TD SERIES

TD Z2200 / TD Z3200 MODELS

CMZ

Turning the world

MODEL RANGE

TD Z2200 MODEL

(15/20/25/30/35/45/55)
/- M-Y-

MODEL RANGE

TD Z3200 MODEL

(15/20/25/30/35/45/55)
/- M-Y

TECHNICAL CHARACTERISTICS

TD Z2200

1 TD Z2200 MODEL

12.000 rpm

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

Ball screw steadies allow
30 m/min rapid travels in Z axis.

Electric cabinet totally
sealed (IP55 protection).

Ballscrew mountings
are cooled by oil.

Front and rear roller spindle bearings cooled by oil

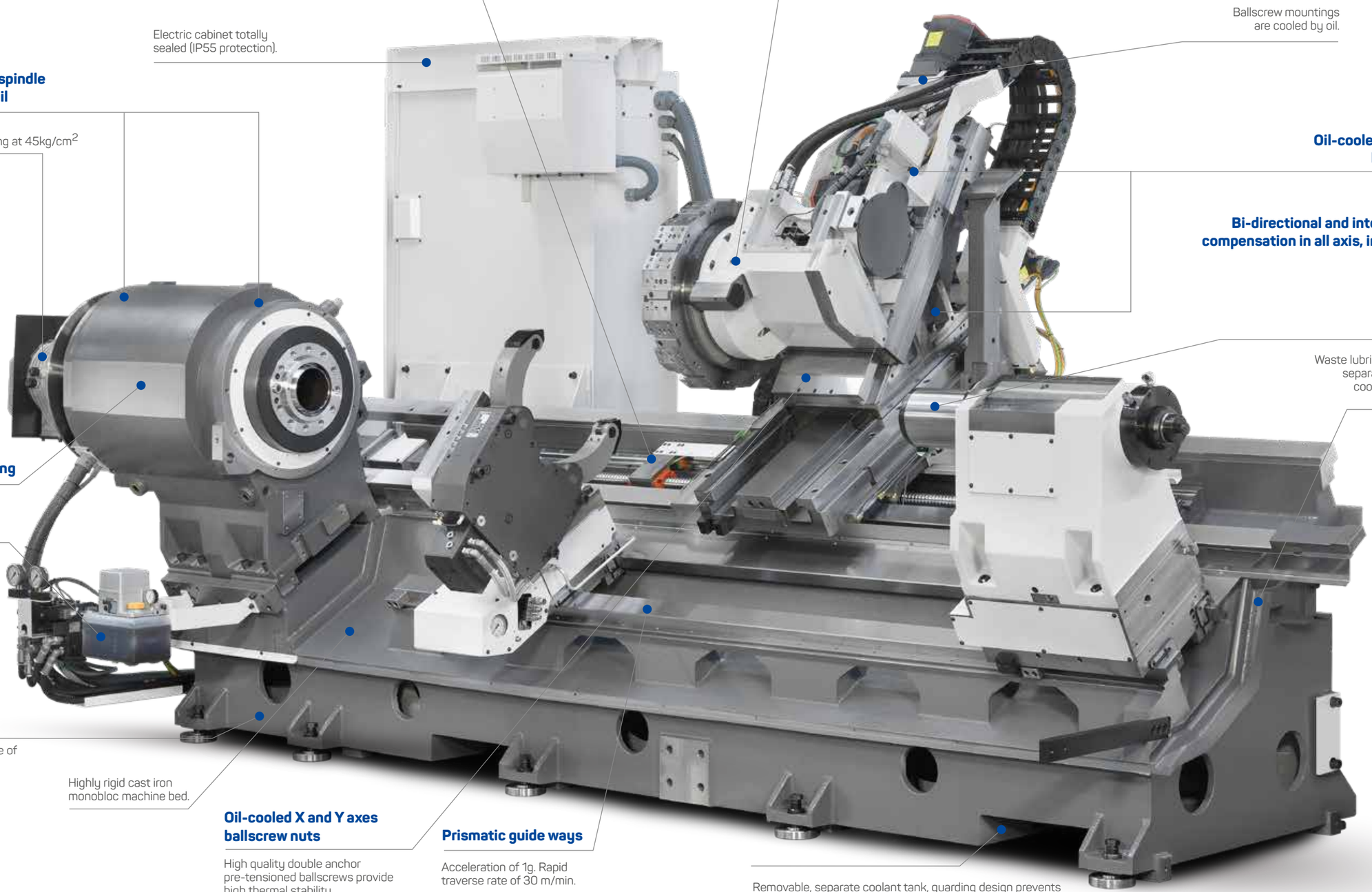
Hydraulic cylinder operating at 45kg/cm^2

Oil-cooled X and Y axes ballscrew nuts

Bi-directional and interpolated laser compensation in all axis, including C axis

Live tailstock.

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



Integrated 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 Screw nuts.
- The ballscrew mounts.
- The turret.

Highly rigid cast iron
monobloc machine bed.

Oil-cooled X and Y axes ballscrew nuts

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

Prismatic guide ways

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

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 TD Z3200 MODEL

TD Z3200

12.000 rpm

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

Ball screw steadies allow **30 m/min** rapid travels in Z axis.

Electric cabinet totally sealed (IP55 protection).

Front and rear roller spindle bearings cooled by oil

Hydraulic cylinder operating at 45kg/cm^2

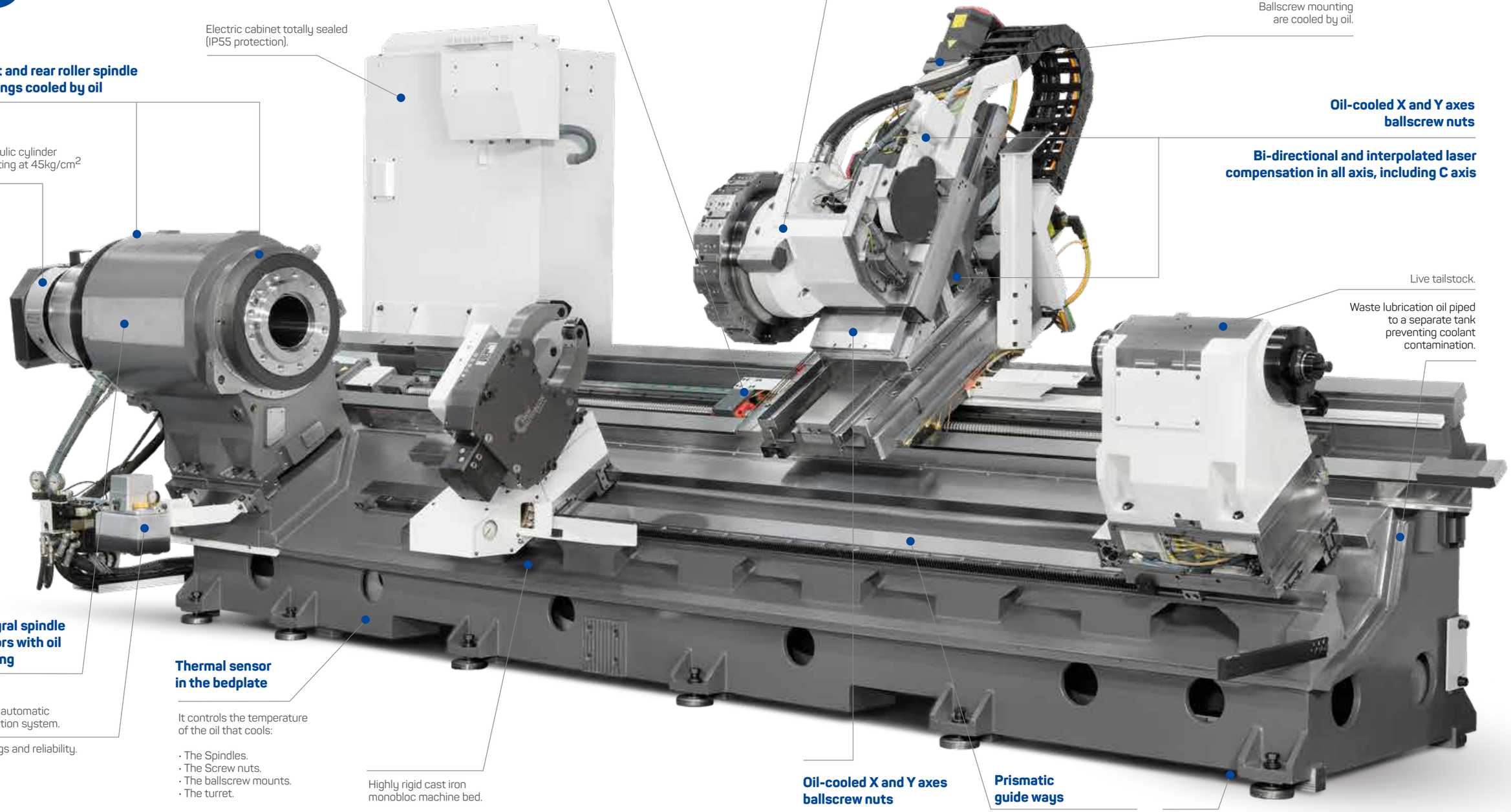
Ballscrew mounting are cooled by oil.

Oil-cooled X and Y axes ballscrew nuts

Bi-directional and interpolated laser compensation in all axis, including C axis

Live tailstock.

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



Integral spindle motors with oil cooling

Smart automatic lubrication system.

Savings and reliability.

Thermal sensor in the bedplate

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Prismatic guide ways

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

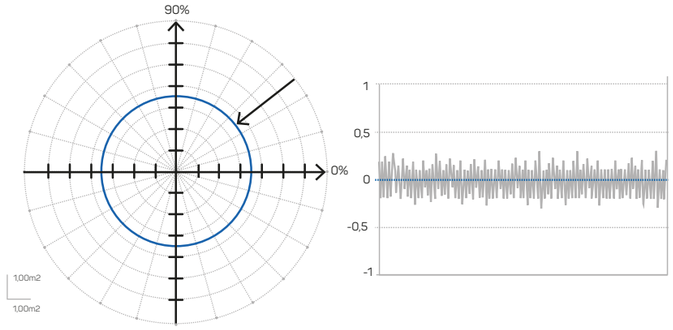
Removable, separate coolant tank, guarding design prevents coolant contact with the machine bed ensuring thermal stability. The coolant tank can be removed without removing the chip conveyor.

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	Surface finish
· MACHINE: TD 15	· MACHINE: TD 15
· MATERIAL: ALUMINIUM	· MATERIAL: ALUMINIUM
· Ø 60 mm.	· Ø 60 mm.
· ROUNDNESS ACHIEVED: 0,3 µm	· ROUGHNESS ACHIEVED: R_{max} 0,6 µm
· FILTER: 150 P/R (50%)	· FILTER: 150 p/r (50%)
· MEASUREMENT RANGE: 0,10°	

* 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 45 Kg/cm²

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

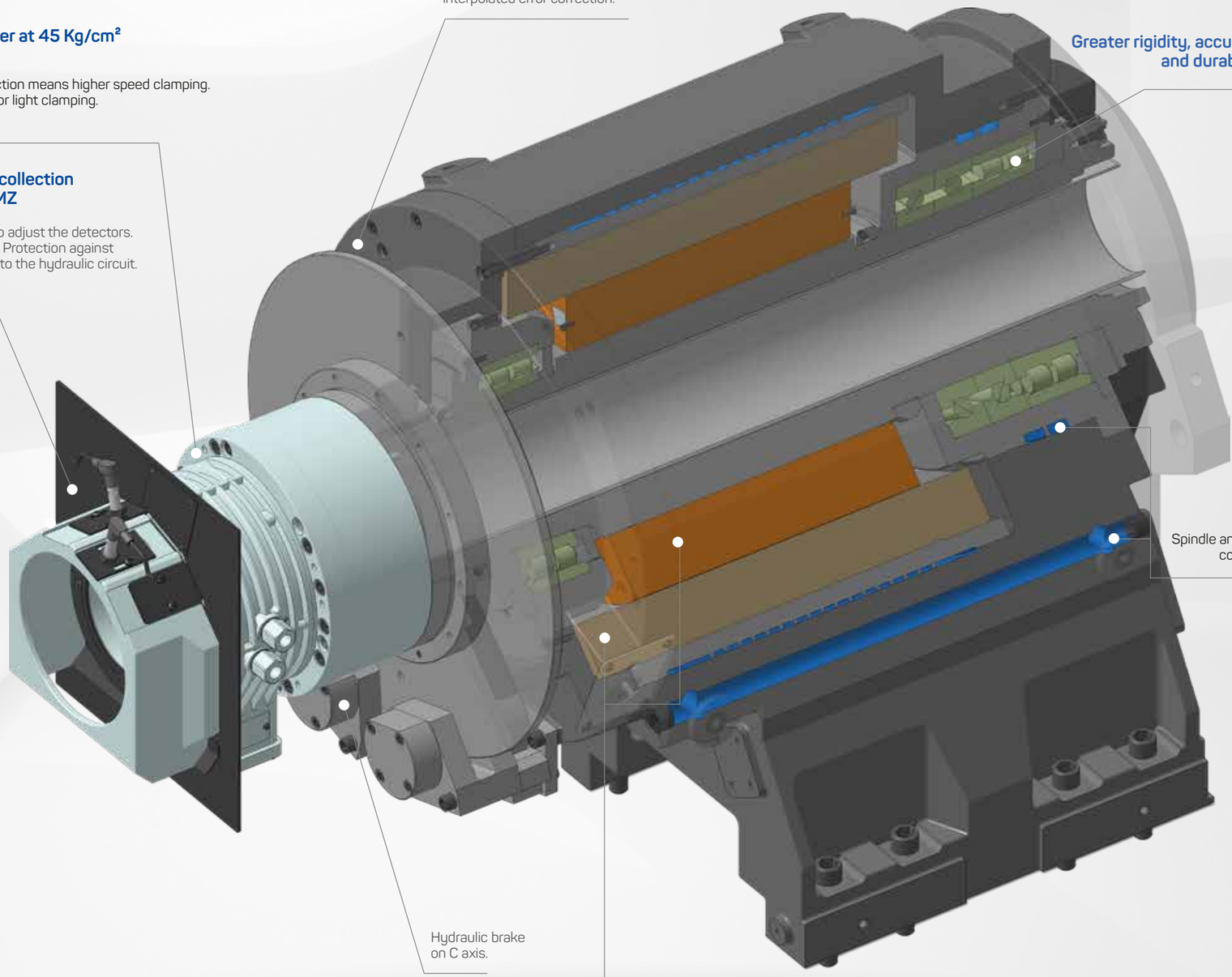
Special coolant collection tray made by CMZ

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

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.

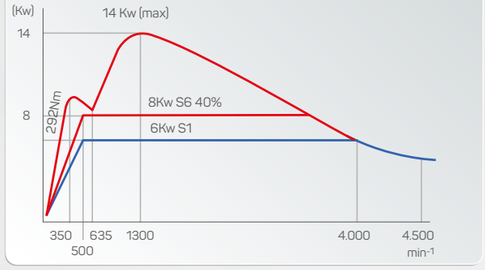
High performance integrated motor.

INTEGRATED SPINDLES

POWER AND TORQUE DIAGRAM OF SPINDLES

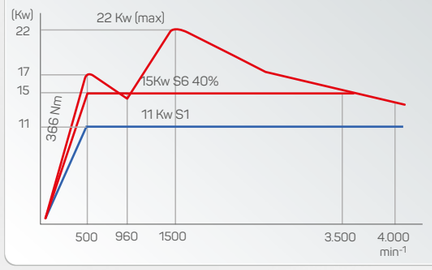
TD15

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



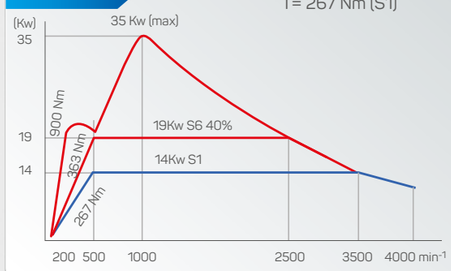
TD20-SUB SPINDLE

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



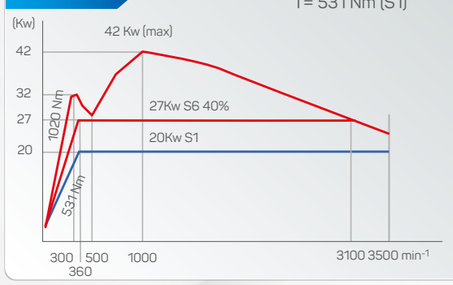
TD25

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



TD30

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

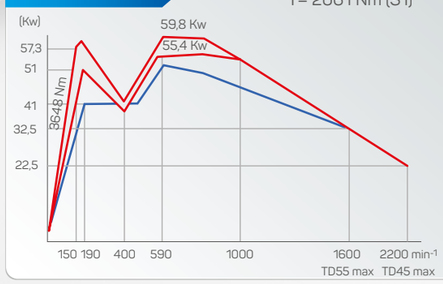


TD35

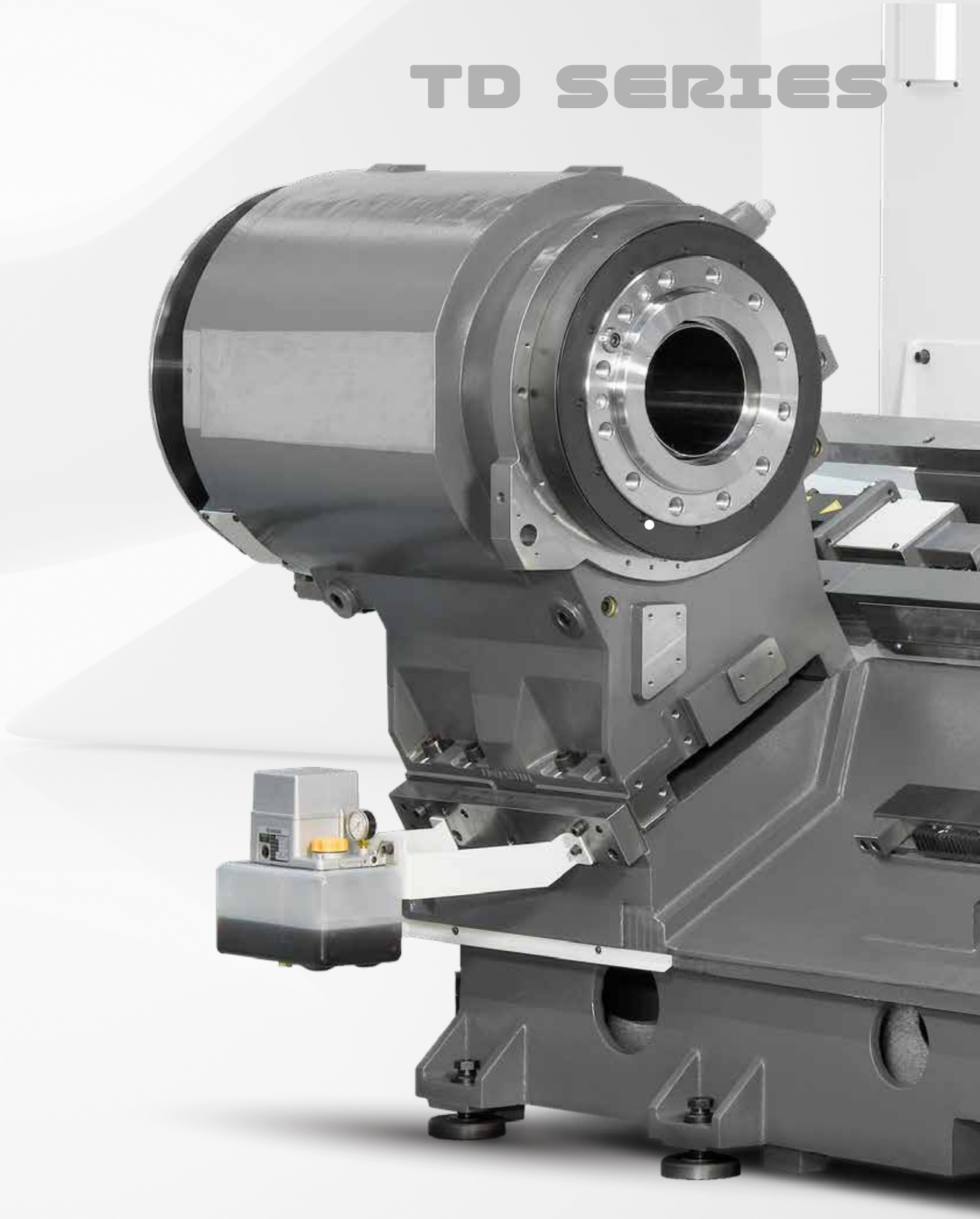
T= 1500 Nm (max)
T= 1273 Nm (S6 40%)
T= 1035 Nm (S1)

TD45- TD55

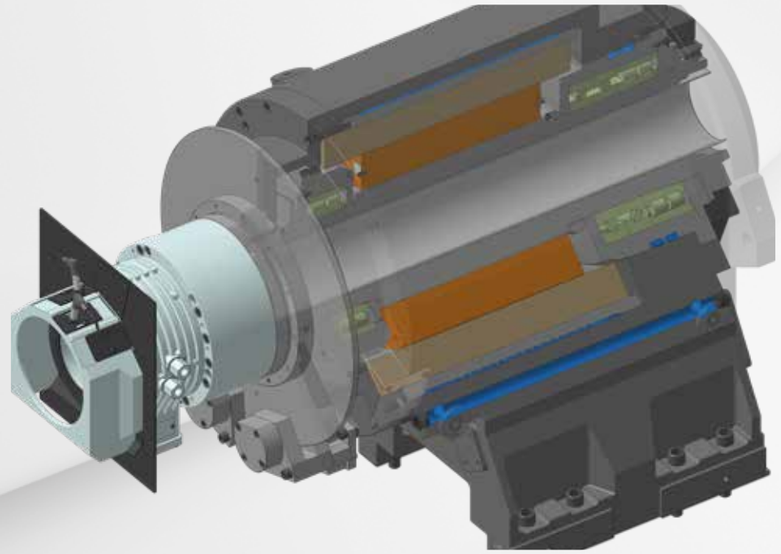
T= 3648 Nm (max)
T= 2706 Nm (S3 25%)
T= 2061 Nm (S1)



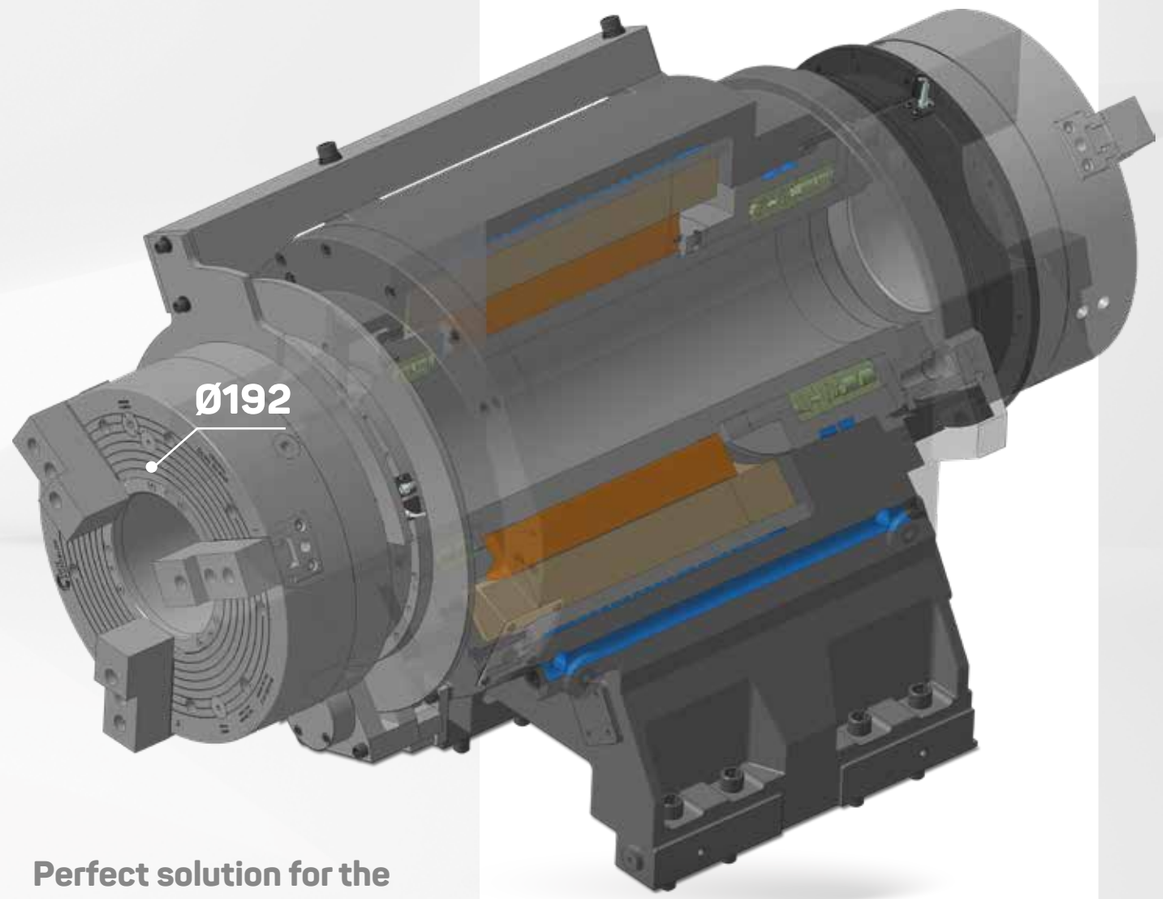
TD SERIES



DOUBLE PNEUMATIC SPINDLE CHUCKS



Double pneumatic spindle chucks with an inner through hole of Ø 192



Perfect solution for the machining of large diameter tubes

2 equal chucks SMW Autoblok model BB-N 470 Ø192

Distance between chuck faces: 1401 mm

TURRET WITH A BUILT-IN MOTOR

AND HYDRAULIC CLAMPING

12.000 rpm /105 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

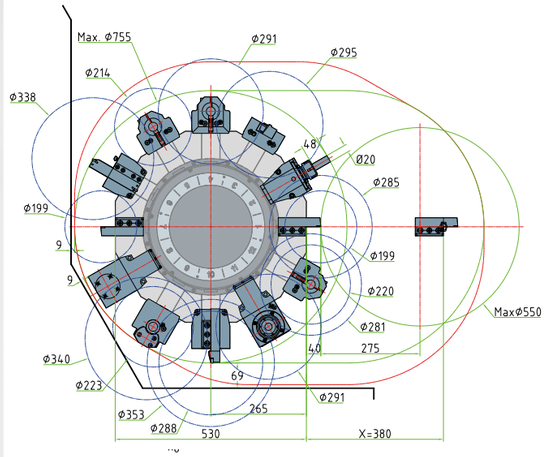
The clamping is done by means of a hydraulic system. The locking rings are 220 mm diameter and are a curvic coupling.

Transmission

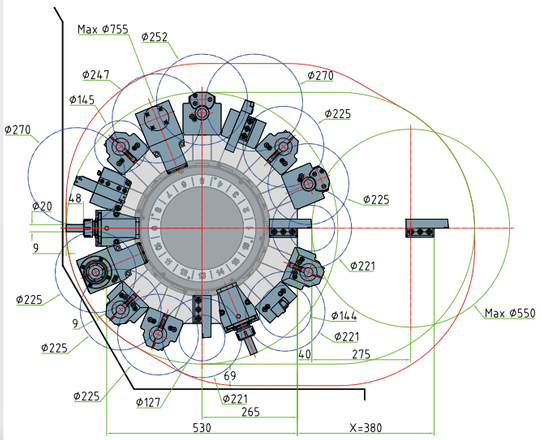
The transmission of driven tools is fitted with Gleason type conical spiral gears, hardened and ground giving high accuracy when rigid tapping.

TURRET WITH A BUILT-IN MOTOR AND HYDRAULIC CLAMPING

Interference diagram of driven tool motor. Turret with 12 positions



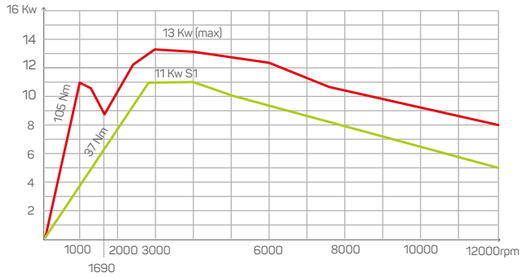
Interference diagram of driven tool motor. Turret with 16 positions



Power and torque diagram of driven tool motor

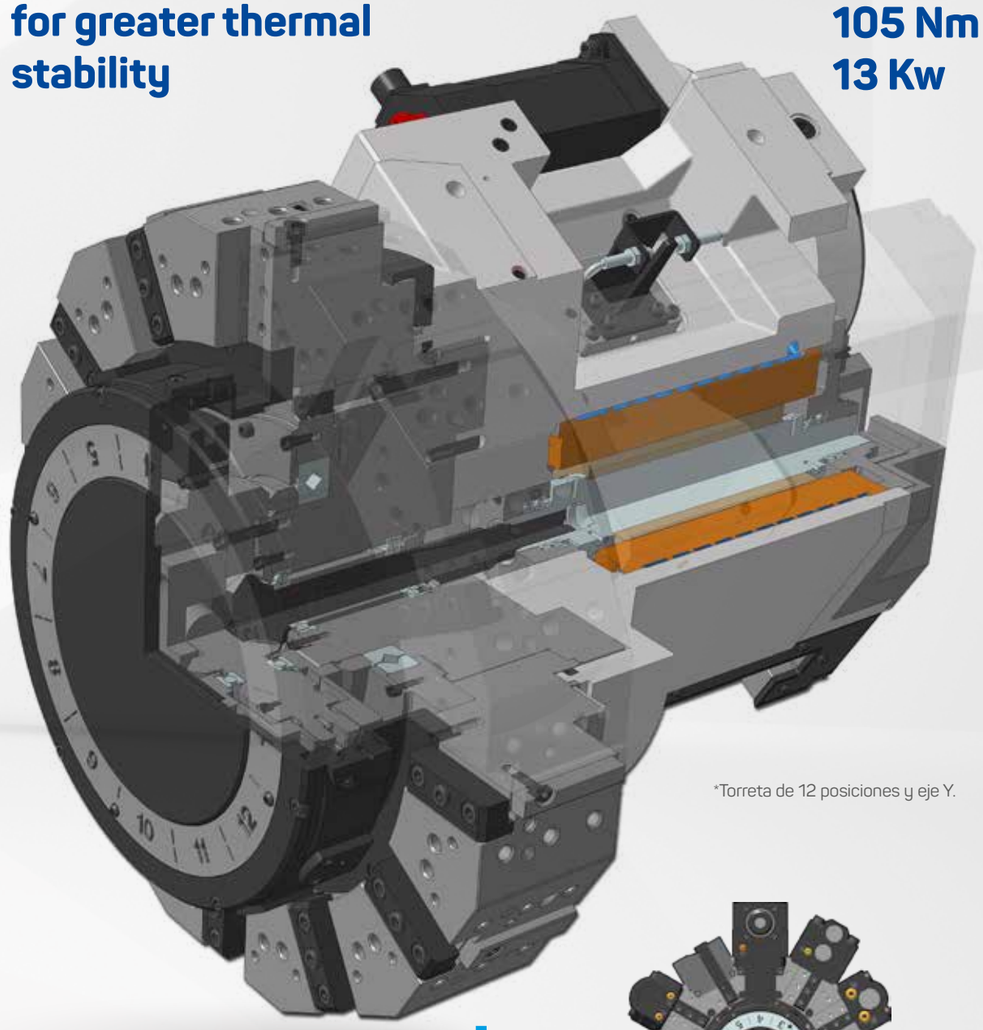
12.000 rpm 105 Nm

Max.= 105 Nm / 13Kw
S1 = 37 Nm / 11Kw



Turret cooled with oil for greater thermal stability

12,000 rpm
105 Nm
13 Kw

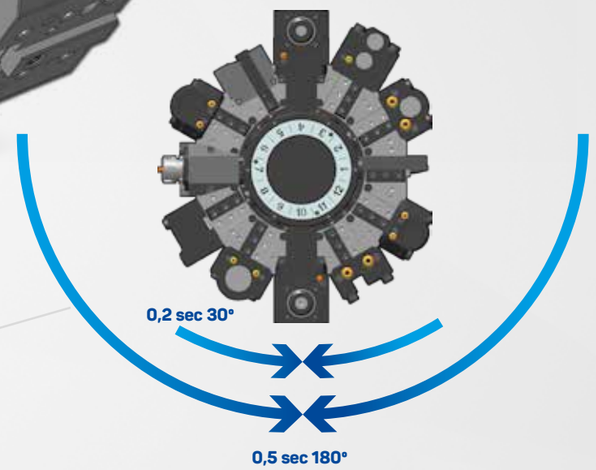


*Torreta de 12 posiciones y eje Y.

Turret disk

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.

16 positions disc. 0.2 seconds 22.5°



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

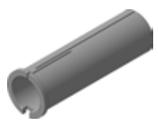
TD/10300/43
(Ø32mm)

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)

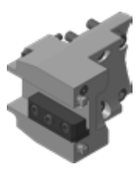


TD/10300/50
(Ø50mm)

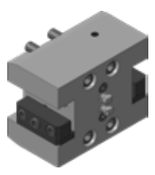
Boring holders Ø80

TD/10300/80
(Ø80mm)
*Not suitable for 16 station turret.

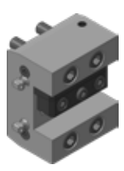
Turning holders □25



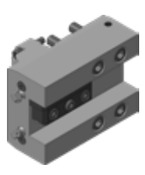
TD/10300/45



TD/10300/46



TD/10300/48



TD/10300/47

TD/10300/49

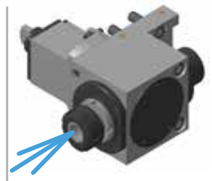
TD/10300/44

Turning holders □32

TD/10300/59

Live tool holders

TL20/10400/01B
Max: 6000 rpm



TL20/10400/05B
Max: 6000 rpm

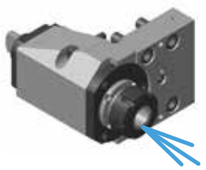
TL20/10400/06
Max: 12000 rpm

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

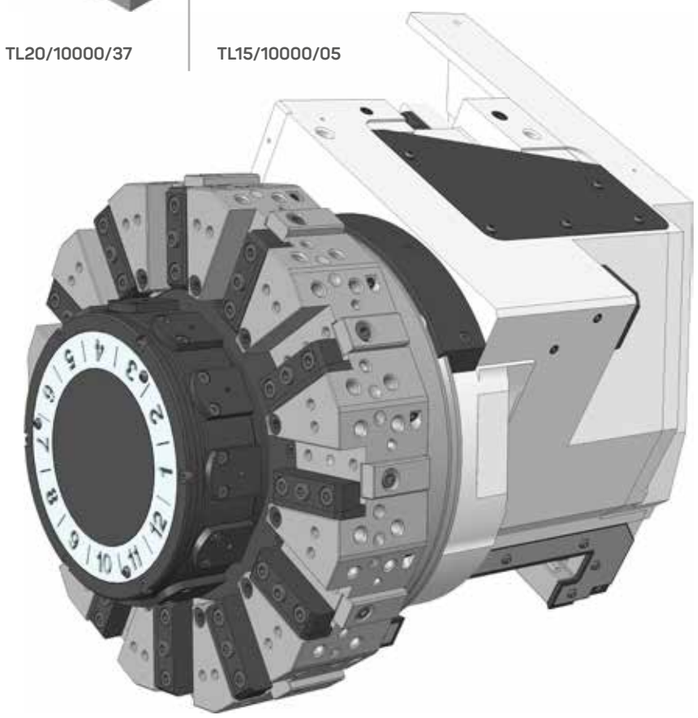
TL20/10000/03

TL20/10000/36
(Ø10mm)

TL20/10000/37

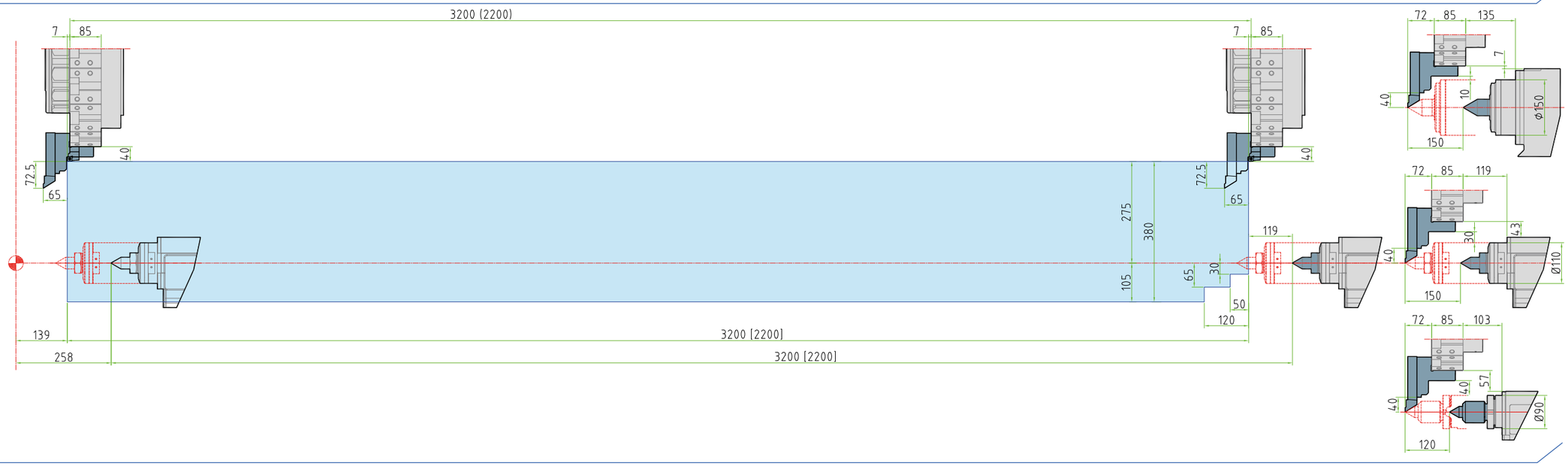
TL15/10000/05

TL20/10051
TL20/10054

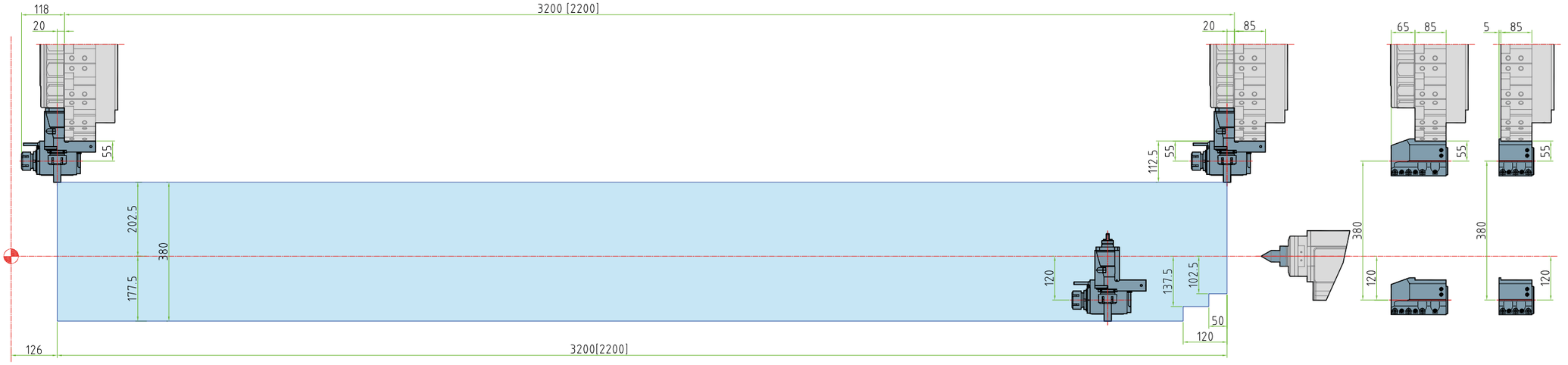


TRAVELS

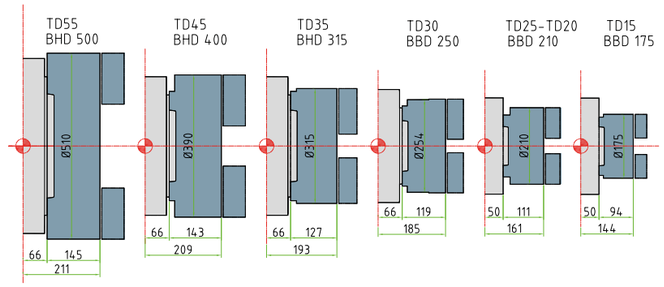
Travels with tailstock



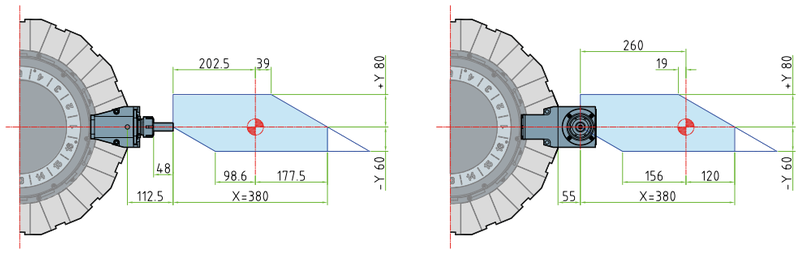
Travels with tailstock and live tooling



Standard chucks dimensions



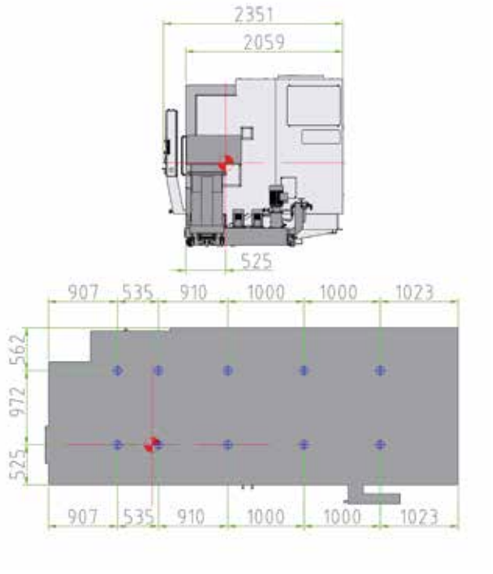
Y axis travel



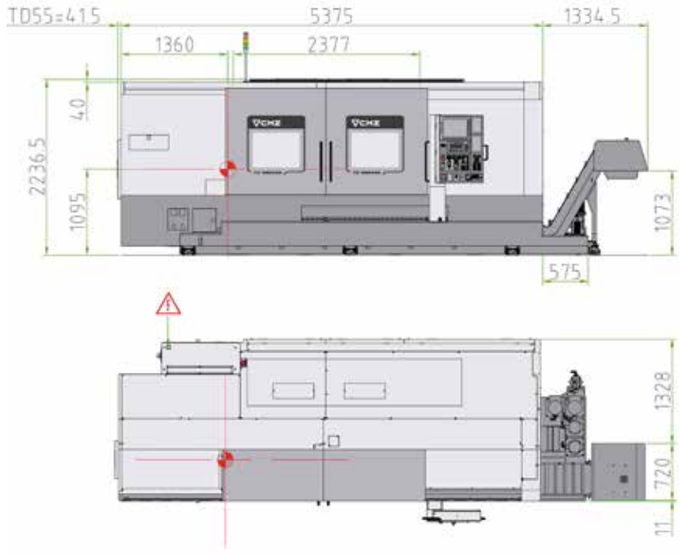
DIMENSIONS

TD Z2200

MODEL

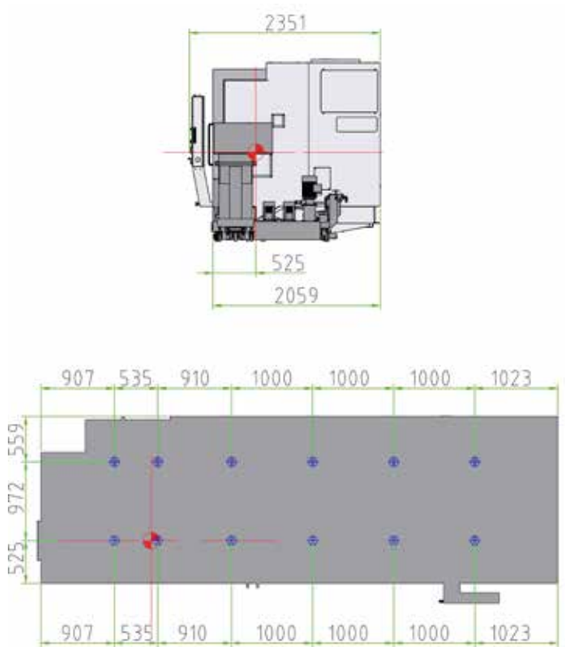


TD Z2200 MODEL

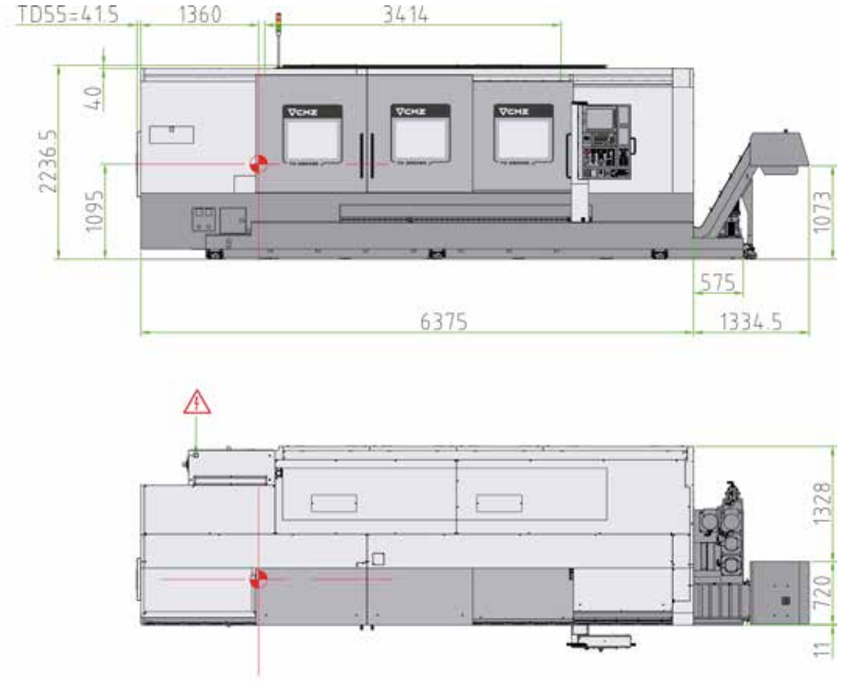


TD Z3200

MODEL



TD Z3200 MODEL



TECHNICAL SPECIFICATIONS

	TECHNICAL DATA		TD15			TD20			TD25			TD30			TD35			TD45			TD55		
			TD15	TD15M	TD15Y	TD20	TD20M	TD20Y	TD25	TD25M	TD25Y	TD30	TD30M	TD30Y	TD35	TD35M	TD35Y	TD45	TD45M	TD45Y	TD55	TD55M	TD55Y
GENERAL DATA	Maximum diameter of swinging over bed (mm)		950			950			950			950			950			950			950		
	Maximum diameter of swinging over slides (mm)		715			715			715			715			715			715			715		
	Maximum turning diameter (mm)		550			550			550			550			550			550			550		
	Distance between spindle	**Z2200**	2315			2298			2298			2274			2250			2250			2248		
	an tailstock center (mm)	**Z3200**	3315			3298			3298			3274			3250			3250			3248		
	X-axis travel (mm)		380			380			380			380			380			380			380		
	Z-axis travel (mm)	**Z2200**	2200			2200			2200			2200			2200			2200			2200		
		Z3200	3200			3200			3200			3200			3200			3200			3200		
	Y-axis travel (mm)		-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60
	B-axis travel (mm)	**Z2200**	2200			2200			2200			2200			2200			2200			800		
		Z3200	3200			3200			3200			3200			3200			3200			1350		
	Fast feedrate X (m/min)		30			30			30			30			30			30			30		
	Fast feedrate Z (m/min)		30			30			30			30			30			30			30		
	Fast feedrate Y (m/min)		15			15			15			15			15			15			15		
	Fast feedrate B (m/min)		11			11			11			11			11			11			11		
	Axis acceleration		1g=9,8 m/s2			1g=9,8 m/s2			1g=9,8 m/s2			1g=9,8 m/s2			1g=9,8 m/s2			1g=9,8 m/s2			1g=9,8 m/s2		
SPINDLE	Maximum speed (rpm)		4500			4000			4000			3500			3000			2200			1600		
	Bearing outside diameter (mm)		150			170			170			200			240			310			320		
	Bearing inside diameter (mm)		100			110			110			130			160			200			240		
	Spindle nose		ASA 6"A2			ASA 6"A2			ASA 6"A2			ASA 8"A2			ASA 11"A2			ASA 11"A2			ASA 15"A2		
	Spindle inside diameter		61			73			73			91			106			136			192		
	Maximum bar diameter		52			66			66			82			95			127			180		
	Chuck diameter		175/210			210			250/ 210			254/ 315			315			315/400			500		
	Chuck bore		56/52			66			66			82			95			122/118			180		
	Spindle power (kW) (max./S6 40%)		14/8			22/15			35/19			40/25			48 (S3 25%) /39 (S1)			51 (S3 25%) /39 (S1)			51 (S3 25%) /39 (S1)		
	Turning torque (Nm)		292 (max.) 153 (S6 40%)			366 (max.) 286 (S6 40%)			900 (max.) 363 (S6 40%)			1020 (max.) 720 (S6 40%)			1500 (max.) 1273 (S3 25%) 1035 (S1)			3600 (max.) 3000 (S3 25%) 2000 (S1)			3600 (max.) 3000 (S3 25%) 2000 (S1)		
TAILSTOCK	Morse cone	Ø150x150 rotary quill	CM5			CM5			CM5			CM5			CM5			CM5			CM5		
		Ø110x150 rotary quill	CM4			CM4			CM4			CM4			CM4			CM4			CM4		
		Ø90x120 live centre	CM5			CM5			CM5			CM5			CM5			CM5			CM5		
		Ø90x120 rotary quill	CM3			CM3			CM3			CM3			CM3			CM3			CM3		
	Tailstock travel (mm)	**Z800**	2200			2200			2200			2200			2200			2200			2200		
		Z1350	3200			3200			3200			3200			3200			3200			3200		
	Max. force at 45 bar (kgf)		900			900			900			1500(Ø150) 1500(Ø110) 900(Ø90)			1500(Ø150) 1500(Ø110) 900(Ø90)			3000(Ø150) 1500(Ø110) 900(Ø90)			2000(Ø150) 1500(Ø110) 900(Ø90)		

	TECHNICAL DATA		TD15			TD20			TD25			TD30			TD35			TD45			TD55		
			TD15	TD15M	TD15Y	TD20	TD20M	TD20Y	TD25	TD25M	TD25Y	TD30	TD30M	TD30Y	TD35	TD35M	TD35Y	TD45	TD45M	TD45Y	TD55	TD55M	TD55Y
TURRET	Number of positions		16 (12)			16 (12)			16 (12)			12 (16)			12 (16)			12 (16)			12 (16)		
	Section of tools (mm)		25x25 (Ø50)			25x25 (Ø50)			25x25 (Ø50)			25x25 (Ø50)			25x25 (Ø50)			25x25 (Ø50)			25x25 (Ø50)		
	Changing time		22,5° 0,2s-180° 0,5s			22,5° 0,2s-180° 0,5s			22,5° 0,2s-180° 0,5s			22,5° 0,2s-180° 0,5s			22,5° 0,2s-180° 0,5s			22,5° 0,2s-180°0,5s			22,5° 0,2s-180°0,5s		
	Interlocking force at 45 bar (kgf)		8000			8000			8000			8000			8000			8000			8000		
DRIVEN TOOLS	Number of driven tools		-	16(12)		-	16(12)		-	16(12)		-	12(16)		-	12(16)		-	12(16)		-	12(16)	
	Turning speed (rpm)		-	12000		-	12000		-	12000		-	12000		-	12000		-	12000		-	12000	
	Power (kW) (max./S1)		-	13,7/11		-	13,7/11		-	13,7/11		-	11,3/8,1		-	11,3/8,1		-	11,3/8,1		-	11,3/8,1	
	Maximum torque (Nm)		-	105		-	105		-	105		-	105		-	105		-	105		-	105	
MISCELANEOUS	Coolant tank (litres)	**Z2200**	415			415			415			415			415			415			415		
		Z3200	470			470			470			470			470			470			470		
	Hydraulic oil tank (litres)		10			10			10			10			10			10			10		
	Lubrication oil tank (litres)		4			4			4			4			4			4			4		
	Installed power (KVA)		30	30	30	30	30	30	45	45	45	45	45	45	65	65	65	65	65	65	65	65	65
	Functioning voltage		400V 50Hz ±5% (230V 50Hz ±5%)			400V 50Hz +5% (230V 50Hz +5%)			400V 50Hz +5% (230V 50Hz +5%)			400V 50Hz +5% (230V 50Hz +5%)			400V 50Hz +5% (230V 50Hz +5%)			400V 50Hz +5% (230V 50Hz +5%)			400V 50Hz +5% (230V 50Hz +5%)		
	Environmental temperature		35ºC			35ºC			35ºC			35ºC			35ºC			35ºC			35ºC		
	Total weight (kg)	**Z2200**	11200(*)			11400(*)			11400(*)			11600(*)			12100(*)			12600(*)			12600(*)		
		Z3200	13000(*)			13200(*)			13200(*)			13400(*)			13900(*)			14400(*)			14400(*)		
	Dimensions (mm)	**TD** **Z2200**	5375x2361x2236			5375x2361x2236			5375x2361x2236			5375x2361x2236			5375x2361x2236			5375x2361x2236			5375x2361x2236		
		TD **Z3200**	6375x2361x2236			6375x2361x2236			6375x2361x2236			6375x2361x2236			6375x2361x2236			6375x2361x2236			6375x2361x2236		
	Inner volume (m3)	**TD** **Z2200**	5,3			5,3			5,3			5,3			5,3			5,3			5,3		
		TD **Z3200**	7,1			7,1			7,1			7,1			7,1			7,1			7,1		

(*) Approximate weights.

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

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