

# TA SERIES

TA Z400 / TA Z640 / TA Z1100 MODELS



Turning the world

# MODEL RANGE

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**TA Z400 MODEL**

**(15/20/25/30)  
/- M-Y**

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PRECISION  
RELIABILITY



# TA SERIES

## TA Z400



# MODEL RANGE

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**TA Z640 MODEL**

**(15/20/25/30)  
/- M-MS-Y-YS**

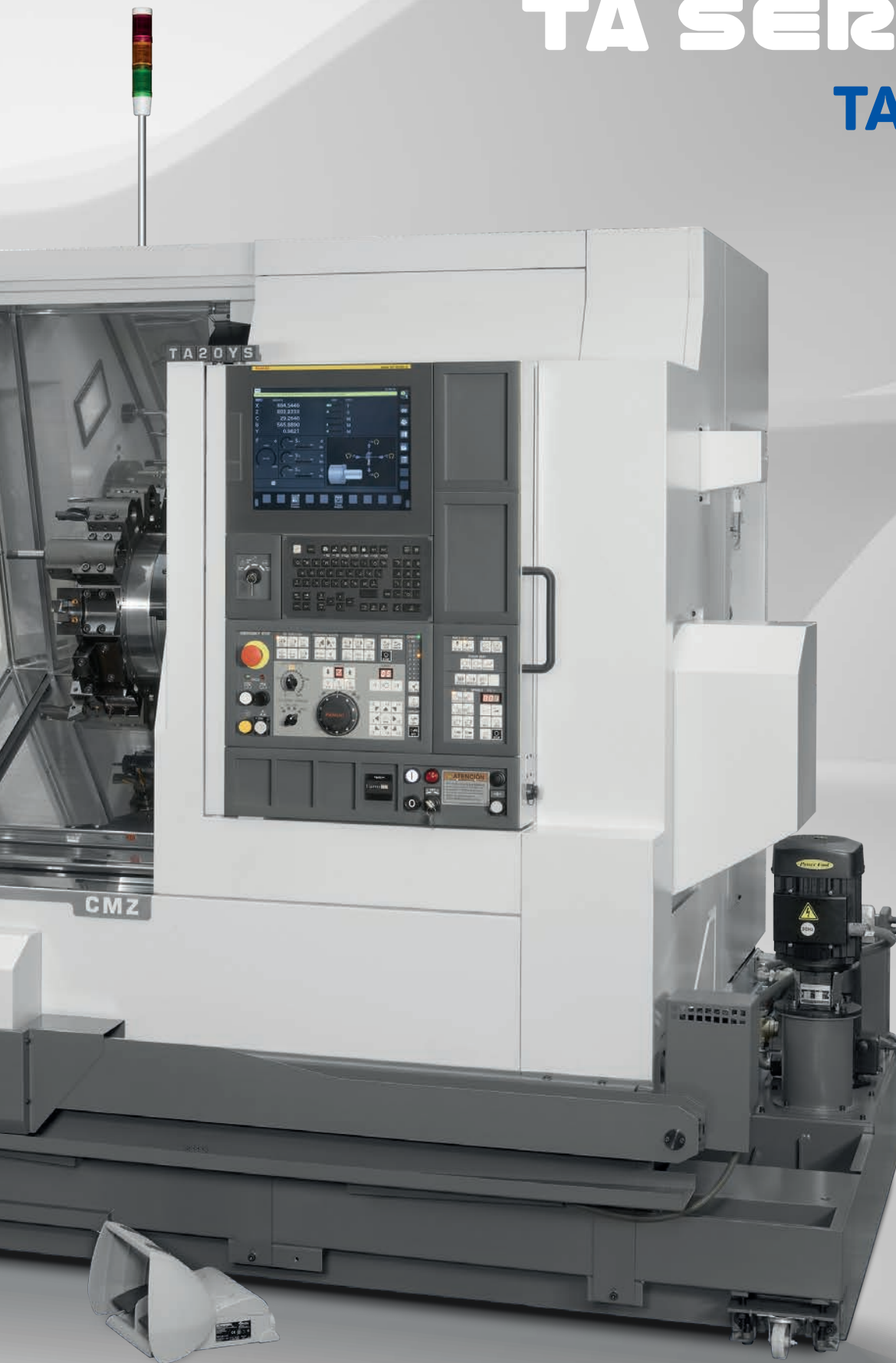
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HIGH  
PERFORMANCE



# TA SERIES

## TA Z640



# MODEL RANGE

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**TA Z1100 MODEL**

**(15/20/25/30)  
/- M-MS-Y-YS**

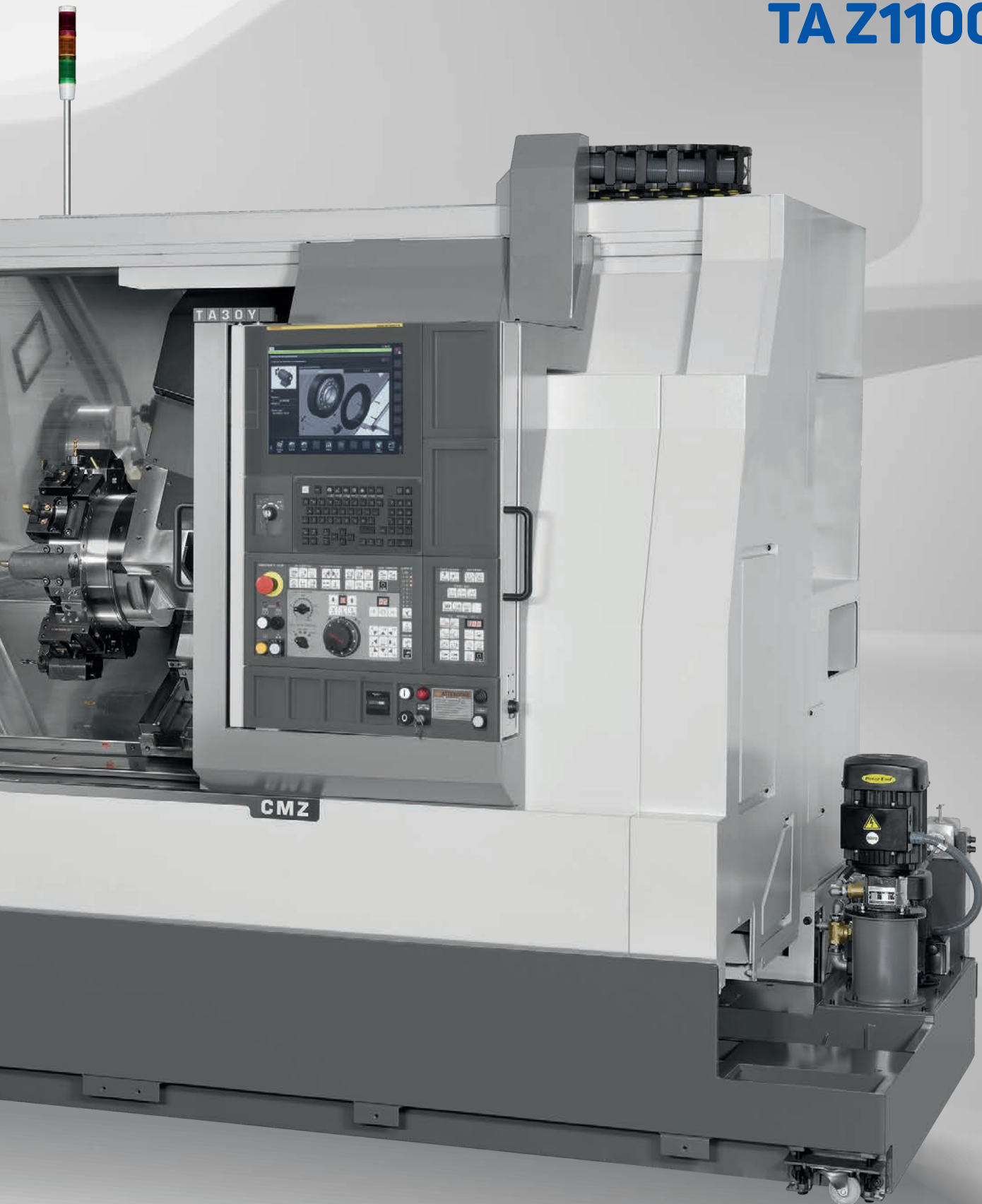
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MANUFACTURING  
QUALITY



# TA SERIES

## TA Z1100



# TECHNICAL CHARACTERISTICS

## 1 TA Z400 MODEL

Electric cabinet totally sealed (IP55 protection).

**Front and rear roller spindle bearings cooled by oil.**

Hydraulic cylinder operating at 45kg/cm<sup>2</sup>

**Integral spindle motors with oil cooling.**

Smart automatic lubrication system.

Savings and reliability.

**Thermal sensor in the bedplate.**

It controls the temperature of the oil that cools:

- The Spindles.
- The ballscrew mounts.
- The turret.

Highly rigid cast iron monobloc machine bed.

**Prismatic guide ways.**

Acceleration of 1g.  
Rapid traverse rate of 30 m/min.



# TA SERIES

## TA Z400

Oil cooled turret with integrated motor.  
Hydraulically clamped with curvic coupling. Rigid tapping.

**12,000 rpm.**

Ballscrew mountings  
are cooled by oil.

Servo Tailstock.

**Laser compensation in all axes  
including the C axis.**

Waste lubrication oil piped to  
a separate tank preventing  
coolant contamination.

Removable, separate coolant tank, guarding design prevents coolant contact with the machine bed ensuring thermal stability. The coolant tank can be removed without removing the chip conveyor.

# TECHNICAL CHARACTERISTICS

## 2 TA Z640 MODEL

**Front and rear roller spindle bearings cooled by oil.**

Hydraulic cylinder operating at 45kg/cm<sup>2</sup>

**Integral spindle motors with oil cooling.**

Smart automatic lubrication system.

Savings and reliability.

**Thermal sensor in the bedplate.**

It controls the temperature of the oil that cools:

- The Spindles.
- The ballscrew mounts.
- The turret.

**Prismatic guide ways.**

Acceleration of 1g.  
Rapid traverse rate of 30 m/min.

Electric cabinet totally sealed (IP55 protection).

Highly rigid cast iron monobloc machine bed.

# TA SERIES

## TA Z640

Oil cooled turret with integrated motor.  
Hydraulically clamped with  
curvic coupling. Rigid tapping.

**12,000 rpm.**

Ballscrew mountings  
are cooled by oil.

**Laser compensation in all  
axes including the C axis.**

Integral spindle motors  
with oil cooling.

Waste lubrication oil piped to  
a separate tank preventing  
coolant contamination.

Removable, separate coolant tank, guarding design prevents coolant  
contact with the machine bed ensuring thermal stability. The coolant  
tank can be removed without removing the chip conveyor.

# TECHNICAL CHARACTERISTICS

## 3 TA Z1100 MODEL

**Front and rear roller spindle bearings cooled by oil.**

Hydraulic cylinder operating at 45kg/cm<sup>2</sup>

**Integral spindle motors with oil cooling.**

Smart automatic lubrication system.

Savings and reliability.

**Thermal sensor in the bedplate.**

It controls the temperature of the oil that cools:

- The Spindles.
- The ballscrew mounts.
- The turret.

**High quality double anchor pre-tensioned ballscrews provide high thermal stability.**

Highly rigid cast iron monobloc machine bed.

Electric cabinet totally sealed (IP55 protection).

# TA SERIES

## TA Z1100

Oil cooled turret with integrated motor.  
Hydraulically clamped with  
curvic coupling. Rigid tapping.

**12,000 rpm.**

Ballscrew mountings  
are cooled by oil.

**Laser compensation in all  
axes including the C axis.**

Servo Tailstock.

**Prismatic guide ways.**

Acceleration of 1g.  
Rapid traverse rate of 30 m/min.

Waste lubrication oil piped to  
a separate tank preventing  
coolant contamination.

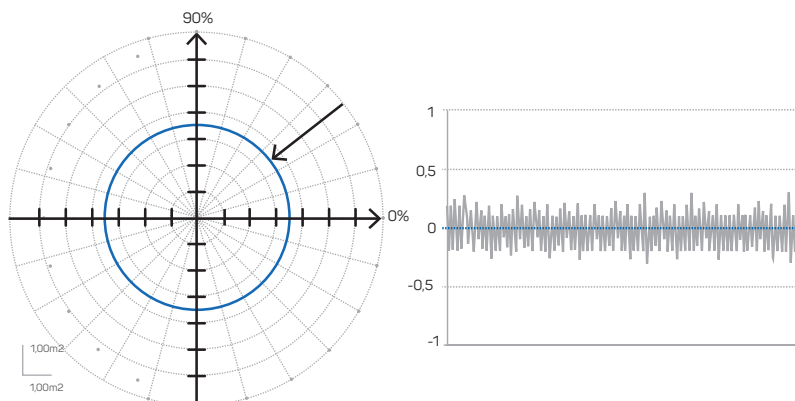
Removable, separate coolant tank, guarding design prevents coolant  
contact with the machine bed ensuring thermal stability. The coolant  
tank can be removed without removing the chip conveyor.

# INTEGRATED SPINDLES

## INTEGRATED SPINDLE MOTORS INCREASE ACCURACY AND REDUCE MACHINING TIMES

The spindle is driven through a motor integrated in the headstock body itself. This construction ensures an outstanding spindle robustness and vibration dampening that significantly improves surface finish and roundness.

Additionally, spindle acceleration and braking times are shortened by about 20-50% because of the reduced inertia and higher loading capacity of oil-cooled headstocks.



### ROUNDNESS

- MACHINE: TA 15
- MATERIAL: ALUMINIUM
- Ø 60 mm.
- ROUNDNESS ACHIEVED: 0,3 µm
- FILTER: 150 p/r (50%)
- MEASUREMENT RANGE: 0,10°

### SURFACE FINISH

- MACHINE: TA 15
- MATERIAL: ALUMINIUM
- Ø 60 mm.
- ROUGHNESS ACHIEVED: Rmax Ø,6 µm
- FILTER: 150 p/r (50%)

\* The results obtained herein may not be attainable due to environmental and measuring differences.

### No pulleys or belts

- No belt slipping.
- Better surface finish.
- Lower noise level.

### Hydraulic cylinder at 45kg/cm<sup>2</sup>

- More compact.
- Reduced cross-section means higher speed clamping.
- Higher sensitivity for light clamping.



### Special coolant collection tray made by CMZ.

Excellent access to adjust the detectors. Easy chip removal. Protection against coolant entering into the hydraulic circuit.

# TA SERIES

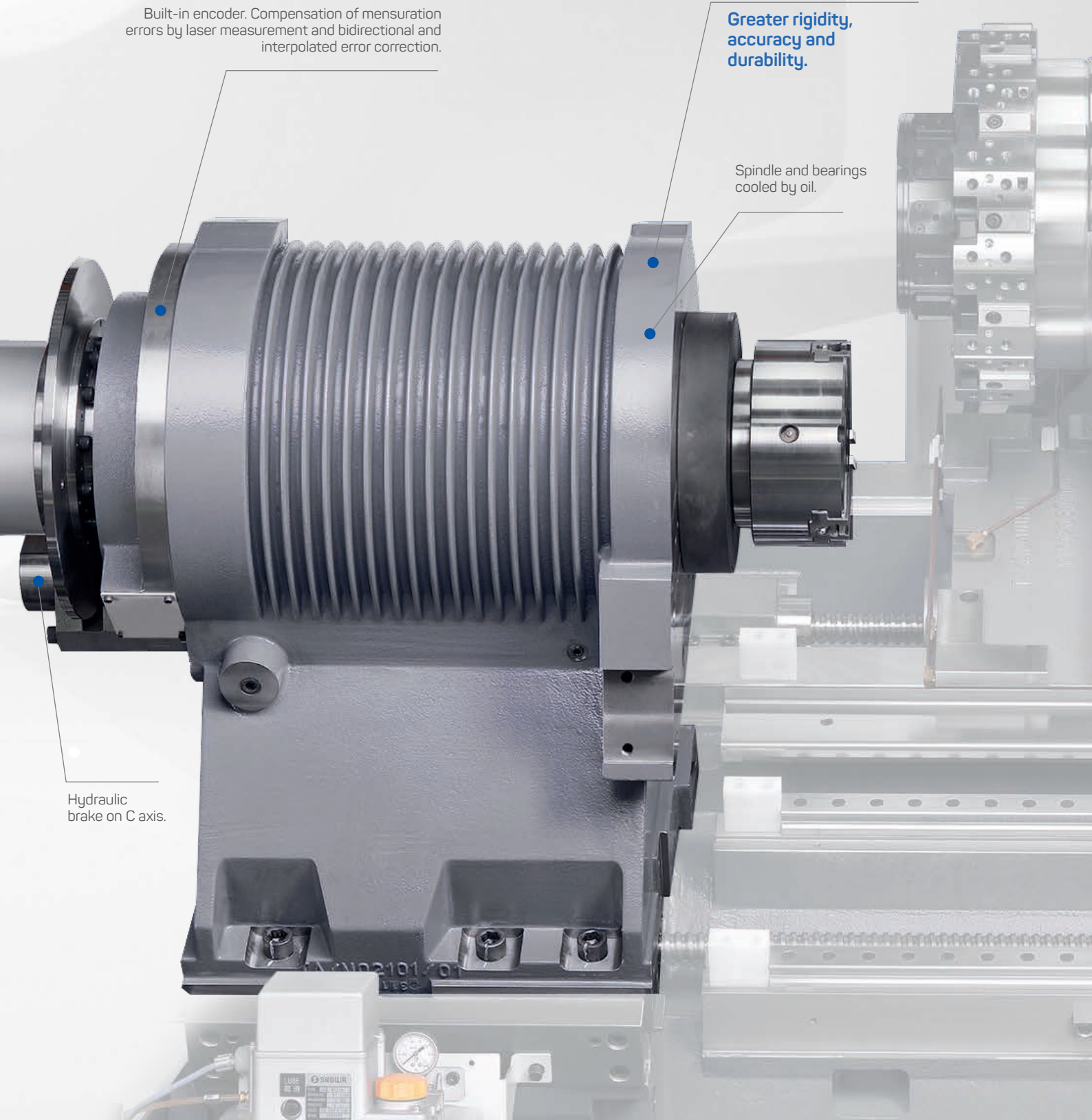
Built-in encoder. Compensation of mensuration errors by laser measurement and bidirectional and interpolated error correction.

Double row roller bearings can withstand substantial impacts without damage.

**Greater rigidity, accuracy and durability.**

Spindle and bearings cooled by oil.

Hydraulic brake on C axis.

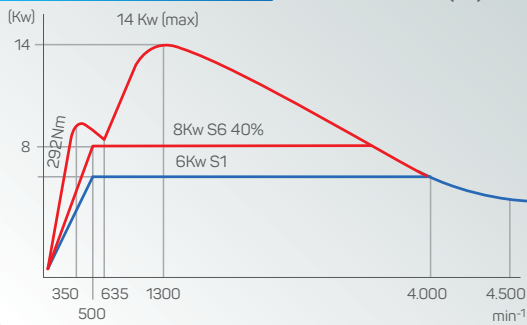


# INTEGRATED SPINDLES

## POWER AND TORQUE DIAGRAM OF SPINDLES

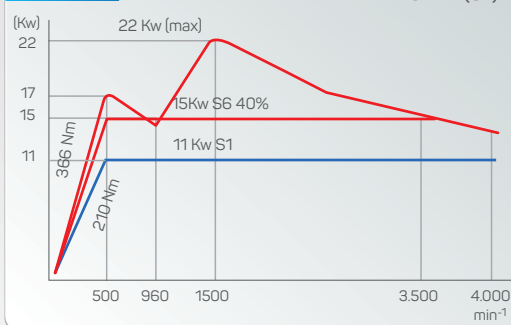
### TA15-SUB SPINDLE

T= 292 Nm (max)  
T= 153 Nm (S6 40%)  
T= 115 Nm (S1)



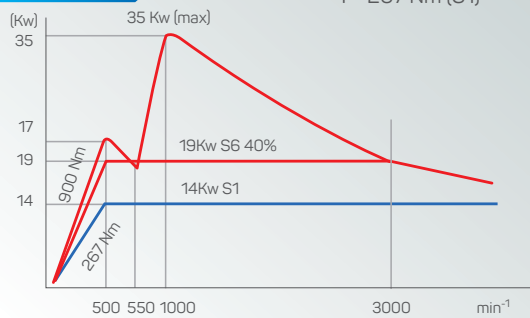
### TA20

T= 366 Nm (max)  
T= 286 Nm (S6 40%)  
T= 210 Nm (S1)



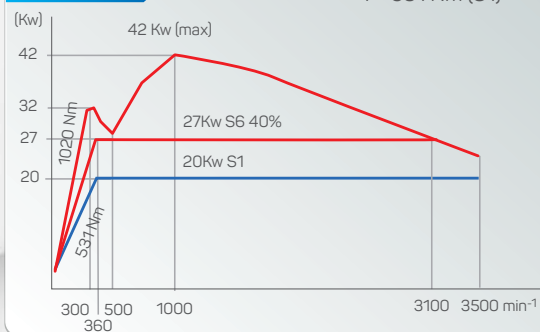
### TA25

T= 900 Nm (max)  
T= 363 Nm (S6 40%)  
T= 267 Nm (S1)



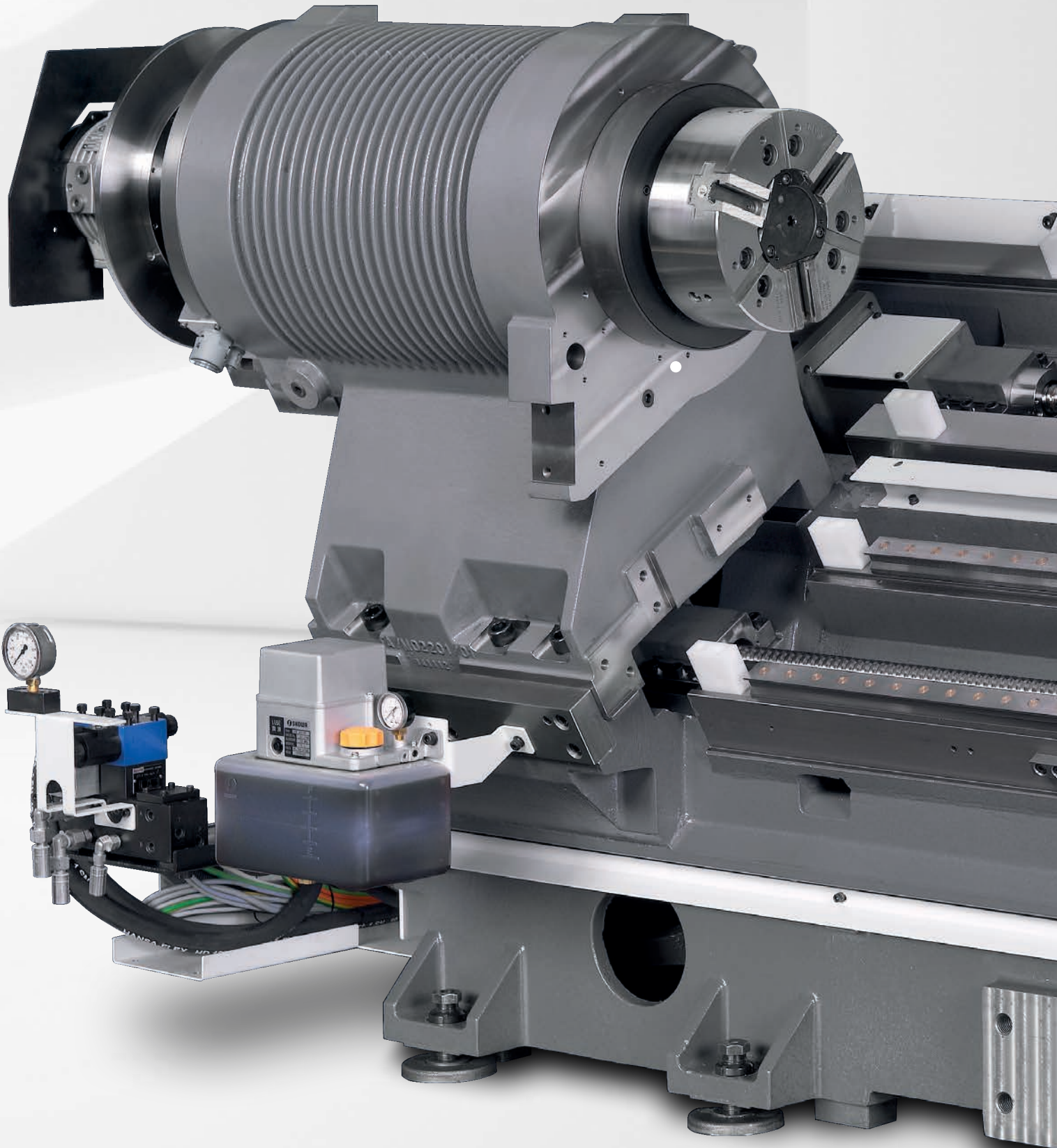
### TA30

T= 1020 Nm (max)  
T= 720 Nm (S6 40%)  
T= 531 Nm (S1)



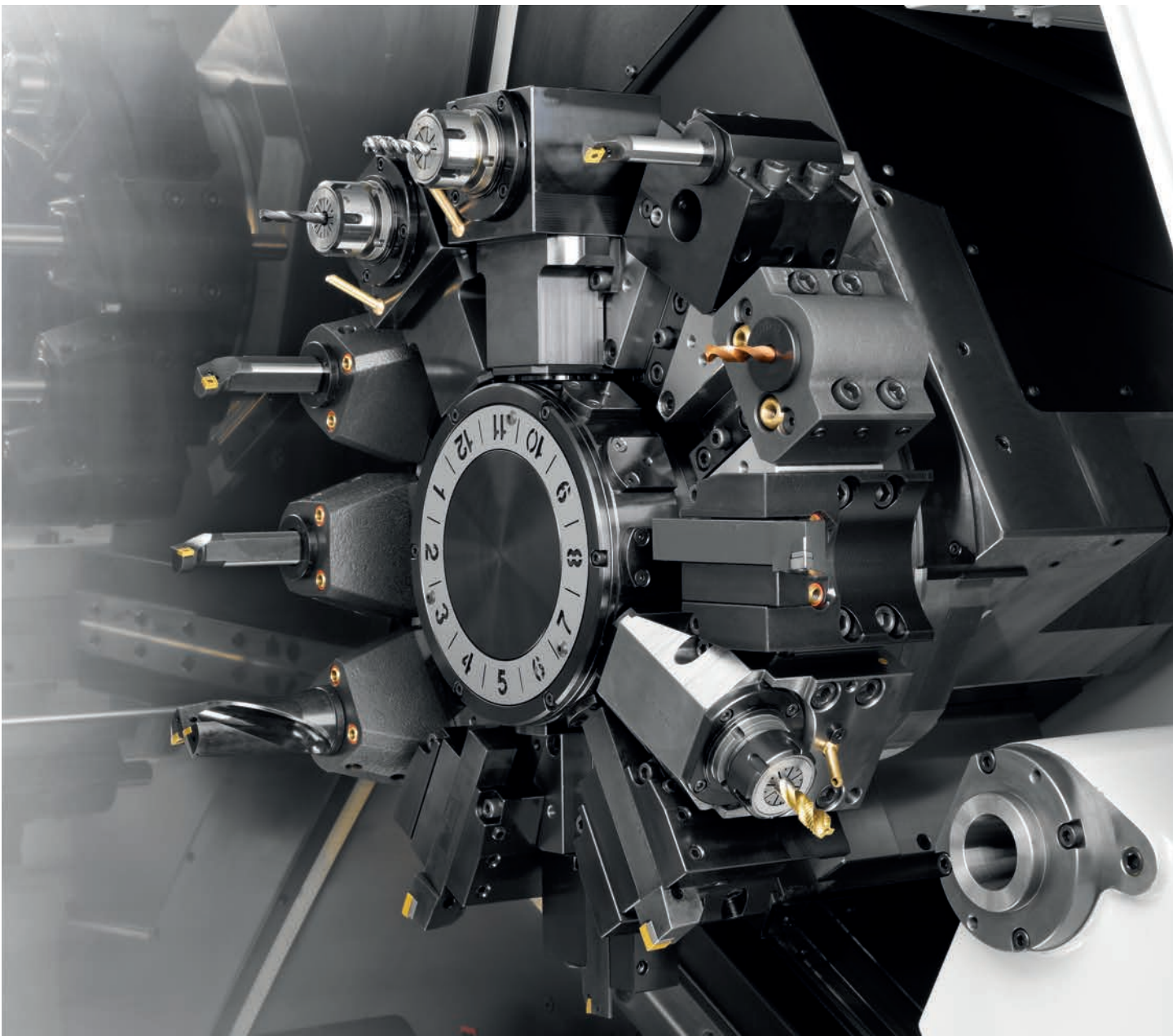


# TA SERIES



# TURRET WITH A BUILT-IN MOTOR

AND HYDRAULIC  
CLAMPING



# TA SERIES

**12,000 rpm /75 Nm**

## **Turret**

Sturdily-built turret, incorporating a large diameter turret disk which enables the interferences between tools and chuck to be reduced.

## **Indexing**

Bi-directional high-speed indexing is driven by a servomotor. The motor used for turret rotation is similar to motors used for axis movement, thus achieving high rotation rigidity and smoothness.

## **Indexing time**

The indexing time is 0.2 seconds for adjacent turret positions and 0.5 seconds for 180 degrees.

## **Unclamping**

The turret is unclamped on retract and clamped on approach, thus ensuring an effective tool changing time of 0.2 s.

## **Clamping**

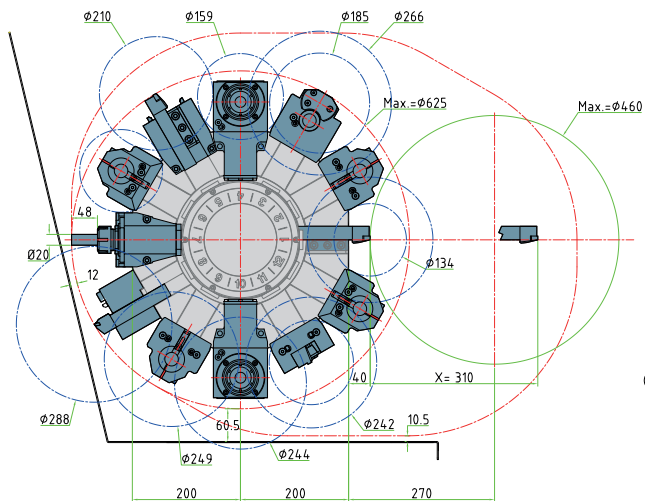
The clamping is done by means of a hydraulic system. The locking rings are 220 mm diameter and are a curvic coupling.

## **Transmission**

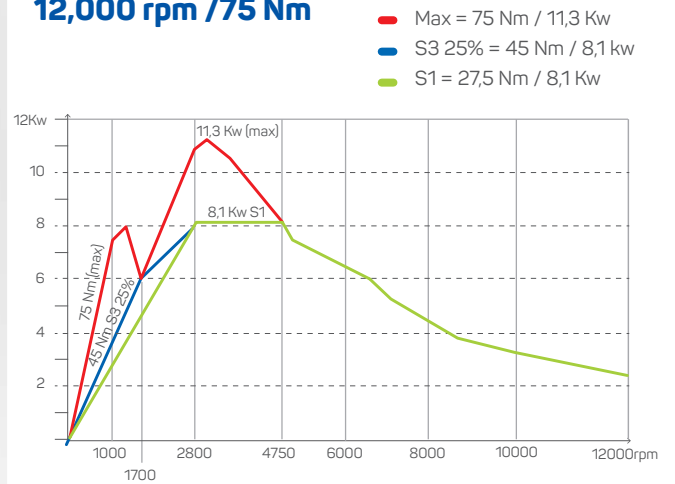
The transmission of driven tools is fitted with Gleason type conical spiral gears, hardened and ground giving high accuracy when rigid tapping.

# TURRET WITH A BUILT-IN MOTOR

Interference diagram of driven tool motor. **12,000 rpm / 75 Nm**



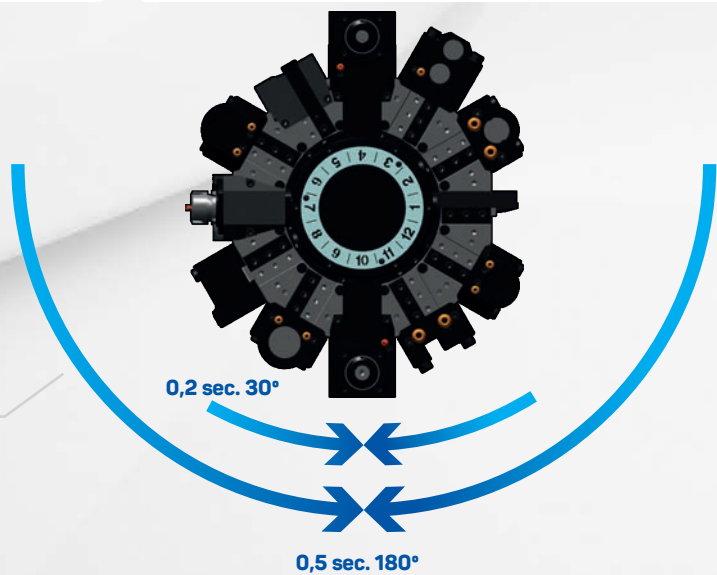
Power and torque diagram of driven tool motor. **12,000 rpm / 75 Nm**



## Tool Turret

The robust turret disk does not lift while indexing. The turret is unclamped on retract and clamped on approach, thus ensuring an effective tool changing time of 0.2 s.

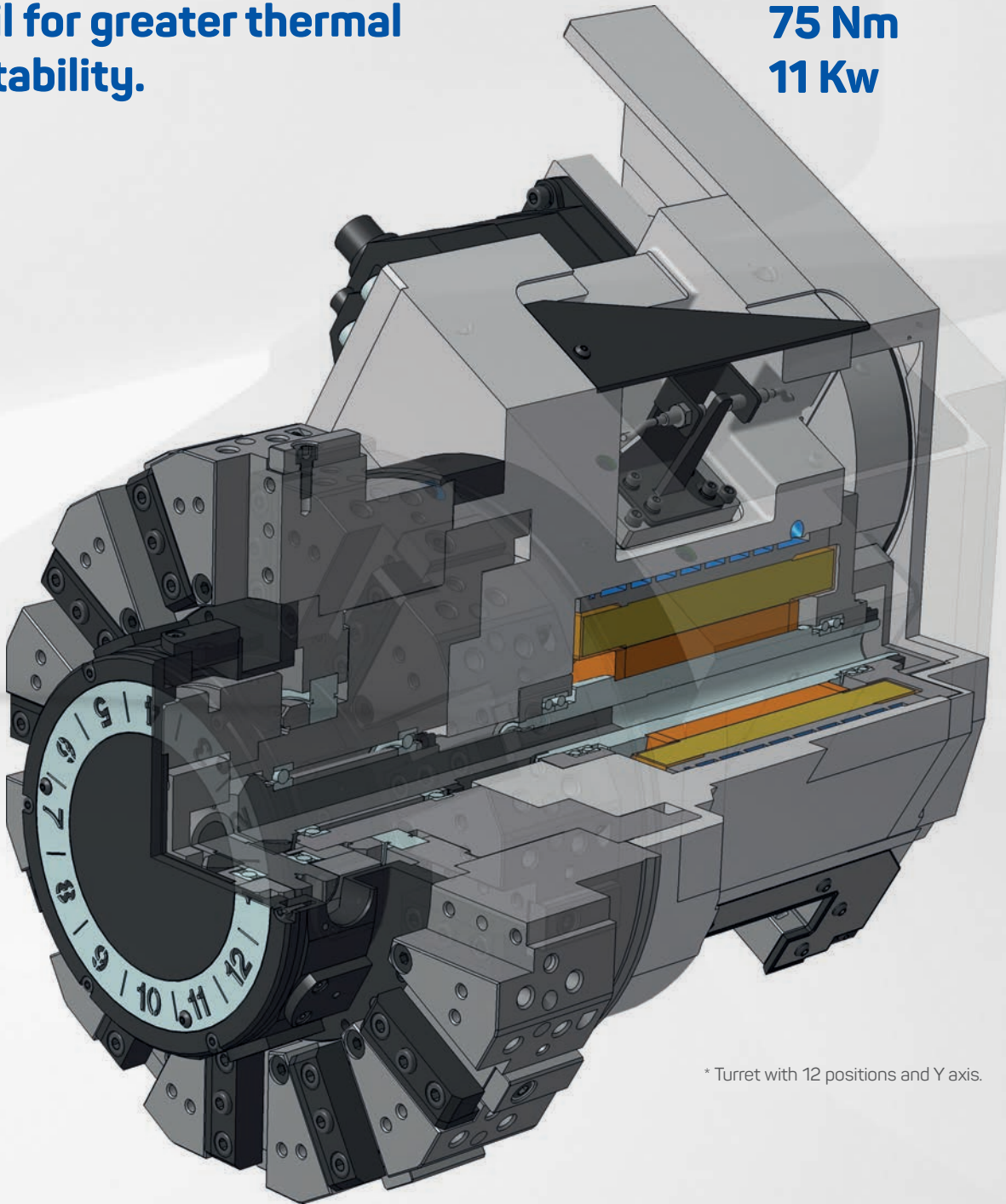
12 positions disc. 0.2 seconds 30°



# TA SERIES

**Turret cooled with  
oil for greater thermal  
stability.**

**12,000 rpm/min  
75 Nm  
11 Kw**



\* Turret with 12 positions and Y axis.

# TOOL HOLDERS

## Boring & drilling holders Ø40



TD/10300/40  
(Ø40mm)



TD/10300/41  
(Ø40mm)

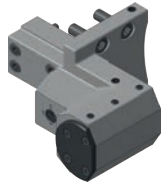


TL20/10000/14 (Ø8mm)  
TL20/10000/15 (Ø10mm)  
TL20/10000/16 (Ø12mm)  
TD/10300/16 (Ø16mm)  
TD/10300/20 (Ø20mm)  
TD/10300/25 (Ø25mm)  
TD/10300/32 (Ø32mm)

## Double boring holders Ø32



TD/10300/43  
(Ø32mm)



TD/10300/42  
(Ø32mm)



TL20/10000/27 (Ø8mm)  
TL20/10000/28 (Ø10mm)  
TL20/10000/29 (Ø12mm)  
TL20/10000/30 (Ø16mm)  
TL20/10000/31 (Ø20mm)  
TL20/10000/43 (Ø25mm)

## Boring holders Ø60



TD/10300/60  
(Ø60mm)



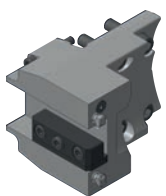
TD/10300/50  
(Ø50mm)



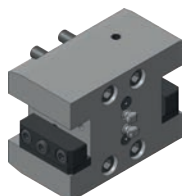
TD/10300/80  
(Ø80mm)

## Boring holders Ø80

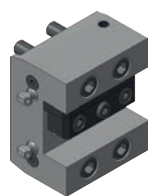
## Turning holders □25



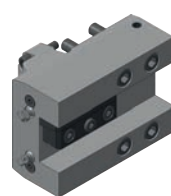
TD/10300/45



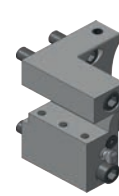
TD/10300/46



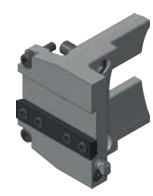
TD/10300/48



TD/10300/47

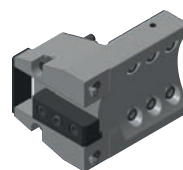


TD/10300/49



TD/10300/44

## Turning holders □32



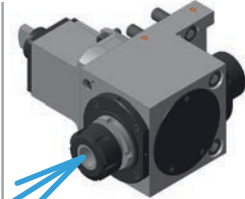
TD/10300/59

# TA SERIES

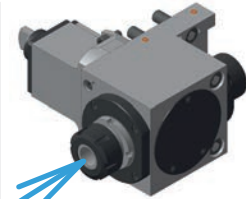
## Live tool holders



TL20/10400/01B  
Max: 6000 rpm



TL20/10400/05B  
Max: 6000 rpm



TL20/10400/06  
Max: 12000 rpm



TL20/10400/07B  
Max: 6000 rpm



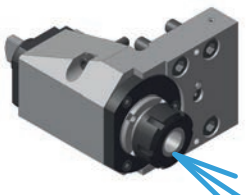
TL20/10400/08  
Max: 12000 rpm



TL20/10400/04A  
Max: 8000 rpm



TL20/10400/03A  
Max: 8000 rpm



TL20/10400/09  
Max: 12000 rpm



TL20/10400/10  
Max: 4000 rpm

## Others



TL20/10000/03



TL20/10000/36  
(Ø10mm)



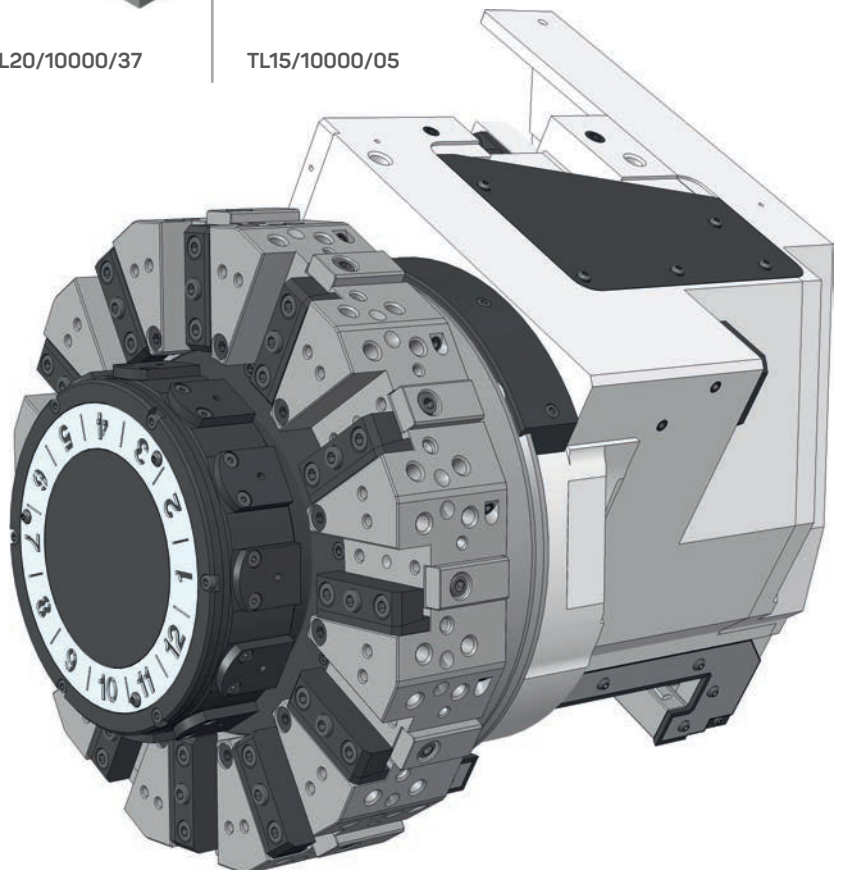
TL20/10000/37



TL15/10000/05



TL20/10051  
TL20/10054

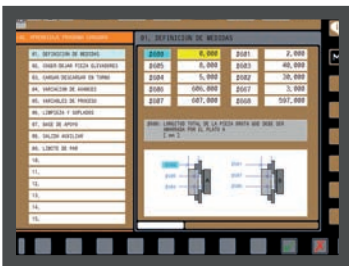


# ROBOT GL20 II

## AUTOMATE SHORT AND LONG BATCHES

A range of gripper heads with 2 x 10 kg capacity to suit your needs (GL20 II)

### Very easy to use



Easy to use and to program. CMZ have developed a conversational programming system that makes it very easy to set and use the GL20 II and GL6 Gantry robots.

- 1\_3-jaw servo gripper with 2 x 180° indexing.
- 2\_2-jaw servo gripper with 2 x 180° indexing.
- 3\_3-jaw pneumatic gripper with 2 x 90° indexing.
- 4\_Pneumatic gripper for shafts with 2 x 90° indexing.
- 5\_Servo gripper for shafts with 2 x 90° indexing.

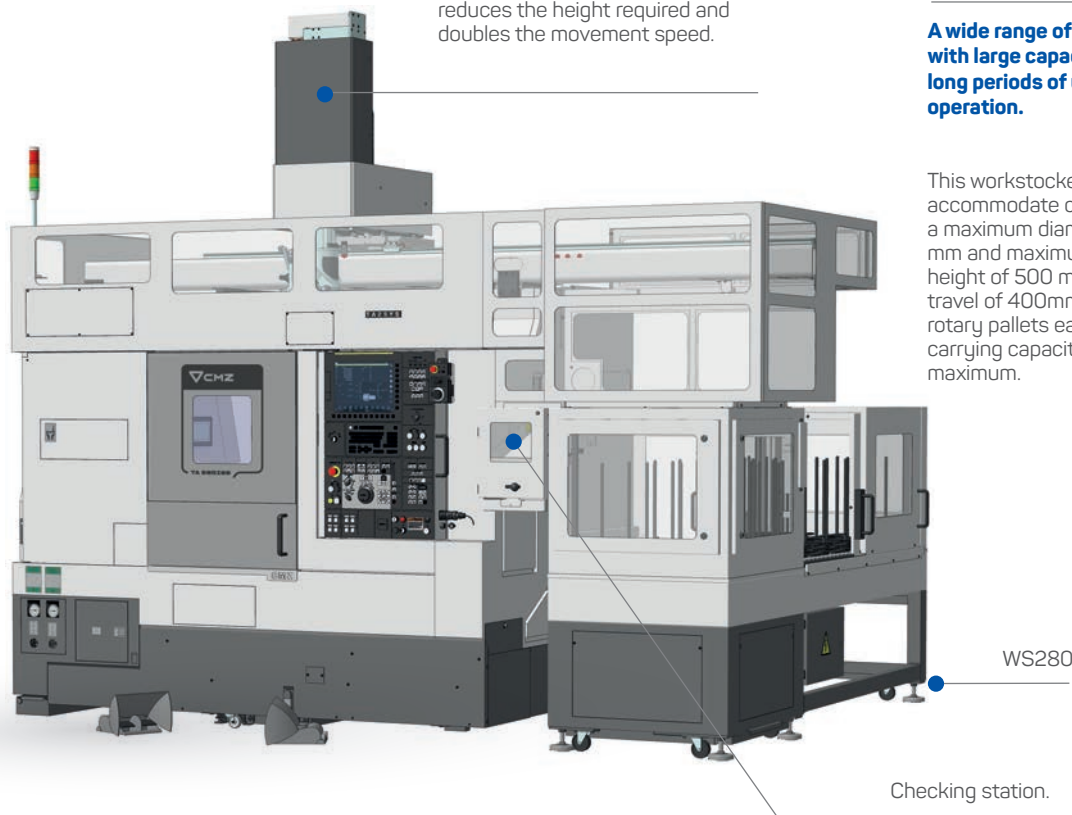
Workstocker WS-280x400x14 with 14 pallets.



The Vertical movement of the wrist reduces the height required and doubles the movement speed.

**A wide range of workstockers with large capacity permits long periods of unmanned operation.**

This workstocker can accommodate components to a maximum diameter of 280 mm and maximum stacked height of 500 mm (maximum travel of 400mm). The 14 rotary pallets each have a carrying capacity of 75 kg maximum.



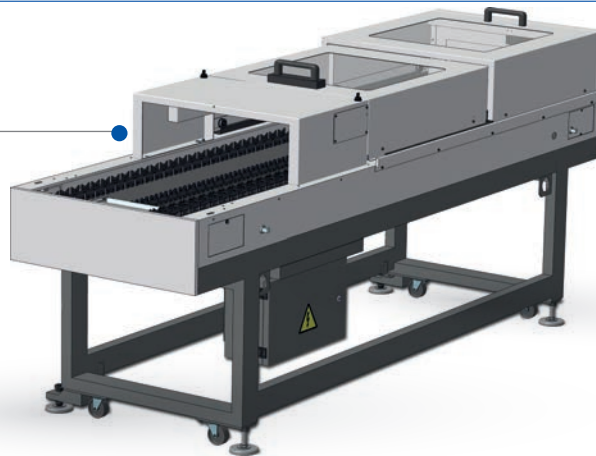


# TA SERIES



Workstocker  
WS-700 for shafts:

Workstocker to stock shafts  
from 80 mm to 700mm long  
and from 10 mm to 80mm  
diameter. (Contact CMZ for  
other sizes).



**Z axis speed**  
(Longitudinal): 180 m/min.

**Y axis speed**  
(Transverse): 120 m/min.

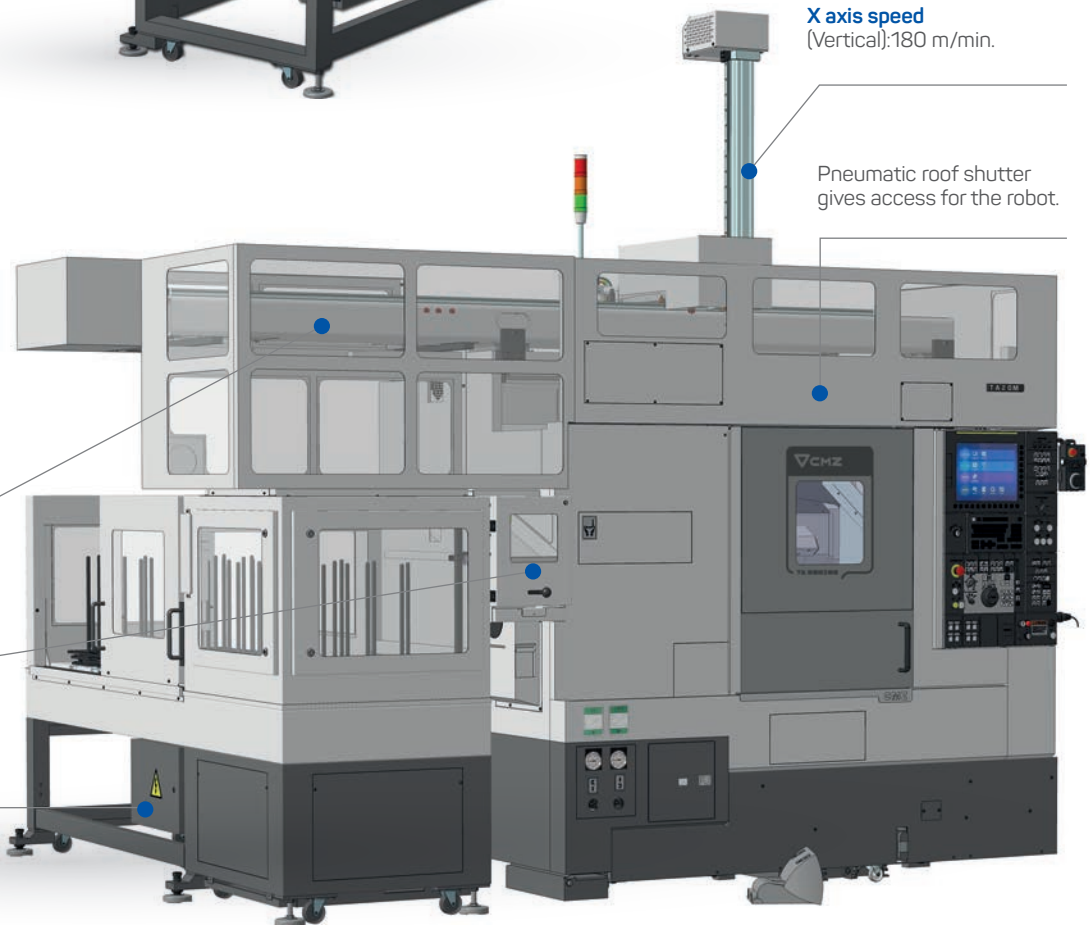
**X axis speed**  
(Vertical): 180 m/min.

Pneumatic roof shutter  
gives access for the robot.

CNC controlled axes.  
· Rack and pinion drive.  
· Automatic lubrication  
controlled by the CNC.

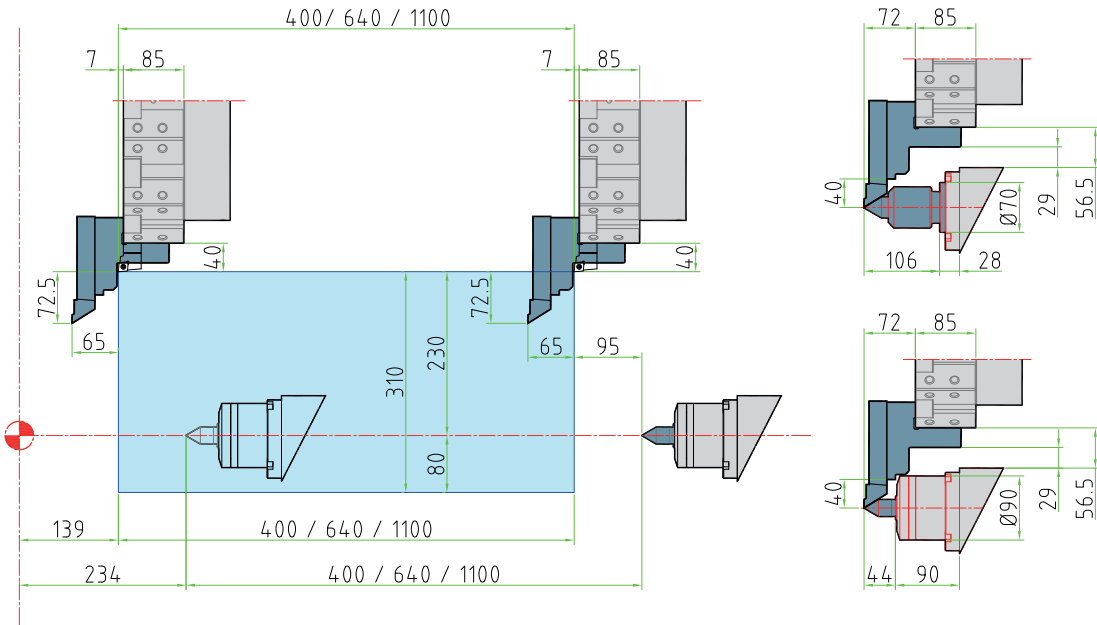
Checking station.

WS280

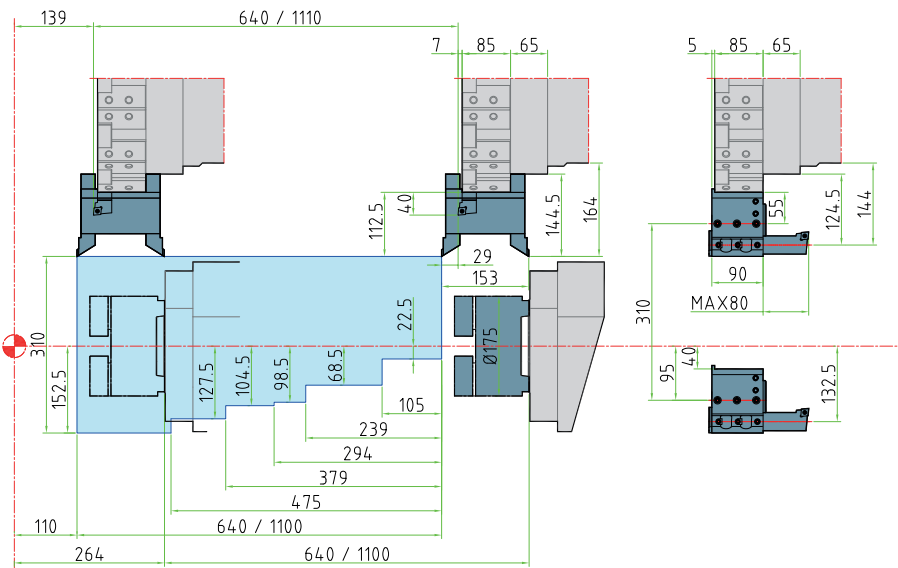


# TRAVELS

## Travels with tailstock



## Travels with sub spindle

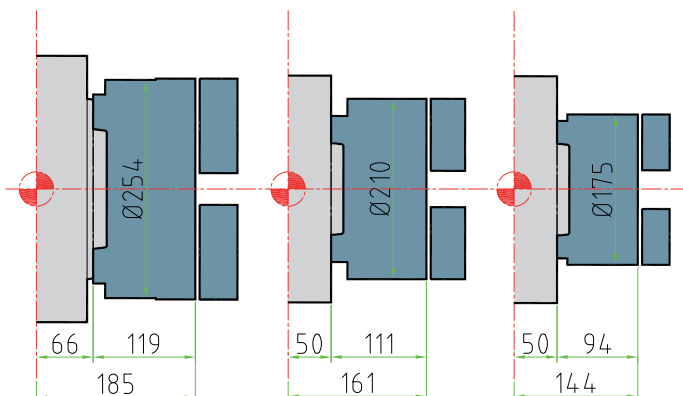


## Standard chucks dimensions

TA30  
BBD 250

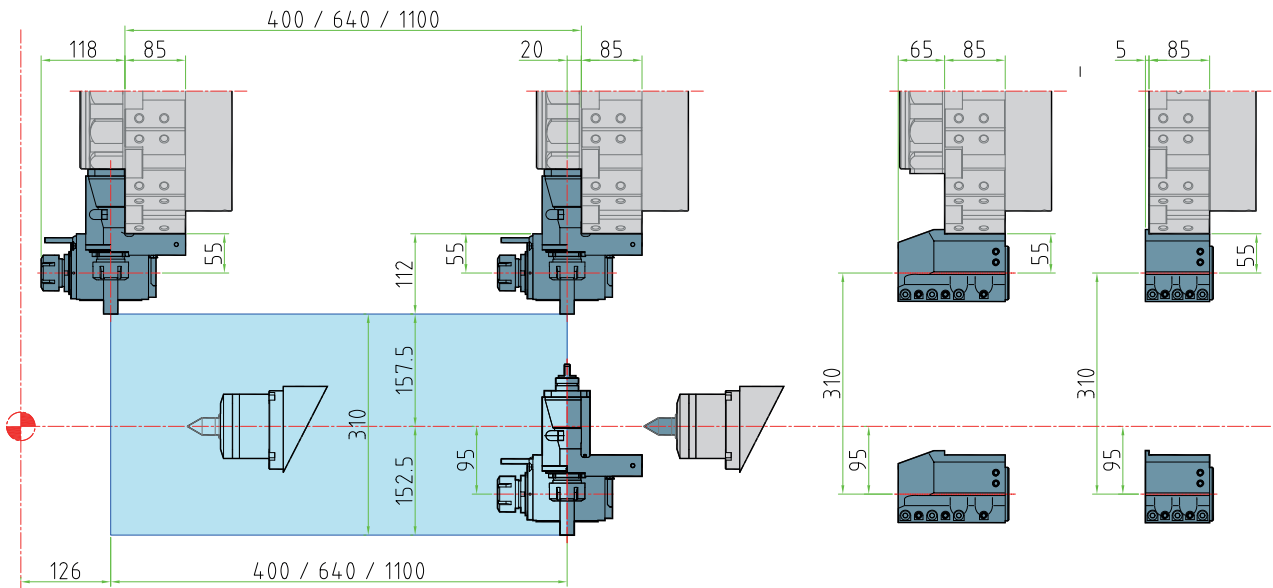
TA25-TA20  
BBD 210

TA15  
BBD 175

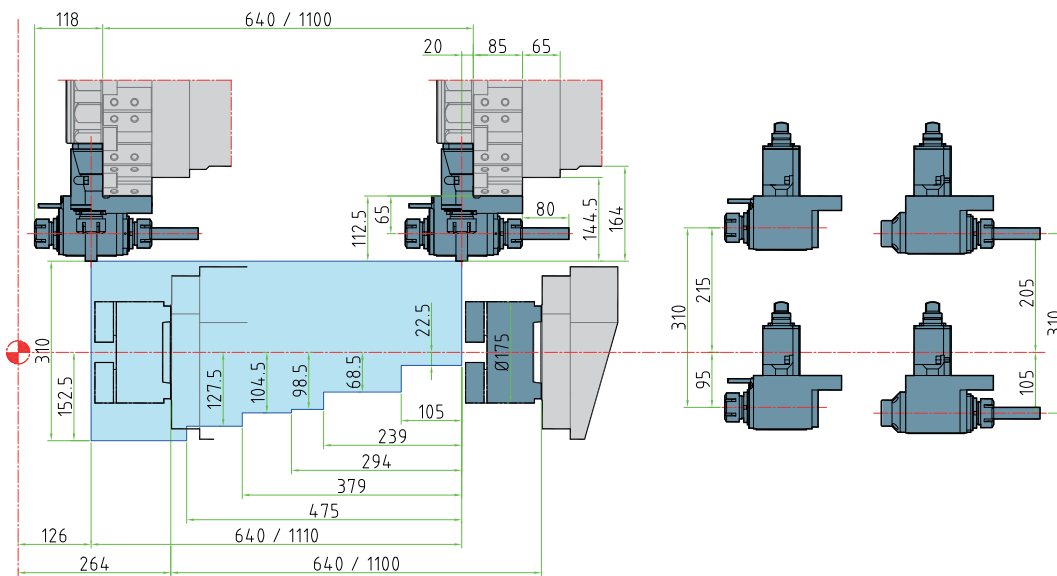


# TA SERIES

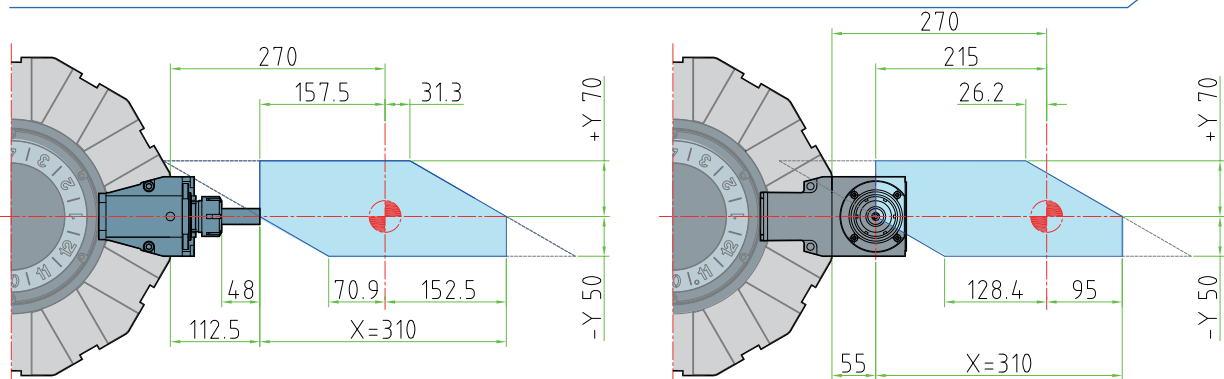
## Travels with tailstock and live tooling



## Travels with sub spindle and live tooling

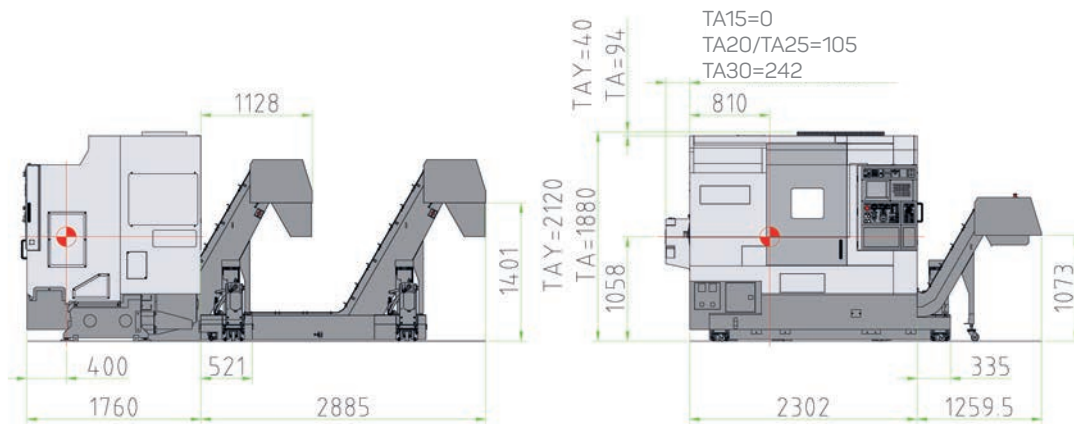


## Y axis travel

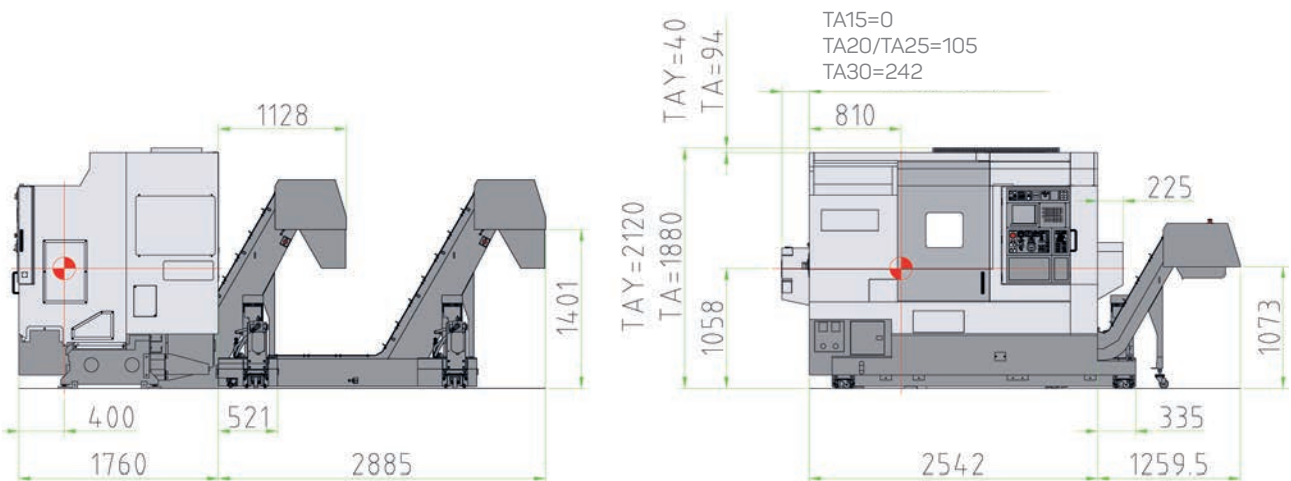


# DIMENSIONS

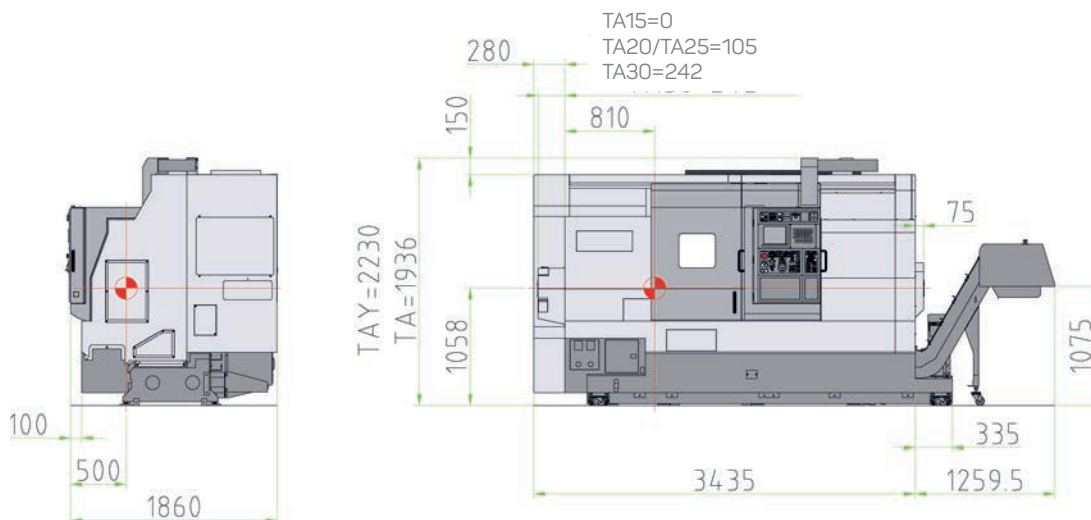
## TA Z400 MODEL



## TA Z640 MODEL

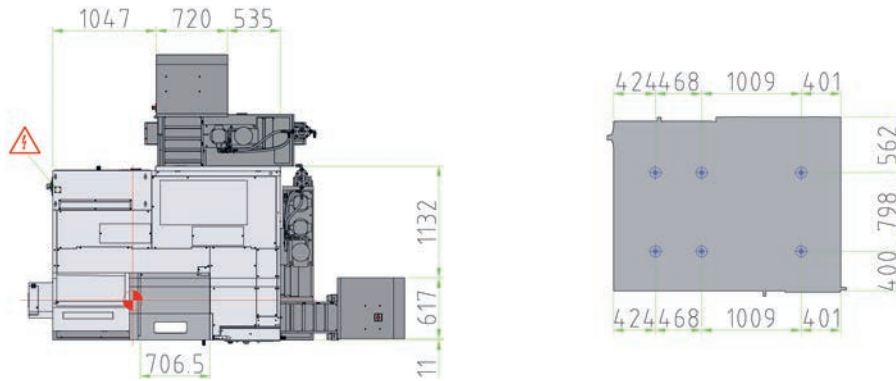


## TA Z1100 MODEL

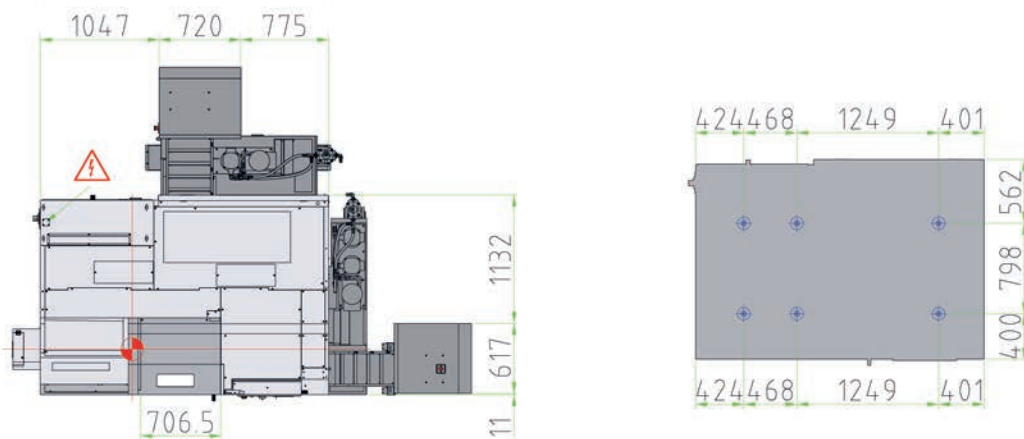


# TA SERIES

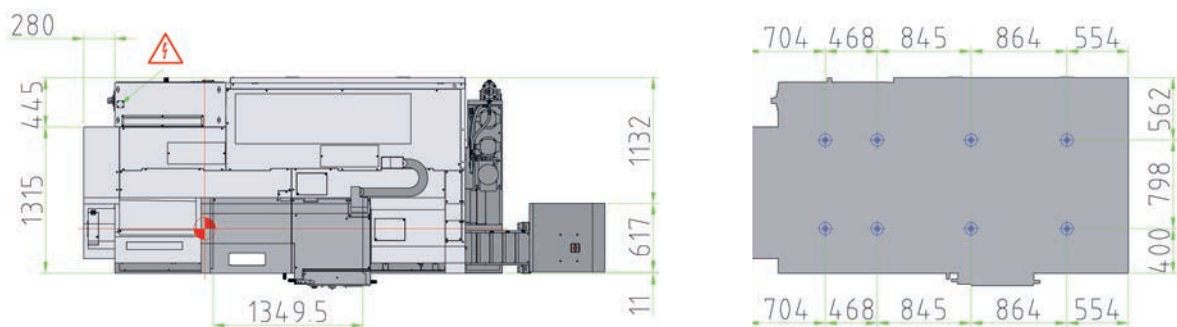
## TA Z400 MODEL



## TA Z640 MODEL



## TA Z1100 MODEL



# TECHNICAL SPECIFICATIONS

TECHNICAL DATA		TA15					TA20					TA25					TA30									
		TA15	TA15M	TA15Y	TA15S	TA15MS	TA15YS	TA20	TA20M	TA20Y	TA20S	TA20MS	TA20YS	TA25	TA25M	TA25Y	TA25S	TA25MS	TA25YS	TA30	TA30M	TA30Y	TA30S	TA30MS	TA30YS	
GENERAL DATA	Maximum diameter of swinging over bed (mm)	760					760					760					760									
	Maximum diameter of swinging over slides (mm)	600					600					600					600									
	Maximum turning diameter (mm)	460					460					460					460									
	Distance between spindle and tailstock center (mm)	Z400	490	-	-	-	-	473	-	-	-	-	473	-	-	-	-	449	-	-	-	-	-	-	-	
		Z640	730	-	-	-	-	713	-	-	-	-	713	-	-	-	-	689	-	-	-	-	-	-	-	
		Z1100	1190	-	-	-	-	1173	-	-	-	-	1173	-	-	-	-	1149	-	-	-	-	-	-	-	
	Distance between center of spindles (mm)	Z640	-	-	666	-	-	-	-	649	-	-	-	-	-	649	-	-	-	-	-	-	-	625	-	
		Z1100	-	-	1126	-	-	-	-	1109	-	-	-	-	-	1109	-	-	-	-	-	-	-	1085	-	
	X-axis travel (mm)	310					310					310					310									
	Z-axis travel (mm)	Z400	400					400					400					400								
		Z640	640					640					640					640								
		Z1100	1100					1100					1100					1100								
	Y-axis travel (mm)	-	-	+70	-	+70	-	-	+70	-	+70	-	-	+70	-	+70	-	-	+70	-	+70	-	-	+70	-	+70
	B-axis travel (mm)	Z400	400	-	-	-	-	400	-	-	-	-	400	-	-	-	-	400	-	-	-	-	400	-	-	
		Z640	640	640	-	-	-	640	640	-	-	-	640	640	-	-	-	640	640	-	-	-	640	640	-	-
Z1100		1100	1100	-	-	-	1100	1100	-	-	-	1100	1100	-	-	-	1100	1100	-	-	-	1100	1100	-	-	
Fast feedrate X (m/min)	30					30					30					30										
Fast feedrate Z (m/min)	30					30					30					30										
Fast feedrate Y (m/min)	-	-	15	-	15	-	-	15	-	15	-	-	15	-	15	-	-	15	-	15	-	-	15	-	15	
Fast feedrate B (m/min)	11	30	-	-	-	11	30	-	-	-	11	30	-	-	-	11	30	-	-	-	11	30	-	-		
Axis acceleration	1g=9.8 m/s <sup>2</sup>					1g=9.8 m/s <sup>2</sup>					1g=9.8 m/s <sup>2</sup>					1g=9.8 m/s <sup>2</sup>										
SPINDLE	Maximum speed (rpm)	4500					4000					4000					3500									
	Bearing outside diameter (mm)	150					170					170					200									
	Bearing inside diameter	100					110					110					130									
	Spindle nose	ASA 6"A2					ASA 6"A2					ASA 6"A2					ASA 8"A2									
	Spindle inside diameter	61					73					73					86									
	Bar diameter	52					66					66					77									
	Chuck diameter	175/210					210					250/210					250/315									
	Chuck bore	56/52					66					66					77									
	Spindle power (kW) (max./S6 40%)	14/8					22/15					35/19					42/27									
	Turning torque (Nm)	292 (max)					366 (max)					900 (max)					1020 (max)									
153 (S6 40%)					286 (S6 40%)					363 (S6 40%)					720 (S6 40%)											
TAILSTOCK	Morse cone	Ø90x120 live centre	CM5	-	-	CM5	-	-	-	CM5	-	-	CM5	-	-	CM5	-	-	-	CM5	-	-	-	-		
		Ø90x120 rotary quill	CM3	-	-	CM3	-	-	-	CM3	-	-	CM3	-	-	CM3	-	-	-	CM3	-	-	-	-		
	Tailstock travel (mm)	Z400	400	-	-	-	400	-	-	-	400	-	-	400	-	-	400	-	-	400	-	-	-	-		
		Z640	640	-	-	-	640	-	-	-	640	-	-	640	-	-	640	-	-	640	-	-	-	-		
Z1100		1100	-	-	-	1100	-	-	-	1100	-	-	1100	-	-	1100	-	-	1100	-	-	-	-			
Max. force (kgf)	930					980					980					1350										

# TA SERIES

TECHNICAL DATA		TA15						TA20						TA25						TA30					
		TA15	TA15M	TA15Y	TA15S	TA15MS	TA15YS	TA20	TA20M	TA20Y	TA20S	TA20MS	TA20YS	TA25	TA25M	TA25Y	TA25S	TA25MS	TA25YS	TA30	TA30M	TA30Y	TA30S	TA30MS	TA30YS
TURRET	Number of positions	12						12						12						12					
	Section of tools (mm)	25x25 (Ø50)						25x25 (Ø50)						25x25 (Ø50)						25x25 (Ø50)					
	Changing time	30° 0,2s-180° 0,5s						30° 0,2s-180° 0,5s						30° 0,2s-180° 0,5s						30° 0,2s-180° 0,5s					
	Interlocking force at 45 bar (kgf)	5090						5090						5090						5090					
DRIVEN TOOLS	Number of driven tools	-	12	-	12	-	12	-	12	-	12	-	12	-	12	-	12	-	12	-	12	-	12		
	Turning speed (rpm)	-	12000	-	12000	-	12000	-	12000	-	12000	-	12000	-	12000	-	12000	-	12000	-	12000	-	12000		
	Power (kW) (max./S1)	-	11,3/8,1	-	11,3/8,1	-	11,3/8,1	-	11,3/8,1	-	11,3/8,1	-	11,3/8,1	-	11,3/8,1	-	11,3/8,1	-	11,3/8,1	-	11,3/8,1	-	11,3/8,1		
	Maximum torque (Nm)	-	75	-	75	-	75	-	75	-	75	-	75	-	75	-	75	-	75	-	75	-	75		
SUBSPINDLE	Maximum speed (rpm)	-	4500			-	4500			-	4500			-	4500										
	Bearing outside diameter (mm)	-	150			-	150			-	150			-	150										
	Bearing inside diameter (mm)	-	100			-	100			-	100			-	100										
	Spindle nose	-	ASA 6°A2			-	ASA 6°A2			-	ASA 6°A2			-	ASA 6°A2										
	Spindle inside diameter (mm)	-	61			-	61			-	61			-	61										
	Bar diameter (mm)	-	52			-	52			-	52			-	52										
	Chuck diameter (mm)	-	175			-	175			-	175			-	175										
	Chuck bore (mm)	-	56			-	56			-	56			-	56										
	Power (kW) (max./S6 40%)	-	14/8			-	14/8			-	14/8			-	14/8										
	Turning torque (Nm) (max./S6 40%)	-	292/153			-	292/153			-	292/153			-	292/153										
MISCELLANEOUS	Coolant tank (litres)	<b>Z400 Lateral</b>	220			220			220			220													
		<b>Z400 Rear</b>	200			200			200			200													
		<b>Z640 Lateral</b>	230			230			230			230													
		<b>Z640 Rear</b>	200			200			200			200													
		<b>Z1100</b>	260			260			260			260													
	Hydraulic oil tank (litres)	10						10						10											
	Lubrication oil tank (litres)	4						4						4											
	Installed power (KVA)	30	30	30	45	45	45	30	30	30	45	45	45	45	45	45	45	45	65	45	45	45	45	45	65
	Functioning voltage	400V 50Hz +5%						400V 50Hz +5%						400V 50Hz +5%						400V 50Hz +5%					
		(230V 50Hz +5%)						(230V 50Hz +5%)						(230V 50Hz +5%)						(230V 50Hz +5%)					
	Environmental temperature	35°C						35°C						35°C						35°C					
	Total weight (kg)	<b>Z400</b>	5400(*)	-			5600(*)	-			5600(*)	-			5800(*)	-									
		<b>Z640</b>	5700(*)	6100(*)			5900(*)	6300(*)			5900(*)	6300(*)			6100(*)	6500(*)									
		<b>Z1100</b>	6600(*)	7000(*)			6800(*)	7200(*)			6800(*)	7200(*)			7000(*)	7400(*)									
	Dimensions (mm)	<b>TA</b>	<b>Z400</b>	2302x1760x1880			2302x1760x1880			2302x1760x1880			2302x1760x1880												
		<b>TA Y</b>	<b>Z400</b>	2302x1760x2120			2302x1760x2120			2302x1760x2120			2302x1760x2120												
		<b>TA</b>	<b>Z640</b>	2542x1760x1880			2542x1760x1880			2542x1760x1880			2542x1760x1880												
		<b>TA Y</b>	<b>Z640</b>	2542x1760x2120			2542x1760x2120			2542x1760x2120			2542x1760x2120												
		<b>TA</b>	<b>Z1100</b>	3435x1860x1936			3435x1860x1936			3435x1860x1936			3435x1860x1936												
		<b>TA Y</b>	<b>Z1100</b>	3435x1860x2230			3435x1860x2230			3435x1860x2230			3435x1860x2230												
Inner volume (m3)	<b>TA</b>	<b>Z400</b>	1			1			1			1													
	<b>TA Y</b>	<b>Z400</b>	1,15			1,15			1,15			1,15													
	<b>TA</b>	<b>Z640</b>	1,3			1,3			1,3			1,3													
	<b>TA Y</b>	<b>Z640</b>	1,5			1,5			1,5			1,5													
	<b>TA</b>	<b>Z1100</b>	1,8			1,8			1,8			1,8													
	<b>TA Y</b>	<b>Z1100</b>	2,1			2,1			2,1			2,1													

(\*) Approximate weights.

Due to constant development of our products all specifications given here in are subject to change without notice.

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