



## Evolution Line TESTE ANGOLARI - ANGLE HEADS

2



MADE IN ITALY



# INDICE - INDEX

2

2.12 - 2.17

*series*  
**LIGHT**

**NEW**

2.18 - 2.23

*series*  
**SLiM**

## ATC - AUTOMATIC TOOL CHANGE

FL90-7	FS90-3	FS90-6L
FL90-13 / 13L	FS90-3L	
FL90-16 / 16L	FS90-4	
FL90-16 2U	FS90-4L	
FLU-7	FS90-6	

2.49 - 2.51

*series*  
**FM U**

2.52 - 2.59

*series*  
**DOUB2E**

**NEW**

## ATC - AUTOMATIC TOOL CHANGE

FMU-10	F90-7 2U	F90-16L 2U
FMU-16	F90-7L 2U	F90-20 2U
FMU-20	F90-10 2U	F90-20L 2U
	F90-10L 2U	F90-30 2U
	F90-16 2U	F90-30L 2U

2.72 - 2.77

# ACCESSORIES

## ATC - AUTOMATIC TOOL CHANGE

<b>OPZIONE REFRIGERANTE INTERNO</b> MODULAR QUICK CHANGE ADAPTORS	<b>STOP-BLOCK</b> STOP-BLOCK
<b>GHIERE RECOOL</b> RECOOL NUTS	<b>GRUPPO ANTIROTANTE</b> ANTI-ROTATION GROUP
<b>ESEMPIO SCHEDA DI COLLAUDO</b> INSPECTION SHEET EXAMPLE	<b>GRUPPO PERNO</b> PIN GROUP
<b>SISTEMA ANTIROTANTE MULTIPOINT</b> MULTIPOINT ANTIROTATION SYSTEM	
<b>ESEMPIO DI MONTAGGIO</b> MOUNTING EXAMPLE	

**2.24 - 2.36**

*series*  
**STD 90°**

**2.37 - 2.44**

*series*  
**COOLANT**

**2.45 - 2.48**

*series*  
**OFFSET**

## ATC - AUTOMATIC TOOL CHANGE

F90-7 / 7L	F90-16 / 16L	F90-7 10Bar	F90-20 10Bar	FR90-10 70BAR
F90-10 / 10L	F90-20 / <b>20L</b>	F90-7L 10Bar	F90-S40 70Bar	<b>FR90-13 70BAR</b>
<b>F90-13 / 13L</b>	F90-S40	F90-10 10Bar		FR90-16 70BAR
F90-16S		F90-16S 10Bar		FR90-20 70BAR
F90-20S		F90-16 10Bar		

**2.62 - 2.66**

*series*  
**STD 90°**

*series*  
**XL**

## MTC - MANUAL TOOL CHANGE

F90-16S	F90-S40
F90-16L	
F90-20	
F90-20L	

**2.78 - 2.81**

# ACCESSORIES

**2.82 - 2.84**

## MTC - AUTOMATIC TOOL CHANGE

## ATC & MTC

<b>OPZIONE REFRIGERANTE INTERNO</b> INTERNAL COOLANT OPTION	<b>PINZE / GHIERE / CHIAVI</b> COLLETS / NUTS / WRENCHES
<b>CONI / FLANGE / PROLUNGHE</b> SHANKS / FLANGES / EXTENSIONS	
<b>ESEMPIO SCHEDA DI COLLAUDO</b> INSPECTION SHEET EXAMPLE	
<b>ESEMPIO DI MONTAGGIO</b> MOUNTING EXAMPLE	

# Linea Evolution

## Teste Angolari Modulari

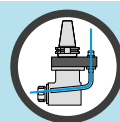
Le teste angolari Gerardi della nuovissima Linea Evolution nascono da solide basi tecniche e dall'esperienza maturata in 40 anni trascorsi al fianco dei nostri clienti durante i quali abbiamo risolto i problemi più variegati cercando la soluzione migliore e garantendo sempre l'elevata qualità ed affidabilità dei nostri prodotti. 91 modelli di teste angolari standard, ideati, realizzati e distribuiti in oltre 50 paesi nel mondo dalla Gerardi S.p.A., corredati da una gamma di opzioni che ne completano le potenzialità applicative e prestazionali.

Cono  
INTERCAMBIABILE

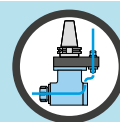


## Caratteristiche tecniche principali:

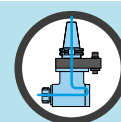
- 1- Corpo in acciaio ad alta resistenza trattato per resistere alla corrosione e per garantire dilatazioni minime.
- 2- Modularità: **albero con cono intercambiabile (Doppio contatto cono-piano) e quindi possibilità di utilizzare la testa su più centri di lavoro anche con mandrini diversi. E' infatti possibile sostituire il gruppo antirrotante ed il cono in entrata senza compromettere rigidità e precisione.**
- 3- Ciascun albero di trasmissione supportato da coppie di cuscinetti a contatto obliquo di precisione precaricati in classe di precisione ABEC 9 e lubrificati con grasso a vita.
- 4- Coppia conica di ingranaggi spirodali Gleason con evolvente rettificata ottimizzata per una maggior coppia disponibile
- 5- Oltre 40 modelli di teste disponibili.
- 6- Nuovissimi modelli di teste con Pesì ed Ingombri ridotti serie Slim in grado di entrare in diametri di 35mm.
- 7- Adduzione refrigerante tramite perno e pressurizzazione interna compresa (a)
- 8- Opzione adduzione refrigerante attraverso l' utensile:
- 10- bar tramite distributore rotante (b)
- 70- bar tramite mandrino macchina, rotazione a secco non possibile (c)
- Ghiere speciali ReCool per ottenere il passaggio refrigerante tramite utensile anche su teste che non prevedono questa opzione. (d)
- 9- Design ottimizzato per una migliore dispersione del calore e tempi più lunghi di rotazione alle alte velocità.
- 10- Compatibilità con le teste da sempre installate (stop block identici).
- 11- 100% Made in Italy, le teste angolari Gerardi Evolution Line sono progettate ed interamente realizzate in Italia e sono coperte da 1 anno di garanzia. **Per Caratteristiche tecniche, prestazioni e dotazione standard, fare riferimento alle pagine successive.**



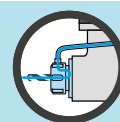
(a)



(b)



(c)



(d)

## Serie ATC

da pag 2.11 a 2.59



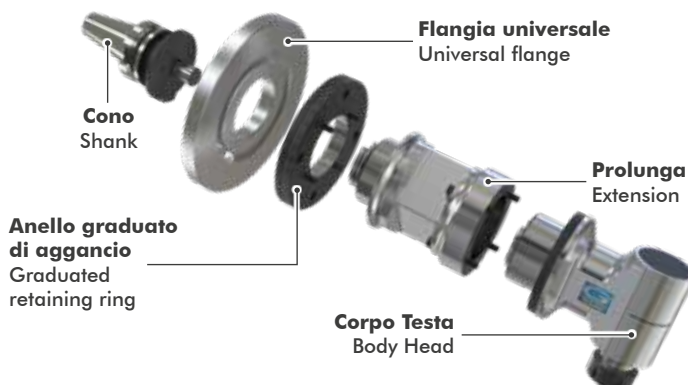
Le teste ATC (Automatic Tool Change) sono ideali per le macchine di produzione a controllo numerico con cambio utensili automatico. Sono trasportabili automaticamente dal magazzino utensili al mandrino macchina e viceversa. L'anello di orientamento e la flangia di indexaggio che supporta il perno di fermo, sono entrambi posizionabili su 360° per ottimizzare gli orientamenti angolari. Sulle teste modello FMU, il supporto del mandrino portautensile ha possibilità di inclinarsi di  $\pm 90^\circ$ . Se la testa non è in posizione di lavoro, un sistema di aggancio impedisce la rotazione del cono rispetto al corpo testa.

## Serie MTC

da pag 2.61 a 2.66



Linea di teste per le macchine non dotate di cambio utensili automatico. Le teste MTC (Manual Tool Change) vanno montate manualmente e fissate al mandrino tramite flangiatura. Sulle teste modello FMU, il supporto del mandrino portautensile ha la possibilità di inclinarsi e di posizionarsi di  $\pm 90^\circ$ .





# Evolution Line

## Modular Angle Heads

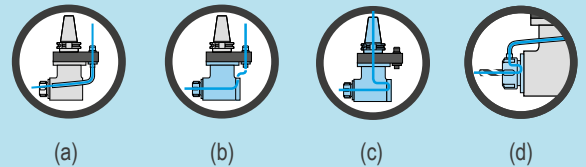
The new Evolution line of Gerardi angle heads has been designed from a technical base derived from 40 years experience of solving thousands of production problems, finding optimum solutions and always guaranteeing the highest product quality 91 standard angle head types are now offered, designed, built and distributed in more than 50 countries the world over by Gerardi S.p.A., and available with a range of options to complete their application and performance potentials.

INTERCHANGEABLE  
Shank



## Main Technical features:

- 1- Minimum thermal expansion and high corrosion resistant treated steel body
  - 2- **Modularity: main shaft with interchangeable Drive Taper (Double contact) allows an EVOLUTION angle head to be used on other machining centres with different spindle types and sizes. It is also possible to exchange the anti-rotation (arrester) sub-assembly and the input drive taper with no effect on rigidity or accuracy.**
  - 3- All spindles are supported by pairs of preloaded angular contact ball bearings with ABEC 9 precision and long life lubrication.
  - 4- Gleason computer based calculations for the Gleason cut spiral bevel drive gears with ground teeth in order to guarantee a bigger torque
  - 5- More than 0 angle head types available.
  - 6- Among the new range of angle head types the slim series have reduced weights and overall dimensions. The Slim series are even able to enter a minimum  $\varnothing$  35mm.
  - 7- Up to 10 bar coolant through the pin included in the standard heads. (Fig.a)
  - 8- Coolant feed through the tool options:
    - 10- bar through rotary distributor (Fig.b)
    - 70- bar through machine spindle, dry running allowed (Fig.c)
    - Special ReCool nuts to get the internal coolant through the tool even on angle heads that aren't fitted for this option. (Fig.d)
  - 9- Designed for superior heat dissipation and for sustained periods of high speed operations
  - 10- 100% compatibility with heads installed during the last 40 years (same anti-rotation/arrester pin and stop block dimensions)
  - 11- GERARDI Evolution angle heads have been designed and are manufactured in Italy. They are covered by 1 year warranty.
- For technical features, performances and standard equipment, please refer to the present catalogue.**



## ATC Series

from pag 2.11 to 2.59



ATC angle heads are ideal for CNC machines with automatic tool change and can be automatically transferred from the tool store to the machine spindle and vice-versa.

The orientation ring and arrester arm support ring are both 360° adjustable to allow the best angular orientation.

On FMU heads, the cutter spindle housing can be adjusted at  $\pm 90^\circ$ .

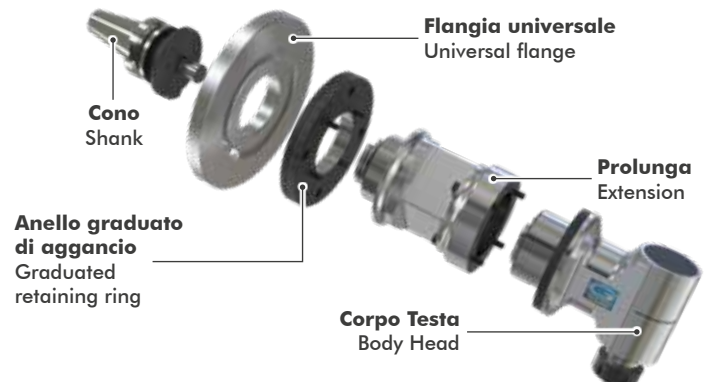
If an ATC angle head is not placed into the machine spindle, a locking system prevents shank rotation relative to the head body.

## MTC Series

from pag 2.61 to 2.66



This is a range of heads is for conventional machines without automatic tool change. MTC angle heads (Manual Toll Change) are manually mounted on the machine headstock through a flange. On FMU heads, the cutter spindle housing can be adjusted at  $\pm 90^\circ$ .



# MODULARITÀ SENZA MODULARITY WITHOUT

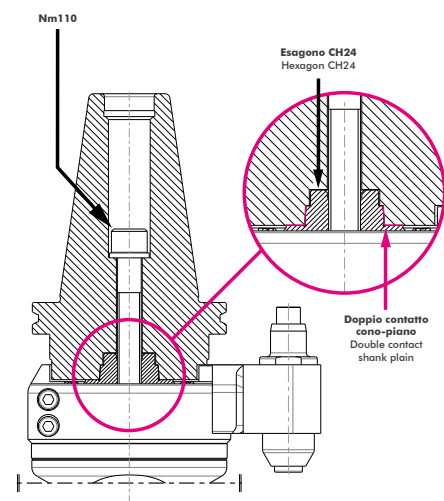
UNA SOLA TESTA PER PIÙ CENTRI DI LAVORO  
ONE HEAD FOR MANY MACHINES

**Coni intercambiabili per un utilizzo su più centri di lavoro!!**

Interchangeable drive tapers to suit any machine spindle!!



**PERNO DI POSIZIONAMENTO MODULARE  
INTERCAMBIABILE A SCELTA**  
A CHOICE OF MODULAR INTERCHANGEABLE  
ARRESTER PINS



**UN INVESTIMENTO CHE  
SI RIPAGA VELOCEMENTE !!**  
QUICKEST RETURN ON YOUR  
INVESTMENT !!



F90-10 / ATC ISO-40 / 65

HSK-63

STOP-BLOCK

**IL DOPPIO CONTATTO CONO E PIANO ASSI-  
CURANO RIGIDITÀ E PRECISIONE !!**  
THE UNIQUE GERARDI TAPER AND FACE LOCA-  
TION ENSURE RIGIDITY AND ACCURACY !!

# COMPROMESSI COMPROMISES

UN SOLO CENTRO DI LAVORO CON PIÙ TESTE  
THE SAME MACHINE WITH MANY HEADS

**Lavorare nelle migliori condizioni risparmiando sui costi di acquisto !!**

A system to save costs !!

2



**F90-10**



**F90-10L**



**F90-16S 2U**



**FMU-16**



**UNA SOLUZIONE  
APERTA PER IL LAVORO DI OGGI ,  
PENSANDO A QUELLO DI DOMANI !!  
BE READY FOR TOMORROW  
WITH THE HEAD YOU BUY TODAY !!**

Novità / News

# Linea Evolution / Evolution Line



## Teste angolari Modulari

Modular angle heads

2



series  
**LIGHT**

Nuove teste angolari con corpo in alluminio FL90-13L e FL90-16L

New angle heads with aluminum body FL90-13L and FL90-16L



series  
**FLU**

Nuova testa angolare in alluminio FLU con angolazione regolabile da 0° a 180°

New angle head FLU with aluminum bodies with adjustable angle from 0° to 180°



series  
**STD 90°**

Nuovo modello di testa angolare con cono integrale F90-20L

New angle head model F90-20L with integral shank



series  
**OFFSET**

Nuova gamma di teste disassate con refrigerante interno fino a 70bar.

New offset heads range with internal coolant up to 70 bar.

Esempi applicativi / Applications examples

# Linea Evolution / Evolution Line

**Teste angolari modulari serie ATC (Cambio utensile automatico)**

Modular angle heads ATC series (Automatic tool change)



series  
**SLiM**

Ideali per Microlavorazioni in spazi ristretti

Ideal for Micromachining in narrow spaces



series  
**STD 90°**

La serie ideale per fresature, forature e maschiature a  $\pm 90^\circ$

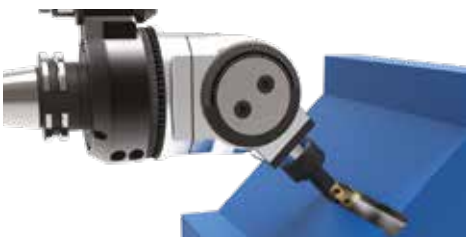
The ideal series for milling, drilling and tapping at  $\pm 90^\circ$



series  
**LANT**

La serie di teste angolari con passaggio refrigerante dal mandrino, uscita utensile 10bar

With coolant input from the main spindle and output through the tool at 10bar



series  
**FM U**

La serie di teste angolari con angolazione regolabile da 0 a  $90^\circ$ . Spina di posizionamento rapido (Step  $15^\circ$ )

Angle heads series with adjustable angle from 0 to  $90^\circ$ . Quick positioning pin (Step  $15^\circ$ )



series  
**DOUB2E**

La serie di teste angolari ideali per fresature, forature e maschiature attraverso 2 mandrini contrapposti di  $180^\circ$

Angle Heads series for milling drilling and tapping through 2 opposite outputs










series  
**OFFSET**

Teste angolari disassate per lavorazioni in spazi ristretti con opzione passaggio refrigerante dal cono, uscita utensile 70 BAR  
Offset series for machining in narrow spaces with coolant input directly from machine spindle and output through the tool at 70 BAR



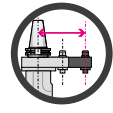
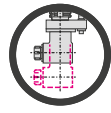

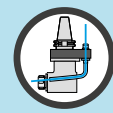
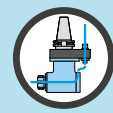

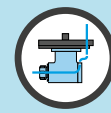
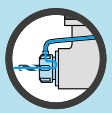
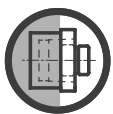
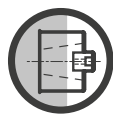
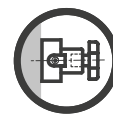

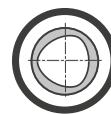


## SIMBOLOGIA DATI TECNICI TECHNICAL DATA LOGOS

2

							
<b>Rapporto trasmissione</b> Ratio	<b>Numero di giri</b> Revolutions per minute Rpm	<b>Carico assiale</b> Axial load N	<b>Coppia</b> Torque Nm	<b>Peso</b> Weight Kg	<b>Uscita</b> Output Ø	<b>Maschio</b> Tapping M	<b>Pinza</b> Collet Ø

## INDICE OPZIONI OPTIONS INDEX

<b>OPZIONI</b> OPTIONS					
	<b>Alta velocità</b> High speed	<b>Spina per posizionamento rapido</b> Quick positioning pin	<b>Interasse speciale</b> Special pitch	<b>Lunghezze speciali</b> Special lenght	<b>Flangia Multipoint</b> Multipoint flange
<b>PASSAGGIO REFRIGERANTE</b> COOLANT					
	<b>Attraverso il perno</b> Through the Pin  <b>10bar (standard)</b> <b>ROTAZ, a SECCO</b> DRY RUNNING ✓	<b>Perno » Distrib » Utensile</b> Pin » Distributor » Tool <b>10bar</b> <b>ROTAZ, a SECCO</b> DRY RUNNING ✓	<b>Cono » Distrib » Utensile</b> Shank » Distributor » Tool <b>70bar</b> <b>ROTAZ, a SECCO</b> DRY RUNNING NO	<b>Distributore » Utensile</b> Distributor » Tool <b>10bar</b> <b>ROTAZ, a SECCO</b> DRY RUNNING NO	<b>Perno » Ghiera » Utensile</b> Pin » Distrib » Tool <b>ReCool NUT</b>
<b>USCITA</b> OUTPUT					
	<b>Uscita HSK</b> HSK output	<b>Uscita ISO</b> ISO output	<b>Uscita portafresa</b> Toolholder output	<b>Uscita WELDON</b> WELDON output	<b>Uscita C.</b> C. output

# ATC SERIES AUTOMATIC TOOL CHANGE

2

## INGRANAGGI GEARS



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

Gleason ground spiral bevel gears maximum performances and minimum vibration

## STOP BLOCK

**con bussola cementata e guarnizione**

with case hardened bushing and gasket



## CUSCINETTI - BEARINGS



**Cuscinetti a sfera a contatto obliquo in classe di precisione ABEC 9**

Angular contact preloaded ball bearings of precision class ABEC 9

## DESIGN

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

The Compact design, along with mentioned specifications, allows: highest performances, high speeds, long tools life

**Albero cementato, temprato, rettificato**  
Case hardened and ground shank and shaft

**Perno di riferimento con sbloccaggio automatico del porta utensile**

Positioning pin with automatic release

**Gruppo antirotante modulare**

Modular antirotation group

**Passaggio refrigerante 10BAR attraverso il perno**

Standard 10BAR coolant through the pin

**Anello graduato**  
Graduated ring

**Corpo testa orientabile a 360° con pressurizzazione interna. In acciaio trattato, massima rigidità e resistenza alla corrosione. Minima dilatazione termica.**

Treated steel head body with 360° position and internal air pressure, maximum rigidity and corrosion resistant. Minimum thermal expansion

## USCITE - OUTPUTS:

- Portapinza ER (standard)
- Weldon
- Portafresa
- Speciale
- ER collet (standard)
- Weldon
- Shell mill holder
- Special



Ciascun albero di trasmissione supportato da cuscinetti a contatto obliquo, che garantiscono rotazioni dell'albero-cono e dell'uscita portautensile entro 0,01 mm  
Each transmission shaft is supported by slanting bearings that ensure the shaft with shank and the toolholder output rotations within 0,01mm.

# series LIGHT

## LIGHT SERIES ANGLE HEADS LIGHT SERIES

### Serie **LIGHT**

da pag 2.13 a 2.19

Caratteristiche tecniche principali:

- Design ottimizzato per un miglior rapporto qualità prezzo.
- Corpo in alluminio.
- Riduzione significativa del peso.
- Perno di posizionamento conico.

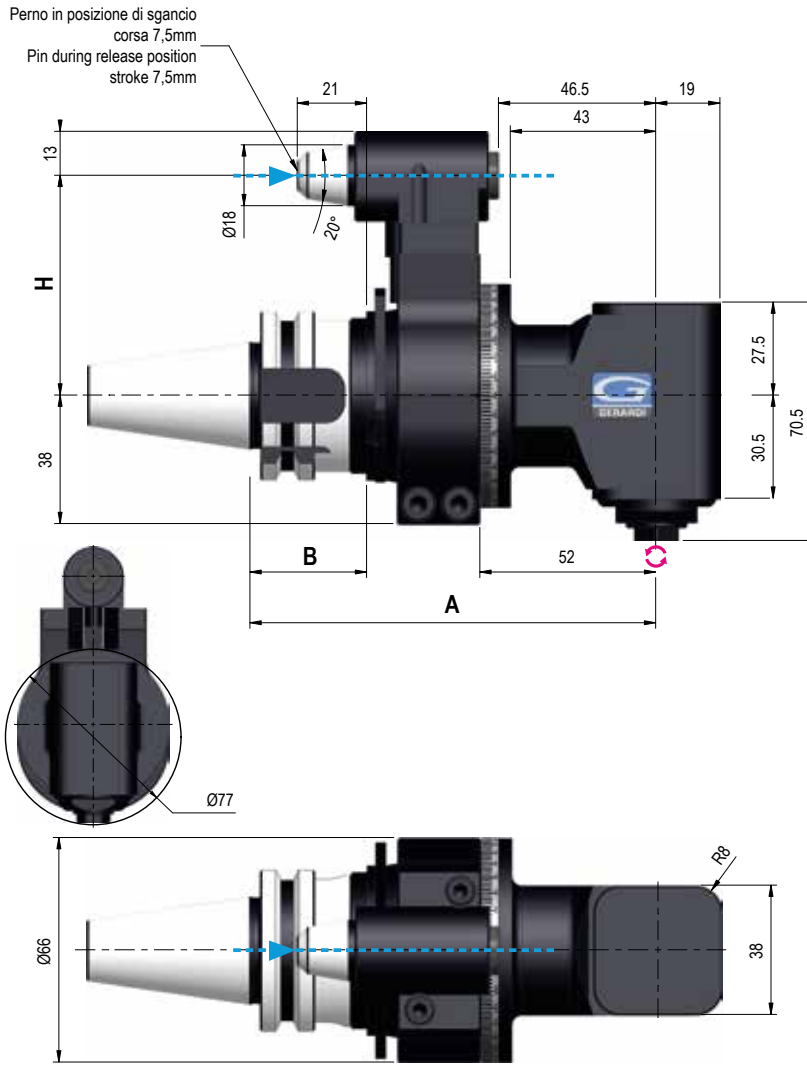
### **LIGHT** Series

from page 2.13 to 2.20

Main technical features:

- Design studied for a best price-quality ratio.
- Aluminum body.
- Weight reduction.
- Conic positioning pin.





## FL90-7

TYPE 0

Code:

9.FL9.07000

Price:



### Dati tecnici - Technical data



Ratio  
1:1



ISO/BT30  
2.1 Kg  
ISO/BT40  
2.5 Kg



Rpm  
8.000



Ø 7



N -



M 6



Nm 5



ER11  
Ø1/7



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893
Grandezza - Size	30      40	40	30      40	63      80
Prezzo EXTRA Price €	optional      std	std	optional      std	optional      std
H Standard Ø18	65	65	65	65
	optional	optional	optional	optional
A	120	120	120	129
B	35	35	35	44

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



PINZA  
COLLET

ER11 - Ø1/7

optional



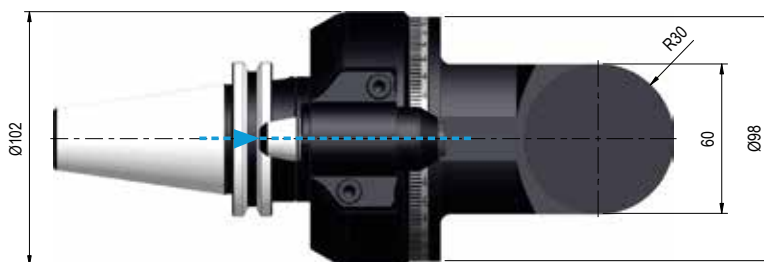
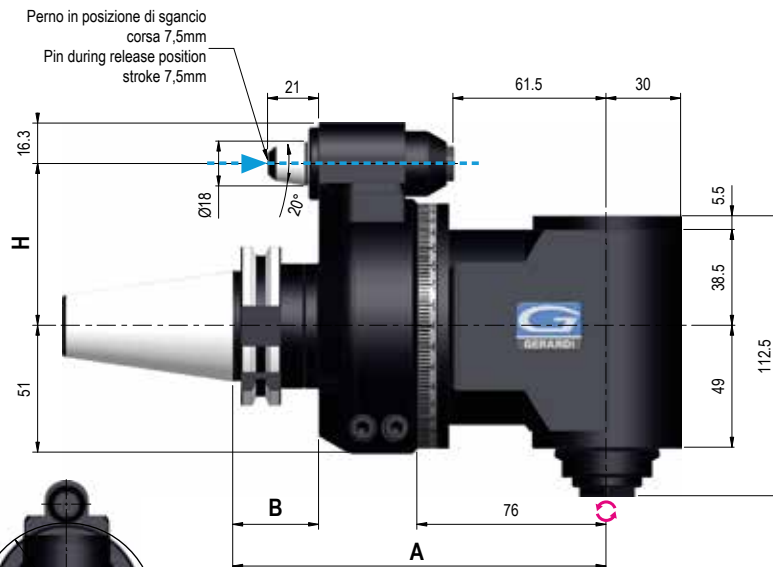
INTERASSE SPECIALE  
SPECIAL PITCH

optional

# FL90-13

TYPE 1

Code: 9.FL9.13000  
Price:



### Dati tecnici - Technical data

Ratio 1:1	ISO/BT30 4,6 Kg ISO/BT40 5 Kg ISO/BT50 7,5 Kg
Rpm 6.000	Ø 13
N -	M 10
Nm 20	ER20 Ø1/13



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403			HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080		
	30	40	50	40	50	30	40	50	63	80	100	C5	C6	C8	63	80	100	40	50	
Grandezza - Size	opt.	std	opt.	std	opt.	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.	
Prezzo EXTRA Price €																				
H	Standard Ø18		65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80
	110 - Ø18		optional		optional		optional		optional		optional		optional		optional		optional		optional	
	110 - Ø28																			
A			150		150		150		158		159									
B			35		35		35		43		44									

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Special bag - Stop-block - ER nut - Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**  
PACK & WEIGHT: Max. Kg



ER20 - Ø1/13

optional

PINZA COLLET



INTERASSE SPECIALE SPECIAL PITCH

optional



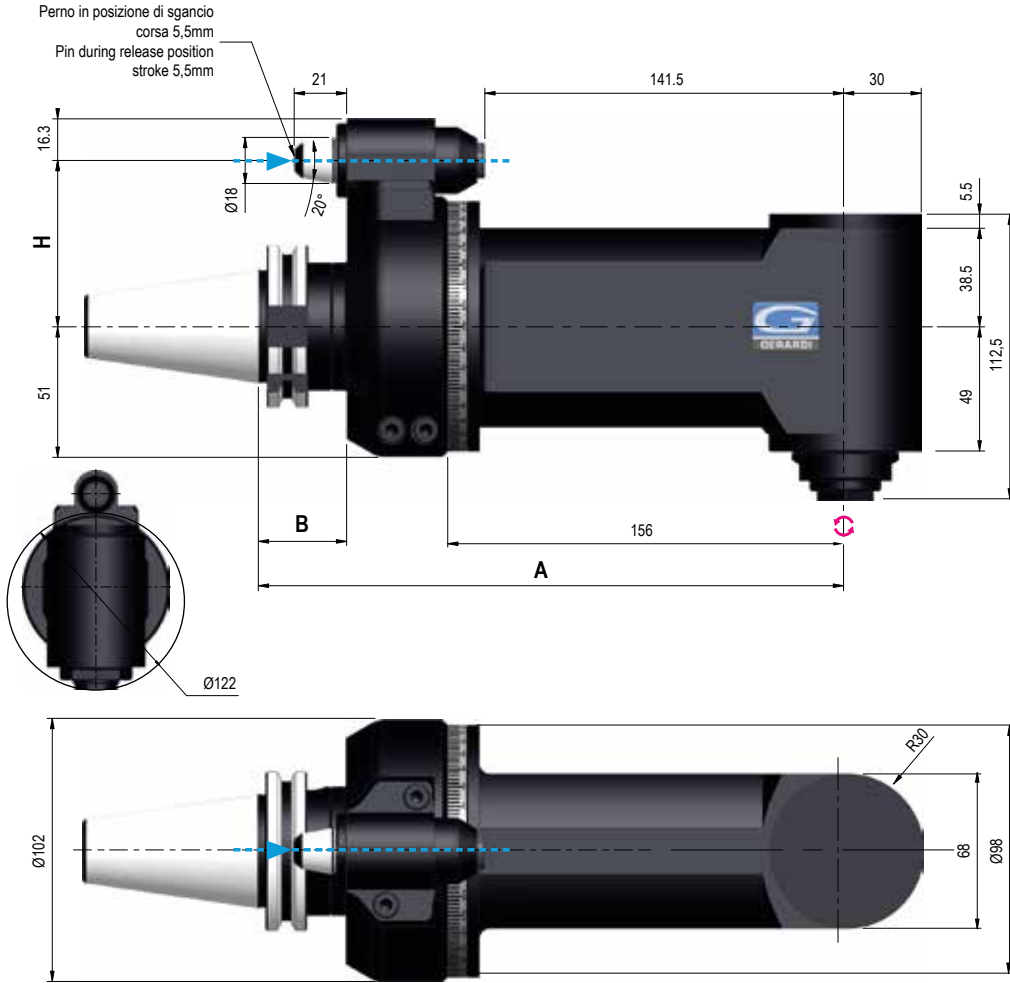
# FL90-13L

TYPE 1

Code:

9.FL9.13L00

Price:



**Dati tecnici - Technical data**

Ratio 1:1	ISO/BT40 5,7 Kg ISO/BT50 8 Kg
Rpm 6.000	Ø 13
N -	M 10
Nm 20	ER20 Ø1/13



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080		
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18		80		65 / 80		80		65 / 80			80			65 / 80		80	
	110 - Ø18		optional		optional		optional		optional			optional			optional		optional	
	110 - Ø28		optional		optional		optional		optional			optional			optional		optional	
A	150		150		150		158		159			-			-		-	
B	35		35		35		43		44			-			-		-	

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

PINZA  
COLLET

INTERASSE SPECIALE  
SPECIAL PITCH

**IMBALLO & PESO**  
PACK & WEIGHT: Max. 12Kg

ER25 - Ø1/16



optional



optional

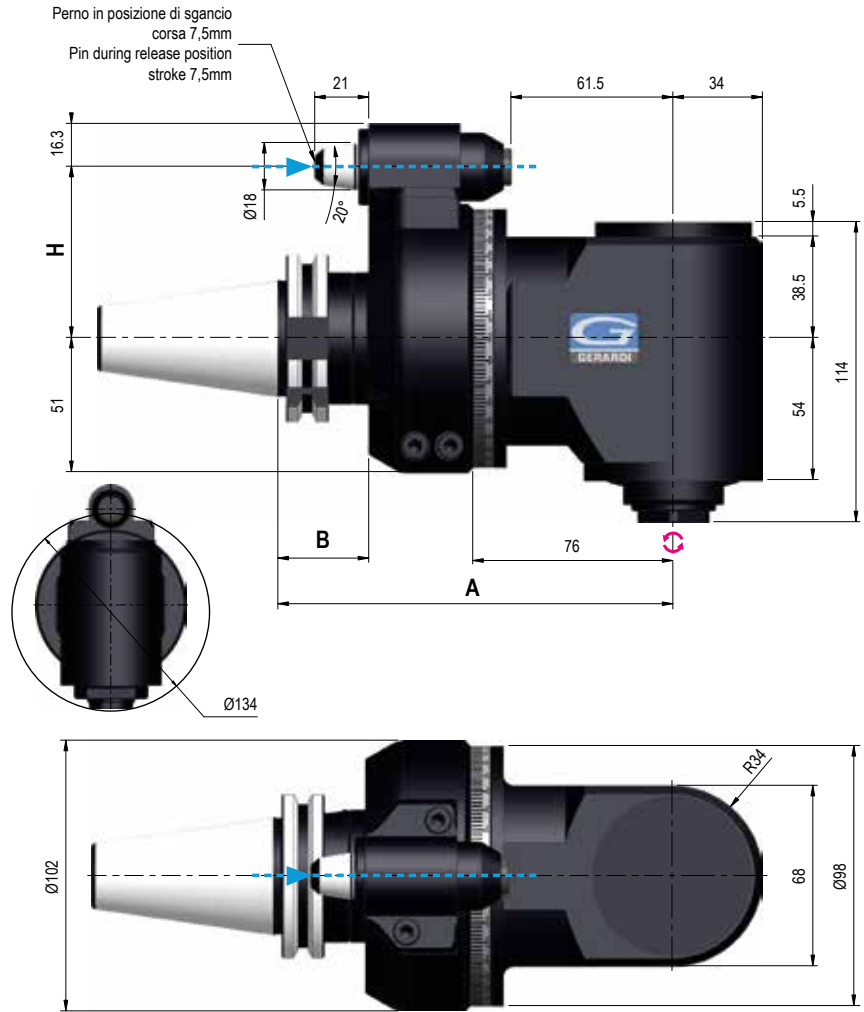
### FL90-16

TYPE 1

Code:

9.FL9.16000

Price:



#### Dati tecnici - Technical data



Ratio  
1:1



ISO/BT40  
5 Kg  
ISO/BT50  
7,5 Kg



Rpm  
4.000



Ø 16



N -



M 12



Nm 26



ER25  
Ø1/16



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65/80	80	65 / 80	80	65 / 80	80	65 / 80	80
	110 - Ø18	optional		optional		optional		optional		optional		optional		optional		optional	
	110 - Ø28	optional		optional		optional		optional		optional		optional		optional		optional	
A		150		150		150		158		159		-		-		-	
B		35		35		35		43		44		-		-		-	

#### Dotazione Standard Standard Equipment

#### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

#### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



PINZA  
COLLET

ER20 - Ø1/13

optional



INTERASSE SPECIALE  
SPECIAL PITCH

optional

# FL90-16L

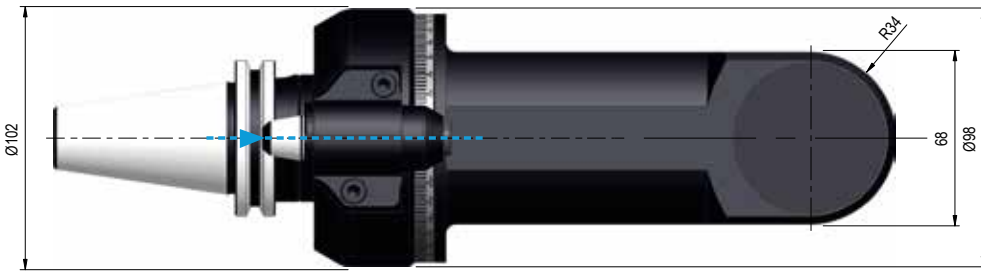
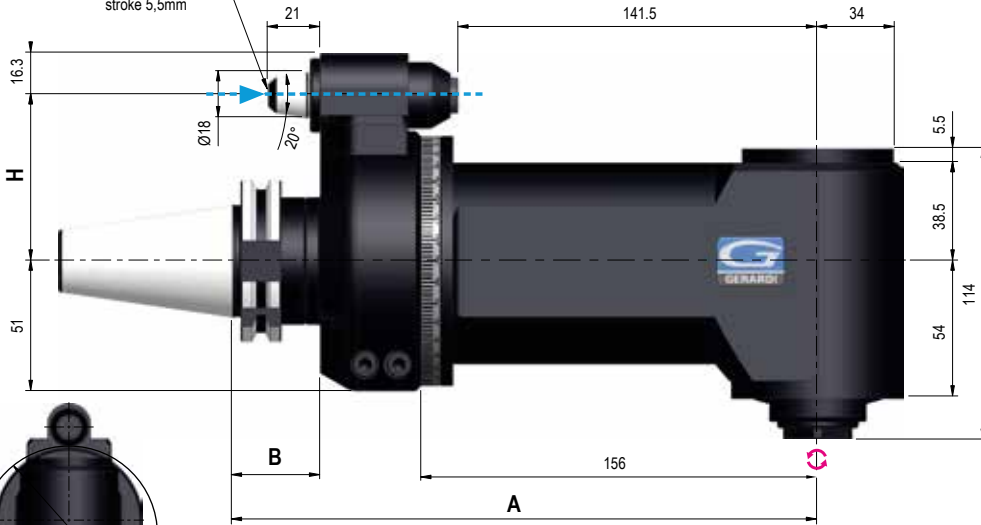
TYPE 1

Code:

9.FL9.16L00

Price:

Perno in posizione di sgancio  
corsa 5,5mm  
Pin during release position  
stroke 5,5mm



### Dati tecnici - Technical data



Ratio  
1:1



ISO/BT40  
6,5 Kg  
ISO/BT50  
8,5 Kg



Rpm  
4.000



Ø 16



N -



M 12



Nm 26



ER25  
Ø1/16



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65/80	80	65 / 80	80	65 / 80	80	65 / 80	80
	110 - Ø18	optional		optional		optional		optional			optional			optional			
	110 - Ø28	optional		optional		optional		optional			optional			optional			
A	150		150		150		158		159			-			-		
B	35		35		35		43		44			-			-		

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. 12Kg



PINZA  
COLLET



ER25 - Ø1/16

optional

INTERASSE SPECIALE  
SPECIAL PITCH



optional

# FL90-16 2U

TYPE 1

Code:

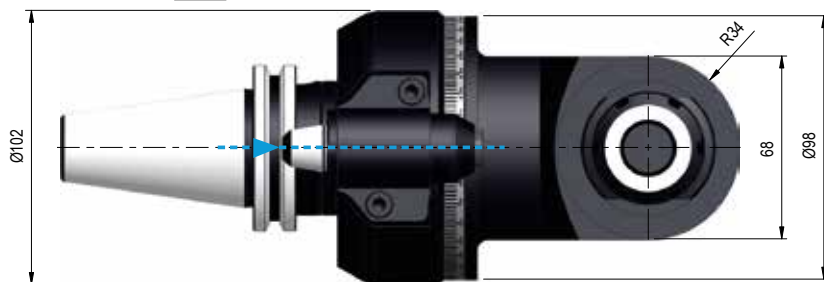
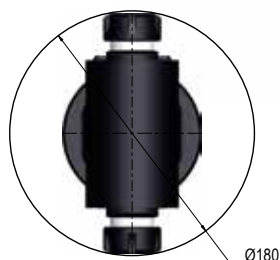
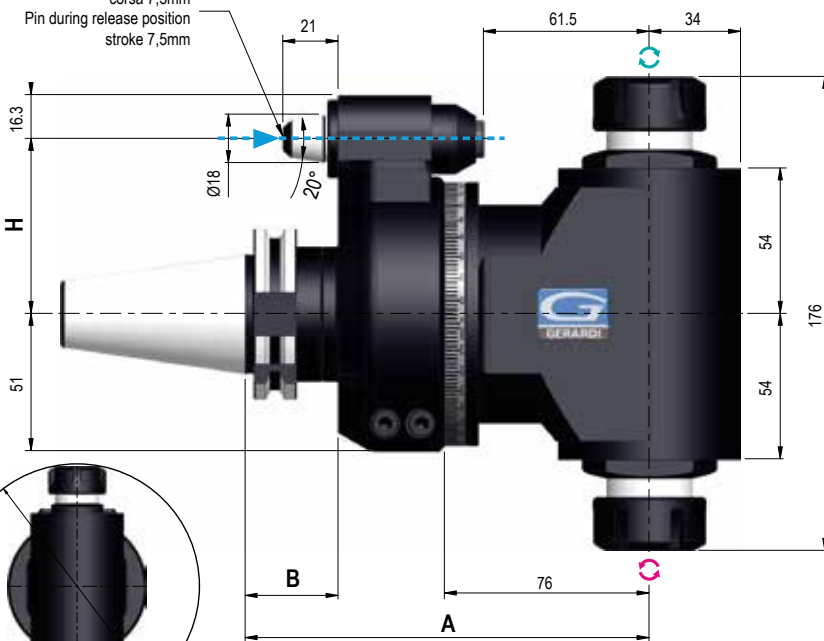
9.FL9.162U0

Price:

**NEW**



Perno in posizione di sgancio  
corsa 7,5mm  
Pin during release position  
stroke 7,5mm



### Dati tecnici - Technical data

Ratio 1:1	6 Kg
Rpm 4.000	Ø16
N -	M12
Nm 26	ER25 Ø1/16



SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE  
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65/80	80	65 / 80	80	65 / 80	80	65 / 80	80
	110 - Ø18	optional		optional		optional		optional		optional		optional		optional		optional	
	110 - Ø28	optional		optional		optional		optional		optional		optional		optional		optional	
A	150		150		150		158		159		-		-		-		
B	35		35		35		43		44		-		-		-		

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

PINZA  
COLLET

INTERASSE SPECIALE  
SPECIAL PITCH

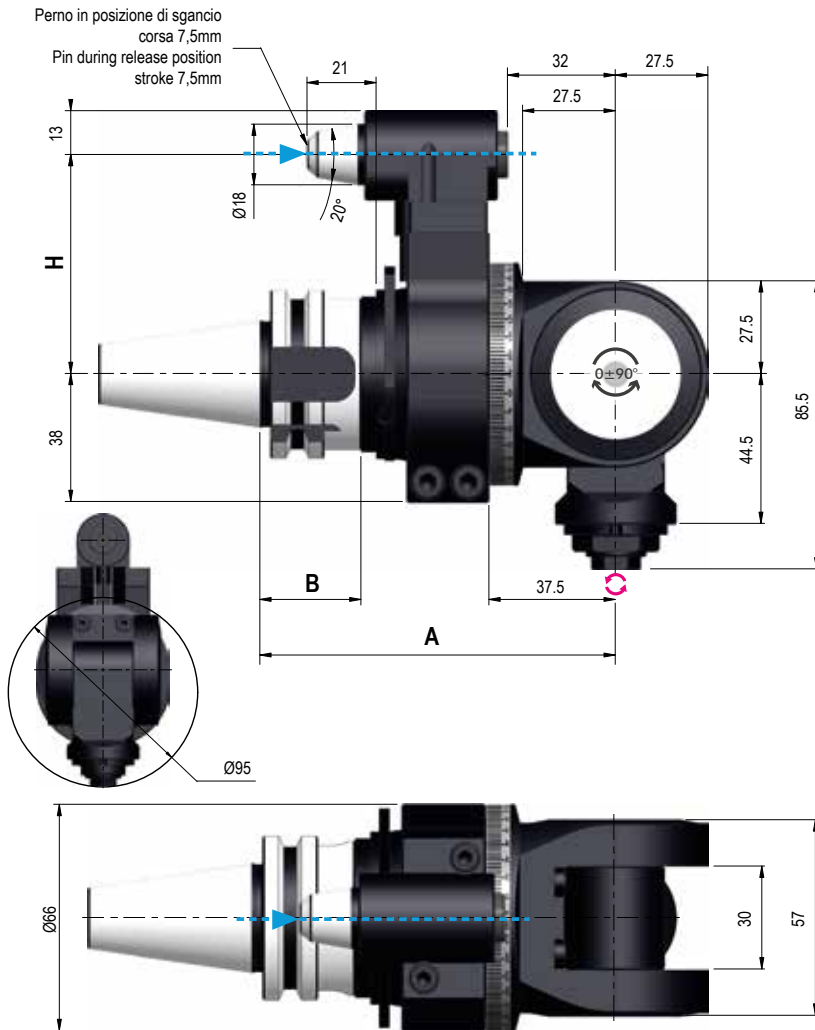
**IMBALLO & PESO**  
PACK & WEIGHT: Max. Kg

ER25 - Ø1/16



optional

optional



## FLU-7

TYPE 0

Code:

9.FLU.07000

Price:



### Dati tecnici - Technical data



Ratio  
1:1



ISO/BT30  
- Kg  
ISO/BT40  
2 Kg



Rpm  
8.000



Ø 7



N -



M 6



Nm 5



ER11  
Ø1/7



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893
Grandezza - Size	30      40	40	30      40	63      80
Prezzo EXTRA Price €	optional      optional	std	optional      std	optional      std
H	Standard Ø18	65	65	65
		std	std	std
A	105,5	105,5	100,5	105,5
B	35	35	30	35
				44

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

PINZA  
COLLET

INTERASSE SPECIALE  
SPECIAL PITCH

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



ER11 - Ø1/7



optional

optional

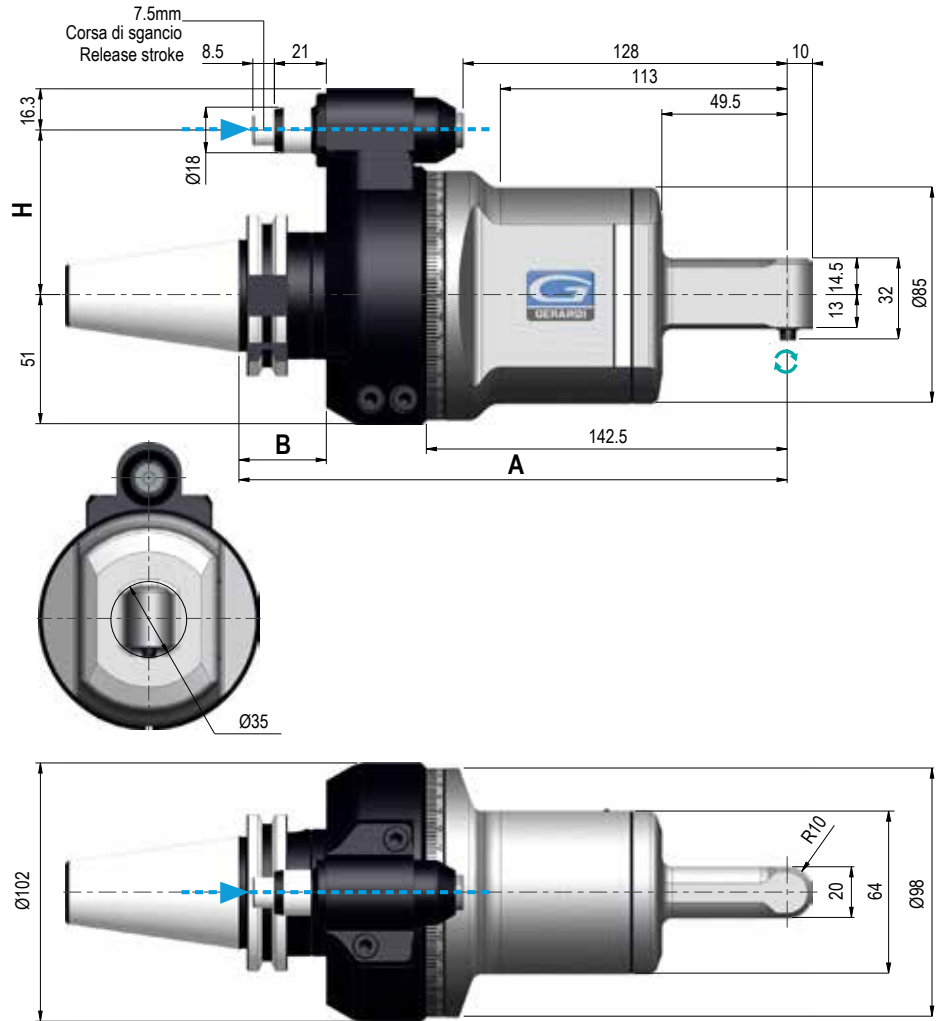




# FS90-3

TYPE 1

Code: 9.FS9.03000  
Price:



### Dati tecnici - Technical data

Ratio 1:1,2308	<b>ISO/BT40</b> 5,5 Kg <b>ISO/BT50</b> 7,5 Kg
Rpm 8.000	Ø3
N 70	M3
Nm 2	6023E Ø1/3



SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50		
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.		
Prezzo EXTRA Price €																				
H	Standard Ø18		80		65 / 80		80		65 / 80		80		65 / 80		80		65 / 80		80	
	110 - Ø18		optional		optional		optional		optional		optional		optional		optional		optional		optional	
	110 - Ø28																			
A	216,5			216,5		216,5		224,5		225,5			220,5			216,5			216,5	
B	35			35		35		43		44			39			-			35	

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block -  
Wrenches - Grease tube - Instruction book

PINZA  
COLLET

INTERASSE SPECIALE  
SPECIAL PITCH

**IMBALLO & PESO**  
PACK & WEIGHT: Max. Kg



6023E



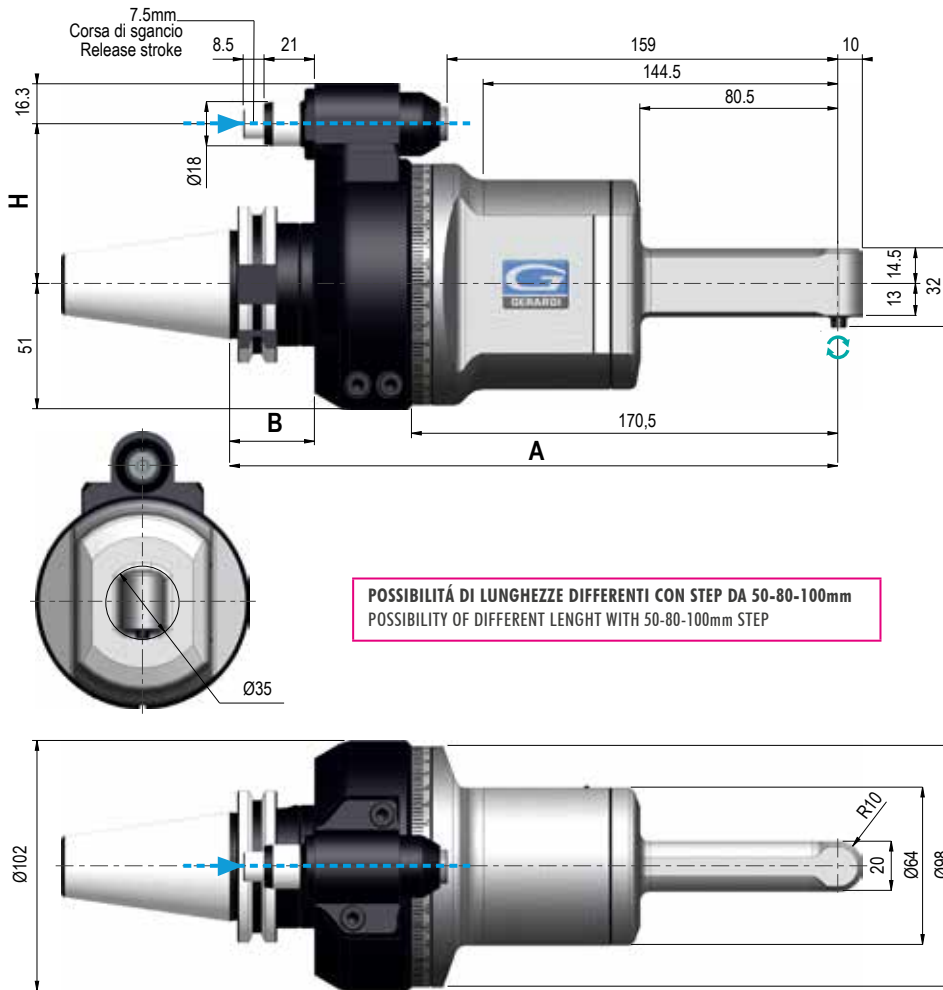
# FS90-3L

TYPE 1

Code:

9.FS9.03L00

Price:



POSSIBILITÀ DI LUNGHEZZE DIFFERENTI CON STEP DA 50-80-100mm  
POSSIBILITY OF DIFFERENT LENGTH WITH 50-80-100mm STEP



### Dati tecnici - Technical data

	Ratio 1:1,2308		ISO/BT40 6,4 Kg ISO/BT50 8,6 Kg
	Rpm 8.000		Ø3
	N 70		M3
	Nm 2		6023E Ø1/3



SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080		
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50	
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.	
Prezzo EXTRA Price €																			
H	65 / 80		80		65 / 80		80		65 / 80			80		65 / 80		80		65 / 80	
	optional			optional		optional		optional			optional			optional		optional			
A	247,5		247,5		247,5		255,5		256,5			251,5			247,5			247,5	
B	35		35		35		43		44			39			-			35	

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block -  
Wrenches - Grease tube - Instruction book

PINZA  
COLLET

INTERASSE SPECIALE  
SPECIAL PITCH

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg

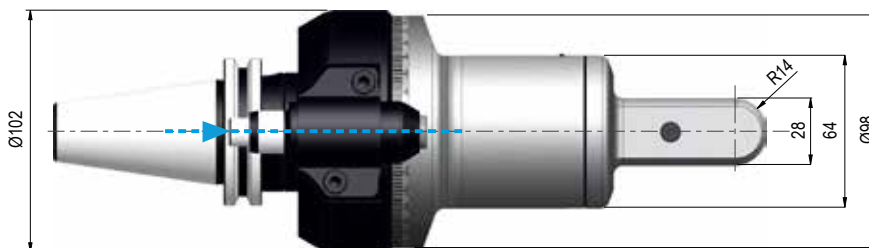
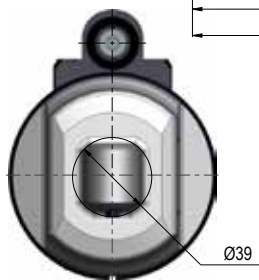
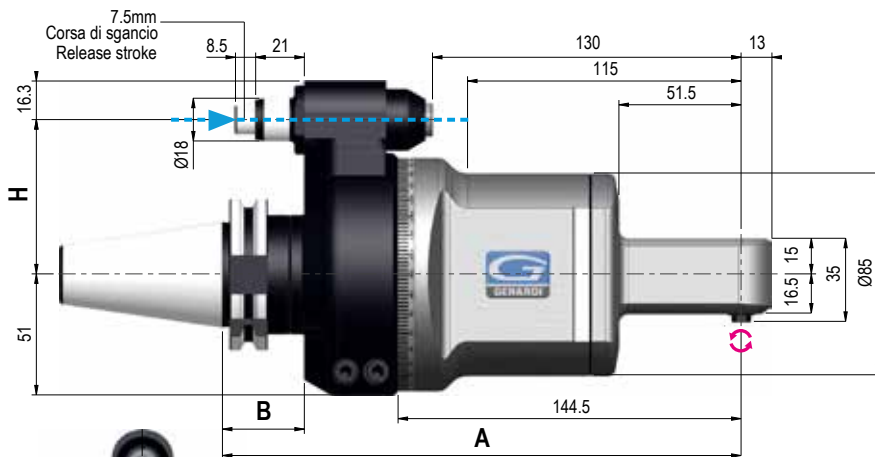
6023E



# FS90-4

TYPE 1

Code: 9.FS9.04000  
Price:



### Dati tecnici - Technical data

Ratio 1:1	<b>ISO/BT40</b> 5,5 Kg
Rpm 8.000	<b>ISO/BT50</b> 7,5 Kg
N 120	Ø4
Nm 3,5	M3
600E	Ø1/4



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50		
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.		
Prezzo EXTRA Price €																				
H	Standard Ø18		80		65 / 80		80		65 / 80		80		65 / 80		80		65 / 80		80	
	110 - Ø18		optional		optional		optional		optional		optional		optional		optional		optional		optional	
	110 - Ø28																			
A	218,5			218,5		218,5		226,5		227,5			222,5			218,5			218,5	
B	35			35		35		43		44			39			-			35	

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block -  
Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**  
PACK & WEIGHT: Max. Kg



PINZA  
COLLET

600E

Page 2.82

INTERASSE SPECIALE  
SPECIAL PITCH



optional

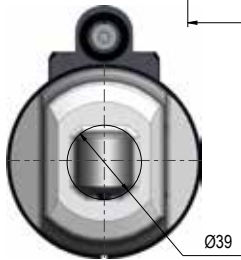
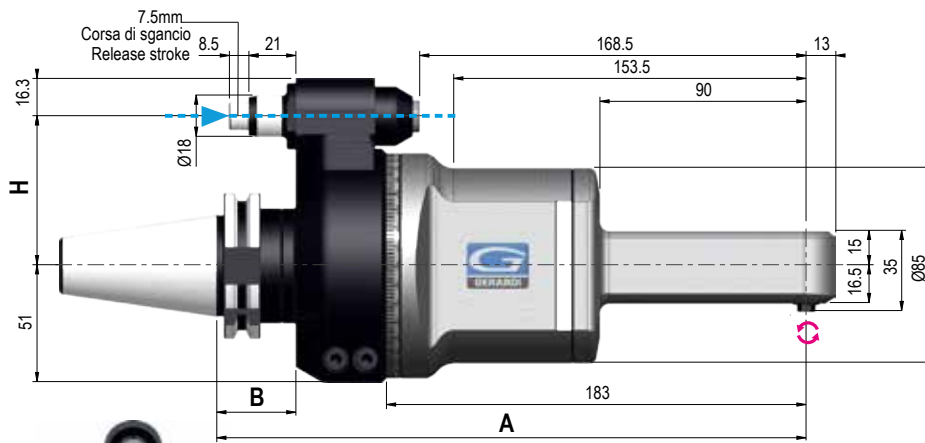
# FS90-4L

TYPE 1

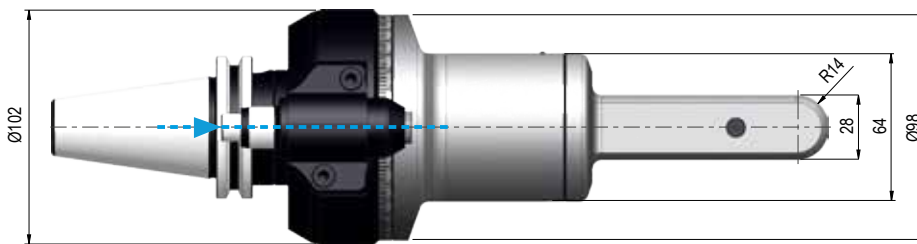
Code:

9.FS9.04L00

Price:



POSSIBILITÀ DI LUNGHEZZE DIFFERENTI CON STEP DA 50-80-100mm  
POSSIBILITY OF DIFFERENT LENGTH WITH 50-80-100mm STEP



### Dati tecnici - Technical data

	Ratio 1:1		ISO/BT40 6,8 Kg ISO/BT50 9 Kg
	Rpm 8.000		Ø4
	N 120		M3
	Nm 3,5		600E Ø1/4



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50		
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.		
Prezzo EXTRA Price €	65 / 80		80	65 / 80	80	65 / 80	80	65 / 80	80		65/80	80	65 / 80	80			65 / 80	80		
H	Standard Ø18			110 - Ø18		110 - Ø28		optional			optional			optional			optional			
A	257			257		257		265		266			261			257			257	
B	35			35		35		43		44			39			-			35	

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block -  
Wrenches - Grease tube - Instruction book

PINZA  
COLLET

INTERASSE SPECIALE  
SPECIAL PITCH

### IMBALLO & PESO

PACK & WEIGHT: Max.11,3 Kg

600E



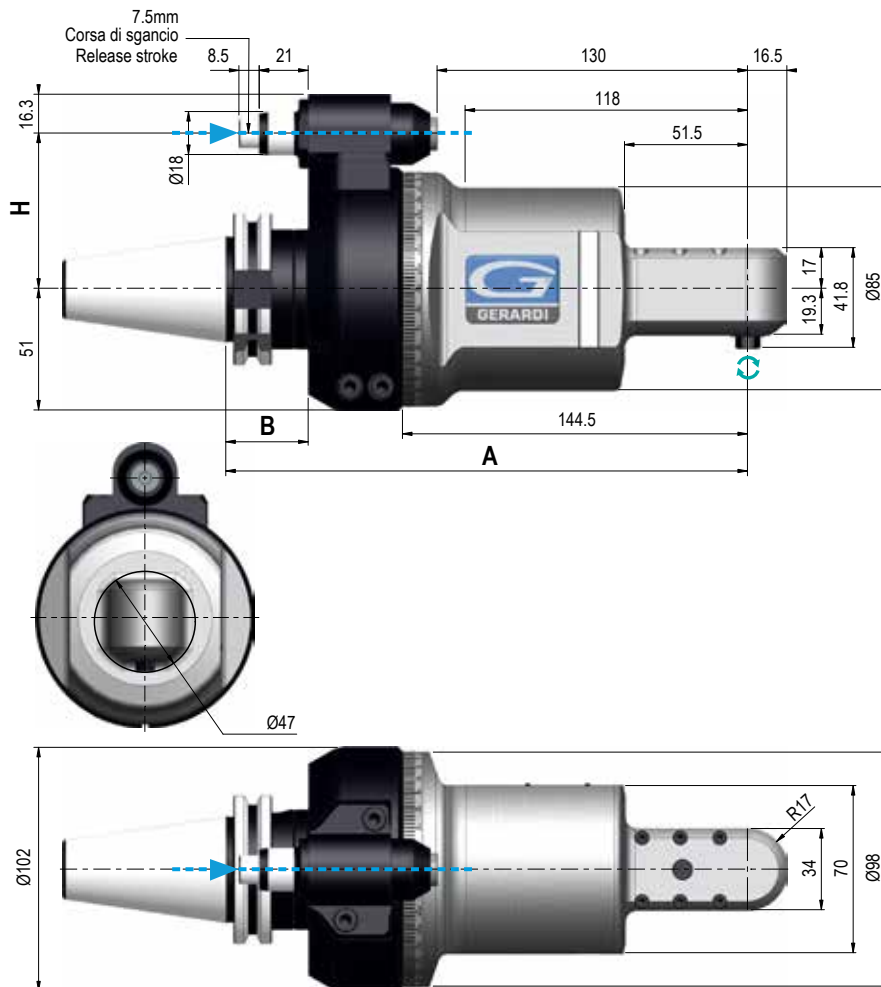
# FS90-6

TYPE 1

Code:

9.FS9.06000

Price:



### Dati tecnici - Technical data

Ratio 1:1	<b>ISO/BT40</b> 6 Kg <b>ISO/BT50</b> - Kg
Rpm 8.000	Ø6
N -	M6
Nm 4	601E Ø1/6



SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
Prezzo EXTRA Price €																		
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65	80	65	80	65	80	65	80	80	65	80
	110 - Ø18	optional		optional		optional		optional			optional			optional			optional	
	110 - Ø28	optional		optional		optional		optional			optional			optional			optional	
A	218,5			218,5		218,5	226,5	227,5			222,5			218,5			218,5	
B	35			35		35	43	44			39			-			35	

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



PINZA  
COLLET  
601E

Page 2.82



USCITA  
OUTPUT  
ER11 Ø1/7

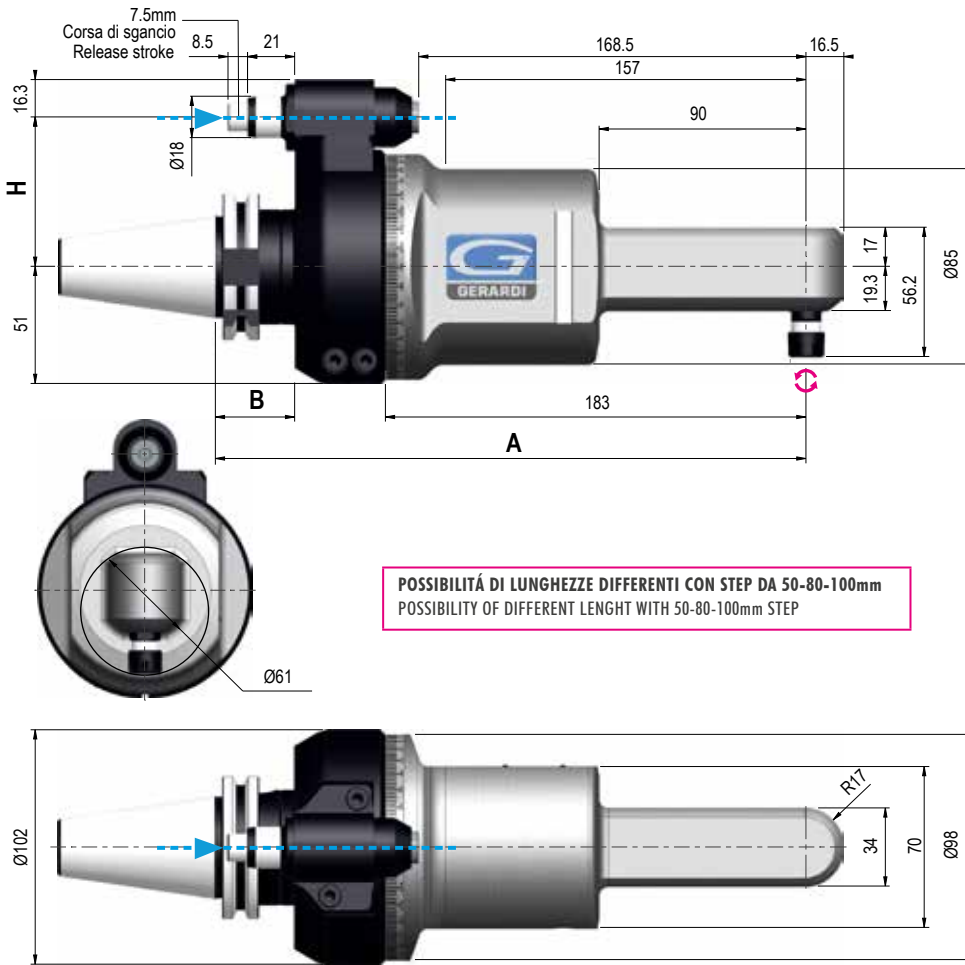
optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional





## FS90-6L

TYPE 1

Code:

9.FS9.06L00

Price:



### Dati tecnici - Technical data



Ratio  
1:1



ISO/BT40  
6 Kg  
ISO/BT50  
8,3 Kg



Rpm  
8.000



Ø7



N -



M6



Nm 4



ER11  
Ø1/7



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
Prezzo EXTRA Price €																		
H	Standard Ø18		65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65	80
	110 - Ø18	optional			optional		optional		optional			optional			optional		optional	
	110 - Ø28	optional			optional		optional		optional			optional			optional		optional	
A		257		257		257	265		266		261		261		257			257
B		35		35		35	43		44		39		39		-			35

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



USCITA  
OUTPUT

601E - Ø1/6

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional

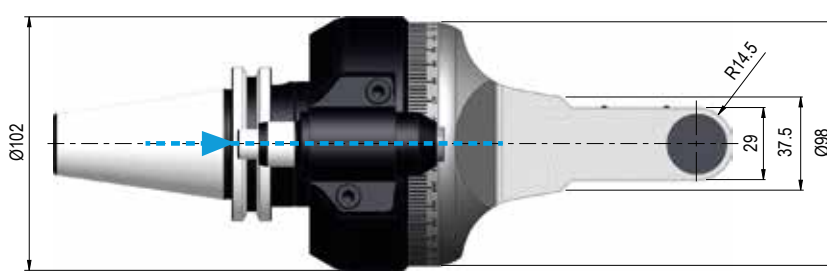
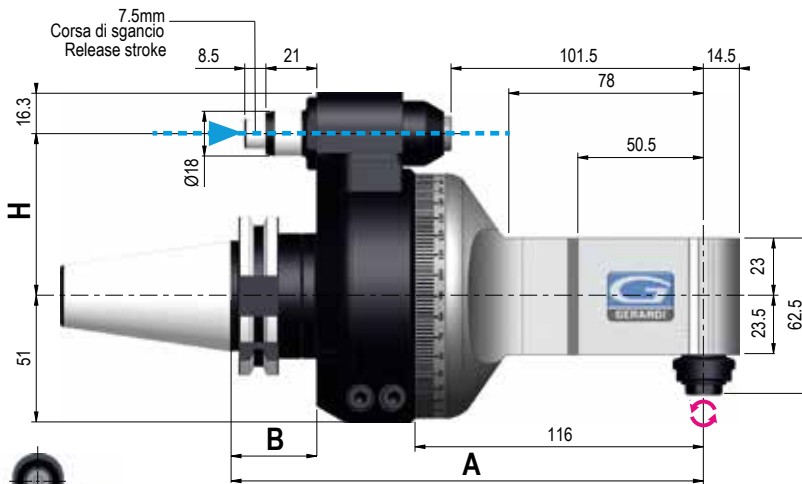
# F90-7

TYPE 1

Code:

9.F90.07000

Price:



**Dati tecnici - Technical data**

Ratio 1:1	ISO/BT40 5 Kg
Rpm 10.000	ISO/BT50 7 Kg
N 127	Ø7
Nm 6	M6
ER11 Ø17	



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50	
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.	
Prezzo EXTRA Price €																			
H	Standard Ø18		65 / 80		80		65 / 80		80		65/80		80		65 / 80		80		
	110 - Ø18		optional		optional		optional		optional		optional		optional		optional		optional		
	110 - Ø28																		
A	190		190		190		198		199			194			190			190	
B	35		35		35		43		44			39			-			35	

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Special bag - Stop-block - ER nut - Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**

PACK & WEIGHT: Max.10 Kg



PINZA COLLET  
ER11 Ø17

optional



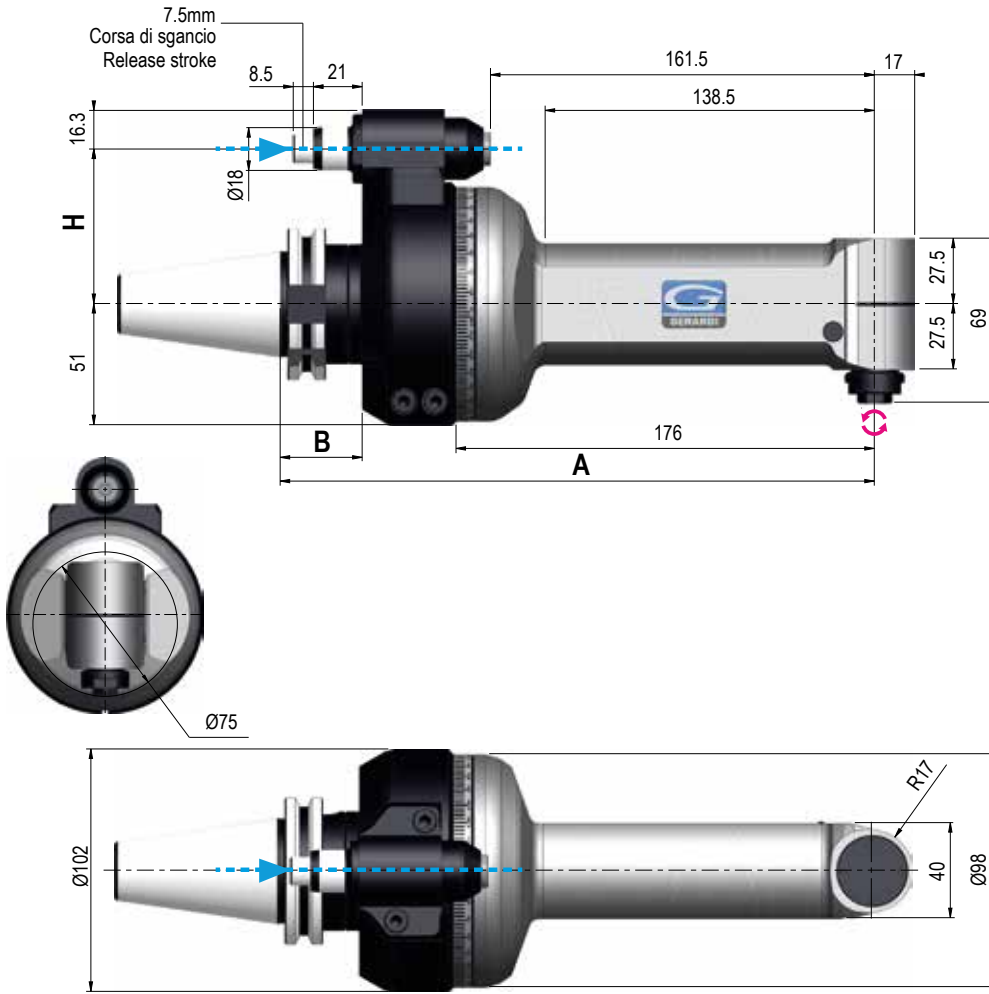
USCITA OUTPUT  
Weldon Max Ø10

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



## F90-7L

TYPE 1

Code:

9.F90.07L00

Price:



### Dati tecnici - Technical data

	Ratio 1:1		ISO/BT40 6,3 Kg ISO/BT50 8,5 Kg
	Rpm 10.000		Ø7
	N 180		M6
	Nm 6		ER11 Ø1/7



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50		
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.		
Prezzo EXTRA Price €																				
H	Standard Ø18		80		65 / 80		80		65 / 80			80			65 / 80			80		
	110 - Ø18		optional		optional		optional		optional			optional			optional			optional		
	110 - Ø28																			
A	250			250		250		258		259			254			250			250	
B	35			35		35		43		44			39			-			35	

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max.10,5 Kg



PINZA COLLET  
ER11 Ø1/7

optional



USCITA OUTPUT  
Weldon Max Ø10

optional



INTERASSE SPECIAL  
SPECIAL PITCH

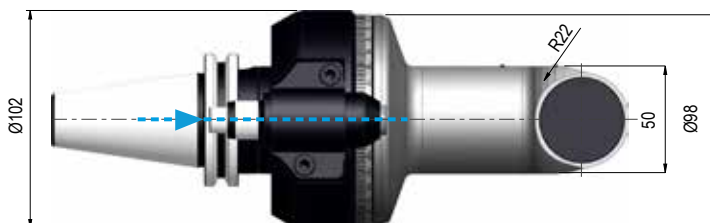
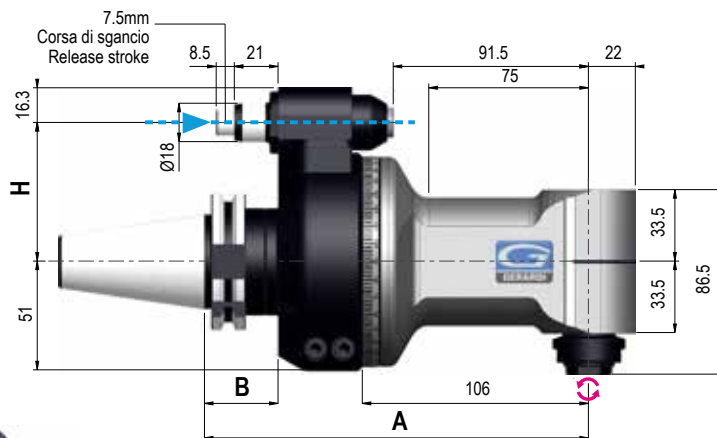
optional

# F90-10

TYPE 1

Code: 9.F90.10000

Price:



### Dati tecnici - Technical data

Ratio 1:1	ISO/BT40 5,3 Kg ISO/BT50 7,5 Kg
Rpm 10.000	Ø10
N 400	M8
Nm 11	ER16 Ø1/10



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403			HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	30	40	50	63	80	100	C5	C6	C8	63	80	100	40	50		
Grandezza - Size	opt.	std	opt.	std	opt.	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.		
Prezzo EXTRA Price €																					
H Standard Ø18	65 / 80		80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65/80	80	65 / 80	80	65 / 80	80	65 / 80	80		
H 110 - Ø18	optional			optional		optional			optional			optional			optional			optional			
H 110 - Ø28	optional			optional		optional			optional			optional			optional			optional			
A	180			180		180			188			189			184			180		180	
B	35			35		35			43			44			39			-		35	

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Special bag - Stop-block - ER nut - Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



PINZA COLLET  
ER16 - Ø1/10

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



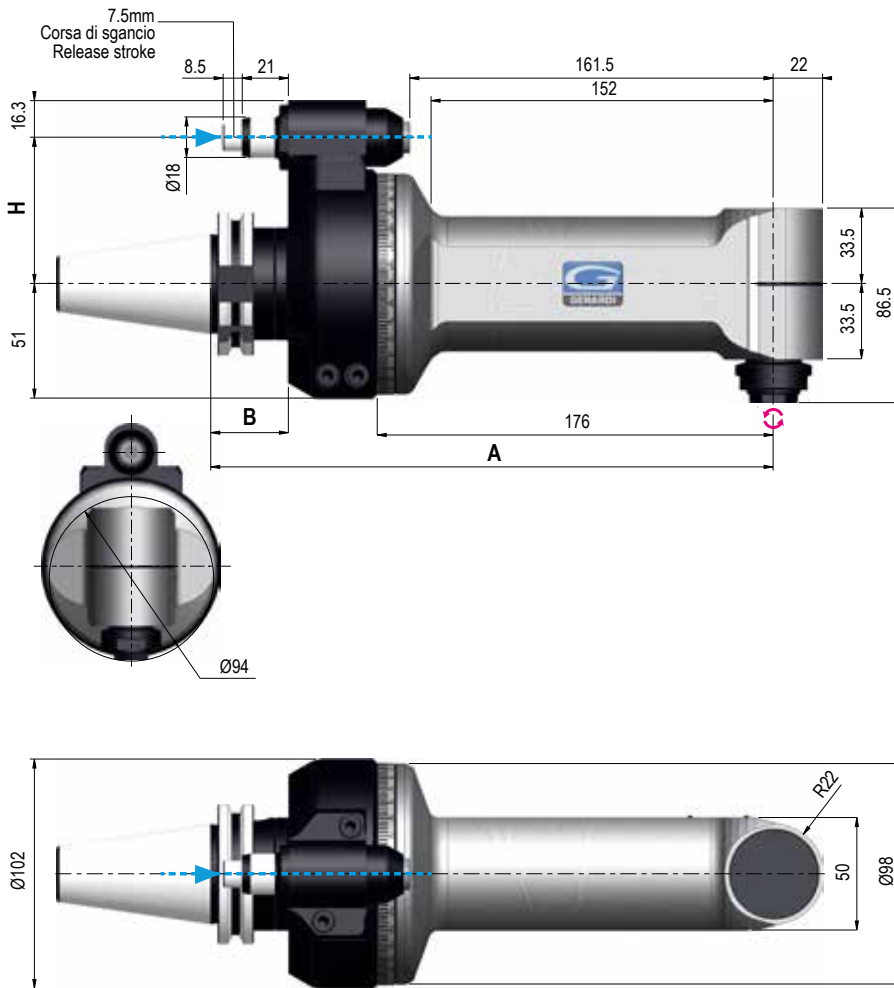
USCITA OUTPUT  
Weldon Max Ø10

optional



USCITA OUTPUT  
Toolholder Ø16

optional



## F90-10L

TYPE 1

Code:

9.F90.10L00

Price:



### Dati tecnici - Technical data

	Ratio 1:1		ISO/BT40 6,9 Kg ISO/BT50 9,2 Kg
	Rpm 10.000		Ø10
	N 400		M8
	Nm 11		ER16 Ø1/10



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50		
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.		
Prezzo EXTRA Price €																				
H	65 / 80		80		65 / 80		80		65 / 80			80		65 / 80		80		65 / 80		
	optional			optional		optional		optional			optional			optional		optional				
A	250			250		250		258		259			254			250			250	
B	35			35		35		43		44			39			-			35	

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. 12,3 Kg



PINZA  
COLLET  
ER16 - Ø1/10

optional



USCITA  
OUTPUT  
Weldon Max Ø10

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



USCITA  
OUTPUT  
Toolholder Ø16

optional

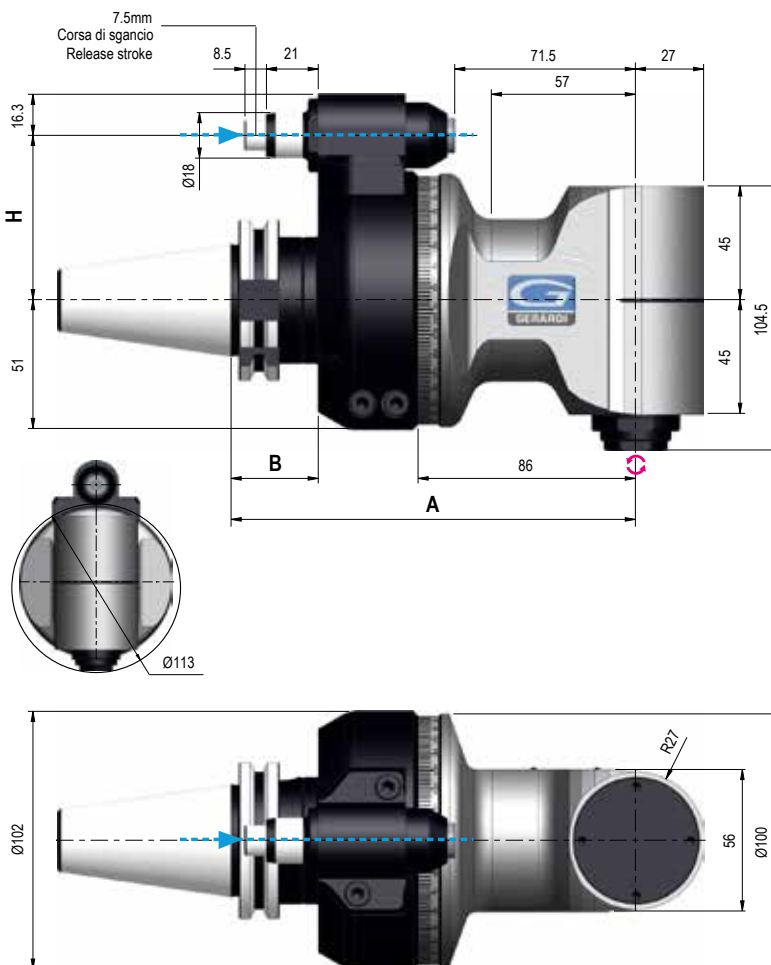
# F90-13

TYPE 1

Code:

9.F90.13000

Price:



## Dati tecnici - Technical data



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80
	110 - Ø18	optional		optional		optional		optional			optional			optional			
	110 - Ø28	optional		optional		optional		optional			optional			optional			
A	160		160		160	168	169			164			160			160	
B	35		35		35	43	44			39			-			35	

## Dotazione Standard Standard Equipment

## Opzioni - Options

Valigetta - Stop-block - Ghiera ER - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Special bag - Stop-block - ER nut - Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



PINZA COLLET  
ER20 - Ø1/13

optional



USCITA OUTPUT  
Weldon Max Ø16

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



USCITA OUTPUT  
Toolholder Ø16

optional



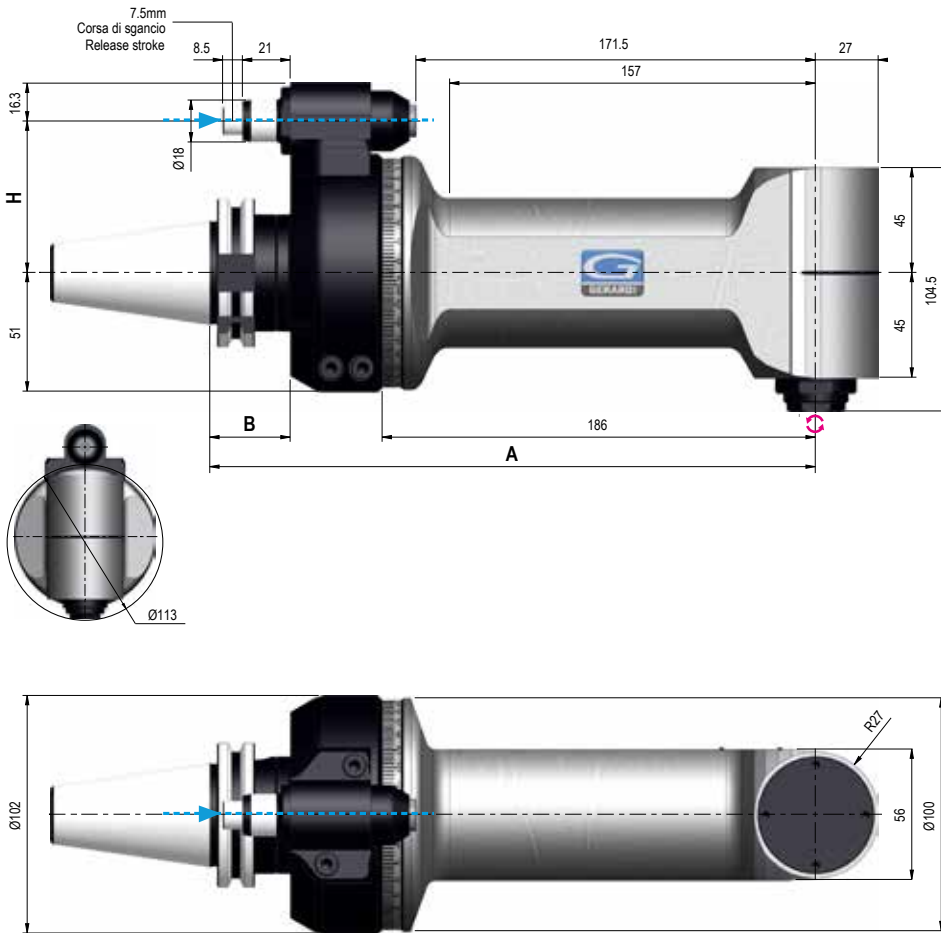
# F90-13L

TYPE 1

Code:

9.F90.13L00

Price:



### Dati tecnici - Technical data

- Ratio 1:1
- ISO/BT40 6,5 Kg
- Rpm 8.000
- Ø 13
- N 810
- M 10
- Nm 27
- ER20 Ø1/13



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	65 / 80	80	65 / 80	65 / 80	80
	110 - Ø18	optional		optional		optional		optional			optional			optional		optional	
	110 - Ø28	optional		optional		optional		optional			optional			optional		optional	
A	260		260		260		268		269			264			260		
B	35		35		35		43		44			39			-		

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



PINZA  
COLLET  
ER20 - Ø1/13

optional



USCITA  
OUTPUT  
Weldon Max Ø16

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



USCITA  
OUTPUT  
Toolholder Ø16

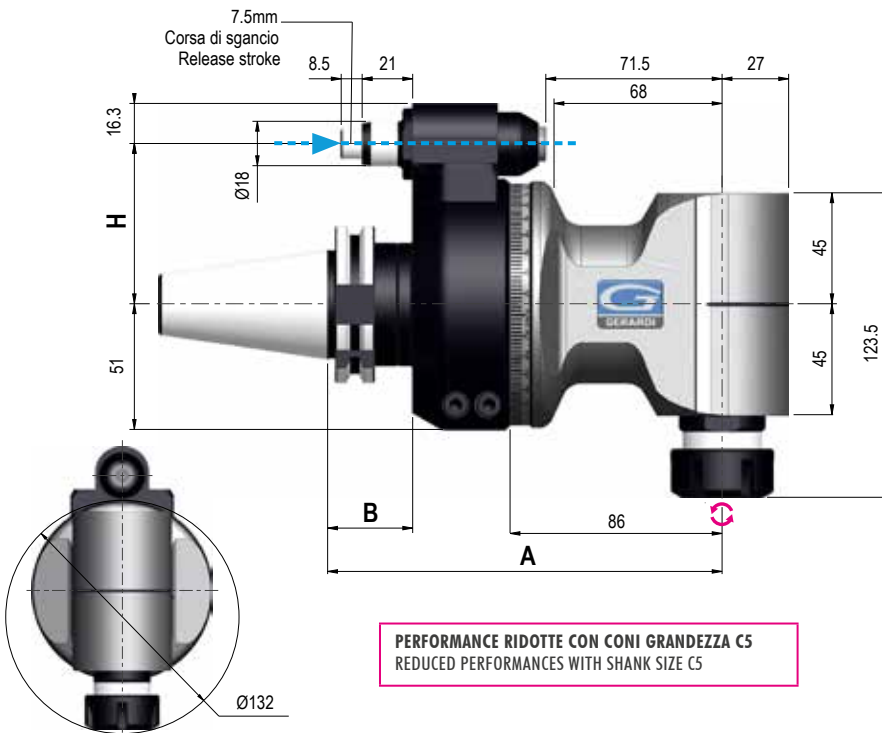
optional

# F90-16S

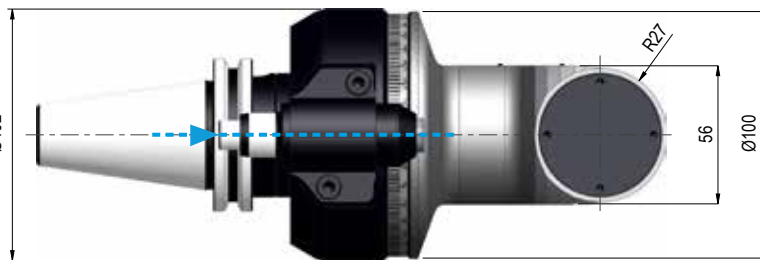
TYPE 1

Code: 9.F90.16S00

Price:



**PERFORMANCE RIDOTTE CON CONI GRANDEZZA C5**  
REDUCED PERFORMANCES WITH SHANK SIZE C5



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

**Dati tecnici - Technical data**

Ratio 1:1	<b>ISO/BT40</b> 6,4 Kg <b>ISO/BT50</b> 8,7 Kg
Rpm 8.000	Ø16
N 810	M12
Nm 27	ER25 Ø1/16

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50	
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.	
Prezzo EXTRA Price €																			
H	Standard Ø18		65 / 80		80		65 / 80		80		65/80		80		65 / 80		80		
	110 - Ø18		optional		optional		optional		optional		optional		optional		optional		optional		
	110 - Ø28																		
A	160		160		160		168		169			164			160			160	
B	35		35		35		43		44			39			-			35	

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Special bag - Stop-block - ER nut - Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**

PACK & WEIGHT: Max.11,3 Kg



PINZA COLLET  
ER25 - Ø1/16  
optional



USCITA OUTPUT  
Weldon Max Ø16  
optional



USCITA OUTPUT  
Toolholder Ø16  
optional



INTERASSE SPECIAL  
SPECIAL PITCH  
optional



DOPPIA USCITA  
DOUBLE OUTPUT  
ER25 - ER25  
optional

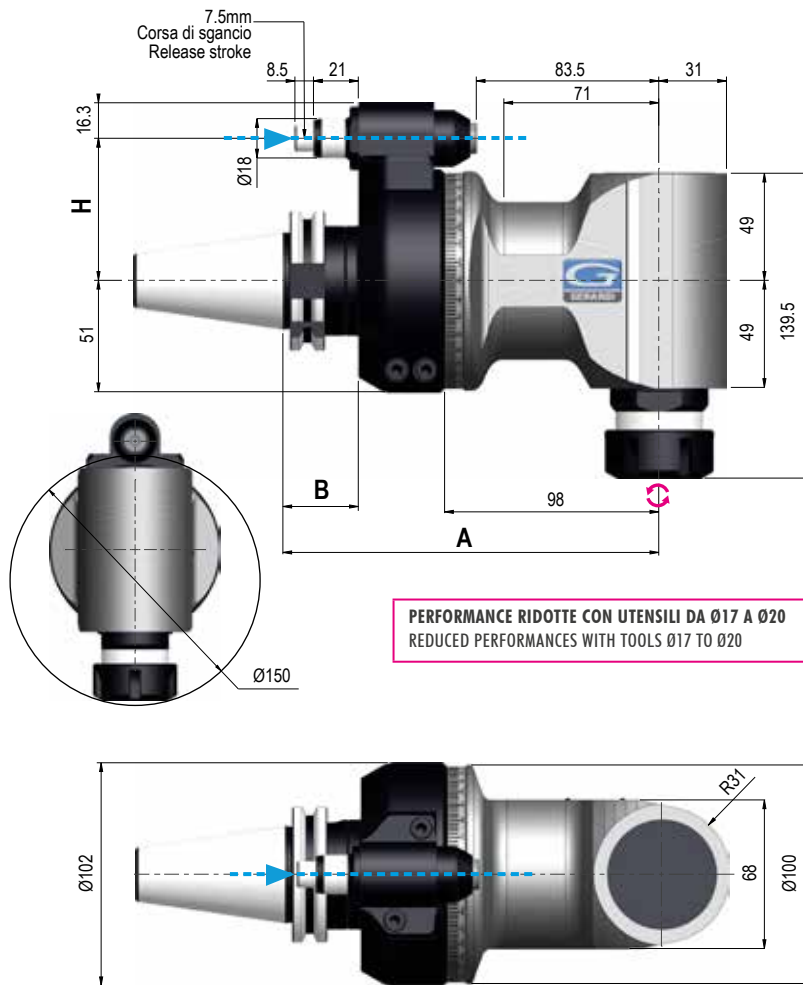
# F90-20S

TYPE 1

Code:

9.F90.20S00

Price:



**Dati tecnici - Technical data**

- Ratio 1:1
- ISO/BT40**  
7 Kg
- Rpm 5.000
- Ø20
- N 1.040
- M16
- Nm 46
- ER32**  
Ø2/20



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	C. ISO 26623	KM	ISO DIN 2080
Grandezza - Size	40	40	40	63	C5	63	40
Prezzo EXTRA Price €	std	std	std	optional	optional	optional	optional
H	Standard Ø18	65 / 80	65 / 80	65 / 80	65/80	65 / 80	65 / 80
	110 - Ø18	optional	optional	optional	optional	optional	optional
	110 - Ø28	optional	optional	optional	optional	optional	optional
A	172	172	172	181	176	172	172
B	35	35	35	44	39	-	35

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**

PACK & WEIGHT: Max.10,5 Kg



PINZA  
COLLET  
ER32 - Ø2/20

optional



USCITA  
OUTPUT  
Weldon Max Ø20

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



USCITA  
OUTPUT  
Toolholder Ø16/22/27

optional

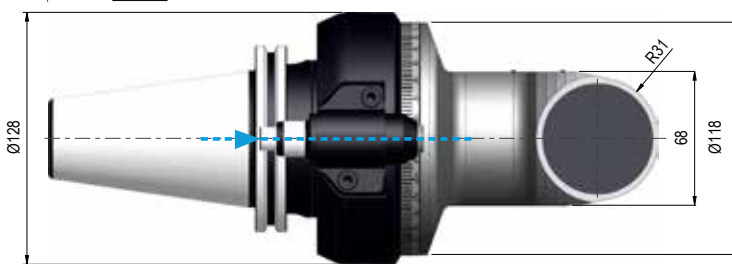
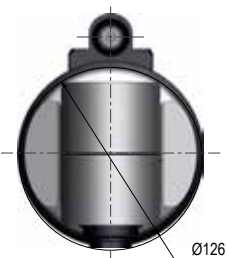
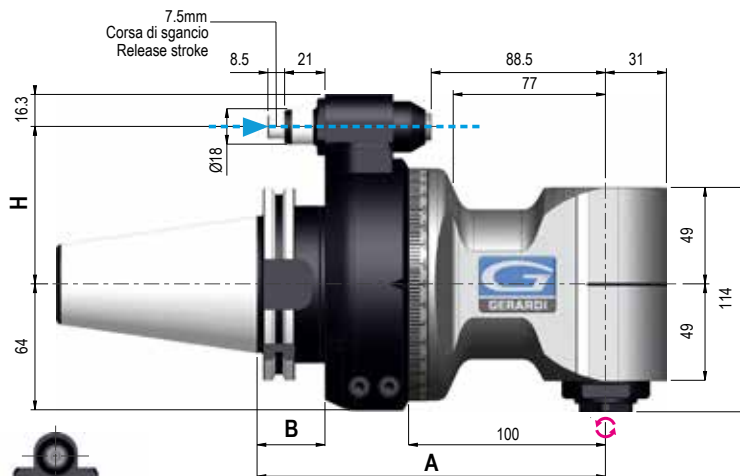
# F90-16

TYPE 2

Code:

9.F90.16000

Price:



### Dati tecnici - Technical data

Ratio 1:1	ISO/BT50 7 Kg
Rpm 5.000	Ø16
N 1.040	M12
Nm 46	ER25 Ø1/16



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	C. ISO 26623	KM	ISO DIN 2080
Grandezza - Size	50	50	50	80 100	C8	80 100	50
Prezzo EXTRA Price €	std	optional	std	optional optional	optional	on request	optional
H	Standard Ø18	80	80	80	80	80	80
	110 - Ø18 110 - Ø28	optional	optional	optional	optional	optional	optional
A	177	177	185	186	181	177	177
B	35	35	43	44	39	-	35

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Special bag - Stop-block - ER nut - Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. 16Kg



USCITA OUTPUT

HSK 32

optional



USCITA OUTPUT

Weldon Max Ø20

optional



USCITA OUTPUT

Toolholder Ø16/22

optional



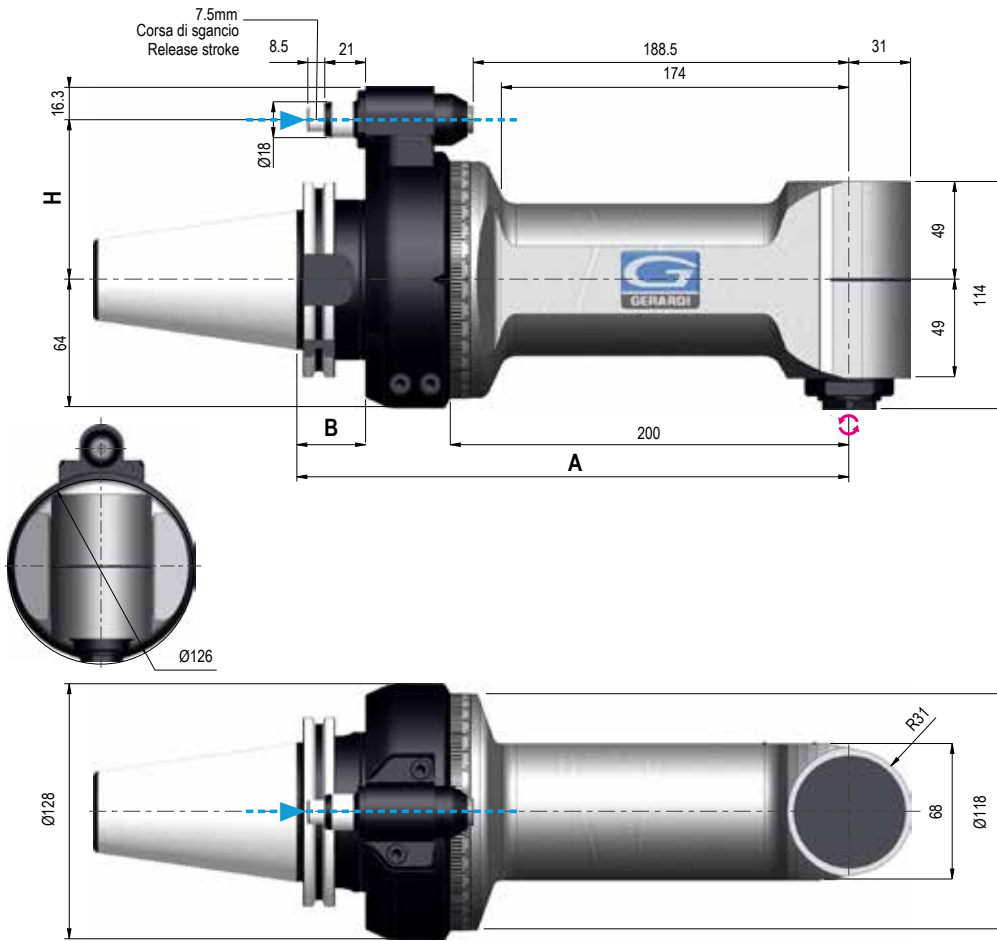
INTERASSE SPECIAL SPECIAL PITCH

optional



PINZA COLLET  
ER25 - Ø1/16

optional



## F90-16L

TYPE 2

Code:

9.F90.16L00

Price:



### Dati tecnici - Technical data

Ratio 1:1	ISO/BT50 12,7 Kg
Rpm 5.000	Ø16
N 1.040	M12
Nm 46	ER25 Ø1/16



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893		C. ISO 26623	KM		ISO DIN 2080
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzo EXTRA Price €	std	optional	std	optional	optional	optional	On request		optional
H	Standard Ø18	80	80	80		80	80	80	80
	110 - Ø18	optional	optional	optional	optional	optional	optional	optional	optional
	110 - Ø28	optional	optional	optional	optional	optional	optional	optional	optional
A	277	277	285	286	281	277	-		277
B	35	35	43	44	39				35

### Dotazione Standard Standard Equipment

Cassa in legno - Stop-block - Ghiera ER - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Wood box - Stop-block - ER nut - Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. 15,8 Kg



### Opzioni - Options

USCITA OUTPUT HSK 32 optional	USCITA OUTPUT Weldon Max Ø20 optional	USCITA OUTPUT Toolholder Ø16/22 optional
INTERASSE SPECIAL SPECIAL PITCH optional	PINZA COLLET ER25 - Ø1/16 optional	

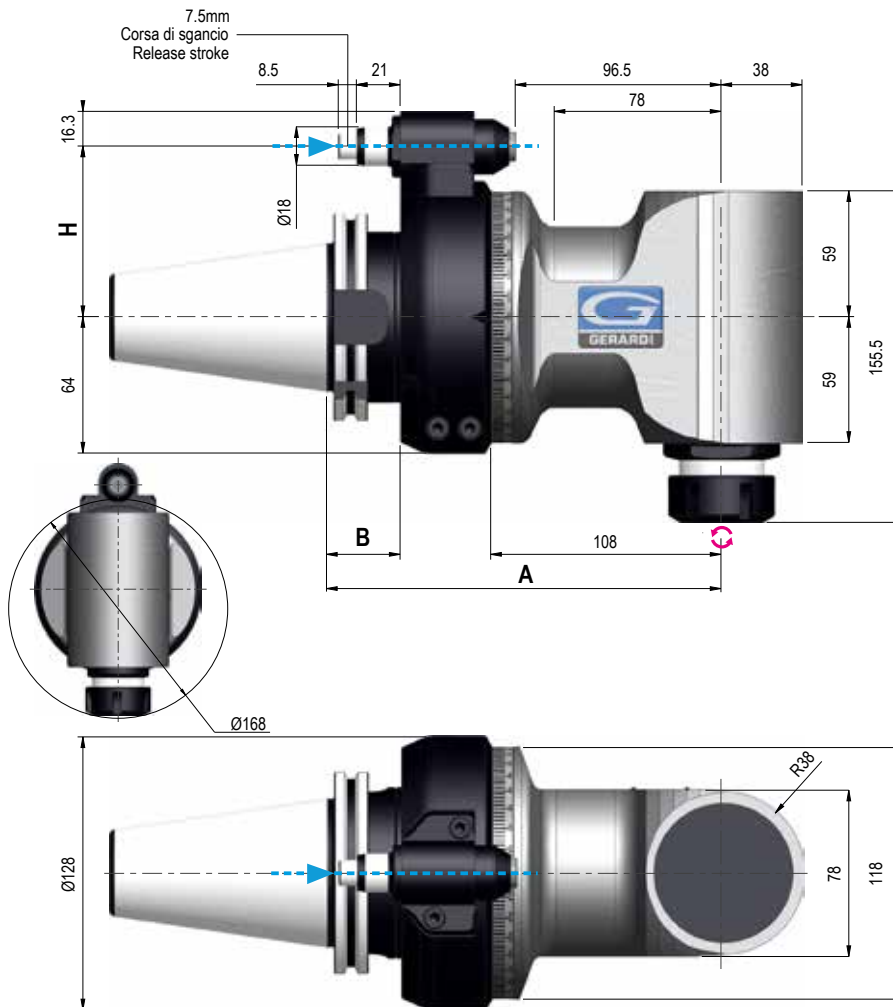
# F90-20

TYPE 2

Code:

9.F90.20000

Price:



### Dati tecnici - Technical data

Ratio 1:1	<b>ISO/BT50</b> 13,2 Kg
Rpm 3.500	Ø20
N 1.460	M14
Nm 85	ER32 Ø2/20



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	C. ISO 26623	KM	ISO DIN 2080
Grandezza - Size	50	50	50	80 100	C8	80 100	50
Prezzo EXTRA Price €	std	optional	std	optional optional	optional	on request	optional
H	Standard Ø18	80	80	80	80	80	80
	110 - Ø18 110 - Ø28	optional	optional	optional	optional	optional	optional
A	185	185	193	194	189	185	185
B	35	35	43	44	39	-	35

### Dotazione Standard Standard Equipment

### Opzioni - Options

Cassa in legno - Stop-block -  
Ghiera ER - Chiavi di servizio -  
Tubetto di grasso - Libro istruzioni  
Wood box - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

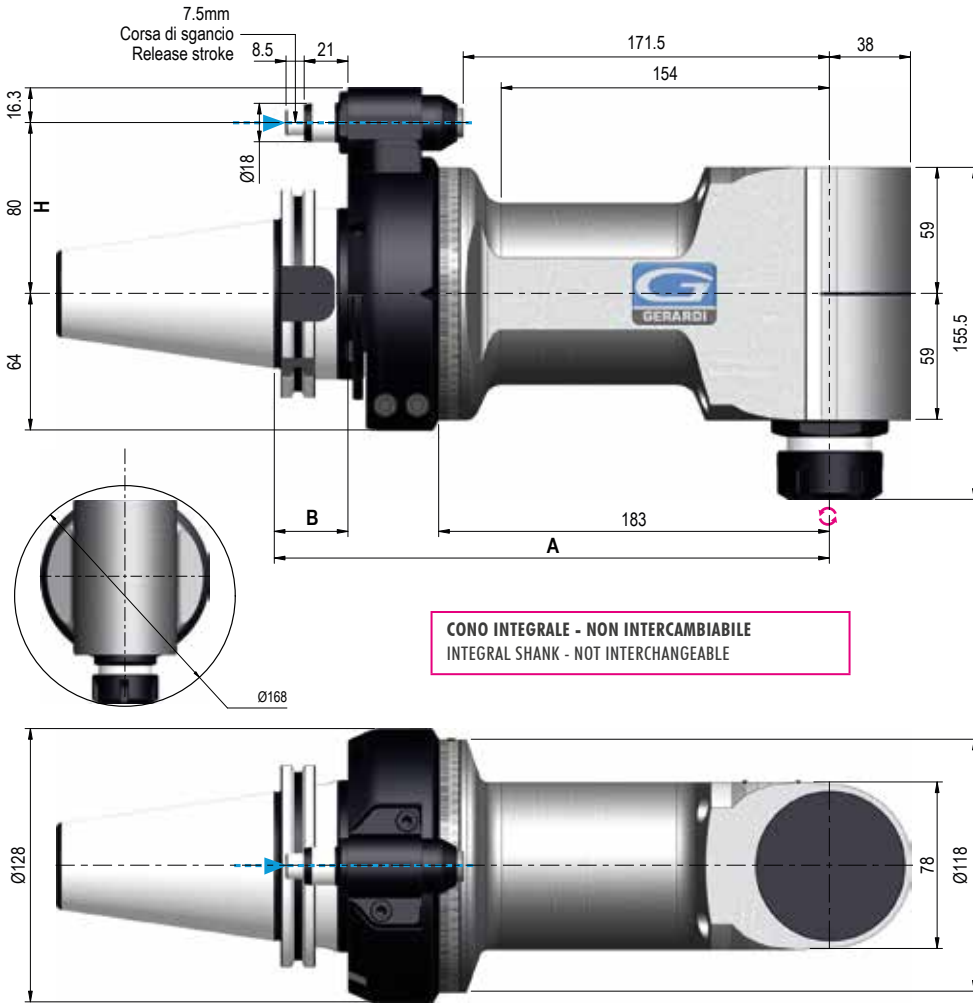
### IMBALLO & PESO

PACK & WEIGHT: Max.18 Kg



USCITA OUTPUT ER 40 optional	USCITA OUTPUT HSK 40 optional	USCITA OUTPUT Weldon MAX Ø25 optional	USCITA OUTPUT ISO-CAT-BT 30 optional
USCITA OUTPUT C4 optional	USCITA OUTPUT Toolholder Ø22-27-32 optional	INTERASSE SPECIALE SPECIAL PITCH optional	PINZA COLLET ER 32 Ø2/20 optional





**CONO INTEGRALE - NON INTERCAMBIABILE**  
INTEGRAL SHANK - NOT INTERCHANGEABLE

## F90-20L

TYPE 2

Code:

9.F90.20L00

Price:



### Dati tecnici - Technical data

	Ratio 1:1		ISO/BT50 19 Kg
	Rpm 3.500		Ø20
	N 1.460		M14
	Nm 85		ER32 Ø2/20



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893		C. ISO 26623	KM		ISO DIN 2080
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzo EXTRA Price €	std	optional	std	optional	optional	optional	on request		optional
H	Standard Ø18	80	80	80		80	80		80
	110 - Ø18	optional	optional	optional	optional	optional	optional		optional
	110 - Ø28	optional	optional	optional	optional	optional	optional		optional
A	260	260	268	269	264	260	-		260
B	35	35	43	44	39	-			35

### Dotazione Standard Standard Equipment

Cassa in legno - Stop-block -  
Ghiera ER - Chiavi di servizio -  
Tubetto di grasso - Libro istruzioni  
Wood box - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



### Opzioni - Options

	USCITA OUTPUT ER 40 optional		USCITA OUTPUT HSK 40 optional		USCITA OUTPUT Weldon MAX Ø25 optional		USCITA OUTPUT ISO-CAT-BT 30 optional
	USCITA OUTPUT C4 optional		USCITA OUTPUT Toolholder Ø22-27-32 optional		INTERASSE SPECIALE SPECIAL PITCH - optional		PINZA COLLET ER 32 Ø2/20 optional

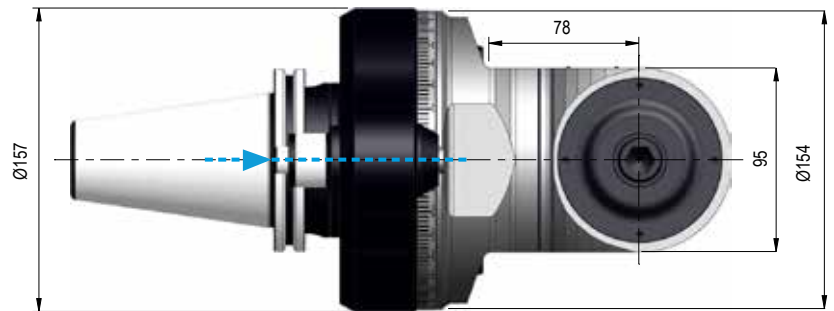
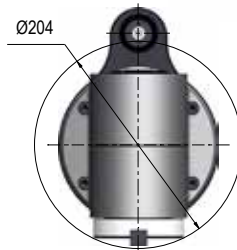
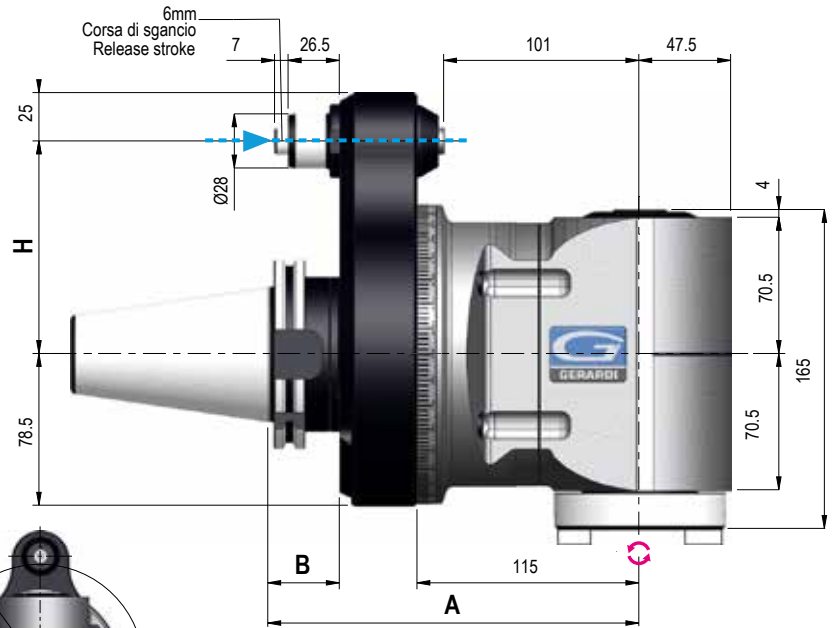
# F90-S40

TYPE 3

Code:

9.F90.S4000

Price:



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

## Dati tecnici - Technical data



Ratio  
1:1



ISO/BT50  
21,7 Kg



Rpm  
2.500



Ø26



N 3.020



M20



Nm 135



ISO-CAT  
BT 40

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	C. ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzo EXTRA Price €	std	optional	std	optional	optional	optional	On request	optional	optional
H Standard Ø28	110	110	110	110	110	110	110	110	110
A	192	192	200	201	196	192	192	192	192
B	37	37	45	44	39	-	37	37	37

## Dotazione Standard Standard Equipment

## Opzioni - Options

Cassa in legno - Stop-block -  
Ghiera ER - Chiavi di servizio -  
Tubetto di grasso - Libro istruzioni  
Wood box - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



USCITA  
OUTPUT

HSK 63

optional



USCITA  
OUTPUT

C5

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



USCITA  
OUTPUT

ER40 (F90-30)

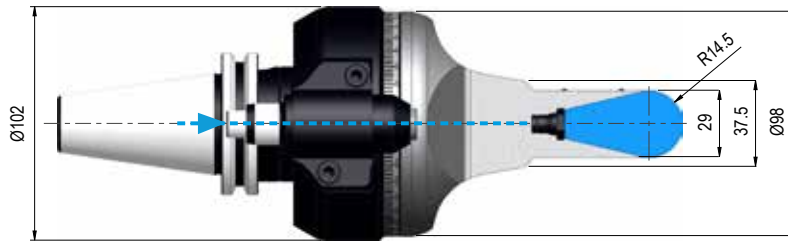
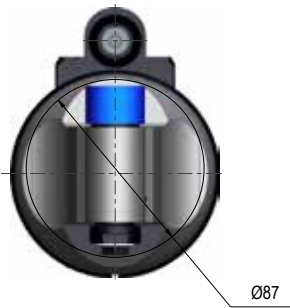
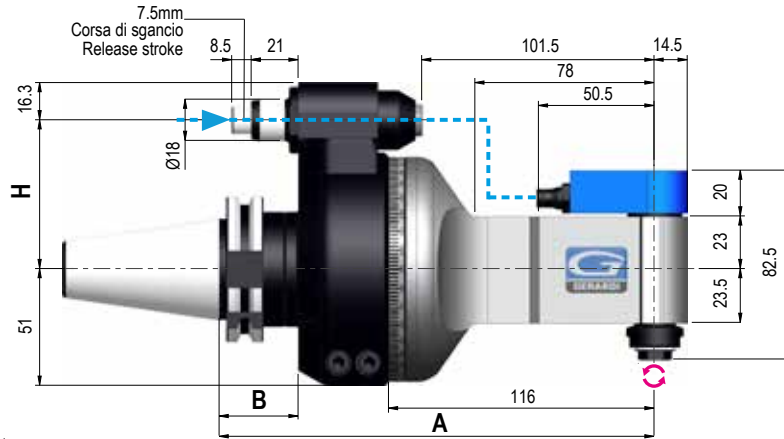
**F90-7 10BAR**

TYPE 1

Code:

9.F90.070B0

Price:



**Dati tecnici - Technical data**

- Ratio 1:1
- ISO/BT40 5 Kg  
ISO/BT50 7 Kg
- Rpm 10.000
- Ø7
- N 127
- M6
- Nm 6
- ER11WP Ø1/7



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080		
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
Prezzo EXTRA Price €																		
H	65 / 80		80		65 / 80		80		65 / 80			80			65 / 80		80	
	optional		optional		optional		optional			optional			optional		optional			
A	190		190		198		198		199			194			190		190	
B	35		35		35		43		44			39			-		35	

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**

PACK & WEIGHT: Max.11 Kg



PINZA COLLET  
ER11 - Ø1/7

optional



USCITA OUTPUT  
Weldon MAX Ø10

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



USCITA OUTPUT  
ER11 WP Ø1/7

optional

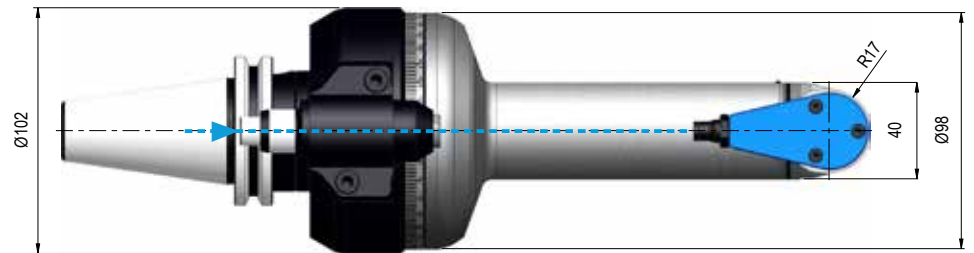
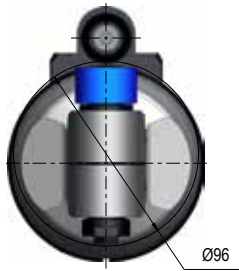
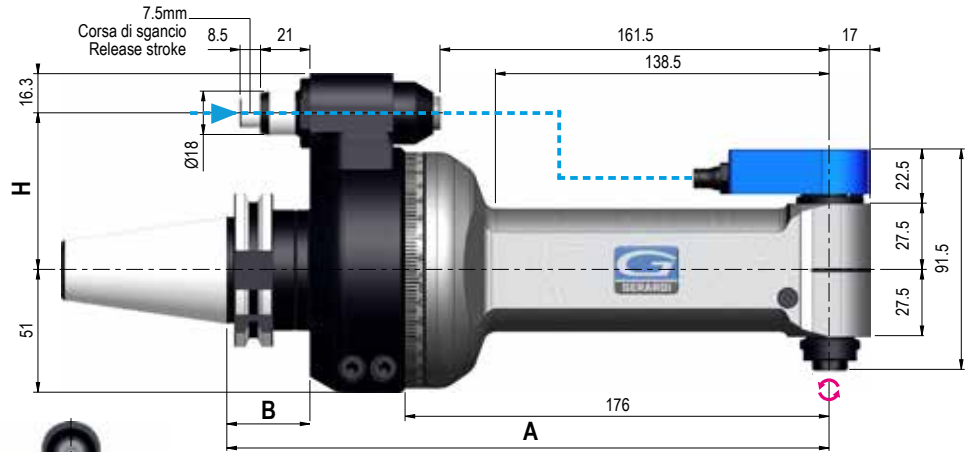
# F90-7L 10BAR

TYPE 1

Code:

9.F90.07LB0

Price:



### Dati tecnici - Technical data



Ratio  
1:1



ISO/BT40  
6,6 Kg  
ISO/BT50  
8,6 Kg



Rpm  
10.000



Ø7



N 180



M6



Nm 6



ER11 WP  
Ø1 / 7



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50		
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.		
Prezzo EXTRA Price €																				
H	Standard Ø18		80		65 / 80		80		65 / 80		80		65 / 80		80		65 / 80		80	
	110 - Ø18		optional		optional		optional		optional		optional		optional		optional		optional		optional	
	110 - Ø28																			
A	250			250		250		258		259			254			250			250	
B	35			35		35		43		44			39			-			35	

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max.11,5 Kg



PINZA  
COLLET  
ER16 - Ø1/10

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



USCITA  
OUTPUT  
Weldon MAX Ø10

optional



USCITA  
OUTPUT  
ER11 WP Ø3/10

optional

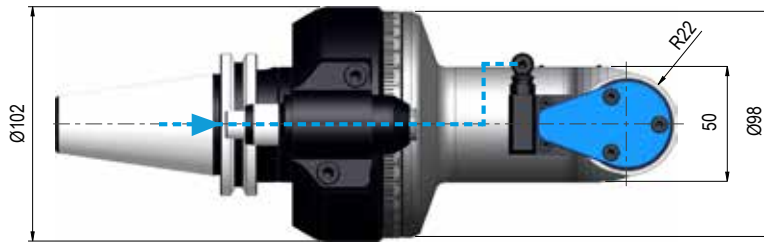
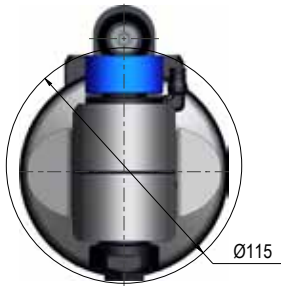
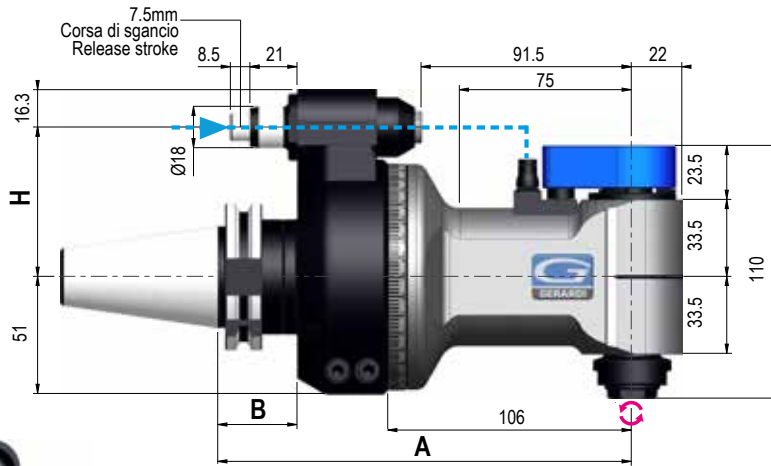
**F90-10 10BAR**

TYPE 1

Code:

9.F90.100B0

Price:



**Dati tecnici - Technical data**



Ratio  
1:1



ISO/BT40

5,6 Kg

ISO/BT50

7,8 Kg



Rpm  
10.000



Ø10



N 400



M8



Nm 11



ER16 WP  
Ø1 / 10



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
Prezzo EXTRA Price €																		
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80		65/80	80	65 / 80	80	65 / 80	80	65 / 80	80
	110 - Ø18	optional		optional		optional		optional			optional			optional			optional	
	110 - Ø28	optional		optional		optional		optional			optional			optional			optional	
A		180		180		180	188		189			184			180		150	153
B		35		35		35	43		44			39			-		35	

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**

PACK & WEIGHT: Max. Kg



PINZA  
COLLET  
ER16 - Ø1/10

optional



USCITA  
OUTPUT  
Weldon MAX Ø10

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



USCITA  
OUTPUT  
ER16 WP Ø3/10

optional

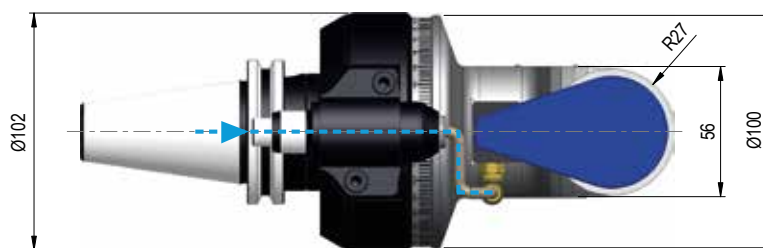
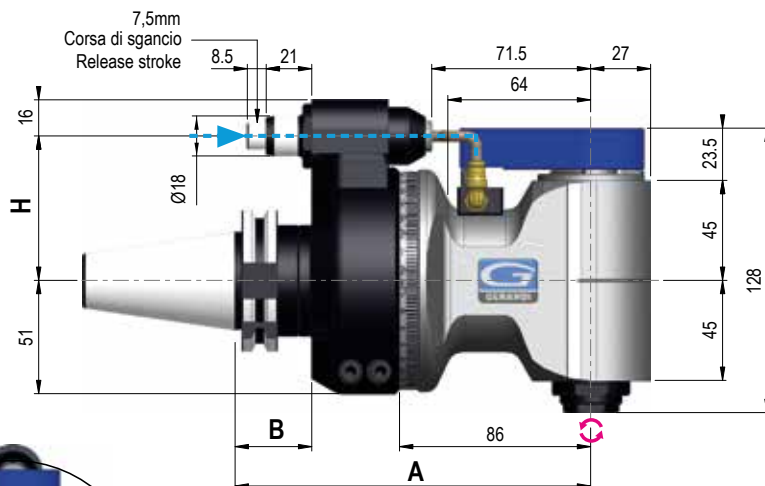
# F90-13 10BAR

TYPE 1

Code: 9.F90.130B0

Price:

**NEW**



### Dati tecnici - Technical data



Ratio  
1:1



ISO/BT40  
6,3 Kg



Rpm  
8.000



Ø 13



N 810



M 10



Nm 27



ER20  
Ø1/13



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80
	110 - Ø18	optional		optional		optional		optional			optional			optional			
	110 - Ø28	optional		optional		optional		optional			optional			optional			
A	160		160		160	168	169			164			160			160	
B	35		35		35	43	44			39			-			35	

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Special bag - Stop-block - ER nut - Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



DOPPIA USCITA  
DOUBLE OUTPUT

ER20 - ER20

optional



USCITA  
OUTPUT

Weldon MAX Ø16

optional



USCITA  
OUTPUT

Toolholder Ø16

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



PINZA  
COLLET

ER20 - Ø1/13

optional



PINZA  
COLLET

ER20 WP - Ø1/13

optional



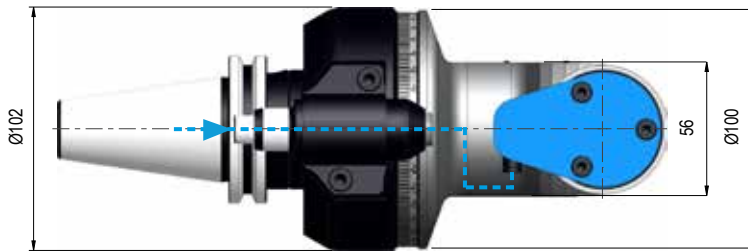
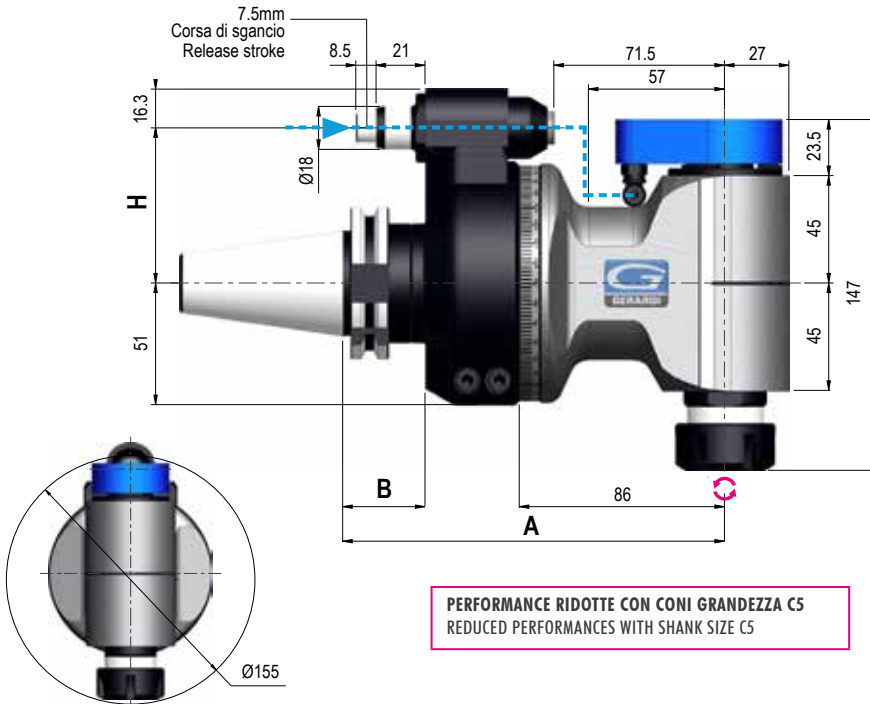
**F90-16S 10BAR**

TYPE 1

Code:

9.F90.16SB0

Price:



**Dati tecnici - Technical data**



Ratio  
1:1



ISO/BT40  
6,4 Kg  
ISO/BT50  
8,7 Kg



Rpm  
8.000



Ø16



N 810



M12



Nm 25



ER25 WP  
Ø1 / 16



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65/80	80	65 / 80	65 / 80	80	65 / 80	65 / 80	80
	110 - Ø18	optional		optional		optional		optional			optional			optional			
	110 - Ø28	optional		optional		optional		optional			optional			optional			
A	160		160		160		168			169			164			160	
B	35		35		35		43			44			39			-	

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**

PACK & WEIGHT: Max.12,3 Kg



USCITA  
OUTPUT

Weldon MAX Ø20

optional



PINZA  
COLLET

ER25 WP Ø3/16

optional



INTERASSE SPECIAL  
SPECIAL PITCH

optional



PINZA  
COLLET

ER25 Ø1/16

optional

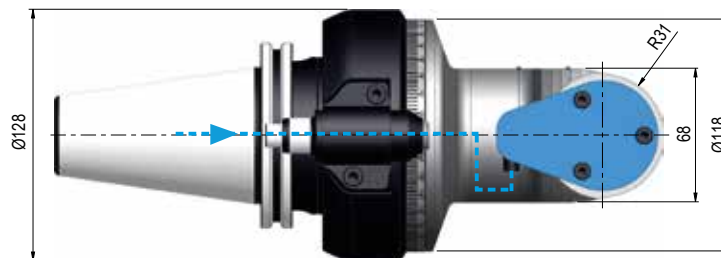
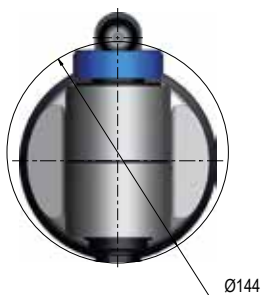
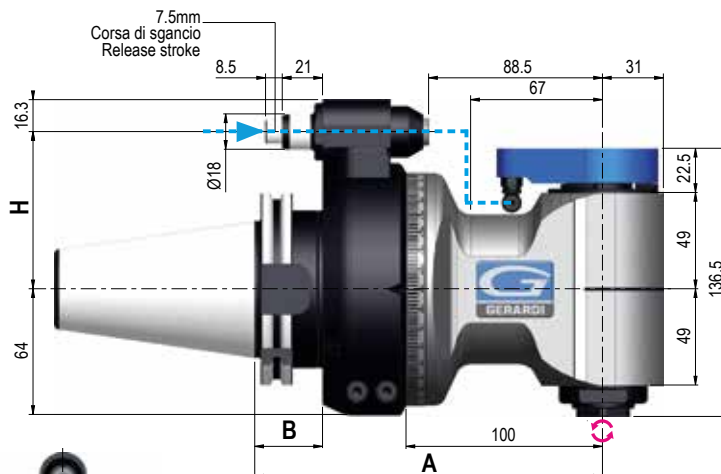
# F90-16 10BAR

TYPE 2

Code:

9.F90.160B0

Price:



### Dati tecnici - Technical data



Ratio  
1:1



ISO/BT50  
11,5 Kg



Rpm  
5.000



Ø16



N 1.040



M12



Nm 46



ER25 WP  
Ø1 / 16



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893		C. ISO 26623	KM		ISO DIN 2080
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzo EXTRA Price €	std	optional	optional	optional	optional	optional	on request		optional
H	Standard Ø18	80	80	80		80	80	80	80
	110 - Ø18	optional	optional	optional	optional	optional	optional	optional	optional
	110 - Ø28	optional	optional	optional	optional	optional	optional	optional	optional
A	177	177	185	186	181	177	-	177	177
B	35	35	43	44	39	-	-	35	35

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



USCITA  
OUTPUT

HSK 32

optional



USCITA  
OUTPUT

Weldon MAX Ø20

optional



INTERASSE SPECIALE  
SPECIAL PITCH

optional



PINZA  
COLLET

ER20 - Ø1/13

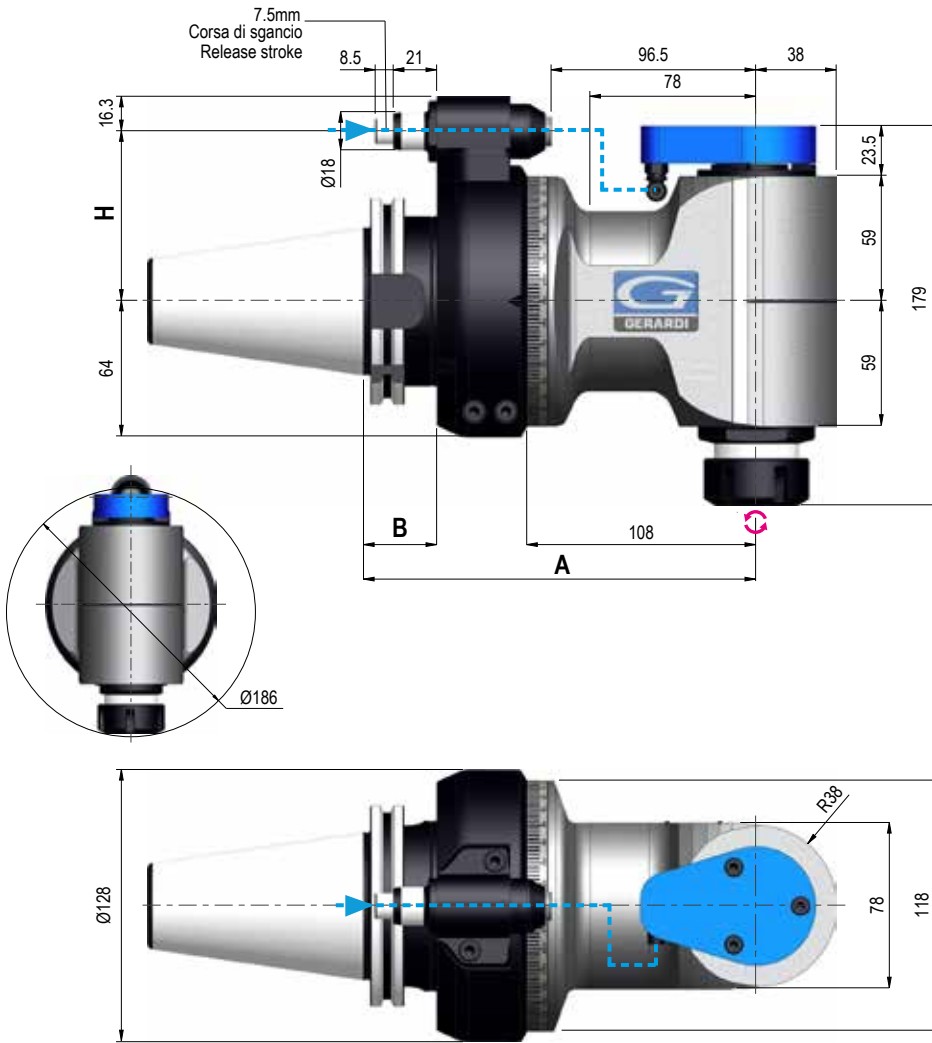
optional



PINZA  
COLLET

ER20 WP - Ø1/13

optional



**F90-20 10BAR**

TYPE 2

Code:

9.F90.200B0

Price:



**Dati tecnici - Technical data**



Ratio  
1:1



ISO/BT50  
13,4 Kg



Rpm  
3.500



Ø20



N 1.460



M14



Nm 85



ER32 WP  
Ø 2/20



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	C. ISO 26623	KM	ISO DIN 2080
Grandezza - Size	50	50	50	80 100	C8	80 100	50
Prezzo EXTRA Price €	std	optional	std	optional optional	optional	On request	optional
H	Standard Ø18	80	80	80	80	80	80
	110 - Ø18	optional	optional	optional	optional	optional	optional
	110 - Ø28	optional	optional	optional	optional	optional	optional
A	185	185	193	194	189	185	185
B	35	35	43	44	39	-	35

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER -  
Chiodi di servizio - Tubetto di grasso -  
Libro Istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**

PACK & WEIGHT: Max.17 Kg



ER 40

optional



USCITA  
OUTPUT

HSK 40

optional



USCITA  
OUTPUT

Weldon MAX Ø25

optional



USCITA  
OUTPUT

Toolholder

optional



INTERASSE SPECIALE  
SPECIAL PITCH

C4

optional



PINZA  
COLLET

ER32 - Ø2/20

optional



PINZA  
COLLET

ER32WP - Ø3/20

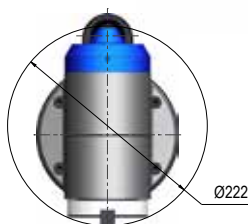
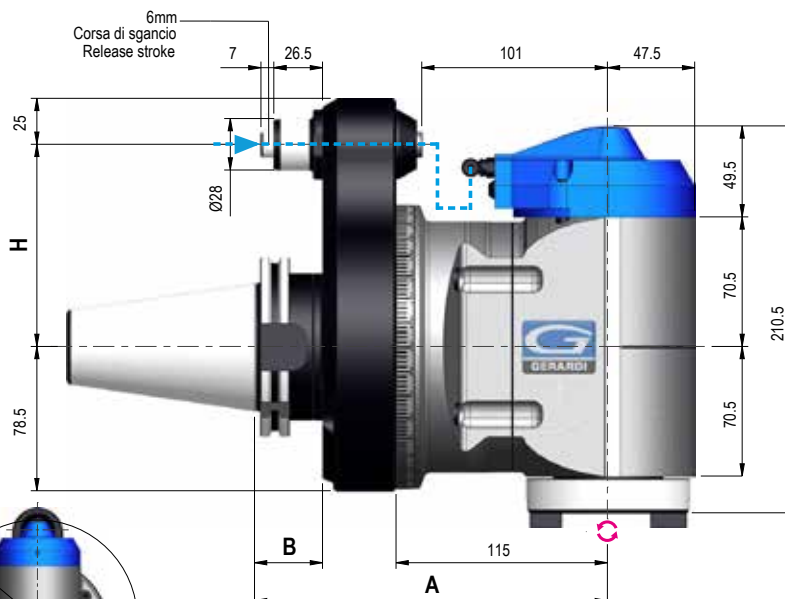
optional

# F90-S40 70BAR

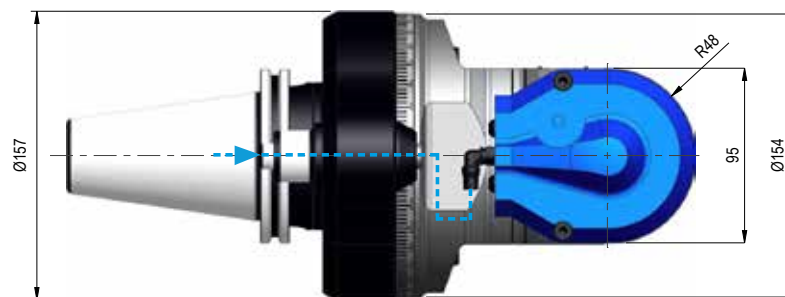
TYPE 3

Code: 9.F90.S40B0

Price:



**ROTAZIONE A SECCO - DRY RUNNING**  
NON POSSIBILE - NOT POSSIBLE!



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

### Dati tecnici - Technical data



Ratio  
1:1



ISO/BT50  
22 Kg



Rpm  
2.500



Ø26



N 3.020



M20



Nm 135



ISO40  
CAT40  
BT40

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	C. ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzo EXTRA Price €	std	optional	std	optional	optional	optional	On request	optional	optional
H Standard Ø28	110	110	110	110	110	110	110	110	110
A	192	192	200	201	196	192	192	192	192
B	37	37	45	44	39	-	37	37	37

### Dotazione Standard Standard Equipment

### Opzioni - Options

Cassa in legno - Stop-block -  
Ghiera ER - Chiavi di servizio -  
Tubetto di grasso - Libro istruzioni  
Wood box - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



USCITA  
OUTPUT

C5

optional



USCITA  
OUTPUT

HSK 63

optional

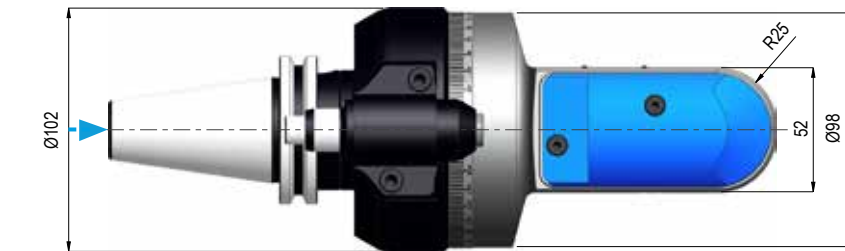
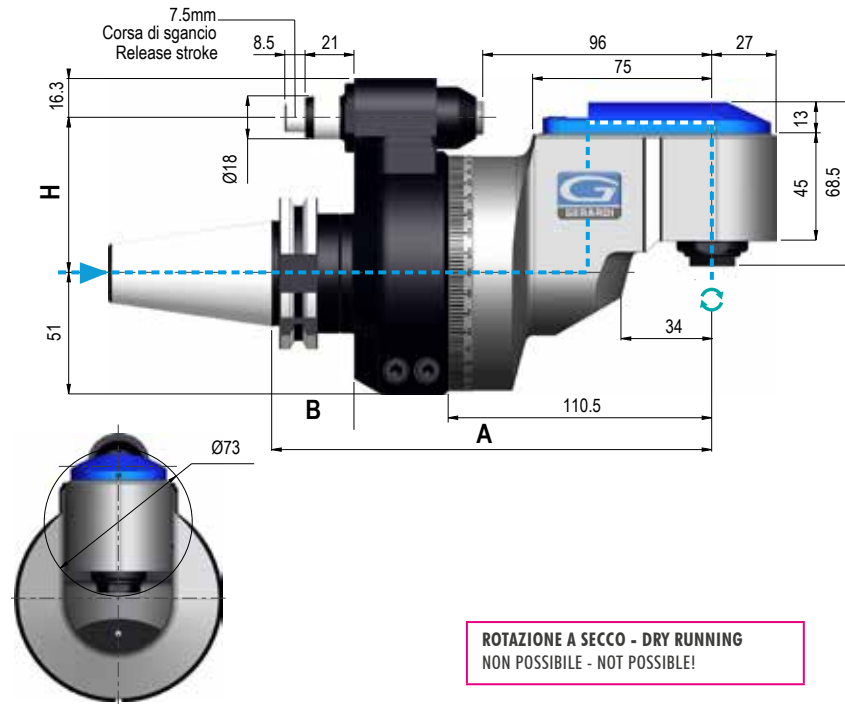
**FR90-10 70BAR**

TYPE 1

Code:

9.FR9.100B0

Price:



**Dati tecnici - Technical data**

Ratio 1:1	<b>ISO/BT40</b> 6,2 Kg <b>ISO/BT50</b> 8,7 Kg
Rpm 6.000	Ø10
N 500	M8
Nm 22	ER16 WP Ø 1/10



SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	std	120	std	130	std	120	170	380	300	710	870	1.180	900	on request	on request	120	200
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65/80	80	65/80	80	65 / 80	80	65 / 80	80
	110 - Ø18	optional		optional		optional		optional			optional			optional			
	110 - Ø28	optional		optional		optional		optional			optional			optional			
A	184,5		184,5		184,5		192,5			193,5			188,5			184,5	
B	35		35		35		43			44			39			-	

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**

PACK & WEIGHT: Max.11,5 Kg



SENZA PASSAGGIO REFRIGERANTE  
NO INTERNAL COOLANT

optional



PINZA  
COLLET

ER16 WP Ø1/10

optional

USCITA  
OUTPUT



Weldon MAX Ø10

optional



PINZA  
COLLET

ER16 WP Ø3/10

optional

INTERASSE SPECIAL  
SPECIAL PITCH



optional

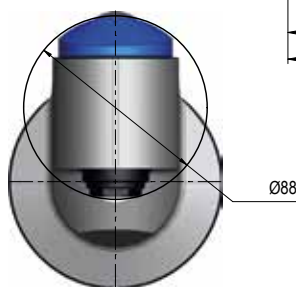
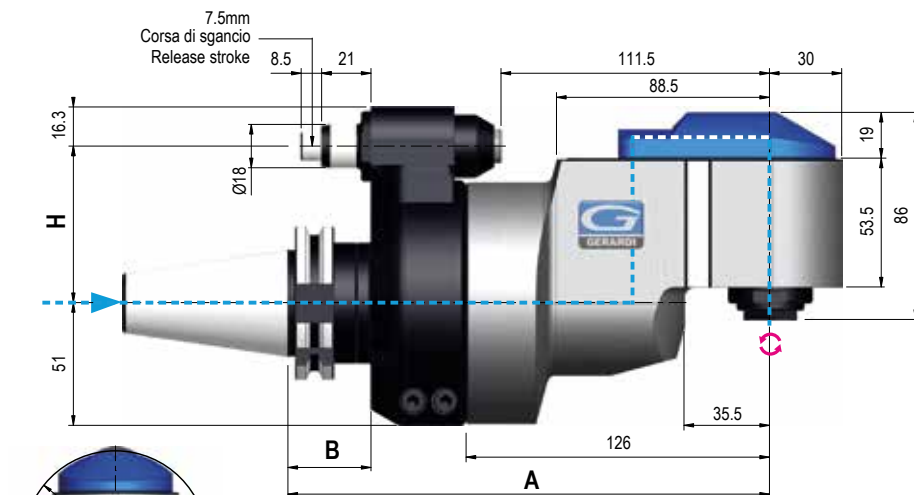
**FR90-13 70BAR**

TYPE 1

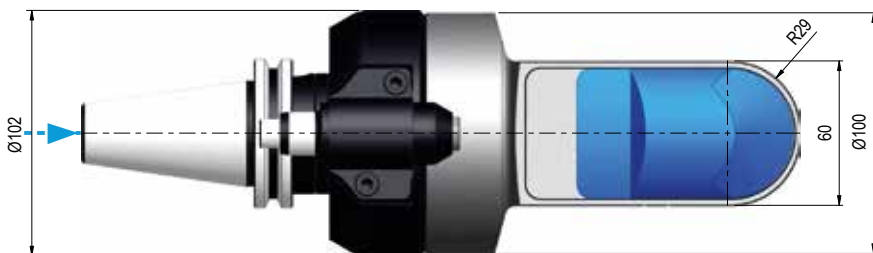
Code: 9.FR9.130B0

Price:

**NEW**



**ROTAZIONE A SECCO - DRY RUNNING**  
NON POSSIBILE - NOT POSSIBLE!



**Dati tecnici - Technical data**



Ratio  
1:1



ISO/BT40  
11,7 Kg



Rpm  
4.500



Ø13



N 570



M10



Nm 40



ER20 WP  
Ø 1/13



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	std	optional	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65	80	65	65	80	65	65	80
	110 - Ø18	optional		optional		optional		optional		optional		optional	optional		optional		optional
	110 - Ø28																
A		200		200	200	208		209			204			200			200
B		35		35	35	43		44			39			-			35

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Cassa in legno - Stop-block -  
Chiave ER - Chiavi di servizio -  
Tubetto di grasso - Libro istruzioni  
Wood box - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

SENZA PASSAGGIO REFRIGERANTE  
NO INTERNAL COOLANT

INTERASSE SPECIALE  
SPECIAL PITCH

**IMBALLO & PESO**

PACK & WEIGHT: Max. Kg



optional

PINZA  
COLLET

ER20 WP Ø3/13

optional



optional

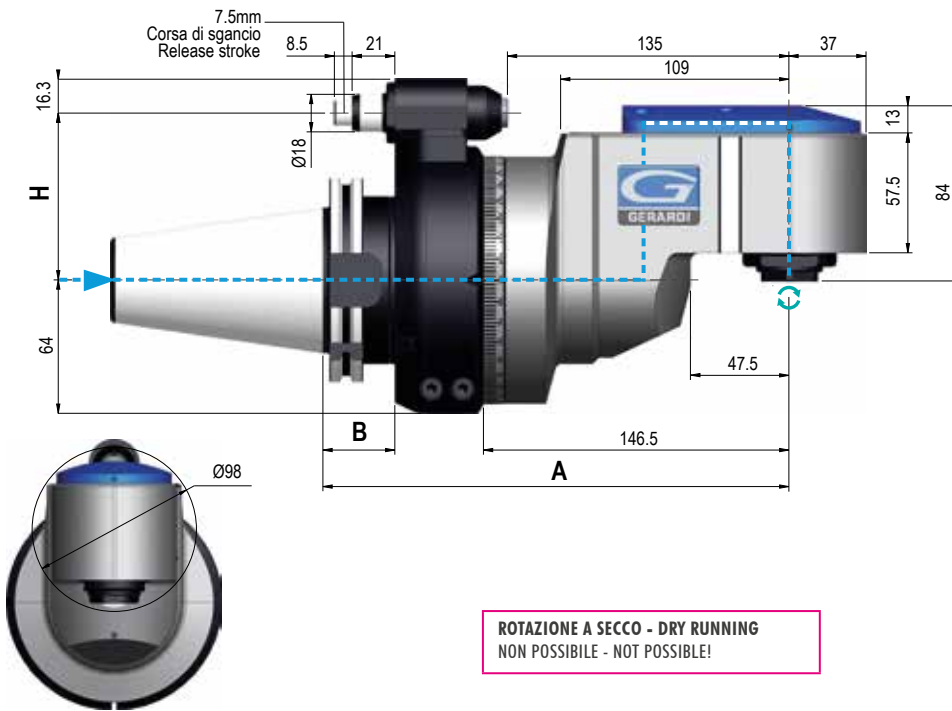


**FR90-16 70BAR**

TYPE 2

Code: **9.FR9.160B0**

Price:



2

**Dati tecnici - Technical data**

- Ratio 1:1
- ISO/BT50**  
11,7 Kg
- Rpm 4.000
- Ø16
- N 810
- M12
- Nm 80
- ER25 WP  
Ø 1/16



SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893		C. ISO 26623	KM		ISO DIN 2080
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzo EXTRA Price €	std	optional	std	optional	optional	optional	on request		optional
H	Standard Ø18	80	80	80		80	80		80
	110 - Ø18	optional	optional	optional	optional	optional	optional		optional
	110 - Ø28	optional	optional	optional	optional	optional	optional		optional
A	223,5	223,5	231,5	232,5		227,5	223,5		223,5
B	35	35	43	44		39	-		35

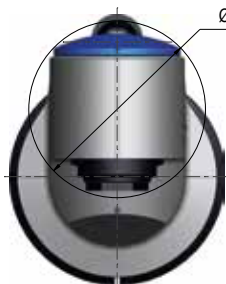
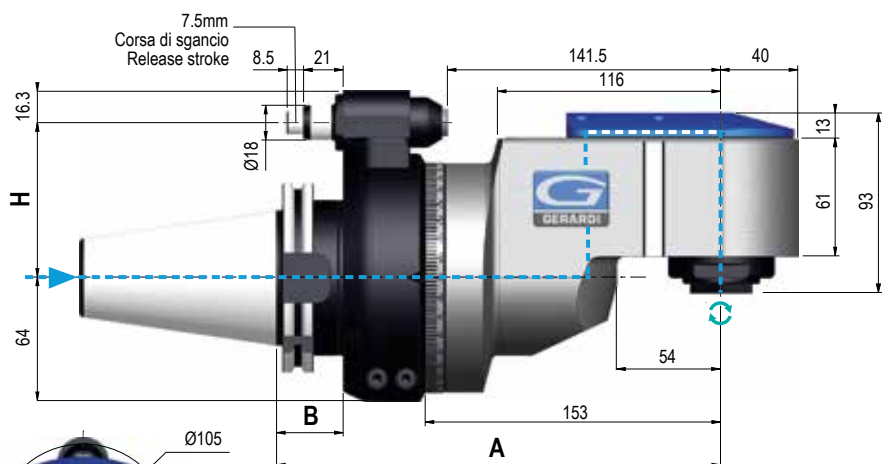
Dotazione Standard Standard Equipment	Opzioni - Options	
Cassa in legno - Stop-block - Ghiera ER - Chiavi di servizio - Tubetto di grasso - Libro istruzioni Wood box - Stop-block - ER nut - Wrenches - Grease tube - Instruction book	SENZA PASSAGGIO REFRIGERANTE NO INTERNAL COOLANT	
<b>IMBALLO &amp; PESO</b> PACK & WEIGHT: Max. Kg 	optional	optional
	PINZA COLLET ER25 Ø1/16 optional	PINZA COLLET ER25 WP Ø3/16 optional
	USCITA OUTPUT Weldon MAX Ø16 optional	USCITA OUTPUT HSK 32 optional
	INTERASSE SPECIAL SPECIAL PITCH optional	

**FR90-20 70BAR**

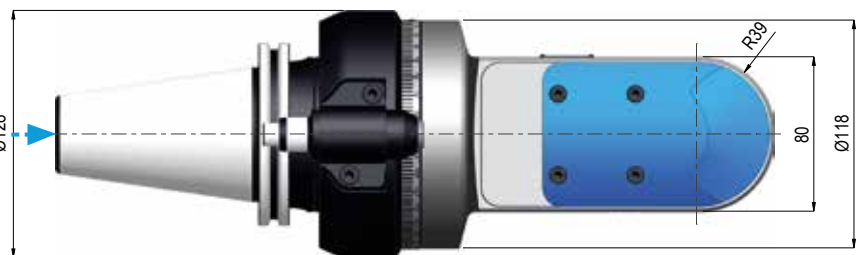
TYPE 2

Code: 9.FR9.200B0

Price:



ROTAZIONE A SECCO - DRY RUNNING  
NON POSSIBILE - NOT POSSIBLE!



SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE

**Dati tecnici - Technical data**



Ratio  
1:1



ISO/BT50  
14,5 Kg



Rpm  
3.500



Ø20



N 1.150



M14



Nm 82



ER32 WP  
Ø 2/20

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	C. ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzo EXTRA Price €	std	optional	std	optional	optional	optional	on request	optional	optional
H	Standard Ø18	80	80	80	80	80	80	80	80
	110 - Ø18	optional	optional	optional	optional	optional	optional	optional	optional
	110 - Ø28	optional	optional	optional	optional	optional	optional	optional	optional
A	230	230	238	239	234	230	230	230	
B	35	35	43	44	39	-	35	35	

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Cassa in legno - Stop-block -  
Ghiera ER - Chiavi di servizio -  
Tubetto di grasso - Libro istruzioni  
Wood box - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**

PACK & WEIGHT: Max. Kg



SENZA PASSAGGIO REFRIGERANTE  
NO INTERNAL COOLANT

optional

USCITA  
OUTPUT

Weldon MAX Ø20

optional

USCITA  
OUTPUT

HSK 50

optional

PINZA  
COLLET

ER32 Ø1/20

optional

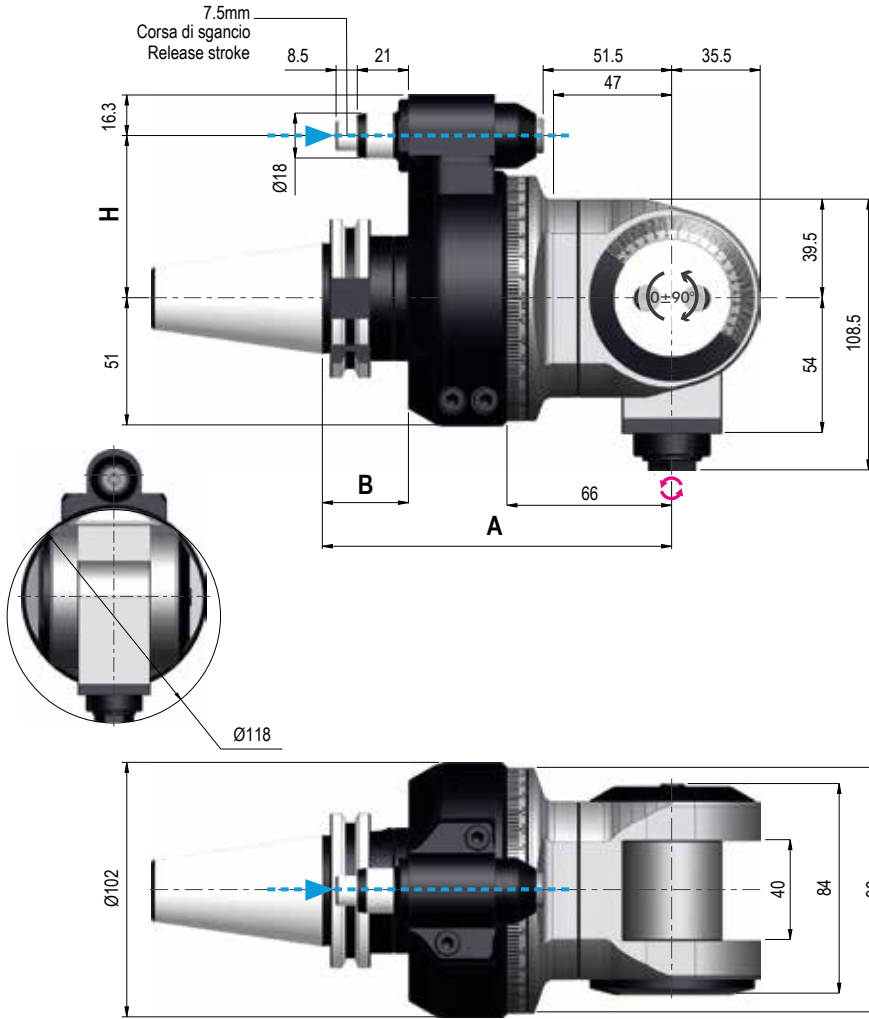
PINZA  
COLLET

ER32 WP Ø3/20

optional

INTERASSE SPECIAL  
SPECIAL PITCH

optional



## FMU-10

TYPE 1

Code:

9.FMU.10000

Price:



2

**Dati tecnici - Technical data**



Ratio 1:1



**ISO/BT40**

6,3 Kg

**ISO/BT50**

8,8 Kg



Rpm 8.000



Ø10



N 550



M8



Nm 9



ER16  
Ø 1/10



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65/80			80	65 / 80	80	65 / 80	80
	110 - Ø18	optional		optional		optional		optional		optional			optional		optional		
	110 - Ø28	optional		optional		optional		optional		optional			optional		optional		
A	140		140		140	148	149			144			140			140	
B	35		35		35	43	44			39			-			35	

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book



USCITA  
OUTPUT

Weldon MAX Ø10

optional



PINZA  
COLLET

ER 16 Ø1/10

optional

**IMBALLO & PESO**

PACK & WEIGHT: Max. Kg



INTERASSE SPECIALE  
SPECIAL PITCH

optional



REFR. DAL CONO  
COOLANT BY SHANK

**DRY RUNNING NOT POSSIBLE**

Max 70 bar

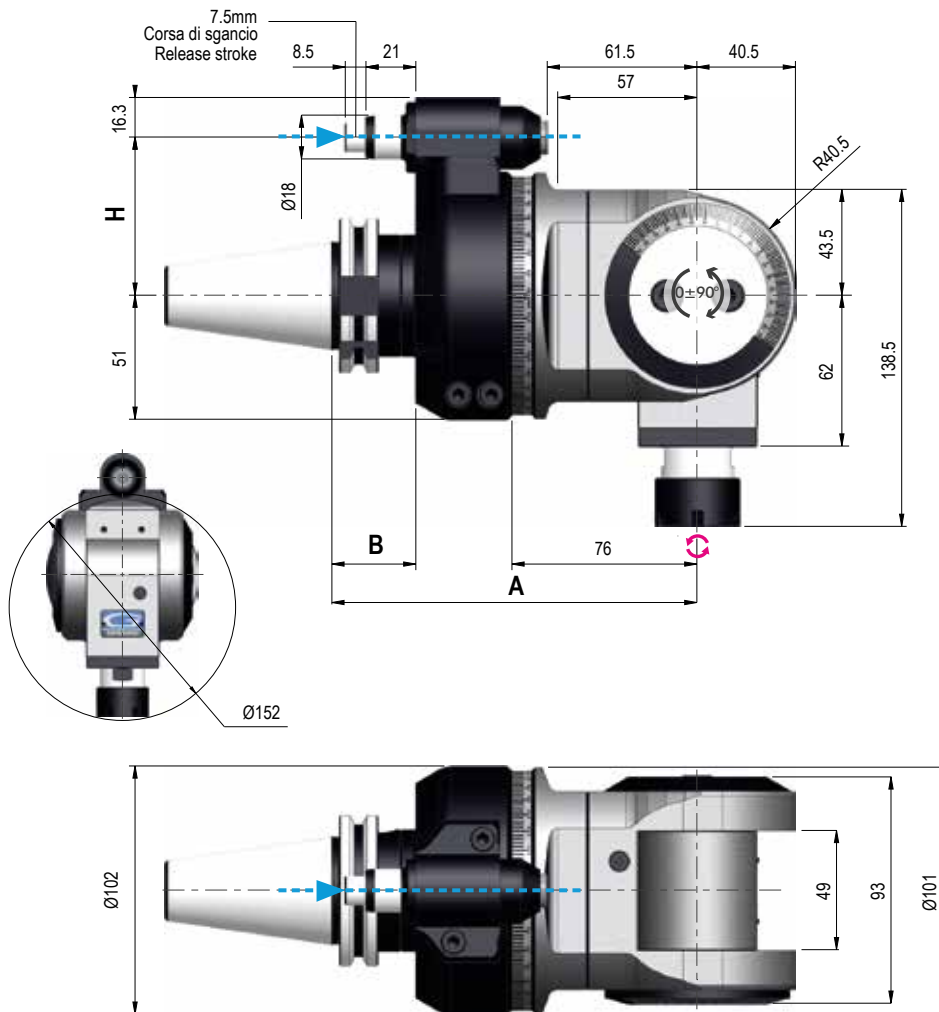
optional

# FMU-16

TYPE 1

Code: 9.FMU.16000

Price:



### Dati tecnici - Technical data

Ratio 1:1	ISO/BT40 8,2 Kg ISO/BT50 10,5 Kg
Rpm 6.000	Ø16
N 630	M12
Nm 15	ER25 Mini Ø 1/16



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	optional	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18	65 / 80	80	65 / 80	80	65 / 80	80	65 / 80	80	65/80	80	65 / 80	80	65 / 80	80	65 / 80	80
	110 - Ø18 110 - Ø28	optional	optional	optional	optional	optional	optional	optional	optional	optional	optional	optional	optional	optional	optional	optional	optional
A	150	150	150	158	159	154	150	150	150	150	150	150	150	150	150	150	150
B	35	35	35	43	44	39	-	-	-	-	-	-	-	-	-	-	35

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Special bag - Stop-block - ER nut - Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



USCITA OUTPUT  
Weldon MAX Ø16  
optional



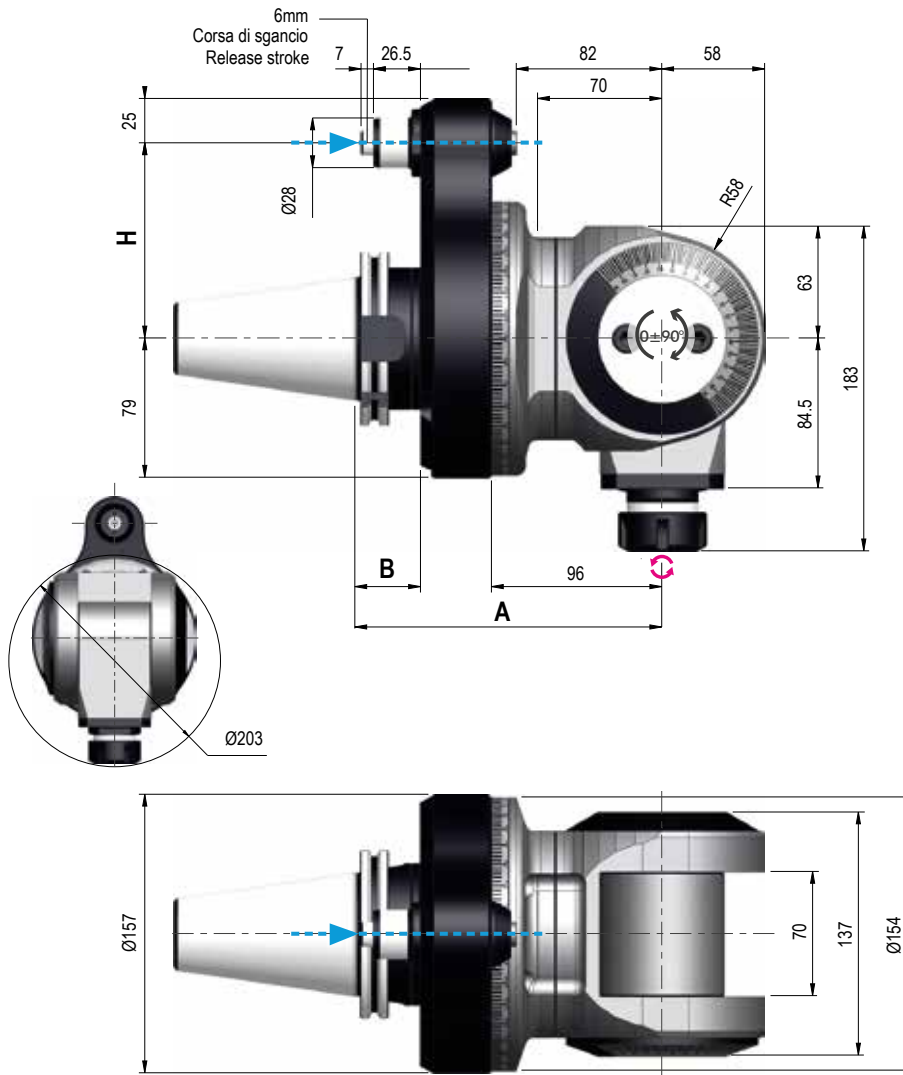
INTERASSE SPECIALE  
SPECIAL PITCH  
optional



PINZA COLLET  
ER 16 Ø1/10  
optional



REFR. DAL CONO  
COOLANT BY SHANK  
DRY RUNNING NOT POSSIBLE  
Max 70 bar  
optional



## FMU-20

TYPE 3

Code:

9.FMU.20000

Price:



### Dati tecnici - Technical data



Ratio  
1:1



ISO/BT50  
22 Kg



Rpm  
4.000



Ø20



N 1.740



M16



Nm 48



ER32 Mini  
Ø 2/20



SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	C. ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzo EXTRA Price €	std	optional	std	optional	optional	optional	On request	optional	optional
H	Standard Ø28	110	110	110	110	110	110	110	110
A		173	173	181	182	177	173	173	173
B		37	37	45	44	39	-	37	37

### Dotazione Standard Standard Equipment

Cassa in legno - Stop-block -  
Ghiera ER - Chiavi di servizio -  
Tubetto di grasso - Libro istruzioni  
Wood box - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max.45 Kg



### Opzioni - Options



USCITA  
OUTPUT

ER40

on request



USCITA  
OUTPUT

Weldon MAX Ø25

optional



USCITA  
OUTPUT

HSK 50

optional



PINZA  
COLLET

ER32 Ø2/20

optional



PINZA  
COLLET

ER40 Ø3/30

optional



REFR. DAL CONO  
COOLANT BY SHANK

**DRY RUNNING NOT POSSIBLE**

Max 70 bar

optional

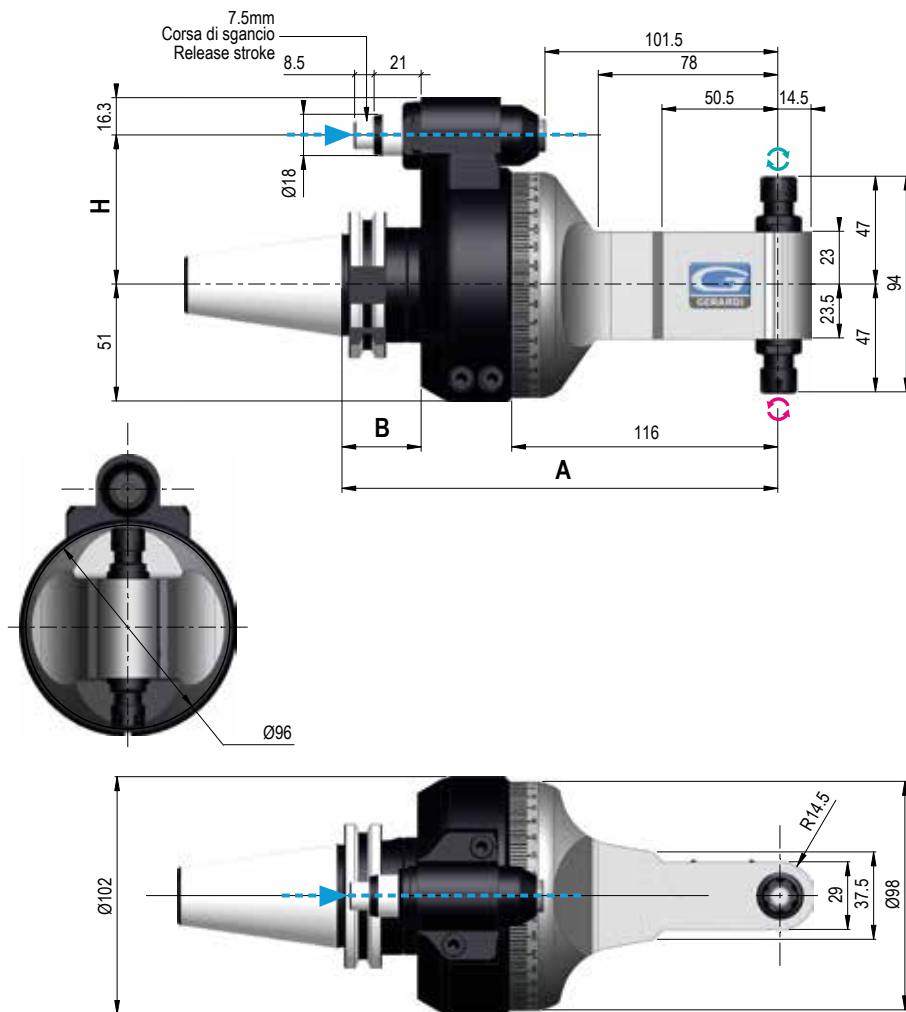
# F90-7 2U

TYPE 1

Code: 9.F90.072U0

Price:

**NEW**



## Dati tecnici - Technical data



Ratio  
1:1



5 Kg



Rpm  
10.000



Ø7



N 127



M6



Nm 6



ER11 Mini  
Ø 1/7



SENDO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE  
SENDO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50	
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.	
Prezzo EXTRA Price €																			
H	Standard Ø18		65 / 80		80		65 / 80		80		65		80		65		80		
	110 - Ø18		optional		optional		optional		optional		optional		optional		optional		optional		
	110 - Ø28																		
A	190		190		190		198		199			194			190			190	
B	35		35		35		43		44			39			-			35	

## Dotazione Standard Standard Equipment

## Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



PINZA  
COLLET

ER11 Ø1/7

optional

INTERASSE SPECIALE  
SPECIAL PITCH



optional



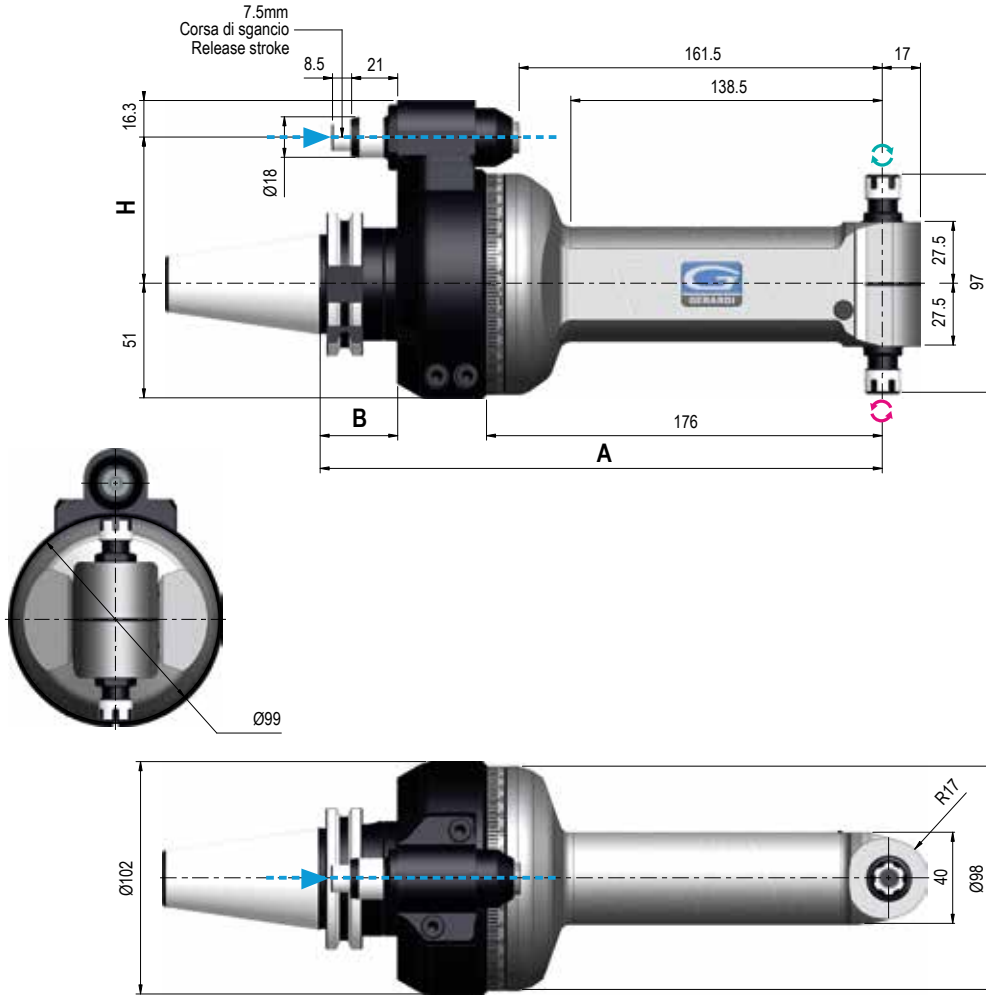
**F90-7L 2U**

TYPE 1

Code:

9.F90.07L2U0

Price:



**Dati tecnici - Technical data**

	Ratio 1:1		6,3 Kg
	Rpm 10.000		Ø7
	N 180		M6
	Nm 6		ER11 Mini Ø 1/7

SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE  
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080		
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
H	Standard Ø18		80	65 / 80	80	65 / 80	80	65			80	65 / 80	80	65	80		65	80
	110 - Ø18		optional		optional		optional		optional			optional			optional		optional	
	110 - Ø28		optional		optional		optional		optional			optional			optional		optional	
A	250		250		250		258	259			254			250			250	
B	35		35		35		43	44			39			-			35	

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

PINZA  
COLLET

INTERASSE SPECIALE  
SPECIAL PITCH

**IMBALLO & PESO**

PACK & WEIGHT: Max. Kg

ER11 - Ø1/7



optional



optional

# F90-10 2U

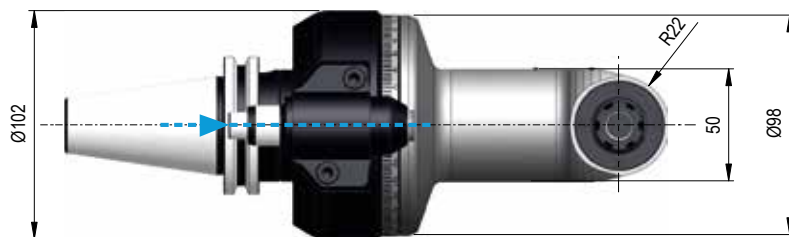
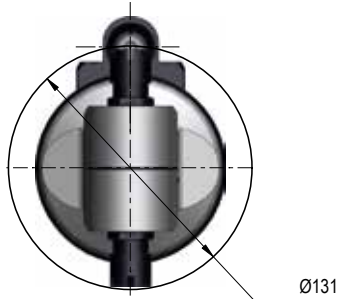
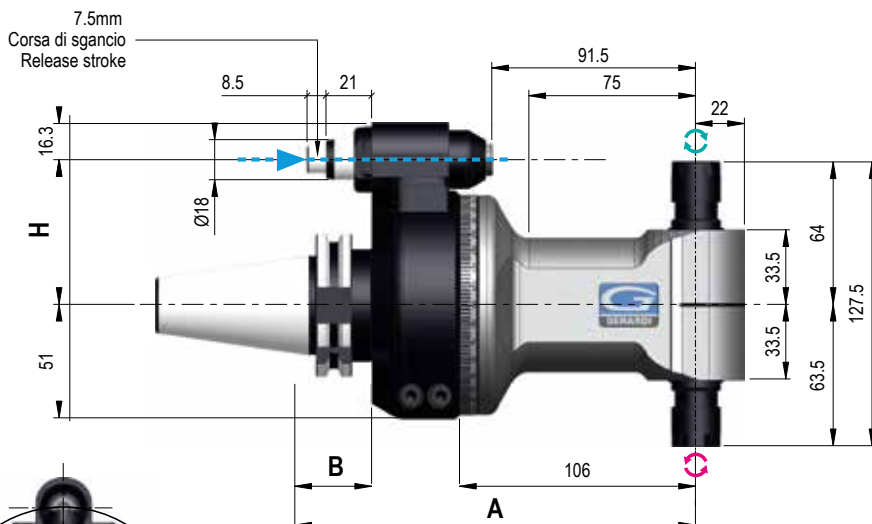
TYPE 1

Code:

9.F90.102U0

Price:

**NEW**



## Dati tecnici - Technical data



Ratio  
1:1



5,3 Kg



Rpm  
10.000



Ø10



N 400



M8



Nm 11



ER16 Mini  
Ø 1/10



SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE  
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080		
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.
Prezzo EXTRA Price €	65 / 80	80	65 / 80	80	65	80	65	80	65	80	65	80	65	80	65	80	65	80
H	optional		optional		optional		optional			optional			optional			optional		
A	180		180		180	188	189			184			180			180		
B	35		35		35	43	44			-			-			35		

## Dotazione Standard Standard Equipment

## Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



ER16 Ø1/10

optional

PINZA  
COLLET



INTERASSE SPECIALE  
SPECIAL PITCH

optional

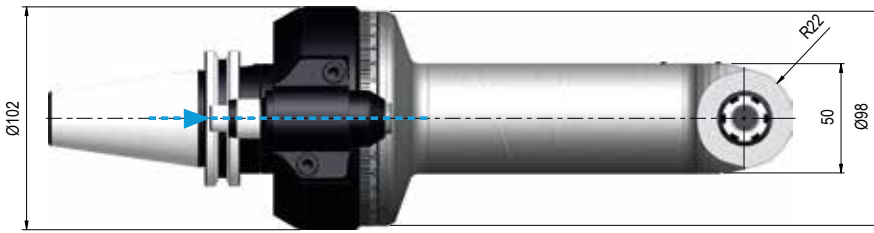
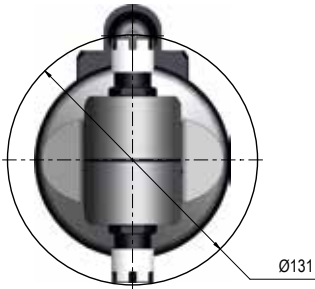
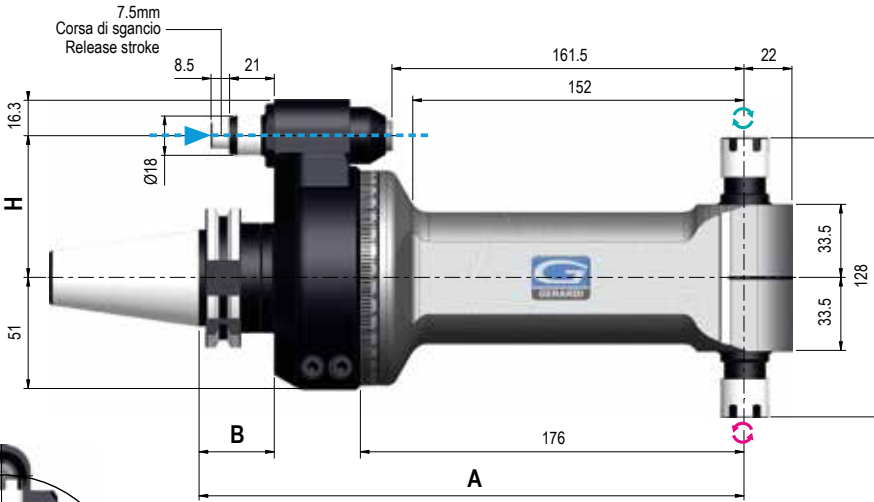
# F90-10L 2U

TYPE 1

Code:

9.F90.10L2U0

Price:



### Dati tecnici - Technical data



Ratio  
1:1



6,9 Kg



Rpm  
10.000



Ø10



N 400



M8



Nm 11



ER16 Mini  
Ø 1/10



SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE  
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50		
Grandezza - Size	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	opt.	opt.		
Prezzo EXTRA Price €																				
H	65 / 80		80		65 / 80		80		65			80			65			80		
	optional			optional		optional		optional			optional			optional			optional			
A	250			250		250		258		259			254			250			250	
B	35			35		35		43		44			-			34,5			35	

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

PINZA  
COLLET

INTERASSE SPECIALE  
SPECIAL PITCH

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



ER16 Ø1/10



optional

optional



# F90-16 2U

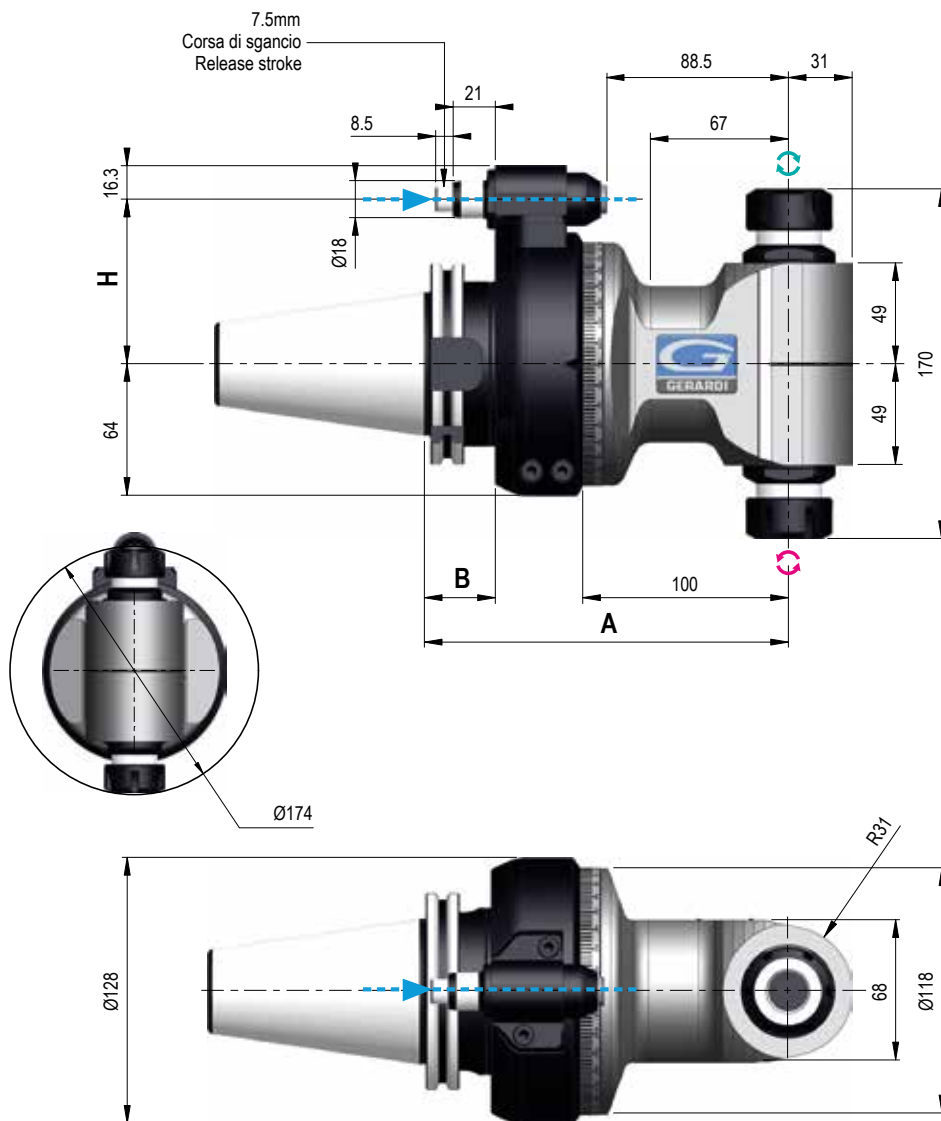
TYPE 2

Code:

9.F90.162U0

Price:

**NEW**



### Dati tecnici - Technical data



Ratio  
1:1



11 Kg



Rpm  
5.000



Ø16



N 1.040



M12



Nm 46



ER25  
Ø 1/16



SENDO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE  
SENDO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	C. ISO 26623	KM	ISO DIN 2080
Grandezza - Size	50	50	50	80 100	C8	80 100	50
Prezzo EXTRA Price €	std	optional	std	optional optional	optional	On request	optional
H	Standard Ø18	80	80	80	80	80	80
	110 - Ø18 110 - Ø28	optional	optional	optional	optional	optional	optional
A	177	177	185	186	181	177	177
B	35	35	43	44	-	-	35

### Dotazione Standard Standard Equipment

### Opzioni - Options

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

PINZA  
COLLET

INTERASSE SPECIALE  
SPECIAL PITCH

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg

ER 25 Ø1/16



optional

optional

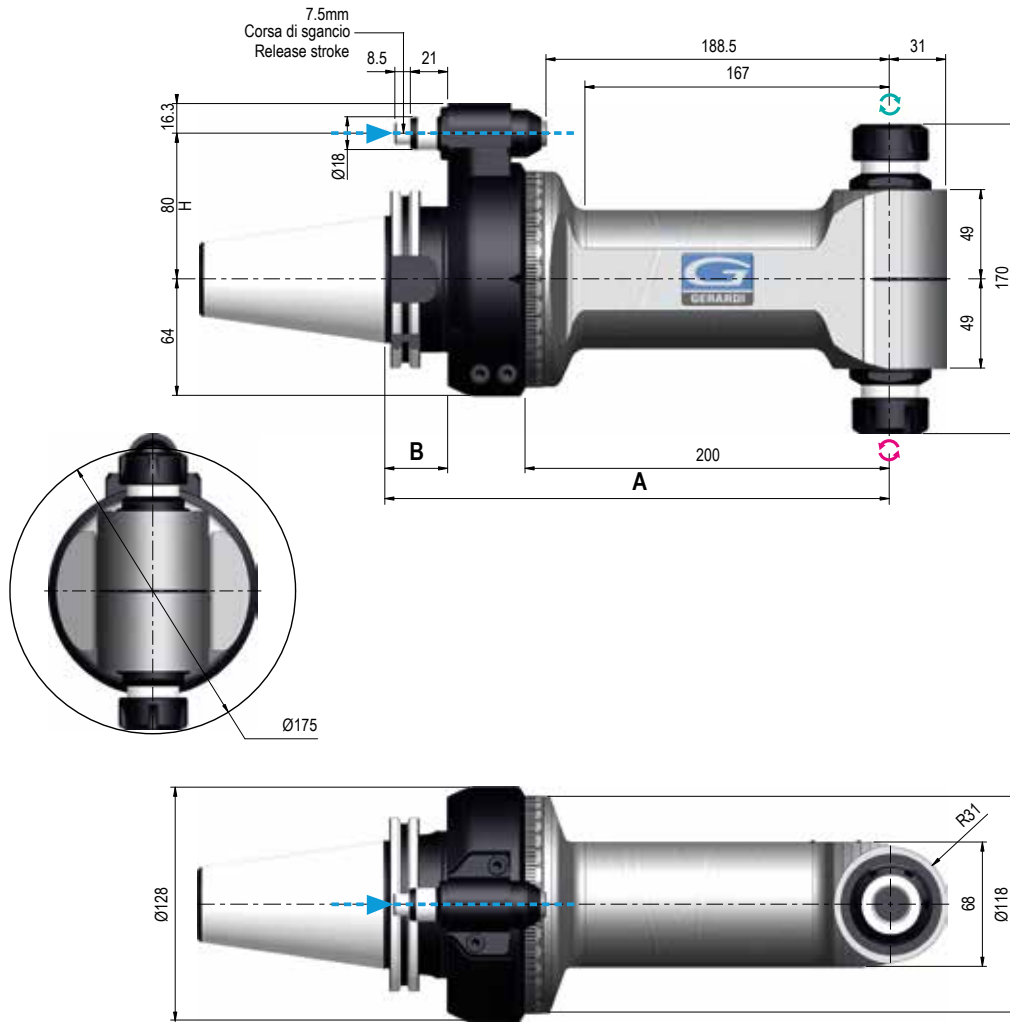
## F90-16L 2U

TYPE 2

Code:

9.F90.16L2U0

Price:



### Dati tecnici - Technical data

Ratio 1:1	11 Kg
Rpm 5.000	Ø16
N 1.040	M12
Nm 46	ER25 Ø 1/16

SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE  
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893		C. ISO 26623	KM		ISO DIN 2080
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzo EXTRA Price €	std	optional	std	optional	optional	optional	On request		optional
H	Standard Ø18	80	80	80		80	80	80	80
	110 - Ø18	optional	optional	optional	optional	optional	optional	optional	optional
	110 - Ø28	optional	optional	optional	optional	optional	optional	optional	optional
A	277	277	285	286	281	277	-	-	277
B	35	35	43	44	-	-	-	-	35

### Dotazione Standard Standard Equipment

### Opzioni - Options

Cassa in legno - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Wood box - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

PINZA  
COLLET

INTERASSE SPECIALE  
SPECIAL PITCH

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg

ER 25 Ø1/16



optional



optional

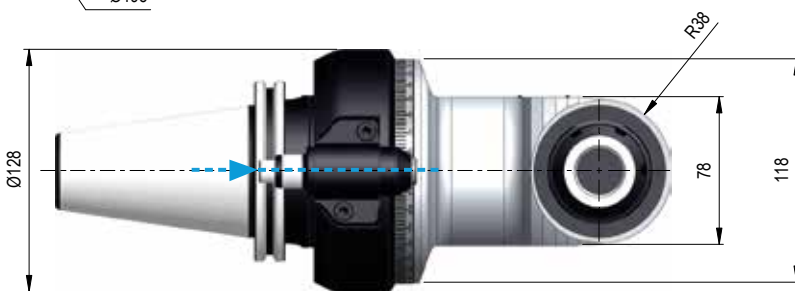
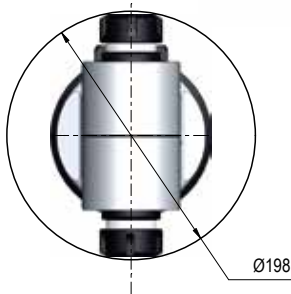
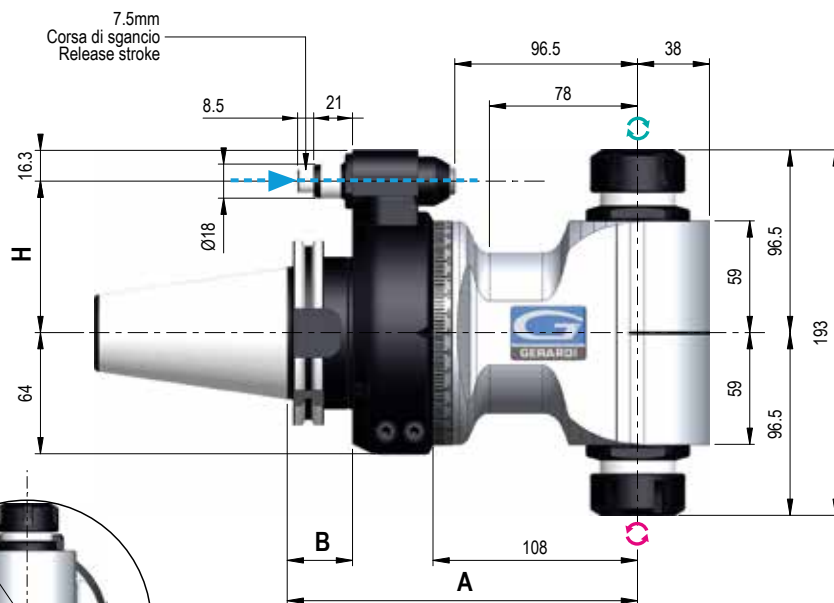
# F90-20 2U

TYPE 1

Code: 9.F90.202U0

Price:

**NEW**



**Dati tecnici - Technical data**

Ratio 1:1	13,2 Kg
Rpm 3.500	Ø20
N 1.460	M14
Nm 85	ER32 Ø 2/20



SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE  
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	C. ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzo EXTRA Price €	std	optional	std	optional	optional	optional	On request	optional	optional
H	Standard Ø18	80	80	80	80	80	80	80	80
	110 - Ø18 110 - Ø28	optional	optional	optional	optional	optional	optional	optional	optional
A	185	185	193	194	189	185	185	185	
B	35	35	43	44	39	-	35		

**Dotazione Standard**  
Standard Equipment

**Opzioni - Options**

Valigetta - Stop-block - Ghiera ER -  
Chiavi di servizio - Tubetto di grasso -  
Libro istruzioni  
Special bag - Stop-block - ER nut -  
Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**

PACK & WEIGHT: Max. Kg



PINZA  
COLLET

ER 32 Ø2/20

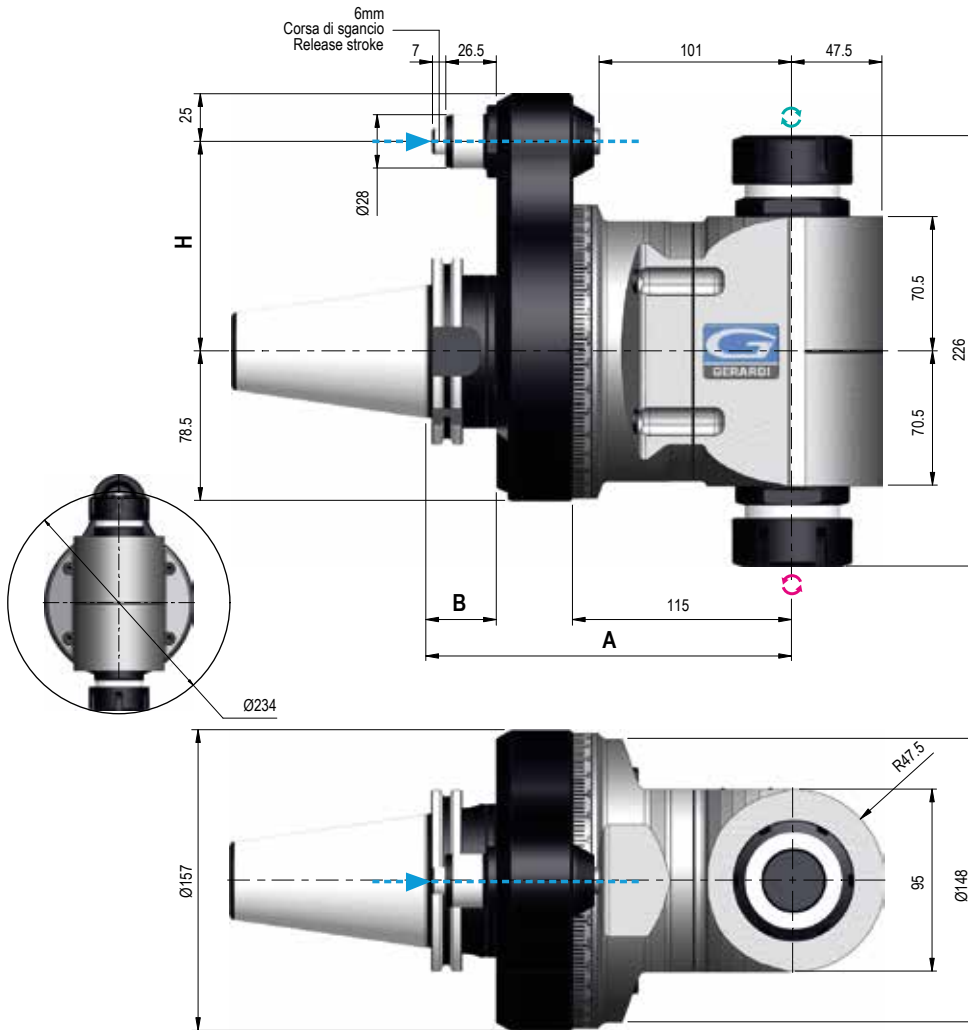
optional

INTERASSE SPECIALE  
SPECIAL PITCH



optional





## F90-30 2U

TYPE 3

Code:

9.F90.302U0

Price:



### Dati tecnici - Technical data

	Ratio 1:1		21,7 Kg
	Rpm 2.500		Ø26
	N 3.020		M20
	Nm 135		ER40 Ø 3/30



SENSO DI ROTAZIONE UGUALE AL MANDRINO - DIRECTION OF ROTATION SAME AS MACHINE SPINDLE  
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893		C. ISO 26623	KM		ISO DIN 2080
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzo EXTRA Price €	std	optional	std	optional	optional	optional	On request		optional
H Standard Ø28	110	110	110	110		110	110		110
A	192	192	200	201		196	192		192
B	37	37	45	44		39	-		37

### Dotazione Standard Standard Equipment

### Opzioni - Options

Cassa in legno - Stop-block -  
Ghiera ER - Chiavi di servizio -  
Tubetto di grasso - Libro istruzioni  
Wood box - Stop-block - ER nut -  
Wrenches - Grease tube- Instruction book

PINZA  
COLLET

INTERASSE SPECIALE  
SPECIAL PITCH

IMBALLO & PESO  
PACK & WEIGHT: Max. Kg



ER 40 Ø3/30



optional

optional



Esempi applicativi / Applications examples

# Linea Evolution / Evolution Line

**Teste angolari modulari serie MTC (Cambio utensile manuale)**

Modular angle heads MTC series (Manual tool change)



*series*  
**STD 90°**

La serie ideale per fresature, forature e maschiature a  $\pm 90^\circ$

The ideal series for milling, drilling and tapping at  $\pm 90^\circ$



*series*  
**STD 90°**

La serie di teste angolari lunghe per lavorazioni più in profondità

Long angle head series for machining at deep positions



**Albero con cono**  
Shaft and shank

**Flangia universale**  
Universal Flange

**Anello graduato aggancio**  
Graduated retaining ring

**\*Prolunga - Extension**  
(Opzionale - Optional)

**Corpo testa**  
Body head

La cava a "T", ricavata sulla flangia universale, permette un facile posizionamento del corpo testa sui  $360^\circ$  intorno al suo asse verticale. Un sistema modulare componibile, rende possibile variare la lunghezza del corpo testa aggiungendo l'elemento di \*prolunga (Opzionale). Massimo 2 elementi di prolunga ammessi.

The T-slot on the universal flange facilitates the positioning the head  $360^\circ$  around its vertical axis. The modular system makes it possible to extend the length of the body by adding a \*extension (Optional). Max. 2 extensions admitted.

## INGRANAGGI GEARS



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

Gleason ground spiral bevel gears maximum performances and minimum vibration



## CUSCINETTI - BEARINGS

**Cuscinetti a sfera a contatto obliquo in classe di precisione ABEC 9**

Angular contact preloaded ball bearings of precision class ABEC 9

## DESIGN

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

The Compact design, along with mentioned specifications, allows: highest performances, high speeds, long tools life

**Anello graduato**  
Graduated ring

**Flangia universale**  
Universal flange

## USCITE OUTPUTS:

- Portapinza ER (standard)
- Weldon
- Portafresa
- Speciale
- ER collet (standard)
- Weldon
- Shell mill holder
- Special

**Corpo testa orientabile a 360° con pressurizzazione interna. In acciaio trattato, massima rigidità e resistenza alla corrosione. Minima dilatazione termica.**  
Treated steel head body with 360° position and internal air pressure, maximum rigidity and corrosion resistant. Minimum thermal expansion



**E' la linea di teste adatte a macchine utensili tradizionali e da fissare al mandrino tramite flangiatura. La cava a "T" ricavata sulla flangia universale permette un facile posizionamento del corpo testa sui 360° intorno al suo asse verticale. Un sistema modulare componibile, rende possibile variare la lunghezza del corpo testa aggiungendo l'elemento di prolunga. Modulo di prolunga, con flangia universale sono modulari e quindi intercambiabili su tutti i corpi testa appartenenti allo stesso ordine di grandezza.**

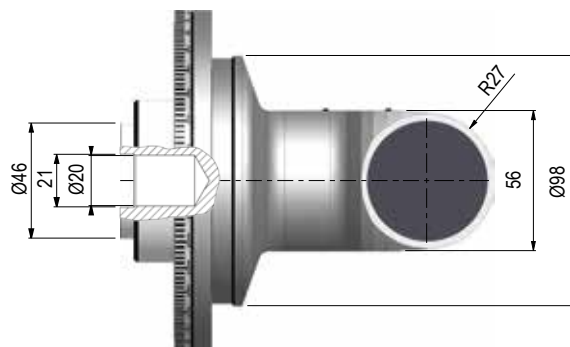
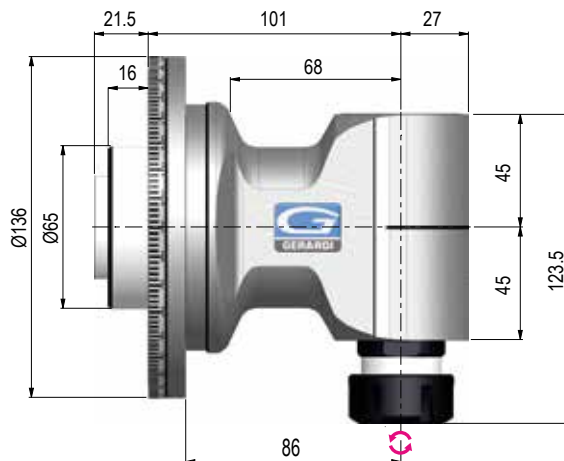
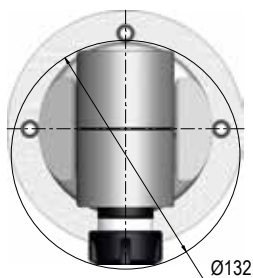
This is a range of heads for traditional machine tools with flange attachment. The T-slot on the universal flange facilitates positioning the head 360° around its vertical axis. The modular system makes it possible to extend the length of the body by adding a spacer. The extension spacer, drive tapers and universal flange are modular and therefore interchangeable among all the heads of similar size.

# F90-16S

TYPE 1

Code: 9.F90.16S01

Price:



### Dati tecnici - Technical data



Ratio  
1:1



6 Kg



Rpm  
8.000



Ø16



N 810



M12



Nm 27



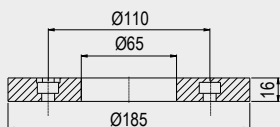
ER 25  
Ø 1/16



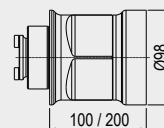
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080		
Grandezza - Size	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	30	40	50
Prezzo EXTRA Price €	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	std	std	opt.

### Flangia Universale Universal Flange TIPO - TYPE 1



### Prolunga Extension TIPO - TYPE 1



### Dotazione Standard Standard Equipment

Valigetta - Flangia universale - Ghiera ER - Cono - Chiavi di servizio - Tubetto di grasso - Libro Istruzioni  
Special bag - Universal flange - ER nut - Shank - Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



### Opzioni - Options



DOPIA USCITA  
DOUBLE OUTPUT

ER25 - ER25

optional



USCITA  
OUTPUT

Weldon MAX Ø16

optional



USCITA  
OUTPUT

Toolholder Ø16

optional



PINZA  
COLLET

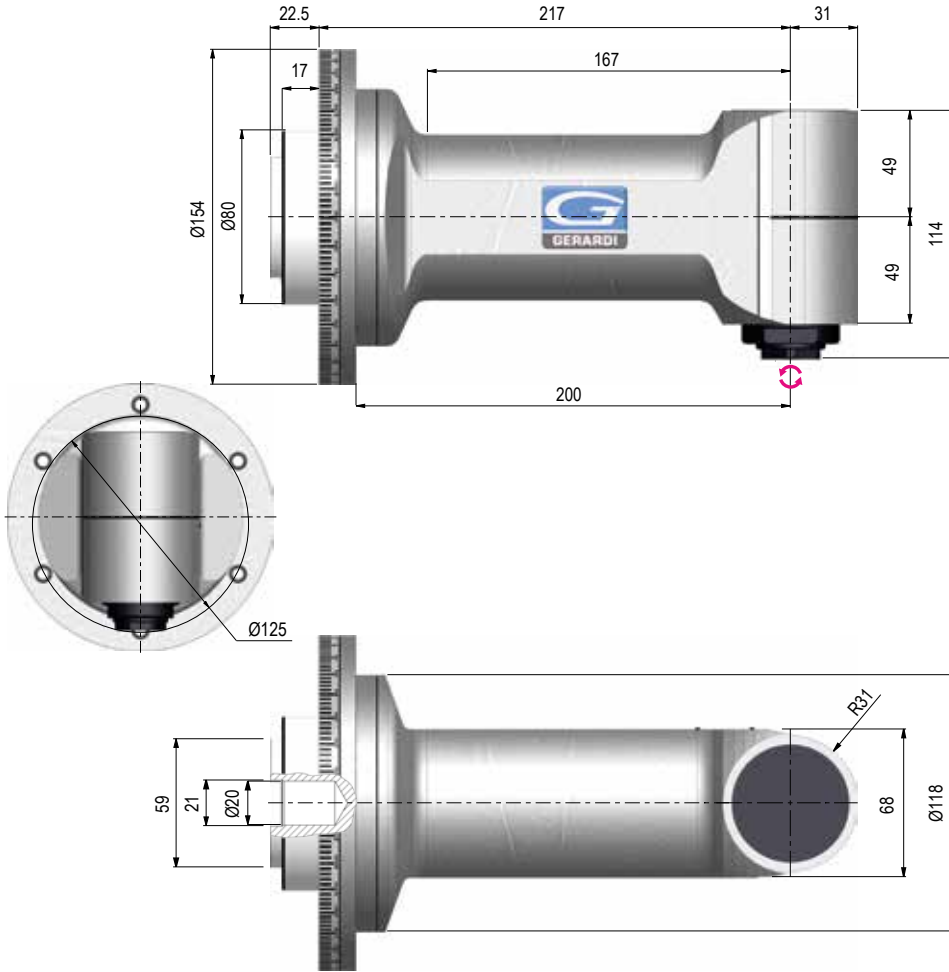
ER25 - Ø1/16

optional



REFR.INT  
INT.COOL

On request



## F90-16L

TYPE 2

Code:

9.F90.16L01

Price:



### Dati tecnici - Technical data

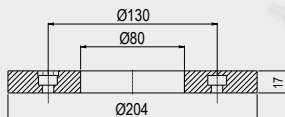
	Ratio 1:1		7,5 Kg
	Rpm 5.000		Ø16
	N 1.040		M12
	Nm 46		ER25 Ø 1/16



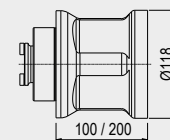
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080		
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	30	40	50
Grandezza - Size	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	30	40	50
Prezzo EXTRA Price €	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	std	std	opt.

### Flangia Universale Universal Flange TIPO - TYPE 2



### Prolunga Extension TIPO - TYPE 2



### Dotazione Standard Standard Equipment

Valigetta - Flangia universale - Ghiera ER - Cono std - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Special bag - Universal flange - ER nut - Shank - Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



### Opzioni - Options

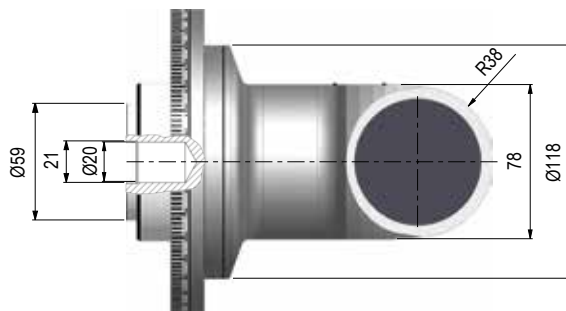
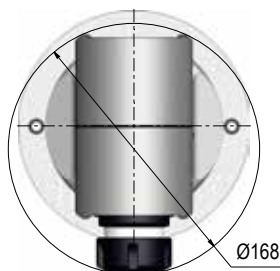
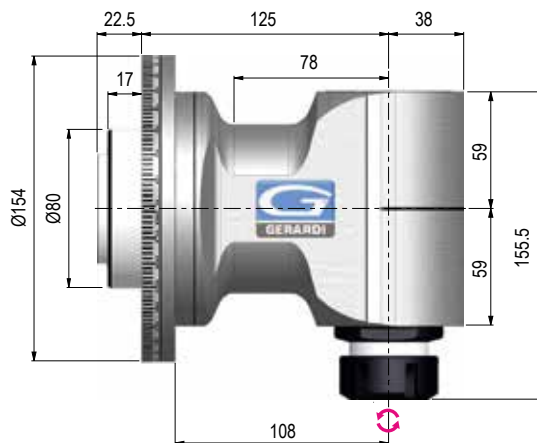
	USCITA OUTPUT HSK 32 optional		USCITA OUTPUT Weldon MAX Ø20 optional		USCITA OUTPUT Toolholder Ø16-22 optional
	PINZA COLLET ER25 - Ø1/16 optional		REFR.INT INT.COOL On request		DOPPIA USCITA DOUBLE OUTPUT ER25 - ER25 optional

# F90-20

TYPE 2

Code: 9.F90.20001

Price:



### Dati tecnici - Technical data



Ratio  
1:1



7,5 Kg



Rpm  
3.500



Ø20



N 1.460



M14



Nm 85



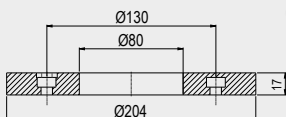
ER 32  
Ø 2/20



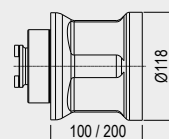
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080		
Grandezza - Size	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	30	40	50
Prezzo EXTRA Price €	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	std	std	opt.

### Flangia Universale Universal Flange TIPO - TYPE 2



### Prolunga Extension TIPO - TYPE 2



### Dotazione Standard Standard Equipment

Valigetta - Flangia universale - Ghiera ER - Cono - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Special bag - Universal flange - ER nut - Shank - Wrenches - Grease tube - Instruction book

### IMBALLO & PESO

PACK & WEIGHT: Max. Kg



Opzioni - Options	
<p>DOPPIA USCITA DOUBLE OUTPUT</p> <p>ER32 - ER32</p> <p>optional</p>	<p>REFR. INTERNO INT. COOLANT</p> <p>10 Bar</p> <p>optional</p>
<p>USCITA OUTPUT Weldon MAX Ø25</p> <p>std</p>	<p>USCITA OUTPUT Toolholder Ø22-27-32</p> <p>optional</p>
<p>USCITA OUTPUT C4</p> <p>optional</p>	<p>USCITA OUTPUT PINZA COLLET</p> <p>ER32 - Ø2/20</p> <p>optional</p>
<p>USCITA OUTPUT ER40</p> <p>optional</p>	<p>USCITA OUTPUT ISO-CAT-BT 30</p> <p>optional</p>
<p>USCITA OUTPUT HSK 40</p> <p>optional</p>	<p>USCITA OUTPUT ER32</p> <p>optional</p>



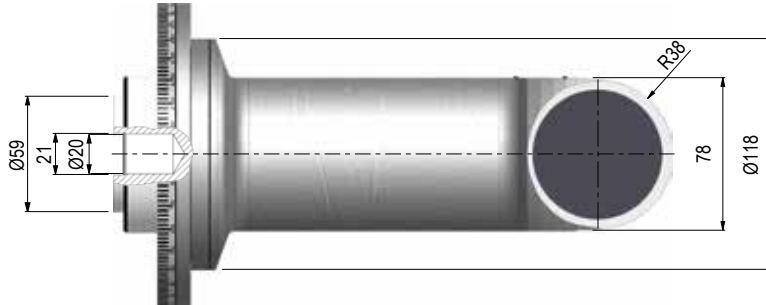
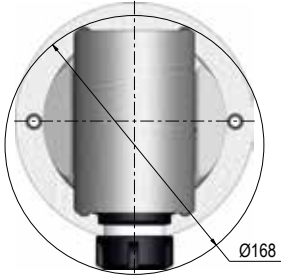
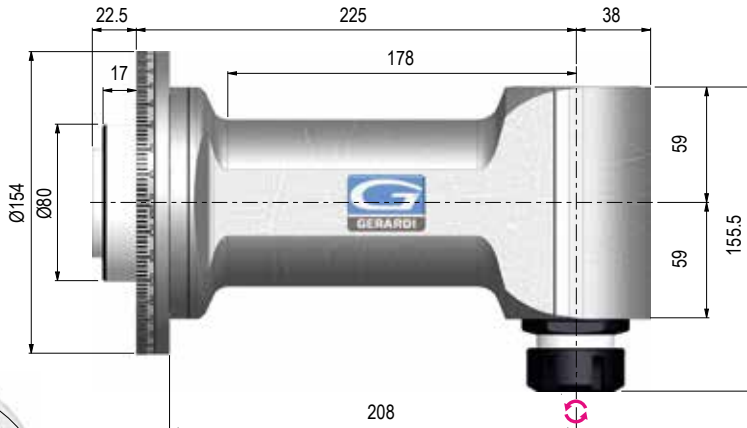
**F90-20L**

TYPE 2

Code:

9.F90.20L01

Price:



**Dati tecnici - Technical data**

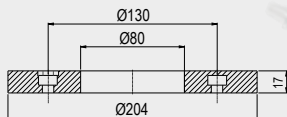
	Ratio 1:1		10,5 Kg
	Rpm 3.500		Ø20
	N 1.460		M14
	Nm 85		ER32 Ø 2/20



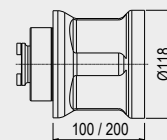
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080		
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	30	40	50
Grandezza - Size	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	30	40	50
Prezzo EXTRA Price €	opt.	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	std	std	opt.

**Flangia Universale**  
Universal Flange  
TIPO - TYPE 2



**Prolunga**  
Extension  
TIPO - TYPE 2



**Dotazione Standard**  
Standard Equipment

Valigetta - Flangia universale - Ghiera ER - Cono std - Chiavi di servizio - Tubetto di grasso - Libro istruzioni  
Special bag - Universal flange - ER nut - Shank - Wrenches - Grease tube - Instruction book

**IMBALLO & PESO**

PACK & WEIGHT: Max. Kg



**Opzioni - Options**

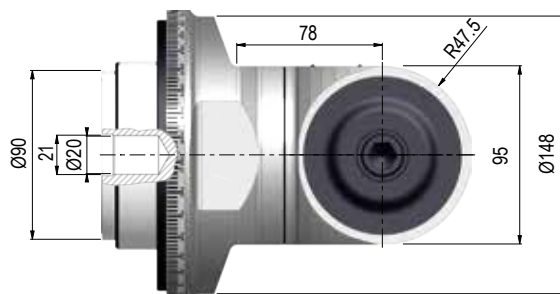
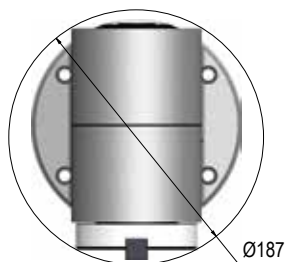
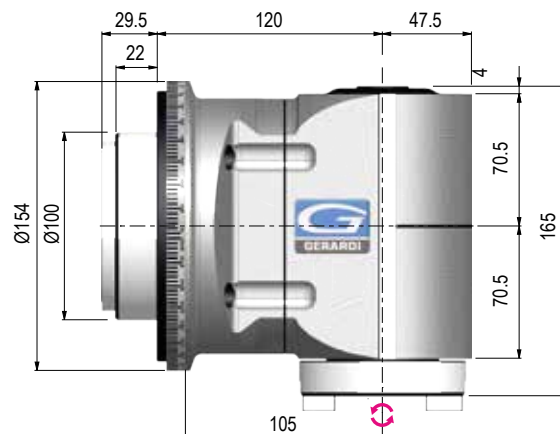
	DOPPIA USCITA DOUBLE OUTPUT ER32 - ER32 optional		REFR. INTERNO INT. COOLANT On req.		USCITA OUTPUT Weldon MAX Ø25 std		USCITA OUTPUT Toolholder Ø22-27-32 optional		USCITA OUTPUT C4 optional
	USCITA OUTPUT ER40 optional		USCITA OUTPUT ISO-CAT-BT 30 optional		USCITA OUTPUT HSK 40 optional		PINZA COLLET ER32 - Ø2/20 optional		

### F90-S40

TYPE 3

Code: 9.F90.S4001

Price:



#### Dati tecnici - Technical data



Ratio  
1:1



21 Kg



Rpm  
2.500



Ø26



N 3.020



M20



Nm 135



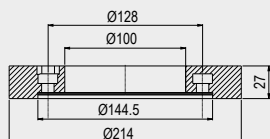
ISO40  
CAT40  
BT40



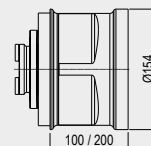
SENSO DI ROTAZIONE CONTRARIO AL MANDRINO - DIRECTION OF ROTATION OPPOSITE TO THE MACHINE SPINDLE

Coni Shanks	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			C. ISO 26623			KM			ISO DIN 2080	
Grandezza - Size	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzo EXTRA Price €	std	opt.	std	opt.	std	opt.	opt.	opt.	opt.	opt.	opt.	opt.	opt.	on request	on request	std	opt.

#### Flangia Universale Universal Flange TIPO - TYPE 3



#### Prolunga Extension TIPO - TYPE 3



#### Dotazione Standard Standard Equipment

Cassa in legno - Flangia universale - Ghiera ER -  
Corno - Chiavi di servizio -  
Tubetto di grasso - Libro istruzioni  
Wood box - Universal flange - ER nut - Shank -  
Wrenches - Grease tube - Instruction book

#### IMBALLO & PESO:

PACK & WEIGHT: Max. Kg



#### Opzioni - Options

	USCITA OUTPUT ER40 (F90-30) std		USCITA OUTPUT HSK 63 optional		USCITA OUTPUT C5 optional
	PINZA COLLET ER40 (F90-30) optional		REFR.INT INT.COOL On request		DOPPIA USCITA DOUBLE OUTPUT ER40 - ER40 optional

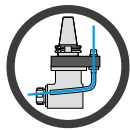
# ACCESSORI ATC & MTC

ATC & MTC ACCESSORIES



## OPZIONE REFRIGERANTE SERIE ATC INTERNAL COOLANT OPTION ATC SERIES

Opzione B  
B option

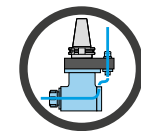


10bar



Perno »  
Positioning Pin »

Passaggio refrigerante 10bar  
Dal perno.  
Coolant 10bar through the position-  
ing pin.



10bar

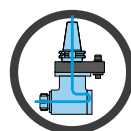


Perno » Distributore » Utensile  
Positioning Pin » Rotating Distributor »  
Tool

Passaggio refrigerante interno  
10bar dal perno e attraverso il  
distributore rotante.  
Internal coolant 10bar by the position-  
ing pin and through the distributor

ROTAZIONE A SECCO - DRY RUNNING  
**POSSIBILE - POSSIBLE**

Opzione RI  
RI option



70bar

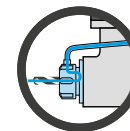


Cono » Distributore » Utensile  
Shank » Rotating Distributor » Tool

Passaggio refrigerante interno  
70bar dal cono e attraverso il  
distributore rotante  
Internal coolant 40bar by the shank  
and through the distributor

ROTAZIONE A SECCO - DRY RUNNING  
**NON POSSIBILE  
NOT POSSIBLE**

Opzione Re-Cool  
Re-Cool option



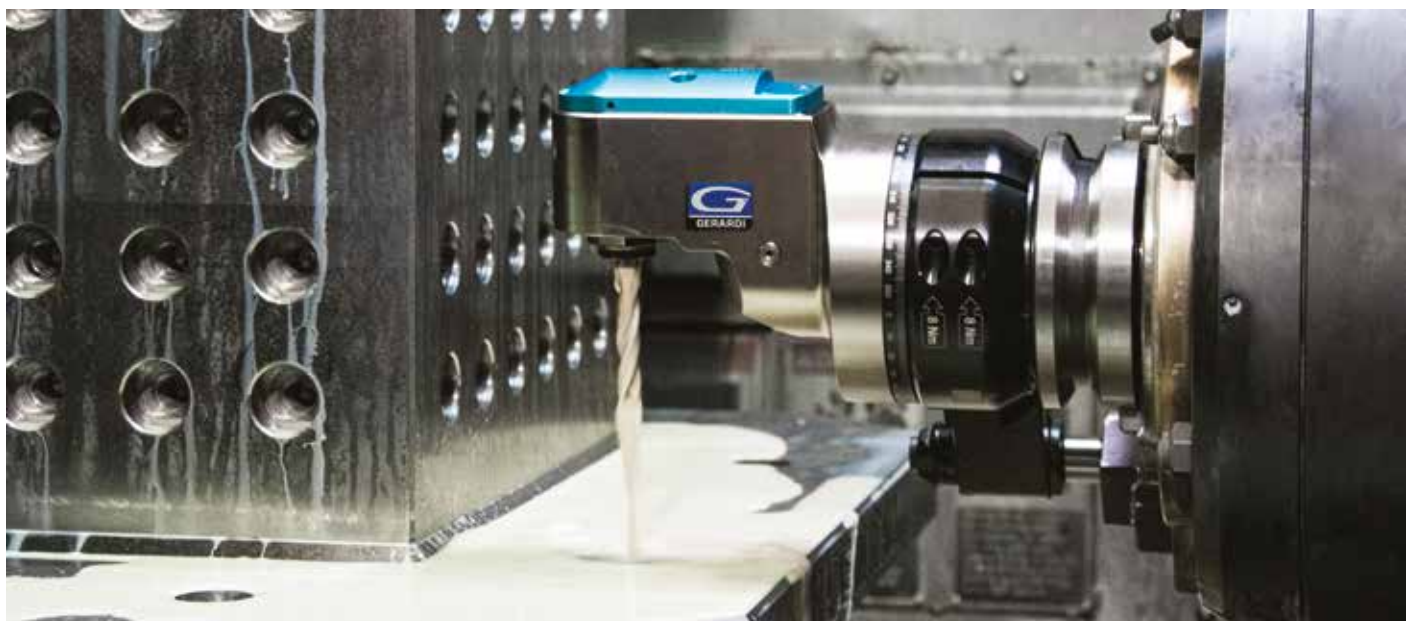
10bar



Perno » Ghiera » Utensile  
Positioning Pin » Nut » Tool

Passaggio refrigerante interno  
per mezzo della ghiera RE-COOL  
Internal coolant by the special nut  
RE COOL nut

PAG. 2.69 - PAG. 2.69



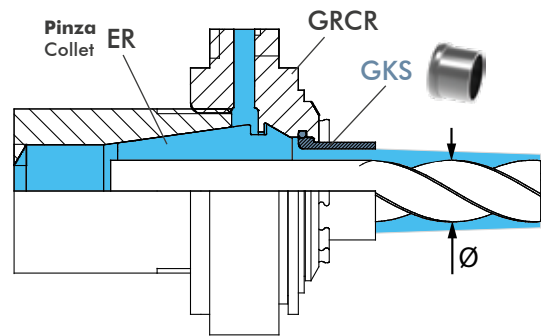
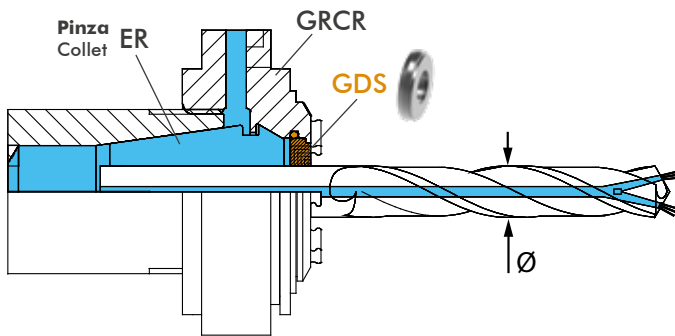
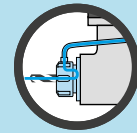
Testa angolare FR90-10B 70bar in lavorazione  
Angle heads FR90-10B 70bar during works

### GHIERE ER ReCool

### ReCool ER NUTS

Con queste ghiera speciali è possibile ottenere il passaggio refrigerante tramite utensile anche su teste che non prevedono questa opzione.

With these special nuts it is possible to get coolant through the tool even on angle heads which do not have this option.



**GRCR**  
(Ghiera / Nut)



**GDS**  
(Disco di tenuta / Sealing ring)



**GKS**  
(Disco di tenuta / Sealing ring)



**AX (EXTRA)**

MODELLO TESTA ANGOLARE ANGLE HEADS TYPE	Pinza Collet	Ghiera Nut	
		Code	
F90-10 / 10L FMU-10	ER16	GRCR16	
		9.GR.CR16	
F90-13 / 13L FL90-13	ER20	GRCR20	
		9.GR.CR20	
F90-16 / 16L / 16S FL90-16 / FMU-16	ER25	GRCR25	
		9.GR.CR25	
F90-20 / 20L / 20S FMU-20	ER32	GRCR32	
		9.GR.CR32	
F90-S40	ER40	GRCR40	
		9.GR.CR40	

Disco di tenuta per refr.interno Sealing ring for int. coolant	
Code	
GDS16	
9.GD.S16/...	
GDS20	
9.GD.S20/...	
GDS 25	
9.GD.S25/...	
GDS32	
9.GD.S32/...	
GDS40	
9.GD.S40/...	

Disco di tenuta per refr. esterno Sealing ring for est. coolant	
Code	
GKS16	
9.GK.S16/...	
GKS20	
9.GK.S20	
GKS 25	
9.GK.S25	
GKS32	
9.GK.S32	

Chiavi Wrenches	
Code	
CH-16AX	
9.CH.16AX	
CH-20AX	
9.CH.20AX	
CH-25AX	
9.CH.25AX	
CH-32AX	
9.CH.32AX	
CH-40AX	
9.CH.40AX	

INDICARE SEMPRE IN FASE D'ORDINE Ø UTENSILE - IN CASE OF ORDER SPECIFY THE Ø TOOL

■ ER: Pinza ER / ER Collet ■ GRCR: Ghiera / Nut ■ GDS: Disco di tenuta / Sealing ring ■ GKS: Disco di tenuta / Sealing ring

#### Dotazione Standard

Standard Equipment



- 1 - Ghiera con anello esterno  
Clamping nut with outer ring.
- 2 - Tubo refrigerante con protezione Ø6mm, 400mm  
Coolant pipe with protector Ø6mm, 400mm
- 3 - Raccordi dritti da 1/8"  
Fitting 1/8" straight
- 4 - Raccordi a 90° da 1/8"  
Fitting 1/8" 90° elbow



Tipo di ghiera Nut type	≤3000 Rpm	≤6000 Rpm	≤9000 Rpm	≤12000 Rpm
GRCR16	5 bar	7,5 bar	10 bar	15 bar
GRCR20	5 bar	7,5 bar	10 bar	15 bar
GRCR25	5 bar	7,5 bar	10 bar	15 bar
GRCR32	5 bar	10 bar	15 bar	20 bar
GRCR40	5 bar	10 bar	-	-

Il tubo e gli accessori in dotazione sono progettati e testati per la pressione massima del refrigerante di 58 bar / 840 PSI.  
Maggiore pressione del refrigerante su richiesta.

The supplied hose and fittings are designed and tested for maximum coolant pressure of 58 bar / 840 PSI.  
Higher coolant pressure on request.

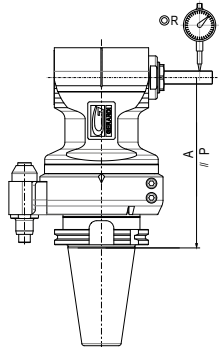
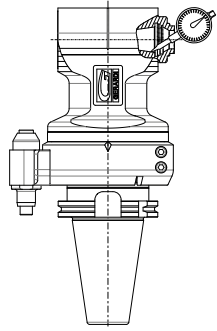
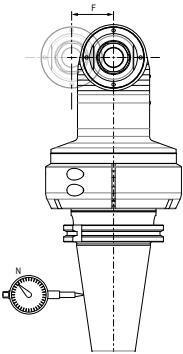
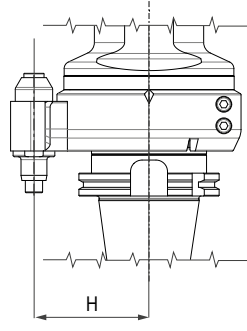
Esempio di ordine Ghiera:GRCR16 (Cod. 9.GR.CR16) - Disco tenuta: GDS16-Ø10 (Cod. 9.GD.S16/10)  
Example of order Nut: GRCR16 (Code 9.GR.CR16) - Sealing ring: GDS16-Ø10 (Code 9.GD.S16/10)



## ESEMPIO SCHEDA DI COLLAUDO INSPECTION SHEET EXAMPLE

2

<b>Tipo - Type</b>	G90-16 ATC
<b>Codice - Code</b>	9.G90.16000
<b>Numero seriale - Serial number</b>	18-011
<b>Attacco cono - Input shank</b>	CAT50 - H=80
<b>Note speciali - Special notes</b>	

TIPO DI CONTROLLO Test type	RAFFIGURAZIONE Drawing	ERRORE Error	TIPO DI CONTROLLO Test type	RAFFIGURAZIONE Drawing	ERRORE Error
<b>Quota e parallelismo da filo cono ad asse principale. Oscillazione asse utensile.</b>  Height and parallelism from gauge line to main axis. Runout cutter axis.		<b>Ammesso</b> Allowed A = $\pm 0,03$ R = $\pm 0,025$ P = $\pm 0,015/100$	<b>Oscillazione mandrino porta utensile.</b>  Runout in cutter spindle.		<b>Ammesso</b> Allowed 0,010
		<b>Rilevato</b> Checked  A = +0,010			<b>Rilevato</b> Checked
		R = 0,015			0,008
		P = 0,012/100			
<b>Concentricità tra cono e asse principale. Disassamento tra gli assi principali.</b>  Concentricity between shank and main axis. offset between main axis		<b>Ammesso</b> Allowed F = $\pm 0,02$ N = $\pm 0,02$	<b>Interasse cono-perno di posizionamento.</b>  Pitch shank-positioning pin.		<b>Ammesso</b> Allowed 0,010
		<b>Rilevato</b> Checked  F = 0,010			<b>Rilevato</b> Checked
		N = 0,016			-0,010

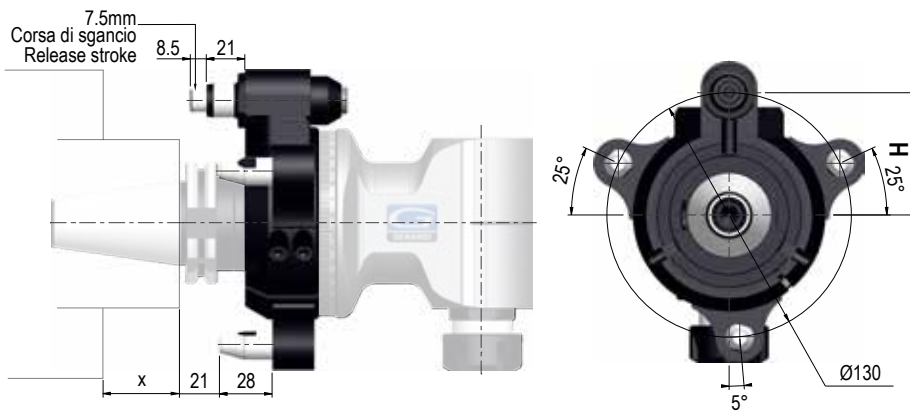
### RODAGGIO TESTA - RUN-IN

RPM in entrata RPM	Durata Time	Temperatura Ambiente Room Temperature	Temperatura Sonda Sensor Temperature	Note Notes
1000	00:10:00	22°	27°	
2000	00:10:00		32°	
3000	00:05:00		36°	
4000	00:05:00		42°	
5000				
6000				

Revisioni - Revisions	Timbro - Stamp	Data - Date
		Firma - Signature



# SISTEMA ANTIROTANTE MULTIPOINT MULTIPOINT ANTIROTATION SYSTEM



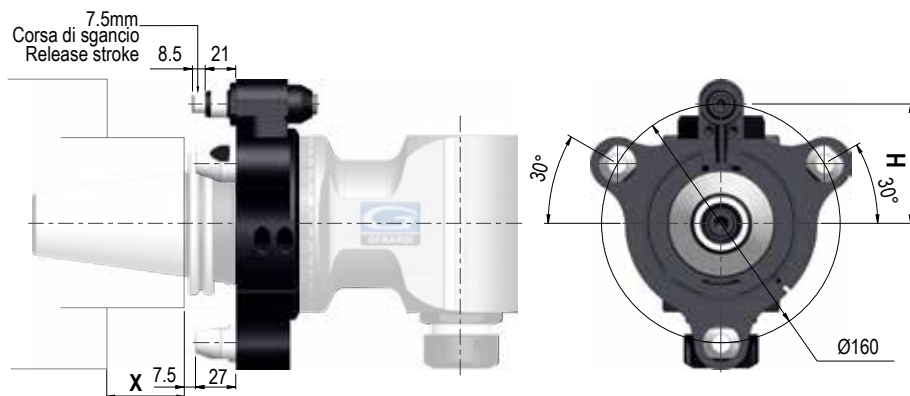
## TYPE 1

Code: 9.GAT1./...\*

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

Coni Shank				Solo flangia Only Flange**
	SK 40	BT 40	BT 50	on request

\*\*In caso di acquisto contestuale alla testa angolare  
In case of purchase together with angle head



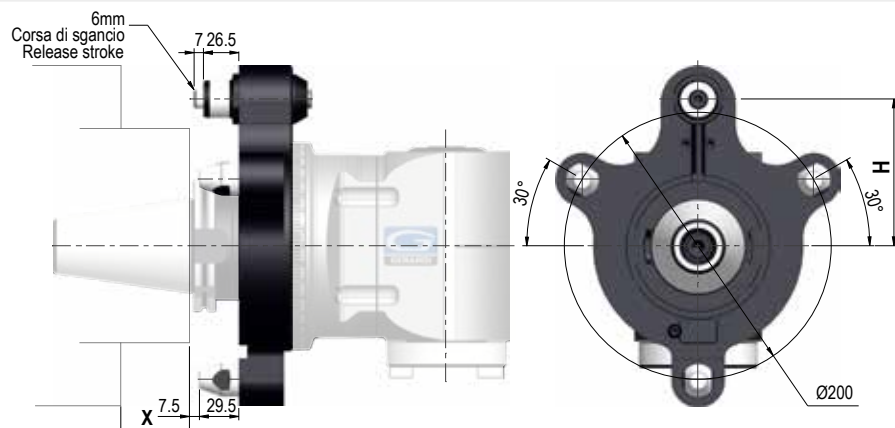
## TYPE 2

Code: 9.GAT2./...\*

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

Coni Shank					Solo flangia Only Flange**
	SK 50	BT 50	CAT 50	HSK 80	on request

\*\*In caso di acquisto contestuale alla testa angolare  
In case of purchase together with angle head



## TYPE 3

Code: 9.GAT3./...\*

Teste ad angolo con interasse H=110  
Angle heads with centre distance H=100

Coni Shank			Solo flangia Only Flange**
	SK 50	BT 50	on request

\*\*In caso di acquisto contestuale alla testa angolare  
In case of purchase together with angle head



Il sistema antirotante MULTIPOINT è composto da 4 punti d'appoggio di cui uno standard e tre supplementari ed è stato studiato per i seguenti motivi:

- Garantire una rigidità superiore allo standard
- Poter eseguire lavorazioni pesanti
- Annullare ogni tipo di vibrazione
- Applicabile ad ogni tipo di mandrino macchina

The anti-rotation MULTIPOINT system is made of 4 brace points (one standard and 3 additional) for:

- Granting a higher than standard rigidity
- Allowing heavy duty machining
- Avoiding any type of vibration
- Mounting on any type of machine spindle



\* In fase di ordine specificare tipo di cono e grandezza ESEMPIO : Flangia MULTIPOINT per testa tipo3 con cono SK50 = 9.GAT3.SK50  
In case of order specify shank type and size. EXAMPLE : MULTIPOINT flange for angle head type3 with SK50 shank = 9.GAT3.SK50

## ESEMPIO di MONTAGGIO SERIE ATC ATC SERIES MOUNTING EXAMPLE

PER UN CORRETTO ORDINE VERIFICARE L'IDONEITÀ DEL PERNO DI POSIZIONAMENTO  
FOR A RIGHT PURCHASE ORDER CHECK THE POSITIONING PIN SUITABILITY

### 1) STOP-BLOCK GIÀ PRESENTE SUL MANDRINO MACCHINA

- Per Stop-block Gerardi è sufficiente indicare il tipo di testa, interasse H, diametro perno ed altezza perno
- In caso di Stop-block NON Gerardi, inviateci il disegno del suddetto e del mandrino macchina per determinare il perno. Se possibile si consiglia di smontare lo stop block presente e di utilizzare il nostro standard.

### STOP-BLOCK ALREADY MOUNTED ON THE MACHINE SPINDLE

- For Gerardi items, please indicate the type of Angle Head, the H dimension, the pin diameter and height.
- For non-Gerardi items, please send us the stop-block and the machine spindle drawings in order to design the right pin. If possible, we suggest you to use Gerardi standard stop block, taking off the one already placed on the machine.

### 2) NESSUNO STOP-BLOCK MONTATO SUL MANDRINO MACCHINA

Rilevare la quota X sul mandrino della macchina e mediante la seguente formula calcolare lo spessore del distanziale. In caso di spessori inferiori a 8 mm è possibile richiedere un apposito stop-block con base lavorabile (Pag. 3.25)

### NO STOP-BLOCK MOUNTED ON THE MACHINE SPINDLE

Please check the X dimension on the machine spindle and calculate the width of the spacer through the following formula. In case of widths of less than 8 mm, a special stop block with machineable base can be ordered (Pag. 1.83)

$$S = X + B - 35$$

Se sei in possesso di una testa angolare con perno Ø18  
If you have an Angle Head with pin Ø18

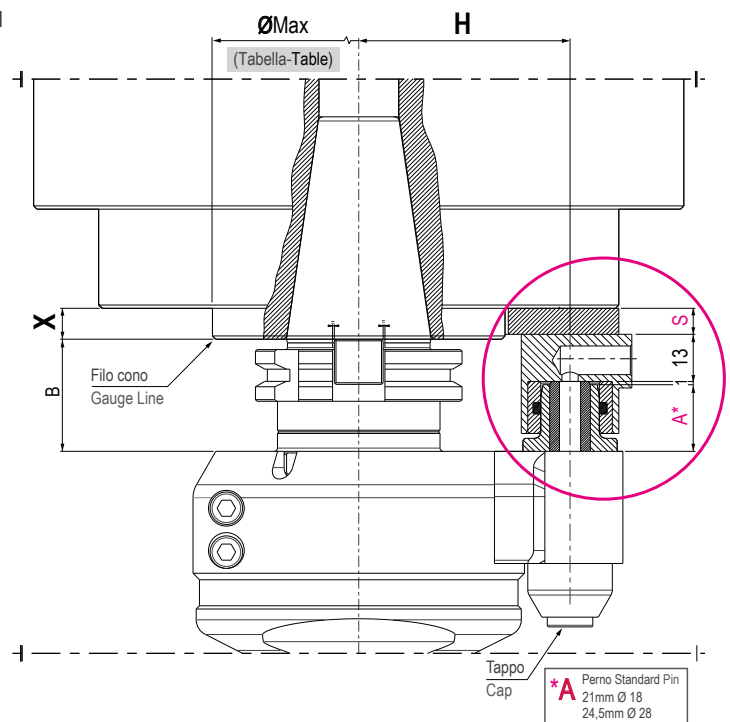
$$S = X + B - 38,5$$

Se sei in possesso di una testa angolare con perno Ø28  
If you have an Angle Head with pin Ø28

X	B
12mm	35mm (SK40)

$$S = X (12) + B (35) - 35 = 12$$

Esempio di calcolo spessore distanziale  
Example of calculation for spacer thickness



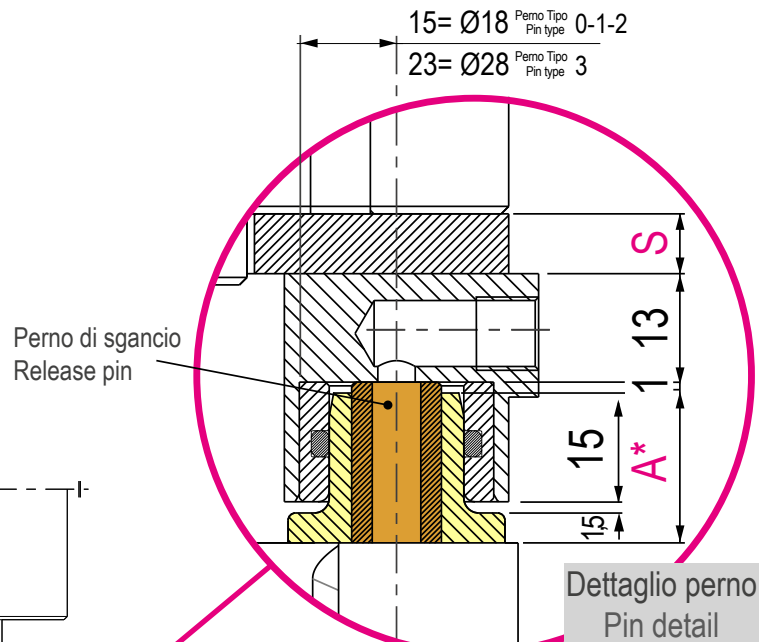
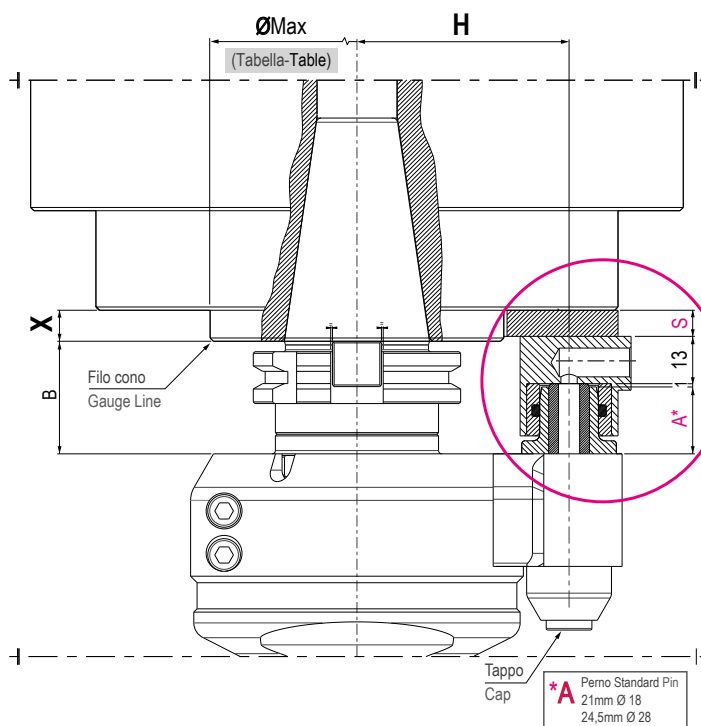
## ESEMPIO di MONTAGGIO SERIE ATC ATC SERIES MOUNTING EXAMPLE

**PER UN CORRETTO ORDINE VERIFICARE L'IDONEITA' DELL'INTERASSE "H"**  
**FOR A RIGHT PURCHASE ORDER CHECK PITCH "H" SUITABILITY**

Verificare l'idoneità dell'interasse "H" tramite tabella - Check pitch "H" through table

TABELLA  
TABLE

PERNO PIN	"H" INTERASSE - PITCH	Ø MAX
Ø18	65	99
	80	129
	110	189
Ø28	110	172



### ATTENZIONE - ATTENTION

**Il distanziale per il posizionamento dello stop-block, deve essere realizzato di uno spessore tale da comprimere il perno di sgancio NON per l'intera corsa, ma in modo da lasciare sempre 1mm di gioco. I calcoli della pagina precedente sono già fatti in tal senso.**

The spacer for the stop-block must be done in order to push the release pin NOT for the whole stroke release, but leaving always 1mm play. Previous page calculations are already considering this issue.

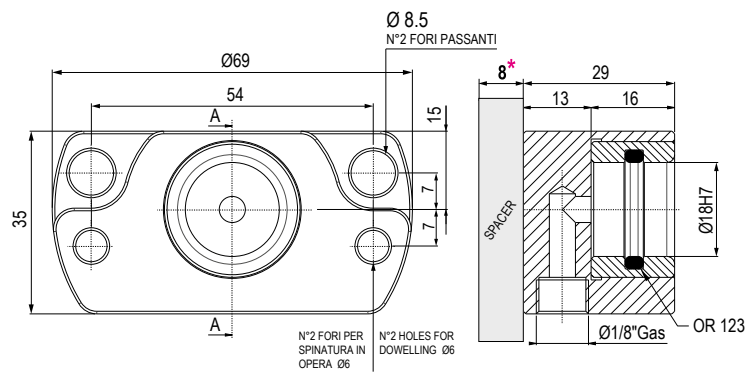
## STOP-BLOCK Standard



Ø18

Con bussola temprata - with hardened bushing

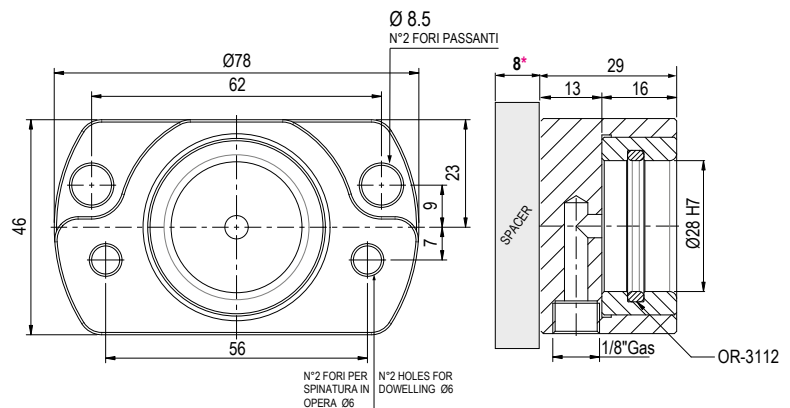
<b>STOP BLOCK Code</b>	
9.INDEX.18	
NO STOP BLOCK INCLUDED	
<b>BUSHING Code</b>	
9.G18.INDEX.2	



Ø28

Con bussola temprata - with hardened bushing

<b>STOP BLOCK Code</b>	
9.INDEX.28	
NO STOP BLOCK INCLUDED	
<b>BUSHING Code</b>	
9.G28.INDEX.2	



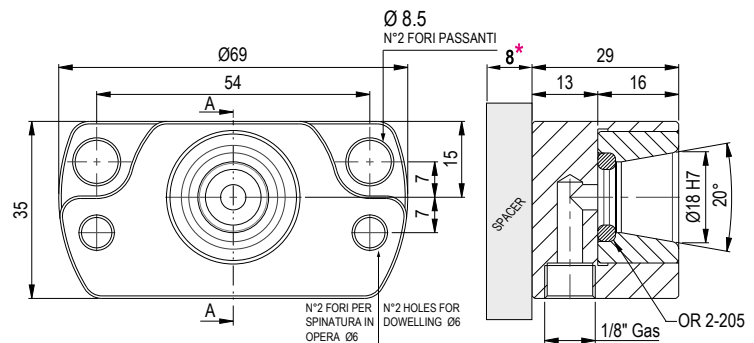
## STOP-BLOCK Conico - Conical



Ø18

Con bussola temprata - with hardened bushing

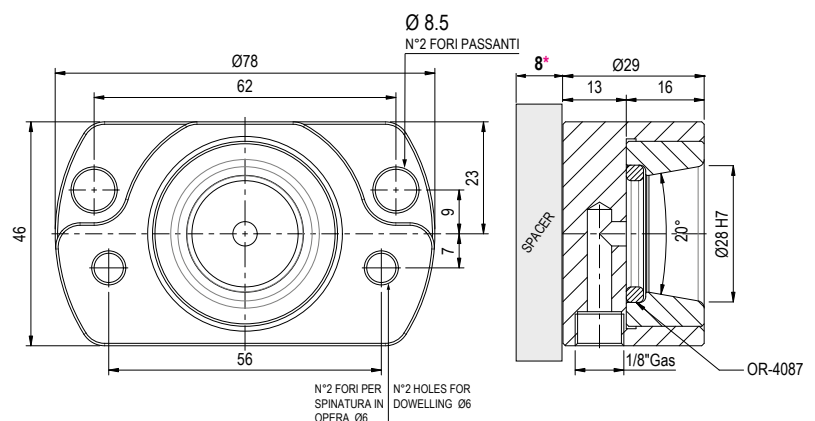
<b>STOP BLOCK Code</b>	
9.INDEX.18C	
NO STOP BLOCK INCLUDED	
<b>BUSHING Code</b>	
9.G18.INDEX.2C	



Ø28

Con bussola temprata - with hardened bushing

<b>STOP BLOCK Code</b>	
9.INDEX.28C	
NO STOP BLOCK INCLUDED	
<b>BUSHING Code</b>	
9.G18.INDEX.2C	



\* Misura minima per distanziale sotto la quale è necessario utilizzare lo stop-block lavorabile  
\* Specer minimum dimension under this dimension it is necessary to use the machineable stop-block

## STOP-BLOCK Lavorabile\*\* - Machineable\*\*



Ø18

Con bussola temprata - with hardened bushing

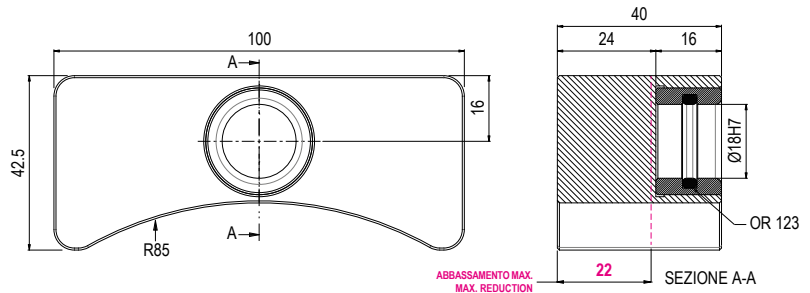
**STOP BLOCK Code**

9.G18.INDEX

NO STOP BLOCK INCLUDED

**BUSHING Code**

9.G18.INDEX.2



Ø28

Con bussola temprata - with hardened bushing

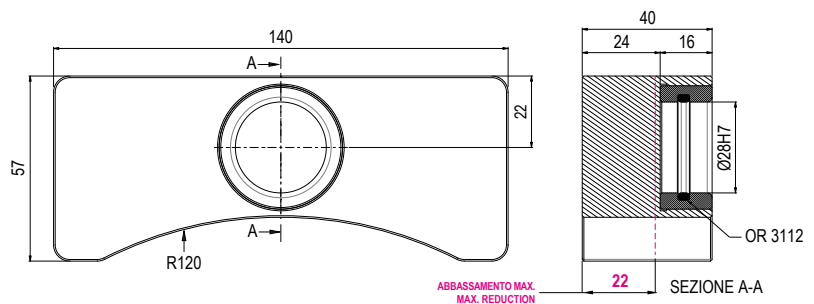
**STOP BLOCK Code**

9.G28.INDEX

NO STOP BLOCK INCLUDED

**BUSHING Code**

9.G28.INDEX.2



## STOP-BLOCK Lavorabile conico\*\* - Conic machineable\*\*



Ø18

Con bussola temprata - with hardened bushing

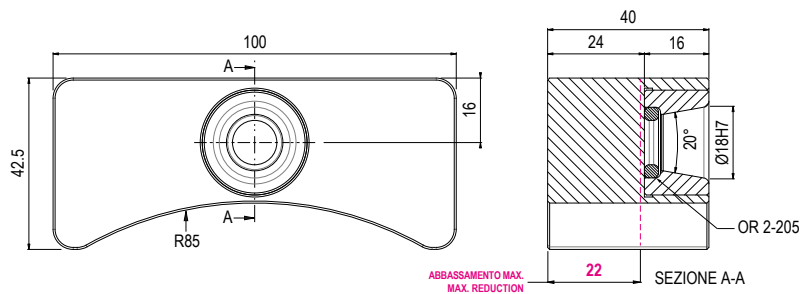
**STOP BLOCK Code**

9.G18.INDEXC

NO STOP BLOCK INCLUDED

**BUSHING Code**

9.G18.INDEX.2C



Ø28

Con bussola temprata - with hardened bushing

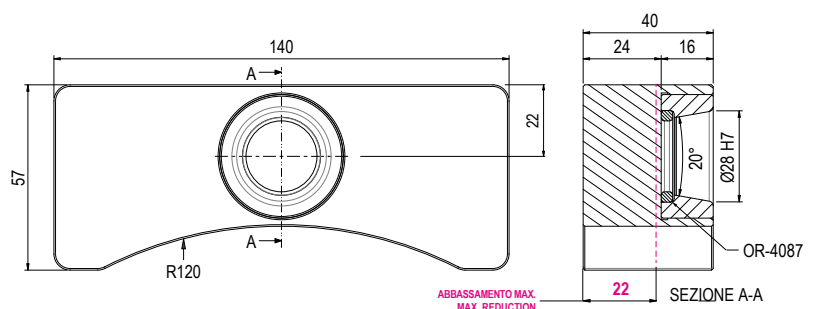
**STOP BLOCK Code**

9.G28.INDEXC

NO STOP BLOCK INCLUDED

**BUSHING Code**

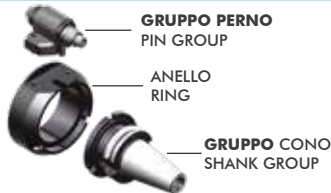
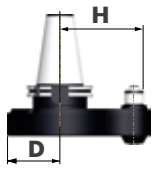
9.G28.INDEX.2C



\*\* A richiesta  
\*\* On request

# GRUPPO ANTIROTANTE

## ANTI-ROTATION GROUP


**TIPO - TYPE 1-2**    **TIPO - TYPE 3**

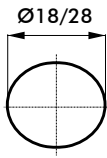
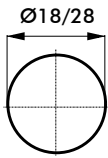

TESTA ANGOLARE ANGLE HEADS		GRUPPO ANTIROTANTE ANTI-ROTATION GROUP		GRUPPO CONO SHANK GROUP		ANELLO RING		
MODELLO MODEL	TIPO TYPE	Code		Code	MODELLO MODEL	Code	Ø	A
FLU-7 FL90-7  FL90-13 FL90-16 / 2U FS90-3 / 3L FS90-4 / 4L FS90-6 / 6L F90-7 / 7L 2U F90-10 / 10L 2U F90-13 / 13L F90-16S F90-20S* F90-7 / 7L 10BAR F90-10 / 10L* 10BAR F90-13 / 13L 10BAR F90-16S 10BAR FMU-10-16 FR90-10 FR90-10 70BAR	<b>0</b> (Ø66)	9.GA0.SK3065		9.SK30.1ATC	<b>SK</b> DIN 69871   30/40/50	9.FL0.ATC00	Ø66	-
		9.GA0.SK4065		9.SK40.1ATC				
		9.GA1.SK5080		9.SK50.1ATC				
		9.GA1.CT4065		9.CT40.1ATC				
		9.GA1.CT5080		9.CT50.1ATC				
		9.GA1.BT4065		9.BT40.1ATC				
		9.GA1.BT5080		9.BT50.1ATC				
		9.GA1.HSK6365		9.HSK63.1ATC				
		9.GA1.HSK8080		9.HSK80.1ATC				
		9.GA1.HSK10080		9.HSK100.1ATC				
F90-7 / 7L 10BAR F90-10 / 10L* 10BAR F90-13 / 13L 10BAR F90-16S 10BAR FMU-10-16 FR90-10 FR90-10 70BAR	<b>1</b> (Ø102)	9.GA1.C56500		9.C5.1ATC	<b>BT</b> MAS 403   30/40/50	9.FL1.ATC00	Ø102	41,75
		9.GA1.C68000		9.C6.1ATC				
		9.GA1.C88000		9.C8.1ATC				
		9.GA1.KM6365		9.KM63.1ATC				
		9.GA1.KM8080		9.KM80.1ATC				
		9.GA1.KM10080		9.KM100.1ATC				
		9.GA1.20804065		9.208040.1ATC				
		9.GA1.20805080		9.208050.1ATC				
		9.GA2.SK5080		9.SK50.2ATC				
		9.GA2.CT5080		9.CT50.2ATC				
F90-16 / 16L 2U F90-20 / 20L 2U F90-S30* F90-16 10BAR F90-20 10BAR FR90-16 70BAR FR90-20 70BAR FR90-16* FR90-20*	<b>2</b> (Ø128)	9.GA2.C68000		9.C6.2ATC	<b>HSK</b> DIN 69893   63/80/100	9.FL2.ATC00	Ø128	56,75
		9.GA2.C88000		9.C8.2ATC				
		9.GA2.KM8080		9.KM80.2ATC				
		9.GA2.KM10080		9.KM100.2ATC				
		9.GA2.20805080		9.208050.2ATC				
		9.GA3.SK50110		9.SK50.3ATC				
		9.GA3.CT50110		9.CT50.3ATC				
		9.GA3.BT50110		9.BT50.3ATC				
		9.GA3.HSK80110		9.HSK80.3ATC				
		9.GA3.HSK100110		9.HSK100.3ATC				
F90-S40 F90-S40 70BAR F90-30 (ER40)* 2U FMU-20	<b>3</b> (Ø157)	9.GA3.C6110		9.C6.3ATC	<b>C.</b> ISO 26623   C5/C6/C8	9.FL3.ATC00	Ø157	-
		9.GA3.C8110		9.C8.3ATC				
		9.GA3.KM80110		9.KM80.3ATC				
		9.GA3.KM100110		9.KM100.3ATC				
		9.GA3.208050110		9.208050.3ATC				
		9.GA3.KM		9.KM				

**FLANGIA INTEGRALE**  
**INTEGRAL FLANGE**

A richiesta: Specificare per gruppi antirotante a 70BAR Esempio: (9.GA1.SK40 49/70) (Chip Balluf su coni HSK)  
 On request: Specify for 70BAR antirotation group Example: (9.GA1.SK40 49/70) (Chip Balluf on HSK shanks)



# GRUPPO PERNO PIN GROUP



<b>STANDARD</b> 2 AXIS	<b>ON REQUEST</b> 1 AXIS	<b>GRUPPO PERNO</b> PIN GROUP			
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PERNO CILINDRICO CYLINDRICAL PIN	PERNO ELLITTICO ELLIPTIC PIN	P	B	L	H
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9.F18.T165	9.F18.T165.1 637030	Ø18	23,25	21	65
9.F18.T180	9.F18.T180.1 637031	Ø18	38,25	21	80
9.F28.T1110	9.F28.T1110.1 637032	Ø28	68,25	20,5	110
9.F18.T1110	9.F18.T1110.1 637035	Ø18		21	
9.F18.T265	9.F18.T265.1 637033	Ø18	23,25	21	80
9.F28.T2110	9.F28.T2110.1 637034	Ø28	53,25	20,5	110
9.F18.T2110	9.F18.T2110.1 637036	Ø18		21	

### PERNO TIPO 3 PIN TYPE 3

9.F28.T300	9.F28.T300.1	Ø28	-	26,5	110
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### SPECIALE - SPECIAL

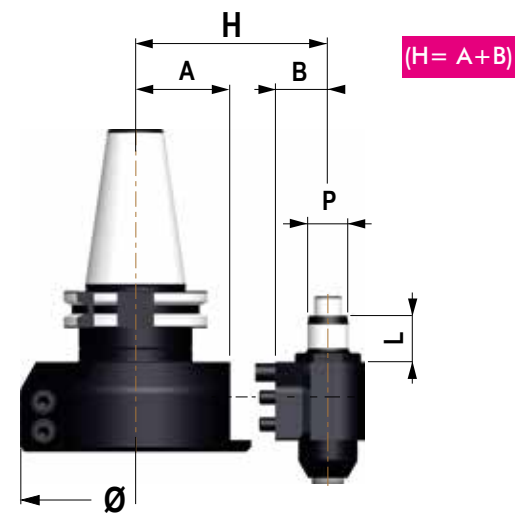
**Perno STD accorciato / Perno speciale**  
STD Short Pin / Special Pos. Pin

**Gruppo antirotante speciale**  
Special Anti-rotation group

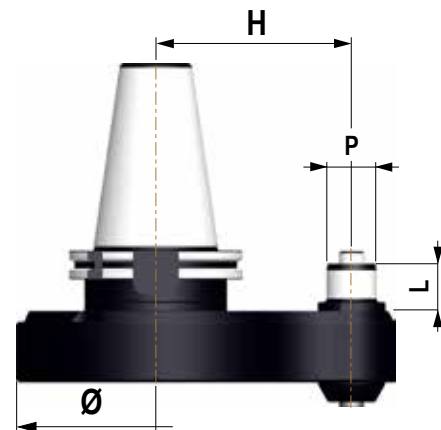
## ATTENZIONE - ATTENTION

In caso di utilizzo di più teste angolari su un'unica macchina viene consigliata la seguente configurazione: Prima testa angolare (Master) assemblata con perno cilindrico per il posizionamento preciso dello stop block successive teste angolari (Secondarie) assemblate con perno ellittico per sovraperire ad eventuali difformità dell'interasse.

In case of use of more than one Angle head on the same machine, the following configuration is suggested: First Angle head (Master) – supplied with cylindrical pin for the accurate positioning of the stop block. Additional angle heads (Secondary) – supplied with elliptic pin to balance any potential pin difference.



**Gruppo antirotante tipo 1 - 2 (Anello + Gruppo perno)**  
Anti-rotation group type 1-2 (Ring + Pin group)

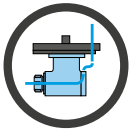


**Gruppo antirotante tipo 3 (Flangia integrale)**  
Anti-rotation group type 3 (Integral flange)

## OPZIONE REFRIGERANTE serie MTC INTERNAL COOLANT OPTION MTC series

2

**Opzione B**  
B option



**10bar**

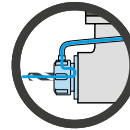


**Mandrino macchina » Distributore » Utensile**  
Machine spindle » Rotating Distributor » Tool

**Passaggio refrigerante interno all' utensile.**  
Dal mandrino macchina e attraverso il distributore rotante  
Internal coolant through the tool from the machine spindle and through rotating distributor

**ROTAZIONE A SECCO - DRY RUNNING**  
**10 BAR POSSIBILE - POSSIBLE**

**Opzione Re-Cool**  
Re-Cool option



**10bar**

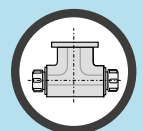


**Perno » Ghiera ReCool » Utensile**  
Positioning Pin » ReCool Nut » Tool

**Passaggio refrigerante interno l'utensile per mezzo della ghiera ReCool.**  
Internal coolant through the tool from the special nut ReCool

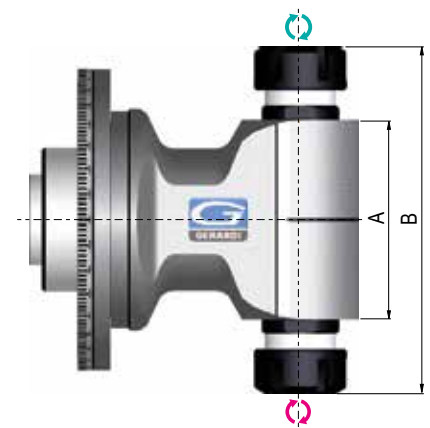
Vedi pagina - See Page 2.69

## OPZIONE DOPPIA USCITA serie MTC DOUBLE OUTPUT OPTION MTC series



Disponibile per i modelli - Available for following types:


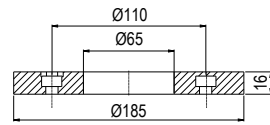
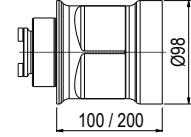

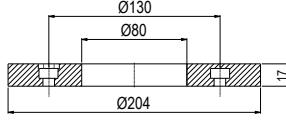
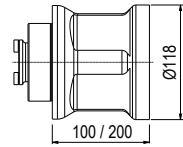

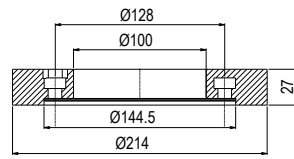
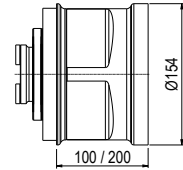



MODELLO MODEL	USCITA OUTPUT	A	B	
F90-16S 2U		90	157	
F90-16 2U	ER-25	98	170	
F90-16L 2U				
F90-20 2U	ER-32	118	193	
F90-20L 2U				
F90-30 2U	ER-40	141	226	



**Teste angolari MTC doppia uscita**  
Double output MTC angle heads

# CONI / FLANGE / PROLUNGHE

## SHANKS / FLANGES / EXTENSIONS

TESTA ANGOLARE ANGLE HEADS		FLANGIA UNIVERSALE * UNIVERSAL FLANGE *		PROLUNGA EXTENSION		CONO MODULARE MODULAR SHANK	
MODELLO MODEL	TIPO TYPE	Code		H	Code	Code	MODELLO MODEL
F90-16S	1	9.FL.F90T1		100	9.FEX.10100	9.SK30.MTC	<b>SK</b> DIN 69871  30/40/50
		T NUTS KIT 9.FL.F90T1D		200	9.FEX.10200	9.SK40.MTC	
		NO FLANGE				9.SK50.MTC	
							
F90-16L F90-20	2	9.FL.F90T2		100	9.FEX.20100	9.BT30.MTC	<b>BT</b> MAS 403  30/40/50
		T NUTS KIT 9.FL.F90T2D		200	9.FEX.20200	9.BT40.MTC	
		NO FLANGE				9.BTC50.MTC	
							
F90-S40	3	9.FL.F90T3		100	9.FEX.30100	9.CT40.MTC	<b>CAT</b> ANSI B5.50  40/50
		T NUTS KIT 9.F90.F90T3D		200	9.FEX.30200	9.CT50.MTC	
		NO FLANGE				9.208040.MTC	
						9.208050.MTC	
F90-S50	4	9.FL.F90T4		200	9.FEX.40300	9.HSK.63.MTC	<b>HSK</b> DIN 69893  63/80/100
						9.HSK.80.MTC	
						9.HSK.100.MTC	
						<b>C.</b> ISO 26623  C5/C6/C8	
						<b>KM</b>  63/80/100	

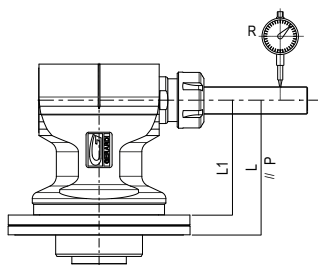
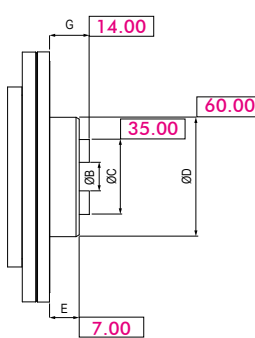
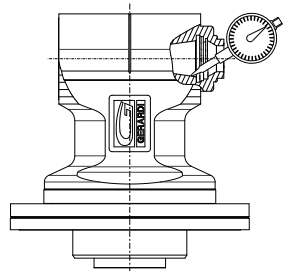
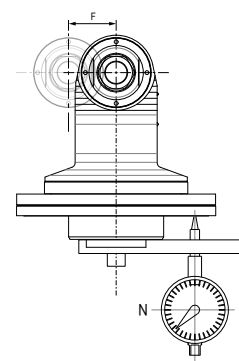
Senza cono  
No shank

\* Con l'acquisto della flangia universale il kit di 4 dadi è già incluso nel prezzo  
 \* The nuts kit is just included in the price of the flange purchase

## ESEMPIO SCHEDA DI COLLAUDO INSPECTION SHEET EXAMPLE

2

<b>Tipo - Type</b>	G90-16 MTC
<b>Codice - Code</b>	9.G90.16001
<b>Numero seriale - Serial number</b>	17-127
<b>Attacco cono - Input shank</b>	DIN-69871/40
<b>Note speciali - Special notes</b>	

TIPO DI CONTROLLO Test type	RAFFIGURAZIONE Drawing	ERRORE Error	TIPO DI CONTROLLO Test type	RAFFIGURAZIONE Drawing	ERRORE Error
<p><b>Quota e parallelismo da filo cono ad asse principale. Oscillazione asse utensile.</b></p> <p>Height and parallelism from gauge line to main axis. Runout cutter axis.</p>		<p><b>Ammesso</b> Allowed A = ±0,03 R = ±0,025 P = ±0,015/100</p> <p><b>Rilevato</b> Checked</p> <p>L = +0,020 L1 = +0,010 R = 0,025 P = 0,012/100</p>	<p><b>Verifica delle quote per l'attacco del cono e della flangia.</b></p> <p>Main input shaft dimension checked.</p>		<p><b>Ammesso</b> Allowed E/G = 0,1/-0,5 C/D = +0/-0,03</p> <p><b>Rilevato</b> Checked</p> <p>B = 25h7 <b>ok</b> E = -0,100 G = -0,150 C = -0,020 D = -0,030</p>
<p><b>Oscillazione mandrino porta utensile.</b></p> <p>Runout in cutter spindle.</p>		<p><b>Ammesso</b> Allowed 0,010</p> <p><b>Rilevato</b> Checked</p> <p>0,008</p>	<p><b>Perpendicolarità e disassamento tra gli assi principali.</b></p> <p>Perpendicularity and offset between main axes.</p>		<p><b>Ammesso</b> Allowed F = ± 0,020 N = 0,010/100</p> <p><b>Rilevato</b> Checked</p> <p>F = 0,015 N = 0,010/100</p>

### RODAGGIO TESTA - RUN-IN

RPM in entrata RPM	Durata Time	Temperatura Ambiente Room Temperature	Temperatura Sonda Sensor Temperature	Note Notes
1000	00:10:00	20°	28°	
2000	00:10:00		37°	
3000	00:05:00		41°	
4000	00:05:00		48°	
5000				
6000				

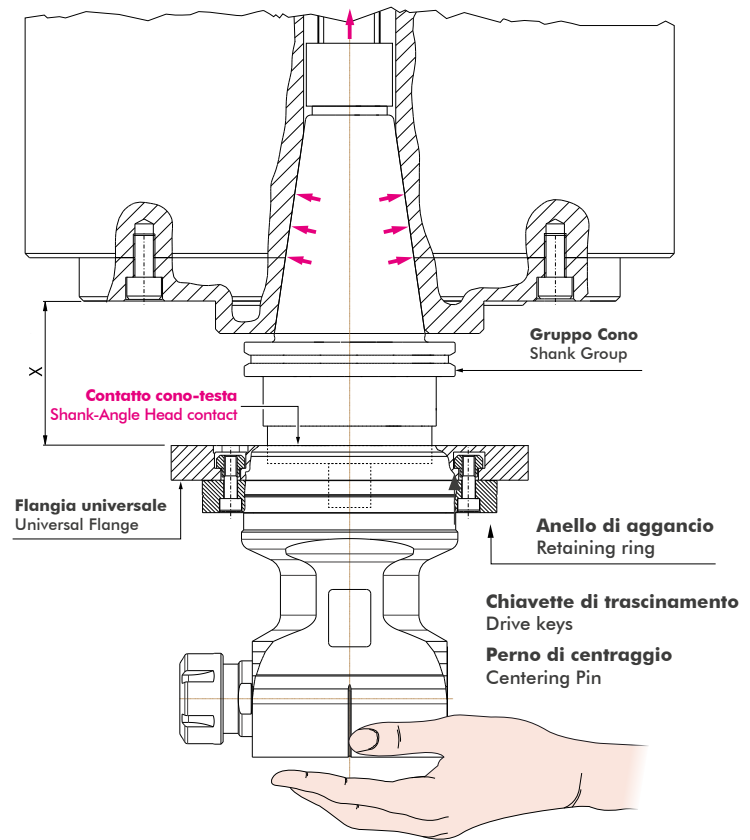
Revisioni - Revisions	Timbro - Stamp	Data - Date
		Firma - Signature

## ESEMPIO DI MONTAGGIO SERIE MTC MTC SERIES MOUNTING EXAMPLE

### DISTANZIALE REALIZZATO IN OPERA SPACER TO BE MADE

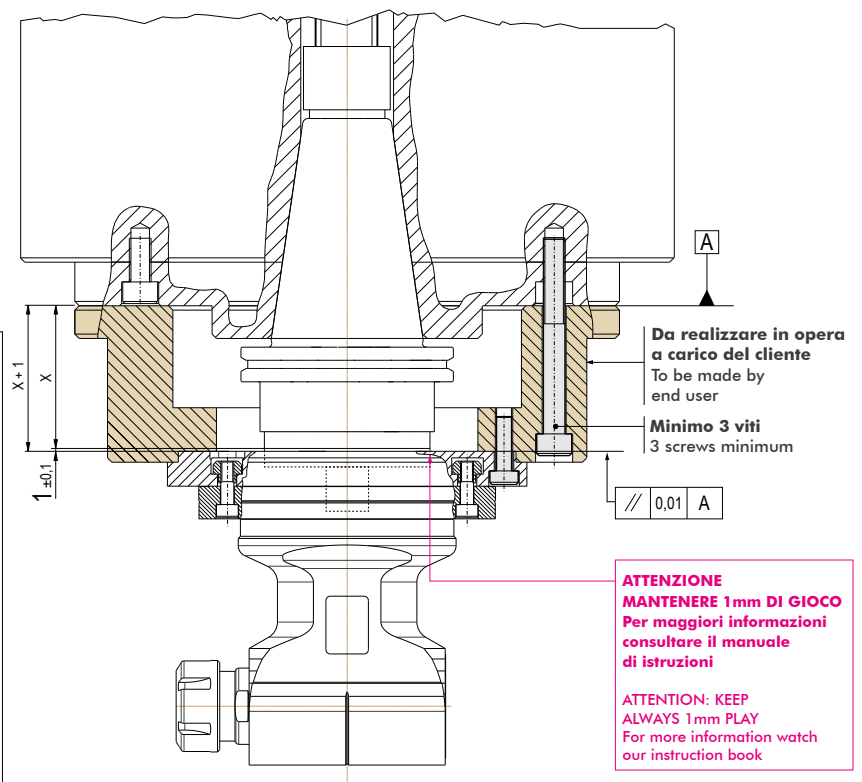
#### FASE 1 - STEP 1

- Montare l'anello di aggancio e la flangia universale sulla testa
- Applicare il cono alla testa
- Inserire la testa nel mandrino macchina.
- Rilevare la misura "X"
- Mount the retaining ring and the universal flange
- Mount the shank on the Head.
- Mount the head into the machine spindle.
- Check dimension "X"



#### FASE 2 - STEP 2

- Realizzare un distanziale con spessore  $X + 1$  mm
- Rimontare il tutto in macchina.
- Orientare e posizionare correttamente la testa angolare
- Azzerare l'anello graduato tramite il grano e le tacche di riferimento
- Make a spacer with  $X + 1$  mm thickness.
- Reassemble the Head on the machine.
- Turn the angle head in the correct position.
- Set the graduated ring by rotating the screw to the 0 position.



## PINZE - COLLETS

### 6023E - 600E - 601E



MODELLO MODEL	PINZA COLLET	Ø	Code		Ø Intermedi - Intermediate	
FS90-3 FS90-3L	6023E	1,0	9.60.23E00/...		1,1-1,2-1,3-1,4	
		1,5-2-2,5			1,6-1,7-1,8-1,9-2,1-2,2-2,3-2,4	
		3,0			2,6-2,7-2,8-2,9	
FS90-4 FS90-4L	600E	1,0	9.60.0E000/...		1,1-1,2-1,3-1,4	
		1,5-2-2,5			1,6-1,7-1,8-1,9-2,1-2,2-2,3-2,4	
		3,0-4,0			2,6-2,7-2,8-2,9+3,9	
FS90-6 FS90-6L	601E	1,0	9.60.1E000/...		1,1-1,2-1,3-1,4	
		1,5-2-2,5			1,6-1,7-1,8-1,9-2,1-2,2-2,3-2,4	
		3-3,5-4-4,5-5-5,5-6			3,1+3,9-4,1+4,9-5,1+5,9	

Esempio di ordinazione: 600E - Ø2,3 = 9.60.0E000/2,3  
 Example to order: 600E - Ø2,3 = 9.60.0E000/2,3

## ER-DIN 6499

Foratura-fresatura / drilling-milling



Maschiatura / tapping



MODELLO MODEL	PINZA COLLET	Ø	Code		PINZA ET1 (compensate) COLLET ET1 (compensation)	Code	
FL90-7 FS90-6L F90-7 / 2U F90-7L / 2U FLU-7 F90-16S 10BAR	ER11	Ø1 / 7	9.ER.11000/...		-	-	
F90-7 10BAR F90-7L 10BAR	ER11 WP	Ø3 / 7	9.ER.11WP0/...		-	-	
FL90-10 F90-10 / 2U F90-10L / 2U FMU-10	ER16	Ø1 / 10	9.ER.16000/...		ET 1-16 (M2 - M8)	9.ET.16000	
FR90-10 70BAR F90-10 10BAR FMU-10	ER16 WP	Ø3 / 10	9.ER.16WP0/...		-	-	
F90-13 F90-13L FL90-13	ER20	Ø1/13	9.ER.20000/		ET / 20 (M2 - M8)	9.ET.20000	
F90-13 10BAR FR90-13 70BAR	ER20 WP	Ø3/13	9.ER.20WP0/...		-	-	
FL90-16 - 2U F90-16S F90-16 / 2U F90-16L / 2U FMU-16	ER25	Ø1 / 16	9.ER.25000/...		ET 1-25 (M2 - M12)	9.ET.25000	
FR90-16 70BAR F90-16S 10BAR F90-16 10BAR F90-16L 10BAR FMU-16	ER25 WP	Ø3 / 16	9.ER.25WP0/...		-	-	
F90-20 / 2U F90-20L F90-20S FMU-20	ER32	Ø2 / 20	9.ER.32000/...		ET 1-32 (M3,5 - M16)	9.ET.32000	
FR90-20 70BAR F90-20 10BAR FMU-20	ER32 WP	Ø3 / 20	9.ER.32WP0/...		-	-	
F90-30 / 2U	ER40	Ø3 / 30	9.ER.40000/...		ET / 40 (M6 - M16)	9.ET.40000	
F90-30B	ER40 WP	Ø3 / 30	9.ER.40WP0/...		-	-	

Esempio di ordinazione: ER25 - Ø10=9.ER.25000/10  
 Example to order: ER25 - Ø10=9.ER.25000/10

WP= Resistenza all'acqua  
 WP= Waterproof



## GHIERE - NUTS

### ES - STD

## CHIAVI - WRENCHES

### ES - STD

MODELLO MODEL	GHIERA NUT	Code	
FS90-3 FS90-3L	-	-	
FS90-4 FS90-4L	-	-	
FS90-6 FS90-6L	-	-	

CHIAVI WRENCHES	Code	
CH-5,5	9.CH.55000	
CH-7	9.CH.70000	
CH-9	9.CH.90000	



MODELLO MODEL	GHIERA NUT	Code	COPPIA SERRAGGIO CLAMPING FORCE (Nm)	
FL90-7 FS90-6L F90-7 F90-7L F90-7 10BAR F90-7L 10BAR	ER11 ES *	9.ER.110ES	12 (15)	
F90-10 F90-10L F90-10 10BAR	ER16 ES *	9.ER.160ES/E	24 (30)	
FL90-13	ER20ES *	9.ER.200ES	28 (35)	
FMU-10	ER16 Mini	9.ER.1600M	24 (30)	
FR90-10 70BAR	ER16 ES *	9.ER.160ES	24 (30)	
F90-16S F90-16S 10BAR	ER25 STD	9.ER.25STD	32 (40)	
FL90-16 F90-16 F90-16L F90-16 10BAR	ER25 ES *	9.ER.250ES	32 (40)	
FMU-16	ER25 Mini	9.ER.2500M	32 (40)	
FR90-16 70BAR	ER25 ES *	9.ER.250ES	32 (40)	
F90-20 F90-20 10BAR	ER32 STD	9.ER.32STD	136 (70)	
FMU-20	ER32 STD	9.ER.32STD	136 (70)	
FR90-20 70BAR	ER32 ES *	9.ER.320ES	136 (70)	
F90-S40 F90-S40B	ER40 STD	9.ER.40STD	176 (220)	

CHIAVI WRENCHES	Code	
CH-13 ES	9.CH.130ES	
CH-22 ES	9.CH.220ES	
CH-19 ES	9.CH.190ES	
CH-30 ES	9.CH.300ES	
CH-36 ES	9.CH.360ES	
CH-22 ES	9.CH.220ES	
CH-19 ES	9.CH.190ES	
CH-19 ES	9.CH.190ES	
CH-27 ES	9.CH.270ES	
CH-32 ES	9.CH.320ES	
CH-25 STD	9.CH.25STD	
CH-27 ES	9.CH.270ES	
CH-38 ES	9.CH.380ES	
CH-25 Mini	9.CH.2500M	
CH-27 ES	9.CH.270ES	
CH-27 ES	9.CH.270ES	
CH-36 ES	9.CH.360ES	
CH-47 ES	9.CH.470ES	
CH-32 STD	9.CH.32STD	
CH-40 ES	9.CH.400ES	
CH-32 STD	9.CH.32STD	
CH-32 ES	9.CH.320ES	
CH-47 ES	9.CH.470ES	
CH-52 ES	9.CH.052ES	
CH-40 STD	9.CH.40STD	

## SIRINGA PER INGRASSAGGIO SYRINGE FOR GREASING



Sistema di ingrassaggio rapido mediante siringa specifico per la lubrificazione degli ingranaggi delle teste angolari.

Quick greasing system through syringe. Designed specifically for the lubrication of Angle Heads' gears.



2

MODELLO MODEL	CAPACITÀ Capacity	Code	
Siringa grasso Grease syringe	30ml	9.FA.018055	

## CAMBI RAPIDI MODULARI 2.0 MODULAR QUICK CHANGE ADAPTORS 2.0



### Compatibili con tutte le uscite ER - Compatible with all ER outputs

Vedi intera gamma nel capitolo Accessori pag. 5.134 / 5.135 - See the full range in the Accessories chapter at pages 5.134 / 5.135

I cambi rapidi modulari Gerardi mantenendo il presetting precedentemente realizzato consentono un notevole risparmio dei costi ed un'ottimizzazione dei tempi ciclo. Sono perfettamente compatibili con tutti i motorizzati e le teste angolari aventi uscita ER DIN6499 e possono essere utilizzati sia con refrigerante interno che esterno.

The Gerardi modular quick change adaptors keep the tool presetting previously made and allow great costs and machining times saving. They are perfectly compatible with all driven tools and angle head with ER DIN6499 output and they can be used with internal or external coolant..

### Modelli 2.0 Types:

- Nuovi cambi rapidi modulari 2.0 a FORTE SERRAGGIO, 100% Made in Italy.
- Sistema di portautensili modulari adatti al montaggio su qualsiasi tipologia di uscita ER.
- Prestazioni garantite e maggior rigidità sui motorizzati Gerardi grazie alla losanga di trascinamento (rimovibile) e alla ghiera con cuscinetto a sfera.
- Adattabili a motorizzati con uscita refrigerante sia interna che esterna.
- Universal HIGH TORQUE modular quick change adaptor 100% Made in Italy.
- Modular toolholder system suitable for every Driven Tool ER collet output.
- Guaranteed higher rigidity and performances on Gerardi driven tools thanks to the removable diamond plate and the ball bearing nut
- All modular quick change 2.0 adaptors are suitable for ER toolholder with external and internal coolant supply

CORPO CAMBIO RAPIDO 2.0  
2.0 QUICK CHANGE BODY

GHIERA CON CUSCINETTO  
BALL BEARING NUT



LOSANGA DI TRASCINAMENTO RIMOVIBILE  
REMOVABLE DIAMOND PLATE  
BREVETTO DEPOSITATO  
PATENT PENDING



**CAMBI RAPIDI MODULARI 2.0 A FORTE SERRAGGIO!**  
HIGH TORQUE QUICK CHANGE ADAPTORS 2.0

Ghiera con cuscinetto a sfera per un serraggio più rigido e losanga di trascinamento removibile

Ball bearing nut for the highest torque clamping and removable diamond plate.



**ECONOMICI**  
MONEY SAVER

I cambi rapidi modulari ti aiutano a ridurre i costi-extra per l'acquisto di nuovi motorizzati o teste angolari.

The costs for further requirements of spindle units can be reduced by using the universal quick change adaptors



**GRANDE VERSATILITÀ & MAGGIORE PRESTAZIONE**  
VERSATILITY & PERFORMANCE IMPROVED

Ampia gamma di uscite disponibili. Ghiera cuscinetto e losanga di trascinamento per una maggiore rigidità.

Wide range of outputs available. Ball bearing nut and diamond plate for highest rigidity.



**ESTREMA COMPATIBILITÀ**  
EXTREME COMPATIBILITY

I cambi rapidi modulari possono essere montati su ogni tipo di Motorizzato o Testa angolare con uscita ER.

The quick change adaptors can be mounted on any type of Driven Tool or right Angle Head with ER output