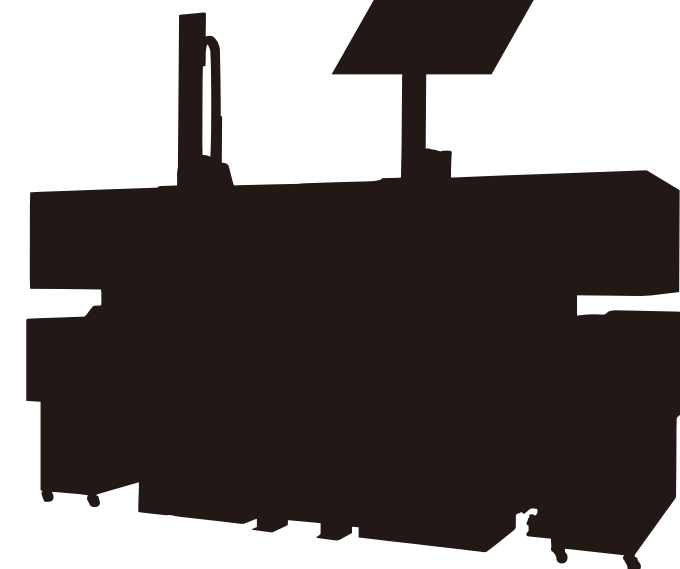


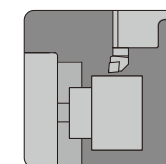


CNC Lathe

MS/MT Series

7





CNC Lathe

MS/MT Series



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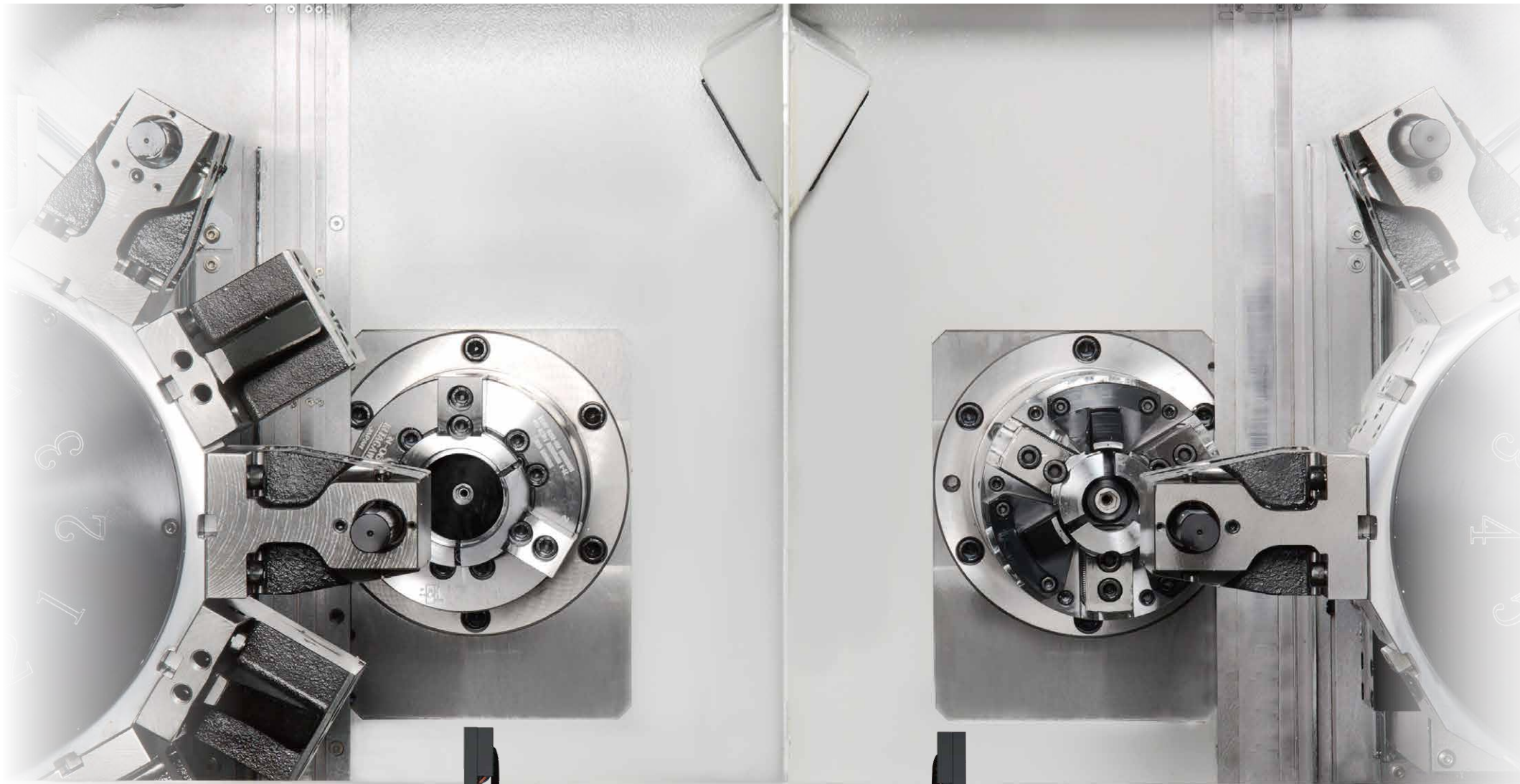
Taoyuan Branch	TEL : 886-3-4551399	FAX : 886-3-4559730
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Japan Branch	TEL : 81-4-71438355	FAX : 81-4-71438360
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Affiliates

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TEL : 886-7-9759888	TEL : 886-4-23589313	TEL : 886-6-3841155	TEL : 33-4-77426161	TEL : 43-7229-71041-0
FAX : 886-7-9759999	FAX : 886-4-23588913	FAX : 886-6-3841177	FAX : 33-4-77426023	FAX : 43-7229-71041-199
www.honorseiki.com.tw	www.apecnc.com	www.quicktech.com.tw	www.pci.fr	www.anger-machining.com



MS/MT Series



Development Concept

In the beginning, Tongtai started out from the manufacturer of customized machine tools and therefore customization and turnkey projects are the core value of Tongtai. We have wealth of customers around the world, especially in the automotive parts manufacturing industry. Mostly, the cycle time of turning processes of automotive small parts is within 60 sec, so improving availability and decreasing non-cutting time are the most important topic of these type parts. For this reason, Tongtai developed MT series, which have features of precision turning, high production volume, automatic production, and fitting in mass production line. MT series is launched base on many years' experience of automotive industry and customers' need. With this model, Tongtai has one more high durability and high benefits product for turnkey projects in automotive industry.

Compact structure design

MT series has twin spindles and two individual machining areas. The turrets and spindles are designed parallel to each other. This design makes parts which need two processes be finished on one machine. Moreover, by applying gantry type robot on this model, It not only improves the utilization of floor, but decreases labor cost.

Standard accessories in automation production

Depend on cycle time, single robot arm/single stock and twin robot arms/twin stocks are both available on MT series to increase automatic production efficiency.

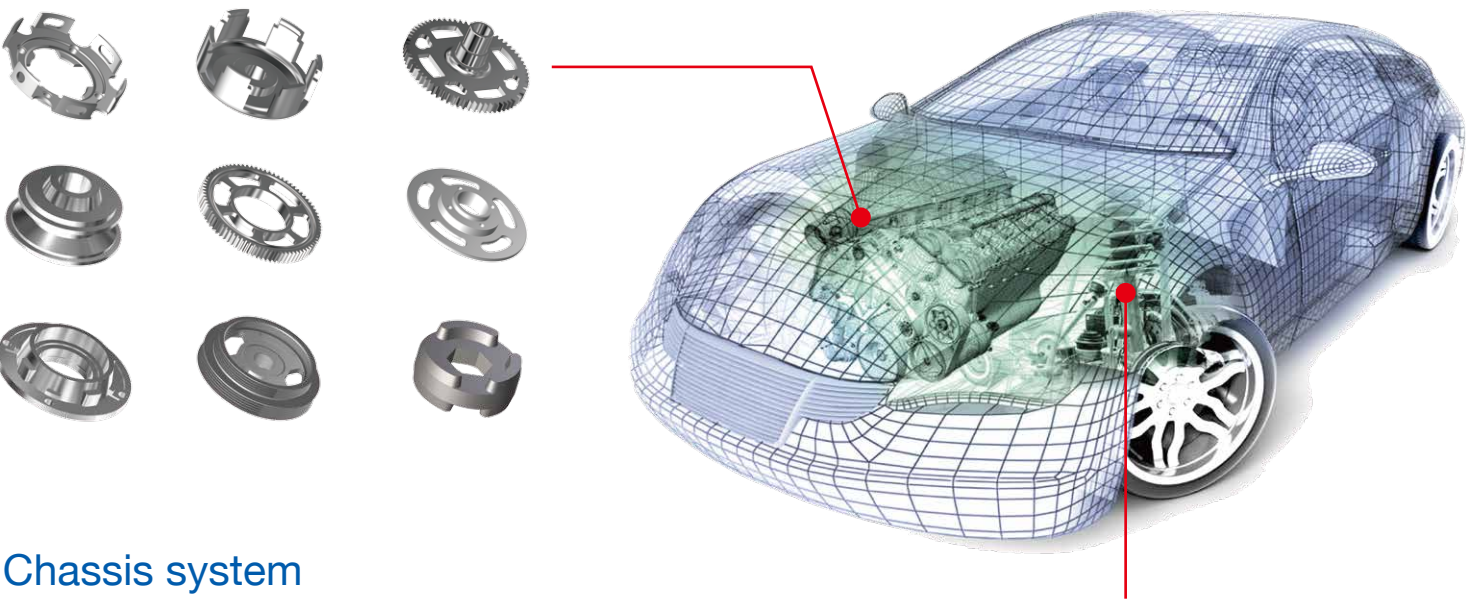
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- 04 Main structure
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Industry applications and machining ability

Engine system



Chassis system



Milling ability

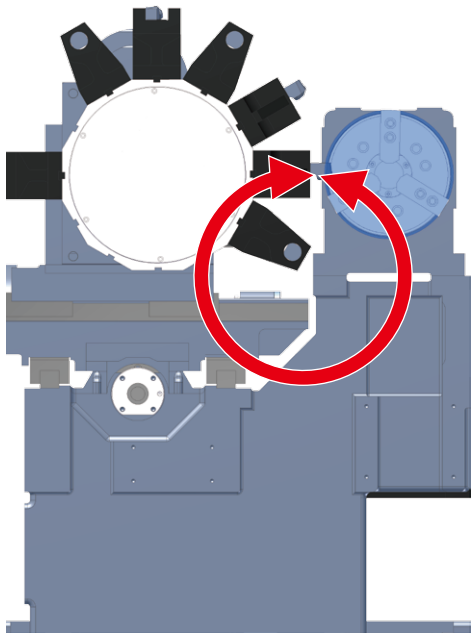
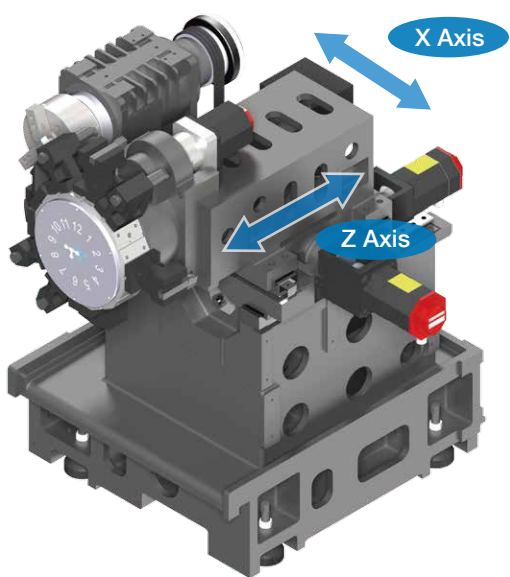
Material:S45C

O.D. cutting		I.D. cutting		Milling		Grooving	
Material removal rate	270 cm³/min	Material removal rate	240 cm³/min	Material removal rate	270 cm³/min	Cutting depth	6 mm
Cutting depth	5 mm	Cutting depth	5 mm	Cutting depth	5 mm	Spindle speed	776 rpm
Spindle speed	1,194 rpm	Spindle speed	1,194 rpm	Spindle speed	1,194 rpm	Feedrate	0.1 mm/rev
Feedrate	0.45 mm/rev	Feedrate	0.4 mm/rev	Feedrate	0.45 mm/rev	Cutting speed	120 m/min
Cutting speed	120 m/min	Cutting speed	120 m/min	Cutting speed	120 m/min		

※Note: Above data are the test result of MT-2000

Main structure

MS Series



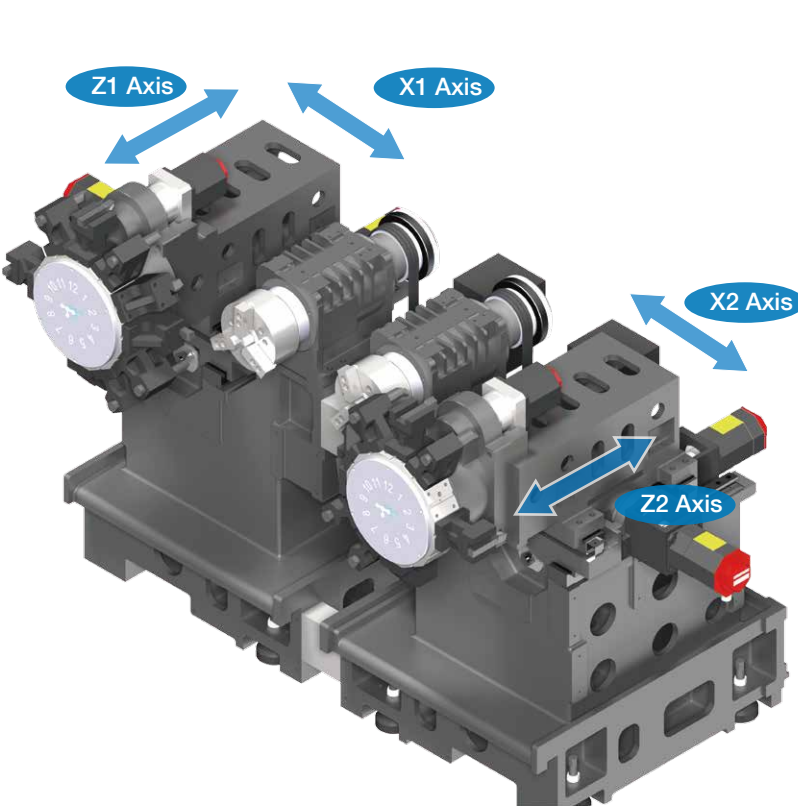
Short force flow route

Compact structure design allows MT series to have a short force flow route. That enhances machining rigidity and heavy cutting ability.

Working area

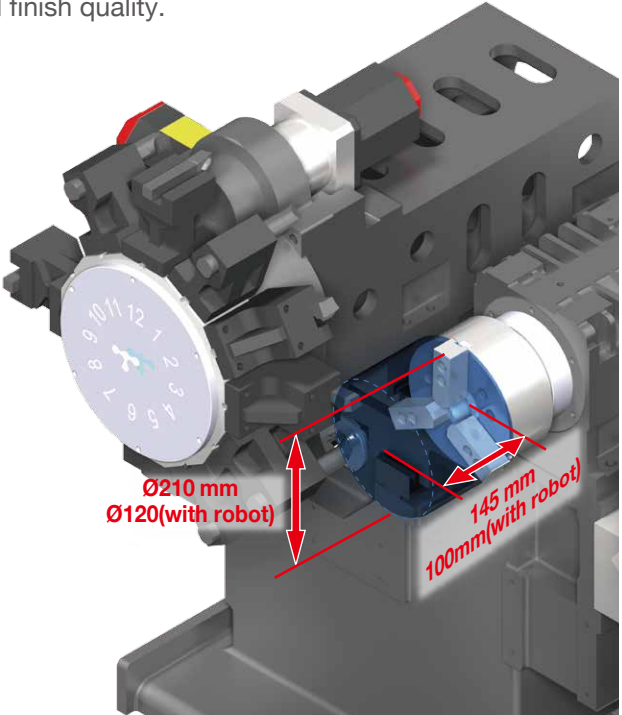
Max. swing diameter	Ø210 mm
Max. machining diameter	Ø210 mm/ Ø120 (with robot)
Max. machining length	145 mm/ 100 mm (with robot)

MT Series



Separation bed structure

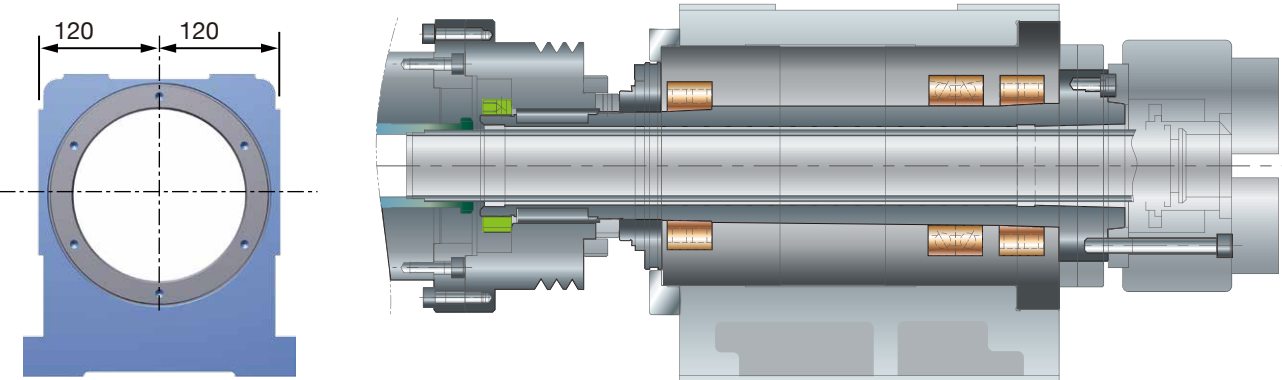
MT series adopt separation bed structure and two individual working areas. This design decreases the transferring of harmonic vibration and provides excellent machining accuracy and finish quality.



Main structure

High precision spindles

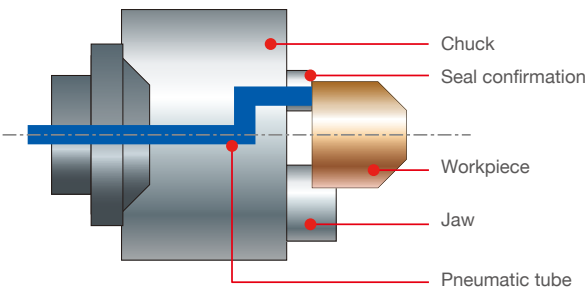
Model	MT-1500	MT-2000
Spindle diameter	Ø80 mm	Ø100 mm
Chuck size	6"	8"
Max. spindle speed	4,500 rpm (opt. 6,000 rpm)	4,500 rpm (opt. 3,000 rpm)
Spindle motor	11/7.5/5 kW	15/11/7.5 kW
Output torque	91/62/45.5 Nm(opt. 70/48/35 Nm)	124/91/62 Nm(opt. 191/140/95 Nm)
Driven type	Driven by belt	Driven by belt



- Spindle box with symmetric design eliminates thermal distortion. Furthermore, two pairs of roller type bearing and one pair of angular contact ball bearing provide rigidity during the heavy duty cutting and ensure the precision during high speed machining.
- Sleeve type spindle facilitates the installing and maintaining. When spindle broken, it is able to be uninstalled and replaced rapidly for shortening the down time.

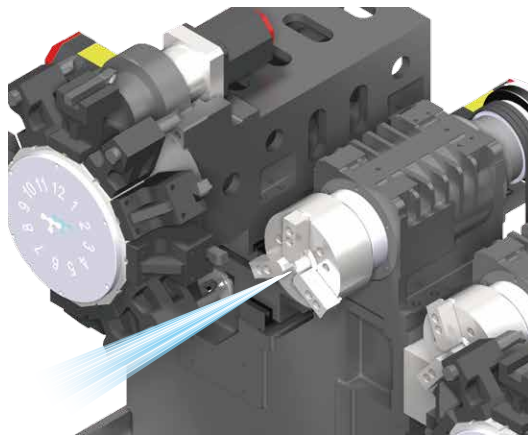
Workpiece positioning detection

During automatic production, if the workpiece is not clamped firmly, it will lose the machining precision or even damage the machine units. MT series standard equip with workpiece positioning detection device for ensuring the sealing between workpiece surface and chuck. If pneumatic pressure leaks are detected, the robot arm will reload the workpiece.



Coolant Through Spindle

MT series is equipped with coolant through spindle, the maximum 70 bar high pressure coolant helps chips removing in deep drilling and boring to improve the finishing quality. Furthermore, it can avoid the sticking of chips on workpiece surface to influence the clamping of robot arm.

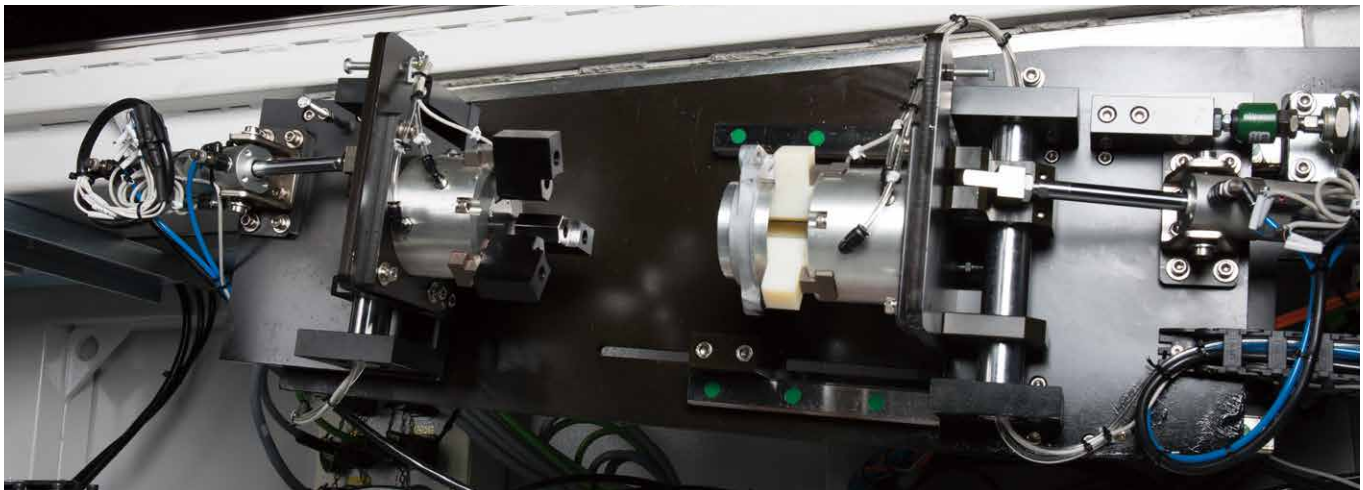
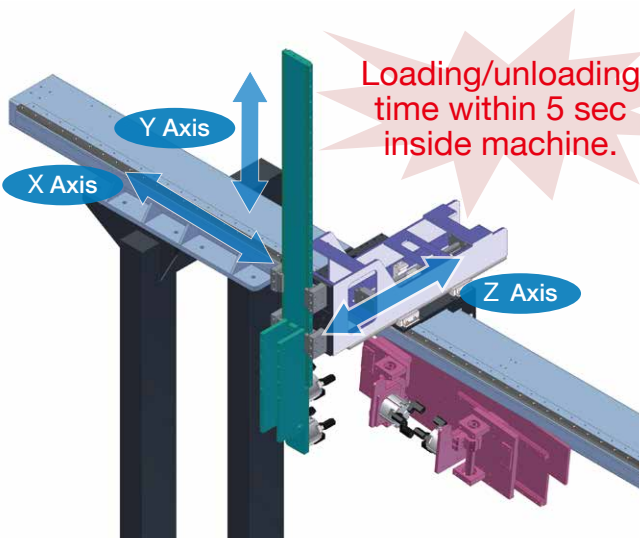


Automation system

Gantry type robot arm

Clamping ability of robotic arm	Workpiece weight	3.0 kg x 2
	Clamping size	Ø120 x 100 mm
X axis rapid traverse		160 m/min
Y axis rapid traverse		120 m/min
Z axis rapid traverse		35 m/min
Rotary axis		1 sec/180°

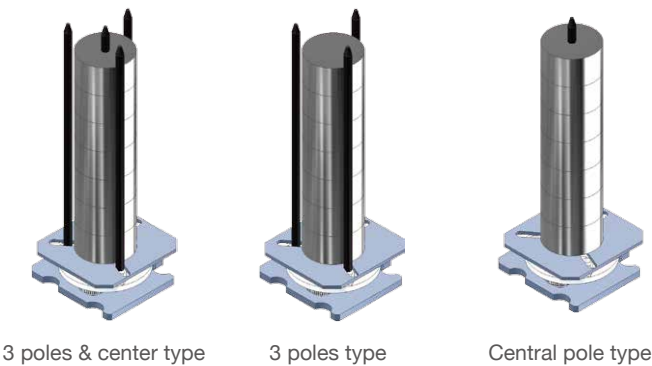
The robotic arm is able to process 3 axes movement and is driven by servo motor. Depending on different workpiece's shape, the programmable robotic arm allows the operator to adjust positioning points and moving routes.



Turnaround unit (OP10 →OP20)

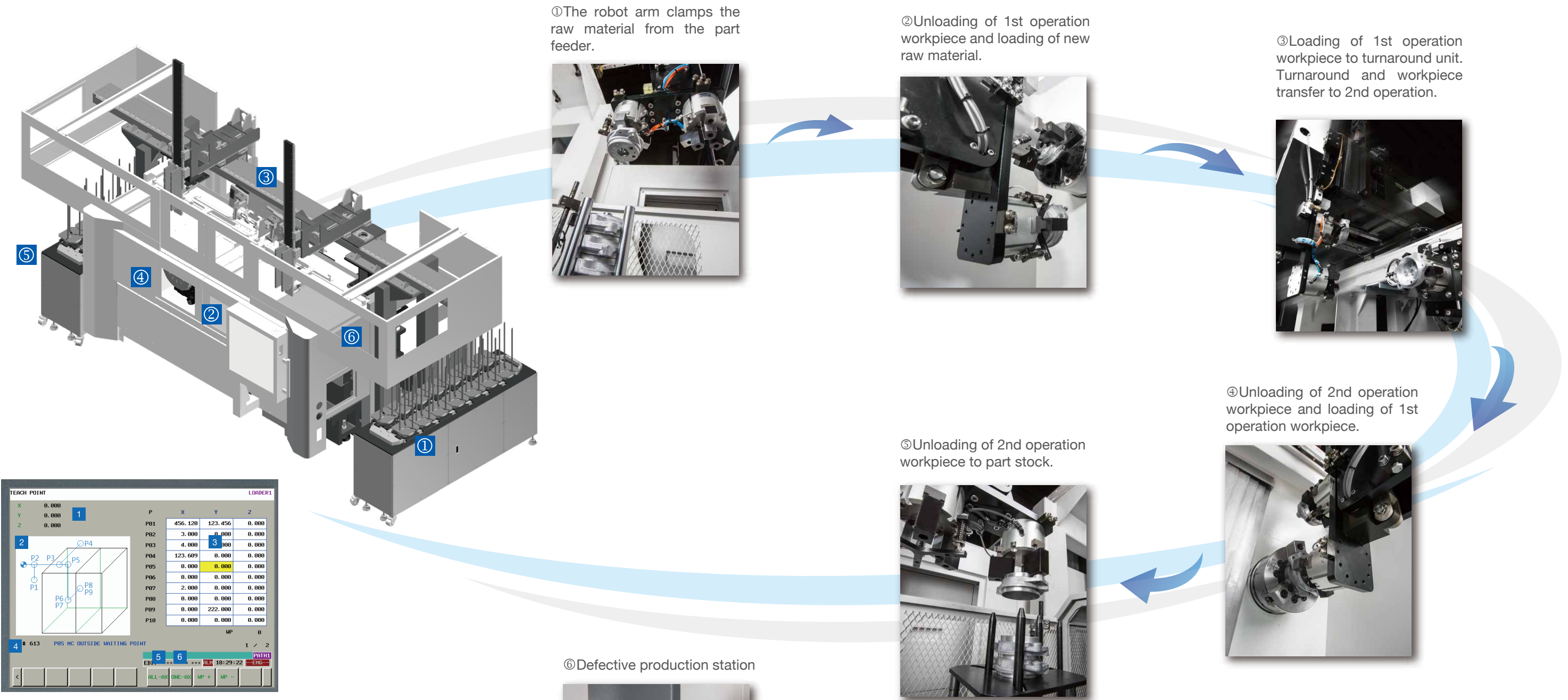
Pallet stacking type part feeder

No. of pallet	Max. height	Allowable diameter
10	450 mm	Ø30~Ø150
14	450 mm	Ø30~Ø150
16	450 mm	Ø30~Ø150



Automation System

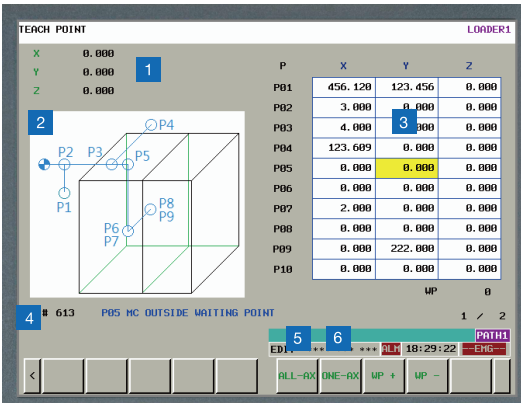
Robot arm cycle



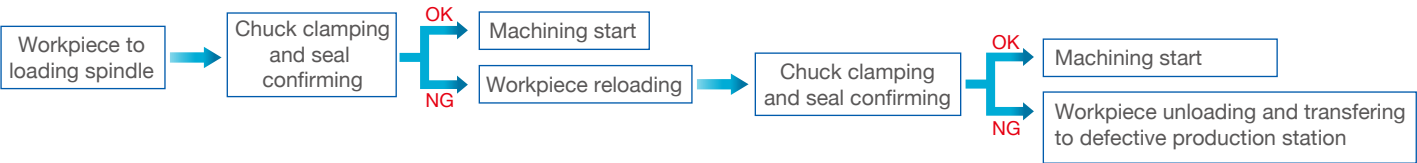
Teaching of robot arm

MT series offer robot arm teaching function, operator can adjust the positioning point through simple windows.

- 1. Coordinates of robot arm
- 2. Position diagram
- 3. Input coordinates
- 4. The number and name of positions
- 5. Three axes setting
- 6. Single axis setting



The flow of defective production disposing

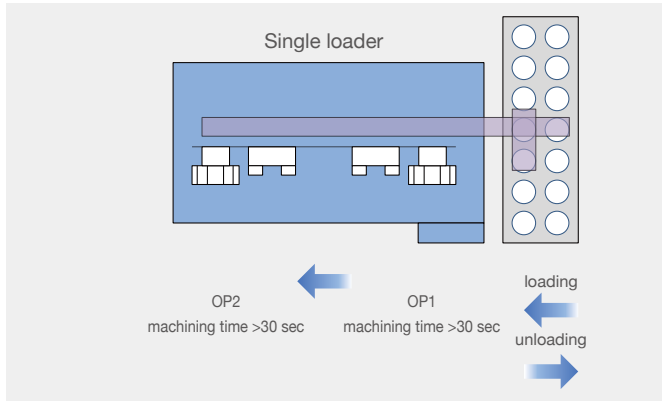


Automation applications in single machine

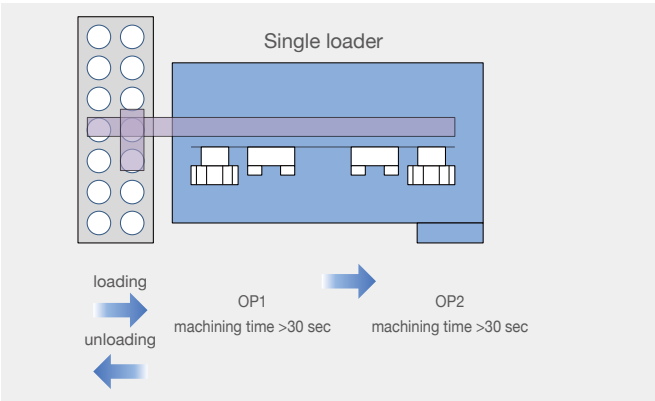
According to the requirements of manufacturing procedures, MS/MT series is able to flexibly select different machine arrangements, including single/twin spindles or turret/power turret type. Furthermore, each machine is able to connect with vertical machining centers by gantry type robotic arm and turnaround unit for processing various manufacturing procedures. The features of MS/MT series include: compact floor space, flexible machines arrangement, and especially suitable for automatic machining line.

Dpend on cycle time need and floor plan, there are varies applications.

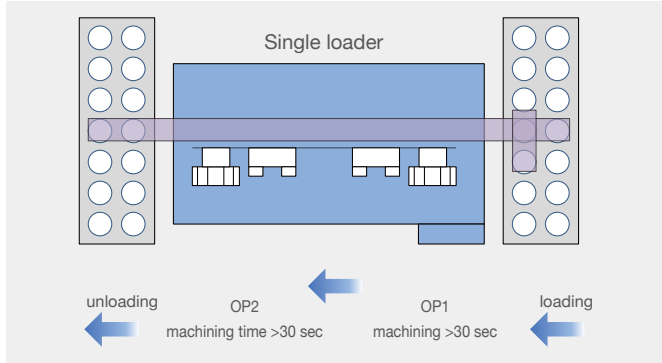
Type 1: Single loader.
Right side loading/unloading



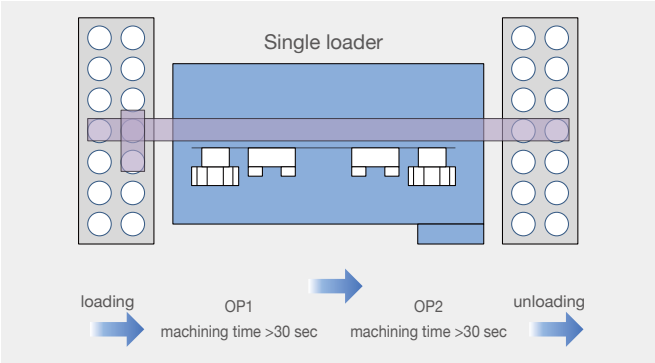
Type 2: Single loader.
Left side loading/unloading



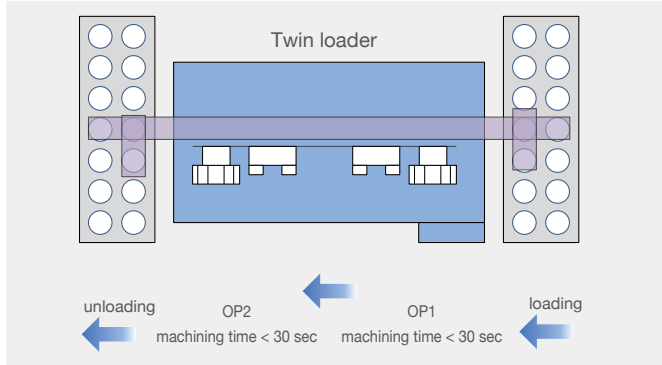
Type 3: Single loader.
Right side loading/Left side unloading



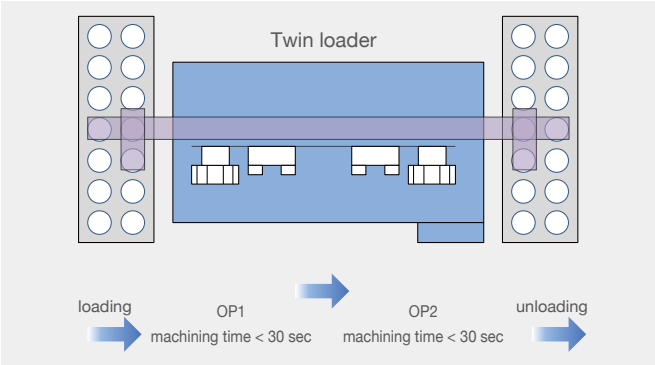
Type 4: Single loader.
Left side loading/ Right side unloading



Type 5: Twin loader.
Right side loading/ Left side unloading

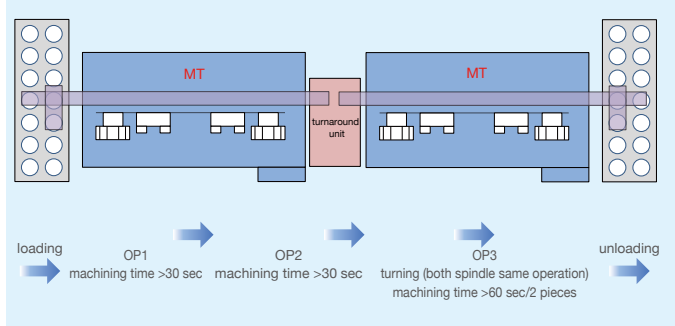


Type 6: Twin loader.
Left side loading/ Right side unloading

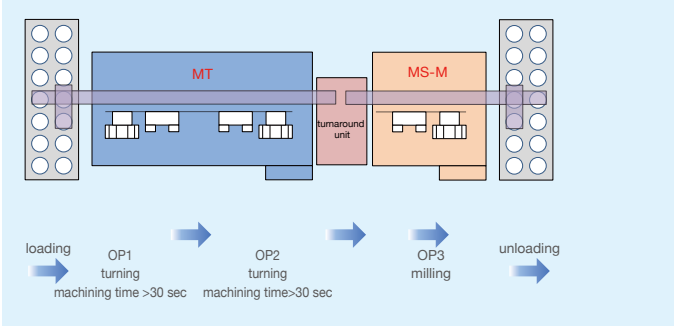


Automation applications in various machines

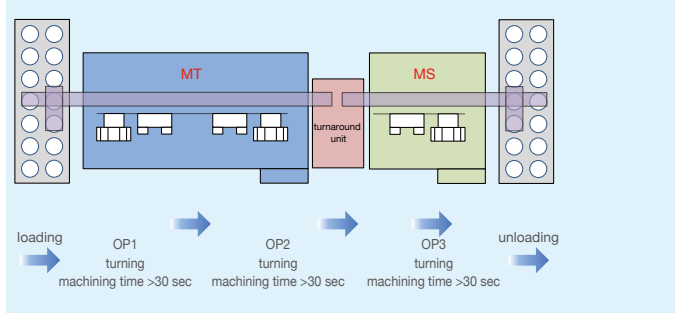
Type1 : OP1, OP2 turnaround turning
OP3 turning (both spindle same operation)



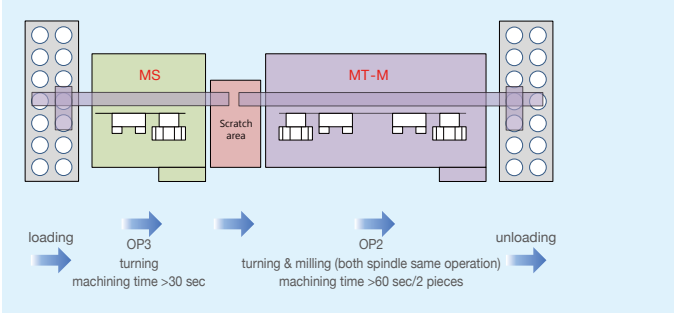
Type5 : P1, OP2 turnaround turning
OP3 milling



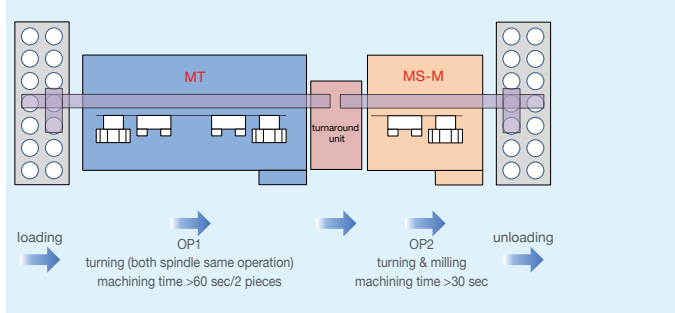
Type 2 : OP1, OP2 turnaround turning
OP3 turning



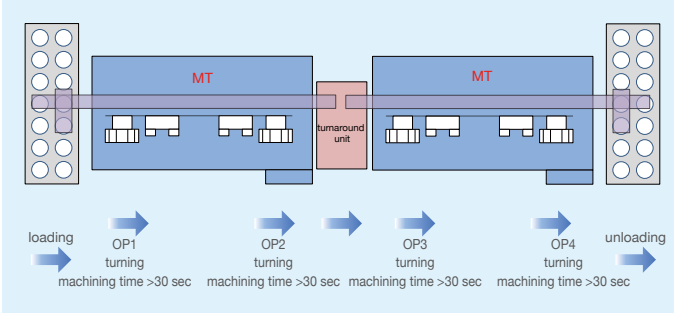
Type6 : OP1 turning
OP2 turning & milling (both spindle same operation)



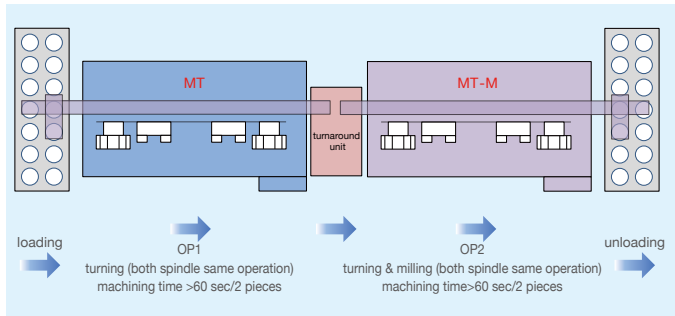
Type3 : OP1 turning (both spindle same operation)
OP2 turning & milling



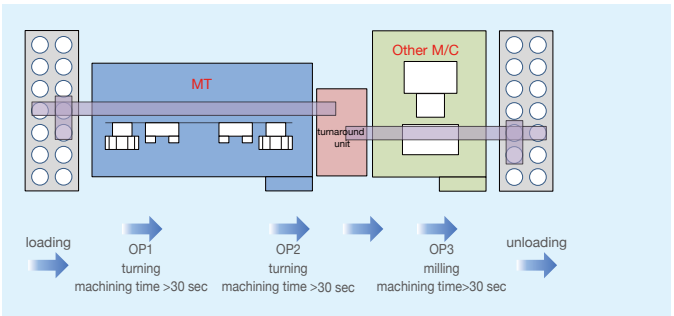
Type7 : OP1, OP2 C
OP3, OP4 turnaround turning



Type4 : OP1 turning (both spindle same operation)
OP2 turning & milling (both spindle same operation)

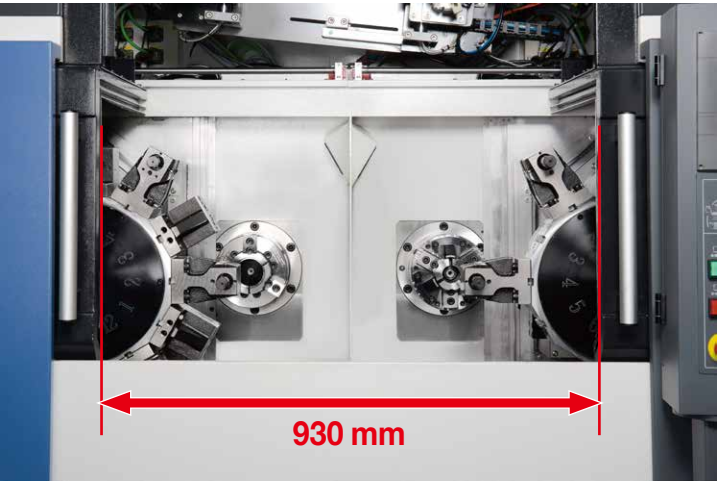


Type8 : OP1, OP2 turnaround turning
OP3 milling (other types: M/C)



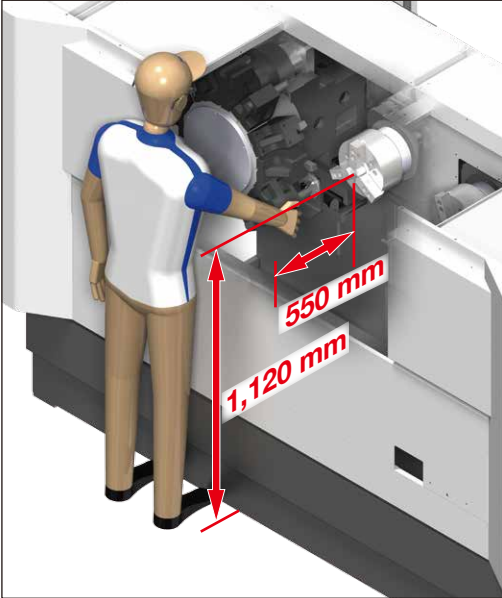
Operation

Door opening width



The wide door opening makes machine operation and maintenance more convenient.

Accessibility



The access to spindles or turrets is short and comfortable to operator.

Front-pull coolant tank



Coolant tank is able to be pulled from the front of the machine. It saves floor space and facilitates the maintenance.

Swivel-type operation panel



The swivel panel makes operator easy to operate and inspect during operation.

For green future

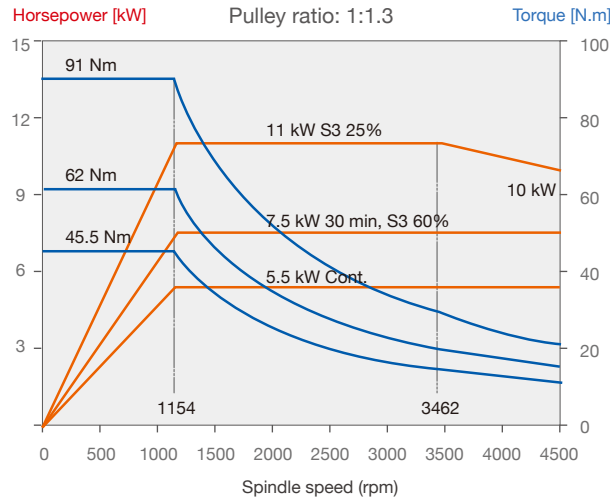
Because of rising energy costs and strict international environmental laws, the energy efficiency of production equipment is a key factor that can influence the production costs. By this trend, the machine tools are not only need to satisfy the requirements of high speed and high precision, but also need to pursue the goals of high efficiency and environmental protection. In recent years, Tongtai has worked hard on developing the products with the concept of being environmentally friendly. Besides improve machine efficiency, the energy saving accessories are used on machines.

A large graphic titled 'For green future' with a background of a green field and a blue sky with clouds. In the center is a large lightbulb containing a green tree. To the right is a CNC machine. Below the lightbulb is the text 'LHL lubrication system' next to a lubricant container. To the right of the machine is the text 'Variable-frequency hydraulic unit' next to a hydraulic unit. At the bottom are four circular icons with arrows pointing down, indicating savings: 'Lubricant Save 90%', 'Parts damage Decrease 50%', 'Coolant life Improve 200%', and 'Power consumption Save 55%'.

Spindle output and torque chart

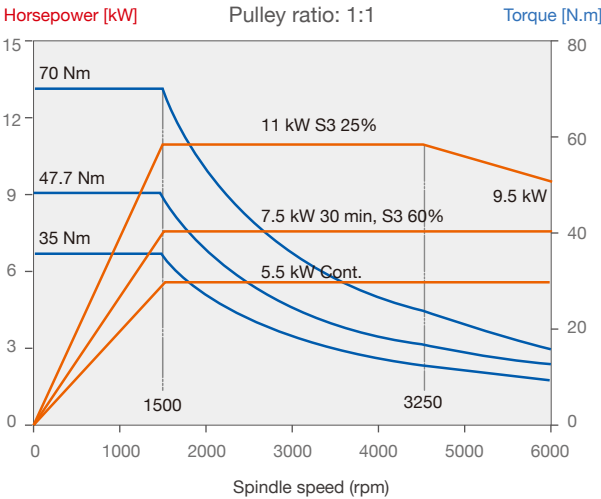
MS/MT-1500 spindle motor (std.)

Spindle diameter: Ø80 mm Spindle speed: 4,500 rpm



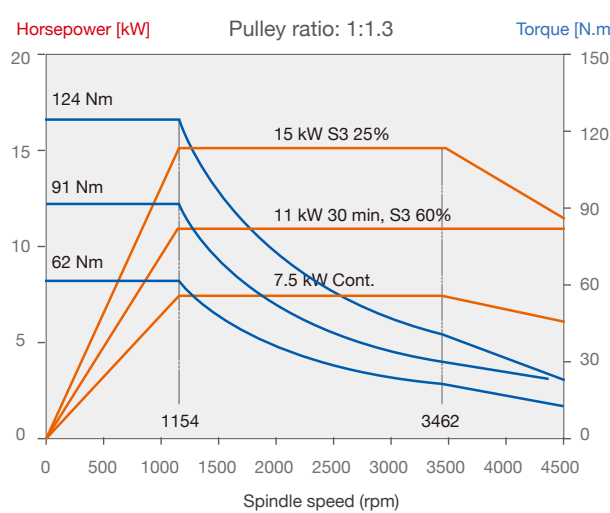
MS/MT-1500 spindle motor (opt.)

Spindle diameter: Ø80 mm Spindle speed: 6,000 rpm



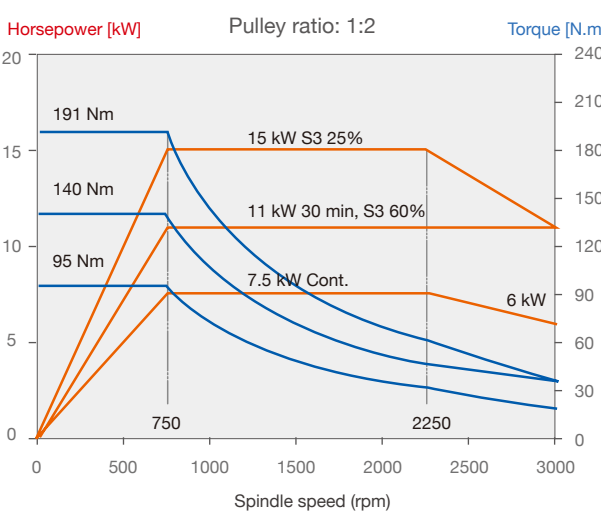
MS/MT-2000 spindle motor (opt.)

Spindle diameter: Ø100 mm Spindle speed: 4,500 rpm

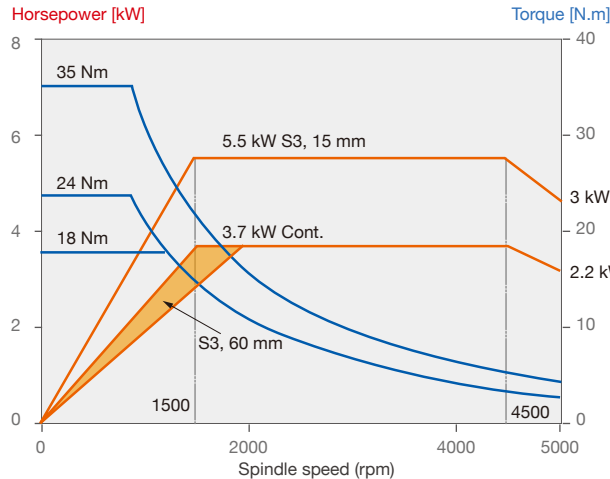


MS/MT-2000 spindle motor (opt.)

Spindle diameter: Ø100 mm Spindle speed: 3,000 rpm



Live tool spindle motor (opt.)



Standard / Optional accessories

			Standard	Optional
Spindle	Spindle bearing dia.Ø80 mm		● (MT-1500)	
	Spindle bearing dia.Ø100 mm		● (MT-2000)	
Chuck	3 Jaws through hole chuck		●	
	Collet type through hole chuck			○
Turret	12V servo turret		●	
	8V servo turret			○
Tool holder	Gasket		16	
	□25 O.D tool holder		4	
	□25 Facing tool holder		4	
	Ø32 I.D. tool holder		12	
	I.D. tool sleeve Ø8,Ø10,Ø12,Ø16,Ø20,Ø25		2	
	Drilling tool sleeve MT#1, MT#2, MT#3		2	
Chip conveyor	Hinge type conveyor		●	
	Scraper type conveyor			○
	Magnetic scraper type conveyor			○
Lubrication system	General lubrication system		●	
	LHL integrated lubrication system			○
Hydraulic unit	General type oil pump		●	
	variable-frequency oil pump			○
Automatic loading / unloading unit	robot arm	Single robot arm(right side)	●	
		Twin robot arms		○
	Part feeder	10 pallets	●	
		14 pallets		○
		16 pallets		○
	Flow direction	left side loading, left side unloading		○
		left side loading, right side unloading		○
		right side loading, right side unloading	●	
		right side loading, left side unloading		○
	Automatic door			○
	Seal confirmation		●	
Coolant & airblow	Coolant through spindle		●	
	Coolant on spindle side			○
	Air blow on spindle side		●	
Others	Air conditioner for electrical cabinet			○
	Air gun			○
	Coolant gun			○
	Oil skimmer			○
	Oil mist collector			○
Controller	FANUC 0i-TF		●	

Specification

Item	Specification	Unit	MT-1500	MT-1500M
Turning capacity	Pitch of two spindles	mm	440	
	Max. swing diameter	mm	Ø210	
	Max. swing diameter over saddle	mm	Ø230	
	Max. turning diameter	mm	Ø210 (with robot Ø120)	
	Max. turning length	mm	145 (with robot 100)	
Spindle	Spindle nose		A2-5	
	Spindle speed	rpm	4500 (Optional 6,000)	
	Chuck size	inch	6"	
	Through-spindle hole diameter	mm	Ø56	
	Spindle bearing diameter	mm	Ø80	
	Min. CS axis indexing increment	deg	-	0.001°
Turret	Tool capacity	pc	12 (Optional 8)	-
	O.D. tool	mm	25x25	
	I.D. tool	mm	Ø32	
Power turret	Tool capacity	pc	-	12(VDI-40)
	Motor	kW		5.5/3.7
	O.D. tool	mm		25x25
	I.D. tool	mm		Ø32
	Max. speed	rpm		5,000
Stroke	X/Z axis stroke	mm	155/155	
Feed	X/Z axis rapid traverse	m/min	30/30	
	Cutting feedrate	mm/min	0.001-5,000	
Hydraulic unit	Hydraulic tank capacity	L	30	
	Hydraulic motor	kW	1.5	
Coolant unit	Coolant tank capacity	L	220	
	Coolant motor	kW	0.55x2	
Motor	Spindle motor	kW	11/7.5/5.5	
	X/Z axis servo motor	kW	1.8/1.8	
Machine size	Width × Depth × Height	mm	4,200×2,845×3,120	
	Weight	kg	6,000	6,500

Item	Specification	Unit	MT-2000	MT-2000M
Turning capacity	Pitch of two spindles	mm	440	
	Max. swing diameter	mm	Ø210	
	Max. swing diameter over saddle	mm	Ø230	
	Max. turning diameter	mm	Ø210 (with robot Ø120)	
	Max. turning length	mm	145 (with robot 100)	
Spindle	Spindle nose		A2-6	
	Spindle speed	rpm	4500 (Optional 3,000)	
	Chuck size	inch	8"	
	Through-spindle hole diameter	mm	Ø66	
	Spindle bearing diameter	mm	Ø100	
	Min. CS axis indexing increment	deg	-	0.001°
Turret	Tool capacity	pc	12 (Optional 8)	-
	O.D. tool	mm	25x25	
	I.D. tool	mm	Ø32	
Power turret	Tool capacity	pc	-	12(VDI-40)
	Motor	kW		5.5/3.7
	O.D. tool	mm		25x25
	I.D. tool	mm		Ø32
	Max. speed	rpm		5,000
Stroke	X/Z axis stroke	mm	155/155	
Feed	X/Z axis rapid traverse	m/min	30/30	
	Cutting feedrate	mm/min	0.001-5,000	
Hydraulic unit	Hydraulic tank capacity	L	30	
	Hydraulic motor	kW	1.5	
Coolant unit	Coolant tank capacity	L	220	
	Coolant motor	kW	0.55x2	
Motor	Spindle motor	kW	15/11/7.5	
	X/Z axis servo motor	kW	1.8/1.8	
Machine size	Width × Depth × Height	mm	4,200×2,845×3,120	
	Weight	kg	6,200	6,700

©Specifications may be changed without prior notice.