



Tongtai Tongta

Tongtai Machine & Tool Co., Ltd.

Headquarters				China Operation	Center —
No.3, Luke 3rd Rd., Luz	zhu Dist., Kaohsiung City 82	151, Taiwan		Shuzhou Tong-	yu Machine a
TEL: 886-7-9761588	FAX : 886-7-9761589			No.555 Huahong Suzhou City, Jia) Rd., Econon ngsu Province
www.tongtal.com.tw				TEL: 86-512-63	430168 FAX
				E-mail : sales@t	ong-yu.com.c
Taoyuan Branch	TEL : +886-3-4551399	FAX : +88	6-3-4559730	www.tongtai.com	1.tw/cn
Taichung Branch	TEL:+886-4-23589600	FAX : +88	6-4-23589153		
Japan Branch	TEL:+81-047-712-0835	FAX : +81	-047-712-0870	Wuhan Branch	TEL
Europe Branch	TEL : +31-161-454639			Chongqing Bran	ch TEL
Malaysia Branch	TEL : +603-78597113	FAX : +60	3-78597115	Guandong Brand	h TEL
Vietnam Branch	TEL : +84-24-62766090			Tianjin Branch	TEL
Thailand Branch	TEL : +66-2-3164708-10	FAX : +66	-2-3164711	Shanghai Office	TEL
Indonesia Office	TEL : +62-21-45850875	FAX : +62	-21-45850876	Shenyang Office	TEL
Members of TTGroup					
	Asia Desidia Elita	0	Ouisle Teah Maak	in any On Ltd	
Honor Selki Co., Ltd.	Asia Pacific Elite	corp.	QUICK-Tech Mach	inery Co., Ltd.	PCI-SCEMI
TEL: 886-7-9759888	TEL: 886-4-23589	313	TEL: 886-7-69553	386	TEL : 33-4-
FAX:886-7-9759999	FAX : 886-4-23588	913	FAX:886-7-6955	387	FAX : 33-4-
www.honorseiki.com	www.apeccnc.com		www.quicktech.co	m.tw	www.pci.fr

MEMBER OF		
ΠG	ROL	JP



www.anger-machining.com

Official Webs

na Operation (Center				
uzhou Tong-y	u Mach	nine & Tool Co., Ltd.			
555 Huahong zhou City, Jian	Rd., Eo Igsu Pro	conomic Development Zor ovince, China	ne o	of Wujiang,	
L : 86-512-63430168		FAX : 86-512-63431622			
nail : sales@to	ong-yu.	com.cn			
w.tongtai.com	.tw/cn				
han Branch		TEL:+86-27-84586587			
ongqing Branc	h	TEL:+86-23-67865925		FAX : +86-23-67867717	
andong Brancl	h	TEL : +86-769-81158198	3	FAX : +86-769-8115810	
njin Branch		TEL : +86-22-24417640		FAX : +86-22-24416738	
anghai Office		TEL : +86-21-24208138		FAX : +86-21-34073262	
enyang Office		TEL : +86-24-24142968		FAX : +86-24-24115782	
o., Ltd.	PCI-S	CEMM	AN	IGER Machining GmbH	
	TEL : :	33-4-77426161	TE	L : 43-7229-71041-0	
	FAX :	33-4-77426023	FA	X : 43-7229-71041-199	

MEMBER OF



MT Series



Machine advantage

Fast and Automated Loading/Unloading

Integration of robotic arms enables extremely fast loading and unloading speeds, as well as intelligent processes. For castings, forgings, and chunk materials, there is no longer a need for manual handling of simple, repetitive loading/unloading tasks.



Operators can allocate more time to workpiece measurement and tool correction.



Industry applications and machining ability









D.D. cutting		
Material removal rate	270 cm ³ /min	
Cutting depth	5 mm	
Spindle speed	1,194 rpm	
eedrate	0.45 mm/rev	
Cutting speed	120 m/min	

I.D. cutting

i.D. cutting	
Material removal rate	240 cm ³ /min
Cutting depth	5 mm
Spindle speed	1,194 rpm
Feedrate	0.4 mm/rev
Cutting speed	120 m/min

Main structure





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.



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	Ø120 mm
Max. machining length	100 mm

Introduction to each unit

High precision spindles

Model	MT 1500	MT 2000
Woder	IVIT-1500	IVIT-2000
Spindle diameter	Ø80 mm	Ø100 mm
Chuck size	6"/8"	8"/10"
Max. spindle speed	4,500 rpm (opt.6,000 rpm)	4,500 rpm (opt.3,000 rpm)
Spindle motor	11/7.5/5.5 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 Clamping Detection

During the automated production process, unstable placement or clamping of workpieces can negatively impact machining accuracy or result in damage to machinery components. The MT series is equipped with a standard workpiece positioning detection device that uses pneumatic detection to verify whether the workpiece surface is securely sealed against the chuck. If the sensor detects that the workpiece is not securely placed, the robotic arm will pick it up and reposition it.



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.



Operation / peripheral accessories

Rearward type chip conveyor

According to different materials and chip size, Tongtai provides various chip conveyors for the best chip disposal.

Specification	Steel		Cast iron		Aluminum/ Non-ferrous metal		
	Long/Curl chips	Short chips	Powder chips	Short chips	Long/Curl chips	Short chips	Powder chips
Hinge type	0	Х	Х	Х	0	Х	Х
Scraper type	Х	0	0	0	Х	0	0
Magnetic scraper type	Х	0	0	0	Х	Х	Х

Short chips: Chips shorter than 60 mm or ball type chips smaller than Ø40 mm. Curl long chips: Chips' length is longer than short ones.

Swivel-type operation panel



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



Turret

Specification	Unit	Data
Indexing time (6-station)	sec	0.3
Indexing time (1-station)	sec	1
Tool capacity	рс	12
O.D. tool	mm	25x25
I.D. tool	mm	Ø32



O: Suitable X: Non-suitable

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.

Automation system

Gantry type robot arm

Clamping ability	Workpiece weight	3.0 kg x 2	
of robotic arm	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/180º		

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 \rightarrow OP20)

Pallet stacking type part feeder

Scheme	Scheme Name
1	Pallet stacking type part
2	Vibrating Disc Feeder
3	Six-Axis Robotic Arm + Vosual feeding

3 poles type

Ex: Pallet stacking type part





3 poles & center type

Central pole type



Automation applications in single machine

The MT series provides flexibility in machine arrangements, allowing for the integration of vertical machining centers and other types of machines as needed for manufacturing processes. Through the use of gantry-type robotic arms and flipping mechanisms, each machine in the series can seamlessly connect to perform various manufacturing procedures. The MT series is characterized by its compact footprint and flexible machine configurations, making it ideal for applications in automated production lines. Depend on cycle time need and floor plan, there are varies applications.

Type 1 : Right side loading/ Left side unloading (OP1 \rightarrow OP2)



Type 3 : Right side loading/ Left side unloading (Same Process)



Type 5 : Right side loading/unloading and Left side loading/ unloading





Type 4 : Right side loading/ Left side unloading (Same Process)



Robotic arm operation processes

Robot arm cycle

The robot arm clamps the raw material from the part feeder.



②Unloading of 1st operation workpiece and loading of new raw material.



©Unloading of 2nd operation workpiece to part stock.





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



User-friendly Human-Machine Interface



- · Lathe and machining centers are both applicable. No additional hardware is required for use.
- · Supports both FANUC and SIEMENS controllers simultaneously and can be customized for additional functionalities based on customer requirements.

Recommended Features of MT Series

Tool Monitoring

Utilizes spindle load monitoring and servo axes monitoring for tool monitoring.

Tool life Management

Tracks tool usage times, providing operators with a basis to manage tool life.

- Docking Center Correction Assistance Provides the mechanical information necessary for instructing on loading and unloading points
- Teaching-type Robotic Arm Calibration

Quick setup of pick-up and placement points for the robotic arm. Rapid guided setting of pick-up and placement points for the robotic arm.

Mid-Process Stop and Resume Function

When the robotic arm is scheduled to stop or experiences other abnormal interruptions, it only needs to be moved to a safe position without removing the workpiece from the gripper to resume operations.



Tool Monitoring–Load Setting



Docking Center



Tool Monitoring - Tool life Management



Robotic Arm Calibration

Spindle output and torque chart



MT-2000 spindle motor (std.)



Spindle speed (rpm)



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



Working area / Tool interference

Machine dimensions

Working area of servo turret (MT-1500/MT-2000)

Unit : mm



Tool interTool interference of servo turretference

Unit : mm







Standard / Optional accessories

Specification

			Std.	Opt.
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			0
Turret	12V servo turret		•	
Tool holder	Gasket			0
	25 O.D tool holder			0
	25 Facing tool holder			0
	Ø32 I.D. tool holder			0
	I.D. tool sleeve Ø8,Ø10,Ø12,Ø16,Ø20,Ø25			0
	Drilling tool sleeve MT#1, MT#2, MT#3			0
Chip conveyor	Hinge type conveyor		•	
	Scraper type conveyor			0
	Magnetic scraper type conveyor			0
Lubrication system	General lubrication system		•	
Hydraulic unit	LHL integrated lubrication system		•	
	General type oil pump			0
Automatic loading/	Robot arm	Single robot arm(right side)	•	
unloading unit		Twin robot arms		0
	Part feeder	10 pallets		0
		14 pallets		0
		16 pallets		0
	Flow direction	Left side loading, left side unloading (Two spindles in the same process)		0
		Left side loading, right side unloading	•	
		Right side loading, left side unloading (Two spindles in the same process)		0
		Right side loading, left side unloading		0
		Left side loading, left side unloading		0
		Right side loading, right side unloading		0
	Automatic door		•	
Coolant & airblow	Seal confirmation		•	
	Coolant through spindle			0
	Coolant on spindle side			0
Others	Air blow on spindle side			0
	Air conditioner for electrical cabinet		•	
	Air gun		•	
	Coolant gun			0
	Oil skimmer			0
	Oil mist collector			0
Controller	FANUC OI-TE		•	

Item	Specification	Unit	MT-1500	MT-2000
Turning	Max. swing diameter	mm	Ø210	
capacity	Max. swing diameter over saddle	mm	Ø254	
	Max. turning diameter	mm	Ø120	
	Max. turning length	mm	100	
Spindle	Spindle nose		A2-5	A2-6
	Spindle speed	rpm	4,500 (opt.6,000)	4,500 (opt.3,000)
	Chuck O.D.	inch	6"/8"	8"/10"
	Through-spindle hole diameter	mm	Ø56	Ø66
	Spindle bearing diameter	mm	Ø80	Ø100
Turret	Tool capacity	рс	12	
	O.D. tool	mm	25x25	
	I.D. tool	mm	Ø32	
Travel	X/Z axis travel	mm	155/155	
Feed	X/Z axis rapid traverse	m/min	30/30	
	Cutting feedrate	mm/rev	0.001-500	
Robotic arm	X/Y/Z axis rapid traverse	m/min	160/120/35	
	X/Y/Z servo motor	kW	1.8/1.2/0.75	
	C rotary axis		1	
	Clamp capacity	kg	3x2	
	Loading/Unloading time (inner/outer)	sec	6/20	
Hydraulic unit	Hydraulic tank capacity	L	30	
	Hydraulic motor	kW	1.5	
Motor	Spindle motor	kW	11/7.5/5.5	15/11/7.5
	X/Z axis servo motor	kW	1.8/1.8	
Machine size	Width×depth×height	mm	4,200x2,845x3,120	
	Weight	kg	6,000	6,500
Controller			Fanuc 0i-TF	

*Note: This data was obtained under conditions designed by Tongtai. ○Spencifications may be changed without prior notice.