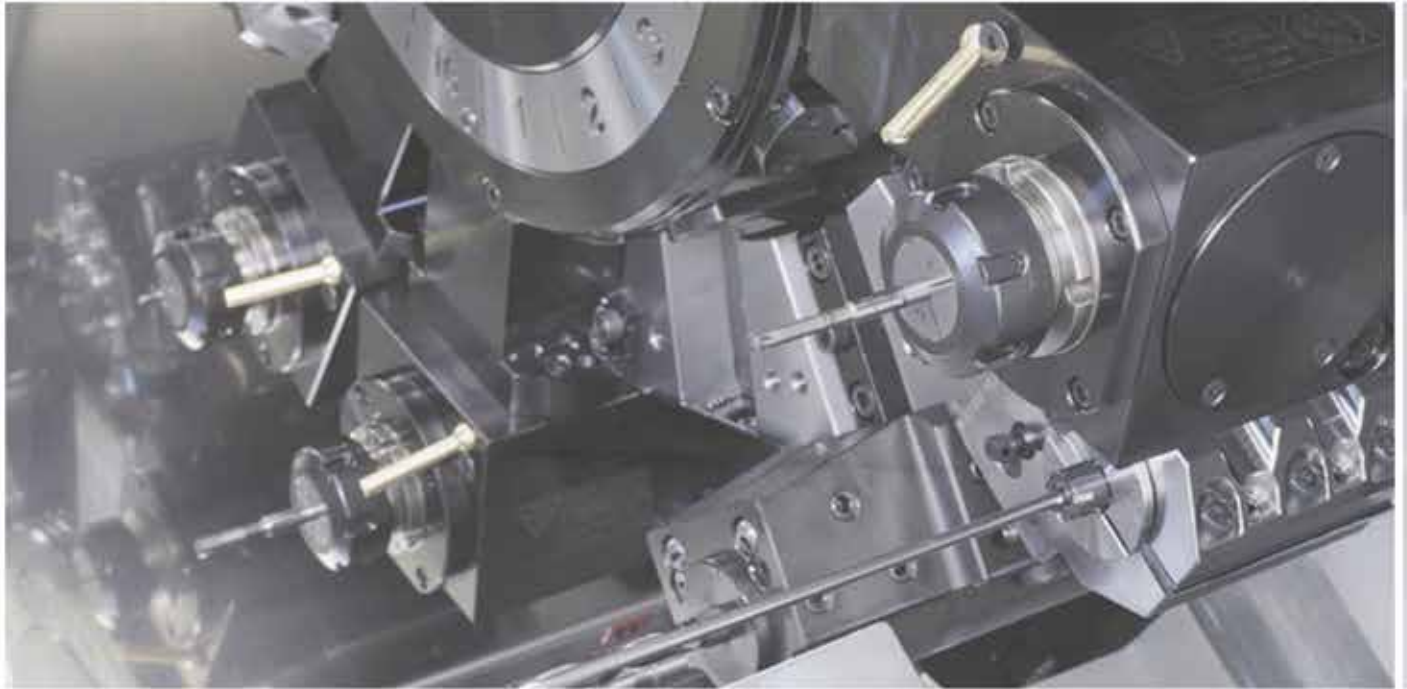


HIGH QUALITY TURNING

TORO

TD SERIES: Z800 Z1350 Models



**Runs Faster,
Sleeps Less!**



E EUROTECH
Winning with Technology that Runs Faster, Sleeps Less!

MODEL RANGE

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

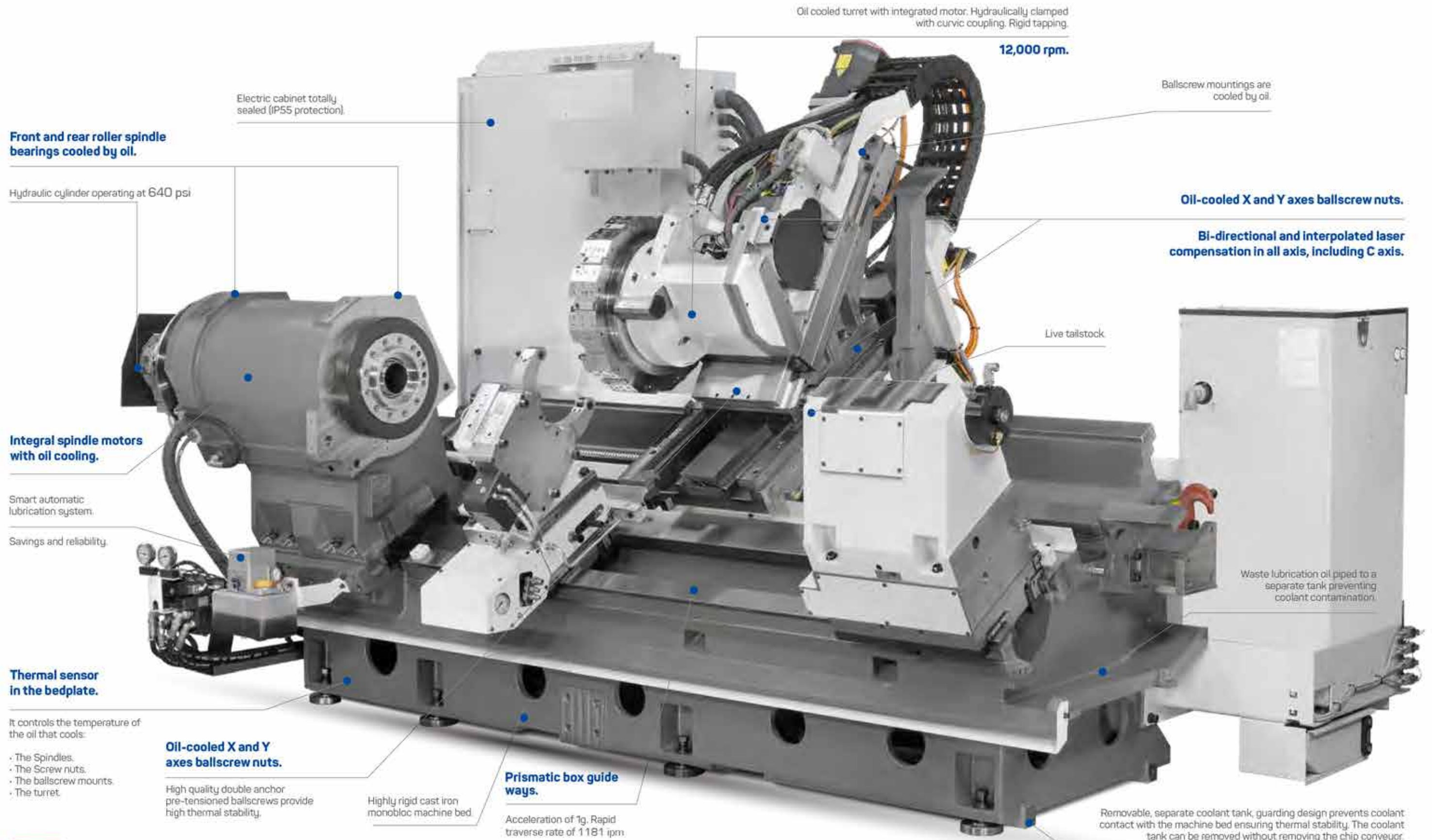
PRECISION
RELIABILITY

TORO TD SERIES



TECHNICAL CHARACTERISTICS

TORO TD SERIES



TORO TD SERIES

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.

Special coolant collection tray made by Eurotech.

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

No pulleys or belts

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

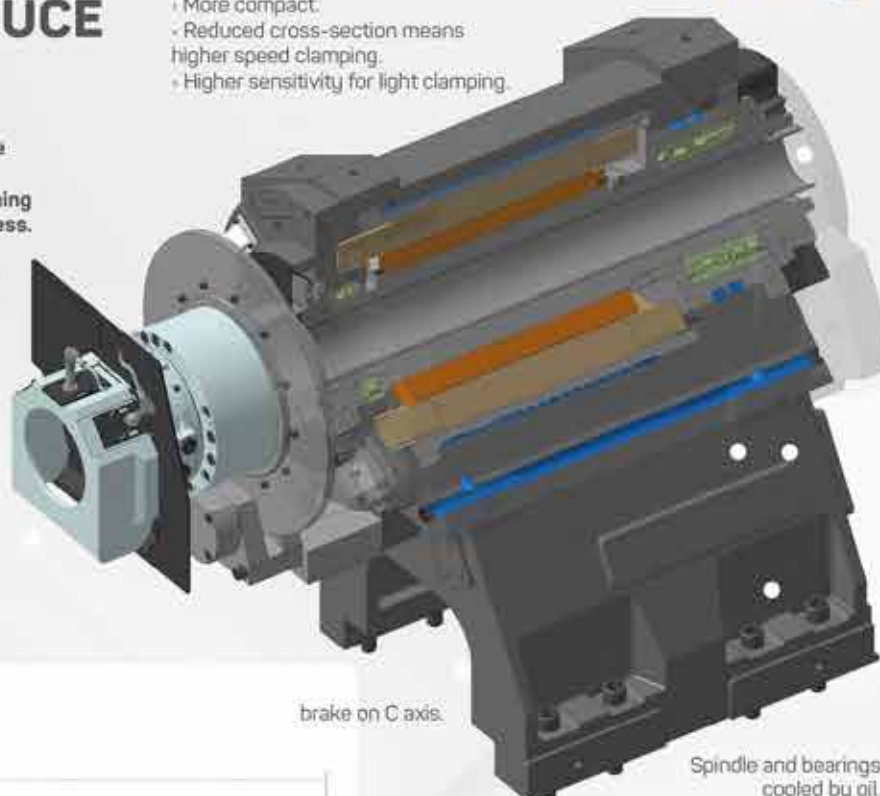
Hydraulic cylinder at 640 psi

- 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.

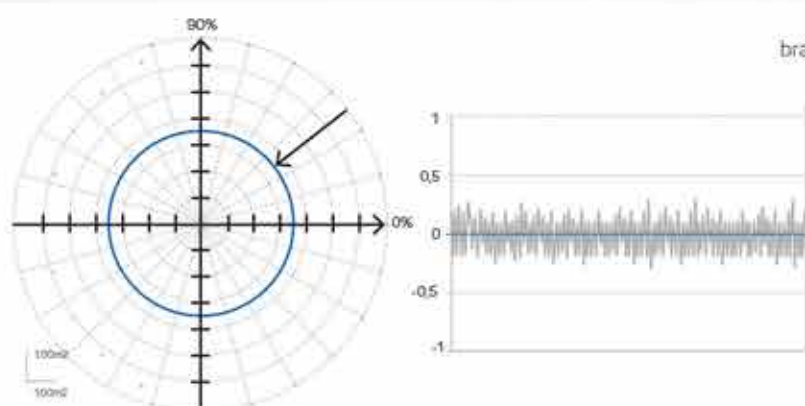


Hydraulic

High performance integrated motor.

brake on C axis.

Spindle and bearings cooled by oil.



ROUNDNESS

- MACHINE: TD 15
- MATERIAL: ALUMINIUM
- Ø 2.36 in
- ROUNDNESS ACHIEVED: 0.3 µm
- FILTER: 150 p/r (50%)
- MEASUREMENT RANGE: 0.10°

SURFACE FINISH

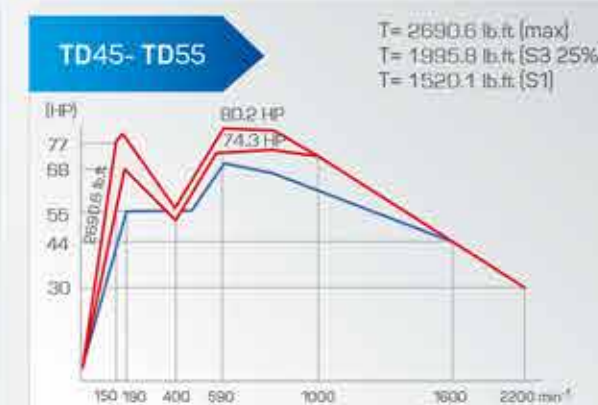
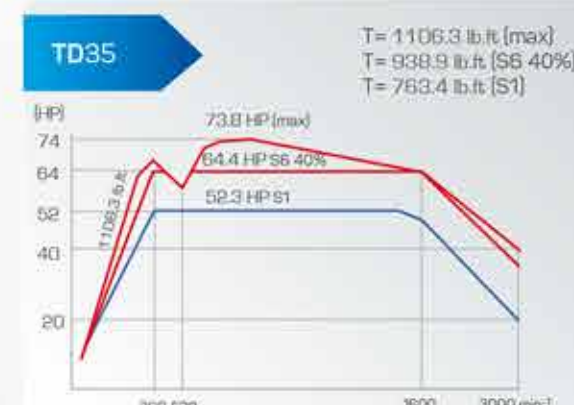
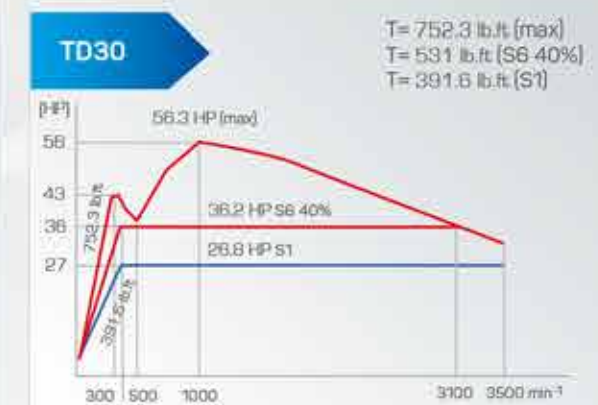
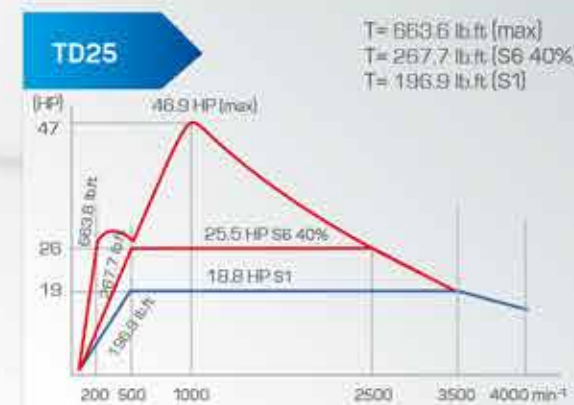
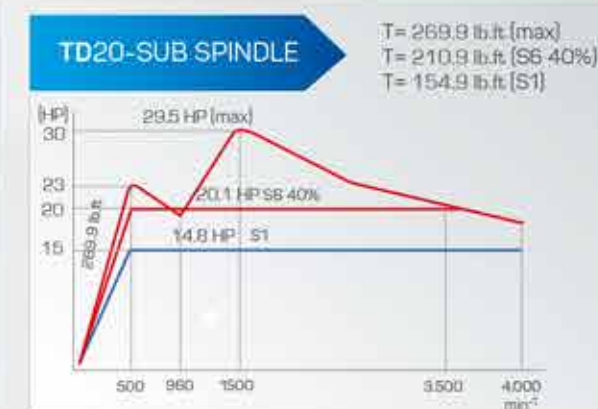
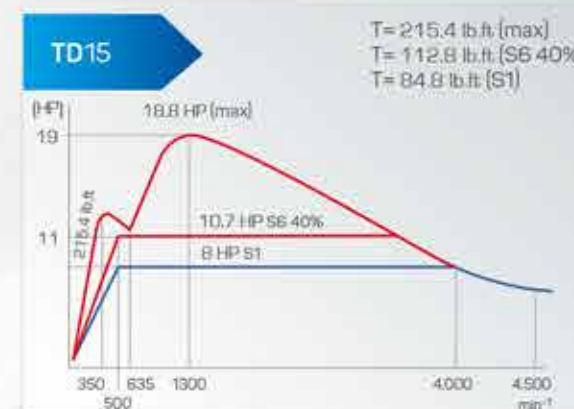
- MACHINE: TD 15
- MATERIAL: ALUMINIUM
- Ø 2.36 in
- ROUGHNESS ACHIEVED: Rmax 0.6 µm
- FILTER: 150 p/r (50%)

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

TORO TD SERIES

INTEGRATED SPINDLES

POWER AND TORQUE DIAGRAM OF SPINDLES



CNC FANUC SERIES 30

WITH IHMI INTERFACE
AND NEW HARDWARE STEP 2



Visualize your CNC in your PC

1

Use VNC Viewer software to see the CNC screen of your lathe in any computer sharing the screen with your operator and being able to get support online in a very simple and efficient way.



Visualize your PC in the lathe

2

The operator can access to a desktop screen through the CNC. With this functionality software like ERP, Excel, email, Autocad, CAD/CAM... can be used from the lathe.

15" Touch screen

Adjustable height 100 mm

2 GB Part program memory

Data Transfer

- Ethernet
- USB
- PCMCIA

Ready for Industry 4.0



Conversational programming

The CNC is equipped with the New Manual Guide I conversational programming system. It allows programming and simulating the programs in 3D.



Maintenance manager

The Maintenance manager will guide you to perform the recommended maintenance tasks. The dates when the maintenance was performed will be saved automatically when "Maint. complete" is pushed.



Tool life (option)

The CNC allows to define groups of sister tooling. When a tool finishes its life due to the number of times being called or its cutting time, it is automatically substituted by its sister tool.



Tool catalogue

The control has a tool catalogue from which we can select the tools we want to use in our machining process. This permits to directly get the geometry of the tool for simulation purposes.



Variable speed function (Anti vibration)

With a simple setup to define the period and amplitude of a sinusoidal curve to modify the spindle speed, very good results are obtained in reducing chatter vibration. This function is available for turning with or without tailstock.



Manuals

Check any machine manual instantly in the CNC. The files are indexed so that you can access the information you require directly from the table of contents of the manual.



Easy diagnosis

Easy detection of machine faults through the graphical interface that shows the signals that control the different devices in the machine. Status of the detectors, signals to activate the hydraulic maneuvers, motor temperature and pressure measurements are easily monitored live.



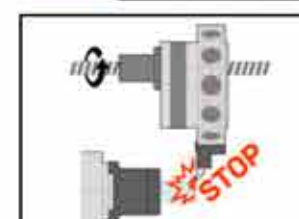
Tool monitoring (option)

This function memorises the power consumption of each tool. Once the values are obtained it monitors the power consumption of each tool to detect tool wear or breakage. This reduces the manual handling in an unmanned process.



Execution of program with the MPG handwheel

This function allows checking the programs executing them back and forth with the MPG handwheel.

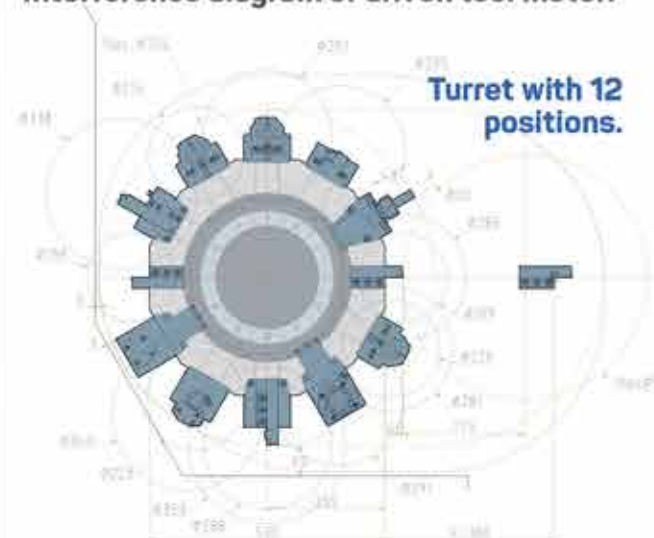


Electronic detection of collisions (airbag).

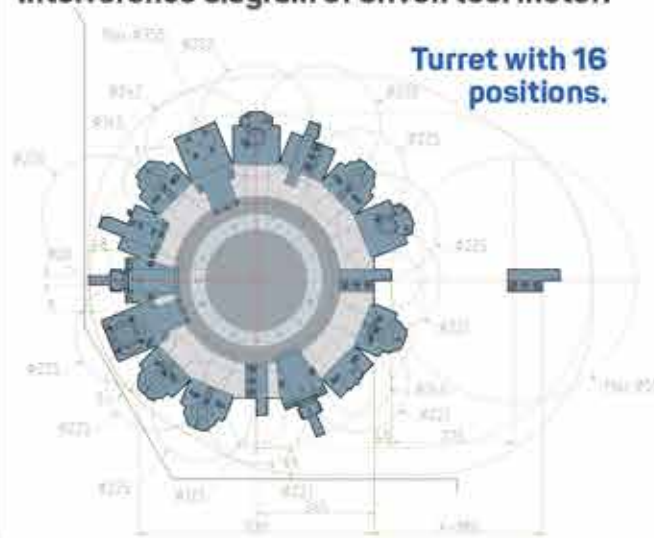
The CNC detects impacts through monitoring of the motors' forces and following errors. With an overload the axes and spindles are stopped to prevent further damages.

TORO TD SERIES TURRET WITH A BUILT-IN MOTOR

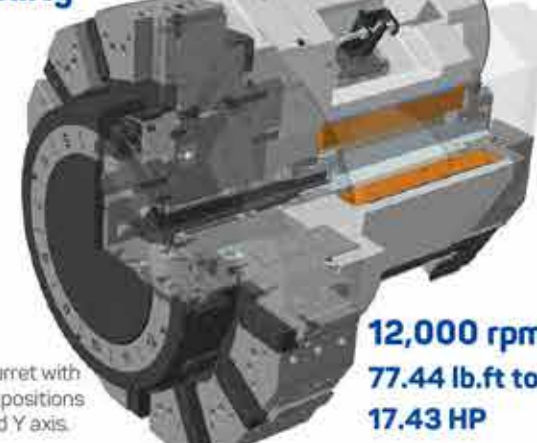
Interference diagram of driven tool motor.



Interference diagram of driven tool motor.



Turret cooled with oil for greater thermal stability



12,000 rpm
77.44 lb.ft torque
17.43 HP

*Turret with 12 positions and Y axis.

AND HYDRAULIC CLAMPING



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.

Transmission

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

Clamping

The clamping is done by means of a hydraulic system. The locking rings are 8.66 in diameter and are a curvic coupling.

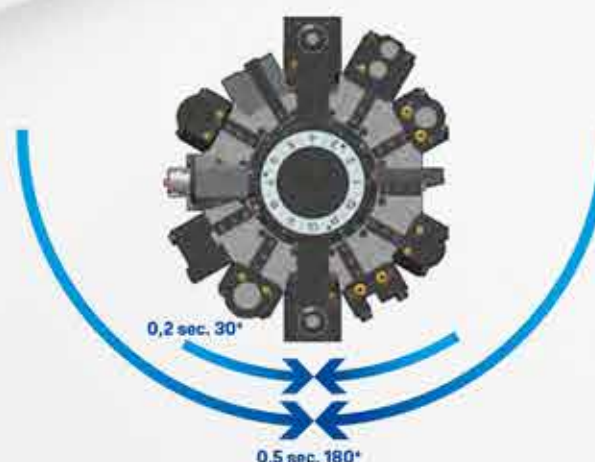
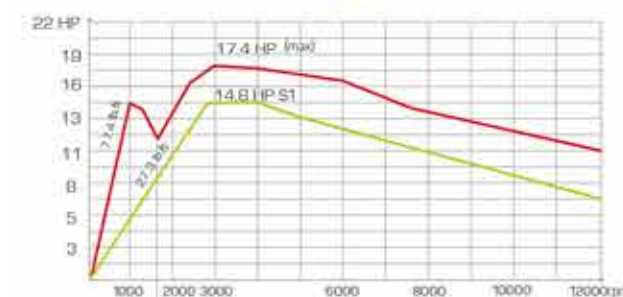
Unclamping

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

Power and torque diagram of driven tool motor.

12,000 rpm 77.44 lb.ft

Max = 77.44 lb.ft / 17.43 HP
S1 = 27.3 lb.ft / 14.8 HP



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°

TORO TD SERIES TOOL HOLDERS

Boring & drilling holders Ø1.57 in



Double boring holders Ø1.26 in



Boring holders Ø2.36 in



Boring holders Ø80



Turning holders 32



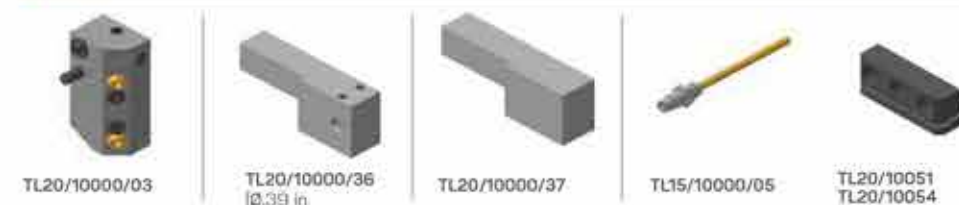
Turning holders 25



Live tool holders

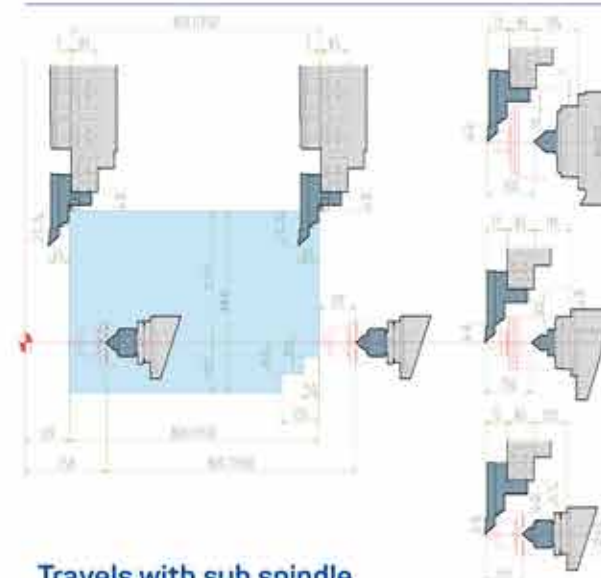


Others

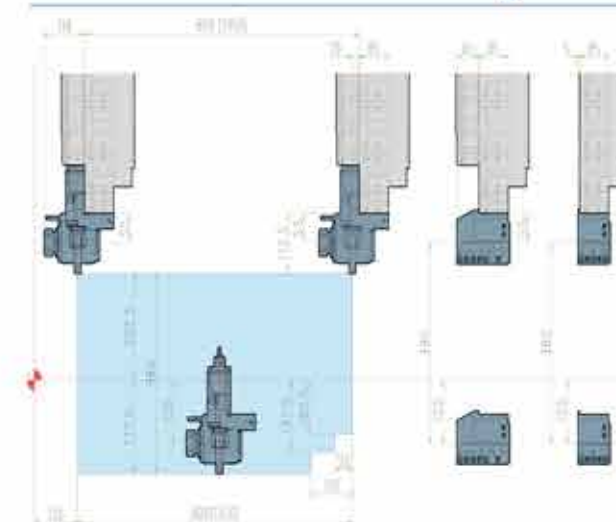


TORO TD SERIES TRAVELS

Travels with tailstock



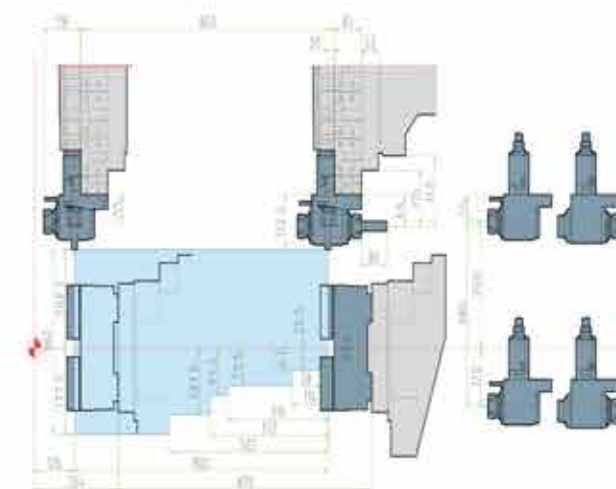
Travels with tailstock and live tooling



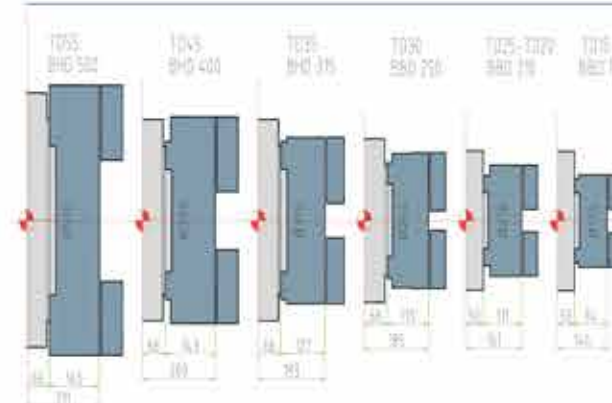
Travels with sub spindle



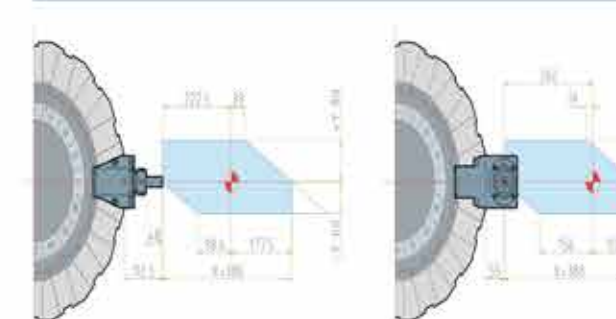
Travels with sub spindle and live tooling



Standard chucks dimensions



Y axis travel



ROBOT GL20 II

AUTOMATE SHORT AND LONG BATCHES

A range of gripper heads with 2 x 22 lb 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.



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

This workstocker can accommodate components to a maximum diameter of 11 in and maximum stacked height of 19.69 in (maximum travel of 15.75 in). The 14 rotary pallets each have a carrying capacity of 165.3 lb maximum.



WS700

Checking station.

Workstocker WS-700 for shafts:

Workstocker to stock shafts from 3.15 in to 27.6 in long and from 0.39 in to 3.15 in diameter. (Contact Eurotech for other sizes).



Z axis speed
(Longitudinal): 7087 ipm

Y axis speed
(Transverse): 4724 ipm

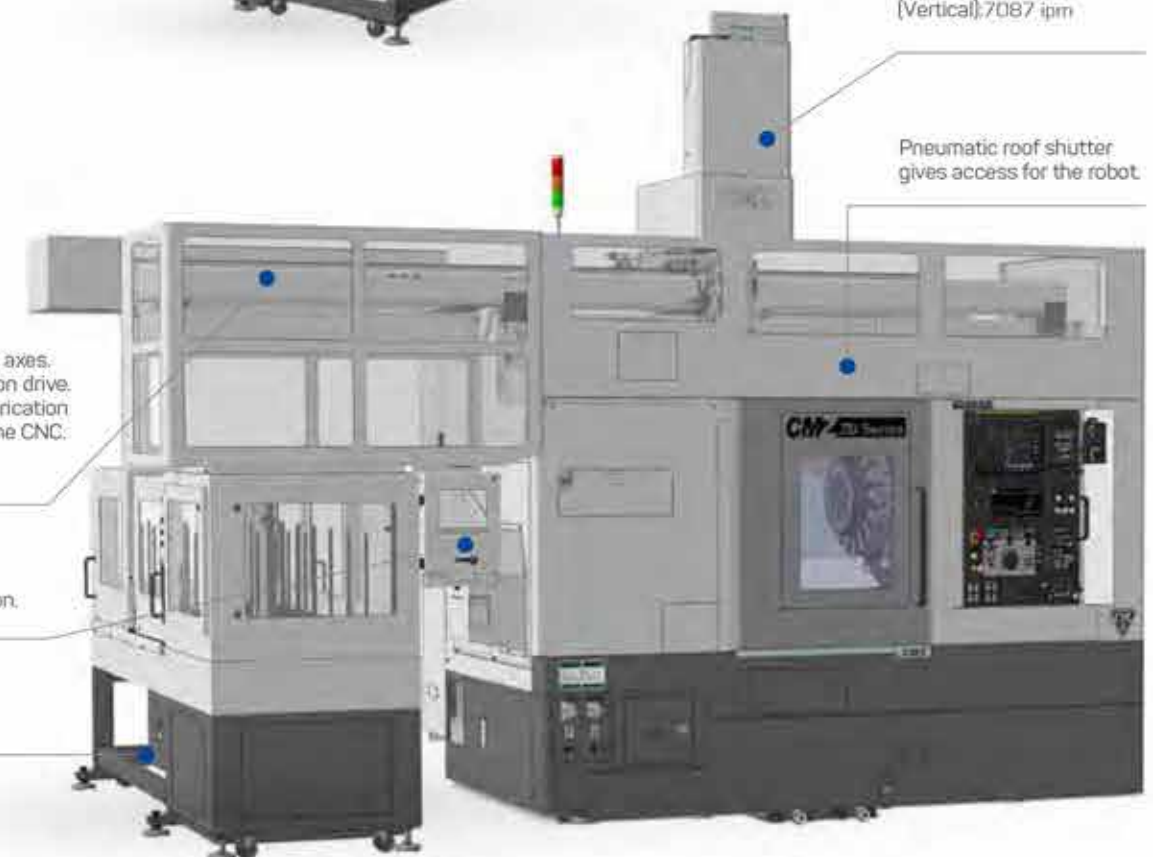
X axis speed
(Vertical): 7087 ipm

Pneumatic roof shutter gives access for the robot.

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

Checking station.

WS280.



TECHNICAL SPECIFICATIONS

TECHNICAL DATA			TD15		TD20		TD25		TD30		TD35		TD45		TD55																
			TD1E	TD1M	TD1Y	TD1S	TD1S45	TD1S45	TD20E	TD20M	TD20Y	TD20S	TD20S45	TD20S45	TD30E	TD30M	TD30Y	TD30S	TD30S45	TD30S45	TD45E	TD45M	TD45Y	TD45S	TD45S45	TD45S45	TD55E	TD55M	TD55Y	TD55S	TD55S45
GENERAL DATA	Maximum diameter of swinging over bed (inch)		37.4		37.4		37.4		37.4		37.4		37.4		37.4																
	Maximum diameter of swinging over slides (inch)		28.1		28.1		28.1		28.1		28.1		28.1		28.1																
	Maximum turning diameter (inch)		21.7		21.7		21.7		21.7		21.7		21.7		21.7																
	Distance between spindle and tailstock center (inch)	Z800	36.0	-	35.4	-	35.4	-	34.4	-	33.5	-	33.5	-	33.4	-															
		Z1350	57.68	-	57.01	-	57.01	-	56.06	-	55.12	-	55.12	-	55.04	-															
	Distance between center of spindles (inch)		-		32.5	-	31.2	-	31.2	-	30.2	-	29.9	-	29.3	-	29.2														
	X-axis travel (inch)		15.0		15.0		15.0		15.0		15.0		15.0		15.0																
	Z-axis travel (inch)	Z800	31.5	-	31.5	-	31.5	-	31.5	-	31.5	-	31.5	-	31.5	-															
		Z1350	53.15	-	53.15	-	53.15	-	53.15	-	53.15	-	53.15	-	53.15	-															
	Y-axis travel (inch)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	B-axis travel (inch)	Z800	31.5	-	31.5	-	31.5	-	31.5	-	31.5	-	31.5	-	31.5	-															
		Z1350	53.15	-	53.15	-	53.15	-	53.15	-	53.15	-	53.15	-	53.15	-															
	Fast feedrate X (ipm)		1181		1181		1181		1181		1181		1181		1181																
	Fast feedrate Z (ipm)		1181		1181		1181		1181		1181		1181		1181																
	Fast feedrate Y (ipm)		591		591		591		591		591		591		591																
Fast feedrate B (ipm)		433 1181		433 1181		433 1181		433 1181		433 1181		433 1181		433 1181																	
Axis acceleration		1g=9.8 m/s ²		1g=9.8 m/s ²		1g=9.8 m/s ²		1g=9.8 m/s ²		1g=9.8 m/s ²		1g=9.8 m/s ²		1g=9.8 m/s ²																	
SPINDLE	Maximum speed (rpm)		4500		4000		4000		3500		3000		2200		1600																
	Bearing outside diameter (inch)		5.9		6.69		6.69		7.87		9.45		12.2		12.6																
	Bearing inside diameter (inch)		3.94		4.33		4.33		5.12		6.3		7.87		9.45																
	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 (inch)		2.4		2.87		2.87		3.58		4.17		5.35		7.56																
	Maximum bar diameter (inch)		2.05		2.6		2.6		3.23		3.74		5.0		7.09																
	Chuck diameter (inch)		6.89/8.27		8.27		9.84/ 9.27		10/ 12.4		12.4		12.4/15.75		16.69																
	Chuck bore (inch)		2.2/2.05		2.6		2.6		3.23		3.74		4.8/4.65		7.09																
	Spindle power (HP (max./98.40%))		18.8/10.7		29.5/20.1		46.9/25.5		53.6/33.5		64.4 (S3 25%)/52.3 (S1)		68.4 (S3 25%)/52.3 (S1)		68.4 (S3 25%)/52.3 (S1)																
Turning torque (lb.ft.)		215.4(max.) 112.8 (S6 40%)		269.9 (max.) 210.9 (S6 40%)		563.8 (max.) 267.7 (S6 40%)		1752.3 (max.) 531 (S6 40%)		1106.3 (max.) 938.9 (S3 25%) 763.4 (S1)		2655.2 (max.) 2212.7 (S3 25%) 1475.1 (S1)		2655.2 (max.) 2212.7 (S3 25%) 1475.1 (S1)																	
TAILSTOCK	Morise 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 (inch)	Z800	31.5	-	31.5	-	31.5	-	31.5	-	31.5	-	31.5	-	31.5	-															
Z1350		53.15	-	53.15	-	53.15	-	53.15	-	53.15	-	53.15	-	53.15	-																
Max. force at 45 bar (lbf)		1984.2		1984.2		1984.2		3306.9 (Ø5.9) 3306.9 (Ø4.3) 1884.16 (Ø3.5)		3306.9 (Ø5.9) 3306.9 (Ø4.3) 1984.16 (Ø3.5)		6613.9 (Ø5.9) 3306.9 (Ø4.3) 1984.16 (Ø3.5)		4409.2 (Ø5.9) 3306.9 (Ø4.3) 1984.16 (Ø3.5)																	

TORO TD SERIES

[illegible]

[*] Approximate weights

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



Nationwide Service

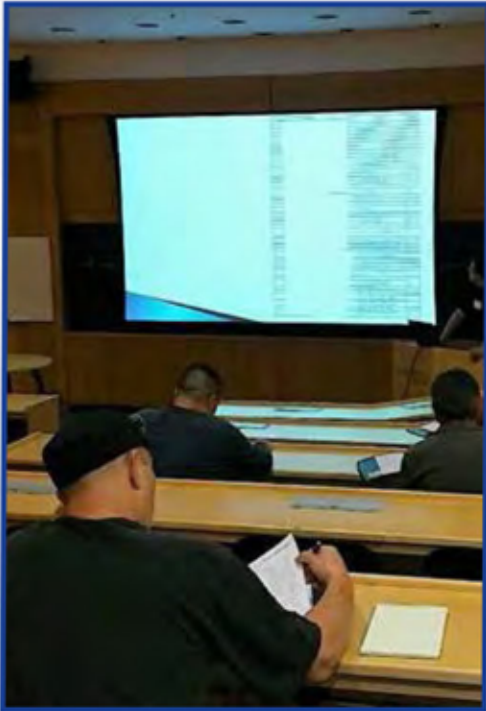
Eurotech has nationwide distributors with over 100 service technicians. Eurotech's USA headquarters trains and supports our distributors and customers.

"Our relationship with the service department is bar none!"

– Les Richards, Custom Mold

"You can't go wrong with the Eurotech equipment and the customer care they provide after the purchase."

– Geoff Giner, Model Screw Products



Nationwide Engineering and Training Classes

Eurotech's highly-advanced engineers have established a value that delivers more to our customers' needs than anything else in the industry - by listening to our customers' needs. Some key benefits Eurotech engineers deliver are:

- Factory Certified Training
- Proven to Increase ROI and Cycle Time
- New & Unique Ideas for Parts Processing

Free Lifetime Training! Knowledge is the power of productivity!

For 25 years we have offered FREE lifetime training to our valued customers as well as free engineering phone support. We have found this to be an important factor in helping our customers become profitable. Thousands of CNC machinists have trained at our FREE Eurotech College.

"Class was 5 Stars. The instruction was great as was the training binder. Thank you for the awesome two days of training."

– Dan Gibbons, J.C. Gibbons Mfg. Inc.



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