



Evolution Line TESTE ANGOLARI - ANGLE HEADS

2




MADE IN ITALY






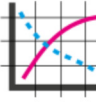




INDICE - INDEX

ATC - AUTOMATIC

 NEW Light	 NEW Light	 NEW Light								
FL90-7	FL90-13	FL90-16	FS90-3	FS90-3L	FS90-4	FS90-4L	FS90-6-6L	F90-7	F90-7L	F90-10
2.13	2.14	2.15	2.16	2.17	2.18	2.19	2.20	2.21	2.22	2.23
										
F90-10L	F90-16S	F90-16	F90-16L	F90-20	F90-20S	F90-S40	F90-7 10bar	F90-7L 10bar	F90-10 10bar	F90-10S 10bar
2.24	2.25	2.27	2.28	2.29	2.26	2.30	2.31	2.32	2.33	2.34
										
F90-16 10bar	F90-S40 70bar	FR90-10 70bar	FR90-16 70bar	FR90-20 70bar	FMU-10	FMU-16	FMU-20	performances	2 output int. coolant	multipoint range
2.35	2.36	2.37	2.38	2.39	2.40	2.41	2.42	2.44 / 45	2.46	2.47

MTC - MANUAL

										
F90-16S	F90-16L	F90-20	F90-20L	F90-S40	performances	int. coolant	2 output			
2.50	2.51	2.52	2.53	2.54	2.55	2.56	2.56			

ACCESSORIES

										
ReCool nut	collets	nuts / wrenches	shanks	ring	pin group	stop block	ATC mounting	H pitch	range	MTC mounting
2.57	2.58	2.59	2.60	2.60	2.61	2.62 / 63	2.64 / 65	2.66	2.66	2.67

Linea Evolution Teste Angolari Modulari

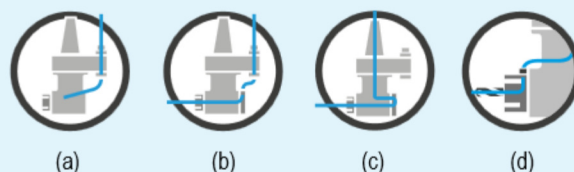
CONO INTERCAMBIABILE

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. 74 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.



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 antirotante 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 spiroidali Gleason con evolvente rettificato ottimizzata per una maggior coppia disponibile
- 5- Oltre 40 modelli di teste disponibili.
- 6- Nuovissimi modelli di teste con Pesi ed Ingombri ridotti serie Slim in grado di entrare in diametri di 35mm.
- 7- Adduzione refrigerante tramite perno e pressurizzazione interna compresa nel prezzo (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.**



Serie ATC

da pag 2.12 a 2.47



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

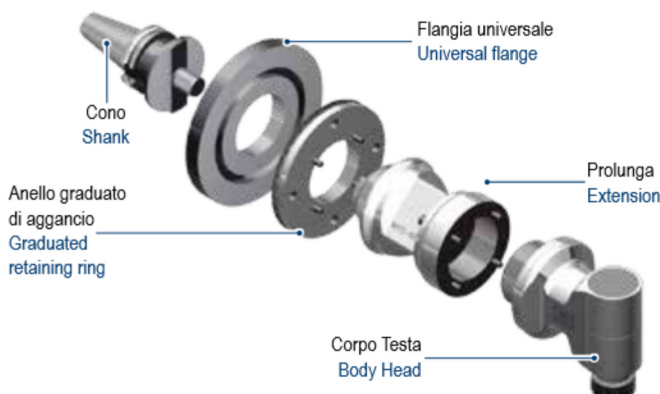
da pag 2.48 a 2.56



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

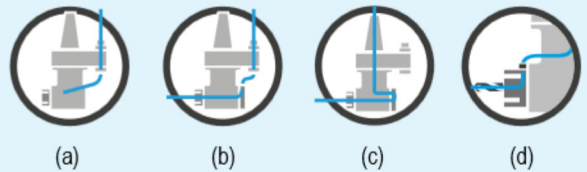
INTERCHANGEABLE SHANK

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 74 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.



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 $\varnothing 35\text{mm}$.
- 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

da pag 2.12 a 2.47



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

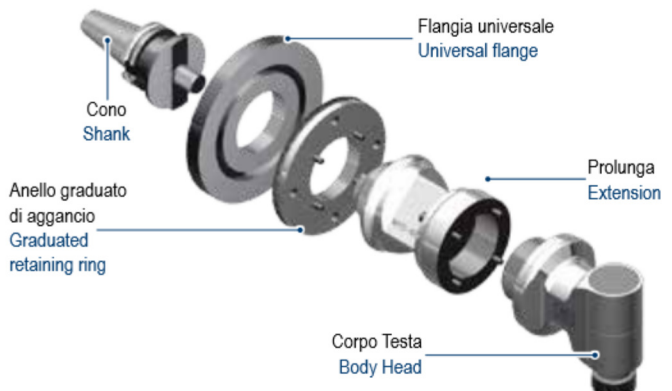
da pag 2.48 a 2.56



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 $\pm 90^\circ$.



MODULARITÀ SENZA MODULARITY WITHOUT

2

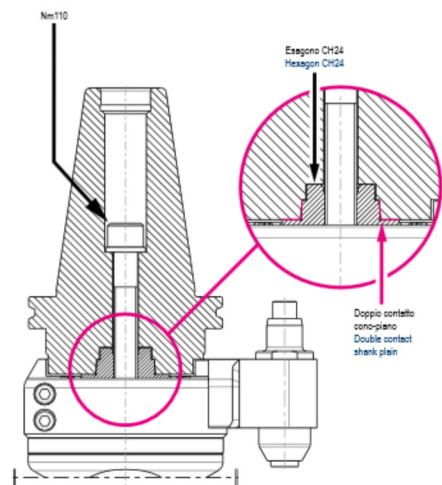
UNA SOLA TESTA PER PIÙ CENTRI DI LAVORO
ONE HEAD FOR MANY MACHINES

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 !!**



IL DOPPIO CONTATTO CONO E PIANO ASSICURANO
RIGIDITÀ E PRECISIONE !!
THE UNIQUE GERARDI TAPER AND FACE LOCATION
ENSURE RIGIDITY AND ACCURACY !!

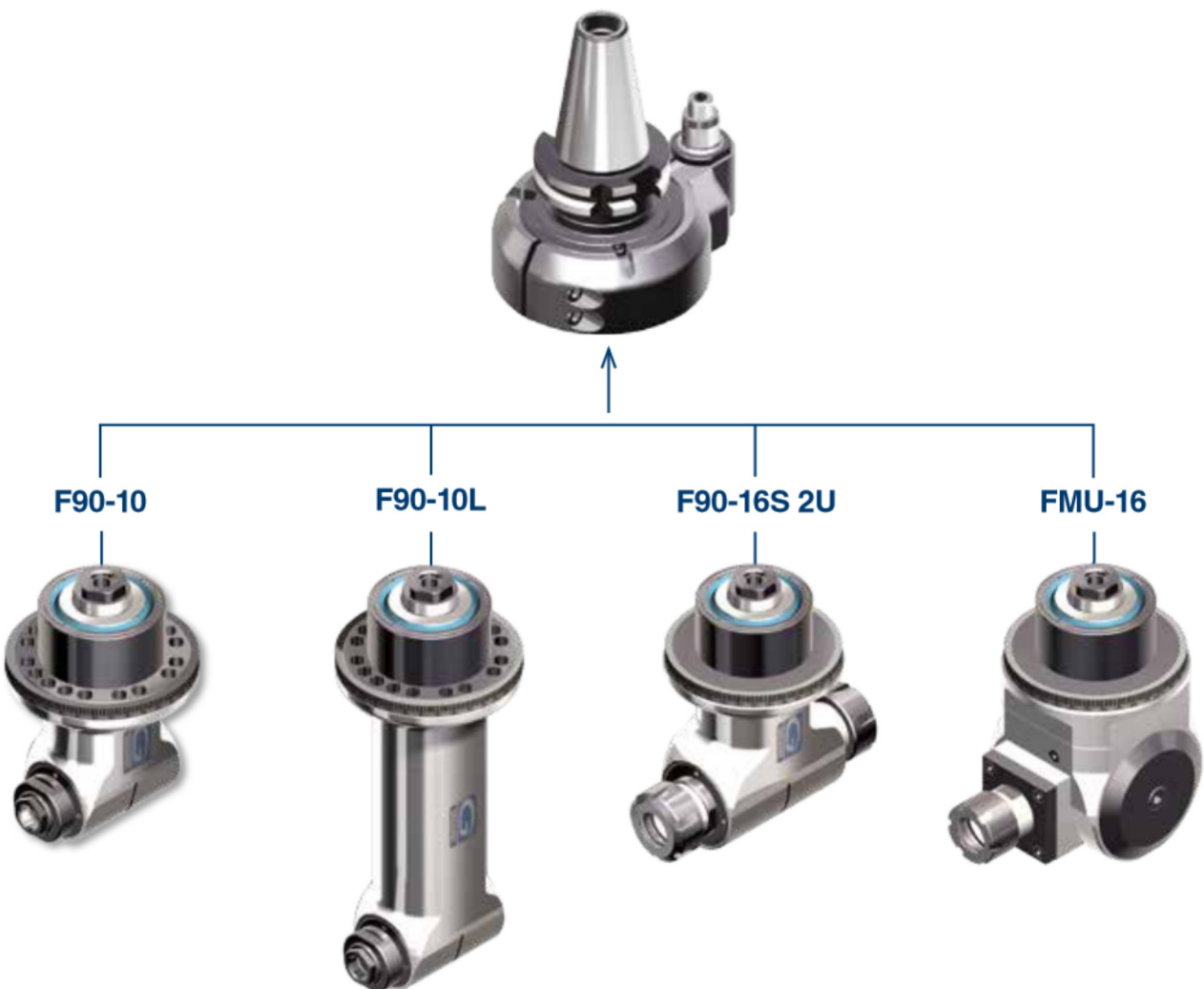


F90-10 / ATC ISO-40 / 65 HSK-63 STOP-BLOCK

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 !!



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

NOVITÀ E EVOLUTION LINE
EVOLUTION LINE NEWS

NEW!

2

-Nuovi modelli LIGHT
-New LIGHTS series

Pag. 2.12- 2.15



Teste con corpo in ALLUMINIO ideali per macchine di piccola taglia.
Angle heads with aluminum bodies ideal for small size machine tools!



-Testa Angolare FS90-06L
-FS90-06L Angle Heads

Pag. 2.20



Nuova testa angolare slim, per MICROLAVORAZIONI
New slim angle head for MICROMACHINING



-Testa Angolare F90-20S
-F90-20S Angle Heads

Pag. 2.26



Nuova testa angolare con DIAMETRO UTENSILE MAGGIORATO.
New angle head with DIAMETER TOOL INCREASED



-Flangia MULTIPPOINT
-MULTIPPOINT Flange

Pag. 2.47



Nuova Flangia con sistema MULTIPPOINT.
New Flange with MULTIPPOINT system



-Ghiere ReCool
-ReCool Nuts

Pag. 2.57



Con queste ghiere 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.



ATC SERIES

CAMBIO UTENSILE AUTOMATICO - AUTOMATIC TOOL CHANGE

2

DESIGN

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

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

Gruppo antirotante modulare
Modular antirotation group

Anello graduato
Graduated ring

USCITE - OUTPUTS:

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

CUSCINETTI - BEARINGS

Cuscinetti a sfera a contatto obliquo in classe di precisione ABEC 9
Angular contact preloaded ball bearings of precision class ABEC 9

INGRANAGGI - GEARS

Ingranaggi Gleason con evolvente rettificato: massime performances e minori vibrazioni
Gleason ground spiral bevel gears maximum performances and minimum vibration

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

Passaggio refrigerante 10BAR attraverso il perno
Standard 10BAR coolant through the pin

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

Fascia lappata di precisione per un accurato allineamento
Precision/lapped surface for accurate alignment

STOP BLOCK

con bussola cementata e guarnizione

with case hardened bushing and gasket

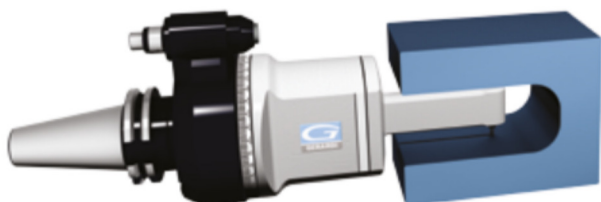


Ciascun albero di trasmissione supportato da cuscinetti a contatto obliquo, che garantiscono rotazioni dell'albero-cono e dell'uscita portautensile entro 0,01 mm
Each transmission shaft is supported by slanting bearings that ensure the shaft with shank and the toolholder output rotations within 0,01mm.

ATC SERIES

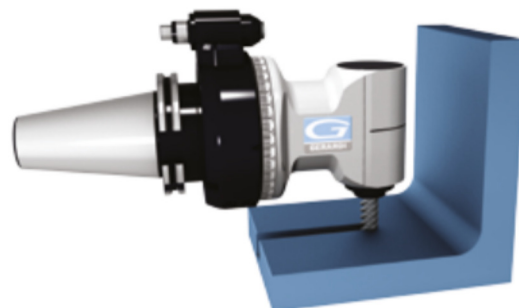
CAMBIO UTENSILE AUTOMATICO - AUTOMATIC TOOL CHANGE

2



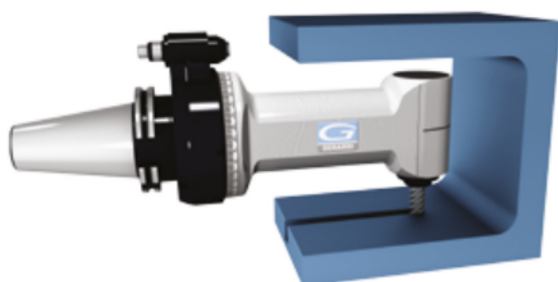
Serie SLIM - SLIM series

Ideali per Microlavorazioni in spazi ristretti
Ideal for Micromachining in narrow spaces



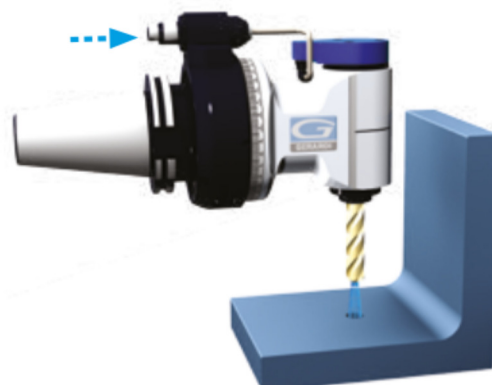
Serie F90 - F90 series

Ideali per Fresatura, foratura, Maschiatura a $\pm 90^\circ$
Ideal for milling, drilling, tapping at $\pm 90^\circ$



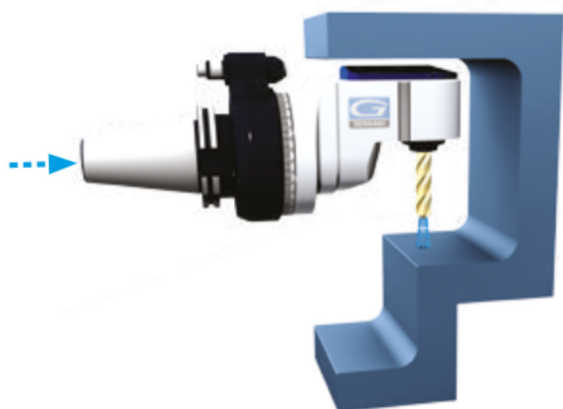
Serie F90L - F90L series

Serie lunga per lavorazioni in profondità
Long series for machining at deep positions



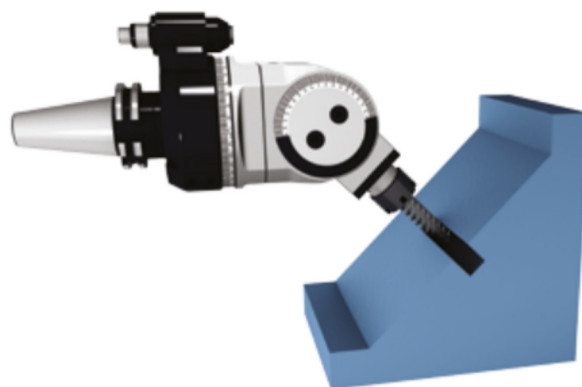
Serie F90 10BAR - F90 10BAR series

Con passaggio refrigerante dal perno, uscita utensile 10BAR
With coolant input from positioning Pin and output through the tool



Serie FR90 - FR90 series

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



Serie FMU - FMU series

Uscita utensile ad angolo variabile $\pm 90^\circ$ per forature, maschiature e fresature inclinate
Adjustable output at $\pm 90^\circ$ for tilt drilling, milling and tapping

SIMBOLOGIA DATI TECNICI
 TECHNICAL DATA LOGOS

Rapporto trasmissione Ratio	Numero di giri Revolutions per minute Rpm	Canco assiale Axial load N	Coppia Torque Nm	Peso Weight Kg	Usata Output Ø	Uscio lapping M	Frnza Collet Ø

 INDICE OPZIONI
 OPTIONS INDEX

OPZIONI OPTIONS							
	Alta velocità High speed	Spina per posizionamento rapido Quick positioning pin	Interasse speciale Special pitch	Lunghezze speciali Special length	Frangia Multipoint Multipoint Edge		
PASSAGGIO REFRIGERANTE COOLANT							
	Attraverso il perno Through the Pin 10bar (standard) ROTAZ a SECOO DRY RUNNING ✓	Perno » Distrib » Utensile Pin » Distributor » Tool 10bar ROTAZ a SECOO DRY RUNNING ✓	Cono » Distrib » Utensile Shank » Distributor » Tool 70bar ROTAZ a SECOO DRY RUNNING NO	Distributore » Utensile Distributor » Tool 10bar ROTAZ a SECOO DRY RUNNING NO	Distributore » Utensile Distributor » Tool ReCool NUI		
USCIA OUTPUT							
	Uscita ER ER output	Uscita HSK HSK output	Uscita ISO ISO output	Uscita portafresa Toolholder output	Uscita WELDON WELDON output	Uscita CAP10 CAP10 output	Doppia uscita Double output

NUOVI MODELLI SERIE LIGHTS - NEW TYPES LIGHTS SERIES

Teste con foro in alluminio ideali per macchine di piccola taglia - Angle heads fit aluminum bodies ideal for small size machine tools

NEW!



Serie LIGHT

da pag 2.13 a 2.15

Caratteristiche tecniche principali:

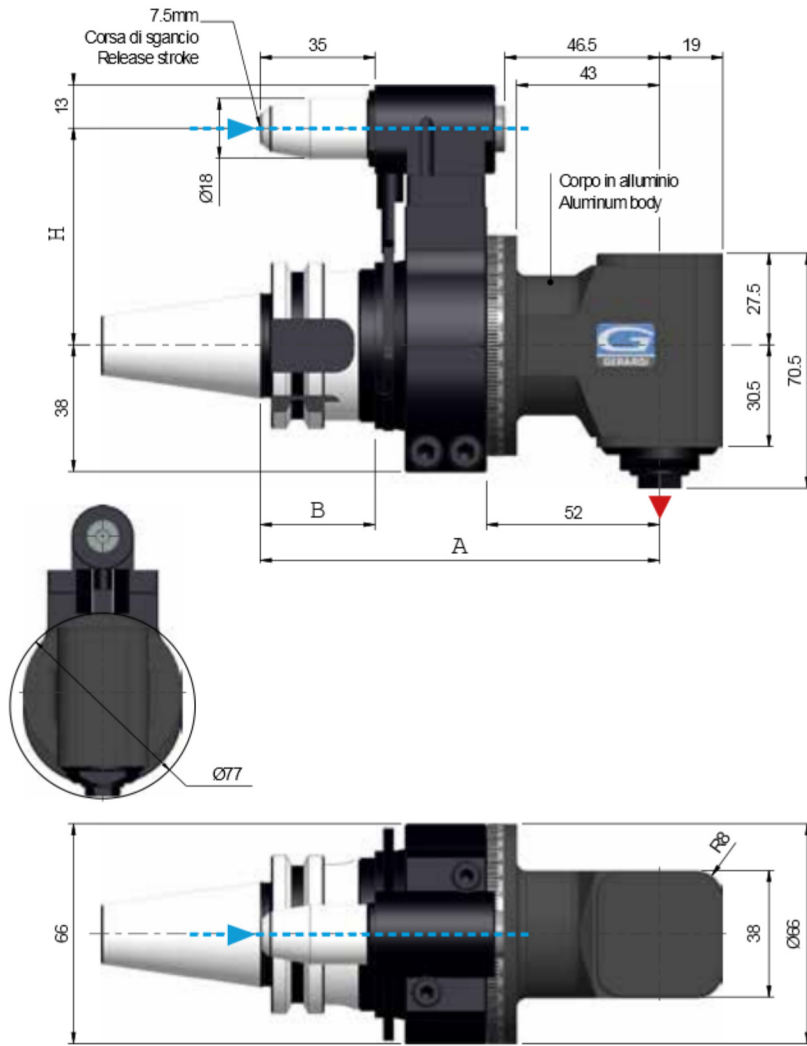
- Design ottimizzato per un miglior rapporto qualità prezzo.
- Corpo in alluminio.
- Riduzione significativa del peso.
- Perno di posizionamento conico.

LIGHT Series

from page 2.13 to 2.15

Main technical features

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



FL90-7

TYPE 1

CODE

9.FL9.07000



LIGHT SERIES
NEW!

REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISOBT30
2,1 Kg
ISOBT40
2,5 Kg



Rpm
8.000



Ø7



N-



M6



Nm5



ER11
Ø17

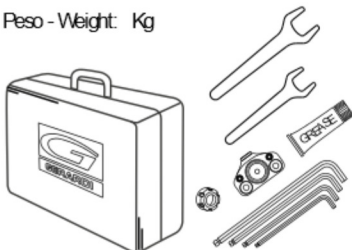
▼ Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

SERIE LIGHT, PER LAVORAZIONI LEGGERE - LIGHT SERIES, FOR LIGHT MACHINING

	SK DIN 69871			CAT ANSI E6.50			BT MAS 403			HSK DIN 69893			CAPTO 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	30	40	50	40	50		30	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzi Extra Extra Price €	optional	std	optional	std	optional		optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional
Standard Ø18	65/80	80	65/80	80			65/80	80	65/80	80			65/80	80	65/80	80			65/80	80
Optional 110 Extra Price €	-	-	-	-			-	-	-	-			-	-	-	-			-	-
A		120		120			120			129			-			-			-	
B		35		35			35			44			-			-			-	

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



PINZA
COLLET

ER25 - Ø1 / 16

optional



INTERASSE
PITCH

H=110mm

optional

FL90-13

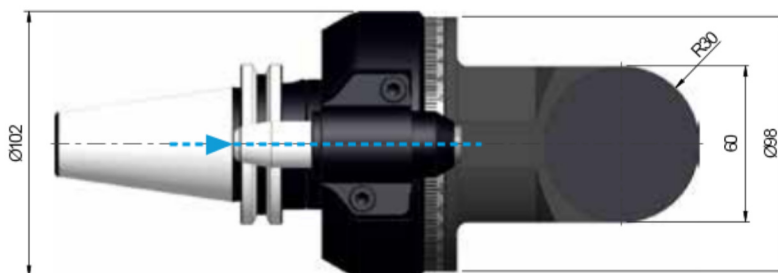
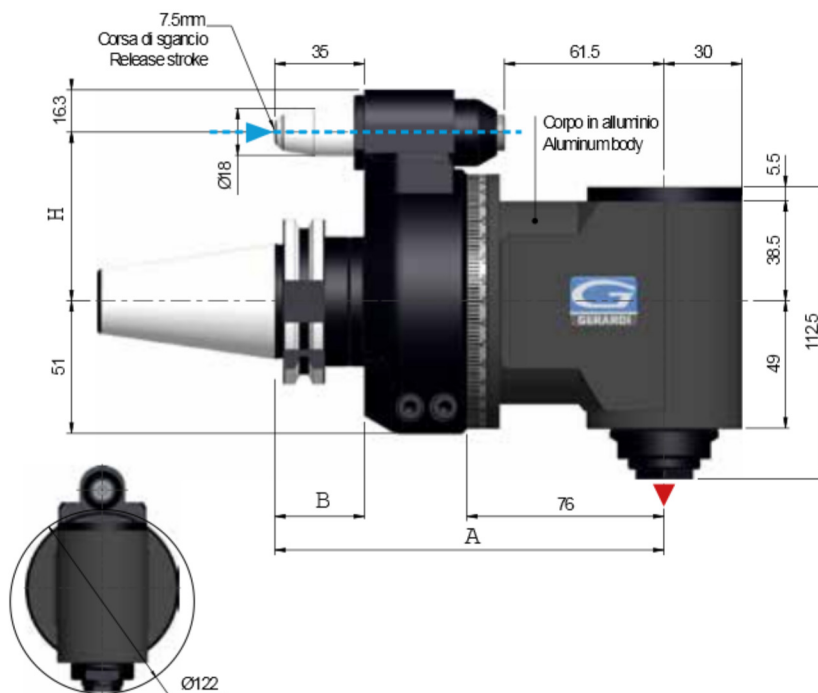
TYPE 1

CODE

9.FL9.13000



LIGHT SERIES
NEW!



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISO B13J
4,6 Kg
ISO B14U
5 Kg
ISO B15U
7,5 Kg



Rpm
6.000



Ø 13



N-



M 10



Nm20



ER20
Ø1/13

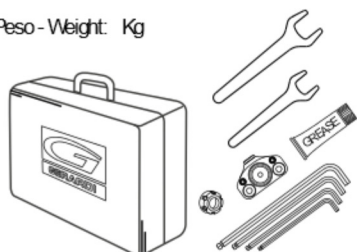
▼ Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

IDEALI PER FORATURE, MASCHIATURE E LAMATURE- IDEAL TO PERFORM DRILLING, TAPPING AND REAMING OPERATIONS

	SK DIN 69871			CAT ANSI B5.50		BT MAS 403			HSK DIN 69893			CAPTO 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	30	40	50	40	50	30	40	50	63	80	100	C5	C6	C8	63	80	100	40	50	
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional	
Standard Ø13	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	65/80	80
Optional 110 Extra Price €	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A		150		150		150	158		159											
B		35		35		35	43		44		46									

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



PINZA
COLLET

ER20 - Ø1 / 13

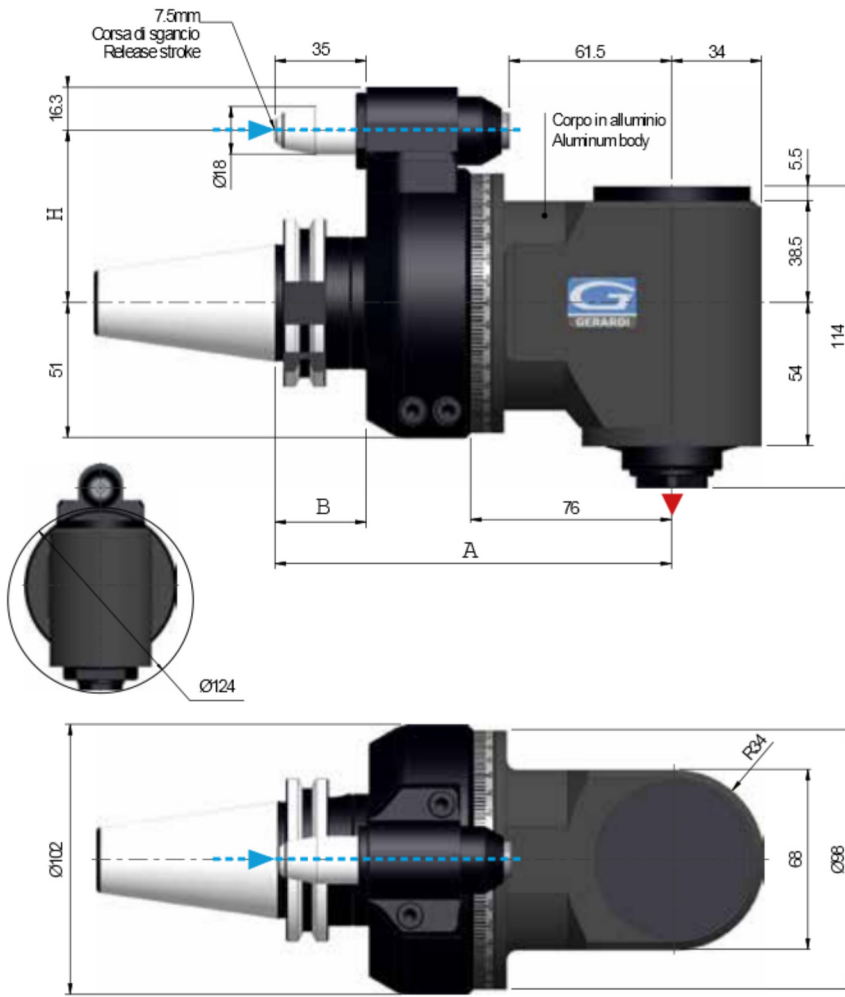
optional



INTERASSE
PITCH

H-110mm

optional



FL90-1

TYPE 1

CODE

9.FL.9.16000



FERRO DAL FERRO - COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISO B13J
4.6 Kg
ISO B14J
5 Kg
ISO B15J
7.5 Kg



Rpm
4.000



Ø 16



N-



M12



Nm 26



ER25
Ø1/16

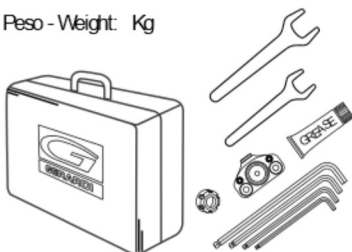
IDEALI PER FORATURE, MASCHIATURE E LAVATURE - IDEAL TO PERFORM DRILLING, TAPPING AND REAMING OPERATIONS

▼ Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

	SK DIN 69871			CAT ANSI B6.50			BT MAS 403			HSK DIN 69893			CAPTO 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	30	40	50	40	50	30	40	50	63	80	100	C5	C6	C8	63	80	100	40	50		
Prezzi Extra Extra Price €	optional	std	optional	std	optional	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional		
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	65/80	80	
Optional 110 Extra Price €	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
A	150			150			150			158			159			-			-		
B	35			35			35			43			44			46			-		

DOTAZIONE STANDARD STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



FINZA
COLLET

ER25 - Ø1/16

optional



INTERASSE
PITCH

H=110mm

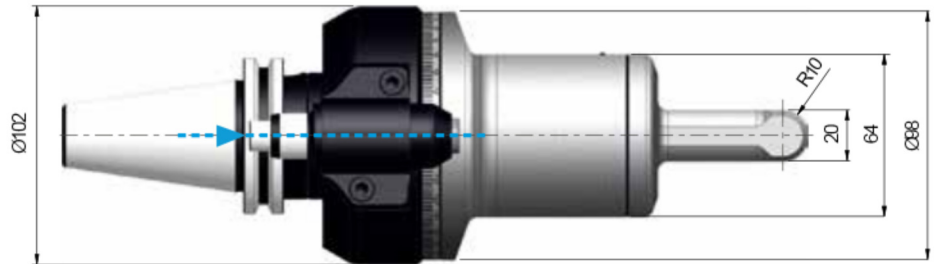
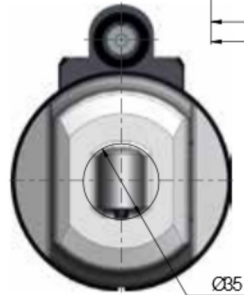
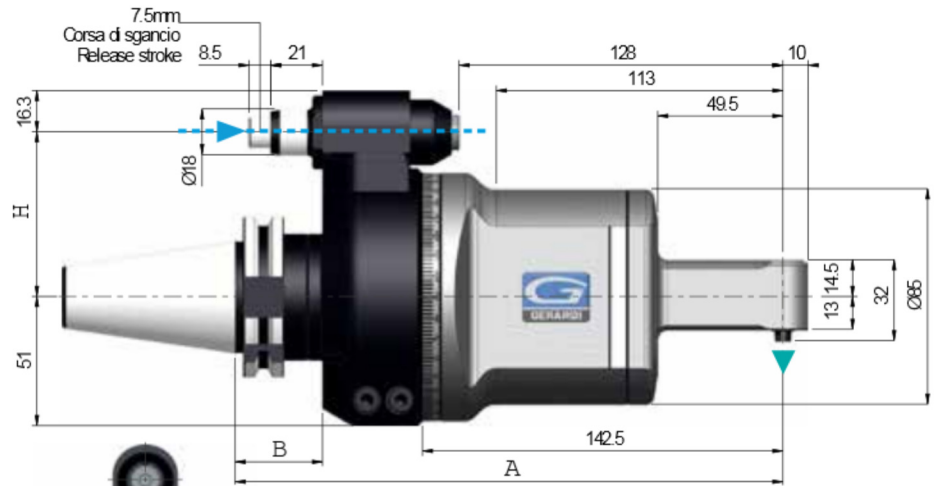
optional

FS90-3

CODE

TYPE 1

9.FS9.03000



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISOBT40
5,5 Kg
ISOBT50
7,5 Kg



Rpm
8.000



Ø3



N 70



M3



Nm2



6023E
Ø1/3

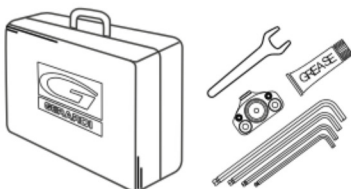
Senso di rotazione uguale al mandrino
Direction of rotation same as machine spindle

SERIE SLIM, PER MICROLAVORAZIONI - SLIM SERIES, FOR MICROMACHINING

Grandezza - Size	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO ISO 26623			KM			ISO DIN 2080						
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50					
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional					
H Standard Ø18	65/80		80	65/80		80	65/80		80	65/80			80	65/80		80	65/80		80				
H 110 Type 1-2 Ø18	Ø18		Ø18	Ø18		Ø18	Ø18		Ø18	Ø18			Ø18	Ø18		Ø18	Ø18		Ø18				
H 110 Type 3 Ø28	Ø18		Ø28	Ø18		Ø28	Ø18		Ø28	Ø18			Ø28	Ø18		Ø28	Ø18		Ø28				
A	216,5			216,5		216,5		224,5		225,5			220,5			216,5			186,5		189,5		
B	35			35		35		43		44		46		39			-			13		16	

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



DOPPIA USCITA
DOUBLE OUTPUT

NO



FINZA COLLET

6023E

Page 2.58



INTERASSE
FITCH

H=110mm

optional

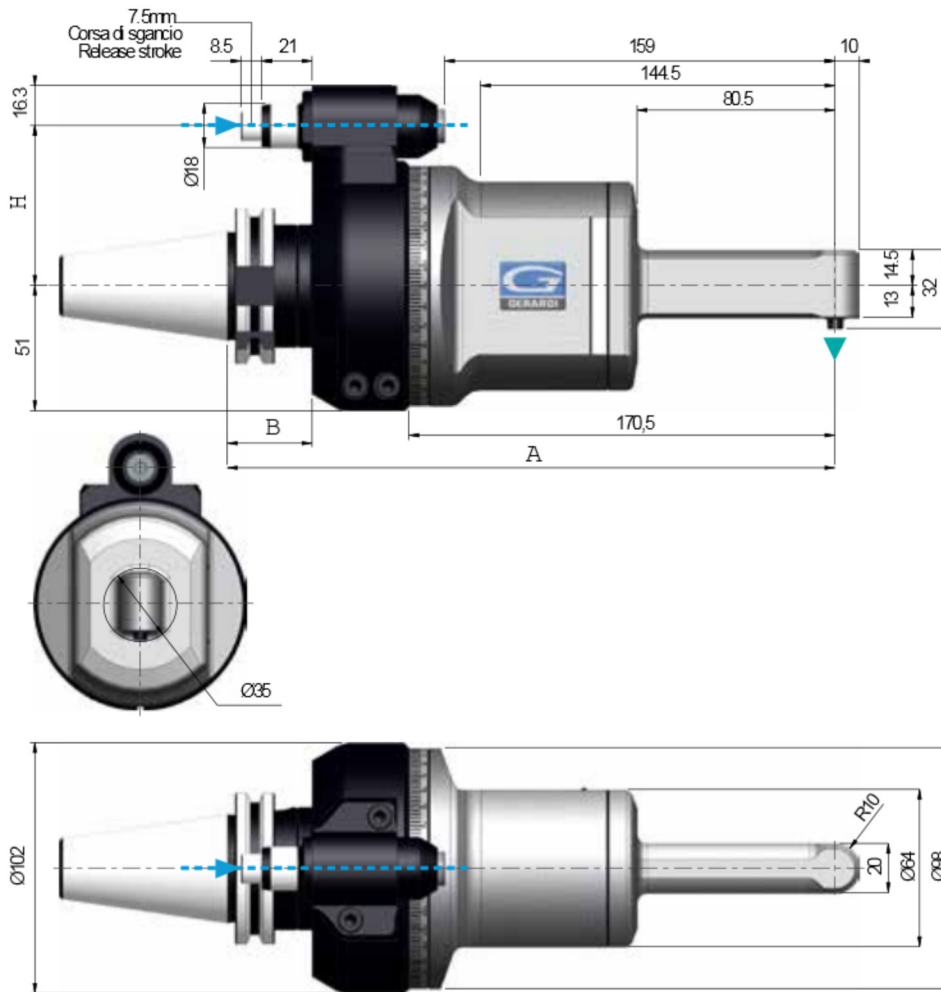
POSSIBILITÀ DI LUNGHEZZE DIFFERENTI CON STEP DA 50-80-100mm
 POSSIBILITY OF DIFFERENT LENGTH WITH 50-80-100mm STEP

FS90-3L

TYPE 1

CODE

9.FS9.03L00



FERRO DAL FERRO - COOLANT THROUGH PIN 10 BAR

- Ratio 1:1
- ISOBT40 6,4Kg
ISOBT50 8,6Kg
- Rpm 8.000
- Ø3
- N70
- M3
- Nm2
- 6023E Ø1/3

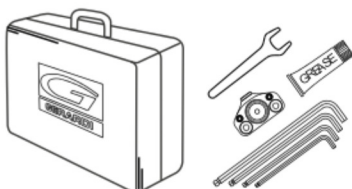
Senso di rotazione uguale al mandrino
 Direction of rotation same as machine spindle

SERIE SLIM, PER MICROLAVORAZIONI - SLIM SERIES, FOR MICROMACHINING

Grandezza - Size	SK DIN 69871			CAT ANSI B5.50			BT MAS 403			HSK DIN 69893			CAPTO ISO 26623			KM			ISO DIN 2080							
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50								
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional								
H Standard Ø18	65/80		80	65/80		80	65/80		80	65/80			80	65/80		80	65/80		80							
H 110 Type 1-2 Ø18	Ø18		Ø18	Ø18		Ø18	Ø18		Ø18	Ø18			Ø18	Ø18		Ø18	Ø18		Ø18							
H 110 Type 3 Ø28			Ø28			Ø28			Ø28				Ø28			Ø28										
A	247,5			247,5			247,5		255,5		255,5			251,5			247,5			217,5		220,5				
B	35			35			35		43		44			46			39			-			13		16	

DOTAZIONE STANDARD
 STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



DOPPIA USCITA
 DOUBLE OUTPUT

NO



FINZA
 COLLET

6023E

Page 2.58



INTERASSE
 FITCH

H=110mm

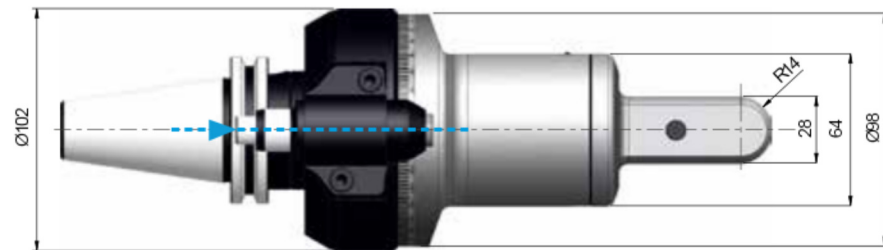
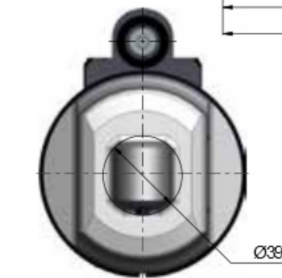
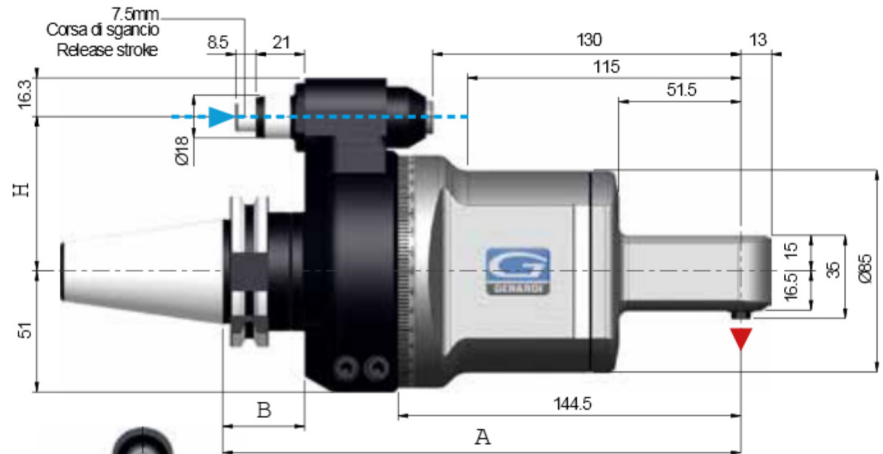
optional

FS90-E0 E2

CODE

TYPE 1

9.FS9.04000



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISOBT40
5,5 Kg
ISOBT50
7,5 Kg



Rpm
8.000



Ø4



N 120



M3



Nm 3,5



600E
Ø1/4

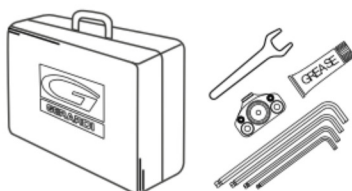
Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

SERIE SLIM, PER MICROLAVORAZIONI - SLIM SERIES, FOR MICROMACHINING

	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional		
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional			
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 Type 1-2 Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18		
H 110 Type 3 Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28		
A	218,5			218,5		218,5		226,5		227,5			225,5			218,5			188,5	191,5
B	35			35		35		43		44			39			-			13	16

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



DOPPIA USCITA
DOUBLE OUTPUT

NO



PINZA
COLLET

600E

Page 2.58

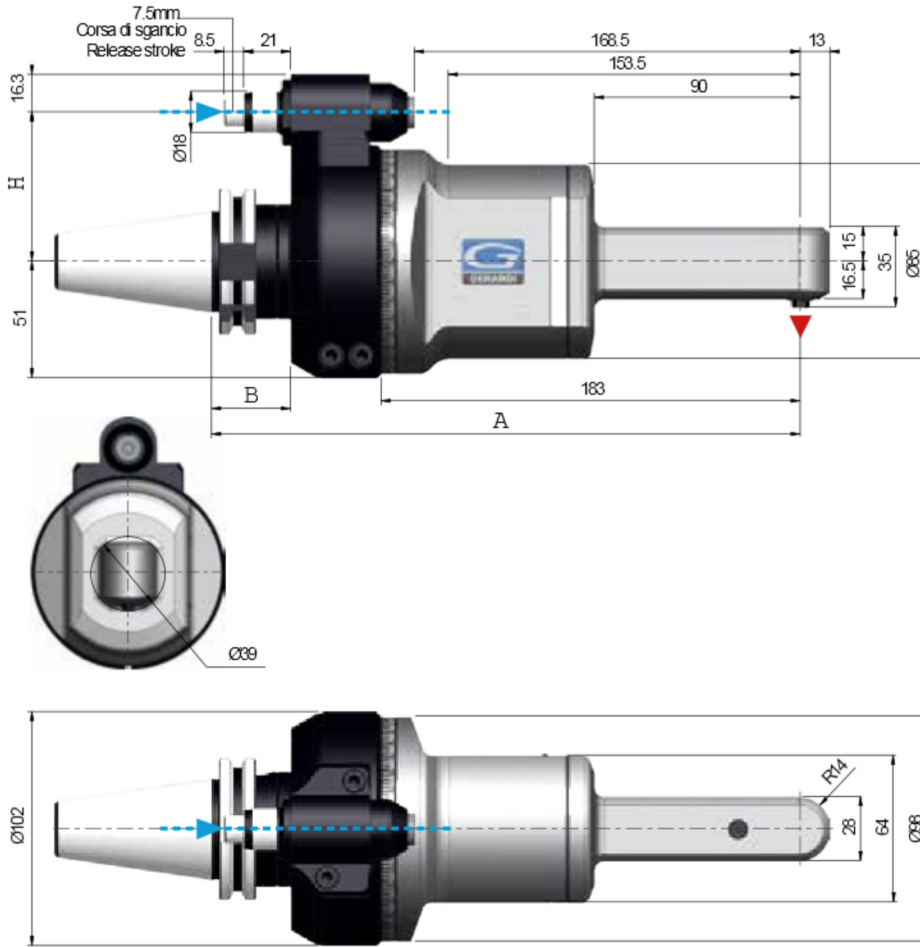


INTERASSE
PITCH

H=110mm

optional

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



FS90-100

CODE

TYPE 1

9.FS9.04L00



REFR. DAL FERRO - COOLANT THROUGH PIN 10 BAR

- Ratio 1:1
- ISOBT40 6,8Kg
ISOBT50 9Kg
- Rpm 8.000
- Ø4
- N120
- M3
- Nm3,5
- 600E Ø1/4

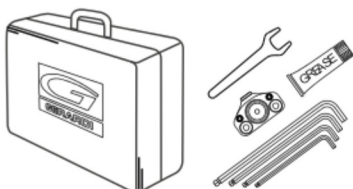
Senso di rotazione contrario al mandrino
 Direction of rotation opposite to machine spindle

SERIE SLIM, PER MICROLAVORAZIONI - SLIM SERIES, FOR MICROMACHINING

	SK DIN 69671			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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	
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional	
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	80	
H 110 Type 1-2	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	
H 110 Type 3	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø28	Ø18	Ø28	Ø28	Ø18	Ø28	Ø28	Ø18	Ø28	
A	257			257		257		266		261			257			227		230	
B	35			35		35		43		44		46		39			-		

DOTAZIONE STANDARD
 STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 11,3



OPZIONI - OPTIONS



DOPPIA USCITA
 DOUBLE OUTPUT

NO



FINZA
 COLLET

600E

Page 2.58



INTERASSE
 PITCH

H=110mm

optional

FS90-

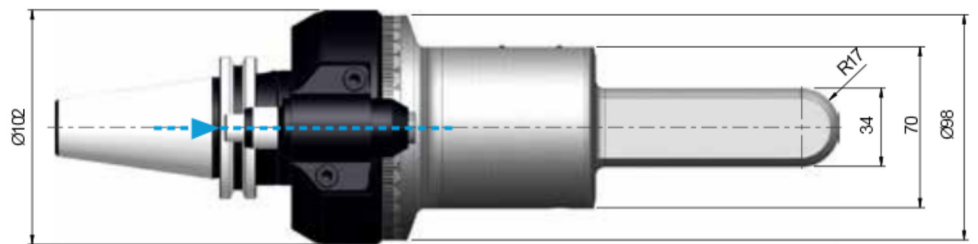
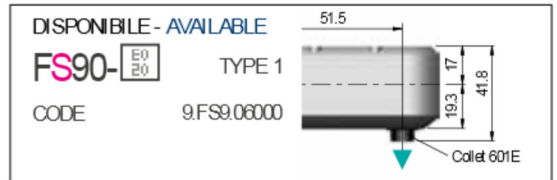
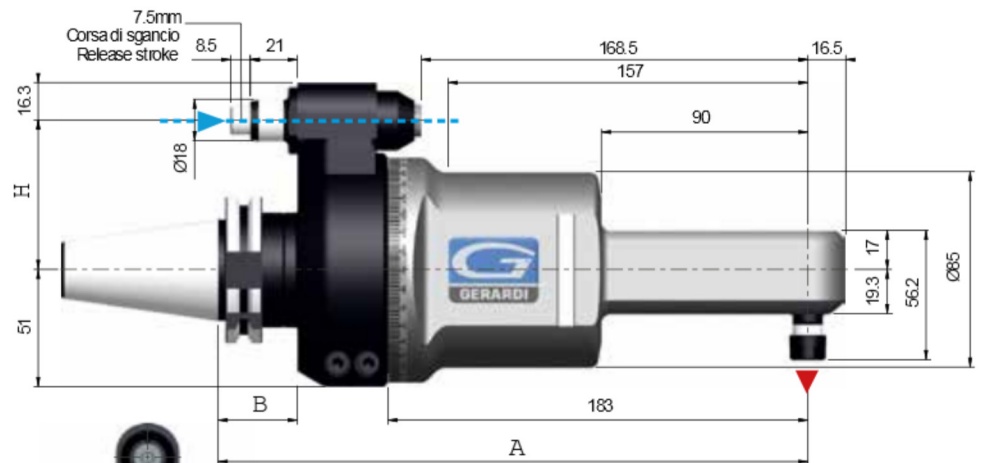
CODE

TYPE 1

9.FS9.06L00



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



REFR. DAL FERRO - COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISOBT40
6Kg
ISOBT50
8,3Kg



Rpm
8.000



Ø7



N-



M6



Nm4



ER11
Ø17

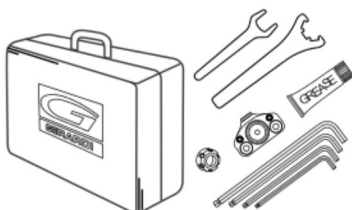
Senso di rotazione contrario al mandrino
 Direction of rotation opposite to machine spindle

SERIE SLIM, PER MICROLAVORAZIONI - SLIM SERIES, FOR MICROMACHINING

	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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						
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional						
H Standard Ø18	65/80		80	65/80		80	65/80		80	65	80	65		80	65	80	65	80						
H 110 Type 1-2 Ø18	Ø18		Ø18	Ø18		Ø18	Ø18		Ø18	Ø18		Ø18		Ø18	Ø18		Ø18	Ø18						
H 110 Type 3 Ø28	Ø18		Ø28	Ø18		Ø28	Ø18		Ø28	Ø18		Ø28		Ø18	Ø28		Ø18	Ø28						
A	257			257		257		265		266			261			257			227		230			
B	35			35		35		43		44		46			-			-			13		16	

DOTAZIONE STANDARD
 STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



DOPPIA USCITA
 DOUBLE OUTPUT

NO



USCITA
 OUTPUT

ER11 - Ø1/7

optional



WELDON
 COLLET

Weldon Ø6

optional



FINZA
 COLLET

ER11 - Ø1/7

optional



INTERASSE
 PITCH

H=110mm

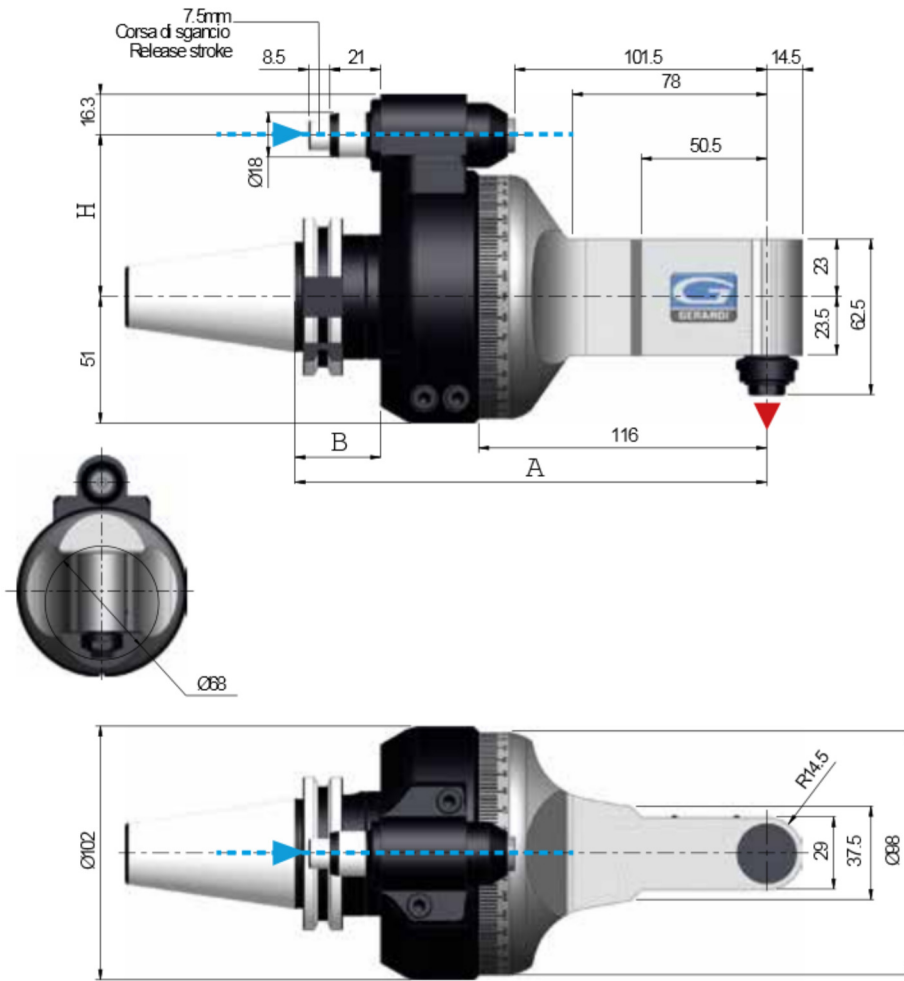
optional

F90-7

TYPE 1

CODE

9.F90.07000



FERRO DAL FERRO - COOLANT THROUGH PIN 10 BAR

Ratio 1:1	ISOBT40 5 Kg ISOBT50 7 Kg
Rpm 10.000	Ø7
N127	M6
Nm6	ER11 Ø17

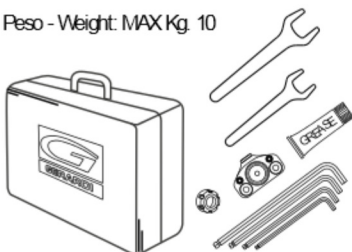
ALTA VELOCITÀ INCLUSA 10.000 Rpm - HIGH SPEED INCLUDED 10.000 Rpm

Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

Grandezza - Size	SK DIN 69671			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO ISO 26623			KM			ISO DIN 2080							
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50						
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional						
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	80						
H 110 Type 1-2	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18						
H 110 Type 3	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28						
A	190			190		190		199			194			190			160							
B	35			35		35		43		44		46		39			34,5		-	-	13		16	

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 10



OPZIONI - OPTIONS



USCTA
OUTPUT
Weldon Ø6/10

optional



DOPPIA USCITA
DOUBLE OUTPUT
ER11 - ER11

optional



FINZA
COLLET
Ø1 / 7

optional



INTERASSE
PITCH
H=110mm

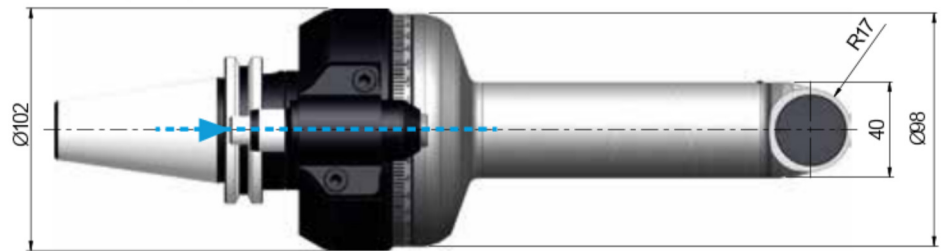
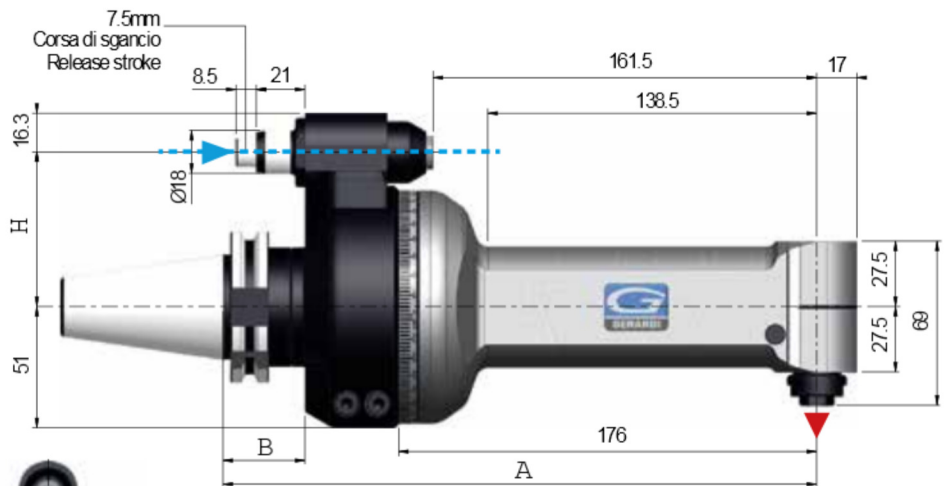
optional

F90-7L

TYPE 1

CODE

9.F90.07L00



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR

- Ratio 1:1
- ISOBT40 6,3 Kg
ISOBT50 8,5 Kg
- Rpm 10.000
- Ø7
- N 180
- M6
- Nm6
- ER11 Ø17

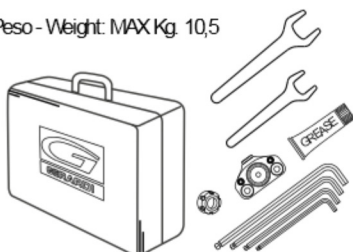
Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

ALTA VELOCITÀ INCLUSA 10.000 Rpm - HIGH SPEED INCLUDED 10.000 Rpm

	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional	
Prezzi Extra € Extra Price €																			
H Standard Ø18	65/80		80	65/80		80	65/80		80	65/80			80	65/80		80	65/80		80
H 110 Type 1-2 Ø18			Ø18			Ø18			Ø18				Ø18			Ø18			Ø18
H 110 Type 3 Ø28			Ø28			Ø18			Ø18				Ø18			Ø18			Ø18
A	250			250		250	258	259			254			250			220	223	
B	35			35		35	43	44	46			39			-			13	16

DOTAZIONE STANDARD STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 10,5



OPZIONI - OPTIONS



USCITA
OUTPUT
Weldon Ø6/10

optional



DOPPIA USCITA
DOUBLE OUTPUT
ER11 - ER11

optional



PINZA
COLLET
ER11 - Ø1/7

optional



INTERASSE
PITCH
H=110mm

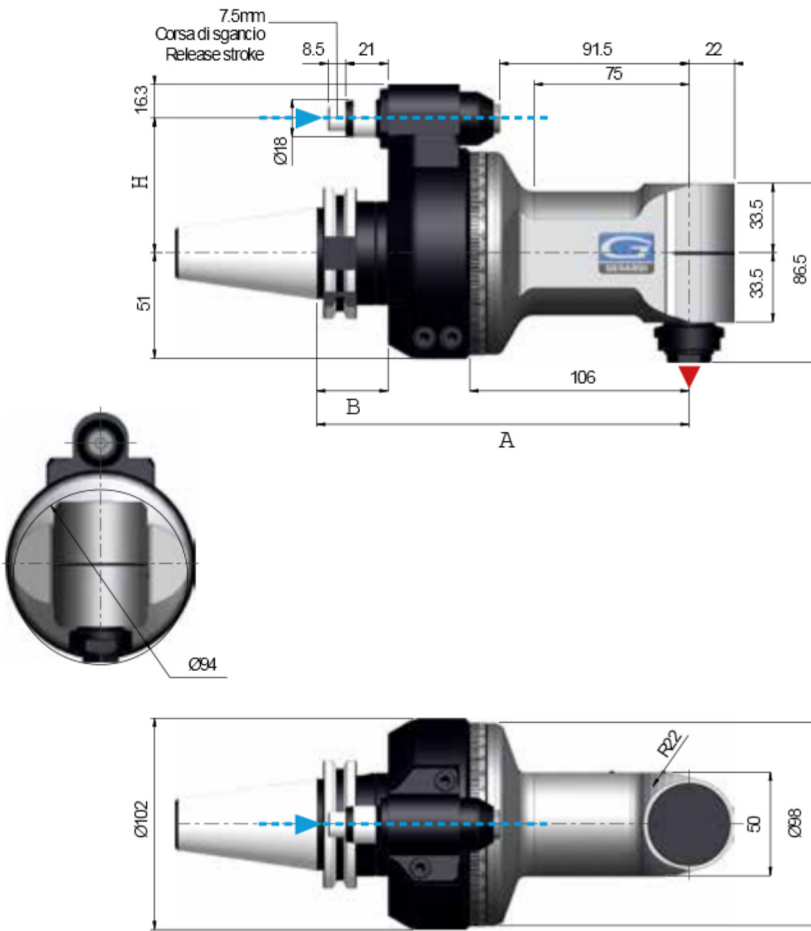
optional

F90-10

TYPE 1

CODE

9.F90.10000



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR

Ratio 1:1	ISOBT40 5,3Kg ISOBT50 7,5Kg
Rpm 10.000	Ø10
N400	M8
Nm 11	ER16 Ø1/10

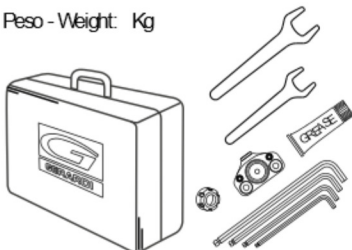
ALTA VELOCITÀ INCLUSA 10.000 Rpm - HIGH SPEED INCLUDED 10.000 Rpm

Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

	SK DIN 69671			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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	
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional	
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 Type 1-2	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18
H 110 Type 3	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28
A	180			180		180		189			184			180			150		153
B	35			35		35		43	44	46	39			-			13	16	

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



USCITA
OUTPUT

Weldon Ø6/12

optional



USCITA
OUTPUT

Toolholder Ø16

optional



DOPPIA USCITA
DOUBLE OUTPUT

optional



PINZA
COLLET

ER16 - Ø1 / 10

optional



INTERASSE
FITCH

H=110mm

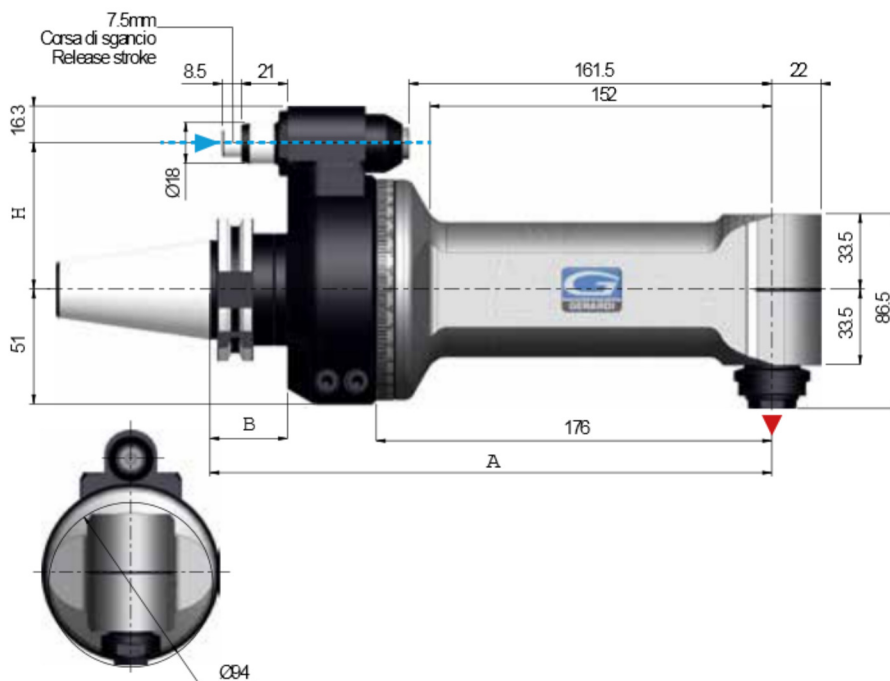
optional

F90-10L

TYPE 1

CODE

9.F90.10L00



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISOBT40
6,9 Kg
ISOBT50
9,2 Kg



Rpm
10.000



Ø10



N 400



M8



Nm 11



ER16
Ø1/10

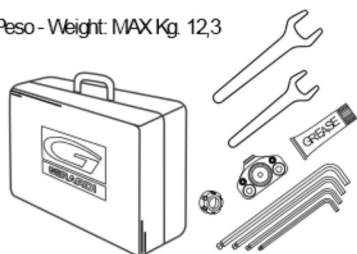
▼ Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

ALTA VELOCITÀ INCLUSA 10.000 Rpm - HIGH SPEED INCLUDED 10.000 Rpm

Grandezza - Size	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO ISO 26623			KM			ISO DIN 2080			
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50		
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional		
H Standard Ø18	65 / 80		80	65 / 80		80	65 / 80		80	65 / 80			80	65 / 80		80	65 / 80		80	
H 110 Type 1-2 Ø18	Ø18		Ø18	Ø18		Ø18	Ø18		Ø18	Ø18			Ø18	Ø18		Ø18	Ø18		Ø18	
H 110 Type 3 Ø28	Ø18		Ø28	Ø18		Ø28	Ø18		Ø28	Ø18			Ø28	Ø18		Ø28	Ø18		Ø28	
A	250			250		250	258		259			254			250			220	223	
B	35			35		35	43		44	46			39			-			13	16

DOTAZIONE STANDARD STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 12,3



OPZIONI - OPTIONS



USCITA
OUTPUT

Weldon Ø6/12

optional



USCITA
OUTPUT

Toolholder Ø16

optional



DOPPIA USCITA
DOUBLE OUTPUT

optional



FINZA
COLLET

ER16 - Ø1 / 10

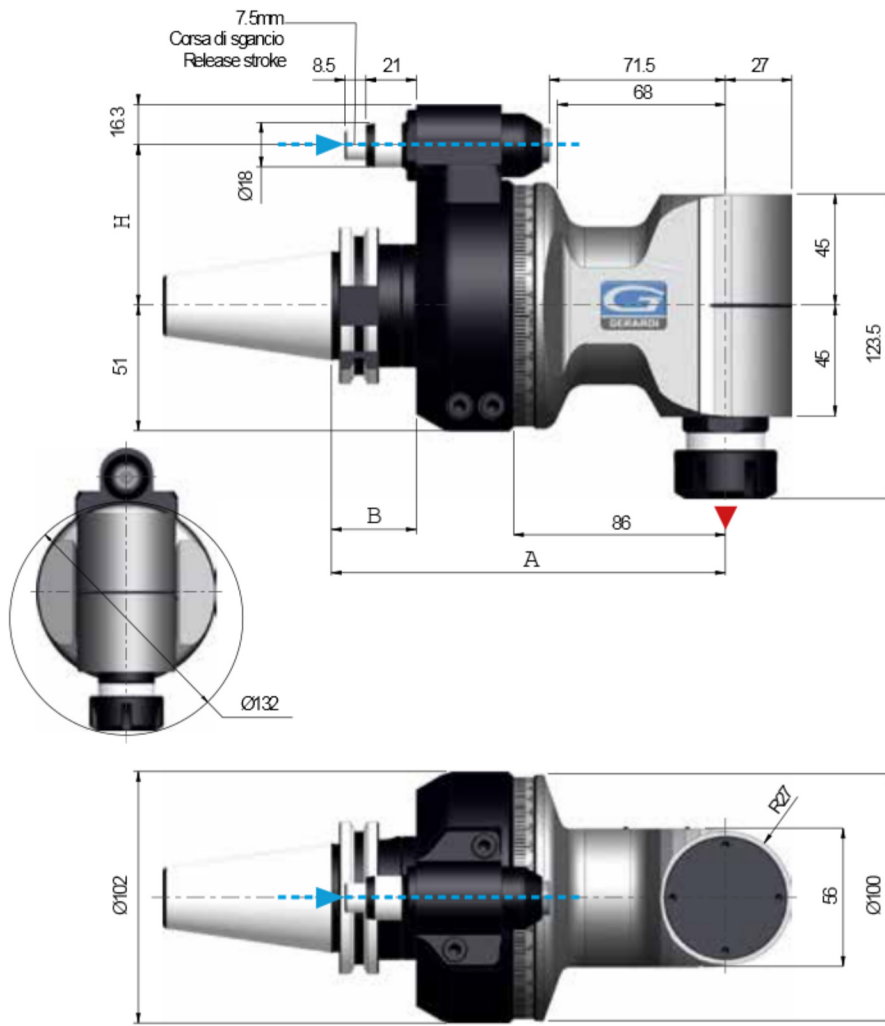
optional



INTERASSE
PITCH

H=110mm

optional



F90-1

CODE

TYPE 1

9.F90.16S00



REFR. DAL FERRO - COOLANT THROUGH-IN 10 BAR

	Ratio 1:1		ISOBT40 6,4Kg
	Rpm 8.000		ISOBT50 8,7Kg
	Ø16		M12
	N810		ER25 Ø1/16

ALTA VELOCITÀ INCLUSA 8.000 Rpm - HIGH SPEED INCLUDED 8.000 Rpm

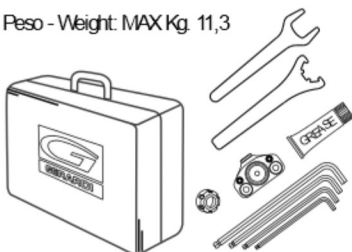
Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

	SK DIN 69671			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional
H	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 Type 1-2	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18
H 110 Type 3	Ø28	Ø28	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28
A	180			180		180		189			184			160			130	133
B	35			35		35		43	44	46	39			-			13	16

Performance ridotte con con grandezza C5 - Reduced performances with shank size C5

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 11,3



OPZIONI - OPTIONS

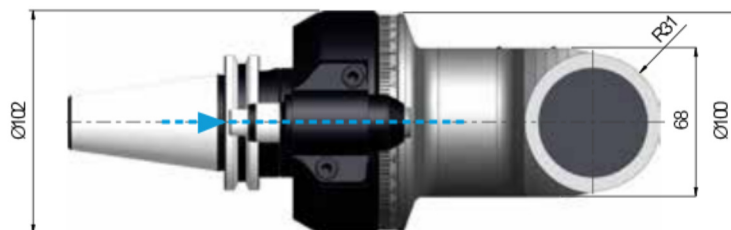
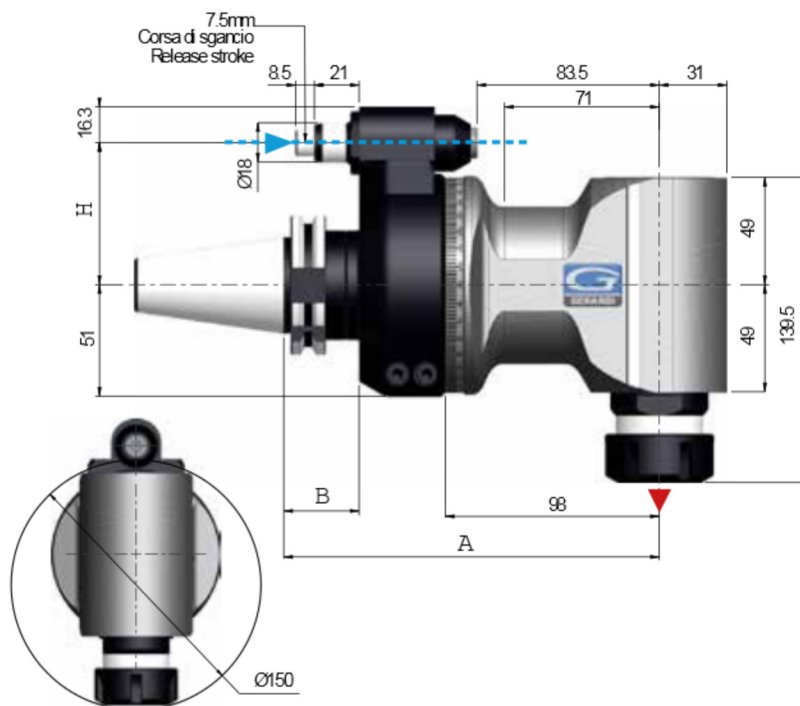
USCITA OUTPUT	USCITA OUTPUT	DOFFIA USCITA DOUBLE OUTPUT	PINZA COLLET	INTERASSE PITCH
Weldon Ø8/15	Toolholder Ø16	ER25 - ER25	ER25 - Ø1 / 16	H=110mm
optional	optional	optional	optional	optional

F90-20S

TYPE 2

CODE

9.F90.20S00



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISOBT40
7Kg
ISOBT50
-



Rpm
5.000



Ø20



N 1.040



M16



Nm46



ER32
Ø2/20

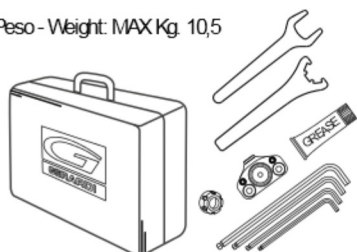
▼ Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

PERFORMANCE RIDOTTE CON UTENSILI DA Ø17 A Ø20 - REDUCED PERFORMANCE WITH TOOLS Ø17 TO Ø20

	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	CAPTO ISO 26623	KM	ISO DIN 2080
Grandezza - Size	40	40	40	63	C5	63	40
Prezzi Extra € Extra Price €	std	std	std	optional	optional	optional	optional
H Standard Ø18	65 / 80	65 / 80	65 / 80	65 / 80	65/80	65 / 80	65 / 80
H 110 Type 1-2 Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18
H 110 Type 3 Ø28	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18
A	172	172	172	181	176	172	147
B	35	35	35	44	39	-	13

DOTAZIONE STANDARD STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 10,5



OPZIONI - OPTIONS



USCITA
OUTPUT
HSK 32

optional



USCITA
OUTPUT
Weldon Ø3/22

optional



USCITA
OUTPUT
Tool holder
Ø16/22/21

optional



DOPPIA USCITA
DOUBLE OUTPUT
ER2 - ER2

optional



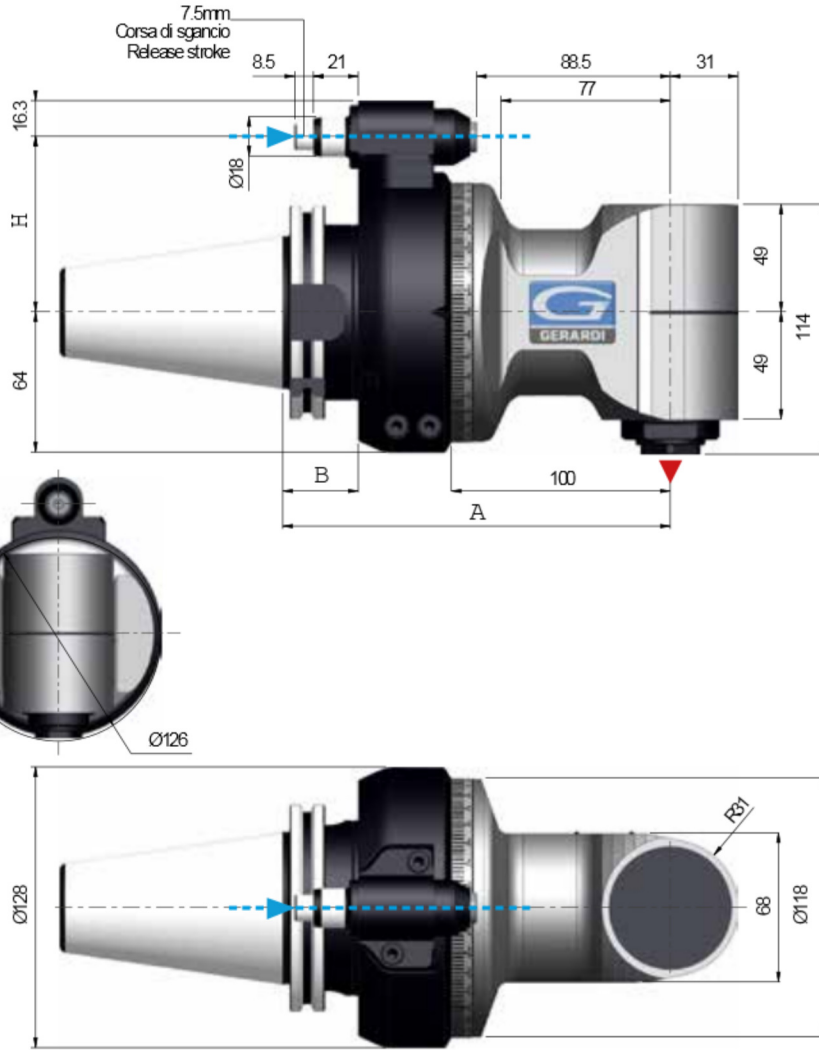
PINZA
COLLET
ER32 - Ø2 / 20

optional



INTERASSE
PITCH
H=110mm

optional


F90-1

CODE

TYPE 2

9.F90.16000


REFR. DAL FERRO - COOLANT THROUGH IN 10 BAR

Ratio 1:1	ISOBT40 - Kg ISOBT50 11 Kg
Rpm 5.000	Ø16
N1.040	M12
Nm46	ER25 Ø1/16

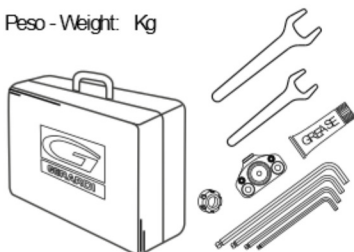
ADATTA PER LAVORAZIONI PESANTI - HIGH TORQUE FOR HEAVY DUTIES MACHINING

 Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	CAPTO ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	Ø3	80	100	50
Prezzi Extra € Extra Price €	std	optional	std	optional	optional	optional	on request	optional	optional
H Standard Ø18	80	80	80	80	80	80	80	80	80
H 110 Type 1-2 Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18
H 110 Type 3 Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28
A	177	177	185	186	181	177	177	177	150
B	35	35	43	46	39	-	-	-	16

**DOTAZIONE STANDARD
STANDARD EQUIPMENT**

Peso - Weight: Kg


OPZIONI - OPTIONS

 USCITA
OUTPUT

HSK 32

optional


 USCITA
OUTPUT

Weldon Ø6/20

optional


 USCITA
OUTPUT

 Toolholder
Ø16/22/27/32

optional


 DOPPIA USCITA
DOUBLE OUTPUT

ER25 - ER25

optional


 PINZA
COLLET

ER25 - Ø1 / 16

optional


 INTERASSE
PITCH

H=110mm

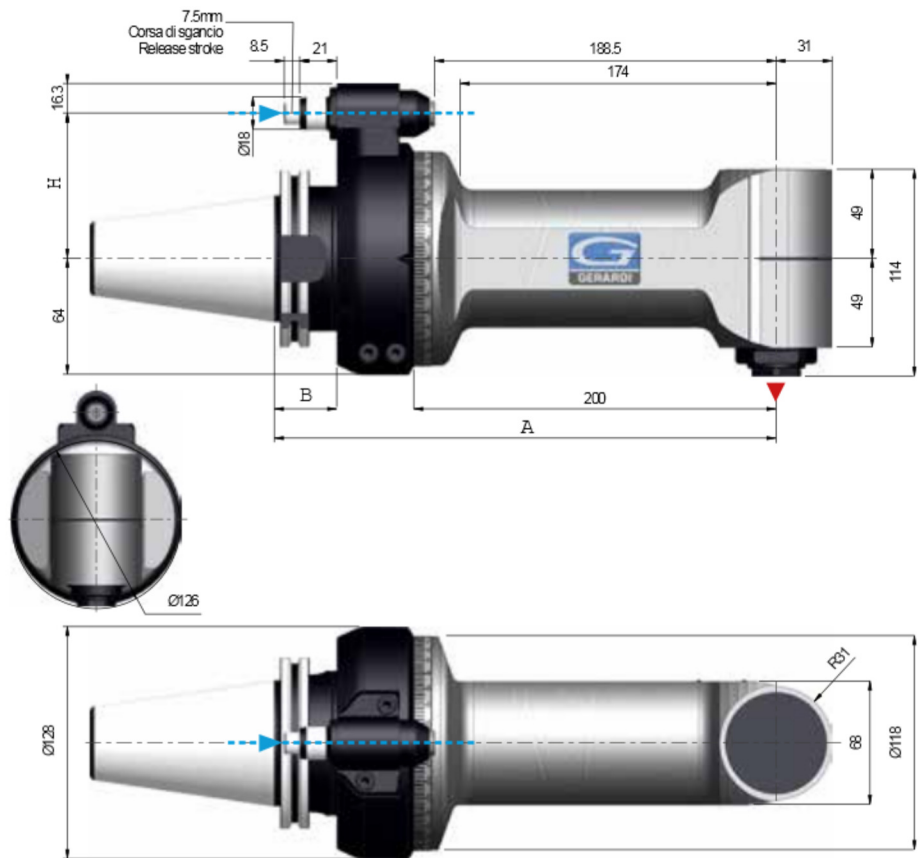
optional

F90-1

TYPE 2

CODE

9.F90.16L00



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR

- Ratio 1:1
- ISO/BT50 12,7 Kg
- Rpm 5.000
- Ø16
- N 1.040
- M12
- Nm46
- ER25 Ø1/16

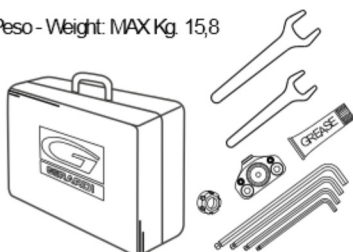
Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

ADATTA PER LAVORAZIONI PESANTI - HIGH TORQUE FOR HEAVY DUTIES MACHINING

	SK DIN 69671	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	CAPTO ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzi Extra € Extra Price €	std	optional	std	optional	optional	optional	on request	optional	optional
H Standard Ø18	80	80	80	80	80	80	80	80	80
H 110 Type 1-2 Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18
H 110 Type 3 Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28
A	277	277	285	286	281	277	277	250	16
B	35	35	43	46	39	-	-	16	-

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 15,8



OPZIONI - OPTIONS

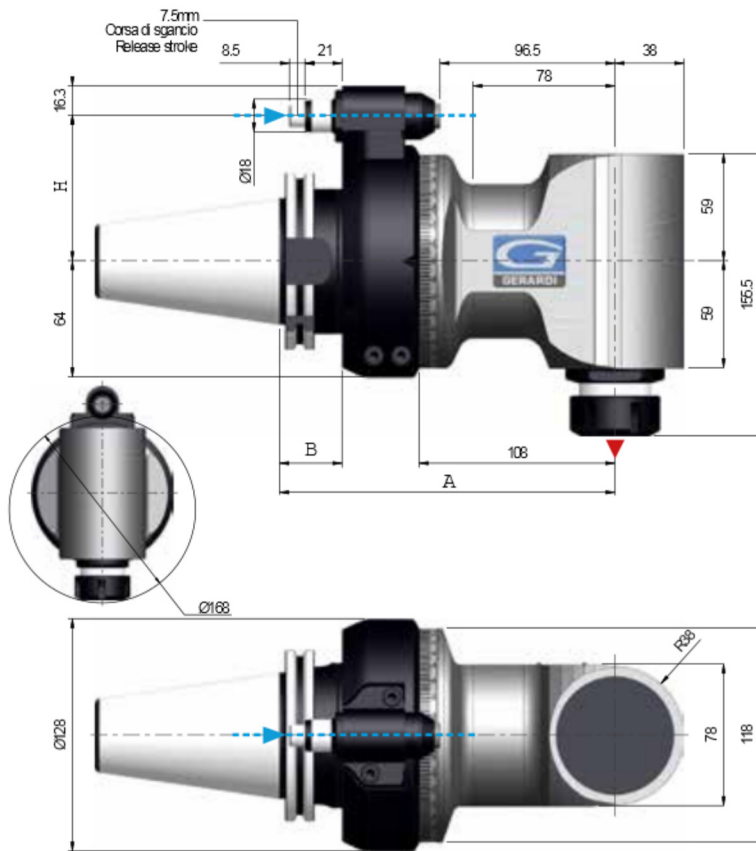
HSK 32	Weldon Ø6/20	Toolholder Ø16/22	DOPPIA USCITA DOUBLE OUTPUT ER25 - ER25	PINZA COLLET ER25 - Ø1 / 16	INTERASSE FITCH H=110mm
optional	optional	optional	optional	optional	optional

F90-20

TYPE 2

CODE

9.F90.20000



FERRO DAL FERRO - COOLANT THROUGH PIN 10 BAR

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

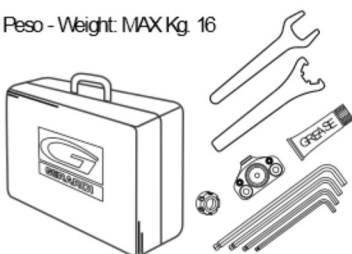
ADATTA PER LAVORAZIONI PESANTI - HIGH TORQUE FOR HEAVY DUTIES MACHINING

Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	CAPTO ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	Ø3	80	100	50
Prezzi Extra € Extra Price €	std	optional	std	optional	optional	optional	on request	optional	optional
H Standard	Ø18	80	80	80	80	80	80	80	80
H 110 Type 1-2	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18
H 110 Type 3	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28
A	185	185	193	194	189	185	185	158	16
B	35	35	43	46	-	-	-	16	

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 16



OPZIONI - OPTIONS

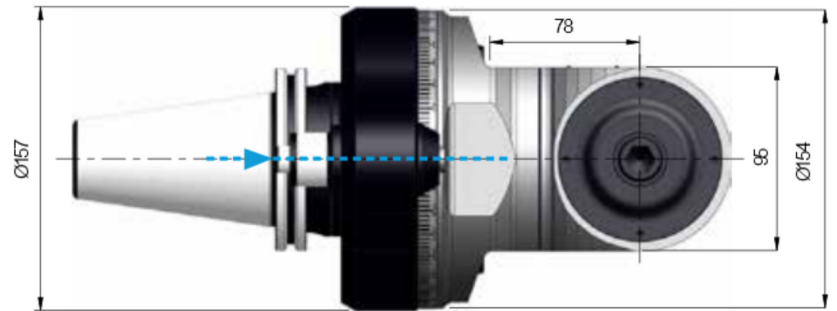
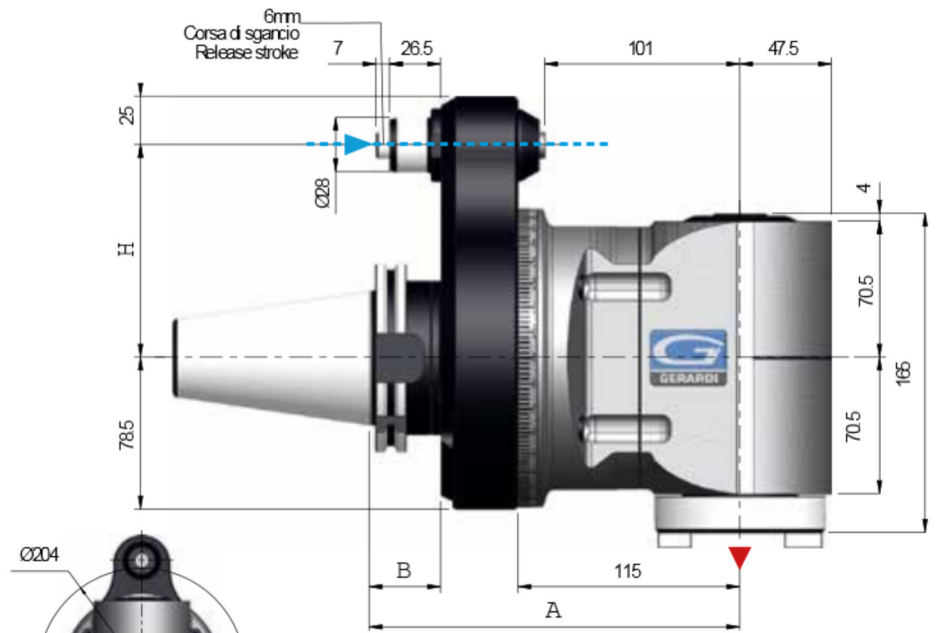
USCITA - OUTPUT					DOPPIA USCITA DOUBLE OUTPUT		PINZA COLLET	
ER40	HSK 40	CAP1004	ISO-CAI-BI 3U	Weldon Ø6/22	Toolholder Ø22-21-32	ER32 - ER32	ER32 - Ø2 / 20 ER40 - Ø3 / 30	H=110mm
optional	optional	optional	optional	optional	optional	optional	Page.2.58	optional

F90-S

TYPE 3

CODE

9.F90.S4000



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISO/BT50
21,7 Kg



Rpm
2.500



Ø26



N 3.020



M20



Nm 135



ISO-CAT
BT 40

Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

ADATTA PER LAVORAZIONI PESANTI - HIGH TORQUE FOR HEAVY DUTIES MACHINING

		SK DIN 69671	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	CAPTO ISO 26623	KM	ISO DIN 2080		
Grandezza - Size		50	50	50	80	100	C8	80	100	50
Prezzi Extra € Extra Price €		std	optional	std	optional	optional	optional	on request	optional	optional
H	Ø28 Standard	110	110	110	110	110	110	110	110	110
A		192	192	200	201	196	192	192	165	165
B		37	37	45	48	-	-	-	16	16

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



HSK63

optional



CAPTO C5

optional



ER40 (F90-30)

-



PINZA
COLLET

ER40

optional

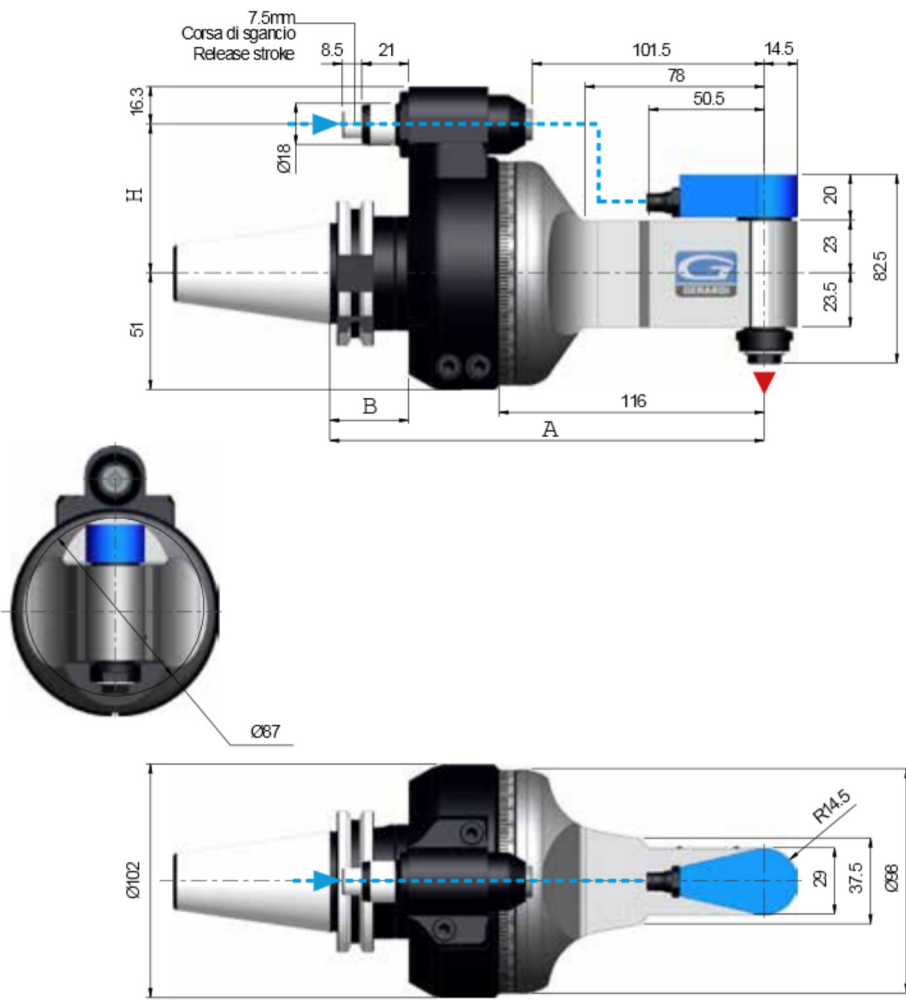


DOPPIA USCITA
DOUBLE OUTPUT

ER40

optional

F90-7 10BAR TYPE 1
CODE 9.F90.070E0



REFRI DAL FERRO - COOLANT THROUGH TOOL 10 BAR

- Ratio 1:1
- ISOBT40 5 Kg
ISOBT50 7 Kg
- Rpm 10.000
- Ø7
- N 127
- M6
- Nm 6
- ER11 Ø1/7

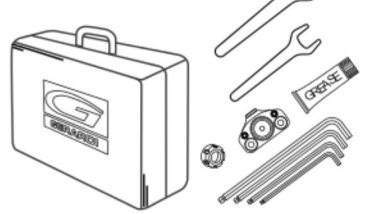
ALTA VELOCITÀ e REFRI GERANTE DALL' UTENSILE - HIGH SPEED and COOLANT THROUGH THE TOOL

Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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	
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional	
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	80	
H 110 Type 1-2	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	
H 110 Type 3	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	
A	190			190		190		199			194			190			160		163
B	35			35		35		43	44	46	39			-			13	16	

**DOTAZIONE STANDARD
STANDARD EQUIPMENT**

Peso - Weight: MAX Kg. 11



OPZIONI - OPTIONS



USCITA
OUTPUT
Weldon Ø6/10

optional



PINZA
COLLET
ER11 WP Ø1/7

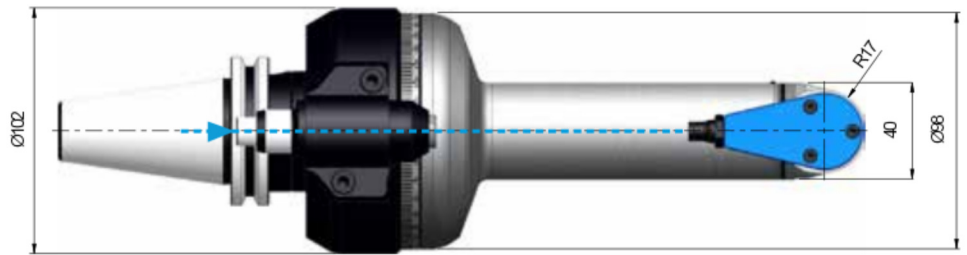
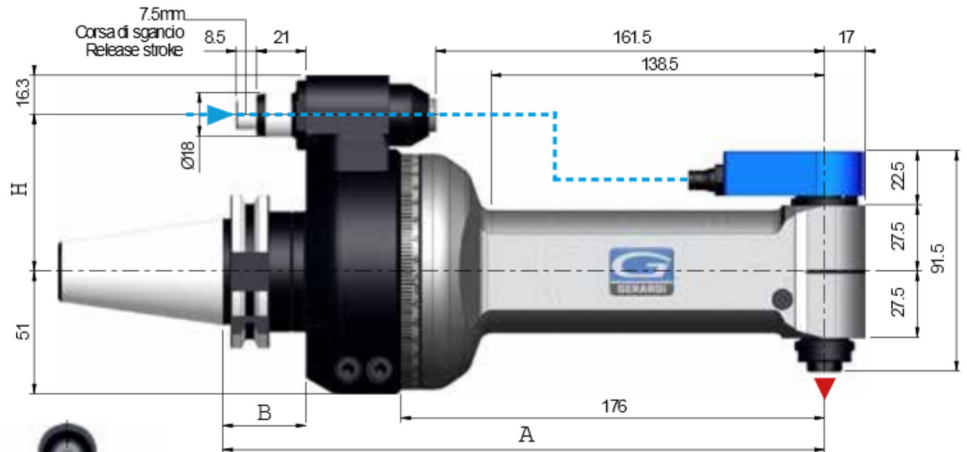
optional



INTERASSE
FITCH
H=110mm

optional

F90-7L 10BAR TYPE 1
 CODE 9.F90.07LBO



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR

- Ratio 1:1
- ISO/BT40 6,6 Kg
ISO/BT50 8,6 Kg
- Rpm 10.000
- Ø7
- N 180
- M6
- Nm6
- ER11 WP Ø1/7

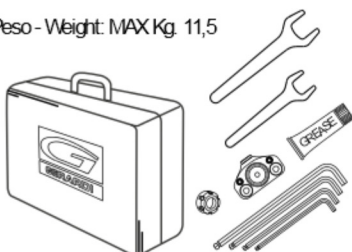
Senso di rotazione contrario al mandrino
 Direction of rotation opposite to machine spindle

ALTA VELOCITÀ e REFRIGERANTE DALL'UTENSILE - HIGH SPEED and COOLANT THROUGH THE TOOL

	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional	
Prezzi Extra € Extra Price €																			
H Standard Ø18	65/80		80	65/80		80	65/80			80	65/80			80	65/80		80	80	
H 110 Type 1-2 Ø18	Ø18		Ø18	Ø18		Ø18	Ø18			Ø18	Ø18			Ø18	Ø18		Ø18	Ø18	
H 110 Type 3 Ø28	Ø18		Ø28	Ø18		Ø28	Ø18			Ø28	Ø18			Ø28	Ø18		Ø18	Ø28	
A	250			250		250	258	259			254			250			220	223	
B	35			35		35	43	44	46			39			-			13	16

**DOTAZIONE STANDARD
 STANDARD EQUIPMENT**

Peso - Weight: MAX Kg. 11,5



OPZIONI - OPTIONS



USCITA
OUTPUT

Weldon Ø6/10

optional



PINZA
COLLET

ER11 WP Ø3/7

optional



INTERASSE
PITCH

H=110mm

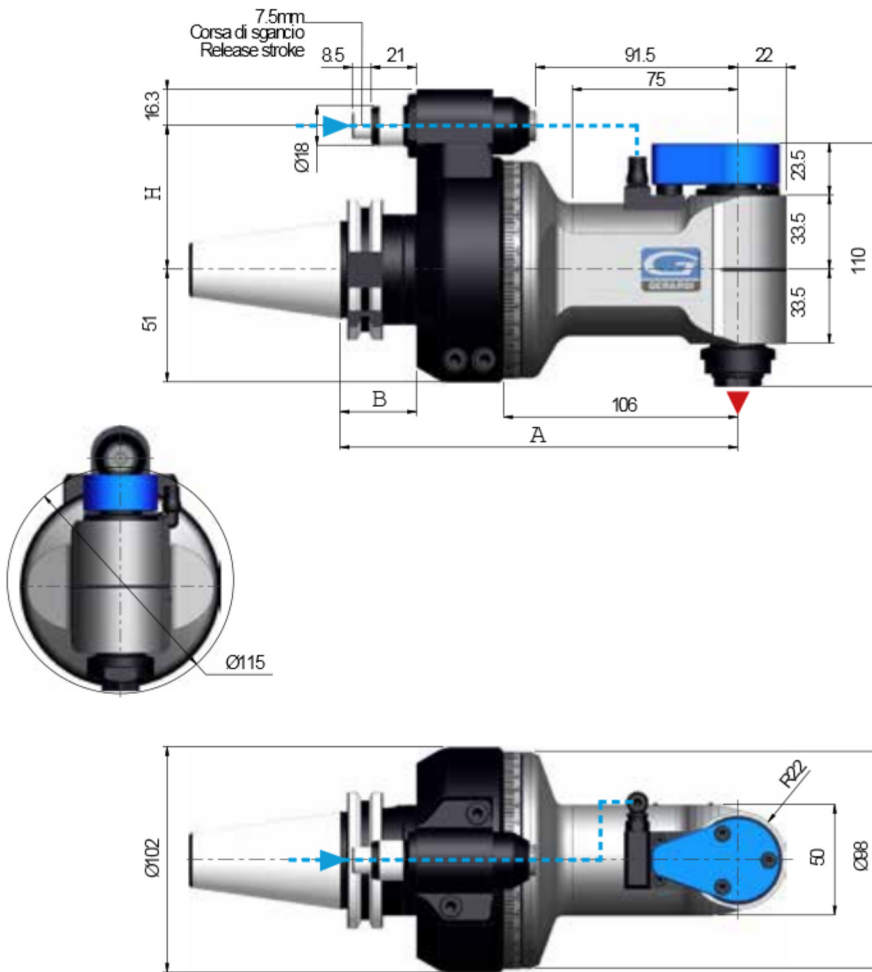
optional

F90-10 10BAR

TYPE 1

CODE

9.F90.100E0



REFRI DAL FERRO- COOLANT THROUGH PIN 10 BAR

Ratio 1:1	ISO/MT40 5,6 Kg ISO/MT50 7,8 Kg
Rpm 10.000	Ø10
N 400	MB
Nm 11	ER16 WP Ø1 / 10

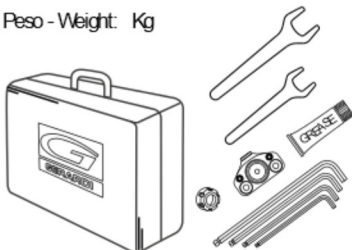
ALTA VELOCITÀ e REFRI GERANTE DALL' UTENSILE - HIGH SPEED and COOLANT THROUGH THE TOOL

Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

	SK DIN 69671			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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			
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional			
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 Type 1-2 Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18			
H 110 Type 3 Ø28		Ø28		Ø28		Ø28		Ø28											Ø28	Ø28	Ø28
A	180			180		180		189			184			180			150 153				
B	35			35		35		43		44		46		39			-			13 16	

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



USCITA
OUTPUT

Weldon Ø6/10

optional



FINZA
COLLET

ER16 WP Ø3/10

optional

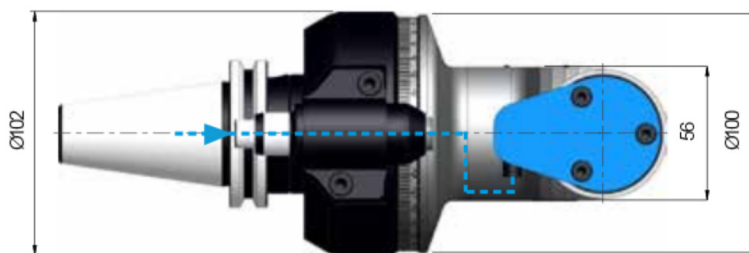
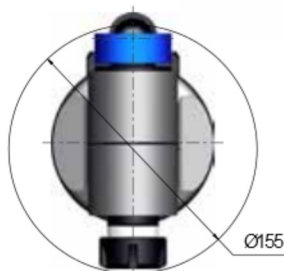
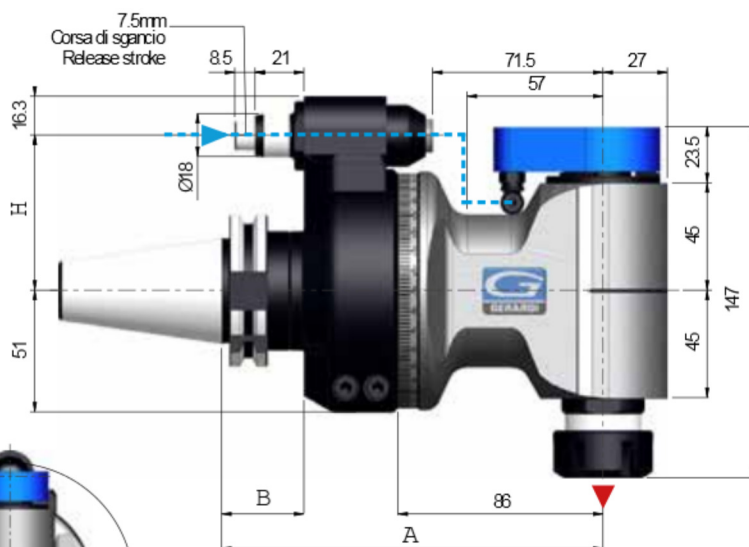


INTERASSE
FITCH

H=10mm

optional

F90-1 S10BAR TYPE 1
 CODE 9.F90.16SB0



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR



Ratio
1:1



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



Rpm
8.000



Ø16



N 810



M12



Nm25



EF25 WP
Ø1 / 16

▼ Senso di rotazione contrario al mandrino
 Direction of rotation opposite to machine spindle

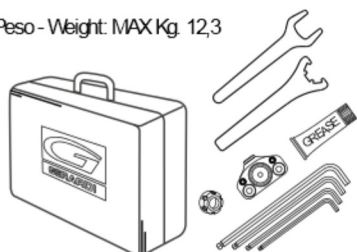
ALTA VELOCITÀ e REFRIGERANTE DALL'UTENSILE - HIGH SPEED and COOLANT THROUGH THE TOOL

	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional	
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional	
H Standard Ø18	65/80		80	65/80		80	65/80			80	65/80			80	65/80		80	80	
H 110 Type 1-2 Ø18	Ø18		Ø18	Ø18		Ø18	Ø18			Ø18	Ø18			Ø18	Ø18		Ø18	Ø18	
H 110 Type 3 Ø28	Ø18		Ø28	Ø18		Ø28	Ø18			Ø28	Ø18			Ø28	Ø18		Ø18	Ø28	
A	160			160		160	168	169			164			160			130	133	
B	35			35		35	43	44	46			39			-			13	16

Performance ridotte con con grandezza C5 - Reduced performances with shank size C5

DOTAZIONE STANDARD
 STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 12,3



OPZIONI - OPTIONS



USCITA
OUTPUT

Weldon Ø6/16

optional



PINZA
COLLET

ER25 WP Ø8/16

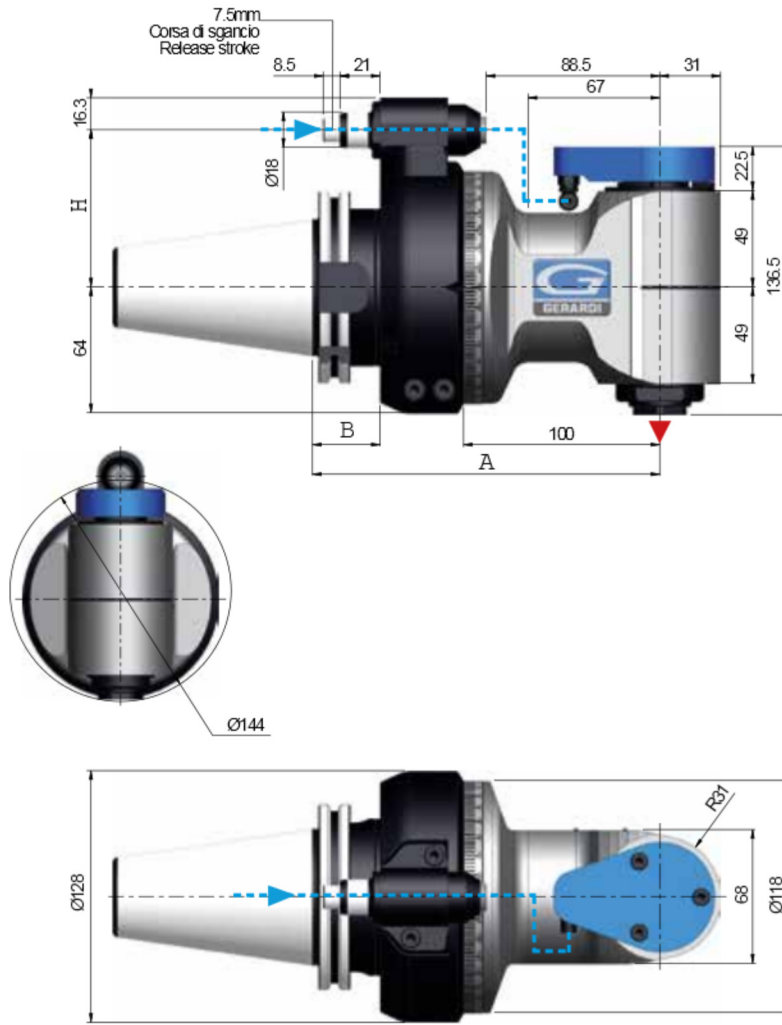
optional



INTERASSE
PITCH

H=110mm

optional



F90-10 BAR

TYPE 2

CODE

9.F90.160B0



REFR. DAL FERRO- COOLANT THROUGH-IPIN 10 BAR



Ratio 1:1



ISO BT50 11,5 Kg



Rpm 5.000



Ø16



N 1.040



M12



Nm 46



ER25 WP Ø1 / 16

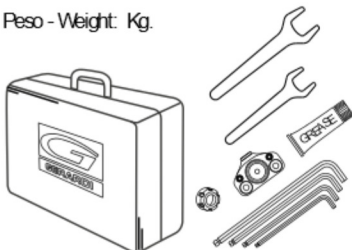
Serie PER LAVORAZIONI PESANTI, REFR. DALL'UTENSILE- HIGH TORQUE SERIES, COOLANT THROUGH THE TOOL

▼ Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	CAPTO ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	Ø3	80	100	50
Prezzi Extra € Extra Price €	std	optional	std	optional	optional	optional	on request	optional	optional
H Standard	Ø18	80	80	80	80	80	80	80	80
H 110 Type 1-2	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18
H 110 Type 3	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28
A	177	177	185	186	181	177	150	150	150
B	35	35	43	46	39	-	16	16	16

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg.



OPZIONI - OPTIONS



USCITA OUTPUT

HSK32

optional



USCITA OUTPUT

Weldon Ø6/16

optional



PINZA COLLET

ER25 WP Ø3/16

optional



INTERASSE FITCH

ER25 Ø1/16

optional

H=110mm

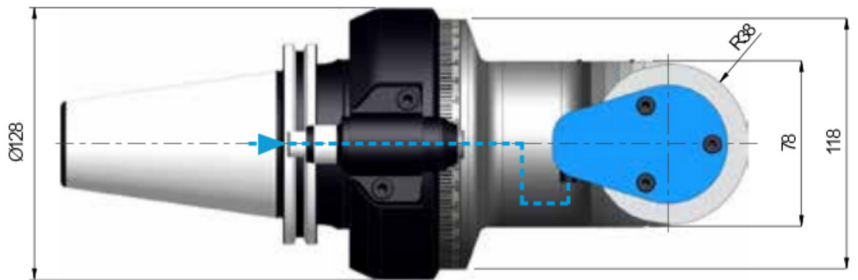
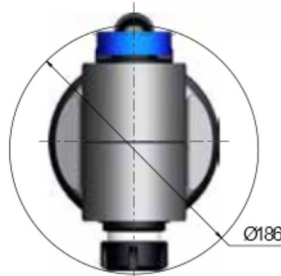
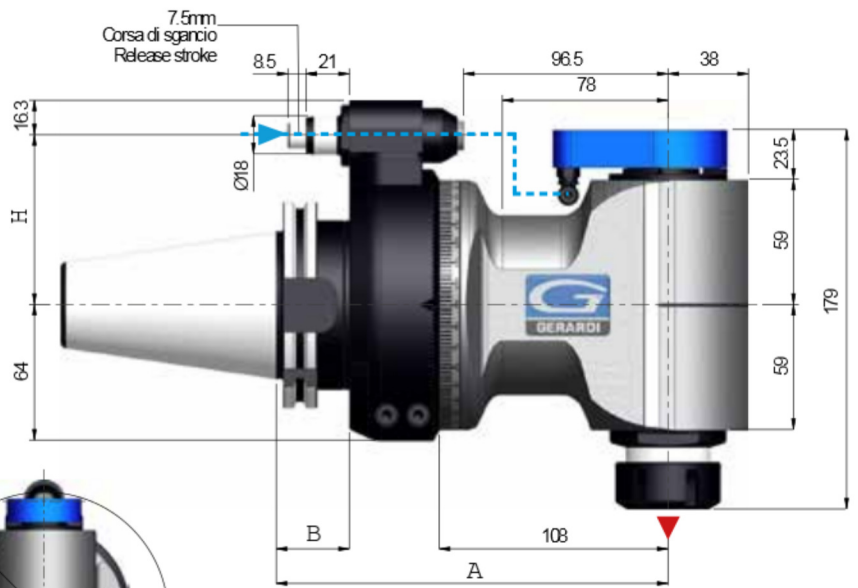
optional

F90-20 10BAR

TYPE 2

CODE

9.F90.200B0



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISO BT50
13,4 Kg



Rpm
3.500



Ø20



N 1.460



M14



Nm 85



ER32 WP
Ø2/20

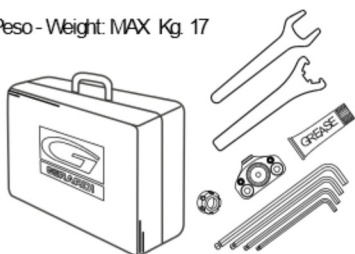
▼ Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

Serie PER LAVORAZIONI PESANTI, REFR. DALL'UTENSILE - HIGH TORQUE SERIES, COOLANT THROUGH THE TOOL

	SK DIN 69671	CAT ANSI E5.50	BT MAS 403	HSK DIN 69893		CAPTO ISO 26623	KM		ISO DIN 2080
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzi Extra € Extra Price €	std	optional	std	optional	optional	optional	on request		optional
H Standard Ø18	80	80	80	80		80	80		80
H 110 Type 1-2 Ø18	Ø18	Ø18	Ø18	Ø18		Ø18	Ø18		Ø18
H 110 Type 3 Ø28	Ø28	Ø28	Ø28	Ø28		Ø28	Ø28		Ø28
A	185	185	193	194		189	185		158
B	35	35	43	46		-	-		16

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 17



OPZIONI - OPTIONS



ER40 Ø3/30
optional



HSK 40
optional



CAPTO C4
optional



Weldon Ø6/22
optional



ER32 WP Ø3/20
optional



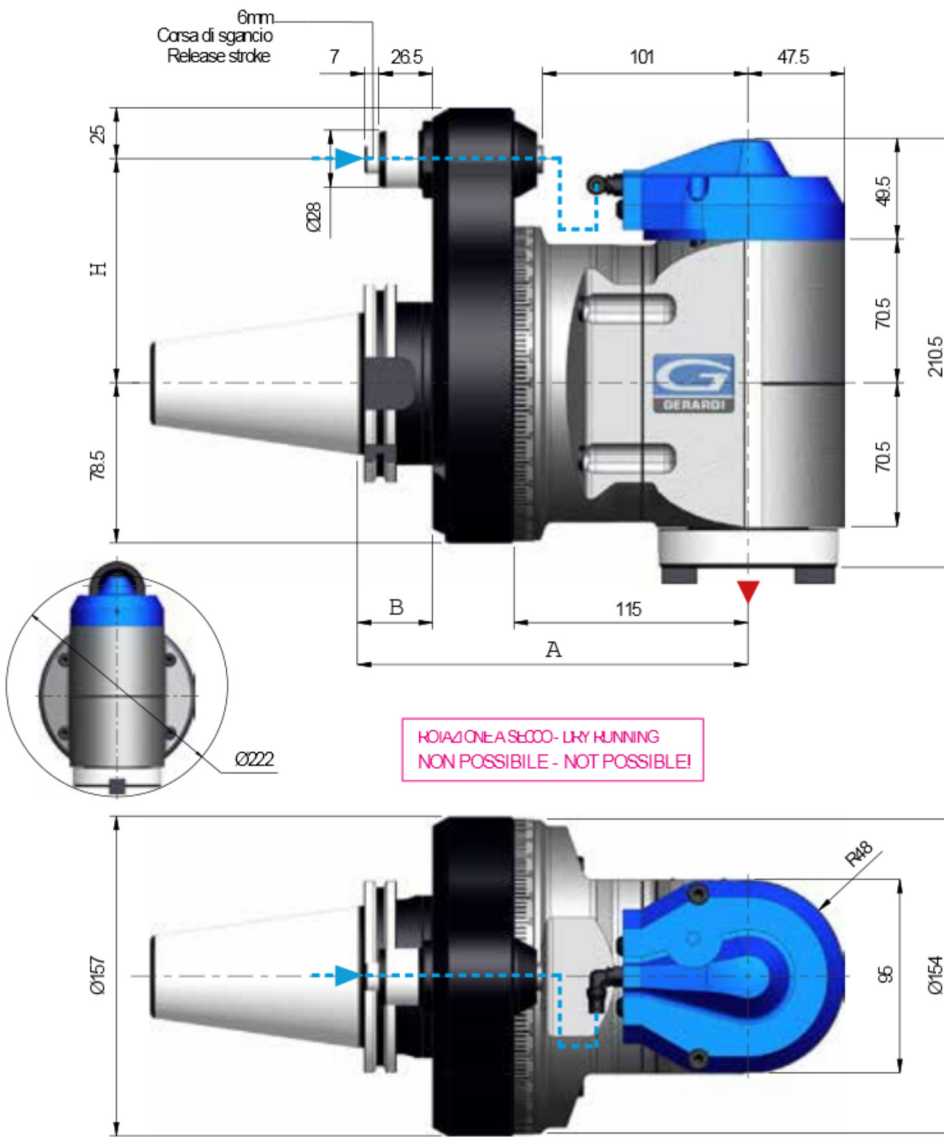
ER32 Ø2/20
optional



ER40 Ø3/30
optional



H=110mm
optional



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

F90-S10 10 BAR TYPE 3
CODE 9.F90.S40B0



REFR. DAL FERRO - COOLANT THROUGH PIN 10 BAR

- Ratio 1:1
- ISO BT50 22 Kg
- Rpm 2.500
- Ø26
- N 3.020
- M20
- Nm 135
- ISO40 CAT40 BT40

Serie PER LAVORAZIONI PESANTI, REFR. DALL'UTENSILE - HIGH TORQUE SERIES, COOLANT THROUGH THE TOOL

▼ Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	CAPTO ISO 26623	KM	ISO DIN 2080	
Grandezza - Size	50	50	50	80	100	Ø3	80 100	50
Prezzi Extra € Extra Price €	std	optional	std	optional	optional	optional	on request	optional
H Standard Ø28	110	110	110	110	110	110	110	110
A	192	192	200	201	196	192	192	165
B	37	37	45	48	-	-	-	16

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



ER40

optional



USCITA
OUTPUT

HSK63

optional



CAPTO C5

optional

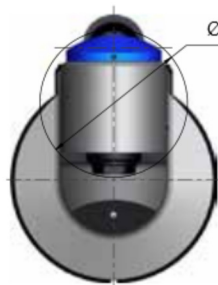
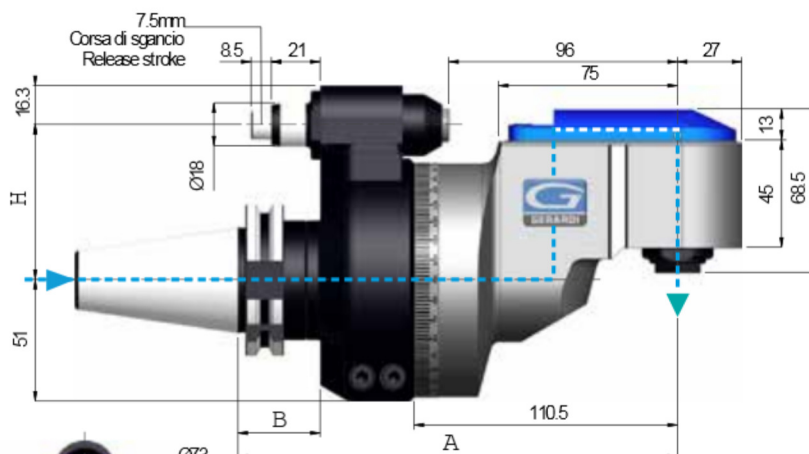


PINZA
COLLET

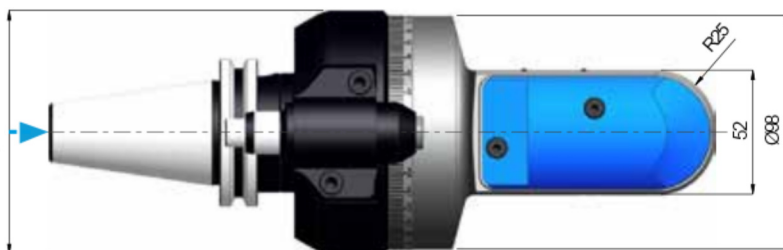
ER40WP (only 10BAR)

optional

FR90-10 70BAR TYPE 1
 CODE 9.FR9.100B0



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



REFR. DAL FERRO - COOLANT THROUGH PIN 10 BAR

- Ratio 1:1
- ISO/BT40 6,2 Kg
ISO/BT50 8,7 Kg
- Rpm 6.000
- Ø10
- N 500
- M8
- Nm22
- ER16 WP Ø 1/10

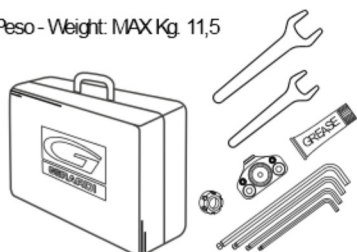
Senso di rotazione uguale al mandrino
 Direction of rotation opposite to machine spindle

DISASSATE PER LAVORAZI CNI IN SPAZI RISTRETTI - OFFSETS FOR THE MACHINING IN NARROW SPACES

	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional		
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional		
H Standard Ø18	65/80		80		65/80		80		65/80			80			65/80		80			
H 110 Type 1-2 Ø18	Ø18		Ø18		Ø18		Ø18		Ø18			Ø18			Ø18		Ø18			
H 110 Type 3 Ø28	Ø18		Ø28		Ø18		Ø28		Ø18			Ø18			Ø18		Ø28			
A	184,5			184,5		184,5		192,5		193,5			188,5			184,5			157,5 160,5	
B	35			35		35		43		44			46			39			13 13	

DOTAZIONE STANDARD
 STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 11,5



OPZIONI - OPTIONS



USCITA
 OUTPUT
 Weldon Ø6/16

optional



PINZA
 COLLET
 ER16 WP Ø3/10

optional

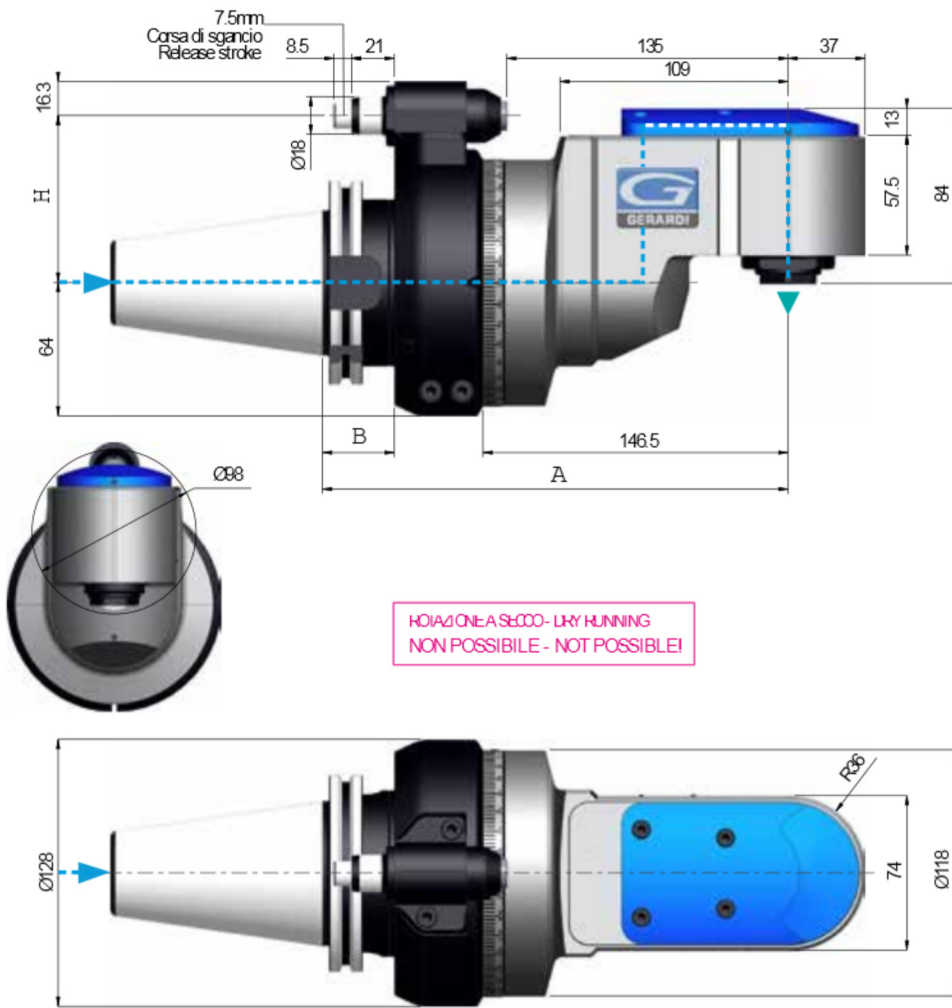


INTERASSE
 PITCH
 H=110mm

optional

SENZA PASSAGGIO
 REFRIGERANTE
 NO INTERNAL
 COOLANT

optional



FR90-1 **10 BAR** TYPE 2
CODE 9.FR9.160B0



REFR. DAL FERRO - COOLANT THROUGH PIN 10 BAR

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

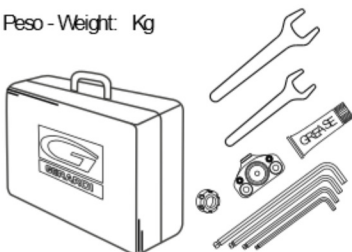
Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

DISASSATE PER LAVORAZIONI IN SPAZI RISTRETTI - OFFSETS FOR THE MACHINING IN NARROW SPACES

	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	CAPTO ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	Ø3	80	100	50
Prezzi Extra € Extra Price €	std	optional	std	optional	optional	optional	on request	optional	optional
H Standard	Ø18	80	80	80	80	80	80	80	80
H 110 Type 1-2	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18
H 110 Type 3	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28
A	223,5	223,5	231,5	232,5	227,5	223,5	223,5	199,5	199,5
B	35	35	43	46	-	-	-	16	16

DOTAZIONE STANDARD STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



HSK32

optional



USCITA
OUTPUT

Weldon Ø6/16

optional



PINZA
COLLET

ER25 WP Ø3/16

optional



INTERASSE
PITCH

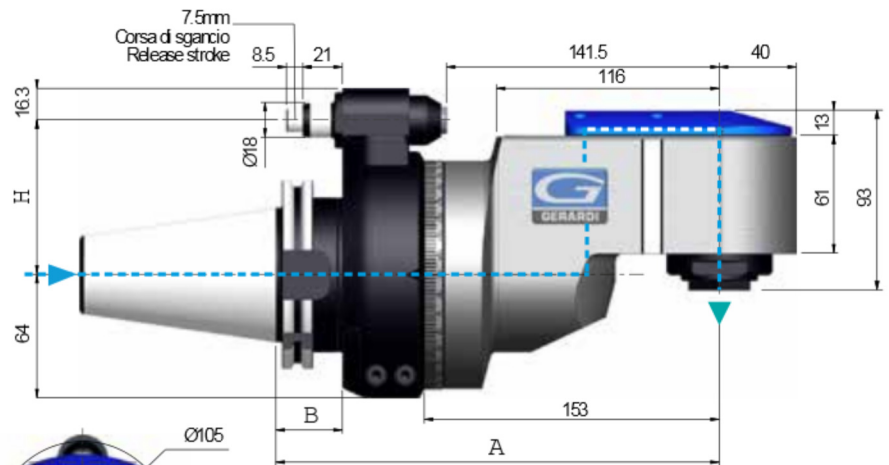
H=110mm

optional

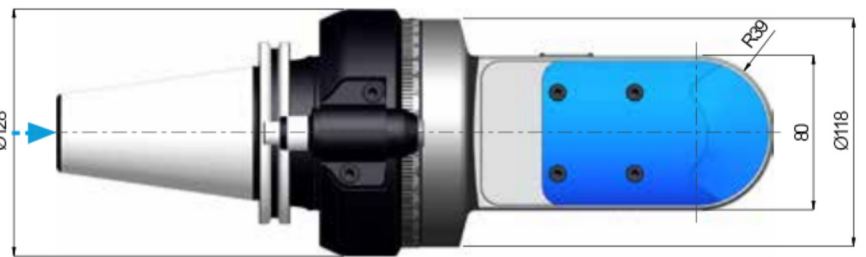
SENZA PASSAGGIO
REFRIGERANTE
NO INTERNAL
COOLANT

optional

FR90-20 70BAR TYPE 2
 CODE 9.FR9.200B0



NO AZIONE A SECCO - DRY RUNNING
 NON POSSIBILE - NOT POSSIBLE!



REFR. DAL FERRO - COOLANT THROUGH PIN 10 BAR

- Ratio 1:1
- ISO BT50 14,5 Kg
- Rpm 3.500
- Ø20
- N 1.150
- M14
- Nm82
- ER32 WP Ø2/20

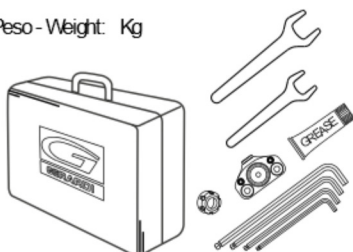
▼ Senso di rotazione uguale al mandrino
 Direction of rotation opposite to machine spindle

DISASSATE PER LAVORAZI CN IN SPAZI RISTRETTI - OFFSETS FOR THE MACHINING IN NARROW SPACES

	SK DIN 69671	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	CAPTO ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	C8	80	100	50
Prezzi Extra € Extra Price €	std	std	std	optional	optional	optional	on request	optional	optional
H Standard Ø18	80	80	80	80	80	80	80	80	80
H 110 Type 1-2 Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18
H 110 Type 3 Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28	Ø28
A	230	230	238	239	234	230	230	203	203
B	35	35	43	46	-	-	-	16	16

DOTAZIONE STANDARD
 STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



HSK 50

optional



USCITA
 OUTPUT

Weldon Ø6/20

optional



PINZA
 COLLET

ER32 WP Ø3/20

optional



INTERASSE
 PITCH

H=110mm

optional

SENZA PASSAGGIO
 REFRIGERANTE
 NO INTERNAL
 COOLANT

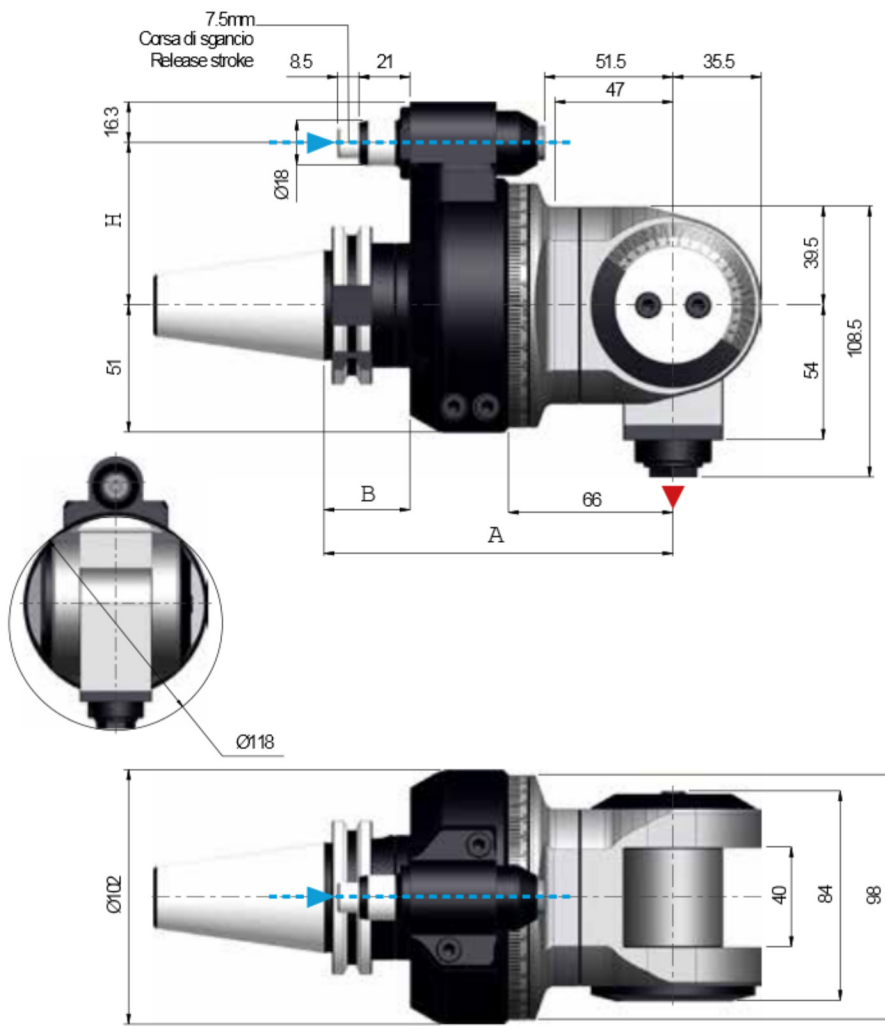
optional

FMU-10

TYPE 1

CODE

9.FMU.10000



FERRO DAL FERRO - COOLANT THROUGH PIN 10 BAR

- Ratio 1:1
- ISOBT40 6,3Kg
ISOBT50 8,8Kg
- Rpm 4.000
- Ø13
- N 550
- M10
- Nm 9
- ER16 Ø1/10

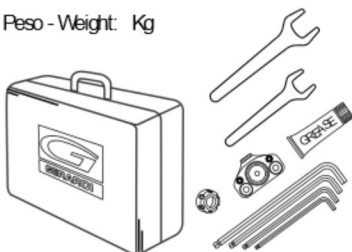
Serie REGOLABILE ± 90° - ADJUSTABLE series ± 90°

Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

	SK DIN 69671			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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				
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional				
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	80				
H 110 Type 1-2	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18	Ø18				
H 110 Type 3	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø28	Ø18	Ø18	Ø28				
A	140			140		140		148		149			144			140			113 116			
B	35			35		35		43		44		46			39			-			13 16	

DOTAZIONE STANDARD STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



USCITA
OUTPUT
Weldon Ø6/12
optional



PINZA
COLLET
ER 16 Ø1/10
optional



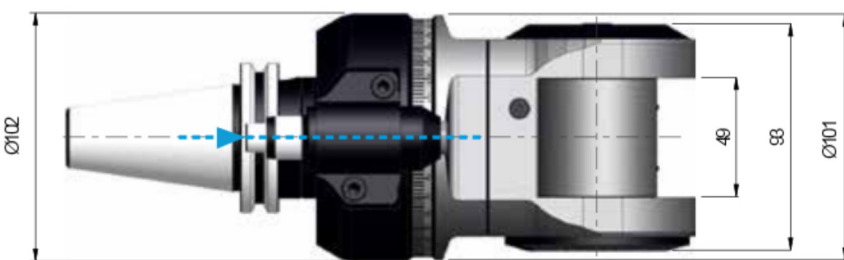
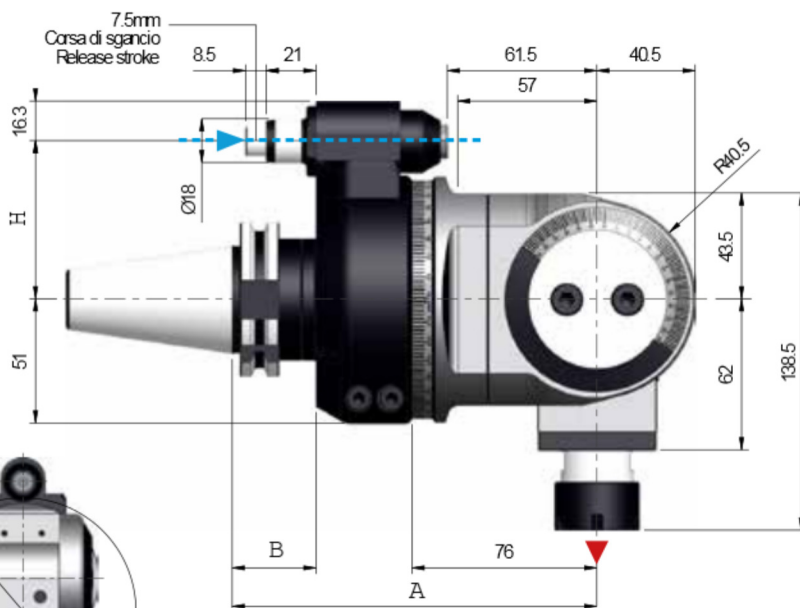
INTERASSE
FITCH
H=110mm
optional

FMU-1

TYPE 1

CODE

9.FMU.16000



REFR. DAL FERRO- COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISO/BT40
8,2 Kg
ISO/BT50
10,5 Kg



Rpm
3.000



Ø16



N 630



M12



Nm 15



EF25
Ø 1/16

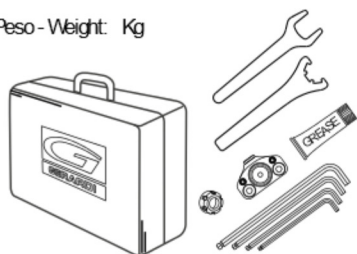
▼ Senso di rotazione uguale al mandrino
Direction of rotation opposite to machine spindle

Serie REGOLABILE ± 90° - ADJUSTABLE series ± 90°

Grandezza - Size	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO ISO 26623			KM			ISO DIN 2080		
	30	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50	
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	optional	optional	
H Standard Ø18	65/80		80	65/80		80	65/80		80	65/80			80	65/80		80	65/80		80
H 110 Type 1-2 Ø18	Ø18		Ø18	Ø18		Ø18	Ø18		Ø18	Ø18			Ø18	Ø18		Ø18	Ø18		Ø18
H 110 Type 3 Ø28	Ø18		Ø28	Ø18		Ø28	Ø18		Ø28	Ø18			Ø28	Ø18		Ø28	Ø18		Ø28
A	150			150		150	158	159			154			150			120	123	
B	35			35		35	43	44	46			39			13			16	

DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



USCITA
OUTPUT

Weldn Ø6/16

optional



FINZA
COLLET

ER25 Ø1/16

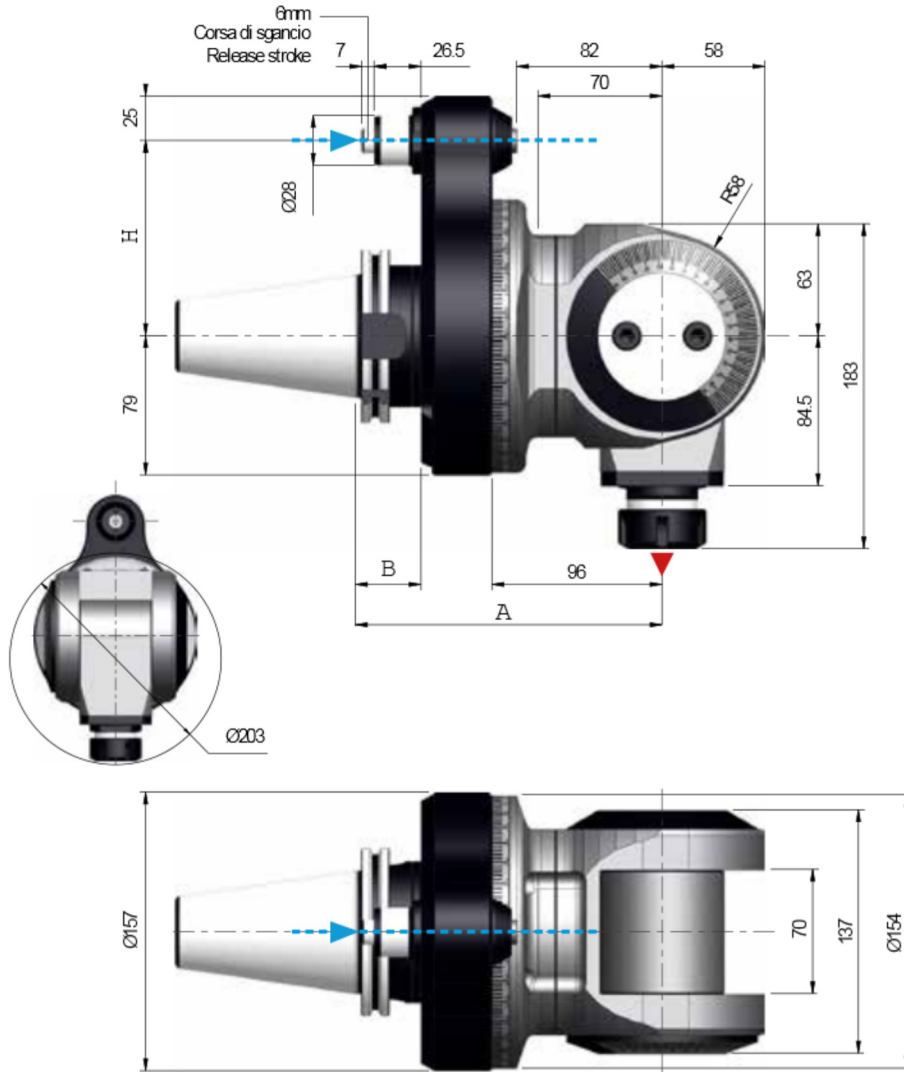
optional



INTERASSE
PITCH

H=110mm

optional



FMU-20

TYPE 3

CODE

9.FMU.20000



FERRO DAL FERRO - COOLANT THROUGH PIN 10 BAR



Ratio
1:1



ISO BT50
22 Kg



Rpm
2.500



Ø20



N 1.740



M16



Nm 48



ER 32
Ø2/20

▼ Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

Serie REGOLABILE ± 90° - ADJUSTABLE series ± 90°

	SK DIN 69871	CAT ANSI B5.50	BT MAS 403	HSK DIN 69893	CAPTO ISO 26623	KM	ISO DIN 2080		
Grandezza - Size	50	50	50	80	100	Ø8	80	100	50
Prezzi Extra € 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	149	149
B	37	37	45	48	-	-	-	16	16

DOTAZIONE STANDARD STANDARD EQUIPMENT

Peso - Weight: MAX Kg. 45



OPZIONI - OPTIONS



ER40

-



USCITA
OUTPUT

HSK50

optional



Weldon Ø6/20

optional



PINZA
COLLET

ER 32 Ø2 / 20

optional

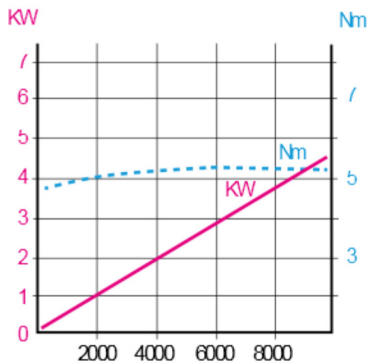
ER40 Ø3 / 30

optional

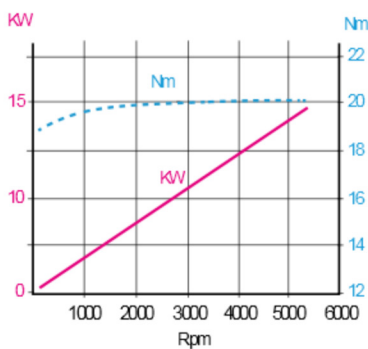
GRAFICI PRESTAZIONI serie ATC
 ATC series GRAPHICS PERFORMANCES

2

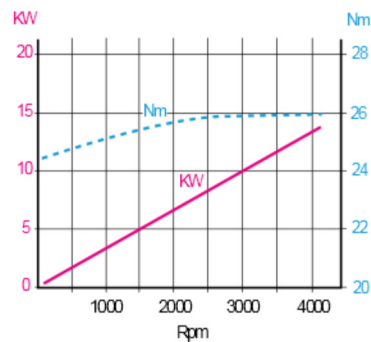
FL90-7



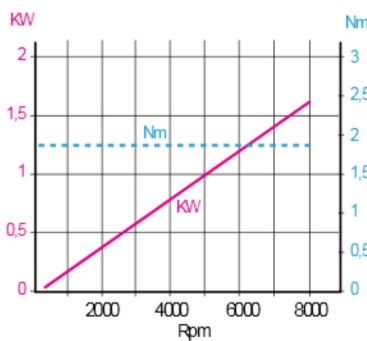
FL90-13



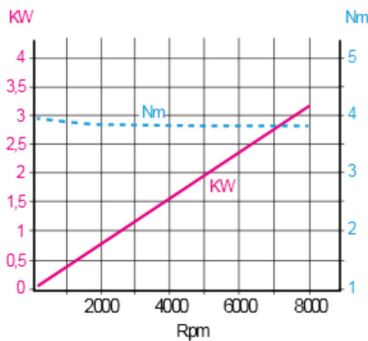
FL90-16



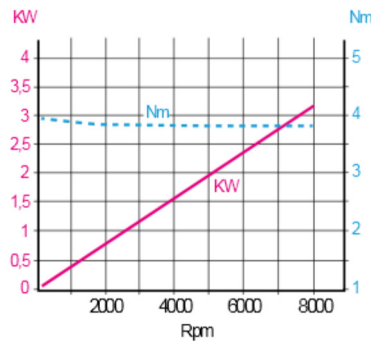
FS90-3 / 3L



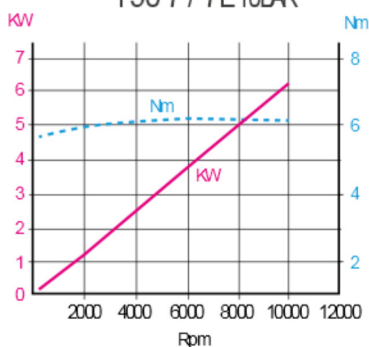
FS90-4 / 4L



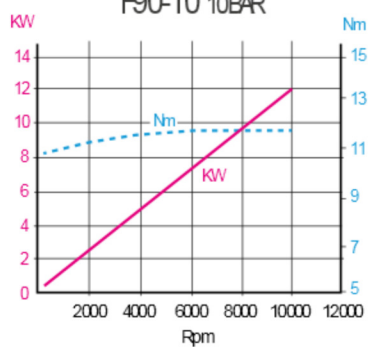
FS90-6 / 6L



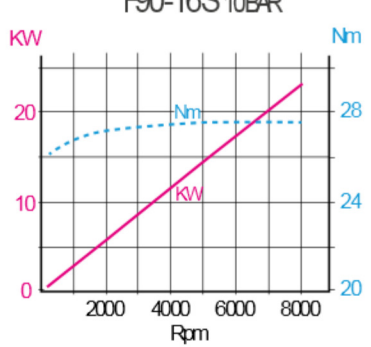
F90-7 / 7L
 F90-7 / 7L 10BAR



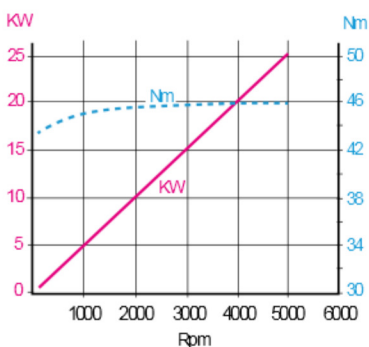
F90-10 / 10L
 F90-10 10BAR



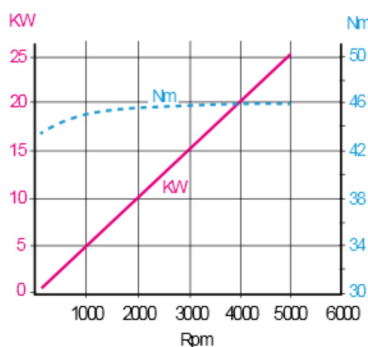
F90-16S
 F90-16S 10BAR



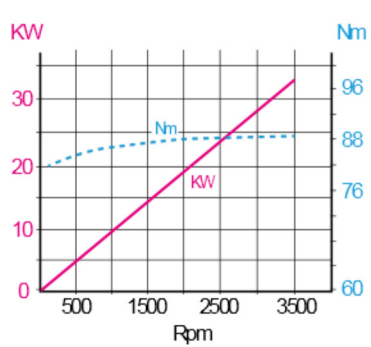
F90-20S



F90-16 / 16L
 F90-16 10BAR



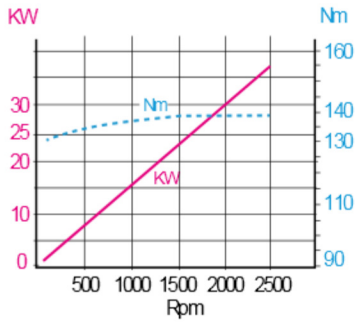
F90-20
 F90-20 10BAR



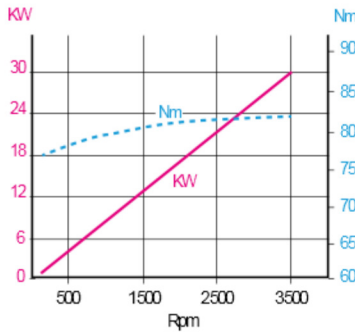
GRAFICI PRESTAZIONI serie ATC

ATC series GRAPHICS PERFORMANCES

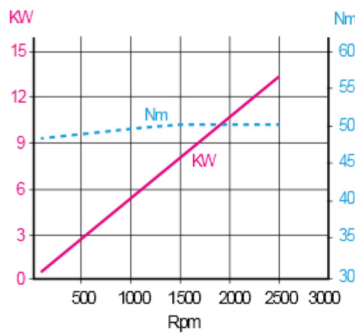
F90-S40
F90-S40 70BAR



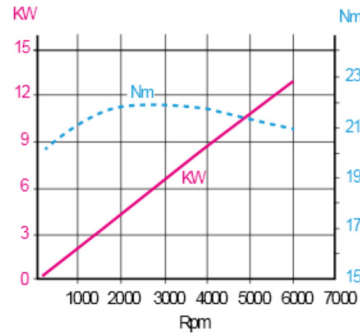
FR90-20 70BAR



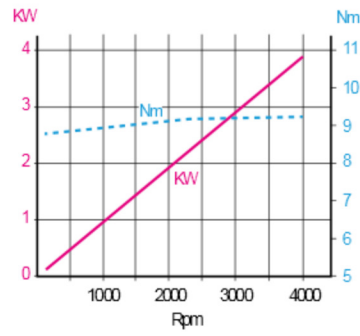
FMU-20



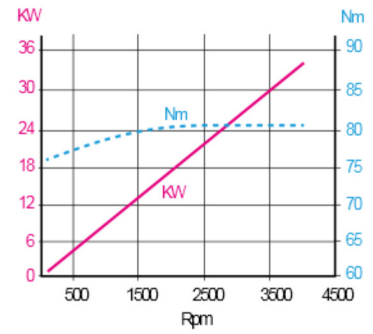
FR90-10 70BAR



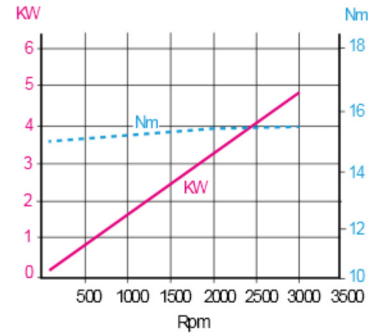
FMU-10



FR90-16 70BAR



FMU-16



Dai grafici raffigurati è possibile ricavare in modo approssimativo la coppia e la potenza disponibili per ogni tipo di testa in relazione al numero di giri utilizzato.
Esempio: una testa F90-7 che lavora a 6000 RPM e ha a disposizione una coppia di 5Nm e una potenza di 3,8Kw.

The torque and power capacity of each head relative to PPM can be derived from the graphs shown.
For instance: a G90-7 head rotating at 6000 RPM can transmit a torque of 5Nm and a power of 3,8Kw.

OPZIONE REFRIGERANTE serie ATC INTERNAL COOLANT OPTION ATC series

2



10



Perno »
Positioning Pin »

Passaggio refrigerante 10bar.
Dal perno.
Coolant 10bar through the positioning pin.



10



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

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

POSSIBILE - POSSIBLE



70



Cono » Distributore » Utensile
Shank » Rotating Distributor » Tool

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

NON POSSIBILE - NOT POSSIBLE



10



Perno » Nutra » Utensile
Positioning Pin » Nut » Tool

Passaggio refrigerante interno per
mezzo della ghiera THROGOUT
Internal coolant by the special nut
THROGOUT

OPZIONE DOPIA USCITA serie ATC DOUBLE OUTPUT OPTION ATC series



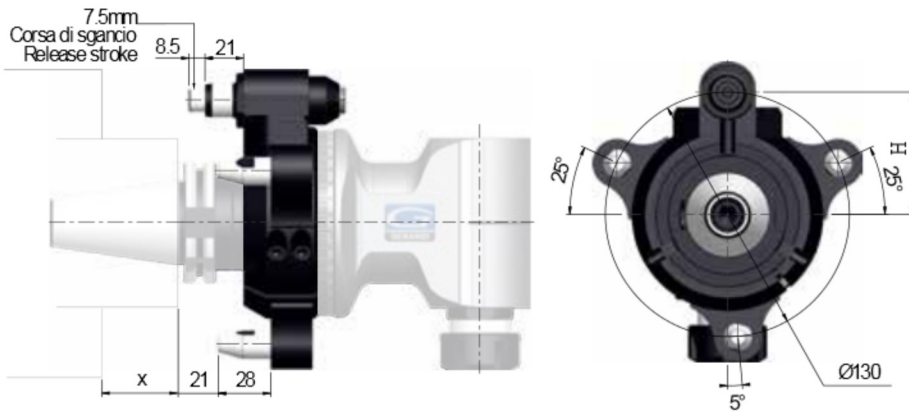
Disponibile per i modelli - Available for following types:

MODELLO MODEL	USCITA OUTPUT	A	B	
F90-7	ER-11	55	97	
F90-7L	ER-11			
F90-10	ER-16	67	127,5	
F90-10L	ER-16			
F90-16S	ER-25 ER-25	90	157	
F90-16		98	170	
F90-16L				
F90-20S				
F90-20	ER-32 ER-32	118	193	
F90-S30	ER-40 ER-40	141	226	

Teste Angolari ATC doppia uscita - Double output ATC angle heads



Sistema antirotante MULTIPPOINT MULTIPPOINT antirotation system



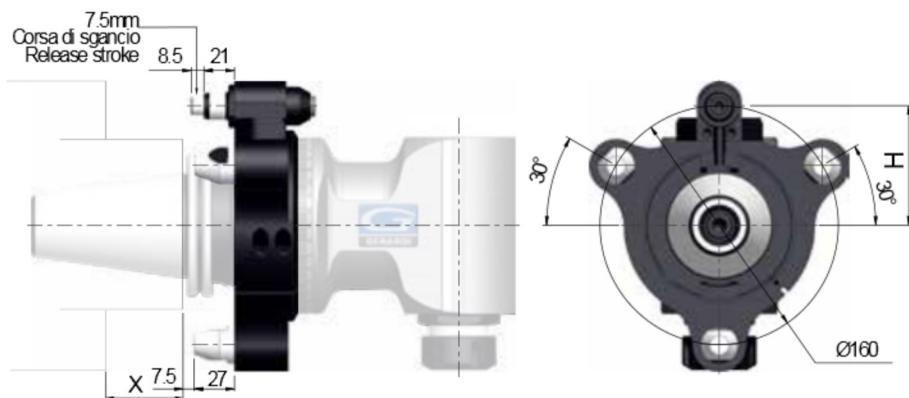
TYPE 1

CODE 9.GAT1./...*

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

Coni Shank				Solo flangia Only Hange**
	SK 40	BT 40	BT 50	

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



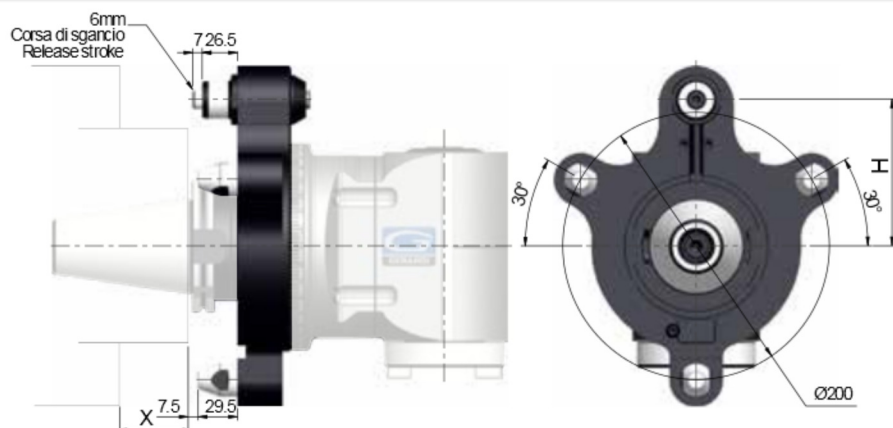
TYPE 2

CODE 9.GAT2./...*

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

Coni Shank					Solo flangia Only Hange**
	SK 50	BT 50	CAI 50	HSK 50	

**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=110

Coni Shank			Solo flangia Only flange**
	SK 50	BT 50	

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



Il sistema antirotante MULTIPPOINT 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 MULTIPPOINT 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 MULTIPPOINT per testa tipo3 con cono SK50 = 9.GAT3.SK50
In case of order specify shank type and size. EXAMPLE : MULTIPPOINT flange for angle head type3 with SK50 shank = 9.GAT3.SK50

MTC SERIES

CAMBIO UTENSILE MANUALE - MANUAL TOOL CHANGE

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

2



CUSCINETTI - BEARINGS

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

Angular contact preloaded ball bearings of precision class ABEC 9



INGRANAGGI - GEARS

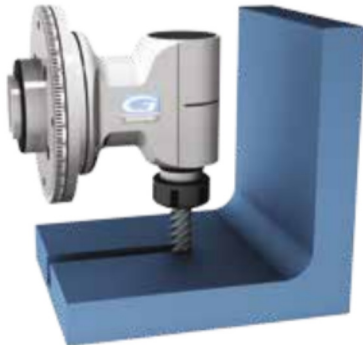
Ingranaggi Gleason con evolvente rettificato: massime performances e minori vibrazioni

Gleason ground spiral bevel gears maximum performances and minimum vibration



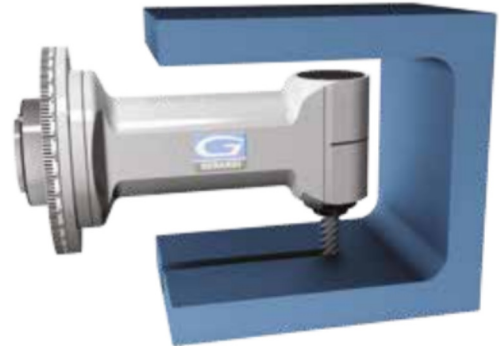
MTC SERIES

CAMBIO UTENSILE MANUALE - MANUAL TOOL CHANGE



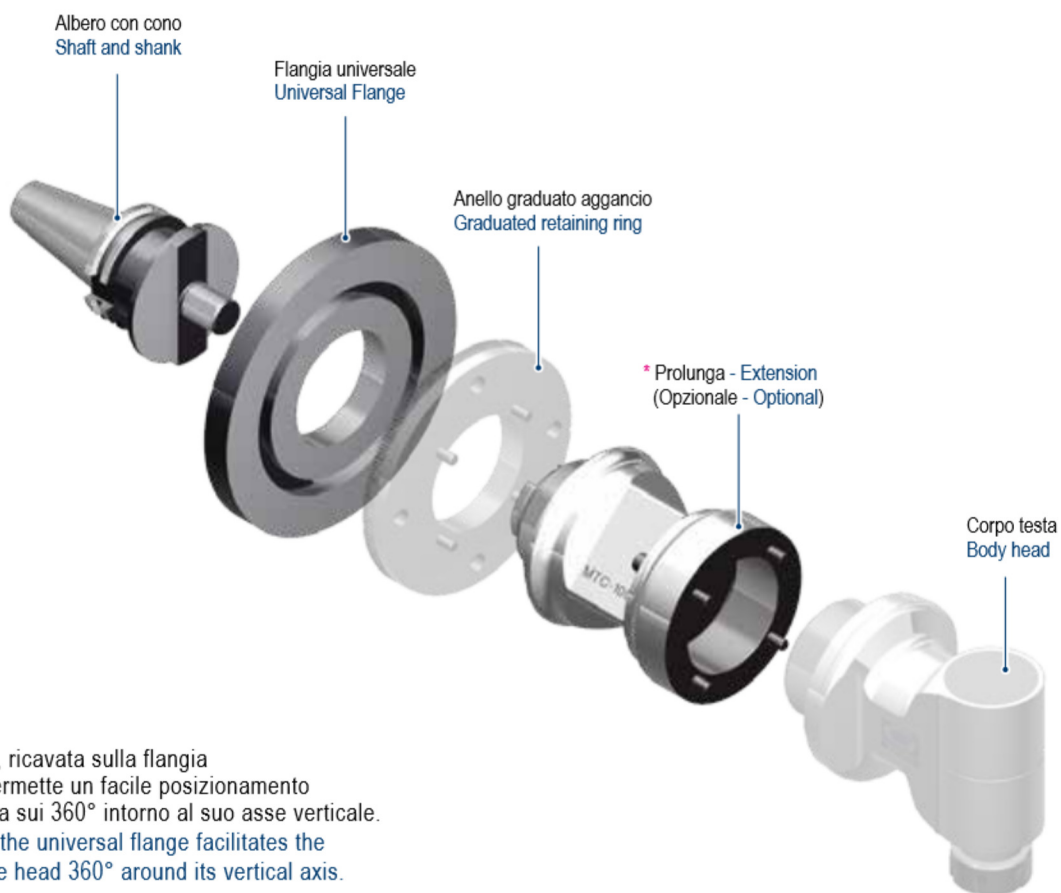
Serie F90 - F90 Series

La serie ideale per fresature, forature e maschiature a $\pm 90^\circ$
The ideal series for milling, drilling and tapping at $\pm 90^\circ$



Serie G90L - G90L Series

La serie di teste angolari lunghe per lavorazioni più in profondità
Long angle head series for machining at deep positions



La cava a "T", ricavata sulla flangia universale, permette un facile posizionamento del corpo testa sui 360° intorno al suo asse verticale.
The T-slot on the universal flange facilitates the positioning the head 360° around its vertical axis.

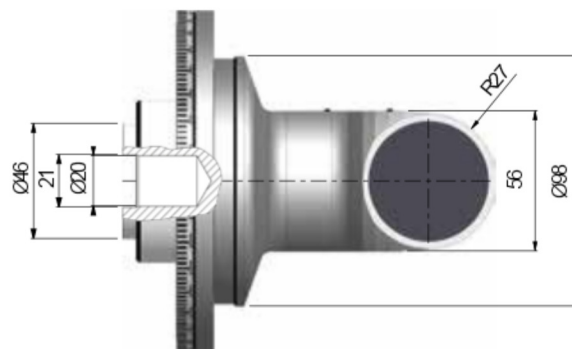
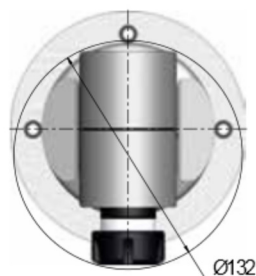
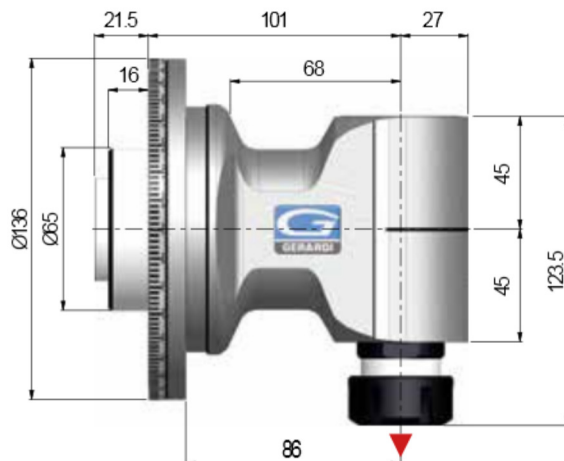
Un sistema modulare componibile, rende possibile variare la lunghezza del corpo testa aggiungendo l'elemento di *prolunga (Opzionale), max 3 elementi di prolunga.
The modular system makes it possible to extend the length of the body by adding a *extension (Optional), max 3 extensions admitted.

F90-1

TYPE 1

CODE

9.F90.16S01



Ratio
1:1



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



Rpm
8.000



Ø16



N810



M20



Nm27



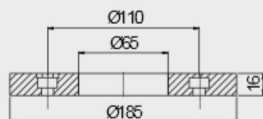
ER 25
Ø 1/16

▼ Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

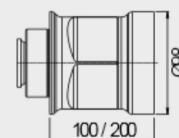
ALTA VELOCITÀ INCLUSA 8.000 Rpm - HIGH SPEED INCLUDED 8.000 Rpm

Grandezza - Size	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	std	std	optional

Flangia Universale
Universal Flange
TIPO - TYPE 1



Prolunga - Extension
TIPO - TYPE 1



DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



REFR. INT
INT. COOL

On request



Weldon
Ø6/16

optional



Toolholder
Ø16

optional



DOPPIA USCITA
DOUBLE OUTPUT
ER25 - ER25

optional



PINZA
COLLET
ER25 - Ø1 / 16

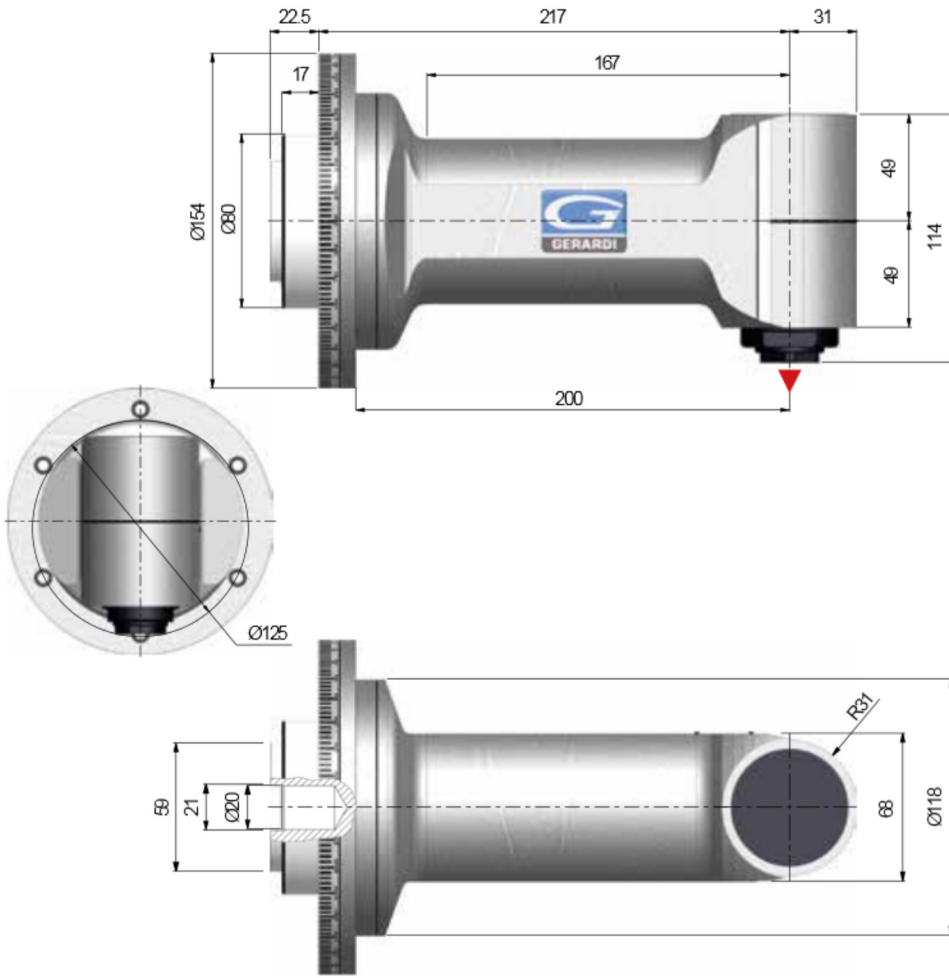
optional

F90-1

TYPE 2

CODE

9.F90.16L01



	Ratio 1:1		ISOBT40
	Rpm 5.000		Ø16
	N 1.040		M12
	Nm 46		ER25 Ø1/16

ADATTA PER LAVORAZIONI PESANTI - HIGH TORQUE FOR HEAVY DUTIES MACHINING

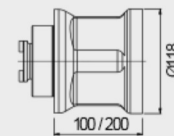
Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

Grandezza - Size	SK DIN 69671			CAT ANSI B5.50			BT MAS 403			HSK DIN 69893			CAPTO 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	
Prezzi Extra € Extra Price €	optional	std	optional	std	optional		std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	std	std	optional	

Flangia Universale
Universal Flange
TIPO - TYPE 2

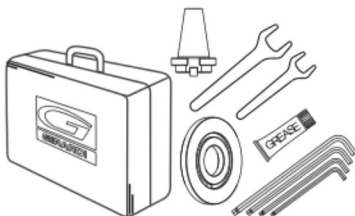


Prolunga - Extension
TIPO - TYPE 2



DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



REFR. INT.
INT. COOL

On request



USCITA
OUTPUT

HSK 32

optional



USCITA
OUTPUT

Weldon Ø6/12

optional



USCITA
OUTPUT

Toolholder
Ø16-22-27-32

optional



DOPPIA USCITA
DOUBLE OUTPUT

ER25 - ER25

optional



PINZA
COLLET

ER25 - Ø1 / 16

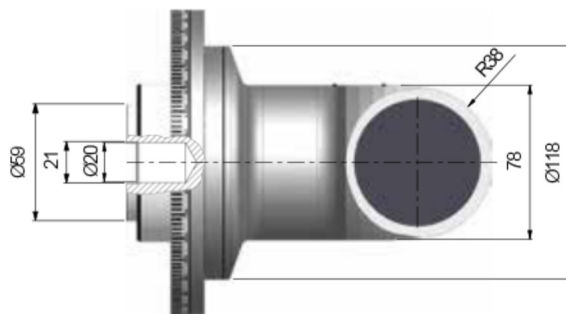
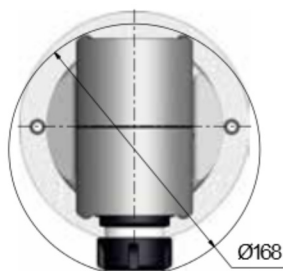
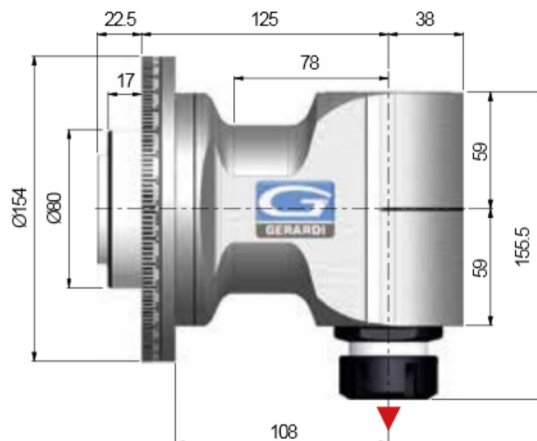
optional

F90-20

TYPE 2

CODE

9.F90.20001



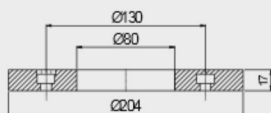
- Ratio 1:1
- ISOBT40 - Kg
- ISOBT40 - Kg
- Rpm 3.500
- Ø20
- N 1.460
- M14
- Nm85
- ER 32 Ø2/20

Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

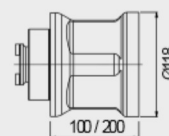
ADATTA PER LAVORAZIONI PESANTI - HIGH TORQUE FOR HEAVY DUTIES MACHINING

Grandezza - Size	SK DIN 69871			CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO 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
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	std	std	optional

Flangia Universale
Universal Flange
TIPO - TYPE 2



Prolunga - Extension
TIPO - TYPE 2



DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS

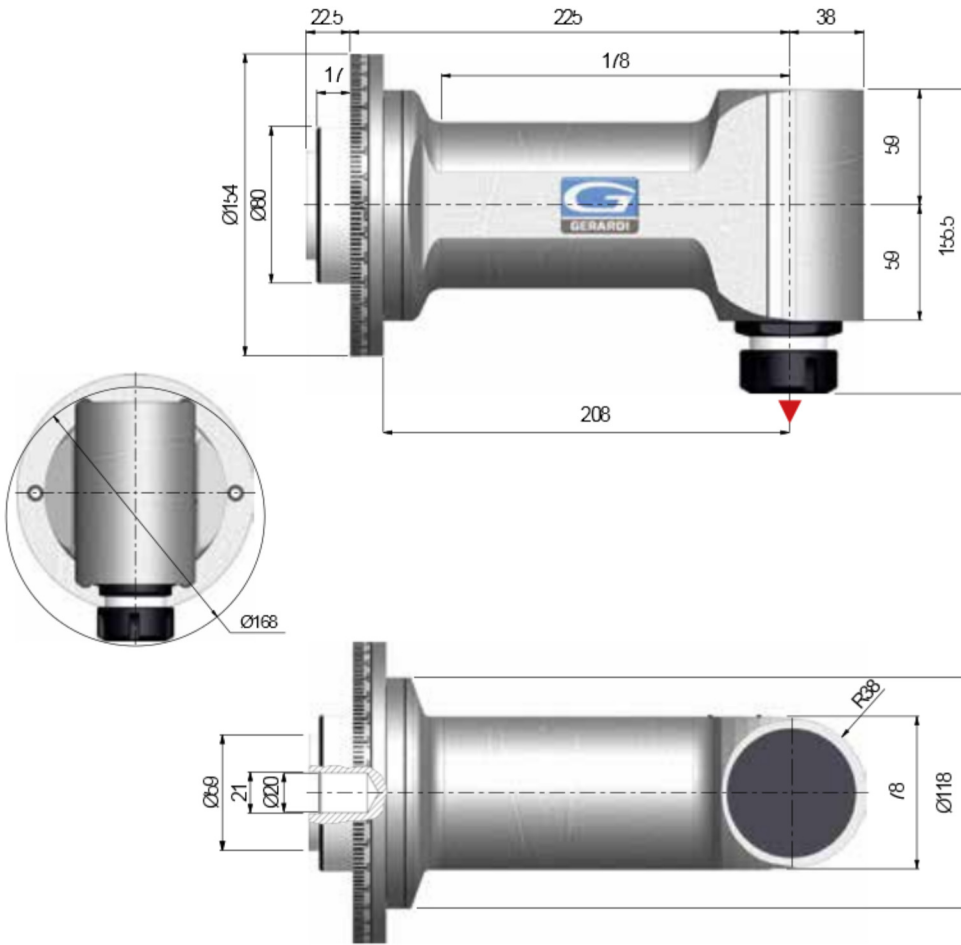
REFR. INT. INT. COOL	ER 4U	HSK 4U	CAP100C4	ISO-CAI-B1 3U	Weldon Ø6/22	Toolholder Ø22-21-32	DOPPIA USCITA DOUBLE OUTPUT ER32 - ER32	PINZA COLLET ER32 - Ø2/20 ER4U
optional	optional	optional	optional	optional	optional	optional	optional	Page 2.58

F90-20L

TYPE 2

CODE

9.F90.20L01



ADATTA PER LAVORAZIONI PESANTI - HIGH TORQUE FOR HEAVY DUTIES MACHINING

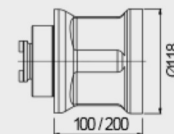
▼ Senso di rotazione uguale al mandrino
Direction of rotation opposite to machine spindle

Grandezza - Size	SK DIN 69671			CAT ANSI B5.50			BT MAS 403			HSK DIN 69893			CAPTO ISO 26623			KM			ISO DIN 2080		
	30	40	50	40	50	63	40	50	63	80	100	C5	C6	C8	63	80	100	30	40	50	
Prezzi Extra € Extra Price €	optional	std	optional	std	optional	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	std	std	optional

Flangia Universale
Universal Flange
TIPO - TYPE 2

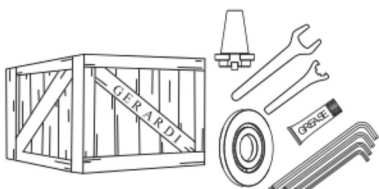


Prolunga - Extension
TIPO - TYPE 2



DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS

REFR. INT. INT. COOL	USCITA - OUTPUT				DOPPIA USCITA DOUBLE OUTPUT		PINZA COLLET
On request	ER4U	HSK4U	CAP100C4	ISO-CAI-B1 3U	Weldon Ø6/22	Toolholder Ø22-21-32	ER32 - ER32 ER4U
	optional	optional	optional	optional	optional	optional	optional

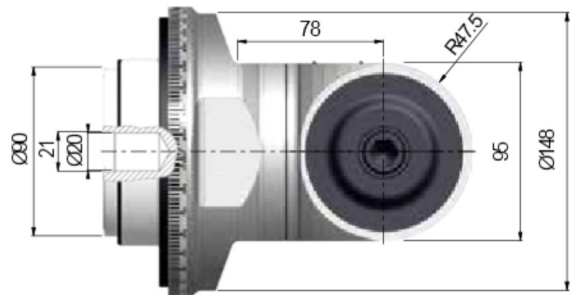
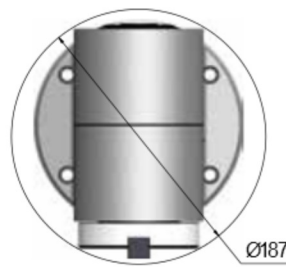
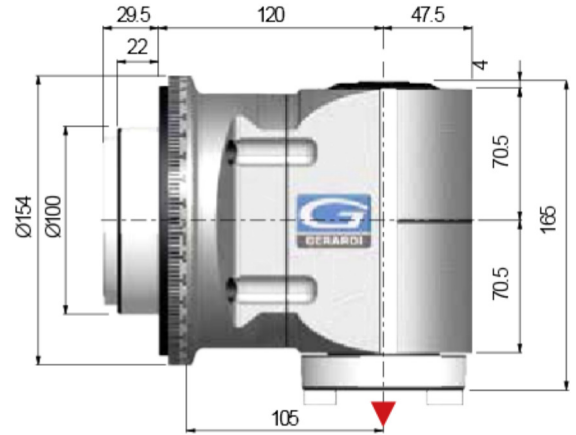
Page 2.58

F90-S

TYPE 3

CODE

9.F90.S4001



Ratio
1:1



ISOBT40
- Kg
ISOBT40
- Kg



Rpm
2.500



Ø20



N 3.020



M14



Nm 135



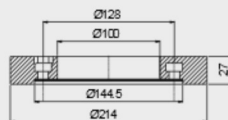
ISO40
CAT40
BT40

▼ Senso di rotazione contrario al mandrino
Direction of rotation opposite to machine spindle

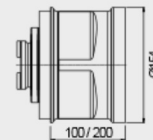
ADATTA PER LAVORAZIONI PESANTI - HIGH TORQUE FOR HEAVY DUTIES MACHINING

Grandezza - Size	SK DIN 69871		CAT ANSI B5.50		BT MAS 403		HSK DIN 69893			CAPTO ISO 26623			KM			ISO DIN 2080	
	40	50	40	50	40	50	63	80	100	C5	C6	C8	63	80	100	40	50
Prezzi Extra € Extra Price €	std	optional	std	optional	std	optional	optional	optional	optional	optional	optional	optional	optional	on request	on request	on request	optional

Flangia Universale
Universal Flange
TIPO - TYPE 3

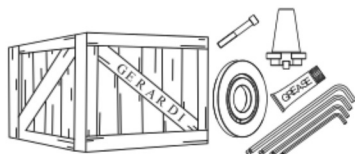


Prolunga - Extension
TIPO - TYPE 3



DOTAZIONE STANDARD
STANDARD EQUIPMENT

Peso - Weight: Kg



OPZIONI - OPTIONS



REFR. INT.
INT. COOL

On request



HSK 63

optional



USCITA - OUTPUT

CAPTO C5

optional



ER40

std



PINZA
COLLET
ER40
(F40-30)

optional

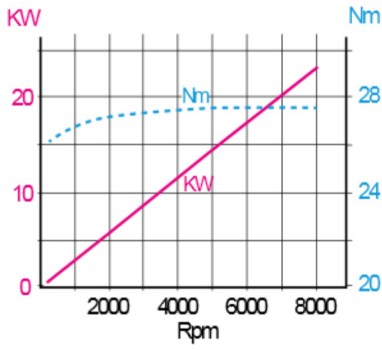


DOPPIA USCITA
DOUBLE OUTPUT
ER32 - ER32

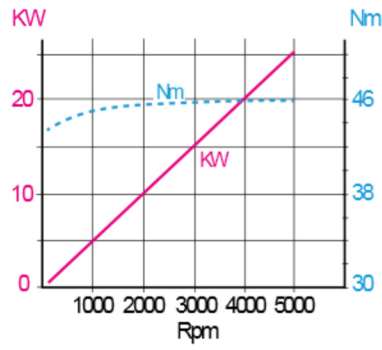
optional

GRAFICI PRESTAZIONI serie MTC
MTC series GRAPHICS PERFORMANCES

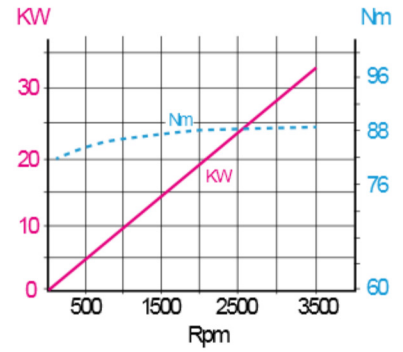
F90-16S



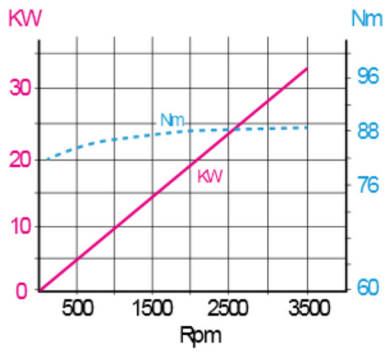
F90-16L



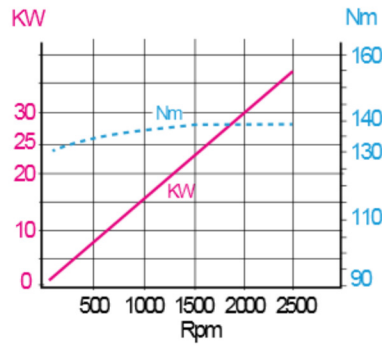
F90-20



F90-20L



F90-S40



Dai grafici raffigurati è possibile ricavare in modo approssimativo la coppia e la potenza disponibili per ogni tipo di testa in relazione al numero di giri utilizzato. Esempio: una testa F90-20 che lavora a 2500 RPM e ha a disposizione una coppia di 88Nm e una potenza di 24Kw.

The torque and power capacity of each head relative to PPM can be derived from the graphs shown. For instance: a G90-7 head rotating at 6000 RPM can transmit a torque of 88Nm and a power of 24Kw.

OPZIONE REFRIGERANTE serie MTC INTERNAL COOLANT OPTION MTC series

2



10 bar



Manfrina » Distributore » Utensile
Rotating Distributor » Tool

Passaggio refrigerante interno all' utensile 10bar.
Dal mandrino macchina e attraverso il distributore rotante
Internal coolant 10bar through the tool from the machine spindle and through rotating distributor

POSSIBILE - POSSIBLE



10 bar



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

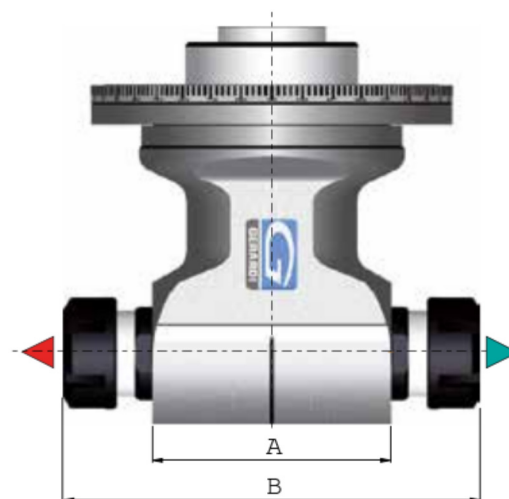
1.51

OPZIONE DOU...A USCITA serie MTC DOUBLE OUT...UT OPTION MTC series



Disponibile per i modelli - Available for following types:

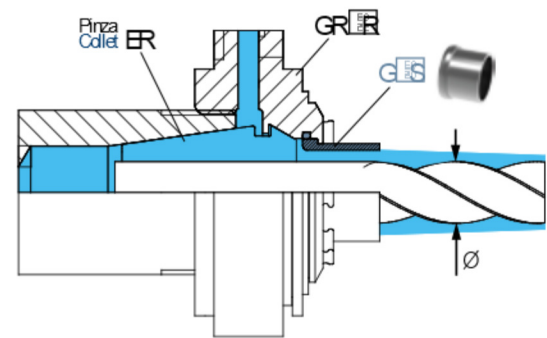
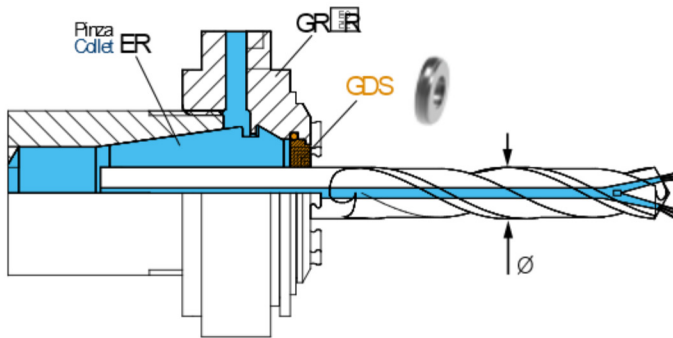
MODELLO MODEL	USCITA OUTPUT	A	B	
F90-16S		90	157	
F90-16	ER-25 ER-25	98	170	
F90-16L				
F90-20	ER-32 ER-32	118	193	
F90-20L				
F90-S30 F90-S40	ER-40 ER-40	141	226	



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.



MODELLO TESTA ANGOLARE ANGLE HEADS TYPE	Pinza Collet	Ghiera Nut	Disco di tenuta per refr.interno Sealing ring for int. coolant	Disco di tenuta per refr.esterno Sealing ring for est. coolant	Chiavi Wrenches
		Cod.			
F90-10 / 10L FMU-10	ER16	GCR16	GDS16	GKS16	CH-16AX
		9.GR.CR16	9.GDS16/...	9.GKS16/...	9.CH.16AX
FL90-13	ER20	GCR20	GDS20	GKS20	CH-20AX
		9.GR.CR20	9.GDS20/...	9.GKS20	9.CH.20AX
F90-16 / 16S / 16L FL90-16 / FMU-16	ER25	GCR25	GDS25	GKS25	CH-25AX
		9.GR.CR25	9.GDS25/...	9.GKS25	9.CH.25AX
F90-20 / 20S / 20L FMU-20	ER32	GCR32	GDS32	GKS32	CH-32AX
		9.GR.CR32	9.GDS32/...	9.GKS32	9.CH.32AX
F90-S40	ER40	GCR40	GDS40		CH-40AX
		9.GR.CR40	9.GDS40/...		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- Raccord a 90° da 1/8" - Fitting 1/8" 90° elbow



Tipo di ghiera Nut type	≤3000 Rpm	≤6000 Rpm	≤9000 Rpm
GRCR/ER 16	5 bar	7,5 bar	10 bar
GRCR/ER 20	5 bar	7,5 bar	10 bar
GRCR/ER 25	5 bar	7,5 bar	10 bar
GRCR/ER 32	5 bar	10 bar	15 bar
GRCR/ER 40	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 (Cod. 9.GR.CR16) - Sealing ring: GDS16-Ø10 (Cod. 9.GD.S16/10)

EN 6023E - COLLETS

6023E - 600E - 601E



MODELLO TESTA ANGOLARE ANGLE HEAD TYPE	TIPO PINZA COLLET TYPE	Ø	Cod.		Ø Intermedi - Intermediate	
FS90-3 FS90-3L	6023E	1,0	9.60.23E00...		1,1-12-13-14	
		1,5-2-2,5			1,6-17-18-19-21-22-23-24	
		3,0			2,6-27-28-29	
FS90-4 FS90-4L	600E	1,0	9.60.0E000...		1,1-12-13-14	
		1,5-2-2,5			1,6-17-18-19-21-22-23-24	
		3,0-4,0			2,6-27-28-29	
FS90-6	601E	1,0-6,0	9.60.1E000...			

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

ER-DIN 6499

Foratura-fresatura / drilling-milling



Maschiatura / tapping



MODELLO TESTA ANGOLARE ANGLE HEAD TYPE	TIPO PINZA COLLET TYPE	Ø	Cod.		PINZE ET1 (compensate) COLLET ET1 (compensation)	Cod.	
FL90-7 (LIGHT) FS90-6L F90-7 F90-7L	ER11	Ø1 / 7	9.ER.11000...		-	-	
F90-7 10BAR F90-7L 10BAR	ER11 WP	Ø3 / 7	9.ER.11WP0...		-	-	
FL90-10 (LIGHT) F90-10 F90-10L FMU-10	ER16	Ø1 / 10	9.ER.16000...		ET 1-16 (M2 - M8)	9.ET.16000	
FR90-10 70BAR F90-10 10BAR	ER16 WP	Ø3 / 10	9.ER.16WP0...		-	-	
FL90-13 (LIGHT)	ER20	Ø1 / 13	9.ER.20000/		-	-	
F90-16S F90-16 F90-16L 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	ER25 WP	Ø3 / 16	9.ER.25WP0...		-	-	
F90-20 FMU-20	ER32	Ø2 / 20	9.ER.32000/...		ET 1-32 (M3,5 - M16)	9.ET.32000	
FR90-20 70BAR F90-20 10BAR	ER32 WP	Ø3 / 20	9.ER.32WP0...		-	-	
F90-S40	ER40	Ø3 / 30	9.ER.40000/...				
F90-S40B	ER40	Ø3 / 30	9.ER.40WP0/...				

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

WP= Resistente all'acqua - Waterproof

GHIERE - NUTS ES - STD

MODELLO TESTAANGOLARE ANGLE HEAD TYPE	TIPO GHIERA NUT TYPE	Cod.	
FS90-3 FS90-3L	-	-	
FS90-4 FS90-4L	-	-	
FS90-6	-	-	



MODELLO TESTAANGOLARE ANGLE HEAD TYPE	TIPO GHIERA NUT TYPE	Cod.	
FL90-7 (LIGHT) FS90-6L F90-7 F90-7L F90-7 10BAR F90-7L 10BAR	ER11 ES *	9.ER.110ES	
F90-10 F90-10L F90-10 10BAR	ER16 ES *	9.ER.160ESE	
FL90-13 (LIGHT)	ER20 ES *	9.ER.200ES	
FMU-10	ER25 Mini	9.ER.2500M	
FR90-10 70BAR	ER16 ES *	9.ER.160ES	
F90-16S F90-16S 10BAR	ER25 STD	9.ER.25STD	
FL90-16 (LIGHT) F90-16 F90-16L F90-16 10BAR	ER25 ES *	9.ER.250ES	
FMU-16	ER25 Mini	9.ER.2500M	
FR90-16 70BAR	ER25 ES *	9.ER.250ES	
F90-20 F90-20 10BAR	ER32 STD	9.ER.32STD	
FMU-20	ER32 STD	9.ER.32STD	
FR90-20 70BAR	ER32 ES *	9.ER.320ES	
F90-S40 F90-S40B	ER40 STD	9.ER.40STD	

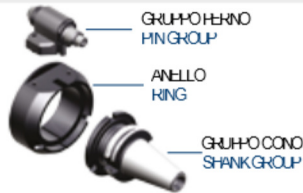
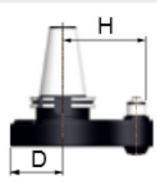
CHIAM - WRENCHES ES - STD

CHIAM WRENCHES	Cod.	
CH-5,5	9.CH.55000	
CH-7	9.CH.70000	
CH-9	9.CH.90000	



CHIAM WRENCHES	Cod.	
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	

GRUPPO ANTIROTANTE ANTI-ROTATION GROUP



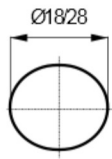
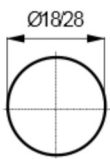
2

TESTA ANGOLARE ANGLE HEADS		GRUPPI ANTIROTANTE ANTI-ROTATION GROUP		GRUPPO CONO SHANK GROUP		ANELLO RING			
MODELLO MODEL	TIPO TYPE	Cod.		Cod.		MODELLO MODEL	Cod.	D	A
FL90-07 FL90-13 FL90-16 FS90-3-3L FS90-4-4L FS90-6-6L F90-7-7L F90-10-10L F90-16S F90-20S* F90-07-07L 10BAR F90-10-10L* 10BAR F90-16S 10BAR FMU-10-16 FR90-10 70BAR FR90-10*	1 (Ø102)	9.GA1.SK3035		9.SK30.1ATC		SK DIN 69871	9.FL1ATC00	Ø102	41,75
		9.GA1.SK4035		9.SK40.1ATC					
		9.GA1.SK5030		9.SK50.1ATC					
		9.GA1.CT4035		9.CT40.1ATC					
		9.GA1.CT5030		9.CT50.1ATC					
		9.GA1.BT4035		9.BT40.1ATC					
		9.GA1.BT5030		9.BT50.1ATC					
		9.GA1.HSK6335		9.HSK63.1ATC					
		9.GA1.HSK8030		9.HSK80.1ATC					
		9.GA1.HSK10030		9.HSK100.1ATC					
		9.GA1.C55500		9.C5.1ATC					
		9.GA1.C68000		9.C6.1ATC					
		9.GA1.C88000		9.C8.1ATC					
		9.GA1.KM6335		9.KM63.1ATC					
9.GA1.KM8030		9.KM80.1ATC							
9.GA1.KM10030		9.KM100.1ATC							
9.GA1.20304035		9.203040.1ATC							
9.GA1.20305030		9.203050.1ATC							
F90-16-16L F90-20 F90-S30* F90-16-20 10BAR FR90-16-20 70BAR FR90-16*-20*	2 (Ø128)	9.GA2.SK5030		9.SK50.2ATC			9.FL2ATC00	Ø128	56,75
		9.GA2.CT5030		9.CT50.2ATC					
		9.GA2.BT5030		9.BT50.2ATC					
		9.GA2.HSK8030		9.HSK80.2ATC					
		9.GA2.HSK10030		9.HSK100.2ATC					
		9.GA2.C68000		9.C6.2ATC					
		9.GA2.C88000		9.C8.2ATC					
		9.GA2.KM8030		9.KM80.2ATC					
		9.GA2.KM10030		9.KM100.2ATC					
		9.GA2.20305030		9.203050.2ATC					
F90-S40 F90-S40 70BAR F90-30 (ER40)* FMU-20	3 (Ø157)	9.GA3.SK50110		9.SK50.3ATC			FLANGIA INTEGRALE INTEGRAL FLANGE		
		9.GA3.CT50110		9.CT50.3ATC					
		9.GA3.BT50110		9.BT50.3ATC					
		9.GA3.HSK80110		9.HSK80.3ATC					
		9.GA3.HSK100110		9.HSK100.3ATC					
		9.GA3.C5110		9.C5.3ATC					
		9.GA3.C8110		9.C8.3ATC					
		9.GA3.KM80110		9.KM80.3ATC					
		9.GA3.KM100110		9.KM100.3ATC					
		9.GA3.203050110		9.203050.3ATC					
						9.FL3ATC00	Ø157	-	

ARichiesta - On Request Specificare per gruppi antirotante a 70 BAR - Specify for 70 BAR antirotation group Es: (9.GA1.SK40 4970) (Chip Balluff on HSK shanks)

GRUPPO PERNO

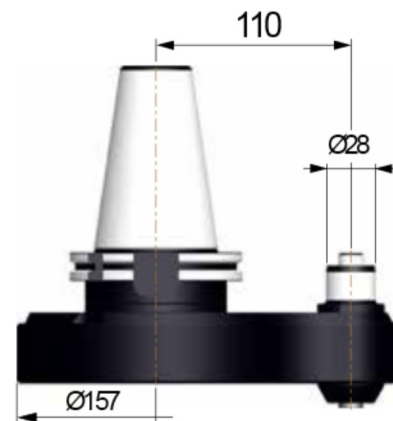
IN GROUP



STANDARD 2 AXIS		ON REQUEST 1 AXIS		GRUPPO PERNO PIN GROUP	
PERNO CILINDRICO CYLINDRICAL PIN	PERNO ELLITTICO ELLIPTIC PIN	Ø	B	H	
9.F18.T165	9.F18.T165.1 637030	18	23,25	65	
9.F18.T180	9.F18.T180.1 637031	18	38,25	80	
9.F28.T1110	9.F28.T1110.1 637032	28	68,25	110	
9.F18.T1110	9.F18.T1110.1 637035	18			
9.F18.T265	9.F18.T265.1 637033	18	23,25	80	
9.F28.T2110	9.F28.T2110.1 637034	28	53,25	110	
9.F18.T2110	9.F18.T2110.1 637036	18			
PERNO TIPO 3 PIN TYPE 3					
9.F28.T300	9.F28.T300.1	28	-	110	
SPECIALE - SPECIAL					
Perno STD accorciato / Perno speciale STD Short Pin / Special Pos. Pin					
Gruppo antirotante speciale Special Anti-rotation group					

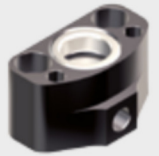


Gruppo antirotante tipo 1-2 (Anello + Gruppo perno)
 Anti-rotation group type 1-2 (Ring + Pin group)



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

STO OC Standard
TYPE 1-2



STOP BLOCK

Cod.

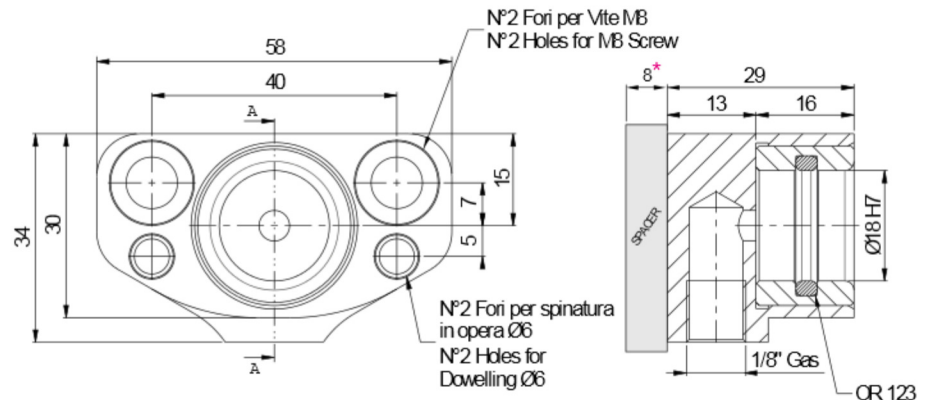
9.F18.INDEX

NO STOP BLOCK INCLUDED

BUSHING

Cod.

9.F18.INDEX.2



STO OC Standard
TYPE 3



BUSHING

Cod.

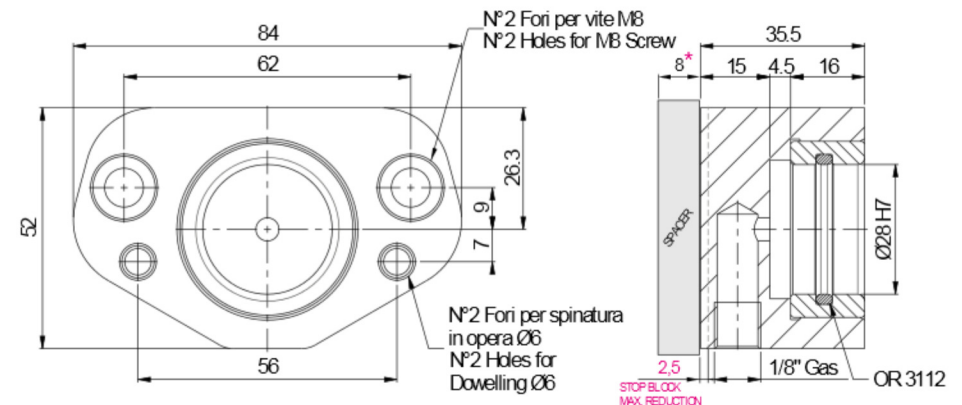
9.F28.INDEX

NO STOP BLOCK INCLUDED

BUSHING

Cod.

9.F28.INDEX.2



STO OC Coni - Coni
TYPE 1-2



BUSHING

Cod.

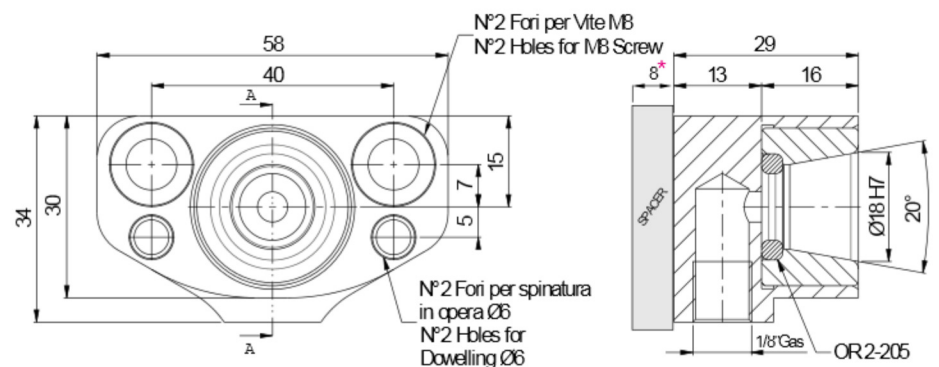
9.F18.INDEXC

NO STOP BLOCK INCLUDED

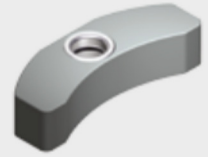
BUSHING

Cod.

9.F28.INDEX.2

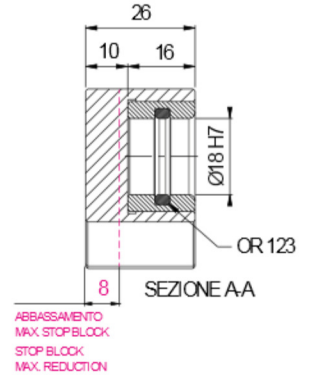
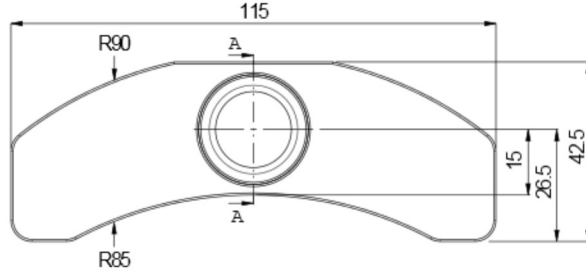
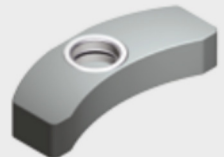


* Misura minima per distanziale sotto la quale è necessario utilizzare lo stop-block lavorabile.
* Spacer minimum dimension under this dimension it is necessary necessary to use the machinable stop-block

STO   OC  Lavorabile - Ma  Linea   
 TYPE 1-2 A RICHIESTA - ON REQUEST


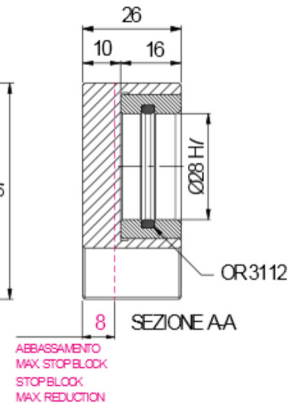
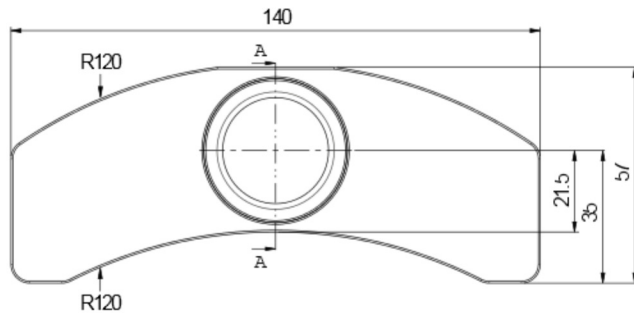
STOP BLOCK Cod.	
9.G18.INDEX	
NO STOP BLOCK INCLUDED	

BUSHING Cod.	
9.G18.INDEX2	


 STO   OC  Lavorabile - Ma  Linea   
 TYPE 3 A RICHIESTA - ON REQUEST


BUSHING Cod.	
9.G28.INDEX	
NO STOP BLOCK INCLUDED	

BUSHING Cod.	
9.G28.INDEX2	


 STO   OC 
 HAAS


STOP BLOCK Cod.	H	CONO	ØP	
9.INDEX 18_H46	65	40	Ø18	
9.INDEX 18_H48	80	40	Ø18	
9.INDEX 18_H58	80	50	Ø18	
9.INDEX28_H51	110	50	Ø28	

BUSHING Cod.	
9.G18.INDEX2	
9.G28.INDEX2	

 ** Disponibile anche con bussola conica.
 Also available with conic bushing

ESEMPIO di MONTAGGIO serie ATC ATC series MOUNTING EXAMPLE

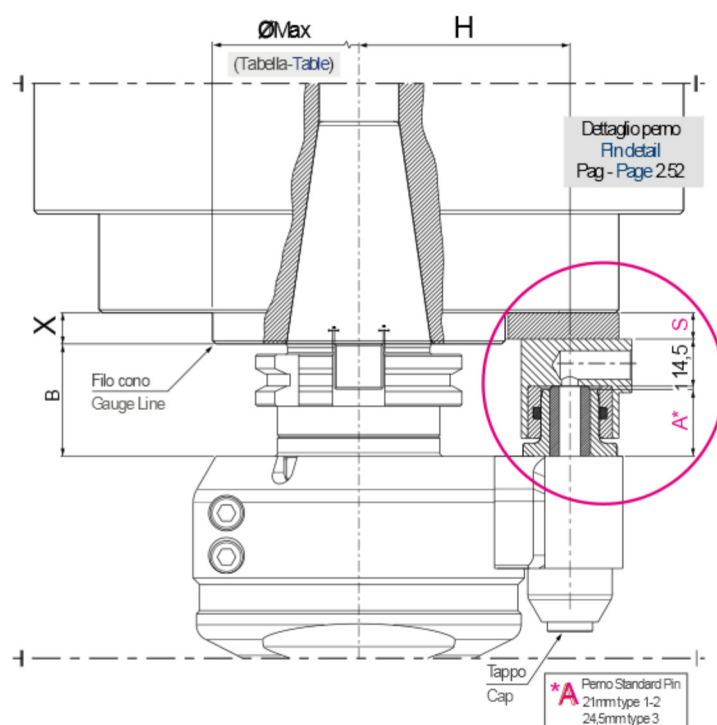
PER UN CORRETTO ORDINE VERIFICARE L'IDONEITÀ DEL PERNO DI POSIZIONAMENTO
 FOR A RIGHT PURCHASE ORDER CHECK THE POSITIONING PIN SUITABILITY

1 STOP-BLOCK GIÀ PRESENTE SUL MANDRINO MACCHINA

- Per teste Gerardi è sufficiente indicare il tipo di testa, l'interasse H, diametro perno ed altezza perno
- In caso di teste NON Gerardi, inviateci il disegno dello Stop-block 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 SUL MANDRINO MACCHINA

- For Gerardi items, please indicate the type of Angle Heads, the H quote, the pin diameter and height
- For non-Gerardi items, 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. 2.63)

NO STOP-BLOCK MOUNTED ON THE MACHINE SPINDLE

Please check the X quote 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 2.63)

$$S = X + B - 35$$

Se sei in possesso di una testa angolare Tipo 0 / Tipo 1 / Tipo 2
 If you have an Angle Head Type 0 / Type 1 / Type 2

$$S = X + B - 40,5$$

Se sei in possesso di una testa angolare Tipo 3
 If you have an Angle Head Type 3

ESEMPIO DI CALCOLO SPESSORE DISTANZIALE EXAMPLE OF CALCULATION FOR SPACER THICKNESS

X	B
12mm	35mm (SK40)
$S = X (12) + B (35) - 35 = 12$	

ESEMPIO di MONTAGGIO serie ATC

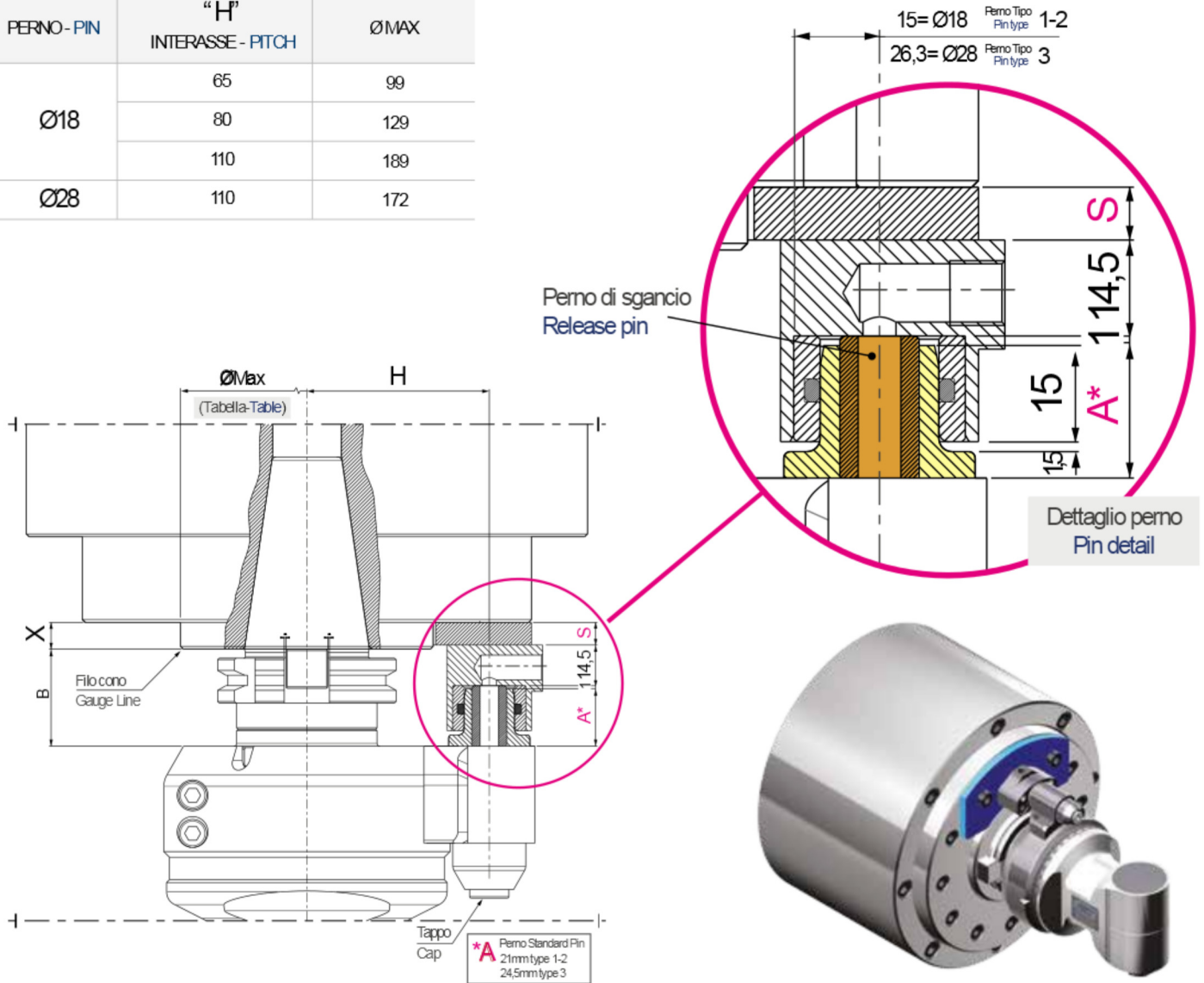
ATC series MOUNTING EXAMPLE

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	ØMAX
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.

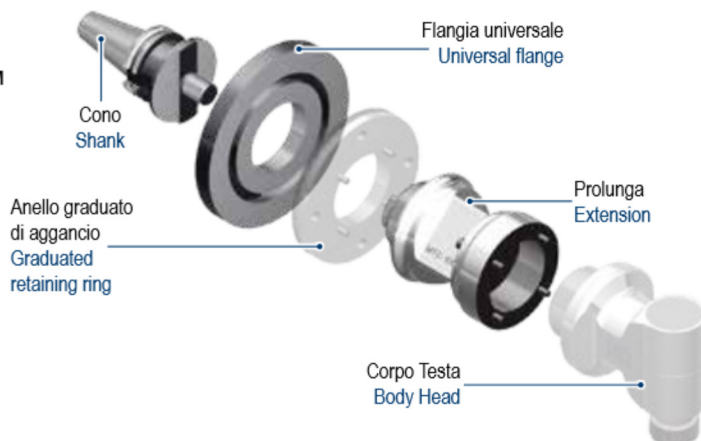
The spacer for the stop-block must be done in order to push the release pin NOT for the whole stroke release, but leaving always 1mm play. Previous page calculations are already considering this issue.

CONI / FLANGE / PROLUNGHE SHANKS / FLANGES / EXTENSIONS

2



TESTA ANGOLARE ANGLE HEADS		GRUPPI CONO SHANK GROUP			FLANGIA FLANGE		PROLUNGHE EXTENSIONS		
MODELLO MODEL	TIPO TYPE	Cod.		DISEGNI DRAWINGS	Cod.		H	Cod.	
F90-16S	1	9.SK30.MTC		 SK 69871	9.FL.F90T1		100	9.FEX.10100	
		9.SK40.MTC			NO FLANGE		200	9.FEX.10200	
		9.SK50.MTC							
		9.CT40.MTC							
		9.CT50.MTC							
F90-16L F90-20	2	9.BT40.MTC		 ISO DIN 2080	9.FL.F90T2		100	9.FEX.20100	
		9.BT50.MTC			NO FLANGE		200	9.FEX.20200	
		9.HSK63.MTC							
		9.HSK80.MTC							
		9.HSK100.MTC							
F90-S40	3	9.C5.MTC		 BT	9.FL.F90T3		100	9.FEX.30100	
		9.C6.MTC			NO FLANGE		200	9.FEX.30200	
		9.C8.MTC							
		9.KM63.MTC							
		9.KM80.MTC							
F90-S50	4	9.KM100.MTC		 CAPTO ISO26623	9.FL.F90T4	-	200	9.FEX.40300	
		9.208040.MTC			 KM	 Flangia universale Universal flange	 Prolunga Extension	 Corpo Testa Body Head	
		9.208050.MTC							



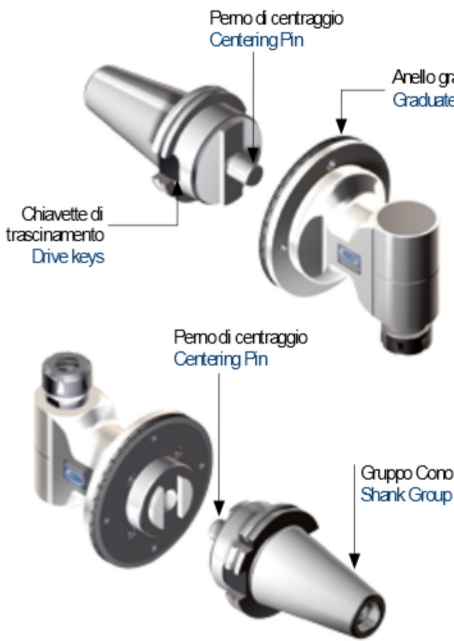
Senza Cono - No Shank

ESEMPIO di MONTAGGIO serie MTC MTC series MOUNTING EXAMPLE

DISTANZIA REALIZZATO IN OPERA
SPACER TO BE MADE

FASE STEP

- Montare il cono in macchina bloccandola con il mandrino
- Montare la flangia universale sulla testa
- Centrare e posizionare la testa sotto il cono avendo cura di mantenere il contatto cono-testa
- Rilevare la misura "X"
- Assemble the shank on the machine through the machine spindle
- Assemble the universal flange on the head
- Position the head ensuring the contact shank-angle head body
- Check dimension "X"



FASE STEP

- Realizzare un distanziale avente spessore $X + 1$ mm idoneo ad essere interposto tra flangia universale e mandrino macchina
- Utilizzare minimo 3 viti
- Make a spacer with $X + 1$ mm thickness to be mounted between universal flange and machine spindle
- Use 3 screws minimum

