

TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3



Made in Italy



Sistemi di foratura
ai foratura

L'azienda O.M.G. Srl è lieta di presentare in questa unica soluzione grafica tutti i suoi prodotti, interamente progettati e costruiti al suo interno.

Chi ci conosce da un pò di tempo avrà 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 per spuntatura ingranaggi

serie T, teste 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.

E' 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 ad 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 '60 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 interassi 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 organisational 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 heads

series T, universal joint 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 customised for various types of applications.

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.

A short 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 in the manufacturing processes and the use of new computerised methods resulted in the 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.

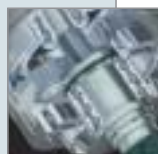
**Thank you for your attention,
O.M.G. srl.**



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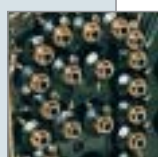
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teste ad angolo angle heads

Le nuove teste ad angolo serie **TA** della O.M.G. sono state realizzate per eseguire quelle lavorazioni che con le macchine utensili orizzontali o verticali non si possono risolvere se non con ulteriori piazzamenti del pezzo; le teste ad angolo perciò consentono una riduzione di tempi e costi nelle lavorazioni meccaniche.

La O.M.G. presenta una gamma rinnovata e ampliata di teste ad angolo, così suddivise:

Serie TA monomandrino, dove l'angolo è di 90°

Serie TA... 2 a due mandrini contrapposti

Serie TA... D monomandrino con passaggio refrigerante per il centro

Serie TAO, monomandrino offset specifica per operazione di fresatura

Serie TAO... D, con liquido refrigerante ad alta pressione passante per il centro utensile

Serie TAV, l'inclinazione del mandrino è regolabile da +90° a -90°

Serie TAF, l'inclinazione del mandrino viene eseguita su richiesta del cliente

Teste speciali realizzate su specifiche richieste del cliente.

Le teste ad angolo O.M.G. possono venire applicate su macchine utensili tradizionali, centri di lavoro con cambio automatico dell'utensile, centri di tornitura con torretta motorizzata. Il cinematismo trattato termicamente, i cuscinetti di precisione utilizzati e le coppie coniche Gleason, conferiscono a tutte le teste un'ottima rigidità e precisione nelle lavorazioni "a sbalzo" che queste teste eseguono.

Il sistema antirotante di nuova concezione aumenta la rigidità e la precisione di posizionamento; quando alle teste ad angolo sono richieste prestazioni estreme si consiglia l'utilizzo del sistema **TRIBLOCK**.

Le teste ad angolo serie **TA** sono state studiate e definite avvalendosi di sistemi computerizzati all'avanguardia a supporto di conoscenze acquisite dalla O.M.G. in quarant'anni di esperienza nel settore.

Tutto questo ha permesso di fare scelte innovative nei materiali da costruzione, nei trattamenti termici e nelle lavorazioni meccaniche così da ottenere precisione, robustezza, rigidità e finitura al "top".

The new OMG TA series of angle heads has been manufactured in order to execute machining operations that horizontal or vertical machine tools are unable to perform except with further piece placements. Hence, the angle heads further reduce mechanical machining times and costs.

O.M.G. markets a renewed and extended range of angle heads as follows:

TA series 90° single-spindle

TA... 2 series two opposite spindles

TA... D series single-spindle with internal coolant through the tool

TAO series offset single spindle particularly on milling operation

TAO... D series with high pressure coolant through the spindle center

TAV series the angular position of the spindle is adjustable from +90° to -90°

TAF series the angular position of the spindle is made according to customer requirements.

Special heads made according to customer requirements.

The angle heads made by O.M.G. can be fitted to traditional machine tools, machining centres with automatic tool change and lathe centres with motorised turrets. The heat-treated kinematic mechanism, the precision bearings and the Gleason bevel gears, provide all heads with excellent strength and precision in "cantilever" machining operations.

*The new antirotation system increases strength and positioning precision; when extreme angle head performances are required, we suggest using the **Triblock** system.*

The TA series of angle heads has been studied and defined by advanced computerised systems as a support to OMG's 40 years' experience in the sector. All this has resulted in innovative solutions being achieved in terms of building materials, heat treatments and machining operations, in order to obtain precision, strength, reliability and excellent finishes.

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TA

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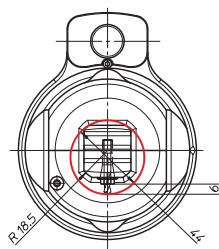
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MT-TC-TC3

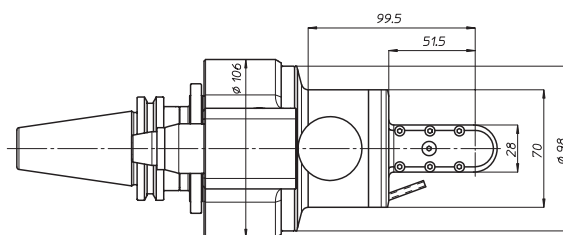
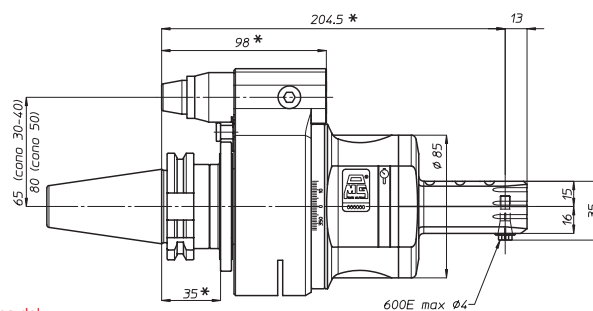
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TA04P-DIN69871.A30
TA04P-DIN69871.A40
TA04P-DIN69871.A45
TA04P-DIN69871.A50
TA04P-ANSI B5.50 CAT40
TA04P-ANSI B5.50 CAT50
TA04P-MAS403.BT40
TA04P-MAS403.BT50

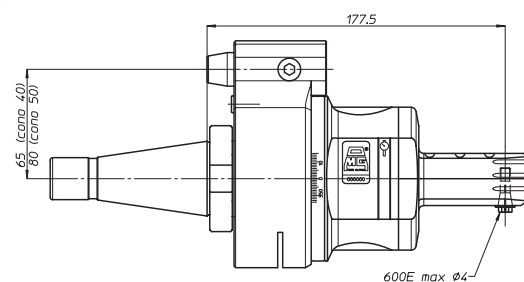
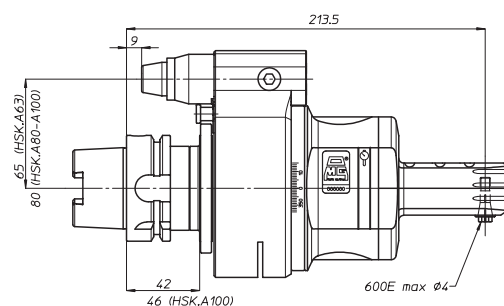


Diametro minimo del
foro in cui entra la testa



* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

TA04P-DIN69893.HSK.A63
TA04P-DIN69893.HSK.A80
TA04P-DIN69893.HSK.A100



TA04P-DIN2080.40
TA04P-DIN2080.50
TA04P-ANSI B5.18 NMTB40
TA04P-ANSI B5.18 NMTB50

peso/weight



5,5 kg



7,5 kg

rotazione/rotation

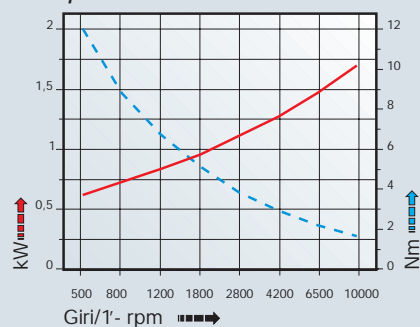


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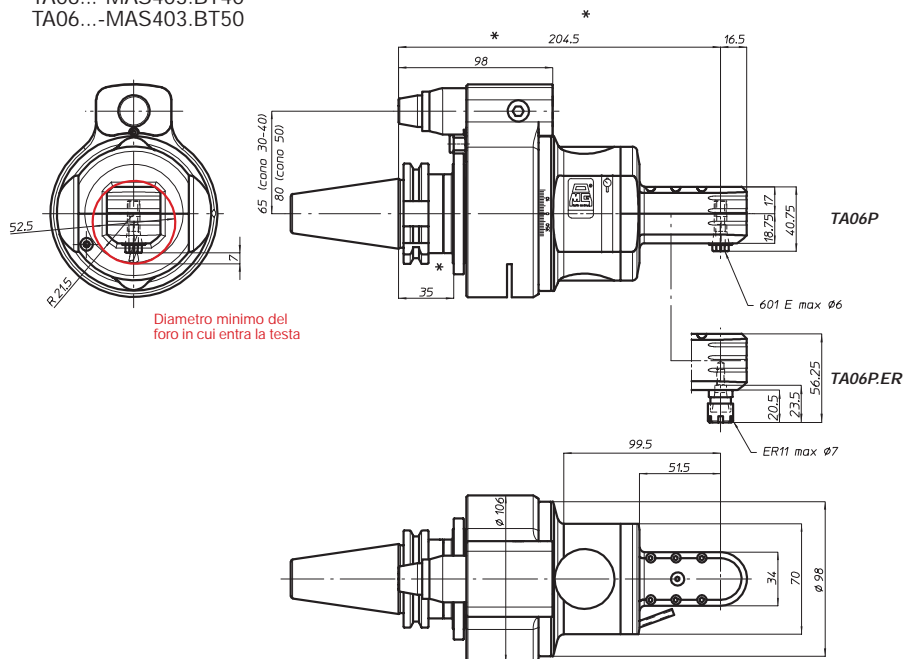
output

prestazioni
performances TA04P



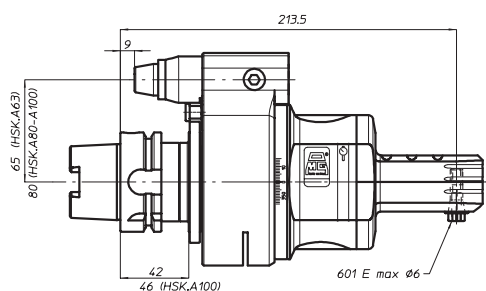
TA06P

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TA06....-DIN69871.A40
TA06....-DIN69871.A45
TA06....-DIN69871.A50
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TA06....-MAS403.BT40
TA06....-MAS403.BT50

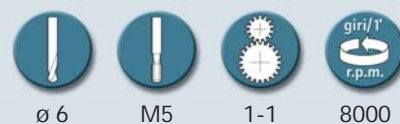
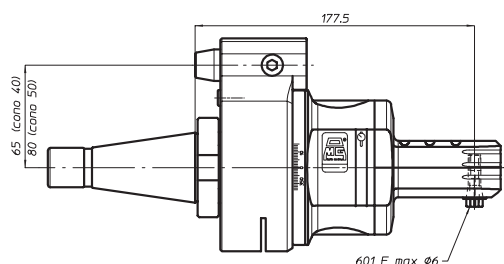


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

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TA06....-DIN69893.HSK.A100



TA06....-DIN2080.40
TA06....-DIN2080.50
TA06....-ANSI B5.18 NMTB40
TA06....-ANSI B5.18 NMTB50



peso/weight



6 kg



8,3 kg

rotazione/rotation

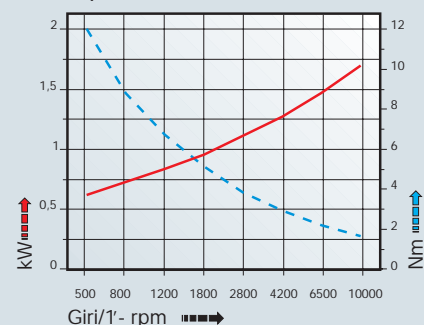


input



output

prestazioni
performances **TA06P**

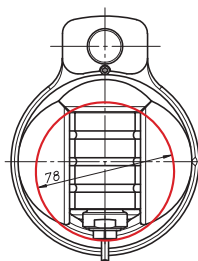


testa ad angolo - *angle head*

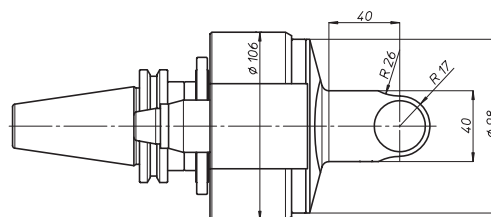
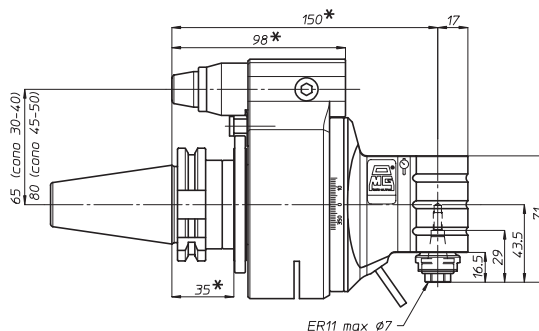
TA07P



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TA07P-DIN69871.A45
TA07P-DIN69871.A50
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TA07P-ANSI B5.50 CAT50
TA07P-MAS403.BT40
TA07P-MAS403.BT50

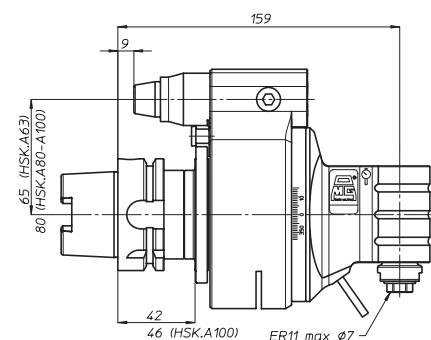


Diametro minimo del foro
in cui entra la testa

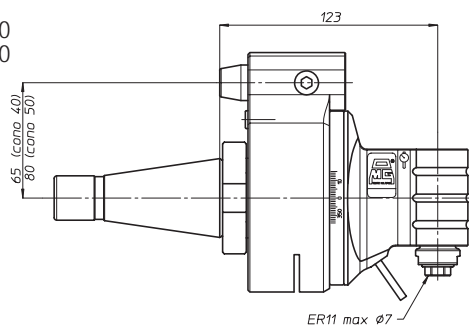


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

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TA07P-DIN69893.HSK.A80
TA07P-DIN69893.HSK.A100



TA07P-DIN2080.40
TA07P-DIN2080.50
TA07P-ANSI B5.18 NMTB40
TA07P-ANSI B5.18 NMTB50



peso/weight



5 kg



7 kg

rotazione/rotation

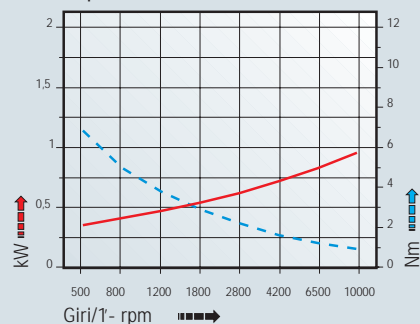


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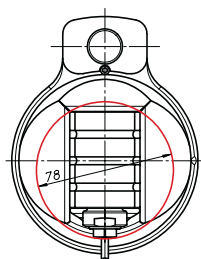
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prestazioni
performances **TA07P**

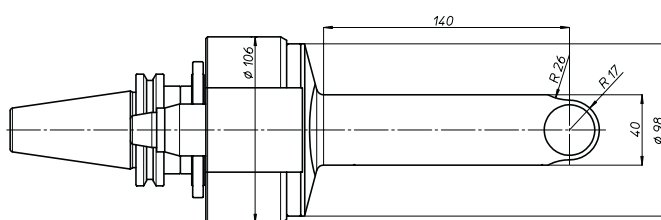
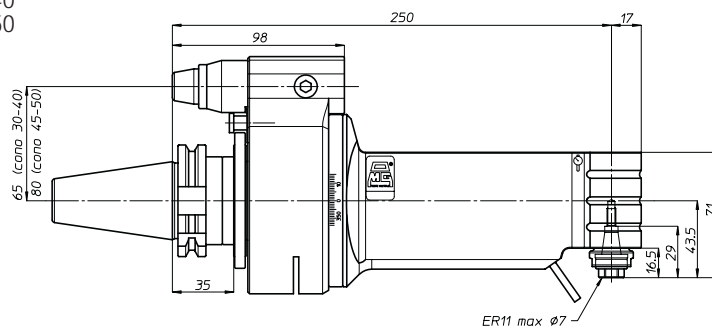


TA07P.L

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TA07P.L-MAS403.BT50

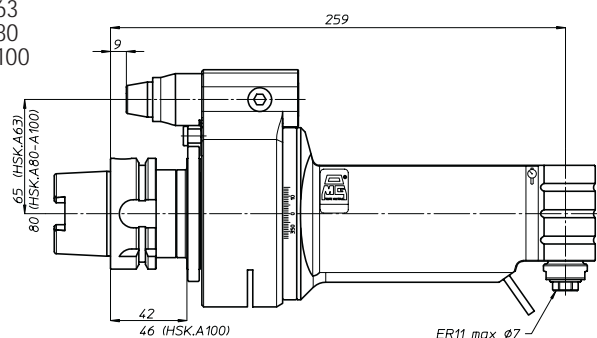


Diametro minimo del foro
in cui entra la testa

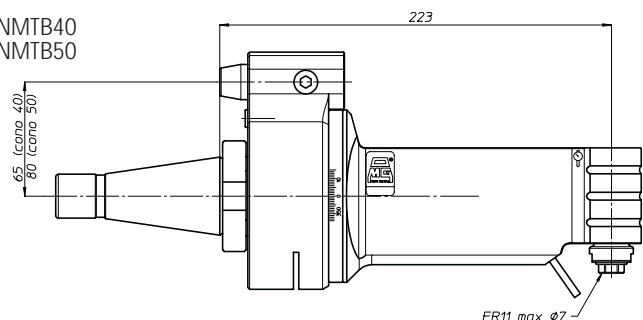


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

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TA07P.L-DIN69893.HSK.A80
TA07P.L-DIN69893.HSK.A100



TA07P.L-DIN2080.40
TA07P.L-DIN2080.50
TA07P.L-ANSI B5.18 NMTB40
TA07P.L-ANSI B5.18 NMTB50



Ø 7



M6



1-1



giri/1' r.p.m. 10000

peso/weight



7,5 kg



9,5 kg

rotazione/rotation

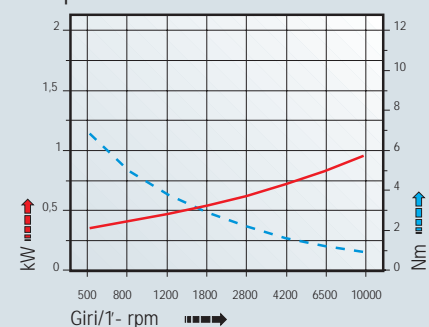


input



output

prestazioni performances TA07P.L



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TA10P-DIN69871.A30
TA10P-DIN69871.A40
TA10P-DIN69871.A45
TA10P-DIN69871.A50
TA10P-ANSI B5.50 CAT40
TA10P-ANSI B5.50 CAT50
TA10P-MAS403.BT40
TA10P-MAS403.BT50



Ø 10



M8



1-1



10000

peso/weight



5,3 kg



7,5 kg

rotazione/rotation

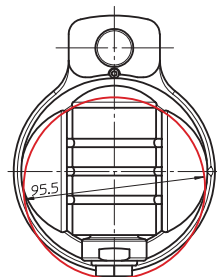
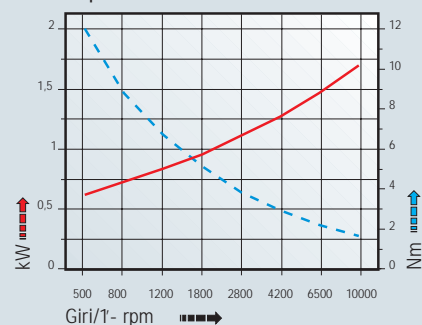


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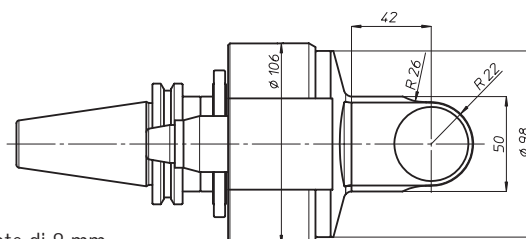
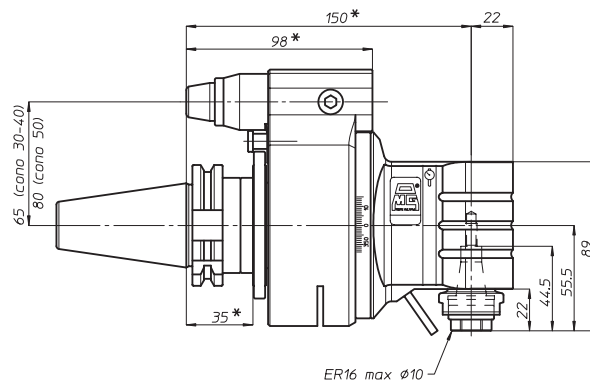


output

prestazioni
performances **TA10P**

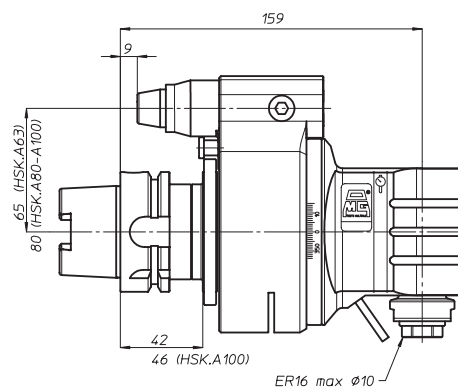


Diametro minimo del foro
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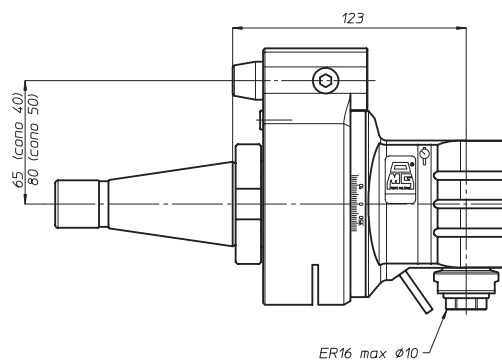


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

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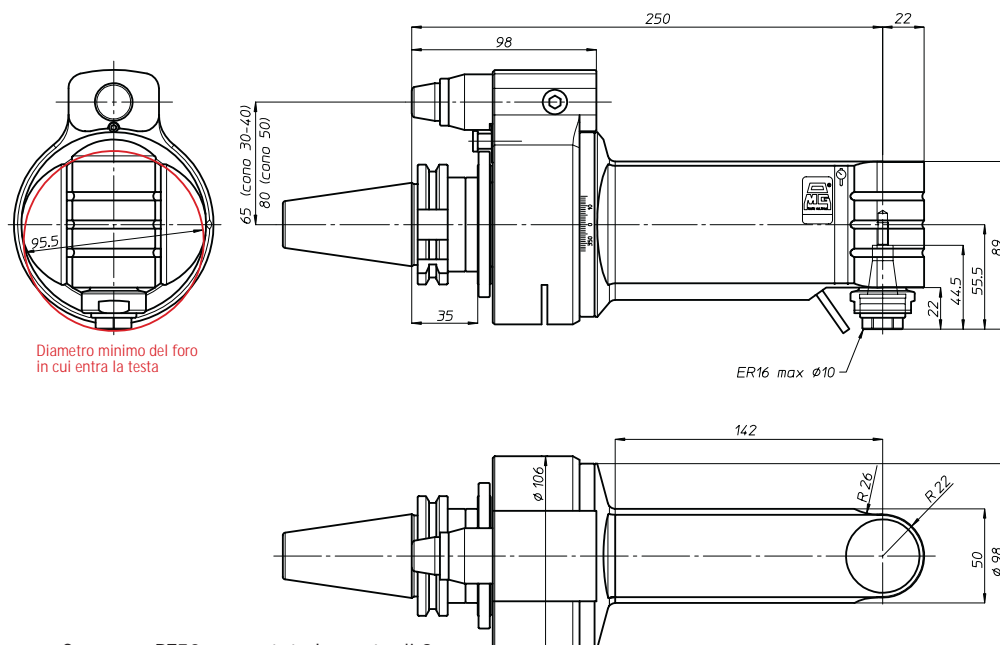


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TA10P-ANSI B5.18 NMTB50



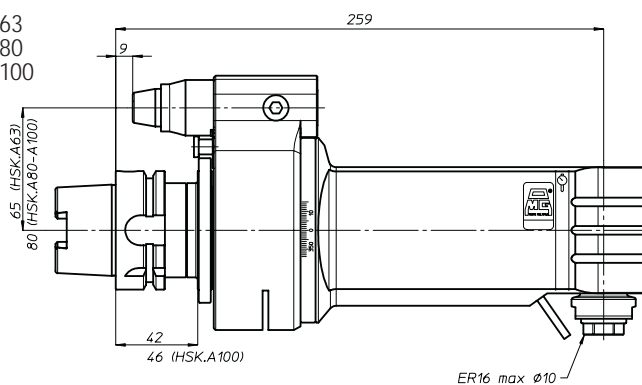
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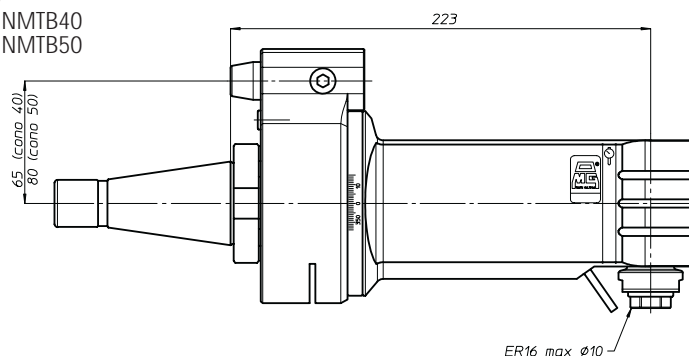


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TA10P.L-DIN69893.HSK.A80
TA10P.L-DIN69893.HSK.A100



TA10P.L-DIN2080.40
TA10P.L-DIN2080.50
TA10P.L-ANSI B5.18 NMTB40
TA10P.L-ANSI B5.18 NMTB50



peso/weight



8,3 kg



10,5 kg

rotazione/rotation

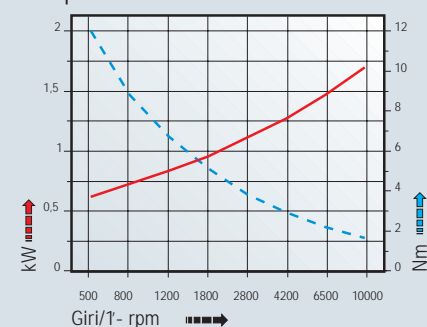


input



output

prestazioni
performances **TA10P.L**



TA

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peso/weight



6,5 kg



9 kg

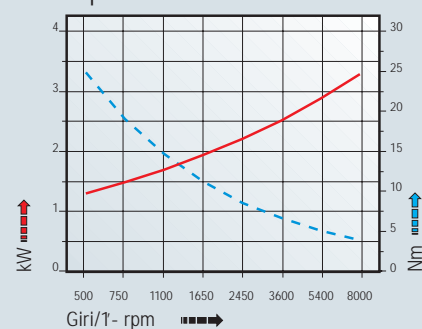
rotazione/rotation



input



output

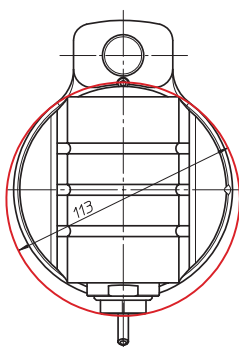
prestazioni
performances **TA13P**

1-8

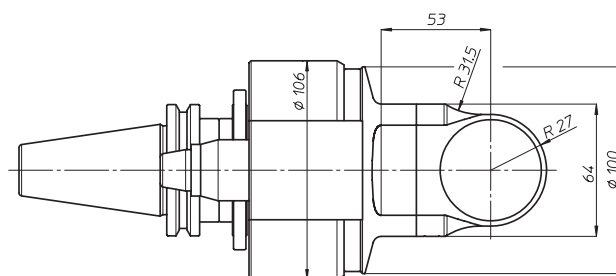
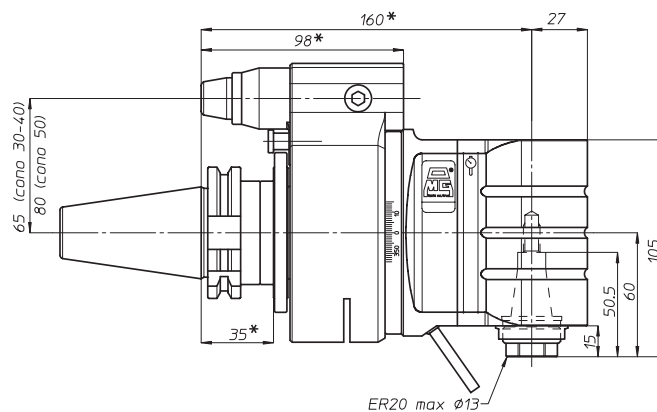
testa ad angolo - angle head

TA13P

TA13P-DIN69871.A40
TA13P-DIN69871.A45
TA13P-DIN69871.A50
TA13P-ANSI B5.50 CAT40
TA13P-ANSI B5.50 CAT50
TA13P-MAS403.BT40
TA13P-MAS403.BT50

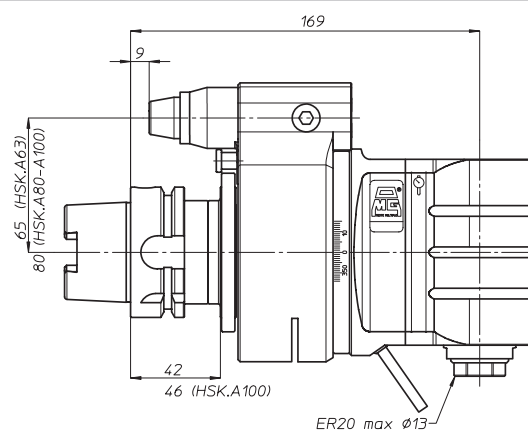


Diametro minimo del foro
in cui entra la testa

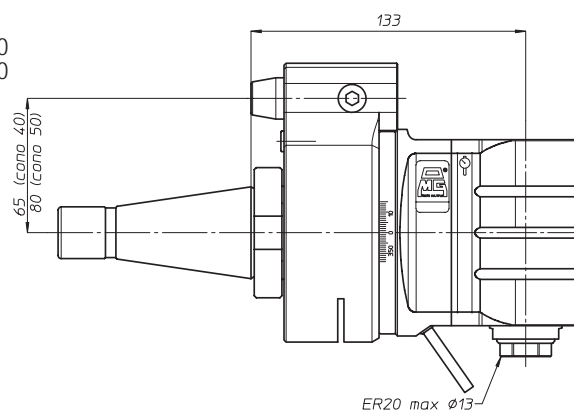


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

TA13P-DIN69893.HSK.A63
TA13P-DIN69893.HSK.A80
TA13P-DIN69893.HSK.A100

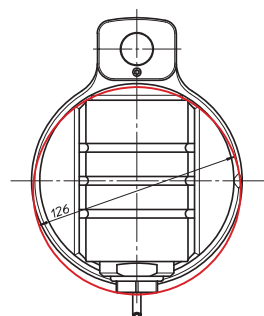


TA13P-DIN2080.40
TA13P-DIN2080.50
TA13P-ANSI B5.18 NMTB40
TA13P-ANSI B5.18 NMTB50

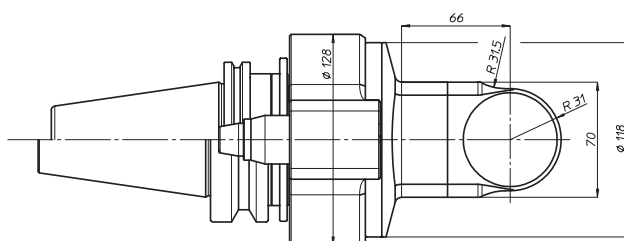
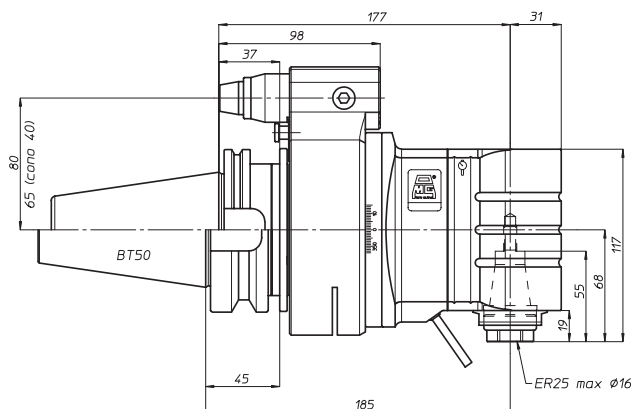


TA16P

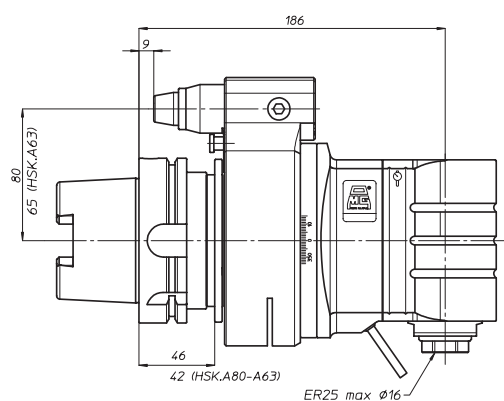
TA16P-DIN69871.A40
TA16P-DIN69871.A45
TA16P-DIN69871.A50
TA16P-ANSI B5.50 CAT40
TA16P-ANSI B5.50 CAT50
TA16P-MAS403.BT40
TA16P-MAS403.BT50



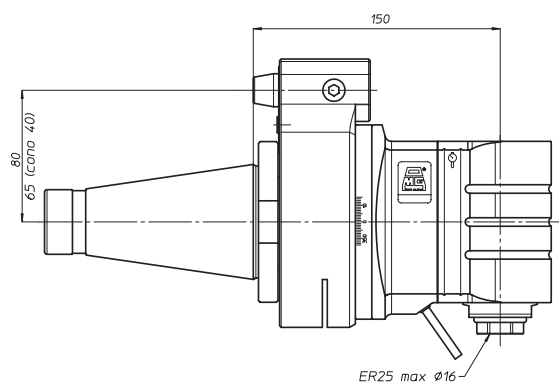
Diametro minimo del foro
in cui entra la testa



TA16P-DIN69893.HSK.A63
TA16P-DIN69893.HSK.A80
TA16P-DIN69893.HSK.A100



TA16P-DIN2080.40
TA16P-DIN2080.50
TA16P-ANSI B5.18 NMTB40
TA16P-ANSI B5.18 NMTB50



peso/weight



7,7 kg



11,7 kg

rotazione/rotation

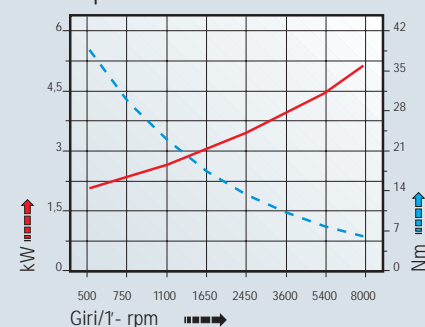


input



output

prestazioni
performances TA16P



TA

MO

HT

VH

TSI/TSX

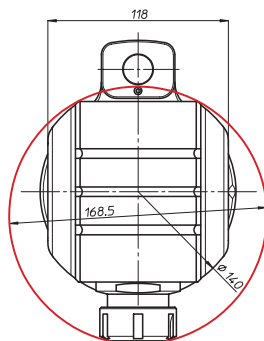
T

MT-TC-TC3

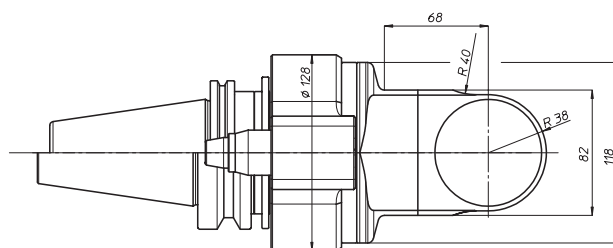
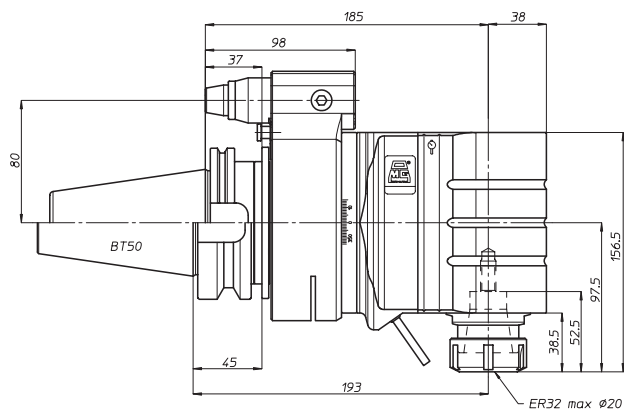
Accessori
AccessoriesAppendice tecnica
Technical supplementtesta ad angolo - *angle head*

TA20P

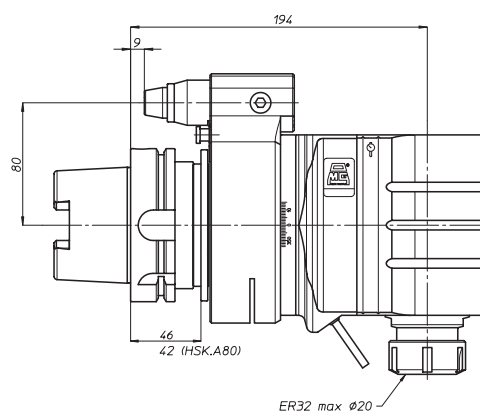
TA20P-DIN69871.A45
TA20P-DIN69871.A50
TA20P-ANSI B5.50 CAT50
TA20P-MAS403.BT50



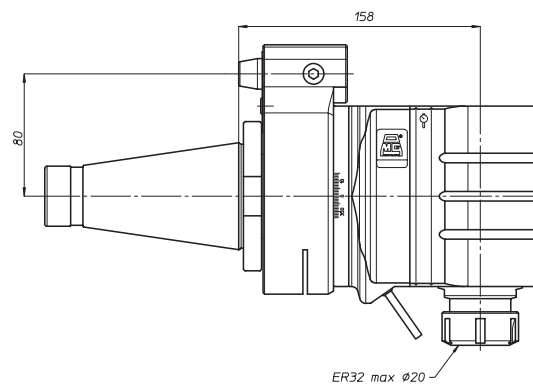
Diametro minimo del foro
in cui entra la testa



TA20P-DIN69893.HSK.A80
TA20P-DIN69893.HSK.A100



TA20P-DIN2080.50
TA20P-ANSI B5.18 NMTB50



peso/weight



14,5 kg

rotazione/rotation

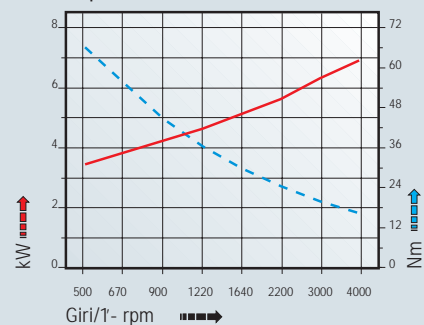


input



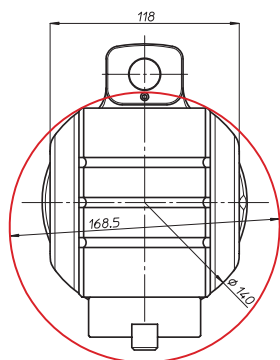
output

prestazioni
performances **TA20P**

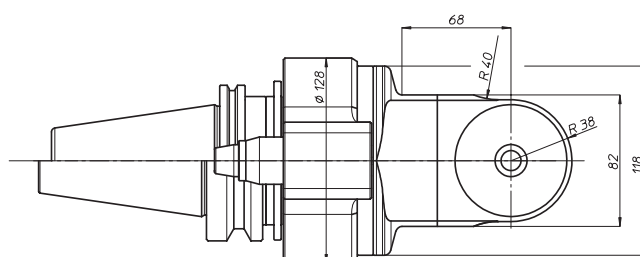
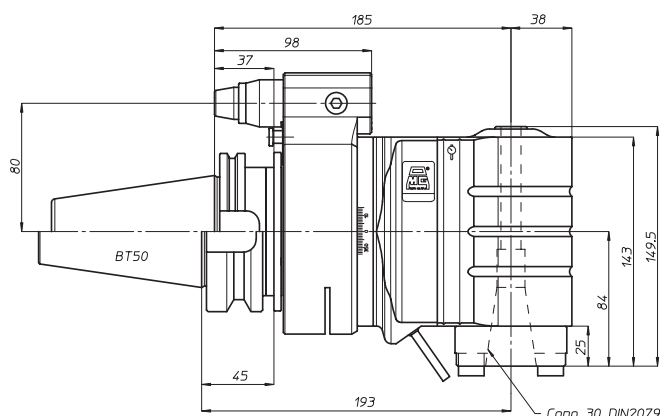


TA20.30

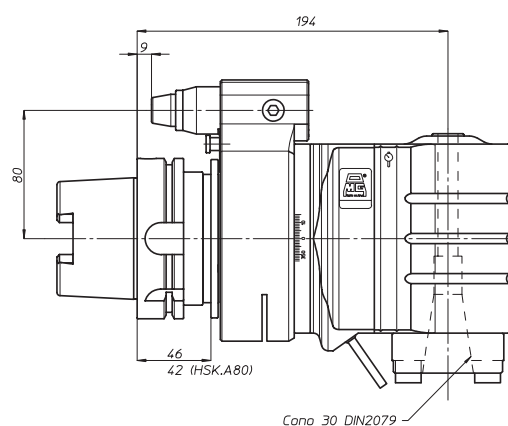
TA20.30-DIN69871.A45
TA20.30-DIN69871.A50
TA20.30-ANSI B5.50 CAT50
TA20.30-MAS403.BT50



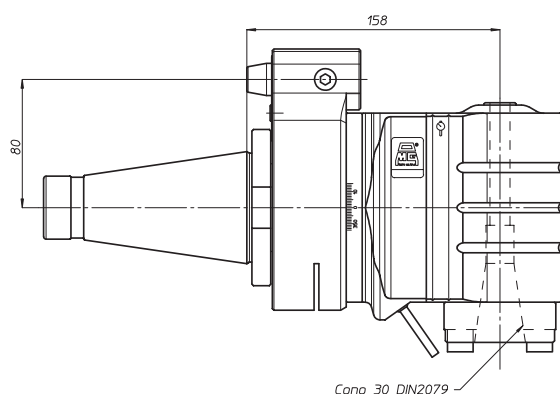
Diametro minimo del foro
in cui entra la testa



TA20.30-DIN69893.HSK.A80
TA20.30-DIN69893.HSK.A100



TA20.30-DIN2080.50
TA20.30-ANSI B5.18 NMTB50



peso/weight



14,7 kg

rotazione/rotation

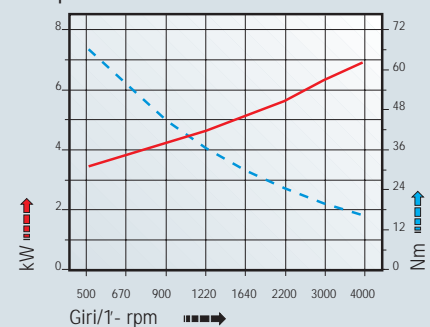


input



output

prestazioni
performances **TA20.30**



TA

MO

HT

VH

TSI/TSX

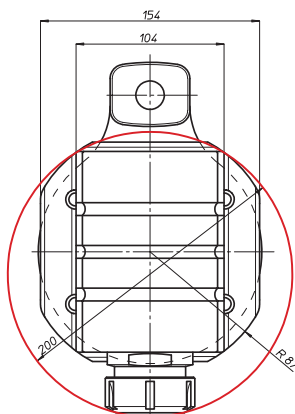
T

MT-TC-TC3

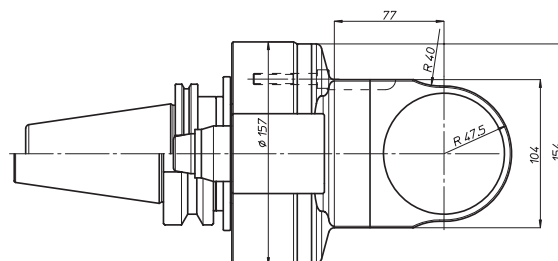
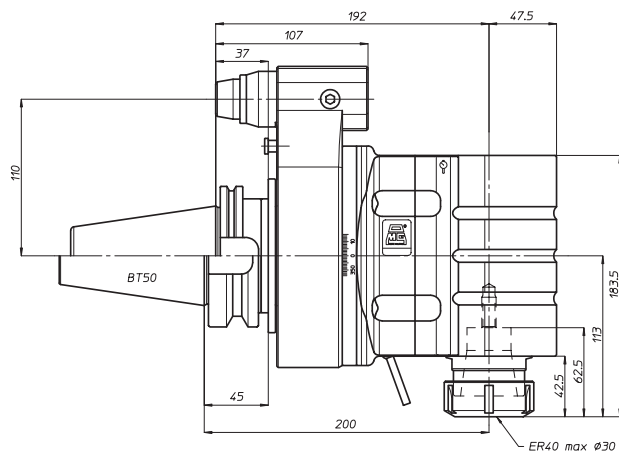
Accessori
AccessoriesAppendice tecnica
Technical supplementtesta ad angolo - *angle head*

TA26P

TA26P-DIN69871.A50
TA26P-ANSI B5.50 CAT50
TA26P-MAS403.BT50



Diametro minimo del foro
in cui entra la testa



peso/weight



22 kg

rotazione/rotation

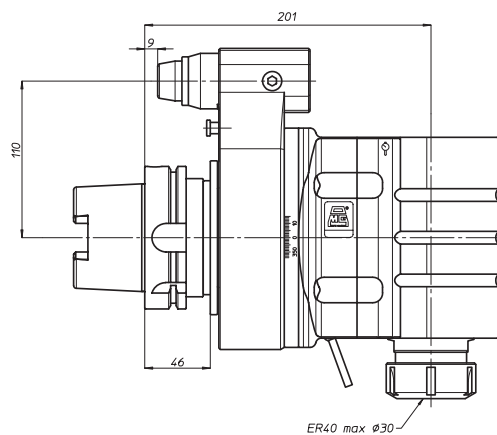


input

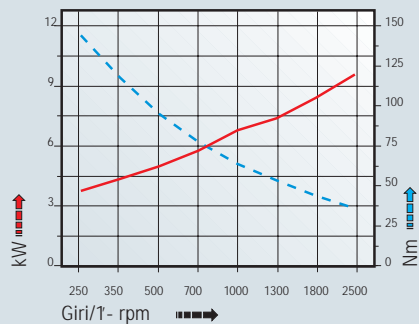


output

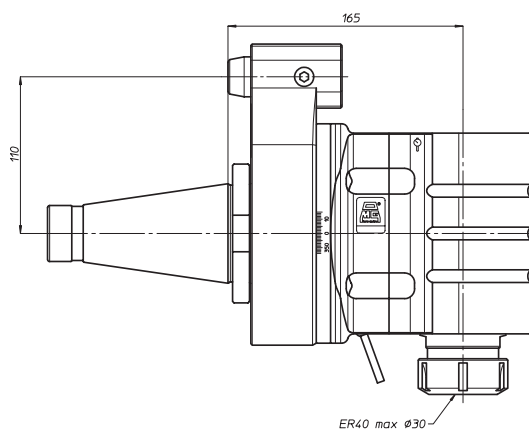
TA26P-DIN69893.HSK.A100



prestazioni
performances **TA26P**

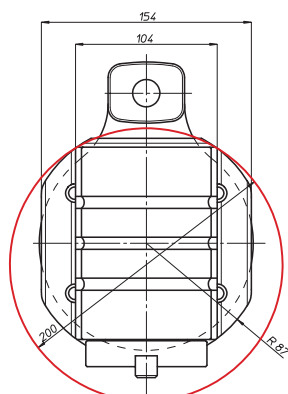


TA26P-DIN2080.50
TA26P-ANSI B5.18 NMTB50

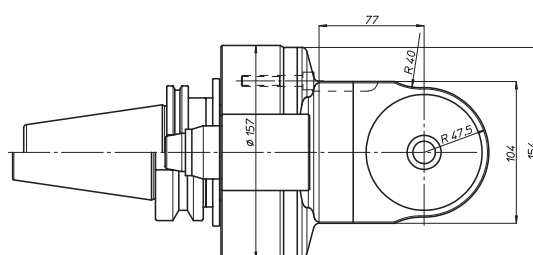
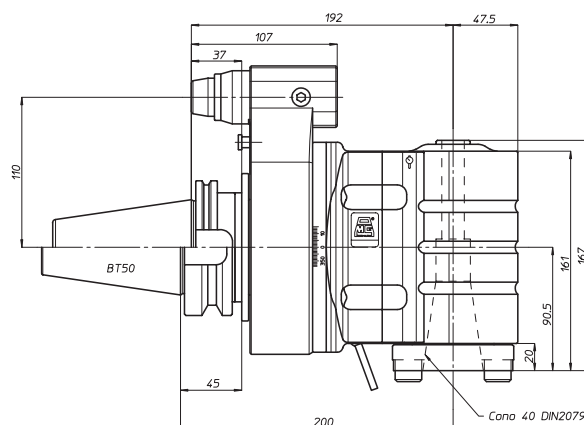


TA26.40

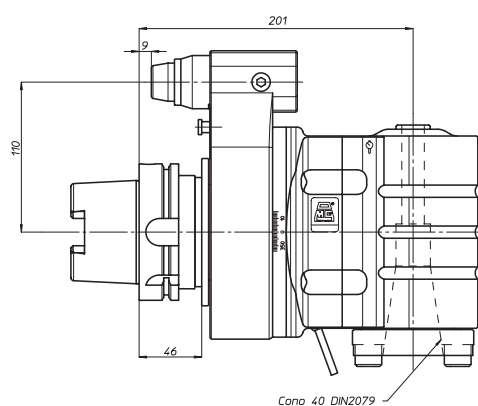
TA26.40-DIN69871.A50
TA26.40-ANSI B5.50 CAT50
TA26.40-MAS403.BT50



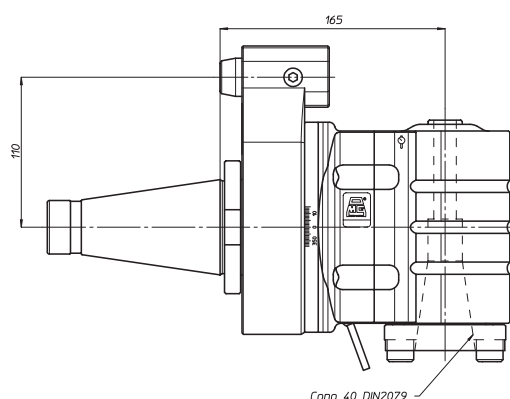
Diametro minimo del foro
in cui entra la testa



TA26.40-DIN69893.HSK.A100



TA26.40-DIN2080.50
TA26.40-ANSI B5.18 NMTB50



peso/weight



22 kg

rotazione/rotation

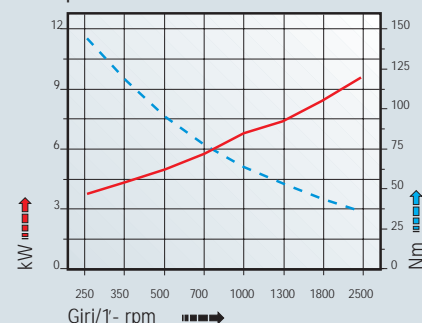


input



output

prestazioni
performances **TA26.40**



testa ad angolo - *angle head*

TA07.2P

TA07.2P-DIN69871.A30
TA07.2P-DIN69871.A40
TA07.2P-DIN69871.A45
TA07.2P-DIN69871.A50
TA07.2P-ANSI B5.50 CAT40
TA07.2P-ANSI B5.50 CAT50
TA07.2P-MAS403.BT40
TA07.2P-MAS403.BT50



peso/weight



5 kg



7 kg

rotazione/rotation

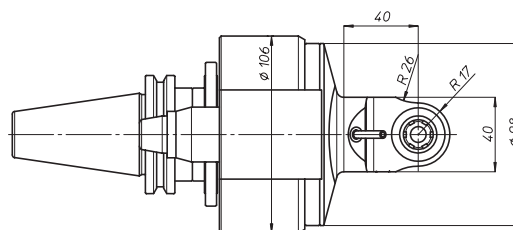
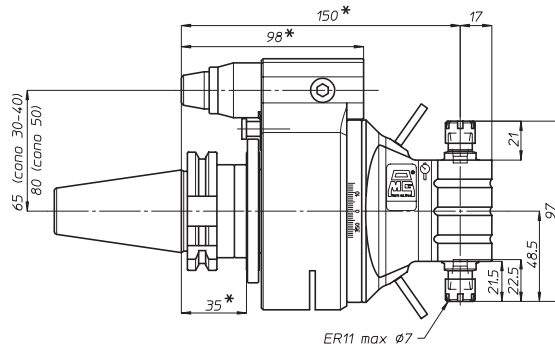
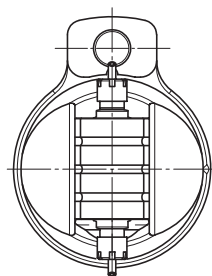
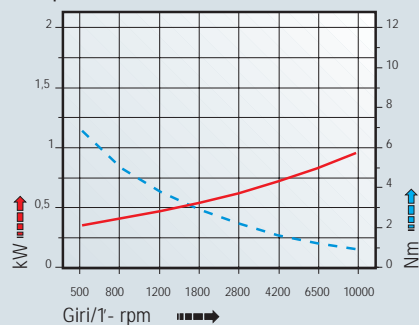


input



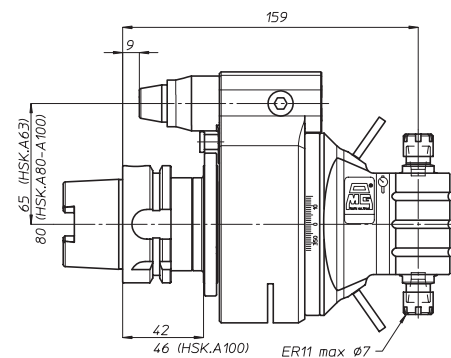
output

prestazioni
performances **TA07.2P**

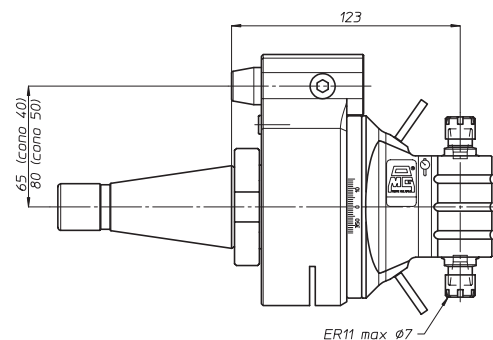


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

TA07.2P-DIN69893.HSK.A63
TA07.2P-DIN69893.HSK.A80
TA07.2P-DIN69893.HSK.A100

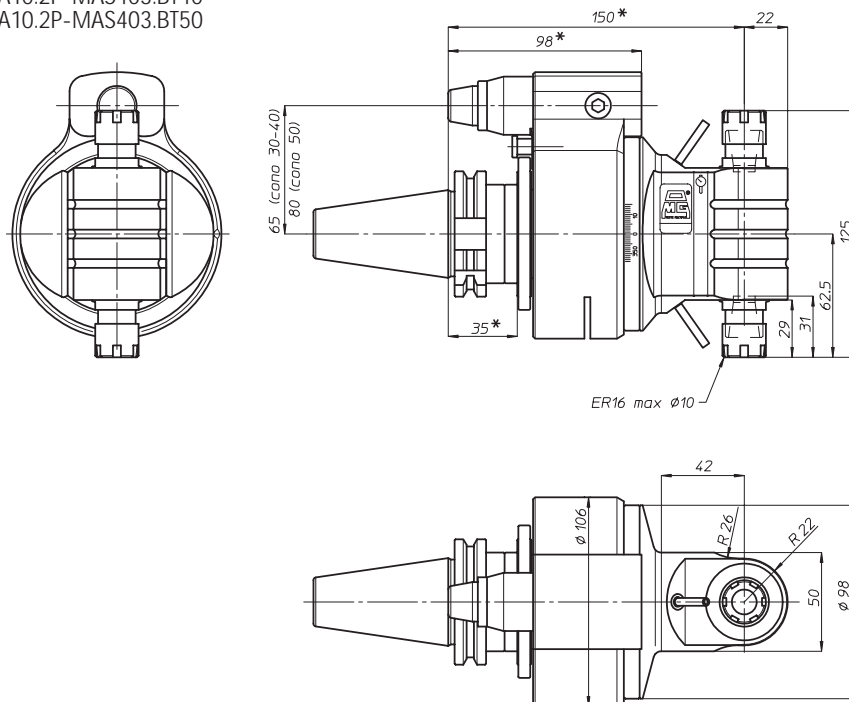


TA07.2P-DIN2080.40
TA07.2P-DIN2080.50
TA07.2P-ANSI B5.18 NMTB40
TA07.2P-ANSI B5.18 NMTB50



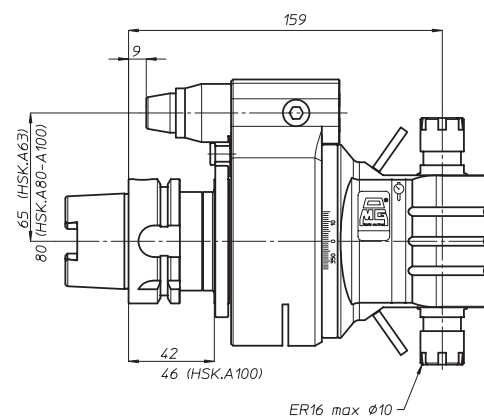
TA10.2P

TA10.2P-DIN69871.A30
TA10.2P-DIN69871.A40
TA10.2P-DIN69871.A45
TA10.2P-DIN69871.A50
TA10.2P-ANSI B5.50 CAT40
TA10.2P-ANSI B5.50 CAT50
TA10.2P-MAS403.BT40
TA10.2P-MAS403.BT50

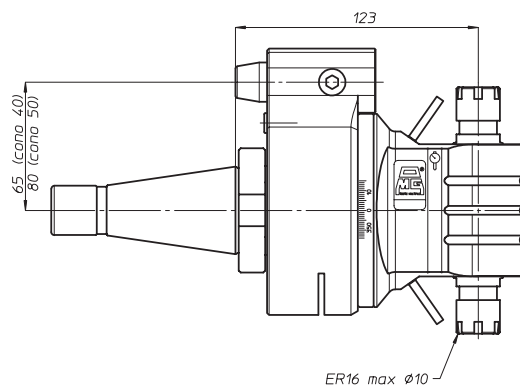


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

TA10.2P-DIN69893.HSK.A63
TA10.2P-DIN69893.HSK.A80
TA10.2P-DIN69893.HSK.A100



TA10.2P-DIN2080.40
TA10.2P-DIN2080.50
TA10.2P-ANSI B5.18 NMTB40
TA10.2P-ANSI B5.18 NMTB50



peso/weight



5,5 kg



7,5 kg

rotazione/rotation

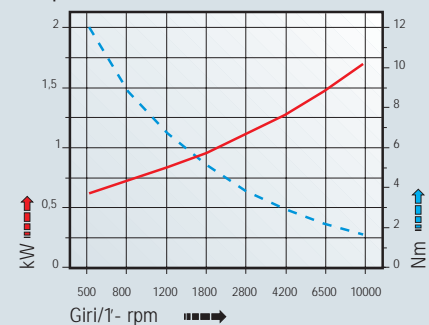


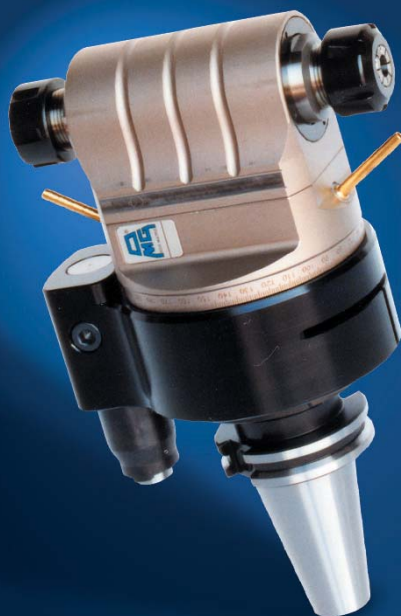
input



output

prestazioni performances TA10.2P





testa ad angolo - *angle head*

TA13.2P

TA13.2P-DIN69871.A40
TA13.2P-DIN69871.A45
TA13.2P-DIN69871.A50
TA13.2P-ANSI B5.50 CAT40
TA13.2P-ANSI B5.50 CAT50
TA13.2P-MAS403.BT40
TA13.2P-MAS403.BT50



peso/weight



6,5 kg



9 kg

rotazione/rotation

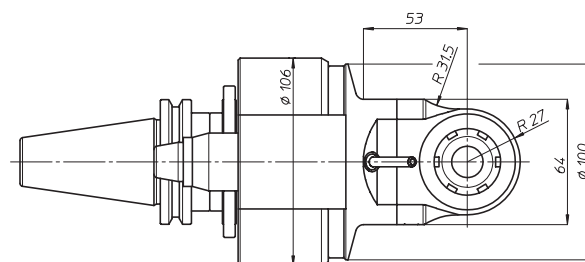
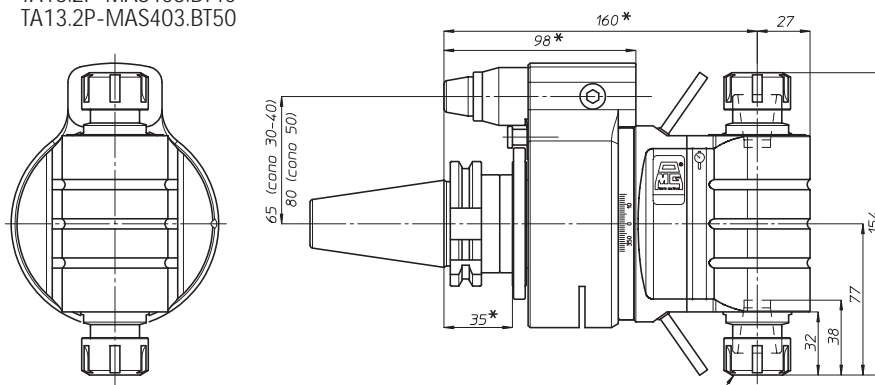
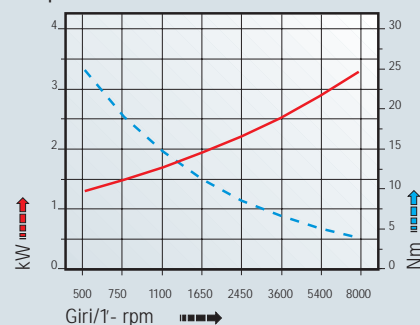


input



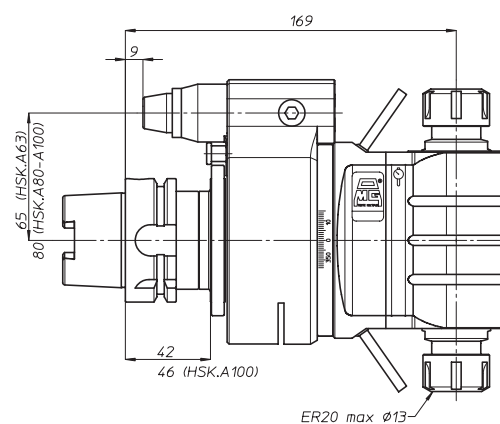
output

prestazioni
performances **TA13.2P**

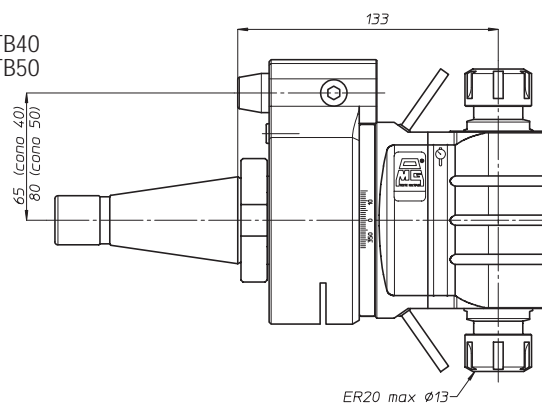


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

TA13.2P-DIN69893.HSK.A63
TA13.2P-DIN69893.HSK.A80
TA13.2P-DIN69893.HSK.A100

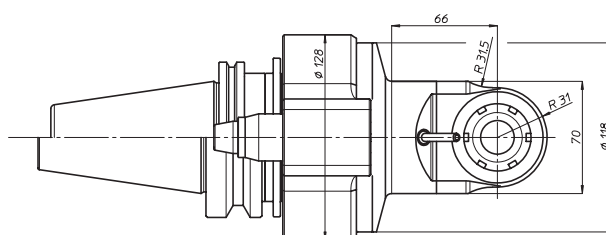
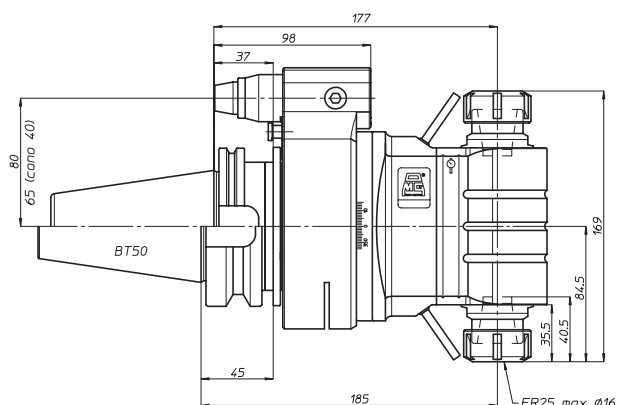
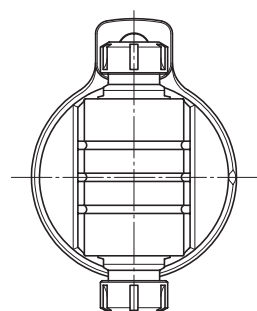


TA13.2P-DIN2080.40
TA13.2P-DIN2080.50
TA13.2P-ANSI B5.18 NMTB40
TA13.2P-ANSI B5.18 NMTB50

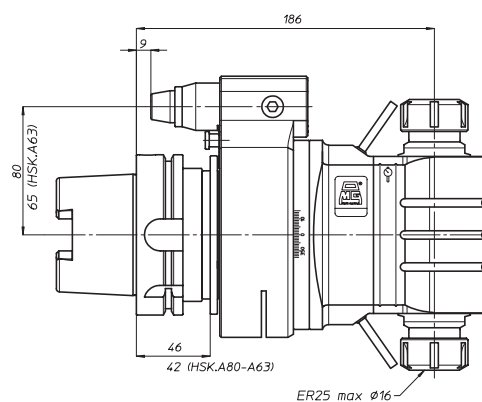


TA16.2P

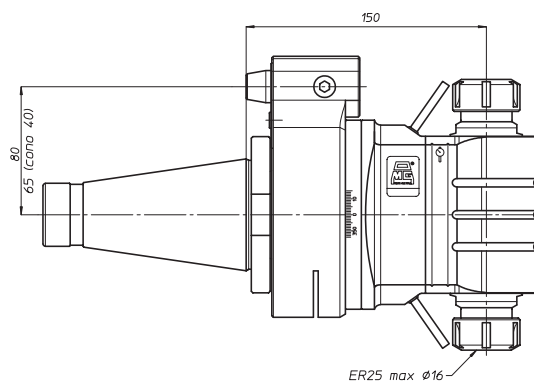
TA16.2P-DIN69871.A40
TA16.2P-DIN69871.A45
TA16.2P-DIN69871.A50
TA16.2P-ANSI B5.50 CAT40
TA16.2P-ANSI B5.50 CAT50
TA16.2P-MAS403.BT40
TA16.2P-MAS403.BT50



TA16.2P-DIN69893.HSK.A63
TA16.2P-DIN69893.HSK.A80
TA16.2P-DIN69893.HSK.A100



TA16.2P-DIN2080.40
TA16.2P-DIN2080.50
TA16.2P-ANSI B5.18 NMTB40
TA16.2P-ANSI B5.18 NMTB50



peso/weight



7,7 kg



12,2 kg

rotazione/rotation

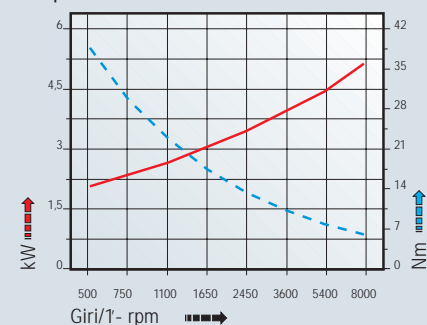


input



output

prestazioni
performances **TA16.2P**



TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3

Accessori
AccessoriesAppendice tecnica
Technical supplement

testa ad angolo - angle head

TA20.2P

TA20.2P-DIN69871.A45
TA20.2P-DIN69871.A50
TA20.2P-ANSI B5.50 CAT50
TA20.2P-MAS403.BT50



ø 20



M14



1-1

giri/1'
r.p.m.

3500

peso/weight



15 kg

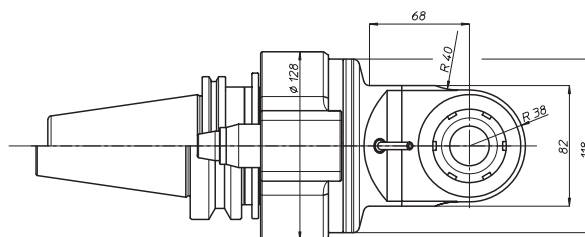
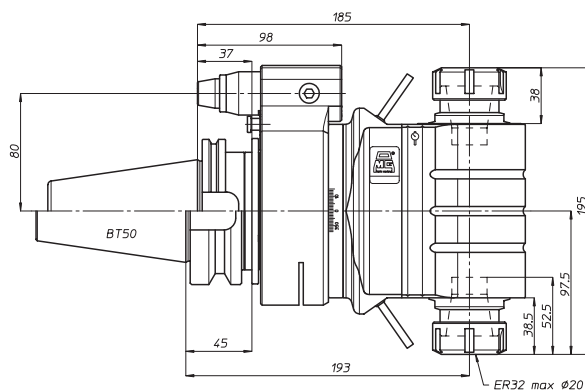
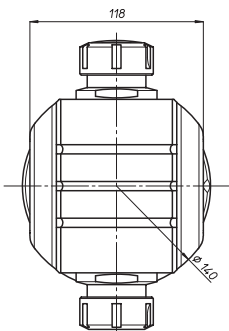
rotazione/rotation



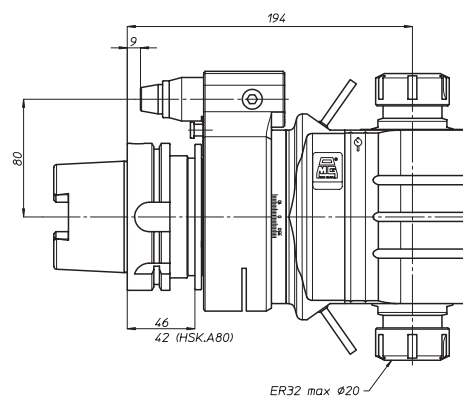
input



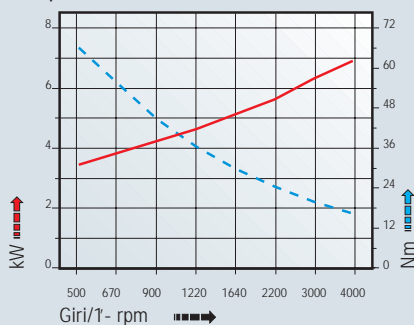
output



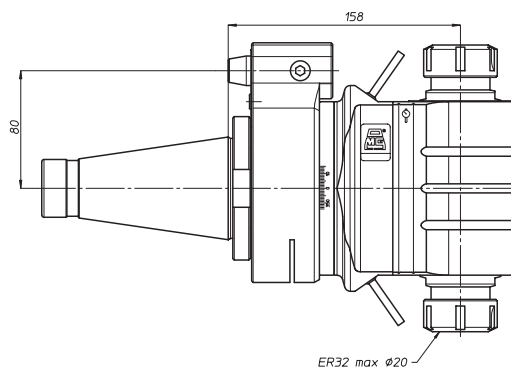
TA20.2P-DIN69893.HSK.A80
TA20.2P-DIN69893.HSK.A100



prestazioni
performances **TA20.2P**

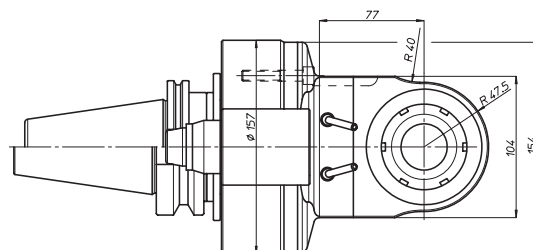
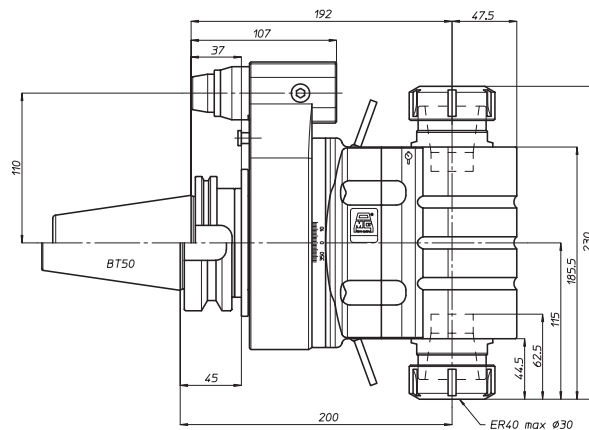
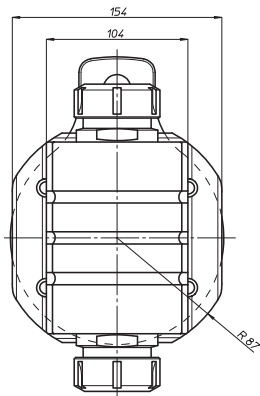


TA20.2P-DIN2080.50
TA20.2P-ANSI B5.18 NMTB50

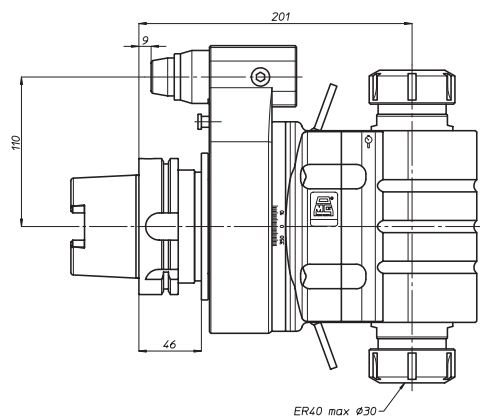


TA26.2P

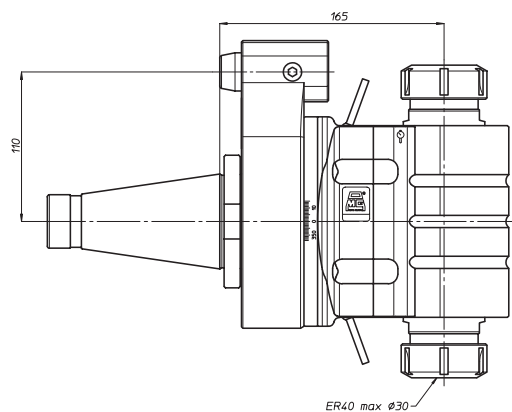
TA26.2P-DIN69871.A50
TA26.2P-ANSI B5.50 CAT50
TA26.2P-MAS403.BT50



TA26.2P-DIN69893.HSK.A100



TA26.2P-DIN2080.50
TA26.2P-ANSI B5.18 NMTB50



Ø 26



M20



1-1



2500

peso/weight



22,5 kg

rotazione/rotation

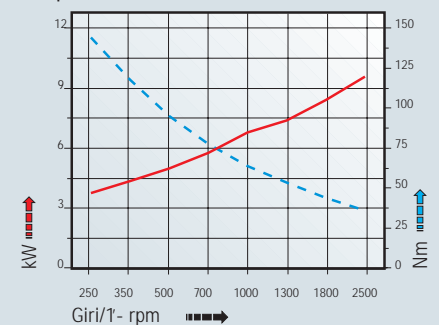


input



output

prestazioni performances TA26.2P



TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3

Accessori
Accessories

Appendice tecnica
Technical supplement



10 bar

peso/weight



5 kg



7 kg

rotazione/rotation

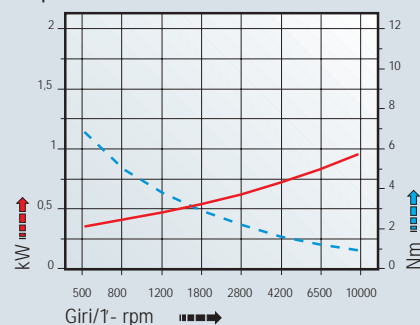


input



output

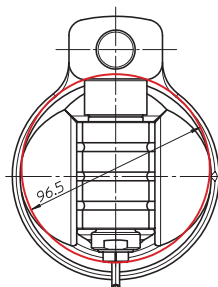
prestazioni
performances **TA07.PD**



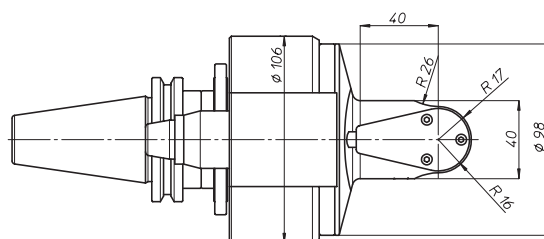
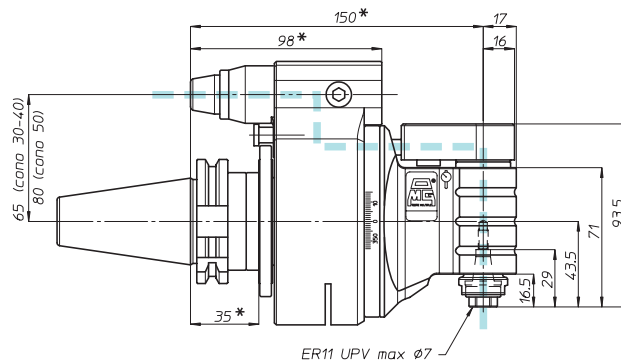
testa ad angolo - *angle head*

TA07.PD

TA07PD-DIN69871.A30
 TA07PD-DIN69871.A40
 TA07PD-DIN69871.A45
 TA07PD-DIN69871.A50
 TA07PD-ANSI B5.50 CAT40
 TA07PD-ANSI B5.50 CAT50
 TA07PD-MAS403.BT40
 TA07PD-MAS403.BT50

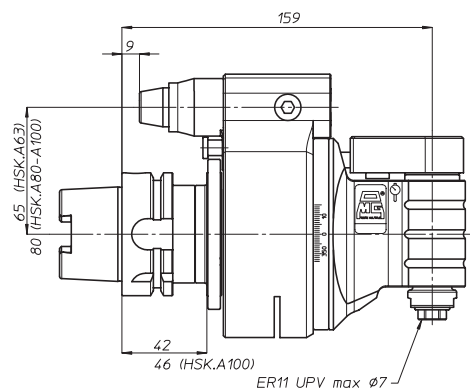


Diametro minimo del foro
in cui entra la testa

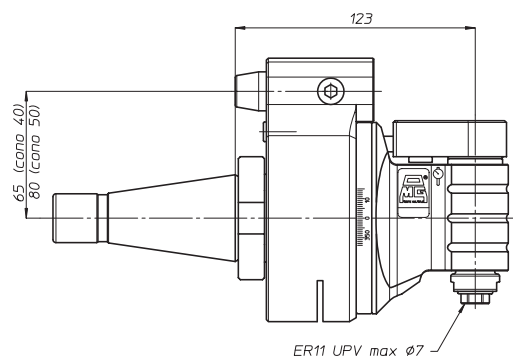


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

TA07PD-DIN69893.HSK.A63
 TA07PD-DIN69893.HSK.A80
 TA07PD-DIN69893.HSK.A100

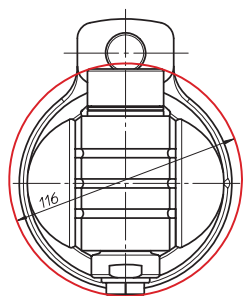


TA07PD-DIN2080.40
 TA07PD-DIN2080.50
 TA07PD-ANSI B5.18 NMTB40
 TA07PD-ANSI B5.18 NMTB50

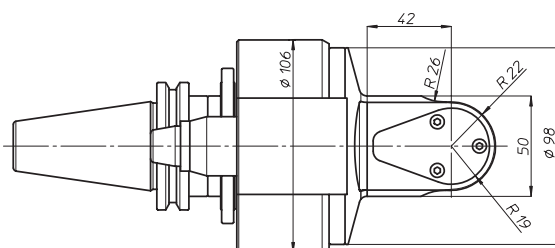
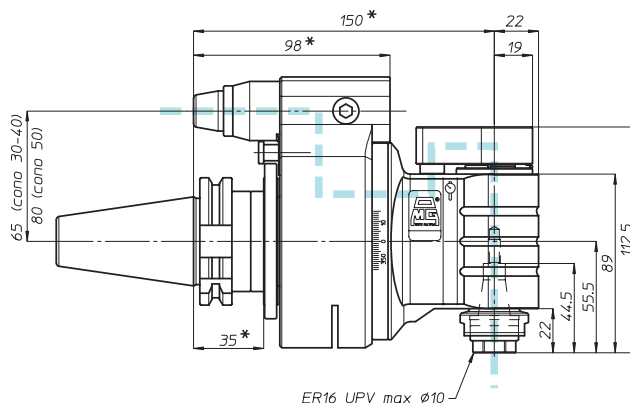


TA10.PD

TA10PD-DIN69871.A30
TA10PD-DIN69871.A40
TA10PD-DIN69871.A45
TA10PD-DIN69871.A50
TA10PD-ANSI B5.50 CAT40
TA10PD-ANSI B5.50 CAT50
TA10PD-MAS403.BT40
TA10PD-MAS403.BT50

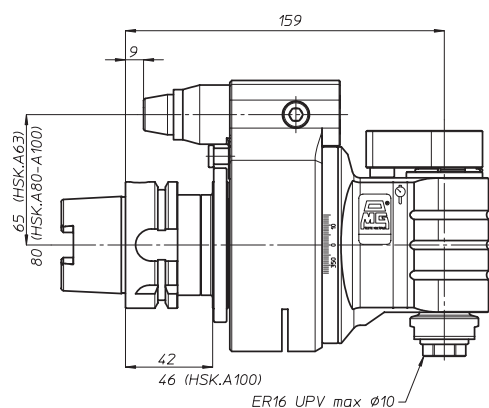


Diametro minimo del foro
in cui entra la testa

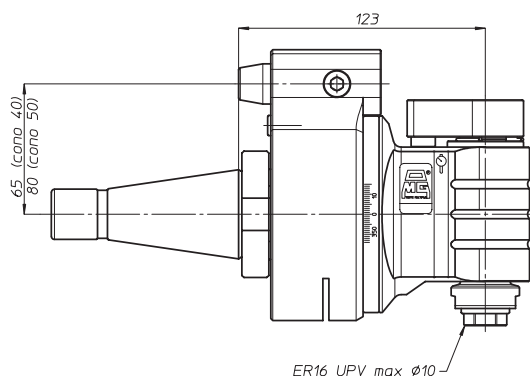


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

TA10PD-DIN69893.HSK.A63
TA10PD-DIN69893.HSK.A80
TA10PD-DIN69893.HSK.A100



TA10PD-DIN2080.40
TA10PD-DIN2080.50
TA10PD-ANSI B5.18 NMTB40
TA10PD-ANSI B5.18 NMTB50



Ø 10



M8



1-1



giri/1'
r.p.m.

10000



10 bar

peso/weight



5,5 kg



7,5 kg

rotazione/rotation

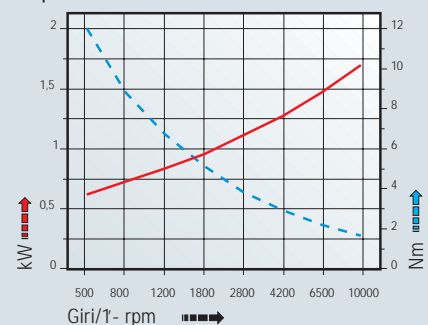


input



output

prestazioni
performances TA10.PD

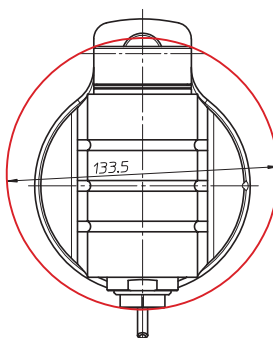




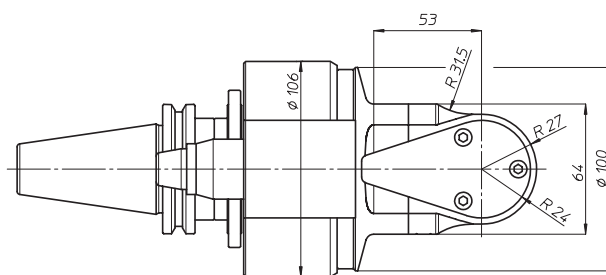
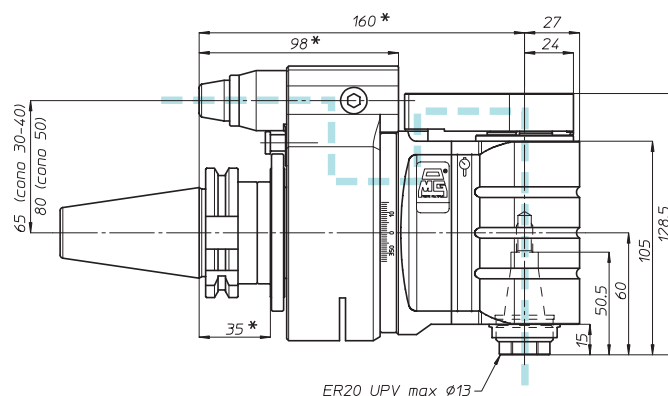
testa ad angolo - *angle head*

TA13.PD

TA13PD-DIN69871.A40
TA13PD-DIN69871.A45
TA13PD-DIN69871.A50
TA13PD-ANSI B5.50 CAT40
TA13PD-ANSI B5.50 CAT50
TA13PD-MAS403.BT40
TA13PD-MAS403.BT50

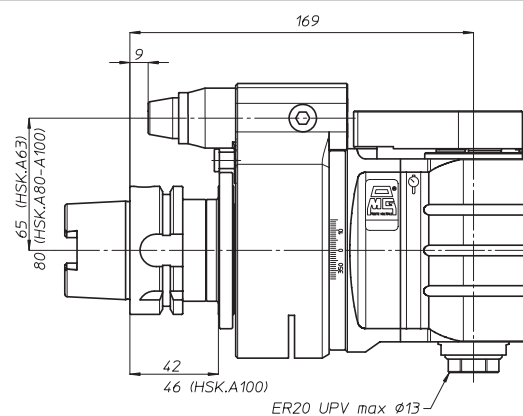


Diametro minimo del foro
in cui entra la testa

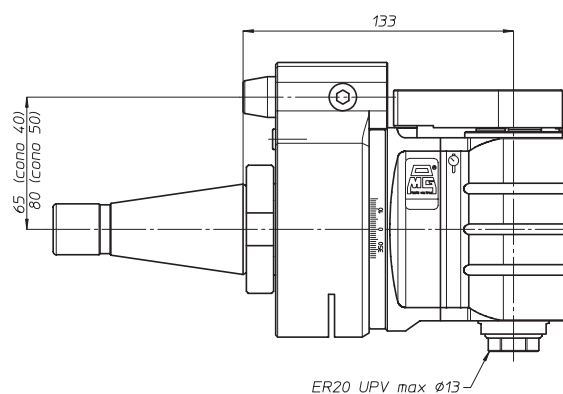


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

TA13PD-DIN69893.HSK.A63
TA13PD-DIN69893.HSK.A80
TA13PD-DIN69893.HSK.A100



TA13PD-DIN2080.40
TA13PD-DIN2080.50
TA13PD-ANSI B5.18 NMTB40
TA13PD-ANSI B5.18 NMTB50



10 bar

peso/weight



6,5 kg



9 kg

rotazione/rotation

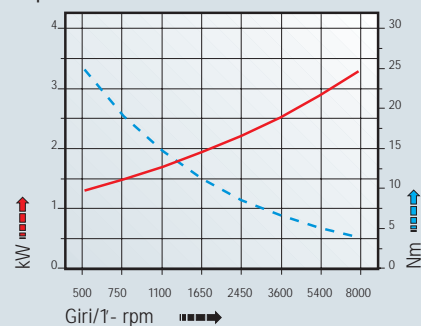


input



output

prestazioni
performances **TA13.PD**



TA

MO

HT

VH

TSI/TSX

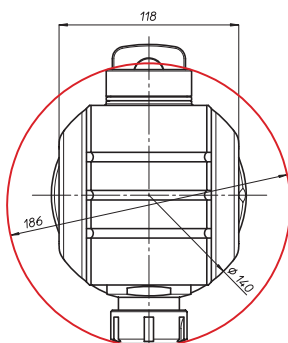
T

MT-TC-TC3

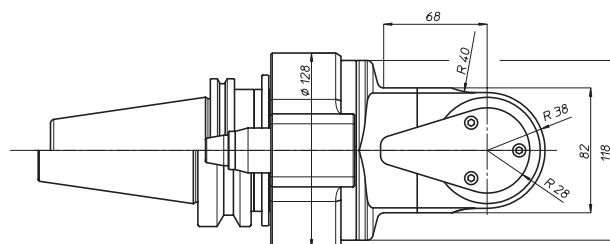
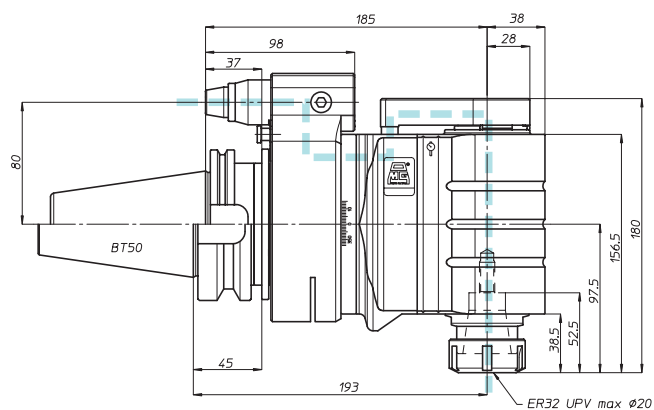
Accessori
AccessoriesAppendice tecnica
Technical supplementtesta ad angolo - *angle head*

TA20.PD

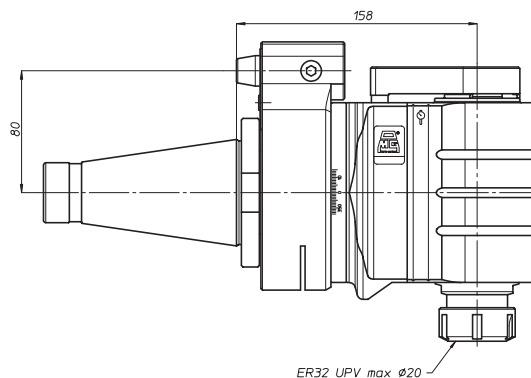
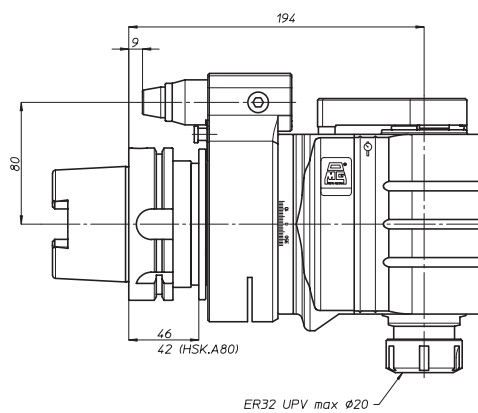
TA20PD-DIN69871.A45
TA20PD-DIN69871.A50
TA20PD-ANSI B5.50 CAT50
TA20PD-MAS403.BT50



Diametro minimo del foro
in cui entra la testa



TA20PD-DIN69893.HSK.A80
TA20PD-DIN69893.HSK.A100



8 bar

peso/weight



14,5 kg

rotazione/rotation

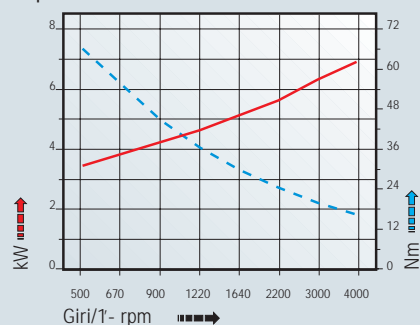


input



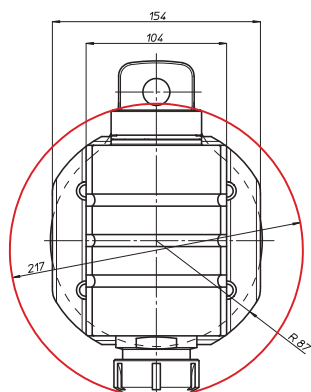
output

prestazioni
performances **TA20.PD**

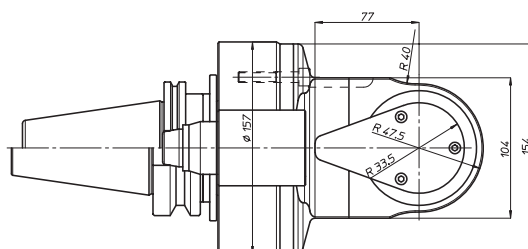
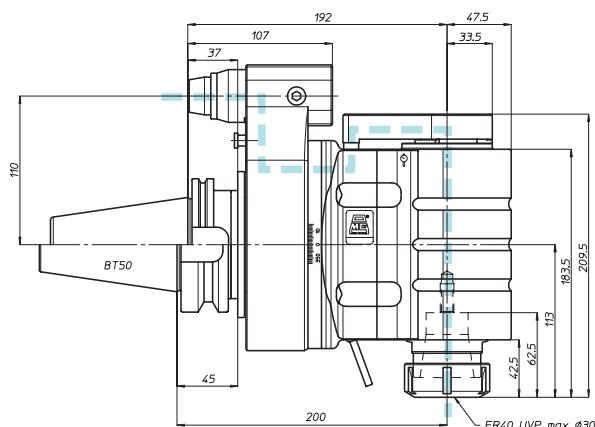


TA26.PD

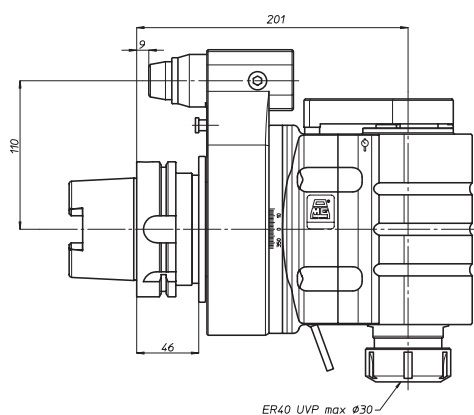
TA26PD-DIN69871.A50
TA26PD-ANSI B5.50 CAT50
TA26PD-MAS403.BT50



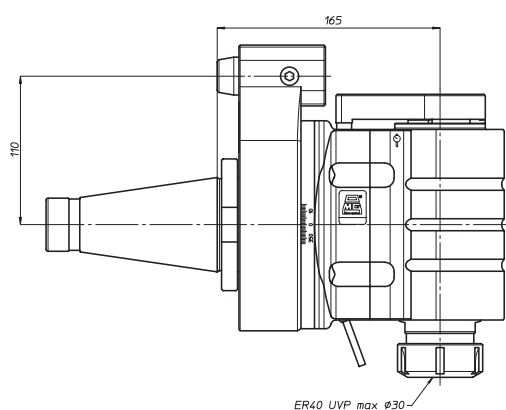
Diametro minimo del foro
in cui entra la testa



TA26PD-DIN69893.HSK.A100



TA26PD-DIN2080.50
TA26PD-ANSI B5.18 NMTB50



Ø 26



M20



1-1



2500



8 bar

peso/weight



22 kg

rotazione/rotation

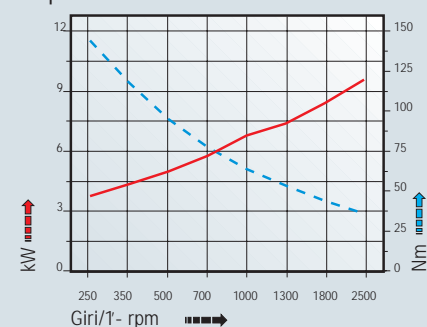


input



output

prestazioni
performances **TA26.PD**



TA

MO

HT

VH

TSI/TSX

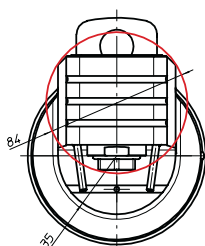
T

MT-TC-TC3

Accessori
AccessoriesAppendice tecnica
Technical supplementtesta ad angolo - *angle head*

TAO13...

TAO13...-DIN69871.A40
TAO13...-DIN69871.A45
TAO13...-DIN69871.A50
TAO13...-ANSI B5.50 CAT40
TAO13...-ANSI B5.50 CAT50
TAO13...-MAS403.BT40
TAO13...-MAS403.BT50



Diametro minimo del foro
in cui entra la testa



peso/weight



7,5 kg



10,5 kg

rotazione/rotation

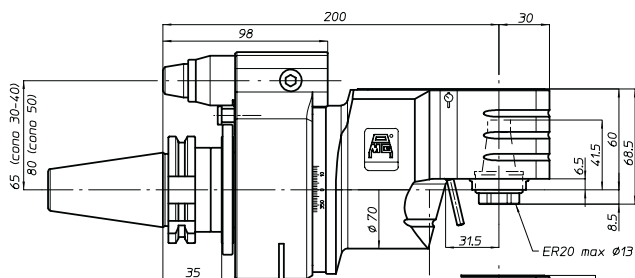
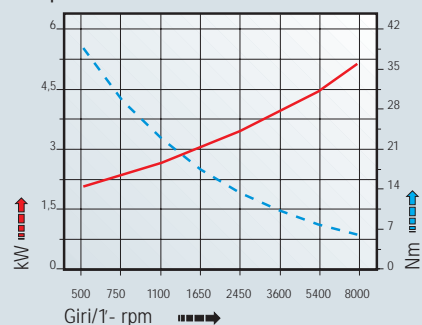


input

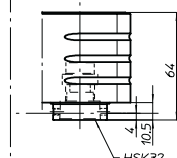


output

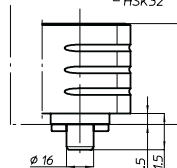
prestazioni
performances **TAO13P**



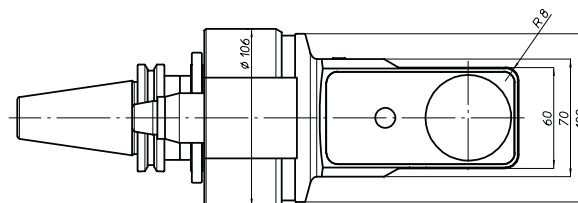
TAO13.P



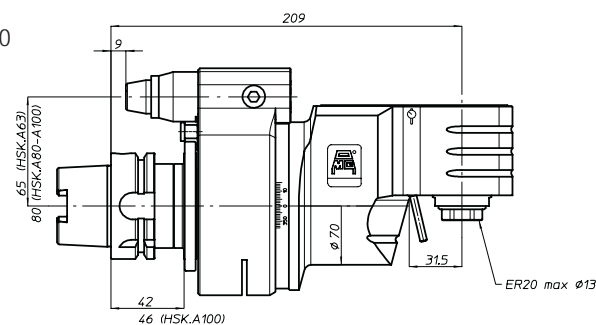
TAO13.H



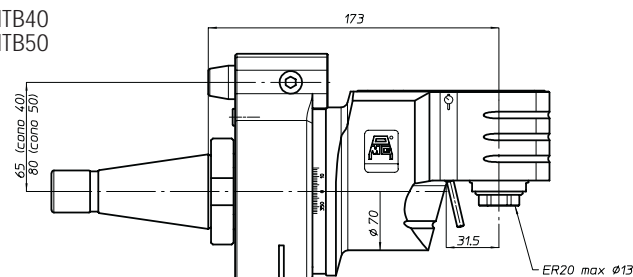
TAO13.F



TAO13...-DIN69893.HSK.A63
TAO13...-DIN69893.HSK.A80
TAO13...-DIN69893.HSK.A100

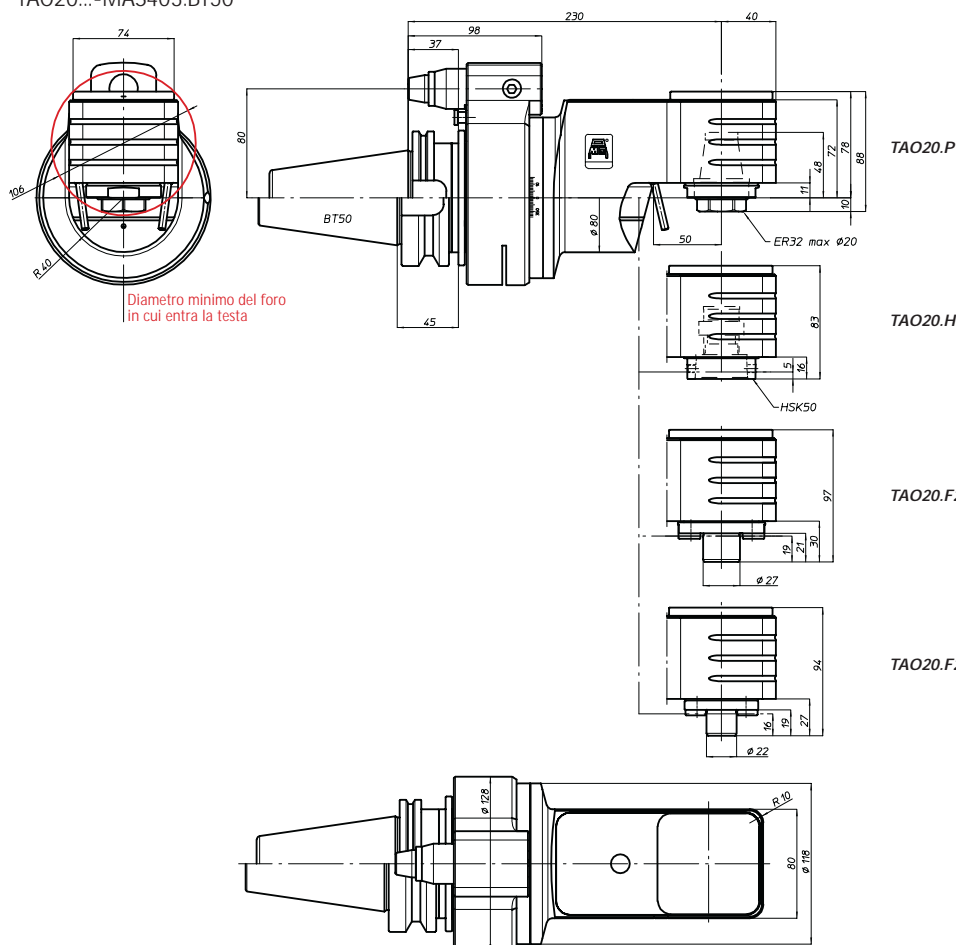


TAO13...-DIN2080.40
TAO13...-DIN2080.50
TAO13...-ANSI B5.18 NMTB40
TAO13...-ANSI B5.18 NMTB50

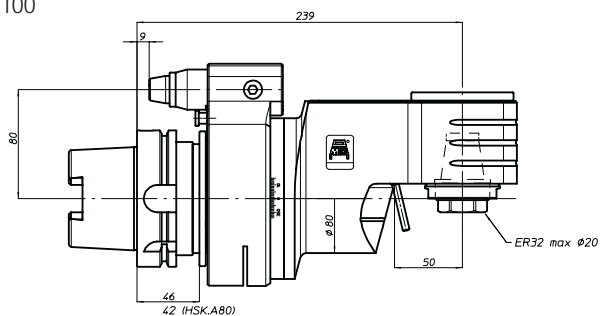


TAO20...

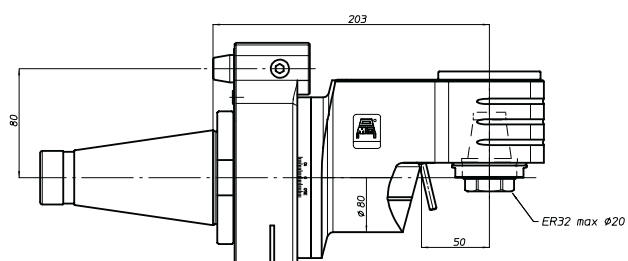
TAO20...-DIN69871.A45
TAO20...-DIN69871.A50
TAO20...-ANSI B5.50 CAT50
TAO20...-MAS403.BT50



TAO20...-DIN69893.HSK.A80
TAO20...-DIN69893.HSK.A100



TAO20...-DIN2080.50
TAO20...-ANSI B5.18 NMTB50



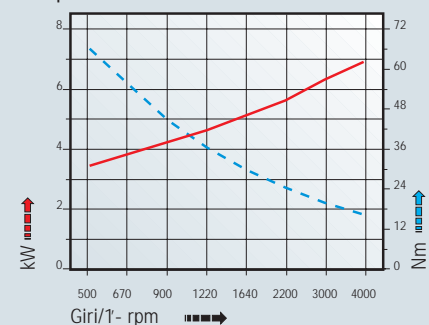
peso/weight



rotazione/rotation



prestazioni performances TAO20P



TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3

Accessori
AccessoriesAppendice tecnica
Technical supplementtesta ad angolo - *angle head*

TAO13...D

TAO13...-DIN69871.A40
TAO13...-DIN69871.A45
TAO13...-DIN69871.A50
TAO13...-ANSI B5.50 CAT40
TAO13...-ANSI B5.50 CAT50
TAO13...-MAS403.BT40
TAO13...-MAS403.BT50



peso/weight



7,5 kg



10,5 kg

rotazione/rotation

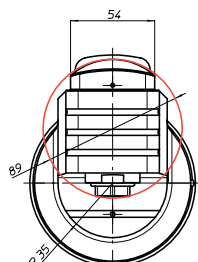
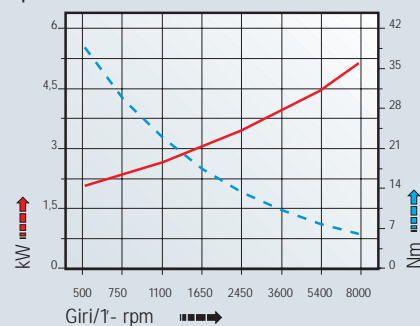


input

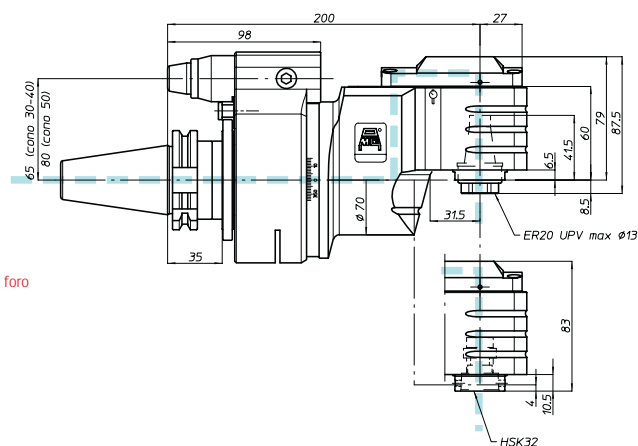


output

prestazioni
performances **TAO13.PD**

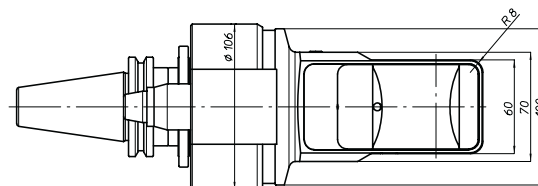


Diametro minimo del foro
in cui entra la testa

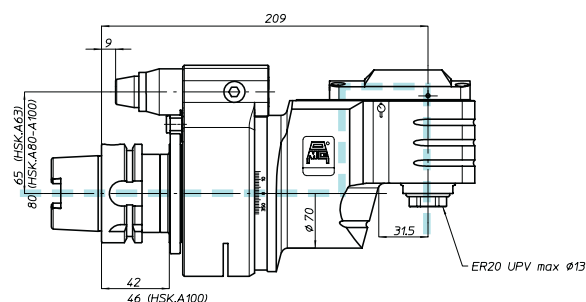


TAO13.PD

TAO13.HD



TAO13...-DIN69893.HSK.A63
TAO13...-DIN69893.HSK.A80
TAO13...-DIN69893.HSK.A100





testa ad angolo - *angle head*

TAV10.P

TAV10P-DIN69871.A40
TAV10P-DIN69871.A45
TAV10P-DIN69871.A50
TAV10P-ANSI B5.50 CAT40
TAV10P-ANSI B5.50 CAT50
TAV10P-MAS403.BT40
TAV10P-MAS403.BT50



peso/weight



6,4 kg



8,5 kg

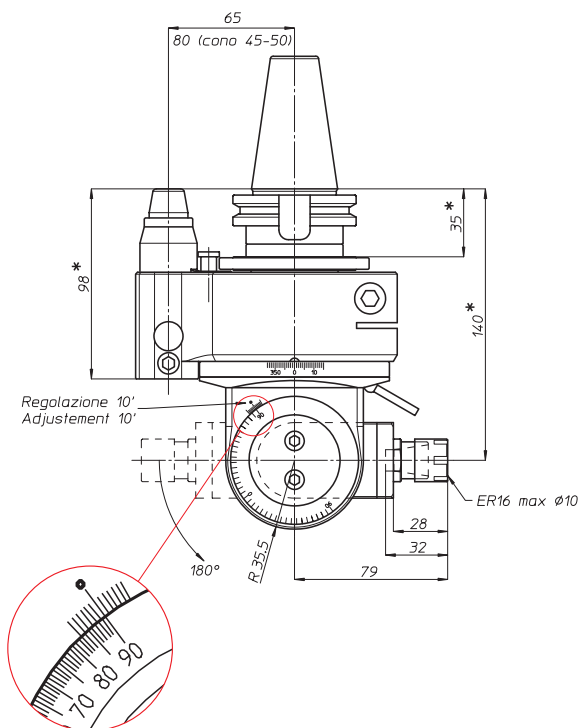
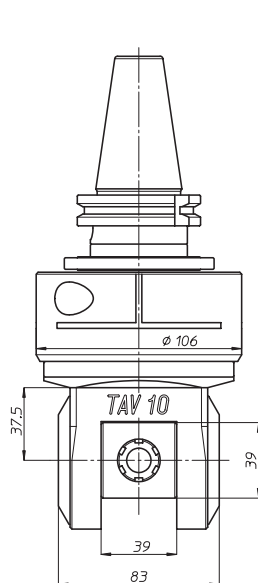
rotazione/rotation



input



output

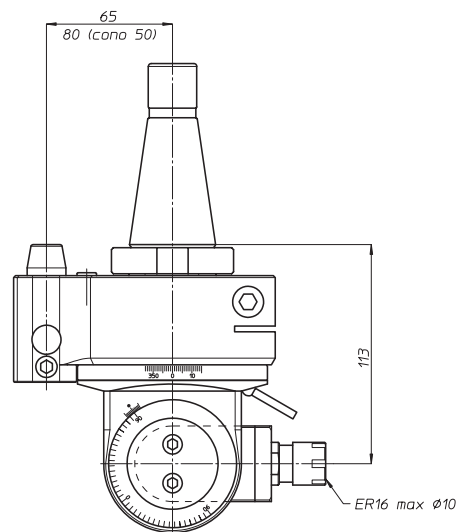
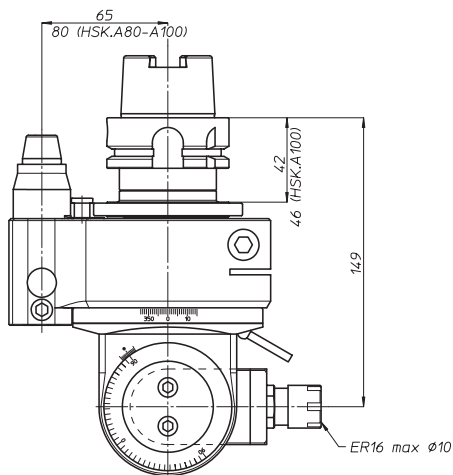
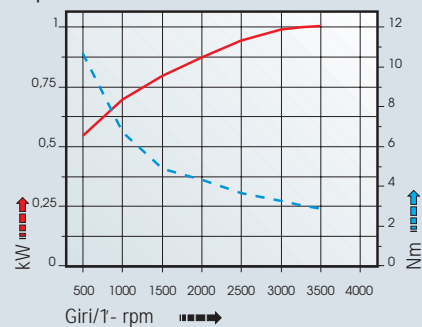


* Con cono BT50 aumentate le quote di 8 mm
Increase the quote by 8 mm when using BT50 shank

TAV10P-DIN69893.HSK.A63
TAV10P-DIN69893.HSK.A80
TAV10P-DIN69893.HSK.A100

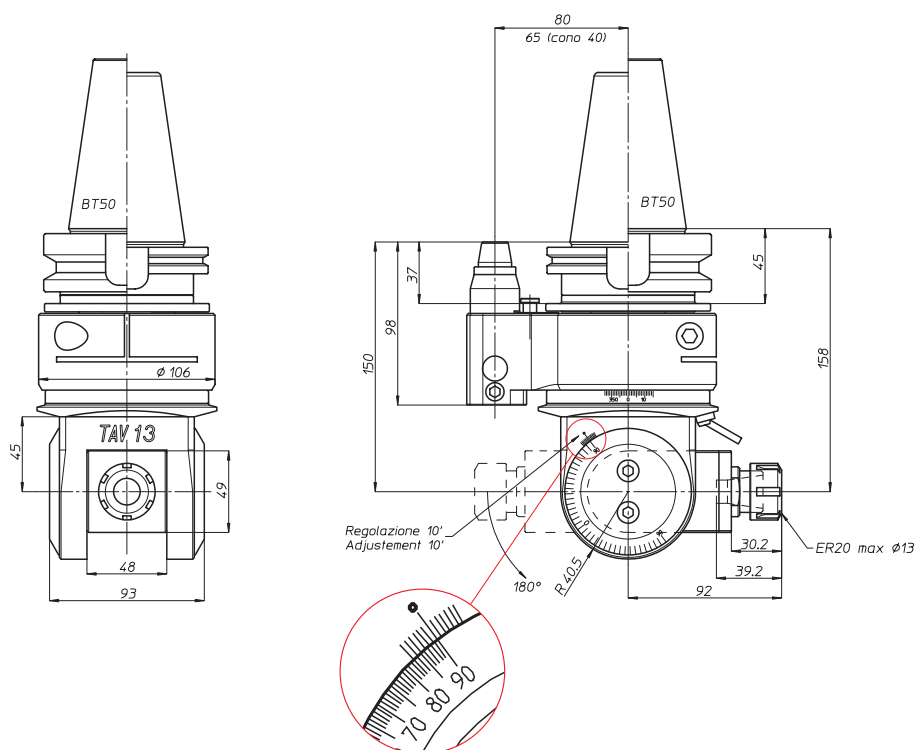
TAV10P-DIN2080.40
TAV10P-DIN2080.50
TAV10P-ANSI B5.18 NMTB40
TAV10P-ANSI B5.18 NMTB50

prestazioni
performances **TAV10.P**



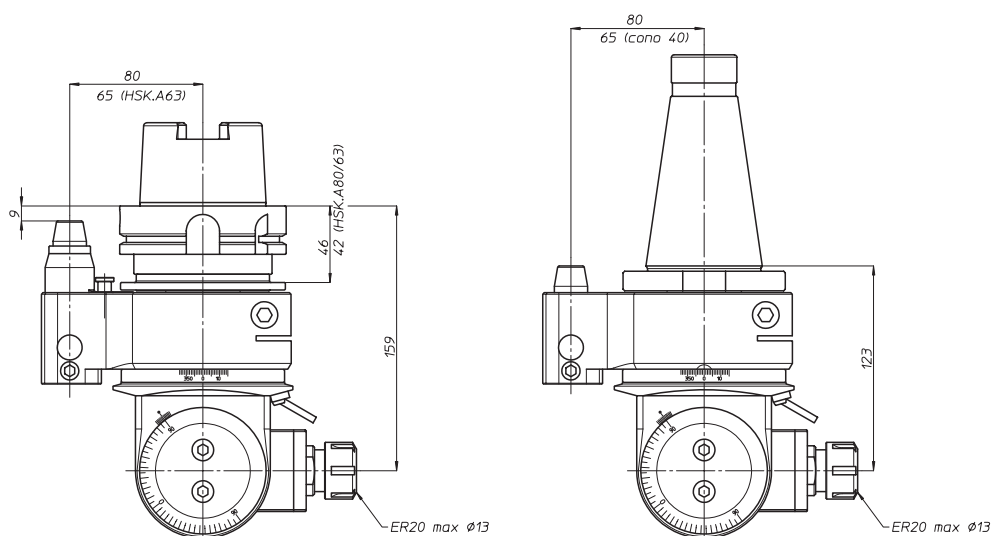
TAV13.P

TAV13P-DIN69871.A40
TAV13P-DIN69871.A45
TAV13P-DIN69871.A50
TAV13P-ANSI B5.50 CAT40
TAV13P-ANSI B5.50 CAT50
TAV13P-MAS403.BT40
TAV13P-MAS403.BT50



TAV13P-DIN69893.HSK.A63
TAV13P-DIN69893.HSK.A80
TAV13P-DIN69893.HSK.A100

TAV13P-DIN2080.40
TAV13P-DIN2080.50
TAV13P-ANSI B5.18 NMTB40
TAV13P-ANSI B5.18 NMTB50



peso/weight



7,8 kg



10,5 kg

rotazione/rotation

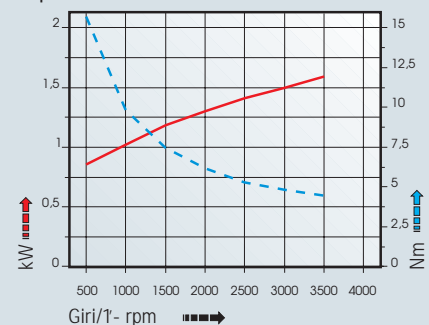


input



output

prestazioni performances **TAV13.P**



TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3

Accessori
Accessories

Appendice tecnica
Technical supplement

TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3

Accessori
AccessoriesAppendice tecnica
Technical supplement

testa ad angolo - angle head

TAV20.P

TAV20P-DIN69871.A50
TAV20P-ANSI B5.50 CAT50
TAV20P-MAS403.BT50



peso/weight



18,5 kg

rotazione/rotation

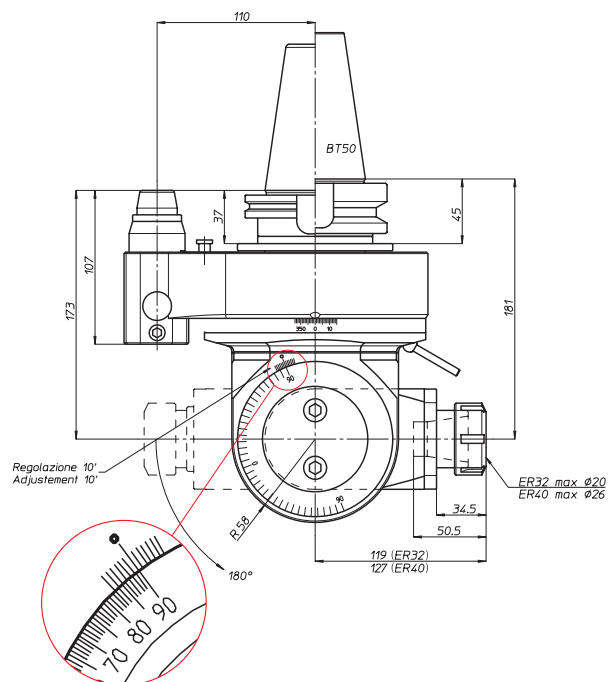
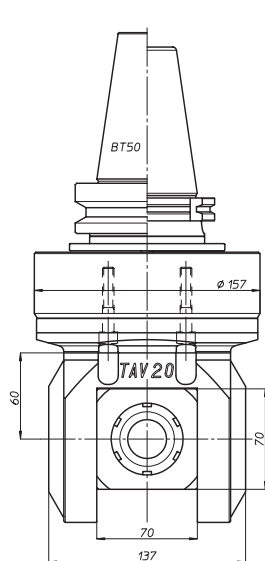
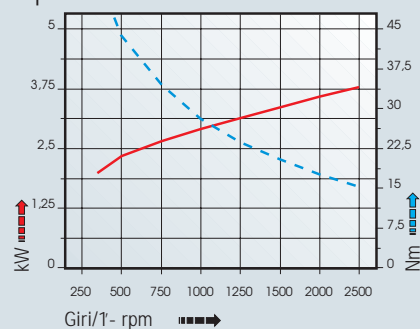


input



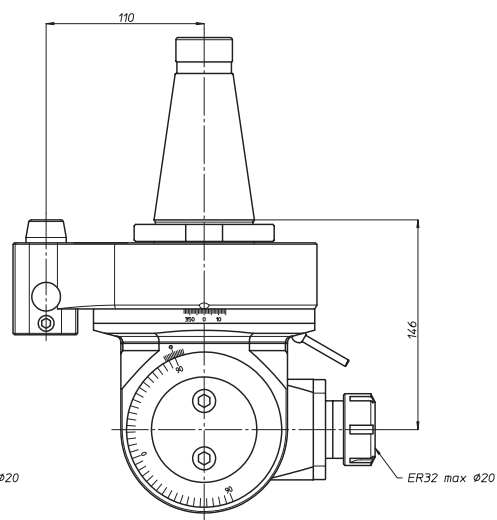
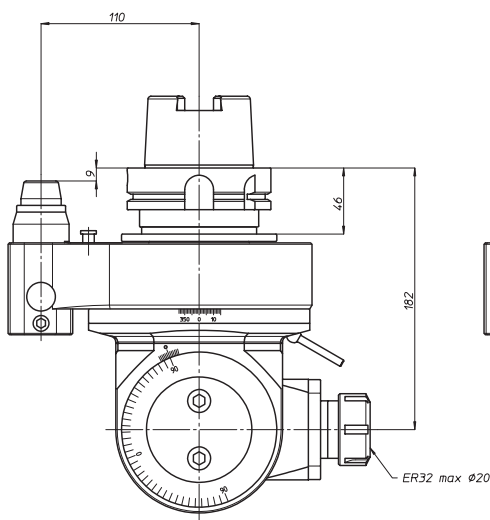
output

prestazioni
performances **TAV20.P**

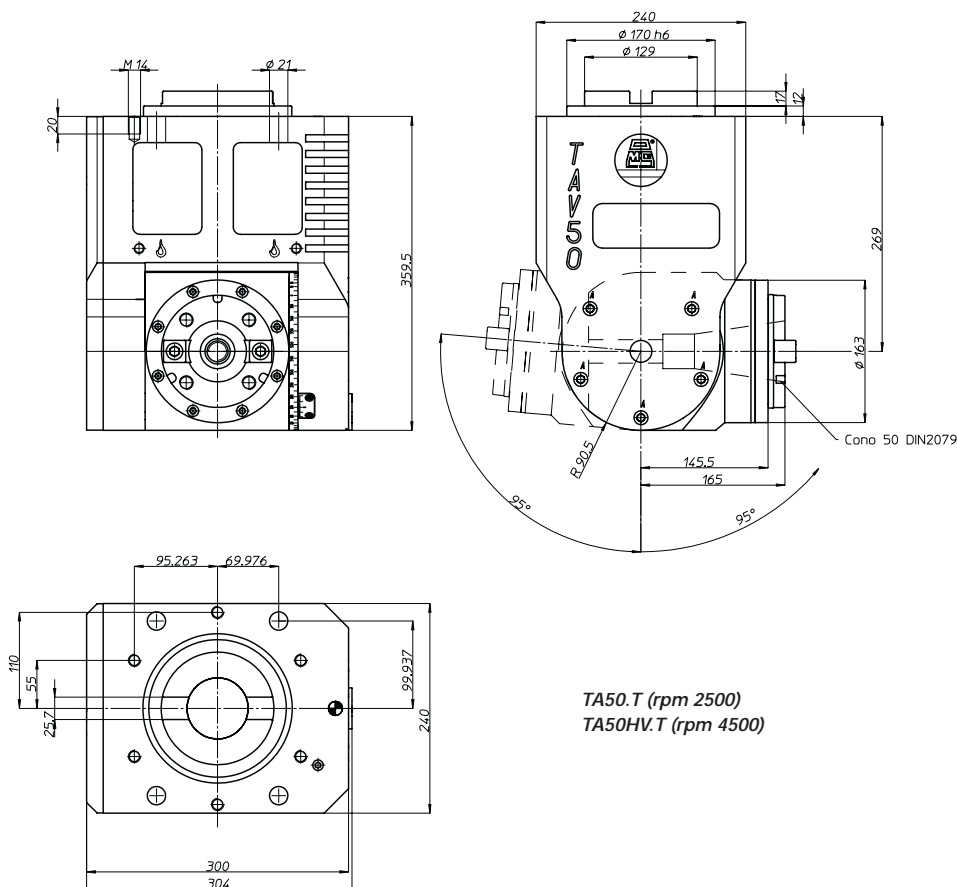


TAV20P-DIN69893.HSK.A100

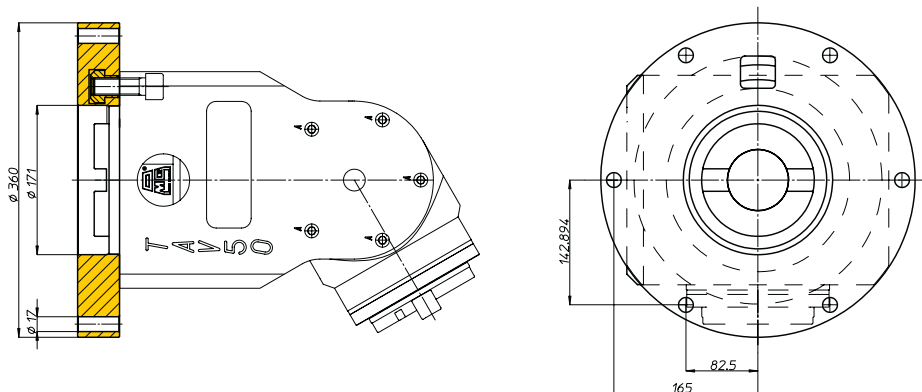
TAV20P-DIN2080.50
TAV20P-ANSI B5.18 NMTB50



TAV50.T



esempio di collegamento - *connection example*



peso/weight



145 kg

rotazione/rotation

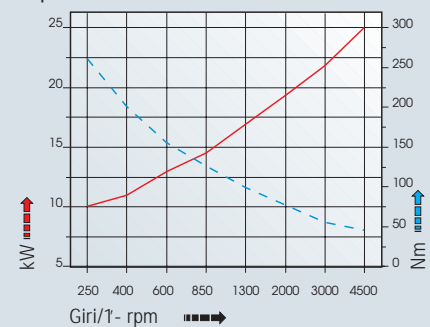


input



output

prestazioni performances TAV50.T



TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3

Accessori
AccessoriesAppendice tecnica
Technical supplementtesta ad angolo - *angle head*

TAF13.P

TAF13P-DIN69871.A40
 TAF13P-DIN69871.A45
 TAF13P-DIN69871.A50
 TAF13P-ANSI B5.50 CAT40
 TAF13P-ANSI B5.50 CAT50
 TAF13P-MAS403.BT40
 TAF13P-MAS403.BT50



peso/weight



6,5 kg



8,5 kg

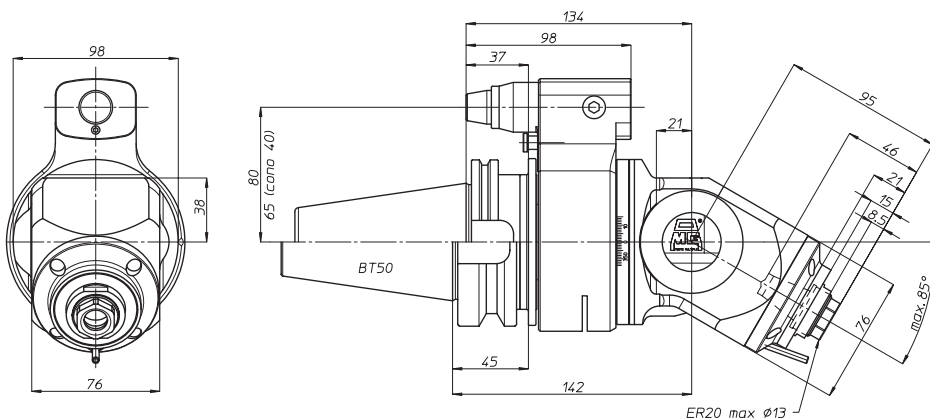
rotazione/rotation



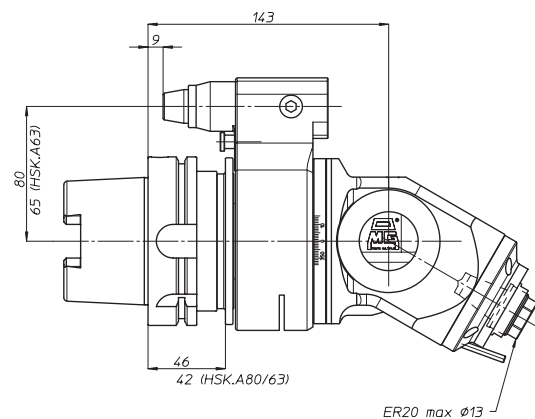
input



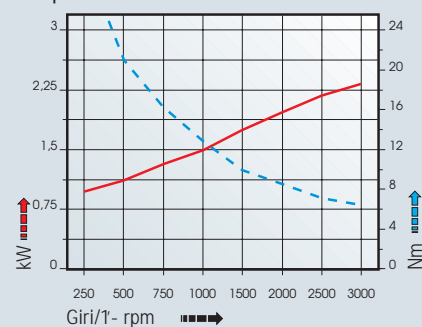
output



TAF13P-DIN69893.HSK.A63
 TAF13P-DIN69893.HSK.A80
 TAF13P-DIN69893.HSK.A100

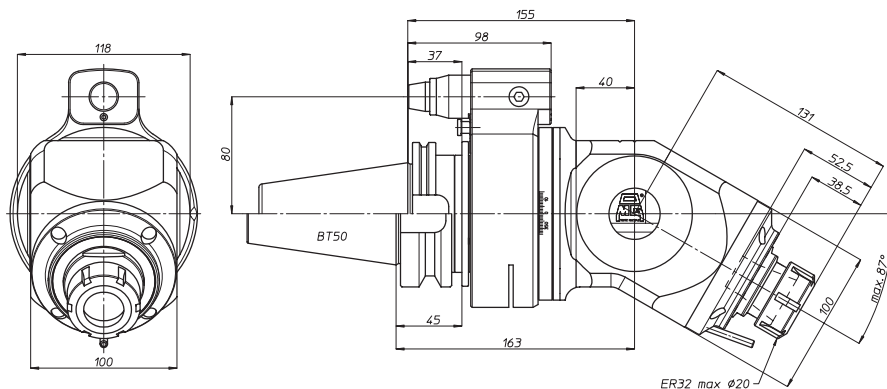


prestazioni
performances **TAF13.P**

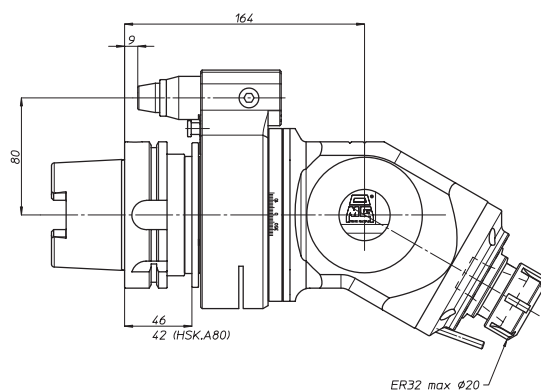


TAF20.P

TAF20P-DIN69871.A45
TAF20P-DIN69871.A50
TAF20P-ANSI B5.50 CAT50
TAF20P-MAS403.BT50



TAF20P-DIN69893.HSK.A80
TAF20P-DIN69893.HSK.A100



peso/weight



13,5 kg

rotazione/rotation

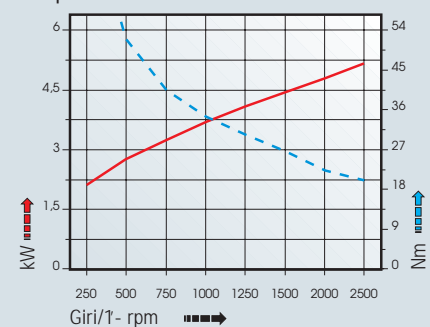


input



output

prestazioni performances **TAF20.P**



testa ad angolo - *angle head*

TA13P.T



peso/weight



3,5 kg

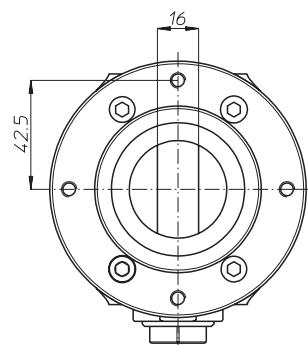
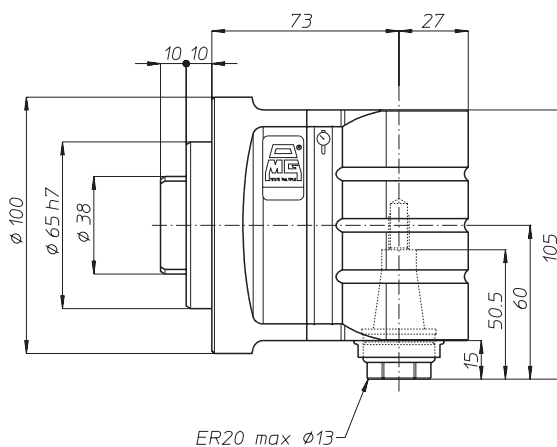
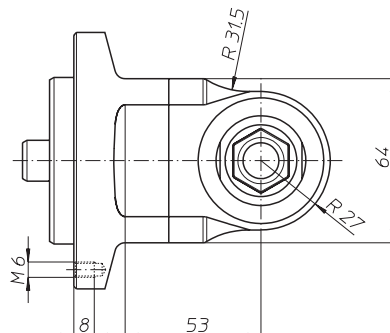
rotazione/rotation



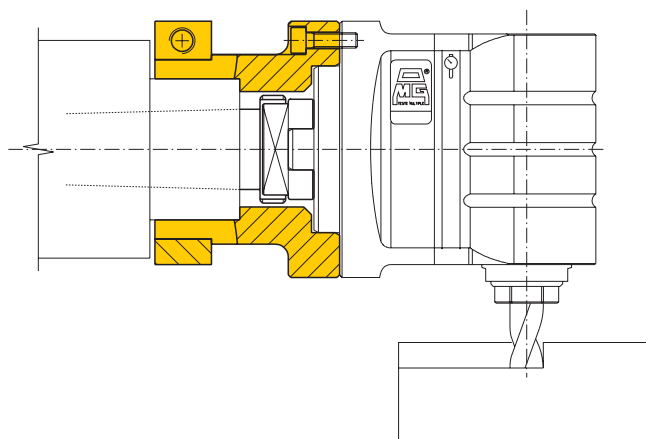
input



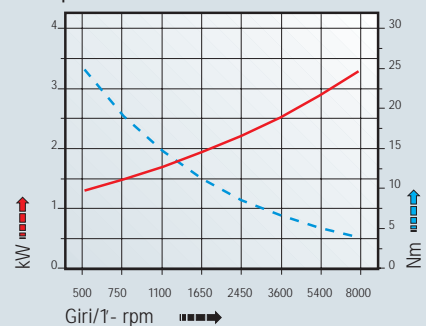
output



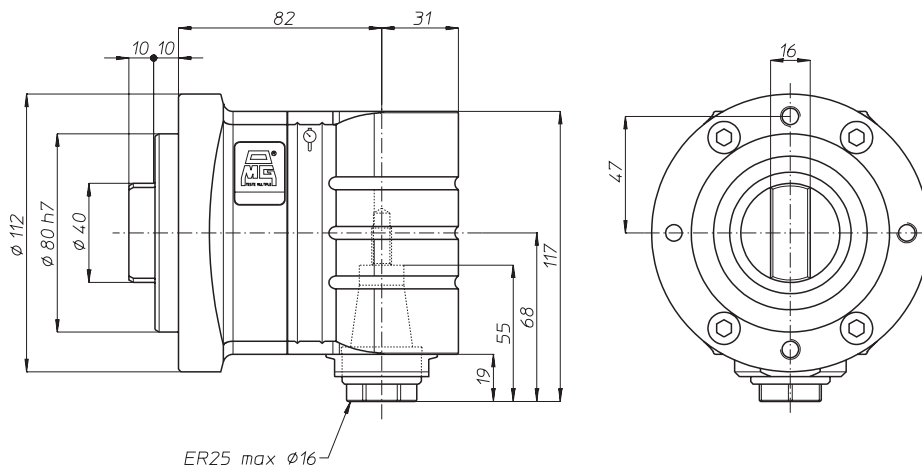
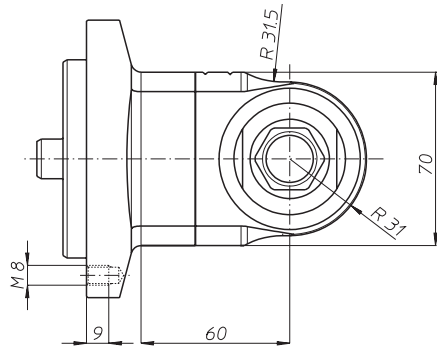
esempio di collegamento - *connection example*



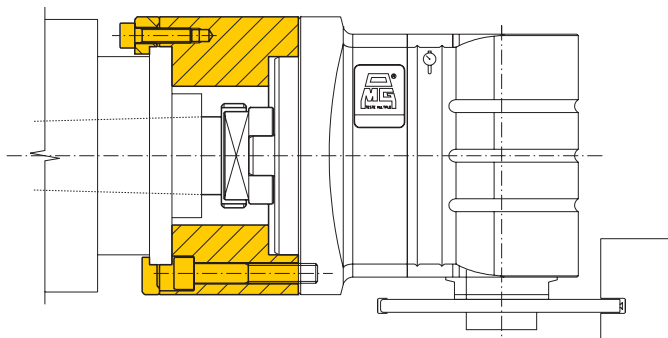
prestazioni
performances **TA13P.T**



TA16P.T



esempio di collegamento - *connection example*



peso/weight



5 kg

rotazione/rotation

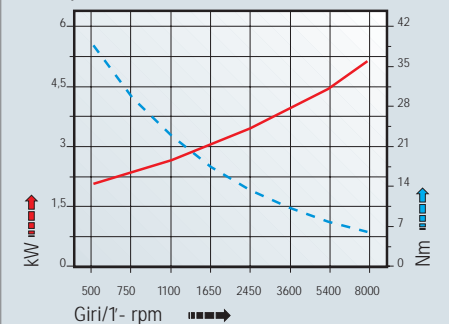


input



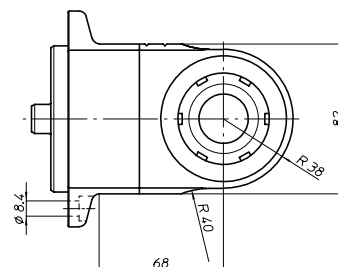
output

prestazioni
performances **TA16P.T**

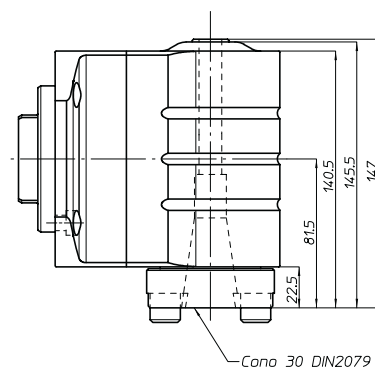
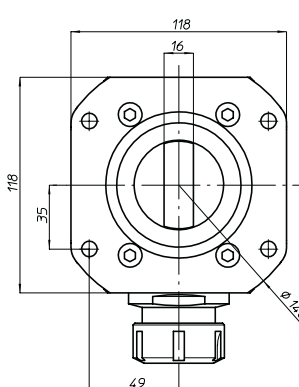
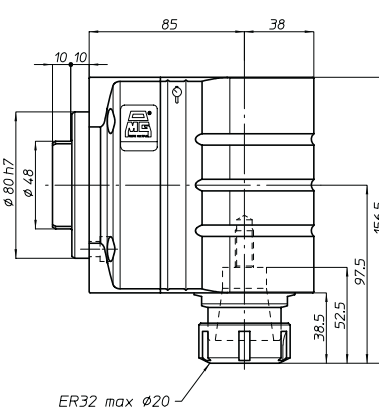
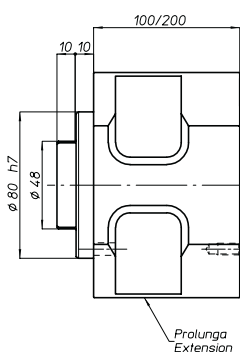


testa ad angolo - *angle head*

TA20...T



TA20P.T



TA20.30.T

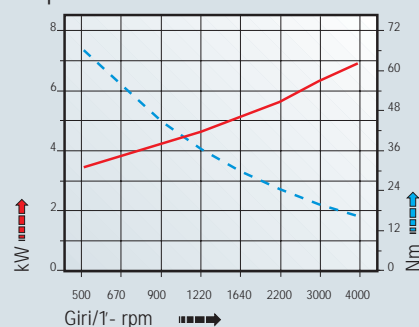
peso/weight



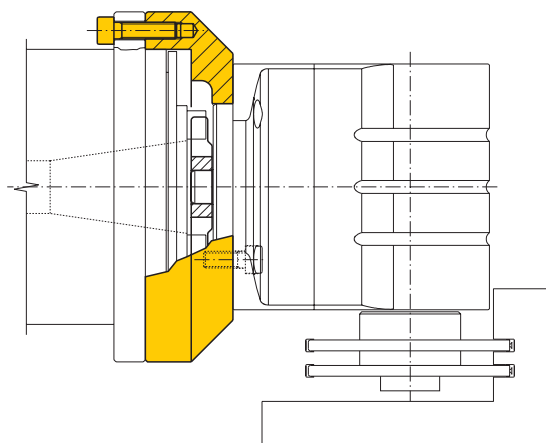
rotazione/rotation



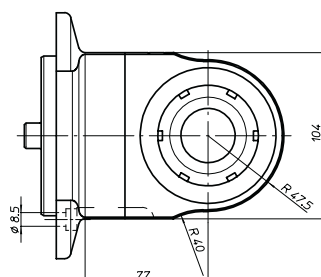
prestazioni
performances TA20...T



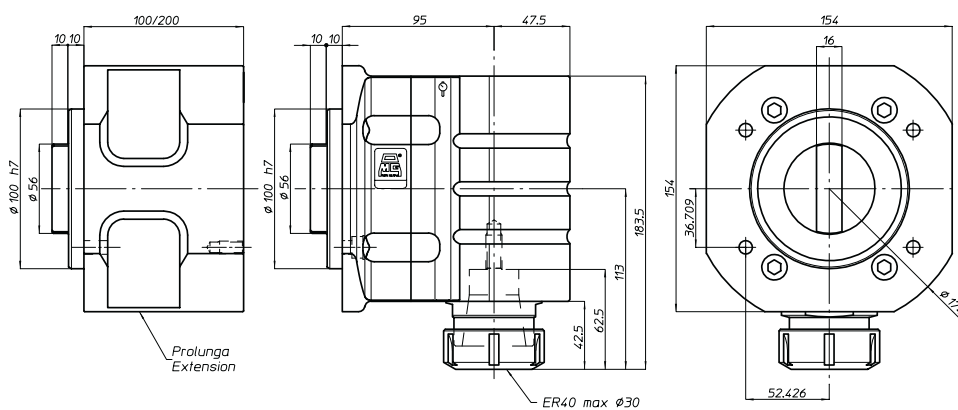
esempio di collegamento - *connection example*



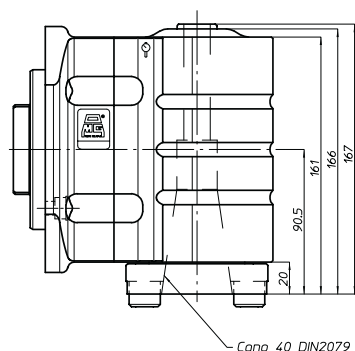
TA26...T



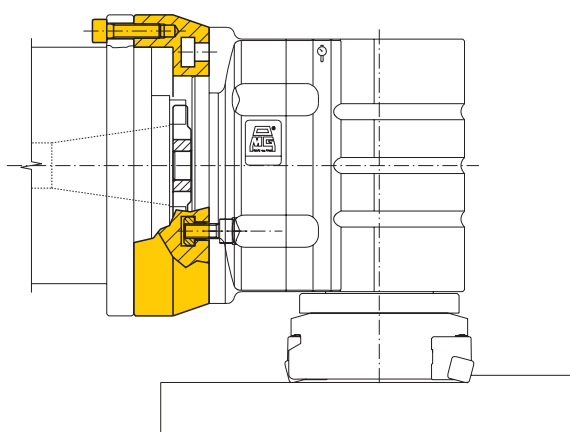
TA26P.T



TA26.40.T



esempio di collegamento - *connection example*



peso/weight

head



13,5 kg

extension



L 100=12 kg
L 200=21 kg

rotazione/rotation

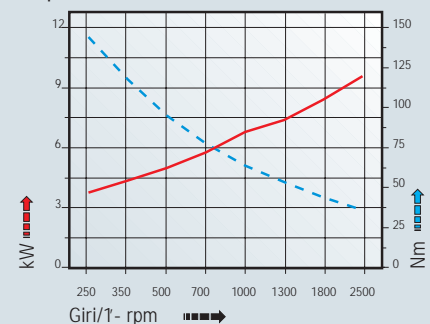


input



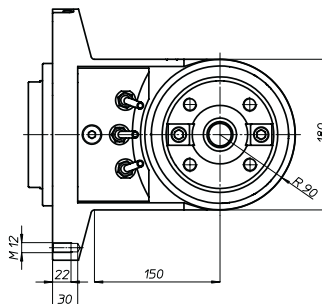
output

prestazioni performances TA26...T



testa ad angolo - *angle head*

TA50.T



TA50.T (rpm 2500)
TA50HV.T (rpm 4500)



peso/weight



95 kg

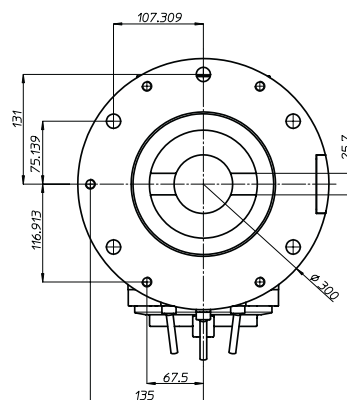
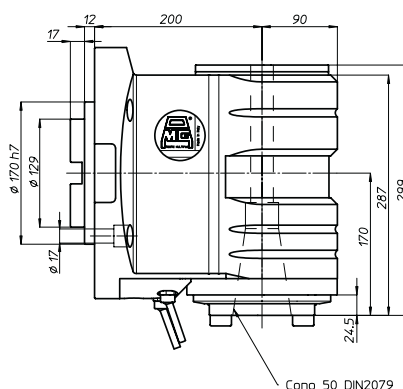
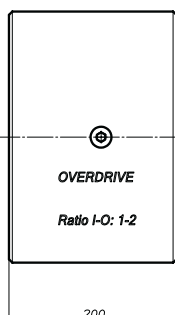
rotazione/rotation



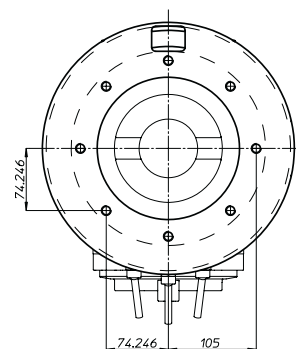
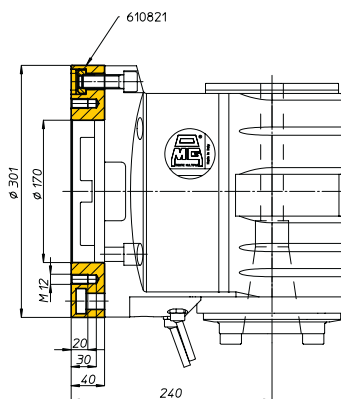
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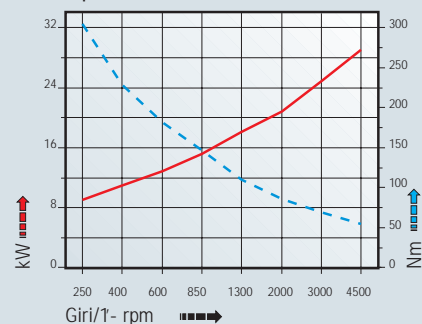
output



esempio di collegamento - *connection example*

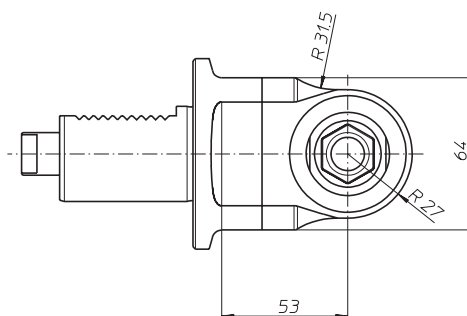


prestazioni
performances **TA50.T**



testa ad angolo - *angle head*

TA13P.VDI



peso/weight



4,5 kg

rotazione/rotation

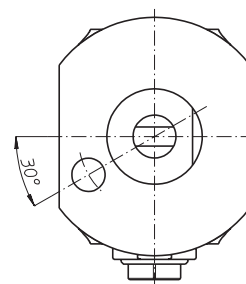
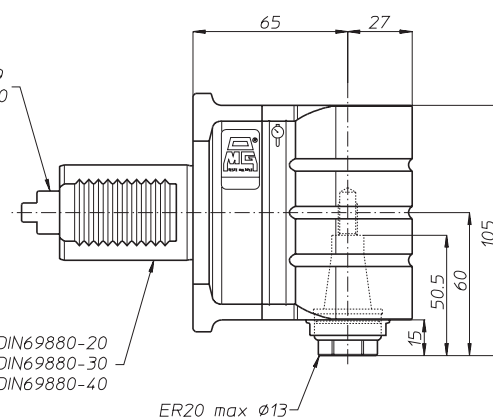


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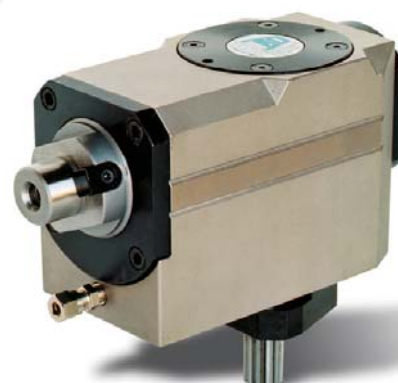
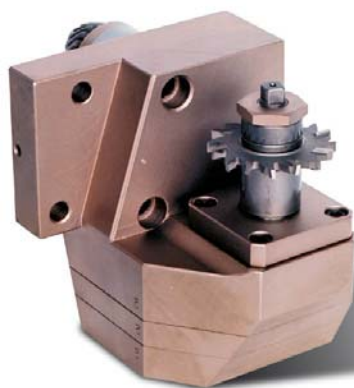


output

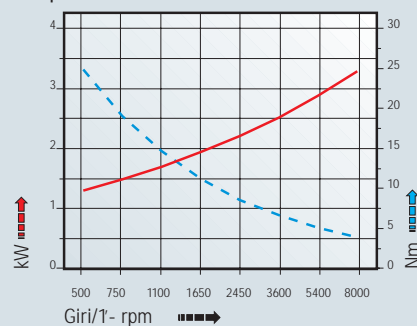
DIN1809
DIN5480



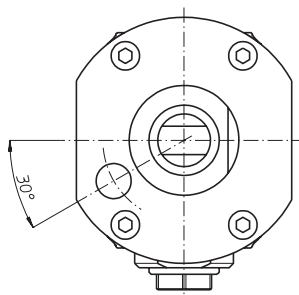
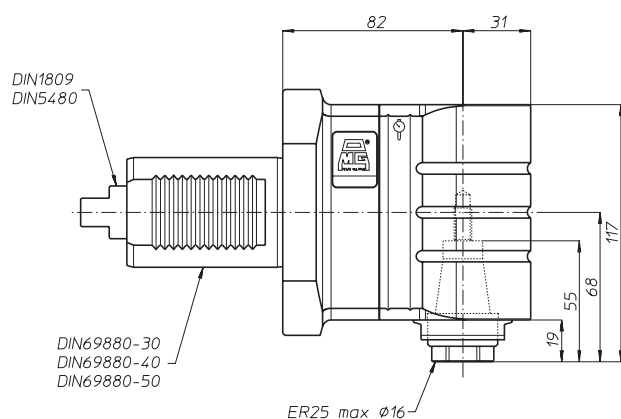
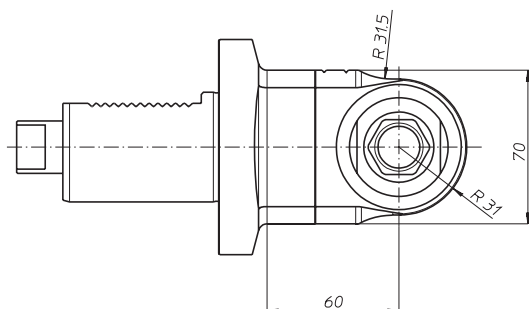
soluzioni speciali - *special solutions*



prestazioni
performances **TA13P.VDI**



TA16P.VDI



soluzioni speciali - *special solutions*



peso/weight



6,5 kg

rotazione/rotation

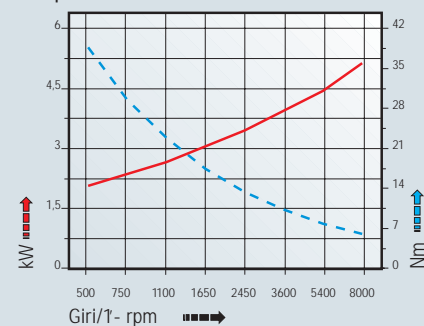


input



output

prestazioni
performances **TA16P.VDI**



TA

MO

HT

VH

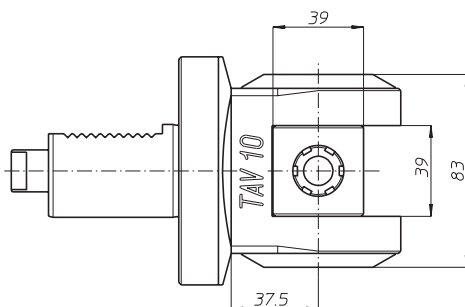
TSI/TSX

T

MT-TC-TC3

Accessori
AccessoriesAppendice tecnica
Technical supplementtesta ad angolo - *angle head*

TAV10P.VDI



peso/weight



3,5 kg

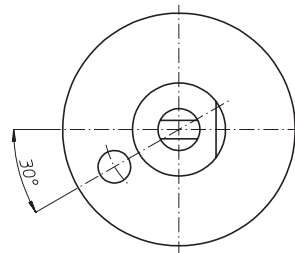
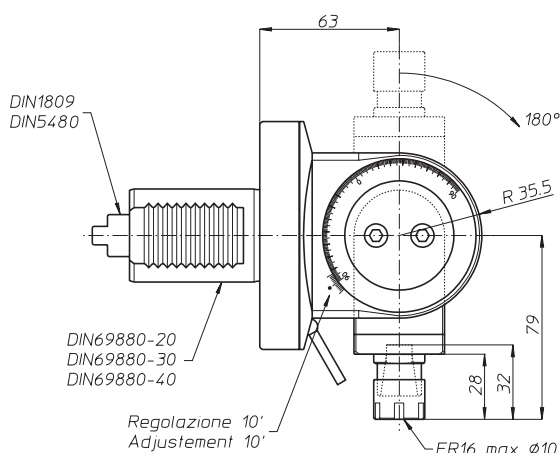
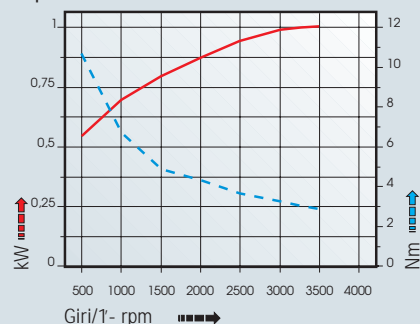
rotazione/rotation



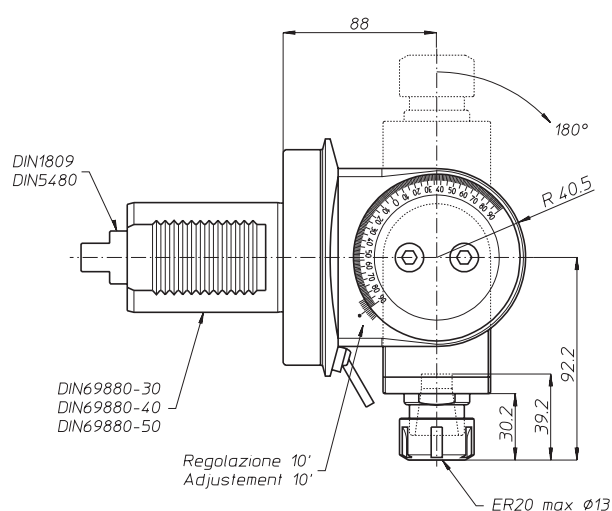
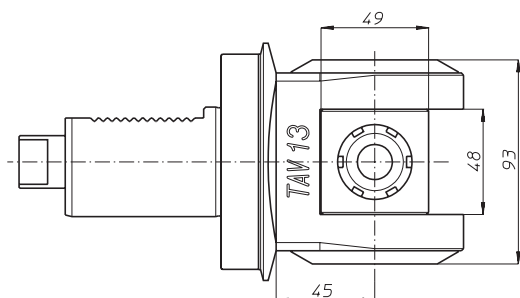
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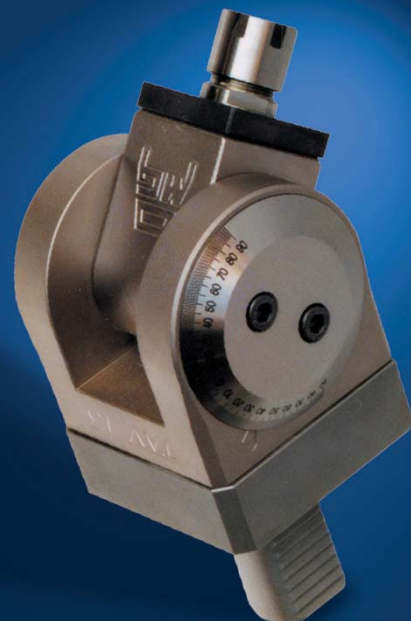
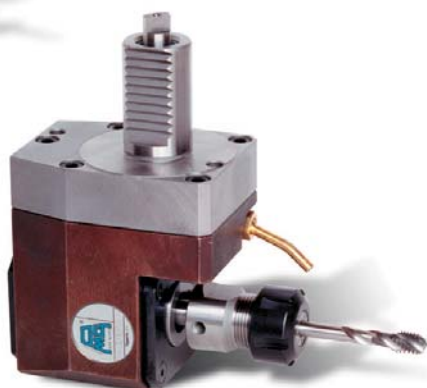
output

soluzioni speciali - *special solutions*prestazioni
performances TAV10P.VDI

TAV13P.VDI



soluzioni speciali - *special solutions*



peso/weight



5,5 kg

rotazione/rotation

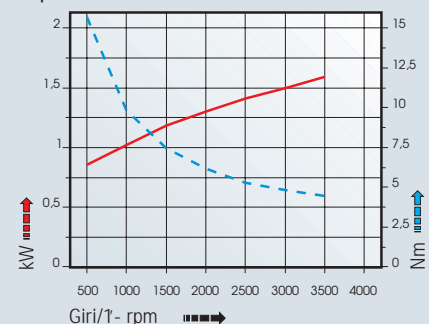


input



output

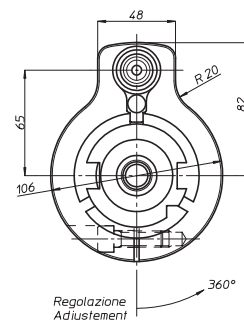
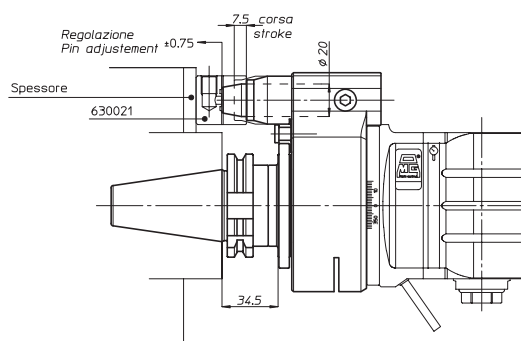
prestazioni performances **TAV13P.VDI**





Antirotante Torque arm

Teste con cono 30-40
Heads with 30-40 shank



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

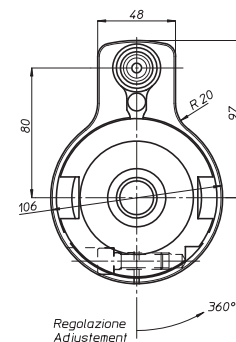
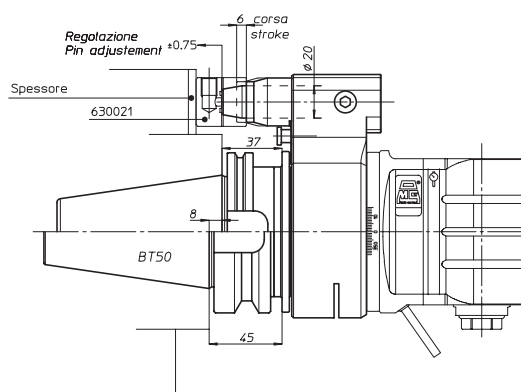
Il perno conico e la propria registrazione assiale di mm 1.5 permettono una maggiore rigidità del sistema antirotante rispetto ai tradizionali, dotati di perni di mm 18 perché si eliminano i giochi con conseguente miglioramento della rigidità sia angolare che assiale.

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.

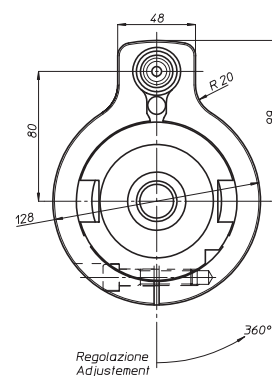
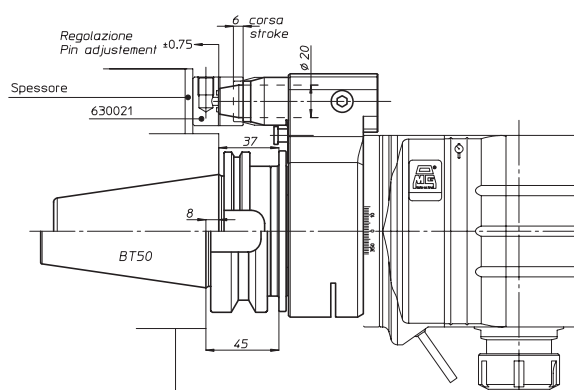


Quando possibile, nella Vostra applicazione, posizionate il perno conico dalla parte apposta al mandrino della testa ad angolo.

Teste TA04-TA06-TA07-TA10-TA13-TAV10-TAV13-TAF13 con cono 50
TA04-TA06-TA07-TA10-TA13-TAV10-TAV13-TAF13 heads with 50 shank

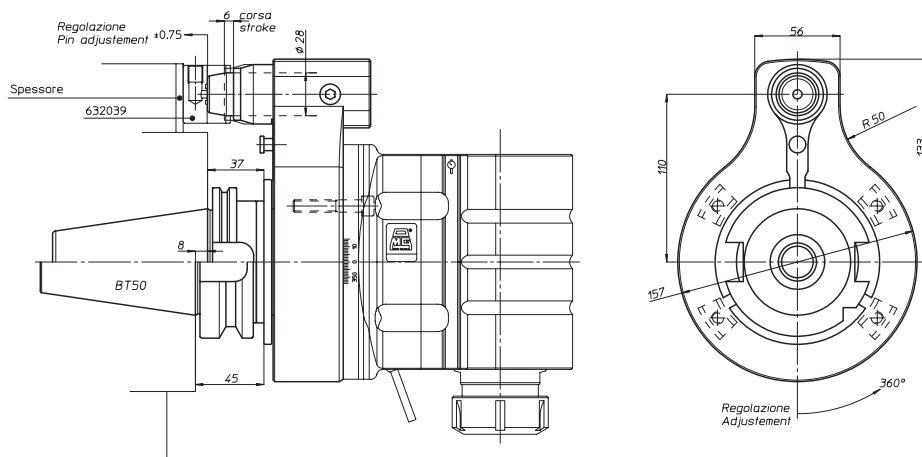


Teste TA16-TA20-TAF20
TA16-TA20-TAF20 heads

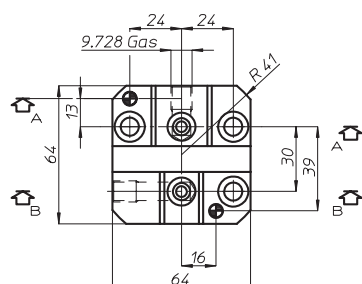
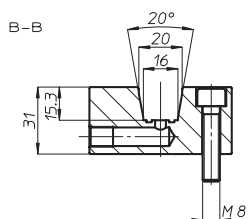
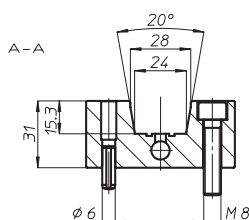


Antirotante Torque arm

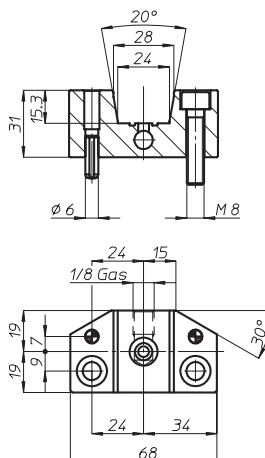
Teste TA26-TAV20
TA26-TAV20 heads



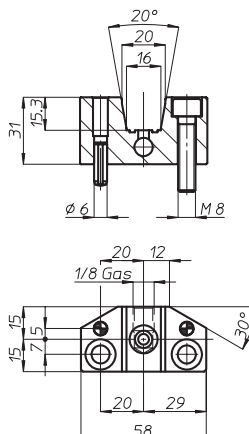
Double Stop-block (cod. 632041)



Stop-block (cod. 632039)



Stop-block (cod. 630021)



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

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

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

By sending 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.



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

TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3

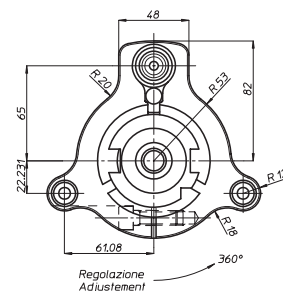
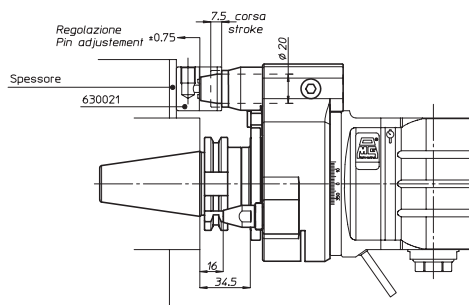
Accessori
Accessories

Appendice tecnica
Technical supplement



Antirotante TRIBLOCK Torque arm TRIBLOCK

Teste con cono 40
Heads with 40 shank

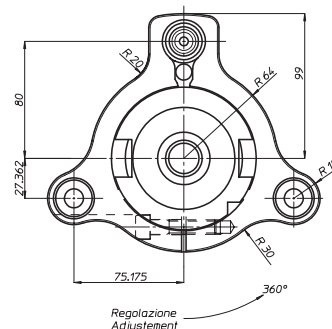
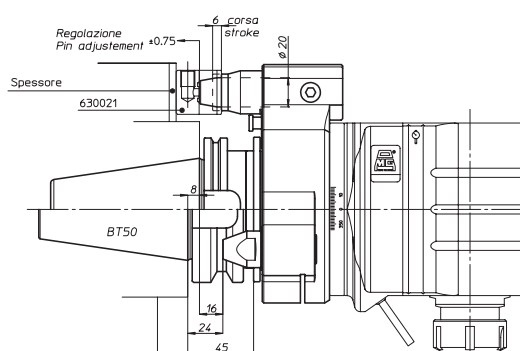


Il gruppo antirotante TRIBLOCK ricopre una funzione di fondamentale importanza quando alla testa ad angolo è richiesto

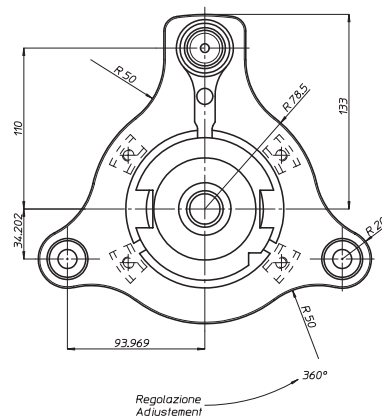
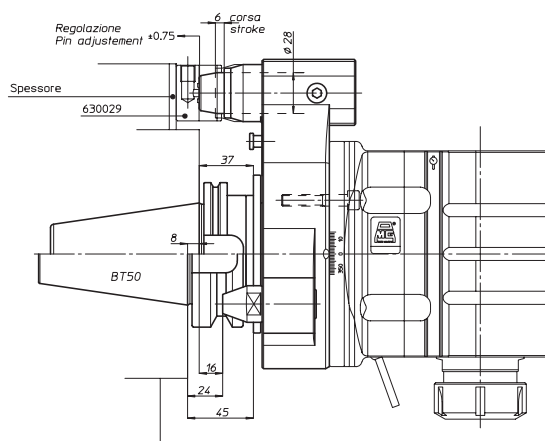
- Di eseguire una lavorazione più pesante
- Di essere più lunga dello standard
- Una finitura superficiale eccellente

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 magazzino standard, ecco che il TRIBLOCK utilizza i propri tre punti per posizionare la testa

Teste con cono 50
Heads with 50 shank



Teste TA26 - TAV20
TA26 - TAV20 heads

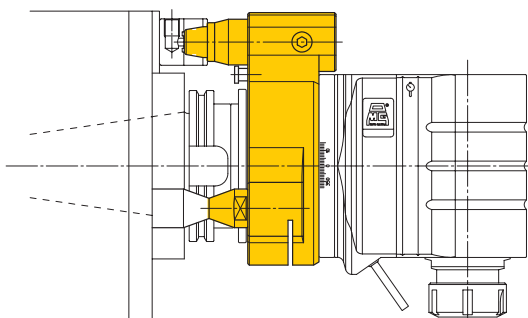


Quando possibile, nella Vostra applicazione, posizionate il perno conico dalla parte apposta al mandrino della testa ad angolo.

Antirrotante TRIBLOCK

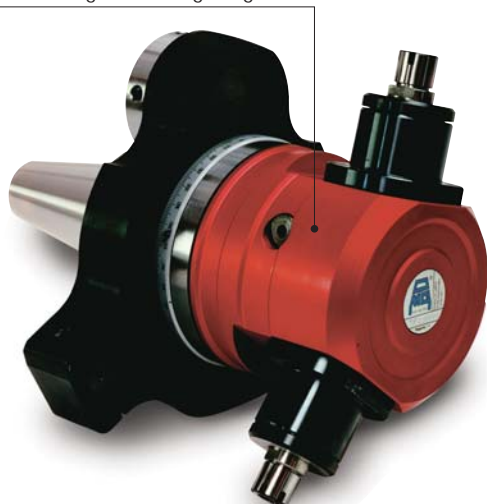
Torque arm TRIBLOCK

Sul mandrino macchina
On spindle machine



TFS 25994

Testa bimandrino di foratura peso Kg18
Twin drilling head, weight Kg18

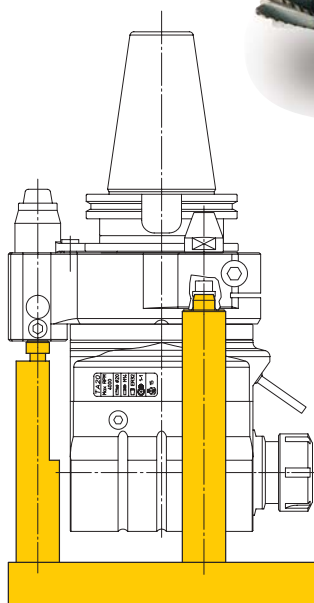


TFS 39195

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



Sul supporto da tavola
On rack table



The Triblock antirotation 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 support outside the standard magazine, the Triblock system uses the three points to position the angle heads.



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

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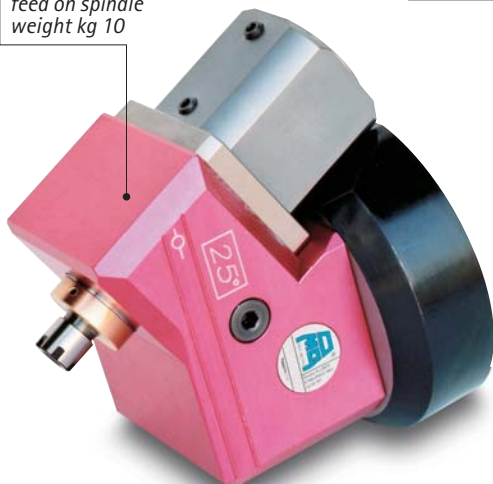
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Teste ad angolo speciali Special angle heads

TFS 37299

Testa ad angolo con mandrino ad avanzamento idraulico
peso kg 10
Angle head with hydraulic feed on spindle
weight kg 10



TFS 36699

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



TFS 44298

Testa ad angolo con mandrino ribaltato
peso kg 8,5
Reverse spindle angle head
weight kg 8,5

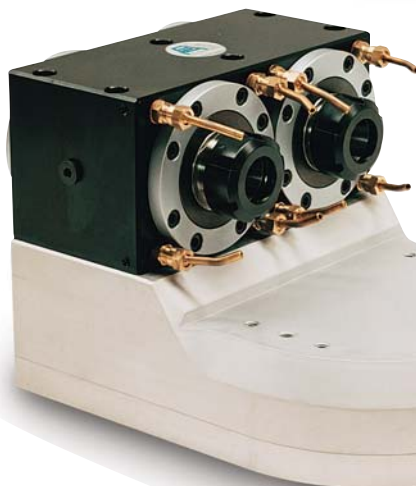


Testa ad angolo bimandrino con triblock
peso kg 36
Twin angle head with triblock
weight kg 36



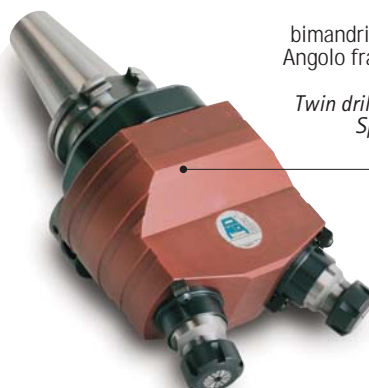
TFS 16696

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 19997

Testa ad angolo bimandrino per foratura.
Angolo fra i mandrini 35°
peso kg 6,7
Twin drilling angle head.
Spindle angle 35°
weight kg 6,7



Teste ad angolo speciali Special angle heads

TFS 09400

Testa di fresatura
con n°2 frese $\phi 125$
peso kg 20
*Milling angle head with
nr. 2 $\phi 125$ milling cutter
weight kg 20*



TFS 12095

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



TFS 21701

Testa di fresatura
a due mandrini paralleli
peso kg 14
*Milling angle head.
With two parallel spindle
weight kg 14*



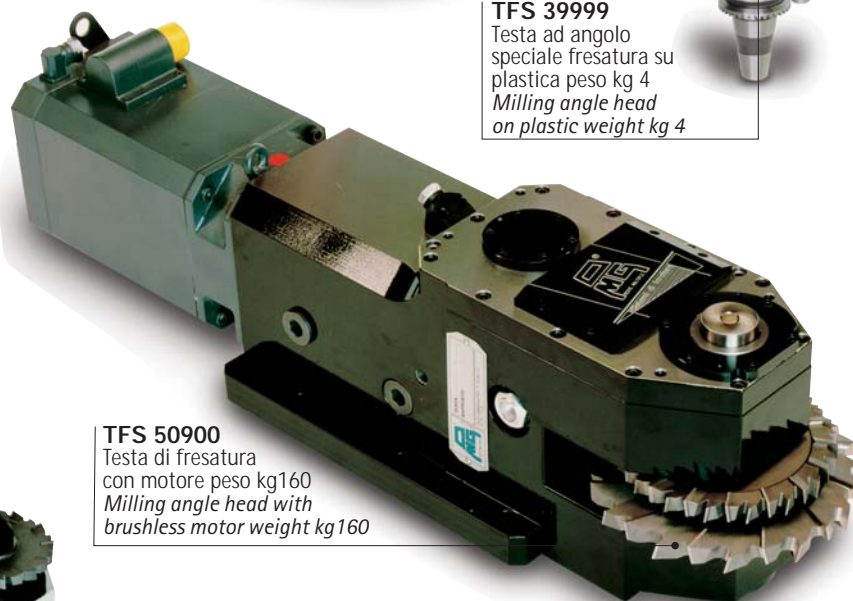
TFS 20298

Testa bimandrino di fresatura
n°2 frese $\phi 120$ peso kg 25
*Twin milling angle head, nr.2
milling cutter $\phi 120$
weight kg 25*



TFS 39999

Testa ad angolo
speciale fresatura su
plastica peso kg 4
*Milling angle head
on plastic weight kg 4*



TFS 50900

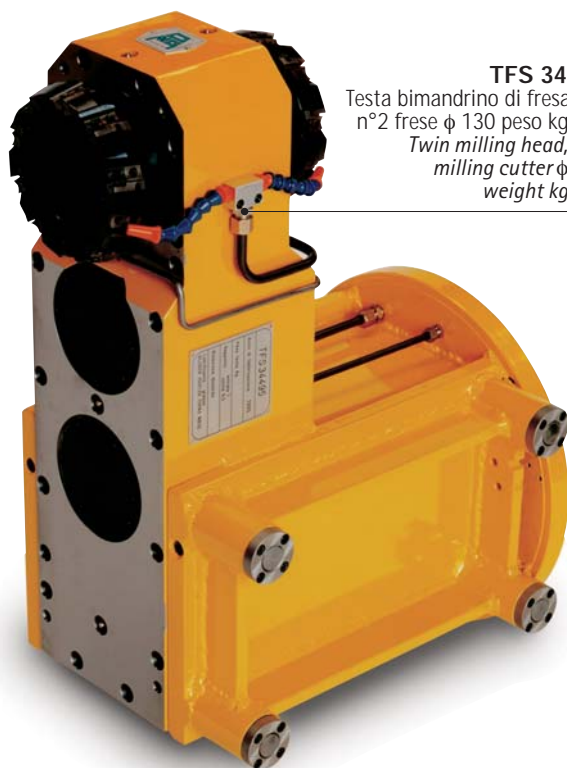
Testa di fresatura
con motore peso kg160
*Milling angle head with
brushless motor weight kg160*

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



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

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



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



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

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



TFS 38995
Testa di foratura
attacco HSK63 peso kg 5
*Drilling angle head with
shank HSK63 weight kg 5*



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



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*



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



TFS 13898
Testa di fresatura
fresa ϕ 100 peso kg 22
*Milling angle head
milling cutter ϕ 100
weight kg 22*



TFS 28394
Testa ad angolo di fresatura
n°2 frese a disco peso kg 25
*Twin milling angle head, nr. 2
disk cutter weight kg 25*

Teste ad angolo speciali Special angle heads



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



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

TFS 09596
Testa ad angolo di foratura
con passaggio refrigerante
attraverso il mandrino peso kg 21
*Drilling angle head with coolant
through the spindle weight kg 21*



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 35698
Testa ad angolo di fresatura
con fresa ϕ 100 peso Kg34
*Milling angle head, with
milling cutter ϕ 100
weight kg 34*

TA 45700
Testa di fresatura bimandrino
per frese ϕ 160 peso kg 30
*Twin milling angle head for
 ϕ 160 milling cutter weight kg 30*



Teste ad angolo speciali

Special angle heads



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*

Testa ad angolo TA26T
con prolunghe modulari
*Angle head TA26T
modular extension*



TA 09603
Testa ad angolo di alesatura con
utensile diam. 160 peso Kg 77
*Milling angle head with boring tools
diam. 160 weight Kg 77*



TFS 40601
Testa ad angolo bimanodrino, angolo
tra i due mandrini 176° peso Kg 13
*Twin angle head, angle spindle to
spindle 176° weight Kg 13*



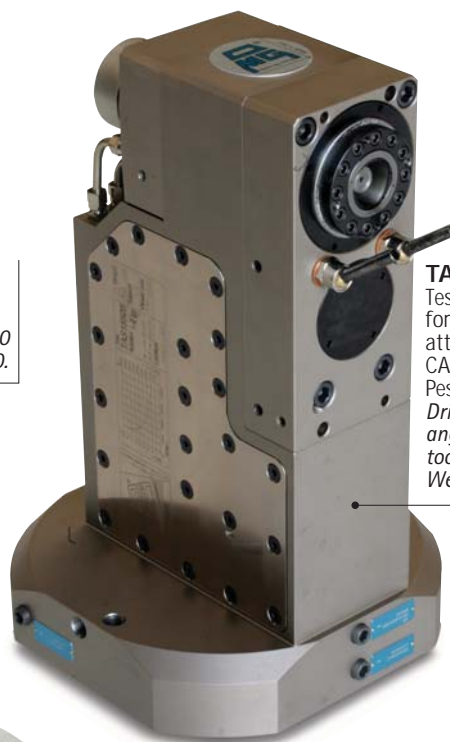
TFS 06003
Testa ad angolo di
fresatura con fresa
diam. 110 peso Kg 210
*Milling angle head with
milling cutter diam. 110
weight Kg 210*



Teste ad angolo speciali Special angle heads



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



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



TFS 41304
Testa ad angolo di fresatura con
mandrino ribaltato. Fresa $\phi 200$.
Peso Kg 327,5.
*Reverse milling angle head.
Milling tool $\phi 200$.
Weight Kg 327,5.*



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



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.*

Teste ad angolo speciali

Special angle heads

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



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



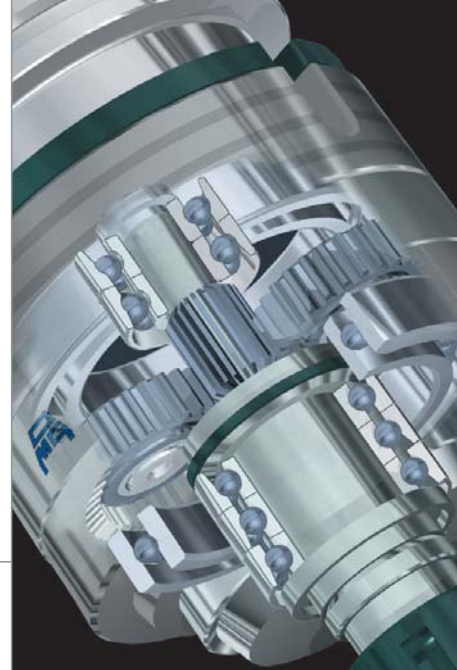
TFS 33503
Testa ad angolo di
lucidatura con doppia
rotazione, sia corpo che
utensile. Peso kg 6,5.
*Polish angle head with
duble rotation: body
and tools.*
Weight Kg 6,5.



TFS 28603
Testa di fresatura con n°4 frese
a disco $\phi 125$. Peso Kg 218.
*Milling head, n°4 milling disc
cutter $\phi 125$. Weight Kg 218.*



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



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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 sfruttano le più avanzate conoscenze tecniche e tecnologiche.

- Giri max. in continuo 22.000 (oltre a richiesta)
- 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 o tre ingranaggi satelliti per elevate potenze trasmissibili
- Attacco utensile speciale a richiesta (Komet, DIN 1835, ecc...)
- Adduzione liquido refrigerante attraverso il centro utensile a richiesta
- Attacco macchina a richiesta (Cono Morse, DIN 69880, ecc...)
- Perno antirotante intercambiabile e perciò personalizzabile dal cliente

I moltiplicatori 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 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 multipliers 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 multipliers utilise the most advanced technical and technological know-how.

- Max. 22,000 continuous revs (higher ratings on request)
- Used in particular for finishing operations
- Manual or automatic mounting 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 within 0.01 mm.

- Two or three planetary gears for high transmission power ratings
- Special tool attachment on request (Komet, DIN 1835, etc.)
- Coolant through the tool centre, on request
- Machine connection, on request (Morse Cone, DIN 69880 etc.)
- Interchangeable anti-rotation pin which can therefore be customised by the buyer

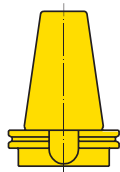
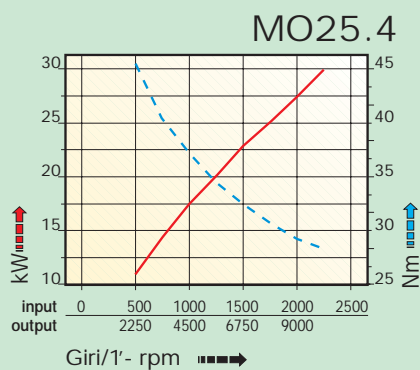
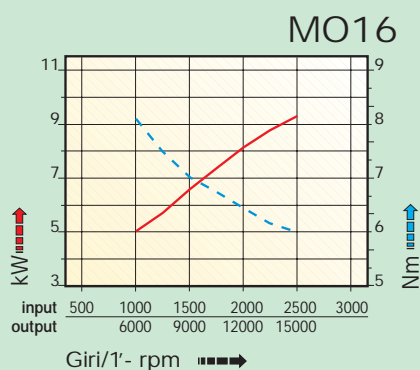
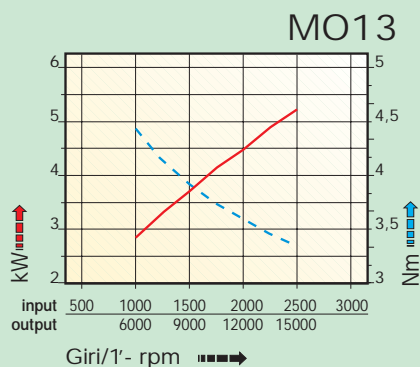
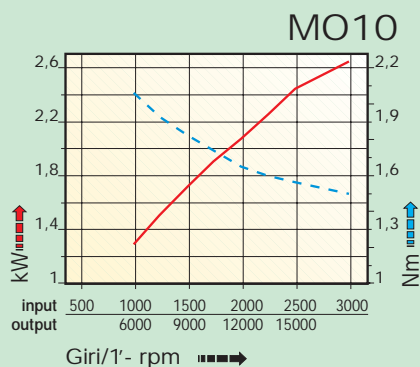
The MO series of multispidles can be mounted on traditional machines and on machines with automatic tool change.

The MO series of multispidles is lubricated with a long-life synthetic grease that is practically maintenance free.

The test certificate attached to each multiplier guarantees the quality of the product.

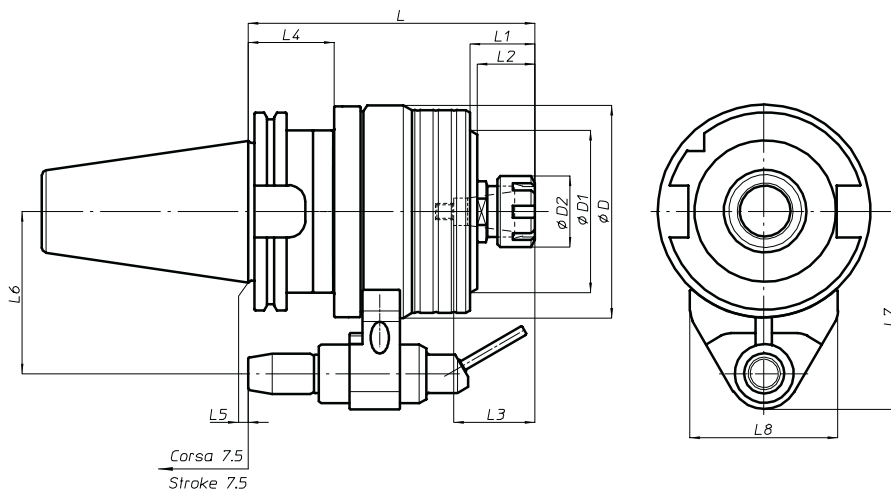
Our products have always stood out for their sturdiness, flexibility and easy use and maintenance and the MO series of multispidles is additional proof of such outstanding features.

DIN 69871/ANSI B5.50 CAT	2-2
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DIN 69871

ANSI B5.50 CAT

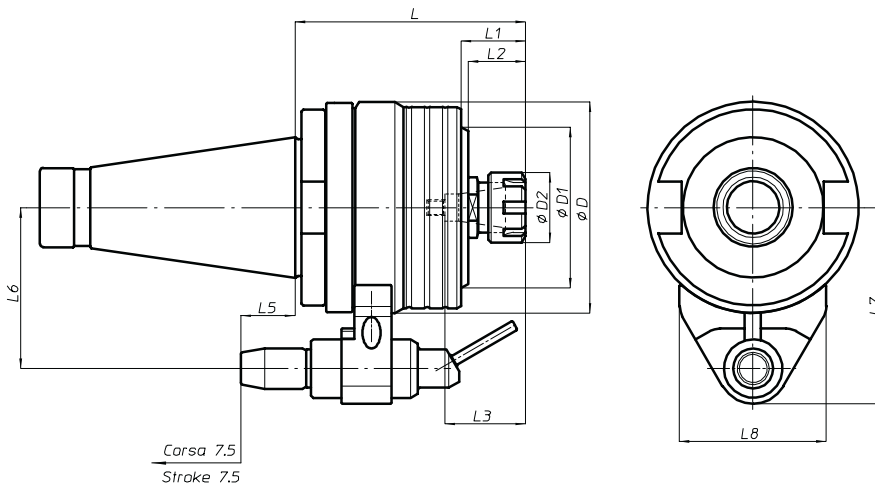
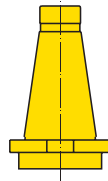


Modello Type	MO 10				MO 13			MO 16		MO 25.4		
Cono Shank DIN	30	40	45	50	40	45	50	45	50	50		
Cono Shank CAT	40		50		40		50		50		50	
Rapporto Ratio	1 - 6				1 - 6			1 - 6		1 - 4,5		
N. giri max RPM	22.000 *				15.000 *			12.000 *		10.000 *		
Peso Weight	3,3	3,7	4,3	6,5	5,8	6,7	8	9	10	20		
Pinza Collet	ER 16 max Ø 10				ER 20 max Ø 13			ER 25 max Ø 16		ER 40 max Ø 30		
D	84				105			123		169		
D1	65				80			100		120		
D2	24				35			42		63		
L	132				141,5			155,5		196		
L1	32				32			34		67,5		
L2	28				28,5			29		40,5		
L3	36,5				40			43		64		
L4	35		35		42		35		42		35	
L5	0				0			0		0		
L6	65		80		80			80		110		
L7	82,5		97,5		97,5			97,5		127,5		
L8	71				73			75		75		
Forza assiale Axial thrust	60 daN				90 daN			110 daN		300 daN		

* n° giri max per lavorazioni continuative
speed at 100% duty cycle

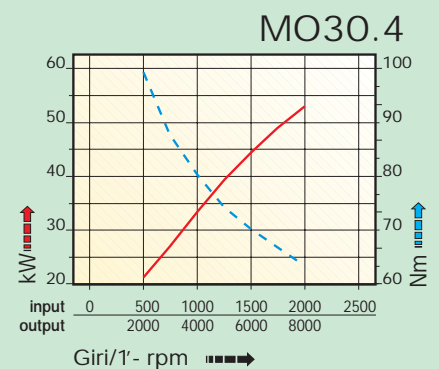
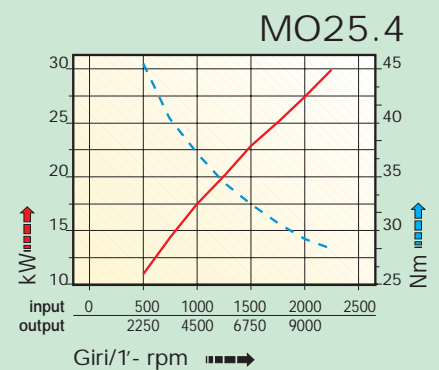
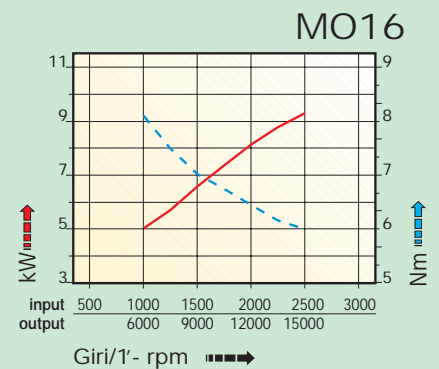
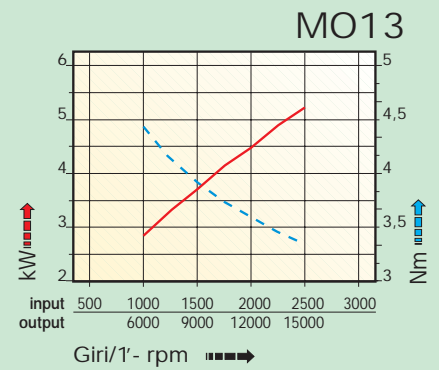
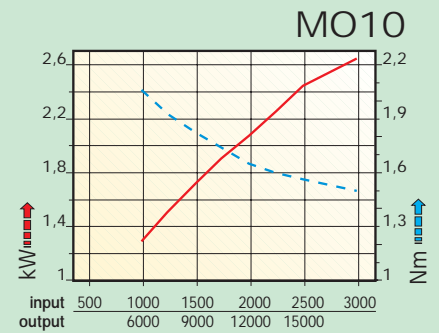
DIN 2080

ANSI B5.18 NMTB



Modello Type	MO 10			MO 13			MO 16			MO 25.4	MO 30.4
Cono DIN	40	45	50	40	45	50	40	45	50	50	50
Cono NMTB	40	50		40	50		50			50	50
Rapporto Ratio	1 - 6			1 - 6			1 - 6			1 - 4,5	1 - 4
N. giri max RPM	22.000 *			15.000 *			12.000 *			10.000 *	8.000 *
Peso Weight	3	3	4,8	5	6	7,3	7,4	8	9,3	20	30
Pinza Collet	ER 16 max Ø 10			ER 20 max Ø 13			ER 25 max Ø 16			ER 40 max Ø 30	ER 50 max Ø 34
D	84			105			123			169	185
D1	65			80			100			120	114
D2	24			35			42			63	78
L	110	102	105	111	114,5	125	128,5			184,5	236
L1	32			32			34			67,5	85,5
L2	28			28,5			29			40,5	60,5
L3	36,5			40			43			64	90
L5	14,5	11,5		13	9,5	15	12			12	
L6	65	80		80			80			110	
L7	82,5	97,5		97,5			97,5			127,5	
L8	71			73			75			75	
Forza assiale Axial thrust	60 daN			90 daN			110 daN			300 daN	400 daN

* n° giri max per lavorazioni continuative
speed at 100% duty cycle



TA

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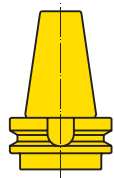
VH

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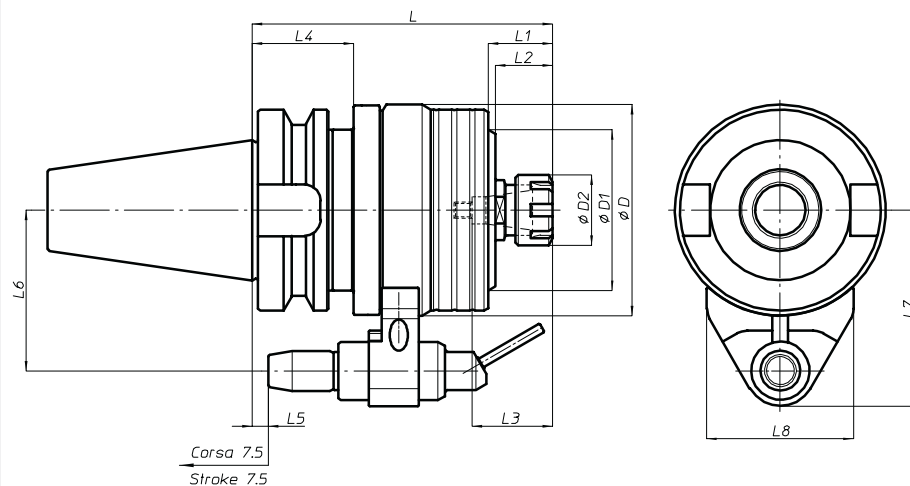
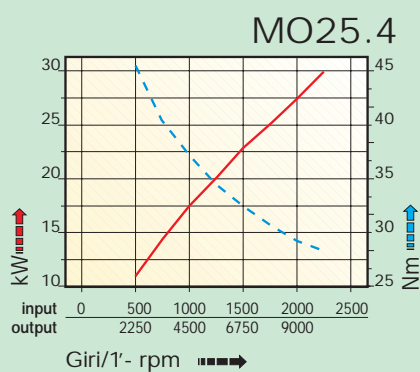
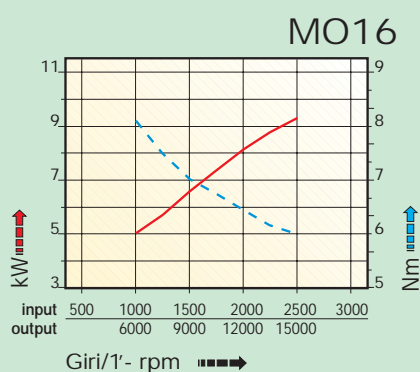
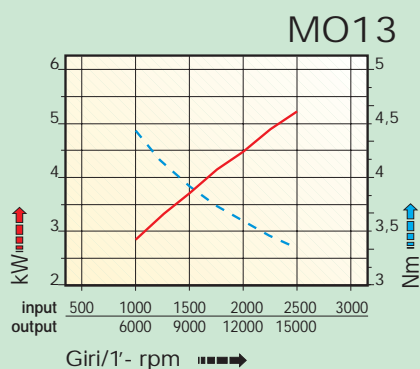
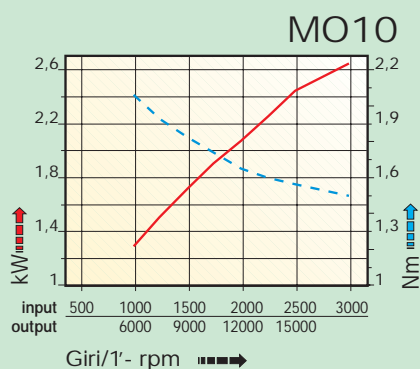
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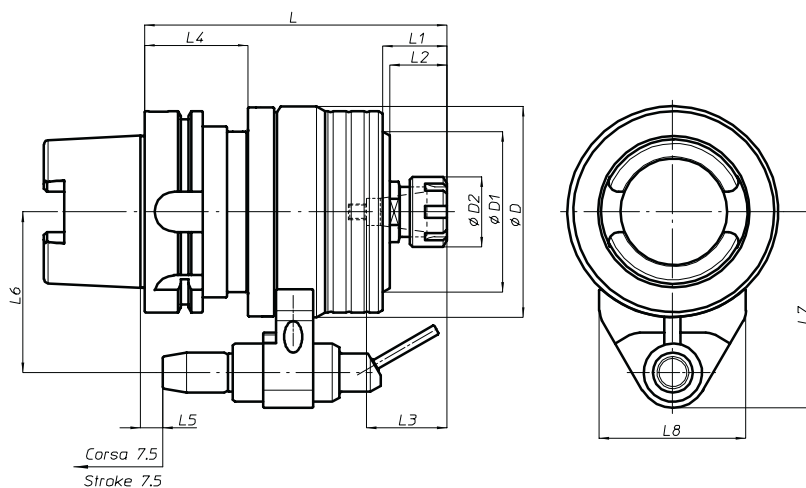
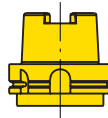
MAS 403 BT



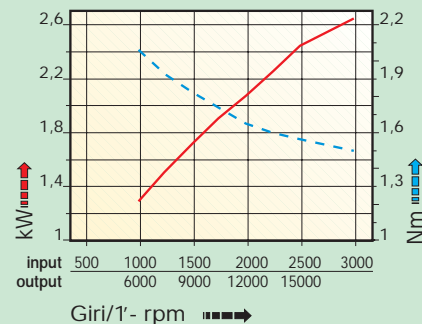
Modello Type	MO 10			MO 13		MO 16		MO 25.4	
Cono Shank	30	40	50	40	50	50	50	50	
Rapporto Ratio	1 - 6			1 - 6		1 - 6		1 - 4,5	
N. giri max RPM	22.000 *			15.000 *		12.000 *		10.000 *	
Peso Weight	3,3	3,7	6,5	5,8	8	10	10	20	
Pinza Collet	ER 16 max Ø 10			ER 20 max Ø 13		ER 25 max Ø 16		ER 40 max Ø 30	
D	84			105		123		169	
D1	65			80		100		120	
D2	24			35		42		63	
L	132	132	40	141,5	149,5	163,5	163,5	202	
L1	32			32		34		67,5	
L2	28			28,5		29		40,5	
L3	36,5			40		43		64	
L4	42,5	42,5	50,5	34,5	50,5	41	41	41	
L5	0	8	0	8	8	7,5	7,5	6	
L6	65	80	80	80	80	80	80	110	
L7	82,5	97,5	97,5	97,5	97,5	97,5	97,5	127,5	
L8	71	71	71	73	73	75	75	75	
Forza assiale Axial thrust	60 daN			90 daN		110 daN		300 daN	

* n° giri max per lavorazioni continuative
speed at 100% duty cycle

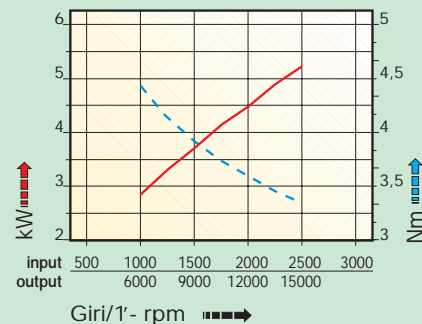
DIN 69893



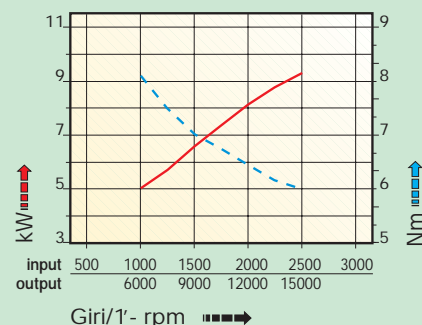
MO10



MO13

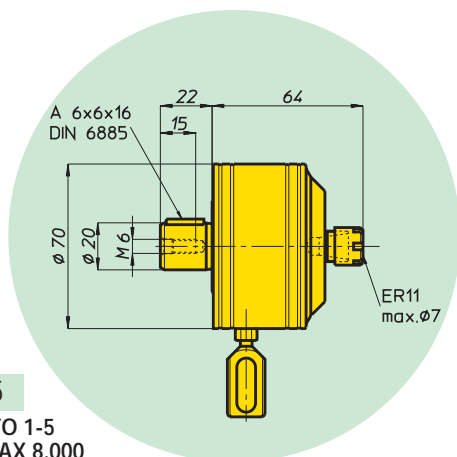


MO16



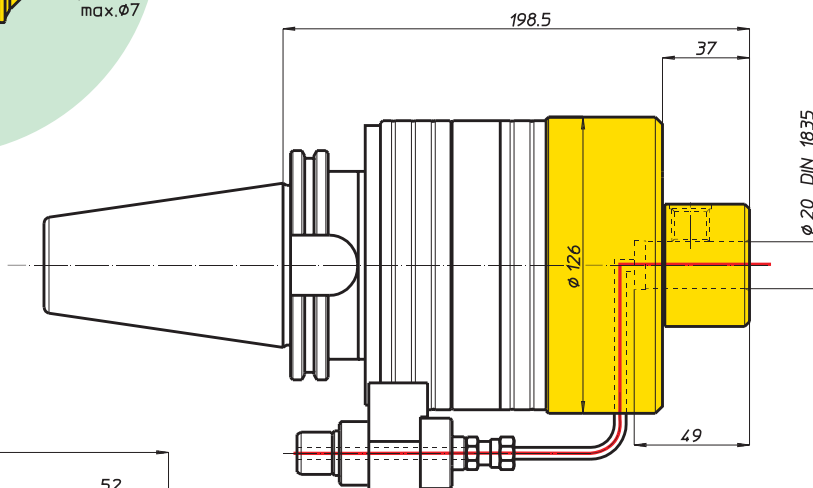
Modello Type	MO 10			MO 13			MO 16		
Cono Shank	63	80	100	63	80	100	80	100	
Rapporto Ratio	1 - 6			1 - 6			1 - 6		
N. giri max RPM	22.000 *			15.000 *			12.000 *		
Peso Weight	3,3	3,7	6,5	5,8	8		10		
Pinza Collet	ER 16 max Ø 10			ER 20 max Ø 13			ER 25 max Ø 16		
D	84			105			123		
D1	65			80			85		
D2	24			35			42		
L	141			150,5			164,5		
L1	32			32			44		
L2	28			28,5			32,5		
L3	36,5			40			52		
L4	42			42	51,5		56		
L5	9			9			8,5		
L6	65	80		80			80		
L7	82,5	97,5		97,5			97,5		
L8	71			73			75		
Forza assiale Axial thrust	60 daN			90 daN			110 daN		

* n° giri max per lavorazioni continuative
speed at 100% duty cycle



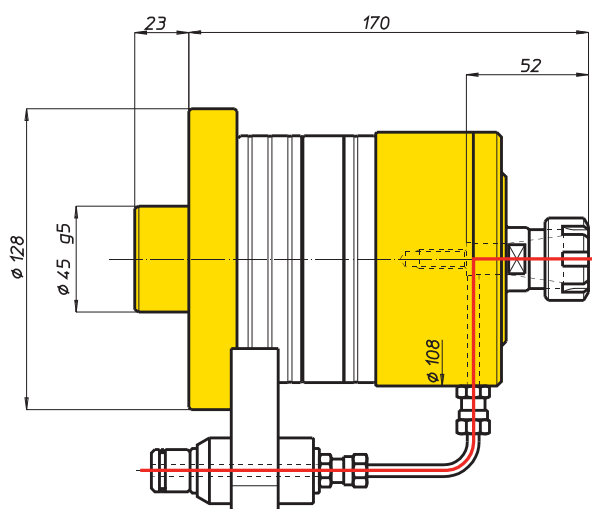
MO 7.5

RAPPORTO 1-5
N° GIRI MAX 8.000
RATIO 1-5 MAX RPM 8.000



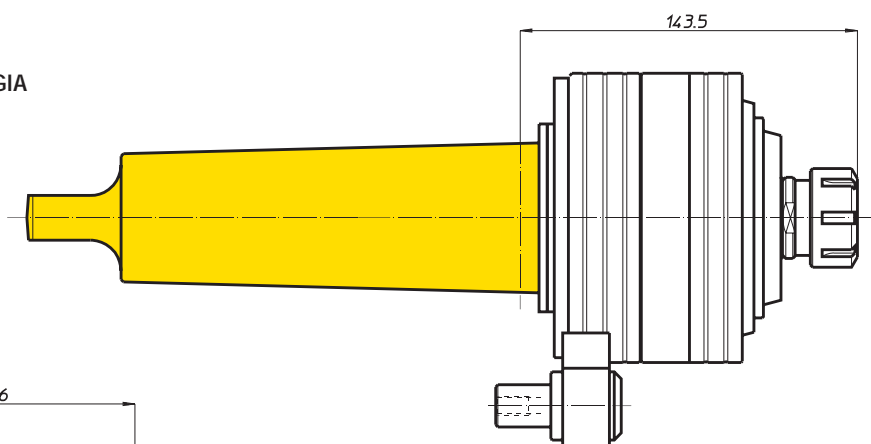
MO 16

CON ATTACCO DIN 69871- 50,
SERRAGGIO UTENSILE DIN 1835 Ø 20
E LIQUIDO REFRIGERANTE PASSANTE
PER IL CENTRO
WITH SHANK DIN 69871- 50
CONNECTING TOOLS DIN 1835 Ø 20
WITH INTERNAL COOLING



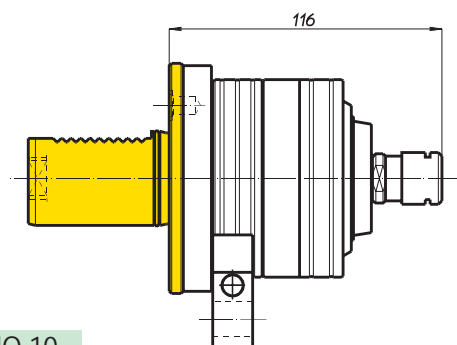
MO 13

CON ATTACCO SPECIALE A FLANGIA
E LIQUIDO REFRIGERANTE
PASSANTE PER IL CENTRO
WITH SPECIAL SHAFT
AND INTERNAL COOLING



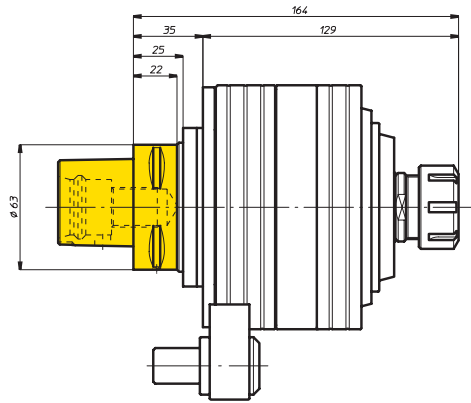
MO 16

CON ATTACCO CONO MORSE 6 DIN 228
WITH SHANK MT 6 DIN 228



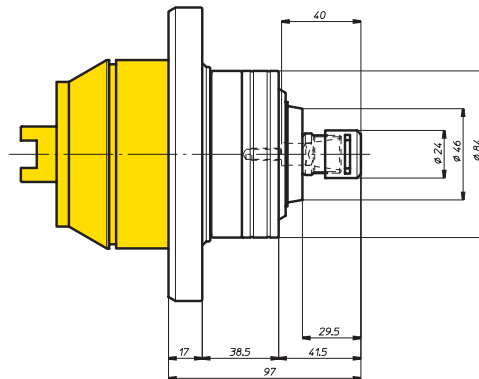
MO 10

CON ATTACCO DIN 69880 - 40 x 63
WITH SHANK DIN 69880 - 40 x 63



MO 10

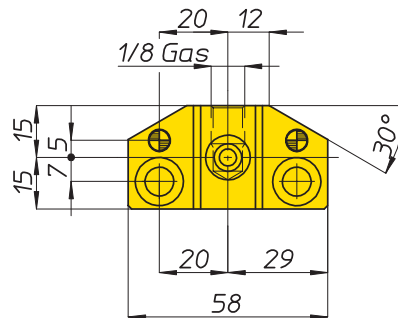
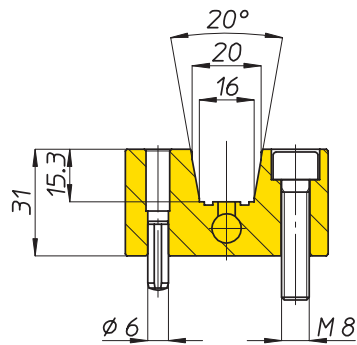
CON ATTACCO CAPTO C6
WITH SHANK CAPTO C6



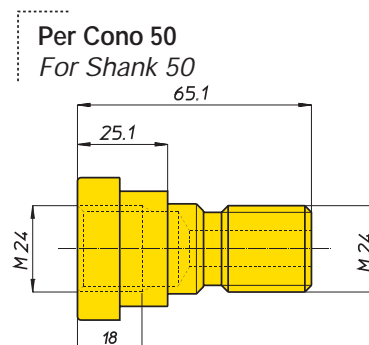
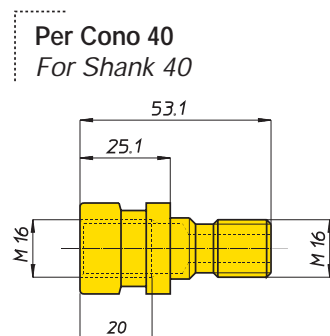
MO 10

CON ATTACCO SPECIALE PER TORRETTA A REVOLVER
WITH SPECIAL CONNECTION TO REVOLVER HEAD

STOP BLOCK (cod. 630021)



ADATTATORE DA DIN 69871 A DIN 2080 (o Maho System) ADAPTER FROM DIN 69871 TO DIN 2080 (o Maho System)



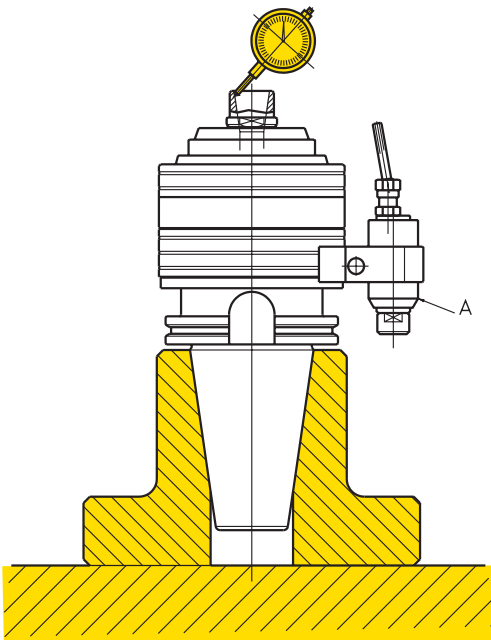
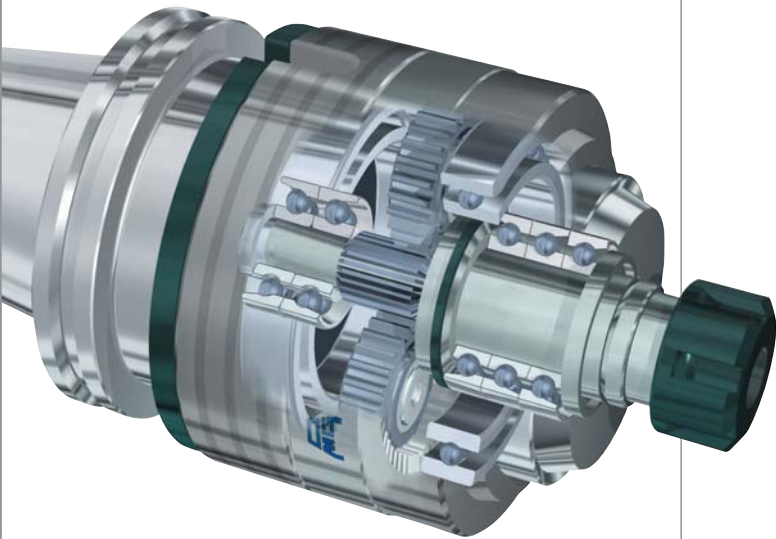


Fig. 1

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 concentricità tra l'asse del cono e l'asse del mandrino.

TEST RESULT

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 table, 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 mm comparator is the concentricity between the shank axe and the spindle axe.

CERTIFICATO DI COLLAUDO

BANCO PROVA BP03

Data Prova: 10/07/2003

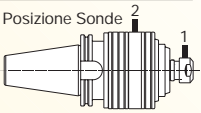
Articolo: MO 10.6

Matricola: 1315

N° Max Giri Uscita: 18000

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: 0,008

TEST RESULT

TEST STAND BP03

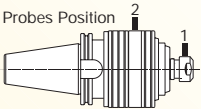
Test Date : 10/07/2003

Item: MO 10.6 Code: 1315

Max Output RPM: 18000

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 Taper and Spindle: 0,008

Galleria fotografica

Photographic gallery

Moltiplicatore di giri M010
M010 spindle speeder



Moltiplicatore di giri M013
M013 spindle speeder



Moltiplicatore di giri M016
M016 spindle speeder



Moltiplicatore di giri M025.4
M025.4 spindle speeder



Moltiplicatore di giri M030.4
M030.4 spindle speeder



serie HT

torrette a revolver turret heads

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.*

Caratteristiche tecniche/Features..... 3-2

Applicazioni/Applications 3-3



TA

MO

HT



HT 160

VH

TSI/TSX



HT 250

T



HT 360

Accessori
Accessories



Appendice tecnica
Technical supplement



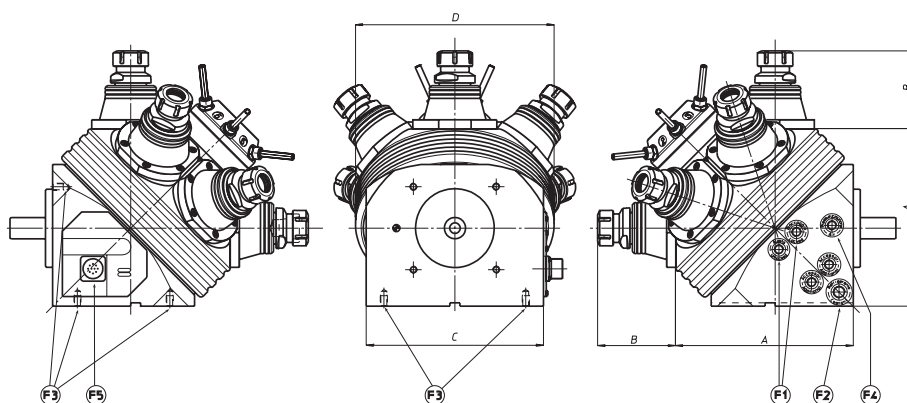
F1 circuito olio per bloccaggio-sbloccaggio torretta
oil circuit for turret locking-release

F2 entrata refrigerante utensili
coolant tools

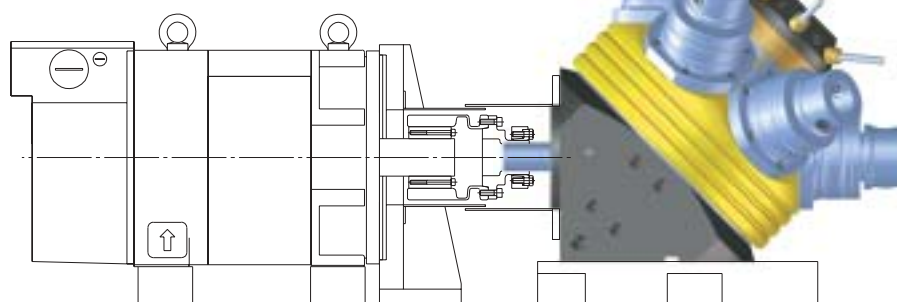
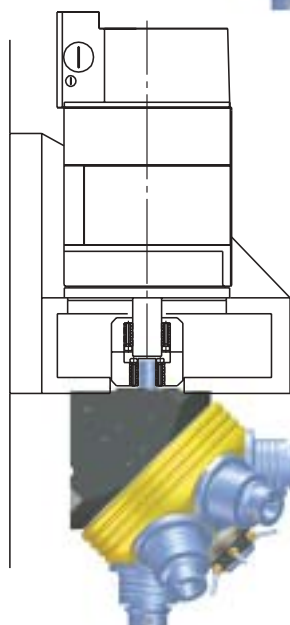
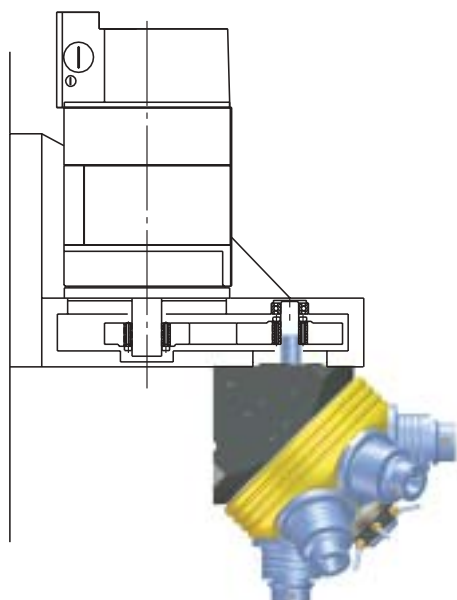
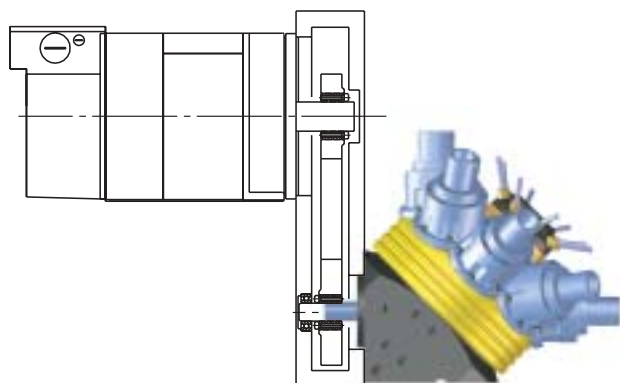
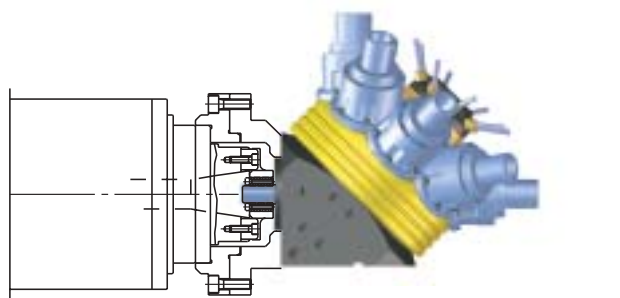
F3 fori fissaggio torretta
turret fixing holes

F4 entrata olio-aria
input oil-air

F5 connettore elettrico
electric connector



		HT 160	HT 250	HT 360
n° di posizioni max max nr. of position		6	6-8	6
coppia trasmissibile al mandrino transmitting torque by spindle	Nm	80	300	800
n° giri max mandrino max rpm spindle		12.000	10.000	8.000
precisione di posizione mandrini precision of spindles positioning		± 3"	± 3"	± 3"
potenza motore motor power	approx Kw	3	6,5	16
tempo di rotazione (1/6 di giro) indexing time 1/6 of rotation	sec	0,9	1,1	1,5
diametro corona Hirth dimension rings Hirth	mm	160	250	350
A		160	250	360
B dipende dal tipo di mandrino to depend on the spindle type	approx mm	70/80	100/120	120/160
C		160	250	350
D		180	280	400
tipi di mandrini disponibili type of spindles		ABS, HSK, ER, DIN 55058		
peso weight	kg	35	140	300



serie VH

teste multiple ad assi variabili variable axis heads



1965

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 è 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 è stata assolutamente meticolosa.



1983

*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.



Now

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

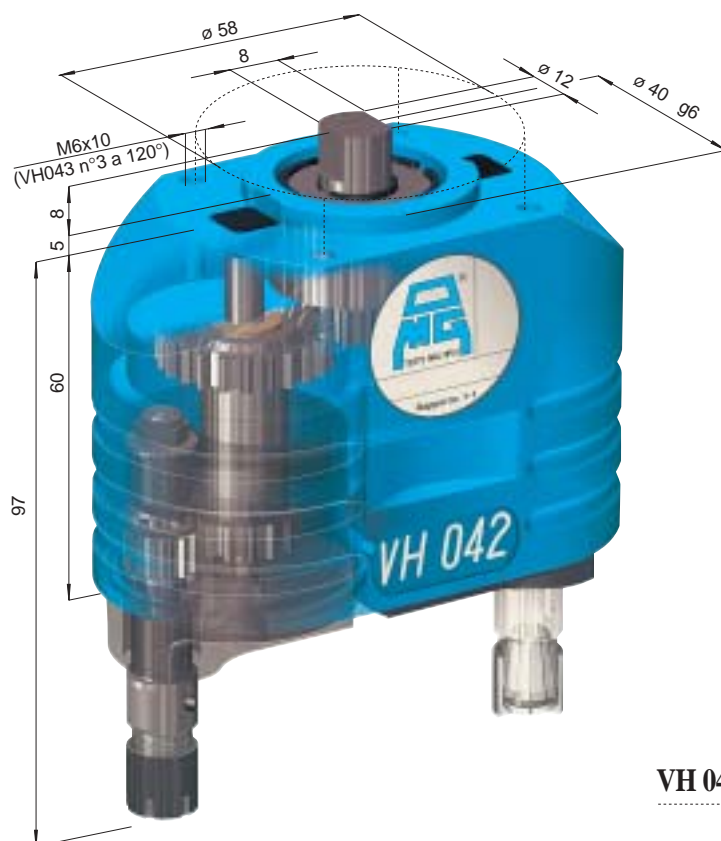
Accessori/ Accessories	8-1
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Dimensione mandrini/ Spindle dimensions	9-3
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CAPACITA' FORATURA
DRILLING CAPACITY $\phi 5$

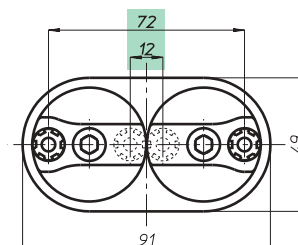
VH

modello 04

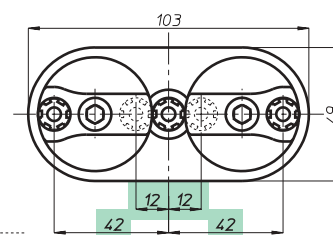


Testa modello Head type	VH 042	VH 043 L	VH 043	VH 044
Articolo Article	VH 042 P	VH 043 LP	VH 043 P	VH 044 P
Attacco utensile Type of spindle	Pinza ER 8 - ϕ max 5			
Articolo Article				
Attacco utensile Type of spindle				
N. mandrini Spindles nr.	2	3	3	4
Campo di lavoro min.	12	12 + 12	ϕ 18,5	ϕ 29,5
Centre distances max.	72	42 + 42	ϕ 78,5	ϕ 89,5
Capacità foratura	Acciaio Rm 500 N/mm ² - ϕ 4			
Drilling capacity	Ghisa GG25 - ϕ 5			
Maschiatura Tapping	M 3			
Rapporto Ratio	1 - 1			
Velocità RPM	4000			
Peso Weight	0,95	1,05	1,4	1,9

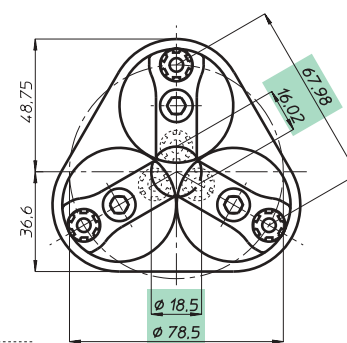
VH 042



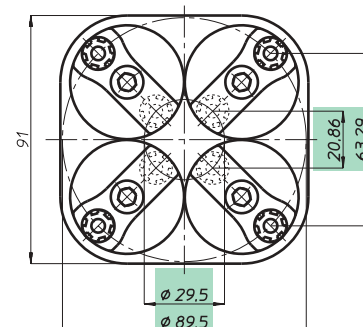
VH 043 L



VH 043



VH 044

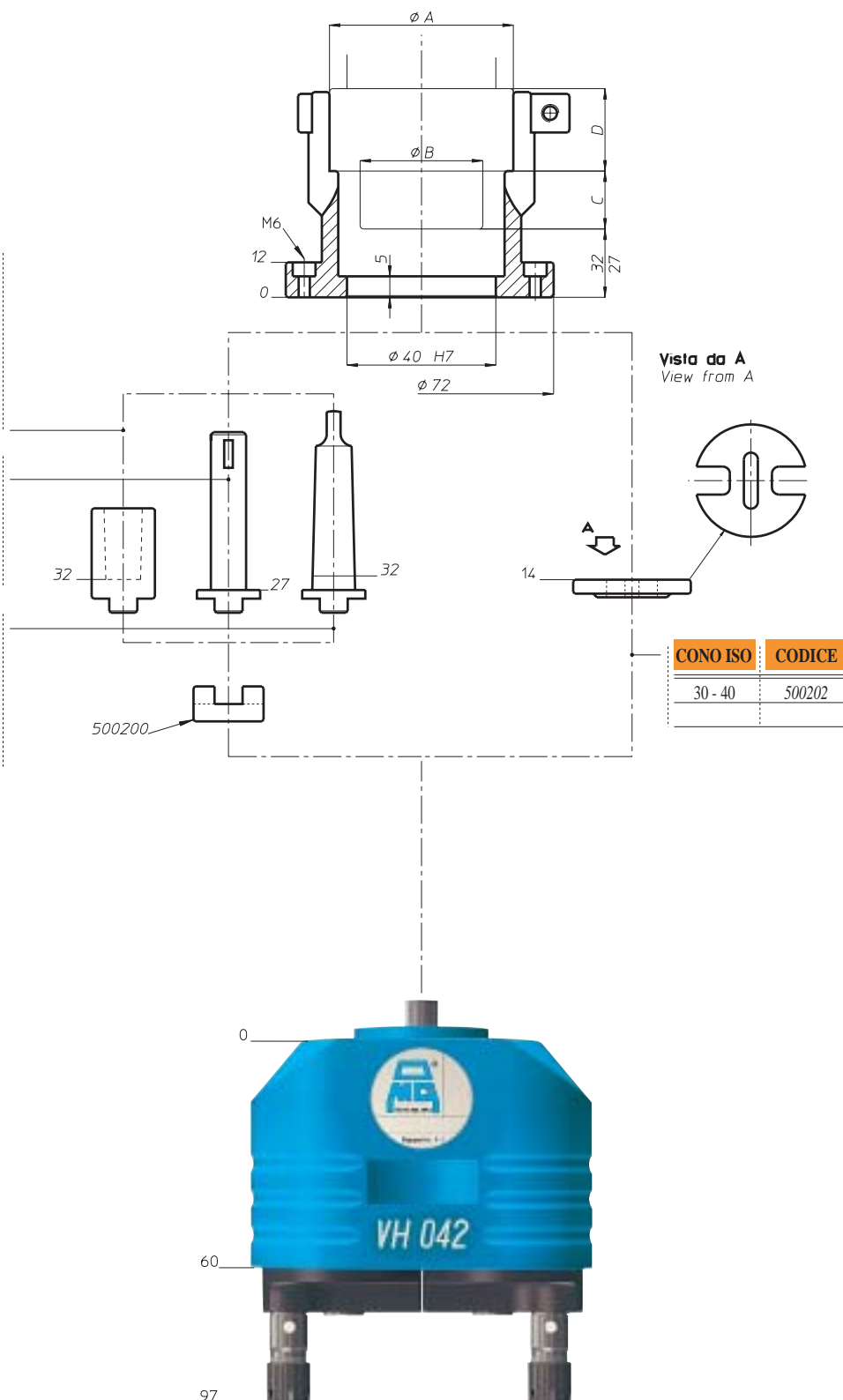


NOTA: A.B.C.D. dati macchina
NOTE: A.B.C.D. machine features

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

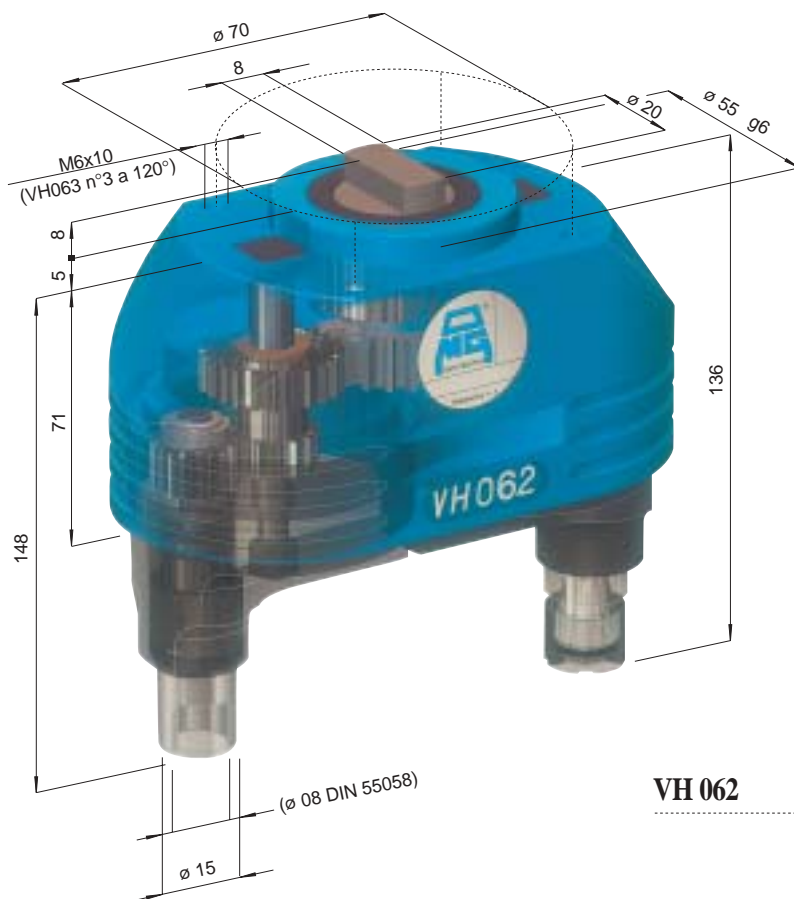
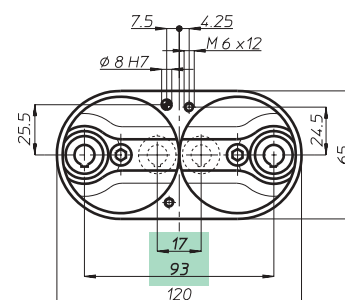
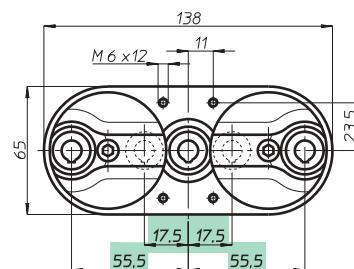
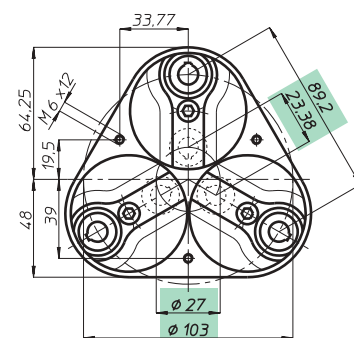
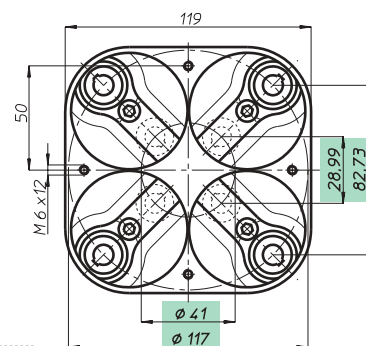


Teste multiple ad assi variabili • Variable axis heads

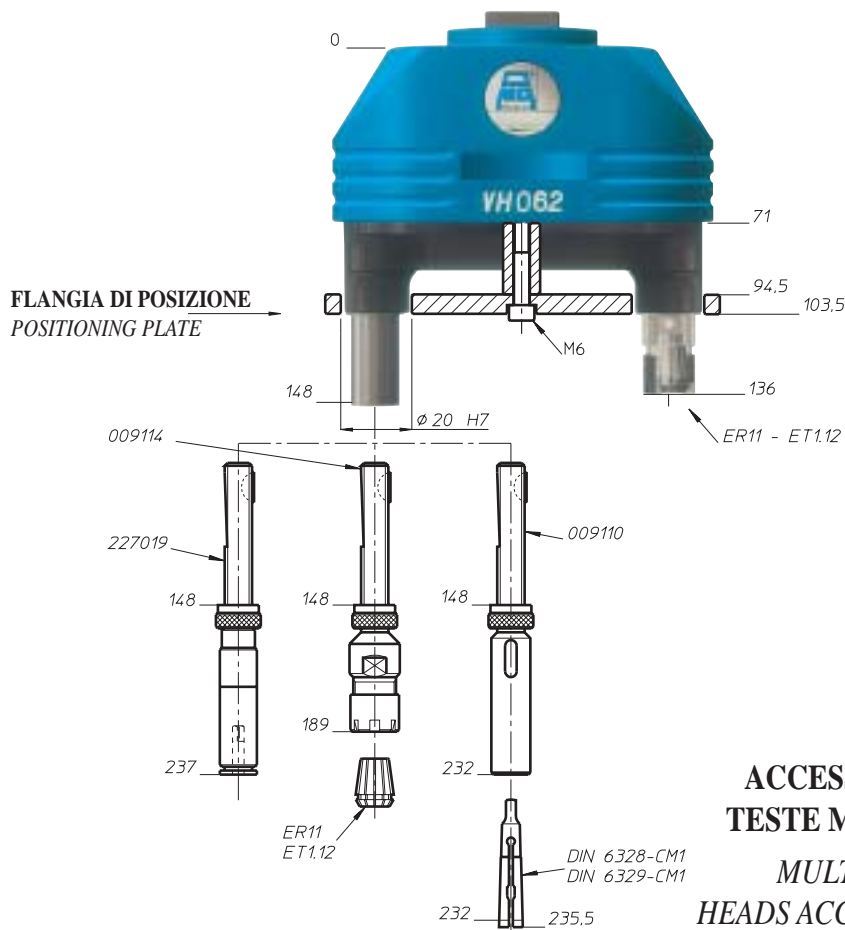
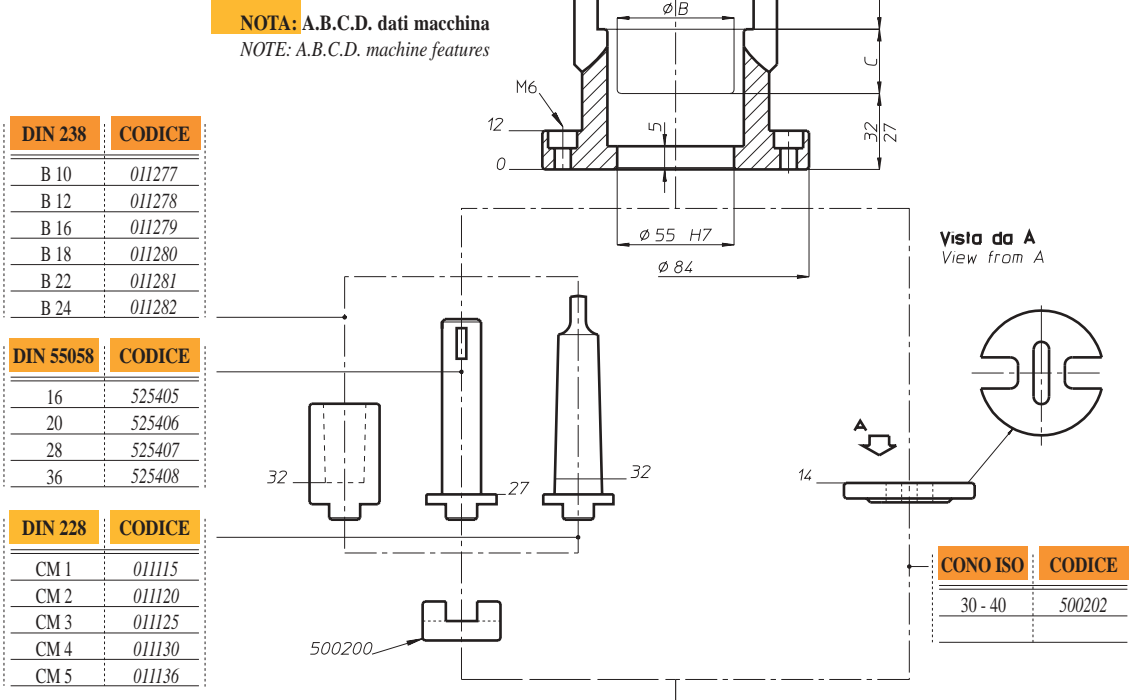
CAPACITA' FORATURA DRILLING CAPACITY $\phi 7$

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 Article	VH 062 P	VH 063 LP	VH 063 P	VH 064 P
Attacco utensile Type of spindle	Pinza ER 11 - ϕ max 7			
Articolo Article	VH 062 D	VH 063 LD	VH 063 D	VH 064 D
Attacco utensile Type of spindle	DIN 55058 - ϕ 8			
N. mandrini Spindles nr.	2	3	3	4
Campo di lavoro min.	17	17,5 + 17,5	ϕ 27	ϕ 41
Centre distances max.	93	55,5 + 55,5	ϕ 103	ϕ 117
Capacità foratura	Acciaio Rm 500 N/mm ² - ϕ 6			
Drilling capacity	Ghisa GG25 - ϕ 7			
Maschiatura Tapping	M 5			
Rapporto Ratio	1 - 1			
Velocità RPM	4000			
Peso Weight Kg.	1,65	1,95	2,3	3,1

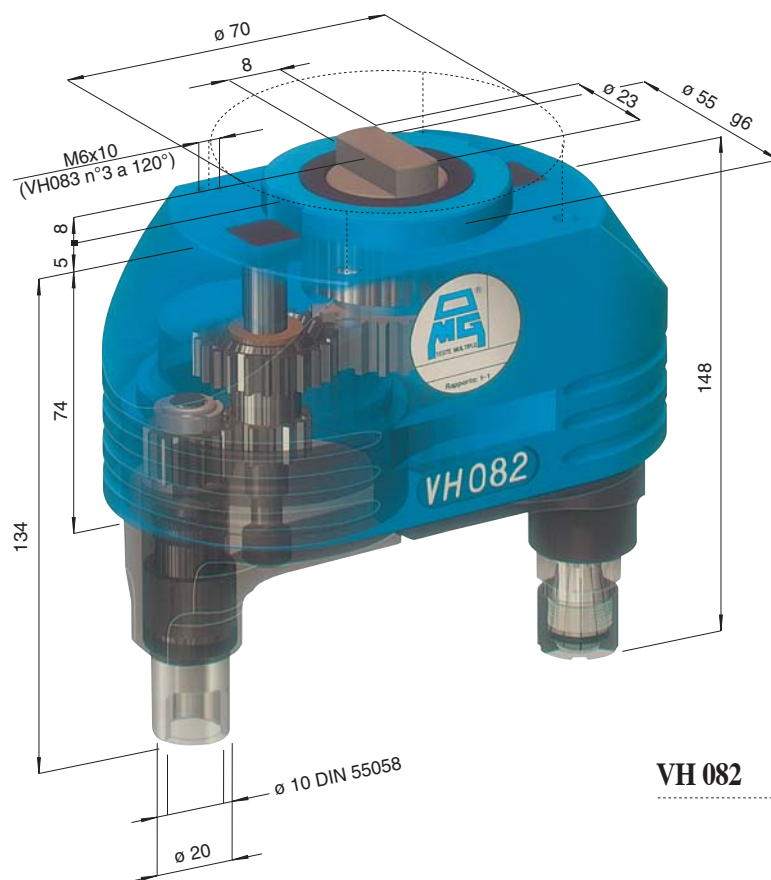


Teste multiple ad assi variabili • Variable axis heads

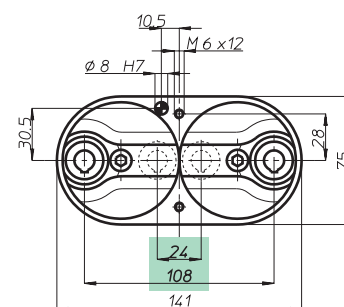
CAPACITA' FORATURA
DRILLING CAPACITY **ø10**

VH

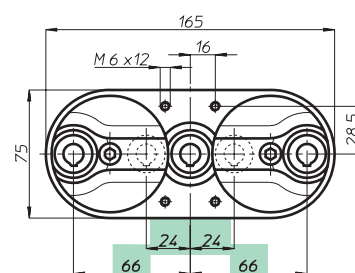
modello 08



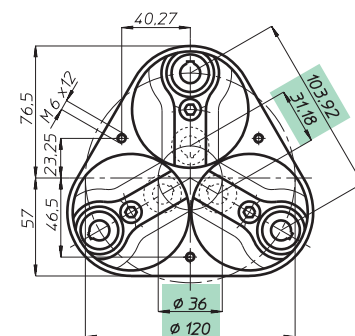
VH 082



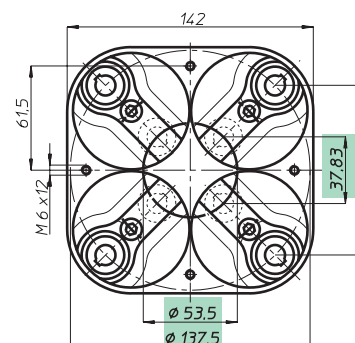
VH 083 L



VH 083



VH 084



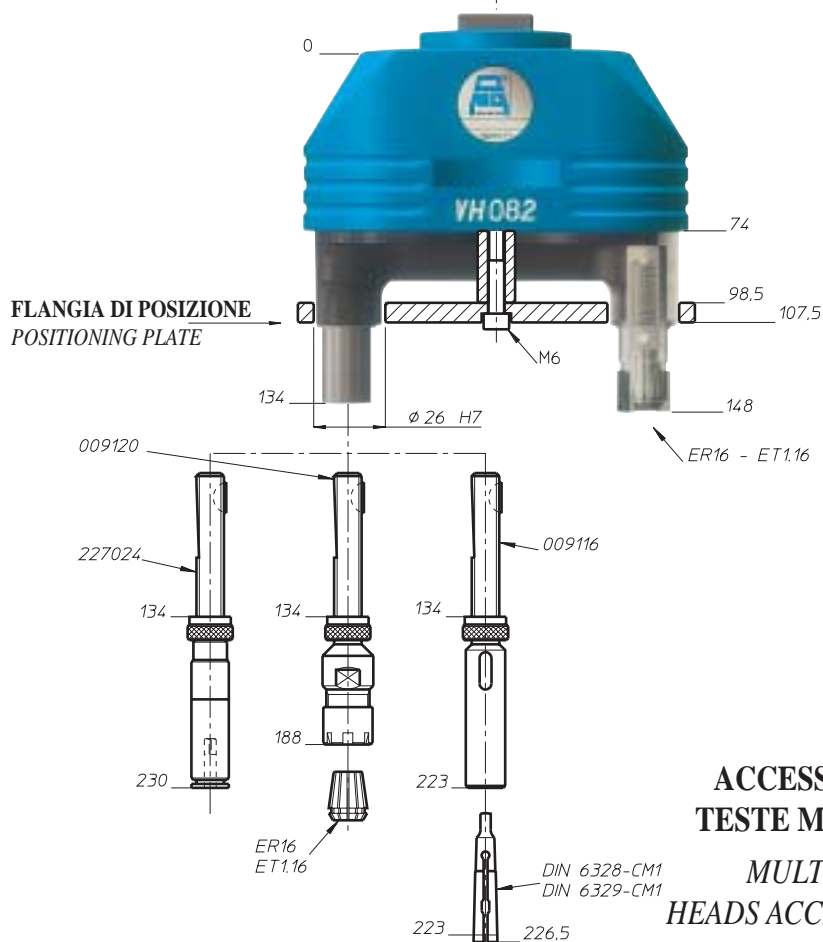
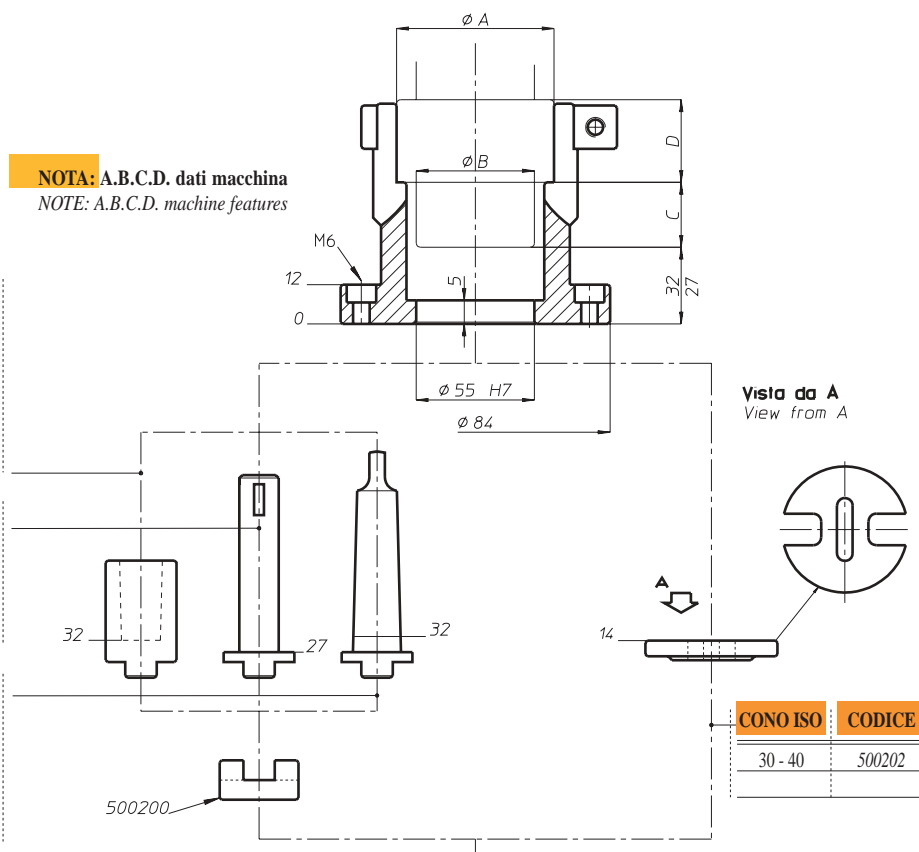
Testa modello Head type	VH 082	VH 083 L	VH 083	VH 084
Articolo Article	VH 082 P	VH 083 LP	VH 083 P	VH 084 P
Attacco utensile Type of spindle	Pinza ER 16 - ø max 10			
Articolo Article	VH 082 D	VH 083 LD	VH 083 D	VH 084 D
Attacco utensile Type of spindle	DIN 55058 - ø 10			
N. mandrini Spindles nr.	2	3	3	4
Campo di lavoro min.	24	24 + 24	ø 36	ø 53,5
Centre distances max.	108	66 + 66	ø 120	ø 137,5
Capacità foratura	Acciaio Rm 500 N/mm² - ø 8			
Drilling capacity	Ghisa GG25 - ø 10			
Maschiatura Tapping	M 6			
Rapporto Ratio	1 - 1			
Velocità RPM	4000			
Peso Weight	Kg. 2,2	2,9	3,4	4,6

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

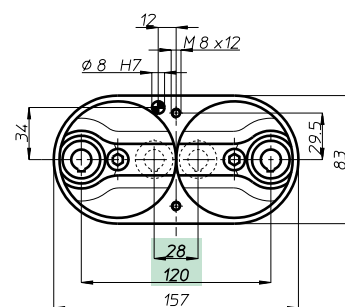
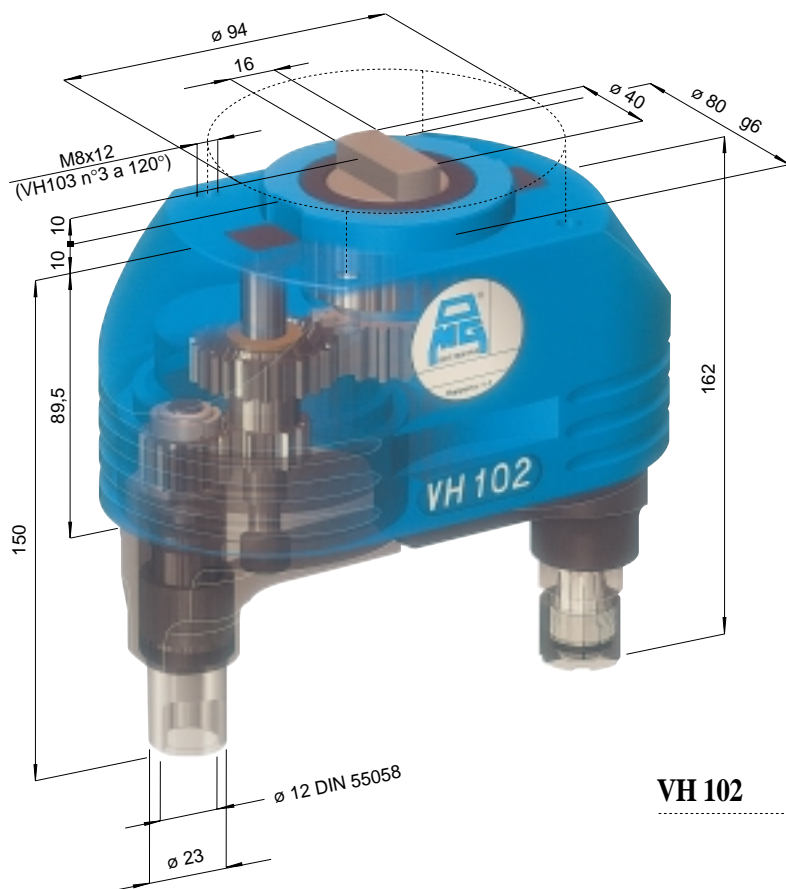
DIN 228	CODICE
CM 1	011115
CM 2	011120
CM 3	011125
CM 4	011130
CM 5	011136



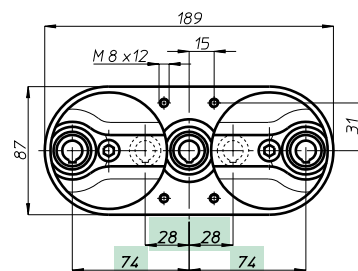
ACCESSORI PER
TESTE MULTIPLE
MULTISPINDLE
HEADS ACCESSORIES

Teste multiple ad assi variabili • Variable axis heads

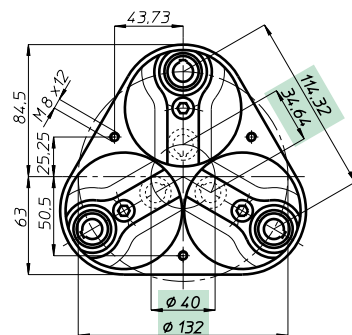
CAPACITA' FORATURA
DRILLING CAPACITY **ø12**



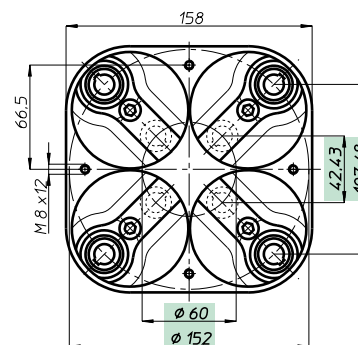
VH 102



VH 103 L



VH 103



VH 104

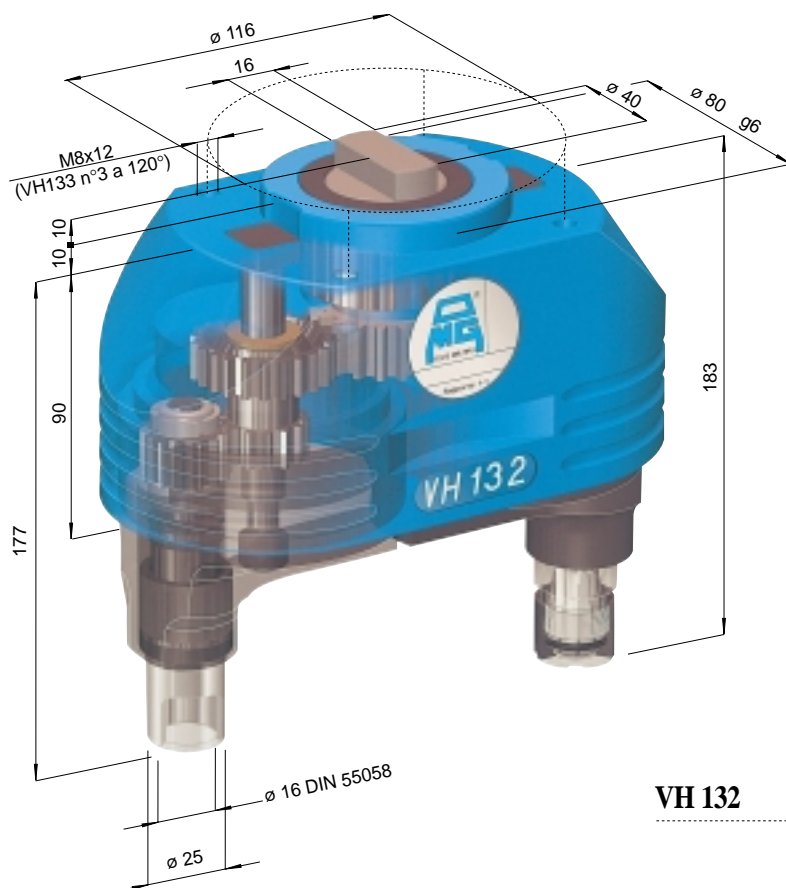
Testa modello <i>Head type</i>	VH 102	VH 103 L	VH 103	VH 104
Articolo <i>Article</i>	VH 102 P	VH 103 LP	VH 103 P	VH 104 P
Attacco utensile <i>Type of spindle</i>	Pinza ER 16 - ø max 10			
Articolo <i>Article</i>	VH 102 D	VH 103 LD	VH 103 D	VH 104 D
Attacco utensile <i>Type of spindle</i>	DIN 55058 - ø 12			
N. mandrini <i>Spindles nr.</i>	2	3	3	4
Campo di lavoro min.	28	28 + 28	ø 40	ø 60
Centre distances max.	120	74 + 74	ø 132	ø 152
Capacità foratura	Acciaio Rm 500 N/mm² - ø 10			
Drilling capacity	Ghisa GG25 - ø 12			
Maschiatura <i>Tapping</i>	M 8			
Rapporto <i>Ratio</i>	1 - 1			
Velocità <i>RPM</i>	3500			
Peso <i>Weight</i>	<i>Kg.</i> 3,5	4,9	4,9	7,2

*MULTISPINDLE
HEADS ACCESSORIES*

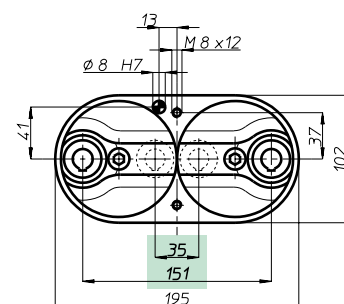
CAPACITA' FORATURA
DRILLING CAPACITY **ø14**

VH

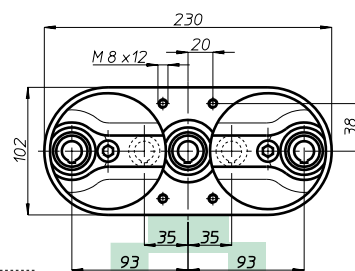
modello 13



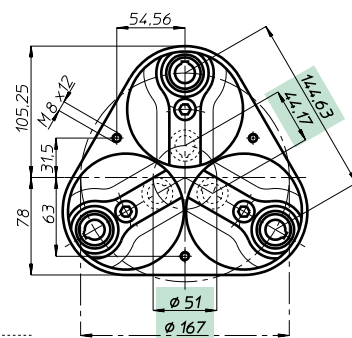
VH 132



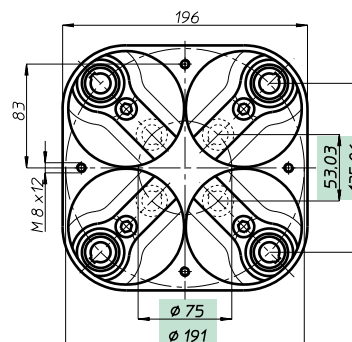
VH 133 L



VH 133



VH 134



Testa modello Head type	VH 132	VH 133 L	VH 133	VH 134
Articolo Article	VH 132 P	VH 133 LP	VH 133 P	VH 134 P
Attacco utensile Type of spindle	Pinza ER 20 - ø max 13			
Articolo Article	VH 132 D	VH 133 LD	VH 133 D	VH 134 D
Attacco utensile Type of spindle	DIN 55058 - ø 16			
N. mandrini Spindles nr.	2	3	3	4
Campo di lavoro min.	35	35 + 35	ø 51	ø 75
Centre distances max.	151	93 + 93	ø 167	ø 191
Capacità foratura	Acciaio Rm 500 N/mm ² - ø 13			
Drilling capacity	Ghisa GG25 - ø 14			
Maschiatura Tapping	M 12			
Rapporto Ratio	1 - 1			
Velocità RPM	3000			
Peso Weight	Kg. 5,3	7,2	7	10,8

Teste multiple ad assi variabili • Variable axis heads

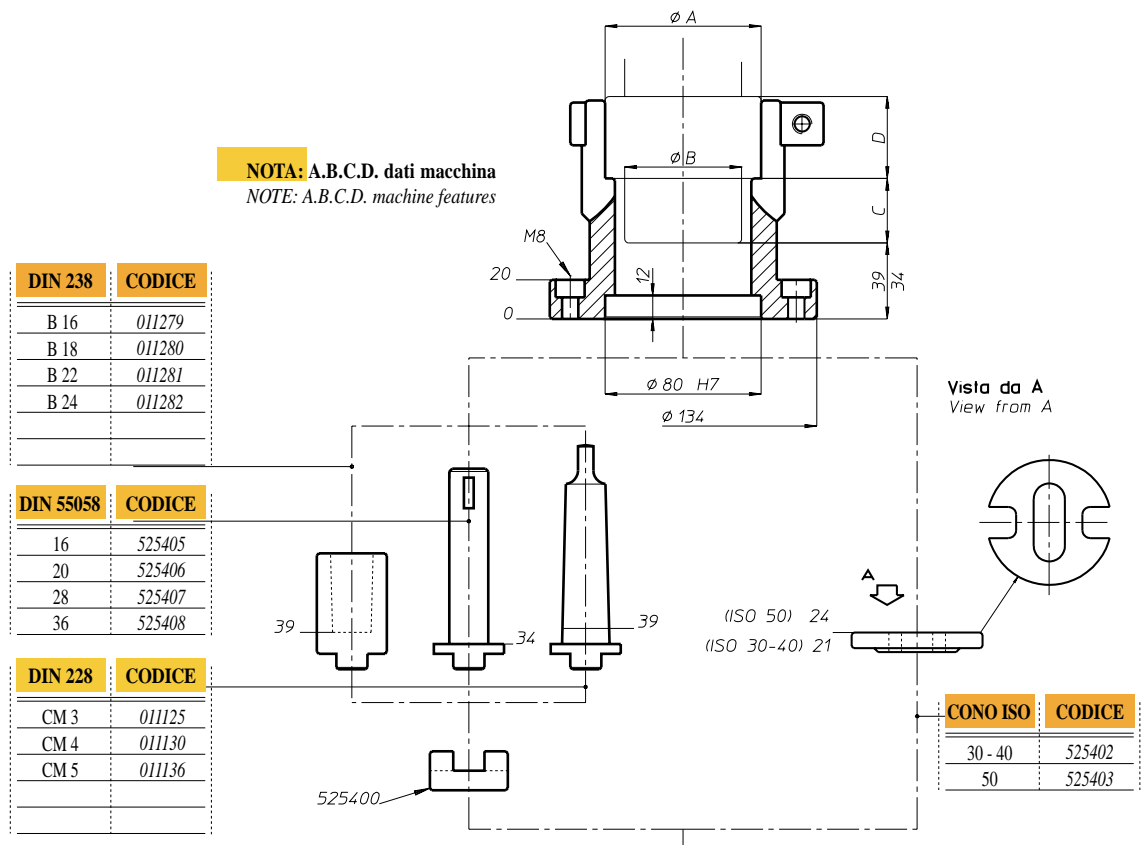
NOTE: A.B.C.D. machine features

CONO ISO	CODICE
30 - 40	525402
50	525403

l'utilizzo di questo accessorio richiede il mandrino predisto. La lunghezza degli accessori, comprensivi di manicotto attacco rapido, aumenta di mm 6,5.

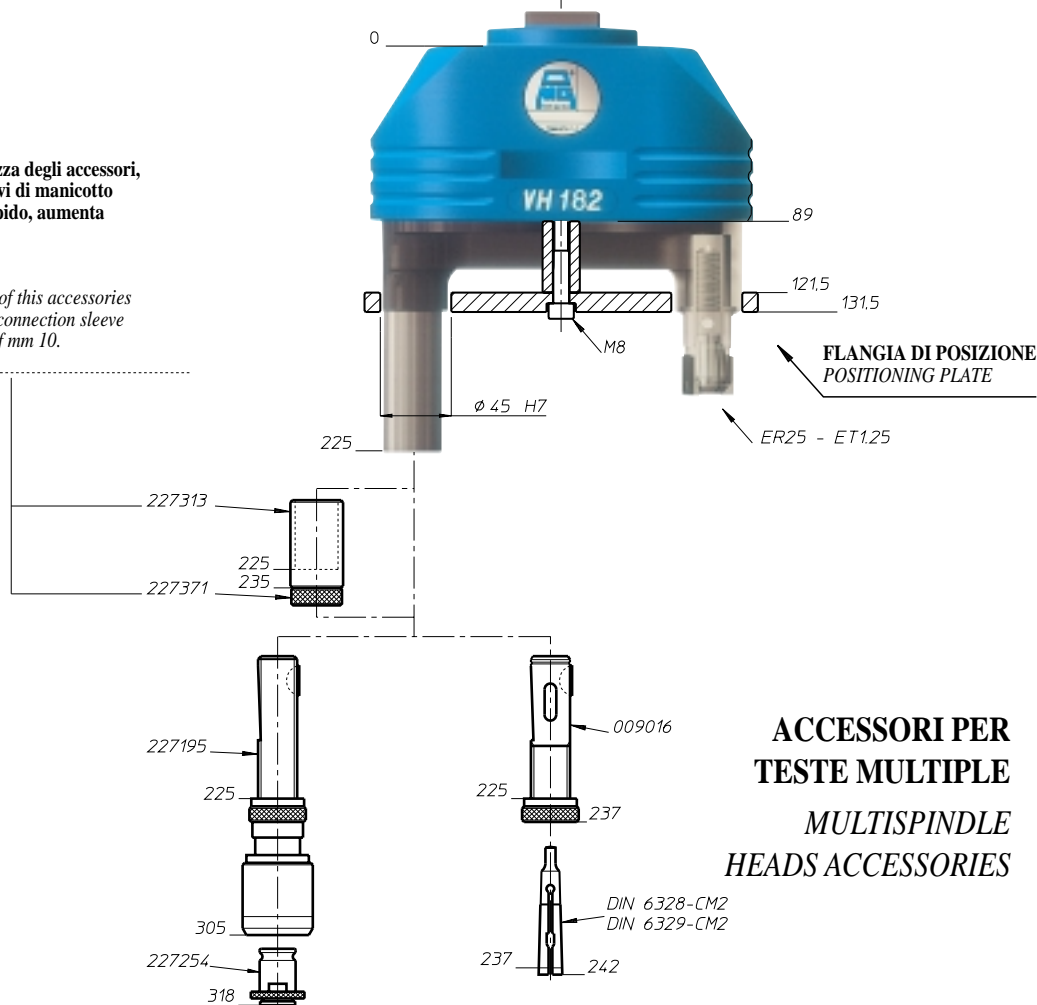
NOTE:
the use of this accessory requires
prearranged spindle. The length of
this accessories with quick connection
sleeve increases of mm 6.5.





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

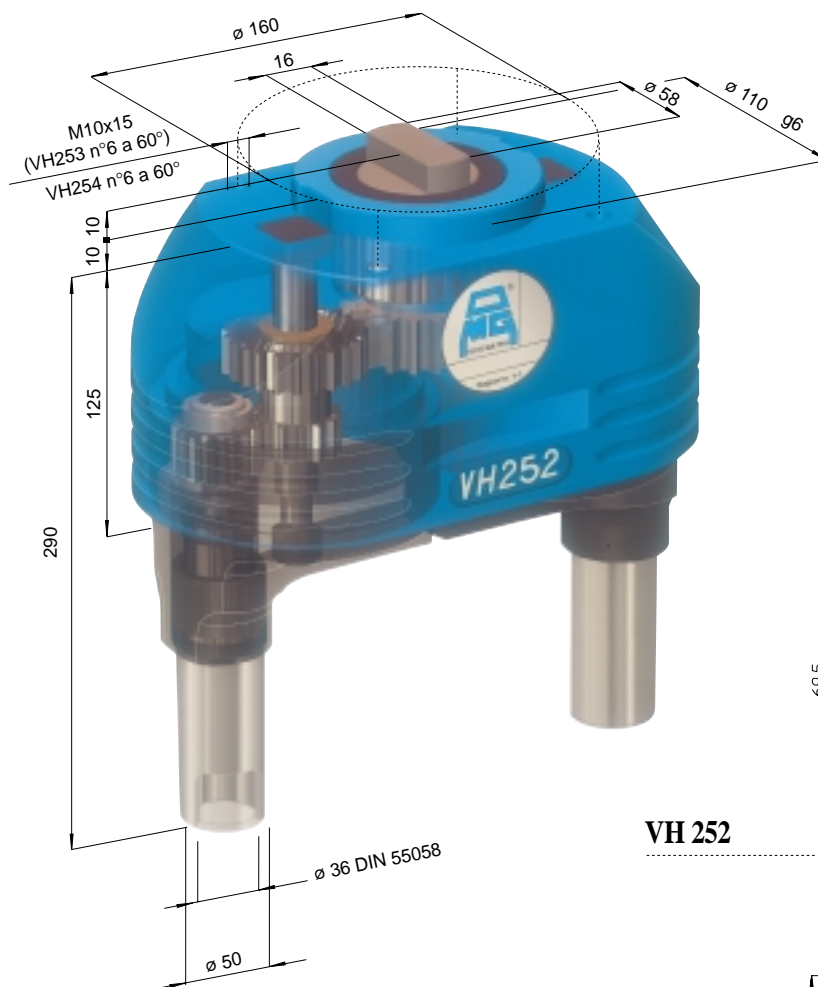
NOTE:
The length of this accessories whit quick connection sleeve increases of mm 10.



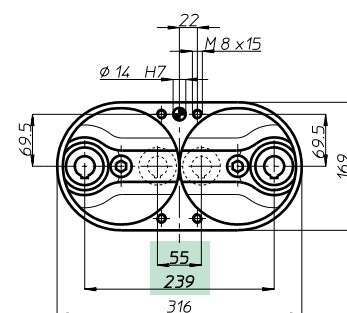
CAPACITA' FORATURA
DRILLING CAPACITY **ø28**

VH

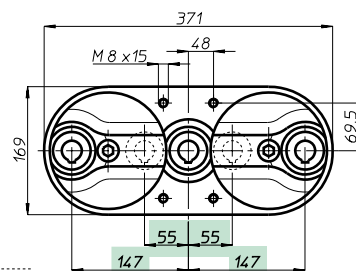
modello 25



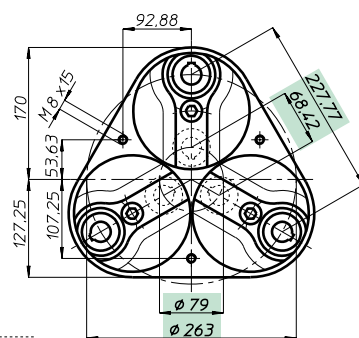
VH 252



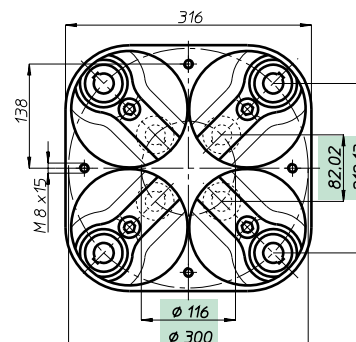
VH 253 L



VH 253



VH 254



Testa modello
Head type

VH
252

VH
253 L

VH
253

VH
254

Articolo
Article

Attacco utensile
Type of spindle

Articolo
Article

VH 252 D

VH 253 LD

VH 253 D

VH 254 D

Attacco utensile
Type of spindle

DIN 55058 - ø 36

N. mandrini
Spindles nr.

2

3

3

4

Campo di lavoro
min.

55

55 + 55

ø 79

ø 116

Centre distances
max.

239

147 + 147

ø 263

ø 300

Capacità foratura

Acciaio Rm 500 N/mm² - ø 25

Drilling capacity

Ghisa GG25 - ø 28

Maschiatura
Tapping

M 20

Rapporto
Ratio

1 - 1

Velocità
RPM

2000

Peso
Weight

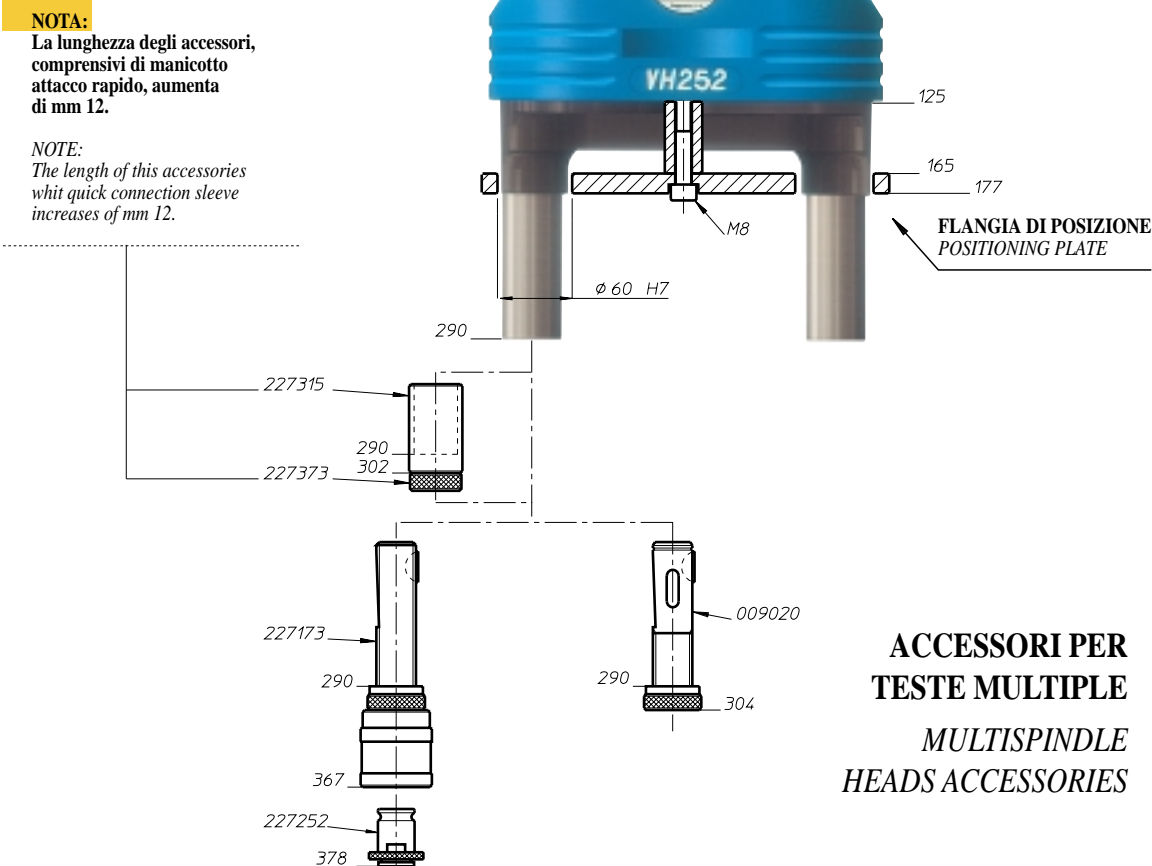
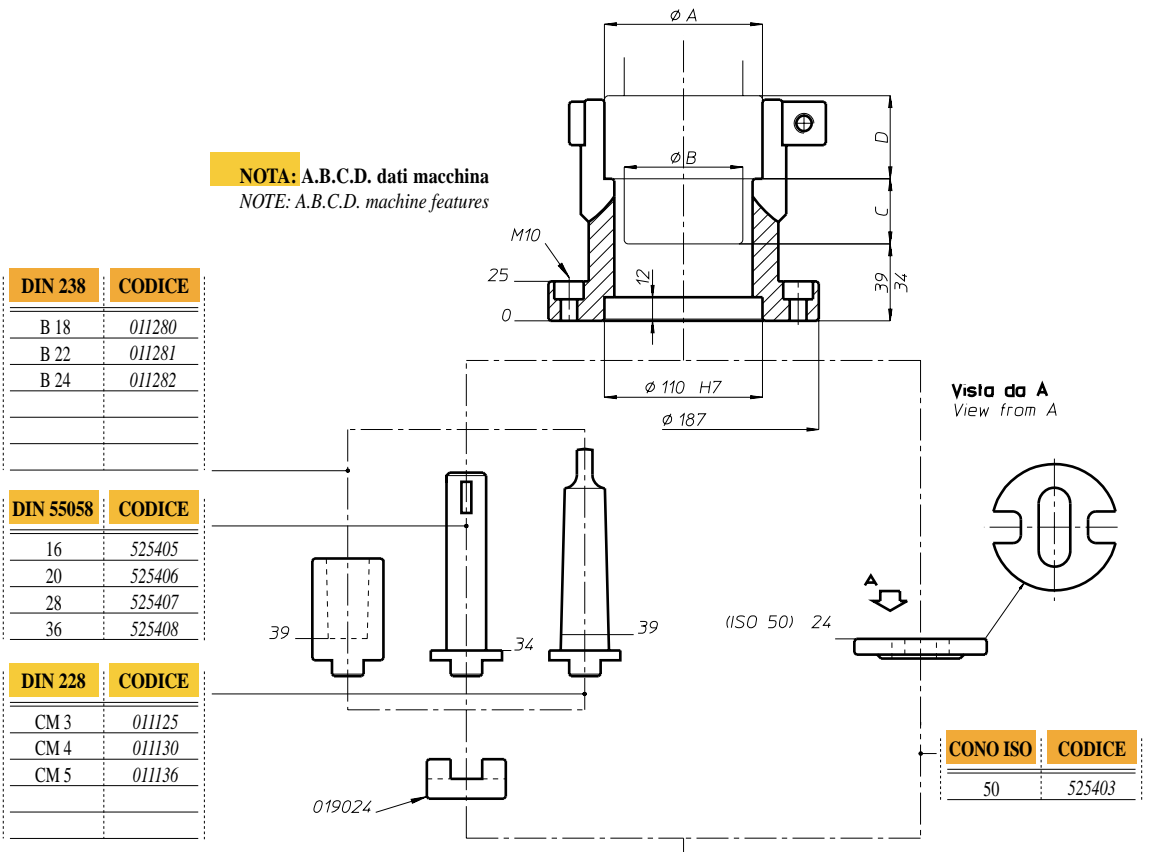
Kg.

27

32

39,5

52



CAPACITA' FORATURA
DRILLING CAPACITY **ø12**

VH

modello 101



Testa modello
Head type

**VH
101**

Articolo
Article

VH 101 W14

Attacco utensile
Type of spindle

ø 14

Articolo
Article

VH 101 P

Attacco utensile
Type of spindle

Pinza ER16 - ø max 10

N. mandrini
Spindles nr.

1

Campo di lavoro min.

0

Centre distances 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

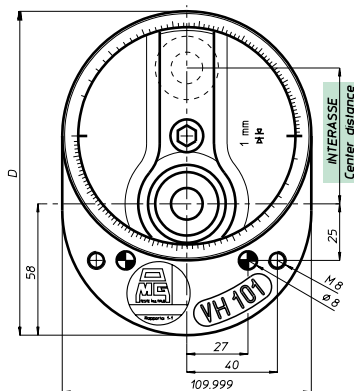
1 - 1

Velocità
RPM

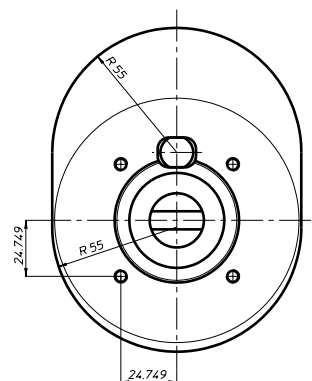
3000

Peso
Weight Kg.

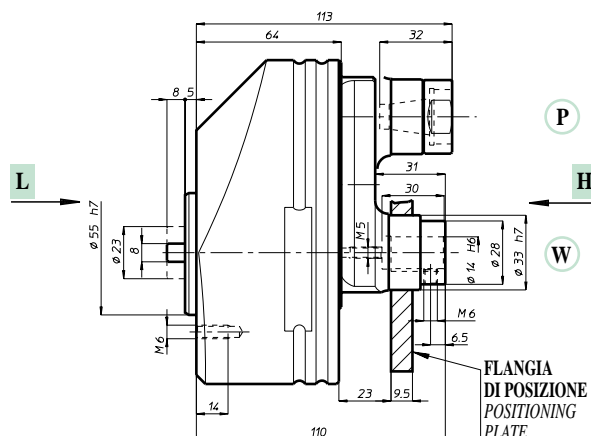
2,8



**VISTA
VIEW H**

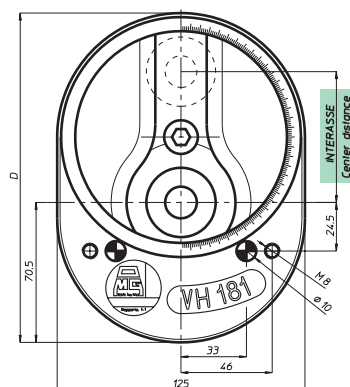


**VISTA
VIEW L**

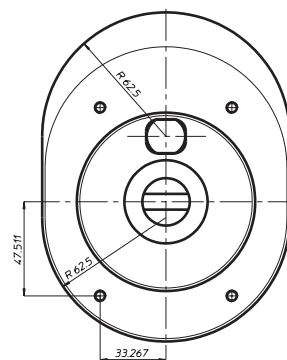




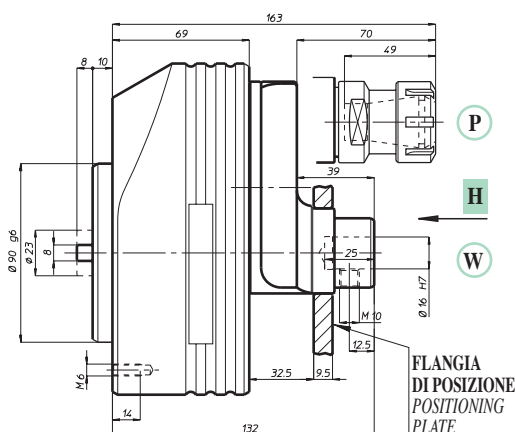
**VISTA
VIEW H**



**VISTA
VIEW L**



L



Testa modello
Head type

**VH
181**

**VH
181-122**

Articolo
Article

VH 181 W16

VH 181-122-W16

Attacco utensile
Type of spindle

ø 16

Articolo
Article

VH 181 P

VH 181-122-P

Attacco utensile
Type of spindle

Pinza ER25 - ø max 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

2500

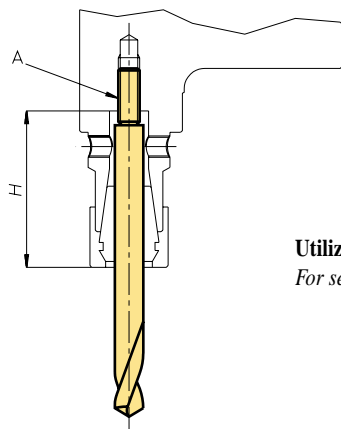
Peso
Weight Kg.

4,1

6,4

regolazione utensili

FORATURA CON PINZE ER DRILLING WITH ER COLLETS

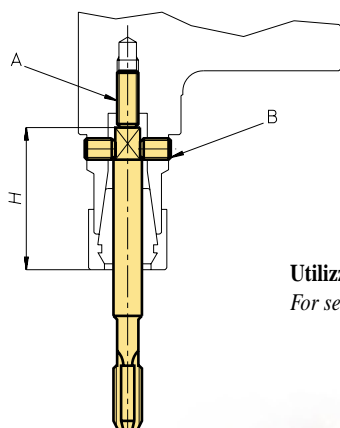


Utilizzare la vite A per registrare l'altezza utensile
For setting the tool length, use the screw A

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

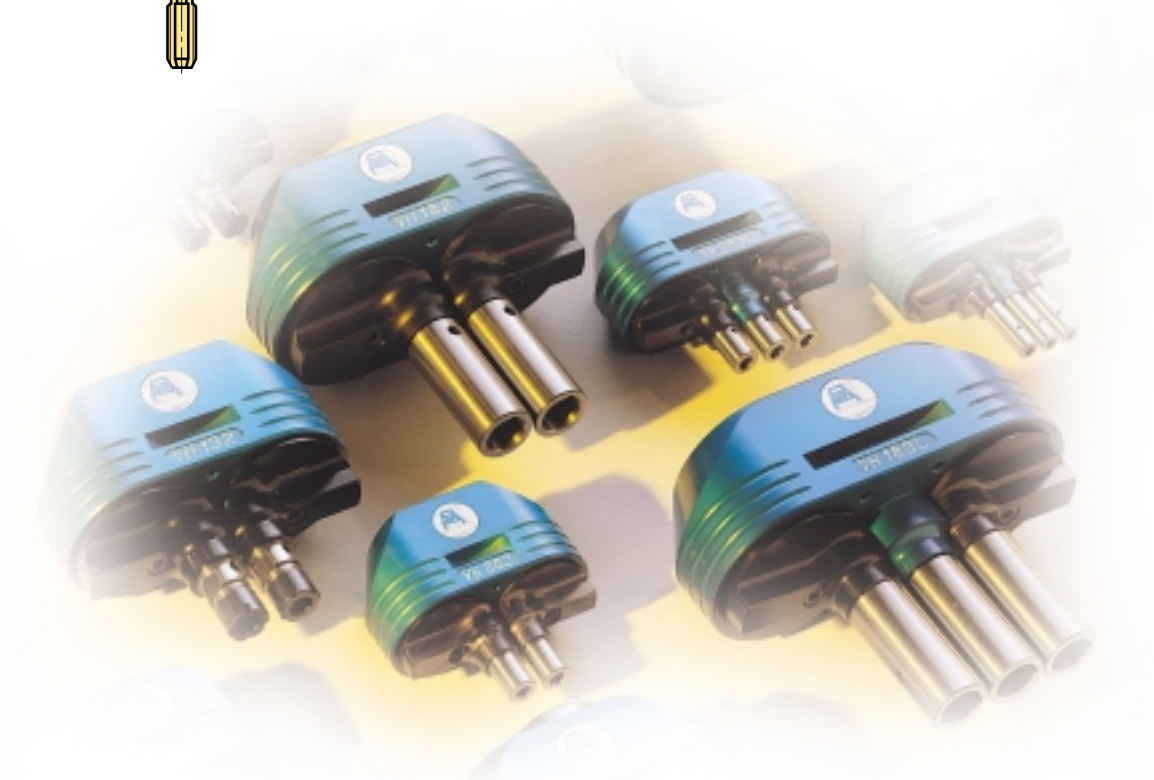
MASCHIATURA CON PINZE ER TAPPING WITH ER COLLETS



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

Testa Head	VH 04	VH 06	VH 08	VH 10	VH 13	VH 18
H	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



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 101 P 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 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

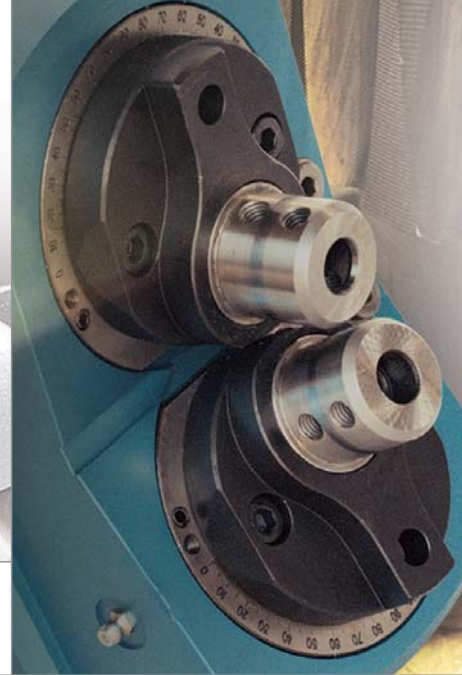
Teste multiple ad assi variabili • Variable axis heads

*galleria
fotografica*





Teste multiple ad assi variabili • Variable axis heads



TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3

Accessori
Accessories

Appendice tecnica
Technical supplement



teste di fresatura twin spindle milling heads

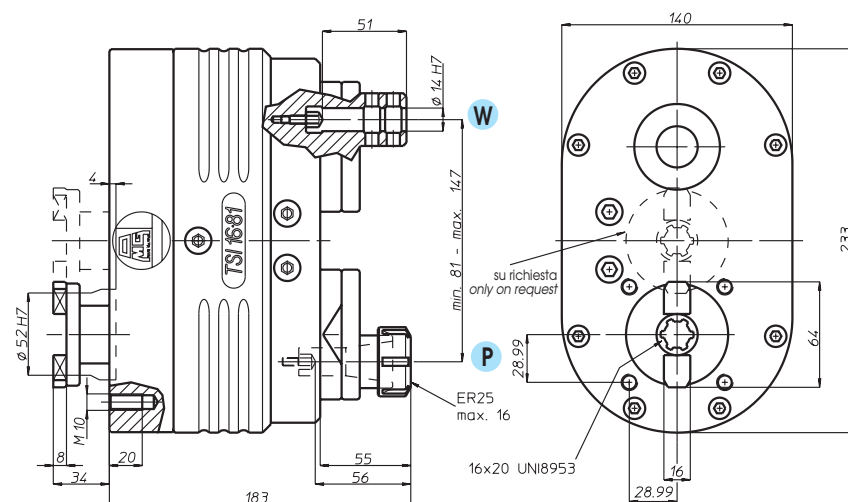
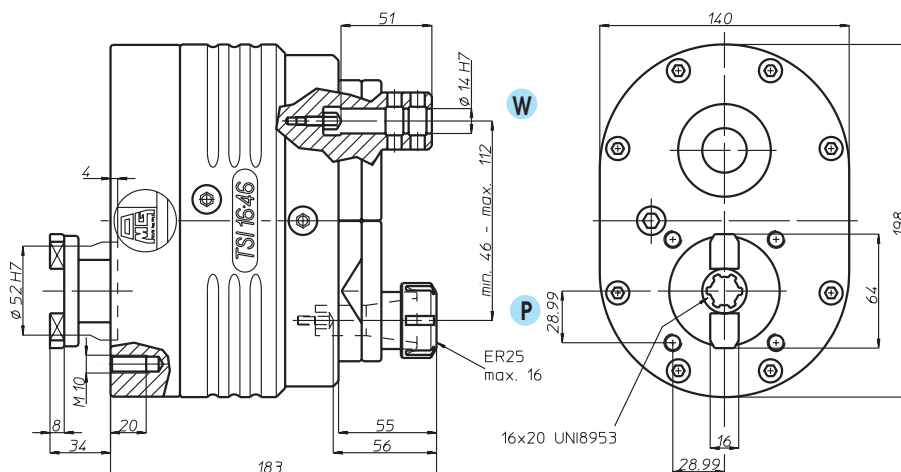
Le teste **TSI-TSX** progettate a due mandrini paralleli o convergenti sono adatte in lavorazioni di fresatura ed in particolare per la smussatura dei denti di ingranaggi. Durante lo studio di queste teste, la nostra attenzione si è concentrata sulla disposizione dei cuscinetti del mandrino, poichè nella smussatura si utilizzano anche utensili in metallo duro ed il tutto deve sopportare un elevato numero di urti. Ne è derivata una costruzione solida, compatta, affidabile e di aspetto gradevole. Varie sono le caratteristiche tecniche delle teste **TSI-TSX** e sintetizzandone alcune possiamo dire che: il corpo è 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 è a grasso. La loro realizzazione si è resa possibile in virtù dell'esperienza acquisita nella costruzione di teste multiple, dalla conoscenza dei processi produttivi e dalla capacità di saper proporre, per ogni particolare esigenza, prodotti qualificati.

*The **TSI** and **TSX** heads with 2 parallel or convergent spindles are suitable for milling and chamfering gear teeth. Special care has been taken with the position of the spindle bearing, because hard metal tools are also used for chamfering and the entire machine has to withstand many knocks and bumps. The result is a solid, compact, reliable unit that also has an appealing look. The **TSI** and **TSX** heads have many different features among which: an aluminium alloy body, cast iron spindle supports, simply and easily adjusted by the operator. The spindles may turn in the same direction or in opposite directions and the head is lubricated with grease. The production of these heads was made possible thanks to the experience acquired in the construction of multispindle heads, our knowledge of production processes and our ability to know how to cater for individual requirements with qualified products.*

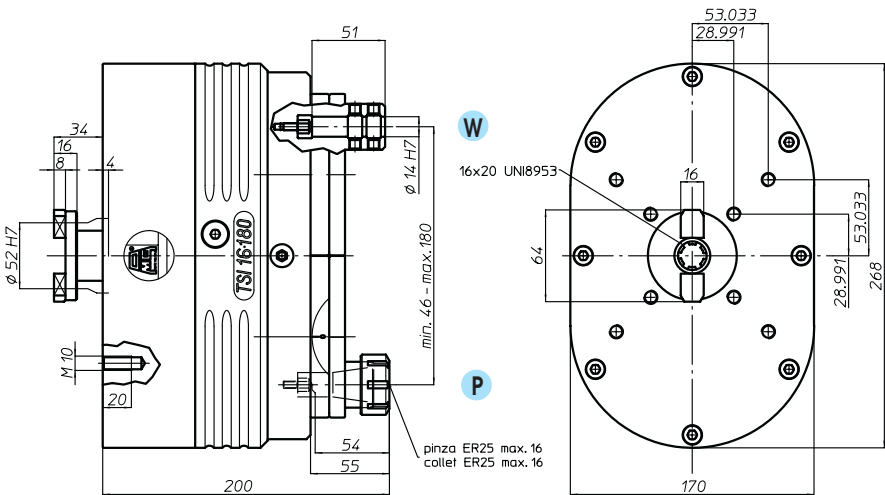
TSI 1646.....	5-2
TSI 1681.....	5-2
TSI 16180.....	5-3
TSI 16210.....	5-3
TSX 13C.....	5-4
TSX 13D.....	5-4
Esecuzioni speciali/ <i>Special executions</i>	5-5
Accessori/ <i>Accessories</i>	8-1



	TSI 16-81C-P TSI 16-81C-W	TSI 16-81D-P TSI 16-81D-W
rotazione mandrini <i>spindle rotation</i>		
rapporto <i>ratio</i>	1-2	1-2
giri max <i>rpm</i>	3.000	3.000
peso <i>weight</i>	13,5 kg	13,5 kg

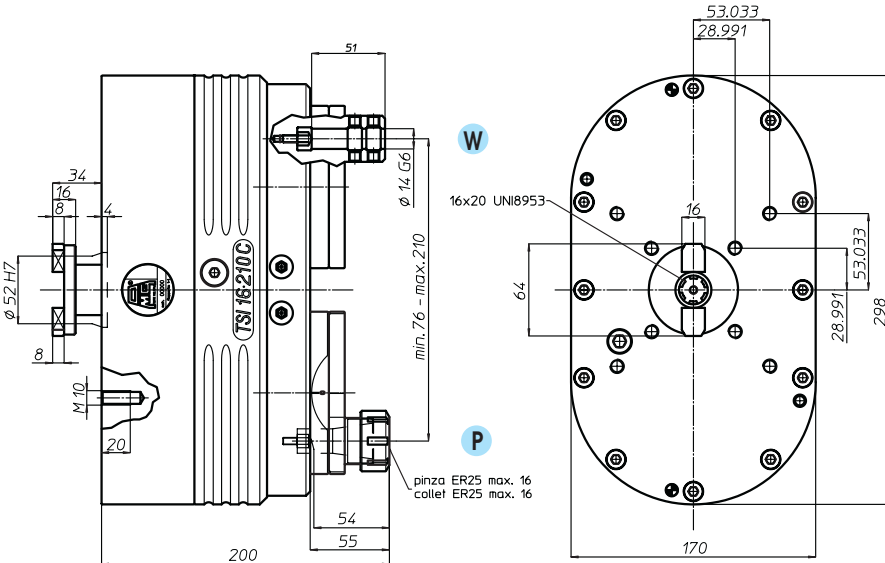


TSI 16180

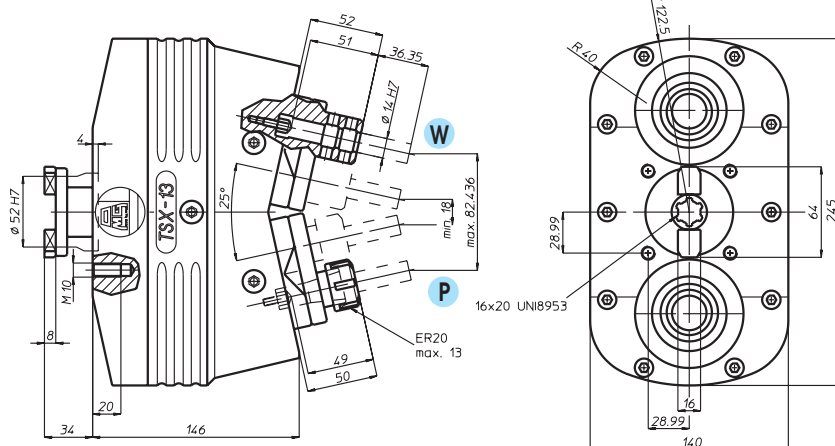


	TSI 16-180C-P TSI 16-180C-W	TSI 16-180D-P TSI 16-180D-W
rotazione mandrini spindle rotation		
rapporto ratio	1-1	1-1
giri max rpm	3.000	3.000
peso weight	22,5 kg	22,5 kg

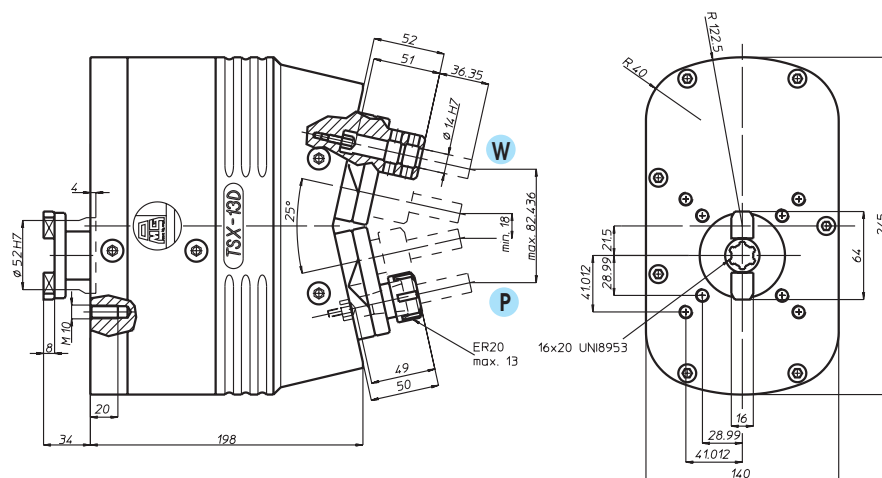
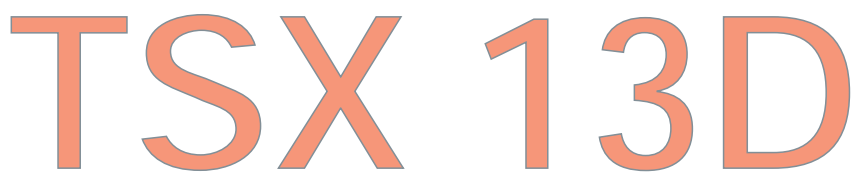
TSI 16210



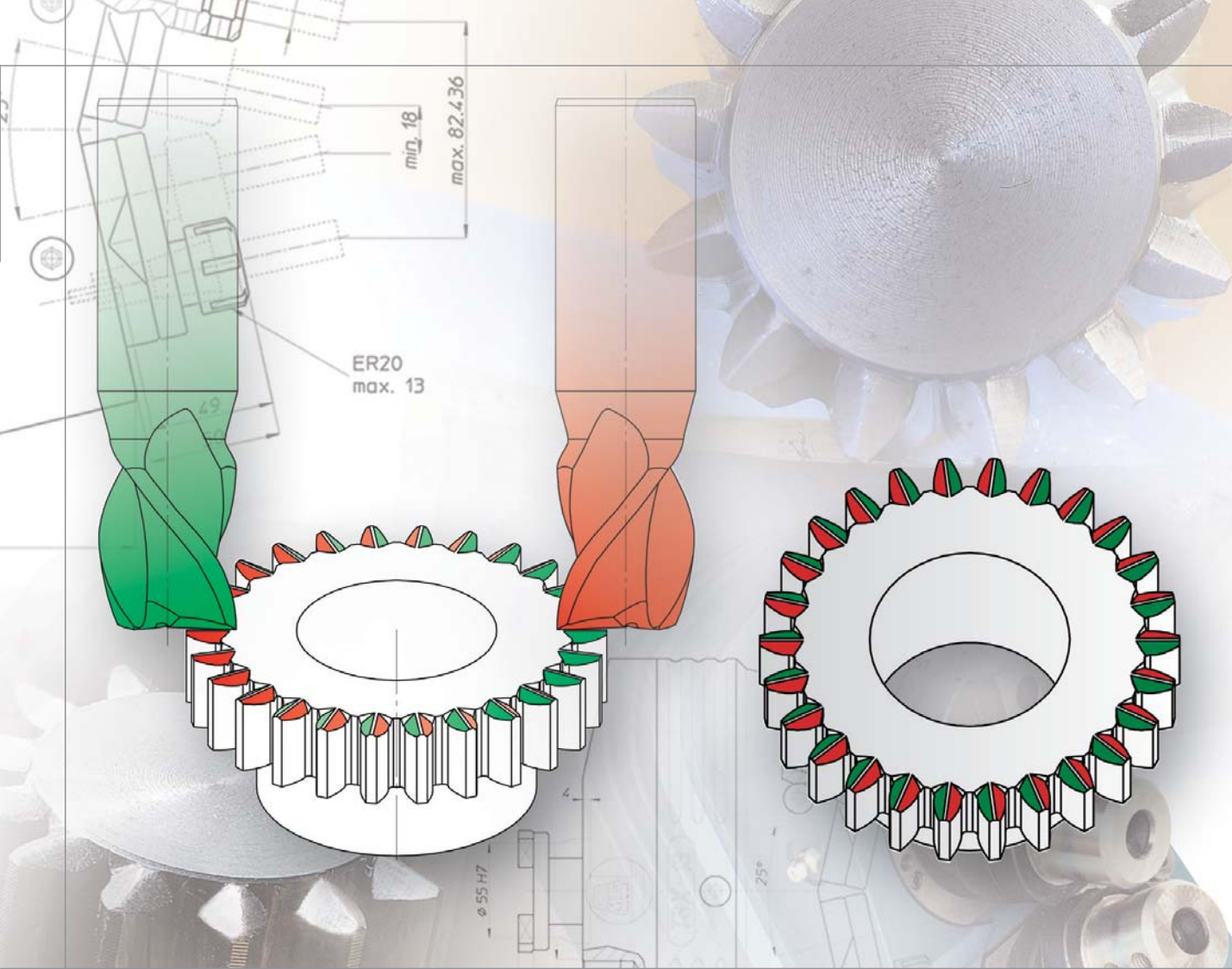
	TSI 16-210C-P TSI 16-210C-W	TSI 16-210D-P TSI 16-210D-W
rotazione mandrini spindle rotation		
rapporto ratio	1-1	1-1
giri max rpm	3.000	3.000
peso weight	22,5 kg	22,5 kg



15,5 kg



21 kg



esecuzioni speciali - *special executions*





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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Accessori/Accessories 8-1

TA

MO



T2

Codice testa
Head code

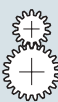
Codice mandrino
Spindle code

HT



N° prese di moto
Nr. spindle drives

08



Rapporto
Ratio

1-1

VH



Capacità di foratura
Drilling capacity

4



Maschiatura
Tapping

M4

TSI/TSX



Attacco utensile
Type of spindle

Pinza ER 8

T



Peso gruppo testa
Head weight

Kg 3,25

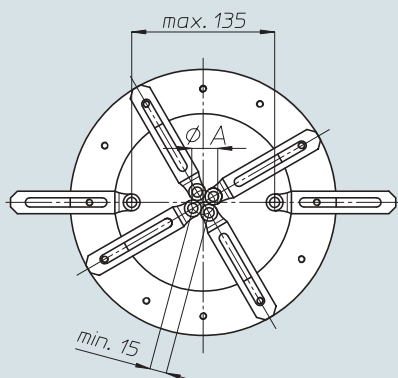


Peso gruppo mandrino
Spindle-set weight

Kg 0,3

MT-TC-TC3

area di lavoro
working area



Ø A

n° mandrini

15

2

17,5

3

21,5

4

26

5

30

6

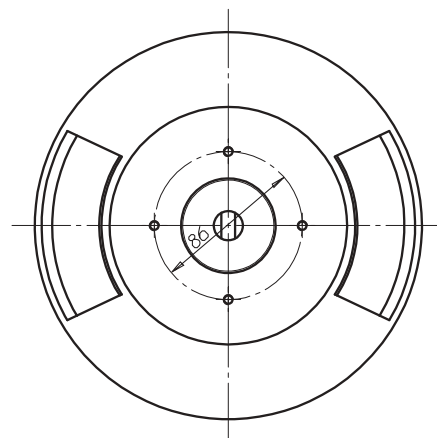
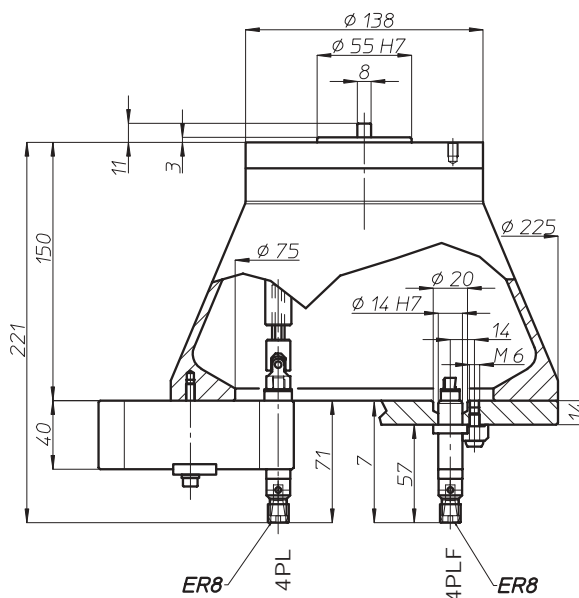
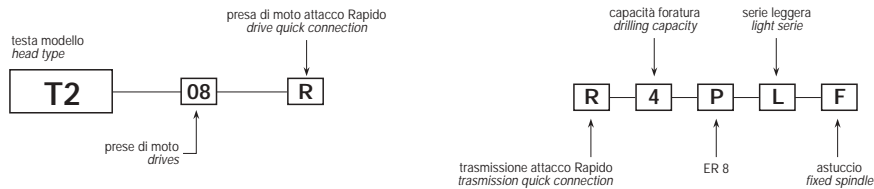
35

7

39,5

8

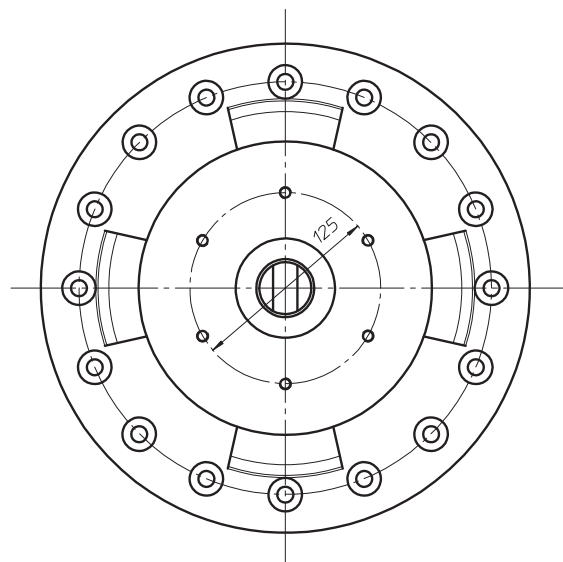
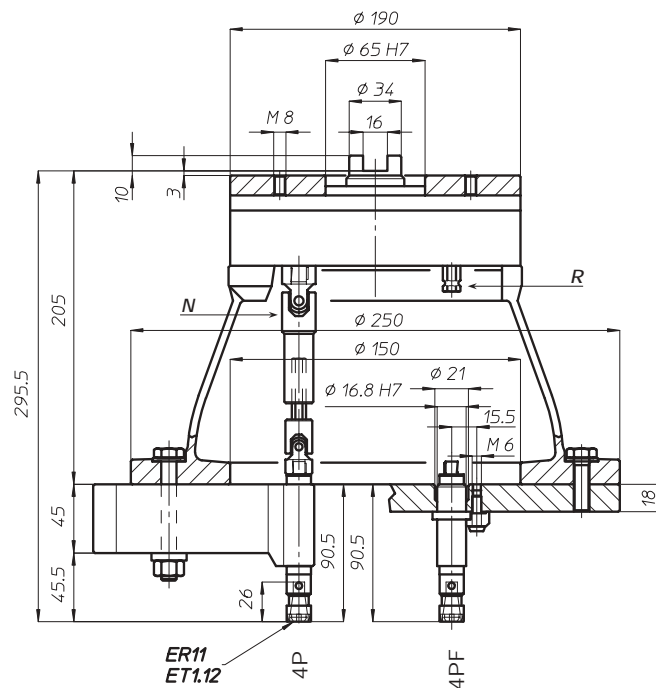
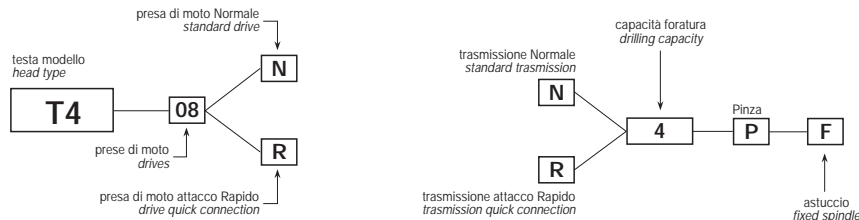
6-2



T4

Codice testa
Head code

Codice mandrino
Spindle code



N° prese di moto
Nr. spindle drives

08-12



Rapporto
Ratio

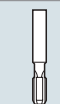
1-1



Capacità di foratura
Drilling capacity

acciaio R=500 N/mm²
ghisa: GG25

4
5



Maschiatura
Tapping

M4



Attacco utensile
Type of spindle

P

Pinza ER11



Peso gruppo testa
Head weight

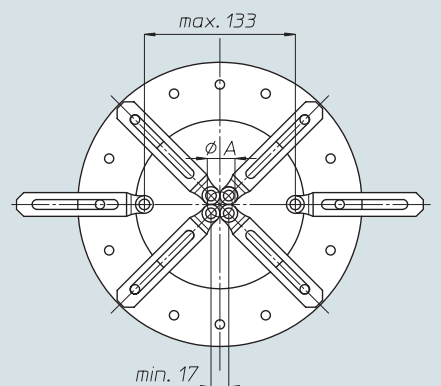
Kg 9,5



Peso gruppo mandrino
Spindle-set weight


Kg 1

area di lavoro
working area



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

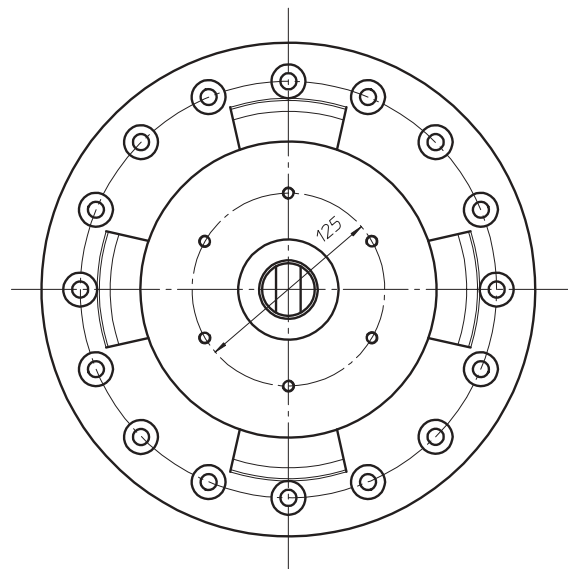
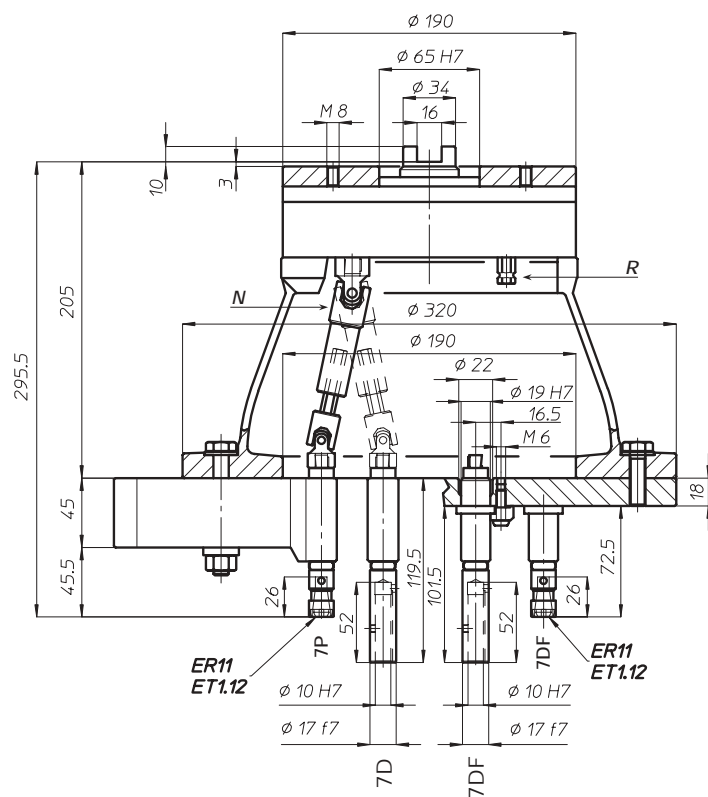
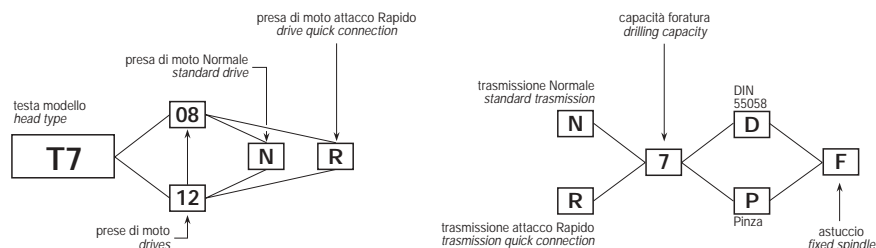
6-3

TA			MO
HT			
VH			
TSI/TSX			
T			
MT-TC-TC3			
Accessori Accessories			
Appendice tecnica Technical supplement			
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T7

Codice testa
Head code

Codice mandrino
Spindle code





6-5

TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3

Accessori
Accessories

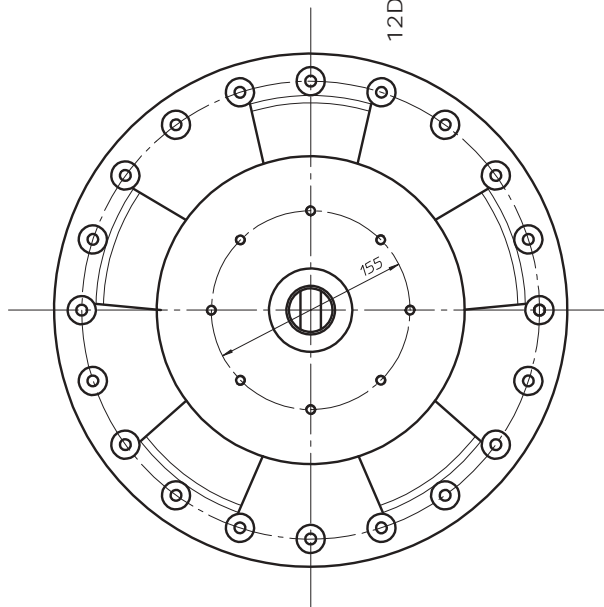
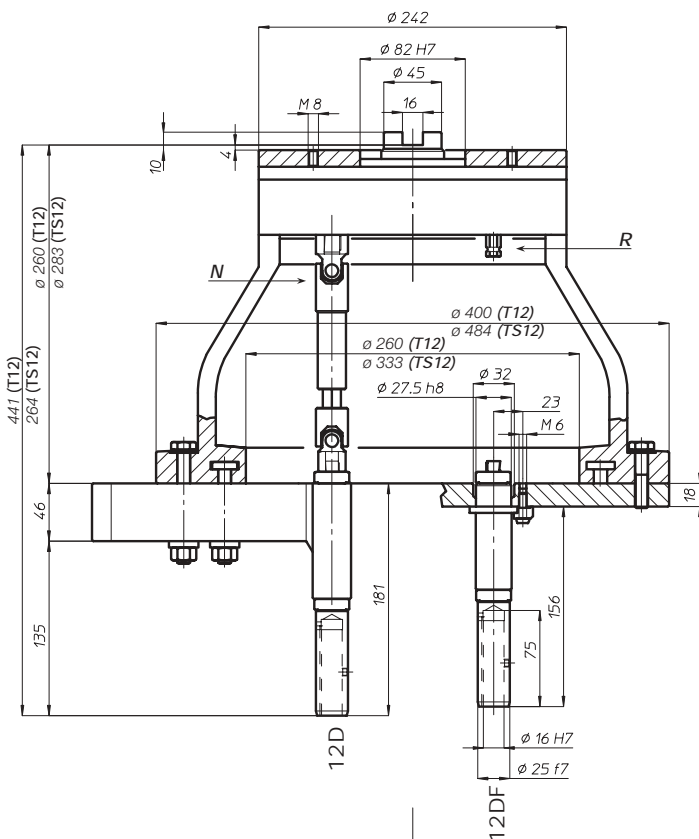
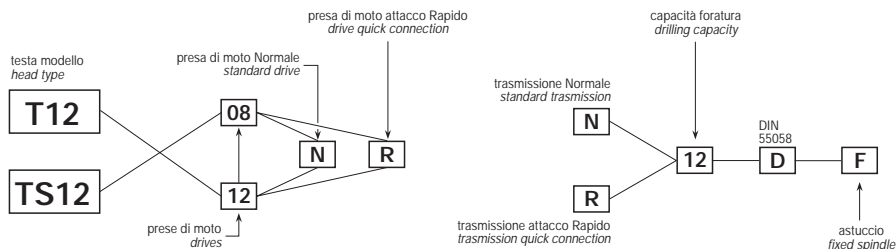
Appendice tecnica
Technical supplement



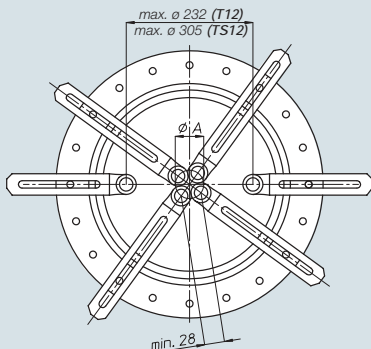
T12-TS12

Codice testa
Head code

Codice mandrino
Spindle code



area di lavoro
working area

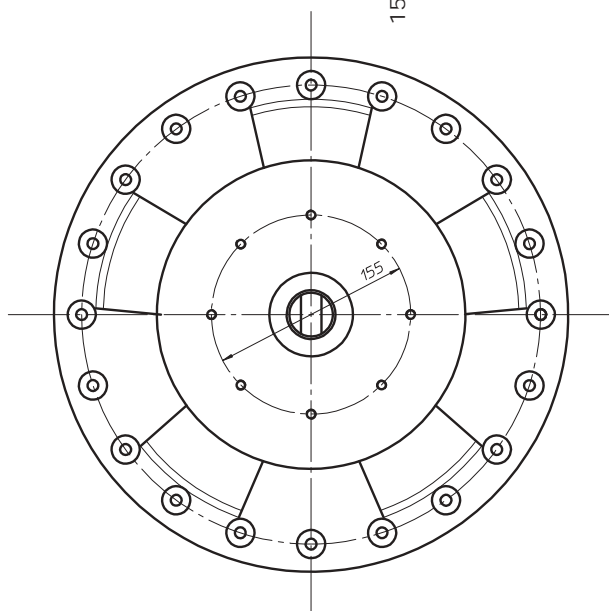
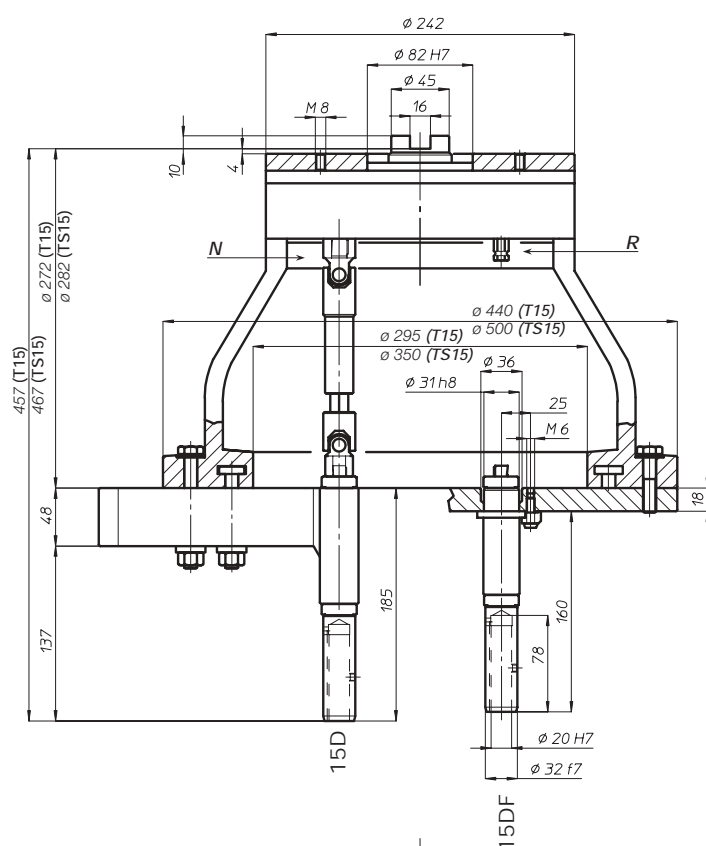
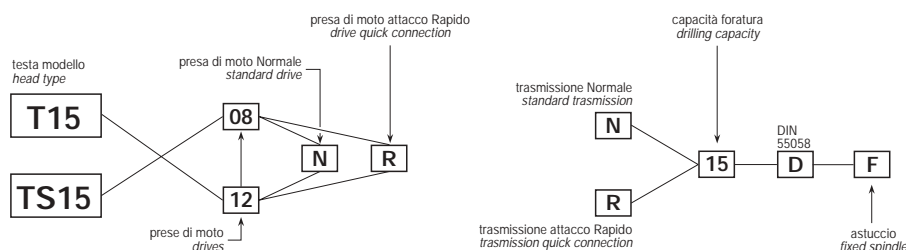


ϕA	n° mandrini
33	3
40	4
48	5
56,5	6
65	7
74	8
82,5	9
91	10
100	11
108,5	12

T15-TS15

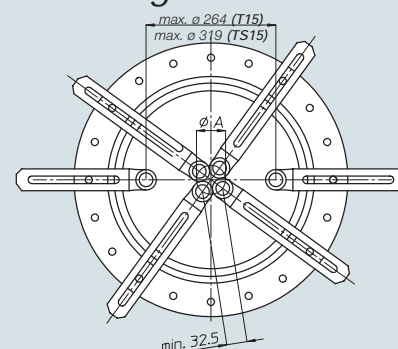
Codice testa
Head code

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/mm ² 13 ghisa: GG25 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
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

TA

MO

HT

VH

TSI/TSX

T

MT-TC-TC3

Accessori
Accessories

Appendice tecnica
Technical supplement



T18-TS18

Codice testa
Head code

Codice mandrino
Spindle code

testa modello
head type

T18

TS18

presa di moto Normale
standard drive

N

presa di moto
drives

R

presa di moto attacco Rapido
drive quick connection

trasmissione Normale
standard trasmission

N

R

trasmissione attacco Rapido
transmission quick connection

capacità foratura
drilling capacity

18

DIN
55058

D

F

astuccio
fixed spindle



N° prese di moto
Nr. spindle drives

08



Rapporto
Ratio

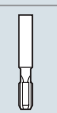
1-1



Capacità di foratura
Drilling capacity

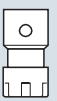
acciaio R=500 N/mm²
ghisa: GG25

16
18



Maschiatura
Tapping

M14



Attacco utensile
Type of spindle

D DIN 55058 Ø25



Peso gruppo testa
Head weight

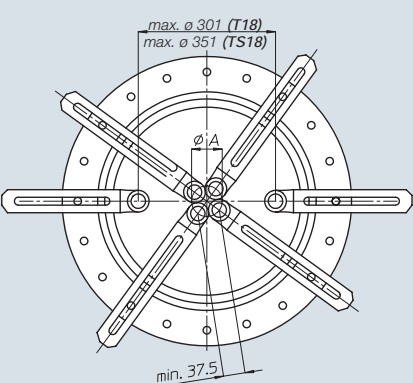
T18: Kg 25
TS18: Kg 26,5



Peso gruppo mandrino
Spindle-set weight

Kg 3,3

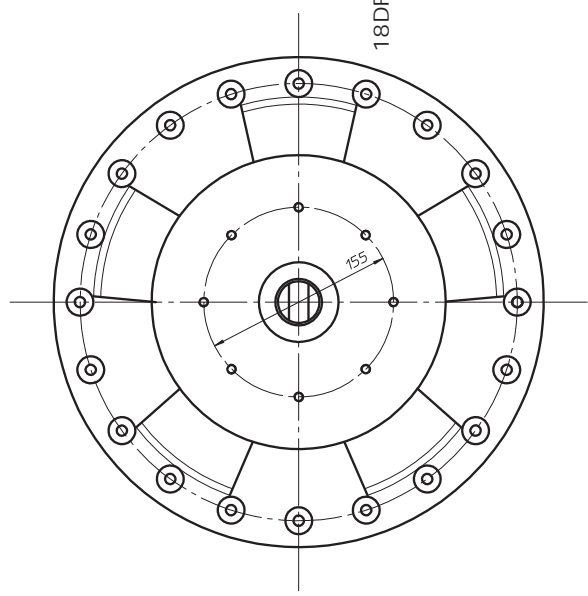
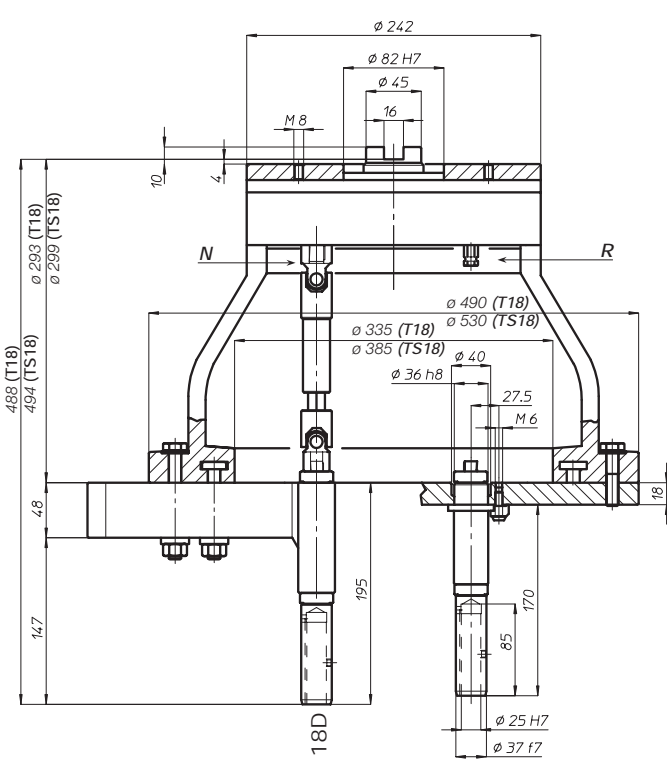
area di lavoro
working area



Ø A n° mandrini

44	3
53,5	4
64,5	5
75,5	6
87	7
98,5	8

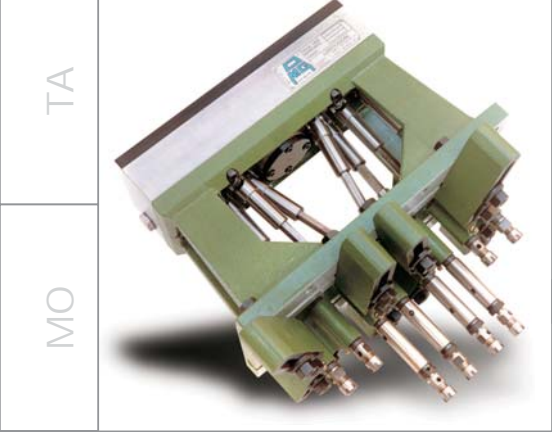
6-8





Kg 5,5

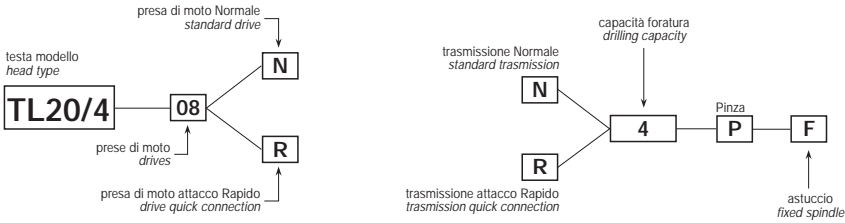
6-9








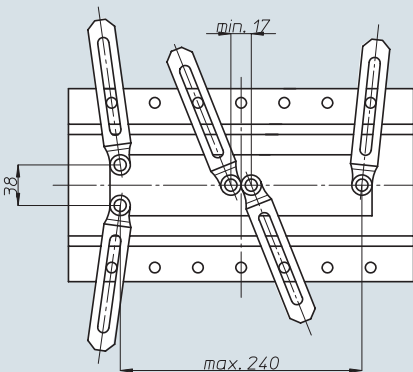


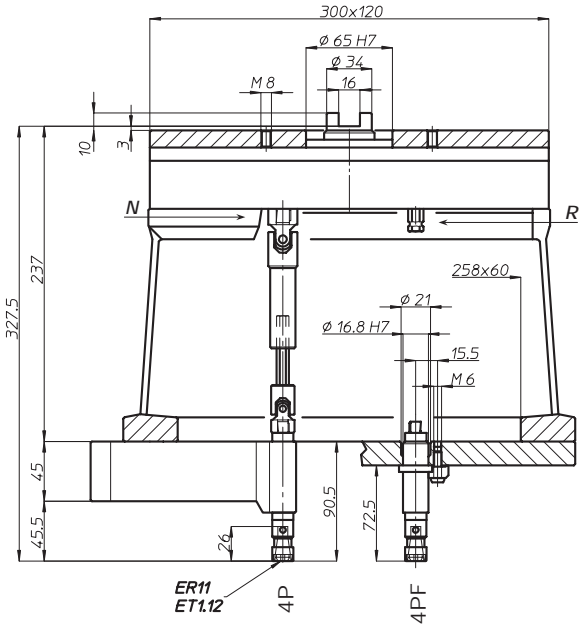
TL20/4

Codice testa
Head code

Codice mandrino
Spindle code



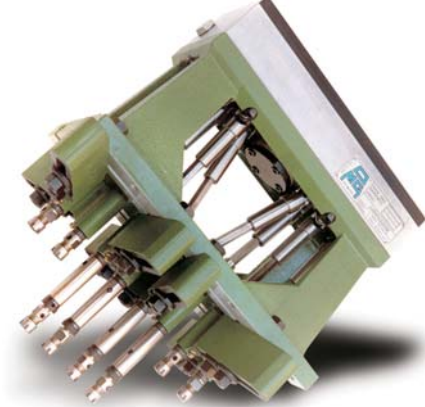
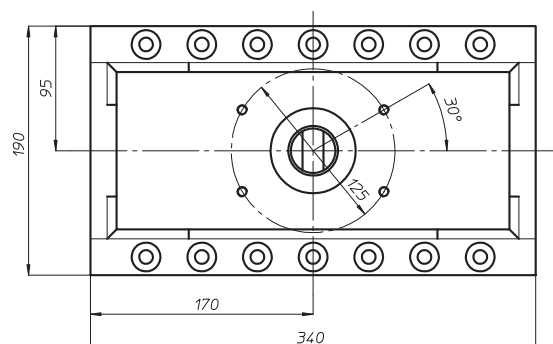
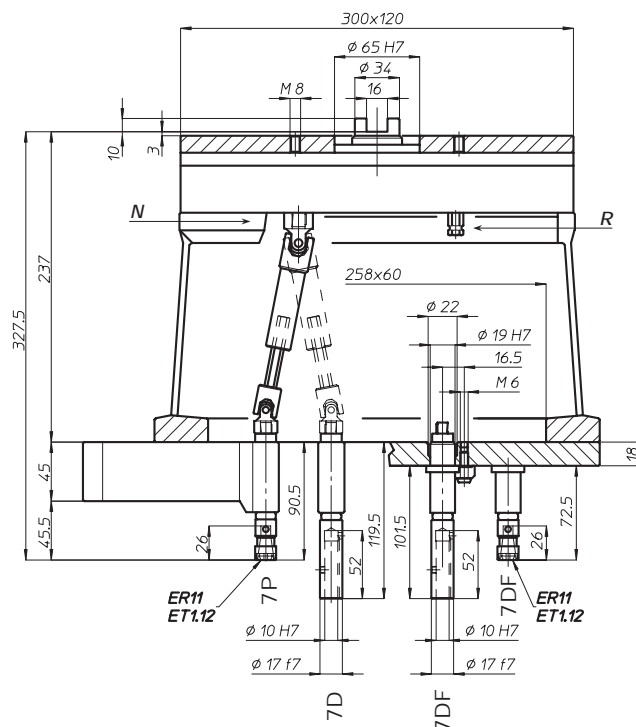
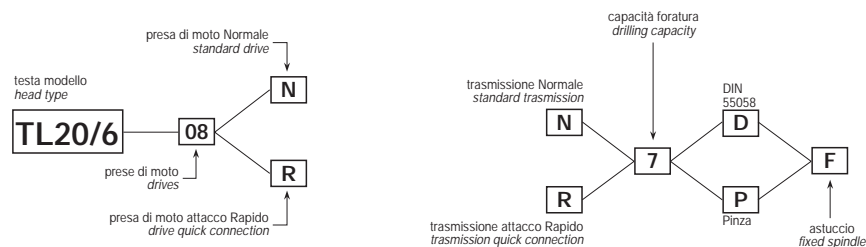
HT		N° prese di moto Nr. spindle drives	08
		Rapporto Ratio	1-1
VH		Capacità di foratura Drilling capacity	acciaio R=500 N/mm ² 4 ghisa: GG25 5
		Maschiatura Tapping	M4
TSI/TSX		Attacco utensile Type of spindle	P Pinza ER11
T		Peso gruppo testa Head weight	Kg 13,5
		Peso gruppo mandrino Spindle-set weight	Kg 1
MT-TC-TC3			
Accessori Accessories	area di lavoro working area		
Appendice tecnica Technical supplement			
	6-10		



TL20/6

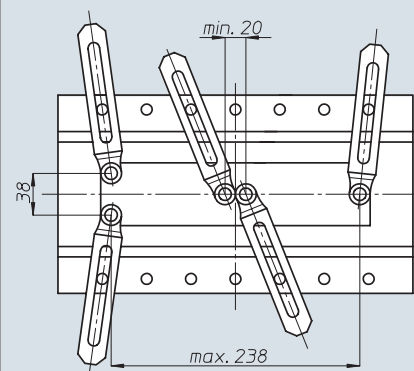
Codice testa
Head code

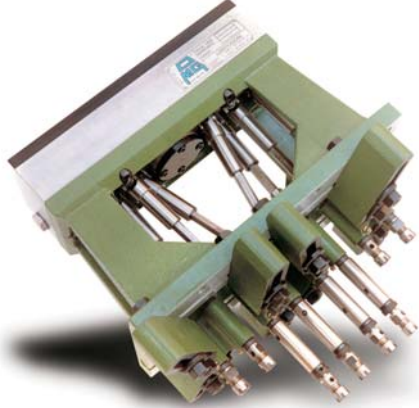







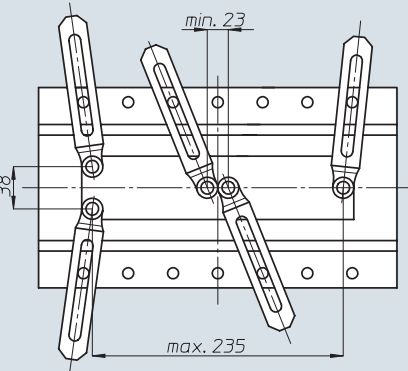
Codice mandrino
Spindle code



	N° prese di moto Nr. spindle drives	08
	Rapporto Ratio	1-1
	Capacità di foratura Drilling capacity	acciaio R=500 N/mm ² ghisa: GG25
	Maschiatura Tapping	M5
	Attacco utensile Type of spindle	D DIN 55058 Ø10 P Pinza ER11
	Peso gruppo testa Head weight	Kg 13,5
	Peso gruppo mandrino Spindle-set weight	Kg 1

area di lavoro
working area

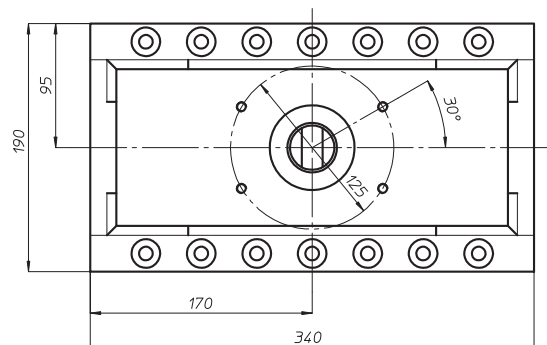
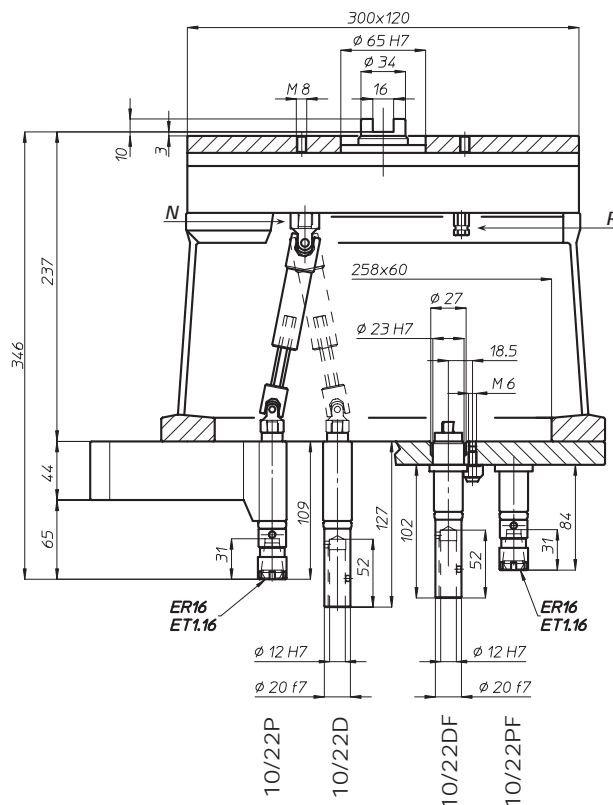
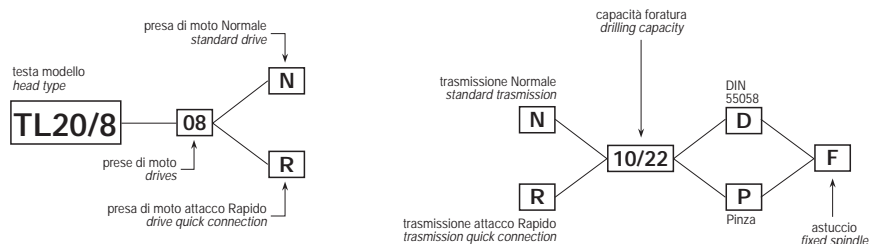


TA		
MO		
HT	<div>  <div> N° prese di moto Nr. spindle drives </div> <div>08</div> </div>	
VH	<div>  <div> Rapporto Ratio </div> <div>1-1</div> </div>	
TSI/TSX	<div>  <div> Capacità di foratura Drilling capacity </div> <div> acciaio R=500 N/mm² ghisa: GG25 </div> <div> 8 10 </div> </div>	
T	<div>  <div> Maschiatura Tapping </div> <div>M6</div> </div>	
MT-TC-TC3	<div>  <div> Attacco utensile Type of spindle </div> <div> D DIN 55058 Ø12 P Pinza ER16 </div> </div>	
Accessori	<div>  <div> Peso gruppo testa Head weight </div> <div>Kg 13,5</div> </div>	
Appendice tecnica	<div>  <div> Peso gruppo mandrino Spindle-set weight </div> <div>Kg 1,5</div> </div>	
6-12	<div> <div>area di lavoro working area</div>  </div>	

TL20/8

Codice testa
Head code

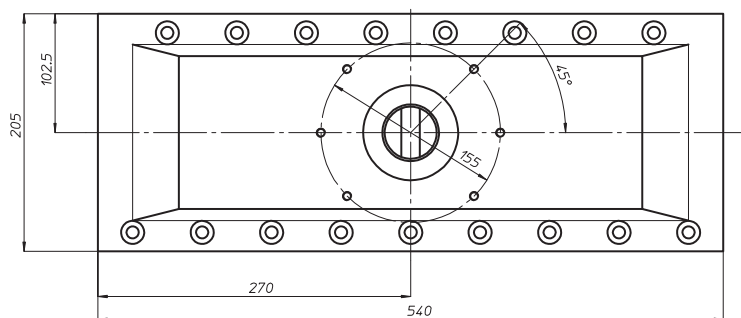
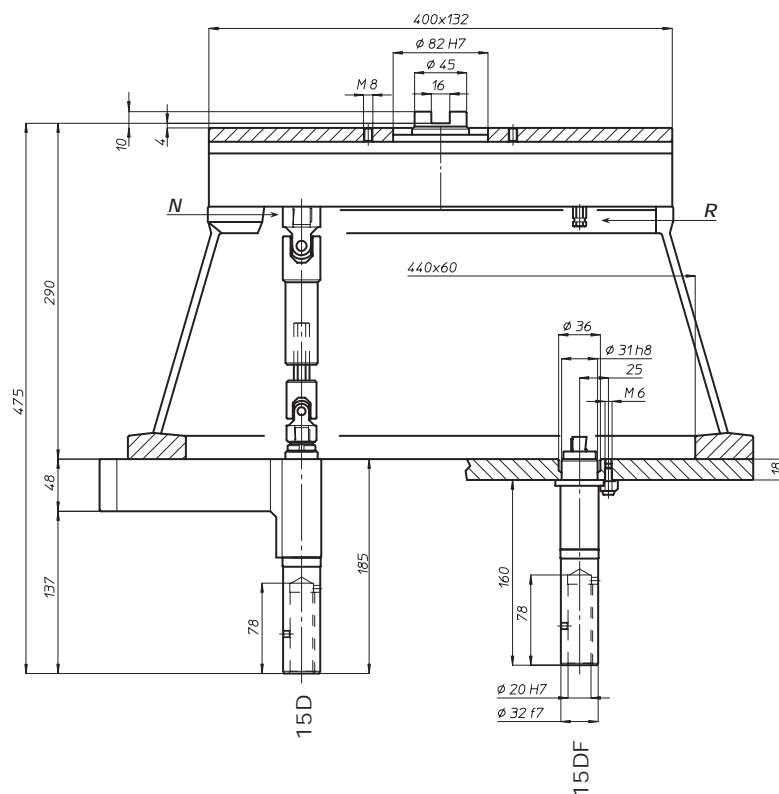
Codice mandrino
Spindle code



TL40/12

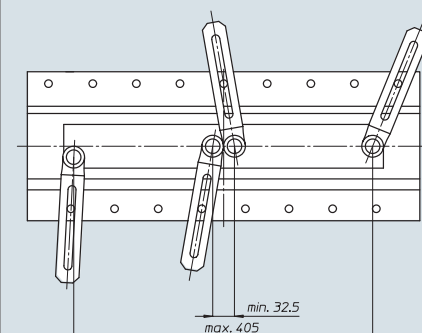
Codice testa
Head code

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/mm ² 13 ghisa: GG25 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

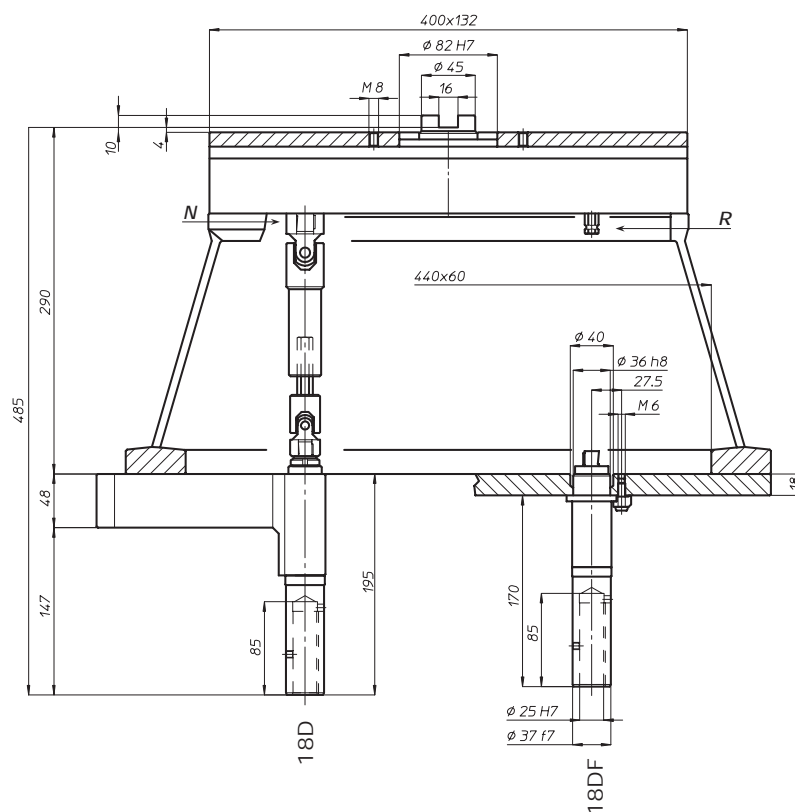
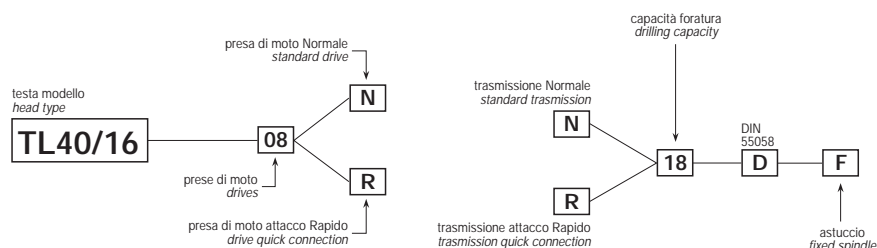
area di lavoro
working area



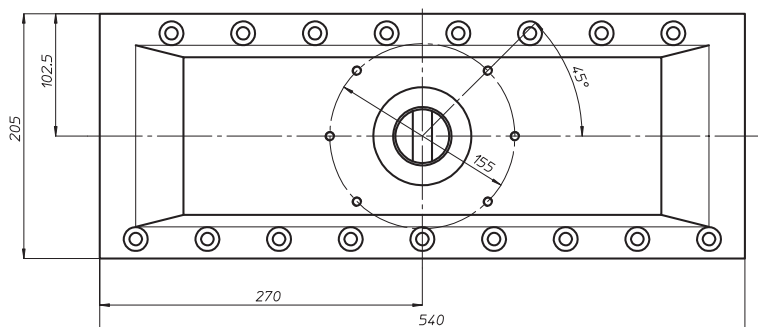
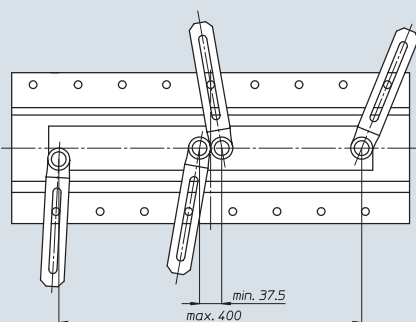
TL40/16

Codice testa
Head code

Codice mandrino
Spindle code











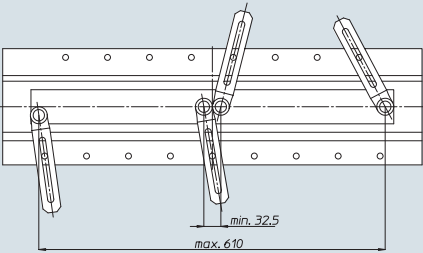
area di lavoro
working area





Kg 5

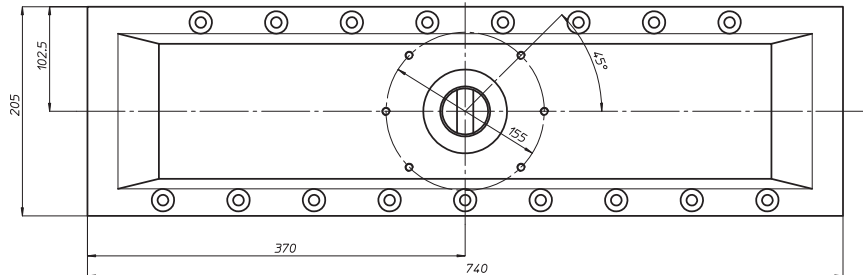
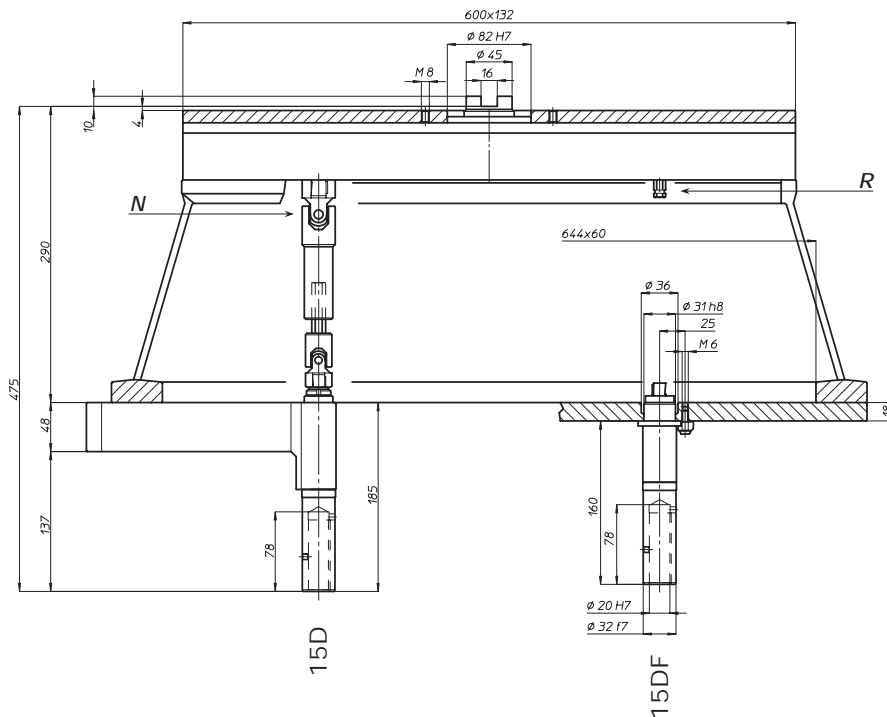
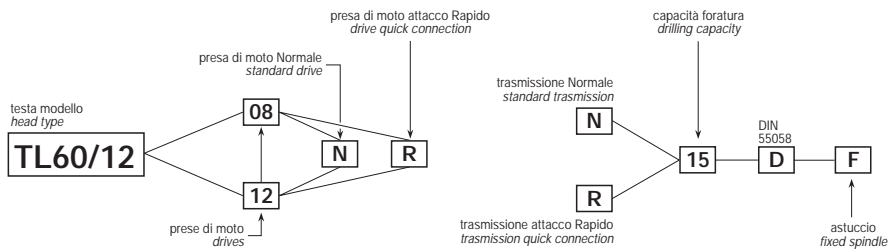
6-15

TA		
MO		
HT	<div>  <div> N° prese di moto Nr. spindle drives </div> <div>08-12</div> </div>	
VH	<div>  <div> Rapporto Ratio </div> <div>1-1</div> </div>	
TSI/TSX	<div>  <div> Capacità di foratura Drilling capacity </div> <div> acciaio R=500 N/mm² ghisa: GG25 </div> <div>13 15</div> </div>	
T	<div>  <div> Maschiatura Tapping </div> <div>M12</div> </div>	
MT-TC-TC3	<div>  <div> Attacco utensile Type of spindle </div> <div>D DIN 55058 Ø20</div> </div>	
Accessori	<div>  <div> Peso gruppo testa Head weight </div> <div>Kg 34,5</div> </div>	
Appendice tecnica	<div>  <div> Peso gruppo mandrino Spindle-set weight </div> <div>Kg 2,5</div> </div>	
6-16	<div> <div>area di lavoro working area</div>  </div>	

TL60/12

Codice testa
Head code

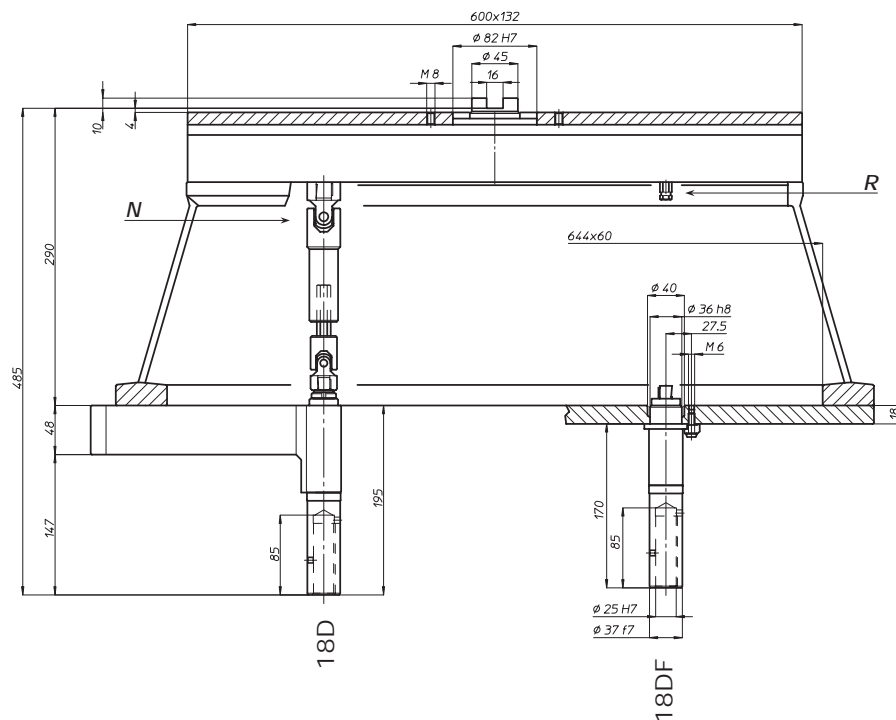
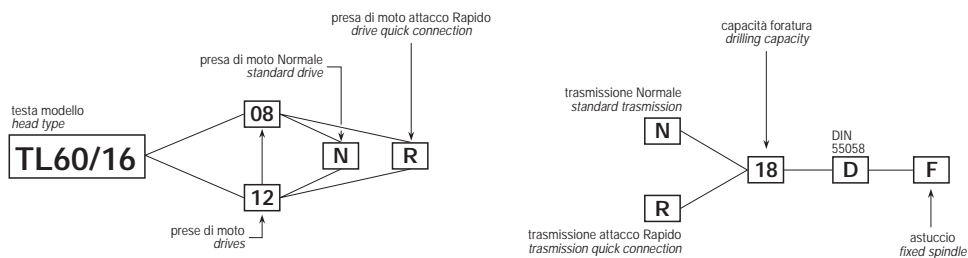
Codice mandrino
Spindle code



TL60/16

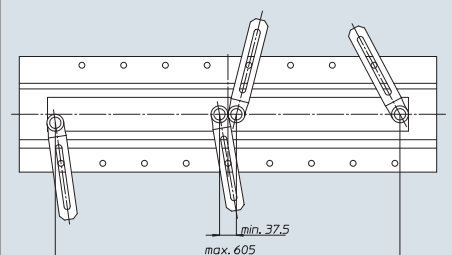
Codice testa
Head code

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/mm ² 16 ghisa: GG25 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

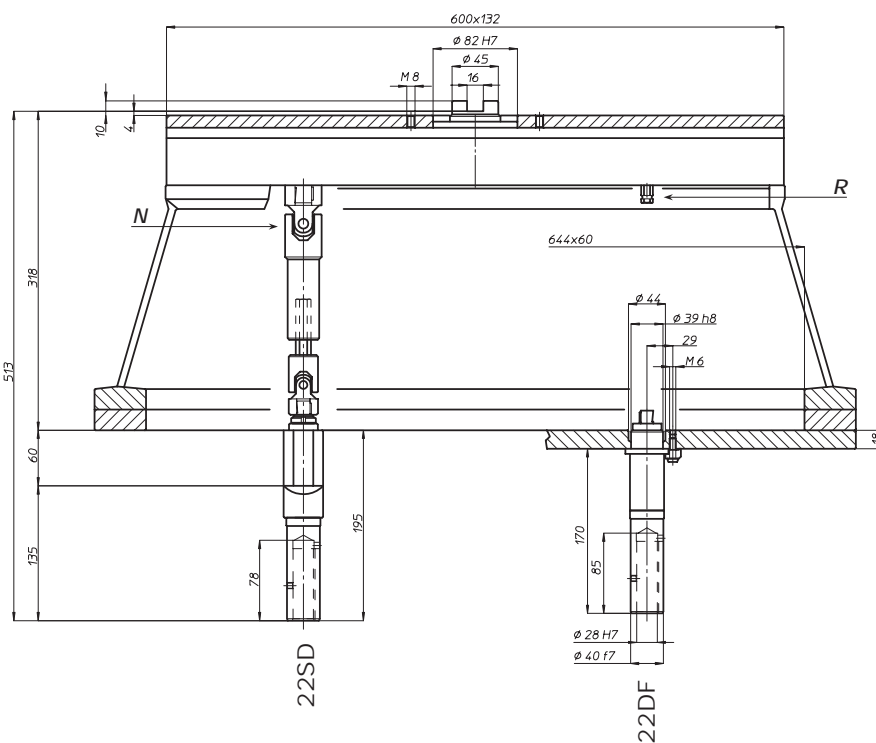
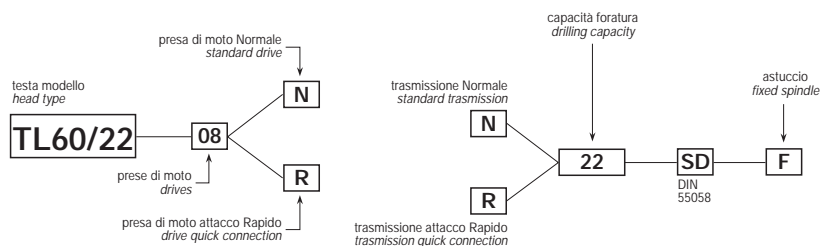
area di lavoro
working area



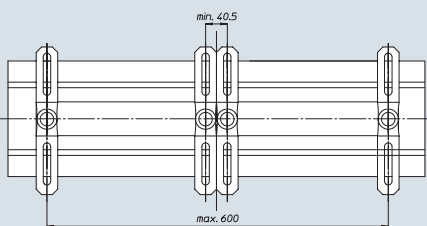
TL60/22

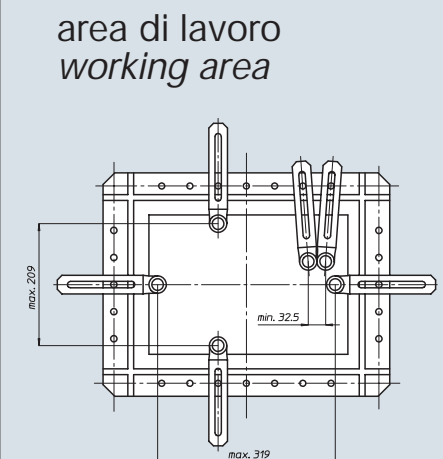
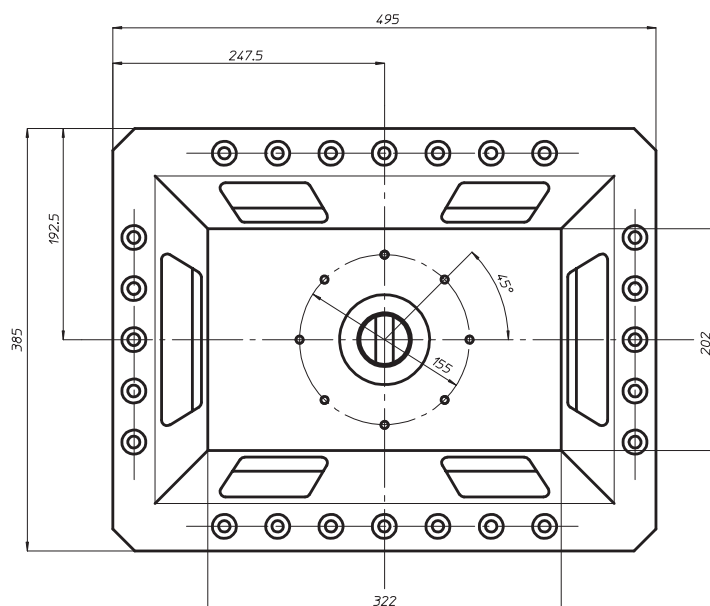
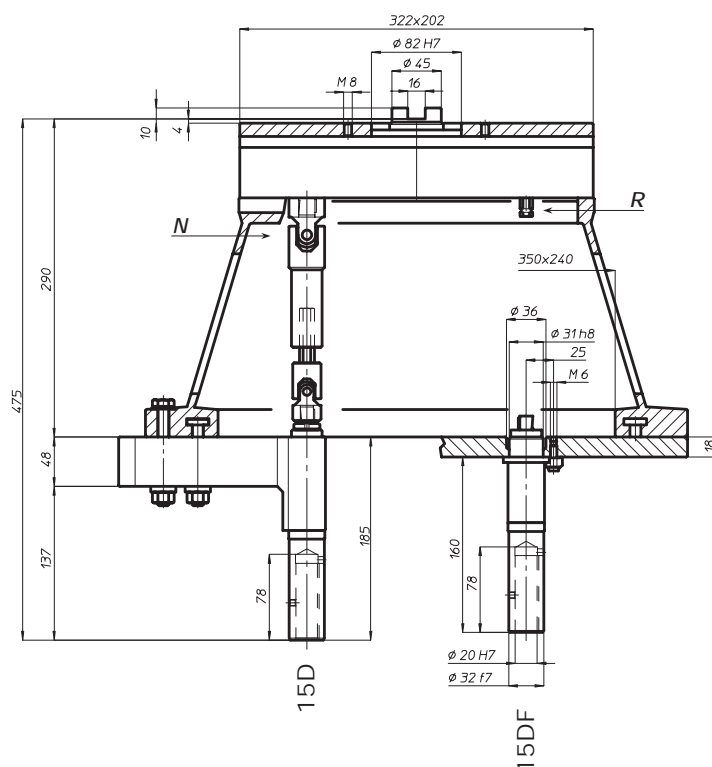
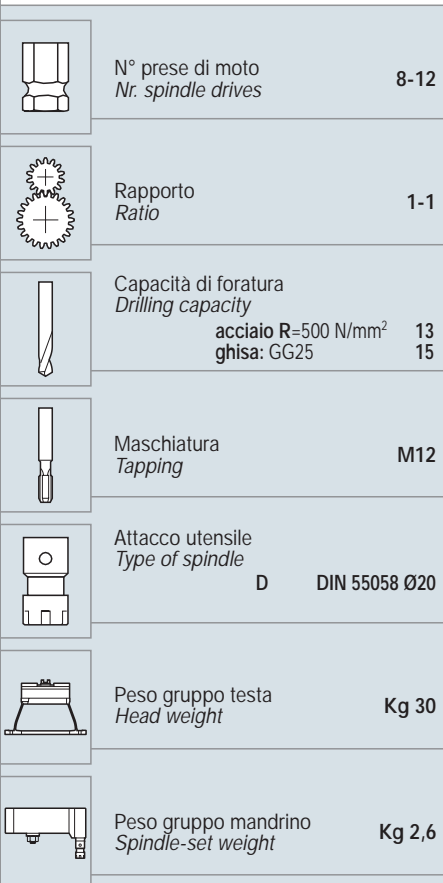
Codice testa
Head code

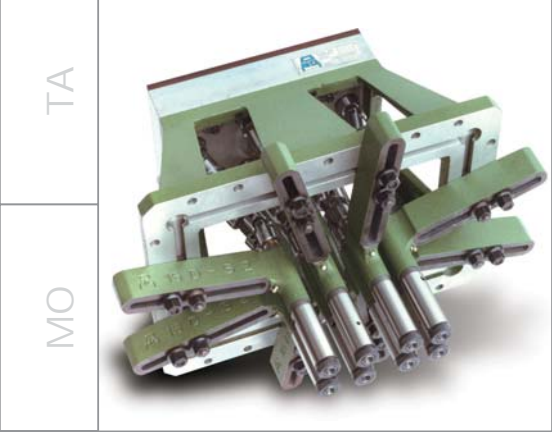
Codice mandrino
Spindle code



area di lavoro
working area



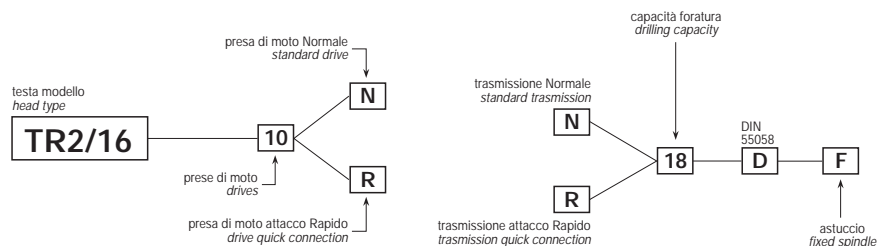











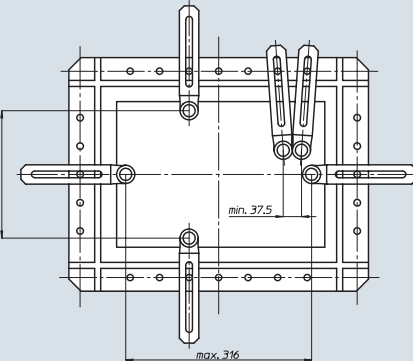
TR2/16

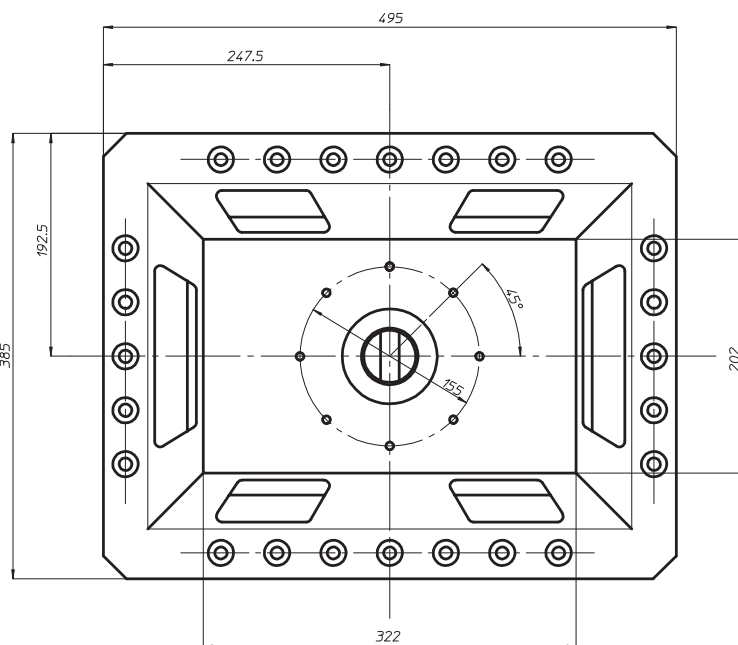
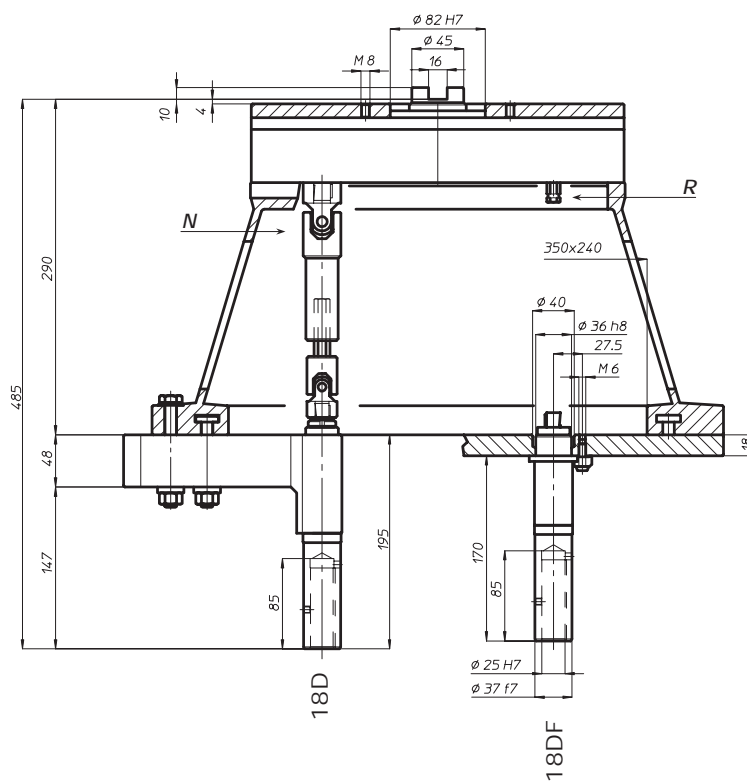
Codice testa
Head code

Codice mandrino
Spindle code



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

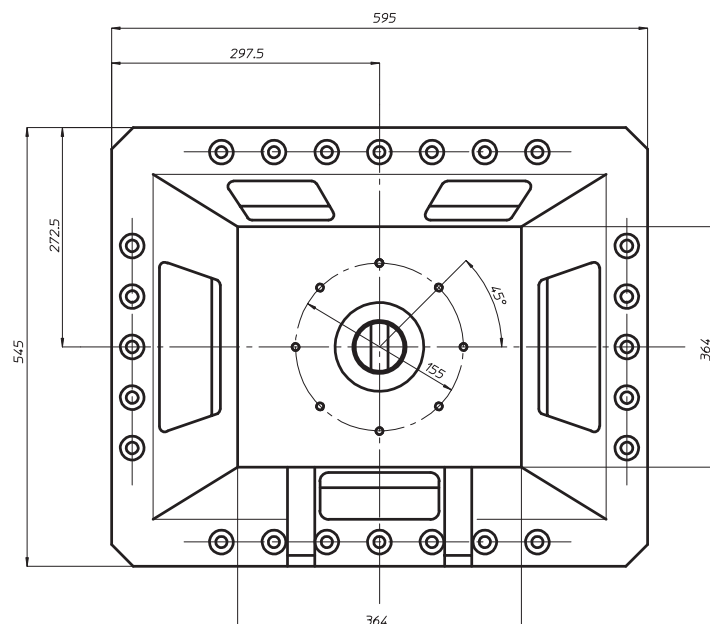
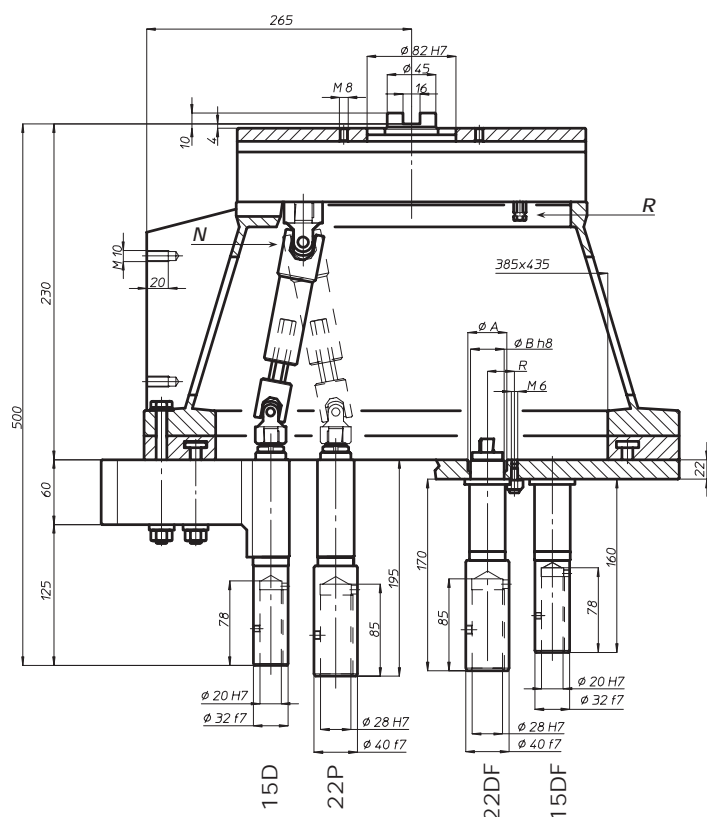
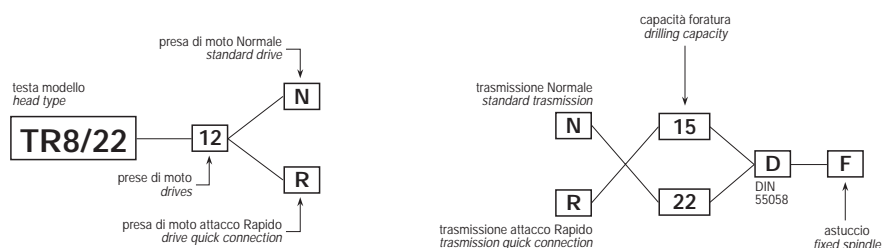
MT-TC-TC3	
Accessori Accessories	area di lavoro working area
Appendice tecnica Technical supplement	
	6-20





Kg 2,6

6-21

Codice mandrino
Spindle code

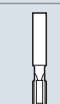
12



1-1.5



15D: 13 22D: 20
15D: 15 22D: 22



15D: M12
22D: M16



D DIN 55058 Ø20-Ø28

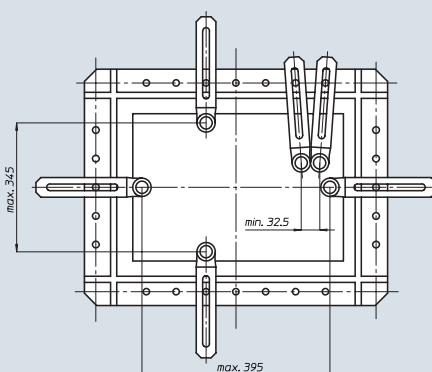


Kq 86



15D: Kg 4
22D: Kq 5,5

area di lavoro
working area



TM400



Codice testa
Head code

testa modello
head type

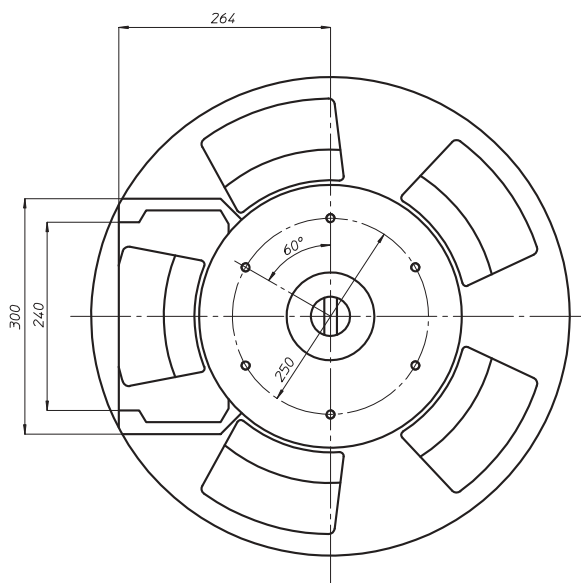
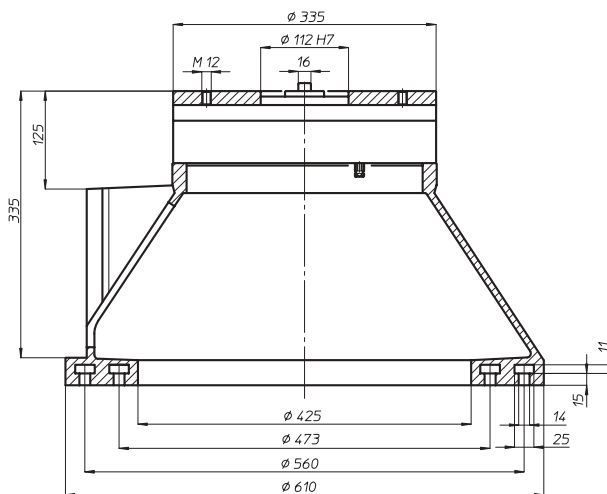
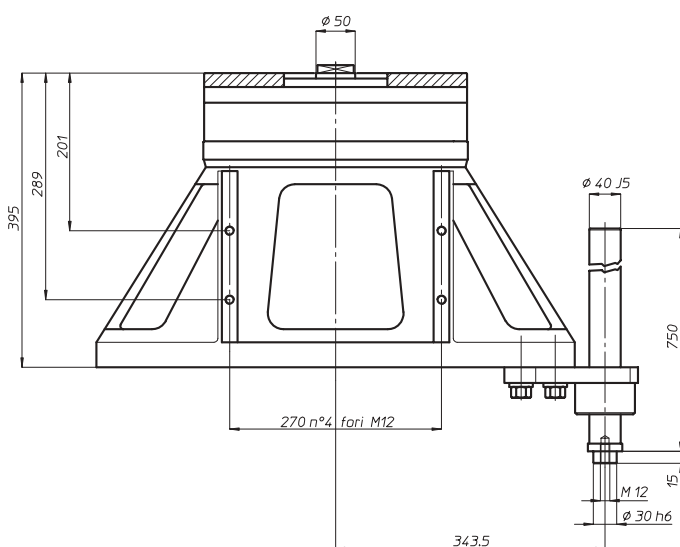
TM400

12

R

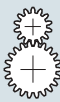
prese di moto
drives

presa di moto attacco Rapido
drive quick connection



N° prese di moto
Nr. spindle drives

12



Rapporto
Ratio

1-1



Peso
Weight

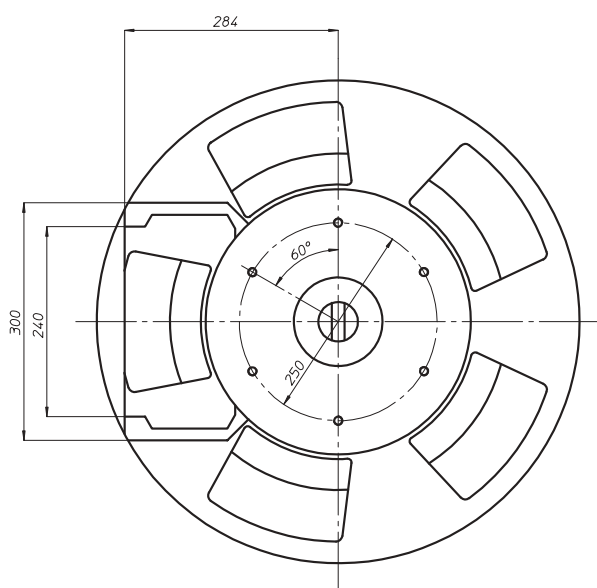
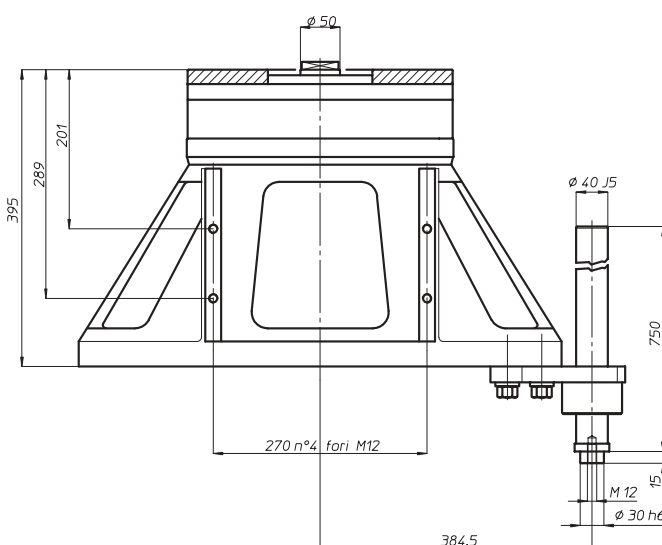
Kg 105

area di lavoro
working area

Ø 385



Technical drawing of a mechanical assembly, likely a lamp or light fixture, showing a cross-section and side view. The drawing includes dimensions for diameters (ø 452, ø 112 H7, ø 505, ø 553, ø 640, ø 690), heights (125, 355, 14, 15, 25), and a thread specification (M 12). The assembly consists of a base, a central column, and a top housing with a lens.

Appendice tecnica
Technical supplement

TRM43

Codice testa
Head code

testa modello
head type

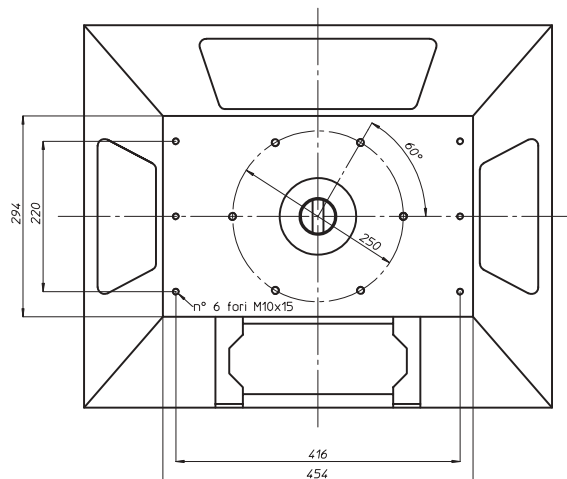
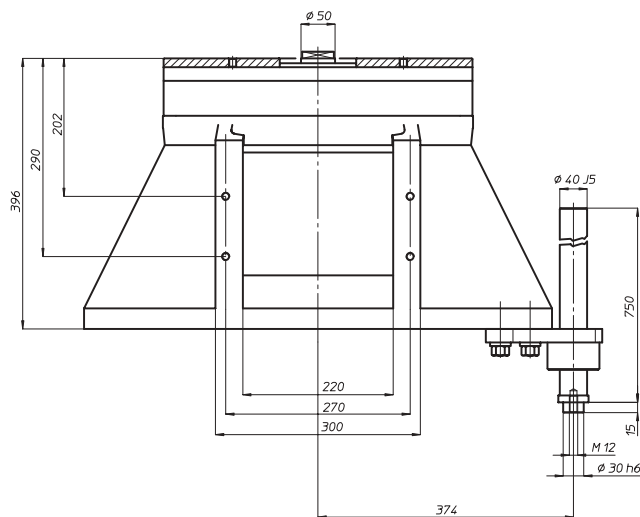
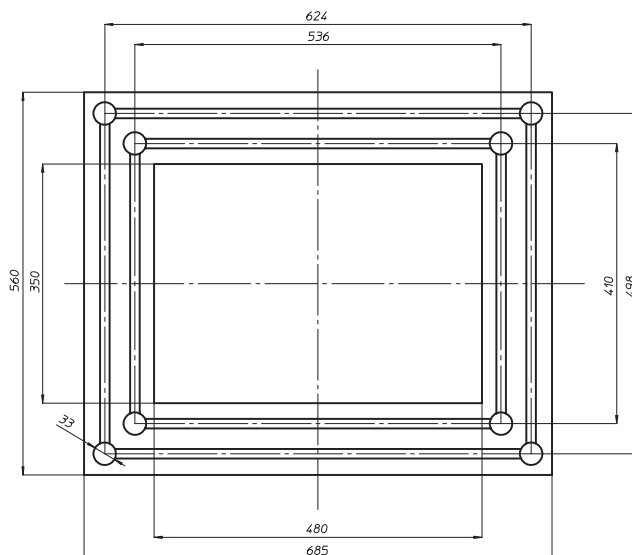
TRM43

16

R

prese di moto
drives

presa di moto attacco Rapido
drive quick connection



N° prese di moto
Nr. spindle drives

16



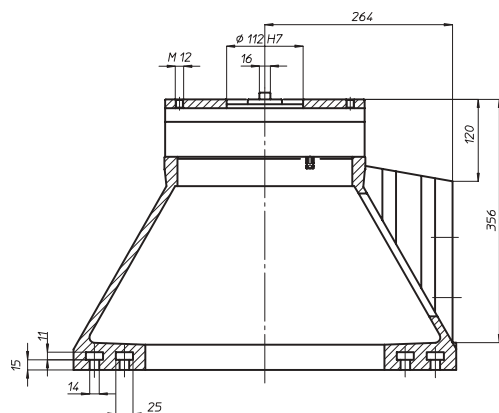
Rapporto
Ratio

1-1



Peso
Weight

Kg 135



area di lavoro
working area
300 x 440

TRM73

26

R

presa di moto attacco Rapido
drive quick connection

MO

五

HV

TSI/TSX

T

MT-TC-TC3

Appendice tecnica
Technical supplement

Technical drawing of a rectangular frame with dimensions. The overall width is 884 and the overall height is 560. The inner frame has a width of 796 and a height of 498. The frame is composed of multiple parallel lines, with a central white rectangular area. A dimension of 33 is indicated for the thickness of the frame material.

Technical drawing showing a cross-section of a mechanical assembly. The main view is a cross-section of a housing with a central opening. The housing has a total height of 396 and a central opening height of 202. The housing is supported by a base with a width of 300. The central opening has a width of 220. The housing is secured with a bolt of size M 12. A detail view on the right shows a mounting bracket with a hole of size $\phi 40$ and a hole of size $\phi 30$ h6. The bracket is secured with a bolt of size M 12. The bracket has a total height of 750 and a base width of 15. The drawing is labeled with dimensions and part numbers.



26

1-1

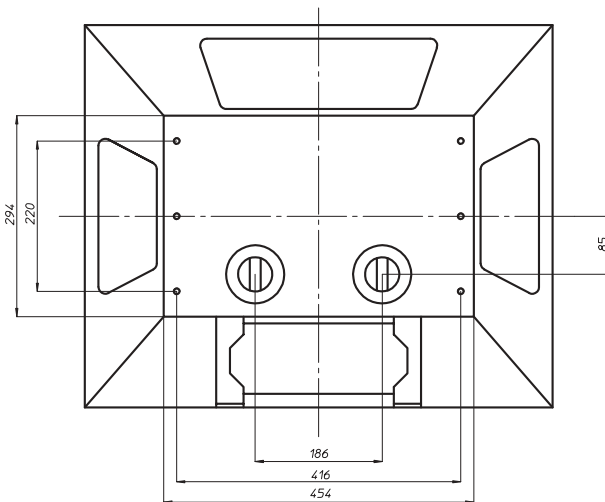
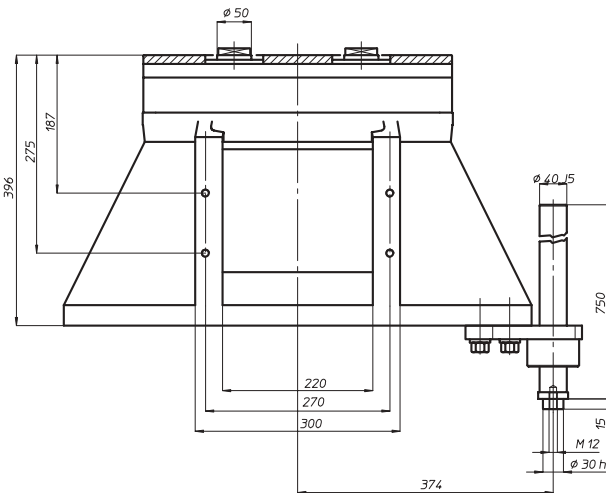
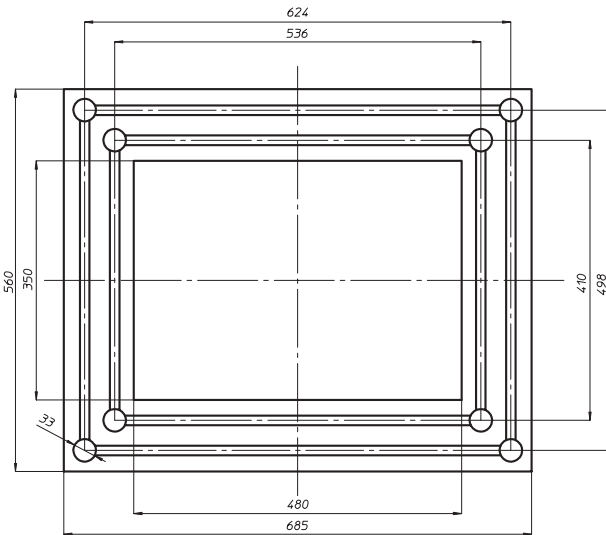
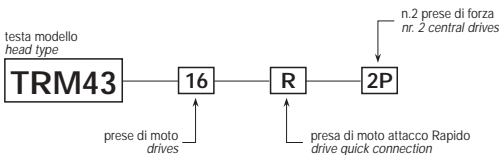


Kg 210

300 x 700

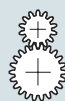
TRM43-2P

Codice testa
Head code



N° prese di moto
Nr. spindle drives

8+8



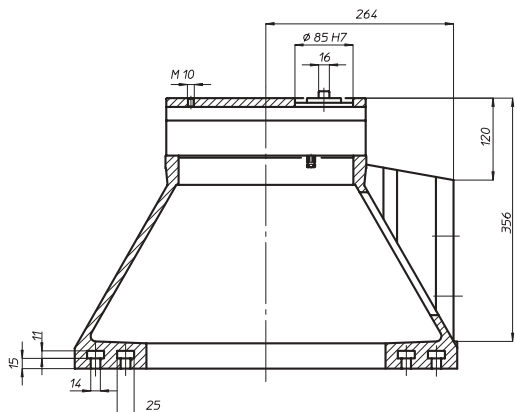
Rapporto
Ratio

1-1



Peso
Weight

Kg 140

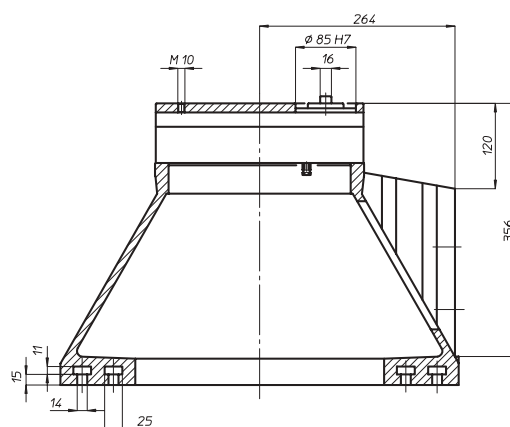
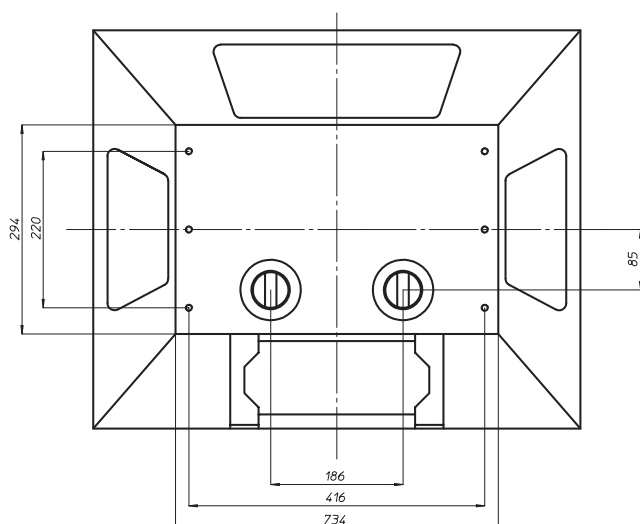
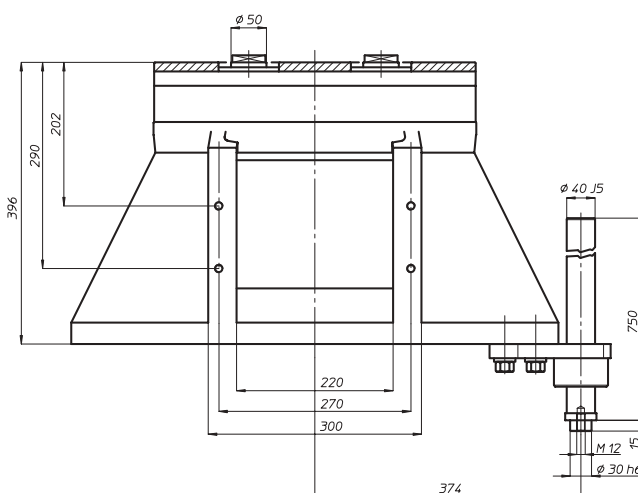
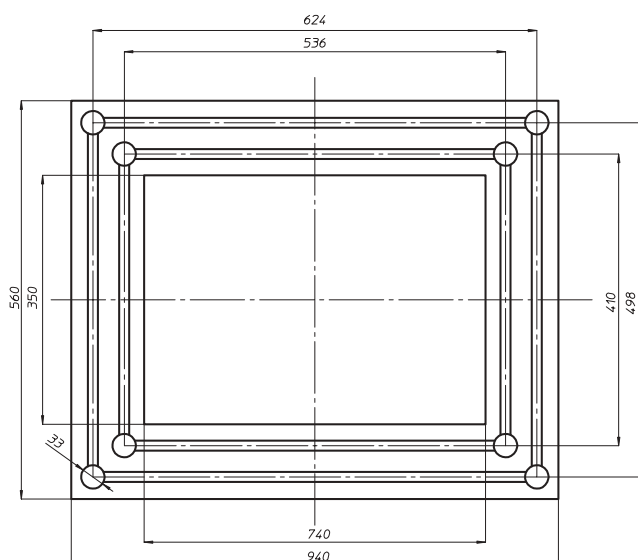


area di lavoro
working area
300 x 440



```

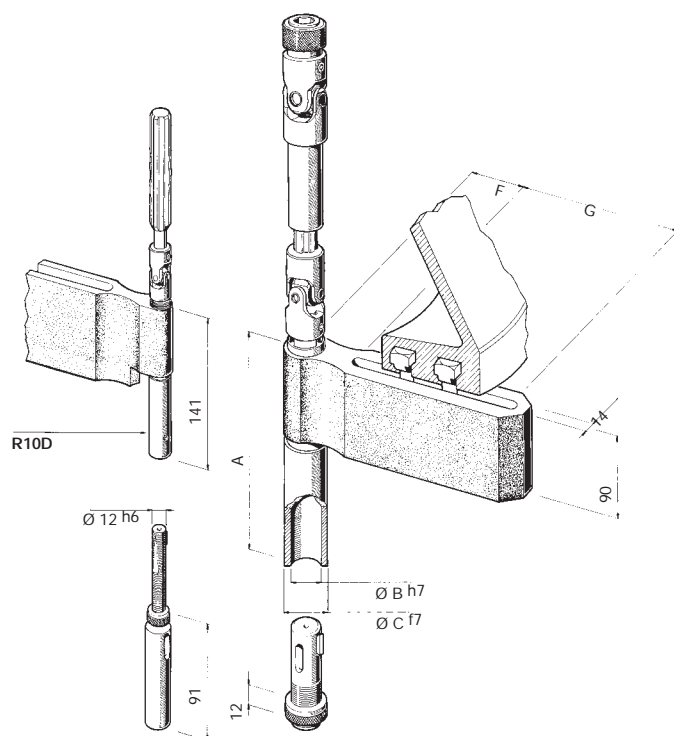
graph LR
    TRM73[TRM73] --- 26[26]
    26 --- R[R]
    R --- 2P[2P]
    26 -- "prese di moto drives" --> 26
    R -- "presa di moto attacco Rapido drive quick connection" --> R
    2P -- "n.2 prese di forza nr. 2 central drives" --> 2P
  
```



area di lavoro
working area
300 x 700

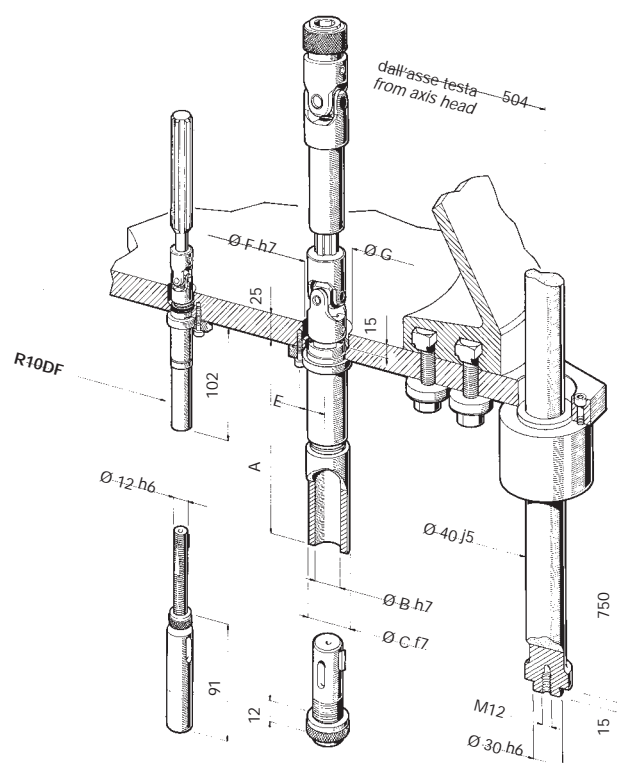
solo per teste TM-TRM for TM-TRM heads only

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 acciaio R=500 N/mm	8	10	13	16	20	22
ghisa: GG25	10	12	15	18	22	25
Capacità maschiatura tapping	M6	M8	M12	M14	M16	M18
A	127	181	185	194	195	232
Ø B h7	12	16	20	25	28	32
Ø C 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 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

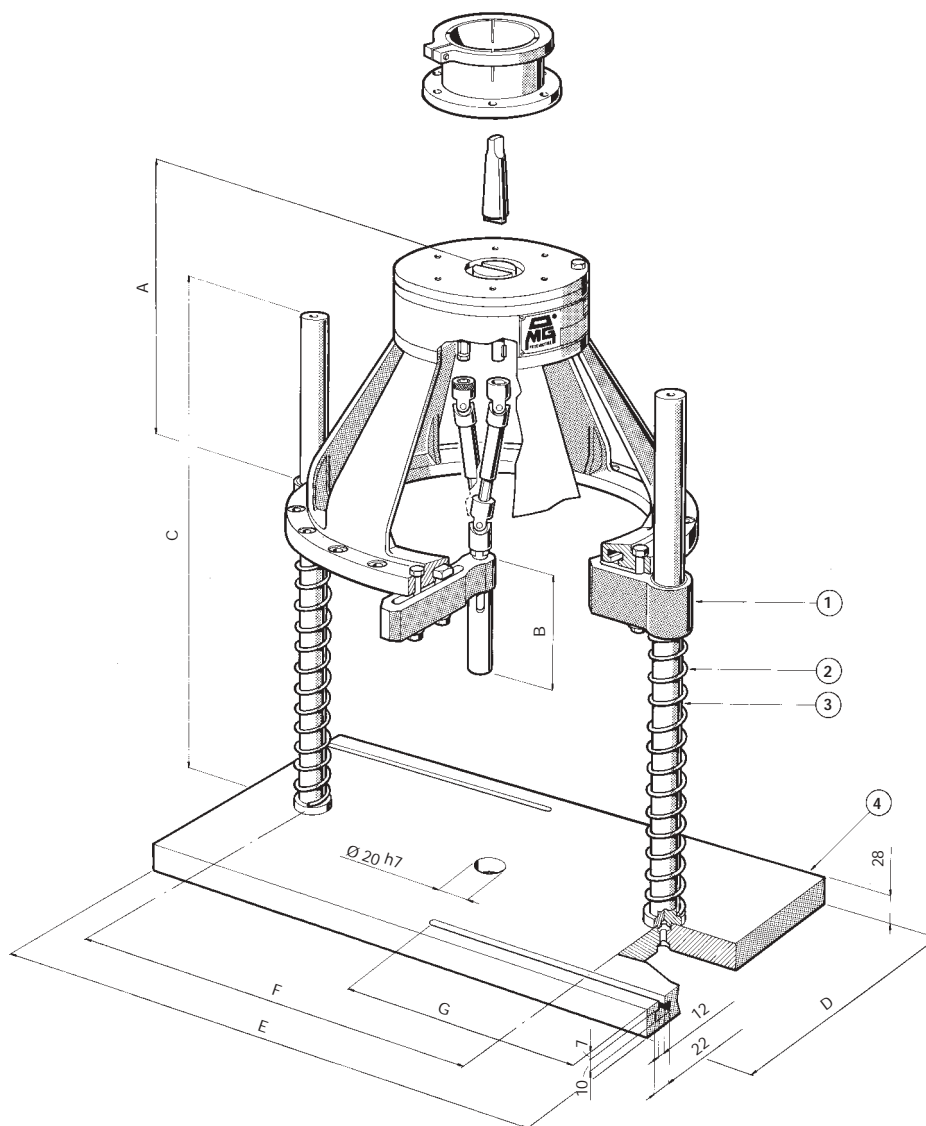
su astuccio per flangia fissa - fixed plate spindle



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

attrezzature per teste multiple *multispindle heads equipment*

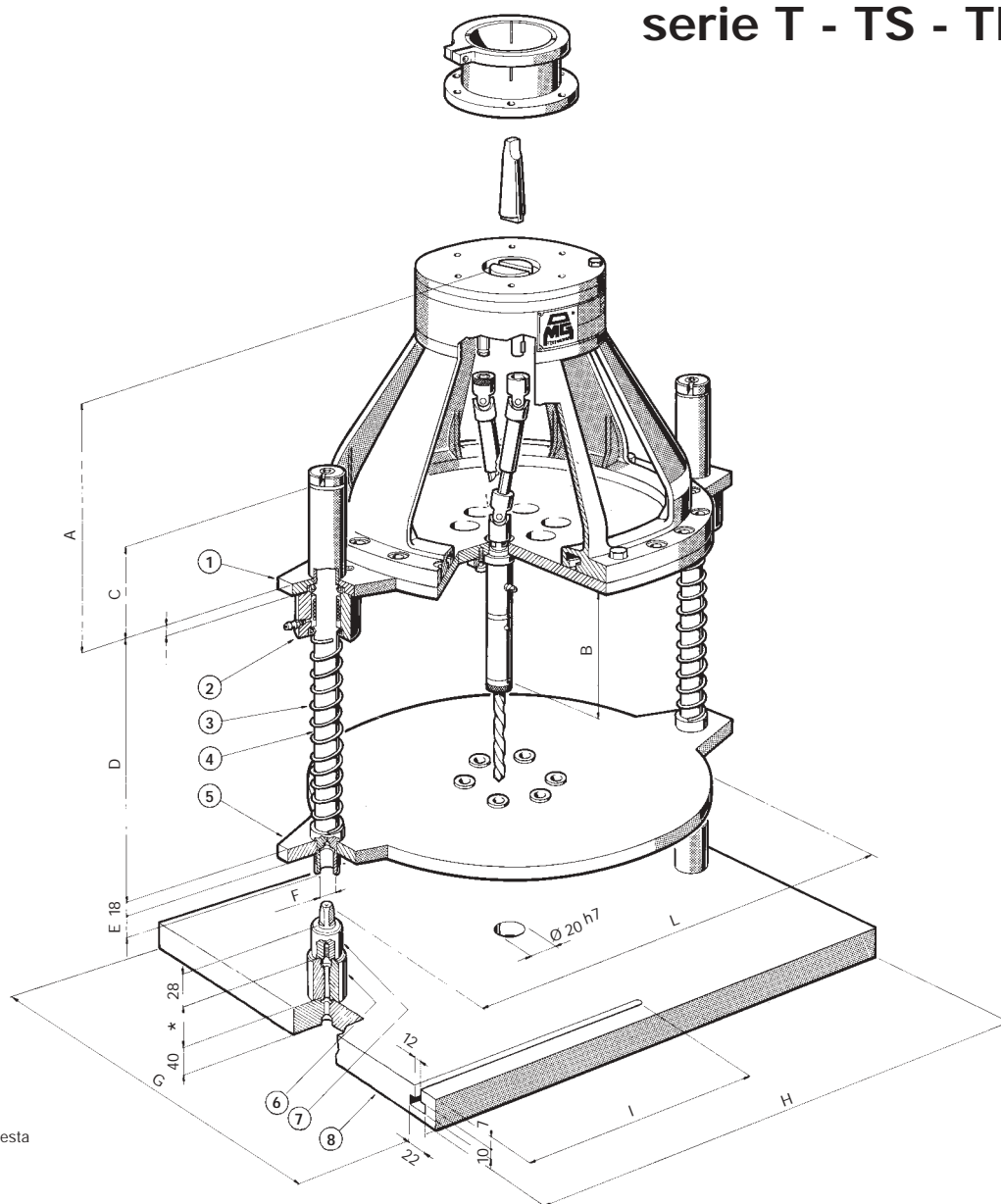
serie T - TS - TL - TR



Modello testa head type	A	B DIN 55058	Pinza ER	C	D	E	F	G	1 supporto di guida guide bush	2 molla spring	3 colonna column	4 base base
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					454					076084
TS12	283	172		650	300	650	542	350	076133	076136	076130	076085
T15	272	175					492					076086
TS15	282	175					552					076087
T18	293	185					540					076088
TS18	299	185					582					076089
T22	317	185					540					076090
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					604	350				076093
TL40/16	290	185		650	300	650						
TL40/22	318	185										
TL60/12	290	175				850		450	076133	076136	076130	076094
TL60/16	290	185										
TL60/22	318	185										
TR2/12	290	175				650	548					076095
TR2/16	290	185										
TR5/12	290	175					629					076096
TR5/16	290	185										

attrezzature per teste multiple multispindle heads equipment

serie T - TS - TL - TR



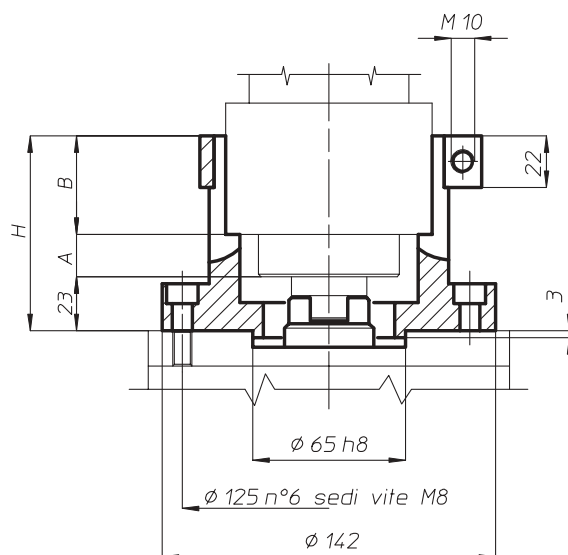
* a richiesta

Modello testa head type	A	B DIN 55058	B Pinza ER	C	D	E	ØF ^{h7}	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
T4	205	91,5	76								280	076001				076051			076081
T7	205	101,5	76								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		100	405	27	18	300	650	350	552	076007	076132	076136	076131	076057	-	076137	076087
T18	293	185									540	076008				076058			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		100	405	27	18	300	850	450	804	076014	076132	076136	076131	076064	-	076137	076094
TL60/22	318	185																	
TR2/12	290	175									548	076015				076065			076095
TR2/16	290	185							650	350									
TR5/12	290	175									629	076016				076066			076096
TR5/16	290	185																	

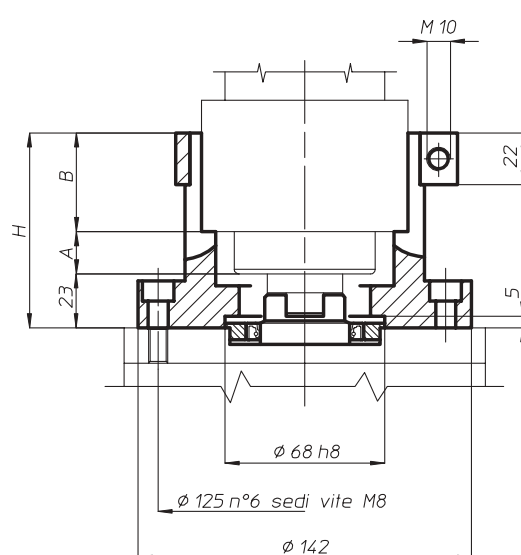
Attacco Cono Morse trascinatore *Morse Taper with driving dog*

T4 - T7 - T10 - TL20...

Versione standard
Standard version

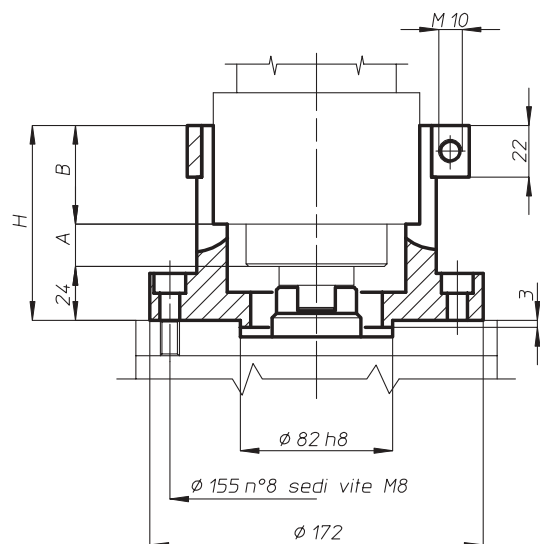


Solo versione orizzontale
For horizontal use only

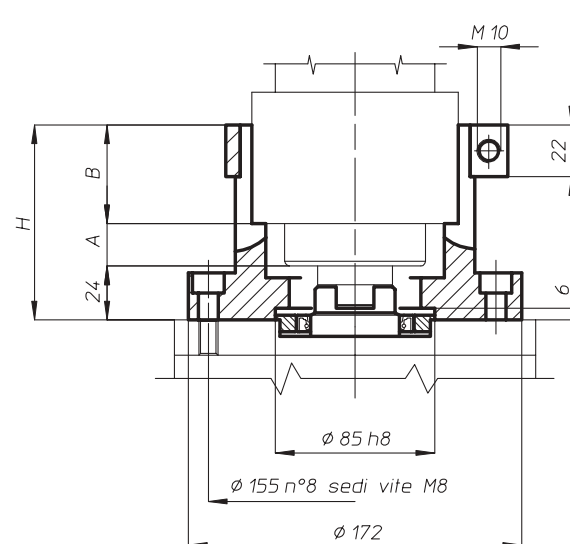


T12 - T15 - T18 - T22 - TL40... - TL60... - TR2... - TR5...

Versione standard
Standard version



Solo versione orizzontale
For horizontal use only



note notes

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teste multiple ad assi fissi *fixed multispindle heads*

system **MT**



system **TC**

system **TC3**



serie **TFS**



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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

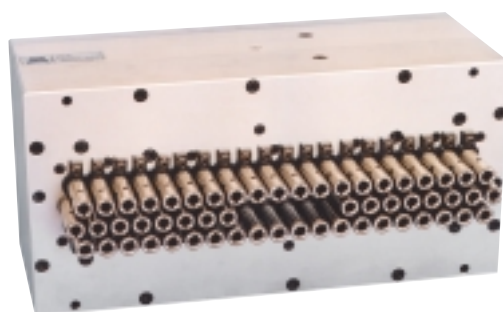


tipi di attacchi utensili (a pinza DIN 6499, DIN 55058, Komet ABS, DIN 1895, ecc.) ruotano su cuscinetti a rullini selezionati, su cuscinetti a sfere a contatto obliquo di precisione, su cuscinetti a rulli conici, tutti indifferentemente per potere utilizzare qualsiasi tipologia di utensile. I mandrini 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.



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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.

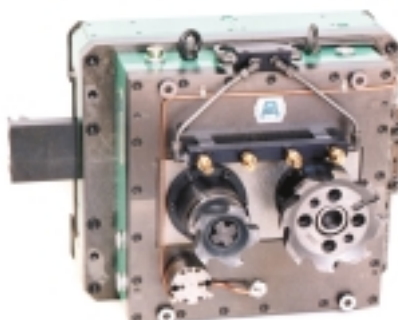
TFS: Special Fixed Head. Special because of its unique design, intended to cater for specific requirements and parts for which no existing standards can be used.

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.



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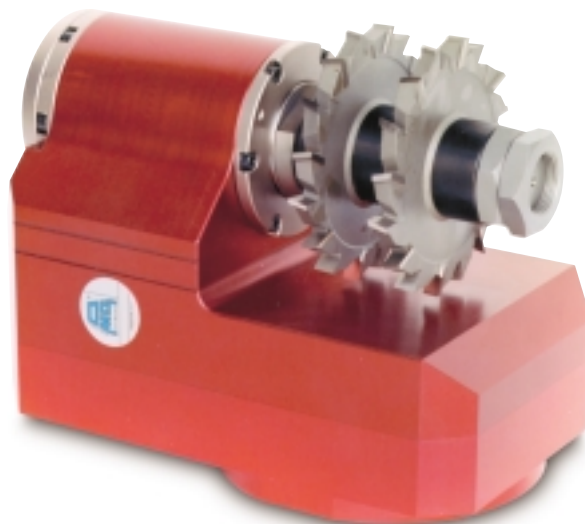
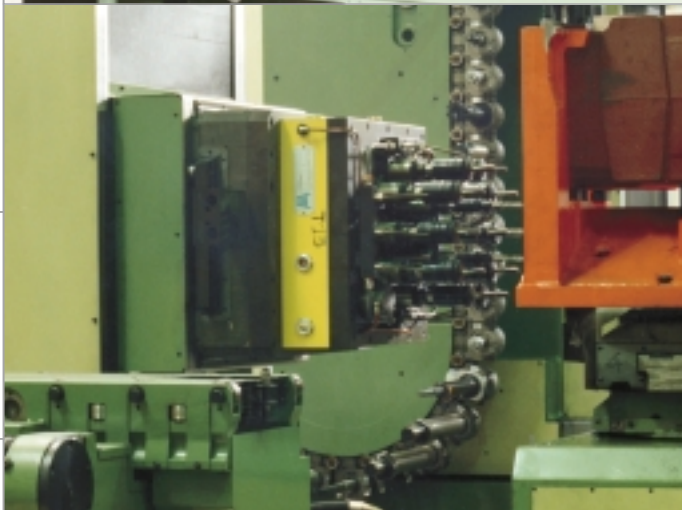
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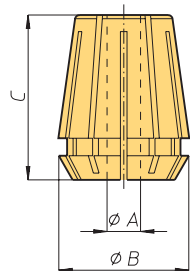
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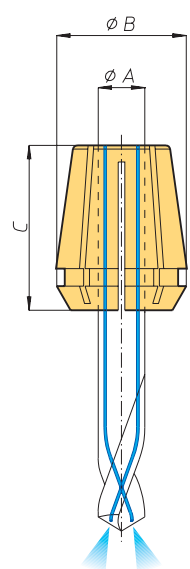
Pinze DIN 6499 forma B - tipo ER <i>Spring collets DIN 6499 form B - ER type</i>	8-2
Pinze DIN 6499 <i>Spring collets DIN 6499</i>	8-2
Pinze di maschiatura con compensazione - tipo ET1 <i>Tapping collets with compensation - ET1 type</i>	8-3
Pinze di maschiatura senza compensazione - tipo ER <i>Tapping collets without compensation - ER type</i>	8-3
Pinze <i>Collets</i>	8-3
Pinze porta maschi DIN 6328 <i>Tapholder collets DIN 6328</i>	8-4
Pinze porta punte DIN 6329 <i>Toolholder collets DIN 6329</i>	8-4
Ghiere esagonali per pinze DIN 6499 <i>Exagon clamping nut for spring collets DIN 6499</i>	8-5
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Inserti registrabili porta utensili a cono Morse DIN 6327/1 <i>DIN 6327 adjustable adapters for morse taper shank tools</i>	8-6
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Inserto porta pinze per utensili a gambo cilindrico (DIN 6327) <i>DIN 6327 adjustable adapters for cylindrical shank tools</i>	8-7
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Mandrini a cambio rapido per maschiare con compensazione assiale <i>Quick change tapping chucks with axial compensation</i>	8-8
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Mandrini a cambio rapido per maschiare con spostamento parallelo all'asse <i>Quick change tapping chucks with radial parallel floating</i>	8-9
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Bussole porta maschio a cambio rapido con frizione destra e sfere <i>Quick connection tap-holder bushes with ball right clutch</i>	8-10
Bussole porta maschio a cambio rapido <i>Quick connection tap-holder bushes</i>	8-10
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Ghiere ad innesto rapido <i>Ring nuts</i>	8-11
Bussole di riduzione da cono Morse a cono Morse DIN 2195 <i>Morse taper reduction bushes DIN 2195</i>	8-11
Chiavi per ghiere <i>Clamping nuts spanner</i>	8-12





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

ER 8		$\phi B=8,5$		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							
ER 11		$\phi B=11,5$		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			
ER 16		$\phi B=17$		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				
ER 20		$\phi B=17$		C=27,5													
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	
ER 25		$\phi B=26$		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														
ER 32		$\phi B=33$		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											
ER 40		$\phi B=41$		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			
ER 50		$\phi B=52$		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

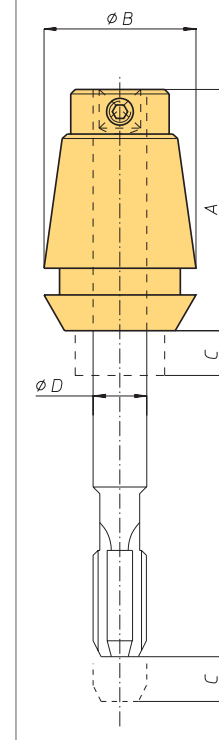


Pinze DIN 6499 Spring collets DIN 6499

ER 16 UPV		$\phi B=17$		C=27,5													
Codice	Code	235205	235206	235207	235208	235209	235210	235211	235212								
ϕA		3	4	5	6	7	8	9	10								
ER 20 UPV		$\phi B=17$		C=27,5													
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					
ER 25 UPV		$\phi B=26$		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		
ER 32 UPV		$\phi B=33$		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													
ER 40 UPV		$\phi B=41$		C=46													
Codice	Code	235266	235267	235268	235269	235270	235271	235272	235273	235274	235275	235276	235277	235278	235279	235280	
ϕA		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Codice	Code	235281	235282	235283	235284	235285	235286	235287									
ϕA		20	21	22	23	24	25	26									

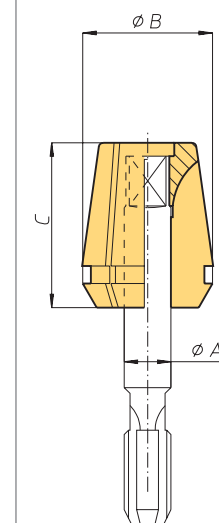
Pinze di maschiatura con compensazione - tipo ET1 Tapping collets with compensation - ET1 type

ET 1-12	A=21,5	$\phi B=11,5$	C=5,5	CAPACITÀ M2 - M4						
Codice	224650	224651	224652	224653	224654					
Code										
ϕD	1,4	2,2	2,5	2,8	3,5					
ET 1-16	A=27	$\phi B=17$	C=7	CAPACITÀ M2 - M8						
Codice	224658	224659	224660	224661	224662	224663	224664	224665		
Code										
ϕD	1,4	2,2	2,5	2,8	3,5	4	4,5	6		
ET 1-20	A=31	$\phi B=21$	C=7	CAPACITÀ M2 - M10						
Codice	224670	224671	224672	224673	224674	224675	224676	224677		
Code										
ϕD	2,2	2,5	2,8	3,5	4	4,5	6	7		
ET 1-25	A=34	$\phi B=26$	C=8	CAPACITÀ M2 - M12						
Codice	224682	224683	224684	224685	224686	224687	224688	224689	224690	224691
Code										
ϕD	2,2	2,5	2,8	3,5	4	4,5	6	7	8	9
ET 1-32	A=43	$\phi B=33$	C=10	CAPACITÀ M35 - M16						
Codice	224695	224696	224697	224698	224699	224700	224701	224702	224703	
Code										
ϕD	4	4,5	6	7	8	9	10	11	12	
ET 1-40	A=54	$\phi B=41$	C=13	CAPACITÀ M5 - M20						
Codice	224706	224707	224708	224709	224710	224711	224712	224713	224714	
Code										
ϕD	6	7	8	9	10	11	12	14	16	



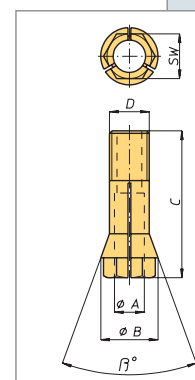
Pinze di maschiatura senza compensazione - tipo ER Tapping collets without compensation - ER type

ER 16 GB		φ B=16		C=27,5									
Codice	224585	224587	224588	224589	224590								
Code													
φA	4,5	6	7	8	9								
ER 20 GB		φ B=20		C=31,5									
Codice	224593	224595	224596	224597	224598	224599	224600						
Code													
φA	4,5	6	7	8	9	10	11						
ER 25 GB		φ B=25		C=34									
Codice	224604	224606	224607	224608	224609	224610	224611	224612	224613	224614			
Code													
φA	4,5	6	7	8	9	10	11	12	14	16			
ER 32 GB		φ B=32		C=40									
Codice	224617	224619	224620	224621	224622	224623	224624	224625	224626	224627	224628	224629	
Code													
φA	4,5	6	7	8	9	10	11	12	14	16	18	20	
ER 40 GB		φ B=40		C=46									
Codice	224634	224635	224636	224637	224638	224639	224640	224641	224642	224643	224644	224645	
Code													
φA	6	7	8	9	10	11	12	14	16	18	20	22	



Pinze Collets

600E	$\phi B=9$	C=28,5	D=M6 x0,75	SW=7	$\beta^\circ=20^\circ$					
Codice	224574	224575	224576	224577	224578	224579	224580			
Code										
ϕA	1,5	2	2,5	3	3,5	4	4,5			
601E	$\phi B=11$	C=30	D=M8 x0,75	SW=9	$\beta^\circ=20^\circ$					
Codice	224728	224729	224730	224731	224732	224733	224734	224735	224736	224737
Code										
ϕA	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6



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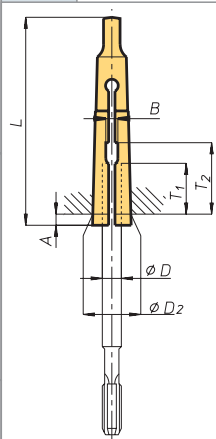
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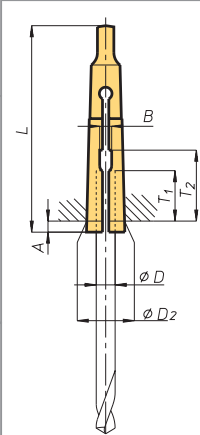
Pinze porta maschi DIN 6328 Tapholder collets DIN 6328

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
Codice Code	224000	224002	224008	224010	224012	224018	224022	224024
B	2,2	2,2	2,8	3,1	3,5	5,1	5,7	7,3
T1	15	15	16	16	18	19,5	19,5	22
T2	19	19	21	24	24	26	27	30

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	3,7	4	4,2	4,5	4,7	5	5,2	5,5	5,7	6	6,2	6,5	6,7	7	7,2	7,5	7,7	7,5
Codice Code	224164	224166	224168	224170	224172	224174	224176	224178	224180	224182	224184	224186	224188	224190	224192	224194	224196	224198	224200	224202	224200
B	1,8		2,2		2,4		2,7			3,2			3,8								
T1	20						22			22											
T2	25				26				29			29									

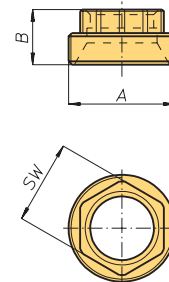


DIN 6329 – CONO MORSE 2 D2 = 17.78 A = 5 L = 80																	
D	5,5	6	6,5	7	7,5	8	8,5	9	9,5	10	10,5	11	11,5	12	12,5	13	
Codice Code	224260	224262	224264	224266	224268	224270	224272	224274	224276	224278	224280	224282	224284	224286	224288	224300	
B	3,2			3,8			4,8			5,3			6,3				
T1	22					25					28						
T2	29					33					37			39			

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

Ghiera Nut	Codice Code	ϕ A	B	SW	Coppia serraggio Clamping force (Nm)	
ER 11AS	224951	M18 x1	10,5	13	24 (30)	
ER 16AC	224950	M24 x1	13,5	19	56 (70)	
ER 20AC	224952	M28 x1,5	14,5	22	80 (100)	
ER 25AC	224953	M32 x1,5	16,5	25	104 (130)	

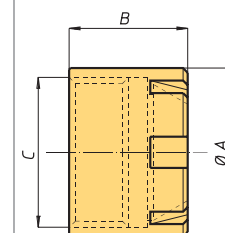
Tra parentesi valore massimo - Between brackets max. value



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

Ghiera Nut	Codice Code	ϕ A	B	C	Coppia serraggio Clamping force (Nm)	
					Pinze con scarico Spring collet with extractor	Pinze senza scarico Spring collet without extractor
ER 16MB	224921	24	12	M19 x1	40 (50)	56 (70)
ER 20MB	224922	34	18,5	M24 x1	32 (40)	80 (100)
ER 25MB	224923	42	20,5	M32 x1,5	104 (130)	104 (130)
ER 40MB	224924	63	29	M50 x1,5	176 (220)	176 (220)

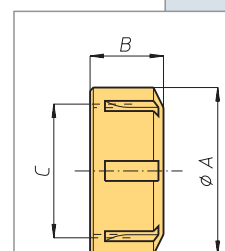
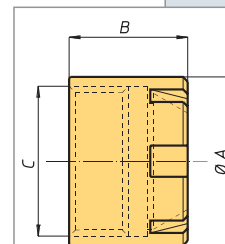
Tra parentesi valore massimo - Between brackets max. value



Ghiere per pinze DIN 6499 Clamping nut for spring collets DIN 6499

Tipo Type	Codice Code	ϕ A	B	C	Coppia serraggio Clamping force (Nm)	
					Pinze con scarico Spring collet with extractor	Pinze senza scarico Spring collet without extractor
ER 8M	224900	12	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	19	M24 x1	28 (35)	28 (35)
ER 25M	224908	35	20	M30 x1	32 (40)	32 (40)
ER 20UM	224910	34	19	M25 x1,5	32 (40)	80 (100)
ER 25UM	224912	42	20	M32 x1,5	104 (130)	104 (130)
ER 32UM	224914	50	22,5	M40 x1,5	136 (170)	136 (170)
ER 40UM	224916	63	25,5	M50 x1,5	176 (220)	176 (220)
ER 50UM	224918	78	35	M64 x2	240 (300)	240 (300)

Tra parentesi valore massimo - Between brackets max. value



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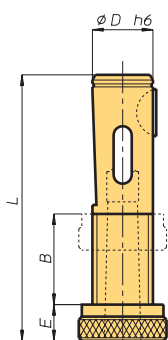
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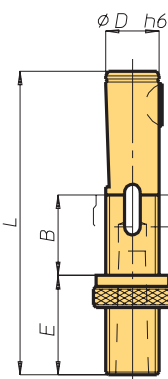
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Inserti registrabili DIN 6327/1 porta utensili a cono Morse DIN 6327/1 adjustable adapters for morse taper shank tools

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

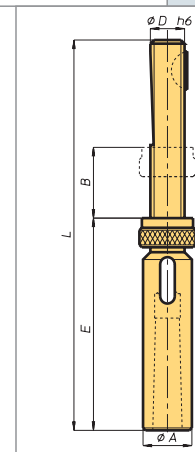


Inserti registrabili DIN 6327/2 porta utensili a cono Morse DIN 6327/2 adjustable adapters for morse taper shank tools

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	138	
009036	F 20 x 1 x 75					87	163	
009038	F 20 x 1 x 100					112	188	
009040	F 25 x 2 x 25	2	25	Tr 25 x 2	30	37	120	6 x 9
009042	F 25 x 2 x 50					62	145	
009044	F 25 x 2 x 75					87	170	
009046	F 25 x 2 x 100					112	195	
009048	F 28 x 2 x 25	2	28	Tr 28 x 2	30	37	120	6 x 9
009050	F 28 x 2 x 50					62	145	
009052	F 28 x 2 x 75					87	170	
009054	F 28 x 2 x 100					112	195	
009056	F 32 x 3 x 25	3	32	Tr 32 x 2	36	37	148	8 x 11
009058	F 32 x 3 x 50					62	178	
009060	F 32 x 3 x 75					87	208	
009062	F 32 x 3 x 100					112	238	
009064	F 36 x 3 x 25	3	36	Tr 36 x 2	36	37	148	8 x 11
009066	F 36 x 3 x 50					62	178	
009068	F 36 x 3 x 75					87	208	
009070	F 36 x 3 x 100					112	238	
009072	F 48 x 4 x 25	4	48	Tr 48 x 2	47	37	184	10 x 13
009074	F 48 x 4 x 50					62	224	
009076	F 48 x 4 x 75					87	264	
009078	F 48 x 4 x 100					112	304	

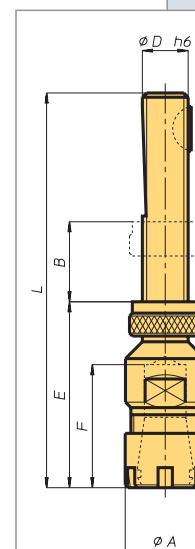
Inserti registrabili porta utensili a cono Morse (Norma OMG) Adjustable adapters for morse taper shank tools (OMG norm)

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



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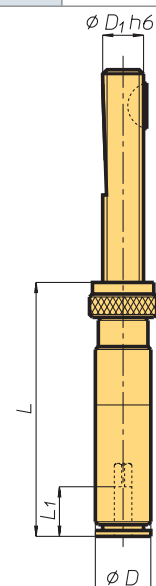
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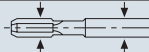
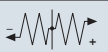
MT-TC-TC3

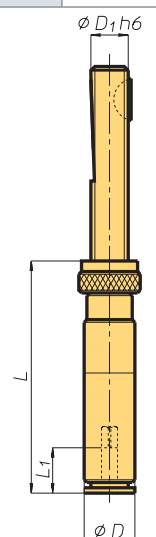
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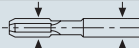


Mandrini per maschiare con diametro ridotto Tapping spindles with reduced diameter

Codice code	Mandrino Spindle			φD	D ₁	L	L ₁		
227015	MM. 15 D - 20.20 - 8x1 Tpz	M1 - M6	2.5 - 6	20	0	13.5	8	109	15
227016	MM. 15 D - 20.15 - 8x1 Tpz			15	5			104	
227017	MM. 15 D - 20.10 - 8x1 Tpz			10	10			99	
227018	MM. 15 D - 20.5 - 8x1 Tpz			5	15			94	
227019	MM. 15 D - 20.0 - 8x1 Tpz			0	20			89	
227020	MM. 16 D - 20.20 - 10x1,5 Tpz	M1 - M8	2.5 - 8	20	0	15.5	10	116	17
227021	MM. 16 D - 20.15 - 10x1,5 Tpz			15	5			111	
227022	MM. 16 D - 20.10 - 10x1,5 Tpz			10	10			106	
227023	MM. 16 D - 20.5 - 10x1,5 Tpz			5	15			101	
227024	MM. 16 D - 20.0 - 10x1,5 Tpz			0	20			96	
227025	MM. 17 D - 20.20 - 12x1,5 Tpz	M4 - M12	4.5 - 10	20	0	19	12	107	17
227026	MM. 17 D - 20.15 - 12x1,5 Tpz			15	5			102	
227027	MM. 17 D - 20.10 - 12x1,5 Tpz			10	10			97	
227028	MM. 17 D - 20.5 - 12x1,5 Tpz			5	15			92	
227029	MM. 17 D - 20.0 - 12x1,5 Tpz			0	20			87	



Mandrini per maschiare con diametro ridotto Tapping spindles with reduced diameter

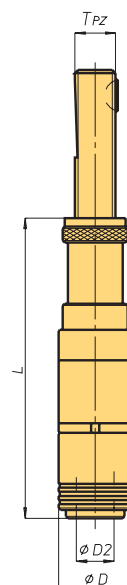
Codice code	Mandrino Spindle		ϕD	D_1	L	L_1	
227030	MR. 0 - 10x1.5 Tpz	M1 - M10	2.5 - 7.2	14	10	44	15
227031	MR. 0 - 12x1.5 Tpz				12		
227032	MR. 1 - 12x1.5 Tpz	M4 - M14	4.5 - 11.3	19	12	52	17
227033	MR. 1 - 16x1.5 Tpz				16		
227034	MR. 2 - 20x2 Tpz	M8 - M24	7 - 18	31	20	77	30
227035	MR. 2 - 28x2 Tpz				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 chucks with axial compensation

Mandrino Spindle		D	D_2			16x1,5 Tpz	Codice Code	20x2 Tpz	Codice Code	L 28x2 Tpz	Codice Code	36x2 Tpz	Codice Code
MF 0-5D-20-10	M1 - M10	23	13	20	10	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	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			172	227075	172	227076	174	227077
MF 2-4D-20-20				20	20			162	227078	162	227079	164	227080
MF 2-4D- 0-40				0	40			142	227081	142	227082	144	227083
MF 3-3D-30-10	M14 - M33	72	48	30	10					218	227084	220	227085
MF 3-3D-20-20				20	20					208	227086	210	227087
MF 3-3D- 0-40				0	40					188	227088	190	227089

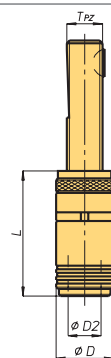
Mandrini a cambio rapido per maschiare con compensazione assiale e spostamento parallelo all'asse Quick change tapping chucks with axial compensation and radial parallel floating

Mandrino Spindle		D	D ₂				16x1,5 Tpz	Codice Code	20x2 Tpz	Codice Code	28x2 Tpz	Codice Code	36x2 Tpz	Codice Code
MFC0-5D-20-10	M1 - M10	23	13	0,25	20	10	0	138	227090	138	227091			
MFC0-5D-15-15					15	15	0	133	227092	133	227093			
MFC0-5D- 0-30					0	30		118	227094	118	227095			
MFC1-5D-30-10	M3 - M12	35	19	0,5	30	10	1	163	227096	163	227097	163	227098	
MFC1-5D-20-20					20	20	1	153	227099	153	227100	153	227101	
MFC1-5D- 0-40					0	40		133	227102	133	227103	133	227104	
MFC2-4D-30-10	M8 - M20	50	31	1	30	10	2			196	227105	196	227106	174
MFC2-4D-20-20					20	20	2			186	227108	186	227109	164
MFC2-4D- 0-40					0	40				166	227111	166	227112	144
MFC3-3D-30-10	M14 - M33	72	48	1,5	30	10	3					252	227084	220
MFC3-3D-20-20					20	20	3					242	227116	210
MFC3-3D- 0-40					0	40						222	227118	190



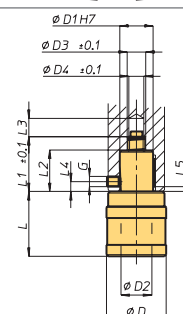
Mandrini a cambio rapido per maschiare con spostamento parallelo all'asse Quick change tapping chucks with radial parallel floating

Mandrino Spindle		D	D ₂				16x1,5 Tpz	Codice Code	20x2 Tpz	Codice Code	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



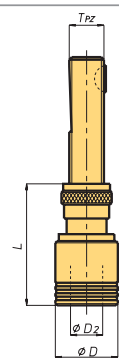
Mandrini a cambio rapido per maschiare con compensazione assiale Quick change tapping chucks with axial compensation

Codice Code	Mandrino Spindle					D	D ₁	D ₂	D ₃	D ₄	L	L ₁	L ₂	L ₃	L ₄	L ₅	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



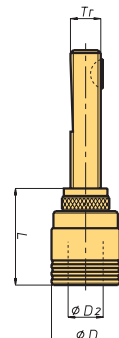
Mandrini a cambio rapido per maschiare con compensazione assiale Quick change tapping chucks with axial compensation

Mandrino Spindle						φD	φD ₂	28x2 Tpz	Codice Code	36x2 Tpz	L	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						φD	φD ₂	16x1,5 Tpz	Codice Code	28x2 Tpz	L	Codice Code	36 x2 Tpz	Codice Code
MKD-0 - Tr..	M1 - M10	0	6,5	6,5	26	13	49	227165						
MKD-1 - Tr..	M1 - M12	1	7,5	7,5	36	19	51	227167			227165			
MKD-2 - Tr..	M4 - M20	2	12,5	12,5	53	31				75	227171			
MKD-3 - Tr..	M4 - M33	3	20	20	78	48						77		227173



TA

MO

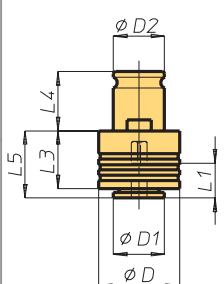
HT

VH


TSI/TSX

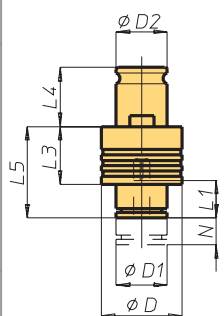
T

MT-TC-TC3


Accessori
AccessoriesAppendice tecnica
Technical supplement

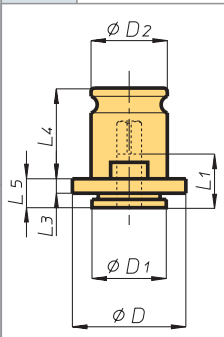
Bussole porta maschio a cambio rapido con frizione destra e sfere Quick connection tap-holder bushes with ball right clutch

Codice Code	Bussola Bush		Ø Gambo maschio Tap shank diameter	Ø D	Ø D ₁	Ø D ₂	Ø I ₁	Ø I ₃	Ø I ₄	Ø I ₅
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
227010	BFS 40	M6 - M18	6 - 14	40	25	26	30	27	32	30




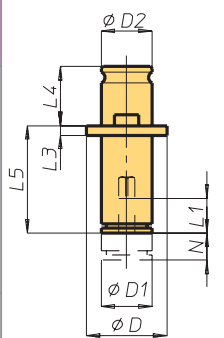
Bussole porta maschio a cambio rapido con frizione destra e sfere Quick connection tap-holder bushes with ball right clutch

Codice Code	Bussola Bush		Ø Gambo maschio Tap shank diameter	N	Ø D	Ø D ₁	Ø D ₂	Ø I ₁	Ø I ₃	Ø I ₄	Ø I ₅
227211	BFSR 0	M1 - M10	2,5 - 7,2	8	23	13	15	15	20	19,5	28
227212	BFSR 1	M2 - M12	3,5 - 11,3	10	32	19	17	17	25	21,5	33
227213	BFSR 2	M8 - M20	7 - 18	15	50	30	30	30	31	35	59
227214	BFSR 3	M14 - M33	11 - 28	25	72	48	44	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 diameter	Ø D	Ø D ₁	Ø D ₂	Ø I ₁	Ø I ₃	Ø I ₄	Ø I ₅
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

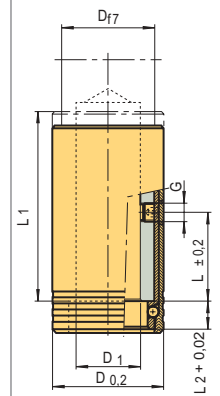


Bussole porta maschio a cambio rapido Quick connection tap-holder bushes

Codice Code	Bussola Bush		Ø Gambo maschio Tap shank diameter	N	Ø D	Ø D ₁	Ø D ₂	Ø I ₁	Ø I ₃	Ø I ₄	Ø I ₅
227255	BFCR 0	M1 - M10	2,5 - 7,2	8	22	13	13	15	4	19,5	28
227256	BFCR 1	M3 - 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

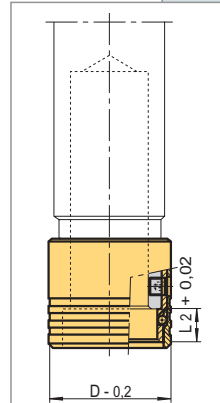
Manicotti ad innesto rapido Quick connection sleeves

Codice Code	Manicotto Sleeve	ϕD	ϕD_1	ϕD_3	L	L ₁	L ₂	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



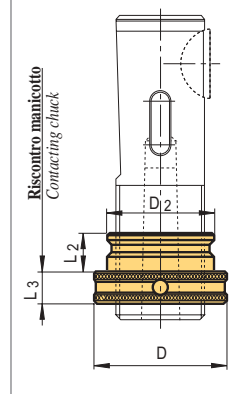
Manicotti ad innesto rapido Quick connection sleeves

Codice Code	Manicotto Sleeve	ϕD	ϕD_1	ϕD_3	ϕD_4	L	L ₁	L ₂	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



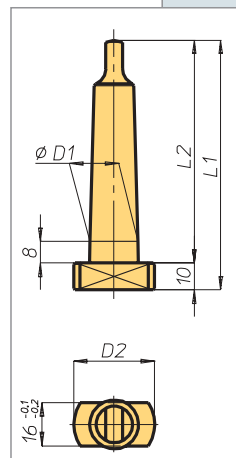
Ghiere ad innesto rapido Ring nuts

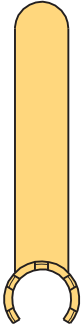
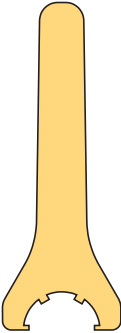
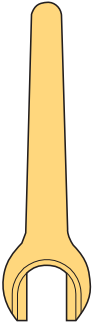
Codice Code	Ghiera Nut	ϕD	ϕD_2	L ₂	L ₃
227367	GIRF. 12	21,5	16,4	9	9
227368	GIRF. 16	26	19,9	9,5	9
227369	GIRF. 20	33	25,4	11	9
227370	GIRF. 25	40	31,9	12	10
227371	GIRF. 28	42	33,9	12	10
227372	GIRF. 32	47	37,9	13,5	10
227373	GIRF. 36	54	43,4	16	10
227374	GIRF. 48	72	57,9	20	14



Trascinatori a cono Morse Morse taper with driving dog

Codice Code	Cono Morse Morse Taper	A	B	l ₁	l ₂	l ₃	D ₁	D ₂	D ₃	R	β
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' 36"



		accessori - <i>accessories</i>																													
TA		Chiavi per ghiera Clamping nuts spanner																													
MO		<table><tr><th>Chiavi Keys</th><th>Codice Code</th><th>Per ghiera For clamping nut</th><th></th></tr><tr><td>CE 8M</td><td>231300</td><td>ER8M</td><td></td></tr><tr><td>CE 11M</td><td>231302</td><td>ER11M</td><td></td></tr><tr><td>CE 16M</td><td>231306</td><td>ER16M</td><td></td></tr><tr><td>CE 20M</td><td>231309</td><td>ER20M</td><td></td></tr><tr><td>CE 25M</td><td>231313</td><td>ER25M</td><td></td></tr></table>		Chiavi Keys	Codice Code	Per ghiera For clamping nut		CE 8M	231300	ER8M		CE 11M	231302	ER11M		CE 16M	231306	ER16M		CE 20M	231309	ER20M		CE 25M	231313	ER25M					
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CE 8M		231300	ER8M																												
CE 11M		231302	ER11M																												
CE 16M	231306	ER16M																													
CE 20M	231309	ER20M																													
CE 25M	231313	ER25M																													
HT		<table><tr><th>Chiavi Keys</th><th>Codice Code</th><th>Per ghiera For clamping nut</th><th></th></tr><tr><td>CE 20U</td><td>231315</td><td>ER20UM</td><td></td></tr><tr><td>CE 25U</td><td>231314</td><td>ER25UM</td><td></td></tr><tr><td>CE 32U</td><td>231320</td><td>ER32UM</td><td></td></tr><tr><td>CE 40U</td><td>231321</td><td>ER40UM</td><td></td></tr><tr><td>CE 50U</td><td>231323</td><td>ER50UM</td><td></td></tr></table>		Chiavi Keys	Codice Code	Per ghiera For clamping nut		CE 20U	231315	ER20UM		CE 25U	231314	ER25UM		CE 32U	231320	ER32UM		CE 40U	231321	ER40UM		CE 50U	231323	ER50UM					
Chiavi Keys		Codice Code	Per ghiera For clamping nut																												
CE 20U		231315	ER20UM																												
CE 25U		231314	ER25UM																												
CE 32U		231320	ER32UM																												
CE 40U	231321	ER40UM																													
CE 50U	231323	ER50UM																													
VH																															
TSI/TSX		Chiavi per ghiera Clamping nuts spanner																													
T		<table><tr><th>Chiavi Keys</th><th>Codice Code</th><th>Per ghiera For clamping nut</th><th></th></tr><tr><td>CE 16MB</td><td>231322</td><td>ER16MB</td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>		Chiavi Keys	Codice Code	Per ghiera For clamping nut		CE 16MB	231322	ER16MB																					
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CE 16MB		231322	ER16MB																												
MT-TC-TC3																															
Accessori Accessories																															
Appendice tecnica Technical supplement																															
	8-12																														

Appendice tecnica

Technical supplement

calcolo momento torcente e potenza <i>estimate torque and power</i>	9-2
manicotti di collegamento <i>connection collars</i>	9-3
DIN 228 - DIN 55058	9-4
DIN 6499	9-5
DIN 6499-B.....	9-6
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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'appropriato avanzamento sull'ascissa, congiungendo con il relativo diametro di foratura, in ordinata si leggerà un determinato valore del "coefficiente B"; moltiplicando questo per la resistenza del materiale si otterrà il momento torcente. Applicando poi la formula

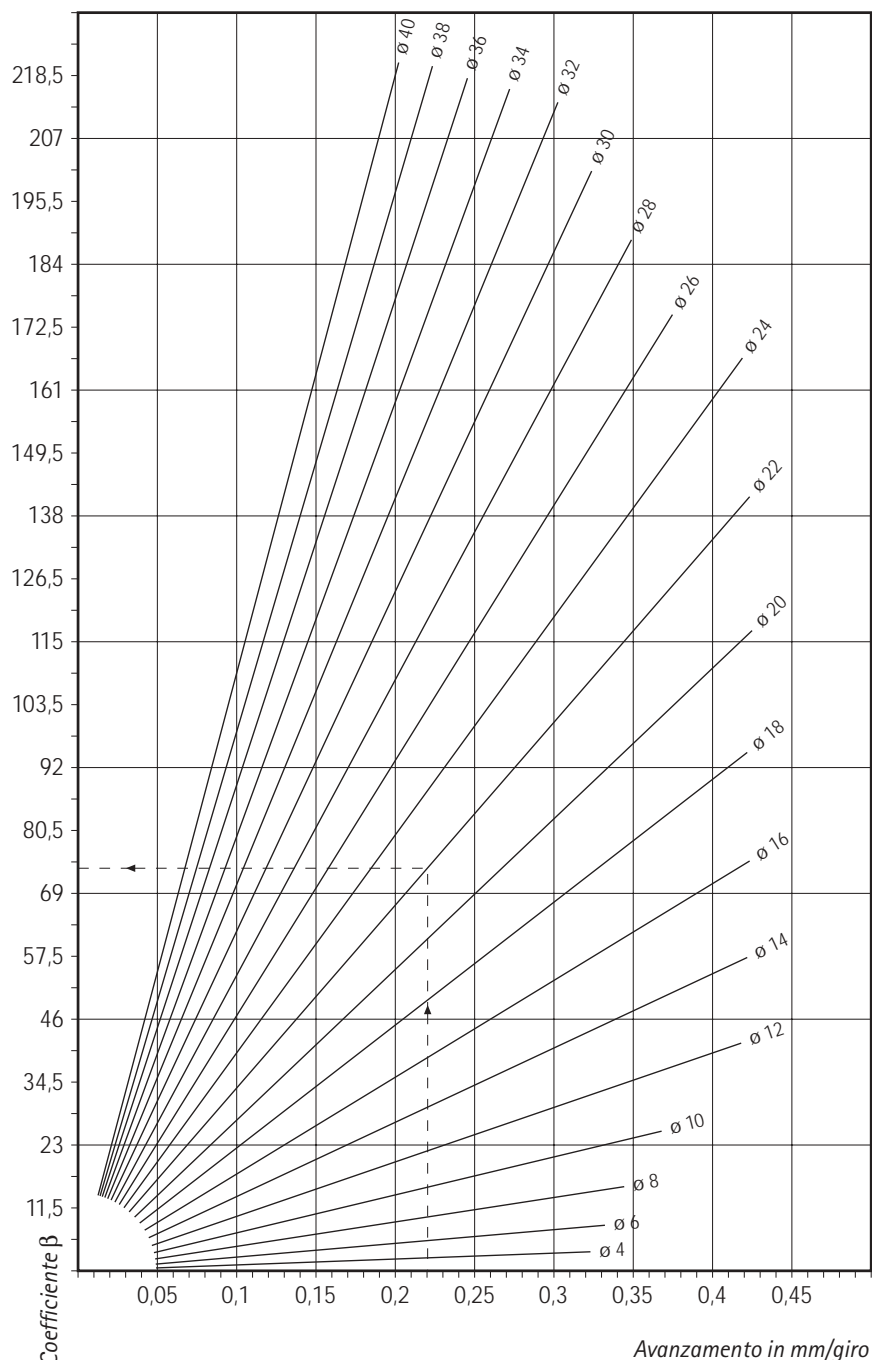
$$N = \frac{M_t \times n}{9549,3}$$

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 B» 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 M/mm²
coefficiente β = 73

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

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

manicotti di collegamento connection collars

Dimensioni estremità mandrini macchine utensili per la costruzione del manicotto di collegamento.

Spindles dimensions off machine-tools to manufacture the connection collar.

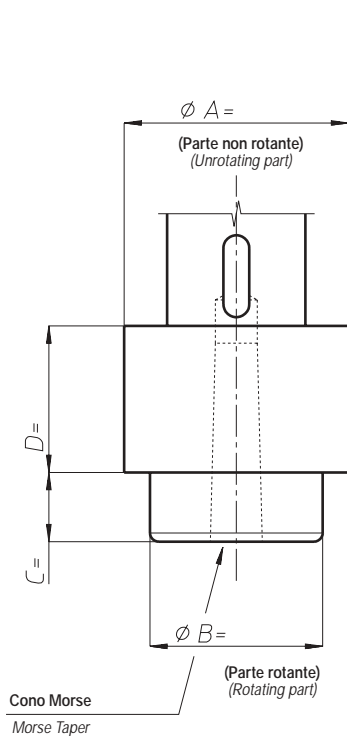


Fig. 1

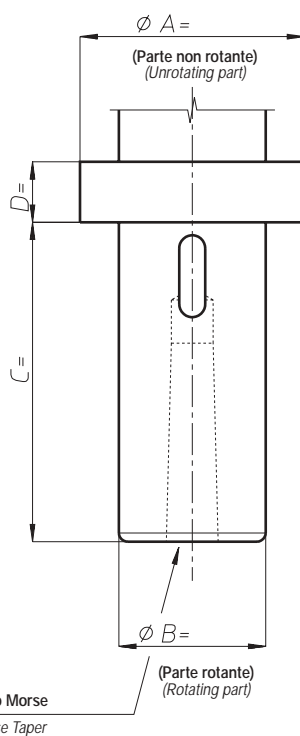


Fig. 2

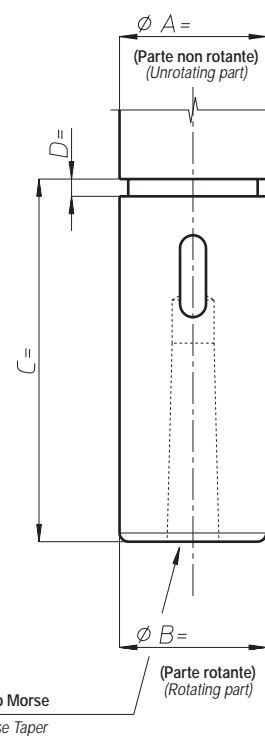


Fig. 3

Se nessuna figura si adatta alla vostra macchina, disegnate qui l'estremità mandrino.

If no picture fits your machine, draw here the spindle end.

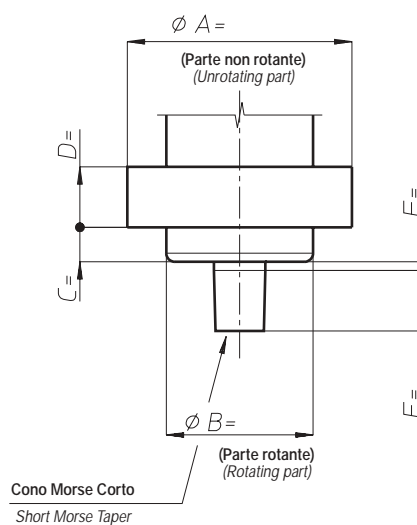
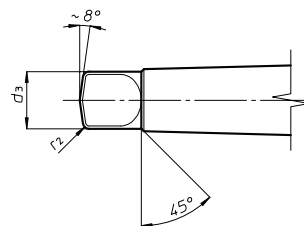
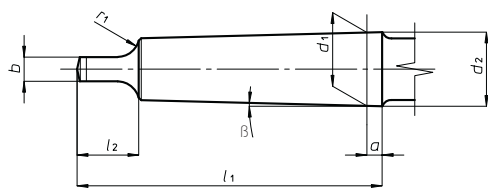


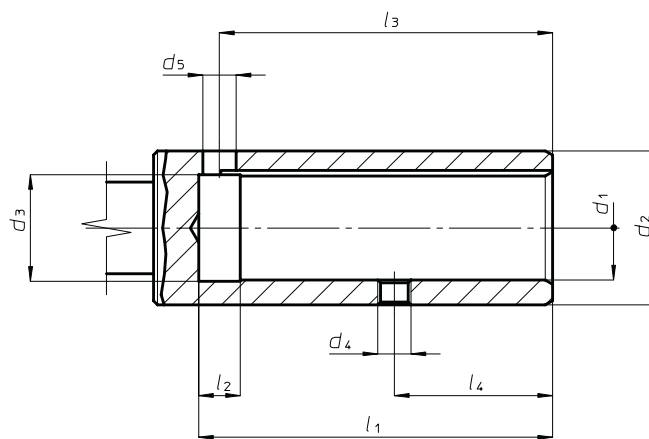
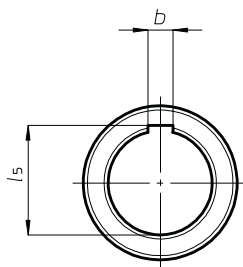
Fig. 4

DIN 228

Cono Morse
Morse taper

Cono Morse Morse Taper	a	b ^{h13}	d ₁	d ₂	d _{3max}	l _{1max}	l _{2max}	r ₁	r ₂	β
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"

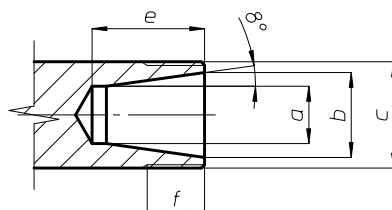
DIN 55058



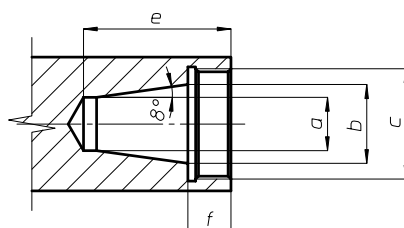
Grandezza Size D ₁ H7	8	10	12	16	20	25	28	32	36	48
b	2	3	3	5	5	6	6	8	8	10
d ₂ f7	15	18	20	25	32	37	40	45	50	67
d ₃	8,6	10,6	12,6	16,6	20,6	25,6	28,6	32,8	36,8	48,8
d ₄	M4	M5	M5	M6	M6	M8	M8	M8	M8	M10
d ₅	3,5	5	5	6	6	8	8	10	10	12
l ₁ min	42	52	52	75	78	85	85	106	106	129
l ₂	8	8	8	8	8	10	10	10	10	12
l ₃	35	48	48	70	73	80	80	101	101	123
l ₄ ±0,1	16	22	22	34	34	38	38	45	45	57
l ₅ ^{+0,3} ₀	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

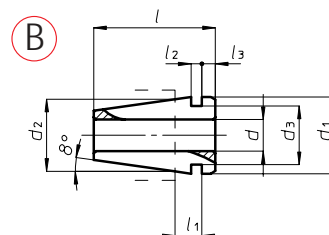
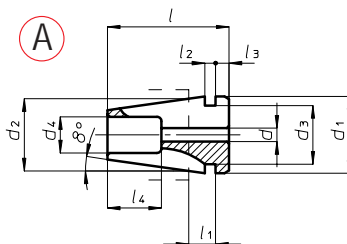


Grandezza Size	Serraggio Clamping	a	b _{±0,05}	c	e	f
ER8	0,5... 5,0	5,2	8	M10x0,75	13,0	7,5
ER11	0,5... 7,0	7,5	11	M13x0,75	17,0	10,0
ER16	0,5... 10,0	10,5	16	M19x1,00	22,0	13,0
ER20	0,5... 13,0	13,5	20	M24x1,00	26,5	13,5
ER25	0,5... 16,0	18,0	25	M30x1,00	29,0	14,0
ER16	0,5... 10,0	10,5	16	M22x1,50	22,0	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

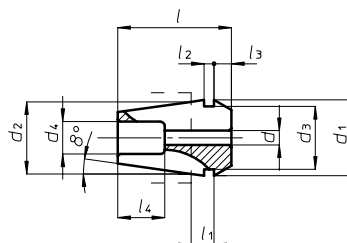


Grandezza Size	Serraggio Clamping	a	b _{±0,05}	c	e	f
ER11	0,5... 7,0	7,5	11	M18x1,00	23,0	7,0
ER16	0,5... 10,0	10,5	16	M24x1,00	32,0	10,0
ER20	0,5... 13,0	13,5	20	M28x1,50	37,5	11,0
ER25	0,5... 16,0	18,0	25	M32x1,50	41,0	12,0
ER32	1,0... 20,0	23,5	32	M40x1,50	48,0	14,0

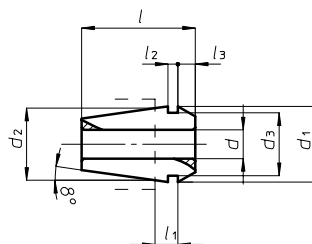
DIN 6499-B

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	-	B

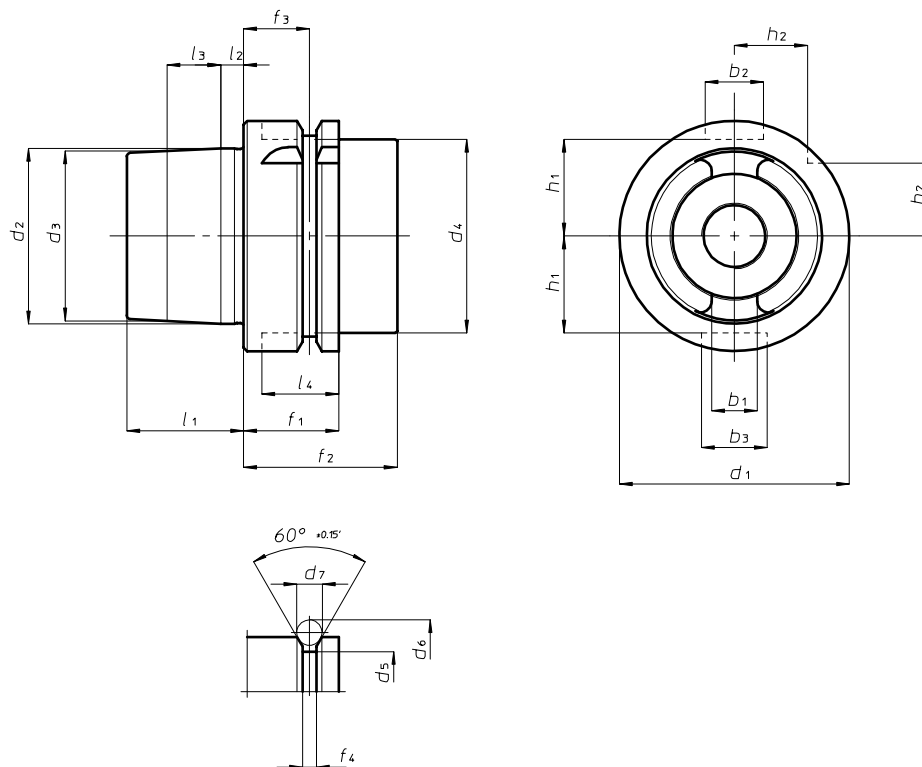


Grandezza Size	d	d1	d2	d3	d4	l	l1	l2	l3	l4
ER11	0,5... 2,5	11,5	11,0	9,5	5,0	18,0	3,80	2,0	2,5	9,0
ER16	0,5... 4,5	17,0	16,0	13,8	7,5	27,5	6,26	2,7	4,0	10,0
ER20	1,0... 6,5	21,0	20,0	17,4	9,0	31,5	6,36	2,8	4,8	13,0
ER25	1,0... 7,5	26,0	25,0	22,0	12,0	34,0	6,66	3,1	5,0	15,0
ER32	2,0... 3,5	33,0	32,0	29,2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

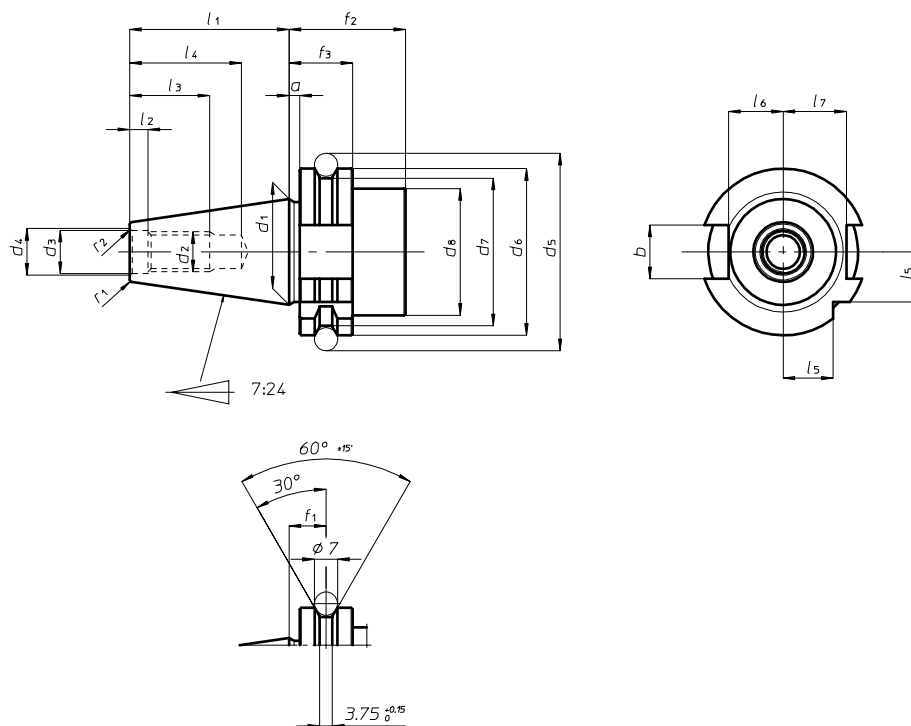
DIN 69893 Forma A



	HSK50	HSK63	HSK80	HSK100
b_1 H10	10,5	12,5	16	20
b_2 H10	12	16	18	20
b_3 H10	14	18	20	22
d_1 H10	50	63	80	100
d_2	38 $\begin{smallmatrix} +0,009 \\ +0,006 \end{smallmatrix}$	48 $\begin{smallmatrix} +0,011 \\ +0,007 \end{smallmatrix}$	60 $\begin{smallmatrix} +0,013 \\ +0,008 \end{smallmatrix}$	75 $\begin{smallmatrix} +0,015 \\ +0,009 \end{smallmatrix}$
d_3	36,900 $\begin{smallmatrix} +0,006 \\ +0,003 \end{smallmatrix}$	46,530 $\begin{smallmatrix} +0,007 \\ +0,003 \end{smallmatrix}$	58,100 $\begin{smallmatrix} +0,008 \\ +0,003 \end{smallmatrix}$	72,600 $\begin{smallmatrix} +0,009 \\ +0,003 \end{smallmatrix}$
d_4 max	42	53	67	85
d_5 $\begin{smallmatrix} 0 \\ -0,1 \end{smallmatrix}$	43	55	70	92
d_6 $\begin{smallmatrix} 0 \\ -0,1 \end{smallmatrix}$	59,3	72,3	88,8	109,75
d_7	7	7	7	7
f_1 $\begin{smallmatrix} 0 \\ -0,1 \end{smallmatrix}$	26	26	26	29
f_2 min	42	42	42	45
f_3 $\pm 0,1$	18	18	18	20
f_4 $\begin{smallmatrix} +0,15 \\ 0 \end{smallmatrix}$	3,75	3,75	3,75	3,75
h_1 $\begin{smallmatrix} 0 \\ -0,2 \end{smallmatrix}$	21	26,5	34	44
h_2 $\begin{smallmatrix} 0 \\ -0,3 \end{smallmatrix}$	15,5	20	25	31,5
l_1 $\begin{smallmatrix} 0 \\ -0,2 \end{smallmatrix}$	25	32	40	50
l_2	5	6,3	8	10
l_3	11	14,7	19	24
l_4	19	21	22	24

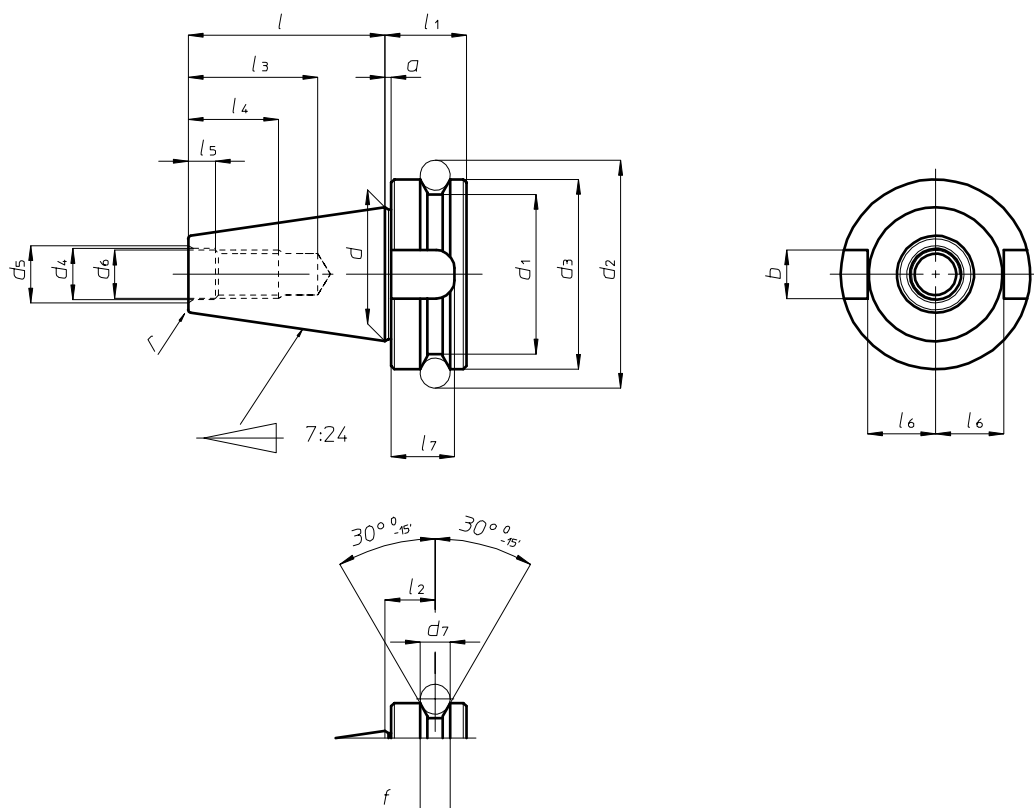
DIN 69871

Forma A



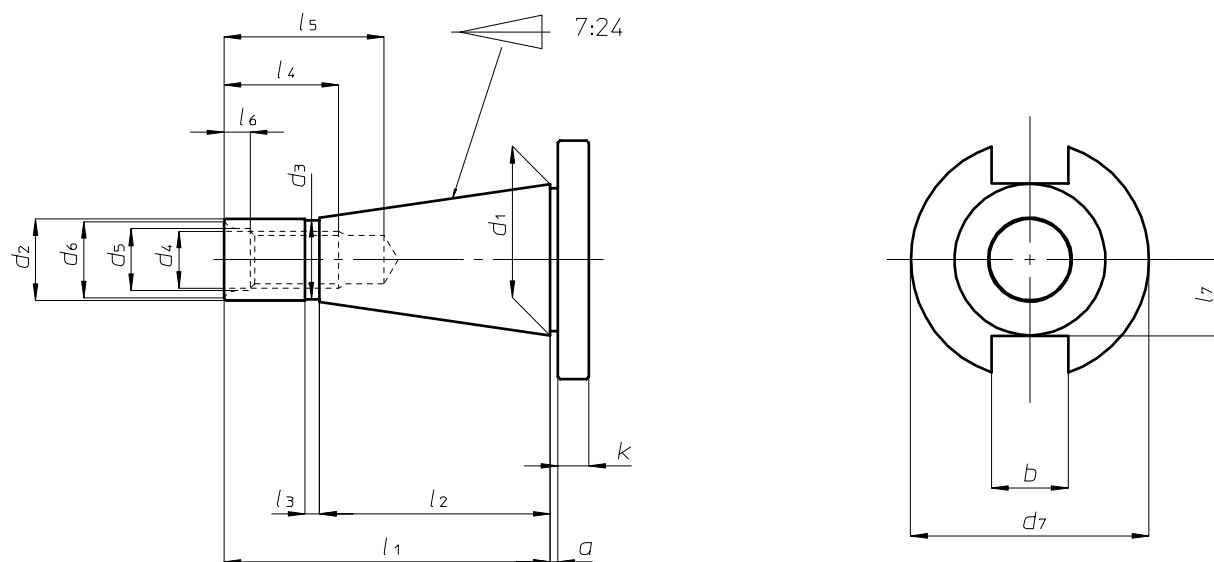
Grandezza Size	30	40	45	50
a $^{+0,1}_{-0,1}$	3,2	3,2	3,2	3,2
b h12	16,1	16,1	19,3	25,7
d₁	31,75	44,45	57,15	69,85
d₂	M12	M16	M20	M24
d₃ H7	13	17	21	25
d₄ max	14	19	23,4	28
d₅ $^{+0,05}_{-0,05}$	59,3	72,3	91,35	107,25
d₆ $^{0}_{-0,1}$	50	63,55	82,55	97,50
d₇ $^{0}_{-0,5}$	44,3	56,25	75,25	91,25
d₈ max	45	50	63	80
f₁ $^{+0,1}_{-0,1}$	11,1	11,1	11,1	11,1
f₂ min	35	35	35	35
f₃ $^{0}_{-0,1}$	19,1	19,1	19,1	19,1
l₁ $^{0}_{-0,3}$	47,8	68,4	82,7	101,75
l₂ $^{+0,5}_{0}$	5,5	8,2	10	11,5
l₃ min	24	32	40	47
l₄ min	33,5	42,5	52,5	61,5
l₅ $^{0}_{-0,3}$	15	18,5	24	30
l₆ $^{0}_{-0,4}$	16,4	22,8	29,1	35,5
l₇ $^{0}_{-0,4}$	19	25	31,3	37,7
r₁	0,6 $^{0}_{-0,3}$	1,2 $^{0}_{-0,5}$	2 $^{0}_{-0,5}$	2,5 $^{0}_{-0,5}$
r₂ $^{0}_{-0,5}$	0,8	1	1,2	1,5

MAS 403



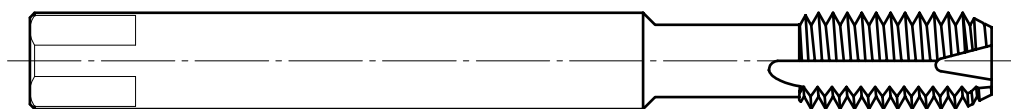
Grandezza Size	30	40	50
a $\pm 0,4$	2	2	3
b H8	16,1	16,1	25,7
d	31,75	44,45	69,85
d₁ $^{+0,1}_{-0,3}$	38	53	85
d₂	56,144	75,679	119,019
d₃ H8	46	63	100
d₄ H8	12,5	17	25
d₅	14,5	19	27
d₆	M12	M16	M24
d₇	8	10	15
f $^{+0,1}_{0}$	8	10	15
l $\pm 0,15$	48,4	65,4	101,8
l₁	22	27	38
l₂ $\pm 0,1$	13,6	16,6	23,2
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 $\pm 0,2$	1,6	1,6	3,2	3,2
b H12	16,1	16,1	19,3	25,7
d₁	31,75	44,45	57,15	69,85
d₂ a10	17,4	25,3	32,4	39,6
d₃	16,5	24	30	38
d₄	M12	M16	M20	M24
d₅	13	17	21	26
d₆ max	16	21,5	26	32
d₇ $\begin{smallmatrix} 0 \\ -0,4 \end{smallmatrix}$	50	63	80	97,5
k $\pm 0,15$	8	10	12	12
l₁	68,4	93,4	106,8	126,8
l₂	48,4	65,4	82,8	101,8
l₃	3	5	6	8
l₄	24	32	40	47
l₅ min	33,5	42,5	52,5	61,5
l₆ $\begin{smallmatrix} +0,5 \\ 0 \end{smallmatrix}$	5,5	8,2	10	11,5
l₇ max	16,2	22,5	29	35,3

MASCHI



Maschi (mm) (pollici)		ISO 529 (Ø) (□)		DIN 371 (DIN 2181) (Ø) (□)		DIN 357 DIN 376 (Ø) (□)		DIN 352 (Ø) (□)		JAPAN JIS (Ø) (□)		US STANDARD (Ø)" (□)"	
M 1.0		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	-	-
M 1.1		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	-	-
M 1.2		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	-	-
M 1.4		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	-	-
M 1.6	1/16	2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	0,141	0,110
M 1.7		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	-	-
M 1.8		2,50	2,10	-	-	2,50	2,10	-	-	3,00	2,50	0,141	0,110
M 2.0		2,80	2,10	2,50	2,00	2,50	2,10	-	-	3,00	2,50	0,141	0,110
M 2.2		2,80	2,10	2,80	2,24	2,50	2,10	-	-	3,00	2,50	0,141	0,110
M 2.3		2,80	2,10	2,80	2,24	2,50	2,10	-	-	3,00	2,50	-	-
M 2.5	3/32	2,80	2,10	2,80	2,24	2,50	2,10	-	-	3,00	2,50	0,141	0,110
M 2.6		2,80	2,10	2,80	2,24	2,50	2,10	-	-	3,00	2,50	-	-
M 3.0	1/8	3,15	2,50	3,15	2,50	3,50	2,70	3,00	-	4,00	3,00	0,141	0,110
M 3.5		3,55	2,80	3,55	2,80	4,00	3,00	2,50	2,10	4,00	3,00	0,141	0,110
M 4.0	5/32	4,00	3,15	-	-	4,50	3,40	2,80	2,10	5,00	4,00	0,168	0,131
M 4.5	3/16	4,50	3,55	-	-	6,00	4,90	3,50	2,70	5,00	4,00	0,194	0,152
M 5.0		5,00	4,00	-	-	6,00	4,90	3,50	2,70	5,50	4,50	0,194	0,152
M 6.0	1/4	6,30	5,00	-	-	6,00	4,90	4,50	3,40	6,00	4,50	0,255	0,191
M 7.0	5/16	7,10	5,60	-	-	7,00	5,50	5,50	4,30	6,20	5,00	0,318	0,238
M 8.0		8,00	6,30	-	-	8,00	6,20	6,00	4,90	6,20	5,00	0,318	0,238
M 9.0		9,00	7,10	-	-	9,00	7,00	7,00	5,50	7,00	5,50	0,381	0,286
M 10.0	3/8	10,00	8,00	-	-	10,00	8,00	7,00	5,50	7,00	5,50	0,381	0,286
M 11.0		8,00	6,30	-	-	-	-	8,00	6,20	8,00	6,20	0,381	0,286
M 12.0	1/2	9,00	7,10	-	-	-	-	9,00	7,00	8,50	6,50	0,367	0,275
M 14.0	9/16	11,20	9,00	11,20	-	-	-	11,00	9,00	10,50	8,00	0,429	0,322
M 16.0	5/8	12,50	10,00	12,50	-	-	-	12,00	9,00	12,50	10,00	0,480	0,360
M 18.0	11/16	14,00	11,20	14,00	-	-	-	14,00	11,00	14,00	11,00	0,542	0,406
M 20.0	13/16	14,00	11,20	14,00	-	-	-	16,00	12,00	15,00	12,00	0,652	0,489
M 22.0	7/8	16,00	12,50	16,00	-	-	-	18,00	14,50	17,00	13,00	0,697	0,523
M 24.0	15/16	18,00	14,00	18,00	-	-	-	18,00	14,50	19,00	15,00	0,760	0,570
M 27.0	1 1/16	20,00	16,00	20,00	-	-	-	20,00	16,00	20,00	15,00	0,896	0,672
M 30.0	1 3/16	20,00	16,00	20,00	-	-	-	22,00	18,00	23,00	23,17	1,021	0,766

US STANDARD: in pollici

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Made in Italy



O.M.G. srl

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

Tel. +39.0522 941627 (ric. aut.)
Telefax +39.0522 941951

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