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- In Search of Excellence
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LEADWELL CNC MACHINES MFG.,CORP.

NO.23, Gong 33th Road, Taichung Industrial Park
Taichung 407, Taiwan
TEL: 886-4-23591880
FAX: 886-4-23592555
E-mail: sales@leadwell.com.tw

www.leadwell.com.tw

※ All performance are based on 220V/3PH/60HZ. Specification are subject to change without notice.

2019.02

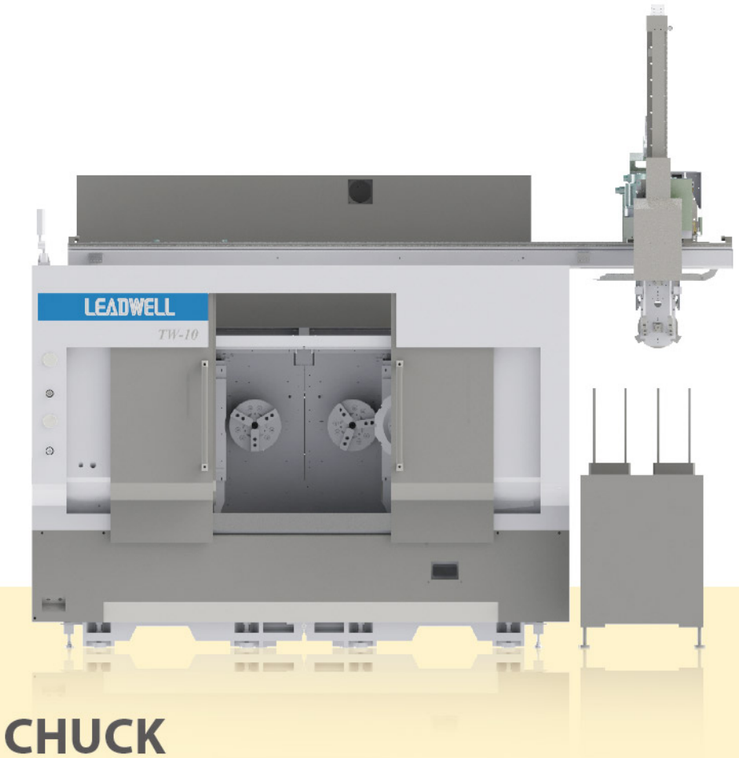
LEADWELL

LEADWELL CNC MACHINES MFG.,CORP.

TW-10 Series

TWIN SPINDLE & TURRET TURNING CENTER

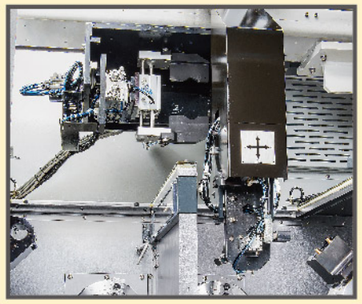
MACHINE ADVANTAGE



10 INCH CHUCK
2 SPINDLE & 2 TURRET LATHE

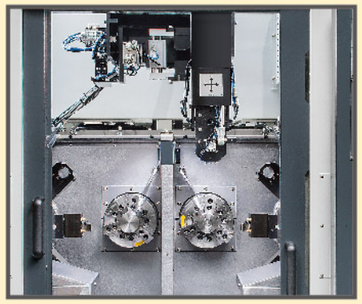
▸ Short Loading Time

TW Series is integrated with 2 axis robot arms, along with the extra sized racks. This has increased both the travelling speed and the rigidity. The quickest loading time is now 12 secs only. The workpiece turning system is modified and improved. Now it only requires to turn the workpiece once before loading it back onto the spindle again. With the integration of the robot arms and the upgrade of the automatic door, the door open/close time is now controlled under 1.1 sec.



▸ The 10 Inch Chuck - In Pursue Of Cutting And Accurate Supremacy.

The spindle has a built-in φ200 NN double rows roller bearing with α12 15KW motor. This reinforce the cutting ability of the spindle. The new machine bed design has significantly reduced the vibration thus improves the accuracy. The stability of the accuracy is also prolonged and enhanced through the spindle internal cooling system.



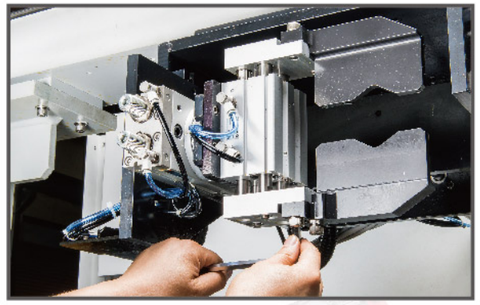
MACHINE FEATURES

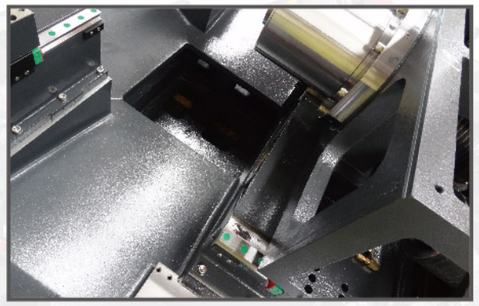
▸ Low Centre Of Gravity/Space Saving/Ergonomic Design

The axes travel: X axis is 200mm, Z axis is 300mm, the height of the spindle from the ground is 1085mm, with the machine width of 2630mm. Even with the installation of robot arms, the front width is only 3012mm. The low centre of gravity design is based on the ergonomic factor for the operator to change the spindle chunk if needed. The workpiece turning device provides the easiness for the changeover operation. The multiple type of the robot arms will be able to satisfy the different demands of the client.

▸ Better Maintainability

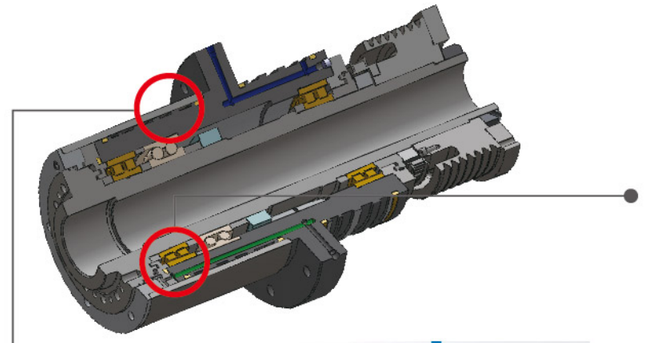
The chip conveyor is located right under the spindle, and this will improve the chip disposal ability. The coolant tank is placed at the rear and able to move for the convenient cleaning purpose. Also, to ensure the rear side can be maintain easily, the rear cover can be opened with the all tubes located at the side.





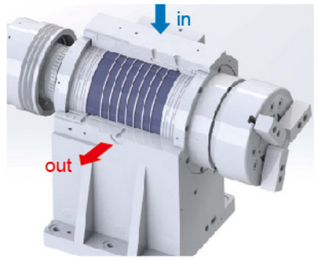
- Chips can fall directly into the water tank
- Rear chip conveyor allows the side-to-side machine set up.

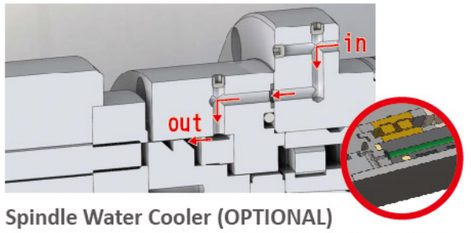
MAIN SPINDLE



Spindle Air Purge

The tip of the spindle has an unique maze design with positive pressure air purge (1.5bar) to prevent the leakage of coolant into the spindle.





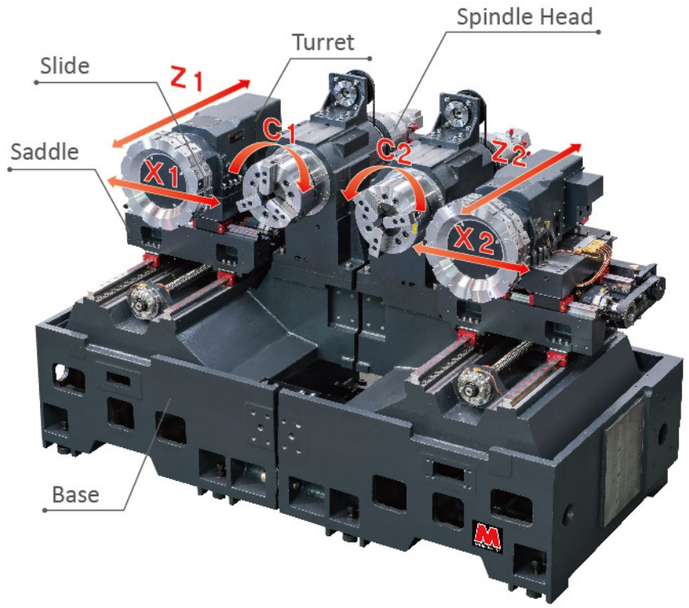
Spindle Water Cooler (OPTIONAL)

The integration of spindle external water cooling system reduces the heat expansion, then to prolong the spindle life and to stable the accuracy after long machining time.

Model	TW-10
Spindle bearing inner diameter	76
Chuck size	10”
Max. spindle speed	3,500rpm
Spindle motor	15kw
Output power	158 N.m

Main spindle is supported by high precision bearing combination with large diameter. All spindle bearing are lubricated by grease.

FEATURE



Structure

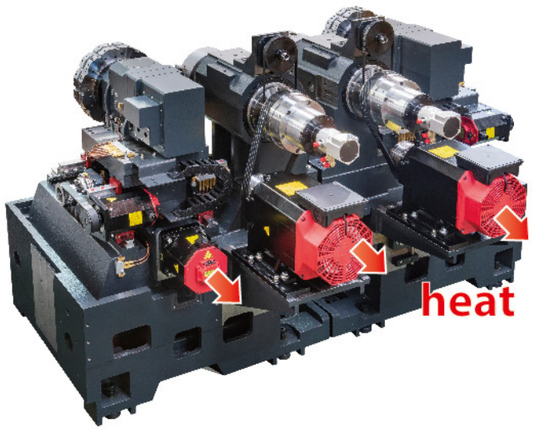
▶Two Independent Systems

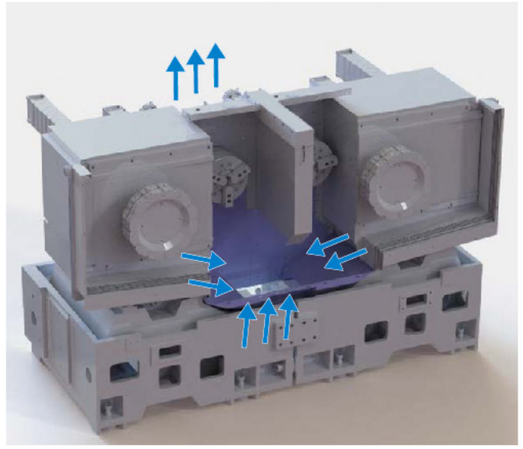
The dual spindle, dual turret set up utilizes two independent base systems, reducing vibration of the spindle while simultaneously improving workpiece final product roundness and surface roughness.

▶Z Axis Stability

Z axis sits on the base frame, providing stable machining rigidity. The Z-axis direction machining will obtain better accuracy and improve the ability of heavy cutting.

Heat insulation





▶Discharge heat source

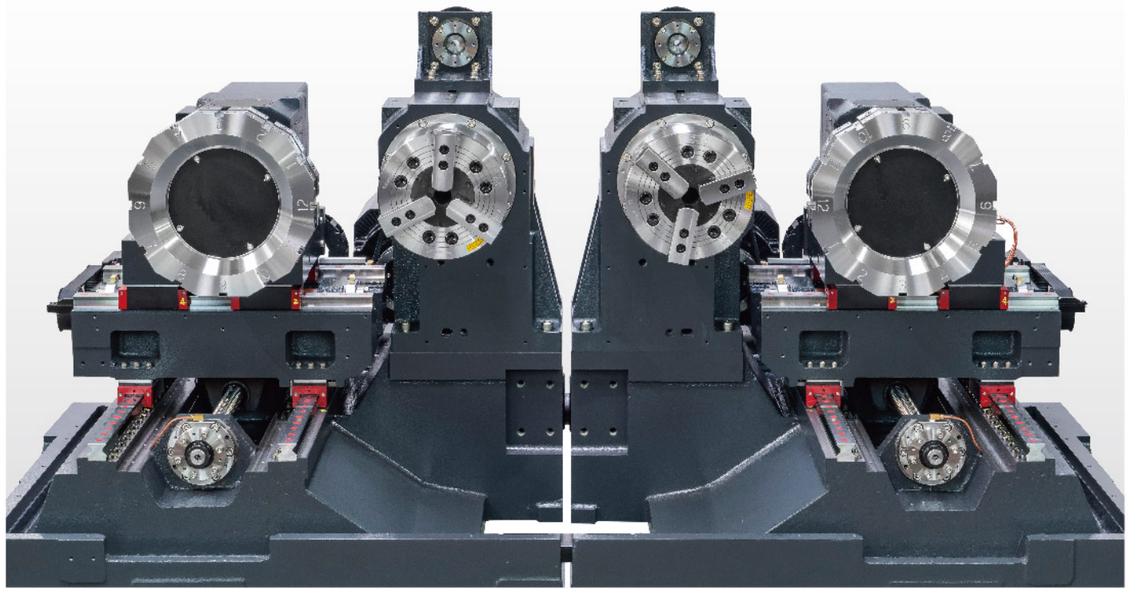
Reduce thermal deformation of castings.
Spindle motor, oil pressure tank, oil cooler, electrical box, cooling fan discharge direction are all backwards.

▶Cutting liquid

Sheet metal separates cutting liquid and cast iron, to avoid heat transfer to casting, causing casting deformation, improving stability of cutting.

TURRET BMT 55

TW-10

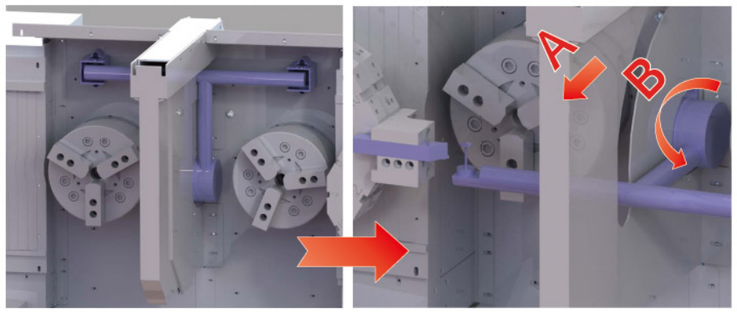


The heavy duty design provides unsurpassed rigidity for heavy stock removal, fine surface finishes. Turning tools are securely attached to the turret by wedge clamps.

Turret indexing time (adjacent tool) : 1.13 sec
Turret indexing (180 dge) : 1.8 sec

The benefits of servo turret are high speed, high accuracy, and easy to maintain. The tooling system is BMT55 that is easy to obtain the tool holder, and commonly accepted by the others.

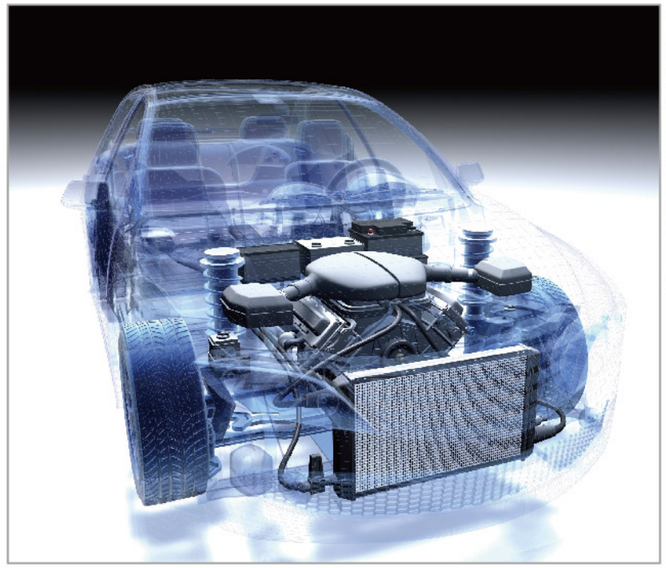
Tool Setter (OPTIONAL)

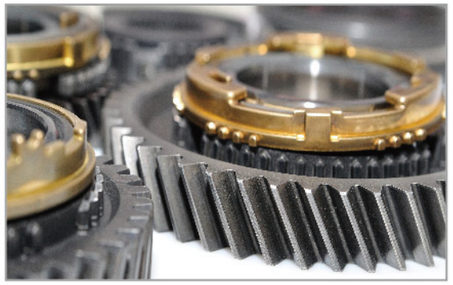


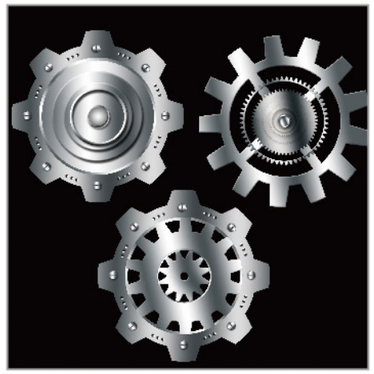
HPMA

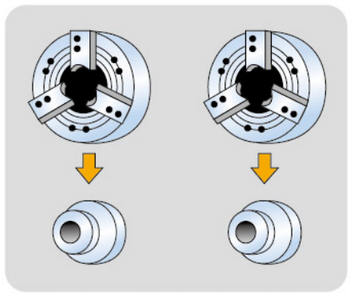
Previous manual tool detection arm systems are not practical for automated production. Therefore, Leadwell has designed an automatic tool detection arm. Utilizing a rotating shaft, two detection heads reduce excess space while maintaining dimensional accuracy while performing multi process work-piece machining.

MACHINE APPLICATION

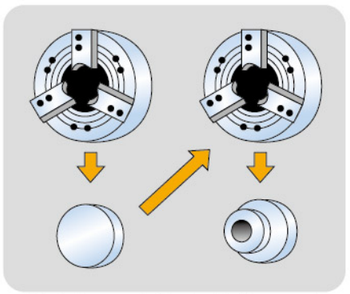




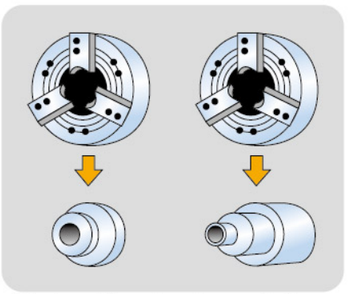




● Turning identical parts on both spindles



● First step on left spindle & second step on right spindle



●Turning different parts on spindle

GANTRY LOADER APPLICATION

From transmissions to components which have different shape, size and capacity are capable to be manufactured by Gantry Robot System.

▸ IN/OUT Stocker (optional)

Model	Workpiece Size	Load Capacity/ Pallet	Space Occupied
WF02-200E(10~16P)	Φ20~200mm	45kg/Pallet	450x2000x1350

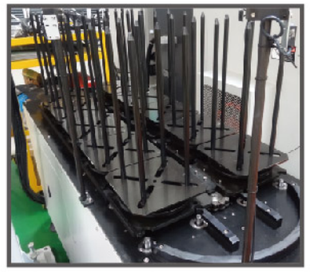
▸ Gantry Robot (standard)

Components			Unit	TW-10/TW-10M
Full Body	Workpiece Diameters	Max. Diameter	mm	ϕ200
		Max payload (Single Side)	kg	8
		Length	mm	120
Robot Arm Body	shoulder (Travel Axis: X)	Servo	-	Gear with racks turning
		Travel	mm	1650
		Feed Rate	m/min	100
	Shoulder (Travel Axis: Z)	Servo	-	Gear with racks turning
		Travel	mm	200
		Feed Rate	m/min	50
	Arm (Up/down axis: Y)	Servo	-	Gear with racks turning
		Travel	mm	700
		Feed Rate	m/min	80
	Wrist Turning Diameter	Servo	-	Pneumatic Cylinder
		Angle	Degree	90
		Wrist Style	-	L Shape Wrist
	Claws	Servo	-	Pneumatic Cylinder
		Claw Travel (Single Side)	mm	8
	Linear Actuator	Servo	-	Pneumatic Cylinder

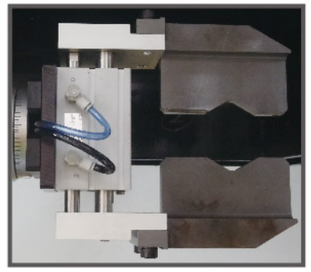
▸ Flexible Variation Setting For Automated Production Line

Machining Flow \ Machining Type	Continuous Front Machining	Continuous Front and Rear Machining
L → R	IN, OP1 Transfer OP2, OUT	IN, OP1 turn OP2, OUT
L ← R	OUT, OP1 Transfer OP2, IN	OUT, OP1 turn OP2, IN
L L (U)	OUT/IN, OP1 Transfer OP2	OUT/IN, OP1 turn OP2
R R (U)	OP1 Transfer OP2, OUT/IN	OP1 turn OP2, OUT/IN
L ← → R		OUT/IN, OP1 turn OP2, OUT/IN

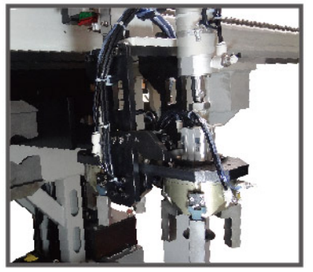
▸ Automation System



IN/OUT Stocker (optional)

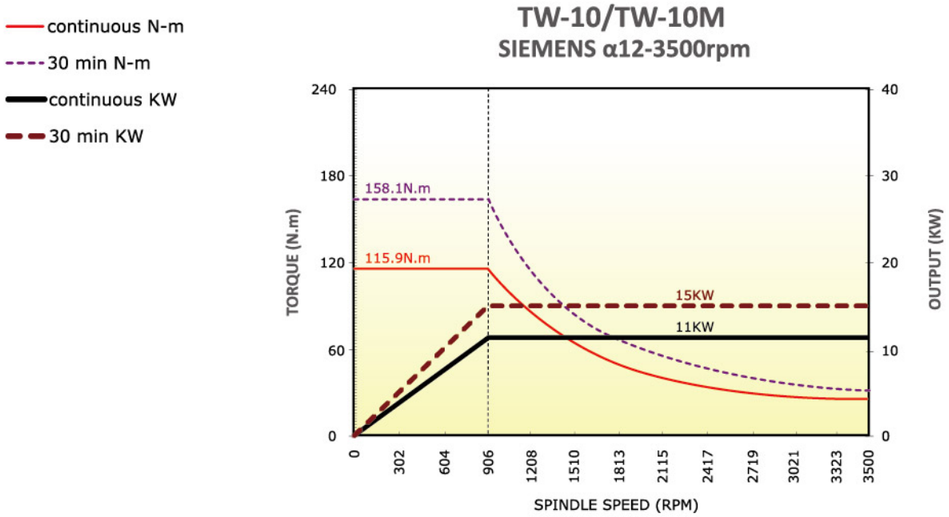


External Turning Device (optional)



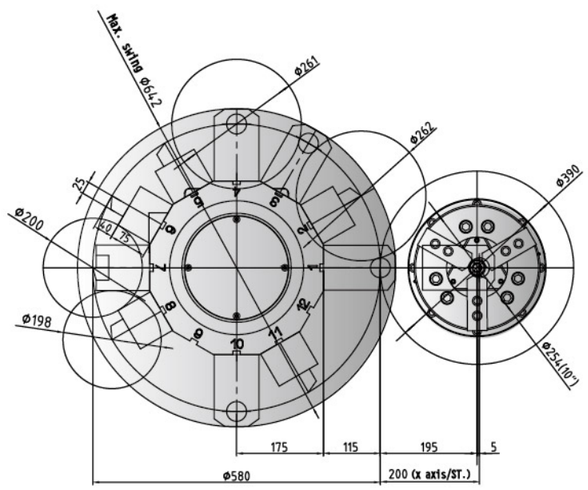
Gantry Robot (optional)

SPINDLE POWER CURVE

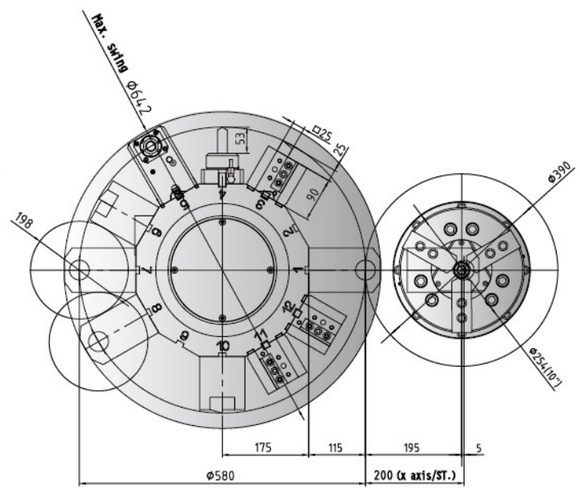


TOOLING INTERFERENCE

TW-10

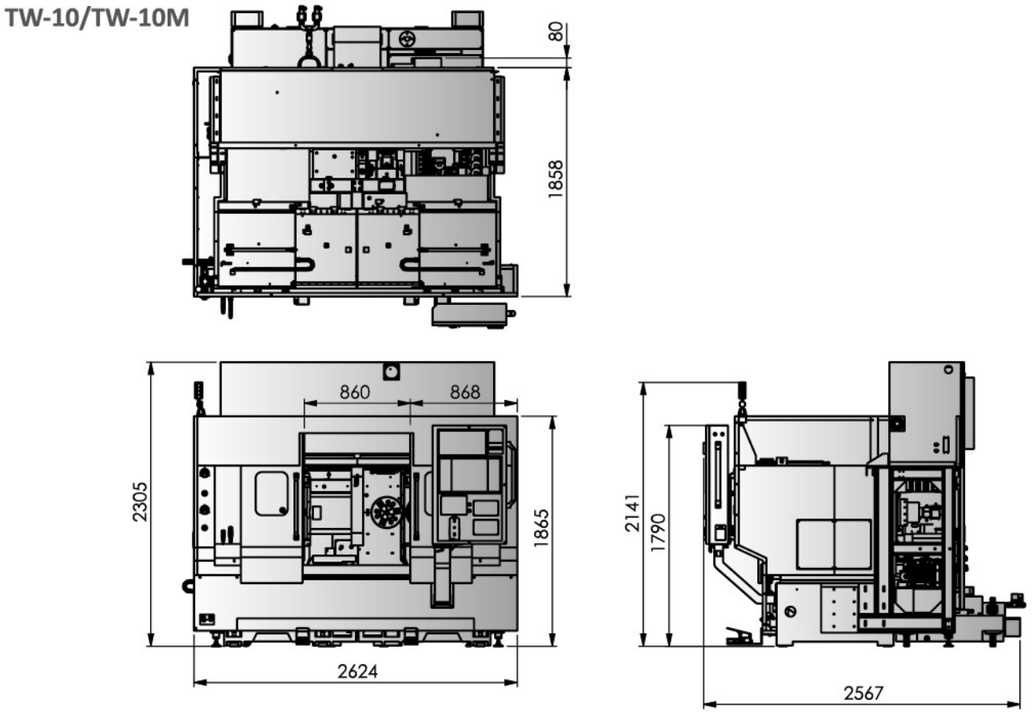


TW-10M



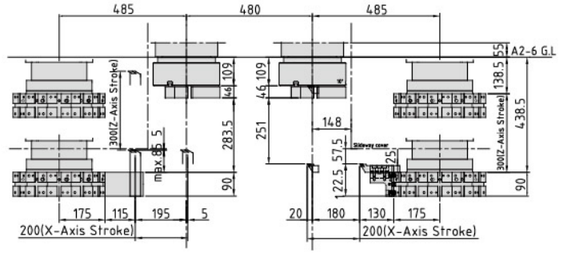
OUTLINE DIMENSION

TW-10/TW-10M



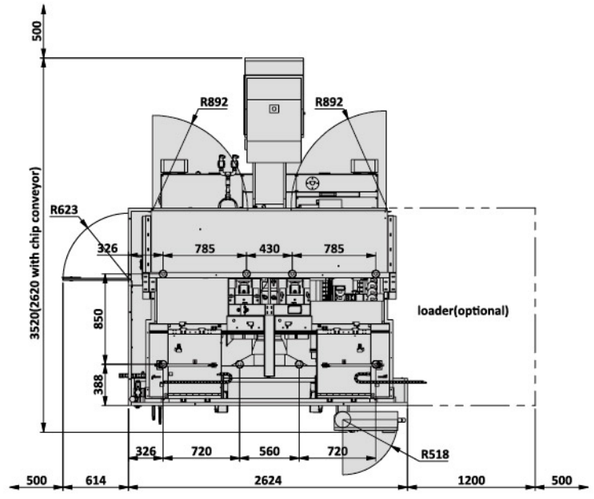
WORKING CAPACITY

TW-10/TW-10M



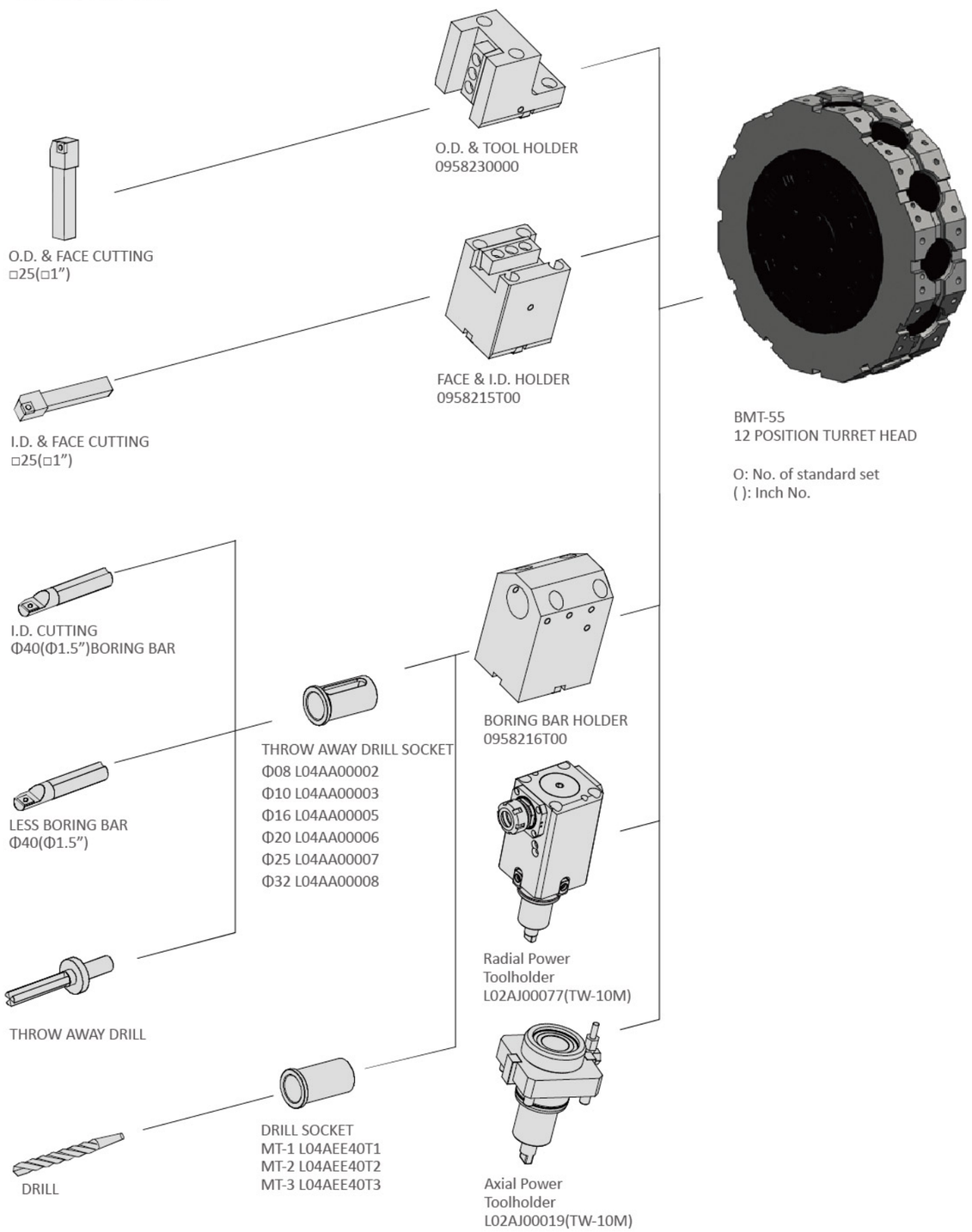
FOUNDATION

TW-10/TW-10M



TOOLING SYSTEM

TW-10/TW-10M



MACHINE SPECIFICATIONS

ITEM / MODEL		TW-10	TW-10M
CAPACITY			
Max. swing	mm(in)	290(11.42)	
Max. turning diameter	mm(in)	290(11.42)	
Max. turning length	mm(in)	300(11.8)	
TRAVEL			
X axis	mm(in)	195+5(7.68+0.19)	
Z axis	mm(in)	300(11.8)	
SPINDLE			
Spindle speed	rpm	3500	
Chuck size	mm(in)	254(10)	
Type of spindle nose		A2-6	
Spindle motor type	FANUC	α12-8000i	
Spindle motor power	kw(hp)	15(20)	
TURRET			
Number of tool stations		12	
Shank height for square tool	mm(in)	25(1) BMT55	
Shank diameter for boring bar	mm(in)	40(1.5) BMT55	
Turret indexing time (adjacent tool)	Sec	1.2	1.13
Turret indexing time (180 deg)	Sec	1.9	1.8
FEED RATE			
X/Z axis rapid traverse	m/min(ipm)	30(1181)	
FEED MOTORS			
X/Z axis motor	kw(hp)	1.6/3(2.1/4)	0.93/1.6(1.2/2.1)
MACHINE SIZE			
Height of machine (H)	mm(in)	2310(90.9)	
Floor space (L x W)	mm(in)	2180X2630(85.8X103.5)	
Total machine weight	Kg	6500	
Power requirement	KVA	40	
Controller	FANUC	0i-TF	

STANDARD ACCESSORIES

- Spindle air purge
- Spindle air outer blow
- 3 jaw close center chuck
- Wide angle V-belt
- High pressure pump(3bar)
- Buzzer
- Alarm lamp
- Full enclosed splash guard
- Foot switch
- Auto door
- Heat exchanger

OPTIONAL ACCESSORIES

- Robot
- Air conditioner
- Collet chuck
- 3 jaw open center chuck
- Chip conveyer
- Chip bucket
- Mist separator
- Oil skimmer
- H.T.D belt
- Automatic workpiece measurement
- Tool setter