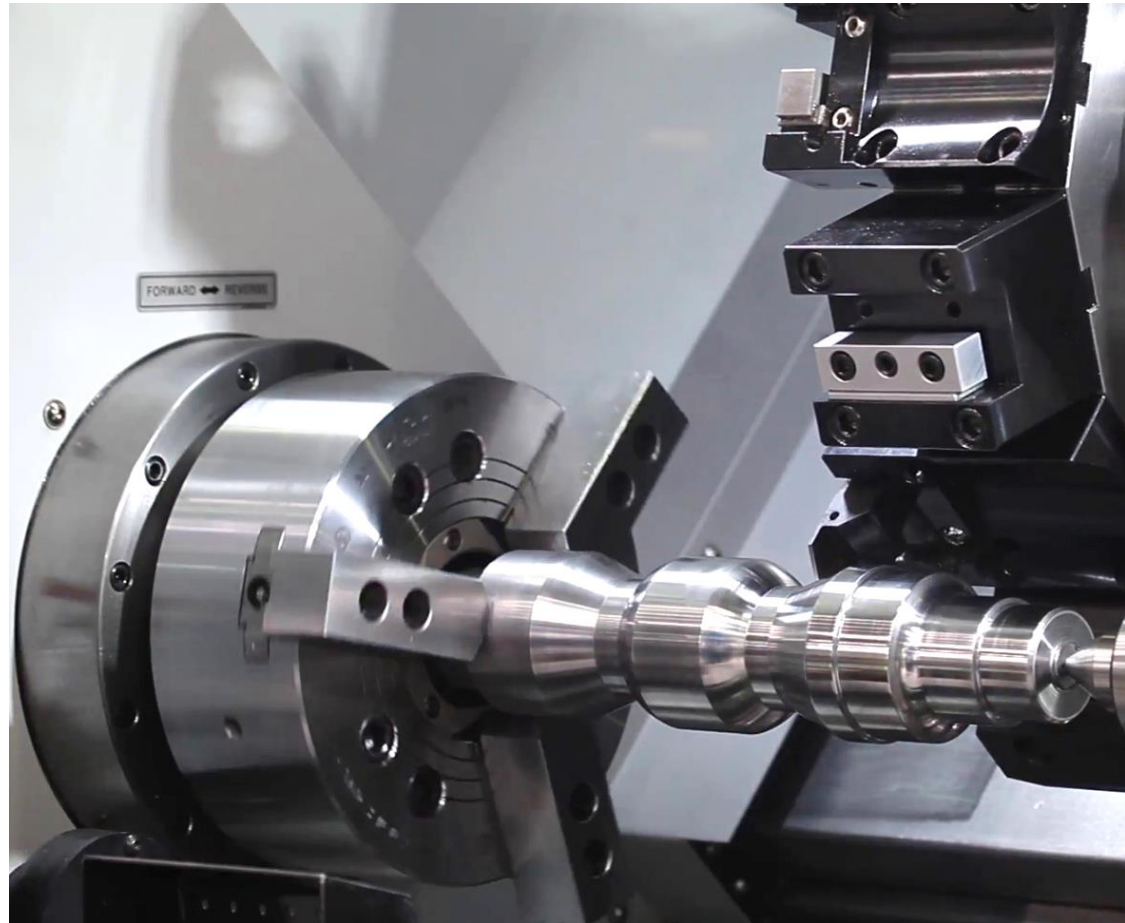




BARUFFALDI

MACHINE TOOL COMPONENTS

Baruffaldi General Product Catalog



The Partner for Machine Tool Builders

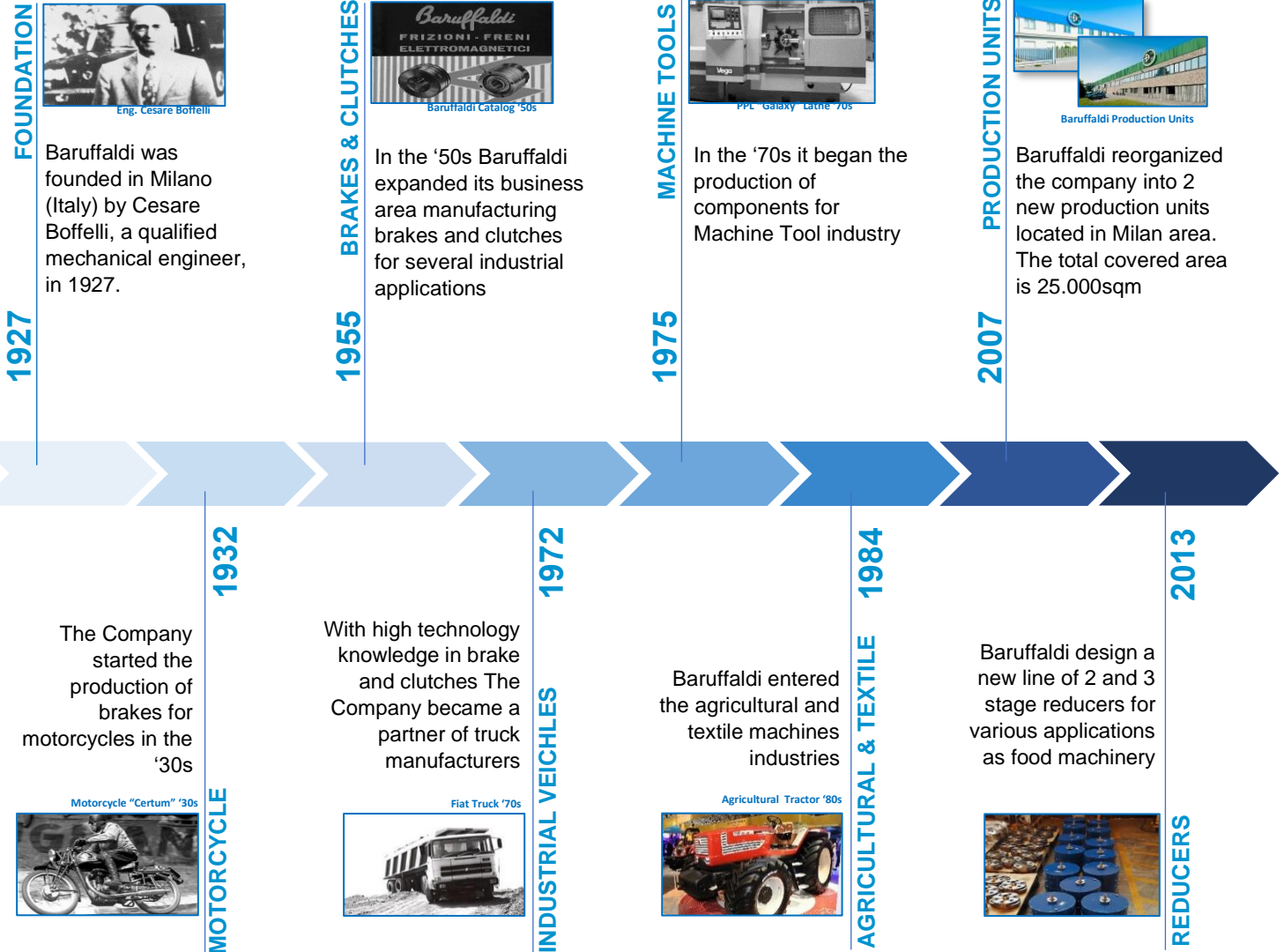
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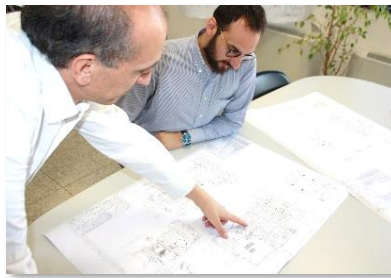
Rev. 01/2021

BARUFFALDI – Since 1927

More than 90 years of Italian mechanical excellence



Today Baruffaldi, with over 90 years of experience, is one of the leaders in the Machine Tool Industry offering high quality products and services worldwide.



Baruffaldi, The Partner for Machine Tool Builders

SLANT BED TURNING MACHINES



LINEA ARCHIMEDE

FLAT BED TURNING MACHINES



**TAB Series
SERVO TURRETS**

LINEA MICHELANGELO

TURNING MACHINES WITH Y-AXIS



**YAX-C
Y-AXIS COMPACT UNIT**



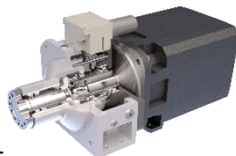
**YAX
Y-AXIS SERVO TURRETS**



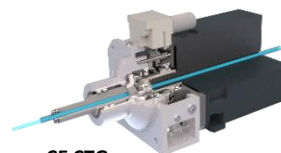
**YAX
Y-AXIS STANDARD UNIT**

LINEA GALILEO

MILLING - VTL – HORIZONTAL TURNING MACHINES



**CE
2-SPEED PLANETARY GEARBOXES**



**CE CTG
2-SPEED PLANETARY GEARBOXES**

ACCESSORIES



TOOLHOLDER DISCS



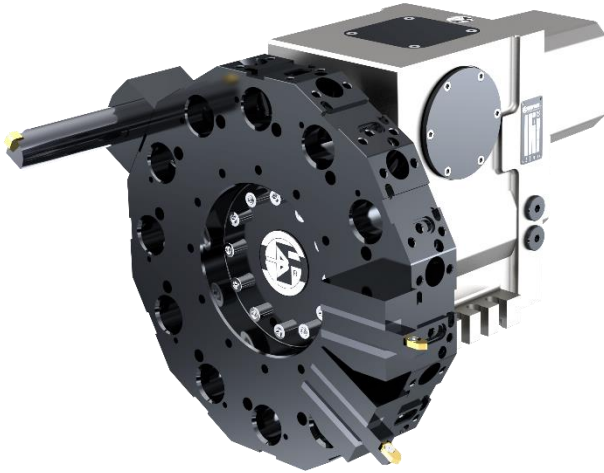
ROTARY TOOLHOLDERS



COUPLING SETS

TB – Servo Turrets for static Tools

TB – Torrette servo per utensili fissi



TB-type turrets rotate thanks to a **BRUSHLESS SERVO MOTOR** controlled by a **SERVO DRIVE**.

A pneumatic or hydraulic piston locks/unlocks the unit. High rigidity, very accurate positioning and very high rotating speeds.

The turrets are available with several type of Tool Disc: VDI (standard), BMT, Polygonal open slot type, Capto and other special Discs.

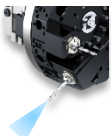
Main characteristics:

- Disc rotation thanks to a **Servo Motor** controlled by a **Servo Drive**
- Very high indexing speed
- Locking and unlocking without axial movement
- Bi-directional rotation
- Absolute positioning
- Hydraulic or pneumatic locking/unlocking systems
- **Coolant pressure** through the turret up to **70 Bar**

			TB100	TB120	TB160	TB200	TB250	TB320	TB400	TB500
Turret center height		mm	50	63	80	100	125	160	200	250
Number of division			8-12-16	8-12-16-24						
Moment of inertia		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		Nm	450	1100	1900	4000	7500	16000	26000	75000
Max Overturning torque pressing direction			400	1200	2100	6000	12000	25000	41400	50000
Max Overturning torque lifting direction			150	700	1600	3500	6500	13000	20000	25000
Max Unbalancing torque			3	10	15	40	60	160	470	500
Positioning accuracy		Deg.	±4"							
Accuracy of repeatability		Deg.	±1,6"							
Positining time *	30°	sec	0,13	0,13÷0,24		0,20÷0,34		0,64	0,86	
	45°	sec	0,17	0,17÷0,28		0,25÷0,38		0,71	0,96	
	180°	sec	0,3	0,34÷0,50		0,53÷0,73		1,76	2,42	
Unlocking + Locking time*		sec	0,5			0,6		1,3	1,6	
Pneumatic Locking Pressure		Bar	5 ±1					/		
Hydraulic Locking Pressure		Bar	/	30 ±3						
Max coolant pressure for TB		bar	20	40						
Max coolant pressure for TBMA		bar	15	20						
Max coolant pressure (special ver.)		bar	/	70						
Max coolant pressure (coolant device)		bar	/	120					/	
Protection degree		IP	65							
Ambient temperature range (turret)		°C	0-45							
TB Turret weight without tool disc		Kg	28	45	50	95	119	295	370	600
TBMA Turret weight without tool disc		Kg	48	90	105	190	270	575	880	/



3 Hirt Couplings



Coolant up to 120bar



MQL Suitability

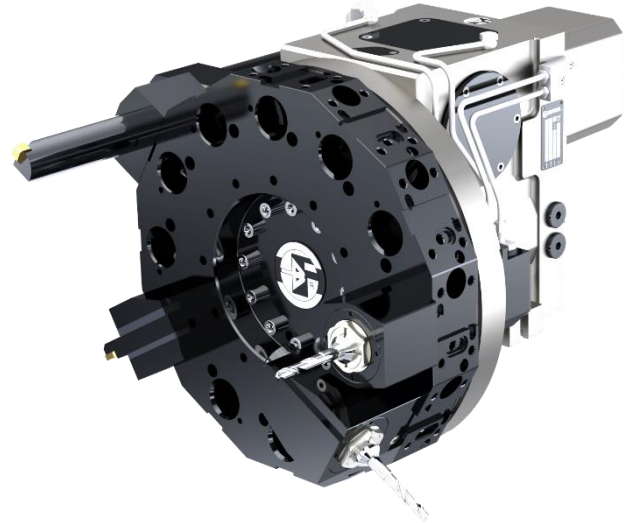


Capto ATC Systems

TBMA-type turrets, with **axial driven tools**. Discs according to ISO 10889 (ex DIN 69880) norms can be used. Compact overall dimensions of the driven tool system, very high rotating tools speed, double sensor switches for the engagement control, high rigidity and even higher performances due to the new design.

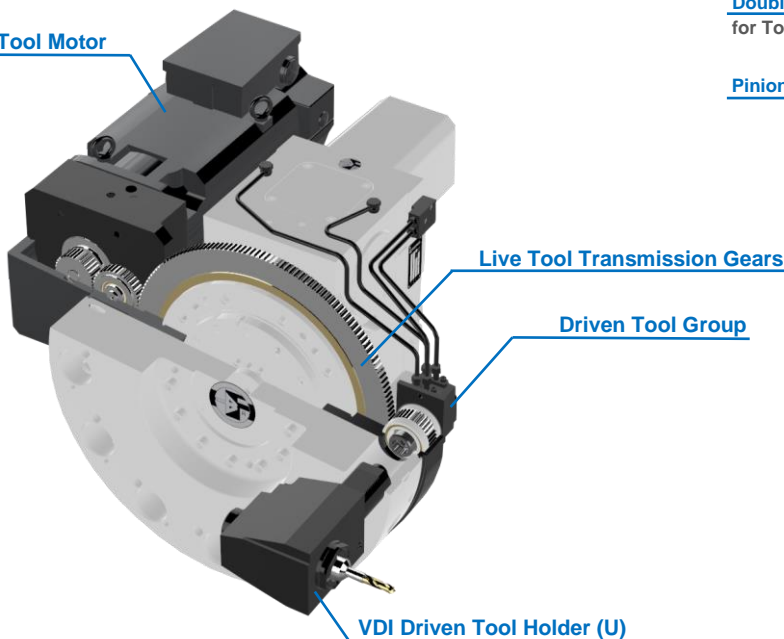
Main characteristics:

- High Speed of the driven tool system up to 6000rpm
- **Double proximity switch** for the tool engagement control
- Suitable for tooling/coupling: Baruffaldi (standard), DIN 5480 and DIN1809
- **7 turrets sizes**, many different possibilities and special applications
- Easy maintenance
- Possibility for **forced lubrication** in order to increase the working **time (100%)** and the **speed (10.000rpm)**



		TBMA100	TBMA120	TBMA160	TBMA200	TBMA250	TBMA320	TBMA400
VDI size		16-20	20-30	30-40	40-50	50-60	60	60-80
Max speed of driven tool	rpm	6000			5000		3000	
Max driven tool speed (oil cooling)	rpm	10.000				8000	3000	
Max input torque**	Nm	13	18	26	65	72.5	130	165
Max motor nominal torque (S1)	Nm	10	16	20	50	55	100	130
Max nominal power	Kw	3	5	6	9	10	15	19
Ratio: RPM motor : RPM take power		1:1						
		/	/	1:1,25	1:1,315	1:1,52	1:1,45	1:185
Live tooling system		Baruffaldi						
		/	/	DIN5480***				/

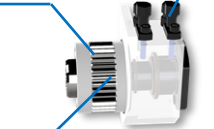
Driven Tool Motor



Double Sensor

for Tool engage/disengage status

Pinion Gear (I)



Live Tool Clutch (H)

Tooling Baruffaldi or DIN5480

10.000 rpm Live Tool Speed



Oil Cooling Turrets

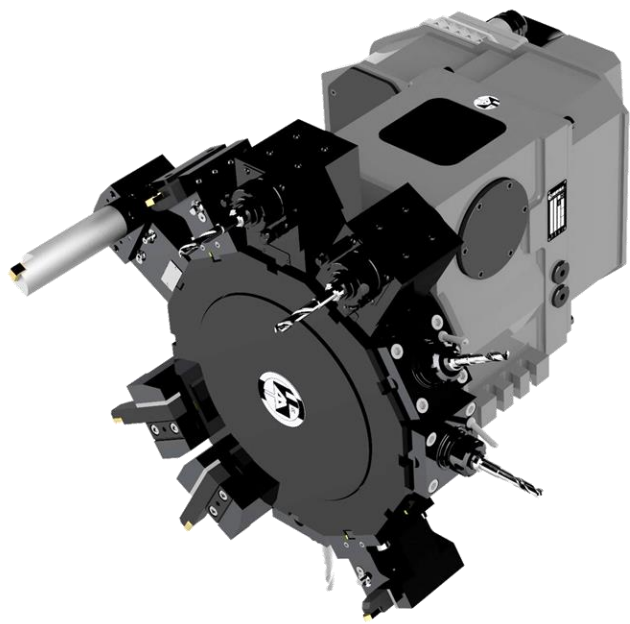


24 Positions



TBMR – Radial Live Tool Turrets

TBMR – Torrette ad Utensili Rotanti Radiale

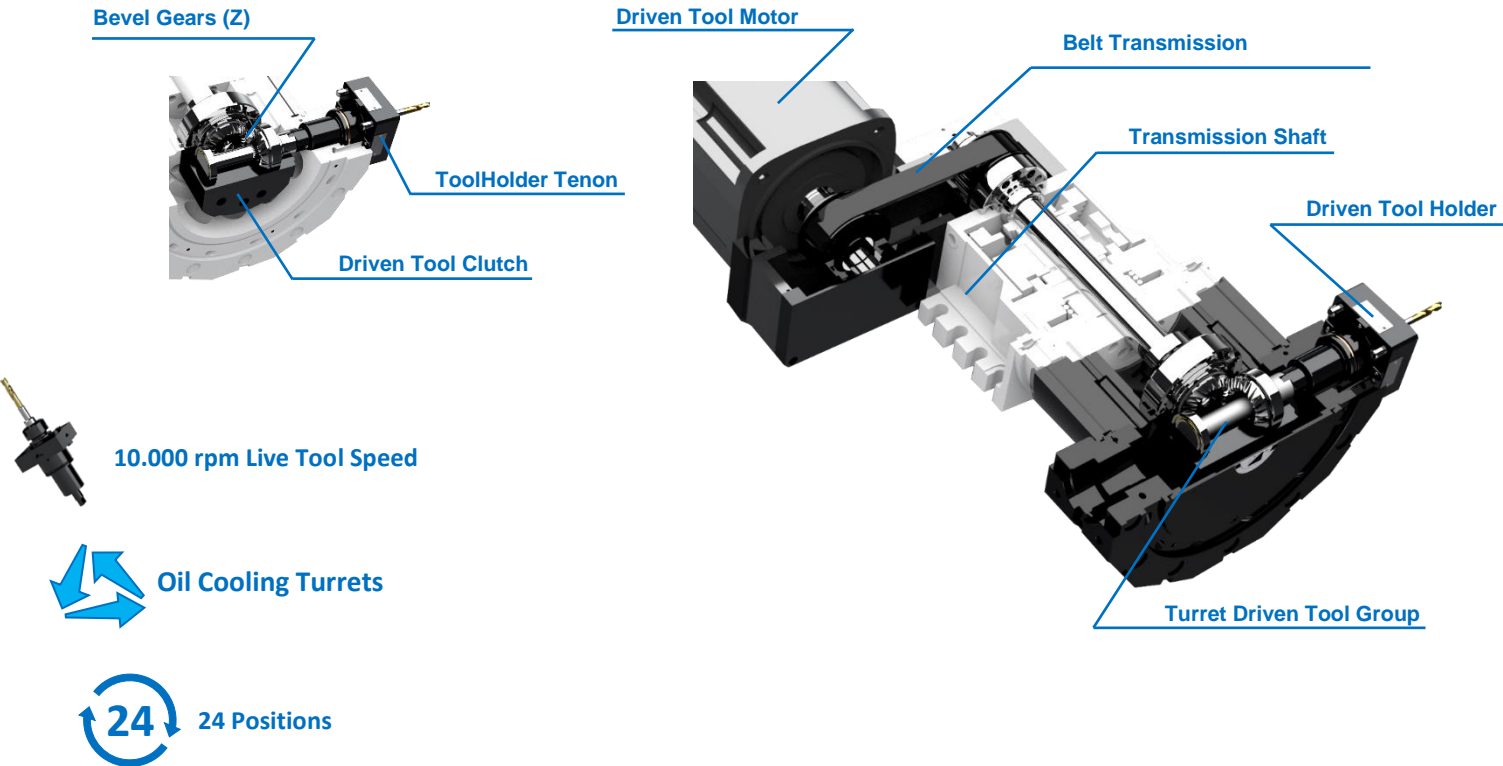


TBMR-type turrets, with **radial driven tools**. The tools are located on discs with radial seats with **VDI system** (as per ISO 10889 norms) or according to **BMT system (Base Mounted Tool Holder)**. High speed, automatic engagement and disengagement of the rotating tool during turret indexing cycle, short or extended neck useful for back machining operations, strong housing and high flexibility.

Main characteristics:

- Double proximity switch for the tool engagement control
- High rigidity, due to the new design
- Wide range 120-160-200-250-320
- Possibility to use 8-12-16-24 position discs
- Possibility to use VDI 20-25-30-40-50-60
- BMT coupling (Base Mounted Toolholder) 45-55-65-75-85
- Suitable for tooling/coupling: Baruffaldi (standard) and DIN 5480
- Easy maintenance

		TBMR120	TBMR160	TBMR200	TBMR250	TBMR320
VDI size		20-25	30	30-40	40-50	60
BMT size		45	45-55	55-65	65-75	75-85
Max speed of driven tool (oil cooling)	rpm	10.000			7500	4000
Max speed of driven tool (standard)		6000		5000		3000
Max input torque**	Nm	20	28	70	80	140
Max nominal input torque (S1)		16	20	50	60	100
Max nominal power	Kw	5	6	9	10	15
Ratio: RPM motor : RPM take power		1:1				
Live Tooling System		Baruffaldi (standard)				
		DIN5480 (on request)			DIN5482 (on request)	



TAB – Bi-Directional Servo Turrets

TAB – Torrette Servo Bi-Direzionali

They use a **fully hydraulic locking system** and rotate thanks to a **BRUSHLESS SERVO MOTOR** controlled by a **SERVO DRIVE**.

TAB turrets are **bi-directional**, **without tool holder body lifting** during the indexing rotation, simple design, high performances and request a minimum maintenance.

Turrets can carry 4/6 tool holders as per DIN 69881-1 norms; on demand, they can be supplied with a different number of faces or special body.

Main Characteristics:

- **Bi-directional**
- Locking/Unlocking without tool holder body lifting
- Double sensor for locking and unlocking status
- High rigidity due to the new design
- Turret tool holder body with 4 or 6 positions.
- Intermediate locking positions (**24 divisions**)
- **Coolant pressure up to 70bar**



			TAB 210	TAB 265	TAB 340	TAB 440
N° of stations (standard)			4			
N° of stations (optional)			6			
N° of divisions			24			
Direction of rotation			Bidirectional			
Max Moment of Inertia		kgm²	8		30	
Clamping Force	@50bar	N	36000	62000	92000	/
	@100bar		/			184000
Max Tangential Torque		Nm	3200	6560	13850	27000
Max Overturning Torque (pressing)*		Nm	6600	13800	18900	31000
Max Overturning Torque (lifting)*		Nm	2600	5000	9250	17000
* Distance from turret axis		mm	200	250	300	420
Positioning Accuracy		deg.	±4"			
Accuracy of Repeatability		deg.	±1,6"			
Hydraulic Locking Pressure		bar	50 ±5			100 ±5
Max coolant pressure (standard)			20			
Max coolant pressure (option)			70			
Ambient temperature range		°C	0-40			
Protection degree		IP	65			
Locking+unlocking time**		sec.	0.75		0.9	1.02
Minimum positioning time	90°	sec.	0.55		0.92	1.04
	180°		0.85		1.34	1.55
	360°		1.45		2.2	2.6
Turret weight		Kg	65	115	250	400
Max admitted weight to be carried			75	120	250 (450***)	250

3 Hirt Couplings



Coolant up to 70bar

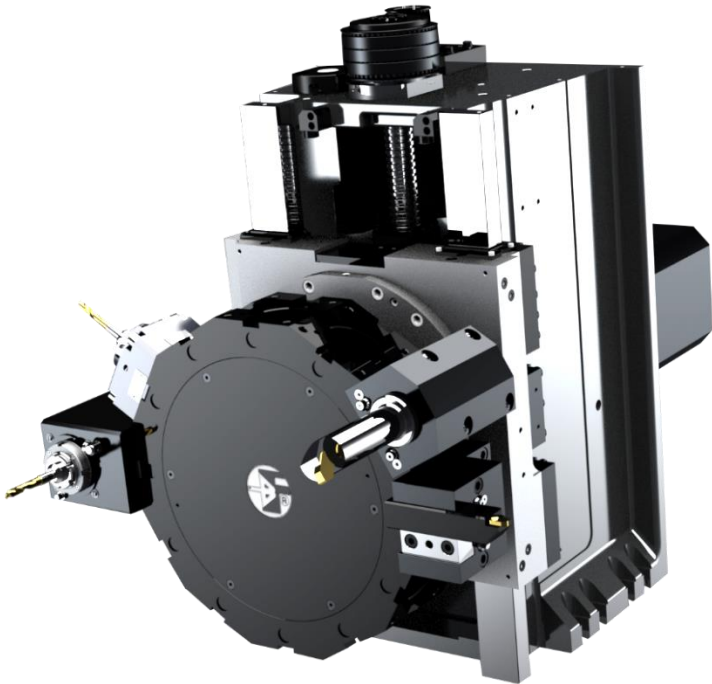


24 Positions



YAX-C – Compact Y-Axis Units

TB – Unità Assi Y Compatti



Baruffaldi “Compact” Y-Axis units, Type “C”, are units with reduced dimensions and can be assembled/integrated on any sizes of standard turning machines, flat or slant bed.

The YAX-C 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 tapings, key-slots and so on.

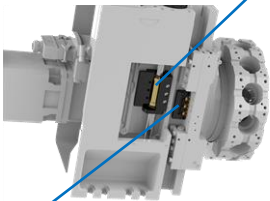
A double hydraulic guideways preload system allows hard machining operations, either with fixed tools or live tools.

The YAX-C units mount integrated Driven Tool Turrets with Axial or Radial Tooling system (VDI or BMT).

		16	25	32	
Turret size		160	250	320	
Turret tooling size	VDI	30/40	40/50	60	
	BMT	55	65/75	85	
Nominal stroke in Y direction*	mm	± 60	± 125	± 165	
Ball screw diameter x pitch	mm	32 x 5	40 x 5	50 x 5	
Ball screw precision class	ISO	3			
Max speed in Y direction	m/min	10		6	
Max Y-Axis motor speed	rpm	4000		2400	
Max motor feed force in Y direction	N	12500	21000	30000	
Minimum nominal motor torque Y-Axis	Nm	6	10	15	
Ratio (Motor : Ball screw)		1:2			
Hydraulic brake force in Y direction **	N/bar	50	90	200	
Hydraulic brake: max oil pressure Y-direction ***		bar 100 (150)			
Positioning accuracy	Motor encoder	μm	≤ 20		
	Ball screw encoder (optional)		≤ 15		
	Linear encoder (optional)		≤ 10		
YAX unit weight (Axis + Turret)		Kg	~450	~700	~1300

Y Hydraulic Brake

Y-Axis brake, hydraulic activated, prevent the slide from displacing downwards/upwards due to machining forces



Ball Screw

Strong preloaded Ball Screw that achieves precise Y-axis movement without backlash, ISO 3 Class.

Cast Iron (Meehanite)

Rugged meehanite cast iron column for high stability and low vibration

Encoder

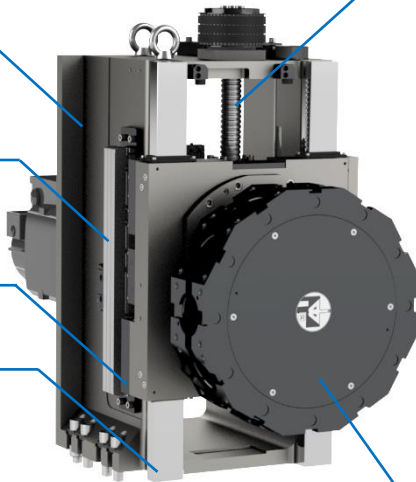
Available for angular encoder mounting (on the ball screw), Linear Scale on the column or Linear Scale integrated in the slide (for high accuracy)

Turcite SlideWay Wedges

Guideways wedges, with Turcite SlideWay, are used either for transverse backlash, either for perpendicular backlash adjustment and recovery

Guideways

Integrated flat guideways induction hardened and ground to a roughness value lower than Ra = 0.6 µm



Guideways Hydraulic Preload

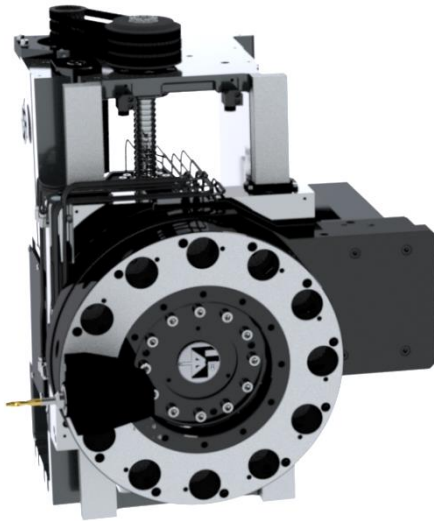
N°6 Hydraulic Locking Cylinders that pull the Slide against the Guideways prevents displacing and permit to reach high machining forces

Integrated Turret

Strong and reliable Servo Turret available with Radial Live Tool (TBHMR- C BMT) and with Axial Live tool (TBHMA-C VDI)

TBMHA-C Turrets – Axial Live Tool turret

Torrette TBHMA-C – Torretta con motorizzazione assiale



160	250	320	TBHMA-C Size	
30-40	40-50	60	VDI Tooling system	
6000	5000	3000	rpm	Max turret speed
20	55	100	Nm	Nominal motor torque (S1)
6	10	15	Kw	Max motor power
1:1	1:1	1:1	Ratio	
1:1,25	1:1,52	1:1,45		
Hydraulic			Locking System	
Baruffaldi			Live sooling system	

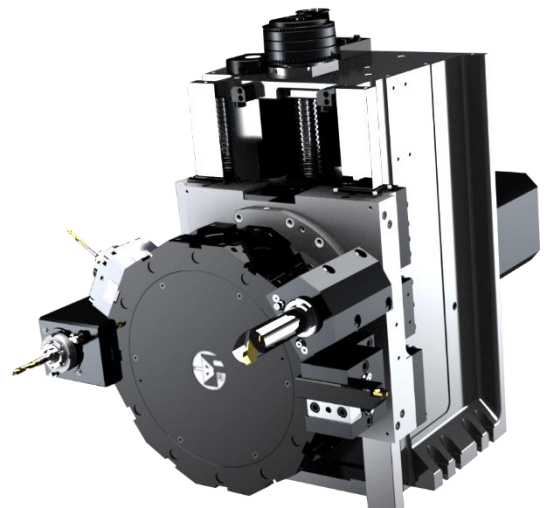
This table shows the characteristic of the Driven Tool Unit, for the turret see the specific turret catalog
 In questa tabella sono contenute le caratteristiche della motorizzazione, per la torretta consultare il catalogo torretta specifico

TBHMR-C Turrets – Radial Live Tool turret

Torrette TBHMR-C – Torretta con motorizzazione radiale

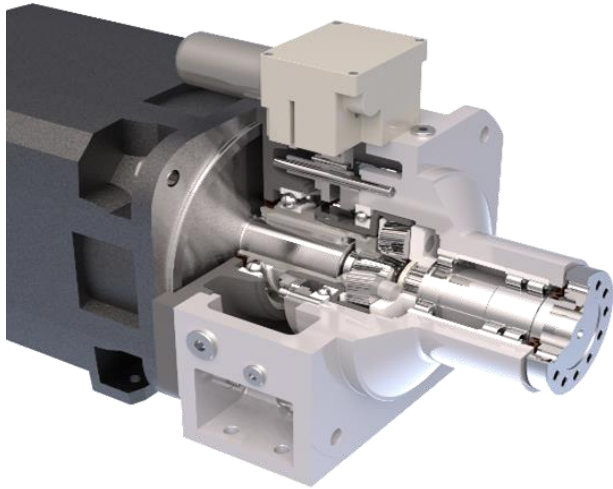
160	250	320	TBHMR-C Size	
55	65-75	85	BMT Tooling system	
6000	5000	3000	rpm	Max turret speed
1:1	1:1	1:1	Ratio	
20	55	100	Nm	Nominal motor torque (S1)
6	10	15	Kw	Max motor power
Hydraulic			Locking System	

This table shows the characteristic of the Driven Tool Unit, for the turret see the specific turret catalog
 In questa tabella sono contenute le caratteristiche della motorizzazione, per la torretta consultare il catalogo torretta specifico



CE – 2-Speed Planetary Gearboxes

CE – Torrette servo per utensili fissi



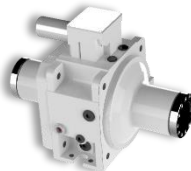
Baruffaldi can supply a wide range of 2-speed planetary gearboxes, in order to meet increasing demands coming from the market.

2-speed gearboxes are commonly used on machine tools main spindles together with variable speed motors, aiming to extend the 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.

		CE11		CE12		CE13			CE13+		CE14			CE15			CE16		CE18		CE20
Ratio		i=4	i=4,48	i=4	i=5	i=4	i=4,4	i=4,9*	i=4	i=5,5	i=4	i=5	i=5,5	i=4	i=5	i=5,5	i=4	i=5	i=4	i=5	i=4
Nominal power	Kw	19	19	22	22	40	40	40	47	41	51	44	44	63	54	54	60	60	63	63	84
Nominal speed	RPM	1500															1250		1000		
Nominal input torque	S1 Nm	120	120	140	140	260	260	260	300	260	325	280	280	400	340	340	450	450	600	600	800
	S6 Nm	150	150	160	160	400	400	400	400	400	400	400	400	500	425	425	630	630	840	840	900
Nominal output torque	Nm	480	540	560	700	1040	1144	1280	1200	1430	1300	1400	1540	1600	1700	1870	1800	2250	2400	3000	3200
Max input speed	RPM	8000				7000					6300			6300			5000				
Max input speed*	RPM	10000									8000			-							
Mass moment of inertia	i=1 (kgcm²)	134		189		310			315		624			680			1587		1630		2066
	output	400	400	378	550	1136	1355	1570	1168	2117	1408	2075	2450	1530	2660	2880	6208	9400	6256	9450	6896
	input	25	20	23,6	22	71	70	68	73	70	96	90	87	96	90	87	388	376	391	378	431
Max angular backlash	α Arcmin	25																			
Max radial backlash	X mm	0,03																			
Max axial backlash	Y mm	0,25																			
Max vibration value	mm/s	1																			
At test run speed	RPM	6000															5000				
Weight ca.	kg	45		65		80			88		90			95			190-230		200-230		205-240



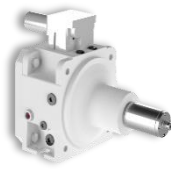
Output Flange type



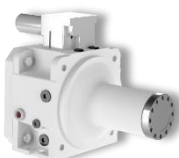
Input+Output type



Output Shaft type



*CTG Type
(Coolant Through Gearbox)*



Long Neck type



Baruffaldi has been manufacturing Frontal Teeth Rings and Hirth Rings for over 50 years using them for its own products. Thanks to its long manufacturing experience and design optimization, Baruffaldi can offer custom Ring Units for all devices, designed and produced according to customer's specifications and drawings:

-**FRONTAL TEETH RINGS** that are used in all indexing systems, such as turning tables, revolver turrets, B-Axis units, turn-mill electrospindles and so on, in order to achieve high division precision and repeatability, together with extremely high stiffness and load capacities.

-**HIRTH RINGS** that are profitably used for ensuring a very stiff, strong, precise and stable Coupling in many different applications.

Baruffaldi furthermore offers a wide series of Accessories for the machine tools market:

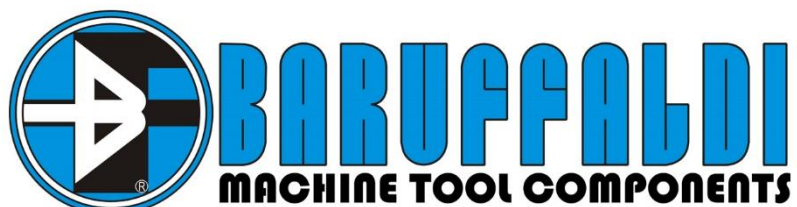
- **TOOL HOLDER:** Axial and Radial rotating tool holders, with shanks according to ISO 10889 (DIN69880) or BMT
- **TOOL DISC:** Different size and many kinds are available



TOOL HOLDER DISCS



ROTARY TOOL HOLDERS



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