T8

CNC PRECISION TURNING LATHE
CNC PRECISION TURNING CENTER

KELLENBERGER

T8 series Precision CNC

Inherit the characteristics of high precision, high rigidity and high efficiency of Hardinge machines. At the same time, it also has the characteristics of high processing stability, small footprint, and can be integrated with an automatic integrated machine, which can meet the needs of various applications!

High Precision - Stable Static & Dynamic Accuracy

- X, Z axis full stroke positioning accuracy 0.008mm, repeat positioning accuracy 0.004mm (ISO 230-2)
- Excellent CMA performance ensures dimensional stability during long-term processing
- Processing Example: Material BSB, spindle speed 1250rpm, can obtain processing roundness 0.7μm, surface roughness Ra0.25μm
- The unique "Thermo centric" thermal balance design of the spindle box ensures stable dimensional accuracy of the processed workpiece.

High Rigidity - Strong heavy-duty Cutting Capability

- The Machine base is made of high-quality gray cast iron, which has excellent rigidity, durability and thermal stability.
- Benefit of FEA finite element analysis technology of Hardinge group engineering team to make the mechanical structure more balanced and ensure the best rigidity and longevity.
- Equipped with heavy-duty linear guide, which can increase the rigidity by more than 30% and longer the life of the machine.
- The standard 10-station turret can be installed with 25mm square shank and 40mm round shank, which has stronger heavy cutting ability.

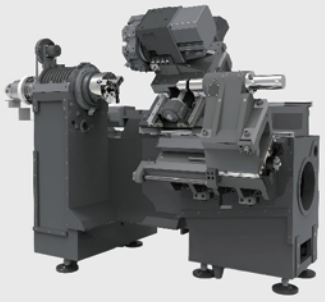
High Efficiency - Saving Processing and Non-Cutting Time

- High spindle speed: T8“150” spindle speed 6000rpm, T8“200” spindle speed 5000rpm, which can achieve high-speed and efficient processing.
- Fast traverse speed: X, Z axis fast traverse speed can reach 30m/min, effectively saving non-cutting time.
- Fast tool change speed: The turret is driven by servo motor, hydraulically locked, and there is no lifting structure for tool change, with high precision and fast response.
- The integrated design of single machine automation can achieve more efficient and stable processing capabilities.

Structural Features

High-rigidity Structure

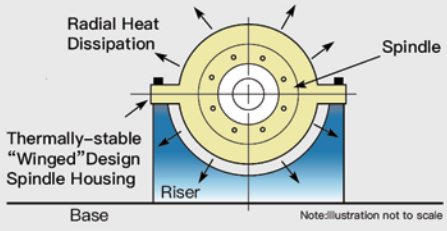
The base is made of high-quality gray cast iron, and the FEA finite element analysis technology of the KELLENBERGER Group engineering team is used to ensure the most rational structure of the machine, ensuring that the machine has higher rigidity, durability and thermal stability.



Thermo Centric Heat Balance

The spindle box adopts the "Thermo centric" heat balance structure design, which uses the principles of symmetry and thermal isolation to minimize the transfer of heat, so that the possibility of centerline displacement caused by thermal deformation of the spindle head is minimized, effectively ensuring the stability of workpiece dimensional accuracy.

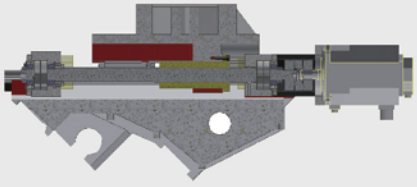
The base is designed with an exhaust structure to optimize the thermal temperature rise model of the machine and reduce the impact of long-term operation of the machine on processing stability.



High-Precision Transmission System

The X and Z axes use ϕ32mm double-nut precision ball screws and are pre-tensioned.
The servo motor and the screw adopt a direct-connected structure transmission, with a reinforced bearing support seat to ensure the transmission rigidity and dimensional stability.

The X and Z axes are equipped with 34mm large-size linear guides, and the two Z axis guides are installed at different heights to provide optimal anti-interference and rigidity.



Optimized Floor Space Layout

The chip conveyor and water tank that come standard with T8 can be easily placed in the right or rear row without the need for additional accessories, allowing users to flexibly arrange the machine on site.

T8 “L” models offer side or rear row configurations, and different combinations can be selected according to site conditions.

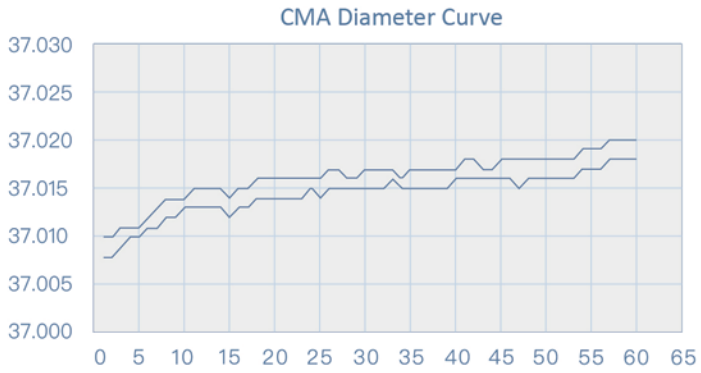
Reinforced MT#4 Tailstock

T8 can be equipped with a reinforced hydraulic jacking tailstock, which can be programmed with M code to achieve stable and reliable processing under high thrust conditions.

T8 “L” models are equipped with a servo tailstock as standard, which can realize rapid positioning of the servo motor through programming and adjust the motor thrust. Equipped with a 45mm heavy-duty linear roller guide, it has the advantages of fast response speed, high stability and wide application range.

CMA Performance

CMA (Continue Machining Accuracy) is an important test method to consider the thermal stability of machine. T8 series machine tools are designed and manufactured for precision parts processing, with excellent CMA performance reaching ≤0.01mm.



Note: The actual result may vary according to the processing conditions, and the actual test value may be larger or smaller than the above CMA test result.

Cutting Conditions		
	Rough	Finish
Workpiece Material	Brass	Brass
Tool	Diamond	Diamond
Spindle Speed	3000 rpm	1200 rpm
Cutting Depth on a Side	0.125 mm	0.065 mm
Feedrate	0.13 mm/rev	0.013 mm/rev
Coolant(Water Based)	On	On
Ambient Temp	20.3°Cto 22.°7C	

High-Precision Control Measures (optional)

In order to better control the dimensional instability caused by heat sources during processing, the machine can be equipped with a spindle cooling device and X/Z axis linear scales.

Oil Cooler: The spindle is equipped with an oil cooler, which can promptly remove the heat generated by the high-speed rotation of the spindle, effectively control the temperature rise of the spindle, inhibit the thermal displacement of the spindle box, obtain better processing dimensional stability, and extend the life of the spindle.

Linear Scales: Both the X and Z axes can be equipped with high-resolution linear scales to form a full closed-loop detection, compensating for the thermal temperature rise and displacement generated by the movement of the transmission components, ensuring that the machine achieves better processing performance in mass production.

Automatic Centralized Grease Lubrication

The automatic centralized grease lubrication device can automatically and regularly fill the ball screw and guide rail with oil, also has the function of liquid level and pressure detection.

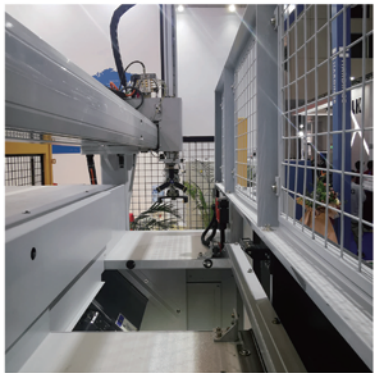
Grease lubrication has the advantages of easy maintenance, environmental protection, low loss, and can effectively reduce the cost of machine use. Compared with thin oil lubrication, it can reduce carbon emissions by 92% and electricity consumption by 96%.

T8 Integrated-in Automation

Designed for small parts processing, a convenient choice for mass production!

- Integrated control of machine tooloperating system.
- Compact structure and small foot print.
- Safety integrated protection design.
- Stable and reliable gantry structure.
- The integrated gripper module canrealize quick change over of gripperand fixture.

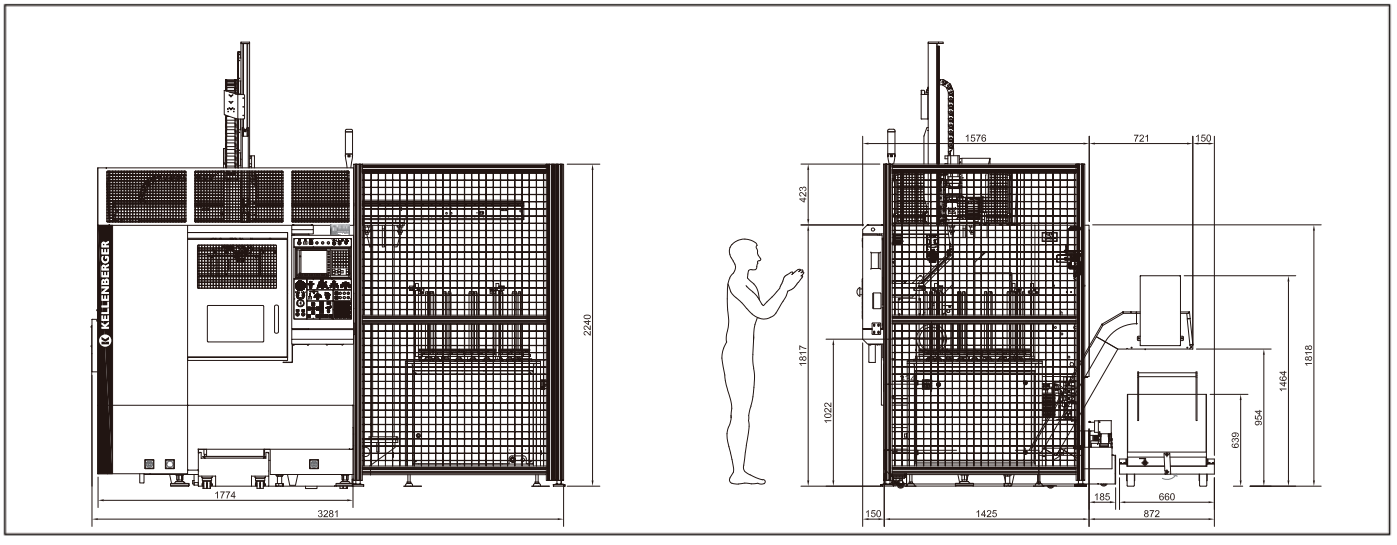
• Fast movement of X axis:	90m/min Maximum
• Fast movement of Z axis:	60m/min Maximum
• Workpiece length:	250mm Maximum
• Workpiece diameter:	150mm Maximum
• Workpiece weight:	5kg Maximum



Sunken Truss-Frame Structure

Modular Gripper

Various Storage unit



Note: The figure shows the layout of the T8 model with 10-station rotary storage unit. Different storage unit configurations have different overall layout dimensions.

Control System

- Feed per minute/Feed per revolution
- Self-diagnosis function
- Variable pitch thread cutting
- Thread cutting
- Fixed tangent speed control

Fanuc 0i TF Plus

- 10.4” color display
- Part program storage size 2MB
- Number of registered programs 1000
- Servo Control HRV3
- Two-axis interpolation
- Programming Resolution 0.001mm
- Nano interpolation
- PCMCIA Interface
- Embedded Ethernet (100base)
- USB interface
- Tool offset pairs, 128 pairs
- Custom macro program programmable
- Data Input
- Sub-program call
- Run hour and parts count display
- Graphic Function
- Linear interpolation
- Thread cutting retract
- Help function
- Dynamic graphic display
- Circular interpolation

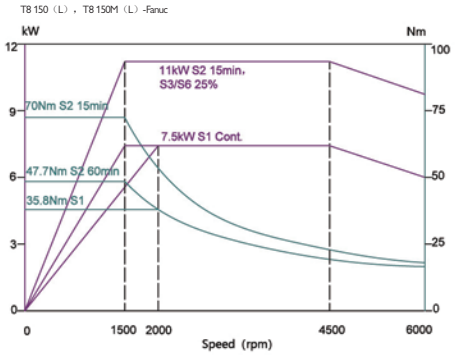
- Programming language CIN 66025 and high-level language expansion
- Part programs on PPU, maximum number 750
- Geometry processor with programming graphic/free contour input (contour calculator)
- Simulation in 2D representation
- Predefined user variables (R-parameters), commentable
- Oriented spindle stop
- Ethernet 1 Gbps (Windows

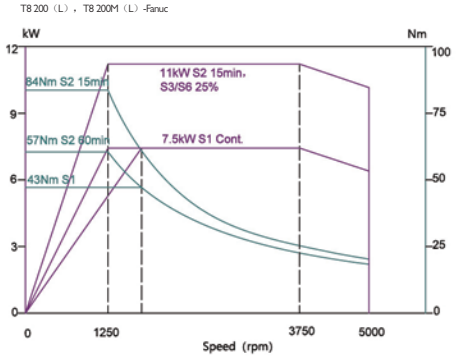
Siemens 828D-Non-EU Markets

- Compact operator panel CNC
- 10.4” color display
- Integrated QWERTY keyboard
- Tool management
- 3MB user memory
- Tool life monitoring and work piece count
- Tools / cutting edges number in tool list
- Acceleration with jerk limitation
- Feed forward control, acceleration-dependent
- Feed forward control, velocity-dependent
- Changeover to axis mode
- Programmable acceleration
- Asynchronous subprograms ASUB
- Polar coordinates programming
- USB flash drive
- Spindle speed limitation min./max.
- Constant cutting speed
- Cartesian point-to-point travel PTP

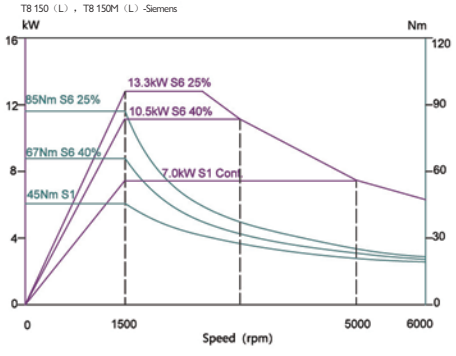
Power / Torque

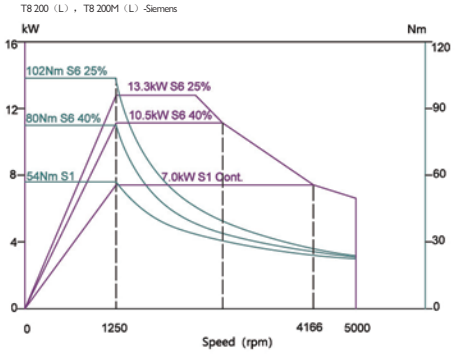
FANUC





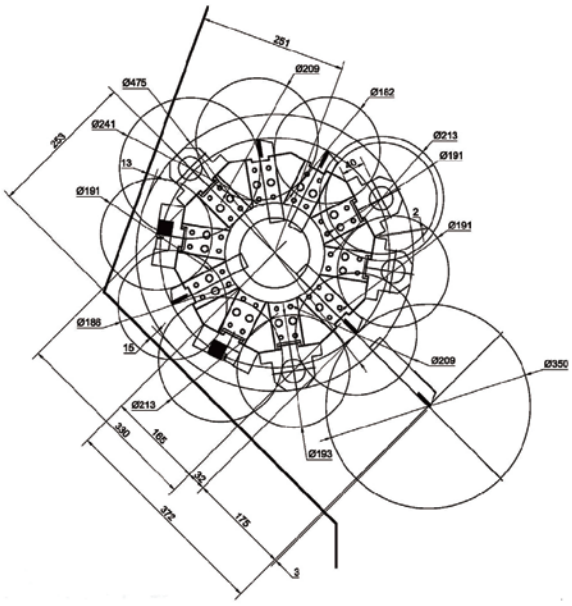
SIEMENS

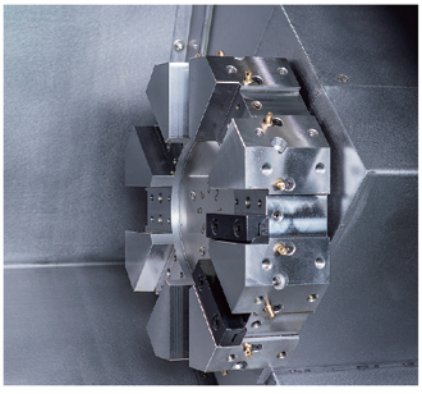




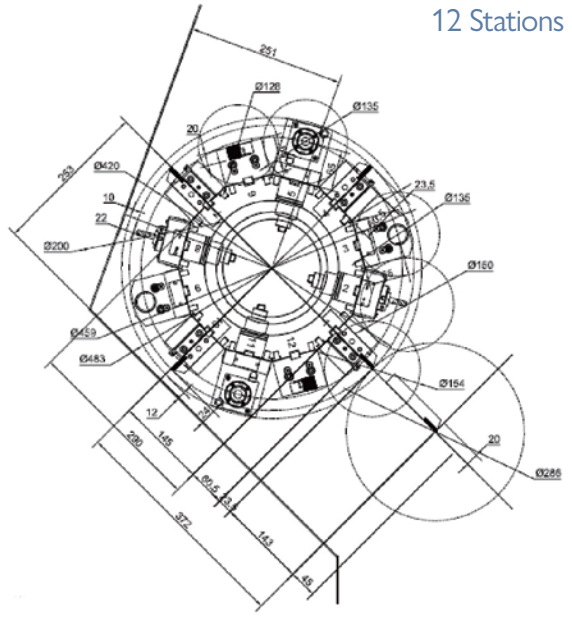
Turret Interference

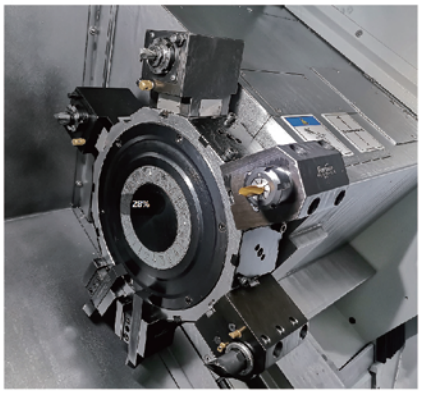
10 Stations Servo Turret



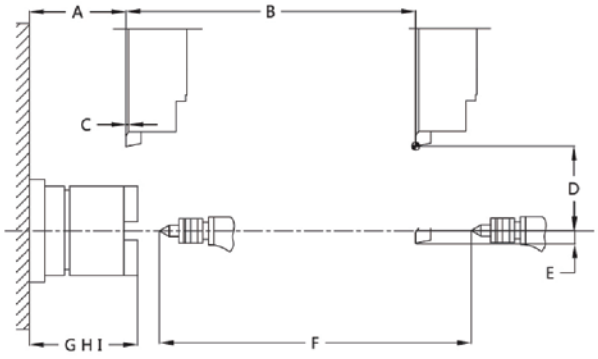


12 Stations BMT45 Turret





Travel



T8

Machine code	B	C	D	E	F
150	380	7	175	3	340
200	350	7	175	3	340
150L	550	7	175	3	580
200L	550	7	175	3	580
150M	380	5	143	45	340
200M	350	5	143	45	340
150ML	550	5	143	45	580
200ML	550	5	143	45	580
				Unit:	mm

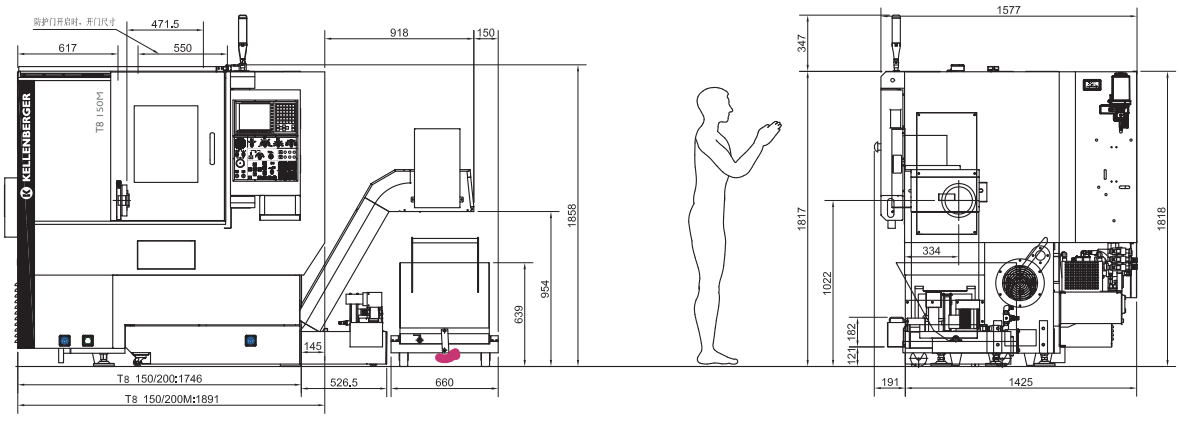
Configurations

	T8			
Machine code Items	150/200	150L/200L	150M/200M	150ML/200ML
10.4" Color Display	●	●	●	●
LED Lighting	●	●	●	●
3 Color Stack Light	●	●	●	●
Coolant Tank	●	●	●	●
Coolant Pump	●	●	●	●
10 stations Servo driven Turret	●	●	×	×
12 stations Servo driven Turret	◎	◎	×	×
12 stations BMT turret	×	×	●	●
Automatic Grease lubrication	●	●	●	●
Spindle Orientation	●	●	●	●
Cleaning Air Gun	●	●	●	●
Cutter Air Blast	◎	◎	◎	◎
Side Tool Coolant	●	●	●	●
Hinge Type Chip Conveyor (Right side or Back)	●	●	●	●
Chip Cart	●	●	●	●
Three-jaw chuck	●	●	●	●
MT#4 Servo tailstock	×	●	×	●
MT#4 Tailstock	◎	×	◎	×
Chuck Foot Switch	●	●	●	●
Ethernet interface	●	●	●	●
Part Catcher	◎	◎	◎	◎
HPMA Tool Probe	◎	◎	◎	◎
OLP40 Part probe	◎	◎	◎	◎
20 Bar High-pressure Cooling through Turret	◎	◎	◎	◎
50/70 Bar High-pressure Cooling through Turret	◎	◎	◎	◎
Oil Mist Gathering	◎	◎	◎	◎
Pull Rod Position Detection	◎	◎	◎	◎
Automatic Door	◎	◎	◎	◎
Safety Light Curtain	◎	◎	◎	◎
Automation interface	◎	◎	◎	◎
Fixture air seal detection	◎	◎	◎	◎
Washing Gun	◎	◎	◎	◎
Electric Cabinet Air Conditioner	◎	◎	◎	◎
Blowing through Spindle	◎	◎	◎	◎
Coolant through Spindle	◎	◎	◎	◎
Oil-Water Separator	◎	◎	◎	◎
Low Liquid level Detection	◎	◎	◎	◎
Automatic power off	◎	◎	◎	◎
Turret Water-Air Conversion	◎	◎	◎	◎
X/Z axis Linear Scale	◎	◎	◎	◎
Spindle Oil Chiller	◎	◎	◎	◎

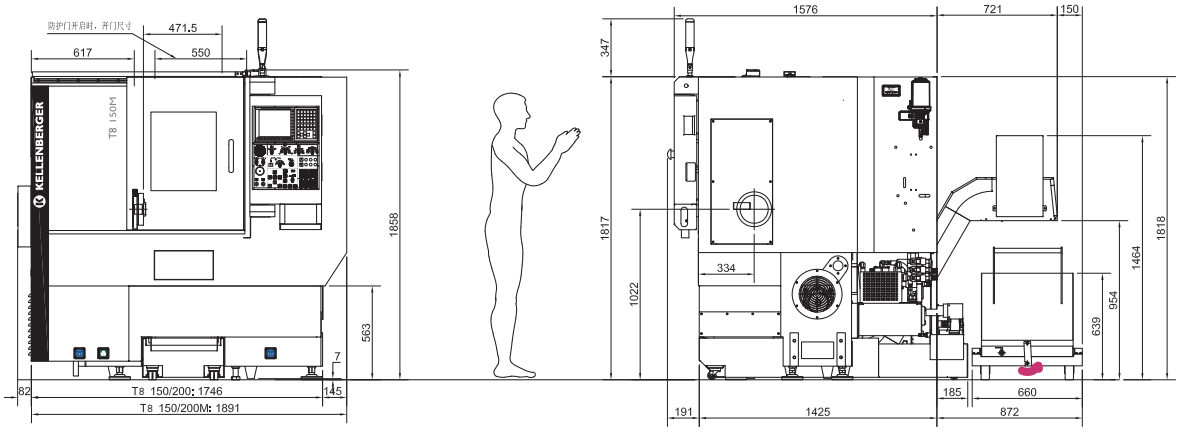
● Standard ◎ Optional × Not Applicable

Floor Plan

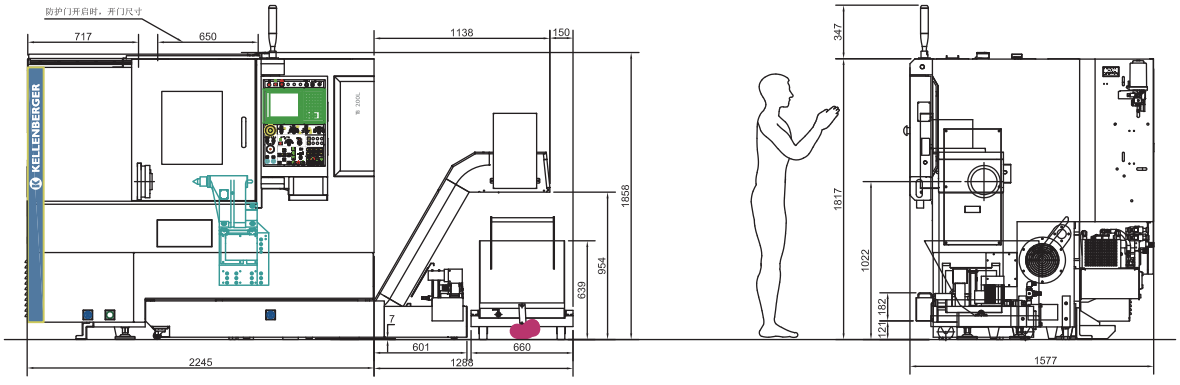
T8 150,T8 200 Chip Conveyor-Side



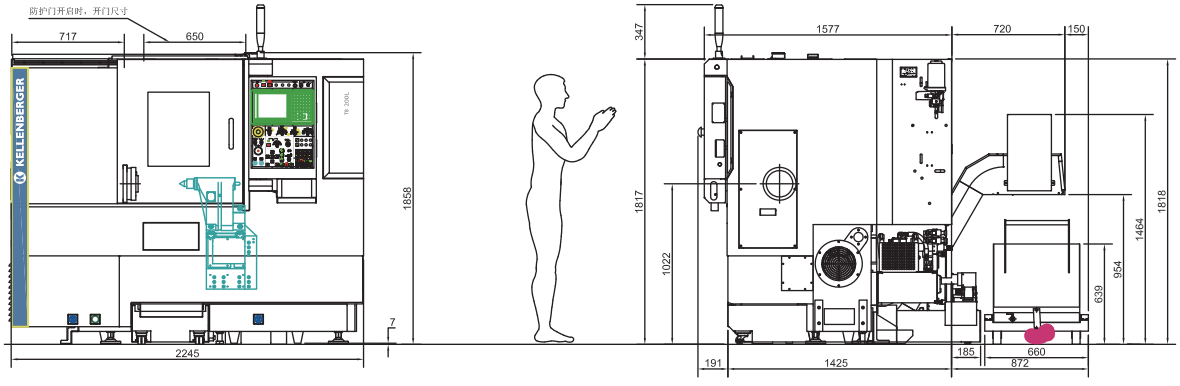
T8 150,T8 200 Chip Conveyor-Rear



T8 150L,T8 200L Chip Conveyor-Side



T8 150L,T8 200L Chip Conveyor-Rear



Machine Specifications

T8 — Machine Specifications

Kellenberger · CNC Precision Turning Lathe / Turning Center

		T8			
Parameter	Machine code	150	150M	150L	150ML
		Fanuc / Siemens*			
Spindle					
Spindle Nose		A2-5			
Spindle Center Through Hole Diameter	mm	56			
Chuck Size		6"			
Spindle Center Height	mm	1022			
Drive Motor					
Spindle Power Max.	kW	11 / 13.3 (Siemens)			
Max. Spindle Speed	rpm	6000			
Spindle Torque	Nm	70 / 90 (Siemens)			
X Axis Servo Motor	kW	1.2 / 1.8 (M model) / 2.85 (Siemens)			
Z Axis Servo Motor	kW	1.2 / 1.8 1.8(M model) / 2.85 (Siemens)			
Machining Range					
Max. Swing Over Lathe	mm	500			
Max. Machining Length	mm	380	358（M）	550	528（M）
Max. Machining Diameter	mm	350	286（M）	350	286（M）
Max. Bar Hole Through Diameter	mm	45			
X / Z Axis					
Max. X Axis Travel	mm	178			
Max. Z Axis Travel	mm	380		550	
X/Z Axis Rapid Traverse Rate	m/min	30			
T-Turret (Turning Lathe)					
Capacity	mm	10（12）			
Square Tools	mm	25（20）			
Round Tools	mm	Ø40 (Ø32)			
Tool Change Time (T:T)	s	0.5			
BMT Turret (Turning Center)					
Capacity		12			
Power Tool Speed	rpm	6000			
Square Tools	mm	20			
Round Tools	mm	Ø32			
Tailstock (Option)					
Taper No.		MT#4			
Tailstock Travel	mm	341		580	
Max. Thrust	N	-	-	-	-
Coolant System					
Coolant Capacity	L	120			
Coolant Pump Power	kW	0.55			
Machine Accuracy (ISO 230-2)					
X/Z Position Accuracy	mm	0.008			
X/Z Repeatability Accuracy	mm	0.004			
Other					
Length	mm	1830 / 1980(M)	1830 / 1980(M)	2450	2450
Width × Height	mm	1560×1860	1560×1860	1560×1860	1560×1860
Weight	kg	2850	2850	3450	3450
Power Requirement		25KVA 3~380V	25KVA 3~380V	25KVA 3~380V	25KVA 3~380V

Siemens system: Non–EU Markets

T8 — Machine Specifications

Kellenberger · CNC Precision Turning Lathe / Turning Center

		T8			
Parameter	Machine code	200	200M	200L	200ML
		Fanuc / Siemens*			
Spindle					
Spindle Nose		A2-6			
Spindle Center Through Hole Diameter	mm	76			
Chuck Size		8"			
Spindle Center Height	mm	1085			
Drive Motor					
Spindle Power Max.	kW	11 / 13.3 (Siemens)			
Max. Spindle Speed	rpm	5000			
Spindle Torque	Nm	84 /108 (Siemens)			
X Axis Servo Motor	kW	1.2 / 1.8 (M model) / 2.85 (Siemens)			
Z Axis Servo Motor	kW	1.2 / 1.8 1.8(M model) / 2.85 (Siemens)			
Machining Range					
Max. Swing Over Lathe	mm	500			
Max. Machining Length	mm	350	328（M）	550	528（M）
Max. Machining Diameter	mm	350	286（M）	350	286（M）
Max. Bar Hole Through Diameter	mm	52			
X / Z Axis					
Max. X Axis Travel	mm	178			
Max. Z Axis Travel	mm	350		550	
X/Z Axis Rapid Traverse Rate	m/min	30			
T-Turret (Turning Lathe)					
Capacity	mm	10（12）			
Square Tools	mm	25（20）			
Round Tools	mm	Ø40 (Ø32)			
Tool Change Time (T:T)	s	0.5			
BMT Turret (Turning Center)					
Capacity		12			
Power Tool Speed	rpm	6000			
Square Tools	mm	20			
Round Tools	mm	Ø32			
Tailstock (Option)					
Taper No.		MT#4			
Tailstock Travel	mm	341		580	
Max. Thrust	N	-	-	-	-
Coolant System					
Coolant Capacity	L	120			
Coolant Pump Power	kW	0.55			
Machine Accuracy (ISO 230-2)					
X/Z Position Accuracy	mm	0.008			
X/Z Repeatability Accuracy	mm	0.004			
Other					
Length	mm	1830 / 1980(M)	1830 / 1980(M)	2450	2450
Width × Height	mm	1560×1860	1560×1860	1560×1860	1560×1860
Weight	kg	2850	2850	3450	3450
Power Requirement		25KVA 3~380V	25KVA 3~380V	25KVA 3~380V	25KVA 3~380V

Siemens system: Non–EU Markets

EUROPE & ASIA

Kellenberger Switzerland AG
Thannackerstrasse 22
9403 Goldach
Tel.+41 71 242 91 11
info@kellenberger.net

AMERICA

Kellenberger Systems
1755 Brittania Drive, Unit A
Elgin, Illinois 60124
Tel.+800 8438801
info@kellenberger.net

CHINA

Kellenberger Machine (Shanghai) Co., Ltd.
Unit 801, Tower T1, Yu Center, No. 268 Yubei
Road, Pudong, Shanghai 201203, P.R.China
Tel. +86 21 38108686
KEL_CN_Service@kellenberger.com

kellenberger.com

KELLENBERGER