

TONGTAI

Products Catalogue



2022.02.28(1)Products Catalogue All the specifications in the brochure are subject to change without prior notice.

About Tongtai

No. 1 Amongst the Best

Tongtai Machine & Tool Co., Ltd., (Taiwanese stock market symbol 4526), is a machine manufacturer with the biggest scale among TTGroup's members, and also has the highest revenue among Taiwan's machinery manufacturing groups.

Over 50 Years of Sturdy Technology Foundation

Established in 1969, in Kaohsiung, Taiwan, listed as 4526.TW in 2003, we started producing customized machines, and have since diversified to a wide range of production lines.

More than 3 Producing Bases

Tongtai's 1st and 2nd plants are both located in the Luzhu Scientific Park in Kaohsiung. Our overseas production plant, TongYu Machine & Tool Co., Ltd., is located at Suzhou, China.

Advanced Technology

Tongtai has always emphasized "Innovation" as our key for entrepreneur development with the annual investment of 3%-5% as R&D's budget. Besides focusing on R&D in cutting machine's field, our development also encompasses advanced processing technology such as ultrasonic assisted machining, laser processing, and 3D metal printing. Based on years of experience and technology, Tongtai has successfully passed the application of 73 patents in Taiwan, Japan and other countries.

Complete Machining Solutions

We have diverse production lines which including vertical/horizontal machining centers, vertical/horizontal lathes, multi-tasking machining centers, boring & milling lathes, metal additive manufacturing equipment, PCB machine, and laser processing equipment. This allows us to provide a one-stop solution for any requirement. We are very experienced and capable of turnkey solutions and whole plant exports. Everything from the initial machine planning to the final machine processing can be designed and executed by Tongtai, where the customer only needs to check and accept to begin mass production.

Capable of Both Hardware and Software

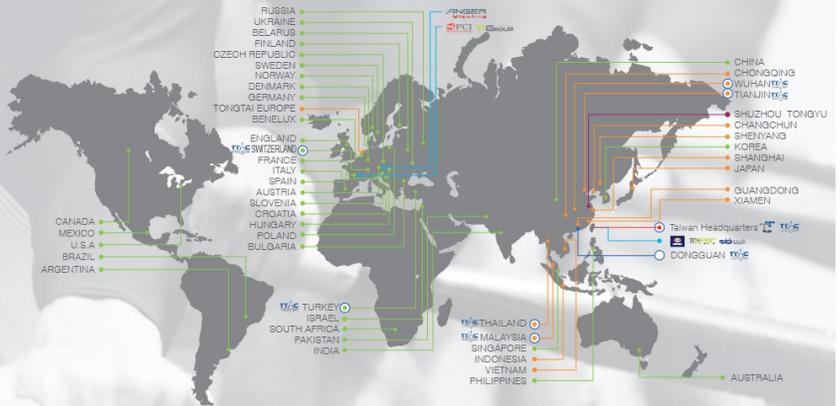
Tongtai Machine & Tool Co., Ltd. has two individual R&D departments responsible for software development and automation systems. Regardless of the demands from PLC editing to control system development, intelligent manufacturing systems to intelligent production lines, we are able to realize their requirements and achieve the goal customers set.

85+ Sales Service Channels Around the Globe

Tongtai Machine & Tools Co., Ltd. has direct sales distributions in main countries in Asia and Europe, including the branch in China, Japan, Thailand, and other more than 85 countries. It facilitates our customers to find a reliable vender who is close to.

Tongtai in the World

Global Sales & Service Network



● Headquarters ● Sister companies ● Branch ● Foreign Agency ● China Operation Center
 OTTC Tongtai-Technical Application Center

TONGTAI, as the leader of TTGroup, provides customers with ultimate machines, total solutions for various industries and thoughtful service around the world with reliable subsidiaries – HONOR, APEC, QUICK-TECH, PCI-SCEMM and ANGER MACHINING. We share technologies, resources and experience to build up the horizontal integration to drive your success.

Tongtai's products have been approved by world-wide leading manufacturers and subcontractors such as BMW, Volkswagen, Fiat, Toyota, Honda, Renault-Nissan, Continental, TRW, Bosch, GE Aviation, Rolls-Royce, Pratt & Whitney, Safran Group, and etc. To satisfy global customers with excellent sales and service, Tongtai has established branches in the Netherlands, Romania, China, Japan, Malaysia, Indonesia, Thailand, Vietnam and over 85 other sales service networks around the world.



Precision Machining and Unit Assembly



For the key components machining, we use 30 different types of machining equipment including 5-dimension machining centers, vertical milling machines, horizontal boring and milling machines, horizontal machining centers, vertical machining centers, and CNC lathes. For these machines, over 50% machines are assembled by Tongtai.

Tongtai executes quality inspection for the critical castings, including machine beds, columns, headstocks, and gearboxes. It not only guarantees the accuracy and quality of machines, but also extends the usage life for the unit as well as benefits the machine reliability.

The quality management department will perform comprehensive tests for the key components by inspection instruments, such as coordinate measuring machines and roundness measuring equipment. In addition, Tongtai also manufacture mechanical parts for our machines. For assuring the quality, our staff also process comprehensive inspections for these parts.



To achieve the stringent requests of key components, all units are assembled in the constant temperature room. The important units like spindles, gearboxes and power turrets are built by experienced engineers and perform a series of tests.



Moreover, Tongtai uses ultrasonic cleaning machine to clean the bearings. Through the transmission of vibration, it generates the "Cavitation effect" and will remove the stains on the surface of the bearings.



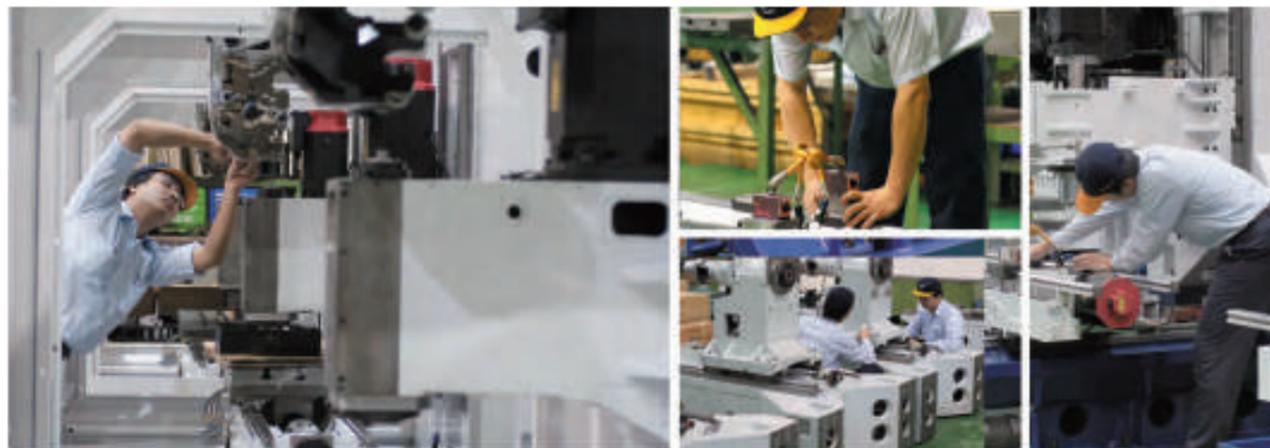
Spindle run-in temperature control module manages the lubrication to well-distribute on the spindle bearings, it ensures spindle performances and extends the usage life for spindle. Furthermore, each spindle has to pass dynamic balance test. It requests a spindle should maintain its high performances and high accuracy during the high speed motion.

Excellent Quality Management



High-precision assembly

All machines are assembled and adjusted by experienced engineers with the strict standard operating procedures (SOP). Through the continued interior technical review meetings between senior Tongtai engineers and outside experts to update the-state-of-the-art skills and applied them to the assembling procedures. For providing the best product to our clients, we care about every details in assembling with a responsible attitude.



Quality Control

For ensuring assembly quality, Tongtai not only based on the rules of internal controls to build SOP, but also established self-check form to check the items in set-up and assembly precision. Tongtai has more than 30 QA/QC engineers, all of them are had been trained and now are working on doing a series of inspections for the machines in the assembly lines. The results of these inspections for each machine are recorded in the database and are able to be reviewed if necessary.



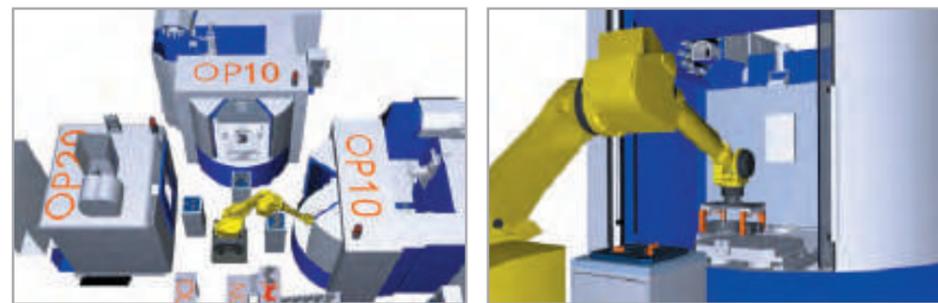
Customizations & Special Purpose Machines

From the beginning of its establishment, the industrial development in Taiwan has focused on the motorcycle and household appliance industry. Considering that the lead-time of machines is long and also has the problem of high service costs, Tongtai started to provide the products of special purpose machines (SPM) and hydraulic automatic lathes to these manufacturers. SPM required a solid foundation of technologies, and this is what Tongtai is proud of. For Tongtai, a standard development period of SPM is 6 months after the contract is signed. The whole development procedures include: machine structure planning, technical requirement reviews and approved, machine assembling, mechatronics, trial testing, and fulfillment all items from the customer. Until now, Tongtai is still well-known as the reputation of SPM master.



Research and development customized machine tools

How to satisfy customer's needs is always the goal Tongtai pursue for. Our R&D engineers are based on the customer's needs to customize machine structure and design production processes, jig & fixture, and machining methods. With the deep involvements in the customization domain, it refines our R&D capacity and had become a unique competitiveness for Tongtai. In these years, because of our technologies of customization go maturing, the lead-time of SPM had already to be shortened dramatically.



Watch video



Ability of Turnkey Projects

Turnkey solution

In Tongtai, we have professional departments to work for machine design and trial test. The main mission for the design department is to consider the limitations and machining requirements of workpiece and suggest a customized production line to the customer. The engineers in the design department have to analyze the production processes, select appropriate machine models (and automation solutions), and generate a layout for the production line. Meanwhile, relative referring information are also prepared, including cycle time, annual production capacity, and the cost of investing. All of these information will be gathered and provide to the customer. Each detail will be reviewed and might need to make several adjustments for fulfilling the requirements from the customer. For the trial test department, their jobs will start after the line finished. The staff will work on tool setting, jig & fixture setup, and do trial tests. Moreover, they need to accompany with the engineers from customer's company to finish final machine accuracy inspections.

About the Turnkey projects in Tongtai, we are able to provide total solutions to customers, regardless of in workpiece identification, machine models selection, or trial machining. Furthermore, when the machines get the delivery acceptances from the customers, our machines are able to be setup and make production shortly. In these years, Tongtai had already started to use 3D modeling & simulation technologies to demonstrate our plans. With this display technology, our customers are able to understand the details about tools, jig & fixture, floor layout, production processes. It allows the customers to see preview the production line and also benefits on further technical discussions.

Turnkey Solution



Cases



Tongtai- Technical Application Center (T-TAC)

The purpose of T-TAC establishment is "to active provide sufficient and efficient solution to each machining." Through the experiences in machining applications, Tongtai is able to fulfill the needs for advanced machining technologies, various machining solutions, and trial tests as well as keep the machine with the features of outstanding operability, availability, and easy-to-maintain. T-TAC plays a role as consultant and willing to assist our customers to improve the competitiveness.



Automotive



Motorcycle



T-TAC services

Service	Description
Sampling	For responding to various sampling requests, T-TAC has different types of machines which are able to allow our application engineers to produce the samples for feedback to our worldwide customers.
Solutions	Explores innovative machining solutions and applies them on existing machines.
Technology	For diagnosing problems and seeking machine solutions, our engineers will use the same machine in T-TAC to repeat the problems. It provides an opportunity to allow our staff to simulate possible troubleshooting methods in advance.
Training	For your R&D and application staff, we understand it is difficult to find a good environment to learn more about machines. T-TAC provides various machines on-site and is available for existing customers, potential customers, agents, schools, and staff.
Presentation	Available for holding new product launching and technical seminars for software/hardware suppliers. These products and technologies are able to equip on the machines to demonstrate its functions to the public.

House appliances



Valves & Fittings

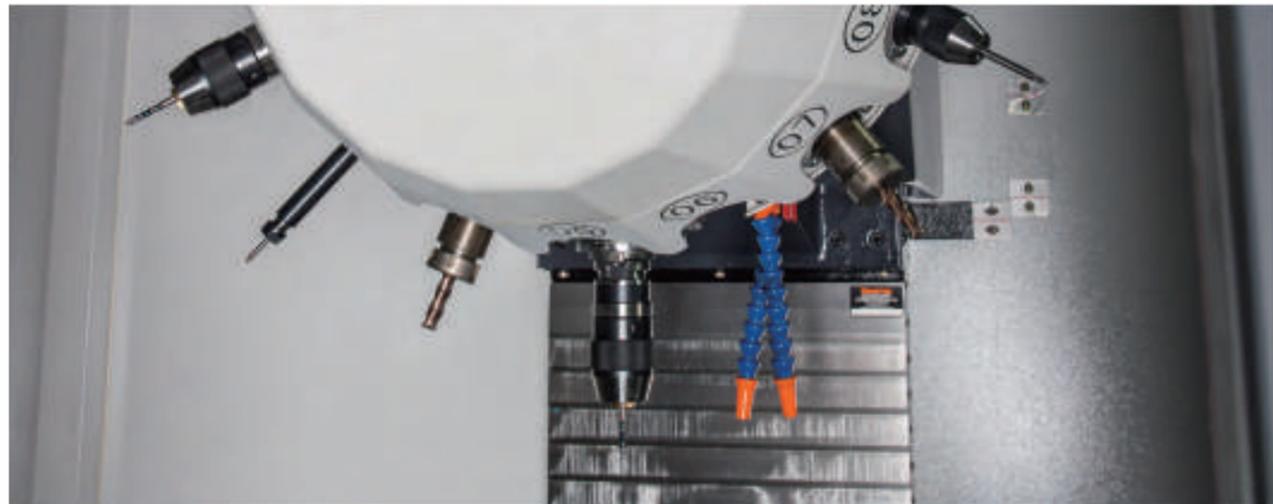


Others



EZ-II Series

Tapping Center

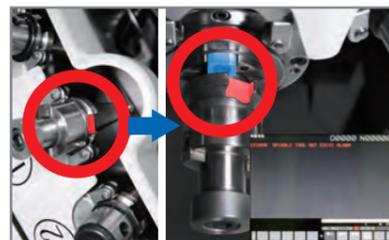


Features

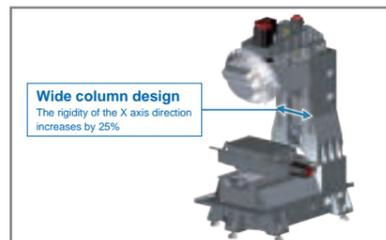
- Equipped with high speed tool changer, reducing the T-T time to 1.2 sec.
- Tool magazine is driven by servo motor, saving the time in tool selection.
- The spindle is driven by DD motor, allowing high acceleration/deceleration reactivity and rigid tapping achieves 6,000 rpm.
- 3-axes rapid traverse up to 60m/min with acceleration up to 1.2 G.
- Max spindle speed up to 24,000 rpm.(opt.)
- Standard equipped with BBT holders for higher machining precision.



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► The incorrect tool placement will cause the drive block doesn't into the drive slot of the holder. The system can detect the clamping action in each tool and will display the alarming message on the screen while the tool doesn't be clamped properly.



► Machine structure is optimized by Finite Element Analysis (FEA) and the anti-deforming capacity on X axis is improved by 25%, which brings excellent machining precision and extends tool life.

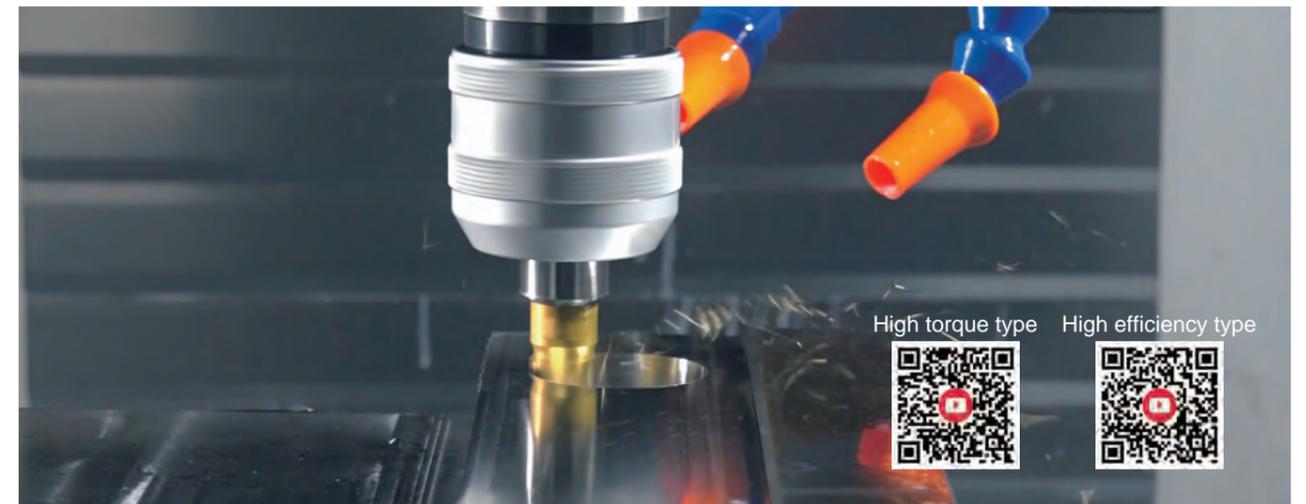


► Slanted sheet metal design with coolant flushing enables chips to be easily carried out of the machine.

Specification	Unit	EZ-5II	EZ-7II
Table size(LxW)	mm	600x400	850x400
Max. loading capacity	kg	300	
X/Y/Z axis travel	mm	510/400/300	710/400/300
X/Y/Z axis rapid traverse	m/min	60/60/60	
Spindle taper		7/24 Taper No. 30	
Spindle speed	rpm	12,000 (24,000)	
Spindle motor	kW	5.5/3.7 (3.7/1.5)	
Tool capacity	pc	21	

VTX-II Series

Tapping Center / High torque type&High efficiency type



High torque type High efficiency type

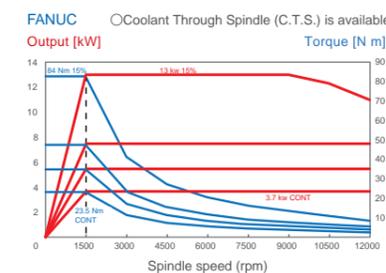


Features

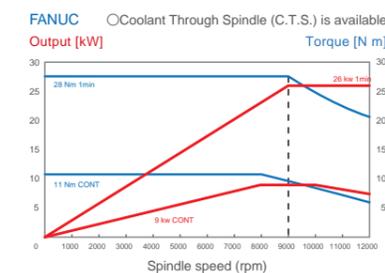
- Equipped with high speed tool changer to reduce T-T time to 1.2 sec.
- Equipped with high rigidity roller type linear guideway.
- The spindle is driven by DD motor, allowing for high acceleration/deceleration reactivity and rigid tapping achieves 6,000 rpm.
- Shaft's optimum spindle radius (up to 50mm) enhances cutting rigidity.
- Max. spindle motor torque up to 82 Nm.



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► High torque type spindle output and torque chart.



► High efficiency type spindle output and torque chart.

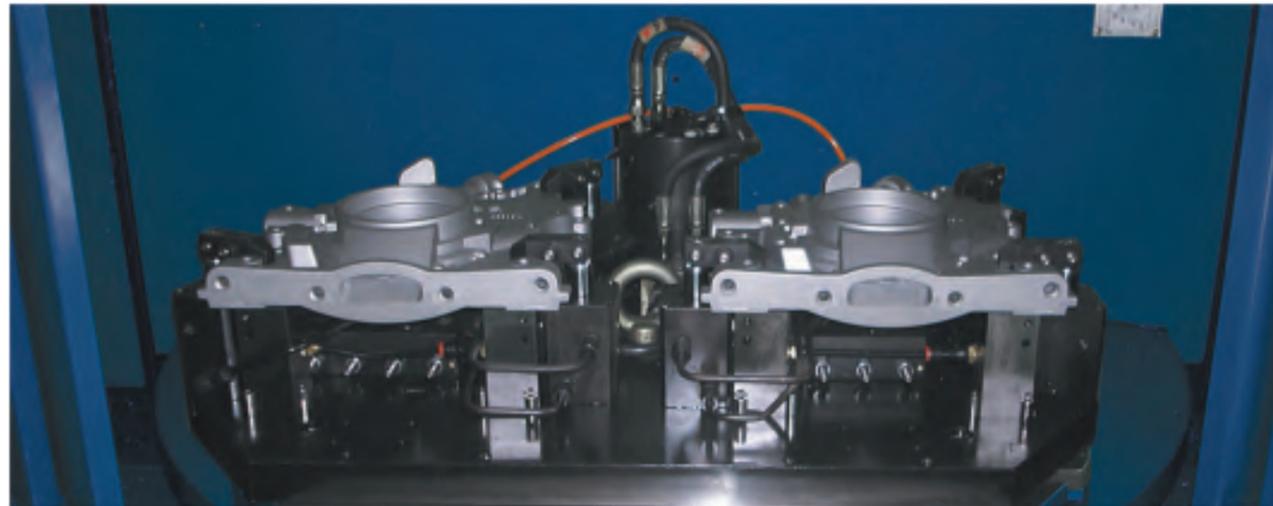


► Adopts roller type linear guideway designed with DB type, the rigidity is improved and has the capacity to complete heavy duty machining works.

Specification	Unit	VTX-5II	VTX-7II
Table size(LxW)	mm	600x400	850x400
Max. loading capacity	kg	300	
X/Y/Z axis travel	mm	510/400/300	710/400/300
X/Y/Z axis rapid traverse	m/min	60/60/60	
Spindle taper		7/24 Taper No. 30	
Spindle speed	rpm	12,000	
Spindle motor	kW	13/3.7(26/9)	
Tool capacity	pc	21	

TMV Series

Tapping Center / with Auto Pallet Changer



Features

- Moving column design.
- Equipped with APC to improve production efficiency.
- Equipped with ATC to decrease tool change time to 0.9 sec.
- Equipped with BT-30 spindle that achieves 6,000 rpm maintaining rigid tapping.
- Suitable for small parts processing and magnesium alloy machining in the 3C industry.



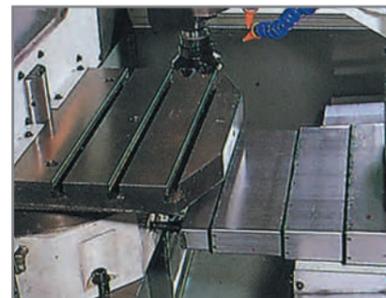
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▶ QT-II
Direct-drive spindle 15000 rpm.
Spindle HP 2.2/1.5 kW.



▶ TMV-510T series
Three spindle speeds can be selected:
12,000/8,000/4,000 rpm.
Spindle HP 3.7 kW (opt. 5.5 kW).

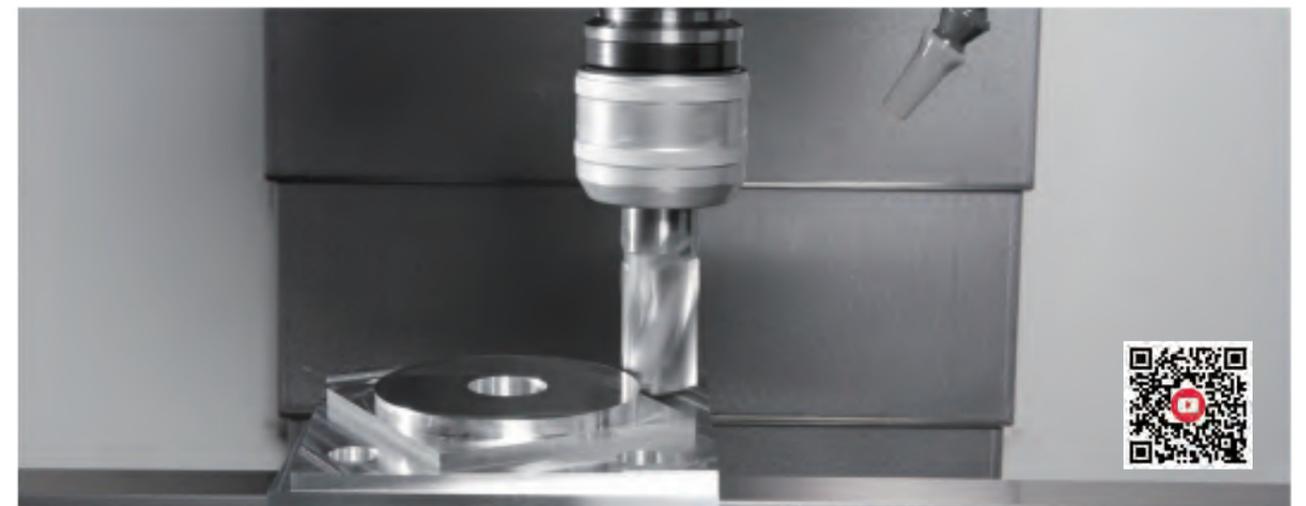


▶ APC series
Moving column design and APC design benefit
production efficiency improvement.

Specification	Unit	QT-II+APC	TMV-510+APC	TMV-510T+APC
Table size(LxW)	mm	600x360		
Max. loading capacity	kg	100x2		
X/Y/Z axis travel	mm	510/360/435	510/360/300	510/360/435
X/Y/Z axis rapid traverse	m/min	40/40/48		
Spindle taper		7/24 Taper No. 30		
Spindle speed	rpm	15,000 (20,000)	8,000 (4,000) (12,000)	
Spindle motor	kW	2.2/1.5 (9/5.5/3.7)	5.5/3.7	
Tool capacity	pc	20	10 (14)	20

VP Series

Vertical Machining Center / Standard

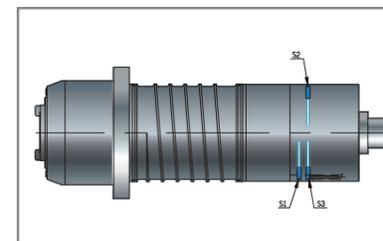


Features

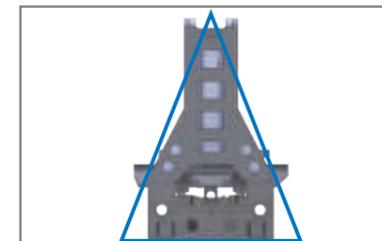
- Direct-drive spindle and high rigidity structure design.
- Equipped with BBT-40 spindle, which supports dual contact tool holder.
- Excellent precision and machining performance.
- General purpose machine and suitable for most industrial customers.
- High Performance/Cost value.



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▶ The spindle is equipped with draw bar positioning sensors to detect the tool clamping situation. This avoids the clamping errors or unclamping in machine running.



▶ Our base and column castings feature vibration absorbing ribs that transfer vibration away from the cutting area.



▶ The ballscrews are preloaded for eliminating the influence of thermal distortion and increase machining precision.

Specification	Unit	VP-8	VP-10
Table size(LxW)	mm	900x510	1,070x510
Max. loading capacity	kg	500	
X/Y/Z axis travel	mm	820/510/535	1,020/510/600
X/Y/Z axis rapid traverse	m/min	48/48/36	36/36/36
Spindle taper		7/24 Taper No. 40	
Spindle speed	rpm	10,000 (15,000)	
Spindle motor	kW	11/7.5 (15/7.5)	
Tool capacity	pc	24 (30)	

QVM-610AII

Vertical Machining Center / with Auto Pallet Changer

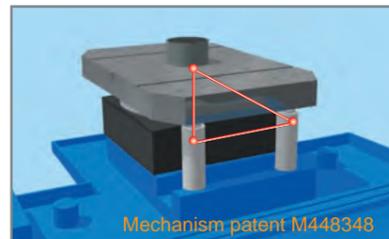


Features

- Moving column design.
- Equipped with APC which can improve production efficiency.
- Pallet changing time is only 4 sec., it saves idle time and improves the production efficiency.
- Triple-point clamping and supporting device (patented) assures the stability of machining precision.
- Max pallet load up to 400 kg x2.



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Mechanism patent M448348

▶ Triple-point clamping and supporting device is used for clamping the pallets. This assures the stability of pallets and also improve the surface quality of workpiece in machining.



▶ The APC is able to be driven with low torque, which shortens the pallet changing time. Furthermore, compared with the traditional hydraulic driving method, it uses an electronic motor to be a new driving method with the advantages of low energy consumption and easy maintenance.



▶ For ensuring the rigidity, QVM-610AII is equipped with German made REXROTH guideway in the moving column system.

Specification	Unit	QVM-610AII
Table size(LxW)	mm	700x410
Max. loading capacity	kg	400x2
X/Y/Z axis travel	mm	610/410/510
X/Y/Z axis rapid traverse	m/min	36/36/30
Spindle taper		7/24 Taper No. 40
Spindle speed	rpm	8,000 (10,000)
Spindle motor	kW	11/7.5/5.5 (12/9.0/7.5)
Tool capacity	pc	24 (30)

TMV Series

Vertical Machining Center



Features

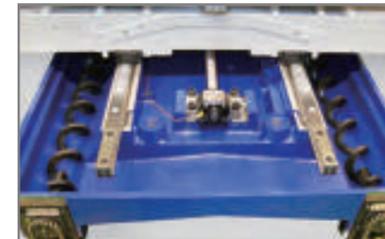
- Popular machine model, T-T time is 2 sec.
- High rigidity structure design.
- Uses high precision guideway and ballscrews, the 3-axes rapid traverse up to 48 m/min.
- High machining efficiency with stable machining performance.
- Available for various customization applications, especially for the automotive industry.



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▶ Preloaded ballscrews reduce the influence of thermal distortion to benefit machining precision.

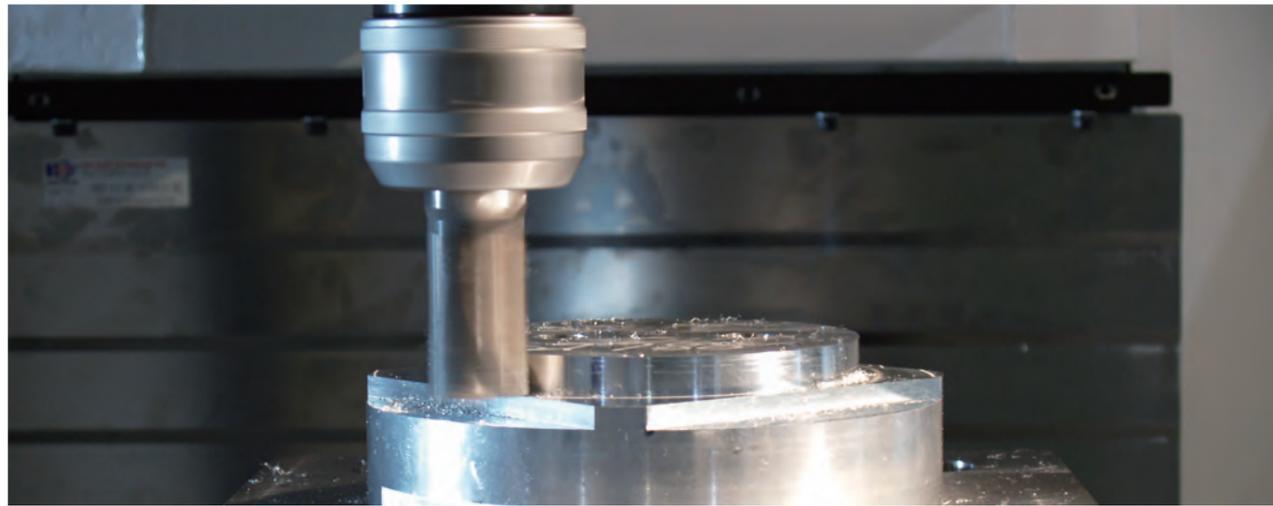


▶ Machine bed flushing system is able to eliminate chip accumulation in the machine. In addition, dual chip augers are the option with the advantages of fast chips disposal and minimized cleaning time.



▶ The ergonomic design facilities operators monitoring the production process during program editing. This increases operator alertness and thereby reduces mistakes and improves working efficiency.

Specification	Unit	TMV-720A	TMV-850QI	TMV-850QII	TMV-1050QI	TMV-1050QII
Table size(LxW)	mm	800x480	950x600		1,100x600	
Max. loading capacity	kg	500	800			
X/Y/Z axis travel	mm	720/480/530	850/600/530		1,050/600/530	
X/Y/Z axis rapid traverse	m/min	48/48/32	48/48/32	48/48/48	48/48/32	48/48/48
Spindle taper		7/24 Taper No.40				
Spindle speed	rpm	10,000	10,000 (15,000)	8,000 (10,000)	10,000 (15,000)	8,000 (15,000)
Spindle motor	kW	7.5/5.5	18.5/15/11	7.5/5.5 (9.0/7.5/15/11)	18.5/15/11	7.5/5.5 (9.0/7.5/15/11)
Tool capacity	pc	24	24 (30)			



Features

- Special structure design with the features of high rigidity and high vibration adsorption capacity.
- Adopts large-sized linear guideway and ballscrews.
- BT-50 spindle has excellent performance in heavy duty cutting (opt.).
- Available for various customization applications, especially for the automotive industry.
- Suitable for mass production lines and automated production line arrangements.



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► Production processes planning and jig & fixture design.



► Preloaded ballscrews decrease the influence of thermal distortion.



► Special structure allows high rigidity and high vibration adsorption capacity. This ensures the machining precision and stability.

Specification	Unit	TMV-920A	TMV-1100A
Table size(LxW)	mm	1,050x530	1,200x600
Max. loading capacity	kg	1,000	
X/Y/Z axis travel	mm	920/530/530	1,100/600/530
X/Y/Z axis rapid traverse	m/min	30/30/24	
Spindle taper		7/24 Taper No.40/No.50	
Spindle speed	rpm	BT-40 : 8,000 (10,000) BT-50 : 3,500 (6,000)	
Spindle motor	kW	BT-40 : 12/9.0/7.5 BT-50 : 18.5/15/11	
Tool capacity	pc	24 (30)	

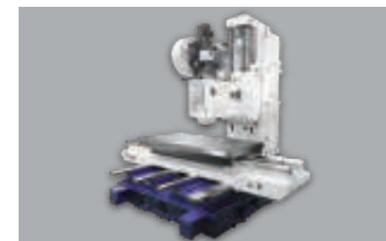


Features

- 3-axes adopts box-way design with the features of high rigidity and high vibration adsorption capacity.
- Y axis uses four box-ways to provide solid support to the saddle.
- BT-50 spindle (gearbox type) has excellent performance in heavy duty cutting (opt.).
- Z axis is equipped with a counterbalance system to reduce load on the Z axis motor.
- Available for various customization applications, especially for automotive industry.



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► 3-axes adopts large-sized box-way and applies heat treatment and precision grinding. This fulfills the requirements of heavy duty cutting and high rigidity.



► For limiting the thermal impacts from the gearbox, the spindle's bearings are lubricated with grease and the spindle is covered by a cooling sleeve. This eliminates thermal distortion and extends the usage life.

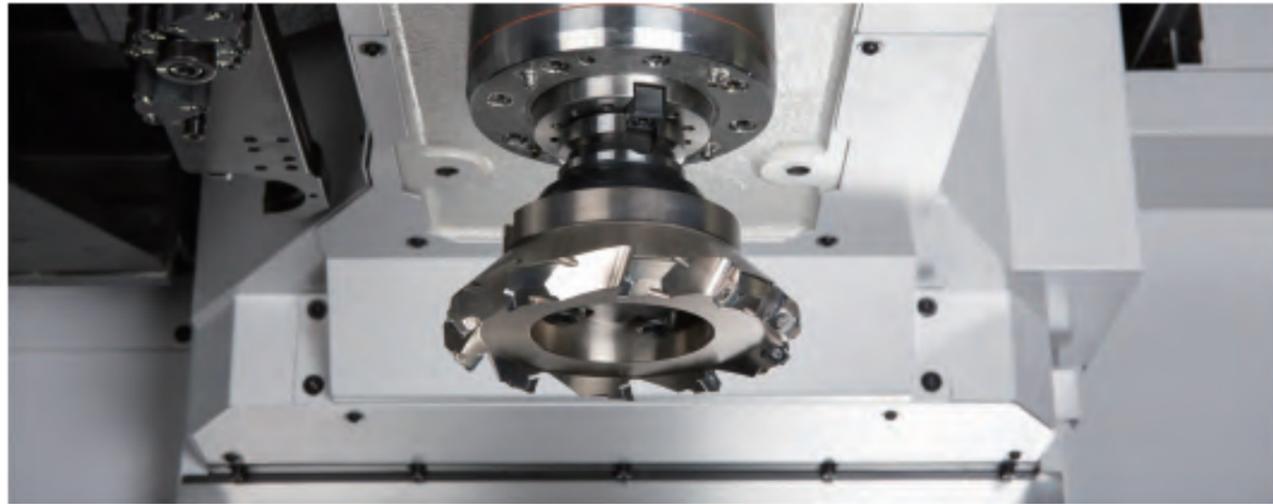


► Wide door opening facilities operations and maintenances.

Specification	Unit	TMV-1350A	TMV-1600A
Table size(LxW)	mm	1,500x750	1,700x850
Max. loading capacity	kg	1,300	2,000
X/Y/Z axis travel	mm	1,350/750/700	1,600/800/700
X/Y/Z axis rapid traverse	m/min	20/20/15	15/15/12
Spindle taper		7/24 Taper No.50	
Spindle speed	rpm	3,500 (6,000)	
Spindle motor	kW	18.5/15/11	18.5/15/11 (25/18.5/15)
Tool capacity	pc	24 (32)	32 (40)

TMV Series

Vertical Machining Center



Features

- Special structure design with the features of high rigidity and high vibration adsorption capacity.
- Adopts large-sized linear guideways and ballscrews.
- BT-50 spindle has excellent performance in heavy duty cutting (opt.).
- Y axis uses four linear guideways provide solid support to the saddle.
- Door opens up to 1,664 mm to facilitate loading/unloading large workpieces.



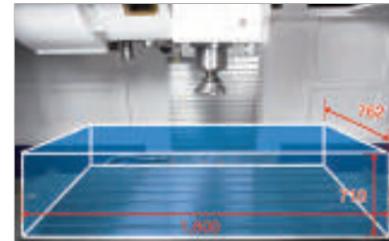
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► Y axis is supported by four linear guideways. This provides a strong stability for the table and eliminates the distortion from overhang while in X axis movement.



► Dual chip augers with machine bed flushing system allows fast chips disposal.



► Table size 1,600 mm x 762 mm
Max. table load 1,869 kg

Specification	Unit	TMV-1500A	
Table size(LxW)	mm	1,600x762	
Max. loading capacity	kg	1,869	
X/Y/Z axis travel	mm	1,525/762/710	
X/Y/Z axis rapid traverse	m/min	18/18/18	
Spindle taper		7/24 Taper No.40	7/24 Taper No.50
Spindle speed	rpm	8,000 (10,000)	3,500 (6,000)
Spindle motor	kW	18.5/15/11	
Tool capacity	pc	24	

VC Series

Vertical Machining Center / Die and Mold



Features

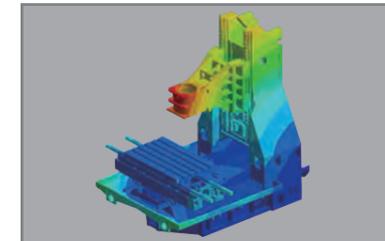
- High dynamic rigidity for structure design.
- The spindle uses oil-air lubrication with the advantages of low heat generation and long-term usage.
- High speed & high precision functions.
- BBT dual contact tool holders.
- Suitable for the mold & die industry.



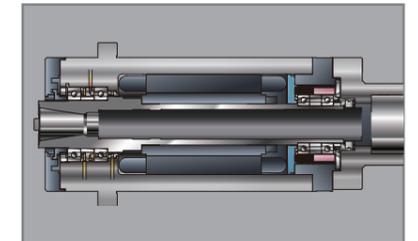
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► ATC uses cam type tool changing unit. This has the features of high precision, low noise, and stable tool clamping and benefits spindle precision and usage life.



► Machine structure is optimized by finite element analysis (FEA).



► The spindle bearing is lubricated by oil-air and the spindle is covered by a cooling sleeve. This eliminates the thermal distortion and extends the usage life.

Specification	Unit	VC-608	VC-610	VC-711
Table size (LxW)	mm	950x600	1,100x650	1,200x710
Max. loading capacity	kg	800		
X/Y/Z axis travel	mm	850/610/530	1,050/610/530	1,100/710/710
X/Y/Z axis rapid traverse	m/min	24/24/24		
Spindle taper		7/24 Taper No.40		
Spindle speed	rpm	12,000 (15,000) (20,000)		
Spindle motor	kW	11/7.5 (15/7.5) (40/30)		
Tool capacity	pc	24 (30)		

MDV Series

Bridge Type Machining Center / Die and Mold

Features

- Machine structure adopts bridge type design, it provides the high stability in high speed machining.
- The spindle uses oil-air lubrication and has the features of low heat generation and long usage life.
- Max. spindle speed up to 20,000 rpm.
- Excelling surface machining precision.
- Suitable for the mold & die industry.



■ BLUE

Specification	Unit	MDV-812	MDV-1013
Table size (LxW)	mm	1,320x800	1,400x1,000
Max. loading capacity	kg	2,000	2,500
X/Y/Z axis travel	mm	1,200/800/500	1,320/1,040/610
X/Y/Z axis rapid traverse	m/min	30/30/30	30/30/24
Spindle taper		7/24 Taper No.40	
Spindle speed	rpm	12,000 (15,000) (20,000)	
Spindle motor	kW	11/7.5 (18.5/11/7.5) (40/30)	
Tool capacity	pc	16 (40)	20 (30) (40)

CT Series

5-axis Machining Center

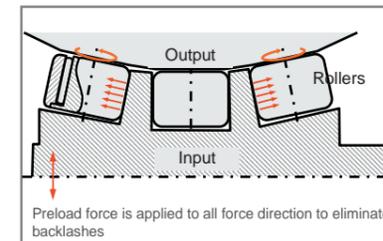


Features

- Machining space up to Ø380 mm / H220 mm.
- Equipped with zero-backlash roller gear cam type A/C axis with the features of high precision and high rigidity.
- All machining tasks are able to be done in one time clamping.
- 5 axis machining center with excellent Performance/Cost value.



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► A/C axis rotary table is driven by low torque roller gear cam. Furthermore, it is suitable for high speed rotation and also keeps the accuracy in long-term machining.



► 3-axes adopts 45mm high rigidity roller type guideway and bearings, compared with the ball type guideway, the bearing rigidity is improved by 40%.



► The spindle bearing is lubricated by oil-air and the spindle is covered by cooling sleeve, it eliminates the thermal distortion and extends the usage life.
► Standard equipped with dual contact tool holder to fix the tool holder well. This assists customers to perform the best machining quality.

Specification	Unit	CT-350
Table size	mm	Ø350
Max. loading capacity	kg	200
X/Y/Z axis travel	mm	400/510/510
A/C axis travel	deg	+30° ~ -120° / ±360°
X/Y/Z axis rapid traverse	m/min	36/36/30
A/C axis rapid traverse	rpm	33.3/40
Spindle taper		7/24 Taper No.40
Spindle speed	rpm	15,000 (20,000)
Spindle motor	kW	18.5/11/7.5 (40/30)
Tool capacity	pc	24 (30) (40)

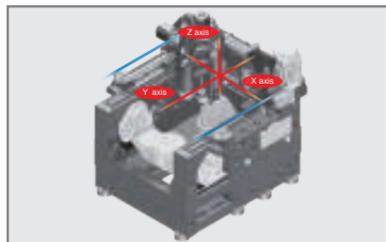
GT Series

5-axis Machining Center / Gantry type

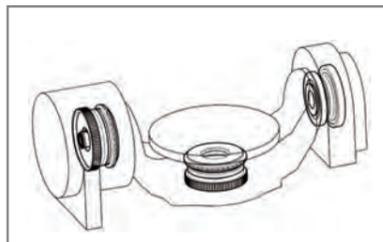


Features

- Machine structure adopts gantry type design. The moving axes are driven at the center of gravity and the dynamic performance is improved dramatically.
- 5-axis simultaneous machining function allows all machining tasks in one time clamping.
- High rigidity enclosed structure design.
- Gantry type movement method assures the feeding efficiency in three axes and avoids influence by weight of workpieces.
- The spindle uses oil-air lubrication and has the features of low heat generation and long usage life.
- A/C axis is driven by DD motor, which has the features of high accuracy and high speed.



► The driving saddles in X/Y/Z axis are located on the center of gravity to improve the dynamic stability of structure.



► GT-630 & 800E A/C axis uses DD motor as driving source as the best solution for high speed demands until now. The advantages of DD motor include compact size, low positioning errors, high resolution, and high speed.



► Standard equipped with linear scales in three axes. It will detect ballscrew temperature change and compensate the positioning and repeatability errors. The standard positioning accuracy is $\pm 5 \mu\text{m}$ and $\pm 3 \mu\text{m}$ (opt.) and the resolution of A/C axis encoder is 2 μm and 5 μm .

Specification	Unit	GT-500	GT-630	GT-800E
Table size	mm	Ø500	Ø630	Ø800
Max. loading capacity	kg	400	600	800
X/Y/Z axis travel	mm	610/610/510	760/820/560	800/820/560
A/C axis travel	deg	+30°~ -120°/±360°		
X/Y/Z axis rapid traverse	m/min	48/48/48		
A/C axis rapid traverse	rpm	25/25	50/100	
Spindle taper		7/24 Taper No.40		
Spindle speed	rpm	15,000 (20,000) (24,000)		
Spindle motor	kW	40/40 (40/30) (42/35)		
Tool capacity	pc	32 (40)	32 (40) (64) (80)	

SH Series

Horizontal Machining Center

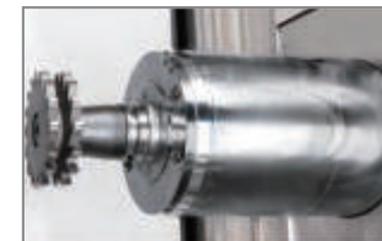


Features

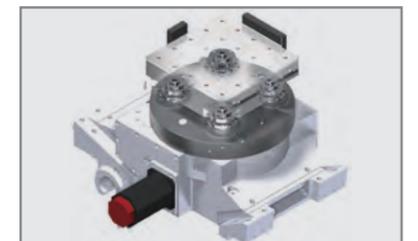
- High rigidity machine structure with triple-point supporting design.
- Minimized the machine front width to benefit production line arrangement.
- APC (automatic pallet changing) is available as an option for optimizing production efficiency.
- Standard equipped with 15,000 rpm built-in spindle, its maximum HP is 37 kW and maximum torque is 250 Nm.
- Suitable for aluminum alloy machining.



► Considering the requirements of cycle time and loading/unloading time, an APC is available as an option.



► SH series is a machine model which focuses on aluminum alloy machining. It is standard equipped with a 15000 rpm built-in spindle with 18.5/26/37 kW horsepower output and 95/171/250 Nm torque output.



► High precision positioning cones with hydraulic locking device that generate 4.2 tons of clamping force to ensure the table stability in machining.

Specification	Unit	SH-4000(P)	SH-4500(P)	SH-5000(P)
Table size (LxW)	mm	400x400	400x400 (500x500)	500x500
Max. loading capacity	kg	400	450	500
X/Y/Z axis travel	mm	510/510/510	630/630/730	730/730/830
X/Y/Z axis rapid traverse	m/min	60/60/60		
Spindle taper		7/24 Taper No.40		
Spindle speed	rpm	15,000		
Spindle motor	kW	37/26/18.5		
Tool capacity	pc	40 (60)		

HA Series

Horizontal Machining Center

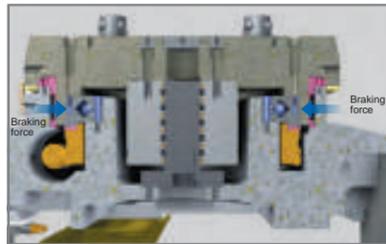


Features

- High rigidity machine structure with triple-point supporting design.
- NC rotary table uses high rigidity full circumference hydraulic braking system.
- APC (automatic pallet changing) is available as an option for optimizing production efficiency.
- High precision, high rigidity, and high output.
- Suitable for the automotive industry.



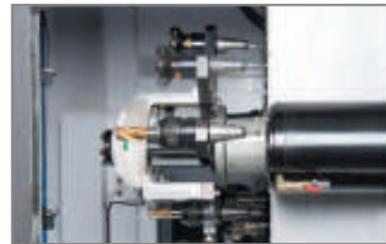
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▶ HA series adopts a full circumference hydraulic braking system to lock the table. The large contacting area guarantees high rigidity to the table and endures heavy duty cutting.



▶ The optimized APC hydraulic driving unit not only improves the dynamic rigidity, but also shortens the pallet changing time even with maximum weights on the both pallets.

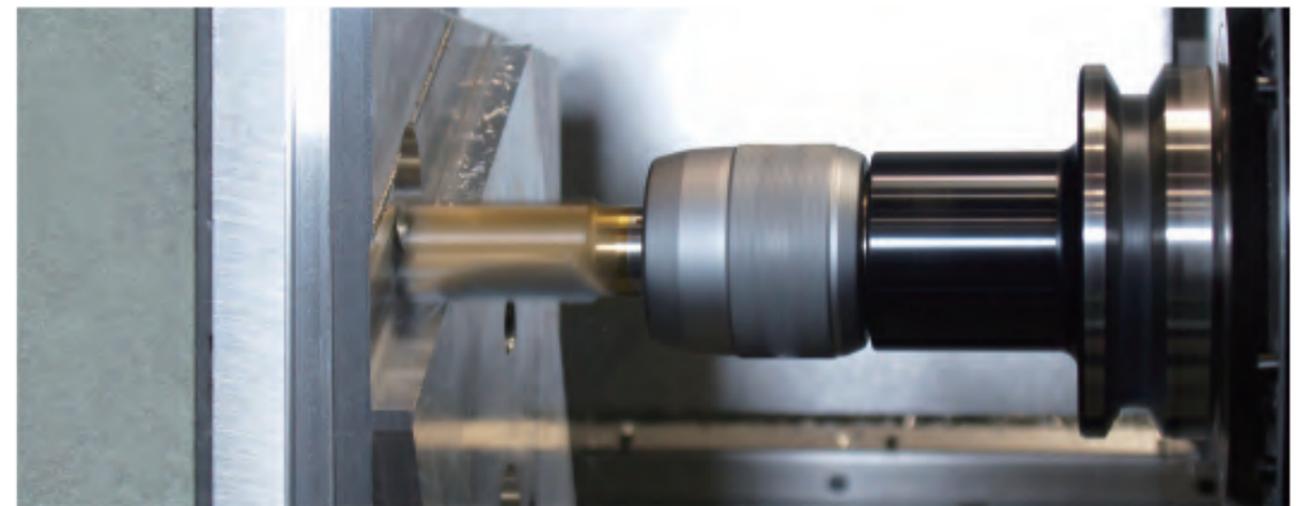


▶ Japanese made cam type tool changing unit of the ATC.

Specification	Unit	HA-400II	HA-500II
Table size(LxW)	mm	400x400	500x500
Max. loading capacity	kg	400x2	500x2
X/Y/Z axis travel	mm	610/580/580	710/680/680
X/Y/Z axis rapid traverse	m/min	60/60/60	
Spindle taper		7/24 Taper No.40	
Spindle speed	rpm	12,000	
Spindle motor	kW	25/22	
Tool capacity	pc	60 (90) (120)	

HB Series

Horizontal Machining Center

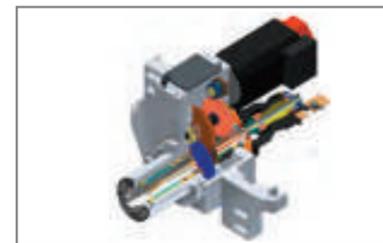


Features

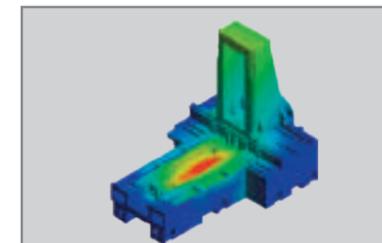
- Standard equipped with 10,000 rpm built-in spindle, performs with 420 Nm torque while speed at 500 rpm.
- B axis rotary table adopts hydro-boosters to provide huge clamping force and keep the stable machining.
- NC rotary table uses high rigidity full circumference hydraulic braking system. Due to the large contacting area, it is able to endure heavy duty machining.
- Highly efficient automatic pallet changing (APC) system.
- Available to work with flexible manufacturing system (FMS).
- Suitable for heavy duty machining for iron-based materials.



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▶ Uses high-level precision gears providing high transmission efficiency. The two-step gearbox is able to generate more than 1,400 Nm torque output at the spindle speed of 200 rpm. This is especially suitable for hard materials and large-sized workpieces machining. (HB-630/800II)



▶ The machine structure is optimized by finite element analysis (FEA) and computes the steady state, and modes, to process optimizing structure analysis. It ensures the machine keeps high dynamic rigidity and stability in high speed machining. The T-shape machine bed and column design distributes cutting forces to absorb vibrations.

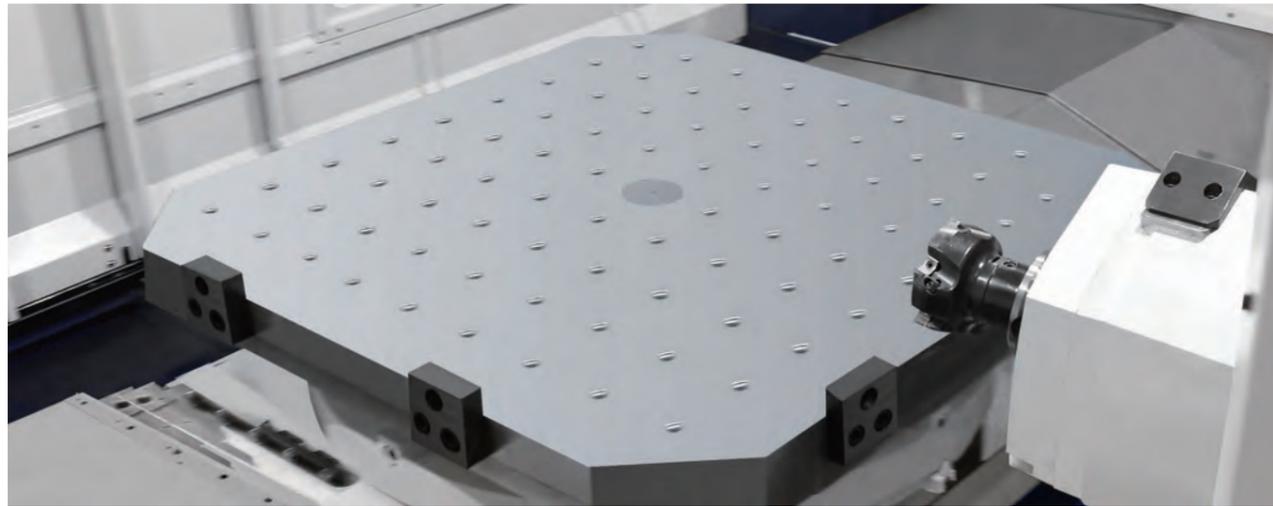


▶ The optimized APC hydraulic driving unit not only improves the dynamic rigidity, but also shortens the pallet changing time even with maximum weights on the both pallets.

Specification	Unit	HB-500II	HB-630	HB-800II
Table size (LxW)	mm	500x500	630x630	800x800
Max. loading capacity	kg	600x2	1,200x2	1,800x2
X/Y/Z axis travel	mm	800/710/710	1,050/850/970	1,400/1,200/1,300
X/Y/Z axis rapid traverse	m/min	60/60/60	50/50/50	
Spindle taper		7/24 Taper No.50		
Spindle speed	rpm	10,000	10,000 (6,000/8,000)	
Spindle motor	kW	30/25	30/25 / (22/18.5) / (26/22)	
Tool capacity	pc	60 (90) (120)		

HG Series

Horizontal Machining Center

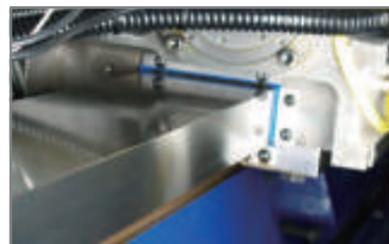


Features

- Machine structure is made by high-level casted iron.
- Three axes adopts box-way design for intensely stable machining quality.
- Powerful servo motor drives ballscrews directly to avoid the transmission errors.
- Three axes rapid traverse up to 20 m/min.
- Gearbox type spindle adopts two-step gear reducer with maximum torque up to 1,319 Nm.



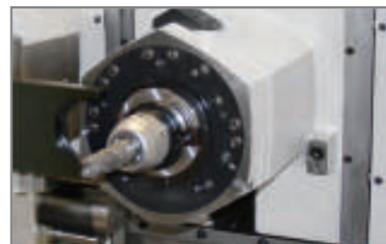
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▶ Three axes designed with box-way structure and receive proper heat treatment and grinding process to satisfy the requirements for high rigidity in heavy duty or intermittent cutting.



▶ To ensure best lubrication integrity, all box-ways receive thorough scraping by experienced experts. It also avoids the thermal distortion of machines and keeps the machining quality in heavy duty machining.

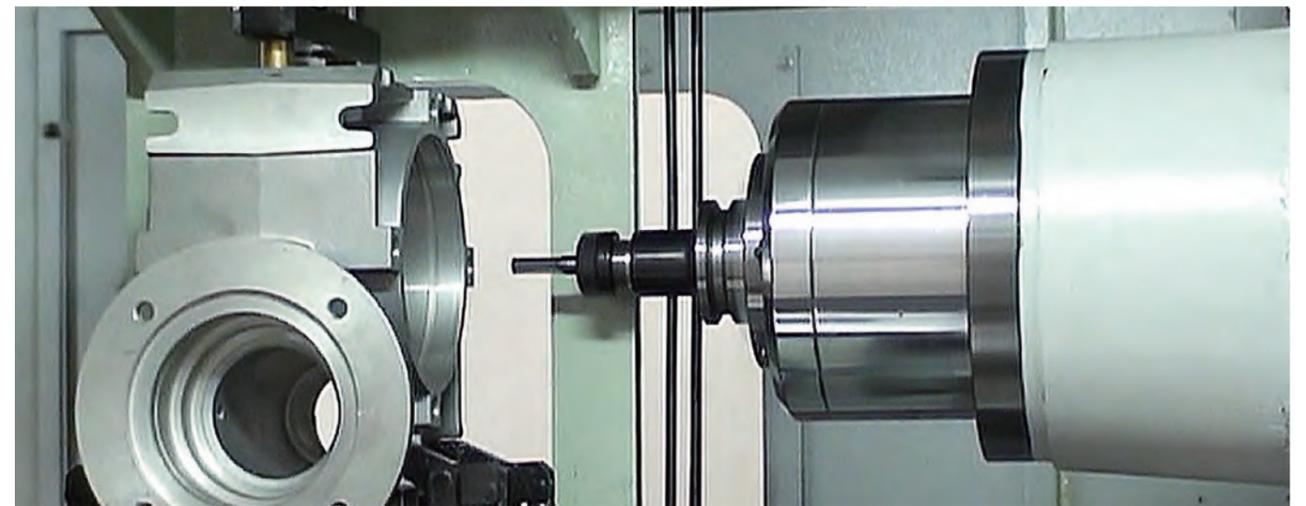


▶ Gearbox type spindle
Standard is 3,600 rpm (grease lubrication) and the option is 6,000 rpm (oil-air lubrication). The max. spindle torque up to 1,319Nm and standard equipped with spindle cooling equipment. Furthermore, coolant-through-spindle (CTS) is also available as the option.

Specification	Unit	HG-800II	HG-1250
Table size(LxW)	mm	800x800	1,250x1,250
Max. loading capacity	kg	2,400	4,000
X/Y/Z axis travel	mm	1,550/1,500/1,250	2,000/1,400/1,250
X/Y/Z axis rapid traverse	m/min	15/15/15	20/20/20
Spindle taper		7/24 Taper No.50	
Spindle speed	rpm	6,000/8,000	
Spindle motor	kW	(22/18.5) / (26/22)	
Tool capacity	pc	60(90)(120)	

TMH Series

Horizontal Machining Center

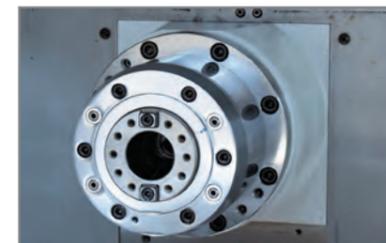


Features

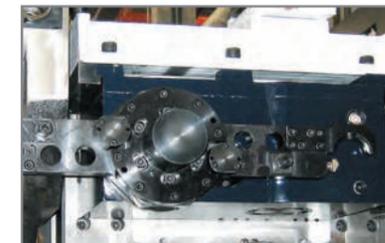
- Compact machine structure with narrow width front design is suitable for production line arrangement.
- Excellent machining capacity brings high production efficiency.
- Depend on the requests of production line, it allows to add special devices such as storage rack or feeding unit for loading.



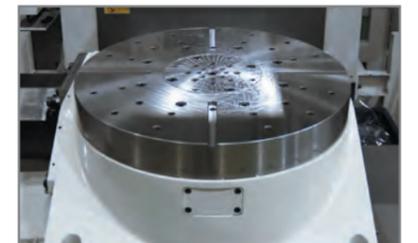
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- ▶ Spindle taper: 7/24 taper no.40.
- ▶ Spindle speed: 8,000rpm (opt. 10,000/12,000 rpm).
- ▶ Spindle HP: 11/7.5 kW (opt. 18.5/15 kW).



- ▶ Tool capacity: 24 tools (opt. 30 tools).
- ▶ Disc type tool magazine.
- ▶ The tools are able to be placed in any tool sleeve in the tool magazine. This saves time of tool chain rotation and benefits production efficiency.

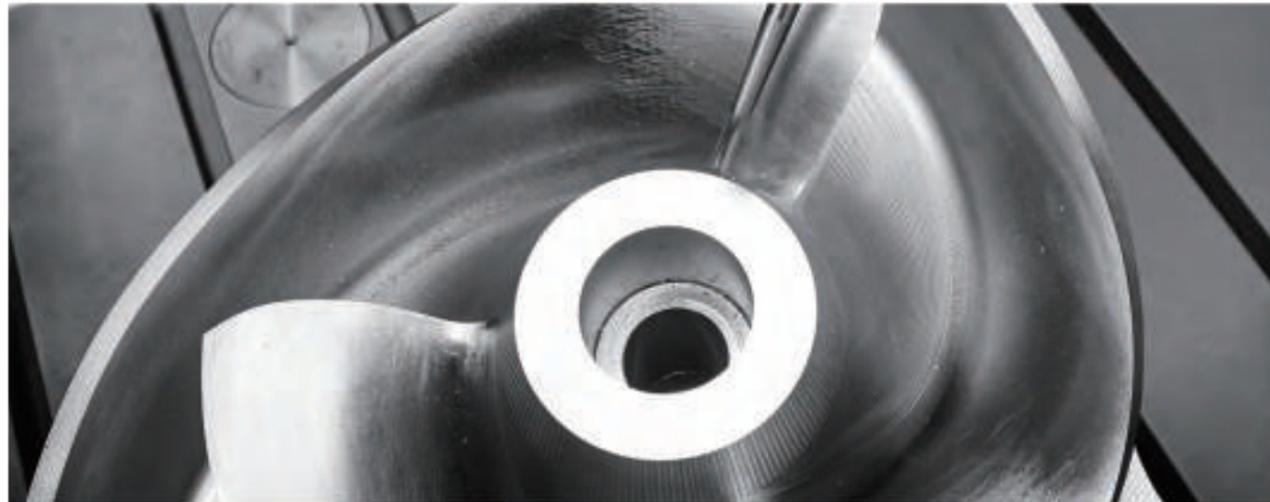


- ▶ 0.001" B axis with the size Ø400 mm (opt. 1" B axis).
- ▶ 8 hose connectors and 1 air flow sensor.
- ▶ Available with hydraulic jig & fixture.
- ▶ Available to work with the 4th or 5th axis (optional only for machines without standard indexing table.).

Specification	Unit	TMH-400	TMH-500
Table Size	mm	Ø400	Ø500
Max. Load Capacity	kg	350	700
X/Y/Z axis travel	mm	510/510/510	710/600/600
X/Y/Z axis rapid traverse	m/min	36/36/36	48/48/48
Spindle taper		7/24 Taper No.40	7/24 Taper No.50(40)
Spindle speed	rpm	8,000(10,000/12,000)	6,000
Spindle motor (50% ED)	kW	11/7.5(18.5/15)	11/15
Tool capacity	pc	24 (30)	

HTT-1250

5-axis Horizontal Machining Center / Table-Table

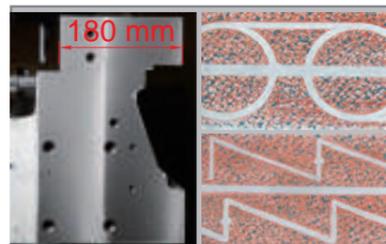


Features

- 5 axes machining applications (Table-Table).
- Equipped with the APC system, the pallets do translational movements while changing.
- Box-way with air-floating design.
- High torque gear spindle design (1,319 Nm).
- Suitable for aircraft engines, turbine blades, and other aerospace applications.



► High rigidity A/B axis design. The A axis adopts dual-side supporting and is driven by servo motors in both sides. The driving/braking torques of the A axis are up to 56,000 Nm/30,000 Nm. The B axis uses worm gear to connect with DD motor and applies 8 disc springs and 2 positioning cones. This allows the B axis to endure 20,000 Nm axial machining force.



► Three axes adopts box-way design, processed with proper heat treatment and precise grinding, able to satisfy the requirements of high rigidity in machining. The contact surface adopts air-floating design, it reduces friction and increases the positioning and repetition accuracy for the pallets and the saddle.



► Uses high-level precision gears to provide high transmission efficiency. The two-step gearbox is able to generate more than 1,000Nm torque output at the spindle speed of 200 rpm. This is especially suitable for hard materials and large-sized workpiece machining.

Specification	Unit	HTT-1250
Table size (LxW)	mm	1,250x1,250
Max. loading capacity	kg	4,000x2
A/B axis travel	dge	+110°~-20°/360°
A/B axis rapid traverse	rpm	5/5
X/Y/Z axis travel	mm	2,000/1,800/1,250
X/Y/Z axis rapid traverse	m/min	10/10/10
Spindle taper		7/24 Taper No.50
Spindle speed	rpm	6,000 (8,000)
Spindle motor	kW	21.5/18.5 (26/22)
Tool capacity	pc	60 (90) (120)

HTH-800

5-axis Horizontal Machining Center / Head-Table



Features

- 5 axis machining applications (Head-Table).
- Equipped with the APC system, the pallets do translational movements while changing.
- Box-way with air-floating design.
- High torque gear spindle design (1,084 Nm).
- Suitable for aircraft engines, turbine blades, and other aerospace components machining.



► Max. spindle torque output is 1,084 Nm and works with gear transmission system. It is suitable to process high precision machining for hard cutting materials. Furthermore, the interior cooling tunnel of the spindle minimizes the heat generation in machining (Patent number M520957).



► B axis rotary table is driven by a low torque roller gear cam, which is suitable for high speed rotation while maintaining long-term machining accuracy.



► Max. head width: 740 mm
Tilting radius: 270 mm

Specification	Unit	HTH-800
Table size (LxW)	mm	800x800
Max. loading capacity	kg	2,400
A/B axis travel	dge	+60°~-105°/360°
A/B axis rapid traverse	rpm	10/5
X/Y/Z axis travel	mm	1,550/1,500/1,600
X/Y/Z axis rapid traverse	m/min	10/10/10
Spindle taper		7/24 Taper No.50
Spindle speed	rpm	6,000 (8,000)
Spindle motor	kW	36/30
Tool capacity	pc	60 (90) (120)



Features

- Especially designed for medium-and small-sized workpieces machining.
- Box-way structure design.
- Power turret and C axis are available for satisfying the machining requirements of turning and milling.
- Equipped with the patented automatic loading/unloading and workpiece storage units. The workpiece changing time is only 4.8 sec.



BLUE



▶ Workpiece changing takes only 4.8 seconds. That reduces non-cutting time to improve productivity. In the feeding axis, the ballscrew is driven by a servo motor to ensure the stable movement. In addition, HS-22 also works with a variety of modularized part feeders.

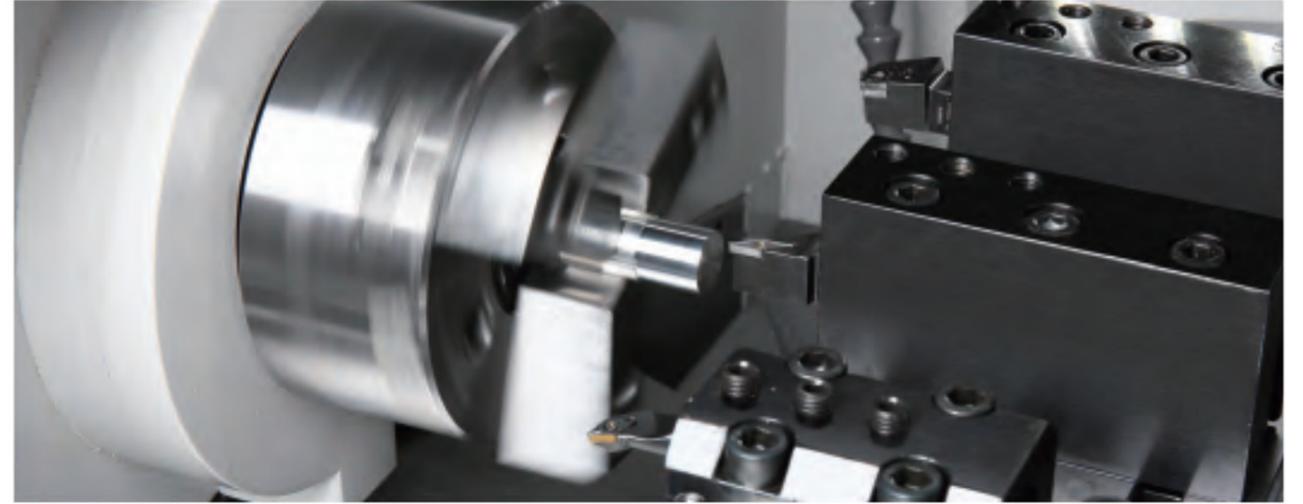


▶ Both X and Z axes are designed with box-way structure with proper heat treatment and grinding process. These details satisfy the requirements for high rigidity in heavy duty or intermittent cutting.



▶ Linear guide way is available with higher rapid traverse (30 m/min). Such speed saves non-cutting time and improves productivity.

Specification	Unit	HS-22	HS-22M
Max. swing diameter	mm	Ø220	
Chuck O.D.	inch	6" (8")	
Bar capacity	mm	Ø26 (Ø44) (Ø51)	
X/Z axis travel	mm	155/220	
X/Z axis rapid traverse	m/min	Box way : 20/20	
Spindle nose		A2-5 (A2-6)	
Spindle speed	rpm	6,000 (4,800) (4,500)	
Spindle motor	kW	15/11/7.5	18.5/15/11
Tool capacity	pc	12 (8)	VDI-40: 12



Features

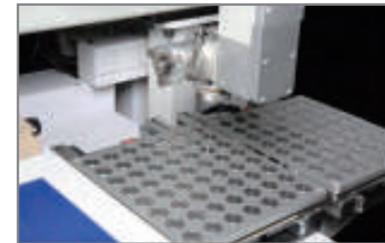
- Compact gang type CNC lathe.
- Allowable for various automation solutions.
- Allowable for different gang type tool holders.
- Based on the workpiece's shape to select proper robot arm and storage unit.
- Suitable for mass production in component parts.
- Symmetrical machine structure design to reduce the influences of thermal deformation.



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▶ Gantry type robot arm and high volume storage unit design not only realizes the automatic production, but also improves machine's value.



▶ Considering the varieties of workpieces, different storage solutions can be selected for the best efficiency.

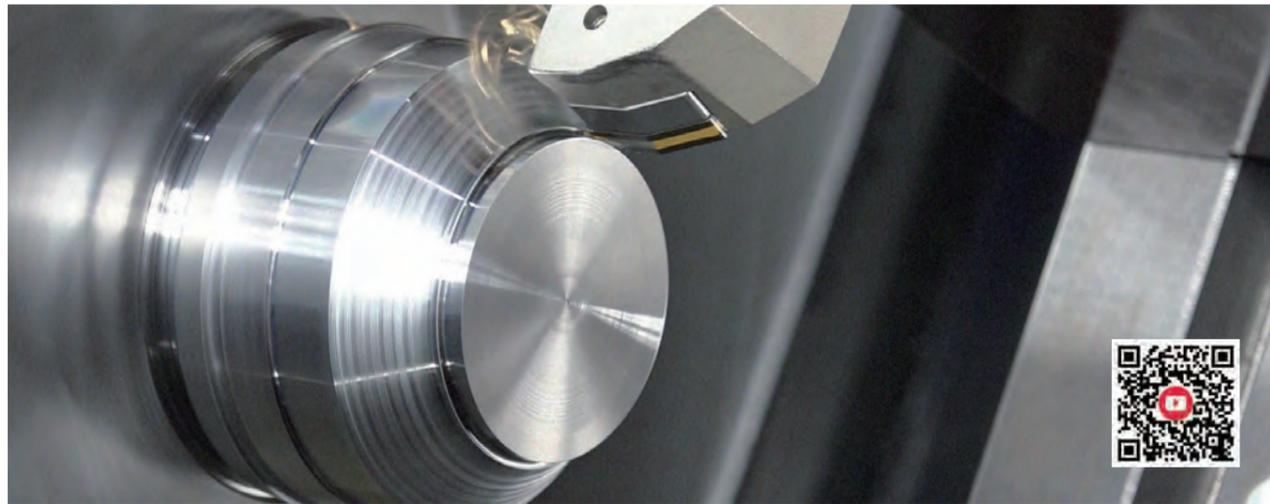


▶ The bar feeder is able to work with part catcher and part conveyor to facilitate operation.

Specification	Unit	Q5
Max. swing diameter	mm	Ø230
Chuck O.D.	inch	5" (4" Air chuck)
Bar capacity	mm	Ø26
X/Z axis travel	mm	220/220
X/Z axis rapid traverse	m/min	30/30
Spindle nose		A2-4
Spindle speed	rpm	6,000 (8,000)
Spindle motor	kW	7.5/5.5/3.7
Tool capacity	pc	2-5 (Depends on workpiece)

A-1500

Horizontal CNC Lathe

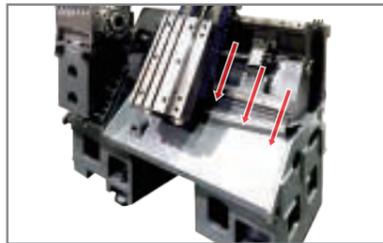


Features

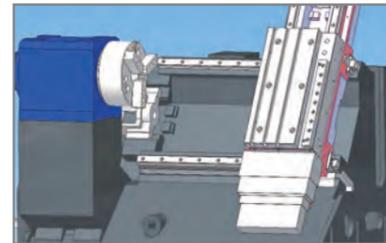
- Compact gang type CNC lathe with front width of only 1,990 mm.
- Allowable for various automation solutions.
- Allowable for different gang type tool holders.
- Based on workpiece shape, proper robot arm and storage units are selected.
- 60° slanted machine bed design ensures excellent chips disposal.



► Both X and Y axes adopt linear guideways and ballscrews to satisfy the requirement of high speed movement. They also feature high rigidity, low friction, and low decibel noise.



► 60° slanted machine bed design benefits chips disposal.

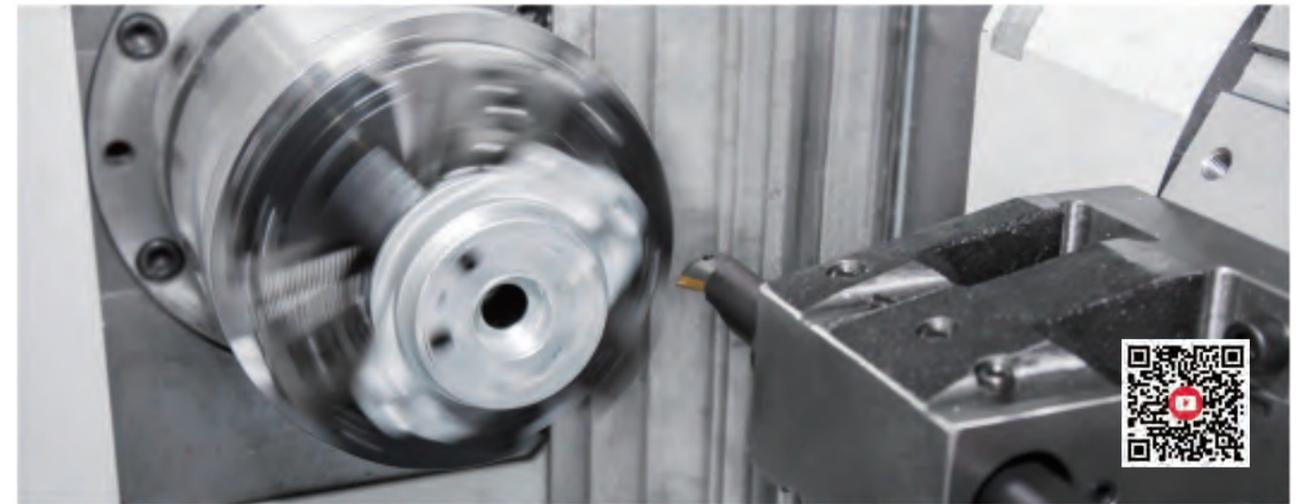


► The feeding unit adopts a high rigidity linear guideway with wide span structure design. Its fast and high precision machining capacities match the requirements of high efficiency productivity.

Specification	Unit	A-1500
Max. swing diameter	mm	Ø300
Chuck O.D.	inch	6" (8")
Bar capacity	mm	Ø44 (Ø51)
X/Z axis travel	mm	320/400
X/Z axis rapid traverse	m/min	30/30
Spindle nose		A2-5(A2-6)
Spindle speed	rpm	4,800 (4,500)
Spindle motor	kW	15/11/7.5
Tool capacity	pc	2-5(Depends on workpiece)

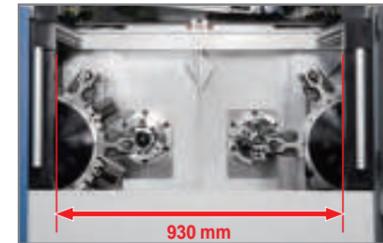
MT Series

Horizontal CNC Lathe



Features

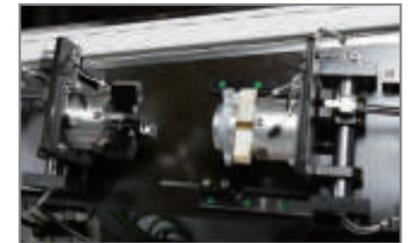
- Independent spindles and working areas are separated into two zones.
- Individual bed structure eliminates the resonance effect of processing dual area simultaneous turning.
- Standard equipped with gantry type 3 axis robot arm driven by servo motor for rapid feeding speed.
- Compared with conventional small-sized CNC lathes, one compact MT lathe uses its two machining areas to process turning tasks simultaneously to save floor space.
- Maximum floor utility and minimum manpower required.



► Wide door opening facilitates operation and maintenance.



► Individual machine bed structure separates the machining area. It minimizes the influence of vibration and benefits machining precision and surface quality.



► The robot arm is able to process three axes movement. Driven by servo motor, the programmable robot arm is able to consider the rapid feeding speed and the different workpiece shapes to adjust positioning points.

Specification	Unit	MT-1500[M]	MT-2000[M]
Max. swing diameter	mm	Ø210	
Chuck O.D.	inch	6"	8"
X/Z axis travel	mm	155/155	
X/Z axis rapid traverse	m/min	30/30	
Spindle nose		A2-5	A2-6
Spindle speed	rpm	4,500 (6,000)	4,500 (3,000)
Spindle motor	kW	11/7.5/5.5	15/11/7.5
Tool capacity	pc	12 (8) [12 (VDI-40)]	

TCS Series

Horizontal CNC Lathe

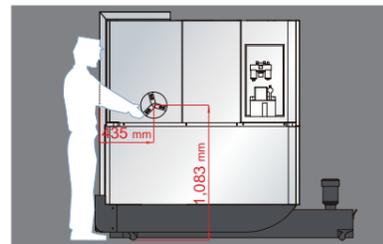
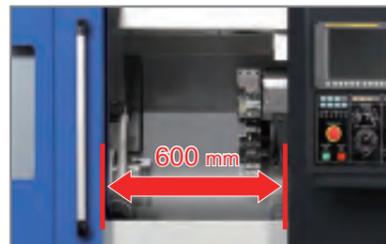


Features

- Machine structure is optimized by finite element analysis (FEA) with the features of high dynamic rigidity and stability.
- High efficient turning capacity.
- Servo driven turret has the feature of rapid tool changing to reduce the non-cutting time.
- Excellent Performance/Cost ratio.



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► The machine structure is optimized by finite element analysis (FEA) and computes the steady state, and modes to process optimizing structure analysis. It guarantees high dynamic rigidity and stability in high speed machining.

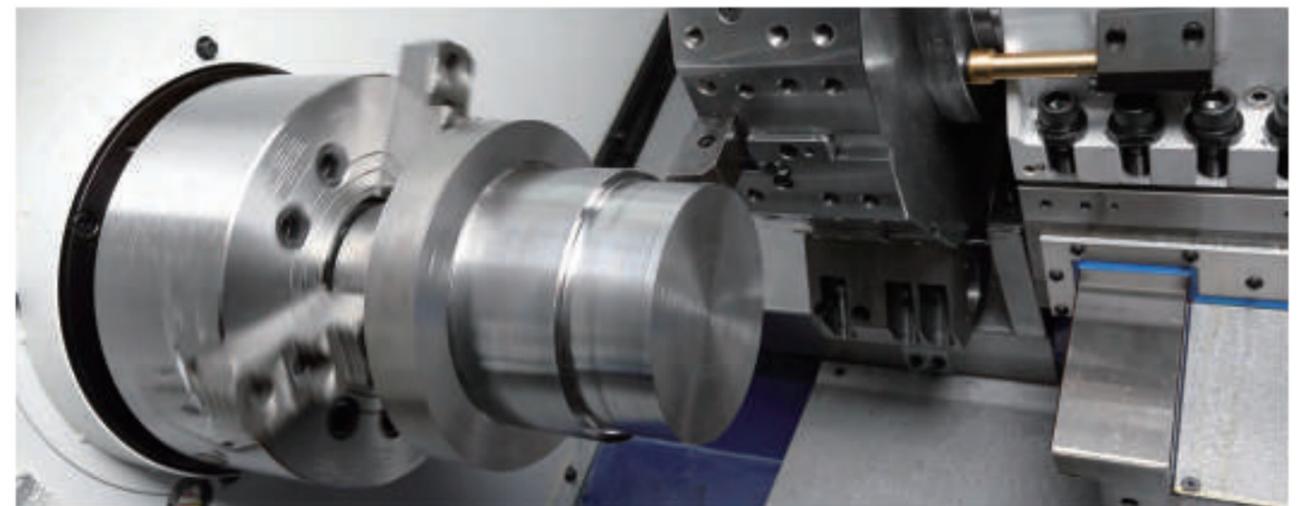
► Wide door opening facilitates operation and maintenance.

► Short distance between the spindle and the turret, which facilitating the operator in workpiece loading/unloading.

Specification	Unit	TCS-1500	TCS-1500II	TCS-2000L	TCS-2000LII	TCS-2500L	TCS-2500LII
Max. swing diameter	mm	Ø520					
Chuck O.D.	inch	6"		8"		10"	
Bar capacity	mm	Ø44		Ø51		Ø64/Ø74	
X/Z axis travel	mm	170/400		170/400 [600]			
X/Z axis rapid traverse	m/min	30/30					
Spindle nose		A2-5		A2-6		A2-8	
Spindle speed	rpm	4,800		4,500 (3,000)		2,500 (3,500)	
Spindle motor	kW	15/11					
Tool capacity	pc	12 (8)					

TNL Series

Horizontal CNC Lathe

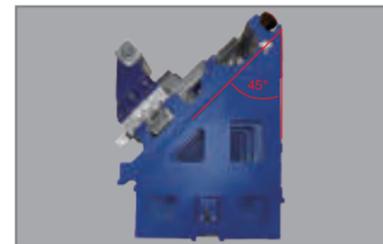


Features

- Adopts box-way and powerful spindle designs allow the excellent performances in heavy duty cutting.
- Slanted machine bed ensures the high machine stability and benefits chips disposal.
- Spindle adopts angular contact ball bearings and double-row roller bearing design to provide the high rigidity in machine.
- The external reducer is able to provide high torque output in low spindle speed (opt.).



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► 45° slanted machine bed design ensures the high machining stability and benefits chips disposal, especially suitable for heavy duty cutting.

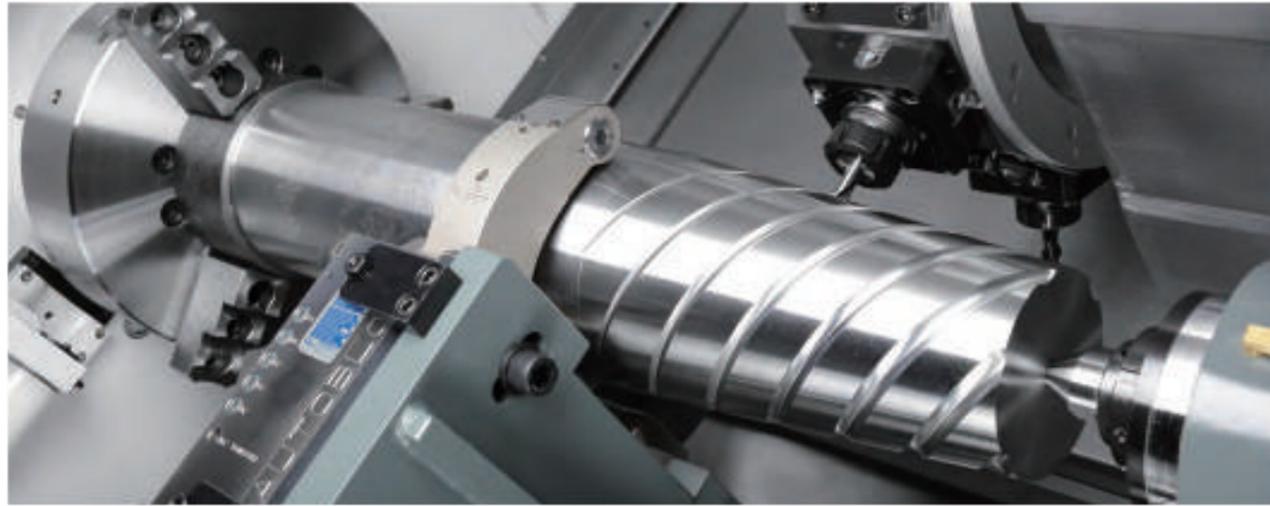
► X and Z axes use box-ways to satisfy the requirements for high rigidity in heavy duty or intermittent cutting.

► The two-step deceleration gearbox provides high torque in low spindle speed. Moreover, it has excellent chips disposal capacity for heavy duty cutting of large diameter workpieces.

Specification	Unit	TNL-130ALII-1.0M [0.7M/1.6M/2M]	TNL-160AII-1.0M [0.7M/1.6M/2M]
Max. swing diameter	mm	Ø620	
Chuck O.D.	inch	10" (12")	
Bar capacity	mm	Ø75	
X/Z axis travel	mm	285 (260+25) /1,000 (700/1,600/2,000)	
X/Z axis rapid traverse	m/min	20/24/(24)	
Spindle nose		A2-8	
Spindle speed	rpm	3,500 (2,500)	
Spindle motor	kW	22/18.5/15 (26/22/18.5)	
Tool capacity	pc	12 (8)	

THL Series

Horizontal CNC Lathe



Features

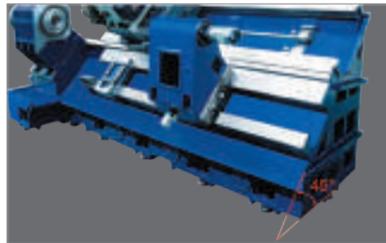
- 37 kW spindle motor uses deceleration gear reducer, the maximum spindle torque up to 1,477 Nm.
- Integrated machine bed and box-way design.
- Max. turning diameter up to 620 mm.
- C axis and BMT-75 power turret are available for satisfying requirements of turning and milling.
- Max. Z axis travels up to 3,000 mm. For long workpieces, the steady rest (opt.) strengthens the support force.



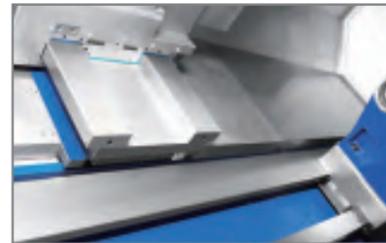
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▶ The spindle C axis positioning function uses a rotary encoder with multi-point positioning technology for indexing the degree. The minimum positioning degree is 0.001.



▶ 45° slanted machine bed design ensures the high machining stability and benefits chips disposal, especially suitable for heavy duty cutting.

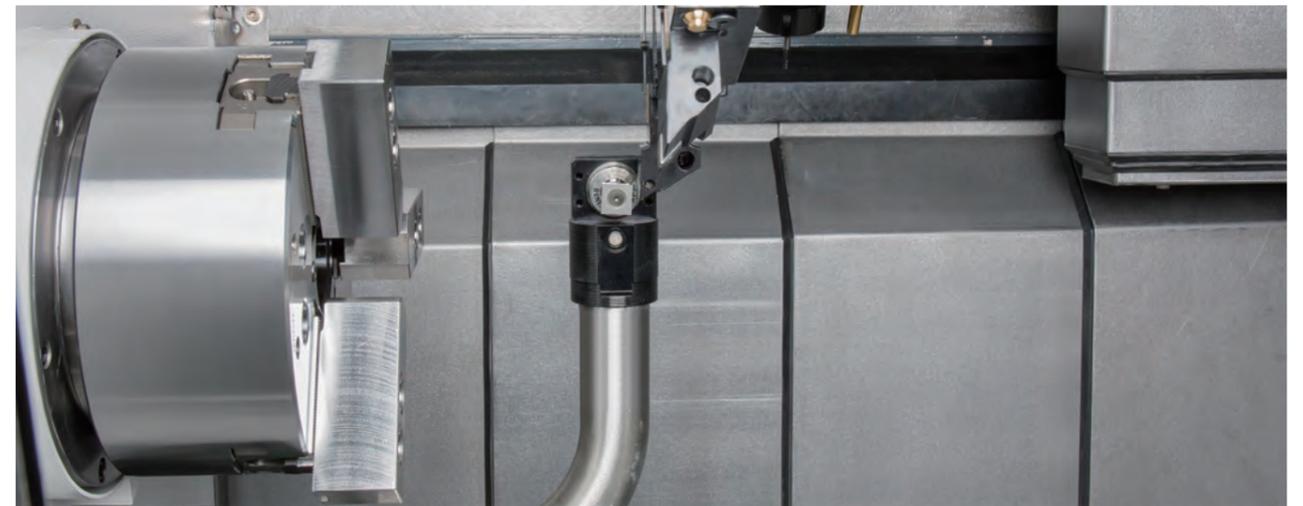


▶ X and Z axis uses box-way to satisfy the requirements for high rigidity in heavy duty or intermittent cutting.

Specification	Unit	THL-620[M]	THL-620L[M]	THL-620XL[M]
Max. swing diameter	mm		Ø780	
Chuck O.D.	inch		15" (18")	
Bar capacity	mm		Ø90 (Ø116)	
X/Z axis travel	mm	365/1,200	365/2,000	365/3,000
X/Z axis rapid traverse	m/min		20/20	
Spindle nose			A2-11	
Spindle speed	rpm		2,500 (2,000)	
Spindle motor	kW		45/37/30	
Tool capacity	pc		12 [12 (BMT-75)]	

TE Series

Horizontal CNC Lathe

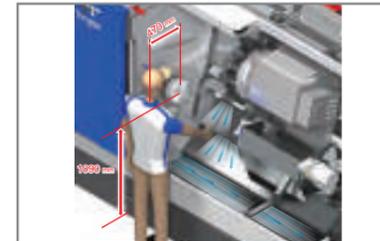


Features

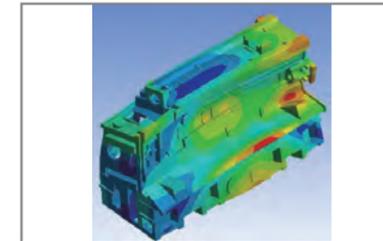
- Machine structure adopts 75° slanted design. It drops down the machine's center of gravity to improve structure rigidity of the machine.
- Standard equipped with a servo turret with 8 tools. Power turret is another option and allows the maximum tool capacity for 16 tools.
- The sub-spindle is selectable for customers. It allows a single machine to complete whole machining procedures for both sides of the parts.
- The maximum machining size is 18" motorcycle wheel.



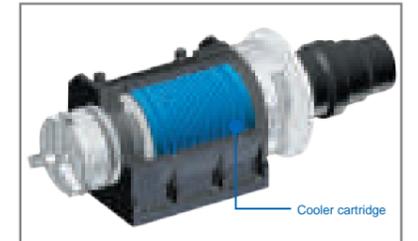
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▶ 75° slanted machine bed design benefits chips disposal and operating.



▶ Main parts of the machine are made by high-level integrated casted iron. This allows the parts to absorb vibration and minimize deformation. Furthermore, the machine structure is optimized by finite element analysis (FEA) and computes the steady state, and modes to process optimizing structure analysis. It ensures high dynamic rigidity and stability in high speed machining.



▶ The built-in spindle is equipped with cooling system to control the temperature and minimize thermal deformation in long-term machining.

Specification	Unit	TE-2000[M]	TE-2000B	TE-2000MB[C]	TE-2500[M]	TE-2500B	TE-2500MB[C]	TE-2500 wheel machine
Max. swing diameter	mm	Ø700						
Chuck O.D.	inch	8" (10")			10" (12")			Finger chuck (opt.)
Bar capacity	mm	Ø51			Ø64/Ø74			-
X/Z/B axis travel	mm	230/600/-	230/600/630		230/600/-	230/600/630		245/600/-
X/Z/B axis rapid traverse	m/min	30/30/-	30/30/30		30/30/-	30/30/30		30/30/-
Spindle nose		A2-6			A2-8			
Spindle speed	rpm	4,500 (3,000)			3,500 (2,500)			2,500
Spindle motor	kW	18.5/15/11						
Sub-spindle nose		-	A2-5		-	A2-5		-
Sub-spindle chuck O.D.	inch	-	6"		-	6"		-
Sub-spindle speed	rpm	-	5,000		-	5,000		-
Sub-spindle motor	kW	-	7.5/5.5		-	7.5/5.5		-
Tool capacity	pc	8/12[12(16)]	8/12(BMT65)	12(16)	8/12[12(16)]	8/12(BMT65)	12(16)	8[12]

TNL T Series

Horizontal CNC Lathe

Features

- Integrated high rigidity machine structure.
- Vertical type machine bed design performs excellent chips disposal.
- High rigidity slide structure is suitable for heavy duty cutting.
- Short distance between the spindle and the turret, which facilitating the operator in workpiece loading/unloading.



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Specification	Unit	TNL-100T [L]	TNL-120T [L]	TNL-130T [L]
Max. swing diameter	mm	Ø400		
Chuck O.D.	inch	8" (10")	10" (12")	
Bar capacity	mm	Ø51	Ø64	Ø74
X/Z axis travel	mm	200/400 [600]		
X/Z axis rapid traverse	m/min	24/30		
Spindle nose		A2-6	A2-8	
Spindle speed	rpm	3,000 (4,500)	2,500 (3,500)	
Spindle motor	kW	18.5/15/11		
Tool capacity	pc	12 (8)		

TVL Series

Vertical CNC Lathe

Features

- Excellent heat dissipation for long-term heavy duty cutting.
- Integrated machine structure brings better vibration-absorption.
- Vertical type machine bed design allows the operator closer proximity to facilitate workpiece loading/unloading, tool adjustments, and chips disposal.



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Specification	Unit	TVL-40 [M]	TVL-40 [RM]
Chuck O.D.	inch	12" (15")	
Max. swing diameter	mm	Ø700	
X/Z axis travel	mm	285/390 [500/600]	
X/Z axis rapid traverse	m/min	20/24 (Box way: 16/16)	
Spindle nose		A2-8	
Spindle speed	rpm	2,250	
Spindle motor	kW	26/22/18.5	
Tool capacity	pc	8 [VDI-50: 12]	

TD Series

Multi-tasking Turning Center

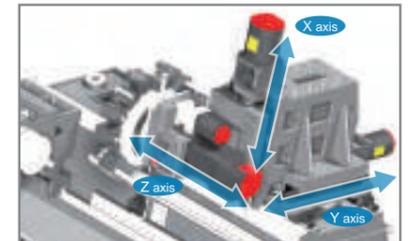
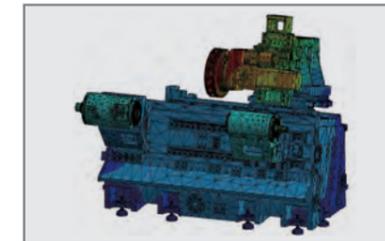


Features

- Standard equipped with a 12 stations power turret.
- 75° slanted machine bed design benefits chips disposal.
- High rigidity structure with low center of gravity.
- X/Y/Z axis are orthogonal to each other, allowing for high straightness accuracy and precise and positioning.



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► Main parts of the machine are made by high-level integrated casted iron. This allows the parts to absorb the vibration and minimize the deformation. Furthermore, the machine structure is optimized by finite element analysis (FEA) and computes the steady state, and modes to process optimizing structure analysis. It guarantees high dynamic rigidity and stability in high speed machining.

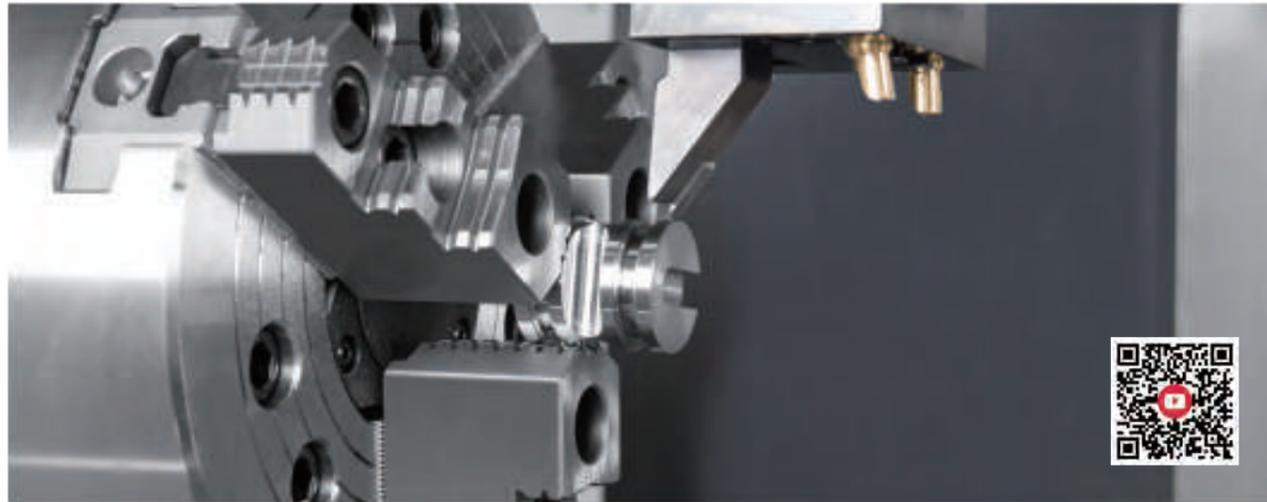
► The spindle C axis positioning function uses a rotary encoder with multi-point positioning technology for indexing the degree. The minimum positioning degree is 0.001.

► Different from the virtual Y axis, the real Y axis has excellent straightness and positioning accuracy to ensure excellent machining quality.

Specification	Unit	TD-2000Y [BC]	TD-2500Y [BC]
Max. swing diameter	mm	Ø700	
Chuck O.D.	inch	8"(10")	10"(12")
Bar capacity	mm	Ø51	Ø64 (Ø74)
X/Y/Z/B axis travel	mm	230/±51/600/- [630]	
X/Y/Z/B axis rapid traverse	m/min	30/15/30/- [30]	
Spindle nose		A2-6	A2-8
Spindle speed	rpm	4,500(3,000)	3,500 (2,500)
Spindle motor	kW	18.5/15/11	
Sub-spindle nose		A2-5	
Sub-spindle chuck O.D.	inch	- [6"]	
Sub-spindle speed	rpm	- [5,000]	
Sub-spindle motor	kW	- [7.5/5.5]	
Tool capacity	pc	12(16)	

TD-1500Y

Multi-tasking Turning Center



Features

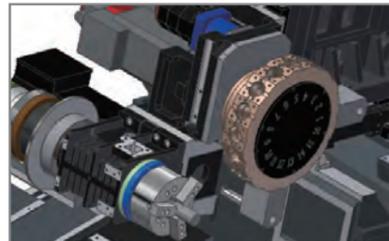
- Applies single power turret to process turning and milling tasks.
- 75° slanted machine bed design benefits chips disposal.
- High rigidity structure with low center of gravity.
- X/Y/Z axis are orthogonal to each other, allowing for high straightness accuracy and positioning precision.
- Available for various automation devices, including: bar feeders, workpiece turnover units, and joint type robot arms.



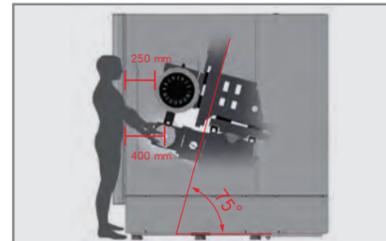
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► Integrated machine structure with 75° huge-crossed pads design improves rigidity and stability. It also benefits chips disposal.



► TD-1500Y is a multi-tasking turning center with C axis, Y axis, 16 stations power turret, and a tailstock. It gathers the turning and milling functions into a single machine.

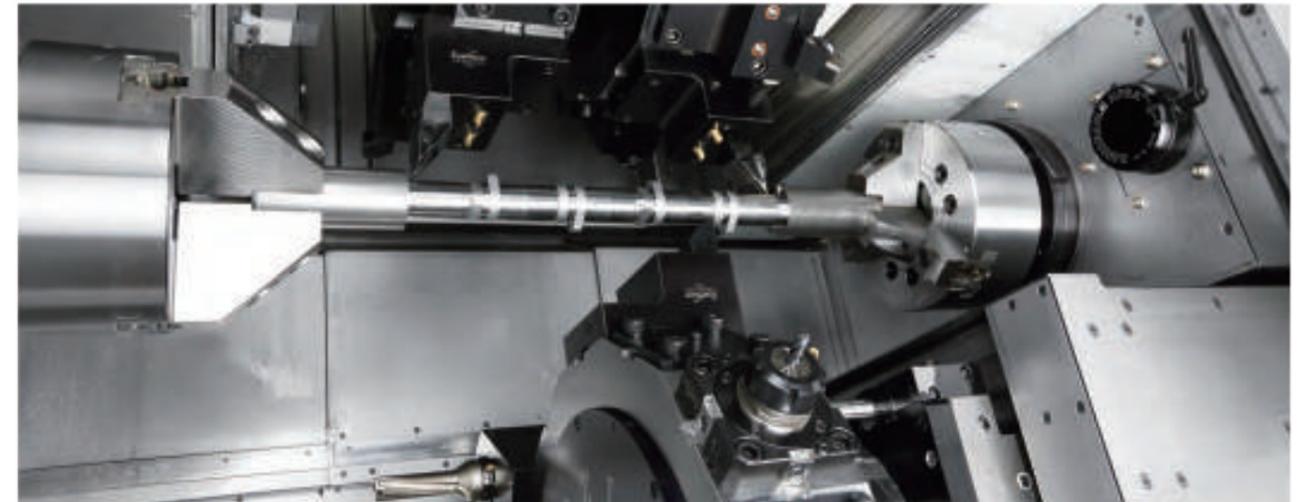


► Machine bed adopts 75° slanted design. It shortens the distances between operator and workpiece/tool to 400mm/250mm respectively.

Specification	Unit	TD-1500Y
Max. swing diameter	mm	Ø280
Chuck O.D.	inch	6" (8")
Bar capacity	mm	Ø26 (Ø44) (Ø51)
X/Y/Z axis travel	mm	155/±35/250
X/Y/Z axis rapid traverse	m/min	30/15/30
Spindle nose		A2-5 (A2-6)
Spindle speed	rpm	6,000 (4,800) (4,500)
Spindle motor	kW	18.5/15/11
Tool capacity	pc	16 (12)

TMT Series

Multi-tasking Turning Center

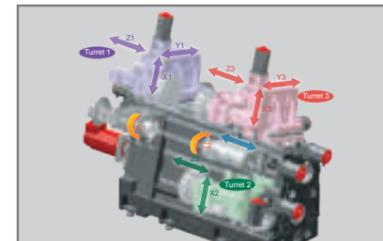


Features

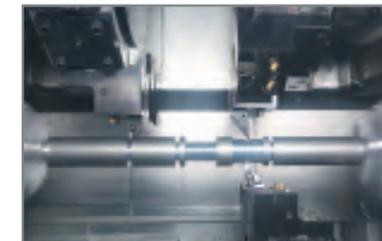
- A machine has two spindles, two Y axes, and three power turrets.
- All machining procedures are able to be done in one time clamping, including turning, milling, tapping, etc.
- Allowable for various automation solutions, including bar feeders and robot arms.
- Three power turrets are able to process the turning tasks together or separately. It shortens the machining time and improves efficiency.



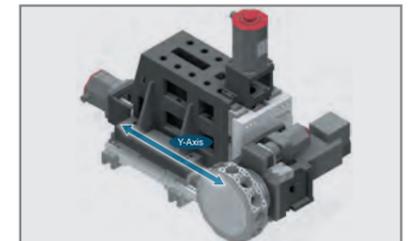
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► Symmetrical saddle design and the X/Y/Z axes are orthogonal to each other. Different from the virtual Y axis, the real Y axis avoids the mechanical movement errors. Furthermore, through the application of servo compensation, it also ensures excellent positioning accuracy in this machine.



► The three turrets are able to process different machining tasks simultaneously. It improves the machining efficiency and speeds up investment returns.



► Different from simulated Y axis, the real linear Y axis provides high machining accuracy by its straightness and positioning accuracy. The highly rigid saddle design guarantees high precision machining performance.

Specification	Unit	TMT2000-T2	TMT2000-T2Y1	TMT2000-T2Y2	TMT2000-T3Y2
Max. swing diameter	mm	Ø720			
Chuck O.D.	inch	8"			
Bar capacity	mm	Ø65 (Ø51 Built-in type)			
X1/X2/X3 axis travel	mm	230/205/-		230/-/230	230/205/230
Y1/Y2/Y3 axis travel	mm	-	±51/-/-	±51/-/±51	
Z1/Z2/Z3/B axis travel	mm	600/600/-/680	600/600/-/680	440/-/440/680	440/600/440/680
X/Y/Z/B axis rapid traverse	m/min	30/15/36/30			
Spindle nose		A2-6			
Spindle speed	rpm	4,500 (6,000 Built-in type)			
Spindle motor	kW	18.5/15/11			
Sub-spindle chuck O.D.	inch	8"			
Sub-spindle speed	rpm	6,000			
Sub-spindle motor	kW	18.5/11			
Tool capacity	pc	12 (16)×2			12 (16)×3

TMS Series

Multi-tasking Turning Center

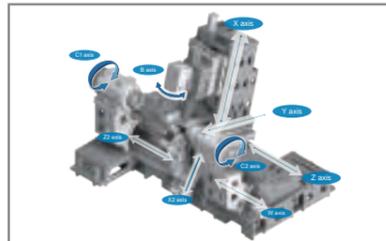


Features

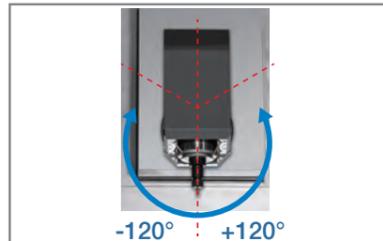
- 75° slanted machine bed design not only benefits accessibility and excellent chips disposal, but also lowers the machine's center of gravity to enhance the entire structure rigidity.
- The TMS series is able to be applied for multi-process machining. With the functions of swing B axis and 5 axes simultaneous motion controller, it is able to process complex curve surface contouring.
- Standard equipped with 40 tools chain type ATC tool magazine. For further applications, 80 tools is also available.



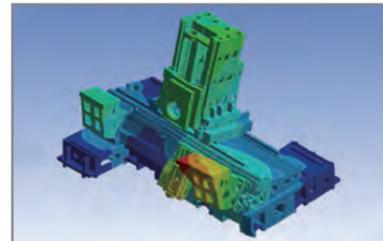
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▶ The XYZ axis are orthogonal to each other. Different from the virtual Y axis, the real Y axis avoids mechanical movement errors. Furthermore, through the application of servo compensation, it also ensures excellent positioning accuracy.



▶ B axis uses roller gear cam to assure machining performance and to meet the turning requirements for the tool spindle. The roller gear cam has the features of high rigidity, high precision, zero-backlash, and long usage life.



▶ The machine structure is optimized by finite element analysis (FEA).

Specification	Unit	TMS-2000[S][ST]	TMS-2500[S][ST]	TMS-3000[S][ST]	TMS-3800[S][ST]
Max. swing diameter	mm	Ø660		Ø710	
Chuck O.D.	inch	8"	10"	12"	15"
Bar capacity	mm	Ø51	Ø72		Ø95
X1/Y axis travel	mm	-125~600/±125		-150~575/±150	
Z1 axis travel	mm	1,000		1,500	
X2 axis travel	mm	-[-][200]		-[-][200]	
Z2 axis travel	mm	-[-][820]		-[-][1,500]	
W axis travel	mm	1,000		1,500	
X/Y/Z/W axis rapid traverse	m/min	40/40/40/30			
Spindle nose		A2-6	A2-8	A2-11	
Spindle speed	rpm	5,000	3,500	2,500	
Sub-spindle chuck O.D.	inch	-[8"][8"]		-[12"][12"]	
Sub-spindle speed	rpm	-[5,000][5,000]		-[3,500][3,500]	
Machining spindle travel	deg	240°(-30°~210°)			
Machining spindle speed	rpm	12,000			

TMV Wheel Series

Vertical Wheel Machining Center

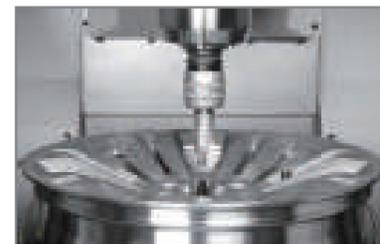


Features

- Especially designed for wheel machining.
- Suitable for machining wheel ribs, PCD holes, valves, and stud holes.
- Heightened column design allows setup of the 4th axis for further applications.
- Equipped with four chip augers to ensure chips disposal efficiency.



■ BLUE



▶ Standard equipped with four chip augers allowing four coolant flushing outlets to be added for better chip disposal.

Depending on the machining requirements, various types of NC driving 4th axis are able to be setup for machining rib contouring, PCD holes, valves, and stud holes.



■ Casting wheel ■ Forging wheel

OP-30 Drilling/Milling

Specification	Unit	TMV-850W	TMV-1050W	TMV-1100W
Wheel size	inch	O.D.:14"~22" Height: 4"~10.5"		O.D.:14"~26" Height: 4"~12.5"
Spindle taper		7/24 Taper No.40		
Spindle speed	rpm	10,000 (15,000)		
Tool capacity	pc	24		
X/Y/Z axis travel	mm	850/650/610	1,050/650/610	1,100/762/710
X/Y/Z axis rapid traverse	m/min	48/48/48		30/30/20
Spindle motor	kW	18.5/15/11 (18.5/11/7.5)		

TVW Series

Vertical Wheel CNC Lathe

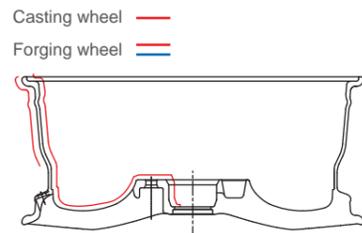


Features

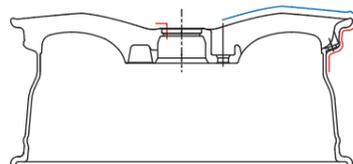
- Single turret type and double turret type vertical CNC lathes are especially designed for wheel turning.
- Large-sized box-way design maintains high rigidity and high reliability.
- Huge chip disposal exit allows a large volume of chips to flow out during wheel turning.
- Suitable for the production line of various types of wheels.



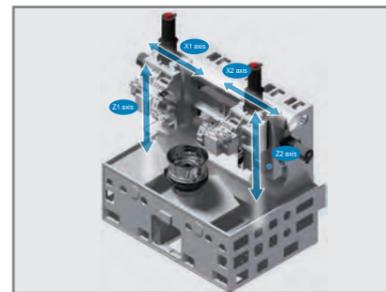
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OP-10 Turning



OP-20 Turning



► Both X and Z axis are designed with box-way structure and receive proper heat treatment and grinding process. This satisfies the requirements for high rigidity in heavy duty or intermittent cutting.

Specification	Unit	TVW-22DT	TVW-22T	TVW-26DT	TVW-26T	TVW-28DT	TVW-28T
Wheel size	inch	O.D.:14"~22" Height: 12"		O.D.:14"~24" Height: 6"~12"		O.D.:14"~28" Height: 6"~16"	
Spindle nose		A2-11					
Spindle speed	rpm	2,500		2,000			
Spindle bearing dia.	mm	Ø160					
Tool capacity	pc	6+6	6	6+6	6	6+6	6
X/Z axis travel	mm	450/450		500/525		540/750	
X/Z axis rapid traverse	m/min	20/20					
Spindle motor	kW	55/45	45/37	55/45	45/37	75/60	45/37

HS Series

Horizontal Wheel CNC Lathe

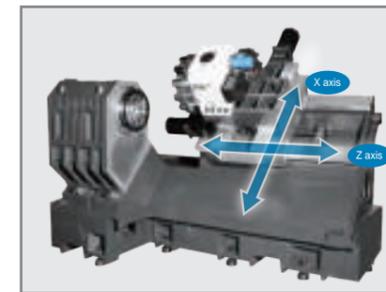


Features

- Heat dissipation technology for spindle headstock eliminates heat accumulation during long-term turning.
- Built-in spindle has the feature of low vibration suitable wheel polishing.
- Integrated machine bed has high rigidity that benefits high turning precision.
- Suitable for wheel production lines.



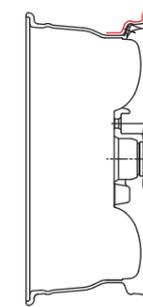
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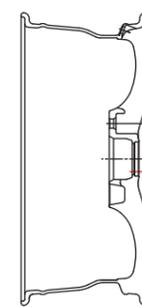
► A belt-driven spindle is standard. However a better option is the built-in Ø160 mm high precision spindle available for better motor efficiency.



OP-10 Turning



OP-20 Turning



OP-40 Polishing

Casting wheel —
Forging wheel —

Specification	Unit	HS-36WIIG	HS-40WG
Wheel size	inch	13"~22"	14"~24"
Spindle nose		A2-11	
Spindle speed	rpm	2,000	
Spindle bearing dia.	mm	Ø160	
Tool capacity	pc	10	8
X/Z axis travel	mm	350/740	385/750
X/Z axis rapid traverse	m/min	20/20	16/20
Spindle motor	kW	45/37	



Features

- Ultrasonic control technology automatically completes frequency scanning and power settings.
- Tool vibrates periodically (15~45 kHz), reducing cutting resistance and enhancing surface quality.
- 24,000 rpm high speed spindle, supports standard BBT-30 tools.
- Ultrasonic assisted machining reduces cutting resistance and temperature rise, to extend tool life.
- Ultrasonic assisted machining reduces roughness from processed surface, to reduce polishing time.
- Reduces burrs arising from processing hard and brittle material.
- Allowable for the micro-hole processing for hard and brittle material.



■ BLUE ■ GREEN

Detailed machine specifications



► Medical industry
Artificial crown machining



► Precise ceramic industry
Roughing and finishing



► Glass industry
Drilling, polishing, chamfering

Specification	Unit	VU-5
Table size (LxW)	mm	850x410
Max. table load	kg	250
Spindle taper		7/24 Taper No.30
Spindle speed	rpm	20,000
X/Y/Z axis travel	mm	510/400/350
X/Y/Z axis rapid traverse	m/min	48/48/48
Tool capacity	pc	20 (30)
Spindle motor	kW	3.7/2.2

Tapping Center

Item	Specification	Unit	EZ-5II
Table	Table size	mm	600x400
	Max. loading capacity	kg	300
	Table height from floor	mm	850
	T-slot (size×No.)	mm	18x3
Spindle	Spindle taper		7/24 Taper No.30
	Spindle speed	rpm	12,000 (24,000)
Travel	X/Y/Z axis travel	mm	510/400/300
	Distance from table surface to spindle gage line	m/min	200~500
Feed	X/Y/Z axis rapid traverse	mm/min	60/60/60
	Cutting feedrate	m/min	1~20,000
ATC	Tool shank	pc	BBT-30
	Tool capacity	mm	21
	Max. tool diameter	mm	Ø80
	Max. tool length	mm	200
	Max. tool weight	kg	3
Motor	Spindle motor	kw	5.5/3.7 (3.7/1.5)
	X/Y/Z axis servo motor	kw	1.5/2.2/2.2 [1.8/1.8/2.7]
Machine size	Width×depth×height	mm	1,700x2,600x2,700
	Weight	kg	2,850
Controller			Mitsubishi M80VA [Fanuc Oi-MF Plus]

	EZ-7II	VTX-5II	VTX-7II
	850x400	600x400	850x400
	300	300	300
	850	850	850
	18x3	18x3	18x3
	7/24 Taper No.30	7/24 Taper No.30	7/24 Taper No.30
	12,000 (24,000)	12,000	12,000
	710/400/300	510/400/300	710/400/300
	200~500	200~500	200~500
	60/60/60	60/60/60	60/60/60
	1~20,000	1~20,000	1~20,000
	BBT-30	BBT-30	BBT-30
	21	21	21
	Ø80	Ø80	Ø80
	200	200	200
	3	3	3
	5.5/3.7 (3.7/1.5)	13/3.7(26/9)	13/3.7(26/9)
	1.5/2.2/2.2 [1.8/1.8/2.7]	1.8/1.8/2.7	1.8/1.8/2.7
	2,100x2,600x2,700	1,700x2,600x2,700	2,100x2,600x2,700
	3,150	2,850	3,150
	Mitsubishi M80VA [Fanuc Oi-MF Plus]	Fanuc Oi-MF Plus	Fanuc Oi-MF Plus

Item	Specification	Unit	TMV-510T+APC
Table	Table size	mm	600x360
	Max. loading capacity	kg	100x2
	Table height from floor	mm	920
	T-slot (size×No.)	mm	18x3
Spindle	Spindle taper		7/24 Taper No.30
	Spindle speed	rpm	8,000 (4,000) (12,000)
Travel	X/Y/Z axis travel	mm	510/360/435
	Distance from table surface to spindle gage line	mm	200~635
Feed	X/Y/Z axis rapid traverse	m/min	40/40/48
	Cutting feedrate	mm/min	1~10,000
ATC	Tool shank	m/min	BT-30
	Tool capacity	pc	20
	Max. tool diameter	mm	Ø68
	Max. tool diameter(w/o adjacent tool)	mm	Ø100
	Max. tool length	mm	200
	Max. tool weight	kg	3
Motor	Spindle motor	kw	7.5/5.5/3.7
	X/Y/Z axis servo motor	kw	1.6/1.6/1.6
Machine size	Width×depth×height	mm	2,000x2,940x2,420
	Weight	kg	4,300
Controller			Fanuc Oi-MF Plus

	QT-II+APC	TMV-510+APC
	600x360	600x360
	100x2	100x2
	920	920
	18x3	18x3
	7/24 Taper No.30	7/24 Taper No.30
	15,000 (20,000)	8,000 (4,000) (12,000)
	510/360/435	510/360/300
	200~635	200~500
	40/40/48	40/40/48
	1~15,000	1~10,000
	BT-30	BT-30
	20	10 (14)
	Ø68	Ø80
	Ø100	Ø80
	200	200
	3	3
	2.2/1.5 (9/3.7)	5.5/3.7
	1.6/1.6/1.6	1.6/1.6/1.6
	2,000x2,940x2,420	2,000x2,930x2,450
	4,300	4,300
	Fanuc Oi-MF Plus	Fanuc Oi-MF Plus

Vertical Machining Center

Item	Specification	Unit	QVM-610All	VP-8
Table	Table size	mm	700x410	900x510
	Max. loading capacity	kg	400x2	500
	Table height from floor	mm	950	900
	T-slot (size×No.)	mm	M16x66 (PINx8)	18x5
Spindle	Spindle taper		7/24 Taper No.40	7/24 Taper No.40
	Spindle speed	rpm	8,000 (10,000)	10,000 (15,000)
Travel	X/Y/Z axis travel	mm	610/410/510	820/510/535
	Distance from table surface to spindle gauge line	mm	180~690	100~635
Feed	X/Y/Z axis rapid traverse	m/min	36/36/30	48/48/36
	Cutting feedrate	mm/min	1~10,000	1~10,000
ATC	Tool shank	m/min	BBT-40	BBT-40
	Tool capacity	pc	24 (30)	24 (30)
	Max. tool diameter	mm	Ø89	Ø75
	Max. tool diameter(w/o adjacent tool)	mm	Ø135	Ø150
	Max. tool length	mm	250	300
	Max. tool weight	kg	7	7
Motor	Spindle motor	kw	11/7.5/5.5 (12/9/7.5)	11/7.5 (15/7.5)
	X/Y/Z axis servo motor	kw	3/3/4	1.5/2.2/3 [1.8/1.8/3]
Machine size	Width×depth×height	mm	2,440x3,540x3,116	2,200x2,642x2,945
	Weight	kg	7,500	5,000
Controller			Fanuc 0i-MF Plus	Mitsubishi M80VA [Fanuc 0i-MF Plus]

Item	Specification	Unit	TMV-850QII	TMV-1050QI
Table	Table size	mm	950x600	1,100x600
	Max. loading capacity	kg	800	800
	Table height from floor	mm	900	900
	T-slot (size×No.)	mm	18x5	18x5
Spindle	Spindle taper		7/24 Taper No.40	7/24 Taper No.40
	Spindle speed	rpm	8,000 (10,000) (15,000)	10,000 (15,000)
Travel	X/Y/Z axis travel	mm	850/600/530	1,050/600/530
	Distance from table surface to spindle gauge line	mm	100~630	100~630
Feed	X/Y/Z axis rapid traverse	m/min	48/48/48	48/48/32
	Cutting feedrate	mm/min	1~12,000	1~12,000
ATC	Tool shank	m/min	BBT-40	BBT-40
	Tool capacity	pc	24 (30)	24 (30)
	Max. tool diameter	mm	Ø89	Ø89
	Max. tool diameter(w/o adjacent tool)	mm	Ø125	Ø125
	Max. tool length	mm	250	250
	Max. tool weight	kg	7	7
Motor	Spindle motor	kw	11/7.5/5.5 (12/9/7.5) (18.5/15/11)	18.5/15/11
	X/Y/Z axis servo motor	kw	4.5/4.5/5.5	3/3/3
Machine size	Width×depth×height	mm	2,200x2,782x2,850	2,500x2,932x2,917
	Weight	kg	5,500	5,900
Controller			Fanuc 0i-MF Plus	Fanuc 0i-MF Plus

VP-10	TMV-720A	TMV-850QI
1,070x510	800x480	950x600
500	500	800
900	900	900
18x5	18x5	18x5
7/24 Taper No.40	7/24 Taper No.40	7/24 Taper No.40
10,000 (15,000)	10,000	10,000 (15,000)
1,020/510/600	720/480/530	850/600/530
100~700	100~630	100~630
36/36/36	48/48/48	48/48/32
1~10,000	1~10,000	1~12,000
BBT-40	BBT-40	BBT-40
24 (30)	24	24 (30)
Ø75	Ø80	Ø89
Ø150	Ø125	Ø125
300	250	250
7	7	7
11/7.5 (15/7.5)	7.5/5.5	18.5/15/11
2.2/2.2/3 [1.8/1.8/3]	1.8/1.8/3	3/3/3
2,280x2,642x3,010	2,000x2,430x2,790	2,200x2,932x2,917
5,200	4,400	5,500
Mitsubishi M80VA [Fanuc 0i-MF Plus]	Fanuc 0i-MF Plus	Fanuc 0i-MF Plus

TMV-1050QII	TMV-920A	TMV-1100A
1,100x600	1,050x530	1,200x600
800	1,000	1,000
900	900	900
18x5	18x5	18x5
7/24 Taper No.40	7/24 Taper No.40/No.50	7/24 Taper No.40 (50)
8,000 (10,000) (15,000)	BT-40 : 8,000 (10,000) BT-50 : 3,500 (6,000)	BT-40 : 8,000 (10,000) BT-50 : 3,500 (6,000)
1,050/600/530	920/530/530	1,100/600/530
100~630	100~630	100~630
48/48/48	30/30/24	30/30/24
1~12,000	1~10,000	1~10,000
BBT-40	BT-40/BT-50	BT-40/BT-50
24 (30)	24 (30)	24 (30)
Ø89	BT-40 : Ø89 BT-50 : Ø105	BT-40 : Ø89 BT-50 : Ø105
Ø125	BT-40 : Ø125 BT-50 : Ø200	BT-40 : Ø125 BT-50 : Ø200
250	BT-40 : 250 BT-50 : 300	BT-40 : 250 BT-50 : 300
7	BT-40 : 7 BT-50 : 15	BT-40 : 7 BT-50 : 15
11/7.5/5.5 (12/9/7.5) (18.5/15/11)	BT-40 : 12/9/7.5 BT-50 : 18.5/15/11	BT-40 : 12/9/7.5 BT-50 : 18.5/15/11
4.5/4.5/5.5	BT-40 : 3/3/7 BT-50 : 3/3/7	BT-40 : 3/3/7 BT-50 : 3/3/7
2,500x2,782x2,850	2,660x2,930x2,815	2,800x2,930x2,815
5,900	BT-40 : 7,500 BT-50 : 8,600	BT-40 : 7,700 BT-50 : 8,800
Fanuc 0i-MF Plus	Fanuc 0i-MF Plus	Fanuc 0i-MF Plus

Vertical Machining Center

Item	Specification	Unit	TMV-1350A
Table	Table size	mm	1,500x750
	Max. loading capacity	kg	1,300
	Table height from floor	mm	950
	T-slot (sizexNo.)	mm	18x5
Spindle	Spindle taper		7/24 Taper No.50
	Spindle speed	rpm	3,500 (6,000)
Travel	X/Y/Z axis travel	mm	1,350/750/700
	Distance from table surface to spindle gauge line	mm	200~900
Feed	X/Y/Z axis rapid traverse	m/min	20/20/15
	Cutting feedrate	mm/min	0~5,000
ATC	Tool shank	m/min	BT-50
	Tool capacity	pc	24 (32)
	Max. tool diameter	mm	Ø105 (Ø125)
	Max. tool diameter(w/o adjacent tool)	mm	Ø200 (Ø220)
	Max. tool length	mm	300
	Max. tool weight	kg	15
Motor	Spindle motor	kw	18.5/15/11
	X/Y/Z axis servo motor	kw	4.0/4.0/7.0
Machine size	Widthxdepthxheight	mm	3,700x3,640x3,250
	Weight	kg	13,000
Controller			Fanuc 0i-MF Plus

Vertical Machining Center

Item	Specification	Unit	VC-610	VC-711
Table	Table size	mm	1,100x650	1,200x710
	Max. loading capacity	kg	800	1,000
	Table height from floor	mm	900	900
	T-slot (sizexNo.)	mm	18x5	18x5
Spindle	Spindle taper		7/24 Tpaer No.40	7/24 Tpaer No.40
	Spindle speed	rpm	12,000 (15,000) (20,000)	12,000 (15,000) (20,000)
Travel	X/Y/Z axis travel	mm	1,050/610/530	1,100/710/710
	Distance from table surface to spindle gauge line	mm	100~630	100~810
Feed	X/Y/Z axis rapid traverse	m/min	24/24/24	24/24/24
	Cutting feedrate	mm/min	1~10,000	1~10,000
ATC	Tool shank	m/min	BBT-40/HSK-A63	BBT-40/HSK-A63
	Tool capacity	pc	24 (30)	24 (30)
	Max. tool diameter	mm	Ø89	Ø89
	Max. tool diameter(w/o adjacent tool)	mm	Ø125	Ø125
	Max. tool length	mm	300	300
	Max. tool weight	kg	7	7
Motor	Spindle motor	kw	11/7.5 (15/11/7.5) (40/30)	11/7.5 (15/11/7.5) (40/30)
	X/Y/Z axis servo motor	kw	2.0/2.0/3.0 [2.7/2.7/4]	3.0/3.0/5.5
Machine size	Widthxdepthxheight	mm	2,550x2,997x2,960	2,900x3,330x3,100
	Weight	kg	8,000	9,000
Controller			Mitsubishi M80VA [Fanuc 0i-MF Plus]	Fanuc 0i-MF Plus

	TMV-1500A	TMV-1600A	VC-608
	1,600x762	1,700x850	950x600
	1,869	2,000	800
	950	950	900
	18x7	18x6	18x5
	7/24 Taper No.40	7/24 Taper No.50	7/24 Tpaer No.40
	8,000 (10,000)	3,500 (6,000)	12,000 (15,000) (20,000)
	1,525/762/710	1,600/800/700	850/610/530
	100~810	200~900	100~630
	18/18/18	15/15/12	24/24/24
	1~10,000	0~5,000	1~10,000
	BT-40	BT-50	BT-50
	24	32 (40)	BBT-40/HSK-A63
	Ø89	Ø105	Ø89
	Ø125	Ø200	Ø125
	250	300	300
	7	15	7
	18.5/15/11	18.5/15/11 (25/18.5/15)	11/7.5 (15/11/7.5) (40/30)
	3.0/4.0/7.0	4.0/4.0/7.0	2.0/2.0/3.0 [2.7/2.7/4]
	4,000x2,800x3,450	4,250x3,800x3,340	2,150x2,997x2,960
	13,000	15,000	7,000
	Fanuc 0i-MF Plus	Fanuc 0i-MF Plus	Mitsubishi M80VA [Fanuc 0i-MF Plus]

Bridge Type Machining Center

Item	Specification	Unit	MDV-812	MDV-1013
Table	Table size	mm	1,320x800	1,400x1,000
	Max. loading capacity	kg	2,000	2,500
	Table height from floor	mm	850	900
	T-slot (sizexNo.)	mm	18x7	18x9
Spindle	Spindle taper		7/24 Tpaer No.40	7/24 Tpaer No.40
	Spindle speed	rpm	12,000 (15,000) (20,000)	12,000 (15,000) (20,000)
Travel	X/Y/Z axis travel	mm	1,200/800/500	1,320/1,040/610
	Distance from table surface to spindle gauge line	mm	150~650	200~810
Feed	X/Y/Z axis rapid traverse	m/min	30/30/30	30/30/24
	Cutting feedrate	mm/min	1~1,000	1~1,000
ATC	Tool shank	m/min	BBT-40/HSK-A63	BBT-40/HSK-A63
	Tool capacity	pc	16 (40)	20 (30) (40)
	Max. tool diameter	mm	Ø125 (Ø75)	Ø115 (Ø110) (Ø75)
	Max. tool diameter(w/o adjacent tool)	mm	Ø125 (Ø125)	Ø200 (Ø110) (Ø125)
	Max. tool length	mm	300	300
	Max. tool weight	kg	8	7
Motor	Spindle motor	kw	11/7.5 (18.5/11/7.5) (40/30)	11/7.5 (18.5/11/7.5) (40/30)
	X/Y/Z axis servo motor	kw	7.0/7.0/7.0	7.0/7.0/7.0
Machine size	Widthxdepthxheight	mm	4,390x3,350x3,370	3,220x3,700x3,330
	Weight	kg	13,000	14,300
Controller			Fanuc 0i-MF Plus	Fanuc 0i-MF Plus

5-axis Machining Center

Item	Specification	Unit	CT-350
Table	Table size	mm	Ø350
	Max. loading capacity	kg	200
	Table height from floor	mm	1,100
	Max. workpiece dimension (diameterxheight)	mm	Ø380x220
	A/C axis min. indexing increment	deg	0.001°
Spindle	Spindle taper		7/24 Tpaer No.40
	Spindle speed	rpm	15,000 (20,000)
Travel	X/Y/Z axis travel	mm	400/510/510
	Distance from table surface to spindle gauge line	mm	50~560
	A axis travel	deg	+30°~-120°
	C axis travel	deg	±360°
Feed	X/Y/Z axis rapid traverse	m/min	36/36/30
	A/C axis rapid traverse	rpm	33.3/40
	Cutting feedrate	mm/min	1-20,000
ATC	Tool shank	m/min	BBT-40 (HSK-A63)
	Tool capacity	pc	24 (30) (40)
	Max. tool diameter	mm	Ø76
	Max. tool diameter (w/o adjacent tool)	mm	Ø125
	Max. tool length	mm	300
	Max. tool weight	kg	7
Motor	Spindle motor	kw	15/11/7.5 (40/30)
	X/Y/Z axis servo motor	kw	2.7/2.7/4 [3.3/3.3/4.87] [2.6/2.6/4.1]
Machine size	Widthxdepthxheight	mm	2,150x3,104x3,121
	Weight	kg	7,000
Controller			Fanuc Oi-MF Plus [Siemens 840D] [Heidenhain TNC640]

	GT-500	GT-630	GT-800E
	Ø500	Ø630	Ø800
	400	600	800
	860	900	955
	Ø600x400	Ø800x500	Ø900x500
	0.001°	0.001°	0.001°
	7/24 Tpaer No.40	7/24 Tpaer No.40	7/24 Tpaer No.40
	15,000 (20,000) (24,000)	15,000 (20,000) (24,000)	15,000 (20,000) (24,000)
	610/610/510	760/820/560	800/820/560
	130-640	150-710	200~760
	+30°~-120°	+30°~-120°	+30°~-120°
	±360°	±360°	±360°
	48/48/48	48/48/48	48/48/48
	50/100	50/100	50/100
	1-20,000	1-20,000	1-20,000
	BBT-40 (HSK-A63)	BBT-40 (HSK-A63)	BBT-40 (HSK-A63)
	32 (40)	32 (40) (64) (80)	32 (40) (64) (80)
	Ø80	Ø80	Ø80
	Ø125	Ø125	Ø125
	300	300	300
	8	8	8
	40/40 (40/30) (42/35)	40/40 (40/30) (42/35)	40/40 (40/30) (42/35)
	5.37/8.17/4.87 [6.5/8.6/8.6]	6.5/8.6/8.6 [4.87/5.37/4.87]	6.5/8.6/8.6 [4.87/5.37/4.87]
	2,100x4,300x3,225	2,200x4,900x3,760	2,200x4,900x3,860
	13,500	16,000	17,000
	Siemens 840D [Heidenhain TNC640]	Heidenhain TNC640 [Siemens 840D]	Heidenhain TNC640 [Siemens 840D]

Horizontal Machining Center

Item	Specification	Unit	SH-4000(P)
Table	Table size	mm	400x400
	Max. loading capacity	kg	400
	Table height from floor	mm	1,100
	Max. workpiece dimension (diameter x height)	mm	Ø550xH800
	B axis min. indexing increment	deg	0.001°
Spindle	Spindle taper		7/24 Taper No. 40
	Spindle speed	rpm	15,000
Travel	X/Y/Z axis travel	mm	510/510/510
	Distance from table surface to spindle center line	mm	80-590
	Distance from table center to spindle gauge line	mm	70-580
Feed	X/Y/Z axis rapid traverse	m/min	60/60/60
	Cutting feedrate	mm/min	1-20,000
ATC	Tool shank		BT-40 (BBT-40)
	Tool capacity	pc	40 (60)
	Max. tool diameter	mm	Ø75
	Max. tool diameter (w/o adjacent tool)	mm	Ø170
	Max. tool length	mm	300
	Max. tool weight	kg	10
Motor	Spindle motor	kW	37/26/18.5
	X/Y/Z axis servo motor	kW	5.5/5.5/4.5
Machine Size	Widthxdepthxheight	mm	1,750x4,210 (5,060)x2,720
	Weight	kg	8,020 (9,300)
Controller			Fanuc Oi-MF Plus

	SH-4500(P)	SH-5000(P)	HA-400II	HA-500II
	400x400 (500x500)	500x500	400x400	500x500
	450	500	400x2	500x2
	1,200	1,200	1,150	1,150
	Ø630xH900	Ø800xH1,000	Ø630xH800	Ø800xH900
	0.001°	0.001°	0.001°	0.001°
	7/24 Taper No. 40	7/24 Taper No. 40	7/24 Taper No. 40	7/24 Taper No. 40
	15,000	15,000	12,000	12,000
	630/630/730	730/730/830	610/580/580	710/680/680
	80-710	80-810	80-660	80-760
	70-800	70-900	70-650	70-750
	60/60/60	60/60/60	60/60/60	60/60/60
	1-20,000	1-20,000	1-20,000	1-20,000
	BT-40 (BBT-40)	BT-40 (BBT-40)	BT-40 (BBT-40)	BT-40 (BBT-40)
	40 (60)	40 (60)	60 (90) (120)	60 (90) (120)
	Ø75	Ø75	Ø75	Ø75
	Ø170	Ø170	Ø150	Ø150
	450	550	410	410
	10	10	8	8
	37/26/18.5	37/26/18.5	25/22	25/22
	5.5/5.5/4.5	5.5/5.5/4.5	5.5/5.5/4.5	5.5/5.5/4.5
	2,200x4,745 (5,700)x2,985	2,290x4,885(5,840)x2,985	2,550x4,893x2,878	2,650x5,170x3,075
	9,000 (10,900)	9,200 (11,100)	9,500	12,200
	Fanuc Oi-MF Plus	Fanuc Oi-MF Plus	Fanuc Oi-MF Plus	Fanuc Oi-MF Plus

Horizontal Machining Center

Item	Specification	Unit	HB-500II
Table	Table size	mm	500x500
	Max. loading capacity	kg	600x2
	Table height from floor	mm	1,150
	Max. workpiece dimension (diameter x height)	mm	Ø900xH1,00
	B axis min. indexing increment	deg	0.001°
Spindle	Spindle taper		7/24 Taper No. 50
	Spindle speed	rpm	10,000
Travel	X/Y/Z axis travel	mm	800/710/710
	Distance from table surface to spindle center line	mm	50-760
	Distance from table center to spindle gauge line	mm	150-860
Feed	X/Y/Z axis rapid traverse	m/min	60/60/60
	Cutting feedrate	mm/min	1-60,000
ATC	Tool shank		BT-50 (BBT-50)
	Tool capacity	pc	60 (90) (120)
	Max. tool diameter	mm	Ø125
	Max. tool diameter (w/o adjacent tool)	mm	Ø250
	Max. tool length	mm	550
	Max. tool weight	kg	25
Motor	Spindle motor	kW	30/25
	X/Y/Z axis servo motor	kW	4/6/4
Machine Size	Widthxdepthxheight	mm	3,125x6,700x3,124
	Weight	kg	14,500
Controller			Fanuc 0i-MF Plus

	HB-630	HB-800II	HG-800II	HG-1250
Table size	630x630	800x800	800x800	1,250x1,250
Max. loading capacity	1,200x2	1,800x2	2,400	4,000
Table height from floor	1,300	1,350	1,275	1,300
Max. workpiece dimension (diameter x height)	Ø1,100xH1,100	Ø1,300xH1,250	Ø1,500xH1,100	Ø1,970xH1,500
B axis min. indexing increment	0.001°	0.001°	0.001°	0.001°
Spindle taper	7/24 Taper No. 50	7/24 Taper No. 50	7/24 Taper No. 50	7/24 Taper No. 50
Spindle speed	10,000 (8,000)	10,000 (8,000)	6,000 (8,000)	6,000 (8,000)
X/Y/Z axis travel	1,050/850/970	1,400/1,200/1,300	1,550/1,500/1,250	2,000/1,400/1,250
Distance from table surface to spindle center line	100-950	100-1,300	-25-1,475	0-1,400
Distance from table center to spindle gauge line	100-1,070	200-1,400	105-1,355	400-1,650
X/Y/Z axis rapid traverse	60/60/60	50/50/50	15/15/15	20/20/20
Cutting feedrate	1-60,000	1-20,000	1-10,000	1-10,000
Tool shank	BBT-50	BT-50 (BBT-50)	BT-50 (BBT-50)	BT-50 (BBT-50)
Tool capacity	60 (90) (120)	60 (90) (120)	60 (90) (120)	90 (120)
Max. tool diameter	Ø125	Ø125	Ø125	Ø125
Max. tool diameter (w/o adjacent tool)	Ø250	Ø250	Ø250	Ø250
Max. tool length	610	610	610	610
Max. tool weight	25	25	25	25
Spindle motor	30/25 (22/18.5 or 26/22)	30/25 (22/18.5 or 26/22)	26/22	22/18.5 (26/22)
X/Y/Z axis servo motor	7/9/7	7/9/7	6/9/6	6/6/6
Widthxdepthxheight	4,315x7,906x3,536	4,535x8,803x3,875	8,625x3,465x3,815	8,730x5,260x4,035
Weight	21,600	26,000	22,000	2,9500
Controller	Fanuc 0i-MF Plus	Fanuc 0i-MF Plus	Fanuc 0i-MF Plus	Fanuc 0i-MF Plus

Horizontal Machining Center

Item	Specification	Unit	TMH-400	TMH-500
Table	Table Size	mm	Ø400	Ø500
	Max. Workpiece Dimension(Dia. x Height)	mm	Ø510xH630	Ø700xH700
	Max. Load Capacity(Workpiece Load)	kg	500	650
	Index Positioning	deg	0.001°(1°)	
Capacity	X/Y/Z-Axis Stroke	mm	510/510/510	710/600/600
	Distance from Spindle Center to Table Top	mm	180-690	170-770
	Distance from Spindle Nose to Table Center	mm	50-560	140-740
	Table Height from Floor	mm	1150	1185
Direct drive spindle	Spindle Taper		7/24 Taper No.40	7/24 Taper No.50 (40)
	Spindle Speed	rpm	8000(10000/12000)	
	Spindle Motor (50% ED)	kW	11/7.5(18.5/15)	
Belt driven spindle	Spindle Taper		-	7/24 Taper No.50
	Spindle Speed	rpm	-	6000
	Spindle Motor (50% ED)	kW	-	15/11
Feed	Rapid Traverse	m/min	36/36/36	48/48/48
	Cutting Feedrate	mm/min	1-10000	1-10000
ATC	Tool Shank		BT-40	BT-50
	Tool Capacity	pc	24 (30)	24 (30)
	Max. Tool Diameter	mm	Ø95 (Ø75)	Ø110 (Ø125)
	Max. Tool Diameter(w/o Adjacent Tool)	mm	Ø185 (Ø150)	Ø210 (Ø229)
	Max. Tool Length	mm	300	350
	Max. Tool Weight	kg	7	15
Machine size	Widthxdepthxheight	mm	3500x2200x2850 (No tank)	3800x2300x3200 (No tank)
	Weight	kg	6500 up	9500 up

5-axis Horizontal Machining Center

Item	Specification	Unit	HTH-800	HTT-1250
Table	Table size	mm	800x800	1,250x1,250
	Max. loading capacity	kg	2,400	4,000x2
	Table height from floor	mm	1,290	2,255
	T-slot (sizexNo.)	mm	18x5	18x7
	Max. workpiece dimension (diameterxheight)	mm	Ø1,500xH1,100	Ø1,800xH1,000
	A/B axis min. indexing increment	deg	0.001°	0.001°
	Spindle	Spindle taper		7/24 Taper No.50
Spindle speed		rpm	6,000 (8,000)	6,000 (8,000)
Travel	X/Y/Z axis travel	mm	1,550/1,500/1,600	2,000/1,800/1,250
	Distance from table surface to spindle center line	mm	-25~1,475	-600~1,200
	Distance from table center to spindle gauge line	mm	-295~1,205	400~1,650
	A axis travel	deg	+60°~-105°	+110°~-20°
	B axis travel	deg	360°	360°
Feed	X/Y/Z axis rapid traverse	m/min	10/10/10	10/10/10
	A axis rapid traverse	rpm	10	5
	B axis rapid traverse	rpm	5	5
	Cutting feedrate	mm/min	1~5,000	1~5,000
ATC	Tool shank	m/min	CAT-50	BT-50
	Tool capacity	pc	60 (90) (120)	60 (90) (120)
	Max. tool diameter	mm	Ø125	Ø120
	Max. tool diameter (w/o adjacent tool)	mm	Ø250	Ø250
	Max. tool length	mm	610	610
	Max. tool weight	kg	25	25
Motor	Spindle motor	kw	36/30	21.5/18.5 (26/22)
	X/Y/Z axis servo motor	kw	6/9/6	10.5/8.2/8.2
Machine size	Widthxdepthxheight	mm	5500x8,200x4,100	10,680x7,152x5,223
	Weight	kg	25,000	51,500
Controller			SIEMENS 840Dsl	SIEMENS 840Dsl

Vertical CNC Lathe

Item	Specification	Unit	TVL25-S2
Turning capacity	Max. swing diameter	mm	Ø370
	Max. swing diameter over saddle	mm	Ø370
	Max. turning diameter	mm	Ø370
	Max. turning height	mm	300
Spindle	Spindle nose		A2-6 (A2-8)
	Spindle speed	rpm	3,000 (2,250)
	Chuck O.D.	inch	8" (10")
	Through-spindle hole diameter	mm	Ø40 (Ø56)
	Spindle bearing diameter	mm	Ø100 (Ø120)
Turret	Tool capacity	pc	8
	O.D. tool	mm	25x25
	I.D. tool	mm	Ø40
Power turret	Tool capacity	pc	-
	O.D. tool	mm	-
	I.D. tool	mm	-
	Max. speed	rpm	-
	Motor	kW	-
Travel	X/Z axis travel	mm	290/400
Feed	X/Z axis rapid traverse	m/min	30/24
	Cutting feedrate	mm/rev	0.001-500
Hydraulic unit	Hydraulic tank capacity	L	30
	Hydraulic motor	kW	1.5
Coolant unit	Coolant tank capacity	L	200
	Coolant pump motor	kW	0.37/1.1
Motor	Spindle motor	kW	18.5/15/11 (22/18.5/15)
	X/Z axis servo motor	kW	3.0/3.0
Machine size	Widthxdepthxheight	mm	1,370x2,820x2,430
	Weight	kg	4,900
Controller			Fanuc Oi-TF Plus

TVL-40/TVL-40R	TVL-40M/TVL-40RM	TVL30-D4	TVL-35
Ø700	Ø700	Ø480	Ø500
-	-	-	-
Ø520	Ø370	Ø450	Ø350
350	350	350	250
A2-8	A2-8	A2-8	A2-8
2,250	2,250	2,250	2,250
12" (15")	12" (15")	12"x2 (15"x2)	10"
Ø55 (Ø57)	Ø55 (Ø57)	Ø55 (Ø57)	Ø55 (Ø57)
Ø120 (Ø130)	Ø120 (Ø130)	Ø120x2 (Ø130x2)	Ø120 (Ø130)
8	-	8x2	8(12)
25x25	-	25x25	25x25
Ø40	-	Ø40	Ø40
-	VDI-50 : 12	-	-
-	32x25	-	-
-	Ø50	-	-
-	4000	-	-
-	5.5/3.7	-	-
285/390 [500/600]	285/390 [500/600]	285x2/390x2	250/390(500)
20/24 (Box way : 16/16)	20/24 (Box way : 16/16)	Box way : 16/16	20/24(Box way : 16/16)
0.001-500	0.001-500	0.001-500	0.001-500
40	40	100	40
1.5	1.5	2.25	1.5
280	280	280	340
0.37/1.5	0.37/1.5	0.372/1.5	1.1/1.5
26/22/18.5	26/22/18.5	26/22/18.5	11/15(15/18.5)
3.0/7.0	3.0/7.0	3.0/7.0	3.0/7.0
1,840x3,450x3,060	1,840x3,450x3,060	3,240x3,760x3,180	3,460x1,740x3,320
8,000	8,000	12,000	8,000
Fanuc Oi-TF Plus	Fanuc Oi-TF Plus	Fanuc Oi-TF Plus	Fanuc Oi-TF Plus

Horizontal CNC Lathe

Item	Specification	Unit	Q5
Turning capacity	Max. swing diameter	mm	Ø230
	Max. swing diameter over saddle	mm	-
	Max. turning diameter	mm	Ø100 (Ø50 auto load)
	Max. turning length	mm	100 (40 auto load)
Spindle	Spindle nose		A2-4
	Spindle speed	rpm	6,000 (8,000)
	Chuck O.D.	inch	5" (4" Air chuck)
	Through-spindle hole diameter	mm	Ø35
	Bar capacity	mm	Ø26
	Spindle bearing diameter	mm	Ø70
	Min. CS axis indexing increment	deg	-
Sub-spindle	Spindle nose		-
	Spindle speed	rpm	-
	Through-spindle hole diameter	mm	-
	Spindle bearing diameter	mm	-
Turret	Min. CS axis indexing increment	deg	-
	Tool capacity	pc	2-5(Depends on workpiece)
	O.D. tool	mm	16x16
	I.D. tool	mm	Ø20
Power turret	Tool capacity	pc	-
	Motor	kW	-
	O.D. tool	mm	-
	I.D. tool	mm	-
	Max. speed	rpm	-
Travel	X/Z/B axis travel	mm	220/220/-
Feed	X/Z/B axis rapid traverse	m/min	30/30/-
	Cutting feedrate	mm/rev	0.001-500
Tailstock	Tailstock/Quill travel	mm	-
	Center taper		-
	Driving system		-
	Robot arm	X/Y/C axis rapid traverse	m/mm
Hydraulic unit	X/Y/C servo motor	kW	0.4/0.4/0.2
	Clamp capacity	kg	0.6x2
	Loading/Unloading time (inner/outer)	sec	5/15
	Hydraulic tank capacity	L	12
Motor	Hydraulic motor	kW	0.75
	Spindle motor	kW	7.5/5.5/3.7
	Sub-spindle motor		-
Machine size	X/Z axis servo motor	kW	0.75/0.75
	Widthxdepthxheight	mm	1,520x2,090x1,610
	Weight	kg	2,500
Controller			Fanuc 0i-TF Plus

A-1500	HS-22	HS-22M	TNL-100T[L]
Ø300	Ø220	Ø220	Ø400
-	-	-	Ø310
Ø150	Ø220 (Ø100)	Ø220 (Ø100)	Ø320 (Ø340)
350	200 (50)	200 (50)	400 [600]
A2-5(A2-6)	A2-5 (A2-6)	A2-5 (A2-6)	A2-6
4,800 (4,500)	6,000 (4,800) (4,500)	6,000 (4,800) (4,500)	3,000 (4,500)
6" (8")	6" (8")	6" (8")	8" (10")
Ø56 (Ø66)	Ø35 (Ø56) (Ø62)	Ø35 (Ø56) (Ø62)	Ø62
Ø44 (Ø51)	Ø26 (Ø44) (Ø51)	Ø26 (Ø44) (Ø51)	Ø51
Ø80 (Ø100)	Ø65 (Ø85) (Ø100)	Ø65 (Ø85) (Ø100)	Ø100
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
2-5(Depends on workpiece)	12 (8)	-	12 (8)
20x20	20x20	-	25x25
Ø32	Ø32	-	Ø40
-	-	VDI-40 : 12	VDI-40 : 12
-	-	5.5/3.7	5.5/3.7
-	-	25x25	25x25
-	-	Ø40	Ø40
-	-	6,000	6,000
320/400/-	155/220/-	155/220/-	200/400 [600]/-
30/30/-	Box way : 20/20/-	Box way : 20/20/-	24/30/-
0.001-500	0.001-500	0.001-500	0.001-500
-	165/50	165/50	400 [600]/-
-	MT3	MT3	MT5
-	manual	manual	hydraulic
-	30/30/0.6 sec per 180°	30/30/0.6 sec per 180°	-
-	0.4/0.4/0.4	0.4/0.4/0.4	-
-	3x2	3x2	-
-	5/15	5/15	-
12	30	30	30
0.75	1.5	1.5	1.5
15/11/7.5	15/11/7.5	18.5/15/11	18.5/15/11
-	-	-	-
1.8/1.8	1.8/1.8	1.8/1.8	3/3
1,990x1,820x1,750	1,410x1,450x1,730	1,560x1,450x1,730	2,350x1,860x2,010 [2,580x1,790x2,010]
2,450	2,350	2,350	4,300 [4,700]
Fanuc 0i-TF Plus	Fanuc 0i-TF Plus	Fanuc 0i-TF Plus	Fanuc 0i-TF Plus

Item	Specification	Unit	TNL-120T[L]
Turning capacity	Max. swing diameter	mm	Ø400
	Max. swing diameter over saddle	mm	Ø310
	Max. turning diameter	mm	Ø320 (Ø340)
	Max. turning length	mm	400 [600]
Spindle	Spindle nose		A2-8
	Spindle speed	rpm	2,500 (3,500)
	Chuck O.D.	inch	10" (12")
	Through-spindle hole diameter	mm	Ø76
	Bar capacity	mm	Ø64
	Spindle bearing diameter	mm	Ø120
	Min. CS axis indexing increment	deg	-
Sub-spindle	Spindle nose		-
	Spindle speed	rpm	-
	Through-spindle hole diameter	mm	-
	Spindle bearing diameter	mm	-
Turret	Min. CS axis indexing increment	deg	-
	Tool capacity	pc	12 (8)
	O.D. tool	mm	25x25
	I.D. tool	mm	Ø40
Power turret	Tool capacity	pc	VDI-40 : 12
	Motor	kW	5.5/3.7
	O.D. tool	mm	25x25
	I.D. tool	mm	Ø40
	Max. speed	rpm	6,000
Travel	X/Z/B axis travel	mm	200/400 [600]/-
Feed	X/Z/B axis rapid traverse	m/min	24/30/-
	Cutting feedrate	mm/rev	0.001-500
Tailstock	Tailstock/Quill travel	mm	400 [600]/-
	Center taper		MT5
	Driving system		hydraulic
	Robot arm	X/Y/C axis rapid traverse	m/mm
Hydraulic unit	X/Y/C servo motor	kW	-
	Clamp capacity	kg	-
	Loading/Unloading time (inner/outer)	sec	-
	Hydraulic tank capacity	L	30
Motor	Hydraulic motor	kW	1.5
	Spindle motor	kW	18.5/15/11
	Sub-spindle motor		-
Machine size	X/Z axis servo motor	kW	3/3
	Widthxdepthxheight	mm	2,350x1,860x2,010 [2,580x1,790x2,010]
	Weight	kg	4,300 [4,700]
Controller			Fanuc 0i-TF Plus

TNL-130T[L]	MT-1500	MT-1500M	MT-2000
Ø400	Ø210	Ø210	Ø210
Ø310	Ø230	Ø230	Ø230
Ø320 (Ø340)	Ø210 (Ø120 auto load)	Ø210 (Ø120 auto load)	Ø210 (Ø120)
400 [600]	145 (100 auto load)	145 (100 auto load)	145 (100)
A2-8	A2-5	A2-5	A2-6
2,500 (3,500)	4,500 (6,000)	4,500 (6,000)	4,500 (3,000)
10" (12")	6"	6"	8"
Ø86	Ø56	Ø56	Ø66
Ø74	-	-	-
Ø130	Ø80	Ø80	Ø100
-	-	-	-
-	-	-	-
-	-	-	-
12 (8)	12 (8)	-	12 (8)
25x25	25x25	-	25x25
Ø40	Ø32	-	Ø32
VDI-40 : 12	-	VDI-40 : 12	-
5.5/3.7	-	5.5/3.7	-
25x25	-	25x25	-
Ø40	-	Ø32	-
6,000	-	5,000	-
200/400 [600]/-	155/155/-	155/155/-	155/155/-
24/30/-	30/30/-	30/30/-	30/30/-
0.001-500	0.001-500	0.001-500	0.001-500
400 [600]/-	-	-	-
-	-	-	-
-	-	-	-
hydraulic	hydraulic	-	-
-	160/120/35	160/120/35	160/120/35
-	1.8/1.2/0.75	1.8/1.2/0.75	1.8/1.2/0.75
-	3x2	3x2	3x2
-	6/15	6/15	6/15
30	30	30	30
1.5	1.5	1.5	1.5
18.5/15/11	11/7.5/5.5	11/7.5/5.5	15/11/7.5
-	-	-	-
3/3	1.8/1.8	1.8/1.8	1.8/1.8
2,350x1,860x2,010 [2,580x1,790x2,010]	4,200x2,845x3,120	4,200x2,845x3,120	4,200x2,845x3,120
4,300 [4,700]	6,000	6,200	6,500
Fanuc 0i-TF Plus	Fanuc 0i-TF Plus	Fanuc 0i-TF Plus	Fanuc 0i-TF Plus

Horizontal CNC Lathe

Item	Specification	Unit	MT-2000M
Turning capacity	Max. swing diameter	mm	Ø210
	Max. swing diameter over saddle	mm	Ø230
	Max. turning diameter	mm	Ø210 (Ø120 auto load)
	Max. turning length	mm	145 (100 auto load)
Spindle	Spindle nose		A2-6
	Spindle speed	rpm	4,500 (3,000)
	Chuck O.D.	inch	8"
	Through-spindle hole diameter	mm	Ø66
	Bar capacity	mm	-
	Spindle bearing diameter	mm	Ø100
	Min. CS axis indexing increment	deg	-
Sub-spindle	Spindle nose		-
	Spindle speed	rpm	-
	Through-spindle hole diameter	mm	-
	Spindle bearing diameter	mm	-
Turret	Min. CS axis indexing increment	deg	-
	Tool capacity	pc	-
	O.D. tool	mm	-
Power turret	I.D. tool	mm	-
	Tool capacity	pc	VDI-40 : 12
	Motor	kW	5.5/3.7
	O.D. tool	mm	25x25
	I.D. tool	mm	Ø32
	Max. speed	rpm	5,000
Travel	X/Z/B axis travel	mm	155/155/-
	Feed	m/min	30/30/-
Tailstock	Cutting feedrate	mm/rev	0.001-500
	Tailstock/Quill travel	mm	-
	Center taper		-
Robot arm	Driving system		-
	X/Y/C axis rapid traverse	m/mm	160/120/35
	X/Y/C servo motor	kW	1.8/1.2/0.75
	Clamp capacity	kg	3x2
Hydraulic unit	Loading/Unloading time (inner/outer)	sec	6/15
	Hydraulic tank capacity	L	30
	Hydraulic motor	kW	1.5
Motor	Spindle motor	kW	15/11/7.5
	Sub-spindle motor		-
	X/Z axis servo motor	kW	1.8/1.8
Machine size	Widthxdepthxheight	mm	4,200x2,845x3,120
	Weight	kg	6,700
Controller			Fanuc Oi-TF Plus

	THL-620[M]	THL-620L[M]	THL-620XL[M]
	Ø780	Ø780	Ø780
	Ø620	Ø620	Ø620
	Ø620	Ø620	Ø620
	1,100	1,900	2,900
	A2-11	A2-11	A2-11
	2,500 (2,000)	2,500 (2,000)	2,500 (2,000)
	15" (18")	15" (18")	15" (18")
	Ø105 (Ø125)	Ø105 (Ø125)	Ø105 (Ø125)
	Ø90 (Ø116)	Ø90 (Ø116)	Ø90 (Ø116)
	Ø160 (Ø180)	Ø160 (Ø180)	Ø160 (Ø180)
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	12	12	12
	32x32	32x32	32x32
	Ø50	Ø50	Ø50
	BMT-75 : 12	BMT-75 : 12	BMT-75 : 12
	15/11	15/11	15/11
	32x32	32x32	32x32
	Ø50	Ø50	Ø50
	3,000	3,000	3,000
	365/1,200/-	365/2,000/-	365/3,000/-
	20/20/-	20/20/-	20/20/-
	0.001-500	0.001-500	0.001-500
	990/150	1,790/150	2,790/150
	MT5	MT5	MT5
	carries by Z axis	carries by Z axis	carries by Z axis
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	40	40	40
	2.2	2.2	2.2
	45/37/30	45/37/30	45/37/30
	-	-	-
	4/7	4/7	4/7
	4,350x2,100x2,280	5,500x2,100x2,280	6,500x2,150x2,280
	11,400	13,300	17,000
	Fanuc Oi-TF Plus	Fanuc Oi-TF Plus	Fanuc Oi-TF Plus

Item	Specification	Unit	TCS-1500	TCS-1500II	TCS-1500M	TCS-1500MII
Turning capacity	Max. swing diameter	mm	Ø520		Ø520	
	Max. swing diameter over saddle	mm	Ø320		Ø320	
	Max. turning diameter	mm	Ø300 (Ø320)		Ø280	
	Max. turning length	mm	400		300	
Spindle	Spindle nose		A2-5		A2-5	
	Spindle speed	rpm	4,800		4,800	
	Chuck O.D.	inch	6"		6"	
	Through-spindle hole diameter	mm	Ø56		Ø56	
	Bar capacity	mm	Ø44		Ø44	
	Spindle bearing diameter	mm	Ø80		Ø80	
	Min. CS axis indexing increment	deg	-		0.001	
Turret	Stations	pc	12 (8)		-	
	O.D. tool holder	mm	25x25		-	
	I.D. tool holder	mm	Ø32 (Ø40)		-	
Power turret (Opt.)	Stations	pc	-		VDI-40 : 12	
	Motor	kW	-		5.5/3.7	
	O.D. tool holder	mm	-		25x25	
	I.D. tool holder	mm	-		Ø40	
	Max. speed	rpm	-		6,000	
Travel	X/Z/B axis travel	mm	170/400/-		200/400/-	
	Feed	m/min	30/30/-		30/30/-	
Tailstock (Opt.)	Cutting feedrate	mm/rev	0-5,000		0-5,000	
	Tailstock/Quill travel	mm	275/100		275/100	
	Center taper		MT4		MT4	
Hydraulic unit	Driving system		manual		manual	
	Hydraulic tank capacity	L	30		30	
	Hydraulic motor	kW	1.5		1.5	
Motor	Spindle motor	kW	15/11		15/11	
	X/Z axis servo motor	kW	1.8/1.8		1.8/1.8	
Dimension	w/o chip conveyor	mm	2,240x1,950x2,190		2,240x1,950x2,190	
	With side disposal chip conveyor	mm	3,230x1,950x2,190		3,230x1,950x2,190	
	With rear disposal chip conveyor	mm	2,240x2,550x2,190		2,240x2,550x2,190	
	Weight	kg	3,250		3,350	
Controller			Fanuc Oi-TF		Fanuc Oi-TF	

	TCS-2000	TCS-2000II	TCS-2000L	TCS-2000LII	TCS-2000M	TCS-2000MII	TCS-2000LM	TCS-2000LMII
	Ø520		Ø520		Ø520		Ø520	
	Ø320		Ø320		Ø320		Ø320	
	Ø300 (Ø320)		Ø300 (Ø320)		Ø280		Ø280	
	400		600		300		500	
	A2-6		A2-6		A2-6		A2-6	
	4,500 (3,000)		4,500 (3,000)		4,500 (3,000)		4,500 (3,000)	
	8"		8"		8"		8"	
	Ø62		Ø62		Ø62		Ø62	
	Ø51		Ø51		Ø51		Ø51	
	Ø100		Ø100		Ø100		Ø100	
	-		-		-		-	
	12 (8)		12 (8)		-		-	
	25x25		25x25		-		-	
	Ø32 (Ø40)		Ø32 (Ø40)		-		-	
	-		-		VDI-40 : 12		VDI-40 : 12	
	-		-		5.5/3.7		5.5/3.7	
	-		-		25x25		25x25	
	-		-		Ø40		Ø40	
	-		-		6,000		6,000	
	170/400/-		170/600/-		200/400/-		200/400/-	
	30/30/-		30/30/-		30/30/-		30/30/-	
	0-5,000		0-5,000		0-5,000		0-5,000	
	275/100		500/100		275/100		275/100	
	MT4		MT4		MT4		MT4	
	manual		manual		manual		manual	
	30		30		30		30	
	1.5		1.5		1.5		1.5	
	15/11		15/11		15/11		15/11	
	1.8/1.8		1.8/1.8		1.8/1.8		1.8/1.8	
	2,240x1,950x2,190		2,380x1,950x2,190		2,240x1,950x2,190		2,380x1,950x2,190	
	3,230x1,950x2,190		3,370x1,950x2,190		3,230x1,950x2,190		3,370x1,950x2,190	
	2,240x2,550x2,190		2,380x2,550x2,190		2,240x2,550x2,190		2,380x2,550x2,190	
	3,300		3,900		3,400		4,000	
	Fanuc Oi-TF		Fanuc Oi-TF		Fanuc Oi-TF		Fanuc Oi-TF	

Horizontal CNC Lathe

Item	Specification	Unit	TCS-2500	TCS-2500II
Turning capacity	Max. swing diameter	mm	Ø520	
	Max. swing diameter over saddle	mm	Ø320	
	Max. turning diameter	mm	Ø300 (Ø320)	
	Max. turning length	mm	400	
Spindle	Spindle nose		A2-8	
	Spindle speed	rpm	2,500 (3,500)	
	Chuck O.D.	inch	10"	
	Through-spindle hole diameter	mm	Ø76 (Ø86)	
	Bar capacity	mm	Ø64 (Ø74)	
	Spindle bearing diameter	mm	Ø120 (Ø130)	
	Min. CS axis indexing increment	deg	-	
	Turret	Stations	pc	12 (8)
O.D. tool holder		mm	25x25	
I.D. tool holder		mm	Ø32 (Ø40)	
Power turret (Opt.)	Stations	pc	-	
	Motor	kW	-	
	O.D. tool holder	mm	-	
	I.D. tool holder	mm	-	
	Max. speed	rpm	-	
Travel	X/Z/B axis travel	mm	170/400/-	
Feed	X/Z/B axis rapid traverse	m/min	30/30/-	
	Cutting feedrate	mm/rev	0-5,000	
Tailstock (Opt.)	Tailstock/Quill travel	mm	275/100	
	Center taper		MT5	
	Driving system		manual	
Hydraulic unit	Hydraulic tank capacity	L	30	
	Hydraulic motor	kW	1.5	
Motor	Spindle motor	kW	15/11	
	X/Z axis servo motor	kW	1.8/1.8	
Dimension	w/o chip conveyor	mm	2,390x1,950x2,190	
	With side disposal chip conveyor	mm	3,380x1,950x2,190	
	With rear disposal chip conveyor	mm	2,390x2,550x2,190	
	Weight	kg	3,400 (3,500)	
Controller			Fanuc Oi-TF	

TCS-2500L	TCS-2500LII	TCS-2500M	TCS-2500MII	TCS-2500LM	TCS-2500LMII
Ø520	Ø520	Ø520	Ø520	Ø520	Ø520
Ø320	Ø320	Ø320	Ø320	Ø320	Ø320
Ø300 (Ø320)	Ø300 (Ø320)	Ø280	Ø280	Ø280	Ø280
600	600	300	300	500	500
A2-8	A2-8	A2-8	A2-8	A2-8	A2-8
2,500 (3,500)	2,500 (3,500)	2,500 (3,500)	2,500 (3,500)	2,500 (3,500)	2,500 (3,500)
10"	10"	10"	10"	10"	10"
Ø76 (Ø86)					
Ø64 (Ø74)					
Ø120 (Ø130)					
-	-	0.001	0.001	0.001	0.001
12(8)	12(8)	-	-	-	-
25x25	25x25	-	-	-	-
Ø32(Ø40)	Ø32(Ø40)	-	-	-	-
-	-	VDI-40 : 12	VDI-40 : 12	VDI-40 : 12	VDI-40 : 12
-	-	5.5/3.7	5.5/3.7	5.5/3.7	5.5/3.7
-	-	25x25	25x25	25x25	25x25
-	-	Ø40	Ø40	Ø40	Ø40
-	-	6,000	6,000	6,000	6,000
170/600/-	170/600/-	200/400/-	200/400/-	200/600/-	200/600/-
30/30/-	30/30/-	30/30/-	30/30/-	30/30/-	30/30/-
0-5,000	0-5,000	0-5,000	0-5,000	0-5,000	0-5,000
500/100	500/100	275/100	275/100	500/100	500/100
MT5	MT5	MT5	MT5	MT5	MT5
manual	manual	manual	manual	manual	manual
30	30	30	30	30	30
1.5	1.5	1.5	1.5	1.5	1.5
15/11	15/11	15/11	15/11	15/11	15/11
1.8/1.8	1.8/1.8	1.8/1.8	1.8/1.8	1.8/1.8	1.8/1.8
2,530x1,950x2,190	2,530x1,950x2,190	2,390x1,950x2,190	2,390x1,950x2,190	2,530x1,950x2,190	2,530x1,950x2,190
3,520x1,950x2,190	3,520x1,950x2,190	3,380x1,950x2,190	3,380x1,950x2,190	3,520x1,950x2,190	3,520x1,950x2,190
2,530x2,550x2,190	2,530x2,550x2,190	2,390x2,550x2,190	2,390x2,550x2,190	2,530x2,550x2,190	2,530x2,550x2,190
4,000 (4,100)	4,000 (4,100)	3,500 (3,600)	3,500 (3,600)	4,100 (4,200)	4,100 (4,200)
Fanuc Oi-TF					

Item	Specification	Unit	TNL-130ALII[0.7M]	TNL-130ALII[1M]	TNL-130ALII[1.6M]
Turning capacity	Max. swing diameter	mm	Ø620		
	Max. swing diameter over saddle	mm	Ø410		
	Max. turning diameter	mm	Ø410		
	Max. turning length	mm	680	980	1,580
Spindle	Spindle nose		A2-8		
	Spindle speed	rpm	3,500 (2,500)	3,500 (2,500)	3,500 (2,500)
	Chuck O.D.	inch	10"(12")	10"(12")	10"(12")
	Through-spindle hole diameter	mm	Ø90		
	Bar capacity	mm	Ø75		
	Spindle bearing diameter	mm	Ø130		
	Min. CS axis indexing increment	deg	-		
	Sub-spindle	Spindle nose		-	
Spindle speed		rpm	-		
Through-spindle hole diameter		mm	-		
Spindle bearing diameter		mm	-		
Min. CS axis indexing increment		deg	-		
Turret	Tool capacity	pc	12 (8)	12 (8)	12 (10)
	O.D. tool	mm	25x25 (32x32)	25x25 (32x32)	25x25 (32x32)
	I.D. tool	mm	Ø40 (Ø50)	Ø40 (Ø50)	Ø40 (Ø50)
	Power turret (Opt.)	pc	BMT-65 : 12	BMT-65 : 12	BMT-65 : 12
Power turret (Opt.)	Motor	kW	7.5/5.5/3.7	7.5/5.5/3.7	5.5/3.7
	O.D. tool	mm	25x25	25x25	25x25
	I.D. tool	mm	Ø40	Ø40	Ø40
	Max. speed	rpm	4,500	4,500	4,500
	Travel	X/Z/B axis travel	mm	285 (260+25)/700/(700)	285 (260+25)/1,000/(1,000)
Feed	X/Z/B axis rapid traverse	m/min	20/24/(24)		
	Cutting feedrate	mm/rev	0.001-500		
Tailstock (Opt.)	Tailstock/Quill travel	mm	680+100	980+100	1,580+100
	Center taper		MT5		
	Driving system		carries by Z axis (servo)		
Robot arm	X/Y/C axis rapid traverse	m/mm	-		
	X/Y/C servo motor	kW	-		
	Clamp capacity	kg	-		
	Loading/Unloading time (inner/outer)	sec	-		
Hydraulic unit	Hydraulic tank capacity	L	40		
	Hydraulic motor	kW	2.25		
Motor	Spindle motor	kW	22/18.5/15 (26/22/18.5)	22/18.5/15 (26/22/18.5)	22/18.5/15 (26/22/18.5)
	Sub-spindle motor	kW	-		
	X/Z axis servo motor	kW	4/4 (4)		
Machine size	Widthxdepthxheight	mm	3,100x1,977x2,145	3,400x1,977x2,145	4,000x1,835x2,145
	Weight	kg	6,500	7,500	7,500
Controller			Fanuc Oi-TF Plus		

TNL-130ALII[2M]	TNL-160AII[0.7M]	TNL-160AII[1M]	TNL-160AII[1.6M]	TNL-160AII[2M]
Ø620	Ø620	Ø620	Ø620	Ø620
Ø410	Ø410	Ø410	Ø410	Ø410
Ø410	Ø410	Ø410	Ø410	Ø410
1,980	680	980	1,580	1,980
A2-8	A2-11	A2-11	A2-11	A2-11
3,500 (2,500)	2,500	2,500	2,500	2,500
10"(12")	12"(15")	12"(15")	12"(15")	12"(15")
Ø90	Ø105	Ø105	Ø105	Ø105
Ø75	Ø90	Ø90	Ø90	Ø90
Ø130	Ø160	Ø160	Ø160	Ø160
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
12 (8)	12 (8)	12 (8)	12 (8)	12 (8)
25x25 (32x32)	25x25 (32x32)	25x25 (32x32)	25x25 (32x32)	25x25 (32x32)
Ø40 (Ø50)	Ø40 (Ø50)	Ø40 (Ø50)	Ø40 (Ø50)	Ø40 (Ø50)
BMT-65 : 12	BMT-65 : 12	BMT-65 : 12	BMT-65 : 12	BMT-65 : 12
7.5/5.5/3.7	7.5/5.5/3.7	7.5/5.5/3.7	7.5/5.5/3.7	7.5/5.5/3.7
25x25	25x25	25x25	25x25	25x25
Ø40	Ø40	Ø40	Ø40	Ø40
4,500	4,500	4,500	4,500	4,500
285 (260+25)/2,000/(2,000)	285 (260+25)/700/(700)	285 (260+25)/1,000/(1,000)	285 (260+25)/1,600/(1,600)	285 (260+25)/2,000/(2,000)
20/24/(24)	20/24/(24)	20/24/(24)	20/24/(24)	20/24/(24)
0.001-500	0.001-500	0.001-500	0.001-500	0.001-500
1,980+100	680+100	980+100	1,580+100	1,980+100
MT5	MT5	MT5	MT5	MT5
carries by Z axis (servo)	carries by Z axis (servo)	carries by Z axis (servo)	carries by Z axis (servo)	carries by Z axis (servo)
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
40	40	40	40	40
2.25	2.25	2.25	2.25	2.25
22/18.5/15 (26/22/18.5)	22/18.5/15 (26/22/18.5)	22/18.5/15 (26/22/18.5)	22/18.5/15 (26/22/18.5)	22/18.5/15 (26/22/18.5)
-	-	-	-	-
-	-	-	-	-
4/4 (4)	4/4 (4)	4/4 (4)	4/4 (4)	4/4 (4)
4,400x1,977x2,145	3,100x1,977x2,145	3,400x1,977x2,145	4,000x1,977x2,145	4,400x1,977x2,145
8,500	6,500	7,500	8,000	8,500
Fanuc Oi-TF Plus	Fanuc Oi-TF Plus	Fanuc Oi-TF Plus	Fanuc Oi-TF Plus	Fanuc Oi-TF Plus

Horizontal CNC Lathe

Item	Specification	Unit	TE-2000	TE-2000B	TE-2000M	TE-2000MB[C]
Turning capacity	Max. swing diameter	mm	Ø700			
	Max. swing diameter over saddle	mm	Ø400			
	Max. turning diameter	mm	Ø450	Ø360	Ø360/Ø390 (Ø370/Ø410)	
	Max. turning length	mm	500		530/560 (530/560)	
Spindle	Spindle nose		A2-6			
	Spindle speed	rpm	4,500(3,000)			
	Chuck size	inch	8" (10")			
	Through-spindle hole diameter	mm	Ø62			
	Bar capacity	mm	Ø51			
	Min. CS axis indexing increment	deg	-	-	0.001°	
	Sub-spindle	Spindle nose		-	A2-5	-
Spindle speed		rpm	-	5,000	-	5,000
Through-spindle hole diameter		mm	-	Ø35	-	Ø35
Spindle bearing diameter		mm	-	Ø90	-	Ø90
Min. CS axis indexing increment		deg	-	-	-	[0.001]
Servo turret		Tool capacity	pc	8/12	8/12(BMT65)	
	O.D. tool	mm	-	25x25	-	-
	I.D. tool	mm	-	Ø40	-	-
Power turret	Tool capacity	pc	-	-	12(16)	
	Spindle motor	kW	-	-	5.5/3.7	
	O.D. tool	mm	-	-	25x25(20x20)	
	I.D. tool	mm	-	-	Ø40(Ø32)	
	Max. speed	rpm	-	-	6,000	
	Feed	X/Z/B axis travel	mm	230/600/-	230/600/630	230/600/-
X/Z/B axis rapid traverse		m/min	30/30/-	30/30/30	30/30/-	30/30/30
X/Z axis cutting feedrate		mm/rev	0.001-500			
Hydraulic tailstock	Tailstock travel	mm	600	-	600	-
	Center taper		MT4	-	MT4	-
	Center diameter	mm	100	-	100	-
	Tailstock travel	mm	600	-	600	-
Servo type tailstock (Opt.)	Center travel	mm	80	-	80	-
	Center taper		MT4	-	MT4	-
	Center diameter	mm	100	-	100	-
	Hydraulic unit		-	-	30	
Motor	Hydraulic motor	kW	1.5			
	Spindle motor	kW	18.5/15/11			
Machine size	Sub-spindle motor	kW	-	7.5/5.5	-	7.5/5.5
	X/Y/Z/B axis servo motor	kW	4.5/2.7/-	4.5/2.7/2.7	4.5/2.7/-	4.5/2.7/2.7
	Widthxdepthxheight	mm	3,320x2,055x2,340			
Controller	Weight	kg	4,900	5,200	5,200	5,500
			0i-TF Plus			

TE-2500	TE-2500B	TE-2500M	TE-2500MB[C]	TE-2500 wheel machine
		Ø700		Ø700
		Ø400		Ø450
Ø450	Ø360		Ø360/Ø390 (Ø370/Ø410)	OD 18"
500			530/560 (530/560)	-
		A2-8		A2-8
		3,500(2,500)		2,500
		10" (12")		Finger chuck (opt.)
		Ø77/Ø86		-
		Ø64/Ø74		-
-	-		0.001°	-
-	A2-5	-	A2-5	-
-	5,000	-	5,000	-
-	Ø35	-	Ø35	-
-	Ø90	-	Ø90	-
-	-	-	[0.001]	-
8/12	8/12(BMT65)	-	-	8[12]
	25x25	-	-	25x25
	Ø40	-	-	Ø40
-	-	-	12(16)	-
-	-	-	5.5/3.7	-
-	-	-	25x25(20x20)	-
-	-	-	Ø40(Ø32)	-
-	-	-	6,000	-
230/600/-	230/600/630	230/600/-	230/600/630	245/600/-
30/30/-	30/30/30	30/30/-	30/30/30	30/30/-
		0.001-500		
600	-	600	-	-
MT4	-	MT4	-	-
100	-	100	-	-
600	-	600	-	-
80	-	80	-	-
MT4	-	MT4	-	-
100	-	100	-	-
		30		30
		1.5		1.5
		18.5/15/11		18.5/15/11
-	7.5/5.5	-	7.5/5.5	-
4.5/2.7/-	4.5/2.7/2.7	4.5/2.7/-	4.5/2.7/2.7	4.5/2.7/-
		3,320x2,055x2,340		3,420x1,873x2,500
5,100	5,400	5,400	5,700	5,100
		0i-TF Plus		

Multi-tasking Turning Center

Item	Specification	Unit	TMT2000-T3Y2
Turning capacity	Max. swing diameter	mm	Ø720
	Max. swing diameter over saddle	mm	Ø310
	Max. turning diameter	mm	Ø320
	Max. turning length	mm	600
Spindle	Spindle nose		A2-6
	Spindle speed	rpm	4,500 (6,000 Built-in type)
	Chuck size	inch	8"
	Through-spindle hole diameter	mm	Ø76 (Ø62 Built-in type)
	Bar capacity	mm	Ø65 (Ø51 Built-in type)
	Spindle bearing diameter	mm	Ø100
	Spindle center to floor	mm	1,300
Sub-spindle	Min. CS axis indexing increment	deg	0.001°
	Spindle nose		A2-6
	Spindle speed	rpm	6,000
	Chuck size	inch	8"
	Through-spindle hole diameter	mm	Ø62
	Bar capacity	mm	Ø51
Power turret	Spindle bearing diameter	mm	Ø100
	Min. CS axis indexing increment	deg	0.001°
	Tool shank		12V : BMT65 16V : BMT-55
	Tool capacity	pc	12(16)x3
	O.D. tool	mm	25x25
	I.D. tool	mm	Ø40
	Max. speed	rpm	5,000
	Spindle motor	kW	5.5/3.7
Travel	Max. tool diameter		Dia. 20/M16
	X1/X2/X3 axis travel	mm	230/205/230
	Y1/Y2/Y3 axis travel	mm	±51/-±51
Feed	Z1/Z2/Z3/B axis travel	mm	440/600/440/680
	X/Y/Z/B axis rapid traverse	m/min	30/15/36/30
Hydraulic unit	X/Z axis cutting feedrate	mm/rev	0.001-500
	Hydraulic tank capacity	L	40
Coolant unit	Hydraulic motor	kW	3x2.2
	Coolant tank capacity	L	500
Motor	Coolant pump motor	kW	0.55/1.1/0.55
	Spindle motor	kW	18.5/15/11
	Sub-spindle motor	kW	18.5/11
	X/Y/Z/B axis servo motor	kW	4/3/4/3
Machine size	Widthxdepthxheight	mm	4,100x2,600x2,500
	Weight	kg	10,630
Controller			Fanuc 31i-B

TMT2000-T2Y2	TMT2000-T2Y1	TMT2000-T2
Ø720	Ø720	Ø720
Ø310	Ø310	Ø310
Ø320	Ø320	Ø320
600	600	600
A2-6	A2-6	A2-6
4,500 (6,000 Built-in type)	4,500 (6,000 Built-in type)	4,500 (6,000)
8"	8"	8"
Ø76 (Ø62 Built-in type)	Ø76 (Ø62 Built-in type)	Ø76
Ø65 (Ø51 Built-in type)	Ø65 (Ø51 Built-in type)	Ø65
Ø100	Ø100	Ø100
1,300	1,300	1,300
0.001°	0.001°	-
A2-6	A2-6	A2-6
6,000	6,000	6,000
8"	8"	8"
Ø62	Ø62	Ø62
Ø51	Ø51	Ø51
Ø100	Ø100	Ø100
0.001°	0.001°	-
12V : BMT65 16V : BMT-55	12V : BMT65 16V : BMT-55	12V : BMT65 16V : BMT-55
12(16)x2	12(16)x2	12(16)x2
25x25	25x25	25x25
Ø40	Ø40	Ø40
5,000	5,000	-
5.5/3.7	5.5/3.7	-
Dia. 20/M16	Dia. 20/M16	-
230/-/230	230/205/-	230/205/-
±51/-±51	±51/-	-
440/-/440/680	600/600/-/680	600/600/-/680
30/15/36/30	30/15/36/30	30/15/36/30
0.001-500	0.001-500	0.001-500
40	40	40
3x2.2	3x2.2	3x2.2
500	500	500
0.55/1.1/0.55	0.55/1.1/0.55	0.55/1.1/0.55
18.5/15/11	18.5/15/11	18.5/15/11
18.5/11	18.5/11	18.5/11
4/3/4/3	4/3/4/3	4/-/4/3
4,100x2,600x2,500	4,100x2,600x2,500	4,100x2,600x2,500
10,000	10,000	9,500
Fanuc 31i-B	Fanuc 31i-B	0i-TF Plus

Multi-tasking Turning Center

Item	Specification	Unit	TD-1500Y	
Turning capacity	Max. swing diameter	mm	Ø280	
	Max. swing diameter over saddle	mm	Ø280	
	Max. turning diameter	mm	Ø280	
	Max. turning length	mm	250	
Spindle	Spindle nose		A2-5 (A2-6)	
	Spindle speed	rpm	6,000 (4,800/4,500)	
	Chuck size	inch	6" (8")	
	Through-spindle hole diameter	mm	Ø35 (Ø56) (Ø62)	
	Bar capacity	mm	Ø26 (Ø44) (Ø51)	
	Spindle bearing diameter	mm	Ø65 (Ø85) (Ø100)	
	Spindle center to floor	mm	1,000	
	Min. CS axis indexing increment	deg	0.001°	
Sub-spindle	Spindle nose		-	
	Spindle speed	rpm	-	
	Chuck size	inch	-	
	Through-spindle hole diameter	mm	-	
	Bar capacity	mm	-	
	Spindle bearing diameter	mm	-	
Power turret	Min. CS axis indexing increment	deg	-	
	Tool shank		BMT-55	
	Tool capacity	pc	16 (12)	
	O.D. tool	mm	25x25	
	I.D. tool	mm	Ø32	
	Max. speed	rpm	6,000	
	Spindle motor	kW	5.5/3.7	
	Max. tool diameter		Dia. 16/M14	
	Travel	X1 axis travel	mm	155
		Y1 axis travel	mm	±35
Z1/B axis travel		mm	250	
Feed	X/Y/Z/B axis rapid traverse	m/min	30/15/30	
	Cutting feedrate	mm/rev	0.001-500	
Hydraulic unit	Hydraulic tank capacity	L	30	
	Hydraulic motor	kW	1.5	
Coolant unit	Coolant tank capacity	L	120	
	Coolant pump motor	kW	0.55	
	Spindle motor	kW	18.5/15/11	
Motor	Sub-spindle motor	kW	-	
	X/Y/Z/B axis servo motor	kW	3/1.8/3/-	
	Widthxdepthxheight	mm	1,842x2,793x2,446	
Machine size	Weight	kg	5,000	
	Controller		Fanuc 0i-TF Plus	

	TD-2000Y	TD-2000YBC	TD-2500Y	TD-2500YBC
	Ø700	Ø700	Ø700	Ø700
	Ø310	Ø310	Ø310	Ø310
	Ø360	Ø360	Ø360	Ø360
	530	530	530	530
	A2-6	A2-6	A2-8	A2-8
	4,500(3,000)	4,500(3,000)	3,500 (2,500)	3,500 (2,500)
	8"(10")	8"(10")	10"(12")	10"(12")
	Ø62	Ø62	Ø77 (Ø86)	Ø77 (Ø86)
	Ø51	Ø51	Ø64 (Ø74)	Ø64 (Ø74)
	Ø100	Ø100	Ø120 (Ø130)	Ø120 (Ø130)
	1.075	1.075	1.075	1.075
	0.001°	0.001°	0.001°	0.001°
	-	A2-5	-	A2-5
	-	5,000	-	5,000
	-	6"	-	6"
	-	Ø35	-	Ø35
	-	-	-	-
	-	Ø90	-	Ø90
	-	0.001°	-	0.001°
	BMT-65	BMT-65	BMT-65	BMT-65
	12(16)	12(16)	12(16)	12(16)
	25x25	25x25	25x25	25x25
	Ø40	Ø40	Ø40	Ø40
	6,000	6,000	6,000	6,000
	5.5/3.7	5.5/3.7	5.5/3.7	5.5/3.7
	Dia20/M16	Dia20/M16	Dia20/M16	Dia20/M16
	230	230	230	230
	±51	±51	±51	±51
	600/-	600/630	600/-	600/630
	30/15/30/-	30/15/30/30	30/15/30/-	30/15/30/30
	0.001-500	0.001-500	0.001-500	0.001-500
	30	30	30	30
	1.5	1.5	1.5	1.5
	400	400	400	400
	0.55	0.55	0.55	0.55
	18.5/15/11	18.5/15/11	18.5/15/11	18.5/15/11
	-	7.5/5.5	-	7.5/5.5
	4.5/2.7/4.5/-	4.5/2.7/4.5/2.7	4.5/2.7/4.5/-	4.5/2.7/4.5/2.7
	3,290x2,180x2,337	3,290x2,180x2,337	3,290x2,180x2,337	3,290x2,180x2,337
	5,900	6,400	6,100	6,600
	Fanuc 0i-TF Plus	Fanuc 0i-TF Plus	Fanuc 0i-TF Plus	Fanuc 0i-TF Plus

Item	Specification	Unit	TMS-2000	TMS-2000S	TMS-2000ST
Machining capacity	Max. swing diameter	mm		Ø660	
	Max. machining diameter	mm		Ø600	
	Max. machining length	mm		1,000	
	Bar feeding capacity of spindle	mm		Ø51	
	Bar feeding capacity of sub-spindle	mm	-		Ø51
Spindle	Spindle speed	rpm		5,000	
	Spindle nose			A2-6	
	Through-spindle hole diameter	mm		Ø65	
	Spindle bearing diameter	mm		Ø120	
	Chuck size	inch		8	
	Min. Cs axis indexing increment	deg		0.001	
Sub-spindle	Spindle speed	rpm	-	5,000	
	Spindle nose		-	A2-6	
	Through-sub-spindle hole diameter	mm	-	Ø65	
	Spindle bearing diameter	mm	-	Ø120	
	Chuck size	inch	-	8"	
Machining spindle	Min. Cs axis indexing increment	deg	-	0.001°	
	B axis travel	deg		240° (-30°~210°)	
	Speed	rpm		12,000	
	Tool shank			HSK-T63	
	Tool magazine			40 (Opt. 80)	
	Max. tool diameter with/without adjacent tool	mm		Ø95/Ø150	
	Max. tool length	mm		300	
	Max. tool weight	kg		8	
	Machining spindle motor	kW (N-m)		Siemens: 41/36.6 kW (120 N-m) FANUC: 11/5.5 (131 N-m)	
	Turret	Tool capacity			8
O.D. tool shank		mm		25x25	
I.D. tool shank		mm		Ø40	
Feed	X1/Y axis travel	mm		-125~600/±125	
	Z1 axis travel	mm		1,000 (Opt. 1,500)	
	X2 axis travel	mm		-	200
	Z2 axis travel	mm		-	820
	W axis travel	mm		1,000	
	X/Y/Z/W axis rapid traverse	m/min		40/40/40/30	
Motor	Spindle motor	kW (N-m)		Siemens: 30.6/20.9 kW (292 N-m) FANUC: 15/11 (211 N-m)	
	Controller			Siemens 840D ; FANUC 31i-B/31i-B5	

	TMS-2500	TMS-2500S	TMS-2500ST	TMS-3000	TMS-3000S	TMS-3000ST	TMS-3800	TMS-3800S	TMS-3800ST
		Ø660			Ø660			Ø660	
		Ø600			Ø600			Ø600	
		1,000			1,500			1,500	
		Ø72			Ø72			Ø95	
	-	Ø51		-	Ø72		-	Ø72	
		3,500			3,500			2,500	
		A2-8			A2-8			A2-11	
		Ø86			Ø86			Ø112	
		Ø140			Ø140			Ø180	
		10			12			15	
		0.001°			0.001°			0.001°	
	-	5,000		-	3,500		-	3,500	
	-	A2-6		-	A2-8		-	A2-8	
	-	Ø65		-	Ø86		-	Ø86	
	-	Ø120		-	Ø140		-	Ø140	
	-	8"		-	12"		-	12"	
	-	0.001°		-	0.001°		-	0.001°	
		240° (-30°~210°)			240° (-30°~210°)			240° (-30°~210°)	
		12,000			12,000			12,000	
		HSK-T63			HSK-T63			HSK-T63	
		40 (Opt. 80)			40 (Opt. 80)			40 (Opt. 80)	
		Ø95/Ø150			Ø95/Ø150			Ø95/Ø150	
		300			300			300	
		8			8			8	
		Siemens: 41/36.6 kW (120 N-m) FANUC: 11/5.5 (131 N-m)			36.6/41 (120 N-m)			36.6/41 (120 N-m)	
		-			8			8	
		-			25x25			25x25	
		-			Ø40			Ø40	
		-125~600/±125			-150~575/±150			-150~575/±150	
		1,000 (Opt. 1,500)			1,500			1,500	
		-			200			200	
		-			820			820	
		1,000			1,500			1,500	
		40/40/40/30			40/40/40/30			40/40/40/30	
		Siemens: 51/40.5 kW (610 N-m) FANUC: 22/15 (433 N-m)			51/40.5 kW (610 N-m)			80/64.4 kW (1,110 N-m)	
		Siemens 840D ; FANUC 31i-B/31i-B5			Siemens 840D			Siemens 840D	

Vertical Wheel CNC Lathe

Item	Specification	Unit	TVW-22DT	TVW-22T
Wheel size	Aluminum wheel O.D.	inch	14"~22"	14"~22"
	Aluminum wheel height	inch	12"	12"
Spindle	Spindle nose		A2-11	A2-11
	Spindle speed	rpm	2,500	2,500
	Spindle bearing diameter	mm	Ø160	Ø160
Turret	Tool capacity	pc	6+6	6
	O.D. tool	mm	32x32	32x32
	I.D. tool	mm	Ø50	Ø50
ATC	Tool capacity	pc	-	-
	Max. tool diameter	mm	-	-
	Max. tool length	mm	-	-
Travel	X axis travel (Left/Right)	mm	450/450	450
	Y axis travel	mm	-	-
	Z axis travel (Left/Right)	mm	450/450	450
Feed	X/Z axis rapid traverse	m/min	20/20	20/20
	X/Z axis cutting feedrate	mm/rev	0.001-5,000	0.001-5,000
Hydraulic unit	Hydraulic tank capacity	L	80	80
	Hydraulic motor	kW	3.75	3.75
Coolant unit	Coolant tank capacity	L	650	550
	Coolant pump motor	kW	2.2x1 + 1.1x1	2.2x1
Motor	Spindle motor	kW	55/45	45/37
	X/Z axis servo motor	kW	4/-/7	4/-/7
Machine size	Widthxdepthxheight	mm	3,570x4,240x3,220	2,610x3,920x3,175
	Weight	kg	15,500	10,000
Controller			Fanuc 0i-TF Plus	Fanuc 0i-TF Plus

	TVW-26DT	TVW-26T
Wheel size	14"~24"	14"~24"
Wheel height	6"~12"	6"~12"
Spindle nose	A2-11	A2-11
Spindle speed	2,000	2,000
Spindle bearing diameter	Ø160	Ø160
Turret capacity	6+6	6
O.D. tool	32x32	32x32
I.D. tool	Ø50	Ø50
ATC capacity	-	-
Max. tool diameter	-	-
Max. tool length	-	-
X axis travel	500/500	500
Y axis travel	-	-
Z axis travel	525/525	525
X/Z rapid traverse	20/20	20/20
X/Z cutting feedrate	0.001-5,000	0.001-5,000
Hydraulic tank capacity	80	80
Hydraulic motor	3.75	3.75
Coolant tank capacity	750	500
Coolant pump motor	2.2x1 + 1.1x1	2.2x1
Spindle motor	55/45	45/37
X/Z servo motor	4/-/7	4/-/7
Machine widthxdepthxheight	4,210x4,080x3,640	2,840x4,040,3,650
Machine weight	19,800	12,850
Controller	Fanuc 0i-TF Plus	Fanuc 0i-TF Plus

Horizontal Wheel CNC Lathe

Item	Specification	Unit	TVW-28DT	TVW-28T
Wheel size	Aluminum wheel O.D.	inch	14"~28"	14"~28"
	Aluminum wheel height	inch	6"~16"	6"~16"
Spindle	Spindle nose		A2-11	A2-11
	Spindle speed	rpm	2,000	2,000
	Spindle bearing diameter	mm	Ø160	Ø160
Turret	Tool capacity	pc	6+6	6
	O.D. tool	mm	32x32	32x32
	I.D. tool	mm	Ø50	Ø50
ATC	Tool capacity	pc	-	-
	Max. tool diameter	mm	-	-
	Max. tool length	mm	-	-
Travel	X axis travel (Left/Right)	mm	540/540	540
	Y axis travel	mm	-	-
	Z axis travel (Left/Right)	mm	750/750	750
Feed	X/Z axis rapid traverse	m/min	20/20	20/20
	X/Z axis cutting feedrate	mm/rev	0.001-5,000	0.001-5,000
Hydraulic unit	Hydraulic tank capacity	L	80	80
	Hydraulic motor	kW	3.75	3.75
Coolant unit	Coolant tank capacity	L	750	500
	Coolant pump motor	kW	2.2x1 + 1.1x1	2.2x1
Motor	Spindle motor	kW	75/60	45/37
	X/Z axis servo motor	kW	4/-/7	4/-/7
Machine size	Widthxdepthxheight	mm	4,210x4,170x4,165	2,840x4,155x4,165
	Weight	kg	23,000	15,000
Controller			Fanuc 0i-TF Plus	Fanuc 0i-TF Plus

Item	Specification	Unit	HS-36WIIG	HS-40WG
Wheel size	Aluminum wheel O.D.	inch	14"~22"	14"~24"
	Aluminum wheel height	inch	-	-
Spindle	Spindle nose		A2-11	A2-11
	Spindle speed	rpm	2,000	2,000
	Spindle bearing diameter	mm	Ø160	Ø160
Turret	Tool capacity	pc	10	8
	O.D. tool	mm	32x32	32x32
	I.D. tool	mm	Ø50	Ø50
ATC	Tool capacity	pc	-	-
	Max. tool diameter	mm	-	-
	Max. tool length	mm	-	-
Travel	X axis travel (Left/Right)	mm	350	385
	Y axis travel	mm	-	-
	Z axis travel (Left/Right)	mm	740	750
Feed	X/Z axis rapid traverse	m/min	20/-/20	16/-/20
	X/Z axis cutting feedrate	mm/rev	0.001-5,000	0.001-5,000
Hydraulic unit	Hydraulic tank capacity	L	40	40
	Hydraulic motor	kW	2.25	2.25
Coolant unit	Coolant tank capacity	L	620	475
	Coolant pump motor	kW	2.2x1	2.2x1
Motor	Spindle motor	kW	45/37	45/37
	X/Z axis servo motor	kW	4/-/4	4/-/7
Machine size	Widthxdepthxheight	mm	4,410x2,310x3,350	5,070x2,450x2,420
	Weight	kg	7,000	10,000
Controller			Fanuc 0i-TF Plus	Fanuc 0i-TF Plus

Vertical Wheel Machining Center

Item	Specification	Unit	TMV-850W
Wheel size	Aluminum wheel O.D.	inch	14"~22"
	Aluminum wheel height	inch	4"~10.5"
Spindle	Spindle nose		7/24 Taper No. 40
	Spindle speed	rpm	10,000 (15,000)
	Spindle bearing diameter	mm	Ø70
Turret	Tool capacity	pc	-
	O.D. tool	mm	-
	I.D. tool	mm	-
ATC	Tool capacity	pc	24
	Max. tool diameter	mm	Ø89
	Max. tool length	mm	250
Travel	X axis travel (Left/Right)	mm	850
	Y axis travel	mm	650
	Z axis travel (Left/Right)	mm	610
Feed	X/Z axis rapid traverse	m/min	48/48/48
	X/Z axis cutting feedrate	mm/rev	1-10,000
Hydraulic unit	Hydraulic tank capacity	L	30
	Hydraulic motor	kW	1.5
Coolant unit	Coolant tank capacity	L	450
	Coolant pump motor	kW	0.37
Motor	Spindle motor	kW	15/11 (11/7.5)
	X/Z axis servo motor	kW	4.0/4.0/7.0
Machine size	Width×depth×height	mm	2,300x3,100x3,300
	Weight	kg	6,500
Controller			Fanuc 0i-MF Plus

Item	Specification	Unit	TMV-1100W	TMV-1050W
Wheel size	Aluminum wheel O.D.	inch	14"~26"	14"~22"
	Aluminum wheel height	inch	4"~12.5"	4"~10.5"
Spindle	Spindle nose		7/24 Taper No. 40	7/24 Taper No. 40
	Spindle speed	rpm	10,000 (15,000)	10,000 (15,000)
	Spindle bearing diameter	mm	Ø70	Ø70
Turret	Tool capacity	pc	-	-
	O.D. tool	mm	-	-
	I.D. tool	mm	-	-
ATC	Tool capacity	pc	24	24
	Max. tool diameter	mm	Ø89	Ø89
	Max. tool length	mm	250	250
Travel	X axis travel (Left/Right)	mm	1,100	1,050
	Y axis travel	mm	762	650
	Z axis travel (Left/Right)	mm	710	610
Feed	X/Z axis rapid traverse	m/min	30/30/20	48/48/48
	X/Z axis cutting feedrate	mm/rev	1-10,000	1-10,000
Hydraulic unit	Hydraulic tank capacity	L	30	30
	Hydraulic motor	kW	1.5	1.5
Coolant unit	Coolant tank capacity	L	650	650
	Coolant pump motor	kW	0.37	0.37
Motor	Spindle motor	kW	15/11 (11/7.5)	15/11 (11/7.5)
	X/Z axis servo motor	kW	4.0/4.0/7.0	4.0/4.0/7.0
Machine size	Width×depth×height	mm	3,000x3,300x3,885	2,500x3,100x3,300
	Weight	kg	9,800	7,300
Controller			Fanuc 0i-MF Plus	Fanuc 0i-MF Plus

Ultrasonic Assisted Machining Center

Item	Specification	Unit	VU-5
Table	Table size (L×W)	mm	850x410
	Max. loading capacity	kg	250
	Table height from floor	mm	900
	T-slot (size×No.)	mm	18 x 3
Spindle	Spindle taper		7/24 Taper No.30
	Spindle speed	rpm	20,000
Travel	X/Y/Z axis travel	mm	510/400/350
	Distance from table surface to spindle gauge line	mm	200-550
Feed	X/Y/Z axis rapid traverse	m/min	48/48/48
	Cutting feedrate	mm/min	1~20,000
ATC	Tool shank		BBT30
	Tool capacity	pc	20 (30)
	Max. tool diameter	mm	Ø80
	Max. tool length	mm	200
	Max. tool weight	kg	3
Motor	Spindle motor	kW	3.7/2.2
	X/Y/Z axis servo motor	kW	1.8/3/3 [1.8/3/3] [1.8/3/1.8]
	Coolant pump motor	kW	0.37
Machine size	Width×depth×height	mm	2,000 x 3,810 x 2,560
	Weight	kg	4,200
Controller			Siemens 840D [Siemens 828D] [Fanuc 0i-MF Plus]