076084
TS12	283	172									542	076005				076055			076085
T15	272	175									492	076006				076056			076086
TS15	282	175									552	076007				076057			076087
T18	293	185		100	405	27	18	300	650	350	540	076008	076132	076136	076131	076058	-	076137	076088
TS18	299	185									582	076009				076059			076089
T22	317	185									540	076010				076060			076090
TS22	317	185									582	076011				076061			076091
TL20/4	237	91,5	76																
TL20/6	237	101,5	76	70	280	22	10	250	500	300	400	076012	076122	076126	076121	076062	-	076127	076092
TL20/8	237	109	94,5																
TL40/12	290	175																	
TL40/16	290	185							650	350	604	076013				076063			076093
TL40/22	318	185																	
TL60/12	290	175																	
TL60/16	290	185							850	450	804	076014				076064			076094
TL60/22	318	185		100	405	27	18	300					076132	076136	076131		-	076137	
TR2/12	290	175																	
TR2/16	290	185							650	350	548	076015				076065			076095
TR5/12	290	175									629	076016				076066			076096
TR5/16	290	185																	

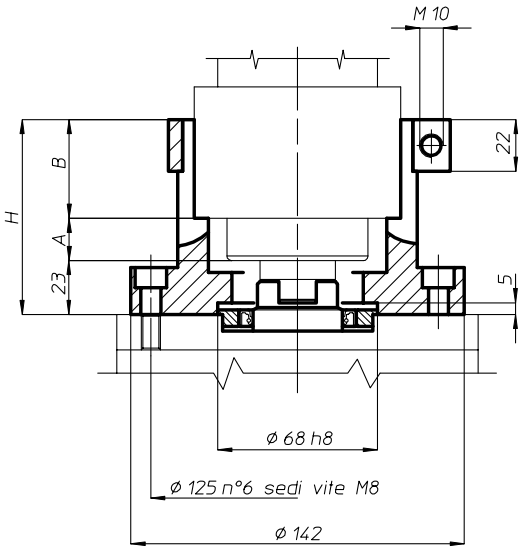
Attacco Cono Morse trascinatore
Morse Taper with driving dog

T4 - T7 - T10 - TL20...

Versione standard
Standard version

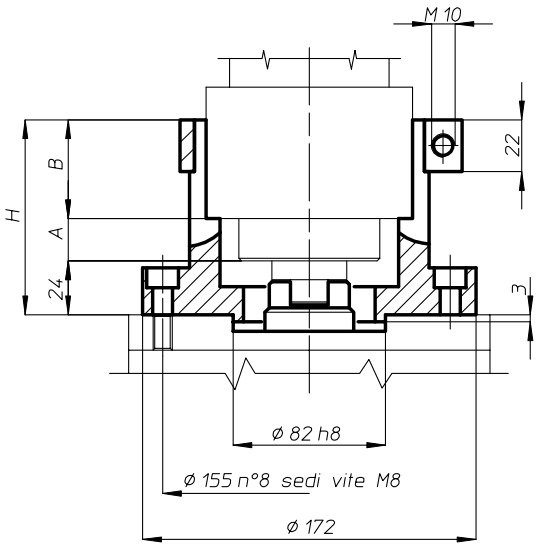


Solo versione orizzontale
For horizontal use only

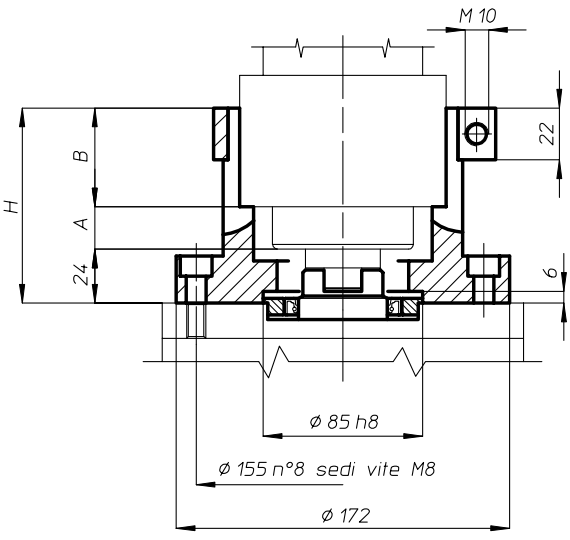


T12 - T15 - T18 - T22 - TL40... - TL60... - TR2... - TR5...

Versione standard
Standard version

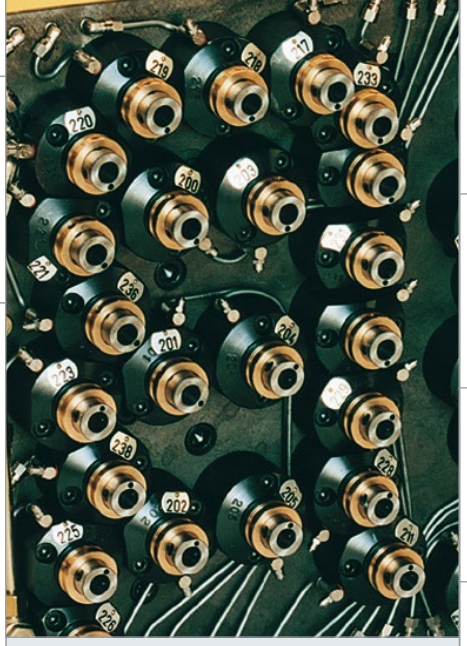


Solo versione orizzontale
For horizontal use only



note
notes

teste multiple ad assi fissi
fixed multispindle heads



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TC 9-3
TC3 9-4
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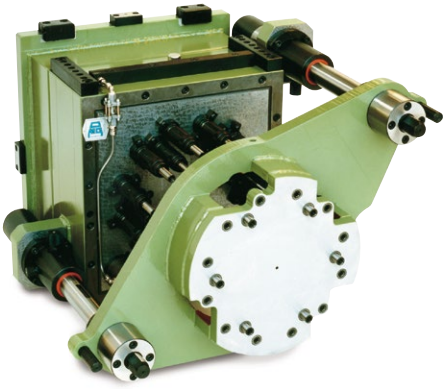
system MT

system TC

system TC3



serie TFS

teste multiple flessibili ad assi fissi
multispindle heads with fixed centers distance

system MT

Il sistema MT si utilizza dove gli interassi e le capacità di torsione sono ridotte. L'interasse minimo realizzabile è mm 10 perché al di sotto di tale misura verrebbero a mancare i requisiti di sicurezza caratteristici dei prodotti O.M.G.. Le realizzazioni MT, generalmente, hanno dimensioni contenute, pochi mandrini (3 o 4), peso ridotto (kg 2) e sono lubrificate con grasso long-life. È possibile eseguire con la medesima testa filettature con passo differente.

Tutta la componentistica, trattata termicamente, ruota interamente su cuscinetti offrendo la possibilità di raggiungere velocità di rotazione di 10.000 giri al minuto. Nonostante le caratteristiche minute, si possono comunque realizzare teste con un ragguardevole numero di mandrini (oltre 20) e con corpi di una certa dimensione.

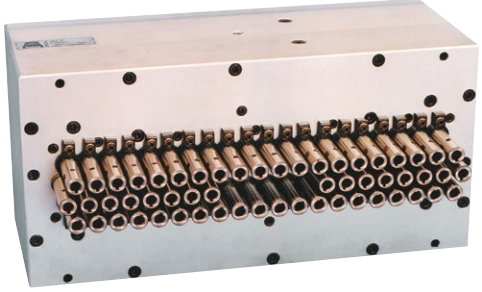
The MT system is for small centre distances and low torque requirements. The minimum centre distance is 10 mm; below this heads reliability becomes questionable. MT units are normally very compact and with 3 or 4 spindles weigh little - 2 kg for example - and are permanent grease lubricated. Rotating components are hardened and ground, and are carried in anti-friction bearings enabling these heads to run up to 10.000 rpm. In special cases, MT heads are built with large bodies and high numbers of spindles - even in excess of 20.

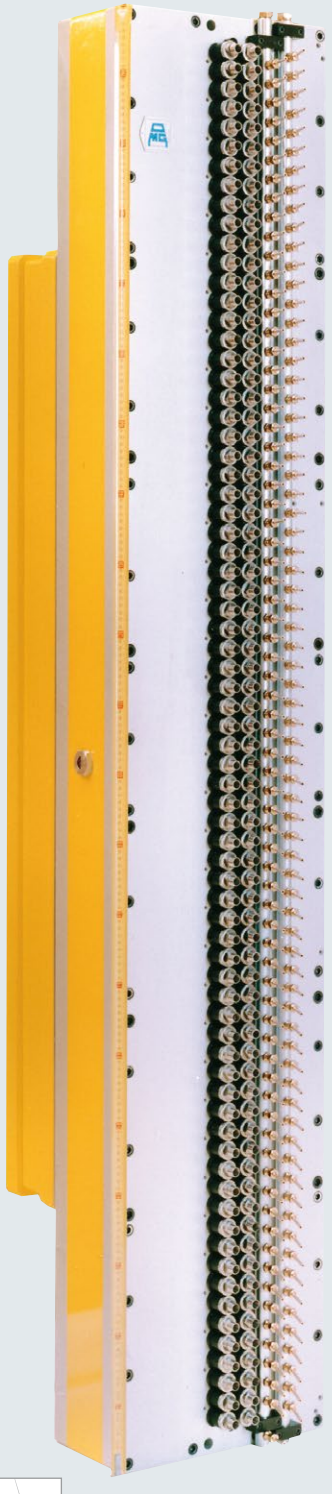
system TC

Migliaia di realizzazioni sia per trapani, unità, macchine combinate, centri di lavorazione con cambio automatico dell'utensile sono state costruite con il sistema TC, la serie di media capacità. La sua caratteristica principale sta nell'essere la più grande normalizzazione in materia di teste multiple oggi sul mercato. Corpi testa il lega di alluminio delle più varie forme e dimensioni sono normalizzati. Partendo da un interasse minimo di mm 16 si può realizzare qualsiasi figura il cliente richieda; mandrini con tutti i tipi di attacchi utensili (a pinza DIN 6499, DIN 55058, Komet ABS, DIN 1895, ecc.) ruotano su cuscinetti a rullini selezionati, su cuscinetti a sfere a contatto obliquo di precisione, su cuscinetti a rulli conici, tutti indifferentemente per potere utilizzare qualsiasi tipologia di utensile. I mandrini di maschiatura a patrona partono da un interasse di mm 28. Colonne mobili o fisse per maschiare guida utensili completano l'intera gamma. È permesso inoltre superare abbondantemente la soglia dei 10.000 giri al minuto per ottemperare alle elevate velocità richieste dagli utensili.

Many TC system - medium capacity - heads have been supplied for drilling machines, unit head applications, special machines and machining centres. Outstanding is that this standardised series has become the industries Modular multi-head market leader. Head bodies of many sizes and form have been rationalised.

With a minimum centre distance of 16 mm holes patterns can be provided for any client need; spindles with all types of tool connection (DIN 6499 collets, DIN 55058, Komet, ABS, DIN 1895, etc.) are carried in combinations of selected needle, precision angular contact ball and taper rolling bearings to suit all tool types. Threading spindles with lead nuts give a minimum centres distance of 28 mm; additionally, fixed and movable columns with bush lates for tool guidance are available when required. When the tolls or work demand. TC series head spindles can be run excess of 10.000 rpm.





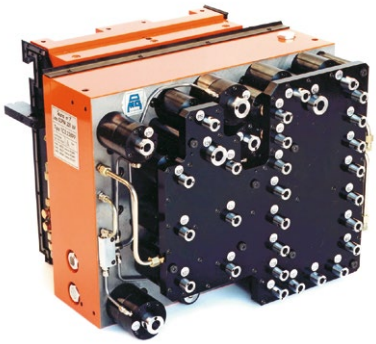
teste multiple flessibili ad assi fissi
multispindle heads with fixed centers distance

system TC3

La serie TC3 è l'espressione dell'alta tecnologia O.M.G.. È il sistema di teste utilizzato per trasmettere elevate potenze su grosse unità, rototraslanti, macchine col cambio automatico delle teste. Massicce, solide, dal peso elevato (anche kg 900) non hanno limiti di utilizzo che non siano quelli della macchina utensile.
Il corpo, normalmente in fusione di ghisa sferoidale, racchiude tutto il cinematismo rettificato, con lubrificazione forzata e prssurizzato. Vari tipi di mandrini sono disponibili su questo tipo di teste e tra essi particolarmente indicati sono quelli supportati da cuscinetti a contatto obliquo di precisione adatti ad operazioni di foratura senza guida utensile, alesatura, fresatura; in questo caso all'interno della testa si hanno due tipi di lubrificazione, ad olio per gli ingranaggi elicoidali ad evolvente rettificato e a grasso per tutti i gruppi mandrino. Anche questa serie si può equipaggiare con maschere guida utensili su colonne mobili o fisse, adduttori per refrigerante passanti per il centro dell'utensile.

Molte macchine utensili non potrebbero funzionare senza queste teste multiple e la qualità delle lavorazioni dipende esclusivamente dalla loro precisione, tanto che si potrebbero definire vere e proprie "macchine utensili".

The TC3 series is the expression of O.M.G.'s cutting-edge technology. This system of heads is used for transmitting high powers on large units, rotational-translating, machines with automatic head change. Sturdy, strong, of heavy weight (up to 900 kg) they have no restrictions as regards use excepting those of all machine tools.
The body, normally made of spheroidal cast iron, encloses all the ground kinematic mechanism, with forced and pressurised lubrication. Various types of spindles are available on this type of head and, among these, especially appropriate are those supported by precision oblique contact bearings suitable for drilling operations without tool jigs, boring, milling; in this case, inside the head are two types of lubrication - oil for the helical gears with ground involute and grease for all the spindle units. This series can also be equipped with tool jigs on moving or fixed columns, coolant feeders passing through the centre of the tool.



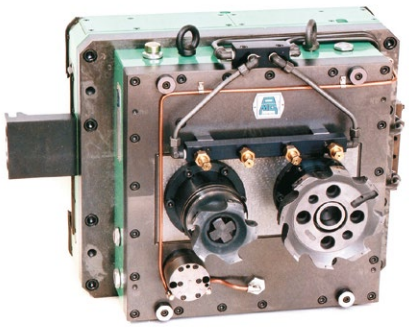
Many machine tools could not operate without these multiple heads and the quality of machining operations depends on their precision alone, to the extent that they could be considered "machine tools" in their own right.

serie TFS

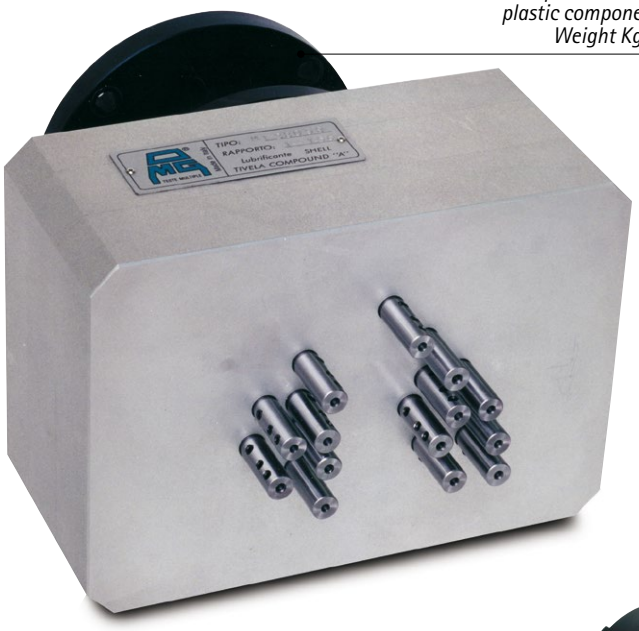
TFS: Testa Fissa Speciale. Speciale perché la sua progettazione è unica in quanto nasce per soddisfare richieste specifiche e particolari per le quali non può essere utilizzato nessuno degli standard già esistenti.
A differenza delle altre serie speciali MT-TC-TC3 che siamo riusciti a standardizzare e quindi a redigere delle tabelle tecniche, per la serie TFS possiamo presentarvi solo immagini, in quanto la loro unicità non ci permette di definire alcuna scheda tecnica, se non una specifica per ogni testa.

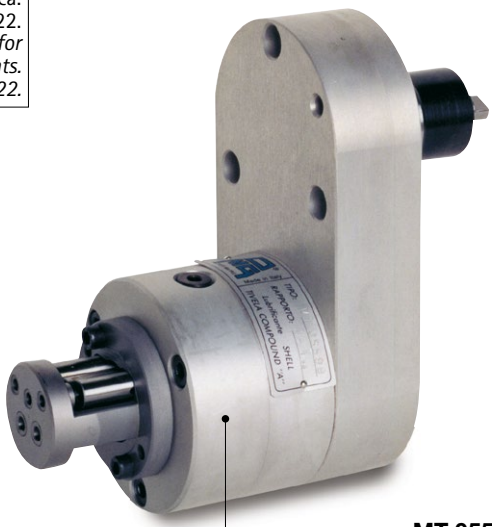
In breve:
1- non hanno limiti di dimensioni perché dipendono dalla macchina su cui verranno applicate;
2-possono trasmettere potenze fino e oltre il limite della macchina stessa;
3-possono equipaggiare una qualsiasi macchina utensile o far parte di applicazioni particolari.
Tutta la testa ed i suoi componenti sono studiati propriamente per soddisfare le caratteristiche di lavorazione che il pezzo, gli utensili e il cliente richiede.

TFS: Special Fixed Head. Special because of its unique design, intended to cater for specific requirements and parts for which no existing standards can be used.
Unlike the other special series MT-TC-TC3 which we have managed to standardise and for which we have consequently drawn up technical charts, for the TFS series, we are only able to provide you with images because their uniqueness makes it impossible to define any technical sheet, except a specific one for each head.
In short:
1- there are no dimensional limits because these depend on the machine on which they are to be fitted;
2-they can transmit powers up to and beyond the limit of the machine itself;
3-they can equip any machine tool or become part of special applications.
The entire head and its component parts have been designed to satisfy the machining characteristics that the piece, the tools and the customer require.



MT 38098
Testa multipla per rivettatura componenti in plastica.
Peso Kg 22.
Rivet multispindle head for plastic components.
Weight Kg 22.





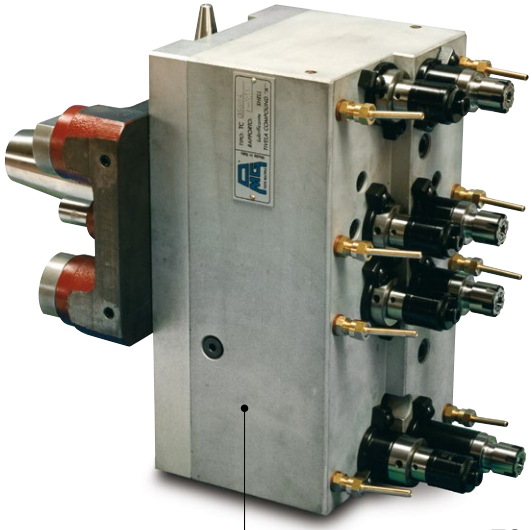
MT 05599
Testa multipla per foratura corpo rubinetto. Applicazione su tornio. Peso Kg 4,8.
Multispindle head for tap's body drilling on turning centre.
Weight Kg 4,8.

MT 22604
Testa multipla per foratura su corpo pompa. Applicazione su torretta a revolver. Peso Kg 11,5.
Multispindle head for pump's body drilling on turret head.
Weight Kg 11,5.

MT 38205
Testa multipla di maschiatura con compensazione a trazione. Peso Kg 16,5.
Multispindle tapping head with tapping compensation. Weight Kg 16,5.

MT 09305
Testa multipla per foratura su valvole oleodinamiche. Applicazione su centro di lavoro con ATC. Peso Kg 19.
Multispindle head for hydraulic control valves drilling on ATC machining centre.
Weight Kg 19.

TC 15102
Testa di foratura su ghisa.
Applicazione su tornio.
Peso Kg 47.
Drilling multispindle head on cast iron for turning centre. Weight Kg 47.

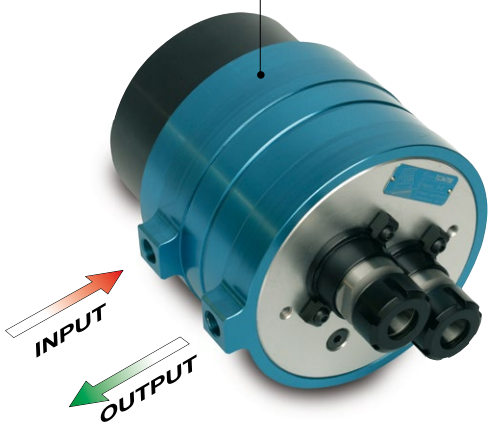


TC 06694
Testa di foratura su alluminio per centro di lavoro con ATC. Peso Kg 33,5.
Drilling multispindle head on aluninium for ATC. Weight Kg 33,5.

TC 40604
Testa di foratura su alluminio, punte in metallo duro, passaggio refrigerante centro utensile a 50 Bar, 9500 giri/min. Peso Kg 26.
Drilling multispindle head on aluninium, hard metal tools, coolant through the centre tool at 50 Bar, 9500 Rpm. Weight Kg 26.

TC 13006
Testa multipla per lavorazione testata motore a scoppio. Peso Kg 8,5.
Multispindle head for working internal combustion engine. Weight Kg 8,5.

TC 34706
Testa multipla per foratura ad alta velocità con circolazione liquido per stabilizzazione temperatura. Peso Kg 9.
High speed multispindle head with coolant for temperature control. Weight Kg 9.



TC 38204
Testa multipla di spazzolatura con doppia rotazione: testa e mandrini. Peso Kg 224.
Brushing multispindle head with double rotation: body and spindles. Weight Kg 224.

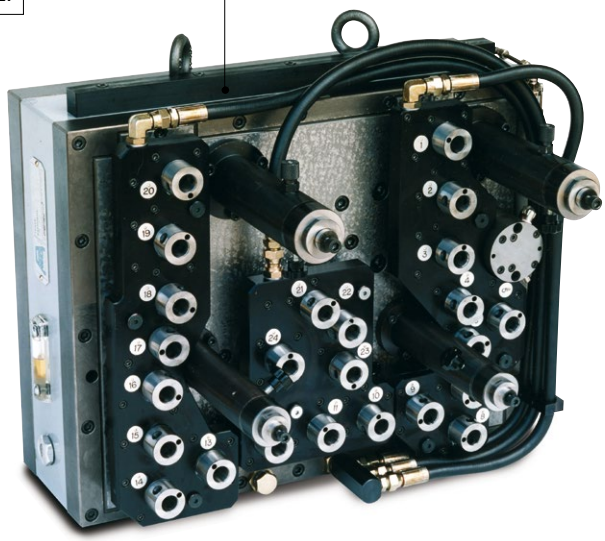
TC3 43889
Testa di maschiatura equipaggiata di maschiatori con controllo rottura utensile a radiofrequenza. Peso Kg 69.
Tapping head equipped with tapping spindles with broken tool control device by remote control. Weight Kg 69.

TC3 33391
Testa di maschiatura a patrona di componente in ghisa per motore agricolo. Peso Kg 450.
Lead screw tapping head for tractor engine. Weight Kg 450.

TC3 35602
Testa di alesatura e smussatura con utensile combinato su cerchi ruota in acciaio per autotrazione. Peso Kg 285.
Boring and chamfering head with combined tools on truck's steel rim. Weight Kg 285.

TC3 35205
Testa di foratura f25 con passaggio refrigerante per centro utensile a 50 Bar su componenti per desalatori. Peso Kg 322.
Drilling multispindle head f25 with coolant through the centre tool at 50 Bar for desalinators. Weight Kg 322.

TC3 10191
Testa di foratura basamento motore di autoveicolo. Peso Kg 540.
Drilling head for car engine. Weight Kg 540.



TFS 38906
Testa di fresatura per biella in acciaio.
Peso Kg 72,5.
Milling head for steel connecting rod.
Weight Kg 72,5.

TFS 34102
Testa di fresatura pendolare a 24°.
Peso Kg 25,5.
Milling head with 24° pendular movement.
Weight Kg 25,5.

TFS 06806
Testa di foratura con movimento assiale mandrino. Peso Kg 15.
Drilling head with axial spindle movement weight. Weight Kg 15.

TFS 30605
Testa di foratura su 4 lati di componente oleodinamico. Peso Kg 11.
Drilling head on 4 sides of hydraulic components. Weight Kg 11.

TFS 36805
Testa di lavorazione facce di motore automobile. Peso Kg 291.
Multispindle head for working on different car engine faces. Weight Kg 291.

TFS 21704
Testa con slitta movimentata idraulicamente. Peso Kg 6,5.
Head equipped with hydraulic slide. Weight Kg 6,5.

ACCESSORI
ACCESSORIES

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Ghiere per pinze DIN 6499
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Mandrini a cambio rapido per maschiare con spostamento parallello all'asse
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Bussole porta maschio a cambio rapido
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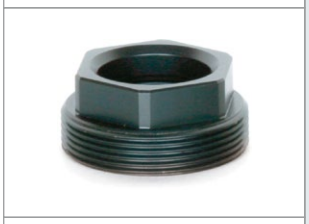
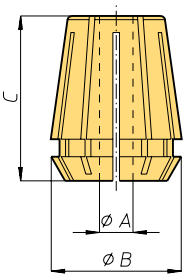
Morse taper with driving dog 10-13









Pinze DIN 6499 forma B - tipo ER
Spring collets DIN 6499 form B - ER type

ER8		ϕB=8,5		C=15												
Codice Code	224400	224401	224402	224403	224404	224405	224406	224407	224408							
ϕA	1 - 0,5	1,5 - 1	2 - 1,5	2,5 - 2	3 - 2,5	3,5 - 3	4 - 3,5	4,5 - 4	5 - 4,5							

ER11		ϕB=11,5		C=18												
Codice Code	224411	224412	224413	224414	224415	224416	224417	224418	224419	224420	224421	224422	224423			
ϕA	1 - 0,5	1,5 - 1	2 - 1,5	2,5 - 2	3 - 2,5	3,5 - 3	4 - 3,5	4,5 - 4	5 - 4,5	5,5 - 5	6 - 5,5	6,5 - 6	7 - 6,5			

ER16		ϕB=17		C=27,5												
Codice Code	224426	224424	224425	224467	224436	224429	224430	224431	224432	224433	224434	224435				
ϕA	1 - 0,5	1,5 - 1	2 - 1,5	2,5 - 2	3 - 2,5	4 - 3	5 - 4	6 - 5	7 - 6	8 - 7	9 - 8	10 - 9				

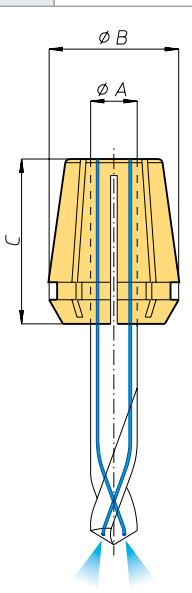
ER20		ϕB=21		C=31,5												
Codice Code	224451	224437	224450	224409	224410	224440	224441	224442	224443	224444	224445	224446	224447	224448	224449	
ϕA	1 - 0,5	1,5 - 1	2 - 1,5	2,5 - 2	3 - 2,5	4 - 3	5 - 4	6 - 5	7 - 6	8 - 7	9 - 8	10 - 9	11 - 10	12 - 11	13 - 12	

ER25		ϕB=26		C=34												
Codice Code	224468	224469	224470	224471	224472	224454	224455	224456	224457	224458	224459	224460	224461	224462	224463	224464
ϕA	1 - 0,5	1,5 - 1	2 - 1,5	2,5 - 2	3 - 2,5	4 - 3	5 - 4	6 - 5	7 - 6	8 - 7	9 - 8	10 - 9	11 - 10	12 - 11	13 - 12	14 - 13
Codice Code	224465	224466														
ϕA	15 - 14	16 - 15														

ER32		ϕB=33		C=40												
Codice Code	224473	224474	224476	224477	224478	224479	224480	224481	224482	224483	224484	224485	224486	224487		
ϕA	2,5 - 2	3 - 2,5	4 - 3	5 - 4	6 - 5	7 - 6	8 - 7	9 - 8	10 - 9	11 - 10	12 - 11	13 - 12	14 - 13	15 - 14		
Codice Code	224488	224489	224490	224491	224492											
ϕA	16 - 15	17 - 16	18 - 17	19 - 18	20 - 19											

ER40		ϕB=41		C=46												
Codice Code	224499	224500	224501	224502	224503	224504	224505	224506	224507	224508	224509	224510	224511	224512	224513	
ϕA	3 - 2	4 - 3	5 - 4	6 - 5	7 - 6	8 - 7	9 - 8	10 - 9	11 - 10	12 - 11	13 - 12	14 - 13	15 - 14	16 - 15	17 - 16	
Codice Code	224514	224515	224516	224517	224518	224519	224520	224521	224522	224523	224524	224525	224526			
ϕA	18 - 17	19 - 18	20 - 19	21 - 20	22 - 21	23 - 22	24 - 23	25 - 24	26 - 25	27 - 26	28 - 27	29 - 28	30 - 29			

ER50		ϕB=52		C=60												
Codice Code	224530	224531	224532	224533	224534	224535	224536	224537	224538	224539	224540	224541	224542	224543	224544	224545
ϕA	6 - 4	8 - 6	10 - 8	12 - 10	14 - 12	16 - 14	18 - 16	20 - 18	22 - 20	24 - 22	25 - 23	26 - 24	28 - 26	30 - 28	32 - 30	34 - 32



Pinze DIN 6499
Spring collets DIN 6499

ER16 UPV		ϕB=17		C=27,5												
Codice Code	235205	235206	235207	235208	235209	235210	235211	235212								
ϕA	3	4	5	6	7	8	9	10								

ER20 UPV		ϕB=21		C=31,5												
Codice Code	235215	235216	235217	235218	235219	235220	235221	235222	235223	235224	235225					
ϕA	3	4	5	6	7	8	9	10	11	12	13					

ER25 UPV		ϕB=26		C=34												
Codice Code	235228	235229	235230	235231	235232	235233	235234	235235	235236	235237	235238	235239	235240	235241		
ϕA	3	4	5	6	7	8	9	10	11	12	13	14	15	16		

ER32 UPV		ϕB=33		C=40												
Codice Code	235246	235247	235248	235249	235250	235251	235252	235253	235254	235255	235256	235257	235258	235259	235260	
ϕA	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Codice Code	235261	235262	235263													
ϕA	18	19	20													

ER40 UPV		ϕB=41		C=46												
Codice Code	235266	235267	235268	235269	235270	235271	235272	235273	235274	235275	235276	235277	235278	235279	235280	
ϕA	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Codice Code	235281	235282	235283	235284	235285	235286	235287	235288								
ϕA	19	20	21	22	23	24	25	26								

Pinze di maschiatura con compensazione - tipo ET1
Tapping collets with compensation - ET1 type

ET 1-12	A=21,5			ϕB=11,5		C=5,5		CAPACITÀ M2 - M4									
Codice Code	224650	224651	224652	224653	224654												
ϕA	1,4	2,2	2,5	2,8	3,5												

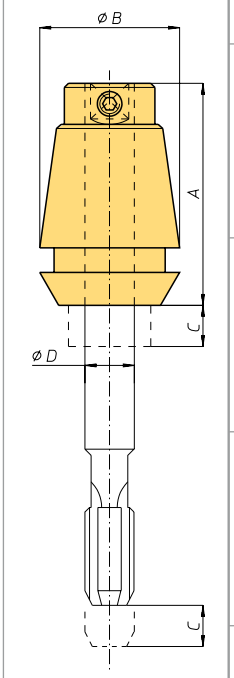
ET 1-16	A=27			ϕB=17		C=7		CAPACITÀ M2 - M8									
Codice Code	224658	224659	224660	224661	224662	224663	224664	224665									
ϕA	1,4	2,2	2,5	2,8	3,5	4	4,5	6									

ET 1-20	A=31			ϕB=21		C=7		CAPACITÀ M2 - M10									
Codice Code	224670	224671	224672	224673	224674	224675	224676	224677									
ϕA	2,2	2,5	2,8	3,5	4	4,5	6	7									

ET1-25	A=34			ϕB=26		C=8		CAPACITÀ M2 - M12									
Codice Code	224682	224683	224684	224685	224686	224687	224688	224689	224690	224691							
ϕA	2,2	2,5	2,8	3,5	4	4,5	6	7	8	9							

ET 1-32	A=43			ϕB=33		C=10		CAPACITÀ M35 - M16									
Codice Code	224695	224696	224697	224698	224699	224700	224701	224702	224703								
ϕA	4	4,5	6	7	8	9	10	11	12								

ET 1-40	A=54			ϕB=41		C=13		CAPACITÀ M5 - M20									
Codice Code	224706	224707	224708	224709	224710	224711	224712	224713	224714								
ϕA	6	7	8	9	10	11	12	14	16								



Pinze di maschiatura senza compensazione - tipo ER
Tapping collets without compensation - ER type

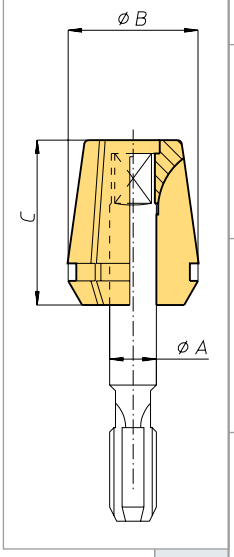
ER 16 GB	ϕB=16			C=27,5													
Codice Code	224585	224587	22458	224589	224590												
ϕA	4,5	6	7	8	9												

ER 20 GB	ϕB=20			C=31,5													
Codice Code	224593	224595	224596	224597	224598	224599	224600										
ϕA	4,5	6	7	8	9	10	11										

ER 25 GB	ϕB=25			C=34													
Codice Code	224604	224606	224607	224608	224609	224610	224611	224612	224613	224614							
ϕA	4,5	6	7	8	9	10	11	12	14	16							

ER 32 GB	ϕB=32			C=40													
Codice Code	224617	224619	224620	224621	224622	224623	224624	224625	224626	224627	224628	224629					
ϕA	4,5	6	7	8	9	10	11	12	14	16	18	20					

ER 40 GB	ϕB=40			C=46													
Codice Code	224634	224635	224636	224637	224638	224639	224640	224641	224642	224643	224644	224645					
ϕA	6	7	8	9	10	11	12	14	16	18	20	22					

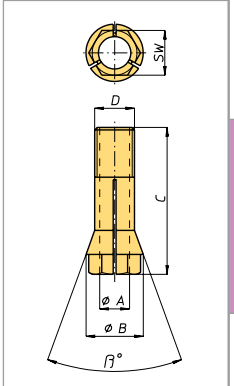


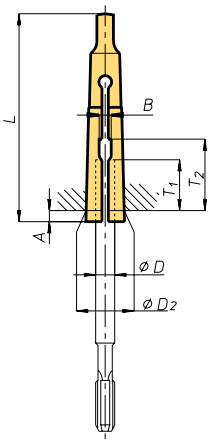
Pinze
Collets

6023E	ϕB=6,5		C=20			D=M5x0,6		SW=5,5		β°=20°		Coppia serraggio (Nm)=3					
Codice Code	224740	224741	224742	224743	224746												
ϕA	1	1,5	2	2,5	3												

600E	ϕB=9		C=28,5			D=M6x0,75		SW=7		β°=20°		Coppia serraggio (Nm)=5					
Codice Code	224574	224575	224576	224577	224578	224579											
ϕA	1,5	2	2,5	3	3,5	4											

601E	ϕB=11		C=33			D=M8x0,75		SW=9		β°=20°		Coppia serraggio (Nm)=9					
Codice Code	224728	224729	224730	224731	224732	224733	224734	224735	224736	224737							
ϕA	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6							

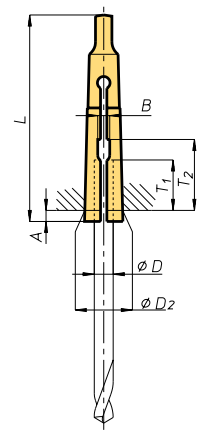




Pinze porta maschi DIN 6328
Tapholder collets DIN 6328

DIN 6328 - CONO MORSE 1	D2=12.065	A=3,5	L=65,5						
D	**2,5**	**2,8**	**3,5**	**4**	**4,5**	**6**	**7**	**8**	**9**
Codice Code	224000	224002	224008	224010	224012	224018	224022	224024	224026
B	2,2	2,2	2,8	3,1	3,5	5,1	5,7	6,3	7,3
T1	15	15	16	16	18	19,5	19,5	22	25
T2	19	19	21	24	24	26	27	30	32

DIN 6328 - CONO MORSE 2	D2=17.78	A=5	L=80				
D	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Codice Code	224112	224116	224120	224122	224126	224128	224134
B	5,1	5,7	6,4	7,3	8,3	9,3	9,3
T1	19,5	19,5	19,5	22	23	24	24
T2	26	26	27	22	32	34	34



Pinze porta punte DIN 6329
Toolholder collets DIN 6329

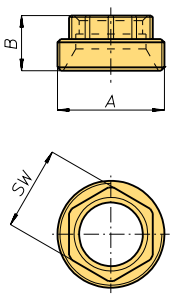
DIN 6329 - CONO MORSE 1	D2=12.065	A=3,5	L=65,5																		
D	**3**	**3,2**	**3,5**	**3,75**	**4**	**4,25**	**4,5**	**4,75**	**5**	**5,25**	**5,5**	**5,75**	**6**	**6,25**	**6,5**	**6,75**	**7**	**7,25**	**7,5**	**7,75**	**8**
Codice Code	224164	224166	224168	224170	224172	224174	224176	224178	224180	224182	224184	224186	224188	224190	224192	224194	224196	224198	224200	224202	224204
B	1,8			2,2		2,4		2,7				3,2				3,8					
T1	20											22				22					
T2	25					26						29				29					

DIN 6329 - CONO MORSE 2	D2=17.78	A=5	L=80													
D	**5,5**	**6**	**6,5**	**7**	**7,5**	**8**	**8,5**	**9**	**9,5**	**10**	**10,5**	**11**	**11,5**	**12**	**12,5**	**13**
Codice Code	224260	224262	224264	224266	224268	224270	224272	224274	224276	224278	224280	224282	224284	224286	224288	224290
B	3,2			3,8			4,8			5,3			6,3			
T1	22						25			28						
T2	29						33			37			39			

Ghiere esagonali per pinze DIN 6499
Exagon clamping nut for spring collets DIN 6499

Ghiera *Nut*	Codice *Code*	ϕA	B	SW	Coppia serraggio *Clamping force* (Nm)
ER 11AS	224951	M18 x1	10	13	24 (30)
ER 16AC	224950	M24 x1	11	19	40 (50)
ER 20AC	224952	M28 x1,5	14	22	52 (65)
ER 25AC	224953	M32 x1,5	14	27	80 (100)
ER 32AC	224954	M40 x1,5	17,5	32	104 (130)

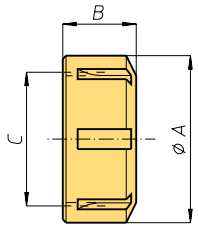
Tra parentesi valore massimo - *Beetween brackets max. value*



Ghiere equilibrate per pinze DIN 6499
Balanced clamping nut for spring collets DIN 6499

Ghiera *Nut*	Codice *Code*	ϕA	B	C	Coppia serraggio *Clamping force* (Nm)	
					Pinze con scarico *Spring collet with extractor*	Pinze senza scarico *Spring collet without extractor*
ER 16MS	224921	22	17,8	M19 x1	40 (50)	56 (70)
EXE 20	224922	35	19	M25 x1,5	32 (40)	80 (100)
EXE 25	224923	42	20	M32 x1,5	104 (130)	104 (130)
EXE 32	224925	50	22,5	M40 x1,5	136 (170)	136 (170)

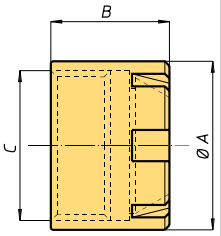
Tra parentesi valore massimo - *Beetween brackets max. value*

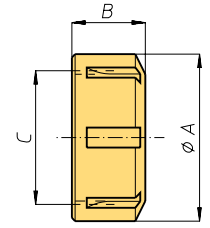


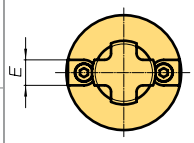
Ghiere equilibrate per pinze DIN 6499
Balanced clamping nut for spring collets DIN 6499

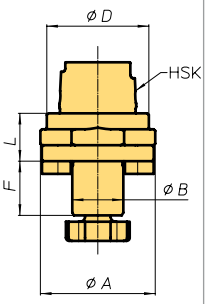
Ghiera *Nut*	Codice *Code*	ϕA	B	C	Coppia serraggio *Clamping force* (Nm)	
					Pinze con scarico *Spring collet with extractor*	Pinze senza scarico *Spring collet without extractor*
ER 8M	224900	11,8	10,8	M10 x0,75	5 (6)	5 (6)
ER 11M	224902	16	12	M13 x0,75	12 (15)	16 (20)
ER 16M	224904	22	18	M19 x1	24 (30)	24 (30)
ER 20M	224906	28	21	M24 x1	28 (35)	28 (35)
ER 25M	224908	35	20	M30 x1	32 (40)	32 (40)
ER 20UM	224910	35	19	M25x1,5	32 (40)	80 (100)
ER 25UM	224912	42	20	M32x1,5	104 (130)	104 (130)
ER 32UM	224914	50	22,5	M40x1,5	136 (170)	136 (170)
ER 40UM	224916	63	25,5	M50x1,5	176 (220)	176 (220)
ER 50UM	224918	78	35	M64x2	240 (300)	240 (300)

Tra parentesi valore massimo - *Beetween brackets max. value*





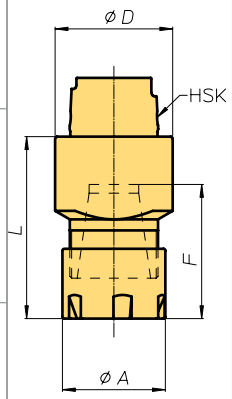




Inserto HSK porta fresa
HSK mill adapters

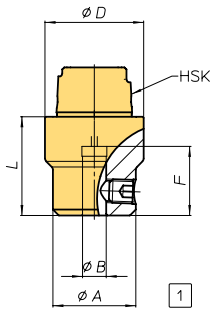
Codice *Code*	Grandezza *Size*	HSK	ϕA	ϕB	ϕD	E	F	L	Vite *Screw*	Chiave* *Wrench**
009401	HSK 32-16	32	36	16	32	8	17	15	M8	097419
009404	HSK 40-16	40	40	16	40	8	17	15	M8	
009405	HSK 40-22	40	54	22	40	10	19	22	M10	097415
009416	HSK 50-22	50	54	22	50	10	19	23	M10	
009406	HSK 50-27	50	64	27	50	12	21	23	M12	097416
009417	HSK 63-27	63	64	27	64	12	21	25	M12	
009408	HSK 63-32	63	74	32	63	14	24	25	M16	097417
009414	HSK 80-32	80	80	32	80	14	24	35	M16	
009413	HSK 80-40	80	80	40	80	16	27	35	M20	097591

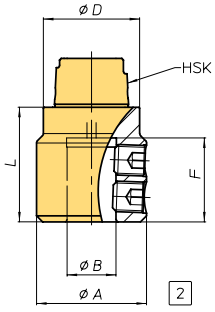
* Le chiavi non sono comprese - * *The wrench aren't included*



Inserto HSK porta pinze per utensili a gambo cilindrico
HSK adapters with collet for cylindrical shank tools

Codice *Code*	Grandezza *Size*	HSK	Pinza *Collet*	ϕA	ϕD	F	L	Ghiera *Nut*
009400	HSK 32-ER 20M	32	ER 20	28	32	37,5	49,5	ER 20M
009402	HSK 32-ER 25M	32	ER 25	35	32	41	53	ER 25M
009415	HSK 40-ER 20M	40	ER 20	28	40	37,5	49,5	ER 20M
009403	HSK 40-ER 25M	40	ER 25	35	40	41	54	ER 25M
009418	HSK 40-ER 32M	40	ER 32	50	42	47	59,5	ER 32UM
009407	HSK 50-ER 32	50	ER 32	50	50	47	64	ER 32UM
009409	HSK 63-ER 32	63	ER 32	50	63	47	65	ER 32UM
009410	HSK 63-ER 40	63	ER 40	63	63	53	71	ER 40UM
009411	HSK 80-ER 40	80	ER 40	63	80	53	73,5	ER 40UM
009412	HSK 80-ER 50	80	ER 50	78	80	69	91,5	ER 50UM



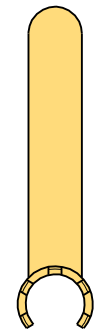


Inserto HSK Wheldon/Whistle Notch
Adapter HSK Wheldon/Whistle Notch

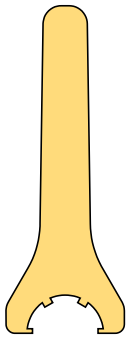
Codice *Code*	Grandezza *Size*	HSK	ϕA	ϕD	F	L	B	*TIPO Type*
228220	HSK 32 W8	32	28	32	30	45	8	
228221	HSK 32 W10	32	32	32	30	45	10	
228222	HSK 32 W12	32	32	32	35	50	12	
228223	HSK 40 W8	40	28	40	30	45	8	
228224	HSK 40 W10	40	35	40	30	45	10	
228225	HSK 40 W12	40	40	40	35	50	12	
228226	HSK 40 W16	40	40	40	40	55	16	
228227	HSK 50 W8	50	28	50	30	45	8	
228228	HSK 50 W10	50	35	50	30	45	10	1
228229	HSK 50 W12	50	42	50	35	50	12	
228230	HSK 50 W16	50	50	50	40	55	16	
228231	HSK 50 W20	50	50	50	45	60	20	
228232	HSK 63 W8	63	28	63	30	45	8	
228233	HSK 63 W10	63	35	63	30	45	10	
228234	HSK 63 W12	63	42	63	35	50	12	
228235	HSK 63 W16	63	50	63	40	55	16	
228236	HSK 63 W20	63	52	63	45	60	20	
228237	HSK 63 W25	63	63	63	50	70	25	2
228238	HSK 63 W32	63	72	63	55	75	32	

Chiavi per ghiere
Clamping nuts wrench

Chiavi *Keys*	Codice *Code*	Per ghiera *For clamping nut*			
CE 8M	231300	ER 8M			
CE 11M	231302	ER 11M			
CE 16M	231306	ER 16M			
CE 20M	231309	ER 20M			
CE25M	231313	ER 25M			

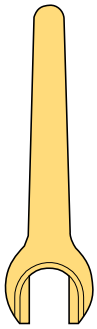


Chiavi *Keys*	Codice *Code*	Per ghiera *For clamping nut*			
CE 20U	231315	ER 20UM			
CE 25U	231314	ER 25UM			
CE 32U	231320	ER 32UM			
CE 40U	231321	ER 40UM			
CE 50U	231323	ER 50UM			



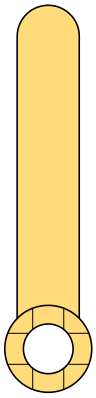
Chiavi per ghiere
Clamping nuts wrench

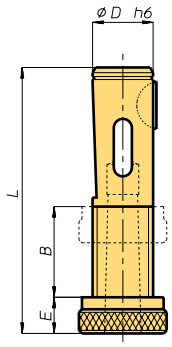
Chiavi *Keys*	Codice *Code*	Per ghiera *For clamping nut*			
CE 16MB	231322	ER 16MB			



Chiavi per viti
Wrench screw

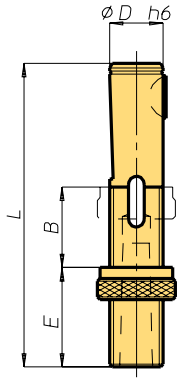
Chiavi *Keys*	Codice *Code*	Inserto HSK *HSK mill adapter*			
CM8	097419	HSK 32-16 HSK 40-16			
CM10	097415	HSK 40-22 HSK 50-22			
CM12	097416	HSK 50-27 HSK 63-27			
CM16	097417	HSK 63-32 HSK 80-32			
CM20	097591	HSK 80-40			





Inserti registrabili DIN 6327/1 porta utensili a cono Morse
DIN 6327/1 adjustable adapters for morse taper shank tools

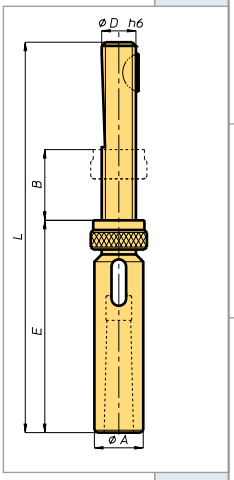
Codice *Code*	Grandezza *Size*	Cono Morse *Morse taper*	φD^{h6}	Filettatura *Thread*	B	E	L	Linguetta *Woodruff key*
009010	D 16 x 1	1	16	Tr 16 x 1,5	28	12	85	5 x 6,5
009012	D 20 x 1	1	20	Tr 20 x 2	28	12	88	5 x 7,5
009014	D 25 x 2	2	25	Tr 25 x 2	30	12	95	6 x 9
009016	D 28 x 2	2	28	Tr 28 x 2	30	12	95	6 x 9
009018	D 32 x 3	3	32	Tr 32 x 2	36	12	118	8 x 11
009020	D 36 x 3	3	36	Tr 36 x 2	36	14	118	8 x 11
009022	D 48 x 4	4	48	Tr 48 x 2	47	18	144	10 x 13



Inserti registrabili DIN 6327/2 porta utensili a cono Morse
DIN 6327/2 adjustable adapters for morse taper shank tools

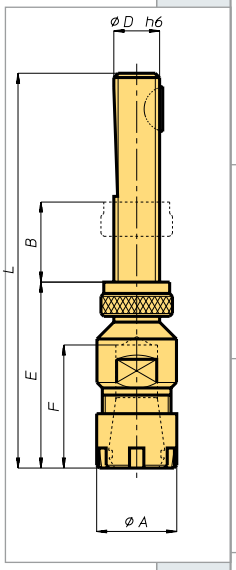
Codice *Code*	Grandezza *Size*	Cono Morse *Morse taper*	φD^{h6}	Filettatura *Thread*	B	E	L	Linguetta *Woodruff key*
009024	F 16 x 1 x 25	1	16	Tr 16 x 1,5	28	37	110	5 x 6,5
009026	F 16 x 1 x 50					62	135	
009028	F 16 x 1 x 75					87	160	
009030	F 16 x 1 x 100					112	185	
009032	F 20 x 1 x 25	1	20	Tr 20 x 2	28	37	113	5 x 7,5
009034	F 20 x 1 x 50					62	38	
009036	F 20 x 1 x 75					87	163	
009038	F 20 x 1 x 100					112	188	
009040	F 25 x 1 x 25	2	25	Tr 25 x 2	30	37	120	6 x 9
009042	F 25 x 1 x 50					62	145	
009044	F 25 x 1 x 75					87	170	
009046	F 25 x 1 x 100					112	195	
009048	F 28 x 1 x 25	2	28	Tr 28 x 2	30	37	120	6 x 9
009050	F 28 x 1 x 50					62	145	
009052	F 28 x 1 x 75					87	170	
009054	F 28 x 1 x 100					112	195	
009056	F 32 x 1 x 25	3	32	Tr 32 x 2	36	37	148	8 x 11
009058	F 32 x 1 x 50					62	178	
009060	F 32 x 1 x 75					87	208	
009062	F 32 x 1 x 100					112	238	
009064	F 36 x 1 x 25	3	36	Tr 36 x 2	36	37	148	8 x 11
009066	F 36 x 1 x 50					62	178	
009068	F 36 x 1 x 75					87	208	
009070	F 36 x 1 x 100					112	238	
009072	F 48 x 1 x 25	4	48	Tr 48 x 2	47	37	184	10 x 13
009074	F 48 x 1 x 50					62	224	
009076	F 48 x 1 x 75					87	264	
009078	F 48 x 1 x 100					112	304	

Inserti registrabili porta utensili a cono Morse (Norma OMG)
Adjustable adapters for morse taper shank tools (OMG norm)

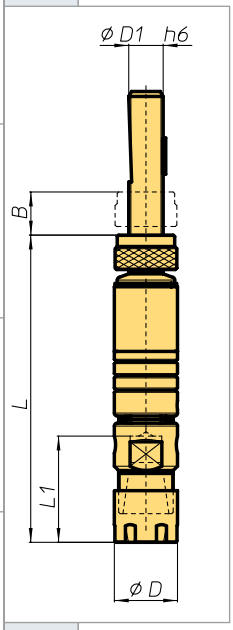


Codice *Code*	Grandezza *Size*	Cono Morse *Morse taper*	ϕD^{h6}	Filettatura *Thread*	ϕA	B	E	L	Linguetta *Woodruff key*
009110	Tr 8 x 1	1	8	Tr 8 x 1	16,8	16	84	126	2 x 3,7
009116	Tr 10 x 1	1	10	Tr 10 x 1,5	19,5	18	89	138	3 x 5
009122	Tr 12 x 1	1	12	Tr 12 x 1,5	22	18	91	138	3 x 5

Inserto porta pinze per utensili a gambo cilindrico (DIN 6327)
DIN 6327 adjustable adapters for cylindrical shank tools

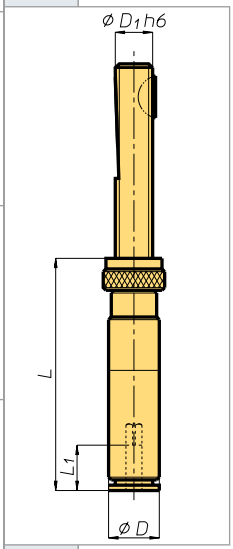


Codice *Code*	Grandezza *Size*	ϕD^{h6}	Filettatura *Thread*	ϕA	B	E	F	L	Pinza *Collet*	Linguetta *Woodruff key*
009112	Tr 8 ER 8	8	Tr 8 x 1	12	16	36	23	75	ER 8	2 x 3,7
009114	Tr 8 ER 11	8	Tr 8 x 1	16	16	41	28	80	ER 11	2 x 3,7
009118	Tr 10 ER 11	10	Tr 10 x 1,5	16	18	43	28	93	ER 11	3 x 5
009120	Tr 10 ER 16	10	Tr 10 x 1,5	22	18	54	39	104	ER 16	3 x 5
009124	Tr 12 ER 16	12	Tr 12 x 1,5	22	18	56	39	106	ER 16	3 x 5
009130	Tr 16 ER 20	16	Tr 16 x 1,5	28	28	65	47	136	ER 20	5 x 6,5
009140	Tr 20 ER 20	20	Tr 20 x 2	32	28	65	47	139	ER 20	5 x 7,5
009145	Tr 20 ER 25	20	Tr 20 x 2	35	28	61	44	135	ER 25	5 x 7,5
009170	Tr 28 ER 32	28	Tr 28 x 2	50	30	65	49	147	ER 32	6 x 9



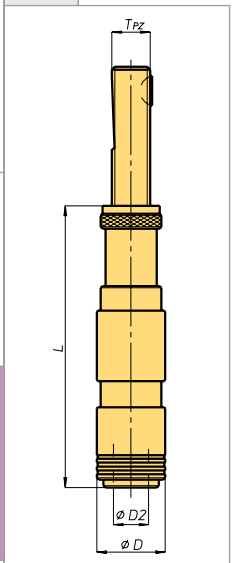
Mandrini OMG per maschiare con diametro ridotto
OMG tapping spindles with reduced diameter

Codice *Code*	Mandrino *Spindle*				ØD	D1	L	L1	B	Pinza *Collet*
009450	MM.Tr8.ER8	M5	0,5	8	15	8	75	23	16	ER8
009453	MM.Tr8.ER11	M6	1	10	19	8	90	27	16	ER11
009451	MM.Tr10.ER11	M6	1	10	19	10	90	27	18	ER11
009454	MM.Tr10.ER16	M8	1	10	22	10	105	37	18	ER16
009452	MM.Tr12.ER16	M8	1	10	22	12	107	37	18	ER16



Mandrini per maschiare con diametro ridotto
Tapping spindles with reduced diameter

Codice *Code*	Mandrino *Spindle*			ØD	D1	L	L1
227030	MR. 0 - 10x1.5 Tpz	M1 - M10	2.5 - 7.2	14	10	44	15
227031	MR. 0 - 12x1.5 Tpz				12		
227032	MR. 1 - 12x1.5 Tpz	M4 - M14	4.5 - 11.3	19	12	52	17
227033	MR. 1 - 16x1.5 Tpz				16		
227034	MR. 2 - 20x2 Tpz	M8 - M24	7 - 18	31	20	77	30
227035	MR. 2 - 28x2 Tpz				28		
227036	MR. 3 - 28x2 Tpz	M14 - M36	11 - 28	48	28	95	44
227037	MR. 3 - 36x2 Tpz				36	97	
227038	MR. 4 - 36x2 Tpz	M22 - M48	18 - 36	60	36	132	71
227039	MR. 4 - 48x2 Tpz				48	136	

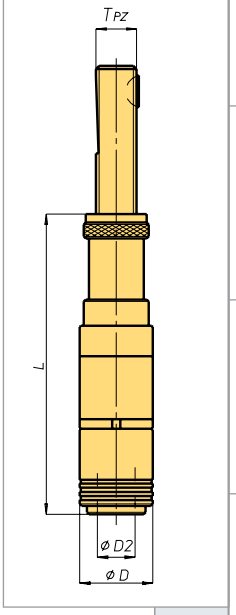


Mandrini a cambio rapido per maschiare con compensazione assiale
Quick change tapping clucks with axial compensation

Mandrino *Spindle*		D	D2				L 16x1.5 Tpz	Codice *Code*	20x2 Tpz	Codice *Code*	28x2 Tpz	Codice *Code*	36x2 Tpz	Codice *Code*
MF 0-5D-20-10	M1 - M10	23	13	20	10	0	116	227060	116	227061				
MF 0-5D-15-15				15	15		111	227062	111	227063				
MF 0-5D-0-30				0	30		96	227064	96	227065				
MF 1-5D-30-10	M3 - M12	35	19	30	10	1	148	227066	148	227067	148	227068		
MF 1-5D-20-20				20	20		138	227069	138	227070	138	227071		
MF 1-5D-0-40				0	40		118	227072	118	227073	118	227074		
MF 2-4D-30-10	M8 - M20	50	31	30	10	2			172	227075	172	227076	172	227077
MF 2-4D-20-20				20	20				162	227078	162	227079	162	227080
MF 2-4D-0-40				0	40				142	227081	142	227082	142	227083
MF 3-3D-30-10	M14 - M33	72	48	30	10	3					218	227084	218	227085
MF 3-3D-20-20				20	20						208	227086	208	227087
MF 3-3D-0-40				0	40						188	227088	188	227089

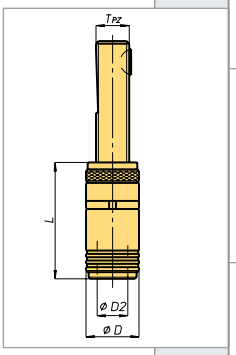
Mandrini a cambio rapido per maschiare con compensazione assiale e spostamento parallelo all'asse
Quick change tapping chucks with axial compensation and radial parallel floating

Mandrino *Spindle*		D	D2					16x1.5 Tpz	Codice *Code*	20x2 Tpz	Codice *Code*	L 28x2 Tpz	Codice *Code*	36x2 Tpz	Codice *Code*
MFC 0-5D-20-10	M1 - M10	23	13	0,25	20	10	0	138	227090	138	227091				
MFC 0-5D-15-15					15	15		133	227092	133	227093				
MFC 0-5D-0-30					0	30		118	227094	118	227095				
MFC 1-5D-30-10	M3 - M12	35	19	0,5	30	10	1	163	227096	163	227097	163	227098		
MFC 1-5D-20-20					20	20		153	227099	153	227100	153	227101		
MFC 1-5D-0-40					0	40		133	227102	133	227103	133	227104		
MFC 2-4D-30-10	M8 - M20	50	31	1	30	10	2			196	227105	196	227106	174	227077
MFC 2-4D-20-20					20	20				186	227108	186	227109	164	227080
MFC 2-4D-0-40					0	40				166	227111	166	227112	144	227083
MFC 3-3D-30-10	M14 - M33	72	48	1,5	30	10	3					252	227084	220	227085
MFC 3-3D-20-20					20	20						242	227116	210	227087
MFC 3-3D-0-40					0	40						222	227118	190	227089



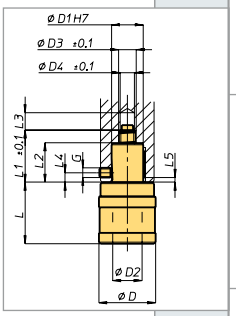
Mandrini a cambio rapido per maschiare con spostamento parallello all'asse
Quick change tapping chucks with radial parallel floating

Mandrino *Spindle*		D	D2			16x1.5 Tpz	Codice *Code*	20x2 Tpz	Codice *Code*	L 28x2 Tpz	Codice *Code*	36x2 Tpz	Codice *Code*
MFC 0	M1 - M10	23	13	0,25	0	65	227131	65	227132				
MFC 1	M3 - M12	35	19	0,5	1	70	227133	70	227134	70	227135		
MFC 2	M8 - M20	50	31	1	2			96	227136	96	227137	98	227138
MFC 3	M14 - M33	72	48	1,5	3					136	227139	138	227146



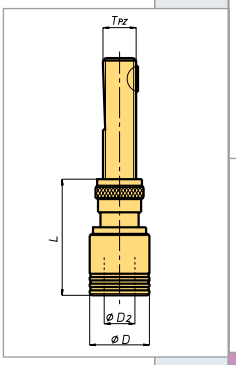
Mandrini a cambio rapido per maschiare con compensazione assiale
Quick change tapping chucks with axial compensation

Codice *Code*	Mandrino *Spindle*					D	D1	D2	D3	D4	L	L1	L2 min.	L3 min.	L4	L5	G	Chiavetta DIN 6885
227185	MKD0.GC	M1 - M10	0	6,5	6,5	26	15	13	8,2	6	37	32	18,5	11	6	3	M5	5x3x12
227186	MKD1.GC	M3 - M12	1	7,5	7,5	36	20	19	11,2	9	39	33	24,5	11	6	3	M6	6x4x16
227187	MKD2.GC	M8 - M20	2	12,5	12,5	53	25	31	13,2	11	63	39	30,5	20	8	4	M8	6x6x20



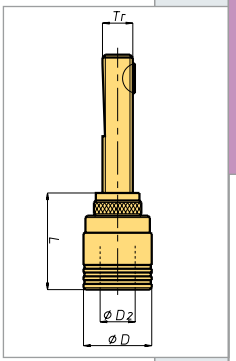
Mandrini a cambio rapido per maschiare con compensazione assiale
Quick change tapping chucks with axial compensation

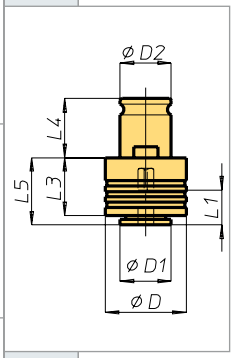
Mandrino *Spindle*					ØD	ØD2	28x2 Tpz	Codice *Code*	L 36x2 Tpz	Codice *Code*	48x2 Tpz	Codice *Code*
AKD 1 - ..	M3 - M12	1	20	20	32	19	65	227190	67	227191	71	227192
AKD 2 - ..	M8 - M20	2	20	25	50	31			83	227193	87	227194
AKD 40 - ..	M6 - M18	4	20	20	40	26	80	227195				



Mandrini a cambio rapido per maschiare con compensazione assiale
Quick change tapping chucks with axial compensation

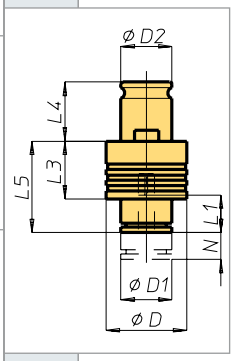
Mandrino *Spindle*					ØD	ØD2	16x1,5 Tpz	Codice *Code*	20x2 Tpz	Codice *Code*	L 28x2 Tpz	Codice *Code*	36x2 Tpz	Codice *Code*
MKD-0 - Tr..	M1 - M10	0	6,5	6,5	26	13	50	227165	50	227166				
MKD-1 - Tr..	M1 - M12	1	7,5	7,5	36	19	52	227167	52	227168	52	227169		
MKD-2 - Tr..	M4 - M20	2	12,5	12,5	53	31			76	227171	76	227172	78	227173
MKD-3 - Tr..	M4 - M33	3	20	20	78	48							111	227175





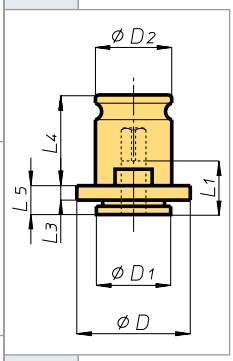
Bussole porta maschio a cambio rapido con frizione destra e sfere
Quick connection tap-holder bushes with ball right clutch

Codice *Code*	Bussola *Bush*		Ø gambo maschio *Tap shank diametre*	ØD	ØD1	ØD2	L1	L3	L4	L5
227206	BFS 0	M1 - M10	2,5 - 7,2	23	13	13	15	20	19,5	21
227207	BFS 1	M3 - M12	3,5 - 11,3	32	19	19	17	25	21,5	25
227208	BFS 2	M8 - M20	7 - 18	50	30	31	30	31	35	34
227209	BFS 3	M14 - M33	11 - 28	72	48	48	44	41	55,5	45
227210	BFS 40	M6 - M18	6 - 14	40	25	26	30	27	32	30



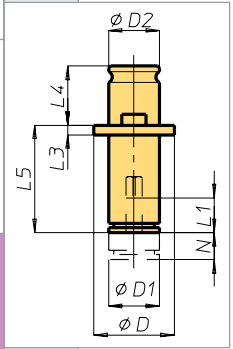
Bussole porta maschio a cambio rapido con frizione destra e sfere
Quick connection tap-holder bushes with ball right clutch

Codice *Code*	Bussola *Bush*		Ø gambo maschio *Tap shank diametre*	*N*	ØD	ØD1	ØD2	L1	L3	L4	L5
227211	BFSR 0	M1 - M10	2,5 - 7,2	8	23	13	13	15	20	19,5	28
227212	BFSR 1	M2 - M12	3,5 - 11,3	10	32	19	19	17	25	21,5	33
227213	BFSR 2	M8 - M20	7 - 18	15	50	30	31	30	31	35	59
227214	BFSR 3	M14 - M33	11 - 28	25	72	48	48	44	41	55,5	82



Bussole porta maschio a cambio rapido
Quick connection tap-holder bushes

Codice *Code*	Bussola *Bush*		Ø gambo maschio *Tap shank diametre*	ØD	ØD1	ØD2	L1	L3	L4	L5
227250	BFC 0	M1 - M10	2,5 - 7,2	22	13	13	15	4	19,5	7
227251	BFC 1	M3 - M12	3,5 - 11,3	30	19	19	17	4	21,5	7
227252	BFC 2	M8 - M20	7 - 18	48	30	31	30	5	35	11
227253	BFC 3	M14 - M33	11 - 28	70	48	48	44	6	55,5	14
227254	BFC 40	M6 - M18	6 - 14	40	25	26	30	5	32	13

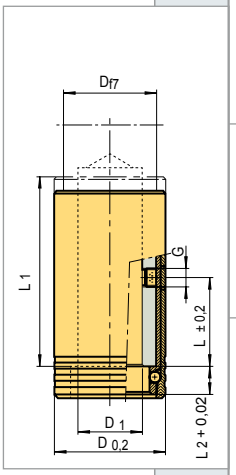


Bussole porta maschio a cambio rapido
Quick connection tap-holder bushes

Codice *Code*	Bussola *Bush*		Ø gambo maschio *Tap shank diametre*	*N*	ØD	ØD1	ØD2	L1	L3	L4	L5
227255	BFCR 0	M1 - M10	2,5 - 7,2	8	22	13	13	15	4	19,5	28
227256	BFCR 1	M2 - M12	3,5 - 11,3	10	30	19	19	17	4	21,5	33
227257	BFCR 2	M8 - M20	7 - 18	15	48	30	31	30	5	35	59
227258	BFCR 3	M14 - M33	11 - 28	25	70	48	48	44	6	55,5	82

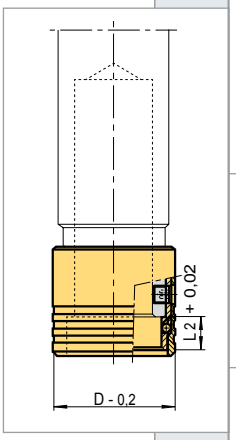
Manicotti ad innesto rapido
Quick connection sleeves

Codice *Code*	Manicotto *Sleeve*	ØD	ØD1	ØD3	L	L1	L2	G
227309	AIRFA. 12	24	12	20	22	48	9	M5
227310	AIRFA. 16	30	16	25	34	64	9,5	M6
227311	AIRFA. 20	38	20	32	34	70	11	M6
227312	AIRFA. 25	45	25	37	38	76	12	M8
227313	AIRFA. 28	48	28	40	38	78	12	M8
227314	AIRFA. 32	55	32	45	45	89	14	M8
227315	AIRFA. 36	60	36	50	45	97	16	M8
227316	AIRFA. 48	80	48	67	57	122	20	M10



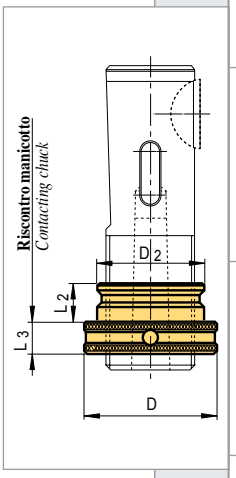
Manicotti ad innesto rapido
Quick connection sleeves

Codice *Code*	Manicotto *Sleeve*	ØD	ØD1	ØD3	ØD4	L	L1	L2	G
227350	AIRFCA. 16	27	16	25	22	8	30	9,5	M5
227351	AIRFCA. 20	34	20	32	28	8	30	11	M5
227352	AIRFCA. 25	41	25	37	34,5	8	32	12	M6
227353	AIRFCA. 28	44	28	40	37	8	32	12	M6
227354	AIRFCA. 32	49	32	45	41	9	39	13,5	M6
227355	AIRFCA. 36	55	36	50	46	9	39	16	M6
227356	AIRFCA. 48	73	48	67	61	11	51	20	M8



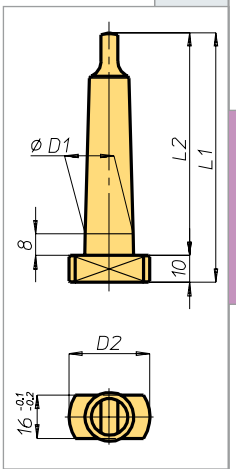
Ghiere ad innesto rapido
Ring nuts

Codice *Code*	Ghiera *Nut*	ØD	ØD2	L2	L3
227367	GIRF. 12	21,5	16,4	9	9
227368	GIRF. 16	26	19,9	9,5	9
227369	GIRF. 20	33	25,4	11	9
227370	GIRF. 25	40	31,9	12	10
227371	GIRF. 28	42	33,9	12	10
227372	GIRF. 32	47	37,9	13,5	10
227373	GIRF. 36	54	43,4	16	10
227374	GIRF. 48	72	57,9	20	14



Trascinatori a cono Morse
Morse taper with driving dog

Codice *Code*	Cono Morse *Morse taper*	A	B	L1	L2	L3	D1	D2	D3	R	ß
011120	2	8	6,3	93	83	16	17,78	28	13,5	6	1°25'50"
011125	3	8	7,9	112	102	20	23,825	30	18,5	7	1°26'16"
011130	4	8	11,9	135,5	125,5	24	31,267	42	24,5	8	1°29'15"
011135	5	8	15,9	167,5	157,5	29	44,399	50	35,7	10	1°30'26"
011136	6	8	19	228	218	40	63,348	62	51	13	1°29'



Appendice tecnica
Technical supplement

calcolo momento torcente e potenza
estimate torque and power 11-2

manicotti di collegamento
connection collars 11-3

DIN 228 - DIN 55058 11-4

DIN 6499 11-5

DIN 64910-B 11-6

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Maschi 11-11

calcolo momento torcente e potenza
estimate torque and power

La OMG, con questo diagramma, desidera offrire la possibilità di calcolare con velocità e ottima approssimazione, il momento torcente e la relativa potenza necessaria per l'esecuzione delle forature. Scegliendo l'appropiato avanzamento sull'ascissa, congiungendo con il relativo diametro di foratura, in ordinata si leggerà un determinato valore del "coefficente ß"; moltiplicando questo per la resistenza del materiale si otterrà il momento torcente. Applicando poi la formula

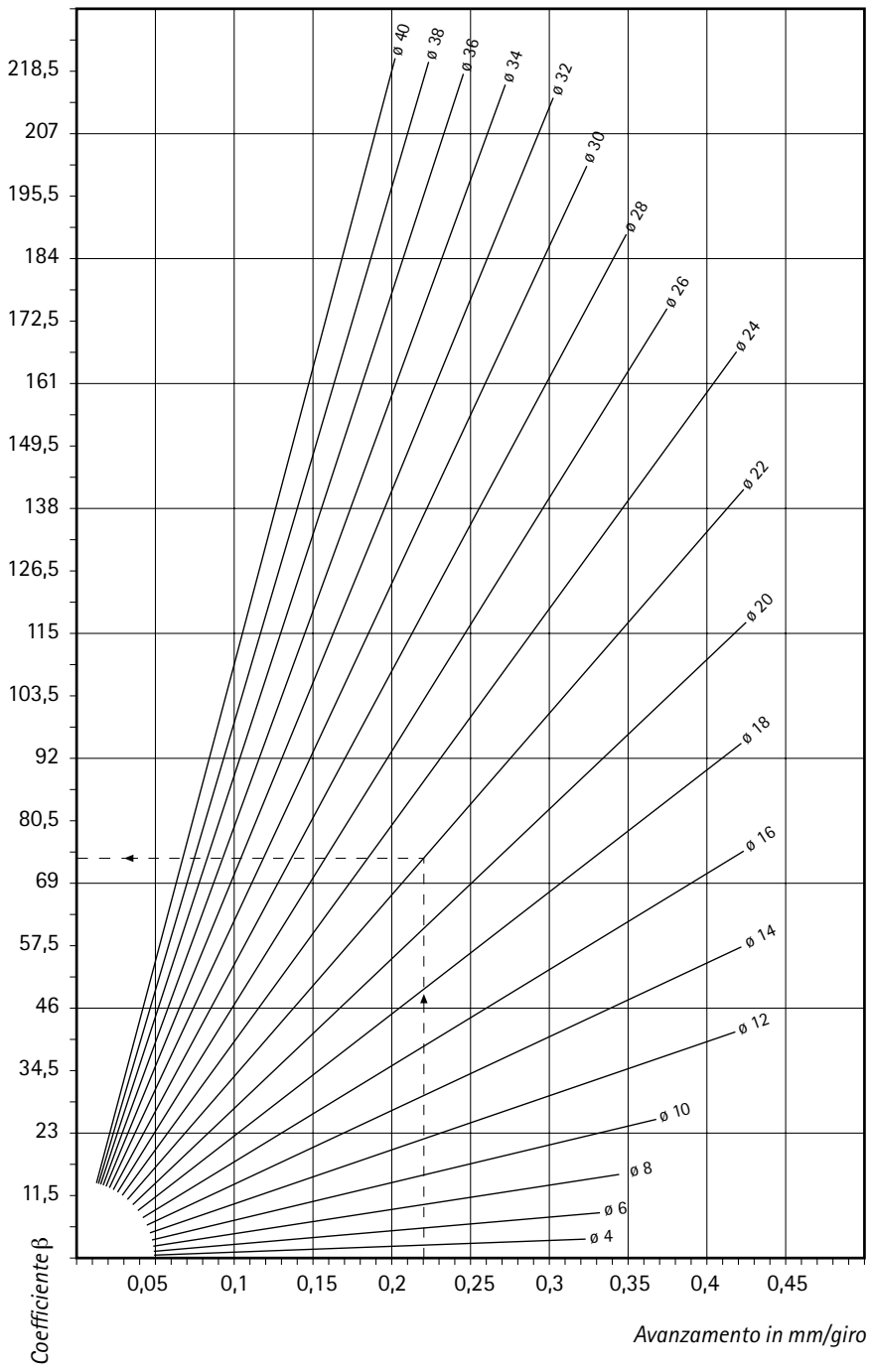
$$N = \frac{M_t \times n}{9549,3}$$

dove n è il n° di giri, si otterrà la potenza N espressa in kW

With this diagram, OMG makes it possible to calculate the torque and corresponding power necessary for drilling quickly and with maximum approximation. By selecting the proper feed on the abscissa and adding it to the corresponding drilling diameter on the ordinate, a certain «coefficient ß» value is obtained. By multiplying this by the material strength, the torque can be found. Then, by applying the formula,

$$N = \frac{M_t \times n}{9549,3}$$

where n is the number of revolutions, it is possible to determine power N expressed in kW.



Es:

a = 0,22 mm/giro
punta Ø 22
giri/1' = 230
R = 500 N/mm²
coefficiente β = 73

Ex:

a = 0,22 mm/revs
tip Ø 22
rpm = 230
R = 500 N/mm²
coefficient β = 73

$$M_t = \frac{73 \times 500}{1000} = 36,5 \text{ Nm}$$

$$N = \frac{36,5 \times 230}{9549,3} = 0,88 \text{ kW}$$

Dimensioni estremità mandrini macchine utensili per la costruzione del manicotto di collegamento.
Spindles dimensions off machine-tools to manufacture the connection collar.

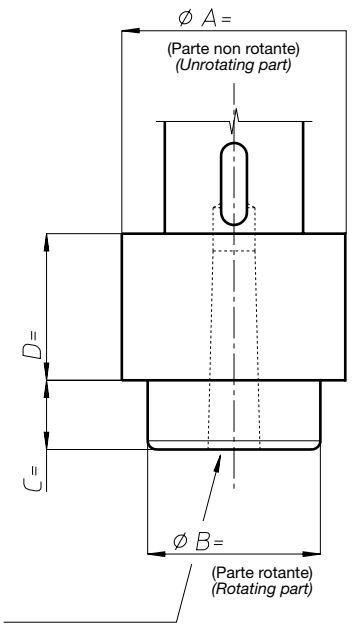


Fig. 1

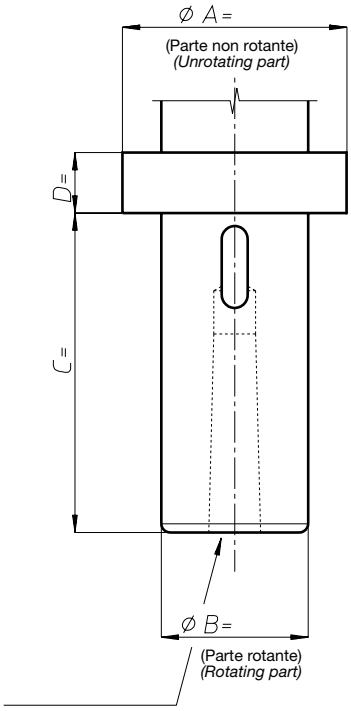


Fig. 2

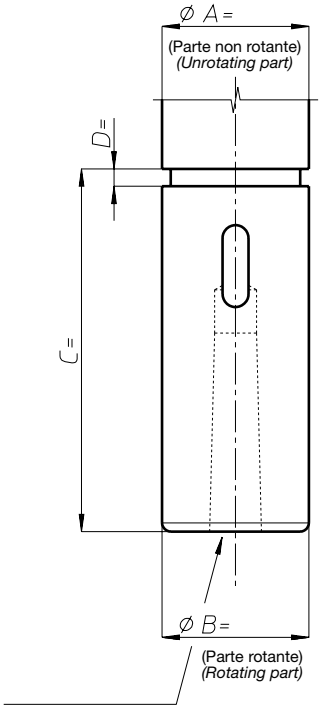


Fig. 3

Se nessuna figura si adatta alla vostra macchina,
disegnate qui l'estremità mandrino.
If no picture fits your machine, draw here the spindle end.

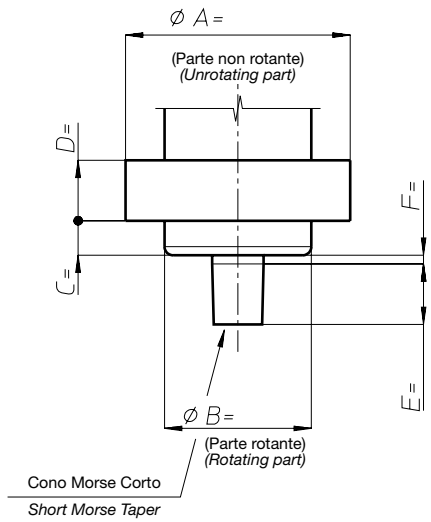
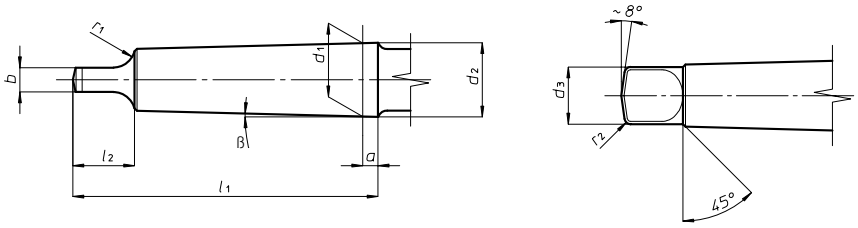


Fig. 4

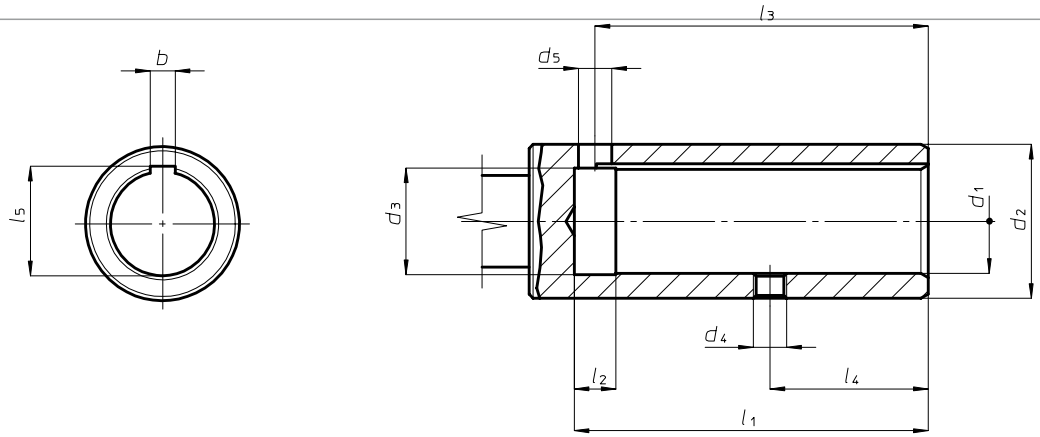
DIN 228

Cono Morse
Morse taper



Cono Morse Morse Taper	a	b h13	d1	d2	d3max	l1max	l2max	r1	r2	ß
0	3	3,9	9,045	9,2	6	59,5	10,5	4	1	1°29'27"
1	3,5	5,2	12,065	12,2	8,7	65,5	13,5	5	1,2	1°25'43"
2	5	6,3	17,780	18	13,5	80	16	6	1,6	1°25'50"
3	5	7,9	23,825	24,1	18,5	99	20	7	2	1°26'16"
4	6,5	11,9	31,267	31,6	24,5	124	24	8	2,5	1°29'15"
5	6,5	15,9	44,399	44,7	35,7	156	29	10	3	1°30'26"
6	8	19	63,348	63,8	51	218	40	13	4	1°29'36"

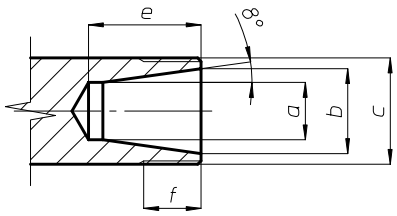
DIN 55058



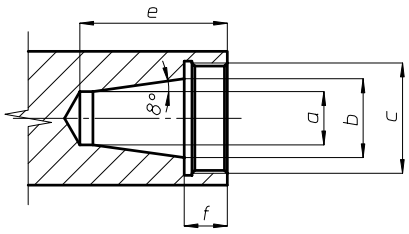
Grandezza Size d1 H7	Ø8	Ø10	12	16	Ø20	Ø25	28	Ø32	Ø36	48
b	2	3	3	5	5	6	6	8	9	10
d2f7	15	18	20	25	32	37	40	45	50	67
d3	8,6	10,6	12,6	16,6	20,6	25,6	28,6	32,8	36,8	48,8
d4	M4	M5	M5	M6	M6	M8	M8	M8	M8	M10
d5	3,5	5	5	6	6	8	8	10	10	12
l1 min	42	52	52	75	78	85	85	106	106	129
l2	8	8	8	8	8	10	10	10	10	12
l3	35	48	48	70	73	80	80	101	101	123
l4 ±0,1	16	22	22	34	34	38	38	45	45	57
l5 ±0,1	9	11,1	13,1	17,3	21,3	26,7	29,7	33,7	37,7	50,1

Sedi delle pinze ER
ER housing

DIN 6499



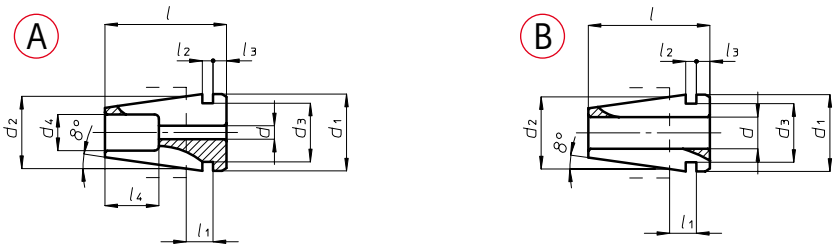
Grandezza Size	Serraggio Clamping	a	b ±0,05	c	e	f	
ER8	0,5... 5,0	5,2	8	M10x0,75	13,0	7,5	
ER11	0,5... 7,0	7,5	11	M13x0,75	17,0	10,0	
ER16	0,5... 10,0	10,5	16	M19x1,00	22,0	13,0	
ER20	0,5... 13,0	13,5	20	M24x1,00	26,5	13,5	
ER25	0,5... 16,0	18,0	25	M30x1,00	29,0	14,0	
ER16	0,5... 10,0	10,5	16	M22x1,50	22,0	13,0	
ER20	0,5... 13,0	13,5	20	M25x1,50	26,5	13,5	
ER25	0,5... 16,0	18,0	25	M32x1,50	29,0	14,0	
ER32	1,0... 20,0	23,5	32	M40x1,50	34,0	16,0	
ER40	2,0... 30,0	30,5	40	M50x1,50	38,0	17,0	
ER50	4,0... 34,0	38,0	50	M64x2,00	48,0	24,0	



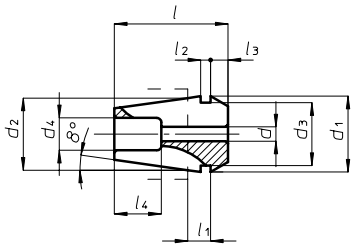
Grandezza Size	Serraggio Clamping	a	b ±0,05	c	e	f	
ER11	0,5... 7,0	7,5	11	M18x1,00	23,0	7,0	
ER16	0,5... 10,0	10,5	16	M24x1,00	32,0	10,0	
ER20	0,5... 13,0	13,5	20	M28x1,50	37,5	11,0	
ER25	0,5... 16,0	18,0	25	M32x1,50	41,0	12,0	
ER32	1,0... 20,0	23,5	32	M40x1,50	48,0	14,0	

DIN 6499-B

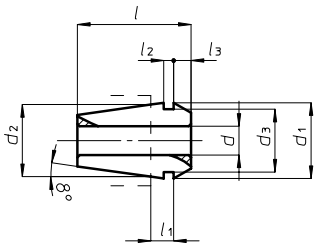
Pinze
Collets



Grandezza Size	d	d1	d2	d3	d4	l	l1	l2	l3	l4	Disegno Picture
ER8	0,5... 2,5	8,5	8,0	6,5	4,0	13,5	2,98	1,2	1,5	6,0	A
ER8	3,0... 5,0	8,5	8,0	6,5	-	13,5	2,98	1,2	1,5	-	A

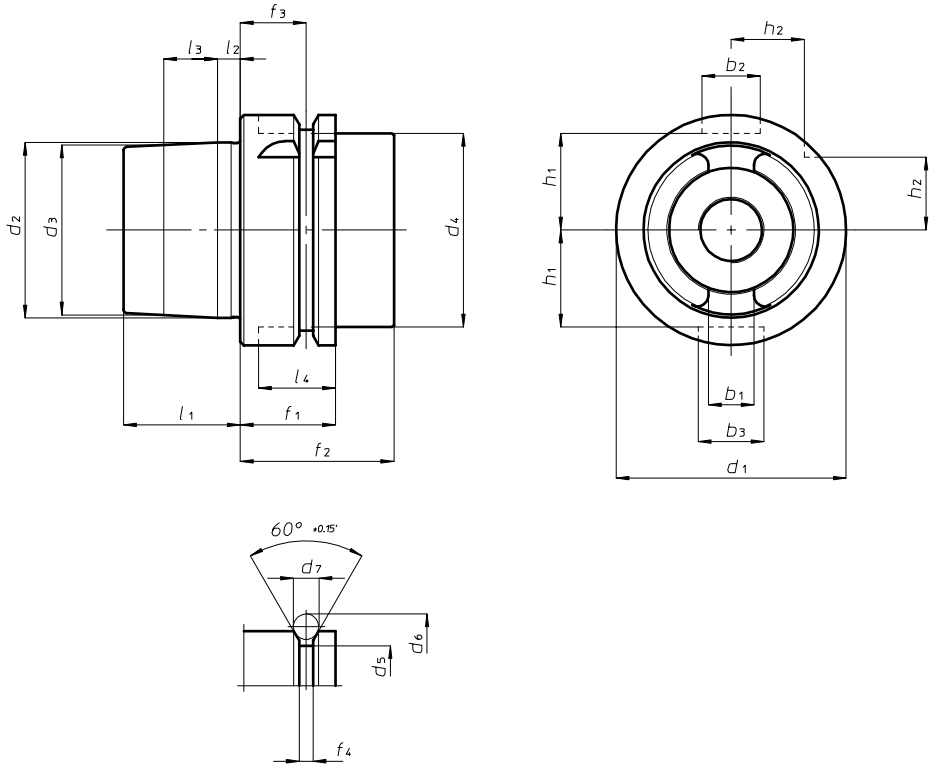


Grandezza Size	d	d1	d2	d3	d4	l	l1	l2	l3	l4
ER11	0,5... 2,5	11,5	11,0	9,5	5,0	18,0	3,80	2,0	2,5	9,0
ER16	0,5... 4,5	17,0	16,0	13,8	7,5	27,5	6,26	2,7	4,0	10,0
ER20	1,0... 6,5	21,0	20,0	17,4	9,0	31,5	6,36	2,8	4,8	13,0
ER25	1,0... 7,5	26,0	25,0	22,0	12,0	34,0	6,66	3,1	5,0	15,0
ER32	2,0... 3,5	33,0	32,0	29,2	15,0	40,0	7,16	3,6	5,5	20,0
ER32	4,0... 7,5	33,0	32,0	29,2	15,0	40,0	7,16	3,6	5,5	15,0
ER40	3,0... 3,5	41,0	40,0	36,2	20,0	46,0	7,66	4,1	7,0	21,0
ER40	4,0... 8,5	41,0	40,0	36,2	20,0	46,0	7,66	4,1	7,0	18,0
ER50	4,0... 10,0	52,0	50,0	46,0	20,0	60,0	12,60	5,5	8,5	26,0



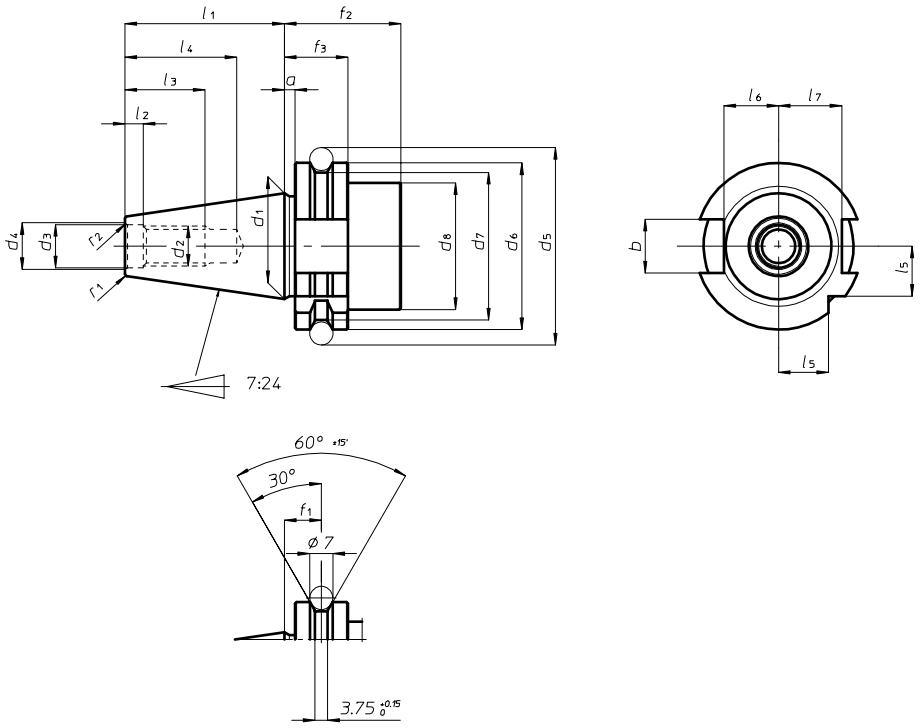
Grandezza Size	d	d1	d2	d3	l	l1	l2	l3
ER11	3,0... 7,0	11,5	11,0	9,5	18,0	3,80	2,0	2,5
ER16	5,0... 10,0	17,0	16,0	13,8	27,5	6,26	2,7	4,0
ER20	7,0... 13,0	21,0	20,0	17,4	31,5	6,36	2,8	4,8
ER25	8,0... 16,0	26,0	25,0	22,0	34,0	6,66	3,1	5,0
ER32	8,0... 20,0	33,0	32,0	29,2	40,0	7,16	3,6	5,5
ER40	9,0... 30,0	41,0	40,0	36,2	46,0	7,66	4,1	7,0
ER50	12,0... 34,0	52,0	50,0	46,0	60,0	12,60	5,5	8,5

DIN 69893 Forma A



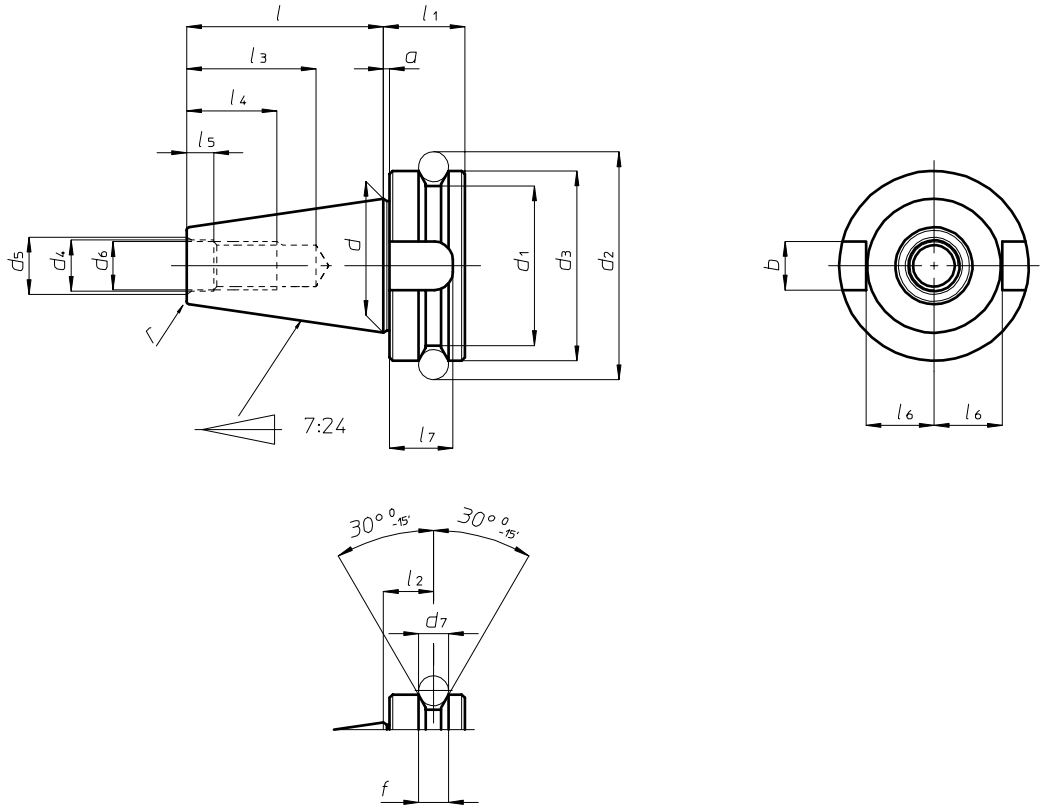
	HSK50	HSK63	HSK80	HSK100
b1 H10	10,5	12,5	16	20
b2 H10	12	16	18	20
b3 H10	14	18	20	22
b1 H10	50	63	80	100
d2	38 $^{+0,009}_{+0,006}$	48 $^{+0,011}_{+0,007}$	60 $^{+0,013}_{+0,008}$	75 $^{+0,015}_{+0,009}$
d3	36,900 $^{+0,006}_{+0,003}$	46,530 $^{+0,007}_{+0,003}$	58,100 $^{+0,008}_{+0,003}$	72,600 $^{+0,009}_{+0,003}$
d4 max	42	53	67	85
d5 $^{0}_{-0,1}$	43	55	70	92
d6 $^{0}_{-0,1}$	59,3	72,3	88,8	109,75
d7	7	7	7	7
f1 $^{0}_{-0,1}$	26	26	26	29
f2 min	42	42	42	45
f3 $\pm 0,1$	18	18	18	20
f4 $^{+0,15}_{0}$	3,75	3,75	3,75	3,75
h1 $^{0}_{-0,2}$	21	26,5	34	44
h2 $^{0}_{-0,3}$	15,5	20	25	31,5
l1 $^{0}_{-0,2}$	25	32	40	50
l2	5	6,3	8	10
l3	11	14,7	19	24
l4	19	21	22	24

DIN 69871 Forma A



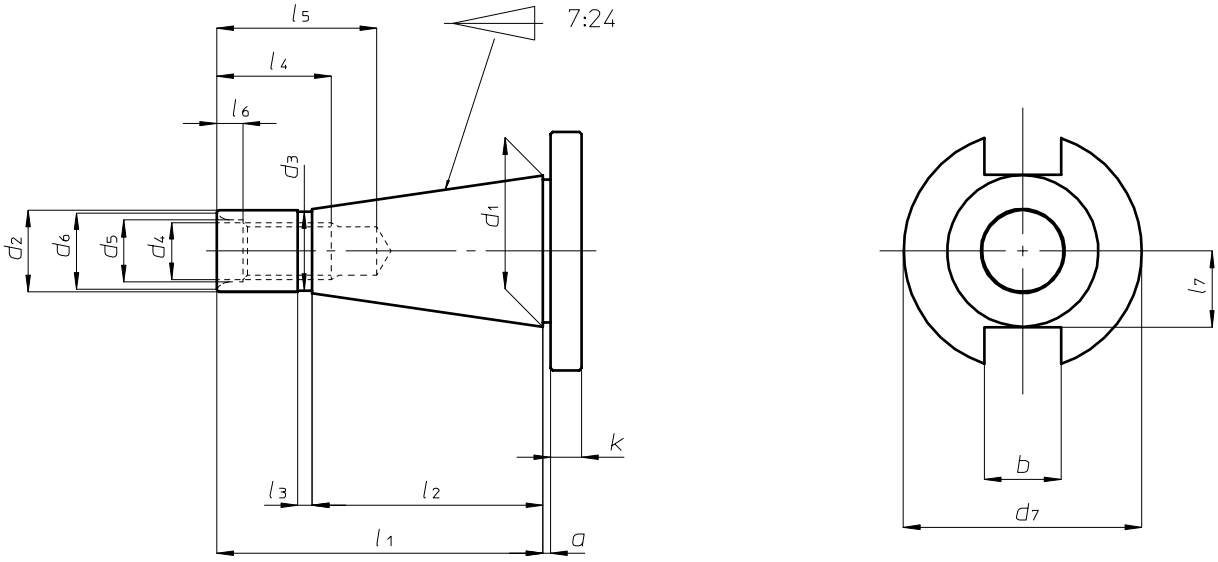
Grandezza Size	30	40	45	50
a $^{+0,1}_{-0,1}$	32	3,2	3,2	3,2
b H12	16,1	16,1	19,3	25,7
d_1	31,75	44,45	57,15	69,85
d_2	M12	M16	M20	M24
d_3 H7	13	17	21	25
d_4 max	14	19	23,4	28
d_5 $^{+0,05}_{-0,05}$	59,3	72,3	91,35	107,25
d_6 $^{0}_{-0,1}$	50	63,55	82,55	97,50
d_7 $^{0}_{-0,5}$	44,3	56,25	75,25	91,25
d_8 max	45	50	63	80
f_1 $^{+0,1}_{-0,1}$	11,1	11,1	11,1	11,1
f_2 min	35	35	35	35
f_3 $^{0}_{-0,1}$	19,1	19,1	19,1	19,1
l_1 $^{0}_{-0,3}$	47,8	68,4	82,7	101,75
l_2 $^{+0,5}_{0}$	5,5	8,2	10	11,5
l_3 min	24	32	40	47
l_4 min	33,5	42,5	52,5	61,5
l_5 $^{0}_{-0,3}$	15	18,5	24	30
l_6 $^{0}_{-0,4}$	16,4	22,8	29,1	35,5
l_7 $^{0}_{-0,4}$	19	25	31,3	37,7
r_1	0,6 $^{0}_{-0,3}$	1,2 $^{0}_{-0,5}$	2 $^{0}_{-0,5}$	2,5 $^{0}_{-0,5}$
r_2 $^{0}_{-0,5}$	0,8	1	1,2	1,5

MAS 403

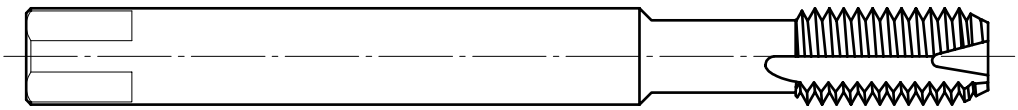


Grandezza Size	30	40	50
a ±0,4	2	2	3
b H8	16,1	16,1	25,7
d	31,75	44,45	69,85
d1 -0,1 -0,3	38	53	85
d2	56,144	75,679	119,019
d3 H8	46	63	100
d4 H8	12,5	17	25
d5	14,5	19	27
d6	M12	M16	M24
d7	8	10	15
f +0,1 0	8	10	15
l ±0,15	48,4	65,4	101,8
l1	22	27	38
l2 ±0,1	13,6	16,6	23,2
l3	34	43	62
l4	24	30	45
l5 +0,5 0	7	9	13
l6 0 -0,2	16,3	22,6	35,4
l7	17	21	31
r	0,5	1	1

DIN 2080



Grandezza Size	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
d_1	31,75	44,45	57,15	69,85
d_2 a10	17,4	25,3	32,4	39,6
d_3	16,5	24	30	38
d_4	M12	M16	M20	M24
d_5	13	17	21	26
d_6 max	16	21,5	26	32
d_7 $^{0}_{-0,4}$	50	63	80	97,5
k ±0,15	8	10	12	12
l_1	68,4	93,4	106,8	126,8
l_2	48,4	65,4	82,8	101,8
l_3	3	5	6	8
l_4	24	32	40	47
l_5 min	33,5	42,5	52,5	61,5
l_6 $^{+0,5}_{0}$	5,5	8,2	10	11,5
l_7 max	16,2	22,5	29	35,3



Maschi		ISO 529		DIN 371 (DIN 2181)		DIN 371		DIN 376		JAPAN JIS		US STANDARD	
(mm)	(pollici)	(Ø)	(□)	(Ø)	(□)	(Ø)	(□)	(Ø)	(□)	(Ø)	(□)	(Ø)"	(□)"
M1.0		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	-	-
M1.1		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	-	-
M1.2		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	-	-
M1.4		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	-	-
M1.6	1/16	2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	0,141	0,110
M1.7		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	-	-
M1.8		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	0,141	0,110
M2.0		2,80	2,10	2,50	2,00	2,50	2,10	-	-	3,00	2,50	0,141	0,110
M2.2		2,80	2,10	2,80	2,24	2,50	2,10	-	-	3,00	2,50	0,141	0,110
M2.3		2,80	2,10	2,80	2,24	2,50	2,10	-	-	3,00	2,50		
M2.5	3/32	2,80	2,10	2,80	2,24	2,50	2,10	-	-	3,00	2,50	0,141	0,110
M2.6		2,80	2,10	2,80	2,24	2,50	2,10	-	-	3,00	2,50		
M3.0	1/8	3,15	2,50	3,15	2,50	3,50	2,70	3,00	-	4,00	3,00	0,141	0,110
M3.5		3,55	2,80	3,55	2,80	4,00	3,00	2,50	2,10	4,00	3,00	0,141	0,110
M4.0	5/32	4,00	3,15	-	-	4,50	3,40	2,80	2,10	5,00	4,00	0,168	0,131
M4.5	3/16	4,50	3,55	-	-	6,00	4,90	3,50	2,70	5,00	4,00	0,194	0,152
M5.0		5,00	4,00	-	-	6,00	4,90	3,50	2,70	5,50	4,50	0,194	0,152
M6.0	1/4	6,30	5,00	-	-	6,00	4,90	4,50	3,40	6,00	4,50	0,255	0,191
M7.0	5/16	7,10	5,60	-	-	7,00	5,50	5,50	4,30	6,20	5,00	0,318	0,238
M8.0		8,00	6,30	-	-	8,00	6,20	6,00	4,90	6,20	5,00	0,318	0,238
M9.0		9,00	7,10	-	-	9,00	7,00	7,00	5,50	7,00	5,50	0,381	0,286
M10.0	3/8	10,00	8,00	-	-	10,00	8,00	7,00	5,50	7,00	5,50	0,381	0,286
M11.0		8,00	6,30	-	-	-	-	8,00	6,20	8,00	6,20	0,381	0,286
M12.0	1/2	9,00	7,10	-	-	-	-	9,00	7,00	8,50	6,50	0,367	0,275
M14.0	9/16	11,20	9,00	11,20	-	-	-	11,00	9,00	10,50	8,00	0,429	0,322
M16.0	5/8	12,50	10,00	12,50	-	-	-	12,00	9,00	12,50	10,00	0,480	0,360
M18.0	11/16	14,00	11,20	14,00	-	-	-	14,00	11,00	14,00	11,00	0,542	0,406
M20.0	13/16	14,00	11,20	14,00	-	-	-	16,00	12,00	15,00	12,00	0,652	0,489
M22.0	7/8	16,00	12,50	16,00	-	-	-	18,00	14,50	17,00	13,00	0,697	0,523
M24.0	15/16	18,00	14,00	18,00	-	-	-	18,00	14,50	19,00	15,00	0,760	0,570
M27.0	1 1/16	20,00	16,00	20,00	-	-	-	20,00	16,00	20,00	15,00	0,896	0,672
M30.0	1 3/16	20,00	16,00	20,00	-	-	-	22,00	18,00	23,00	23,17	1,021	0,766

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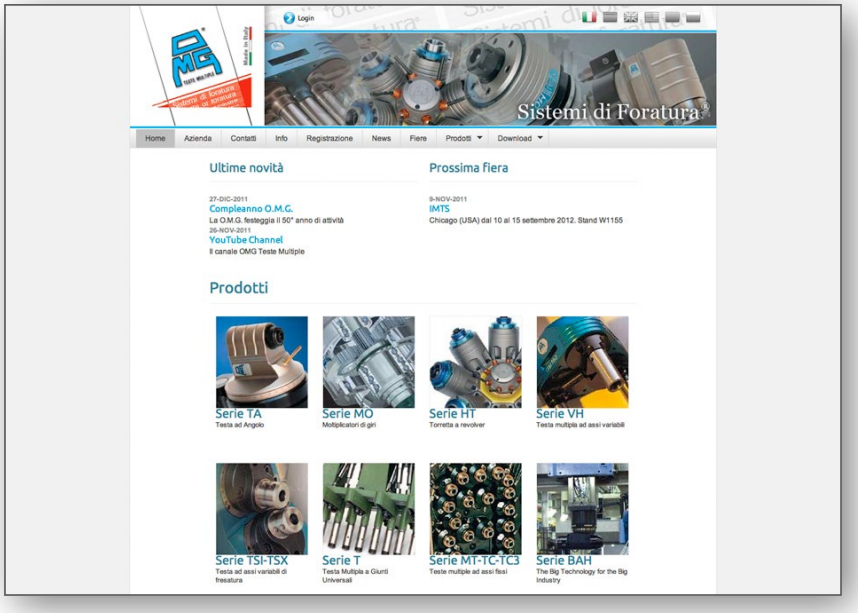

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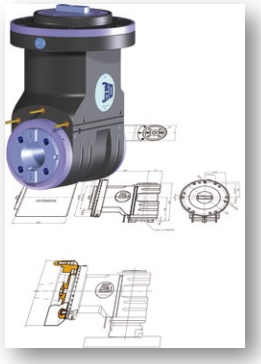

- **disegni 2D e 3D**
- *2D and 3D drawings*

- **Manuali d'uso**
- *Instruction Manuals*

Istruction manual

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Catalogo 1509

Made in Italy

Headquarter

O.M.G. srl

via 8 Marzo, n. 1 - 42025 CAVRIAGO (RE) - Italy

Tel. +39.0522 941627
Fax +39.0522 941951

www.omgnet.it
e-mail: omg@omgnet.it

O.M.G. NORTH AMERICA

802 Clearwater Loop, Post Falls, Idaho 83854

Ph. 866-440-8519
Fax 208-773-3021

www.omgamerica.com
e-mail: info@omgamerica.com

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