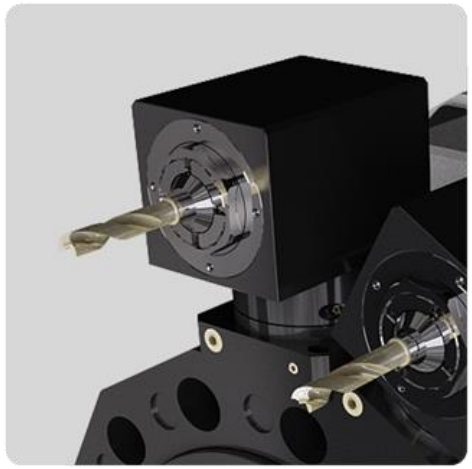
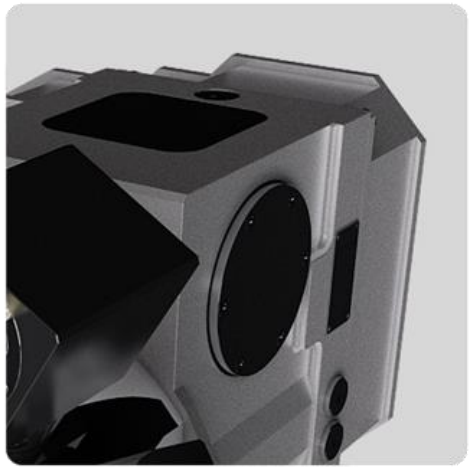
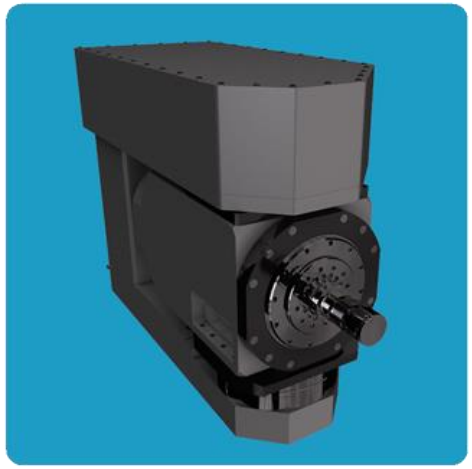
BARUFFALDI

MACHINE TOOL COMPONENTS





Baruffaldi S.p.a

Presentation

Baruffaldi started operating in the mechanical field during the ‘30s by producing brakes for motorcycles. It soon expanded its business area and during the ‘50s entered the market of industrial brakes and clutches.
Thanks to the experience since gained and to the favourable development of the market, **Baruffaldi** underwent a transformation that led, during the ‘70s, to the productions of components for machine tools, gearboxes and electro mechanical turrets for CNC lathes, beyond the traditional products.
The continuous technological development in brakes and clutches field, allowed the manufacturing of highly safe and sound products as demanded by the automotive, as well as by the textile machines and agricultural markets and others.

Thanks to the high quality and the success of these
products, not to mention the gearboxes and the turrets in machine tools field, **Baruffaldi** gained a respected position among the state of the art companies in these fields.
In these days, keeping the same top quality as ever, technical specifications have been deeply improved thanks to a constant cooperation between end users and producer and to the interaction, within the
company, of the various units such as design, testing, manufacturing and sales.

Baruffaldi S.p.a

Presentation

Baruffaldi operates in three different locations:

- **Tribiano Unit A** 12.000 m^2 (covered area)

  Production: *vehicle components*

- **Tribiano Unit C** 6.000 m^2 (covered area)

  Production: **Gearboxes for machine tools**
  Repairs and spare parts

- **Settala Unit B** 6.500 m^2 (covered area)

  Production: **Servo, Electro-mechanical turrets for CNC lathes**

Total Employees: 256 units

Other Companies of the Baruffaldi Group:

CO.FRE.MO. *Production: brakes for AC motors*

COMEB *Production: clutches for Agricultural machines*

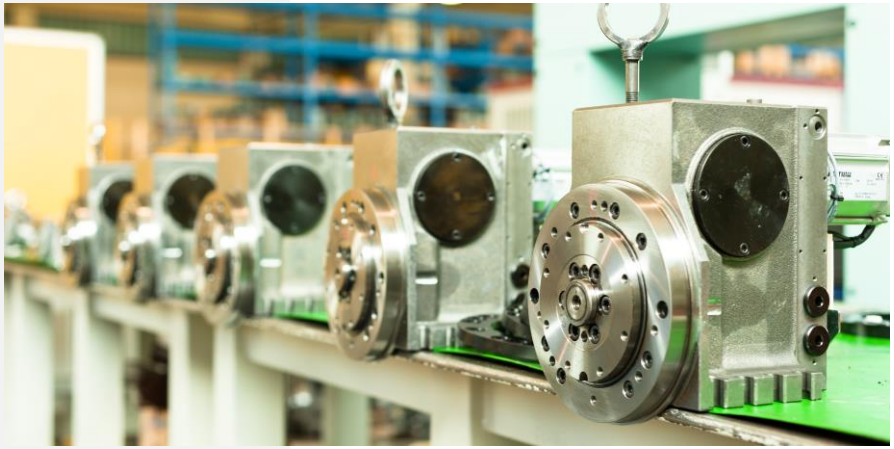
Total Employees : 27 units

Productive Unit of Tribiano

- Offices
- High automation level
- Assembly line
- Manufacturing
- Quality control and testing department
- In-line inspection with feedback for automatic machines correction
- Mechanical works

Productive Unit of Settala

- Offices
- Mechanical works
- Quality control



Company business organisation

- Vehicles division
- Textiles machines division
- Agricultural machines division
- **Machine tool components**

Machine tool components division

- Electomechanical turrets
- Servo turrets
- Two-speed gearboxes
- Toolholders discs, toolholders driven tool and rings

Turrets controlled by servo-motor

Description

TBH series

A new line of turrets has been designed, in order to match the global competition.
They use a hydraulic locking system.

Main characteristics:
- High speed rotation
- Extremely simple design
- Minimum maintenance

An additional AC servo motor is required for the tool drive.

Turrets controlled by servo-motor

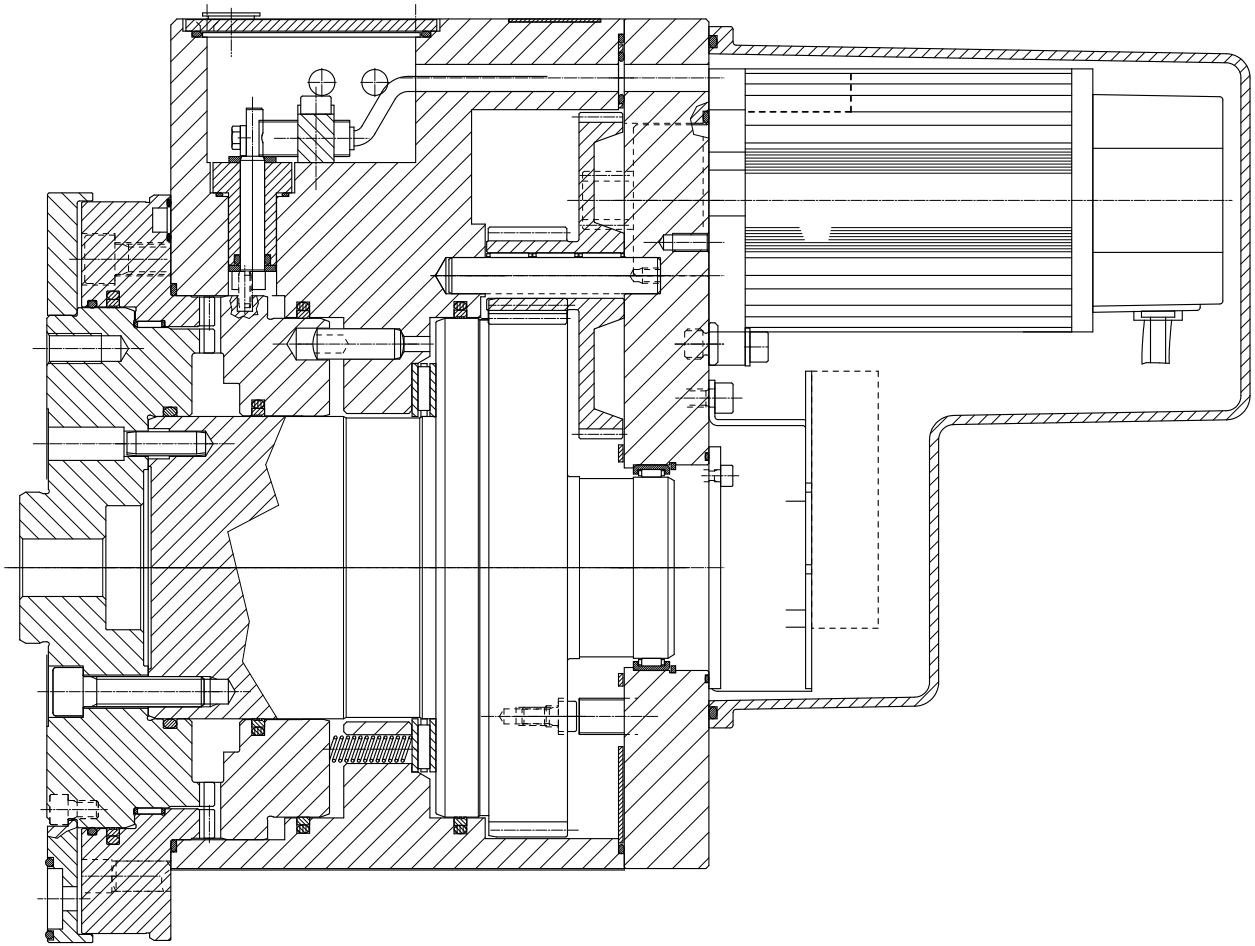
Techinical data

TBH series

Size Taglia			TBH 120	TBH 160	TBH 200	TBH 250
N° of divisions N° di stazioni			8 - 12	8 - 12	8 - 12	8 - 12
Moment of inertia Momento d'inerzia		kgm²	0.15÷1.8	0.15÷1.8	0.4÷8	0.4÷8
Max tangential torque Massima coppia tangenziale		Nm	1100	1900	4000	7500
Max overturning torque in pressing direction Massima coppia ribaltante a premere		Nm	1200	2100	6000	12000
Max overturning torque in lifting direction Massima coppia ribaltante a sollevare		Nm	700	1600	3500	6500
Max out of balance torque Massima coppia di sblanciamento		Nm	10	15	40	60
Positioning accuracy Precisione di posizione		Deg. Gradi	±4"	±4"	±4"	±4"
Accuracy of repeability Precisione di ripetibilità		Deg. Gradi	±1.6"	±1.6"	±1.6"	±1.6"
Positioning time Tempo di posizionamento	30°	sec	0.13÷0.24	0.13÷0.24	0.20÷0.34	0.20÷0.34
	45°	sec	0.17÷0.28	0.17÷0.28	0.25÷0.38	0.25÷0.38
	180°	sec	0.34÷0.50	0.34÷0.50	0.53÷0.73	0.53÷0.73
Unlocking time* Tempo di sbloccaggio*		sec	0.1	0.1	0.12	0.12
Locking time* Tempo di bloccaggio*		sec	0.1	0.1	0.12	0.12
Working pressure Pressione di lavoro		Bar	40 ± 3			

* standard version
*versione standard

TBH series



Axial driven tools hydraulic turrets for tool-holders as per ISO 10889 norms

Description

TBHMA series

TBH turrets can be equipped with external modular driven tool system.
Only the tool in working position is driven.
No live tool clutch orientation is required, thanks to automatic engagement and disengagement, helping dead times saving.
Discs according to ISO 10889 (ex DIN 69880) norms used.
All disc positions can be used either for fixed or for live tool.
Compact overall dimensions of the driven tool system do not effect the working capacity of the lathe.

Main characteristics:

- Very high rotating speed and minimum indexing
- times
- Locking and unlocking without axial movement
- Bi-directional rotation
- Oil lubrication of turret and power tool system
- Double proximity switch for engagement control
- High rigidity, due to the new design
- Absolute positioning
- Easy maintenance

Axial driven tools hydraulic turrets for tool-holders as per ISO 10889 norms

Technical data

TBHMA series

Size Taglia			TBHMA 120	TBHMA 160	TBHMA 200	TBHMA 250
N° of divisions N° di stazioni			8 - 12 16 - 24	8 - 12 16 - 24	8 - 12 16 - 24	8 - 12 16 - 24
Moment of inertia Momento d'inerzia		kgm²	0.15÷1.8	0.15÷1.8	0.4÷8	0.4÷8
Max tangential torque Massima coppia tangenziale		Nm	1100	1900	4000	7500
Max overturning torque in pressing direction Massima coppia ribaltante a premere		Nm	1200	2100	6000	12000
Max overturning torque in lifting direction Massima coppia ribaltante a sollevare		Nm	700	1600	3500	6500
Max out of balance torque Massima coppia di sbilanciamento		Nm	10	15	40	60
Positioning accuracy Precisione di posizione		Deg. Gradi	±4"	±4"	±4"	±4"
Accuracy of repeability Precisione di ripetibilità		Deg. Gradi	±1.6"	±1.6"	±1.6"	±1.6"
Positioning time Tempo di posizionamento	30°	sec	0.13÷0.24	0.13÷0.24	0.20÷0.34	0.20÷0.34
	45°	sec	0.17÷0.28	0.17÷0.28	0.25÷0.38	0.25÷0.38
	180°	sec	0.34÷0.50	0.34÷0.50	0.53÷0.73	0.53÷0.73
Unlocking time* Tempo di sbloccaggio*		sec	0.1	0.1	0.12	0.12
Locking time* Tempo di bloccaggio*		sec	0.1	0.1	0.12	0.12

* standard version
*versione standard

Axial driven tools hydraulic turrets for tool-holders as per ISO 10889 norms

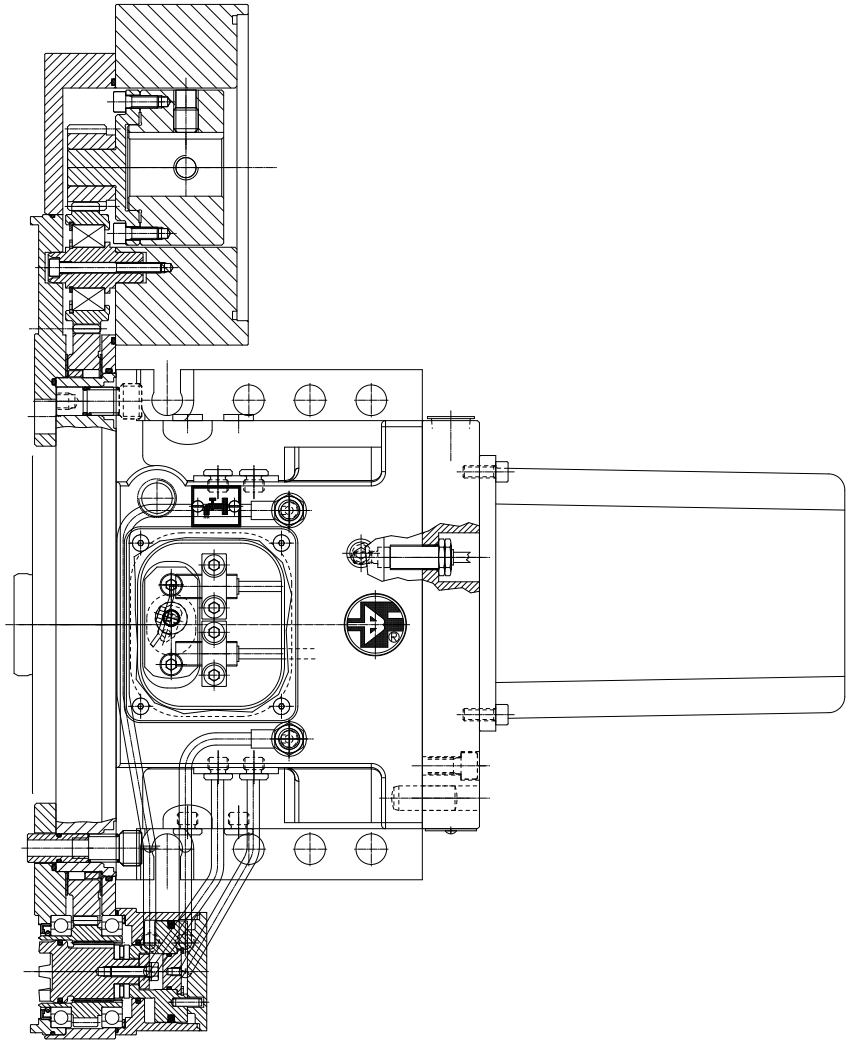
Technical data power tools

TBHMA series

Size Taglia			TBHMA 120	TBHMA 160	TBHMA 200	TBHMA 250
Toolholder shaft size Dimensione gambo portautensili		mm	20	30	40	50
Max torque at the motor Coppia massima motore		Nm	16	16	50	50
Max power Potenza massima motore		Kw	5	5	9	9
Max motor speed Numero di giri massimo motore		RPM g/min	6000	6000	5000	5000
Ratio: RPM motor / RPM take power Rapporto di trasmissione	Direct	diretta	1:1	1:1	1:1	1:1
	Reduction	ridotta	-	1.25	1.315	1.52
Turret's total weight Peso totale della torretta		Kg	60	80	140	170
Working pressure Pressione di lavoro		Bar	40 ± 3			

Axial driven tools hydraulic turrets for tool-holders as per ISO 10889 norms

Technical section



Turrets controlled by servo-motor

Description

TB series

TB type turrets rotate thanks to a BRUSHLESS SER- VO-MOTOR, controlled by a new generation drive. Thanks to this new combination, extremely reduced times and shockless positionings are performed. Turret locking is achieved by means of belleville washers, ensuring high stiffness and safety.
A pneumatic actuator (standard) or hydraulic (on request) locks/unlocks the turret.
Different position numbers and inertia values can be set.

Main characteristics:

- Very high rotating speed and minimum indexing times
- Locking and unlocking without axial movement
- Bi-directional rotation
- Absolute positioning
- Positioning feedback
- Lifetime lubrication
- Spring locking mechanism ensures turret clamping even in the of power failure
- Possibility to perform locking and unlocking of the turret with hydraulic or pneumatic systems

Turrets controlled by servo-motor

Technical data

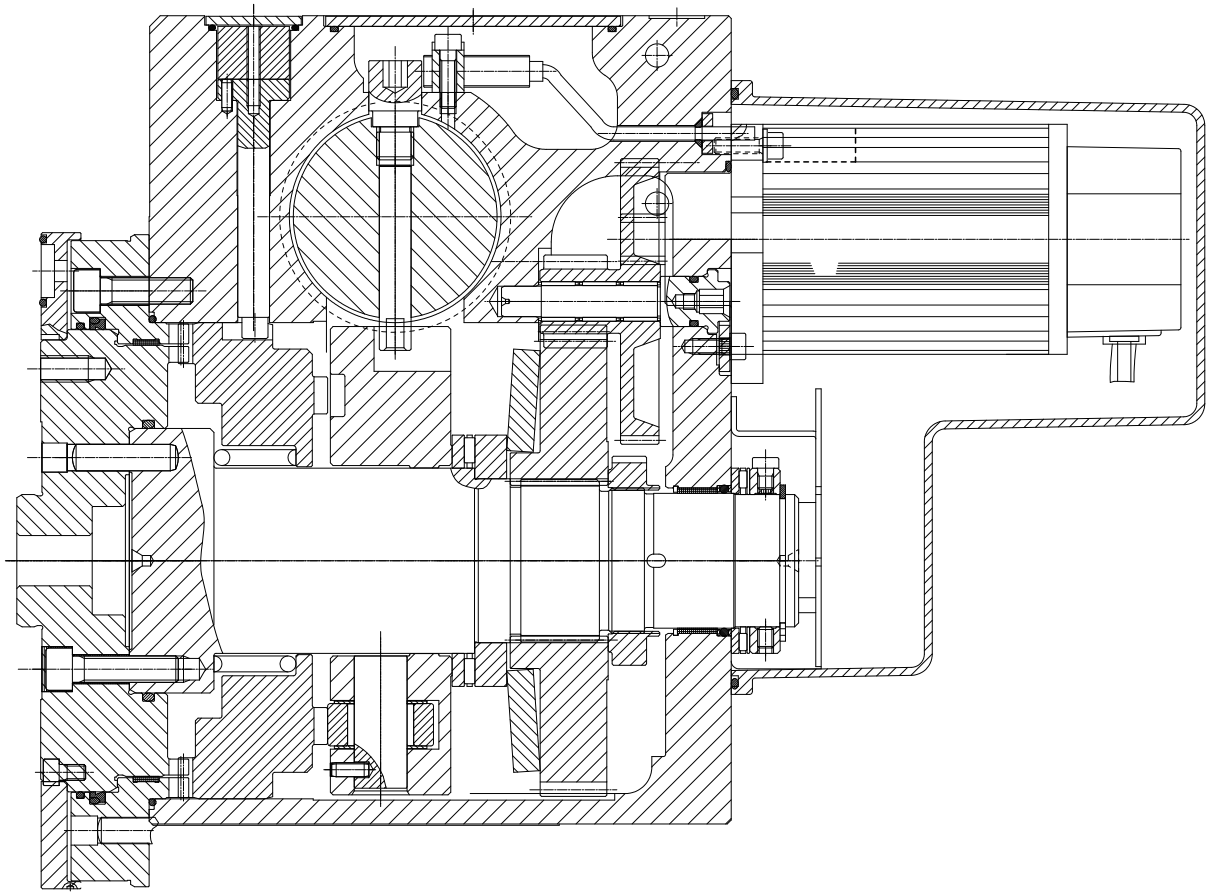
TB series

Size Taglia			TB 100	TB 120	TB 160	TB 200	TB 250	TB 320	TB 400	TB 500
N° of divisions N° di stazioni			8 - 12 16	8 - 12 16 - 24	8 - 12 16 - 24	8 - 12 16 - 24	8 - 12 16 - 24	8 -12 16 - 24	8 - 12 16 - 24	8 - 12 16 - 24
Moment of inertia Momento d'inerzia		kgm²	0.25	0.15÷1.8	0.15÷1.8	0.4÷8	0.4÷8	0.7÷40	20÷100	100
Max tangential torque Massima coppia tangenziale		Nm	450	1100	1900	4000	7500	16000	26000	75000
Max overturning torque in pressing direction Massima coppia ribaltante a premere		Nm	400	1200	2100	6000	12000	25000	41400	50000
Max overturning torque in lifting direction Massima coppia ribaltante a sollevare		Nm	150	700	1600	3500	6500	13000	20000	25000
Max out of balance torque Massima coppia di sblanciamento		Nm	3	10	15	40	60	160	470	500
Positioning accuracy Precisione di posizione		Deg. Gradi	±4"	±4"	±4"	±4"	±4"	±4"	±4"	±4"
Accuracy of repeability Precisione di ripetibilità		Deg. Gradi	±1.6"	±1.6"	±1.6"	±1.6"	±1.6"	±1.6"	±1.6"	±1.6"
Positioning time Tempo di posizionamento	30°	sec	0.13	0.13÷0.24	0.13÷0.24	0.20÷0.34	0.20÷0.34	0.64	0.86	0.86
	45°	sec	0.17	0.17÷0.28	0.17÷0.28	0.25÷0.38	0.25÷0.38	0.71	0.96	0.96
	180°	sec	0.3	0.34÷0.50	0.34÷0.50	0.53÷0.73	0.53÷0.73	1.76	2.42	2.42
Unlocking time* Tempo di sbloccaggio*		sec	0.1	0.1	0.1	0.12	0.12	0.6	0.6	0.6
Locking time* Tempo di bloccaggio*		sec	0.1	0.1	0.1	0.12	0.12	0.6	0.6	0.6
Available version Versione disponibile	Pneumatic Pneumatica		•	•	•	•	•			
	Hydraulic Idraulica			•	•	•	•	•	•	•
Working pressure Pressione di lavoro		Bar	Pneumatic Hydraulic	Pneumatica Idraulica						5 ± 1 30 ± 3

* standard version
*versione standard

Turrets controlled by servo-motor

Technical section



Axial driven tools turrets for tool-holders as per ISO 10889 norms

Description

TBMA series

Turrets with rotating tools with external modular driven tool system, which is applied externally on the TB standard turrets.
No live tool clutch orientation is required, thanks to automatic engagement and disengagement, helping dead times saving.
Discs according to ISO 10889 (ex DIN 69880) norms used.
All disc positions can be used either for fixed or for live tool.
Compact overall dimensions of the driven tool system do not effect the working capacity of the lathe.

Main characteristics:

- Very high rotating speed and minimum indexing times
- Locking and unlocking without axial movement
- Bi-directional rotation
- Oil lubrication of turret and power tool system
- Double proximity switch for the engagement control
- High rigidity, due to the new design
- Absolute very accurate positioning
- Easy maintenance
- Wide range sizes and possibility to use 8-12-16-24 position discs

Axial driven tools turrets for tool-holders as per ISO 10889 norms

Technical data

TBMA series

Size Taglia			TBMA 100	TBMA 120	TBMA 160	TBMA 200	TBMA 250	TBMA 320	TBMA 400
N° of divisions N° di stazioni			8 - 12 16	8 - 12 16 - 24	8 - 12 16 - 24	8 - 12 16 - 24	8 - 12 16 - 24	8 -12 16 - 24	8 - 12 16 - 24
Moment of inertia Momento d'inerzia		kgm²	0.25	0.15÷1.8	0.15÷1.8	0.4÷8	0.4÷8	0.7÷40	20÷100
Max tangential torque Massima coppia tangenziale		Nm	450	1100	1900	4000	7500	16000	26000
Max overturning torque in pressing direction Massima coppia ribaltante a premere		Nm	400	1200	2100	6000	12000	25000	41400
Max overturning torque in lifting direction Massima coppia ribaltante a sollevare		Nm	150	700	1600	3500	6500	13000	20000
Max out of balance torque Massima coppia di sblanciamento		Nm	3	10	15	40	60	160	470
Positioning accuracy Precisione di posizione		Deg. Gradi	±4"	±4"	±4"	±4"	±4"	±4"	±4"
Accuracy of repeability Precisione di ripetibilità		Deg. Gradi	±1.6"	±1.6"	±1.6"	±1.6"	±1.6"	±1.6"	±1.6"
Positioning time Tempo di posizionamento	30°	sec	0.13	0.13÷0.24	0.13÷0.24	0.20÷0.34	0.20÷0.34	0.64	0.86
	45°	sec	0.17	0.17÷0.28	0.17÷0.28	0.25÷0.38	0.25÷0.38	0.71	0.96
	180°	sec	0.30	0.34÷0.50	0.34÷0.50	0.53÷0.73	0.53÷0.73	1.76	2.42
Unlocking time* Tempo di sbloccaggio*		sec	0.1	0.1	0.1	0.12	0.12	0.6	0.6
Locking time* Tempo di bloccaggio*		sec	0.1	0.1	0.1	0.12	0.12	0.6	0.6

* standard version
*versione standard

Axial driven tools turrets for tool-holders as per ISO 10889 norms

Technical data power tools

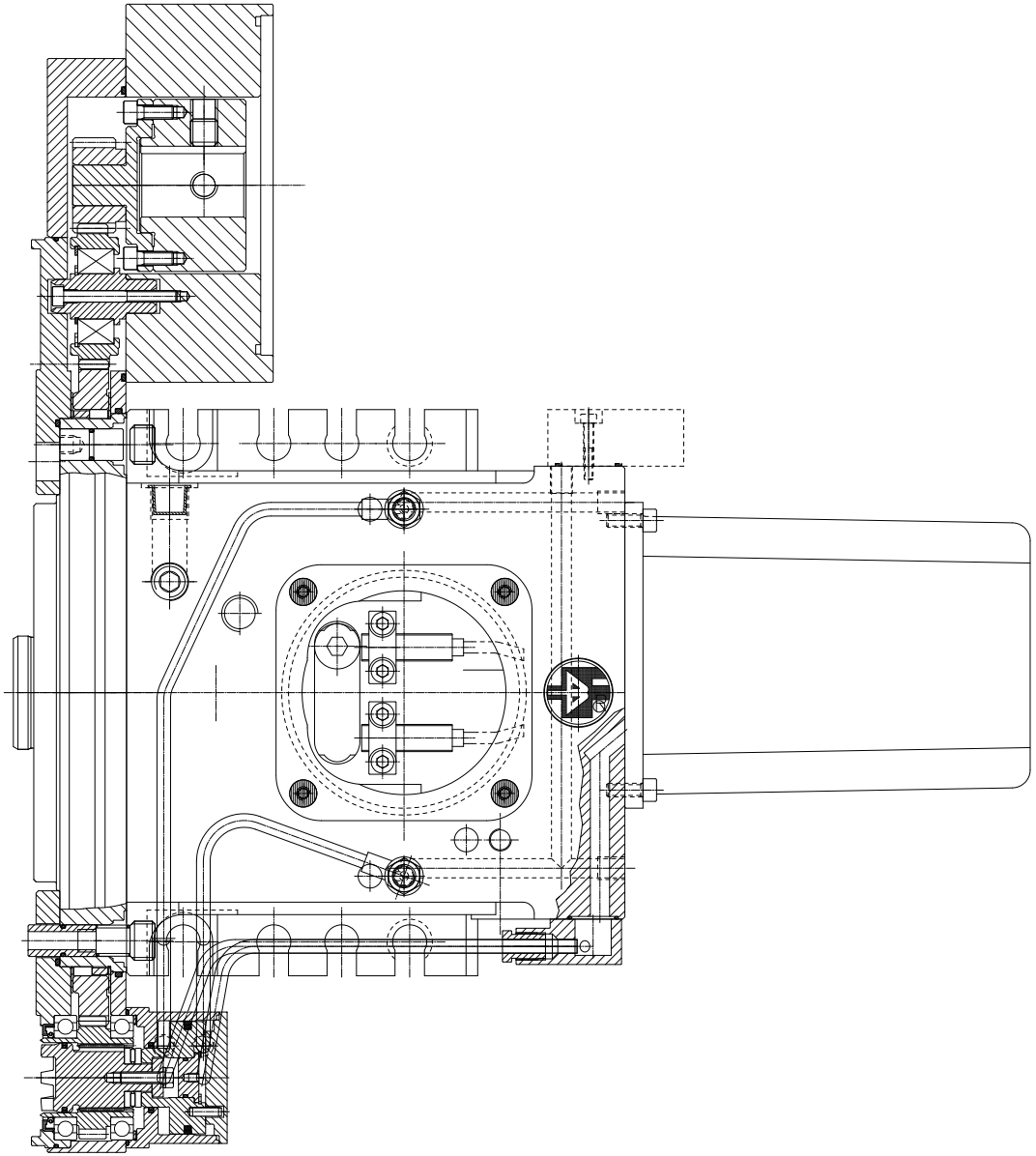
TBMA series

Size Taglia			TBMA 100	TBMA 120	TBMA 160	TBMA 200	TBMA 250	TBMA 320	TBMA 400
Toolholder shaft size Dimensione gambo portautensili		mm	16 - 20	20	30	40	50	60	80
Max torque at the motor Coppia massima motore		Nm	10	16	16	50	50	100	130
Max power Potenza massima motore		Kw	3	5	5	9	9	15	18,5
Max motor speed Numero di giri massimo motore		RPM g/min	6000	6000	6000	5000	5000	3000	3000
Ratio: RPM motor / RPM take power Rapporto di trasmissione	Direct	diretta	1:1	1:1	1:1	1:1	1:1	1:1	1:1
	Reduction	ridotta	-	-	1.25	1.315	1.52	1.45	1.85
Turret's total weight Peso totale della torretta		Kg		60	80	140	170	426	500
Available version Versione disponibile	Pneumatic		•	•	•	•	•		
	Hydraulic			•	•	•	•	•	•
Working pressure Pressione di lavoro		Bar	Pneumatic	5 ± 1					
			Hydraulic	30 ± 3					

Axial driven tools turrets for tool-holders as per ISO 10889 norms

Technical section

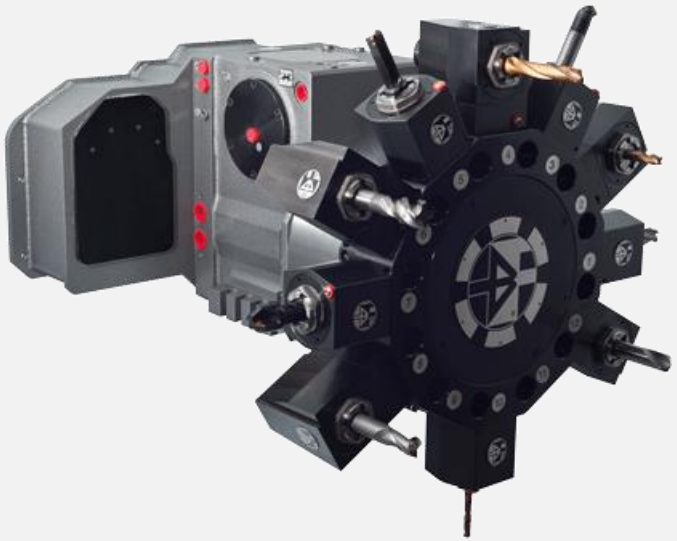
TBMA series



Radial driven tools turrets for tool-holders as per ISO 10889 norms

Description

TBMR-VDI series



Baruffaldi has developed new turrets with rotating tools with internal driven tool system type TBMR. The tools are located on discs with radial seat as per ISO 10889 (ex DIN 69880) norms.
Only the tool in working position is driven and every position on the tooldisc can receive toolholders either with fixed or with live tools.
Turret main characteristic are ultra high speed and automatic engagement and disengagement of rotating tool during turret indexing cycle, an extended neck useful for back machining operations, strong housing and high flexibility.

Main characteristics:

- Very high rotating speed and minimum indexing times
- Locking and unlocking without axial movement
- Bi-directional rotation
- Oil lubrication of turret and power tool system
- Double proximity for engagement control
- High rigidity, due to the new design
- Absolute positioning
- Very accurate positioning
- Easy maintenance
- Wide range 120, 160, 200, 250, 320
- Possibility to use 8-12-16-24 position discs

Radial driven tools turrets for tool-holders as per ISO 10889 norms

Technical data

Size Taglia			TBMR 120	TBMR 160	TBMR 200	TBMR 250	TBMR 320
N° of divisions N° di stazioni			8 - 12	8 - 12	8 - 12	8 - 12	8 -12
			16 - 24	16 - 24	16 - 24	16 - 24	16 - 24
Moment of inertia Momento d'inerzia		kgm²	0.15÷1.8	0.15÷1.8	0.4÷8	0.4÷8	0.7÷40
Max tangential torque Massima coppia tangenziale		Nm	1100	1900	4000	7500	16000
Max overturning torque in pressing direction Massima coppia ribaltante a premere		Nm	1200	2100	6000	12000	25000
Max overturning torque in lifting direction Massima coppia ribaltante a sollevare		Nm	700	1600	3500	6500	13000
Max out of balance torque Massima coppia di sblanciamento		Nm	10	15	40	60	160
Positioning accuracy Precisione di posizione		Deg. Gradi	±4"	±4"	±4"	±4"	±4"
Accuracy of repeability Precisione di ripetibilità		Deg. Gradi	±1.6"	±1.6"	±1.6"	±1.6"	±1.6"
Positioning time Tempo di posizionamento	30°	sec	0.13÷0.24	0.13÷0.24	0.20÷0.34	0.20÷0.34	0.64
	45°	sec	0.17÷0.28	0.17÷0.28	0.25÷0.38	0.25÷0.38	0.71
	180°	sec	0.34÷0.50	0.34÷0.50	0.53÷0.73	0.53÷0.73	1.76
Unlocking time* Tempo di sbloccaggio*		sec	0.1	0.1	0.12	0.12	0.6
Locking time* Tempo di bloccaggio*		sec	0.1	0.1	0.12	0.12	0.6

* standard version
*versione standard

TBMR-VDI series

Radial driven tools turrets for tool-holders as per ISO 10889 norms

Technical data power tools

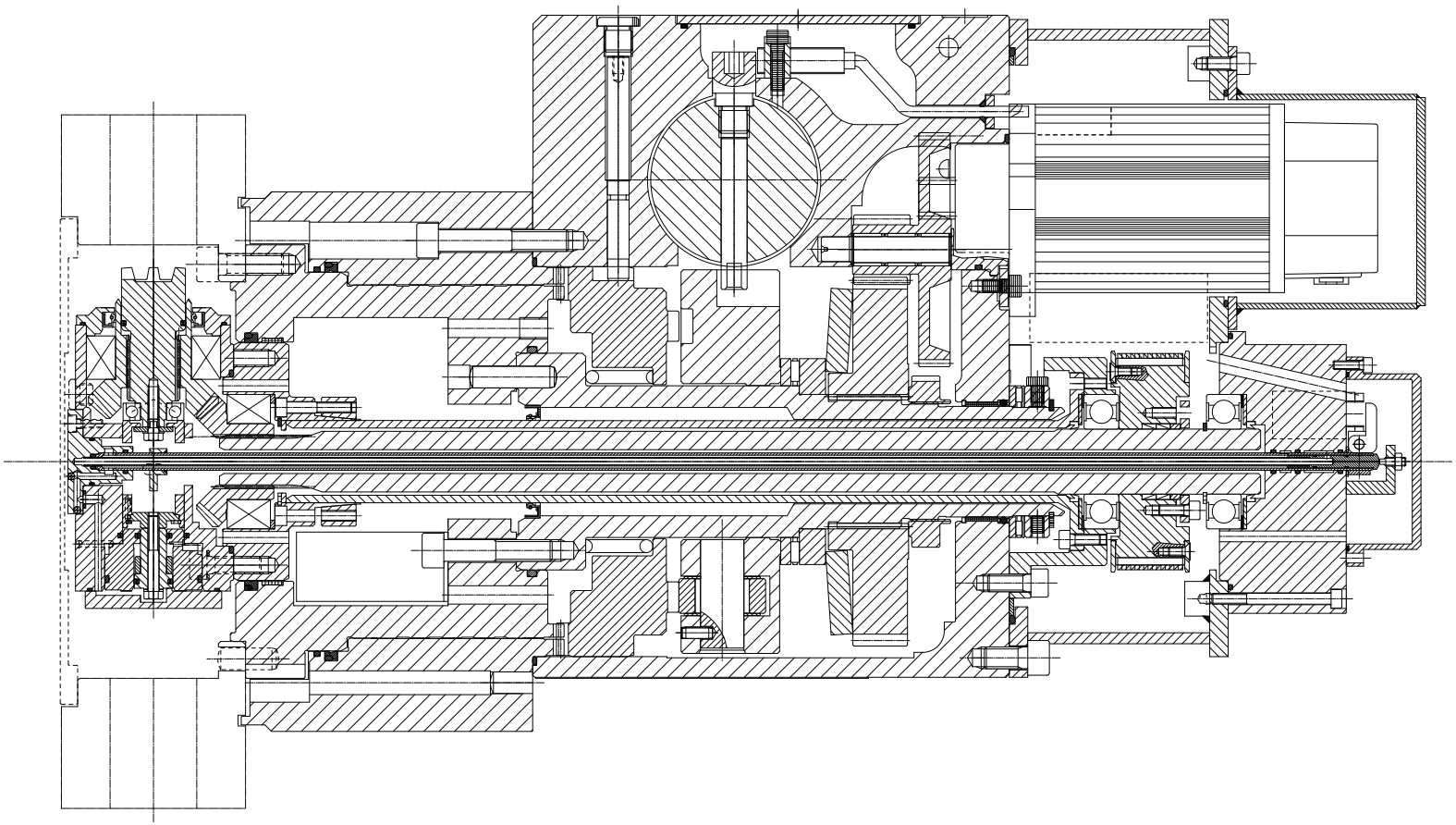
Size Taglia			TBMR 120	TBMR 160	TBMR 200	TBMR 250	TBMR 320
Toolholder shaft size Dimensione gambo portautensili		mm	20	30	40	50	60
Max torque at the motor massima motore	Coppia	Nm	16	16	50	50	100
Max power massima motore	Potenza	Kw	5	5	9	9	15
Max motor speed Numero di giri massimo motore		RPM g/min	5000	5000	4000	4000	3000
Ratio: RPM motor / RPM take power Rapporto di trasmissione	Direct Reduction	diretta ridotta	1:1 1.23	1:1 1.23	1:1 1.25	1:1 1.25	1:1 1.33
Turret's total weight Peso totale della torretta		Kg	84	115	192	285	595
Available version Versione disponibile	Pneumatic Hydraulic		• •	• •	• •	• •	 •
Working pressure Pressione di lavoro		Bar	Pneumatic Hydraulic	5 ± 1 30 ± 3			

TBMR-VDI series

Radial driven tools turrets for tool-holders as per ISO 10889 norms

Technical section

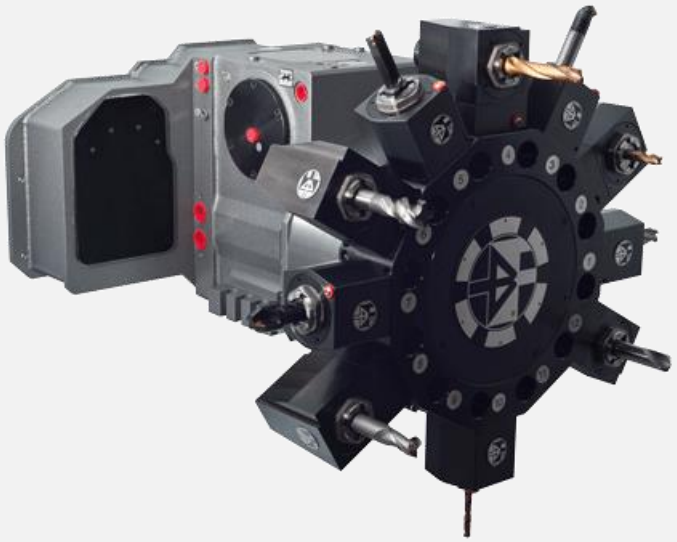
TBMR-VDI series



Radial driven tools turrets for tool-holders series BMT

Description

TBMR-BMT series



Thanks to the experience gained in more than 30 years activity in the design and production of turrets for the positioning of the tools on CNC lathes. Baruffaldi has developed new turrets with internal driven tools system type TBMR.
The static and rotating toolhorders are located on discs with radial seats type BMT. The rotating toolholders use a take power, as per DIN norms 1809. Only the tool in the working position is driven and every position on the tooldisc can receive either toolholders with rotating or fixed tools.

Main characteristics:

- Very high rotating speed and minimum indexing times
- Locking and unlocking without axial movement
- Bi-directional rotation
- Oil lubrification of turret and power tool system
- BMT coupling (Base Mounted Tool holder) 45-55-65-75-85
- High rigidity, due to the new design
- Easy alignment thanks to the key present on the
- BMT tool holder
- Absolute positioning
- Very simple & reliable take power
- Very accurate positioning thanks to BMT toolholders
- Easy maintenance

Radial driven tools turrets for tool-holders series BMT

Technical data

Size Taglia			TBMR 120	TBMR 160	TBMR 200	TBMR 250	TBMR 320
N° of divisions N° di stazioni			8 - 12	8 - 12	8 - 12	8 - 12	8 -12
			16 - 24	16 - 24	16 - 24	16 - 24	16 - 24
Moment of inertia Momento d'inerzia		kgm²	0.15÷1.8	0.15÷1.8	0.4÷8	0.4÷8	0.7÷40
Max tangential torque Massima coppia tangenziale		Nm	1100	1900	4000	7500	16000
Max overturning torque in pressing direction Massima coppia ribaltante a premere		Nm	1200	2100	6000	12000	25000
Max overturning torque in lifting direction Massima coppia ribaltante a sollevare		Nm	700	1600	3500	6500	13000
Max out of balance torque Massima coppia di sblanciamento		Nm	10	15	40	60	160
Positioning accuracy Precisione di posizione		Deg. Gradi	±4"	±4"	±4"	±4"	±4"
Accuracy of repeability Precisione di ripetibilità		Deg. Gradi	±1.6"	±1.6"	±1.6"	±1.6"	±1.6"
Positioning time Tempo di posizionamento	30°	sec	0.13÷0.24	0.13÷0.24	0.20÷0.34	0.20÷0.34	0.64
	45°	sec	0.17÷0.28	0.17÷0.28	0.25÷0.38	0.25÷0.38	0.71
	180°	sec	0.34÷0.50	0.34÷0.50	0.53÷0.73	0.53÷0.73	1.76
Unlocking time* Tempo di sbloccaggio*		sec	0.1	0.1	0.12	0.12	0.6
Locking time* Tempo di bloccaggio*		sec	0.1	0.1	0.12	0.12	0.6

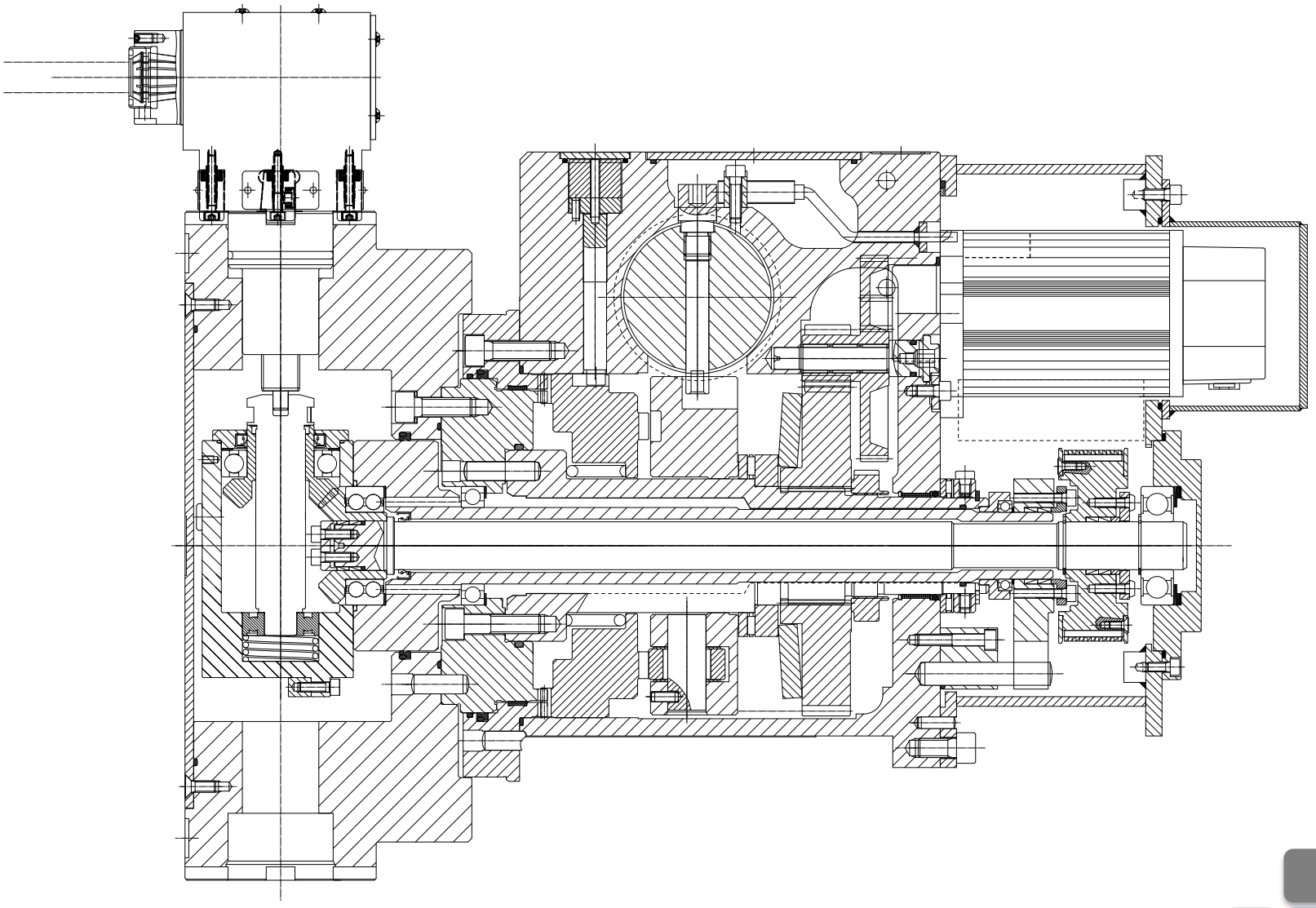
* standard version
*versione standard

Radial driven tools turrets for tool-holders series BMT

Technical data power tools

Size Taglia			TBMR 120	TBMR 160	TBMR 200	TBMR 250	TBMR 320
BMT size Dimensione BMT		mm	45	45	55 65	65 75	75 85
Max torque at the motor Coppia massima motore		Nm	16	16	50	50	100
Max power Potenza massima motore		Kw	5	5	9	9	15
Max motor speed Numero di giri massimo motore		RPM g/min	6000	6000	5000	5000	3000
Ratio: RPM motor / RPM take power Rapporto di trasmissione			1	1	1	1	1
Turret's total weight Peso totale della torretta		Kg	84	115	192	285	595
Available version Versione disponibile	Pneumatic		•	•	•	•	
	Hydraulic		•	•	•	•	•
Working pressure Pressione di lavoro		Bar	Pneumatic	5 ± 1			
			Hydraulic	30 ± 3			

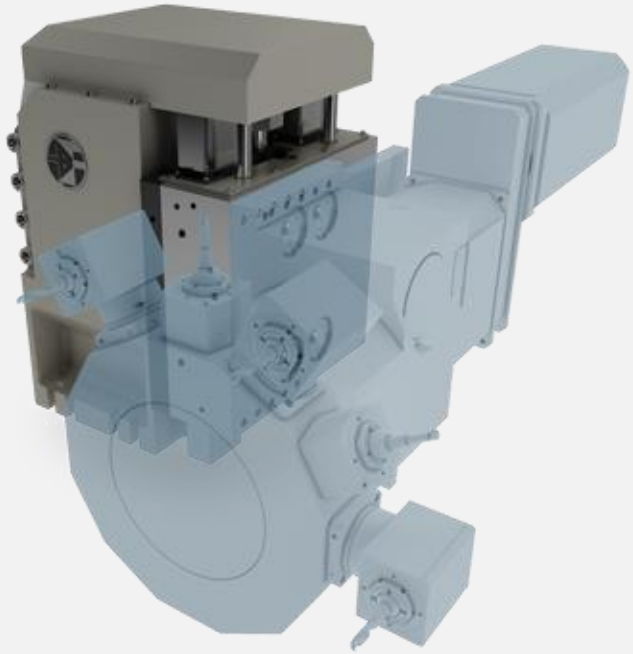
TBMR-BMT series



“Y-axis” unit

Description

YAX series



The YAX unit allows displacement of tools in lathe Y-direction, in order to produce manifolds where out-of-axis operations are required, such as face millings, holes and tappings, key-slots and so on. It can be fit on flat bed lathes as well as on slant bed lathes, where required y-axis movement is perpendicular to machine slide.
The rugged meehanite cast iron column with wide sliding guideways and all other strongly designed components, together with hydraulic guideways preload system (patent pending) allow hard machining operations either with fixed tools and live tools.
Thanks to the modular design, YAX is available in 3 sizes: YAX 16 (for 120 and 160 size turrets), YAX 25 (for 200 and 250 size turrets) and YAX 40 (for 320 and 400 size turrets). TBYA as well as TBYR turrets can be fit. Standard strokes are available as well as custom strokes (to be defined with our Technical Department).

Main features:

- Strong meehanite cast iron column for optimal vibration dampening results and stable in time
- Very wide and strong hardened sliding guideways with backlash recovery devices in all directions, centralized lubrication included (except oil supply unit)
- Adjustable hydraulic guideways preload system (patent pending) for extremely hard operations
- Strong hydraulic Y-direction brake
- High strokes, available as standard as well as custom
- All standard turrets can be fit, for front and back-machining

“Y-axis” unit

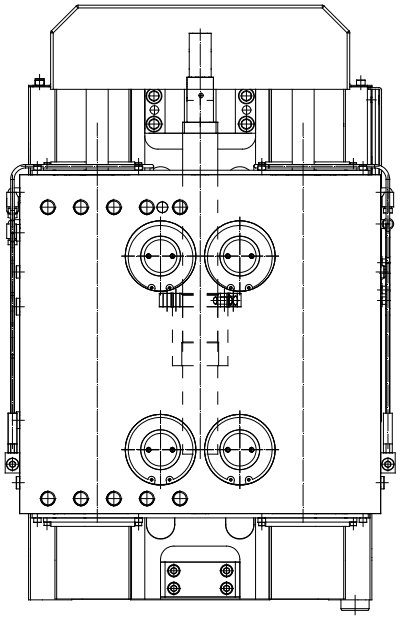
Technical data

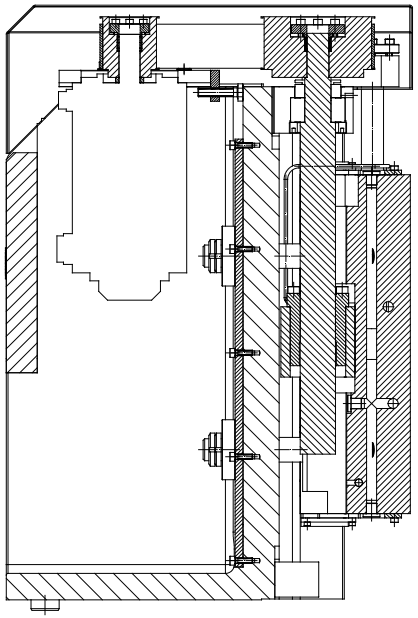
Size Taglia			YAX16		YAX25		YAX40	
Turret size Grandezza torretta abbinabile			120	160	200	250	320	400
Minimum suggested motor torque Coppia minima consigliata del motore		S1	4	6	10	13	25	30
Ball screw diameter x pitch Diametro x passo della vite a sfere		mm	32x5	32x5	40x5	40x5	63x10	63x10
Max feed speed in Y direction Massima velocità di avanzamento in Y		m/min	10	10	10	10	10	10
Max feed force in Y-direction Forza massima di avanzamento in direzione Y		N	8000	12000	18000	27000	32000	39000
Nominal stroke Corsa nominale standard		mm	± 40	± 40	± 70	± 70	± 100	± 100
Hydraulic brake force in Y-direction* Forza di frenatura idraulica in direzione*		N/bar	50	50	90	90	180	180
Max. Y-direction hydraulic brake oil pressure** Pressione massima al freno idraulico in direzione Y**		bar	100(150)	100(150)	100(150)	100(150)	100(150)	100(150)
Positioning accuracy Accuratezza di posizionamento	Motor encoder	µm	≤20	≤20	≤20	≤20	≤20	≤20
	Ball-screw encoder (optional)		≤15	≤15	≤15	≤15	≤15	≤15
	Linear encoder (optional)		≤10	≤10	≤10	≤10	≤10	≤10

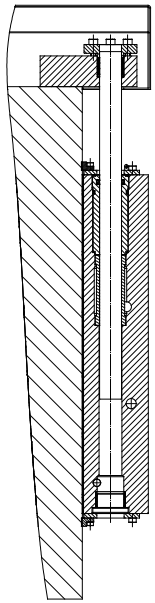
YAX series

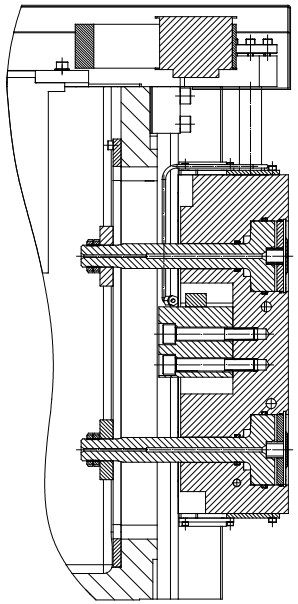
“Y-axis” unit

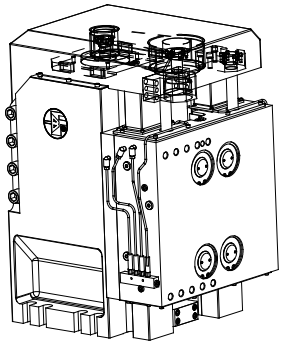
Technical section

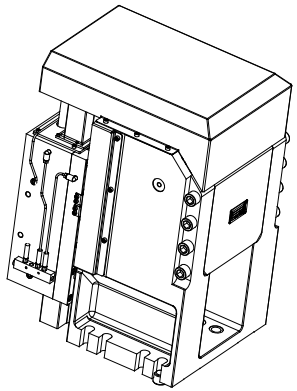








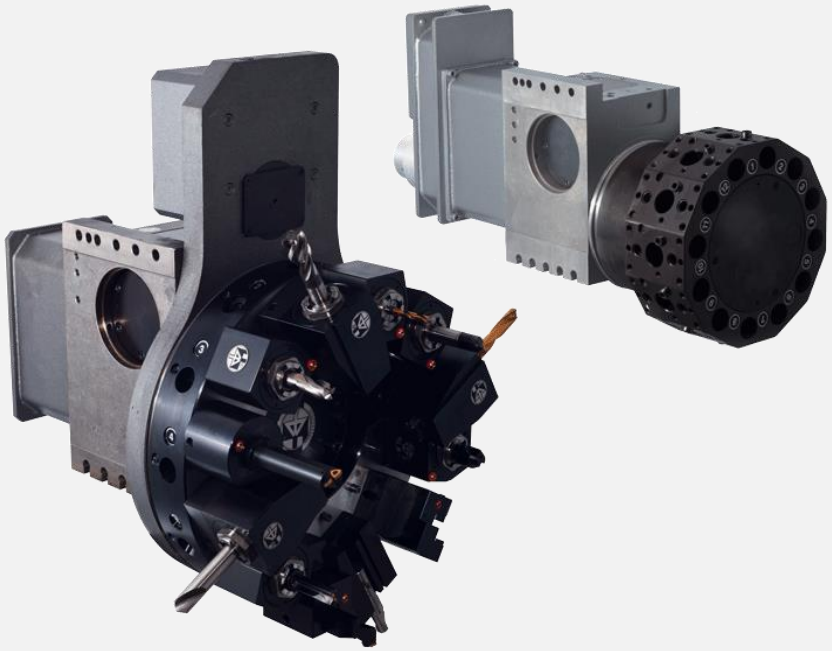




Axial and radial driven tools turrets for tool-holders as per ISO 10889 norms

Description

TBYA - TBYR series



This turret has been designed for use on the Y axis of turning centres.
The turret has compact overall dimensions towards the chuck, the tailstock and the slide.
This solution allows use of toolholder discs with standard dimensions.

Main characteristics and advantages:

- These turrets can be supplied together with Baruffaldi Y-axis unit (see YAX section), for a rugged, precise and cost-effective solution
- As an alternative, such turrets can be fit on customer's Y-axis unit
- Both frontal TBYA and radial TBYR turrets can be used on the same Y-axis
- Main features of these turrets are similar to TBMA and TBMR turrets
- Available sizes 120-160-200-250-320.

1. For technical data refer to TBMA, TBMR-VDI and TBMR-BMT sections.
2. For Y-axis unit see YAX section.

Axial and radial driven tools turrets for tool-holders as per ISO 10889 norms

Technical data power tools TBYA series

Size Taglia			TBYA 120	TBYA 160	TBYA 200	TBYA 250	TBYA 320
Toolholder shaft size Dimensione gambo portautensili		mm	20	30	40	50	60
Max torque at the motor Coppia massima motore		Nm	16	16	50	50	100
Max power Potenza massima motore		Kw	5	5	9	9	15
Max motor speed Numero di giri massimo motore		RPM g/min	6000	6000	5000	5000	3000
Ratio: RPM motor / RPM take power Rapporto di trasmissione	Direct Reduction	diretta ridotta	1:1 -	1:1 1.25	1:1 1.315	1:1 1.52	1:1 1.45
Turret's total weight Peso totale della torretta		Kg	60	80	140	170	426
Available version Versione disponibile	Pneumatic Hydraulic		• •	• •	• •	• •	 •
Working pressure Pressione di lavoro		Bar	5 ± 1 30 ± 3				

TBYA - TBYR series

Axial and radial driven tools turrets for tool-holders as per ISO 10889 norms

Technical data power tools TBYR VDI and BMT series

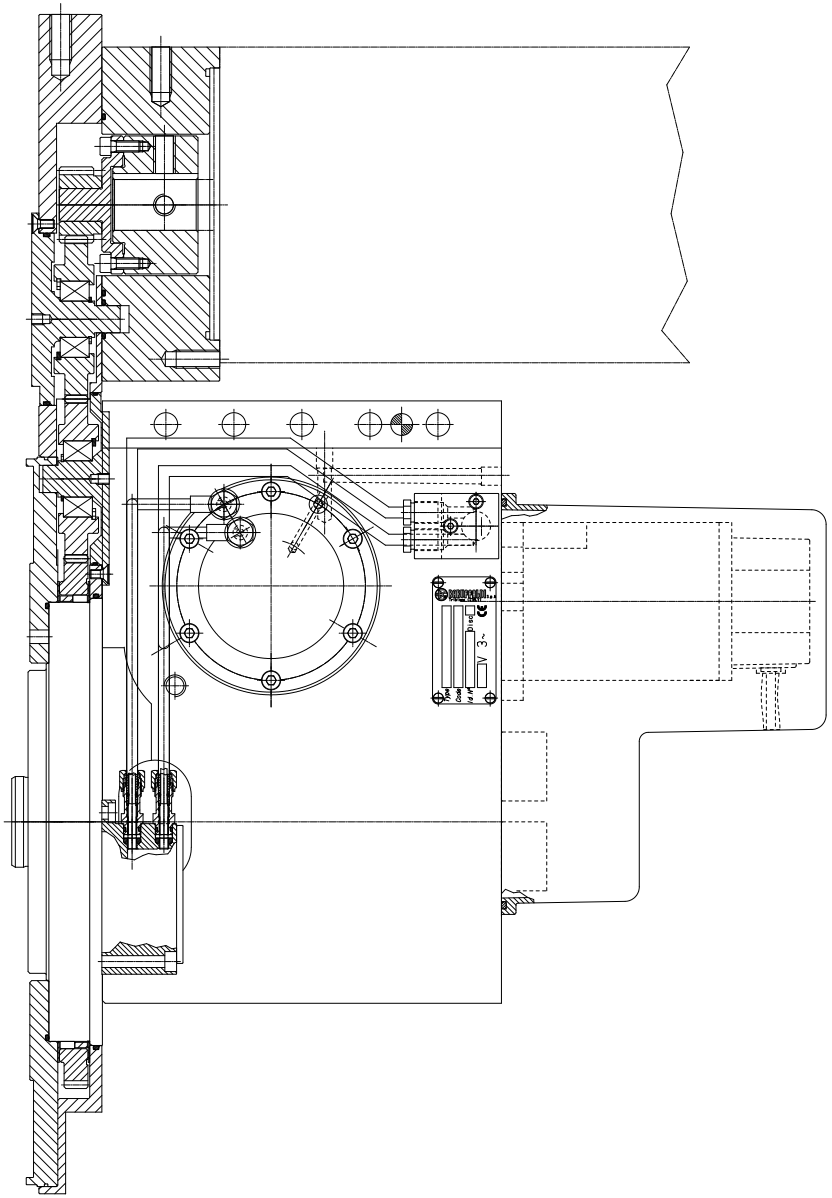
TBYA - TBYR series

Size Taglia			TBYR 120	TBYR 160	TBYR 200	TBYR 250	TBYR 320
Toolholder shaft size Dimensione gambo portautensili		mm	20	30	40	50	60
Max torque at the motor Coppia massima motore		Nm	16	16	50	50	100
Max power Potenza massima motore		Kw	5	5	9	9	15
Max motor speed Numero di giri massimo motore		RPM g/min	5000	5000	4000	4000	3000
Ratio: RPM motor / RPM take power Rapporto di trasmissione	Direct diretta		1:1	1:1	1:1	1:1	1:1
	Reduction ridotta		1.23	1.23	1.25	1.25	1.33
Turret's total weight Peso totale della torretta		Kg	84	115	192	285	595
Available version Versione disponibile	Pneumatic		•	•	•	•	
	Hydraulic		•	•	•	•	•
Working pressure Pressione di lavoro		Bar	Pneumatic	5 ± 1			
			Hydraulic	30 ± 3			

Size Taglia			TBYR 120	TBYR 160	TBYR 200	TBYR 250	TBYR 320
BMT size BMT	Dimensione	mm	45	45	55	65	75
					65	75	85
Max torque at the motor Coppia massima motore		Nm	16	16	50	50	100
Max power Potenza massima motore		Kw	5	5	9	9	15
Max motor speed Numero di giri massimo motore		RPM g/min	6000	6000	5000	5000	3000
Ratio: RPM motor / RPM take power Rapporto di trasmissione			1	1	1	1	1
Turret's total weight Peso totale della torretta		Kg	84	115	192	285	595
Available version Versione disponibile	Pneumatic		•	•	•	•	
	Hydraulic		•	•	•	•	•
Working pressure Pressione di lavoro		Bar	Pneumatic	5 ± 1			
			Hydraulic	30 ± 3			

Axial and radial driven tools turrets for tool-holders as per ISO 10889 norms

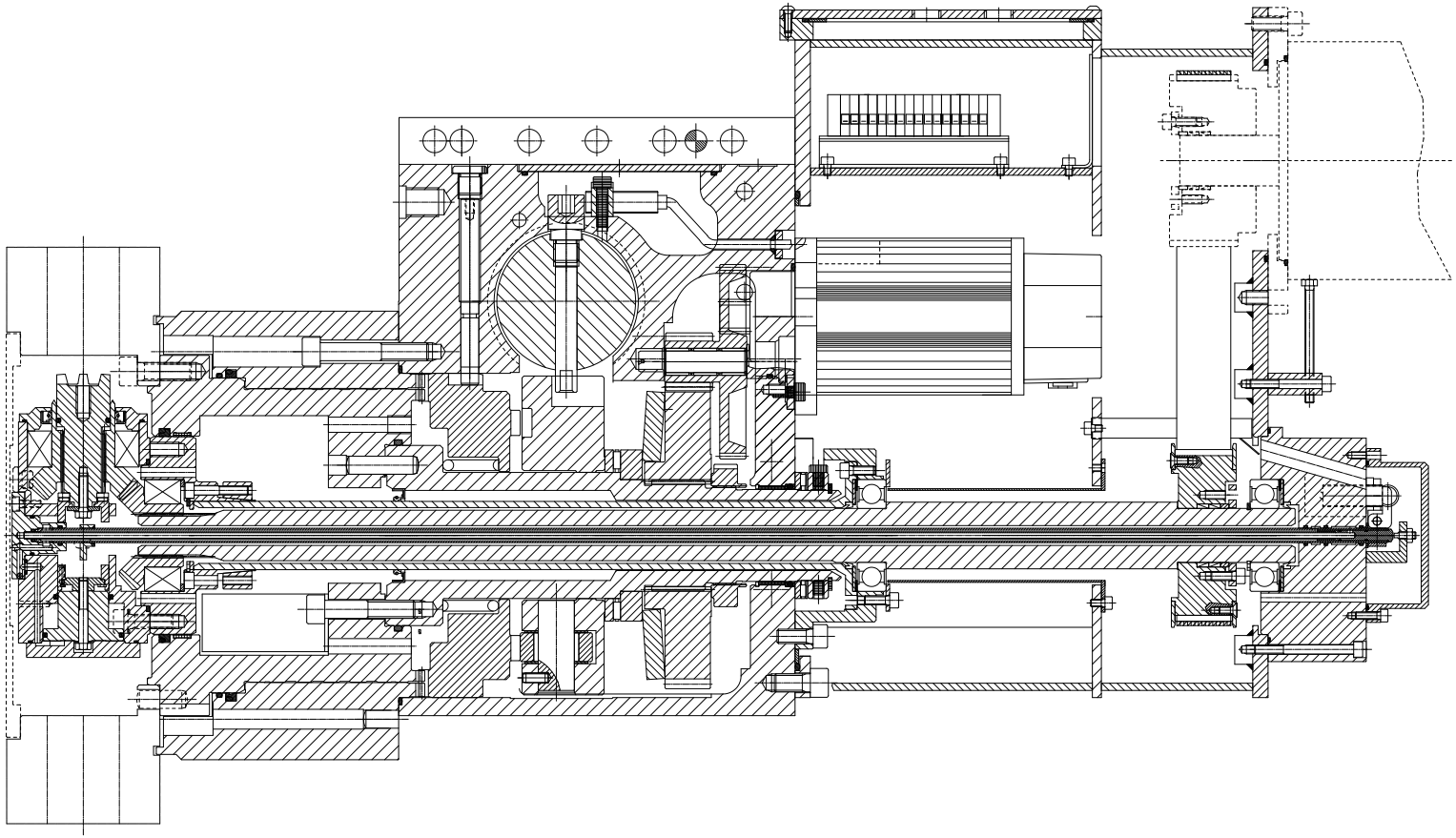
Technical section TBYA series



Axial and radial driven tools turrets for tool-holders as per ISO 10889 norms

Technical section

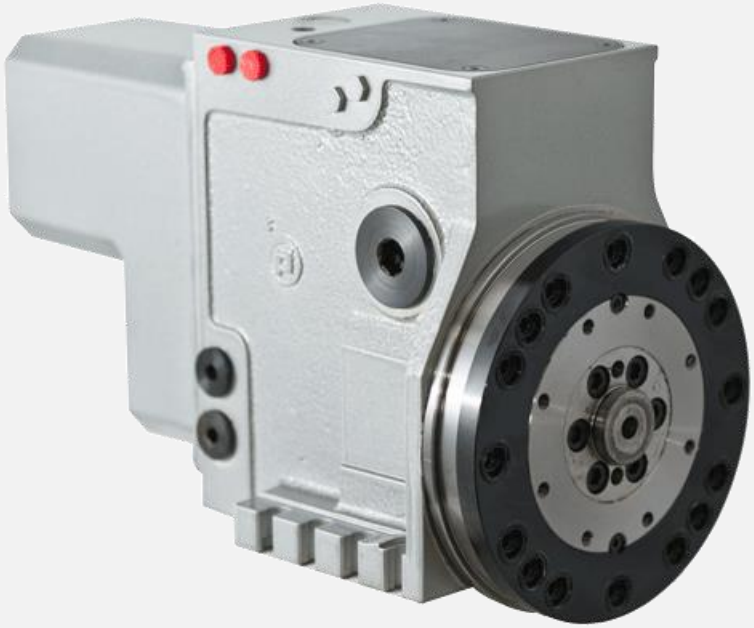
TBYA - TBYR series



Electromechanical turrets

Description

TE series



These turrets have totally electromechanical opera- tion both for rotation and locking.
They do not require any additional hydraulic or pneumatic component.

Main characteristics:

- Very high rotating speed and minimum indexing times
- Locking and unlocking without axial movement
- Bi-directional rotation
- A suitable system dampens the inertia of the rotating masses
- High load capacity in spite of high speed
- Spring locking mechanism ensures turret clamping even in the of power failure
- Easy control by the interface PLC of the machine

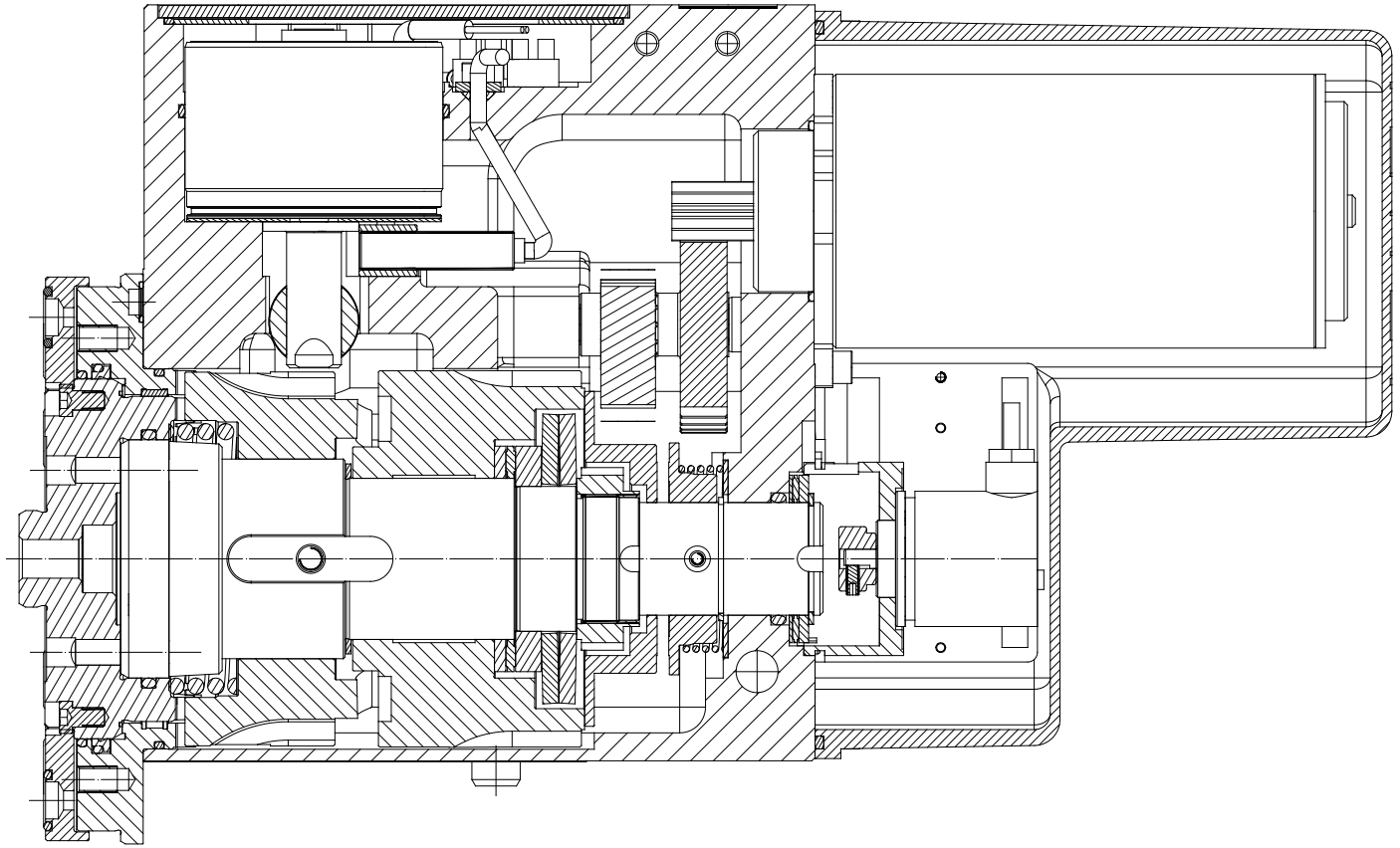
Electromechanical turrets

Technical data

TE series

Size Taglia			TE 120	TE 160	TE 200	TE 250
N° of divisions N° di stazioni			8 - 12	8 - 12	8 - 12	8 - 12
Moment of inertia Momento d'inerzia		kgm²	0.15÷1.8	0.15÷1.8	0.4÷8	0.4÷8
Max tangential torque Massima coppia tangenziale		Nm	1100	1900	4000	7500
Max overturning torque in pressing direction Massima coppia ribaltante a premere		Nm	1200	2100	6000	12000
Max overturning torque in lifting direction Massima coppia ribaltante a sollevare		Nm	700	1600	3500	6500
Max out of balance torque Massima coppia di sblanciamento		Nm	10	15	40	60
Positioning accuracy Precisione di posizione		Deg. Gradi	±4"	±4"	±4"	±4"
Accuracy of repeability Precisione di ripetibilità		Deg. Gradi	±1.6"	±1.6"	±1.6"	±1.6"
IndexingTime 50Hz (open+rotation+close) Tempo di indexaggio 50Hz (apertura+rotazione+chiusura)	30°	sec	0,36	0,36	0,45	0,45
	45°	sec	0,45	0,45	0,57	0,57
	180°	sec	1,25	1,25	1,7	1,7
Only rotation time 50Hz Tempo di sola rotazione 50Hz	30°	sec	0,18	0,18	0,24	0,24
	45°	sec	0,24	0,24	0,36	0,36
Indexing frequency Frequenza di indexaggio		n/h	800	800	800	800

TE series



Electromechanical turrets

Description

TAN series

TAN series turrets consist of a fixed basis ground a rotating head both made of hardened and grinded steel.
A single motor controls the phases of release, of rotation, positioning and locking.
TAN series turrets can be mounted with the axis in horizontal, vertical or slanting position.
It is possible furthermore to select any working position without stopping in the intermediate stations.
Turrets can carry 4 tools as per DIN norms 3425; on demand, they can be supplied with a different number of faces and every face is supplied with a slot for tools positioning (presetting): this allows to reduce dead times necessary for the tools presetting.

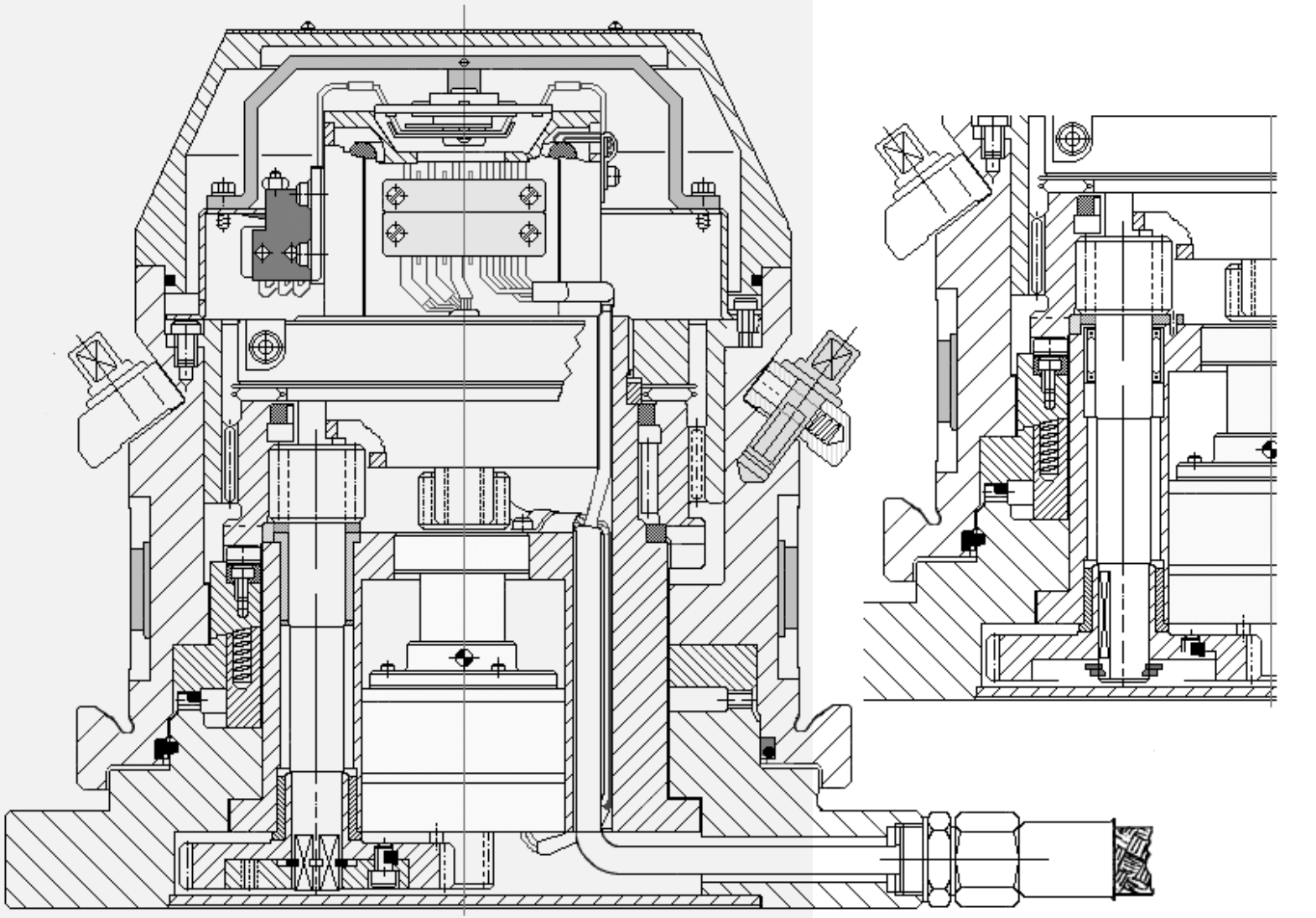
Electromechanical turrets

Technical data

TAN series

Size Taglia		TAN 160	TAN 210	TAN 260	TAN 340	TAN 440
N° of divisions N° di stazioni		4 - 6	4 - 6	4 - 6	4 - 6	4 - 6 8
Moment of inertia of masses to be carried Momento d'inerzia delle masse trasportabili	kgm²	1	3	8	21	55
Maximum permissible weight to be carried by turret Peso massimo trasportabile dalla torretta	Kg	35	75	120	220	320
Max tangential torque Massima coppia tangenziale	Nm	1100	1800	3600	12000	22000
Max out of balance torque on horizontal axis Massima coppia di sblanciamento con asse orizzontale	Nm	8	35	130	200	400
Indexing accuracy Precisione di divisione	Deg. Gradi	±6"	±6"	±6"	±6"	±6"
Accuracy of repeability Precisione di ripetibilità	Deg. Gradi	±2"	±2"	±2"	±2"	±2"
Unlocking and lift time Tempo di sbloccaggio e sollevamento	sec	0.28	0.35	0.50	0.70	0.80
Time taken for one rovolution Tempo di rotazione per un giro	sec	1.66	4	5	7.5	10
Lowering anfd locking time Tempo di chiusura e bloccaggio	sec	0.82	0.85	1	1.4	1.6
Supply voltage for motor 50/60Hz tensione di alimentazione del motore 50/60Hz	V	110 220 380 400	110 220 380 400	110 220 380 400	110 220 380 400	110 220 380 400
Power requirements for brake Potenza massima assorbita dal freno	W	4.4	3.6	6.8	6.8	6.8
Supply voltage for brake Tensione di alimentazione freno	V	24	24	24	24	24
Turret's total weight Peso totale della torretta	Kg	31	62	116	250	430

TAN series



Turn – mill multifunction unit “B-axis”

Description

BAX series

Baruffaldi has developed B-axis type BAX, thus completing its range of accessories for lathes and machining centers.
By means of BAX unit, machining operations such as turning, milling, drilling, tapping – coaxial, offset and at any angle – plus three-dimensional profiling can be carried out.
BAX unit is available in three sizes, with reference to electrospindle torque capability: 100Nm (BAX 100), 200Nm (BAX200) and 330Nm (BAX330).
Different toolholder systems can be supplied, such as HSK, CAPTO and others on request.
Rugged steel structure, big diameter Hirth teeth rings and backlash-free swiveling trasmission allow strong machining operations with high and constant preci- sion over time.

Main characteristics:

- Compact design. Upon custome request, it can be integrated in machine slide
- Widely customizable electrospindle
- Three torque sizes available, to meet the hardest machining needs
- Very high steel structure stiffness
- Hydraulic locking on big diameter three-rings Hirth coupling, both for table and electrospindle, for very
- heavy turning operations (oil pressure up to 70 bar)
- High torque hydraulic brake (up to 3500Nm)
- Backlash free swiveling, high precision and positioning repeatability
- Variable table pre-load interpolation machining

Turn – mill multifunction unit “B-axis”

Technical data

BAX series

Size Taglia				BAX 100	BAX 200	BAX 330
Swiveling angle Angolo di brandeggio			Deg. Gradi	± 105°		
Angular positioning Posizionamento angolare	Index clamping	Su dentatura Hirth	Deg. Gradi	Every 5°		
	Brake clamping (1)	Su freno idraulico (1)	Deg. Gradi	Resolution Risoluzione	0,4"	
Positioning accuracy Accuratezza di posizionamento	Index clamping	Su dentatura Hirth	Deg. Gradi	± 4"		
	Brake clamping (1)	Su freno idraulico (1)	Deg. Gradi	± 15"		
Positioning repeatability Ripetitibilità di posizionamento	Index clamping	Su dentatura Hirth	Deg. Gradi	± 1,5"		
	Brake clamping (1)	Su freno idraulico (1)	Deg. Gradi	± 5"		
Oil pressure Pressione alimentazione idraulica			bar	50 -70 bar (according to duty)		

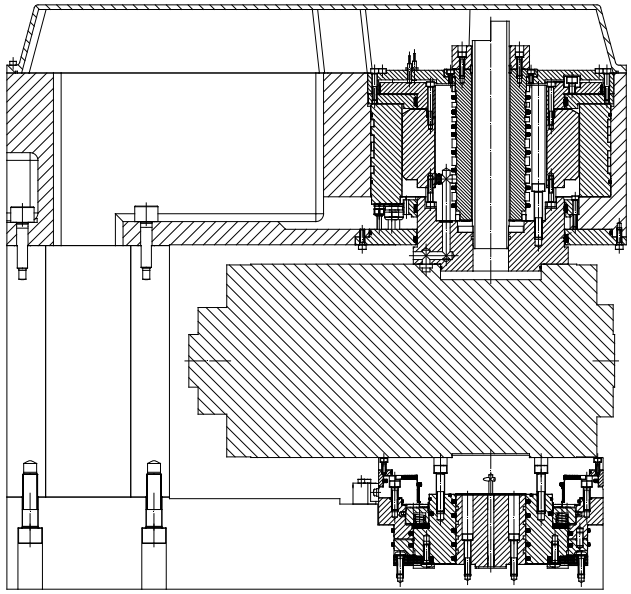
Size Taglia		BAX 100	BAX 200	BAX 330
Maximum electrospindle torque - S1 (2) Coppia massima elettromandrino - S2 (2)	Nm	100	200	330
	rpm	0 - 2000	0 - 1500	0 - 1300
Maximum electrospindle torque - S6 40% (2) Coppia massima elettromandrino - S6 40% (2)	Nm	130	260	430
Maximum electrospindle rotating speed (2) velocità di rotazione massima elettromandrino (2)	rpm	14.000	14.000	8.000
Tool coupling (3) Tipologia di attacco utensile (3)		HSK A50 -A63	HSK A63 -A80	HSK A80 -A100
		CAPTO C5 - C6	CAPTO C6 - C8	CAPTO C8
Oil pressure Pressione alimentazione idraulica	bar	50 -70 bar (according to duty)		

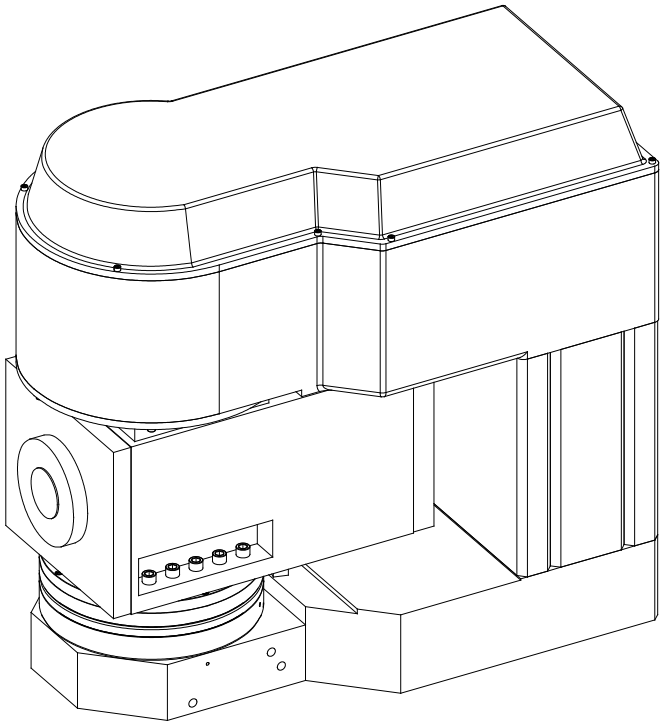
1. Values achieved with standard encoder. Lower values can be archieved by using a more accurate encoder
2. Actual torque, defluxing speed and maximum speed can be customized
3. Different couplings upon request

1. Valori riferiti all’encoder standard. E’ possibile raggiungere valori inferiori con encoder più accurati
2. I valori effettivi di coppia, punto di deflussaggio e velocità massima sono personalizzabili su richesta
3. Attacchi differenti su richiesta

Turn – mill multifunction unit “B-axis”

Technical section





Two speed planetary gearboxes for variable – speed motors

Description

CE series

Baruffaldi has designed a wide range of two speed planetary gearboxes, in order to meet increasing demands coming from the market.
Two speed gearboxes are commonly used on machine tools main spindles together with variable speed motors, aiming to extend constant power field offered by the motor and to increase torque at low speeds.
By using Baruffaldi two speed gearboxes, production flexibility of the machine is increased without affecting precision: high torque is available for hard materials machining and high speed for soft materials.

Main characteristics:

- High functioning speed
- Reduced noise values
- Extension of the costant power range of electric motors
- Fast preparation by connecting a tested series product to a series motor
- High belt pull tension allowed
- Reduced overall dimensions
- Vibrations and heat considerably reduced near the spindle line due to the decentralization of the driving unit
- Possibility to select a proper lubrication system according to the application

Two speed planetary gearboxes for variable – speed motors

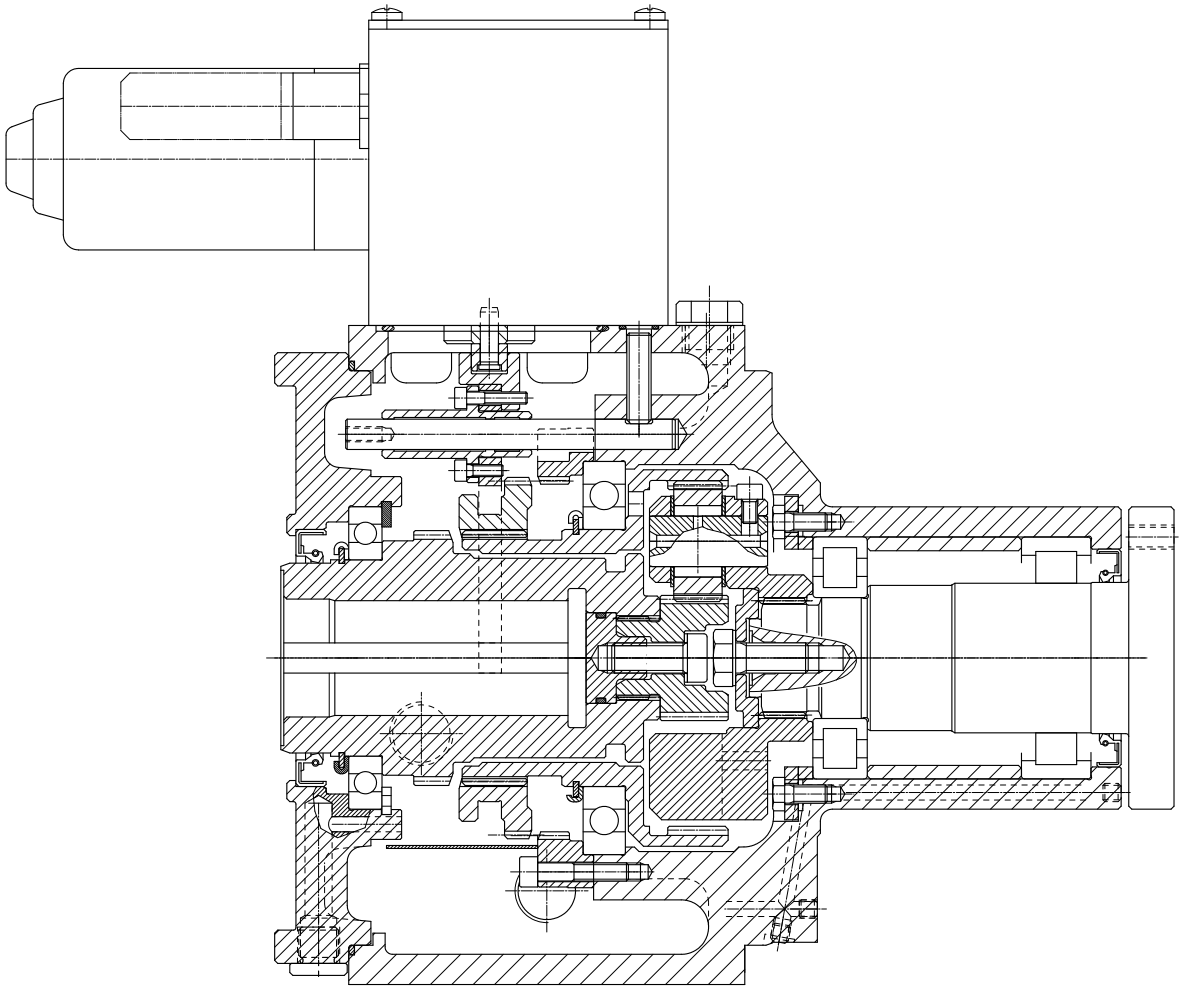
Technical data

CE series

Size Taglia			CE11		CE12		CE13		CE14		CE16 NEW!		CE18 NEW!		CE20
Ratio Rapporto		i2	i=4	i=4,48	i=4	i=5	i=4	i=4,4	i=4	i=5	i=4	i=5	i=4	i=5	i=4
Nominal power Potenza nominale		kgm²	19	19	22	22	40	40	50	50	60	60	63	63	84
Nominal torque input Coppia nominale in entrata	(S1) Nm	i=4	120	-	140	-	260	-	325	-	450	-	600	-	800
		i=4.4	-	-	-	-	-	260	-	-	-	-	-	-	-
		i=4.48	-	120	-	-	-	-	-	-	-	-	-	-	-
		i=5	-	-	-	140	-	-	-	-	-	450	-	600	-
Nominal torque input Coppia nominale in entrata	(S6) Nm	i=4	150	-	160	-	400	-	400	-	630	-	840	-	900
		i=4.4	-	-	-	-	-	400	-	-	-	-	-	-	-
		i=4.48	-	150	-	-	-	-	-	-	-	-	-	-	-
		i=5	-	-	-	160	-	-	-	325	-	630	-	840	-
Nominal torque input Coppia nominale in entrata	Nm	1:1	120	120	140	140	260	260	325	280	450	450	600	600	800
Nominal torque output Coppia nominale in uscita	Nm	i=4	480	-	560	-	1040	-	1300	-	1800	-	2400	-	3600
		i=4.4	-	-	-	-	-	1144	-	-	-	-	-	-	-
		i=4.48	-	540	-	-	-	-	-	-	-	-	-	-	-
		i=5	-	-	-	700	-	-	-	1400	-	2250	-	3000	-
Max number of revolution input Numero di giri massimo in entrata		RPM	8000	8000	8000	8000	7000	7000	6300	6300	5000	5000	5000	5000	5000
Max angular backlash Gioco angolare massimo	α	Arcmin	≤ 25		≤ 25		≤ 25		≤ 25		≤ 25		≤ 25		≤ 25
Max radial backlash Gioco radiale massimo	X	mm	0,03		0,03		0,03		0,03		0,03		0,03		0,03
Max axial backlash Gioco assiale	Y	mm	0,25		0,25		0,25		0,25		0,25		0,25		0,25
Max vibration value Valore massimo vibrazioni		mm/s	1		1		1		1		1		1		1
At test run speed velocità di riferimento test		RPM	6000		6000		6000		6000		4000		4000		4000
Power consumption shhft unit consumo potenza azionatore		W	60		60		60		60		60		60		60
Supply voltage Voltaggio		V	24		24		24		24		24		24		24
Nominal current Corrente nominale		In A	< 2,5		< 2,5		< 2,5		< 2,5		< 2,5		< 2,5		< 2,5
Short circuit corrent Corrente in cortocircuito		Icc A	3,5±0,5		3,5±0,5		3,5±0,5		3,5±0,5		3,5±0,5		3,5±0,5		3,5±0,5
Weight ca. Peso circa		kg	45		65		80		90		190/230		190/230		190/230
Oil change interval* Intervallo cambio olio*		h	5000												

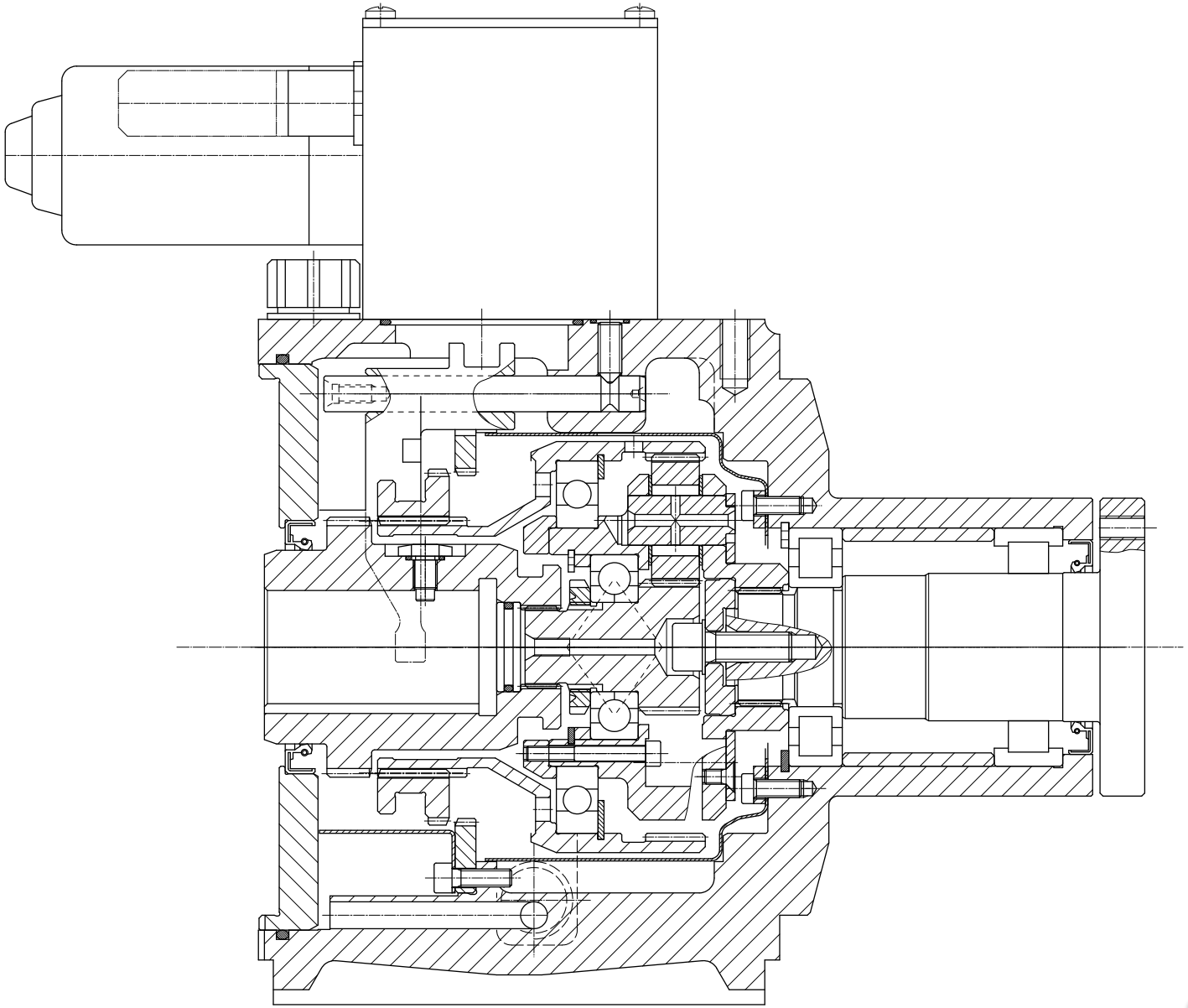
Two speed planetary gearboxes for variable – speed motors

Technical section CE11



Two speed planetary gearboxes for variable – speed motors

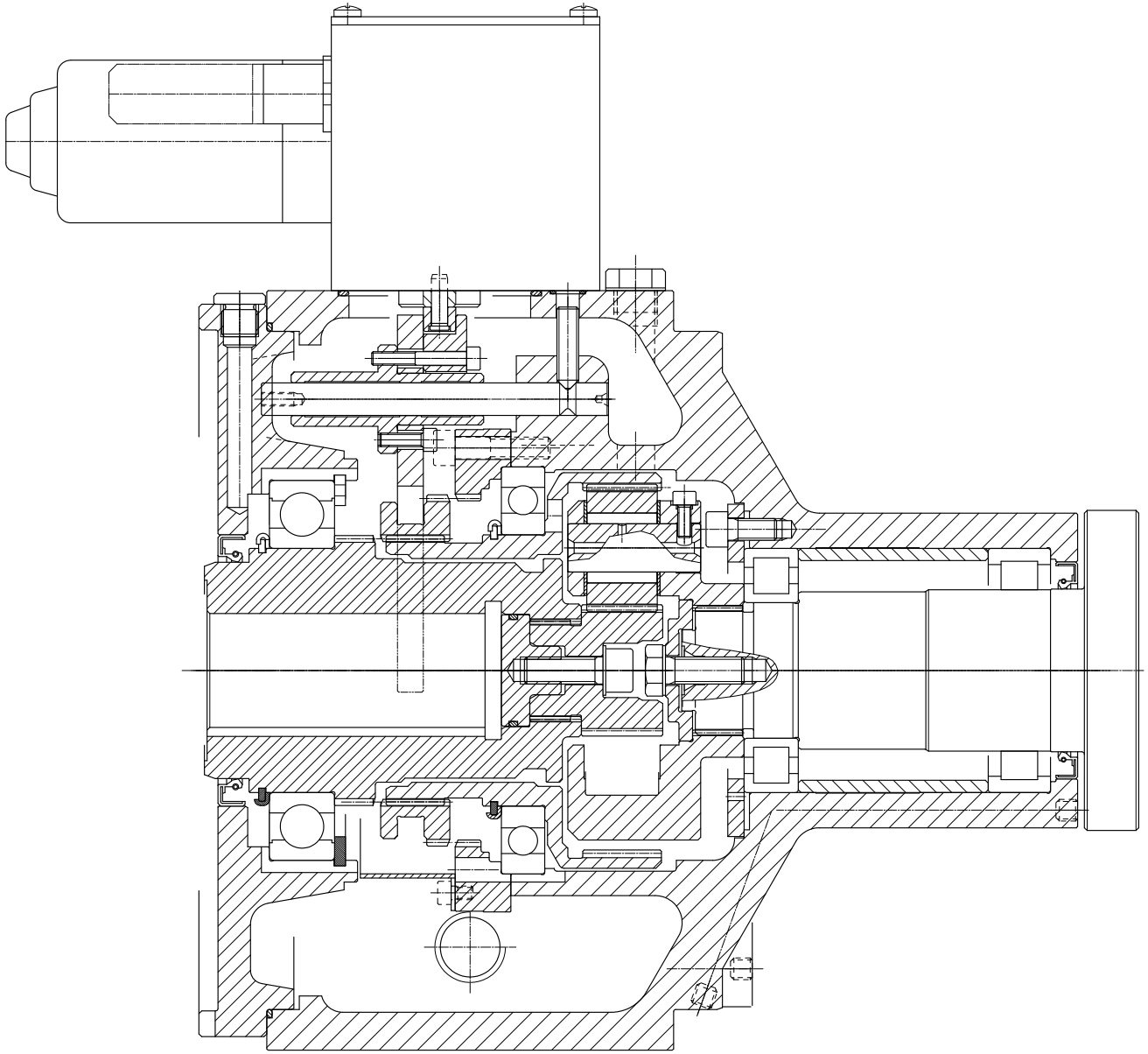
Technical section CE12



Two speed planetary gearboxes for variable – speed motors

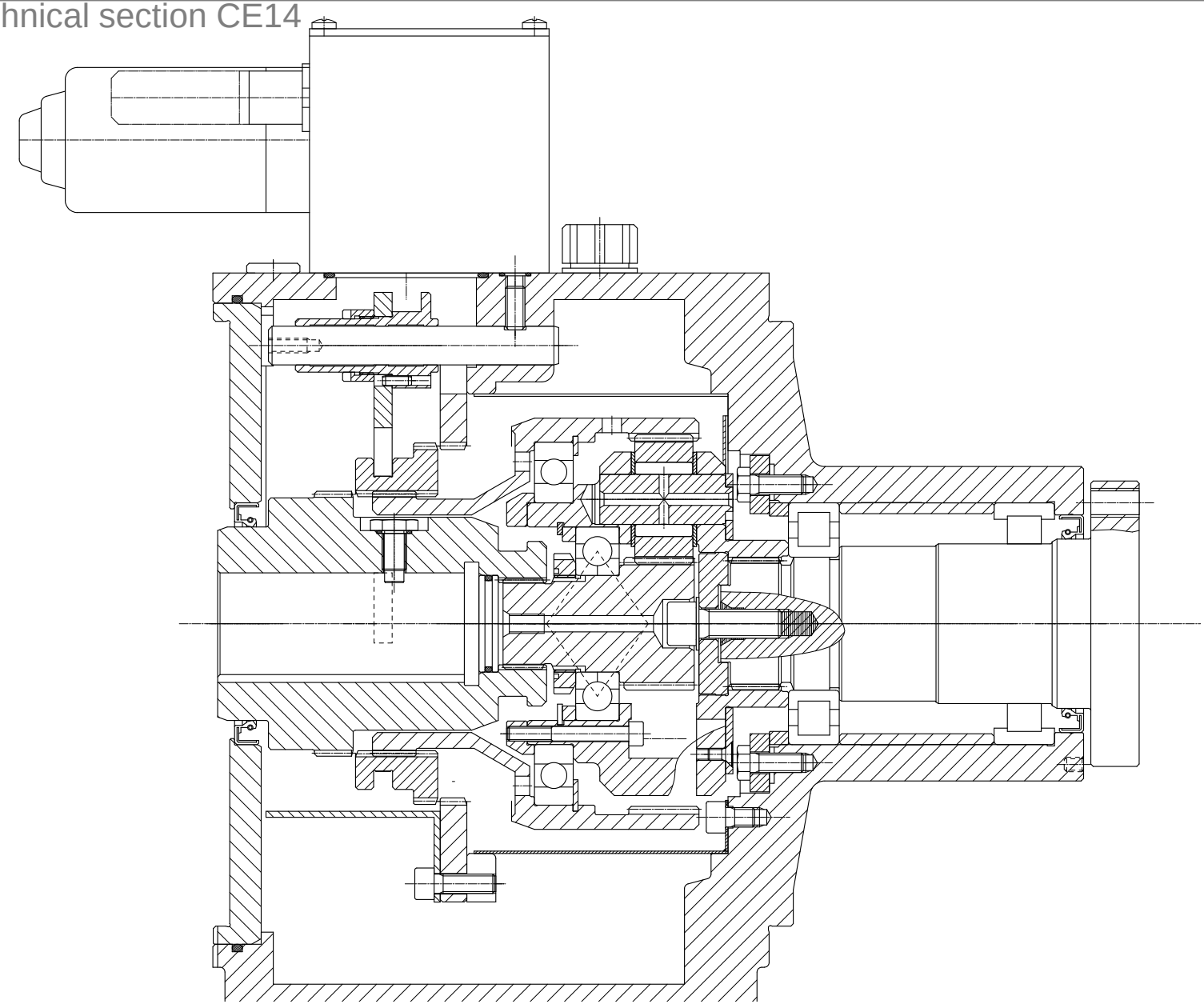
Technical section CE13

CE series



Two speed planetary gearboxes for variable – speed motors

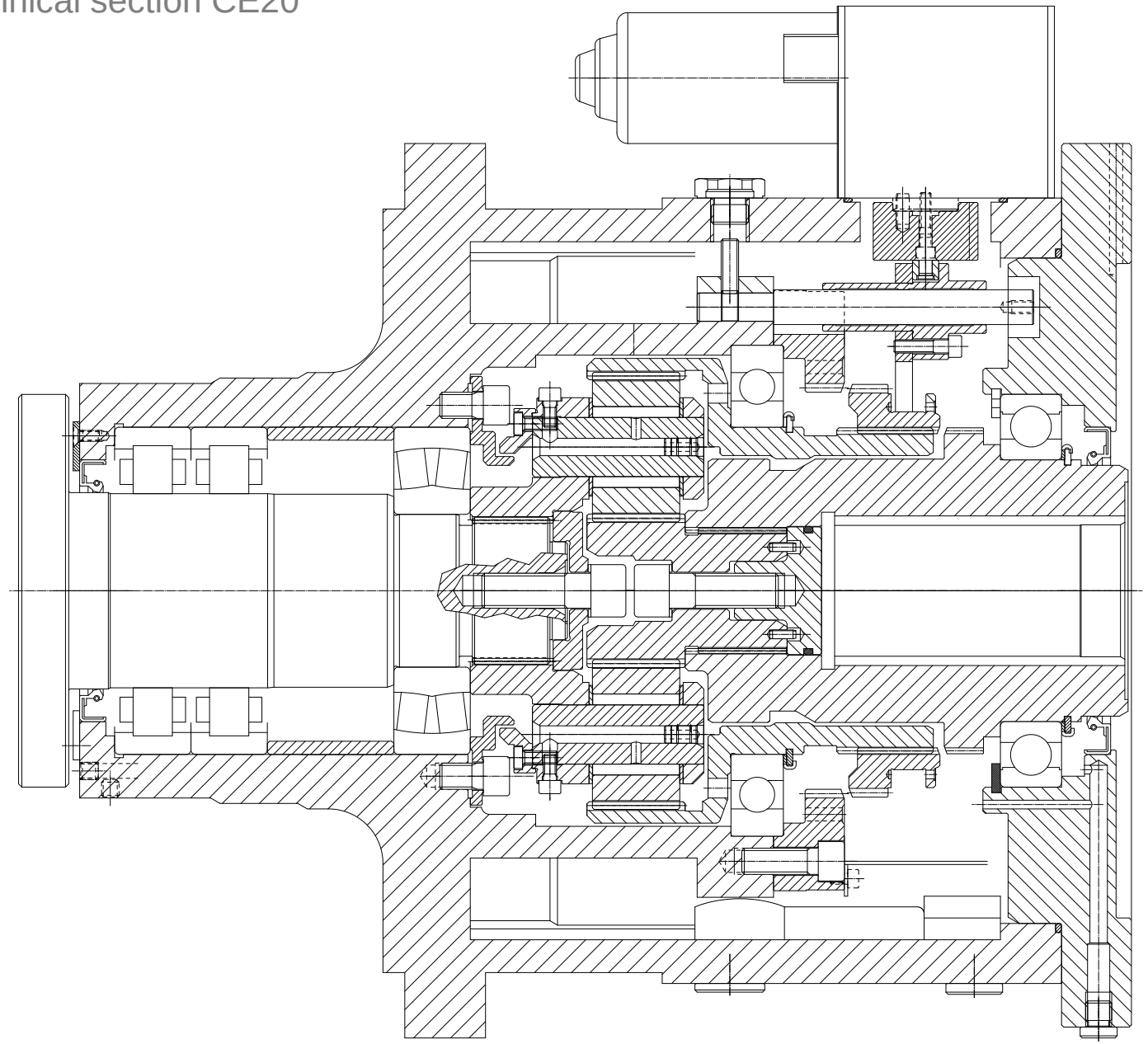
Technical section CE14



CE series

Two speed planetary gearboxes for variable – speed motors

Technical section CE20



CE series

Toolholders discs, toolholders driven tools and rings

Description

Baruffaldi furthermore offers a series of accessories, which facilitate the purchase of complete, warranted and economic full package.
You will afterwards find an example of a few driven tools, toolholders disc and toolholders, which are at your disposal.
There are further versions available on demand.
Do not hesitate to contact the sales office.

Frontal teeth rings

Description

In all indexing systems, such as turning tables, revolver turrets, B-Axis units, turn-mill electrospindles and so on, frontal teeth rings are used, in order to achieve high division precision and repeatability, together with extremely high stiffness and load capacities.
Baruffaldi has been manufacturing frontal teeth rings for over 40 years, ever since revolver turrets production started in the seventies.
Thanks to its long manufacturing experience and design optimization, Baruffaldi offers custom frontal teeth 3-ring units for all devices, designed and produced according to customer specifications and drawings.

Main features:

- 3-ring frontal teeth system, no lifting of indexing components
- High precision and positioning repeatability
- Different number of teeth in order to meet customer's division demands
- 20 deg teeth taper, which ensures high rigidity and high loading capacities
- Fully customized, they can replace any 3-ring indexing system previously used

Frontal teeth rings

Description

On many machine tools, such as vertical lathes and machining centers, it is necessary to provide an extremely stiff and strong system with very high position repeatability, in order to join RAM with different toolings.
Hirth rings are profitably used at this purpose, ensuring a very stiff, strong, precise and stable coupling.
While using them for many years in its own products, Baruffaldi has recently developed technical and production skills, in order to design and produce custom Hirth rings for market demand.

Main features:

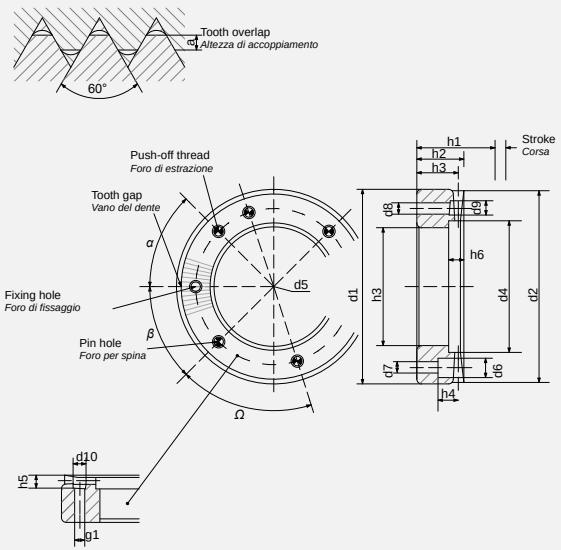
- High precision and positioning repeatability
- Different number of teeth in order to meet customer's division demands or fit to existing rings
- Full interchangeability with any other compatible Hirth ring on the market
- Fully customizable

Hirth couplings

Two speed planetary gearboxes for variable – speed motors

Technical data

CE series



	Numero di denti Number of teeth	Corsa di sgancio Disengagement stroke	Altezza accoppiamento Tooth overlap	N° fori di fissaggio Fixing holes	N° fori per spina Pin holes	β	Ω	N° fori di estrazione Push-off thread	α	d2 Ø	d3 Ø h6	d4 Ø	d5 Ø ±0,1	d6 Ø	d7 Ø	d8 Ø	d9 Ø	d10 Ø	g1	h1 ±0,1	h2	h3 ±0,1	h4	h5	h6
	60	4.7	4.5																		19.75				
	72	4.4	4.2																		19.6				
ø200	96	3.4	3.2	6x60°	4	30°	72°	2x180°	30°	199	150	151	175	15	9	7	12	12	M8	35	19.1	17.5	14	6	5
	120	2.8	2.6																		18.8				
	144	2.3	2.1																		18.55				
	60	5.4	5.2																		20.1				
	72	4.6	4.4																		19.7				
ø250	96	3.9	3.7	10x36°	4	54°	72°	2x180°	18°	249	200	201	225	15	9	7	12	12	M8	35	19.4	17.5	13.5	5	5
	120	3.4	3.2																		19.1				
	144	2.8	2.6																		18.8				
	360	1.3	1.1																		18.1				
	120	3.6	3.4																		21.7				
ø280	144	3.1	2.9	10x36°	4	54°	72°	2x180°	18°	279	230	231	255	15	9	7	12	12	M8	40	21.45	20	14	6	5.5
	360	1.4	1.2																		20.6				
	120	4.2	4																		22				
	144	3.6	3.4																		21.7				
ø320	180	3	2.8	10x36°	4	54°	72°	2x180°	18°	319	260	261	290	15	9	7	12	12	M8	40	21.4	20	14.5	6.5	5.5
	360	1.6	1.4																		20.7				
	120	4.6	4.4																		24.7				6
	144	3.9	3.7																		24.35				5
ø360	180	3.3	3.1	10x36°	4	54°	72°	2x180°	18°	359	300	301	330	18	11	9	12	12	M8	45	24.05	22.5	15	6	5
	240	2.5	2.3																		23.65				5
	360	1.8	1.6																		23.3				5
	120	4.7	4.5																		24.75				6
	144	4.5	4.3																		24.65				5
ø400	180	3.6	3.4	10x36°	4	54°	72°	2x180°	18°	399	340	341	370	18	11	9	12	12	M8	45	24.2	22.5	15	6	5
	240	2.7	2.5																		23.75				5
	360	2	1.8																		23.4				5

Worldwide sales and service organIzation

Baruffaldi has developed a sales and service organisation all over the world. Furthermore, thanks to a net of agents and distributors, it is ensured a direct contact in many nations.

Baruffaldi
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