TD SERIES

TD Z800 / TD Z1350 MODELS

CMZ

Turning the world

MODEL RANGE

TD Z800 MODEL

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

PRECISION
RELIABILITY

MODEL RANGE

TD Z1350 MODEL

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

STRONG
PRISMATIC
GUIDE MACHINE

TECHNICAL CHARACTERISTICS

TD Z800

1 TD Z800 MODEL

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

12,000 rpm.

Electric cabinet totally sealed (IP55 protection).

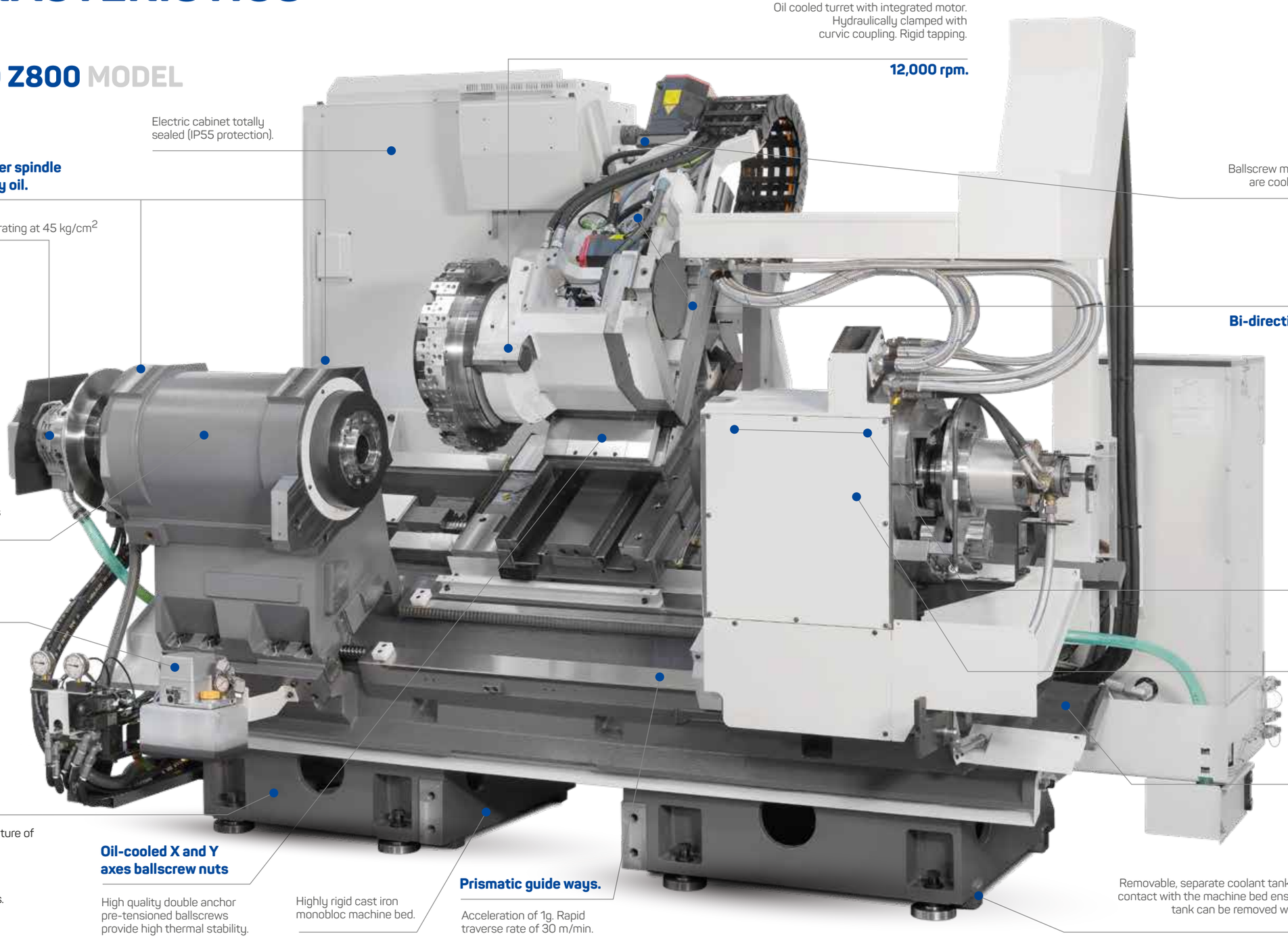
Front and rear roller spindle bearings cooled by oil.

Hydraulic cylinder operating at 45 kg/cm^2

Ballscrew mountings are cooled by oil.

Oil-cooled X and Y axes ballscrew nuts.

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



Integral spindle motors with oil cooling.

Smart automatic lubrication system.

Savings and reliability.

Front and rear roller spindle bearings cooled by oil.

Integrated spindle motors with oil cooling.

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

Thermal sensor in the bedplate.

It controls the temperature of the oil that cools:

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

Oil-cooled X and Y axes ballscrew nuts

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

Highly rigid cast iron monobloc machine bed.

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 Z1350 MODEL

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

12,000 rpm.

Electric cabinet totally sealed (IP55 protection).

Ballscrew mountings are cooled by oil.

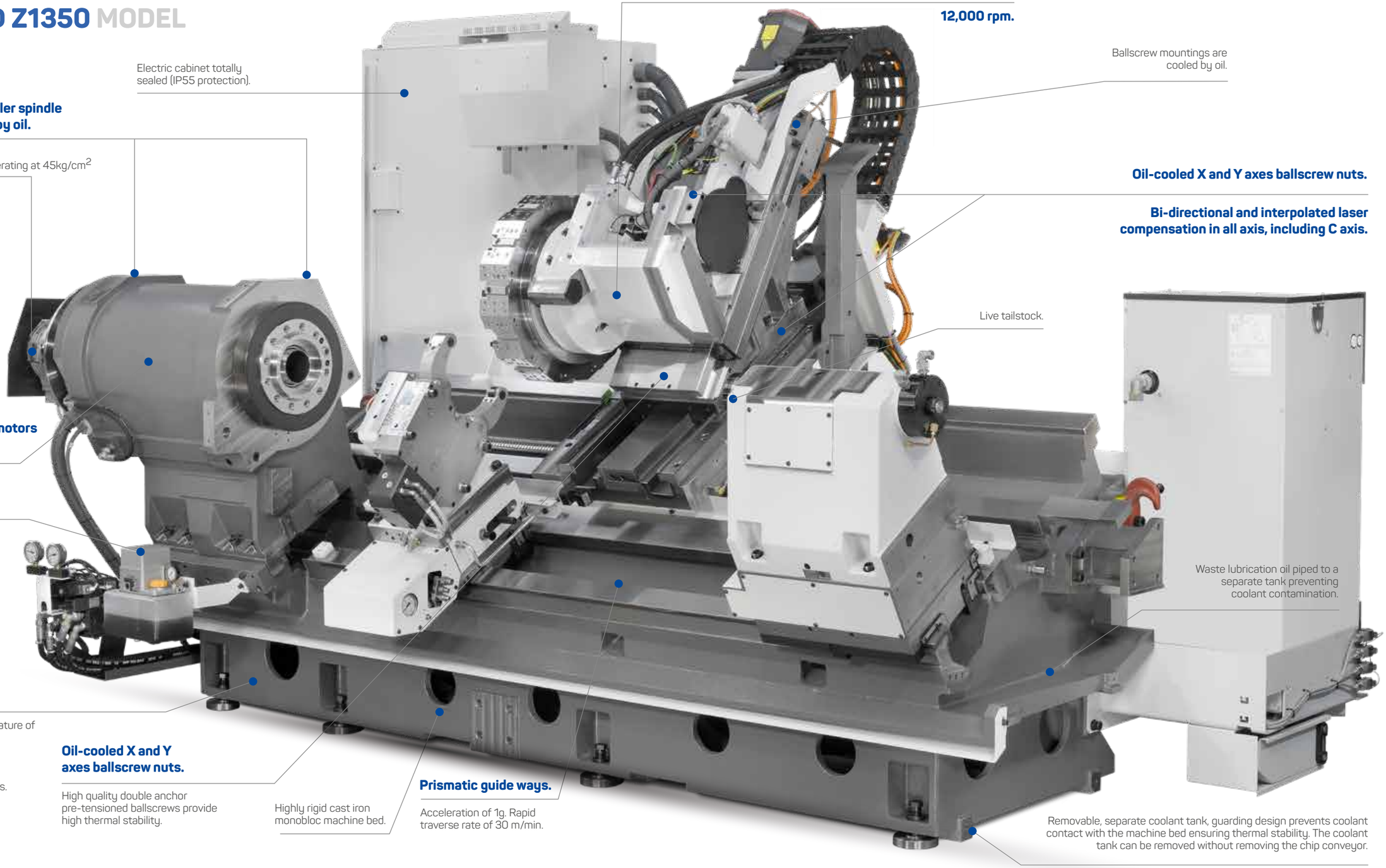
Front and rear roller spindle bearings cooled by oil.

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.



Integral spindle motors with oil cooling.

Smart automatic lubrication system.

Savings and reliability.

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

Thermal sensor in the bedplate.

It controls the temperature of the oil that cools:

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

Oil-cooled X and Y axes ballscrew nuts.

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

Highly rigid cast iron monobloc machine bed.

Prismatic guide ways.

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

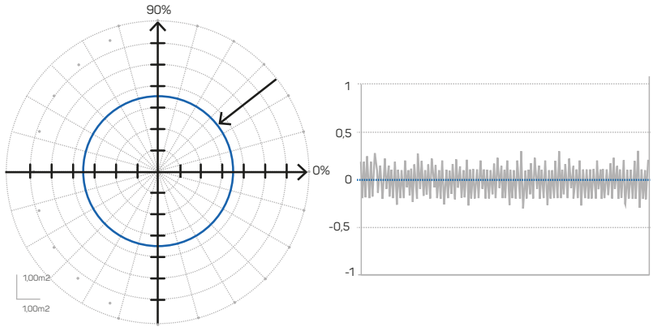
Removable, separate coolant tank, guarding design prevents coolant contact with the machine bed ensuring thermal stability. The coolant tank can be removed without removing the chip conveyor.

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: Rmax 0,6 µm
· FILTER: 150 p/r (50%)	· FILTER: 150 p/r (50%)
· MEASUREMENT RANGE: 0,10°	

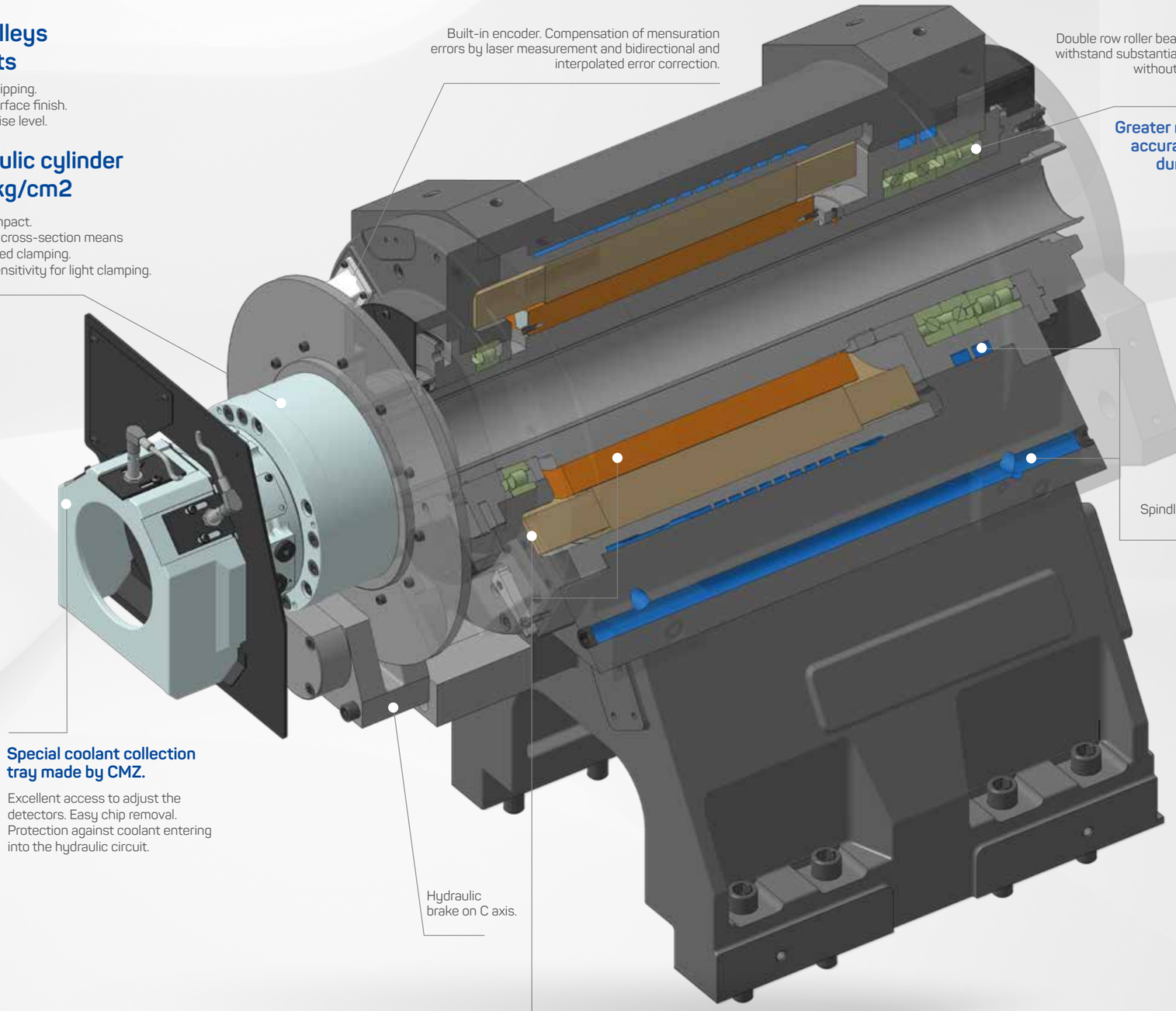
*The results obtained herein may not be attainable due to environmental and measuring differences.

No pulleys or belts

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

Hydraulic cylinder at 45kg/cm2

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



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.

Special coolant collection tray made by CMZ.

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

Hydraulic brake on C axis.

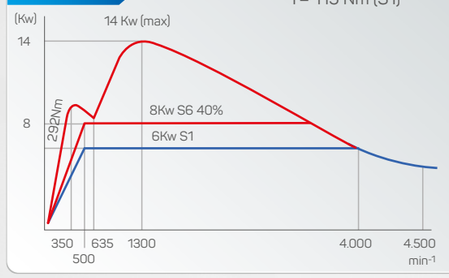
High performance integrated motor.

INTEGRATED SPINDLES

POWER AND TORQUE DIAGRAM OF SPINDLES

TD15

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

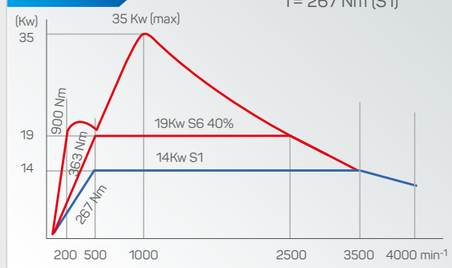


TD20-SUB SPINDLE

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

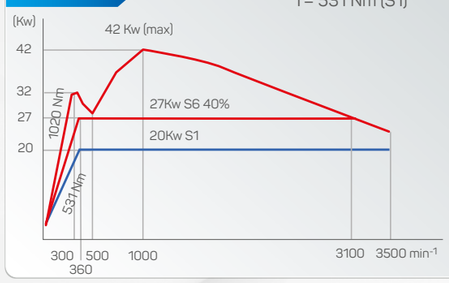
TD25

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



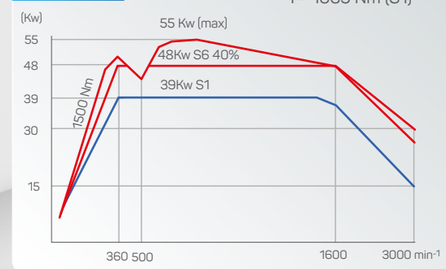
TD30

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



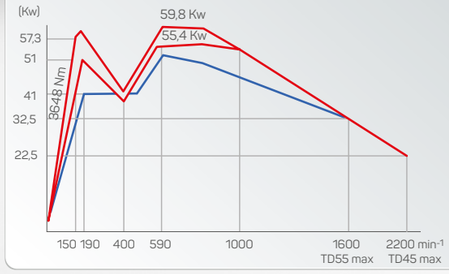
TD35

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



TD45- TD55

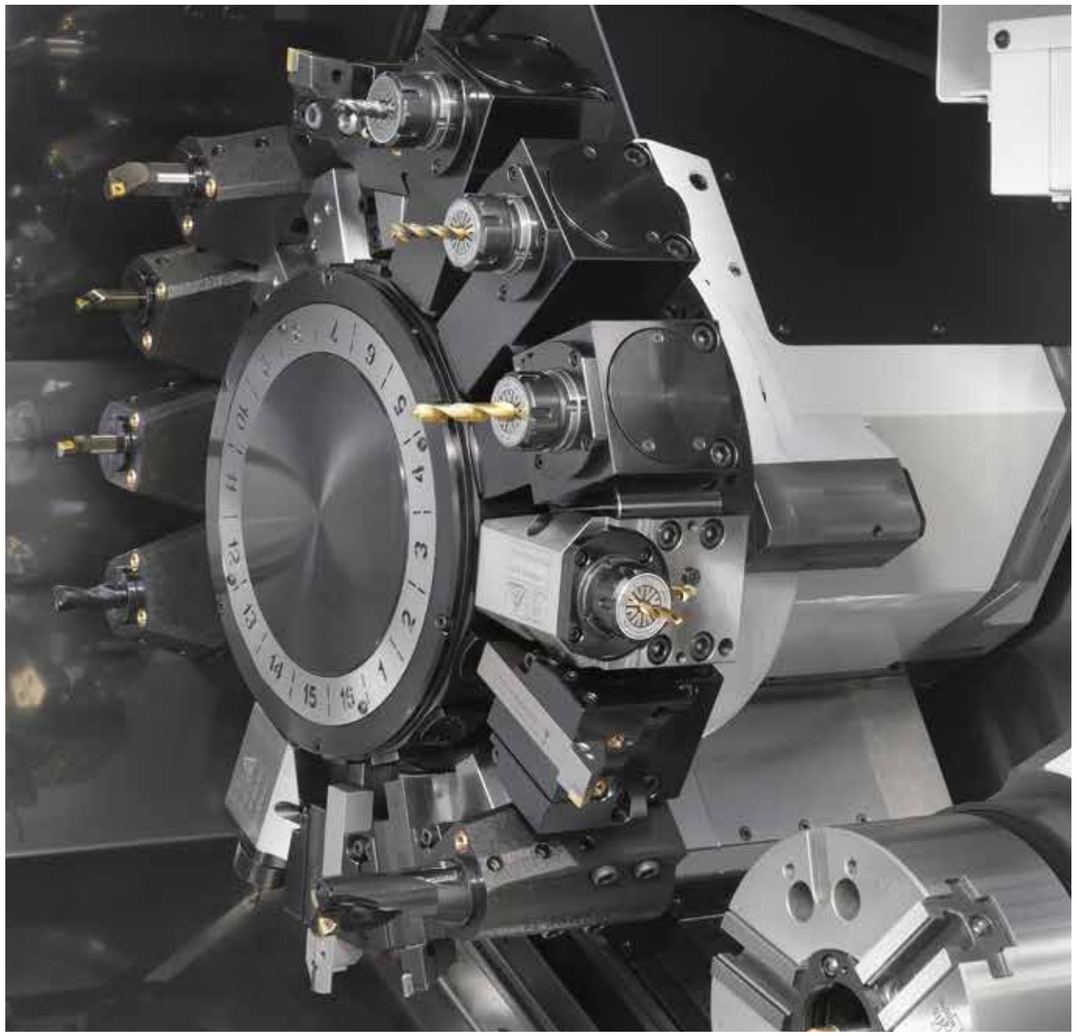
T= 3648 Nm (max)
T= 2706 Nm (S3 25%)
T= 2061 Nm (S1)



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

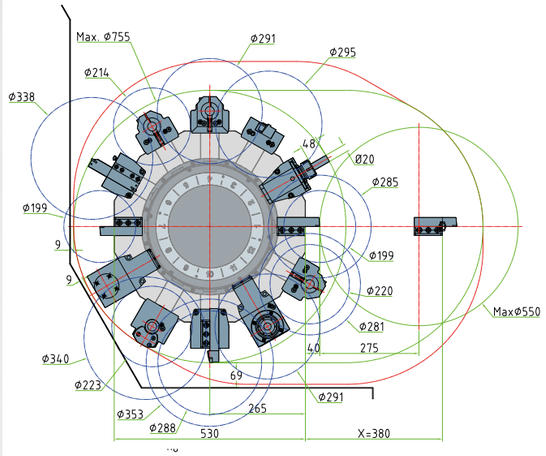
The clamping is done by means of a hydraulic system. The locking rings are 220 mm diameter and are a curvic coupling.

Transmission

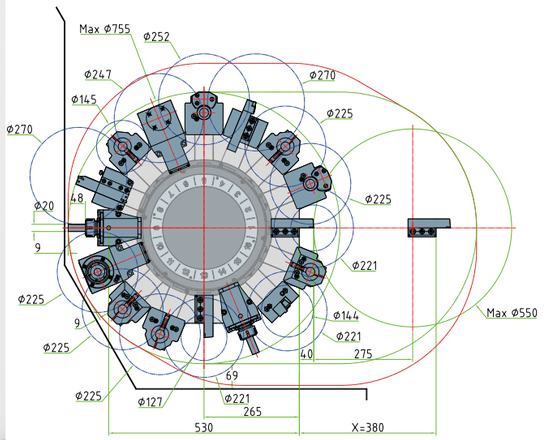
The transmission of driven tools is fitted with Gleason type conical spiral gears, hardened and ground giving high accuracy when rigid tapping.

TURRET WITH A BUILT-IN MOTOR

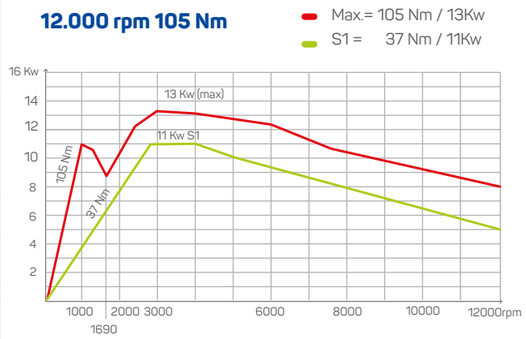
Interference diagram of driven tool motor. Turret with 12 positions.



Interference diagram of driven tool motor. Turret with 16 positions.

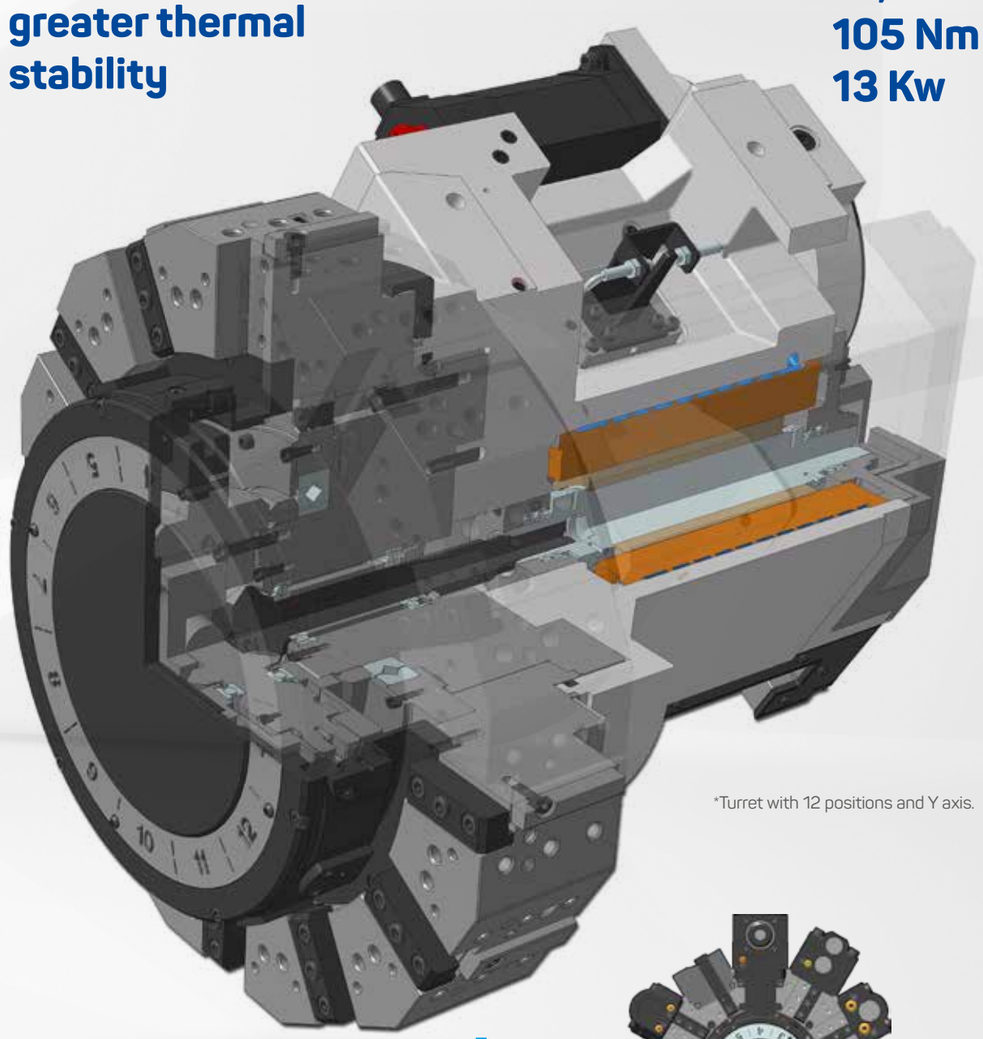


Power and torque diagram of driven tool motor.



Turret cooled with oil for greater thermal stability

12,000 rpm
105 Nm
13 Kw

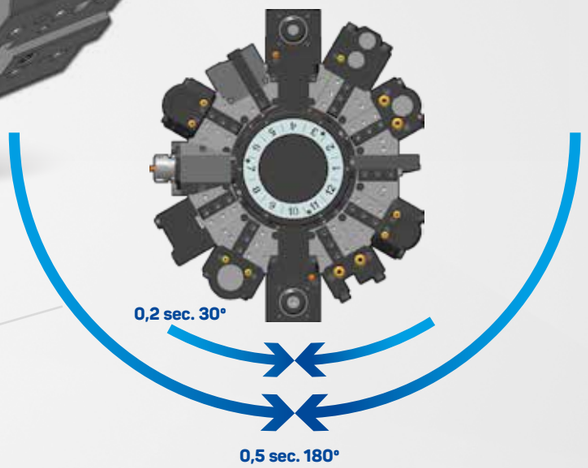


*Turret with 12 positions and Y axis.

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.

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

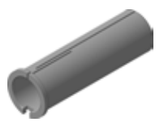
TD/10300/43
(Ø32mm)

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)



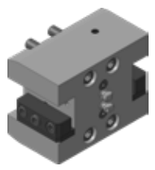
TD/10300/50
(Ø50mm)

Boring holders Ø80

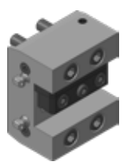
TD/10300/80
(Ø80mm)
*Not suitable for 16 station turret

Turning holders □25

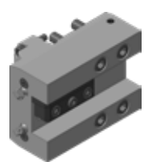
TD/10300/45



TD/10300/46



TD/10300/48



TD/10300/47

TD/10300/49

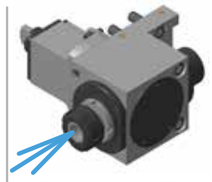
TD/10300/44

Turning holders □32

TD/10300/59

Live tool holders

TL20/10400/01B
Max: 6000 rpm



TL20/10400/05B
Max: 6000 rpm

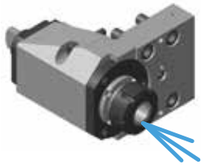
TL20/10400/06
Max: 12000 rpm

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

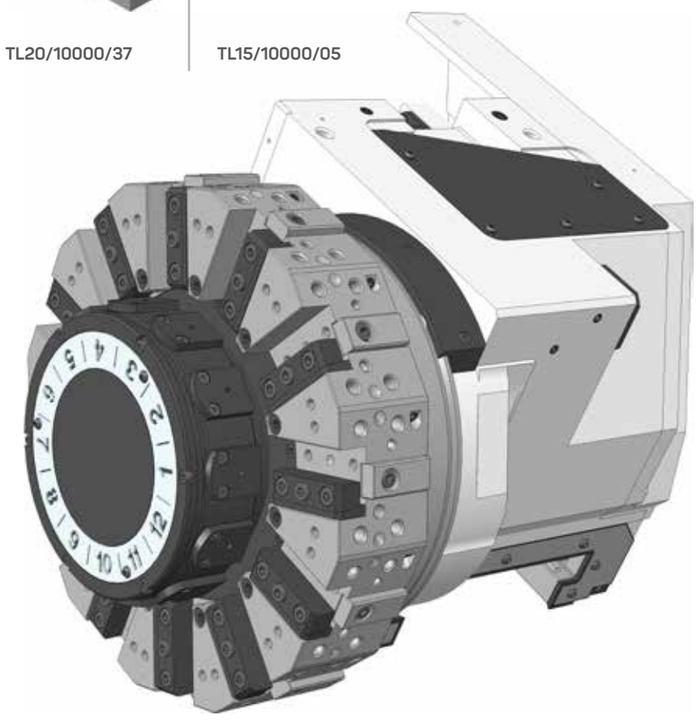
TL20/10000/03

TL20/10000/36
(Ø10mm)

TL20/10000/37

TL15/10000/05

TL20/10051
TL20/10054



ROBOT GL20 II

AUTOMATE SHORT AND LONG BATCHES

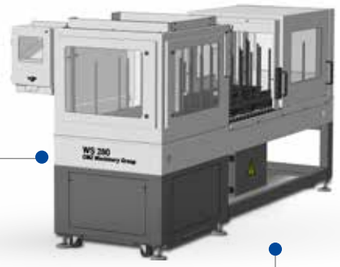
A range of gripper heads with 2 x 10 kg capacity to suit your needs (GL20 II)

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.

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.

Workstocker WS-280x400x14 with 14 pallets.



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.

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.

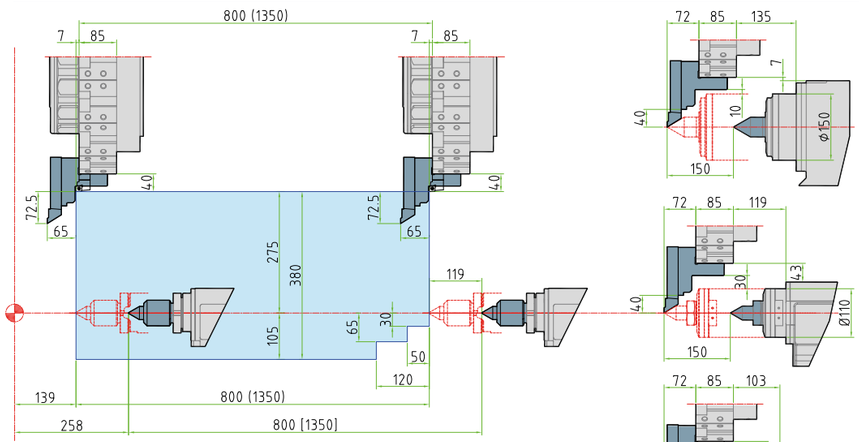
CNC controlled axes.
• Rack and pinion drive.
• Automatic lubrication controlled by the CNC.

Checking station.

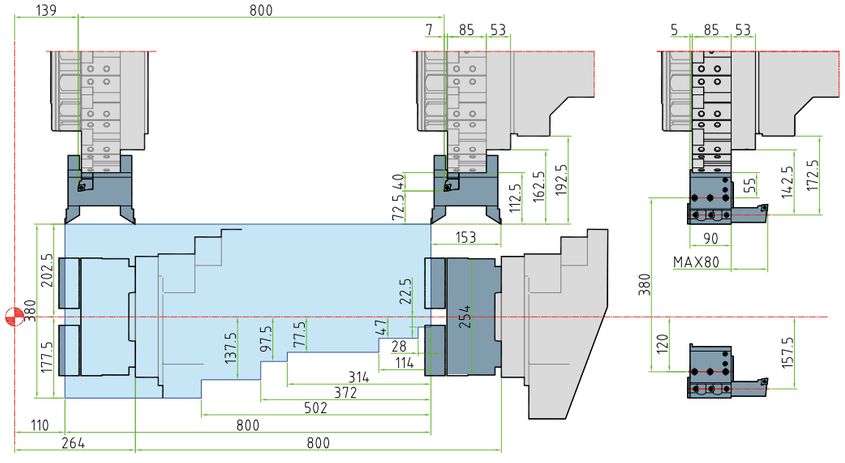
WS280.

TRAVELS

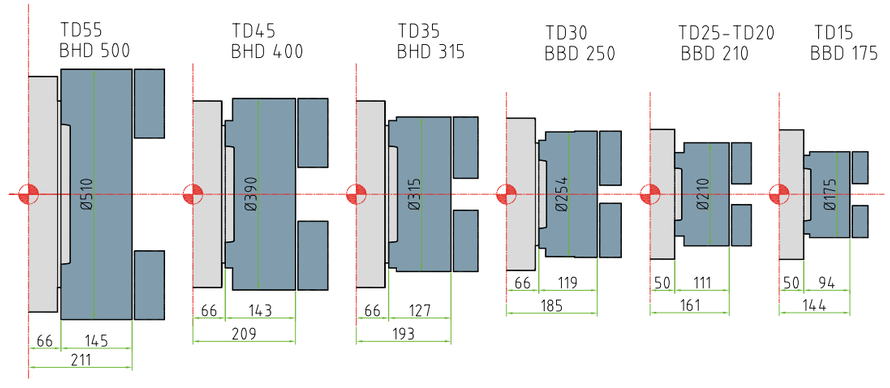
Travels with tailstock



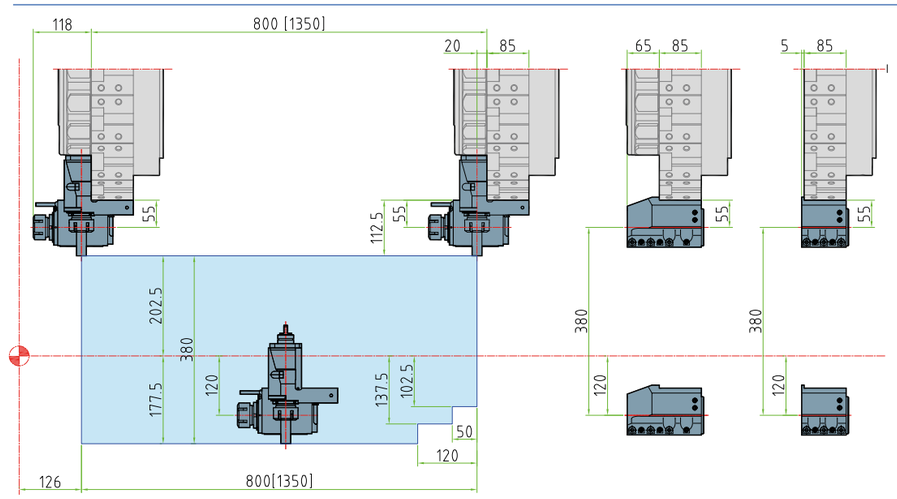
Travels with sub spindle



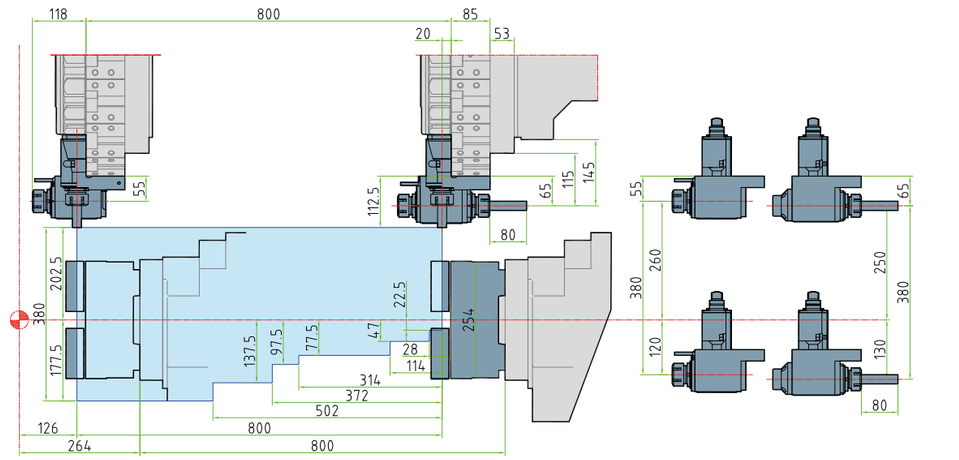
Standard chucks dimensions



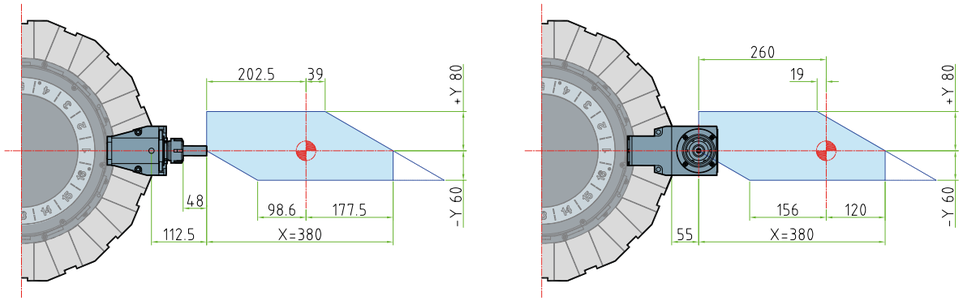
Travels with tailstock and live tooling



Travels with sub spindle and live tooling



Y axis travel

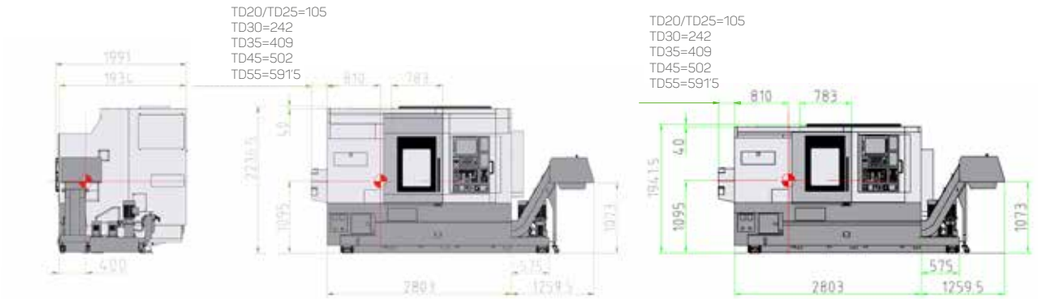


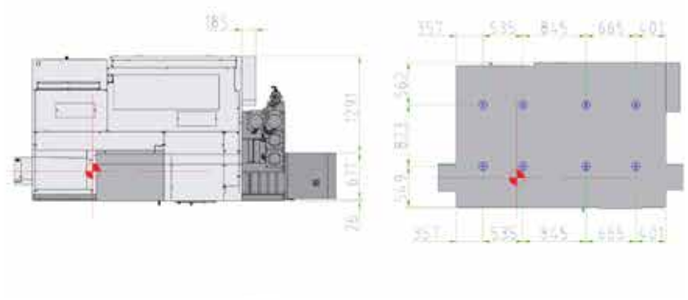
DIMENSIONS

TD Z800 MODEL

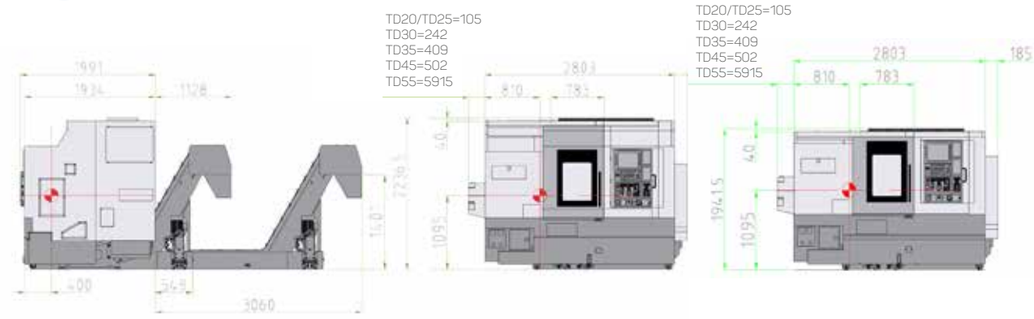
TD Z800 MODEL

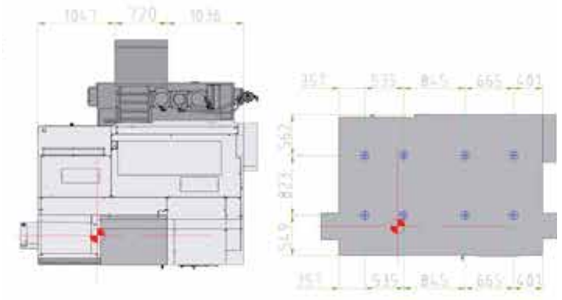
1 Lateral Extractor





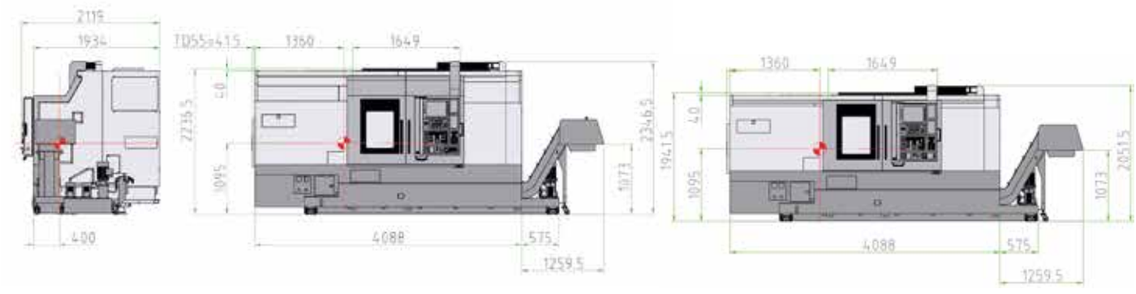
2 Back extractor

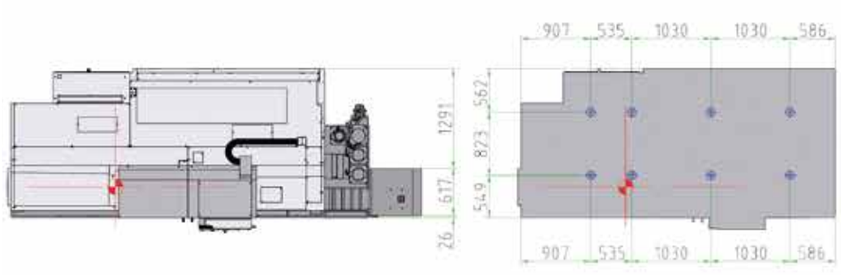




TD Z1350 MODEL

TD Z1350 MODEL





TECHNICAL SPECIFICATIONS

	TECHNICAL DATA		TD15					TD20					TD25					TD30					TD35					TD45					TD55				
			TD15	TD15M	TD15Y	TD15S	TD15MS	TD20	TD20M	TD20Y	TD20S	TD20MS	TD25	TD25M	TD25Y	TD25S	TD25MS	TD30	TD30M	TD30Y	TD30S	TD30MS	TD35	TD35M	TD35Y	TD35S	TD35MS	TD45	TD45M	TD45Y	TD45S	TD45MS	TD55	TD55M	TD55Y	TD55S	TD55MS
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 an tailstock center (mm)	**Z800**	915	-				898	-				898	-				874	-				850	-				850	-				848	-			
		Z1350	1465	-				1448	-				1448	-				1424	-				1400	-				1400	-				1398	-			
	Distance between center of spindles (mm)		-	826				-	792				-	792				-	768				-	760				-	744				-	742			
	X-axis travel (mm)		380					380					380					380					380					380					380				
	Z-axis travel (mm)	**Z800**	800					800					800					800					800					800					800				
		Z1350	1350					1350					1350					1350					1350					1350					1350				
	Y-axis travel (mm)		-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60	-	-	+80 -60
	B-axis travel (mm)	**Z800**	800					800					800					800					800					800					800				
		Z1350	1350					1350					1350					1350					1350					1350					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	30				11	30				11	30				11	30				11	30				11	30				11	30			
	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**	800	-				800	-				800	-				800	-				800	-				800	-				800	-			
		Z1350	1350	-				1350	-				1350	-				1350	-				1350	-				1350	-				1350	-			
	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	TD15S	TD15MS	TD20	TD20M	TD20Y	TD20S	TD20MS	TD25	TD25M	TD25Y	TD25S	TD25MS	TD30	TD30M	TD30Y	TD30S	TD30MS	TD35	TD35M	TD35Y	TD35S	TD35MS	TD45	TD45M	TD45Y	TD45S	TD45MS	TD55	TD55M	TD55Y	TD55S	TD55MS
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)	-	16(12)		-	16(12)	-	16(12)		-	12(16)	-	12(16)		-	12(16)	-	12(16)		-	12(16)	-	12(16)		-	12(16)	-	12(16)	
	Turning speed (rpm)		-	12000	-	12000		-	12000	-	12000		-	12000	-	12000		-	12000	-	12000		-	12000	-	12000		-	12000	-	12000		-	12000	-	12000	
	Power (kW) (max./S1)		-	13,7/11	-	13,7/11		-	13,7/11	-	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		-	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	-	105		-	105	-	105		-	105	-	105		-	105	-	105	
SUBSPINDLE	Maximum speed (rpm)		-	4000				-	4000				-	4000				-	4000				-	4000				-	4000				-	4000			
	Bearing outside diameter (mm)		-	170				-	170				-	170				-	170				-	170				-	170				-	170			
	Bearing inside diameter (mm)		-	110				-	110				-	110				-	110				-	110				-	110				-	110			
	Spindle nose		-	ASA 6"A2				-	ASA 6"A2				-	ASA 6"A2				-	ASA 6"A2				-	ASA 6"A2				-	ASA 6"A2				-	ASA 6"A2			
	Spindle inside diameter (mm)		-	73				-	73				-	73				-	73				-	73				-	73				-	73			
	Bar diameter (mm)		-	66				-	66				-	66				-	66				-	66				-	66				-	66			
	Chuck diameter (mm)		-	210				-	210				-	210				-	210				-	210				-	210				-	210			
	Chuck bore (mm)		-	66				-	66				-	66				-	66				-	66				-	66				-	66			
	Power (kW) (max./ S6 40%)		-	22/15				-	22/15				-	22/15				-	22/15				-	22/15				-	22/15				-	22/15			
	Turning torque (Nm) (max./S6 40%)		-	366/286				-	366/286				-	366/286				-	366/286				-	366/286				-	366/286				-	366/286			
MISCELANEOUS	Coolant tank (litres)	**Z800 lateral**	310					310					310					310					310					310					310				
		Z800 rear	235					235					235					235					235					235					235				
		Z1350	355					355					355					355					355					355					355				
	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	45	45	45	30	30	30	45	45	45	45	45	45	45	45	45	45	45	65	45	45	45	45	45	65	65	65	65	100	100	100	65	65	65	65	100	100	100	65	65	65	65	100	100	100
	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)	**Z800**	8300(*)	8700(*)				8500(*)	8900(*)				8500(*)	8900(*)				8700(*)	9100(*)				9200(*)	9600(*)				9700(*)	10100(*)				9700(*)	10100(*)			
		Z1350	9500(*)	-				9700(*)	-				9700(*)	-				9900(*)	-				10.400(*)	-				10900(*)	-				10900(*)	-			
	Dimensions (mm)	**TD** **Z800**	2803x1989x1941					2803x1989x1941					2803x1989x1941					2803x1989x1941					2803x1989x1941					2803x1989x1941					2803x1989x1941				
		TD Y **Z800**	2803x1989x2236					2803X1989X2236					2803X1989X2236					2803X1989X2236					2803X1989X2236					2803X1989X2236					2803X1989X2236				
		TD **Z1350**	4088X2129X2051					4088X2129X2051					4088X2129X2051					4088X2129X2051					4088X2129X2051					4088X2129X2051					4088X2129X2051				
		TD Y **Z1350**	4088X2129X2346					4088X2129X2346					4088X2129X2346					4088X2129X2346					4088X2129X2346					4088X2129X2346					4088X2129X2346				
	Inner volume (m3)	**TD** **Z800**	1,8					1,8					1,8					1,8					1,8					1,8					1,8				
		TD Y **Z800**	2					2					2					2					2					2					2				
		TD **Z1350**	2,5					2,5					2,5					2,5					2,5					2,5					2,5				
		TD Y **Z1350**	2,8					2,8					2,8					2,8					2,8					2,8					2,8				

(*) Approximate weights.

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

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