

Angle Heads / Teste Angolari / Winkelköpfe



Angle Heads / Teste Angolari / Winkelköpfe



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Alberti – offer without comparison / Alberti – Un'offerta senza confronti / Alberti – Ein Angebot ohne Vergleich

The manufacture of angle head began in 1986 and in few years Alberti heads became internationally appreciated for their high quality and reliability together with their well-balanced appearance and durable chromed finish. The full range of Alberti angle heads has no comparison thanks to its versatility of satisfying each technical as well as functional need.

Nel 1986 l'Azienda Alberti si presenta sul mercato con la costruzione di teste angolari come prodotto base, e già dopo qualche anno esse sono conosciute ed apprezzate in tutto il mondo, oltre che per la qualità ed affidabilità, anche per il design e gli accostamenti cromatici decisamente gradevoli ed inconfondibili. La gamma di teste angolari Alberti non ha confronti per la sua capacità di rispondere a ogni esigenza tecnica e funzionale.

Die Produktion der Alberti Winkelköpfe begann 1986. Innerhalb weniger Jahre wurden die Alberti Produkte für die hohe Qualität und Verlässlichkeit ebenso wie für das ausgewogene Design und die langlebige Chrom-Ausführung international geschätzt. Die gesamte Produktpalette der Alberti Winkelköpfe überzeugt durch eine hohe Flexibilität, jeden technischen und funktionalen Anspruch bedienen zu können.

Series LINEA CONTROL – for machining centres with automatic tool changer.



This range of heads is designed to be used on machining centres and can be automatically transferred from the tool magazine to the machine spindle and back. The orientation ring and the arrester arm, which carries the arrester pin, can both be rotated through 360°. This allows easy adjustment of the drive taper and head relative to arrester block mounted on the front of the machining centres spindle housing. On TCU heads, the cutter spindle housing can also swivel from 0° to 90°. When the head is unloaded from the machine spindle, a safety latch prevents the drive taper from rotating.

A major feature of the CONTROL heads is the main input shaft, which is integral with the drive taper to ensure maximum rigidity.



Overview / Descrizione / Überblick

E' la linea di teste adatta ai centri di lavoro e trasportabile automaticamente dal magazzino utensili al mandrino e viceversa. L' anello di orientamento e la flangia di indexaggio, che supporta il perno di fermo, sono entrambi posizionabili su 360° consentendo una facile ottimizzazione degli orientamenti angolari del cono e del corpo testa rispetto al tassello di fermo disposto sul mandrino del centro di lavoro. Sulle teste modello TCU, il supporto del mandrino portautensile ha la possibilità, a sua volta, di ruotare e posizionarsi da 0° a 90°. Quando la testa non è in posizione di lavoro, un sistema di aggancio impedisce la rotazione del cono rispetto al corpo testa. Una caratteristica primaria delle teste CONTROL è l' albero centrale realizzato in un solo pezzo con il cono di attacco, per offrire la massima rigidità.

Die Winkelköpfe der LINEA CONTROL wurden für die Verwendung auf Werkzeugmaschinen mit integrierten Werkzeugwechsler entwickelt. Sie können automatisch vom Werkzeugmagazin zur Maschinenspindel und zurück transportiert werden.

Die Winkelköpfe können um 360° gedreht werden, dies ermöglicht ein einfaches Ausrichten des Arretierungsflansch mit dem an der Vorderseite des Spindelgehäuses montierten Stop Block.

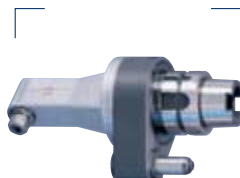
Die Fräseinheit der TCU Köpfe kann zusätzlich von 0° bis 90° geschwenkt werden. Beim entladen der Köpfe aus der Spindel wird die Rotation durch einen Riegel verhindert.





T90cn-0,4

p. 7



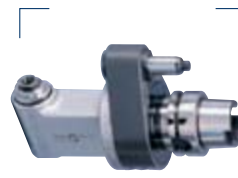
T90cn-0,5C

p. 8



T90cn-0,5L

p. 9



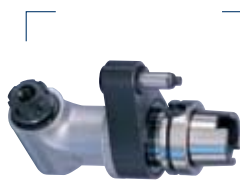
T90cn-1,5

p. 10



T90cn-1,5 40 bar

p. 11



T90cn-2,5

p. 12



T90cn-2,5 40 bar

p. 13



T90cn-2,5 2U

p. 14



T90cn-3,5

p. 15



T90cn-3,5 40 bar

p. 16



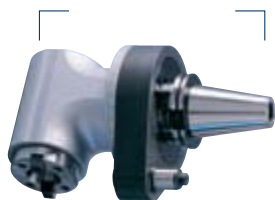
T90cn-3,5 2U

p. 17



T90cn-4,5

p. 18



T90cn-5

p. 19



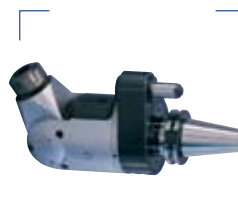
T90cn-5 15 bar

p. 20



TCUn-1,5

p. 21



TCUn-2,5

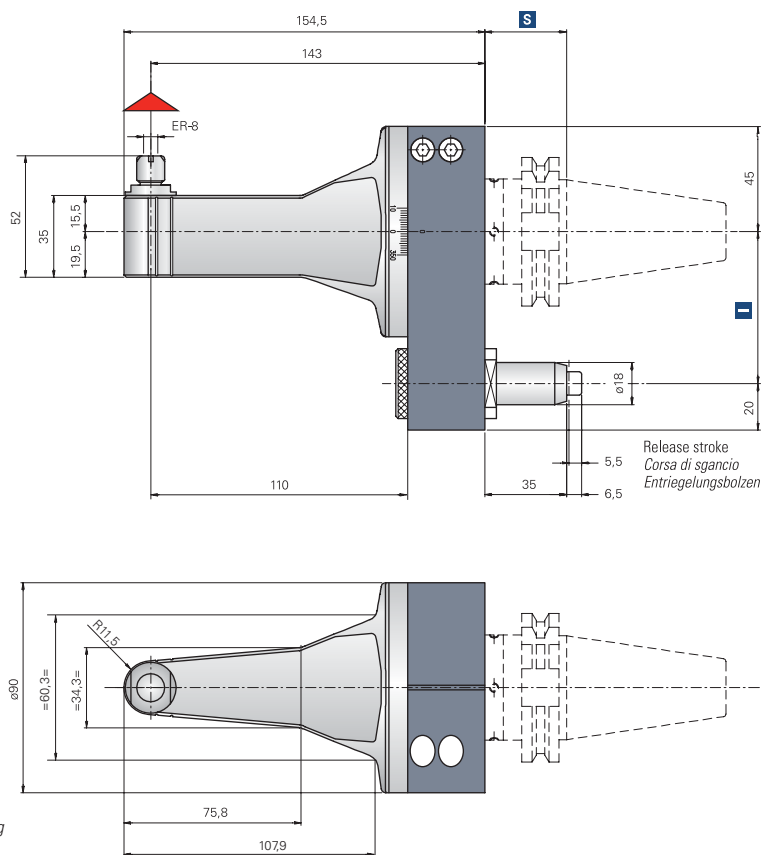
p. 22



TCUn-3,5

p. 23

LINEA CONTROL T90cn-0,4



Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme

DIN-69871
ISO-30/40/50

CAT
30/40/50

MAS-BT
30/40/50

HSK
63/80/100

CAPTO
C5-C6-C8

KM
50/63

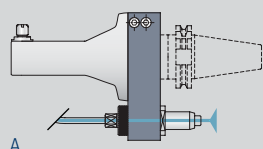
Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Shank/Cono/Aufnahme	DIN-69871 / CAT			MAS-BT			HSK		CAPTO		KM
Size/Grandezza/Größe	30	40	50	30	40	50	63-80	100	C5-C6	C8	50-63
I	65-80	65-80 (110*)	80-(110*)	65-80	65-80 (110*)	80-(110*)	65-80 (110*)	80-(110*)	65-80 (110*)	80-(110*)	65-80 (110*)
S	35	35	35	30	35	41	42	45	38	40	40

*optional

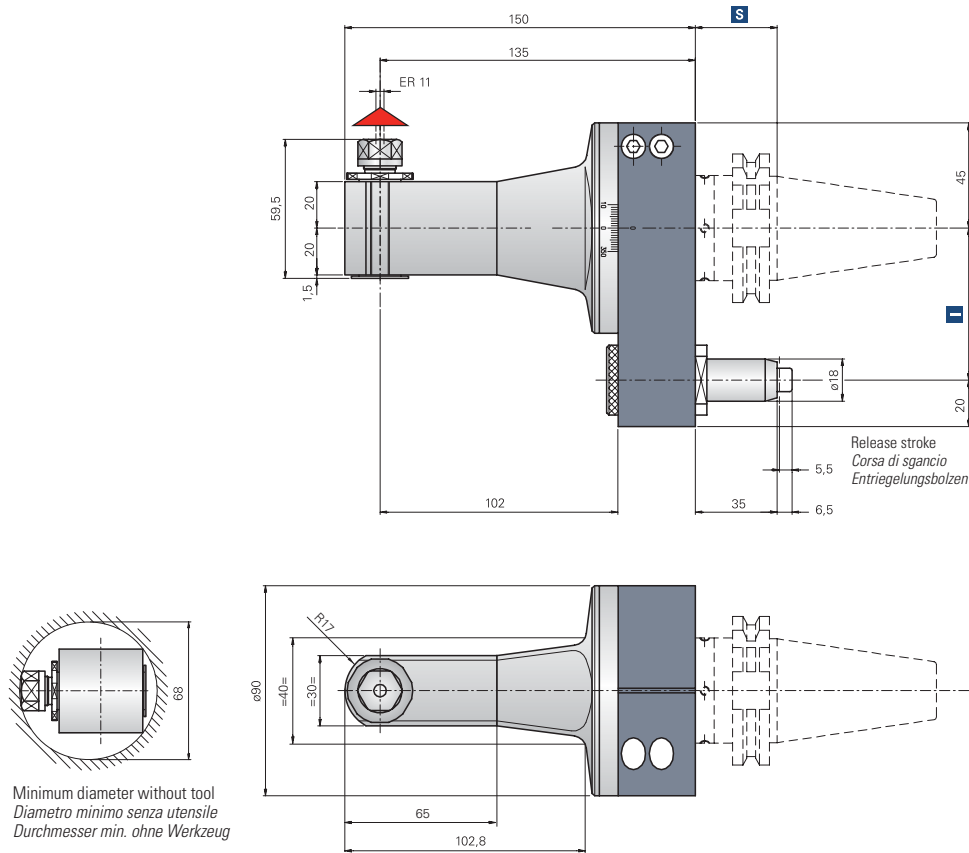
Technical Data / Dati Tecnici / Technische Daten			T90cn-0,4	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.		min ⁻¹	6.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung		N	38	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment		Nm	2	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht		kg	4	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange		mm	ER-8 ø 0,5/5	

Option / Opzione / Option			
A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen		bar/psi max.	12/150
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.		min ⁻¹	10.000
Weld on output / Weldon / Weldon-Aufnahme		ø	6 max.
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft		bar	0,2/0,3 max.

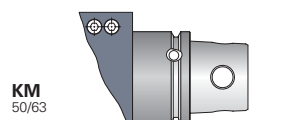
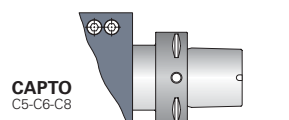
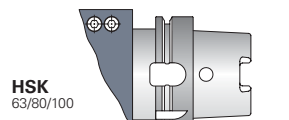
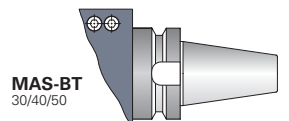
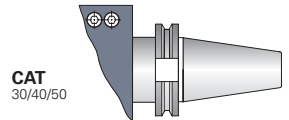
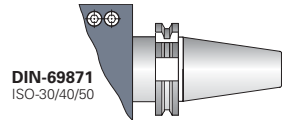


A

LINEA CONTROL T90cn-0,5C



Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



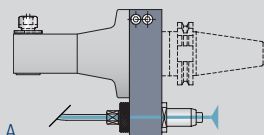
Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Shank/Cono/Aufnahme	DIN-69871 / CAT			MAS-BT			HSK		CAPTO		KM
Size/Grandezza/Größe	30	40	50	30	40	50	63-80	100	C5-C6	C8	50-63
I	65-80	65-80-(110*)	80-(110*)	65-80	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	35	35	30	35	41	42	45	38	40	40

*optional

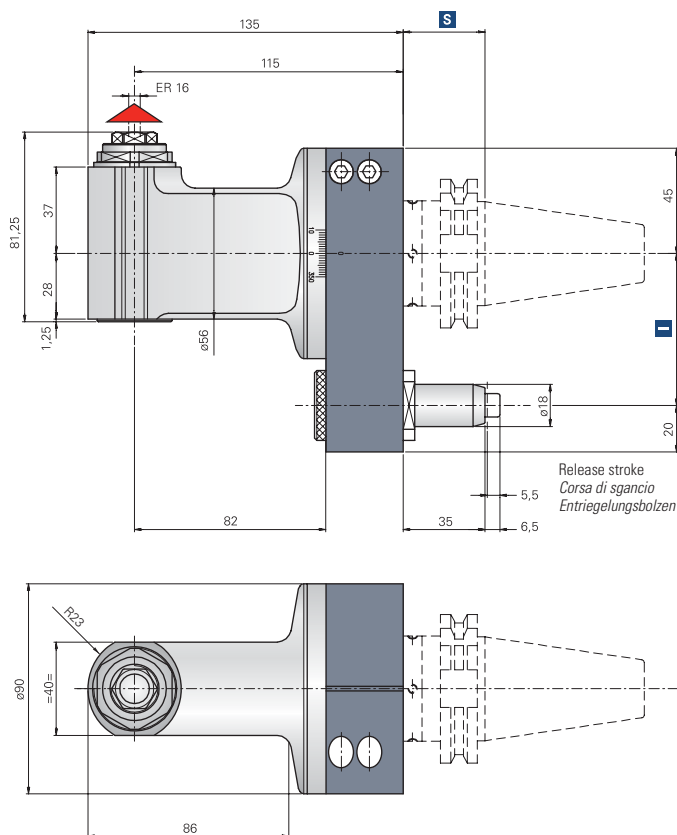
Technical Data / Dati Tecnici / Technische Daten			T90cn-0,5C	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.		min ⁻¹	6.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung		N	150	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment		Nm	5	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht		kg	4	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange		mm	ER-11 ø 0,5/7	

Option / Opzione / Option		
A Internal coolant through pin / Adduzione refrigerante attraverso il perno / Interne Kühlmittelzufuhr durch Bolzen	bar/psi max.	12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	10.000
Weldon output / Weldon / Weldon-Aufnahme	ø	6 max.
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.

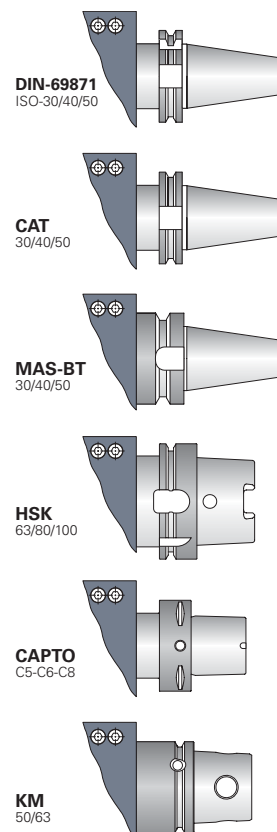




LINEA CONTROL T90cn-1,5



Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

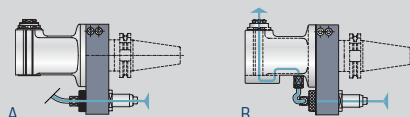
Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspinde

Shank/Cono/Aufnahme	DIN-69871 / CAT			MAS-BT			HSK		CAPTO		KM
Size/Grandezza/Größe	30	40	50	30	40	50	63-80	100	C5-C6	C8	50-63
I	65-80	65-80-(110*)	80-(110*)	65-80	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	35	35	30	35	41	42	45	38	40	40

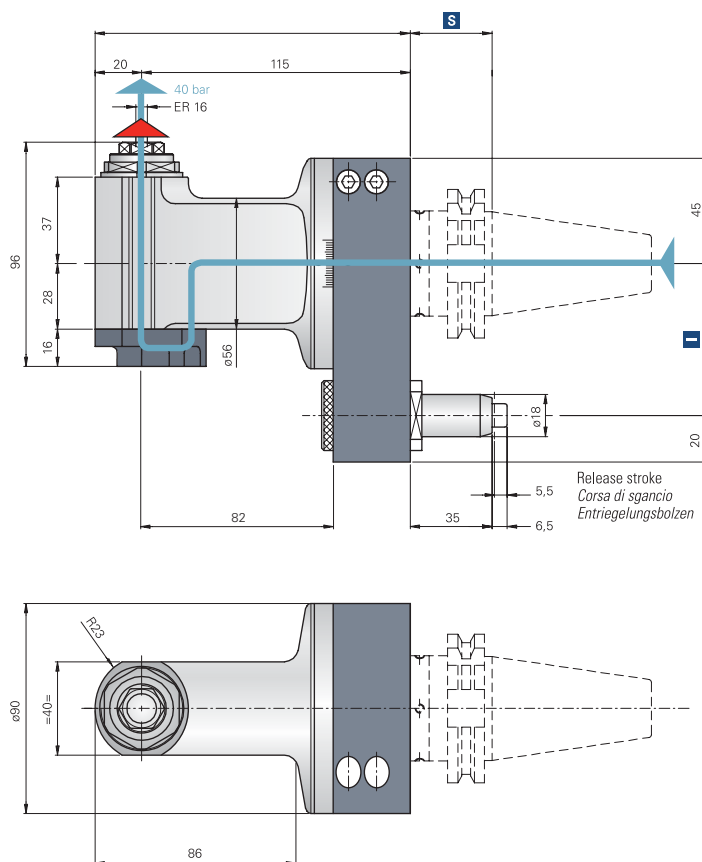
*optional

Technical Data / Dati Tecnici / Technische Daten			T90cn-1,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.		min ⁻¹	6.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung		N	250	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment		Nm	7	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht		kg	4,3	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange		mm	ER-16 Ø 1/10	

Option / Opzione / Option			
A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen		bar/psi max.	12/175
B Coolant through pin and spindle / Adduzione refrigerante interna attraverso il perno / Kühlmittelzufuhr durch Bolzen und Spindel		bar/psi max.	12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.		min ⁻¹	10.000
Arbor output / Porta fresa / Fräseaufnahme	Ø 13 max.	Weldon output / Weldon / Weldon-Aufnahme	Ø 10 max.
Double output / Doppia uscita / Doppelter Ausgang			ER-16/ER11
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft		bar	0,2/0,3 max.



LINEA CONTROL T90cn-1,5/40 bar



Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme

DIN-69871
ISO-30/40/50

CAT
30/40/50

MAS-BT
30/40/50

HSK
63/80/100

CAPTO
C5-C6-C8

KM
50/63

▲ Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

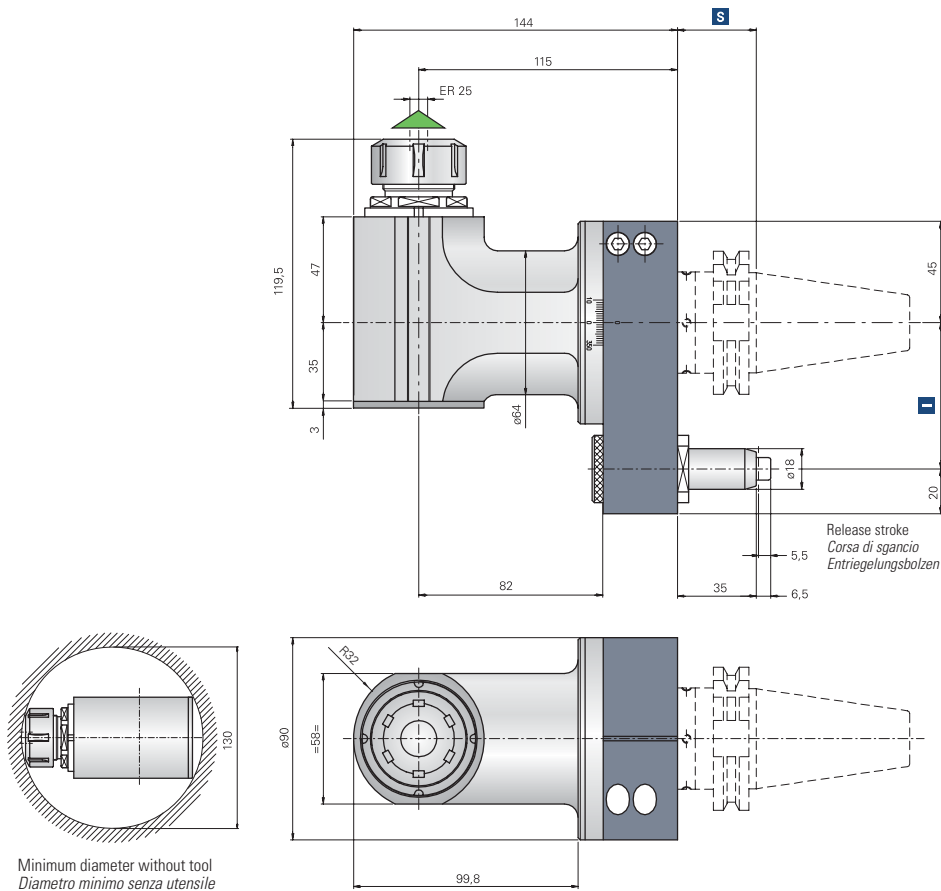
Shank/Cono/Aufnahme	DIN-69871 / CAT			MAS-BT			HSK		CAPTO		KM
Size/Grandezza/Größe	30	40	50	30	40	50	63-80	100	C5-C6	C8	50-63
I	65-80	65-80-(110*)	80-(110*)	65-80	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	35	35	30	35	41	42	45	38	40	40

*optional

Technical Data / Dati Tecnici / Technische Daten		T90cn-1,5/40 bar	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	6.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	250	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm	7	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht	kg	4,5	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange	mm	ER-16 ø 1/10	

Option / Opzione / Option		
Weld on output / Weldon / Weldon-Aufnahme	ø	10 max.
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.

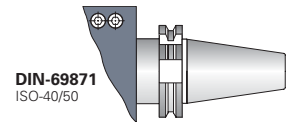
LINEA CONTROL T90cn-2,5



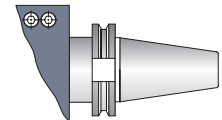
Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

 Direction of rotation same as machine spindle / *senso di rotazione uguale al mandrino* / *Drehrichtung gleich wie Antriebsspindel*

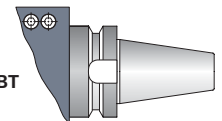
Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



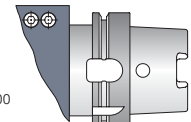
CAT
40/50



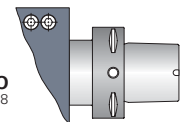
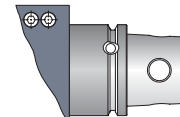
MAS-BT
40/50



HSK
63/80/100



CAPTO
C5-C6-C8

KM
50/63

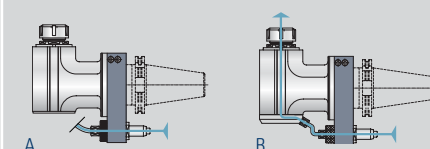
Shank/Cono/Aufnahme	DIN-69871 / CAT		MAS-BT		HSK		CAPTO		KM
Size/Grandezza/Größe	40	50	40	50	63-80	100	C5-C6	C8	50-63
I S	65-80 (110*)	80 (110*)	65-80 (110*)	80 (110*)	65-80 (110*)	80 (110*)	65-80 (110*)	80 (110*)	65-80 (110*)
	35	35	35	41	42	45	38	40	40

*optional

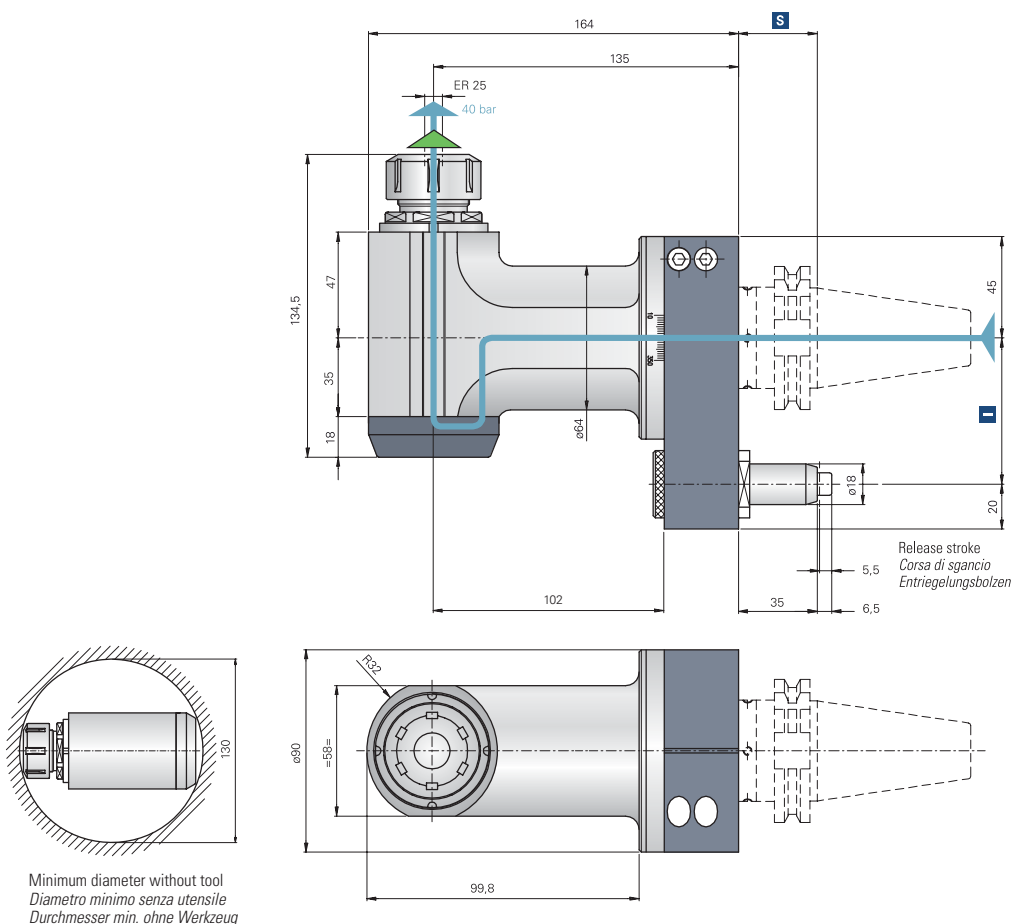
Technical Data / Dati Tecnici / Technische Daten			T90cn-2,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Special bag - Retaining block - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹		6.000	
Max. axial load / Max. carico assiale / Max. Axialbelastung	N		510	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm		20	
Weight / Peso / Gewicht	kg		5,4	- Spezialtasche - Stop block - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange	mm		ER-25 ø 2/16	

Option / Opzione / Option

A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen		bar/psi max.	12/175
B Coolant through pin and spindle / Adduzione refrigerante interna attraverso il perno / Kühlmittelzufuhr durch Bolzen und Spindel		bar/psi max.	12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.		min ⁻¹	8.000
Arbor output / Porta fresa / Fräseraufnahme	Ø 16	Weldon output / Weldon / Weldon-Aufnahme	Ø 16 max.
Quick Change / Attacco rapido / Schnellwechselaufnahme	HSK-32	Double output / Doppia uscita / Doppelter Ausgang	ER-25/ER-16 1/10
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft		bar	0,2/0,3 max.



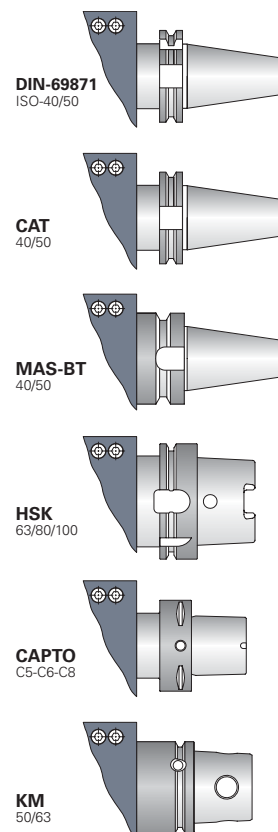
LINEA CONTROL T90cn-2,5/40 bar



Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

 Direction of rotation same as machine spindle / *senso di rotazione uguale al mandrino* / *Drehrichtung gleich wie Antriebsspindel*

Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



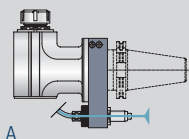
Shank/Cono/Aufnahme	DIN-69871 / CAT		MAS-BT		HSK		CAPTO		KM
Size/Grandezza/Größe	40	50	40	50	63-80	100	C5-C6	C8	50-63
I	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	35	35	41	42	45	38	40	40

*optional

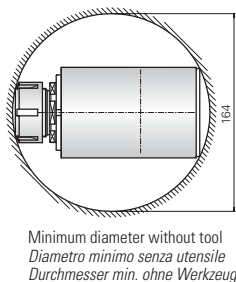
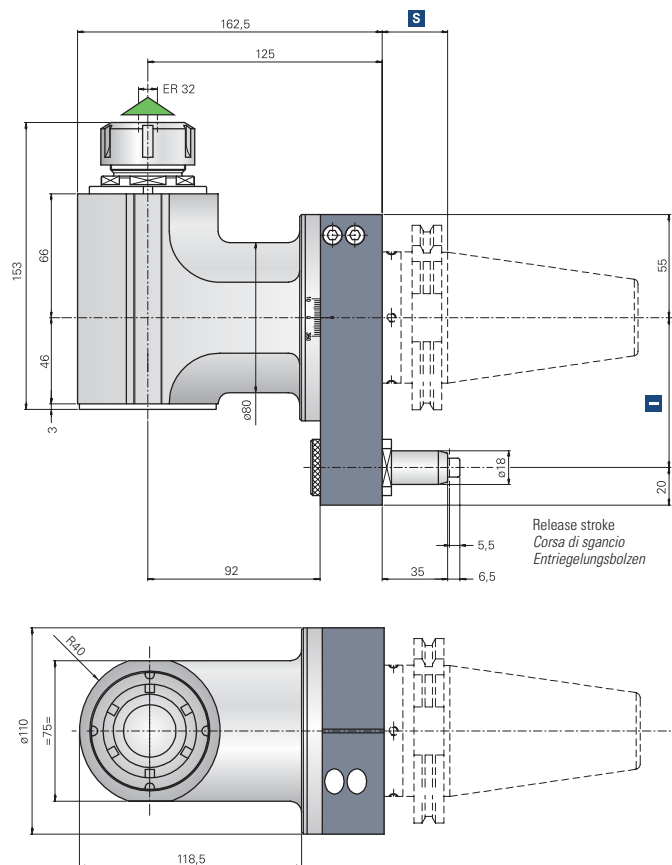
Technical Data / Dati Tecnici / Technische Daten		T90cn-2,5/40 bar	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining block - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	6.000	
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	510	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm	20	
Weight / Peso / Gewicht	kg	5,6	- Spezialtasche - Stop block - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange	mm	ER-25 ø 2/16	

Option / Opzione / Option

A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen			bar/psi max.	12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.			min ⁻¹	8.000
Weldon output / Weldon / Weldon-Aufnahme	ø	16 max.	Quick Change / Attacco rapido / Schnellwechselaufnahme	HSK-32
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft			bar	0,2/0,3 max.



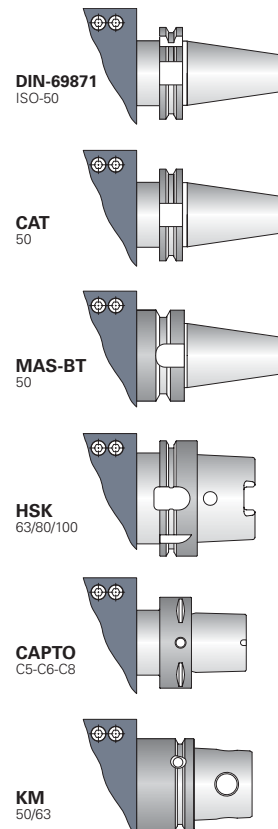
LINEA CONTROL T90cn-3,5



Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebsspindel

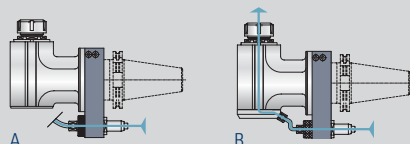
Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



Shank/Cono/Aufnahme	DIN-69871 / CAT	MAS-BT	HSK		CAPTO		KM
Size/Grandezza/Größe	50	50	63-80	100	C5-C6	C8	50-63
I	80-110	80-110	65-80 -110	80-110	65-80-110	80-110	65-80-110
S	35	41	42	45	38	40	40

Technical Data / Dati Tecnici / Technische Daten	T90cn-3,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt	1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹ 4.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung	N 1.250	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm 35	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht	kg 11	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange	mm ER-32 ø 3/20	

Option / Opzione / Option		
A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen		bar/psi max. 12/175
B Coolant through pin and spindle / Adduzione refrigerante interna attraverso il perno / Kühlmittelzufuhr durch Bolzen und Spindel		bar/psi max. 12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.		min ⁻¹ 6.000
Arbor output / Porta fresa / Fräseraufnahme	ø 22	Weldon output / Weldon / Weldon-Aufnahme ø 20
Quick Change / Attacco rapido / Schnellwechselaufnahme	HSK-40	Double output / Doppia uscita / Doppelter Ausgang ER-32/ER-20, ER-25/ER-16 1/10
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft		bar 0,2/0,3 max.



Technical drawing of the ER 32 hydraulic cylinder, showing front and side views with dimensions and labels.

Front View Dimensions:

- Total length: 184,5
- Distance from mounting flange to rod end: 147
- Stroke length: 103
- Mounting flange diameter: $\phi 80$
- Stroke length (indicated by arrow): 55
- Release stroke / Corsa di sgancio / Entriegelungsbolzen: 5,5
- Distance from mounting flange to rod end (indicated by arrow): 35
- Distance from mounting flange to rod end (indicated by arrow): 6,5
- Distance from mounting flange to rod end (indicated by arrow): 20
- Distance from mounting flange to rod end (indicated by arrow): 18

Side View Dimensions:

- Total length: 140,5
- Mounting flange diameter: $\phi 110$
- Stroke length: 75
- Stroke length (indicated by arrow): 55

Labels:

- ER 32
- 40 bar
- S
- I

DIN-69871
ISO-50

CAT
50

MAS-BT
50

HSK
63/80/100

CAPTO
C5-C6-C8

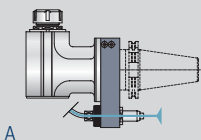
KM
50/63

 Direction of rotation same as machine spindle / *senso di rotazione uguale al mandrino* / *Drehrichtung gleich wie Antriebsspindel*

Shank/Cono/Aufnahme	DIN-69871 / CAT	MAS-BT	HSK		CAPTO		KM
Size/Grandezza/Größe	50	50	63-80	100	C5-C6	C8	50-63
I S	80-110	80-110	65-80-110	80-110	65-80-110	80-110	65-80-110
	35	41	42	45	38	40	40

Technical Data / Dati Tecnici / Technische Daten		T90cn-3,5/40bar	STANDARD EQUIPMENT INCLUDES: - Special bag - Retaining block - wrenches - Grease tube - Instruction book - Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni - Spezialtasche - Stop block - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Rt / Rt / Rt		1:1	
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000	
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	1.250	
Torque / Momento torcente / Drehmoment	Nm	35	
Weight / Peso / Gewicht	kg	11,4	
Collet / Pinza / Spannzange	mm	ER-32 ø 3/20	

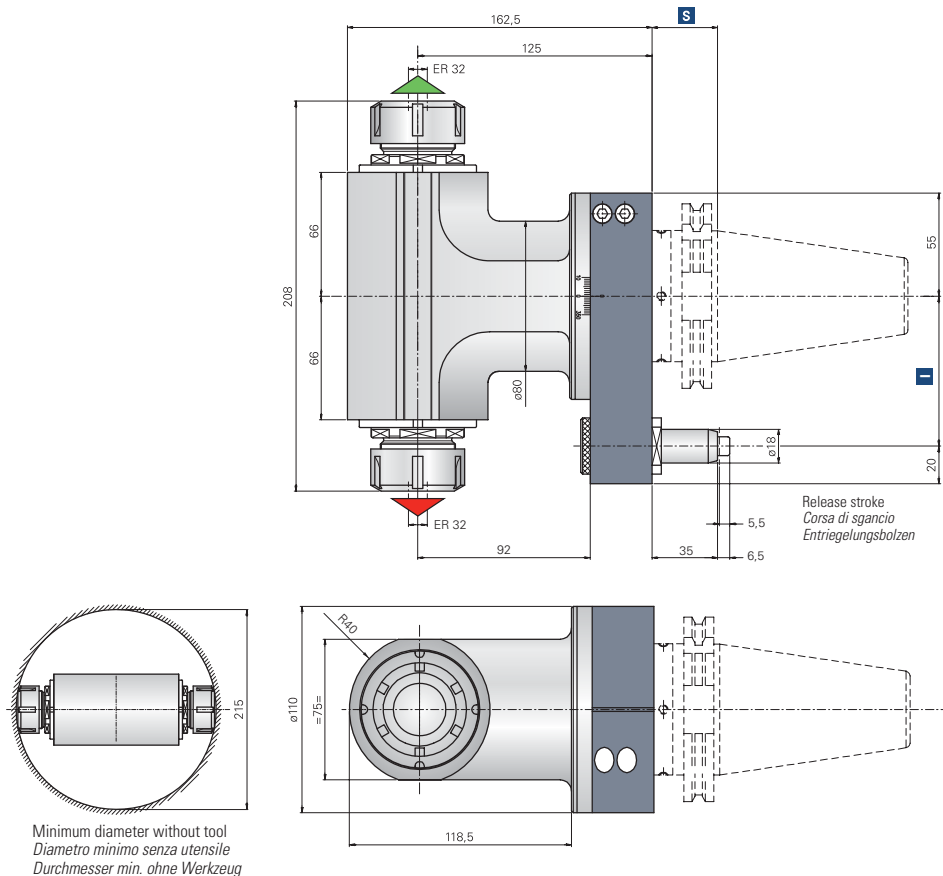
A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen			bar/psi max.	12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.			min ⁻¹	6.000
Weldon output / Weldon / Weldon-Aufnahme	ø	20	Quick Change / Attacco rapido / Schnellwechselaufnahme	
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft			bar	0,2/0,3 max.



A

LINEA CONTROL T90cn-3,5 2U

Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebsspindel
Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

DIN-69871
ISO-50

CAT
50

MAS-BT
50

HSK
63/80/100

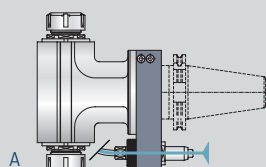
CAPTO
C5-C6-C8

KM
50/63

Shank/Cono/Aufnahme	DIN-69871 / CAT	MAS-BT	HSK	CAPTO	KM
Size/Grandezza/Größe	50	50	63-80 100	C5-C6 C8	50-63
I	80-110	80-110	65-80-110 80-110	65-80-110 80-110	65-80-110
S	35	41	42 45	38 40	40

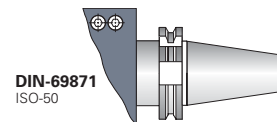
Technical Data / Dati Tecnici / Technische Daten	T90cn-3,5 2U	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt	1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹ 4.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung	N 1.250	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm 35	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht	kg 12	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange	mm ER-32 3/20	

Option / Opzione / Option	
A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen	bar/psi max. 12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹ 6.000
Arbor output / Porta fresa / Fräseraufnahme	22
Weldon output / Weldon / Weldon-Aufnahme	20
Quick Change / Attacco rapido / Schnellwechselaufnahme	HSK-40
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar 0,2/0,3 max.

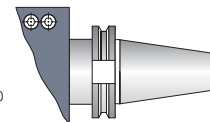
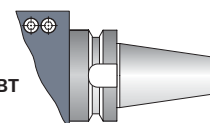




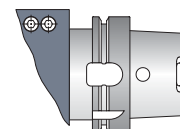
Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



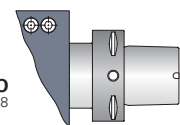
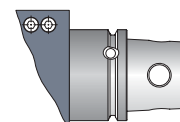
CAT
30/40/50

MAS-BT
50

HSK
80/100



CAPTO
C5-C6-C8

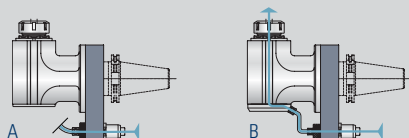
KM
63

Shank/Cono/Aufnahme	DIN-69871/ CAT	MAS-BT	HSK		CAPTO		KM
Size/Grandezza/Größe	50	50	80	100	C5-C6	C8	63
I	110	110	110	110	110	110	110
S	35	41	42	45	38	40	40

Technical Data / Dati Tecnici / Technische Daten			T90cn-4,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Wooden crate - Retaining block - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000		
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	1.750		- Cassa - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm	75		
Weight / Peso / Gewicht	kg	17		- Holzbox - Stop block - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange	mm	ER-40	ø 3/30	

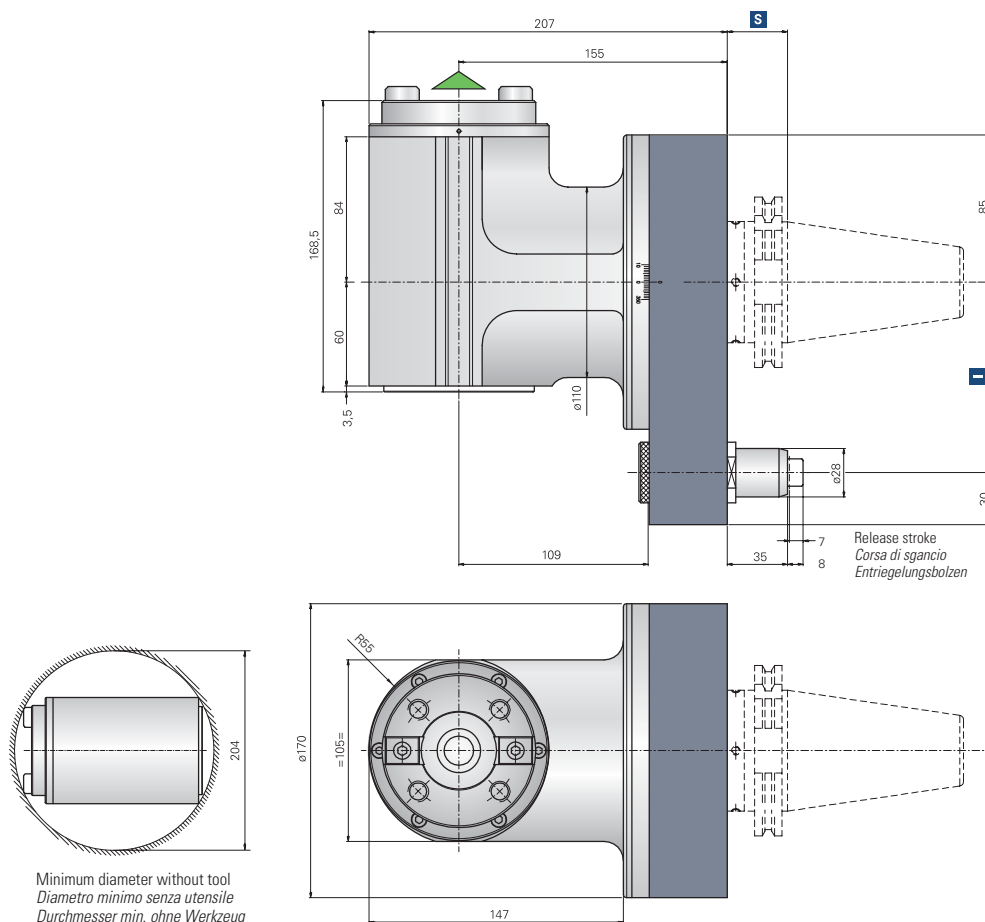
Option / Opzione / Option

A Coolant through pin / <i>Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen</i>		bar/psi max.	12/175
B Coolant through pin and spindle / <i>Adduzione refrigerante interna attraverso il perno / Kühlmittelzufuhr durch Bolzen und Spindel</i>		bar/psi max.	12/175
High speed optional RPM max. / <i>Opzione alta velocità RPM max. / Optionale Drehzahl max.</i>		min ⁻¹	6.000
Arbor output / <i>Porta fresa / Fräseraufnahme</i>	Ø 27	Weldon output / <i>Weldon / Weldon-Aufnahme</i>	Ø 25
Quick Change / <i>Attacco rapido / Schnellwechselaufnahme</i>	HSK-40	Double output / <i>Doppia / Doppelter Ausgang</i>	ER-40/ER-25
Internal air pressure / <i>Predisposizione pressurizzazione aria / Sperrluft</i>		bar	0,2/0,3 max.



LINEA CONTROL T90cn-5

Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebsspindel

DIN-69871
ISO-50

CAT
30/40/50

MAS-BT
30/40/50

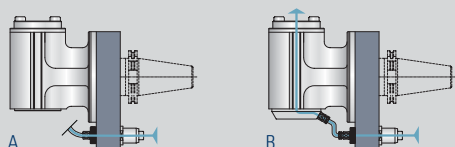
HSK
63/80/100

CAPTO
C5-C6-C8

Shank/Cono/Aufnahme	DIN-69871 / CAT	MAS-BT	HSK		CAPTO	
Size/Grandezza/Größe	50	50	80	100	C5-C6	C8
I	110	110	110	110	110	110
S	35	41	42	45	38	40

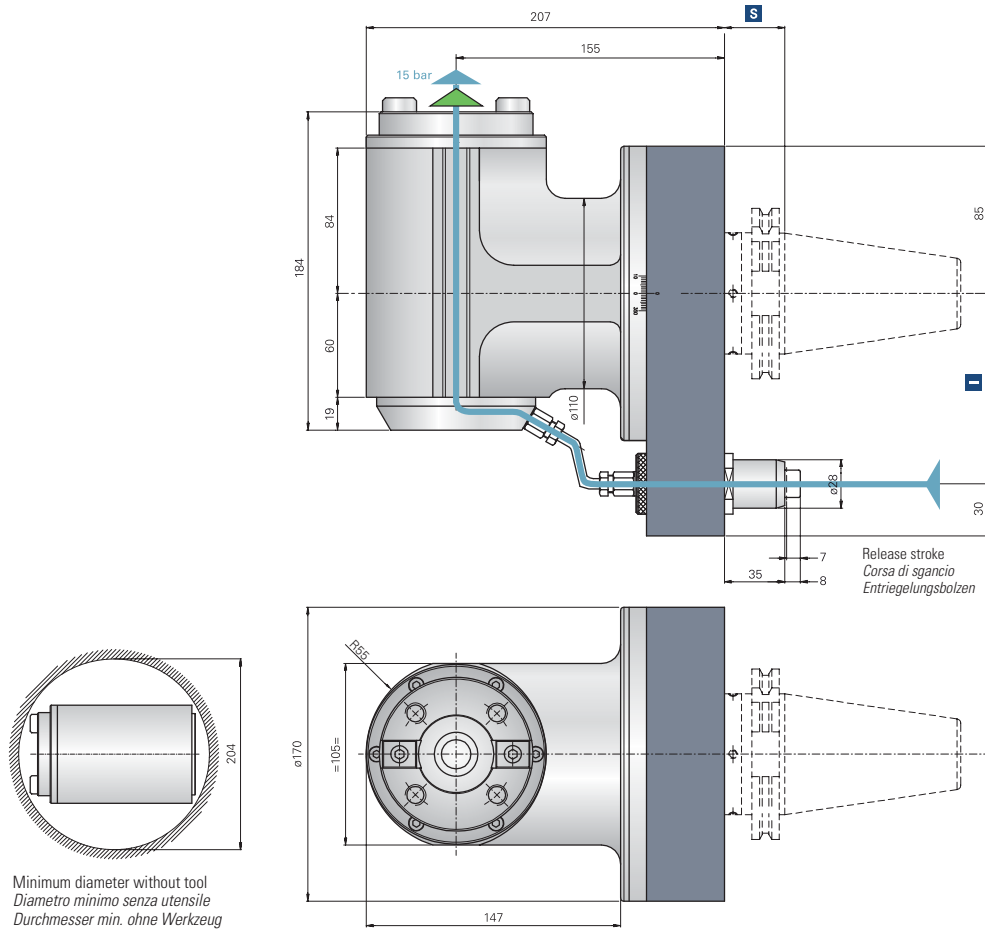
Technical Data / Dati Tecnici / Technische Daten			T90cn-5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Wooden crate - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.		min ⁻¹	4.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung		N	1.800	- Cassa - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment		Nm	90	- Holzbox - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht		kg	22	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange		mm	ISO 40	

Option / Opzione / Option		
A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen	bar/psi max.	12/175
B Coolant through pin and spindle / Adduzione refr. interna attraverso perno / Kühlmittelzufuhr durch Bolzen und Spindel	bar/psi max.	12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	6.000
Quick Change / Attacco rapido / Schnellwechselaufnahme		HSK-63
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.



LINEA CONTROL T90cn-5/15 bar

Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

 Direction of rotation same as machine spindle / *senso di rotazione uguale al mandrino* / *Drehrichtung gleich wie Antriebsspindel*

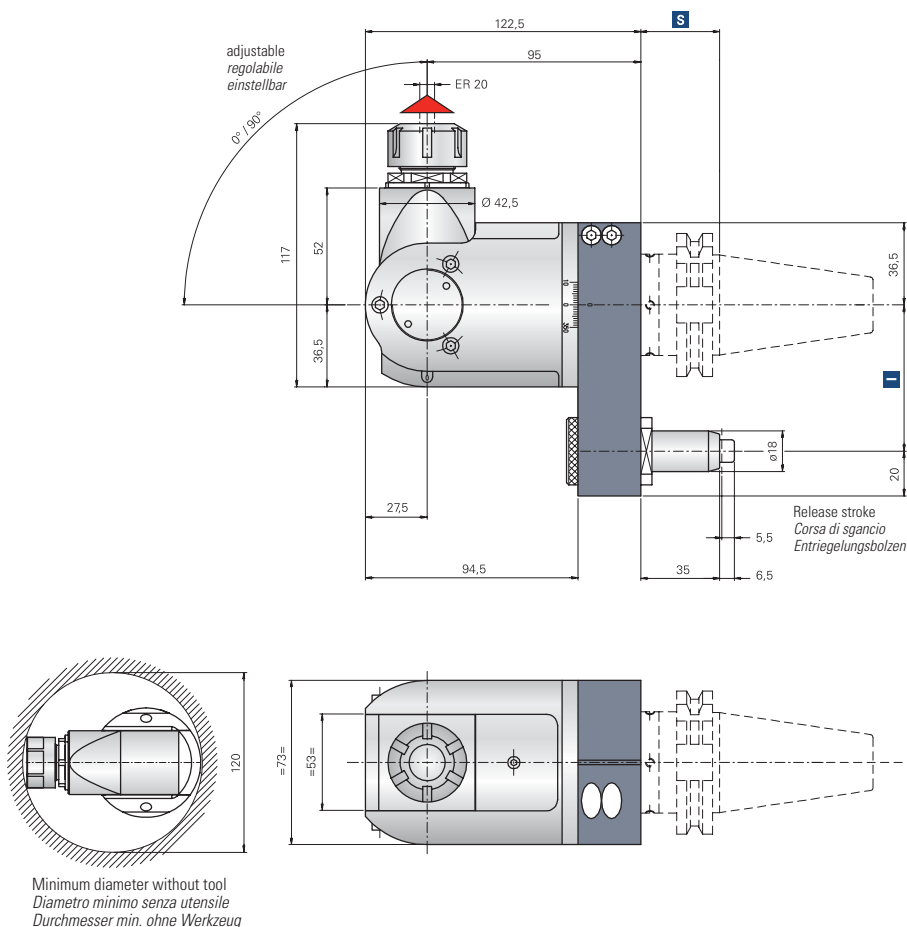
Shank/Cono/Aufnahme	DIN-69871 / CAT	MAS-BT	HSK		CAPTO	
Size/Grandezza/Größe	50	50	80	100	C5-C6	C8
I	110	110	110	110	110	110
S	35	41	42	45	38	40

Technical Data / Dati Tecnici / Technische Daten		T90cn-5/15 bar	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Wooden crate - Retaining block - wrenches - Grease tube - Instruction book - Cassa - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni - Holzbox - Stop block - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000	
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	1.800	
Torque / Momento torcente / Drehmoment	Nm	90	
Weight / Peso / Gewicht	kg	22	
Collet / Pinza / Spannzange	mm	ISO 40	

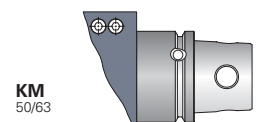
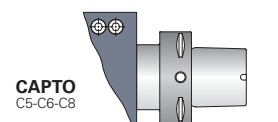
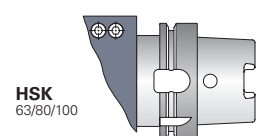
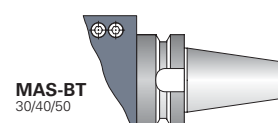
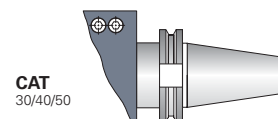
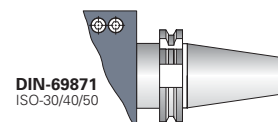
Option / Opzione / Option

High speed optional RPM max. / <i>Opzione alta velocità RPM max. / Optionale Drehzahl max.</i>	min ⁻¹	6.000
Quick Change / <i>Attacco rapido / Schnellwechselaufnahme</i>		HSK-63
Internal air pressure / <i>Predisposizione pressurizzazione aria / Sperrluft</i>	bar	0.2/0.3 max.

LINEA CONTROL TCUcn-1,5



Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



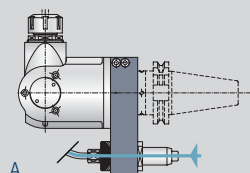
Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Shank/Cono/Aufnahme	DIN-69871 / CAT			MAS-BT			HSK		CAPTO		KM
Size/Grandezza/Größe	30	40	50	30	40	50	63-80	100	C5-C6	C8	50-63
I	65-80	65-80-(110*)	80-(110*)	65-80	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	35	35	30	35	41	42	45	38	40	40

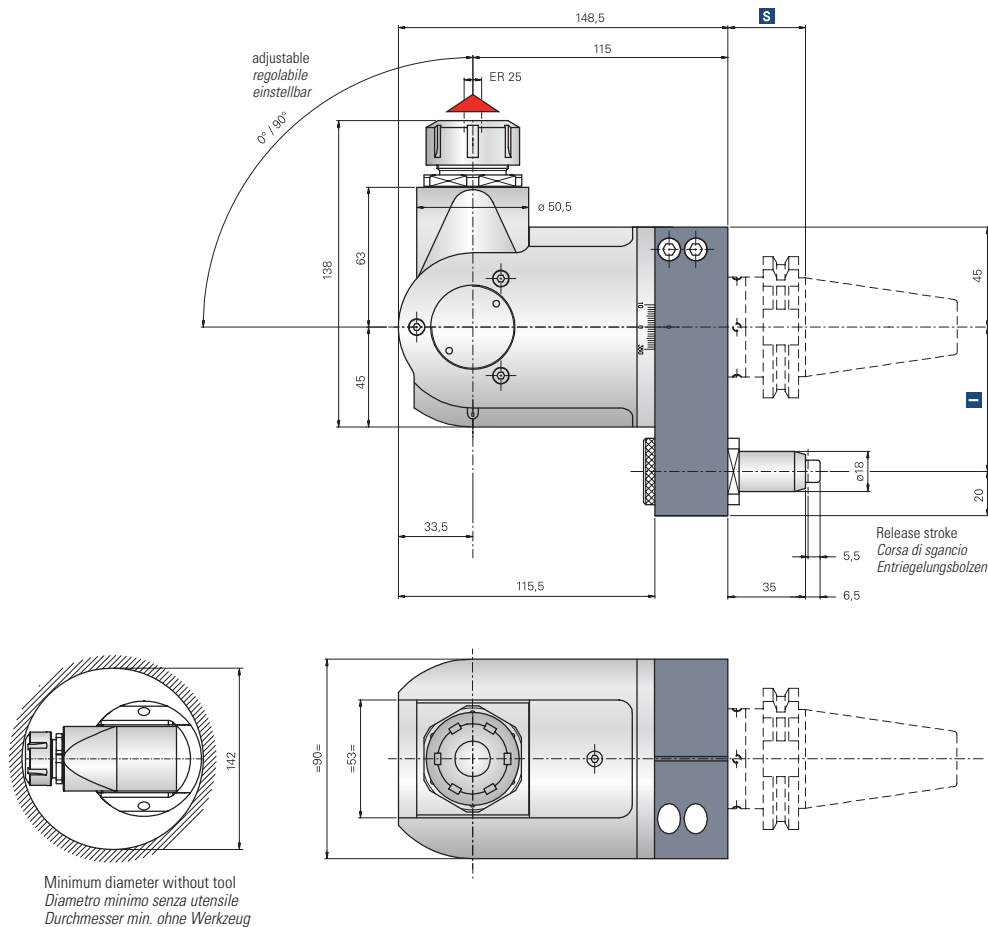
*optional

Technical Data / Dati Tecnici / Technische Daten			TCUcn-1,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.		min ⁻¹	4.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung		N	450	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment		Nm	6	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht		kg	4,2	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange		mm	ER-20 Ø 1/13	

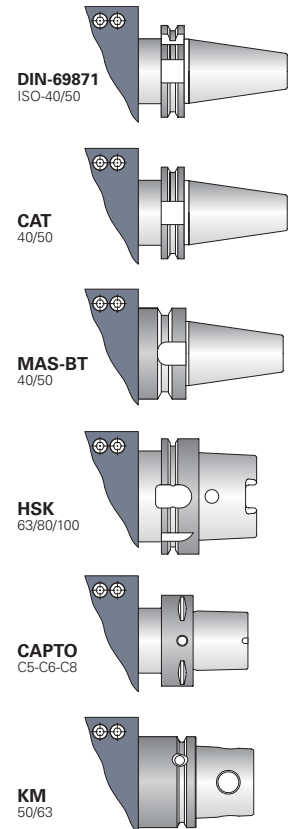
Option / Opzione / Option		
A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen	bar/psi max.	12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	8.000
Weldon output / Weldon / Weldon-Aufnahme	Ø	10



LINEA CONTROL TCUcn-2,5



Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



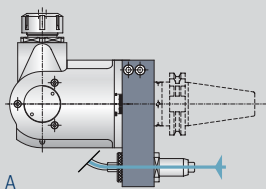
Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Shank/Cono/Aufnahme	DIN-69871 / CAT		MAS-BT		HSK		CAPTO		KM
Size/Grandezza/Größe	40	50	40	50	63-80	100	C5-C6	C8	50-63
I	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	35	35	41	42	45	38	40	40

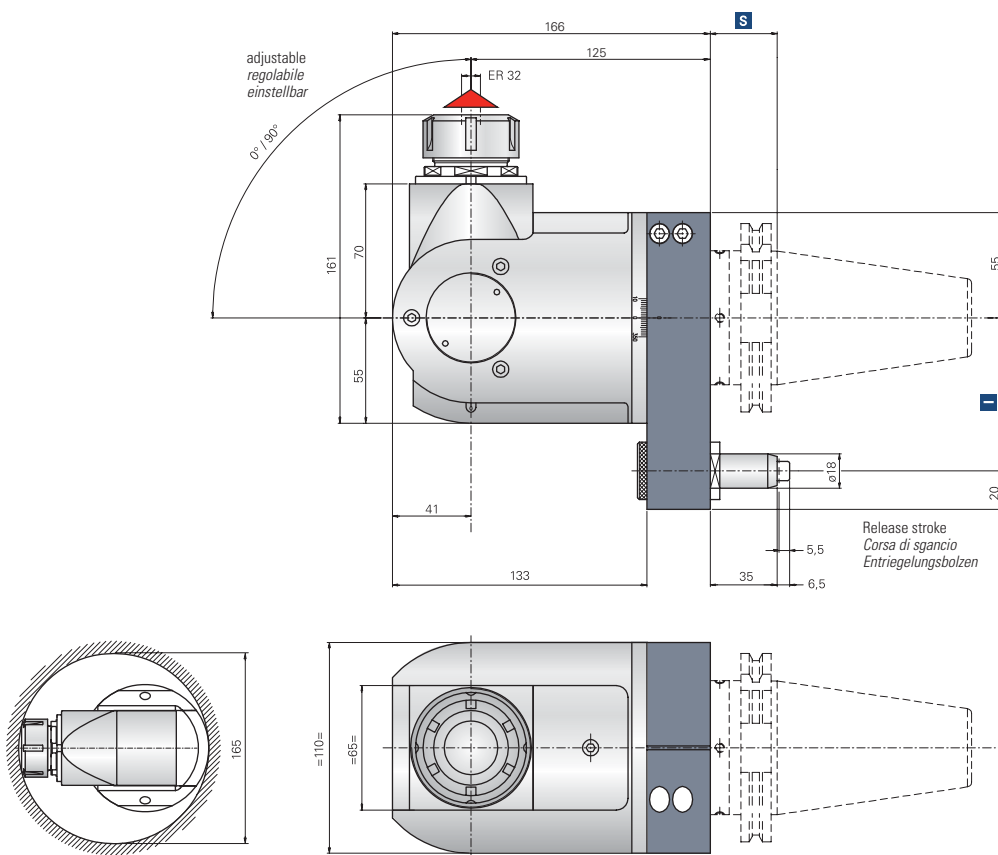
*optional

Technical Data / Dati Tecnici / Technische Daten			TCUcn-2,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.		min ⁻¹	4.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung		N	480	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment		Nm	18	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht		kg	6,8	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange		mm	ER-25 ø 2/16	

Option / Opzione / Option		
A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen	bar/psi max.	12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	6.000
Weldon output / Weldon / Weldon-Aufnahme	ø	16



LINEA CONTROL TCUcn-3,5



Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

▲ Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Shank/Cono/Aufnahme	DIN-69871 / CAT	MAS-BT	HSK		CAPTO		KM
Size/Grandezza/Größe	50	50	63-80	100	C5-C6	C8	50-63
I	80-110	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	41	42	45	38	40	40

*optional

Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme

DIN-69871
ISO-30/40/50

CAT
30/40/50

MAS-BT
30/40/50

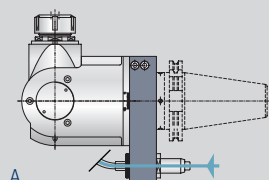
HSK
63/80/100

CAPTO
C5-C6-C8

KM
50/63

Technical Data / Dati Tecnici / Technische Daten	TCUcn-3,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt	1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹ 4.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung	N 715	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm 32	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht	kg 13	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange	mm ER-32 ø 3/20	

Option / Opzione / Option		
A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen		bar/psi max. 12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.		min ⁻¹ 6.000
Arbor output / Porta fresa / Fräseraufnahme	ø 22	Weldon output / Weldon / Weldon-Aufnahme ø 20



Series LINEA MODULAR – for machine tools with flange mounting – length extensions available.



This is a range of heads for traditional machine tools with flange attachment. The T-slot on the universal flange facilitates the positioning the head 360° around its vertical axis. On TCU heads, the cutter spindle housing can also swivel from 0° to 90°. The modular system makes it possible to extend the length of the body by adding a spacer. The extension spacer, drive tapers and universal flange are modular and therefore interchangeable among all the heads of similar size.



Overview / Descrizione / Überblick

**T90-0,4**

p. 26

**T90-0,5C**

p. 27

**T90-0,5L**

p. 28

**T90-1,5**

p. 29

**T90-2,5**

p. 30

**T90-2,5 2U**

p. 31

**T90-3,5**

p. 32

**T90-3,5 2U**

p. 33

**T90-4,5**

p. 34

**T90-5**

p. 35

**TCU-2,5**

p. 36

**TCU-3,5**

p. 37

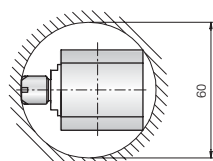
E' la linea di teste adatta a macchine utensili tradizionali da fissare al mandrino tramite flangiatura. La cava a "T", ricavata sulla flangia universale, permette un facile posizionamento del corpo testa sui 360° intorno al suo asse verticale. Sulle teste modello TCU, il supporto del mandrino portautensile ha la possibilità, a sua volta, di ruotare e posizionarsi da 0° a 90°. Un sistema modulare componibile, rende possibile variare la lunghezza del corpo testa aggiungendo l'elemento di prolunga. Modulo di prolunga, coni e flangia universale sono modulari e quindi intercambiabili su tutti i corpi testa appartenenti allo stesso ordine di grandezza.

Diese Serie von Winkelköpfen wird für Werkzeugmaschinen mit Flanschanschluss verwendet. Die Fräseinheit der TCU Köpfe kann zusätzlich von 0° bis 90° geschwenkt werden. Die T-Nut auf dem Universalflansch ermöglicht eine einfache Positionierung des Kopfes um seine vertikale Achse. Das modulare System ermöglicht es, den Körper der Winkelköpfe durch anbringen einer Verlängerung zu erweitern.

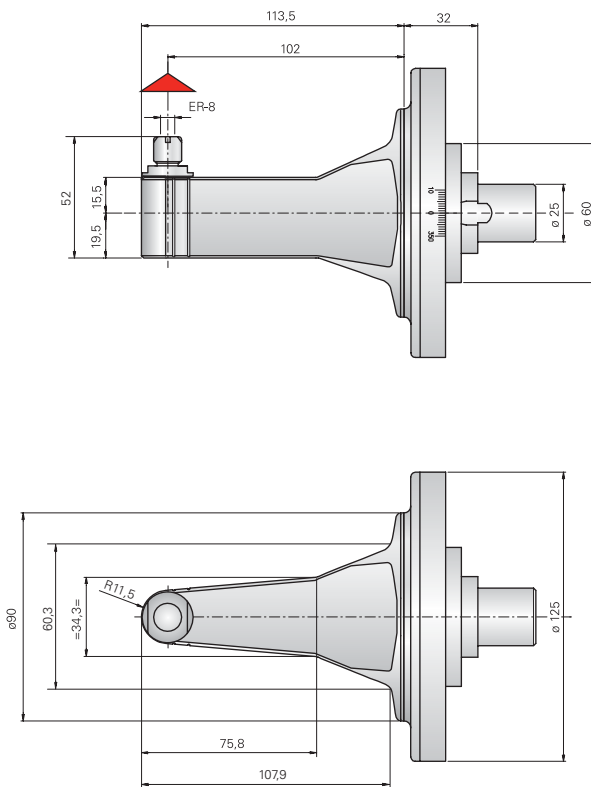
Die Verlängerungen, Kegel und universeller Anschlussflansch sind modular und somit unter allen Köpfen gleicher Größe auswechselbar.

LINEA MODULAR T90-0,4

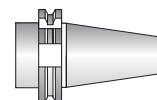
Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme



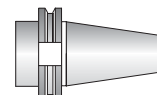
Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug



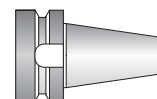
DIN-69871
 ISO-30/40/50



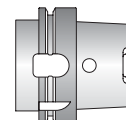
CAT
 30/40/50



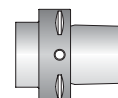
MAS-BT
 30/40/50



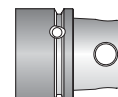
HSK
 63/80/100



CAPTO
 C5-C6-C8

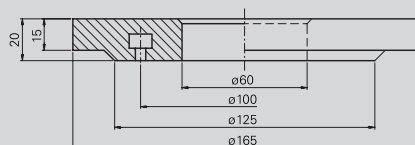


KM
 50/63



▲ Direction of rotation opposite to machine spindle / *senso di rotazione contrario al mandrino* / *Drehrichtung entgegen Antriebsspindel*

Technical Data / <i>Dati Tecnici</i> / <i>Technische Daten</i>		T90-0,4	STANDARD EQUIPMENT INCLUDES:
Rt / <i>Rt</i> / <i>Rt</i>		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / <i>Max. velocità</i> / <i>Drehzahl max.</i>	min ⁻¹	6.000	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso
Max. axial load / <i>Max. carico assiale</i> / <i>Max. Axialbelastung</i>	N	38	- Libro istruzioni
Torque / <i>Momento torcente</i> / <i>Drehmoment</i>	Nm	2	- Spezialtasche - Einstellring - Universalfansch
Weight / <i>Peso</i> / <i>Gewicht</i>	kg	3,5	- Standardaufnahme - Schraubenschlüssel - Tube mit Fett
Collet / <i>Pinza</i> / <i>Spannzange</i>	mm	ER-8 Ø 0,5/5	- Bedienungsanleitung



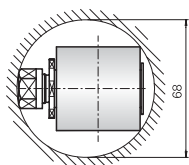
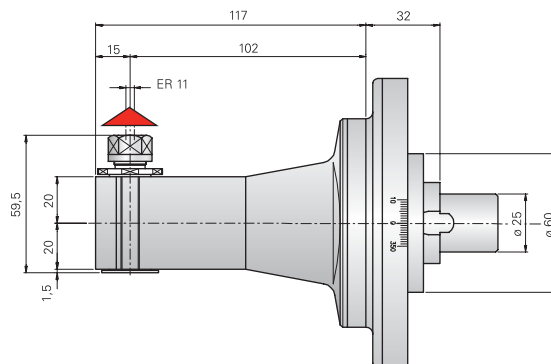
Universal flange
Flangia universale / *Universaler Anschlussflansch*

Option / *Opzione* / *Option*

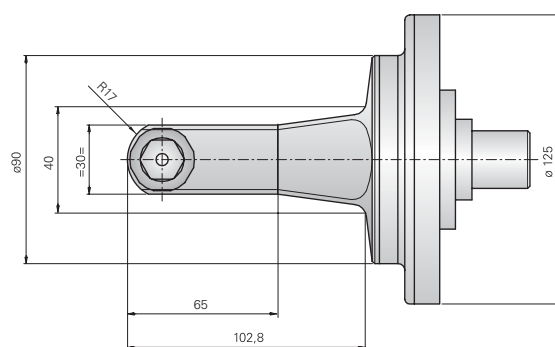
High speed optional RPM max. / <i>Opzione alta velocità RPM max.</i> / <i>Optionale Drehzahl max.</i>	min ⁻¹	10.000
Weldon output / <i>Weldon</i> / <i>Weldon-Aufnahme</i>	Ø	6 max.
Internal air pressure / <i>Predisposizione pressurizzazione aria</i> / <i>Sperrluft</i>	bar	0,2/0,3 max.

LINEA MODULAR T90-0,5C

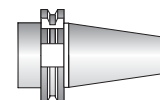
Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme



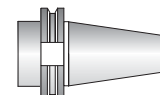
Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug



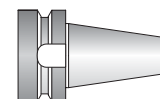
DIN-69871
ISO-30/40/50



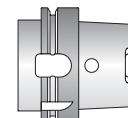
CAT
30/40/50



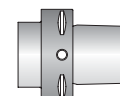
MAS-BT
30/40/50



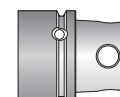
HSK
63/80/100



CAPTO
C5-C6-C8

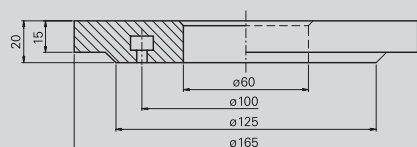


KM
50/63



▲ Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Technical Data / Dati Tecnici / Technische Daten		T90-0,5C	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	6.000	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	150	- Spezialtasche - Einstellring - Universalfansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Torque / Momento torcente / Drehmoment	Nm	5	
Weight / Peso / Gewicht	kg	3,7	
Collet / Pinza / Spannzange	mm	ER-11 ø 0,5/7	



Universal flange
Flangia universale / Universaler Anschlussflansch

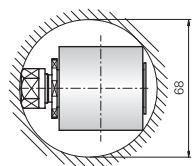
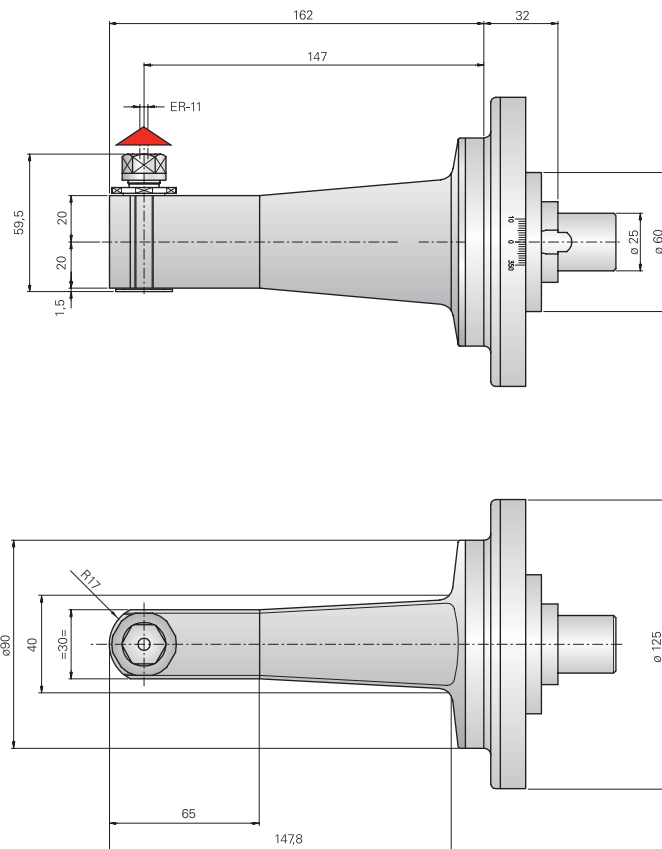
Option / Opzione / Option

High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	10.000
Weldon output / Weldon / Weldon-Aufnahme	ø	6 max.
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.



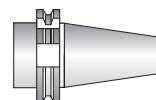
LINEA MODULAR T90-0,5L

Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme

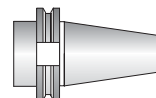


Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

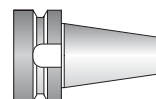
DIN-69871
 ISO-30/40/50



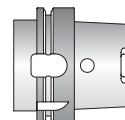
CAT
 30/40/50



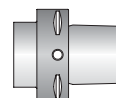
MAS-BT
 30/40/50



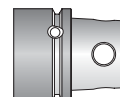
HSK
 63/80/100



CAPTO
 C5-C6-C8

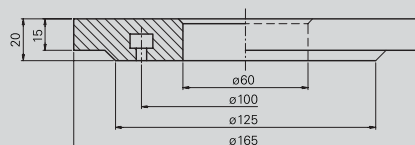


KM
 50/63



▲ Direction of rotation opposite to machine spindle / *senso di rotazione contrario al mandrino* / *Drehrichtung entgegen Antriebsspindel*

Technical Data / <i>Dati Tecnici</i> / <i>Technische Daten</i>		T90-0,5L	STANDARD EQUIPMENT INCLUDES:
Rt / <i>Rt</i> / <i>Rt</i>		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / <i>Max. velocità</i> / <i>Drehzahl max.</i>	min ⁻¹	6.000	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Max. axial load / <i>Max. carico assiale</i> / <i>Max. Axialbelastung</i>	N	150	- Spezialtasche - Einstellring - Universalfansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett
Torque / <i>Momento torcente</i> / <i>Drehmoment</i>	Nm	5	- Bedienungsanleitung
Weight / <i>Peso</i> / <i>Gewicht</i>	kg	4	
Collet / <i>Pinza</i> / <i>Spannzange</i>	mm	ER-11 Ø 0,5/7	

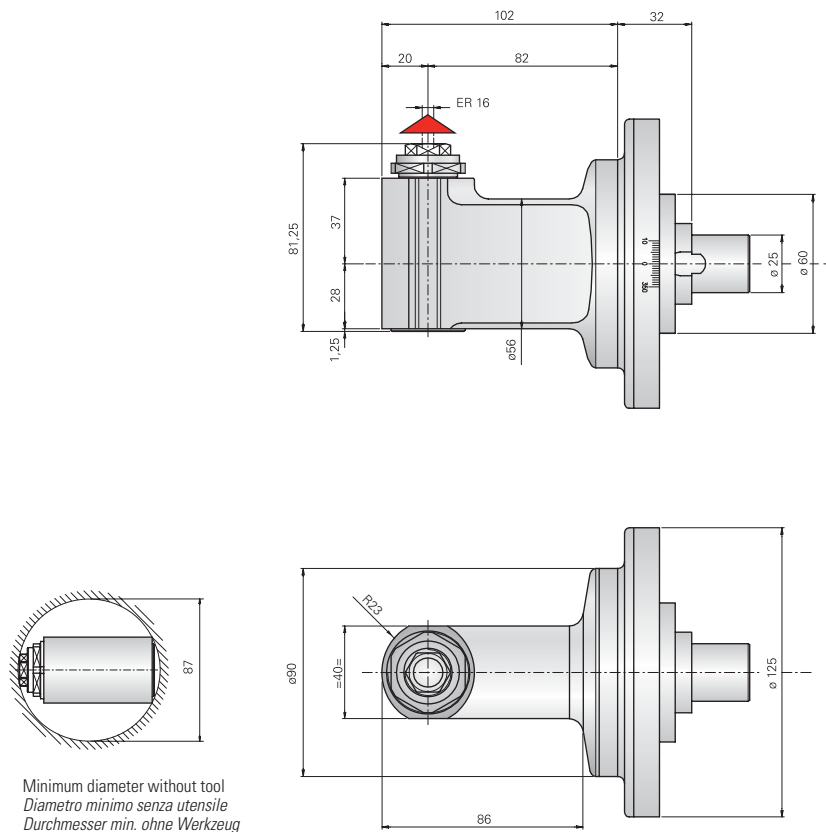


Universal flange
Flangia universale / *Universaler Anschlussflansch*

Option / *Opzione* / *Option*

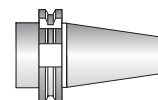
High speed optional RPM max. / <i>Opzione alta velocità RPM max.</i> / <i>Optionale Drehzahl max.</i>	min ⁻¹	10.000
Weldon output / <i>Weldon</i> / <i>Weldon-Aufnahme</i>	Ø	6 max.
Internal air pressure / <i>Predisposizione pressurizzazione aria</i> / <i>Sperrluft</i>	bar	0,2/0,3 max.

LINEA MODULAR T90-1,5

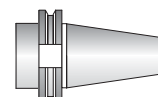


Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme

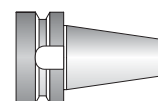
DIN-69871
ISO-30/40/50



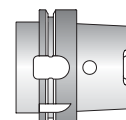
CAT
30/40/50



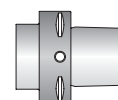
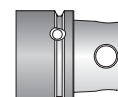
MAS-BT
30/40/50



HSK
63/80/100

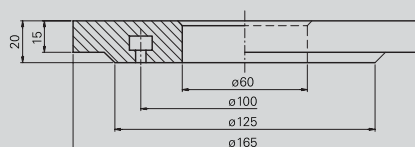


CAPTO
C5-C6-C8

KM
50/63

 Direction of rotation opposite to machine spindle / *senso di rotazione contrario al mandrino* / *Drehrichtung entgegen Antriebsspindel*

Technical Data / Dati Tecnici / Technische Daten		T90-1,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	6.000	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	250	- Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm	7	- Spezialtasche - Einstellring - Universalfansch
Weight / Peso / Gewicht	kg	4	- Standardaufnahme - Schraubenschlüssel - Tube mit Fett
Collet / Pinza / Spannzange	mm	ER-16 Ø 1/10	- Bedienungsanleitung



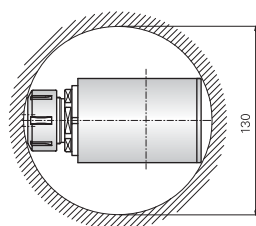
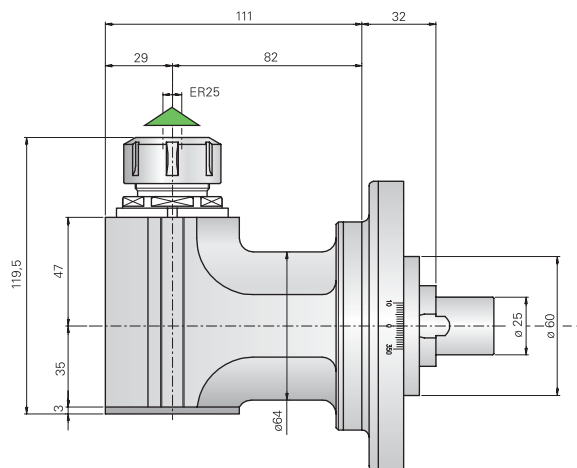
Universal flange
Flangia universale / Universaler Anschlussflansch

Option / Opzione / Option

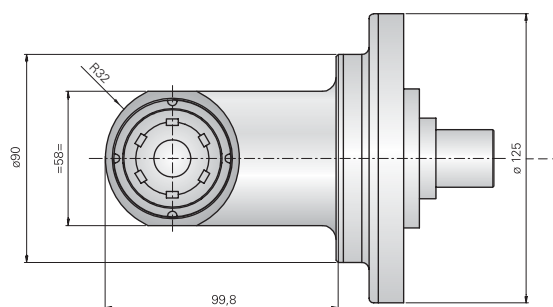
High speed optional RPM max. / <i>Opzione alta velocità RPM max. / Optionale Drehzahl max.</i>	min ⁻¹	10.000
Arbor output / <i>Porta fresa / Fräseraufnahme</i>	Ø	13 max.
Weldon output / <i>Weldon / Weldon-Aufnahme</i>	Ø	10 max.
Double output / <i>Doppia uscita / Doppelter Ausgang</i>		ER-16/ER11
Internal air pressure / <i>Predisposizione pressurizzazione aria / Sperrluft</i>	bar	0.2/0.3 max.

LINEA MODULAR T90-2,5

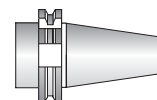
Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme



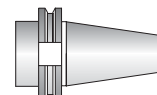
Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug



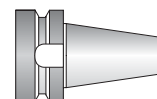
DIN-69871
ISO-30/40/50



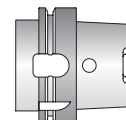
CAT
30/40/50



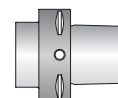
MAS-BT
30/40/50



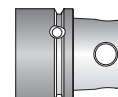
HSK
63/80/100



CAPTO
C5-C6-C8

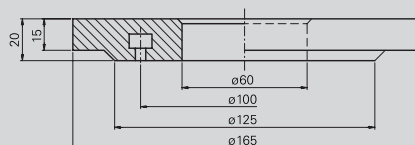


KM
50/63



Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebs spindle

Technical Data / Dati Tecnici / Technische Daten		T90-2,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	6.000	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	510	- Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm	20	- Spezialtasche - Einstellring - Universalfansch
Weight / Peso / Gewicht	kg	4,5	- Standardaufnahme - Schraubenschlüssel - Tube mit Fett
Collet / Pinza / Spannzange	mm	ER-25 Ø 2/16	- Bedienungsanleitung



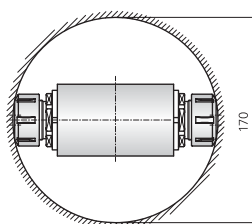
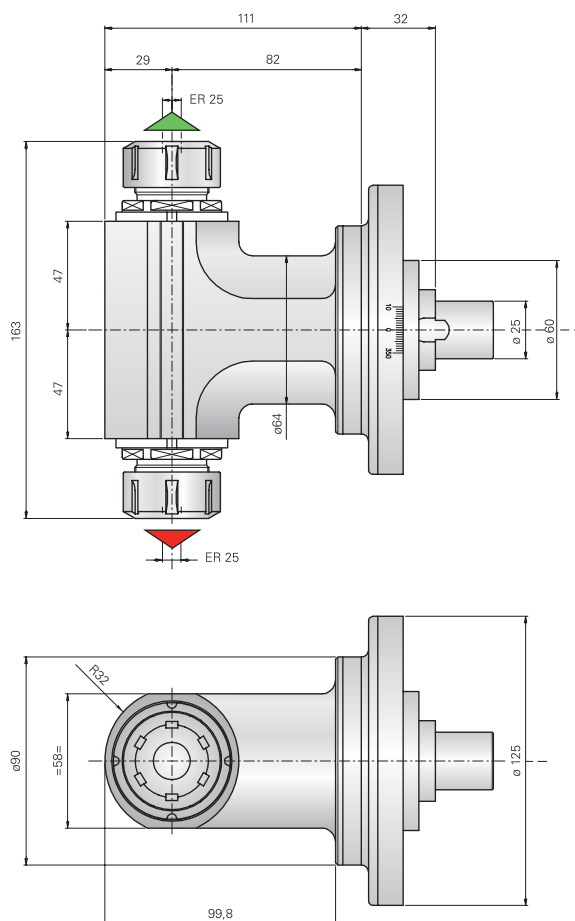
Universal flange
Flangia universale / Universaler Anschlussflansch

Option / Opzione / Option

High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	8.000
Arbor output / Porta fresa / Fräseraufnahme	Ø	16
Weldon output / Weldon / Weldon-Aufnahme	Ø	16 max.
Quick Change / Attacco rapido / Schnellwechselaufnahme		HSK-32
Double output / Doppia uscita / Doppelter Ausgang		ER-25/ER-16 1/10
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.

LINEA MODULAR T90-2,5 2U

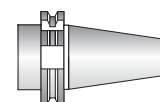
Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme



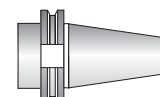
Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

▲ Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebsspindel
▼ Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

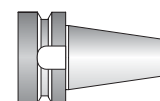
DIN-69871
ISO-30/40/50



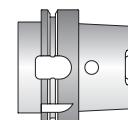
CAT
30/40/50



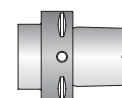
MAS-BT
30/40/50



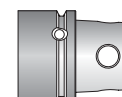
HSK
63/80/100



CAPTO
C5-C6-C8



KM
50/63

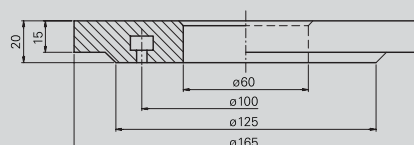


Technical Data / Dati Tecnici / Technische Daten

		T90-2,5 2U
Rt / Rt / Rt		1:1
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	510
Torque / Momento torcente / Drehmoment	Nm	20
Weight / Peso / Gewicht	kg	5,5
Collet / Pinza / Spannzange	mm	ER-25 ø 2/16

STANDARD EQUIPMENT INCLUDES:

- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
- Spezialtasche - Einstellring - Universalfalansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung



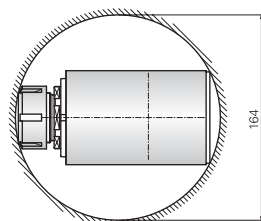
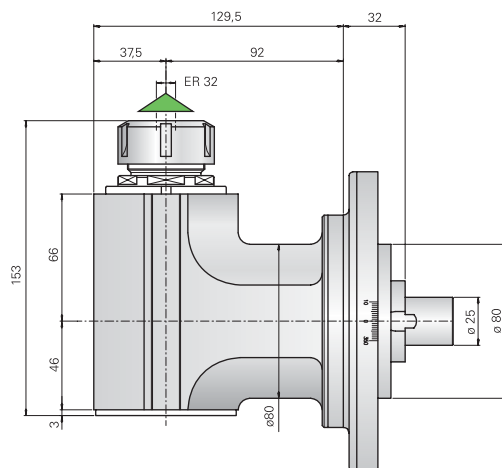
Universal flange
Flangia universale / Universaler Anschlussflansch

Option / Opzione / Option

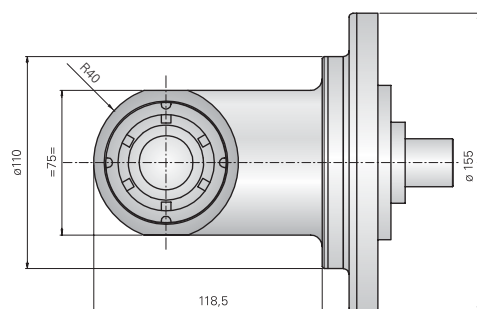
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	8.000
Arbor output / Porta fresa / Fräseraufnahme	ø	16
Weldon output / Weldon / Weldon-Aufnahme	ø	16 max.
Quick Change / Attacco rapido / Schnellwechselaufnahme		HSK-32
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.

LINEA MODULAR T90-3,5

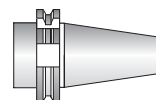
Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme



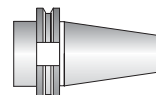
Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug



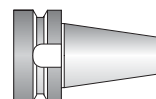
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ISO-30/40/50



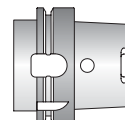
CAT
30/40/50



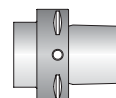
MAS-BT
30/40/50



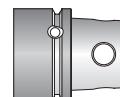
HSK
63/80/100



CAPTO
C5-C6-C8

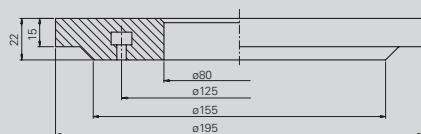


KM
50/63



Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebs spindle

Technical Data / Dati Tecnici / Technische Daten		T90-3,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	<ul style="list-style-type: none"> - Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book - Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni - Spezialtasche - Einstellring - Universalfansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000	
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	1.250	
Torque / Momento torcente / Drehmoment	Nm	35	
Weight / Peso / Gewicht	kg	10	
Collet / Pinza / Spannzange	mm	ER-32 Ø 3/20	



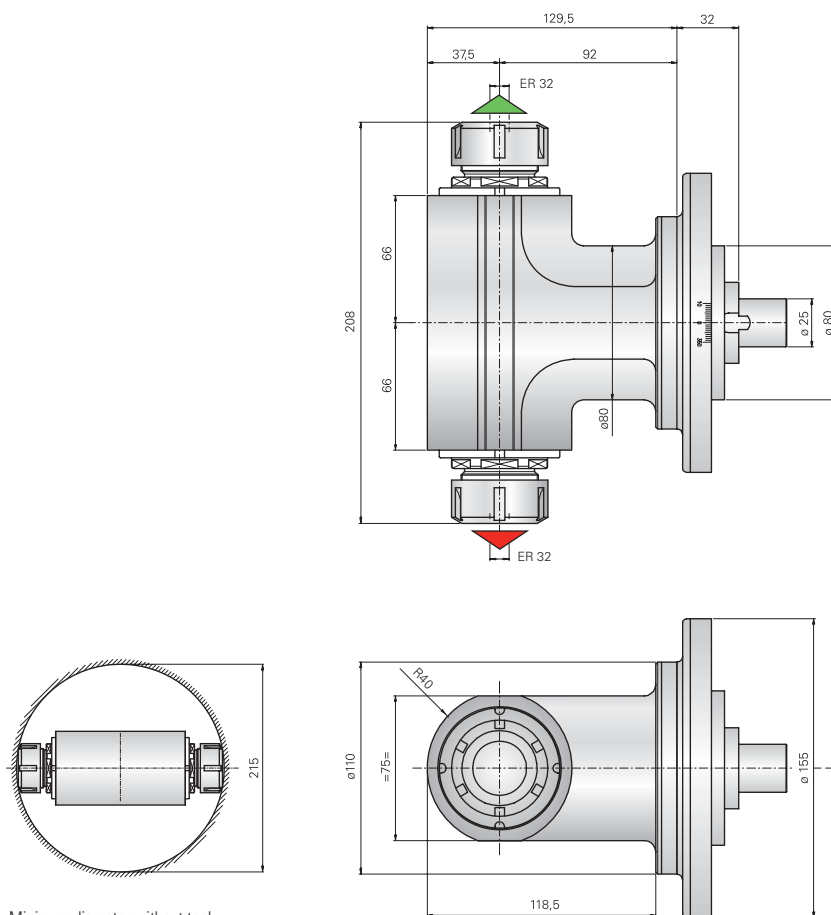
Universal flange
Flangia universale / Universaler Anschlussflansch

Option / Opzione / Option

High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	6.000
Arbor output / Porta fresa / Fräseraufnahme	Ø	22
Weldon output / Weldon / Weldon-Aufnahme	Ø	20
Quick Change / Attacco rapido / Schnellwechselaufnahme		HSK-40
Double output / Doppia uscita / Doppelter Ausgang		ER-32/ER-20, ER-25/ER-16 1/10
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.

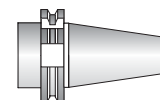
LINEA MODULAR T90-3,5 2U

Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme

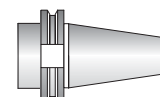


Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

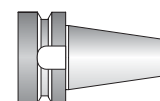
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ISO-30/40/50



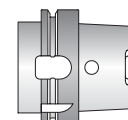
CAT
30/40/50



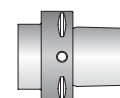
MAS-BT
30/40/50



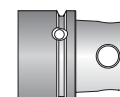
HSK
63/80/100



CAPTO
C5-C6-C8

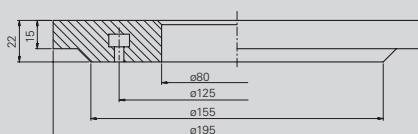


KM
50/63



- Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebsspindel
- Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Technical Data / Dati Tecnici / Technische Daten		T90-3,5 2U	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	1.250	- Spezialtasche - Einstellring - Universalfflansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Torque / Momento torcente / Drehmoment	Nm	35	
Weight / Peso / Gewicht	kg	11	
Collet / Pinza / Spannzange	mm	ER-32 Ø 3/20	



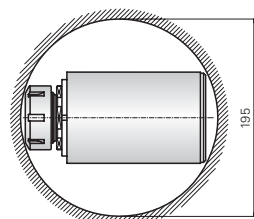
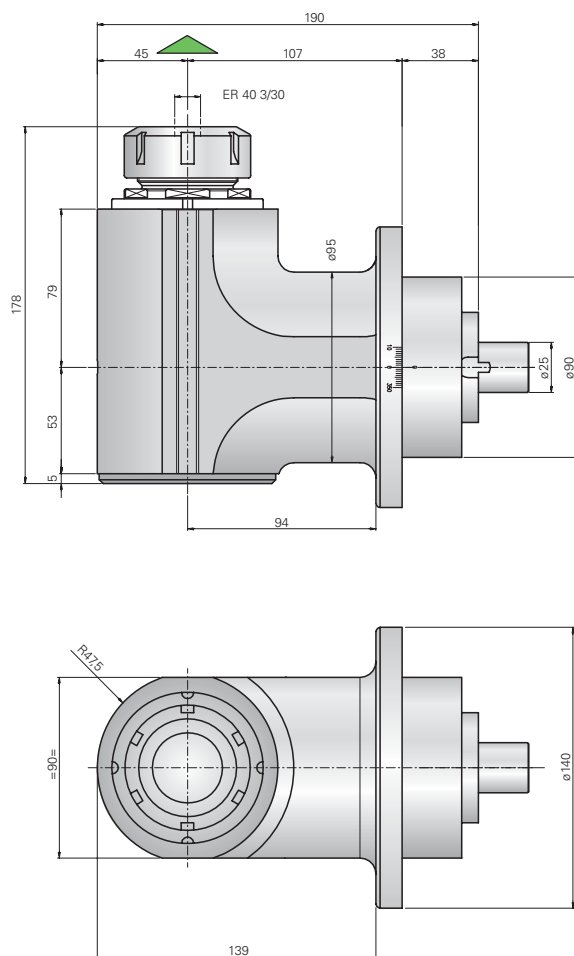
Universal flange
Flangia universale / Universaler Anschlussflansch

Option / Opzione / Option

High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	8.000
Arbor output / Porta fresa / Fräseraufnahme	Ø	22
Weldon output / Weldon / Weldon-Aufnahme	Ø	20
Quick Change / Attacco rapido / Schnellwechselaufnahme		HSK-40
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.



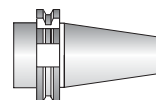
LINEA MODULAR T90-4,5



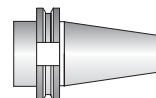
Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme

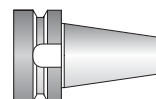
DIN-69871
ISO-30/40/50



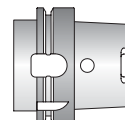
CAT
30/40/50



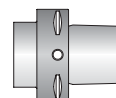
MAS-BT
30/40/50



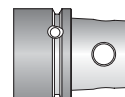
HSK
63/80/100



CAPTO
C5-C6-C8

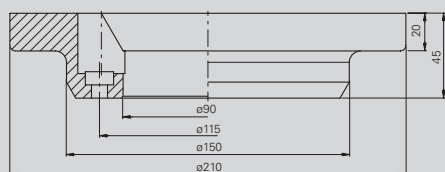


KM
50/63



Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebsspindel

Technical Data / Dati Tecnici / Technische Daten		T90-4,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	<ul style="list-style-type: none"> - Wooden crate - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book - Cassa - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni - Holzbox - Einstellring - Universalflansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000	
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	750	
Torque / Momento torcente / Drehmoment	Nm	75	
Weight / Peso / Gewicht	kg	15	
Collet / Pinza / Spannzange	mm	ER-40 Ø 3/30	



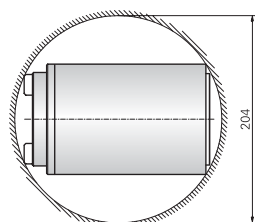
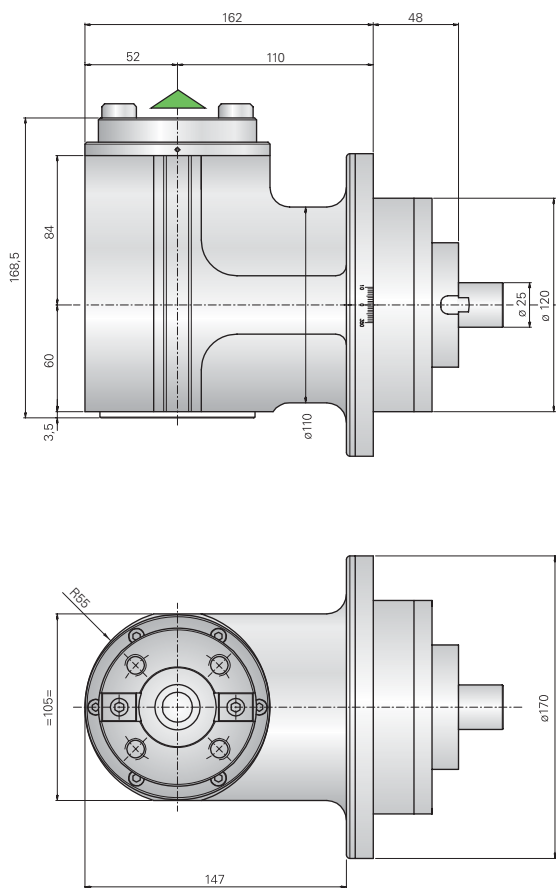
Universal flange
Flangia universale / Universaler Anschlussflansch

Option / Opzione / Option

High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	6.000
Arbor output / Porta fresa / Fräseraufnahme	Ø	27
Weldon output / Weldon / Weldon-Aufnahme	Ø	25
Quick Change / Attacco rapido / Schnellwechselaufnahme		HSK-40
Double output / Doppia uscita / Doppelter Ausgang		ER-40/ER-25
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.

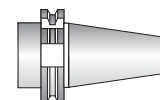
LINEA MODULAR T90-5

Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme

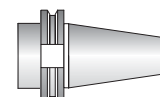


Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

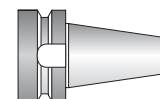
DIN-69871
ISO-30/40/50



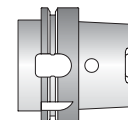
CAT
30/40/50



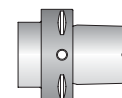
MAS-BT
30/40/50



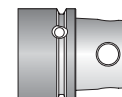
HSK
63/80/100



CAPTO
C5-C6-C8

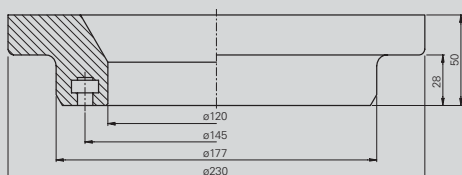


KM
50/63



Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebsspindel

Technical Data / Dati Tecnici / Technische Daten		T90-5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Wooden crate - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book - Cassa - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni - Holzbox - Einstellring - Universalfansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000	
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	1.800	
Torque / Momento torcente / Drehmoment	Nm	90	
Weight / Peso / Gewicht	kg	22	
Collet / Pinza / Spannzange	mm	ISO 40/BT40	



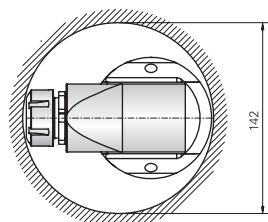
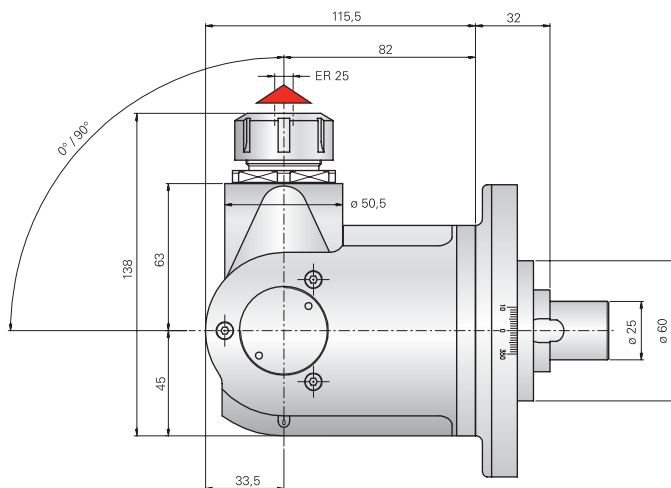
Universal flange
Flangia universale / Universaler Anschlussflansch

Option / Opzione / Option

High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	6.000
Quick Change / Attacco rapido / Schnellwechselaufnahme		HSK-63
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.

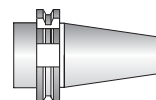
LINEA MODULAR TCU-2,5

Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme

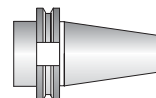


Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug

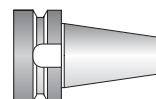
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ISO-30/40/50



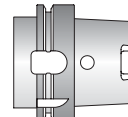
CAT
30/40/50



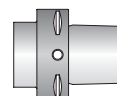
MAS-BT
30/40/50



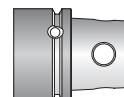
HSK
63/80/100



CAPTO
C5-C6-C8

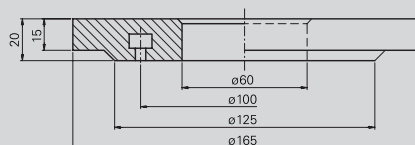


KM
50/63



Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Technical Data / Dati Tecnici / Technische Daten		TCU-2,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	480	- Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm	18	- Spezialtasche - Einstellring - Universalfansch
Weight / Peso / Gewicht	kg	6,3	- Standardaufnahme - Schraubenschlüssel - Tube mit Fett
Collet / Pinza / Spannzange	mm	ER-25 Ø 2/16	- Bedienungsanleitung



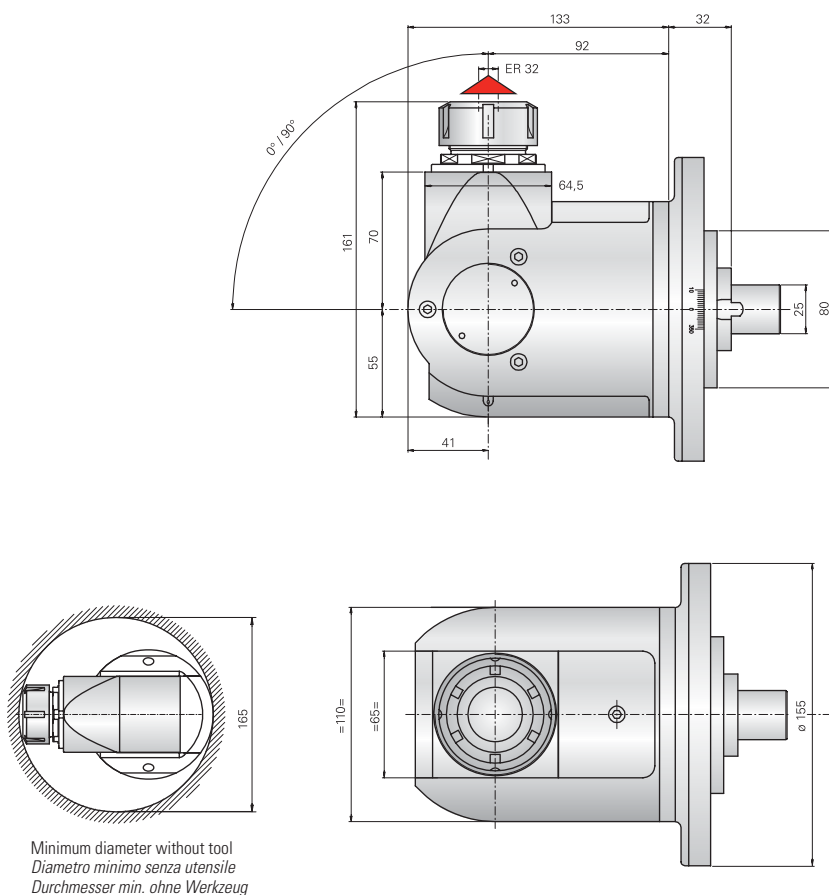
Universal flange
Flangia universale / Universaler Anschlussflansch

Option / Opzione / Option

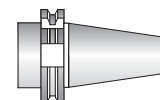
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	6.000
Arbor output / Porta fresa / Fräseraufnahme	Ø	16
Weldon output / Weldon / Weldon-Aufnahme	Ø	16

LINEA MODULAR TCU-3,5

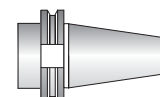
Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme



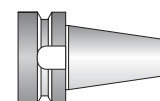
DIN-69871
ISO-30/40/50



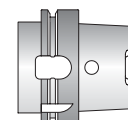
CAT
30/40/50



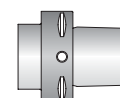
MAS-BT
30/40/50



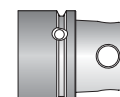
HSK
63/80/100



CAPTO
C5-C6-C8

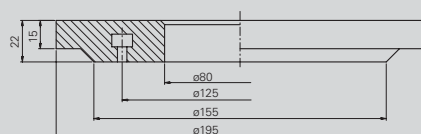


KM
50/63



▲ Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Technical Data / Dati Tecnici / Technische Daten		TCU-3,5	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	715	- Spezialtasche - Einstellring - Universalfansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Torque / Momento torcente / Drehmoment	Nm	32	
Weight / Peso / Gewicht	kg	12	
Collet / Pinza / Spannzange	mm	ER-32 Ø 3/20	



Universal flange
Flangia universale / Universaler Anschlussflansch

Option / Opzione / Option

High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.	min ⁻¹	6.000
Arbor output / Porta fresa / Fräseraufnahme	Ø	22
Weldon output / Weldon / Weldon-Aufnahme	Ø	20

Series LINEA TR90 – 90° special angle heads for individual user solutions.



Over the years we have acquired exhaustive experience in the design and manufacture of special angle heads to solve wide ranging user problems. Models TA45 and TR90 are often ideal heads for machining that cannot be performed by our wide range of standard units.

The new TA45 and TR90 heads enhance the range offering additional and standard alternatives for our customers' benefit.

Overview / Descrizione / Überblick



TR90-1,5cn control p. 40



TR90-2,5cn control p. 41



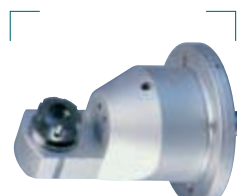
TR90-3,5cn control p. 42



TR90-1,5 modular p. 43



TR90-2,5 modular p. 44

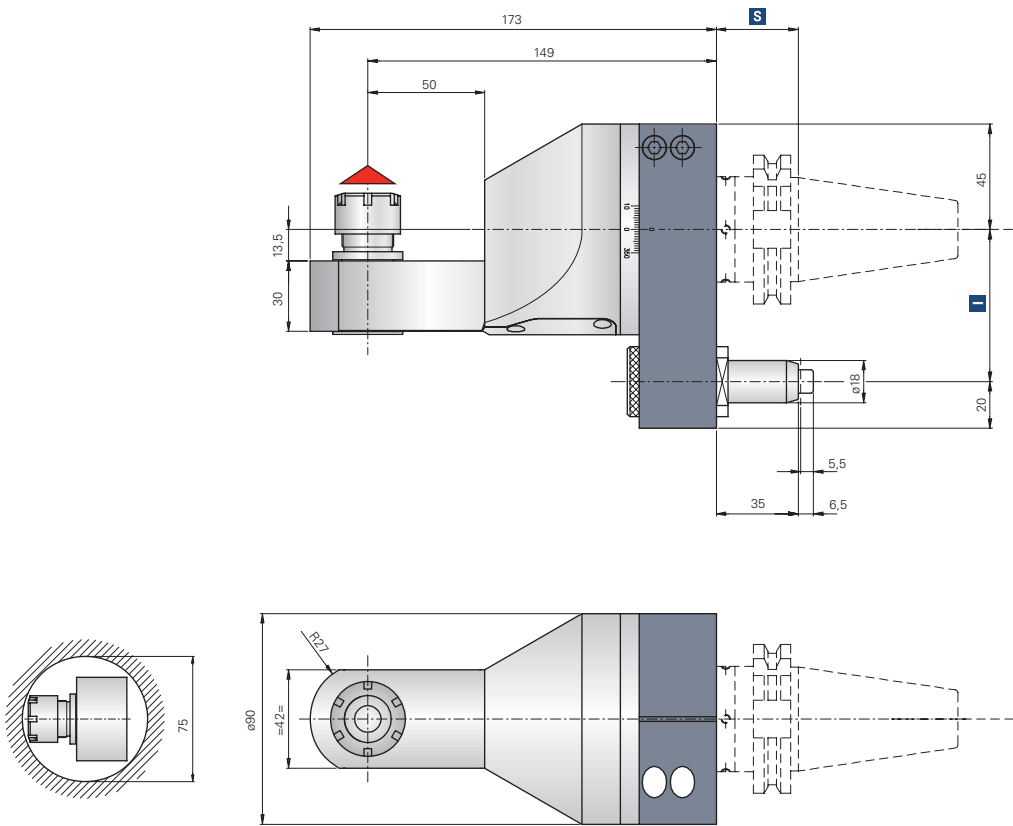


TR90-3,5 modular p. 45

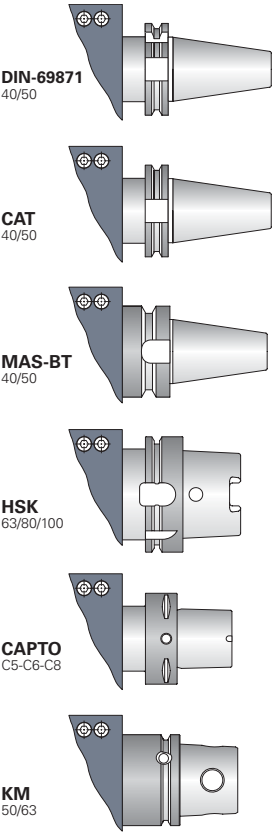
In questi anni la nostra azienda ha maturato una notevole esperienza nella progettazione e costruzione di teste angolari speciali, adatte a risolvere i più svariati problemi sottoposti dalla clientela. Le due linee proposte, TA45 e TR90, sono la soluzione più idonea per la maggior parte di quelle lavorazioni non realizzabili con la pur vasta gamma di modelli standard fino ad ora prodotti. Con l'introduzione delle teste TA45 e TR90, la disponibilità dei modelli standard si arricchisce ulteriormente per permetterci di essere sempre pronti a soddisfare le vostre esigenze.

Über die Jahre haben wir umfassende Erfahrungen gesammelt, was das Design und die Produktion von speziellen Winkelköpfen betrifft, die es ermöglichen komplexe Anwendungsprobleme zu lösen. Die Produktreihe TA45 und TR90 sind oftmals die geeigneten Köpfe für Arbeiten, die nicht von unserer breiten Produktpalette an Standard-Elementen bewältigt werden kann. Die neuen TA45 und TR90 Köpfe erweitern die Palette indem sie zusätzliche Alternativen zum Vorteil unserer Kunden bieten.

TR90cn-1,5 control



Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



The toolholder of model TR90 can be tailored according to the type of tool to be used and the dimension admitted. L'attacco utensile sarà personalizzato accordo al tipo di utensile da utilizzare ed agli ingombri disponibili. Der Werkzeughalter der TR90 Linie kann spezifisch an die verwendete Werkzeuggröße angepasst werden.

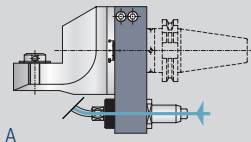
Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Shank/Cono/Aufnahme	DIN-69871 / CAT		MAS-BT		HSK		CAPTO		KM
Size/Grandezza/Größe	40	50	40	50	63-80	100	C5-C6	C8	50-63
I	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	35	35	41	42	45	38	40	40

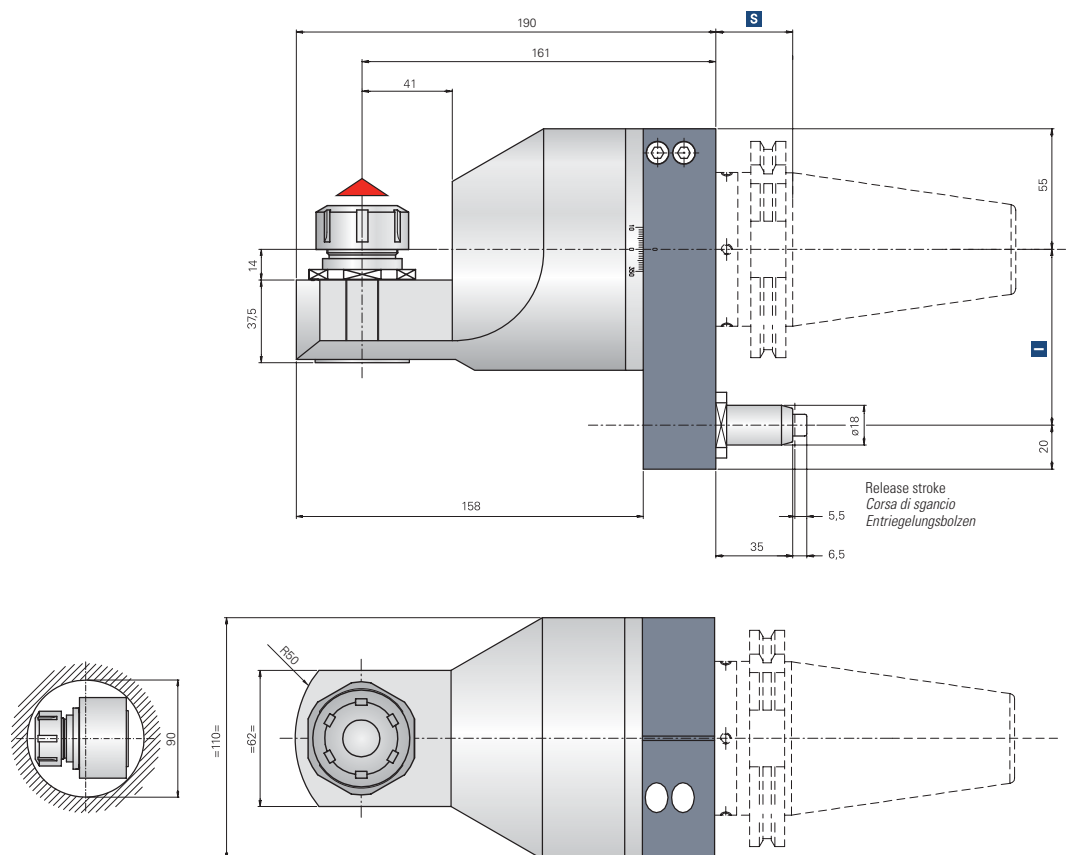
*optional

Technical Data / Dati Tecnici / Technische Daten	TR90cn-1,5 control	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt	1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹ 3.500	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung	N 330	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm 8	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht	kg 6	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange	mm ER-16 ø 1/10	

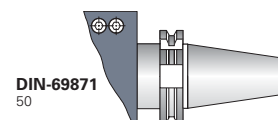
Option / Opzione / Option		
A coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen	bar/psi max.	12/175
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.



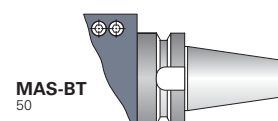
TR90cn-2,5 control



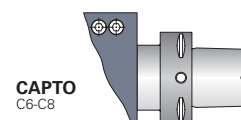
Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



CAT
50



HSK
63/80/100

KM
6.3

The toolholder of model TR90 can be tailored according to the type of tool to be used and the dimension admitted. *L'attacco utensile sarà personalizzato accordo al tipo di utensile da utilizzare ed agli ingombri disponibili.* Der Werkzeughalter der TR90 Linie kann spezifisch an die verwendete Werkzeuggröße angepasst werden.

 Direction of rotation opposite to machine spindle / *senso di rotazione contrario al mandrino* / *Drehrichtung entgegen Antriebsspindel*

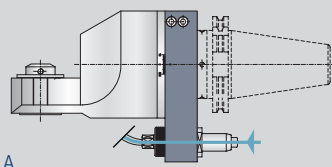
Shank/Cono/Aufnahme	DIN-69871 / CAT	MAS-BT	HSK		CAPTO		KM
Size/Grandezza/Größe	50	50	63-80	100	C6	C8	63
I	80-110	80-(110*)	65-80 -(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	41	42	45	38	40	40

*optional

Technical Data / Dati Tecnici / Technische Daten		TR90cn-2,5 control	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	3.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	470	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm	20	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht	kg	9	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange	mm	ER-25 Ø 2/16	

Option / Opzione / Option

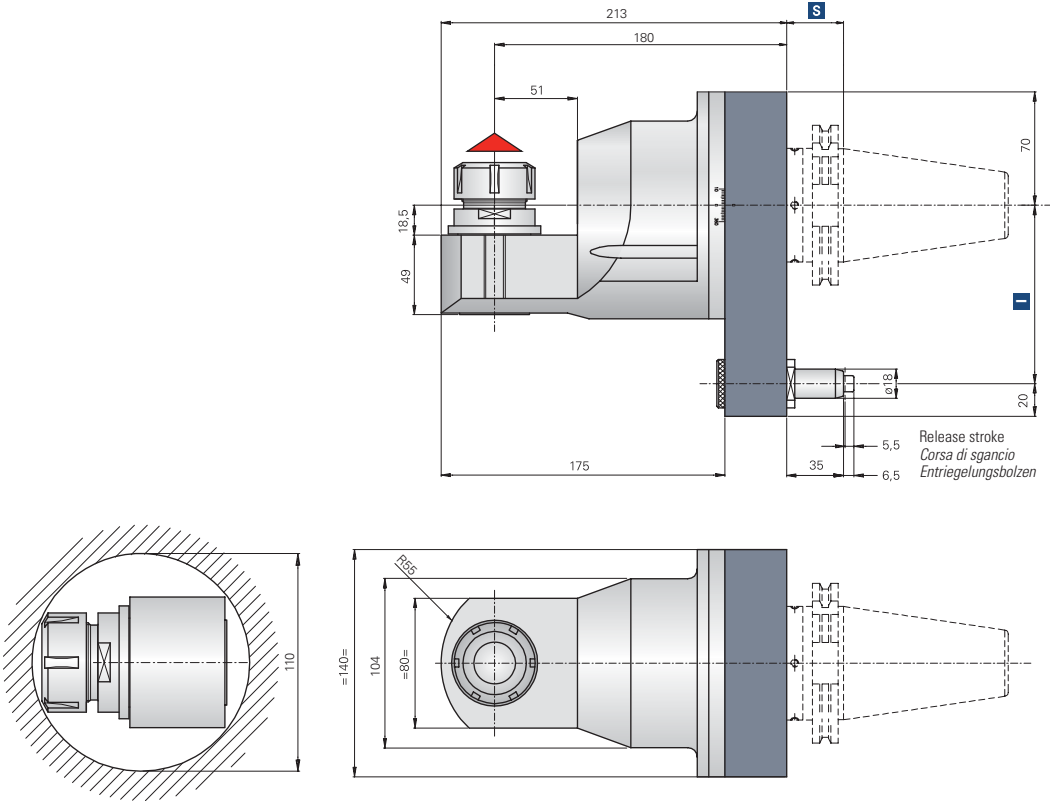
A coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen	bar/psi max.	12/175
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0.2/0.3 max.



A

TR90cn-3,5 control

Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



DIN-69871
50

CAT
50

MAS-BT
50

HSK
80/100

CAPTO
C6-C8

KM
63

The toolholder of model TR90 can be tailored according to the type of tool to be used and the dimension admitted. L'attacco utensile sarà personalizzato secondo al tipo di utensile da utilizzare ed agli ingombri disponibili. Der Werkzeughalter der TR90 Linie kann spezifisch an die verwendete Werkzeuggröße angepasst werden.

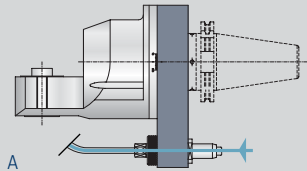
Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Shank/Cono/Aufnahme	DIN-69871 / CAT	MAS-BT	HSK(*)		CAPTO		KM
Size/Grandezza/Größe	50	50	63-80	100	C6	C8	63
I	110	110	110	110	110	110	110
S	35	41	42	45	38	40	40

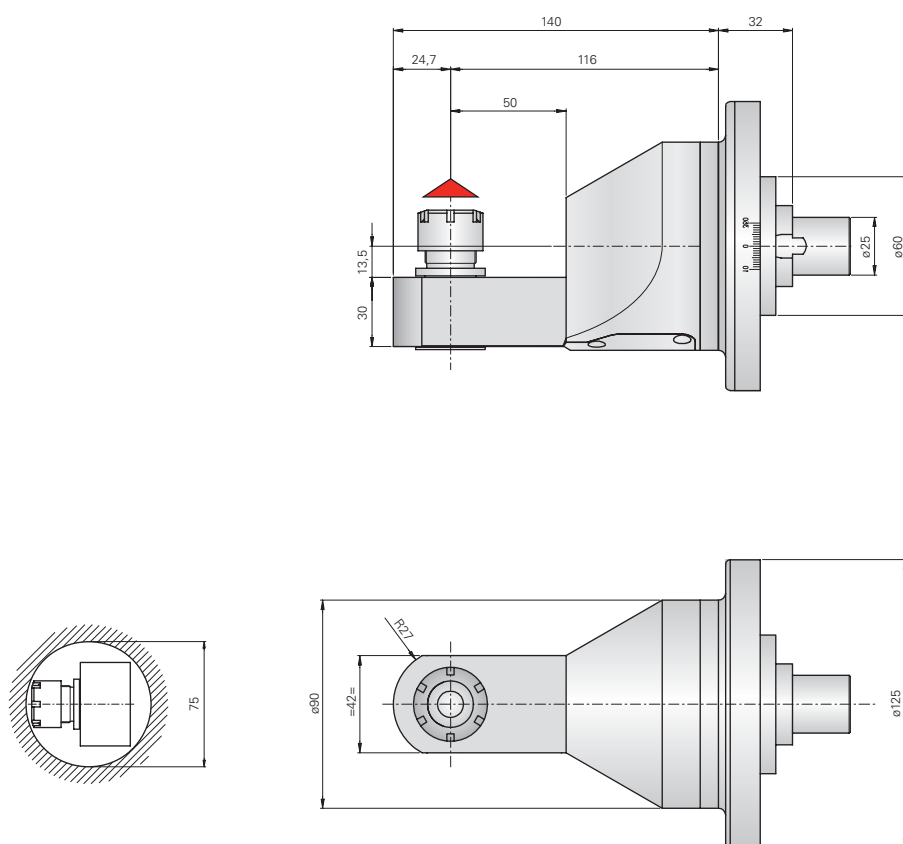
*optional

Technical Data / Dati Tecnici / Technische Daten			TR90cn-3,5 control	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Wooden crate - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.		min ⁻¹	2.500	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung		N	980	- Cassa - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment		Nm	40	- Holzbox - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht		kg	12	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange		mm	ER-32 ø 3/20	

Option / Opzione / Option		
A coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen	bar/psi max.	12/175
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.



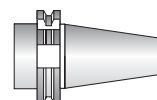
TR90-1,5 modular



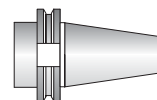
The toolholder of model TR90 can be tailored according to the type of tool to be used and the dimension admitted. L'attacco utensile sarà personalizzato secondo al tipo di utensile da utilizzare ed agli ingombri disponibili. Der Werkzeughalter der TR90 Linie kann spezifisch an die verwendete Werkzeuggröße angepasst werden.

Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme

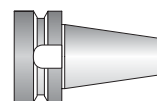
DIN-69871
ISO-30/40/50



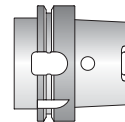
CAT
30/40/50



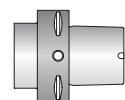
MAS-BT
30/40/50



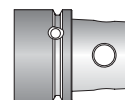
HSK
63/80/100



CAPTO
C5-C6-C8



KM
50/63



▲ Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

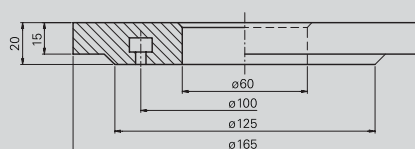
Technical Data / Dati Tecnici / Technische Daten		TR90cn-1,5 modular	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	3.500	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	330	- Spezialtasche - Einstellring - Universalfansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Torque / Momento torcente / Drehmoment	Nm	8	
Weight / Peso / Gewicht	kg	6	
Collet / Pinza / Spannzange	mm	ER-16 ø 1/10	

Option / Opzione / Option

Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft

bar

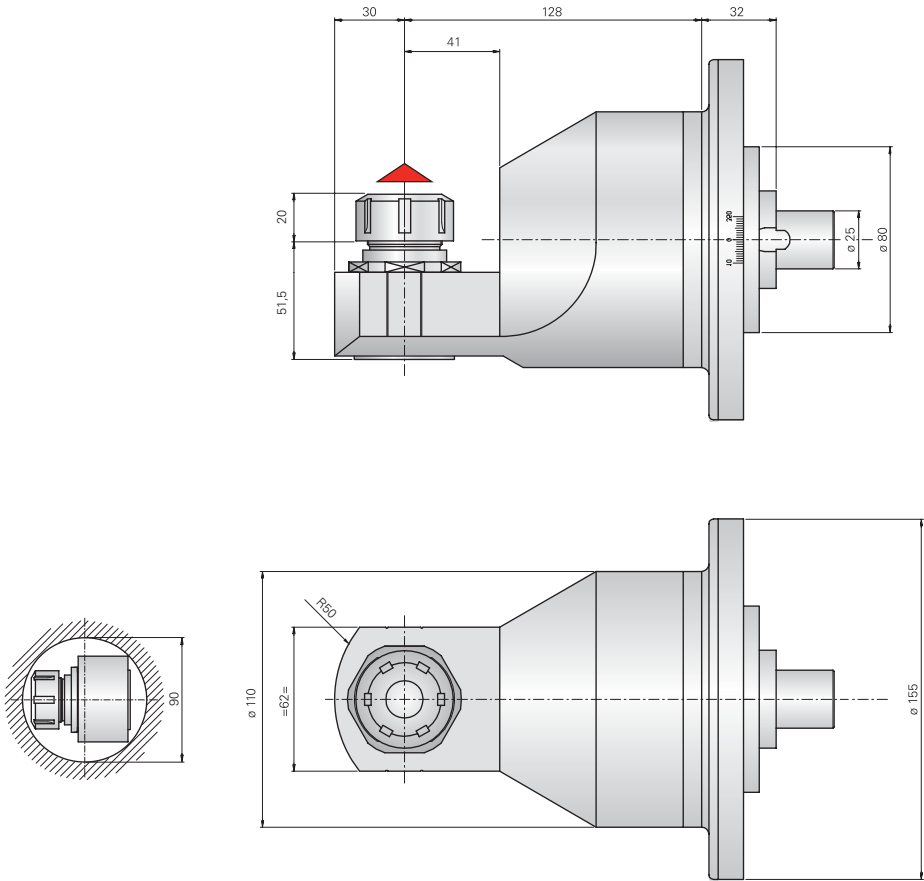
0,2/0,3 max.



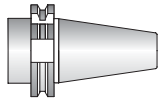
Universal flange
Flangia universale / Universaler Anschlussflansch

TR90-2,5 modular

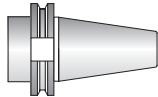
Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme



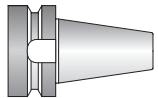
DIN-69871
ISO-30/40/50



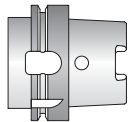
CAT
30/40/50



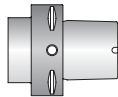
MAS-BT
30/40/50



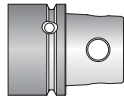
HSK
63/80/100



CAPTO
C5-C6-C8



KM
50/63



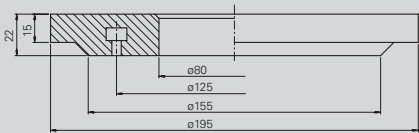
The toolholder of model TR90 can be tailored according to the type of tool to be used and the dimension admitted. L'attacco utensile sarà personalizzato secondo al tipo di utensile da utilizzare ed agli ingombri disponibili. Der Werkzeughalter der TR90 Linie kann spezifisch an die verwendete Werkzeuggröße angepasst werden.

Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Technical Data / Dati Tecnici / Technische Daten		TR90cn-2,5 modular	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	3.000	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	470	- Spezialtasche - Einstellring - Universalfansch
Torque / Momento torcente / Drehmoment	Nm	20	- Standardaufnahme - Schraubenschlüssel - Tube mit Fett
Weight / Peso / Gewicht	kg	9	- Bedienungsanleitung
Collet / Pinza / Spannzange	mm	ER-25 ø 2/16	

Option / Opzione / Option

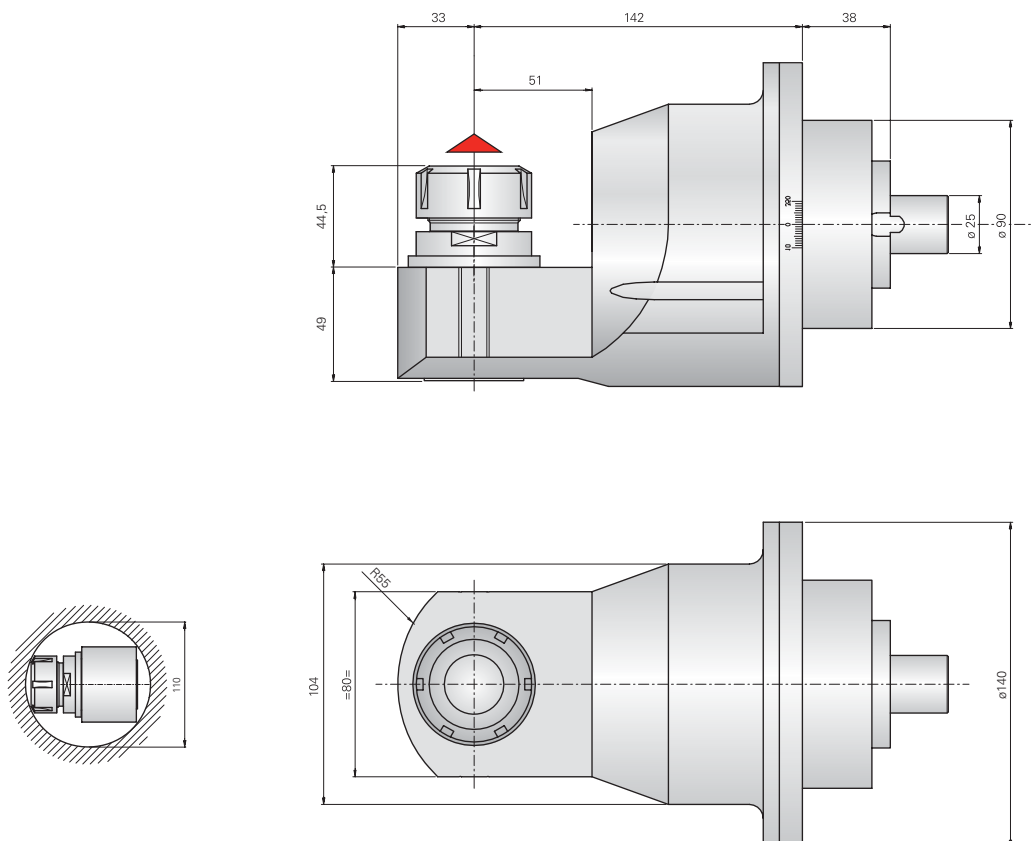
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft bar 0,2/0,3 max.



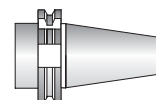
Universal flange
Flangia universale / Universaler Anschlussflansch

TR90-3,5 modular

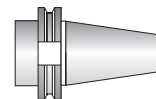
Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme



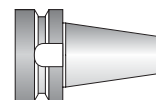
DIN-69871
ISO-30/40/50



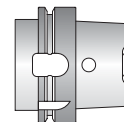
CAT
30/40/50



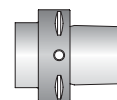
MAS-BT
30/40/50



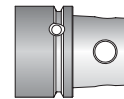
HSK
63/80/100



CAPTO
C5-C6-C8



KM
50/63



The toolholder of model TR90 can be tailored according to the type of tool to be used and the dimension admitted. *L'attacco utensile sarà personalizzato accordo al tipo di utensile da utilizzare ed agli ingombri disponibili.* Der Werkzeughalter der TR90 Linie kann spezifisch an die verwendete Werkzeuggröße angepasst werden.

▲ Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspinde

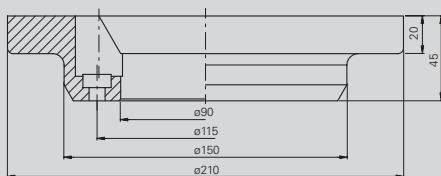
Technical Data / Dati Tecnici / Technische Daten		TR90cn-3,5 modular	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Wooden crate - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	2.500	- Cassa - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	980	- Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm	40	- Holzbox - Einstellring - Universalfansch - Standardaufnahme
Weight / Peso / Gewicht	kg	12	- Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange	mm	ER-32 ø 3/20	

Option / Opzione / Option

Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft

bar

0,2/0,3 max.



Universal flange
Flangia universale / Universaler Anschlussflansch

Series LINEA TA45 – 45° special angle heads for individual user solutions.



Over the years we have acquired exhaustive experience in the design and manufacture of special angle heads to solve wide ranging user problems. Models TA45 and TR90 are often ideal heads for work which cannot be handled by our wide range of standard units.

The new TA45 and TR90 heads enhance the range offering additional and standard alternatives for our customers' benefit.



Overview / Descrizione / Überblick



TA45-1,5 control p. 48



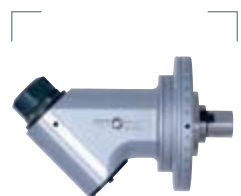
TA45-2,5 control p. 49



TA45-3,5 control p. 50



TA45-1,5 modular p. 51



TA45-2,5 modular p. 52



TA45-3,5 modular p. 53

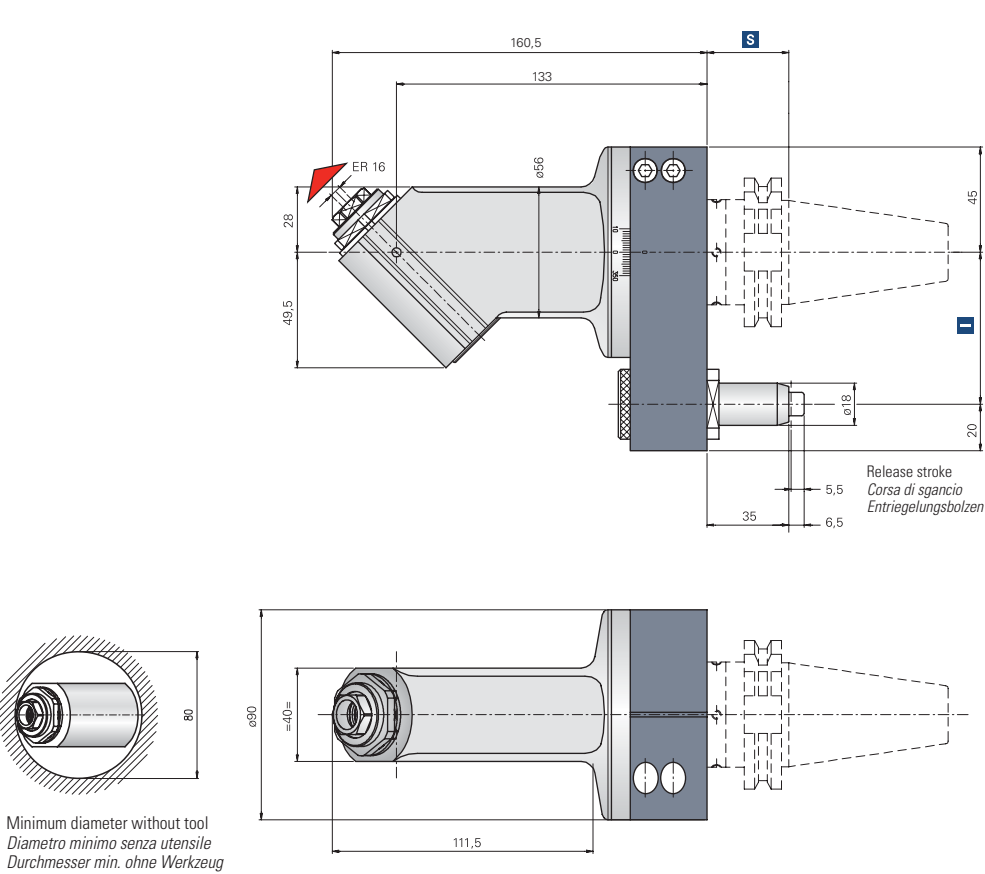
In questi anni la nostra azienda ha maturato una notevole esperienza nella progettazione e costruzione di teste angolari speciali, adatte a risolvere i più svariati problemi sottoposti dalla clientela. Le due linee proposte, TA45 e TR90, sono la soluzione più idonea per la maggior parte di quelle lavorazioni non realizzabili con la pur vasta gamma di modelli standard fino ad ora prodotti. Con l'introduzione delle teste TA45 e TR90, la disponibilità dei modelli standard si arricchisce ulteriormente per permetterci di essere sempre pronti a soddisfare le vostre esigenze.

Über die Jahre haben wir umfassende Erfahrungen gesammelt, was das Design und die Produktion von speziellen Winkelköpfen betrifft, die es ermöglichen komplexe Anwendungsprobleme zu lösen.

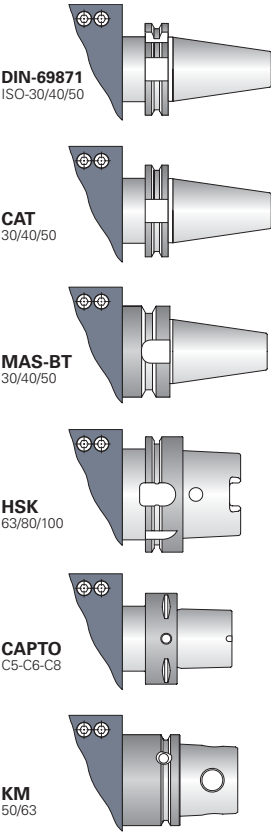
Die Produktreihe TA45 und TR90 sind oftmals die geeigneten Köpfe für Arbeiten, die nicht von unserer breiten Produktpalette an Standard-Elementen bewältigt werden kann. Die neuen TA45 und TR90 Köpfe erweitern die Reihe indem sie zusätzliche Alternativen zum Vorteil unserer Kunden bieten.



TA45cn-1,5 control



Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



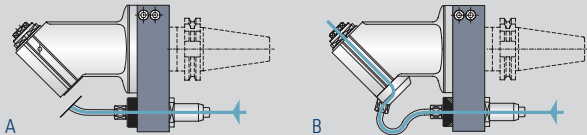
Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Shank/Cono/Aufnahme	DIN-69871 / CAT			MAS-BT			HSK		CAPTO		KM
Size/Grandezza/Größe	30	40	50	30	40	50	63-80	100	C5-C6	C8	50-63
I	65-80	65-80 -(110*)	80-(110*)	65-80	65-80 -(110*)	80-(110*)	65-80 -(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	35	35	30	35	41	42	45	38	40	40

*optional

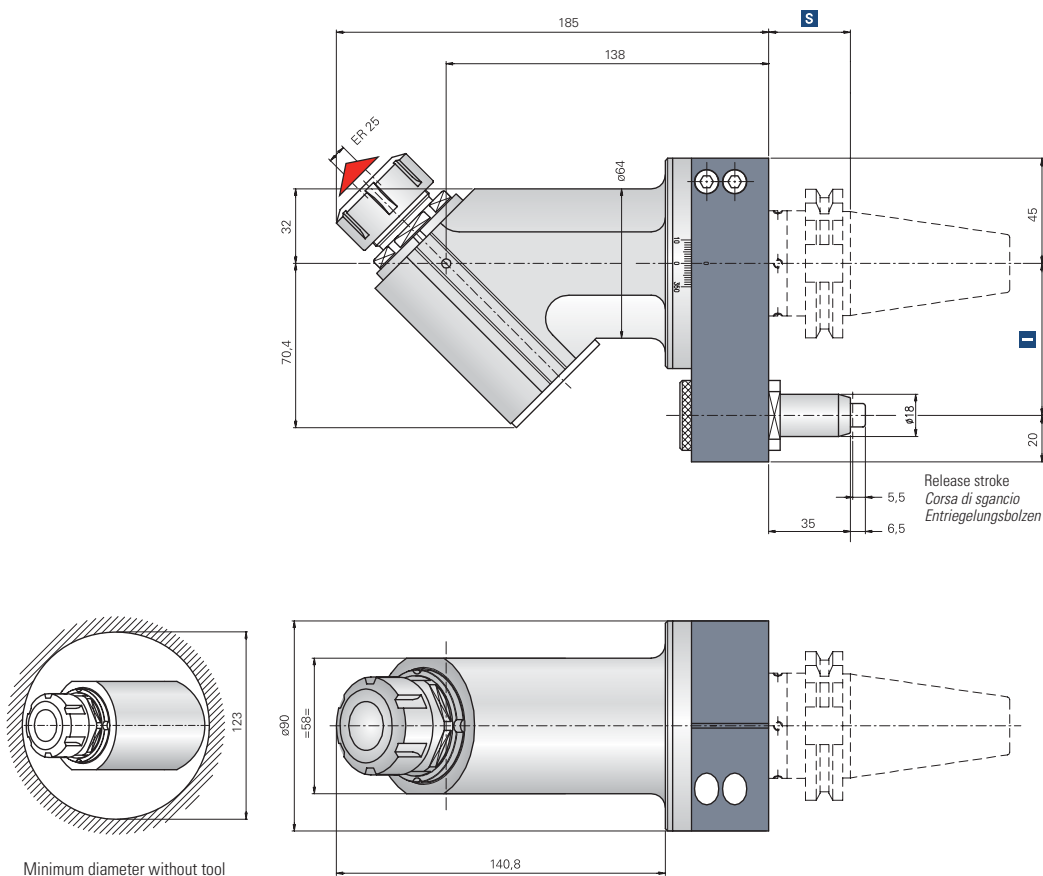
Technical Data / Dati Tecnici / Technische Daten			TA45cn-1,5 control	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.		min ⁻¹	4.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung		N	250	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment		Nm	7	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht		kg	5	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange		mm	ER-16 ø 1/10	

Option / Opzione / Option					
A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen				bar/psi max.	12/175
B Coolant through pin and spindle / Adduzione refrigerante interna attraverso il perno / Kühlmittelzufuhr durch Bolzen und Spindel				bar/psi max.	12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.				min ⁻¹	8000
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft				bar	0,2/0,3 max.
Arbor output / Porta fresa / Fräseraufnahme	ø	13	Weldon output / Weldon / Weldon-Aufnahme	ø	10



TA45cn-2,5 control

Non interchangeable input drive shank
 Coni di attacco non intercambiabili
 Nicht wechselbare Aufnahme

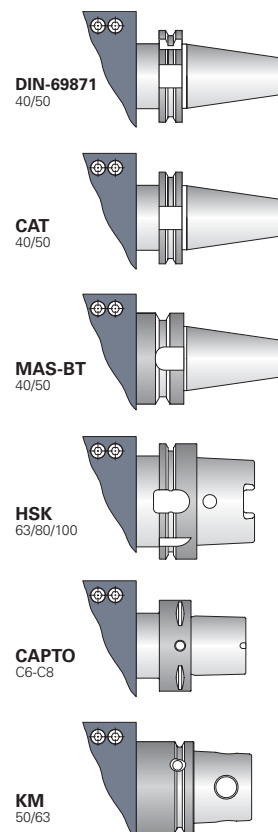


Minimum diameter without tool
 Diametro minimo senza utensile
 Durchmesser min. ohne Werkzeug

▲ Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Shank/Cono/Aufnahme	DIN-69871 / CAT		MAS-BT		HSK		CAPTO		KM
Size/Grandezza/Größe	40	50	40	50	63-80	100	C5-C6	C8	50-63
I	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	35	35	41	42	45	38	40	40

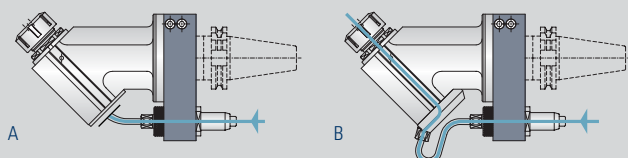
*optional



Technical Data / Dati Tecnici / Technische Daten			TA45cn-2,5 control	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.		min ⁻¹	4.000	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung		N	510	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment		Nm	20	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht		kg	6,2	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange		mm	ER-25 ø 2/16	

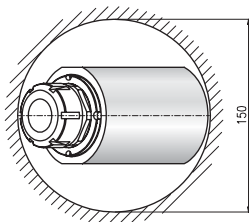
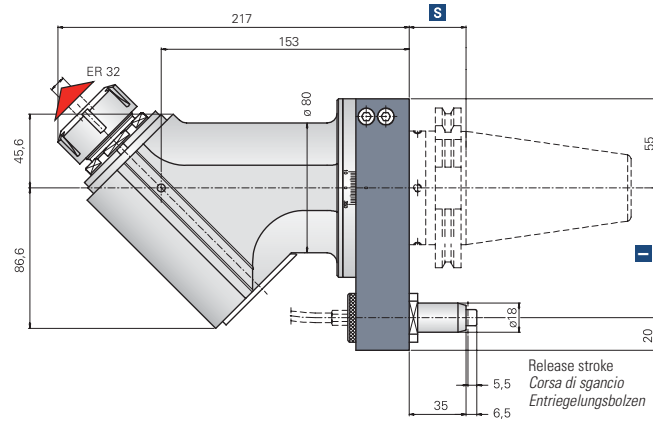
Option / Opzione / Option

A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen			bar/psi max.	12/175
B Coolant through pin and spindle / Adduzione refrigerante interna attraverso il perno / Kühlmittelzufuhr durch Bolzen und Spindel			bar/psi max.	12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.			min ⁻¹	8.000
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft			bar	0,2/0,3 max.
Arbor output / Porta fresa / Fräsaufnahme		ø 16	Weldon output / Weldon / Weldon-Aufnahme	
			ø 16	

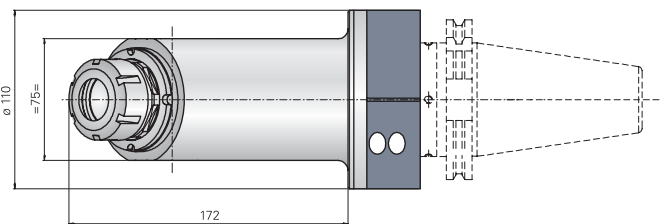


TA45cn-3,5 control

Non interchangeable input drive shank
Coni di attacco non intercambiabili
Nicht wechselbare Aufnahme



Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug



DIN-69871
50

CAT
50

MAS-BT
50

HSK
80/100

CAPTO
C6-C8

KM
63

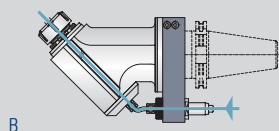
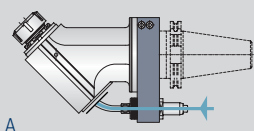
Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Shank/Cono/Aufnahme	DIN-69871 / CAT	MAS-BT	HSK		CAPTO		KM
Size/Grandezza/Größe	50	50	63-80	100	C5-C6	C8	50-63
I	80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)	80-(110*)	65-80-(110*)
S	35	41	42	45	38	40	40

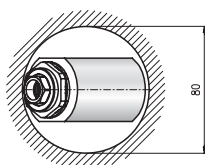
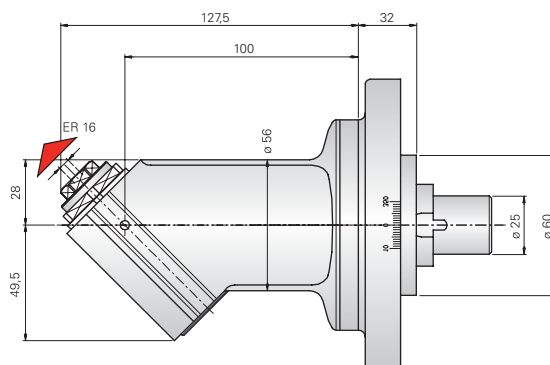
*optional

Technical Data / Dati Tecnici / Technische Daten			TA45cn-3,5 control	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt			1:1	- Special bag - Retaining block - wrenches
RPM max. / Max. velocità / Drehzahl max.		min ⁻¹	3.500	- Grease tube - Instruction book
Max. axial load / Max. carico assiale / Max. Axialbelastung		N	1250	- Bauletto - Tassello di ritegno - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Torque / Momento torcente / Drehmoment		Nm	35	- Spezialtasche - Stop block - Schraubenschlüssel
Weight / Peso / Gewicht		kg	12	- Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange		mm	ER-32 ø 3/20	

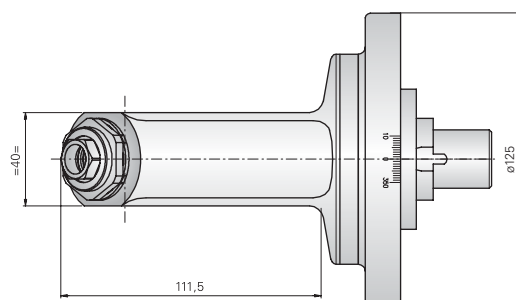
Option / Opzione / Option			
A Coolant through pin / Adduzione refrigerante attraverso il perno / Kühlmittelzufuhr durch Bolzen		bar/psi max.	12/175
B Coolant through pin and spindle / Adduzione refrigerante interna attraverso il perno / Kühlmittelzufuhr durch Bolzen und Spindel		bar/psi max.	12/175
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.		min ⁻¹	8.000
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft		bar	0,2/0,3 max.
Arbor output / Porta fresa / Fräseraufnahme	ø	22	Weldon output / Weldon / Weldon-Aufnahme
			ø 20



TA45-1,5 modular

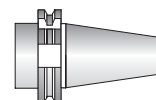


Minimum diameter without tool
 Diametro minimo senza utensile
 Durchmesser min. ohne Werkzeug

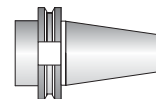


Interchangeable input drive shank
 Coni di attacco intercambiabili
 Wechselbare Aufnahme

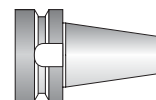
DIN-69871
 ISO-30/40/50



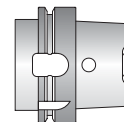
CAT
 30/40/50



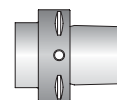
MAS-BT
 30/40/50



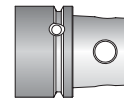
HSK
 63/80/100



CAPTO
 C5-C6-C8



KM
 50/63

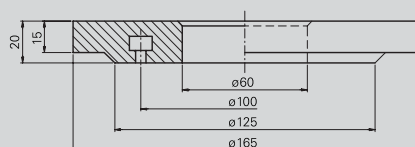


▲ Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Technical Data / Dati Tecnici / Technische Daten		TA45-1,5 modular	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	250	- Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm	7	- Spezialtasche - Einstellring - Universalfansch
Weight / Peso / Gewicht	kg	5	- Standardaufnahme - Schraubenschlüssel - Tube mit Fett
Collet / Pinza / Spannzange	mm	ER 16 ø 1/10	- Bedienungsanleitung

Option / Opzione / Option

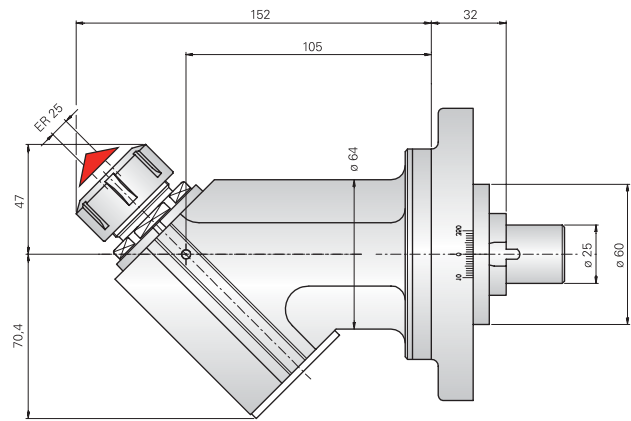
Arbor output / Porta fresa / Fräseraufnahme	ø	13	Weldon output / Weldon / Weldon-Aufnahme	ø	10
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.				min ⁻¹	8.000
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft				bar	0,2/0,3 max.



Universal flange
 Flangia universale / Universaler Anschlussflansch

TA45-2,5 modular

Interchangeable input drive shank
Coni di attacco intercambiabili
Wechselbare Aufnahme



DIN-69871
ISO-30/40/50

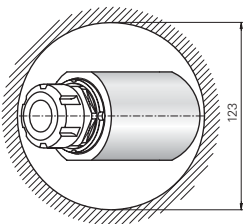
CAT
30/40/50

MAS-BT
30/40/50

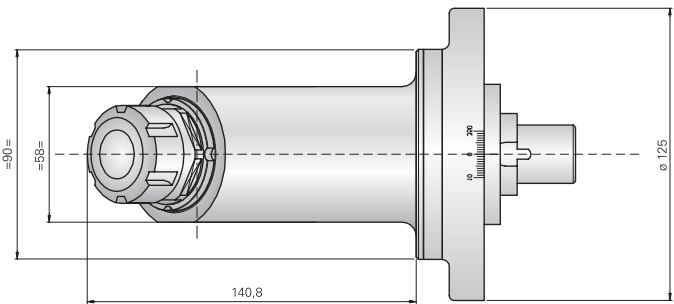
HSK
63/80/100

CAPTO
C5-C6-C8

KM
50/63



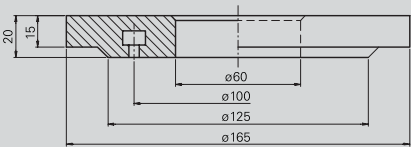
Minimum diameter without tool
Diametro minimo senza utensile
Durchmesser min. ohne Werkzeug



Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Technical Data / Dati Tecnici / Technische Daten		TA45-2,5 modular	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	4.000	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	510	- Spezialtasche - Einstellring - Universalfansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Torque / Momento torcente / Drehmoment	Nm	20	
Weight / Peso / Gewicht	kg	6,2	
Collet / Pinza / Spannzange	mm	ER-25 ø 2/16	

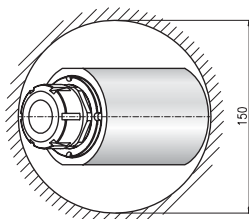
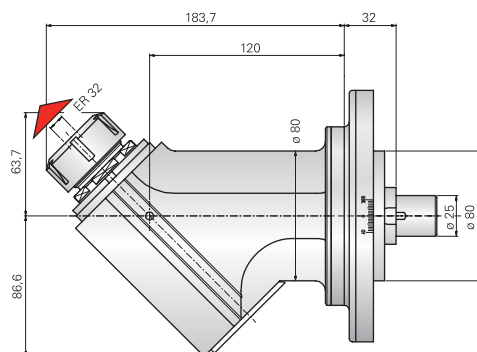
Option / Opzione / Option					
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.				min ⁻¹	8.000
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft				bar	0,2/0,3 max.
E Arbor output / Porta fresa / Fräseraufnahme		ø	16	F Weldon output / Weldon / Weldon-Aufnahme	
				ø	16



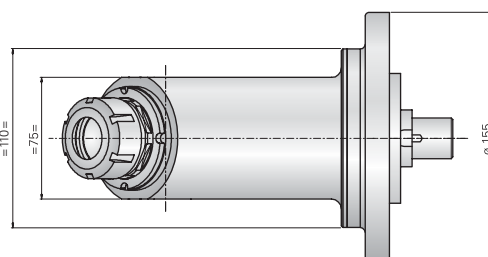
Universal flange
Flangia universale / Universaler Anschlussflansch

TA45-3,5 modular

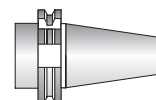
Interchangeable input drive shank
 Coni di attacco intercambiabili
 Wechselbare Aufnahme



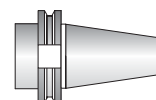
Minimum diameter without tool
 Diametro minimo senza utensile
 Durchmesser min. ohne Werkzeug



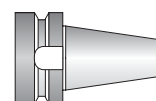
DIN-69871
 ISO-30/40/50



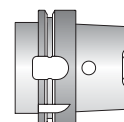
CAT
 30/40/50



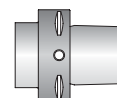
MAS-BT
 30/40/50



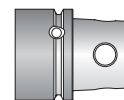
HSK
 63/80/100



CAPTO
 C5-C6-C8



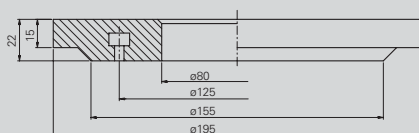
KM
 50/63



▲ Direction of rotation opposite to machine spindle / senso di rotazione contrario al mandrino / Drehrichtung entgegen Antriebsspindel

Technical Data / Dati Tecnici / Technische Daten		TA45-3,5 modular	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Special bag - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	3.500	- Bauletto - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	1250	- Spezialtasche - Einstellring - Universalfansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Torque / Momento torcente / Drehmoment	Nm	35	
Weight / Peso / Gewicht	kg	12	
Collet / Pinza / Spannzange	mm	ER-32 ø 3/20	

Option / Opzione / Option			
E Arbor output / Porta fresa / Fräseraufnahme	ø	22	F Weldon output / Weldon / Weldon-Aufnahme ø 20
High speed optional RPM max. / Opzione alta velocità RPM max. / Optionale Drehzahl max.		min ⁻¹	6.000
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft		bar	0,2/0,3 max.



Universal flange
 Flangia universale / Universaler Anschlussflansch

Series LINEA P – heads for traditional large and medium size machine tools.



This is a range of heads for traditional large and medium-sized machine tools with flange mounting. The T-slot on the universal flange (standard equipment) allows easy adjustment of the head 360° around its main axis.

On TDU heads the cutter spindle housing can also swivel 360°.



Overview / Descrizione / Überblick



T90-8 modular p. 56



T90-10 modular p. 57



TDU-8 modular p. 58



TDU-10 modular p. 59

E' la linea adatta a macchine utensili tradizionali di medie e grandi dimensioni, il loro fissaggio alla macchina avviene tramite flangiatura. La cava a "T" ricavata sulla flangia universale (in dotazione) permette un facile posizionamento del corpo testa per rotazioni su 360° intorno al suo asse principale.

Inoltre sulle teste modello TDU, il supporto del mandrino portautensile ha la possibilità, a sua volta, di ruotare e posizionarsi su 360°.

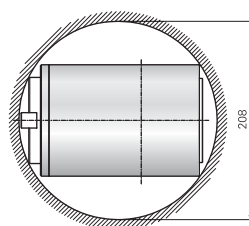
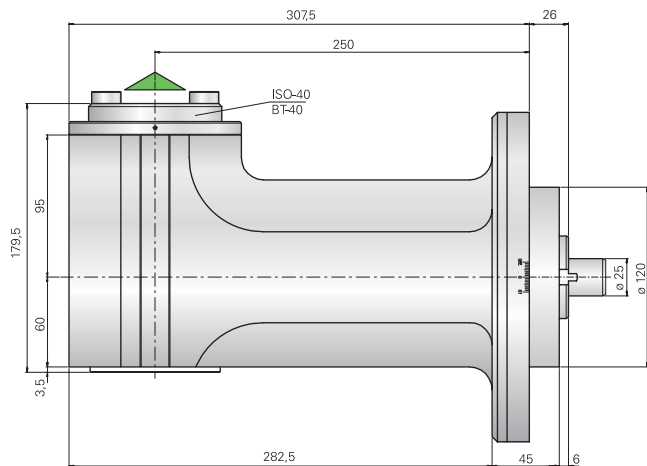
Die LINEA P Produktreihe ist für mittelgroße und große Werkzeugmaschinen mit Flansch-Aufnahmevorrichtung geeignet.

Der universelle Anschlussflansch (Standard-Ausführung) ermöglicht eine einfache Ausrichtung des Kopfes 360° um die Hauptachse. Bei den TDU Köpfen kann die Fräseinheit um 360° gedreht werden.

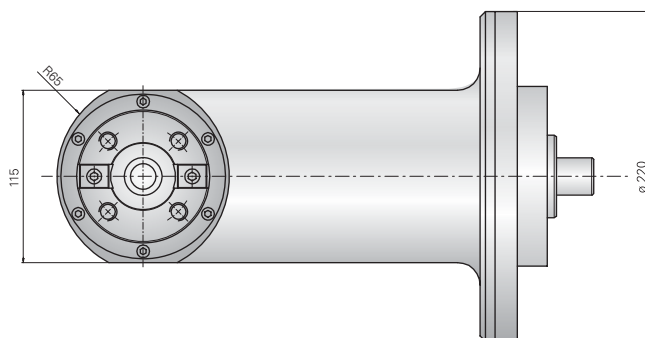


T90-8 modular

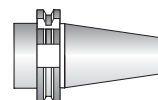
Interchangeable input drive shank
 Coni di attacco intercambiabili
 Wechselbare Aufnahme



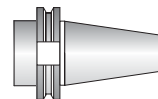
Minimum diameter without tool
 Diametro minimo senza utensile
 Durchmesser min. ohne Werkzeug



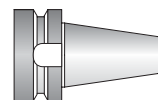
DIN-69871
 ISO/40/50



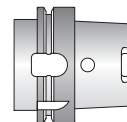
CAT
 40/50



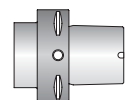
MAS-BT
 40/50



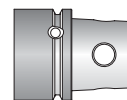
HSK
 63/80/100



CAPTO
 C5-C6-C8



KM
 50/63

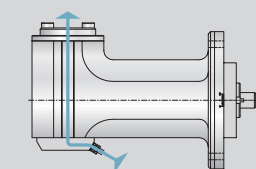


Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebsspindel

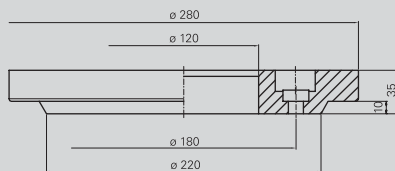
Technical Data / Dati Tecnici / Technische Daten		T90-8 modular	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Wooden crate - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	3.000	- Cassa - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	8.300	- Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm	100	- Holzbox - Einstellring - Universalfansch - Standard-aufnahme - Schraubenschlüssel - Tube mit Fett
Weight / Peso / Gewicht	kg	32,5	- Bedienungsanleitung
Collet / Pinza / Spannzange	mm	ISO/BT 40	

Option / Opzione / Option

A Internal coolant through pin / Adduzione refrigerante attraverso il perno / Interne Kühlmittelzufuhr durch Bolzen	bar/psi max.	12/150
Quick Change / Attacco rapido / Schnellwechselaufnahme		HSK-63
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.



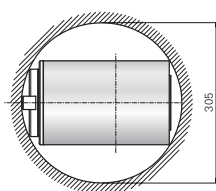
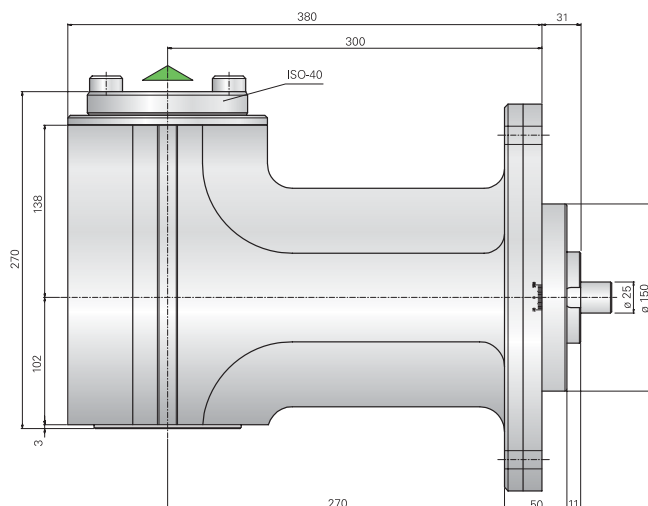
A



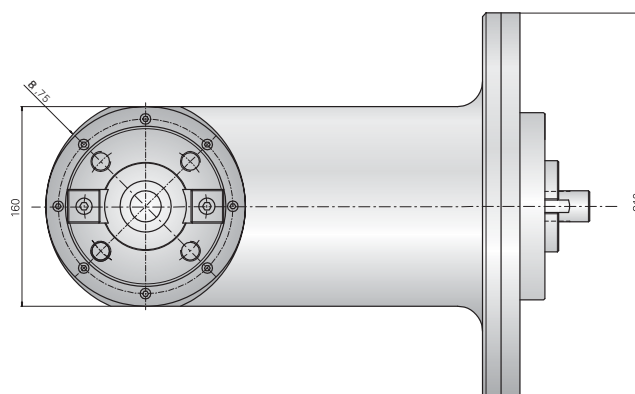
Universal flange / Flangia universale / Universaler Anschlussflansch

T90-10 modular

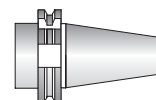
Interchangeable input drive shank
 Coni di attacco intercambiabili
 Wechselbare Aufnahme



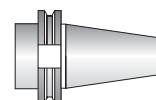
Minimum diameter without tool
 Diametro minimo senza utensile
 Durchmesser min. ohne Werkzeug



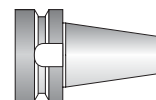
DIN-69871
 ISO-40/50



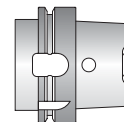
CAT
 40/50



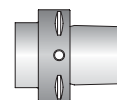
MAS-BT
 40/50



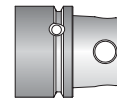
HSK
 63/80/100



CAPTO
 C5-C6-C8



KM
 50/63

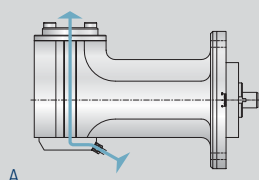


Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebsspinde

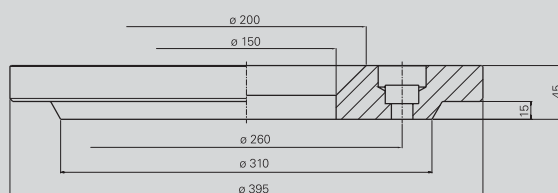
Technical Data / Dati Tecnici / Technische Daten		T90-10 modular	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Wooden crate - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	3.000	- Cassa - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	11.500	- Libro istruzioni
Torque / Momento torcente / Drehmoment	Nm	250	- Holzbox - Einstellring - Universalfansch - Standardaufnahme
Weight / Peso / Gewicht	kg	77	- Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Collet / Pinza / Spannzange	mm	ISO/BT 40	

Option / Opzione / Option

A Internal coolant through pin / Adduzione refrigerante attraverso il perno / Interne Kühlmittelzufuhr durch Bolzen	bar/psi max.	12/150
Quick Change / Attacco rapido / Schnellwechselaufnahme		HSK-63
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.



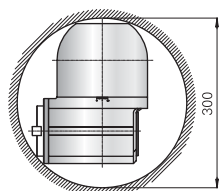
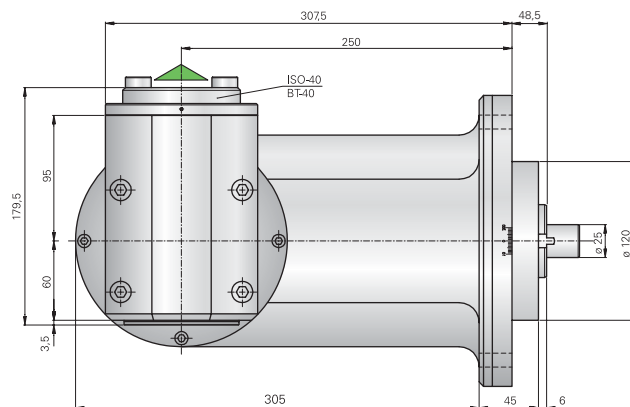
A



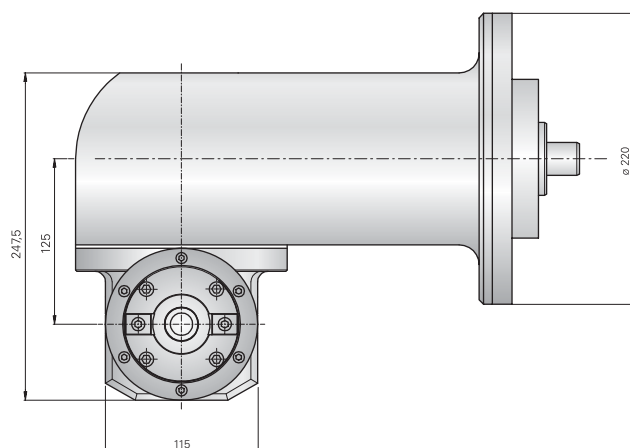
Universal flange / Flangia universale / Universaler Anschlussflansch

TDU-8 modular

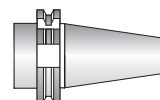
Interchangeable input drive shank
 Coni di attacco intercambiabili
 Wechselbare Aufnahme



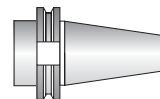
Minimum diameter without tool
 Diametro minimo senza utensile
 Durchmesser min. ohne Werkzeug



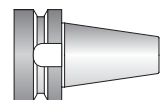
DIN-69871
 ISO-40/50



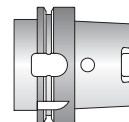
CAT
 40/50



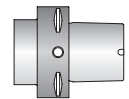
MAS-BT
 40/50



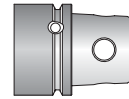
HSK
 63/80/100



CAPTO
 C5-C6-C8



KM
 50/63

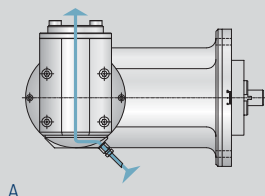


Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebsspindel

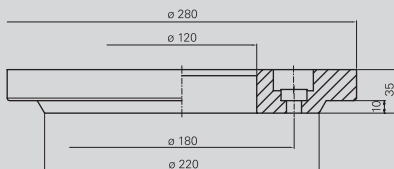
Technical Data / Dati Tecnici / Technische Daten		TDU-8 modular	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Wooden crate - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	3.000	- Cassa - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	8.300	- Holzbox - Einstellring - Universalfansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Torque / Momento torcente / Drehmoment	Nm	90	
Weight / Peso / Gewicht	kg	49,5	
Collet / Pinza / Spannzange	mm	ISO/BT 40	

Option / Opzione / Option

A Internal coolant through pin / Adduzione refrigerante attraverso il perno / Interne Kühlmittelzufuhr durch Bolzen	bar/psi max.	12/150
Quick Change / Attacco rapido / Schnellwechselaufnahme		HSK-63A
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.



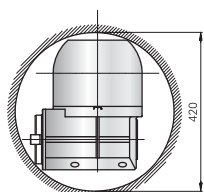
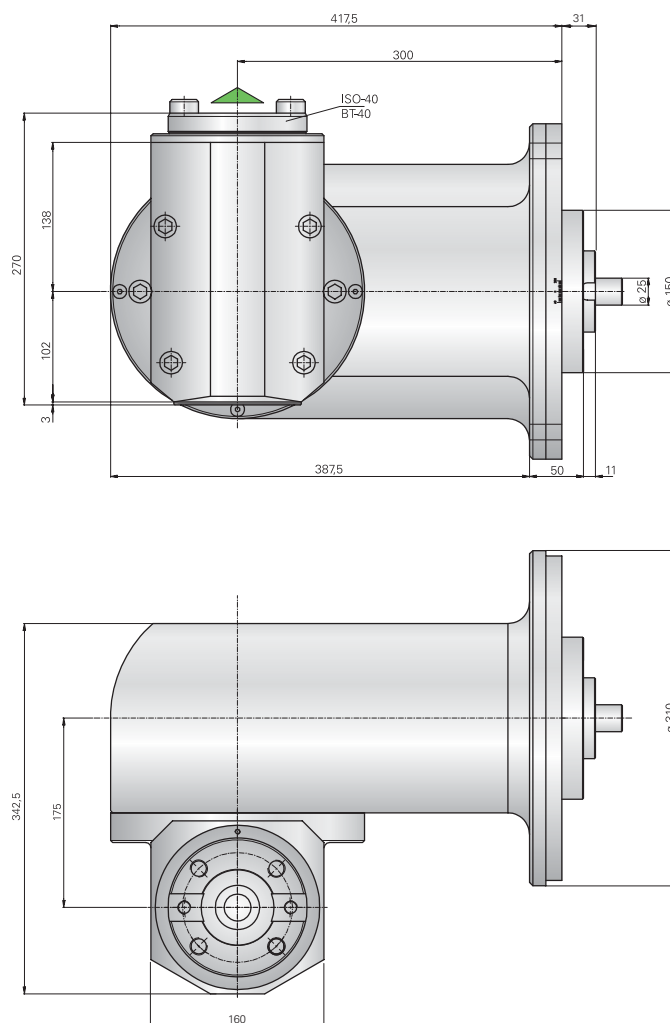
A



Universal flange / Flangia universale / Universaler Anschlussflansch

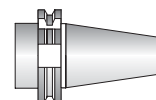
TDU-10 modular

Interchangeable input drive shank
 Coni di attacco intercambiabili
 Wechselbare Aufnahme

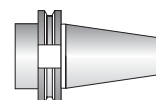


Minimum diameter without tool
 Diametro minimo senza utensile
 Durchmesser min. ohne Werkzeug

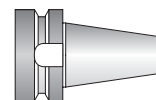
DIN-69871
 ISO-40/50



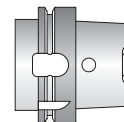
CAT
 40/50



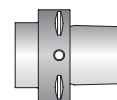
MAS-BT
 40/50



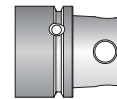
HSK
 63/80/100



CAPTO
 C5-C6-C8



KM
 50/63

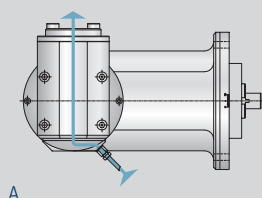


Direction of rotation same as machine spindle / senso di rotazione uguale al mandrino / Drehrichtung gleich wie Antriebs spindle

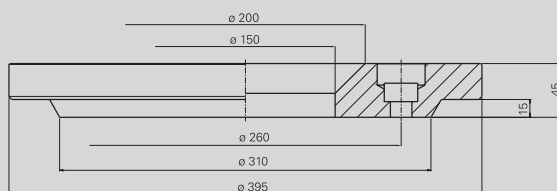
Technical Data / Dati Tecnici / Technische Daten		TDU-10 modular	STANDARD EQUIPMENT INCLUDES:
Rt / Rt / Rt		1:1	- Wooden crate - Retaining ring - Universal flange - STD drive shank - wrenches - Grease tube - Instruction book
RPM max. / Max. velocità / Drehzahl max.	min ⁻¹	3.000	- Cassa - Anello di aggancio - Flangia universale - Cono standard - Ghiera ER chiavi di servizio - Tubetto di grasso - Libro istruzioni
Max. axial load / Max. carico assiale / Max. Axialbelastung	N	11.500	- Holzbox - Einstellring - Universalfflansch - Standardaufnahme - Schraubenschlüssel - Tube mit Fett - Bedienungsanleitung
Torque / Momento torcente / Drehmoment	Nm	220	
Weight / Peso / Gewicht	kg	121	
Collet / Pinza / Spannzange	mm	ISO/BT 40	

Option / Opzione / Option

A Internal coolant through pin / Adduzione refrigerante attraverso il perno / Interne Kühlmittelzufuhr durch Bolzen	bar/psi max.	12/150
Quick Change / Attacco rapido / Schnellwechselaufnahme		HSK-63A
Internal air pressure / Predisposizione pressurizzazione aria / Sperrluft	bar	0,2/0,3 max.



A



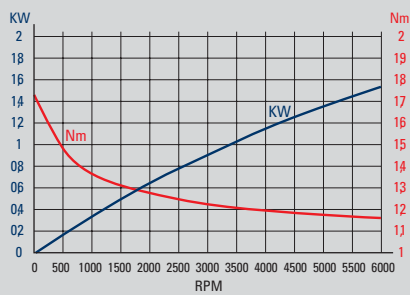
Universal flange / Flangia universale / Universaler Anschlussflansch

Performance / Prestazioni / Leistung

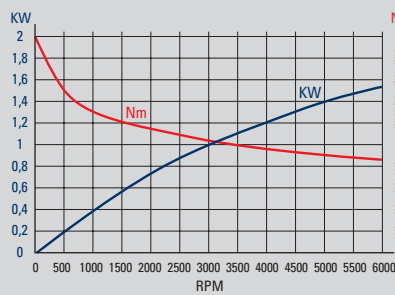
LINEA CONTROL

LINEA MODULAR

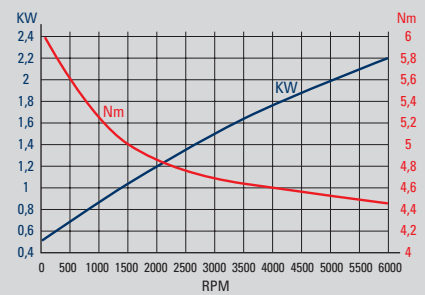
T90cn-0,4 control/modular



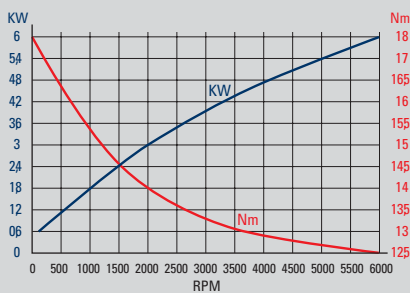
T90cn-0,5L / T90cn-0,5C control/modular



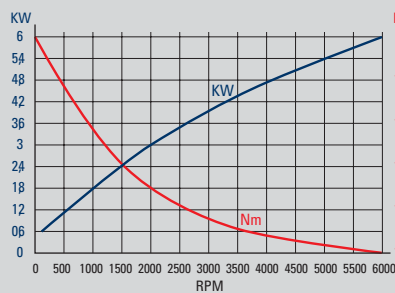
T90cn-1,5 control/modular



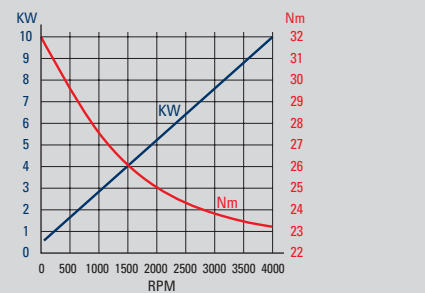
T90cn-2,5 control/modular



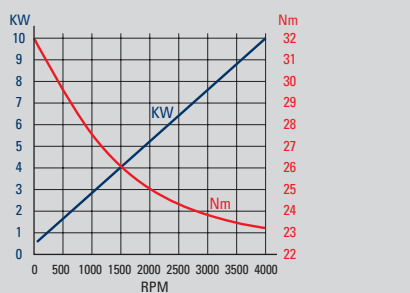
T90cn-2,5 2U control/modular



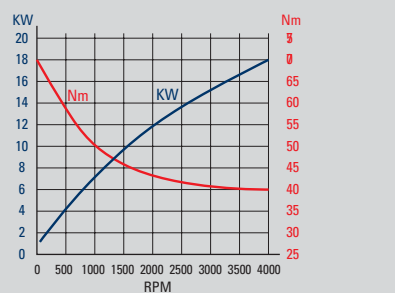
T90cn-3,5 control/modular



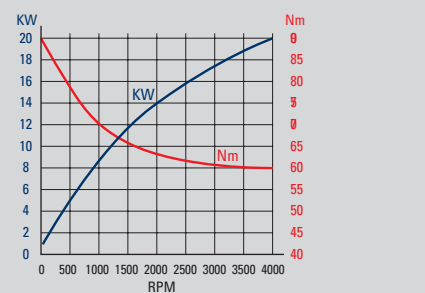
T90cn-3,5 2U control/modular



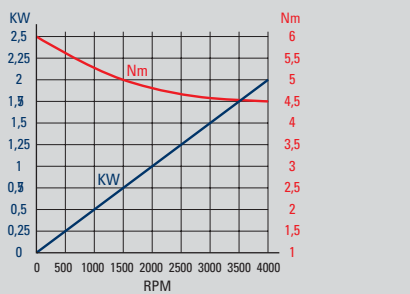
T90cn-4,5 control/modular



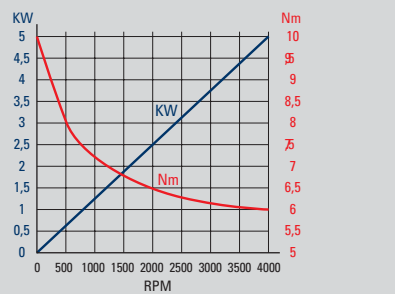
T90cn-5 control/modular



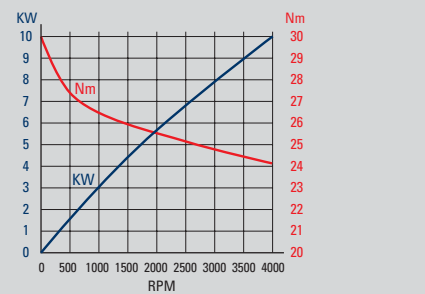
TCUcn-1,5 control



TCUcn-2,5 control/modular



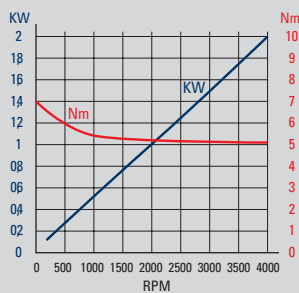
TCUcn-3,5 control/modular



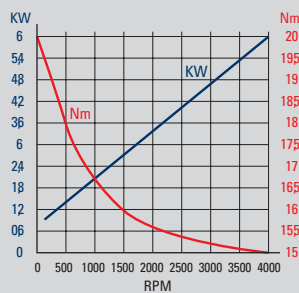
Performance / Prestazioni / Leistung

LINEA TR90

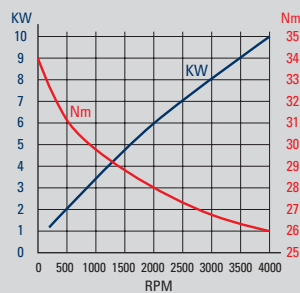
TR90cn-1,5 control/modular



TR90cn-2,5 control/modular

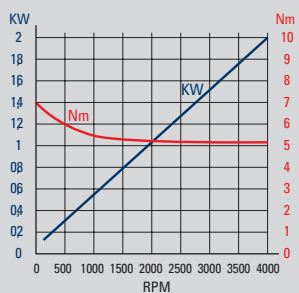


TR90cn-3,5 control/modular

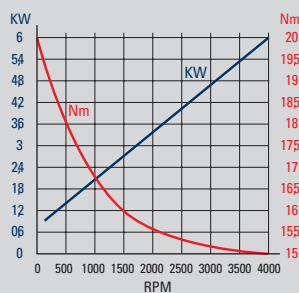


LINEA TA45

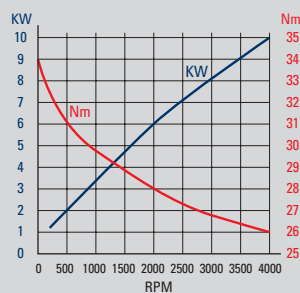
TA45-1,5 control/modular



TA45-2,5 control/modular



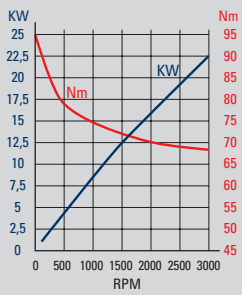
TA45-3,5 control/modular



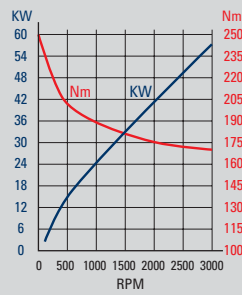
Performance / Prestazioni / Leistung

LINEA P

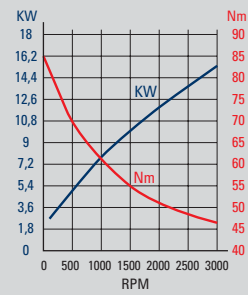
T90-8 modular



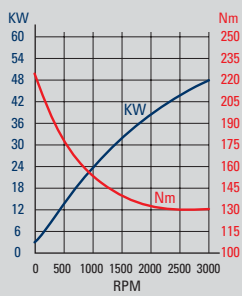
T90-10 modular



TDU-8 modular



TDU-10 modular



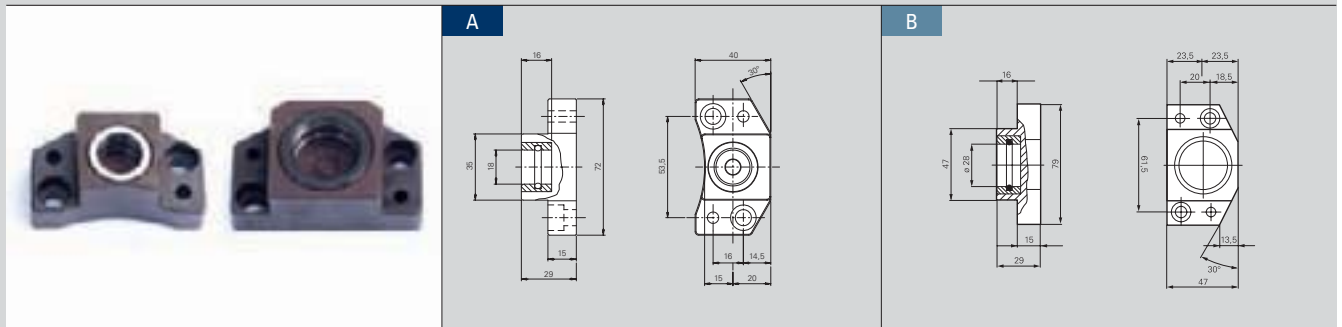
Accessories / Accessori / Zubehör

LINEA CONTROL

Retaining Block / Tassello di ritegno / Stop block

Retaining block / Tassello di ritegno / Stop block

A	T90cn-0,5 / T90cn-1,5 / T90cn-2,5 / T90cn-3,5 / T90cn-4,5
B	T90cn-5



LINEA MODULAR

Extension spacer / Moduli di prolunga / Verlängerung

Extension spacer / Moduli di prolunga / Verlängerung

H	mm	55	110	150	200	250	360	450
A		•	•	•		•		
B		•	•	•	•	•	•	•



Tapping / Maschiatura / Gewindeschneiden

For tapping operations, all standard heads can be equipped with axially-compensating collets. These collets are fully interchangeable with the normal collets and allow the tap to move axially thereby compensating for any feed error and facilitating reversal of direction of rotation.

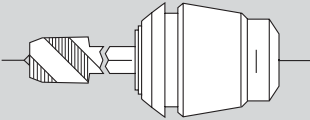
A single head can therefore be used for both drilling and tapping, up to the diameter allowed by the collet.

Per le operazioni di maschiatura, tutte le teste standard possono utilizzare le pinze compensate. Queste pinze sono perfettamente intercambiabili con le normali pinze elastiche utilizzate per le altre operazioni, e permettono ai maschi di avere una corsa assiale di compensazione per eventuali errori di avanzamento e per l'inversione della rotazione.

La stessa testa, quindi, può essere impiegata sia per forare che per maschiare compatibilmente alla capacità della relativa pinza.

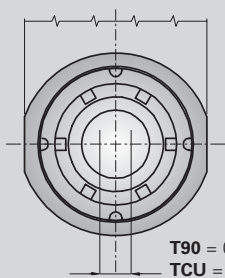
Alle Standardköpfe können für das Gewindeschneiden mit axial-ausgleichenden Spannzangen ausgerüstet werden. Diese Spannzangen sind mit den normalen Spannzangen voll kompatibel und ermöglichen dem Gewindeschneidwerkzeug sich axial zu bewegen und damit etwaige Einspeisungsfehler auszugleichen und die Richtungsumkehr der Rotation zu erleichtern.

Ein einzelner Kopf kann somit für beides – Bohren und Gewindeschneiden – verwendet werden.

	Head / Tipo testa / Kopf	Collet / Tipo Pinza / Spannzange	Capacity / Capacità / Durchmesser	Shift / Corsa / Weg
	T90-1,5	ET-1-16	M1-M6	7 mm
	T90/TCU-2,5	ET-1-25	M1-M12	8 mm
	T90/TCU-3,5	ET-1-32	M4-M16	10 mm

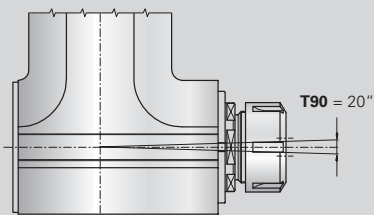
NOTE: Each collet is designed to accommodate an individual tap size. Therefore, please specify the tap shank diameter when ordering collets. **N.B.:** Ogni pinza può portare una sola grandezza di maschio. Perciò sarà necessario specificare, in sede di ordine, il diametro del gambo del maschio che si intende utilizzare. **BEACHT:** Jede Spannzange ist für spezifische Gewindegrößen gemacht. Bitte geben Sie bei Ihrer Bestellung von Spannzangen den Gewindedurchmesser an.

Technical Details / Dati Tecnici / Technische Daten



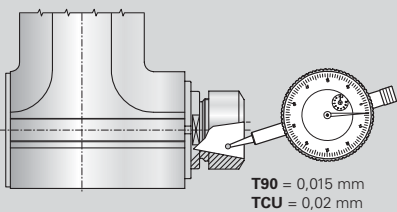
T90 = 0,02 mm
TCU = 0,03 mm

Maximum misalignment of input and output drive spindle
Disassamento tra albero in entrata e mandrino portautensile
Maximale Abweichung der angetriebenen Achsen



T90 = 20°

Tool spindle angular variation relative to 90° (theoretical value)
Errore angolare del mandrino portautensile rispetto al 90° teorici
Winkelabweichung relativ zu 90° (theoretisch)



T90 = 0,015 mm
TCU = 0,02 mm

Maximum runout of output spindle
Oscillazione mandrino portautensile con testa in rotazione
Maximale Rundlaufabweichung



New facility, Via Gorizia 37, 21047 Saronno (VA), from 2009: A brand new, high tech 4000 m² facility equipped with the latest in manufacturing and warehousing technologies, will position Alberti for seamless sales expansion well into the future.

Il nuovissimo stabilimento di 4000 m² che consente un notevole ampliamento tecnologico, prodotti e commerciale.

Das neue High-Tech-Gebäude mit über 4000 m² bedeutet für uns in den Bereichen technologische Entwicklung, Produktion und Verkauf einen großen Schritt nach vorne.



A young and winning company

Un'azienda giovane e vincente / Ein junges und erfolgreiches Unternehmen

Alberti designs, manufactures and offers high quality angle heads for manufacturing enterprises seeking the highest productive performance.

The company target is to meet the demands of a discerning market niche worldwide and to offer optimum standard or custom-made solutions.

Alberti started the production of angle heads in 1986. In few years its solutions have come to dominate the international market thanks to the good quality, functionality and reliability of its products. Alberti products became internationally appreciated for their well-balanced appearance and durable chromed finish.

Alberti progetta, costruisce e supporta teste angolari di alta qualità, mirate ad aziende e settori produttivi che richiedono prestazioni molto elevate sotto ogni profilo.

Obiettivo dell'azienda è rispondere alle esigenze di un mercato di fascia alta, ovunque nel mondo, con tutte le soluzioni di serie o sviluppate ad hoc, necessarie per raggiungere i traguardi produttivi più ambiti.

Alberti ha iniziato a produrre teste angolari nel 1986. In brevissimo tempo le sue soluzioni si sono affermate in tutto il mondo per qualità, funzionalità e affidabilità, ma anche per il raffinato design e gli accostamenti cromatici che le rendono gradevoli e inconfondibili.

Alberti entwickelt, produziert und verkauft qualitativ hochwertige Winkelköpfe für die zerspanende Industrie, die nach höchster Leistung strebt. Das Unternehmensziel besteht darin, der Nachfrage dieses sich ständig entwickelnden Marktes weltweit gerecht zu werden und zu befriedigen, indem einerseits ein optimaler Standard sowie individuell gefertigte Lösungen angeboten werden.

Alberti begann die Produktion von Winkelköpfen 1986. Innerhalb weniger Jahre konnten sie, dank der hohen Qualität, Funktionalität und Verlässlichkeit der Produkte, bereits den internationalen Markt dominieren. Alberti Produkte werden für das funktionale, ausgewogene Design und die beständige Chrom-Ausführung international geschätzt.



Alberti angle heads are completely developed and manufactured inside the company in Saronno (Italy).

The manufacturing process

La produzione / Die Produktion

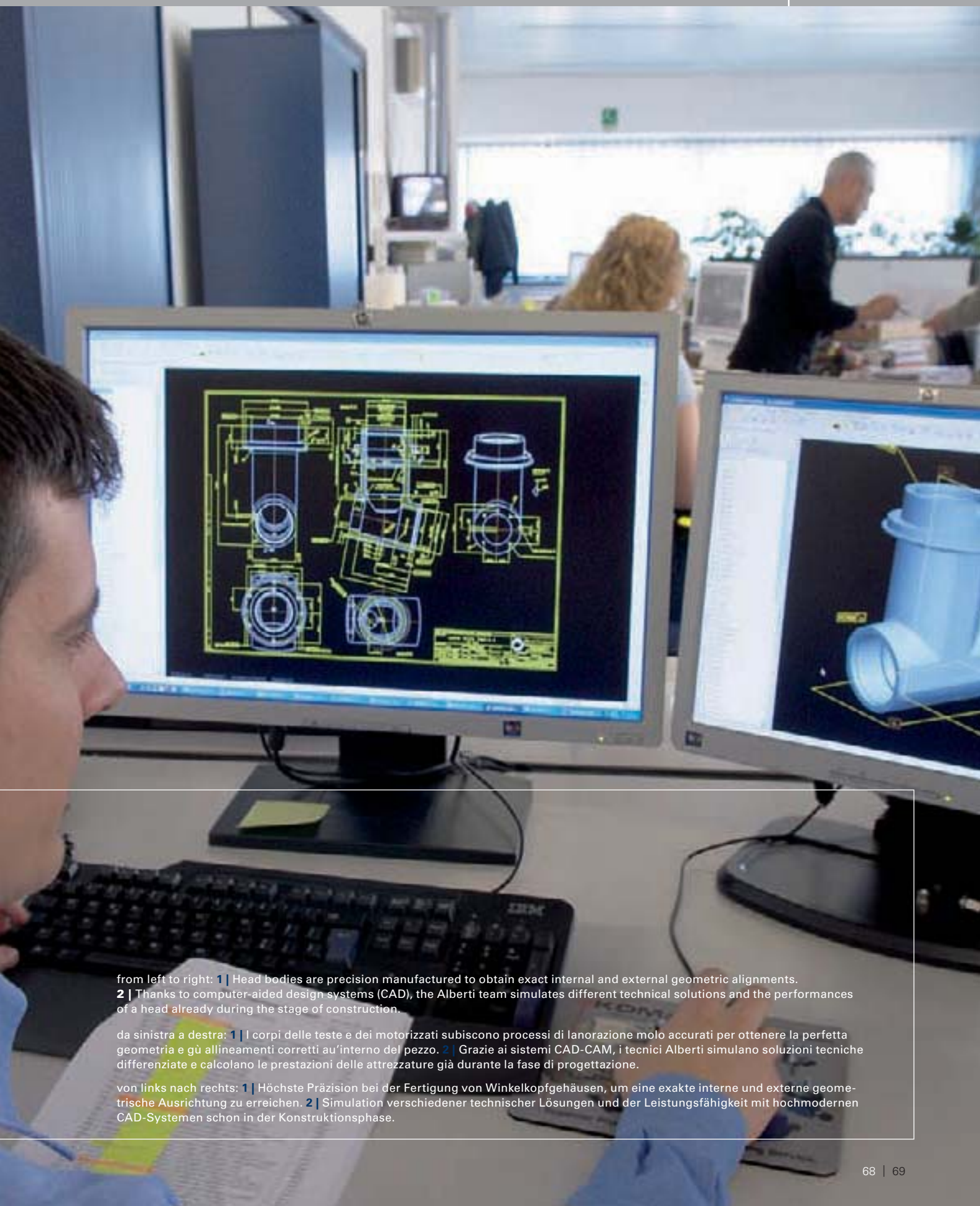
The designing and manufacturing stage of all Alberti angle heads - either standard or customised - start in the technical department which is responsible for product concept, design and development. With sophisticated CAD system our qualified staff search continuously for innovative solutions and are also at our customer disposal before, during and after completion of their projects.

After design, head components are manufactured in our modern factory. The choice of materials used in our heads is a crucial factor in their high performance. Final heat treatment and grinding operations are of vital importance in our quest for increased precision.

Tutte le fasi del processo di progettazione vengono svolte all'interno dell'azienda. Lo studio e la realizzazione del prodotto iniziano in ufficio tecnico dove il nostro personale altamente qualificato è continuamente alla ricerca di soluzioni d'avanguardia supportato da sistemi computerizzati. E' inoltre in grado di offrire alla clientela un servizio appropriato, prima e dopo la vendita. Una volta completato il progetto si passa alla realizzazione dei singoli particolari. Molto importante è la scelta dei materiali per la costruzione di attacchi e alberi e dei trattamenti termici idonei. Altrettanto significative sono le successive lavorazioni di rettifica indirizzate ad ottenere una precisione sempre maggiore.

Die Entwurfs- und Produktionsphase der Alberti Winkelköpfe - sowohl der Standard-Modelle als auch kunden-spezifische Ausführungen - beginnen in der technischen Abteilung. Diese ist für das Konzept, den Entwurf und die Entwicklung der Produkte verantwortlich ist. Mit modernster CAD Software entwickeln unsere qualifizierten Mitarbeiter ständig neue Lösungen und stehen auch während eines Projekts unseren Kunden für Anregungen und Fragen zur Verfügung. Nach der Entwurfsphase werden die Winkelköpfe in unserer hochmodernen Fertigung hergestellt. Die Auswahl der verwendeten Materialien ist ein entscheidender Faktor um die hohe Leistungsfähigkeit der Produkte zu gewährleisten. Durch abschließende Wärmebehandlung und umfangreiche Schleifoperationen wird die einzigartige Präzision der Produkte erreicht.





from left to right: **1** | Head bodies are precision manufactured to obtain exact internal and external geometric alignments. **2** | Thanks to computer-aided design systems (CAD), the Alberti team simulates different technical solutions and the performances of a head already during the stage of construction.

da sinistra a destra: **1** | I corpi delle teste e dei motorizzati subiscono processi di lavorazione molto accurati per ottenere la perfetta geometria e gli allineamenti corretti all'interno del pezzo. **2** | Grazie ai sistemi CAD-CAM, i tecnici Alberti simulano soluzioni tecniche differenziate e calcolano le prestazioni delle attrezzature già durante la fase di progettazione.

von links nach rechts: **1** | Höchste Präzision bei der Fertigung von Winkelkopfgehäusen, um eine exakte interne und externe geometrische Ausrichtung zu erreichen. **2** | Simulation verschiedener technischer Lösungen und der Leistungsfähigkeit mit hochmodernen CAD-Systemen schon in der Konstruktionsphase.



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