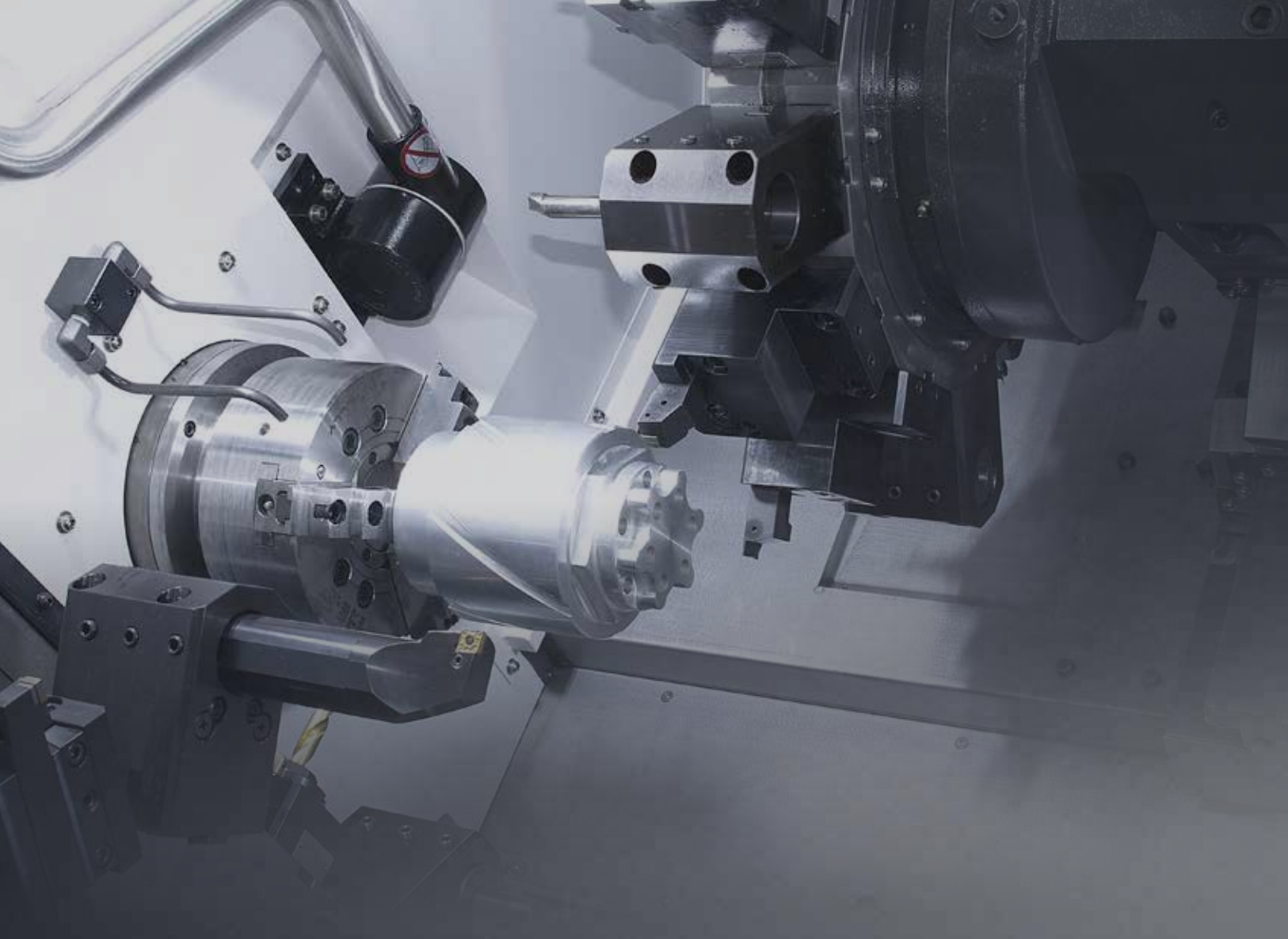


# LM TT Series

LM1600TTSY | LM1800TTSY | LM2500TTSY

HYUNDAI WIA CNC Multi Axis Turning Center



# Technical Leader

The CNC Turning Center LM-TT Series, designed by Hyundai WIA with years of expertise and the latest technology, is designed to maximize productivity by utilizing twin spindles and twin turrets.

ITEM	Main Spindle			Sub Spindle			Turret		Y-Axis
	6"	8"	10"	6"	8"	10"	Standard	Turn Mill	
LM1600TTS	•			•			•		
LM1600TTMS	•			•				•	
LM1600TTSY	•			•				•	•
LM1800TTS		•			•		•		
LM1800TTMS		•			•			•	
LM1800TTSY		•			•			•	•
LM2500TT			•			•	•		
LM2500TTM			•			•		•	
LM2500TTS			•			•	•		
LM2500TTMS			•			•		•	
LM2500TTSY			•			•		•	•

# LM TT Series

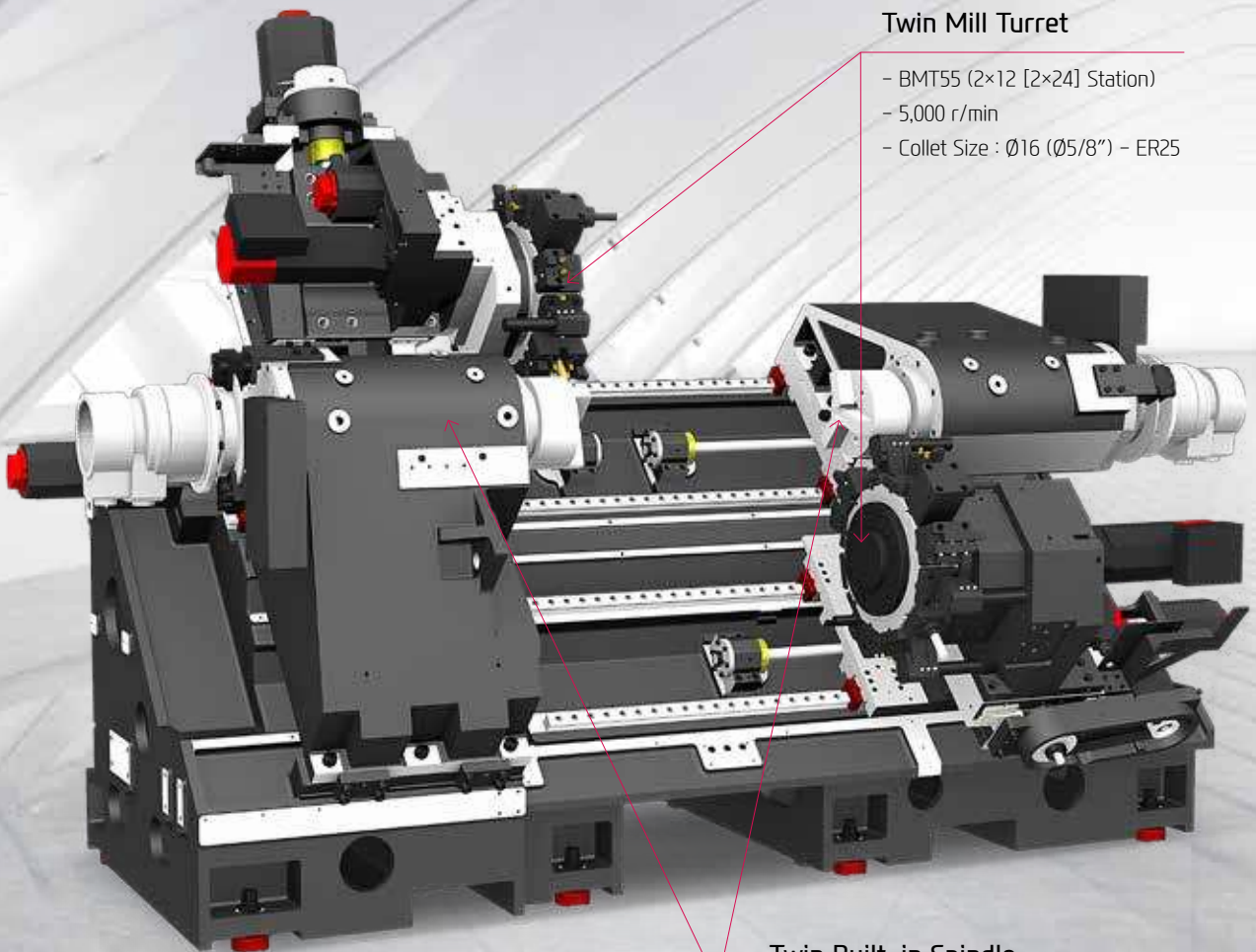
Twin Spindle & Turret – Multitasking CNC Turning Center

- High power built-in spindle motor
- Use of twin turrets guarantees high productivity
- High rigidity BMT turret
- Multiple processing is possible with the addition of Y-axis on the upper turret (TTSY Series)
- Integrated processing through synchronized control of twin spindles
- Box guideways on all axes provide high rigidity (LM2500TT Series)
- Hybrid travel system achieved by combination of box and roller guideways. (LM1600/1800TT Series)



# 01 LM1600/1800TT SERIES

Main/Sub Spindle and Turret for High Productivity – Versatile CNC Turning Center



## Twin Mill Turret

- BMT55 (2×12 [2×24] Station)
- 5,000 r/min
- Collet Size : Ø16 (Ø5/8") – ER25

## Twin Built-in Spindle

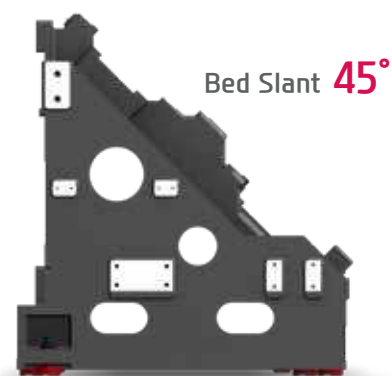
- LM1600TTSY : 6" / 6,000 r/min
- LM1800TTSY : 8" / 5,000 r/min
- C-Axis Control : 0.001

# REDUCTION OF NON-CUTTING TIME BY FAST RAPID SPEED

## ALL-IN-ONE TYPE OF BED

### High Precision, High Rigidity Bed Structure

The LM1600/1800TT Series features a one-piece 45° slant bed design based on FEM analysis to provide improvement in vibration absorption and thermal displacement. This unique design ensures stable and precise processing.



Floor Space **3,660×2,000** mm (L×W)  
(144.1"×78.7")

## GUIDEWAY

### Hybrid Slideway

Each axis on the LM1600TT/1800TT Series is designed with slideways that optimize the characteristics of the axes. For the X/Y-axis, box guideways are used to endure heavy load.

For the Z-axis, roller type LM guideways are used to optimize feed capability.

### Ball Screw

In order to eliminate thermal growth and increase accuracy, all axes are driven by high precision double anchored ballscrews.

Box Guide



Roller Type  
LM Guide

**Rapid Traverse Rate** (X1/X2/Z1/Z2/Y/ZB)

**20/20/40/40/7.5/40** m/min (787/787/1,575/1,575/295.3/1,575 ipm)

**LM1600TT | LM1800TT Series Travel** (X1/X2/Z1/Z2/Y) (ZB)

**165/195/700/720/100** {±50} mm **700 | 668** mm

(6.5"/7.7"/27.6"/28.3"/3.9" {±2"})

(27.6" | 26.3")



# 02 LM2500TT SERIES

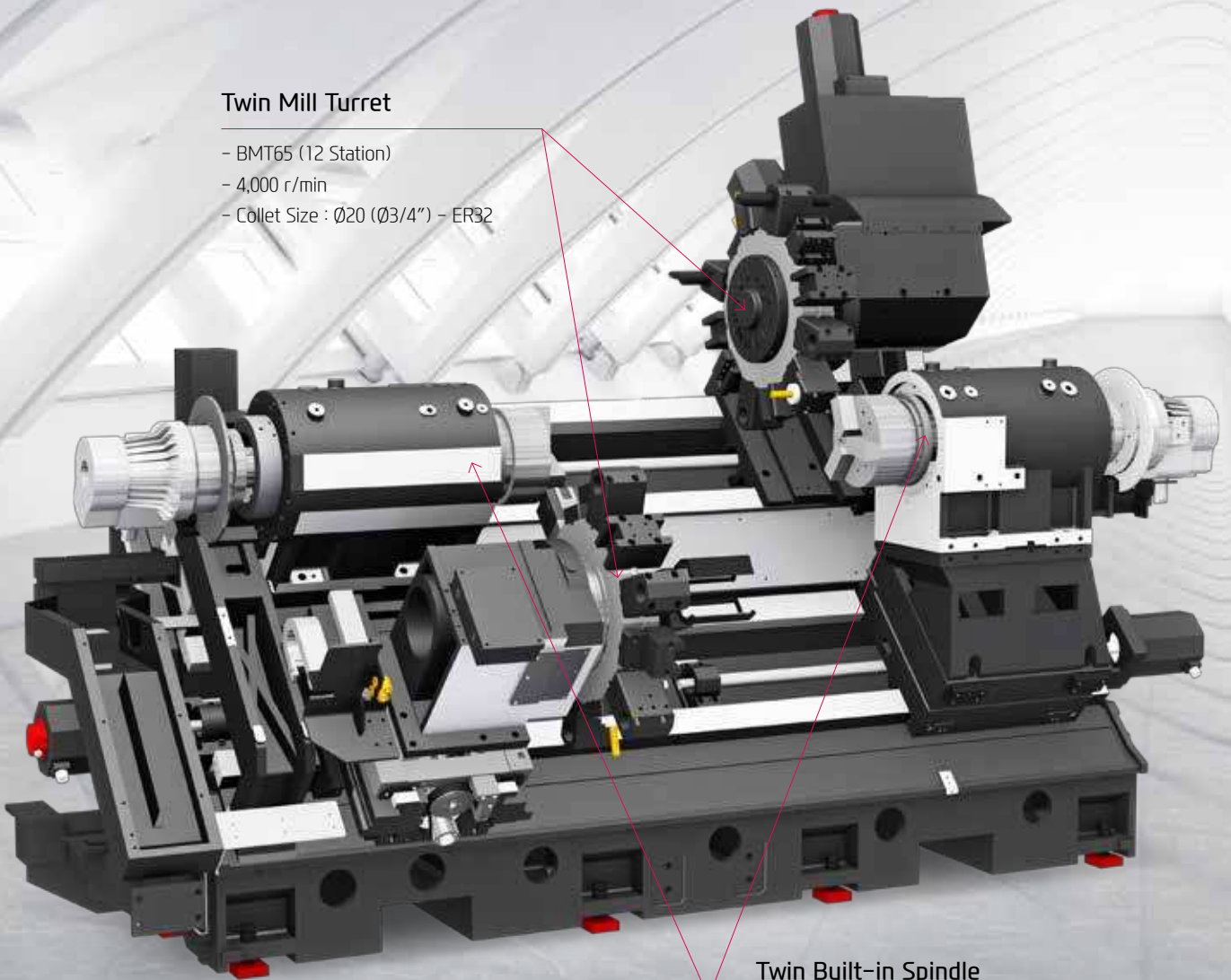
Main/Sub Spindle and Turret for High Productivity – Versatile CNC Turning Center

## Twin Mill Turret

- BMT65 (12 Station)
- 4,000 r/min
- Collet Size :  $\varnothing 20$  ( $\varnothing 3/4$ ") – ER32

## Twin Built-in Spindle

- 10" / 4,000 r/min
- C-Axis Control : 0.001



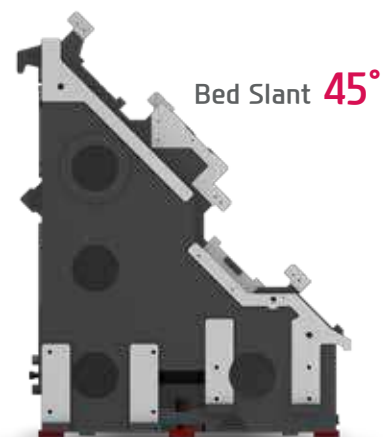
# REDUCTION OF NON-CUTTING TIME BY FAST RAPID SPEED

## ALL-IN-ONE TYPE OF BED

### High Precision, High Rigidity Bed Structure

The LM2500TT Series features a one-piece 30° slant bed design based on FEM analysis to provide improvement in vibration absorption and thermal displacement. This unique design ensures stable and precise processing.

Floor Space **3,670×2,170** mm (L×W)  
(144.5"×85.4")



## GUIDEWAY

### Box Guideway

All axes on the LM2500TT Series are designed with **Box Guideways** to provide rigidity and accuracy even during heavy duty operations.

### Ball Screw

In order to eliminate thermal growth and increase accuracy, all axes are driven by high precision double anchored ballscrews.



**Rapid Traverse Rate** (X1/X2/Z1/Z2/Y/ZB)

**24/24/24/24/12/24** m/min (945/945/945/945/472/945 ipm)

**Travel** (X1/X2/Z1/Z2/Y/ZB)

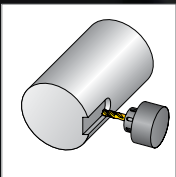
**270/190/920/920/120{±60}/920** mm

(10.6"/7.5"/36.2"/36.2"/4.7"{±2.4"}/36.2")

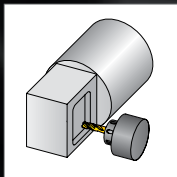
# 03 Y-AXIS FUNCTION

The Y-Axis Function, Cutting for Complex Shaped Work-piece

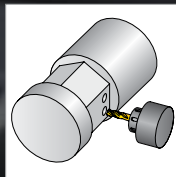
## HIGH PERFORMANCE Y-AXIS



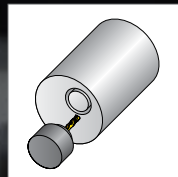
Keyway Milling



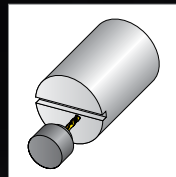
Multi-sided machining



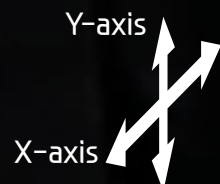
Eccentric hole machining



X+Y axis circular interpolation



Fine Grooving



X-axis

Y-axis



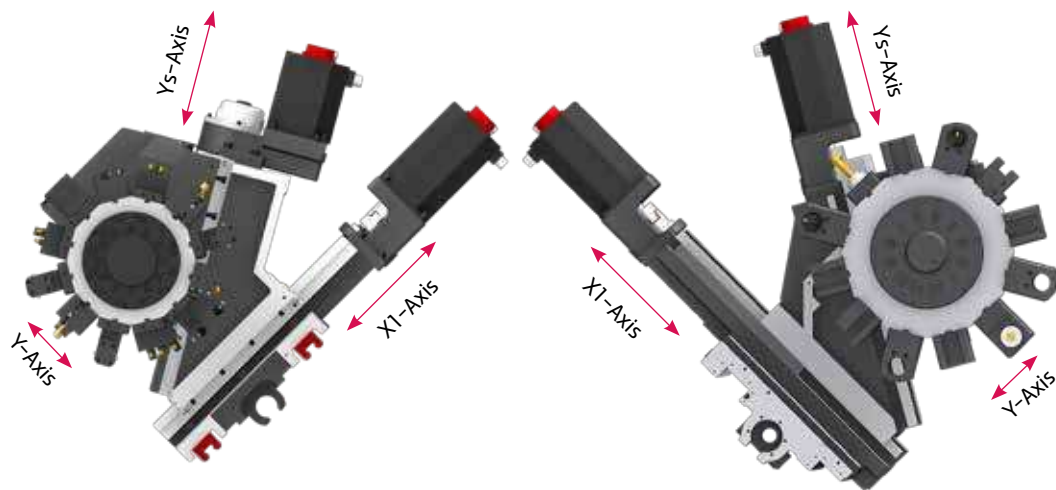
# MACHINING PROCESS WITH ONLY ONE INITIAL SETTING

## Y-AXIS

### Wedge Type Y-Axis Structure

The LM-TT Series is designed with a wedge type Y-axis that is transferred by the simultaneous operation of the Ys-axis and the X-axis. In addition, excellent rigidity makes it possible to perform superb quality when machining a heavy-duty cutting.

Y-axis	LM1600TTSY/1800TTSY	LM2500TTSY
- Rapid Traverse Rate	7.5 m/min (295.3 ipm)	12 m/min (472 ipm)
- Travel	110 {±50} mm (3.9{±2}ʹ)	120 {±60} mm (4.7{±2.3}ʹ)



LM1600TTSY | LM1800TTSY

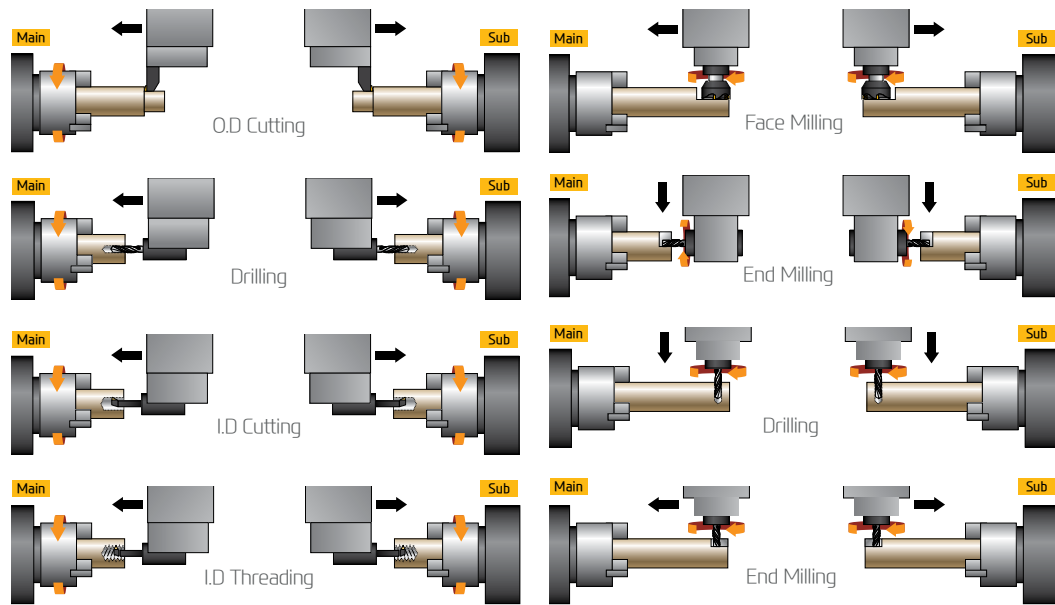
LM2500TTSY

## TWIN SPINDLE AND TWIN TURRET FOR MULTIFLEXIBILITY

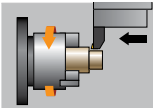
LM-TT Series demonstrates Hyundai-WIA's technological capability by machining any type of complex parts with twin spindles, twin turrets and additional Y-axis.

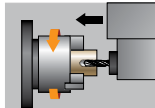


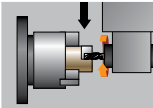
# MACHINING PROCESS WITH ONLY ONE INITIAL SETTING

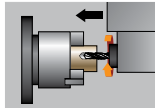


## LM2500TTSY (12") Machining Capability

 O.D (Material : S45C)	
Processing diameter	Ø96 mm
Side cutting depth	8 mm
Cutting speed	150 m/min
Spindle rpm	498 r/mim
Forwarding speed	0.55 mm/rev
Chip discharge	660 cc/min

 U-Drill (Material : S45C)	
Work diameter	Ø70 mm
Drill diameter	Ø46 mm
Cutting speed	104 m/min
Spindle rpm	720 r/mim
Forwarding speed	0.44 mm/rev
Chip discharge	527 cc/min

 End Mill (Material : S45C)	
Processing depth	10 mm
Drill diameter	Ø20 mm
Cutting speed	22 m/min
Spindle rpm	350 r/mim
Forwarding speed	60 mm/rev
Chip discharge	90 cc/min

 Dirill (Material : S45C)	
Processing depth	24 mm
Drill diameter	Ø16 mm
Cutting speed	100 m/min
Spindle rpm	2,000 r/mim
Forwarding speed	0.23 mm/rev
Chip discharge	90 cc/min

❖ The above results might be different by types of processing circumstances.



# 05 HIGH PRECISION SPINDLE

Long Lasting, High Accuracy & Excellent Performance CNC Turning Center

## Spindle Specifications

[ ] : Option

Model	Spindle Speed	Motor (Max./Cont.)	Torque (Max.)	Controller
LM1600TT Series	6,000 rpm	15/11 kW (20/15 HP)	208 N·m (153.4 lbft·ft)	FANUC
LM1800TT Series	5,000 rpm	22/11 kW (30/15 HP)	358 N·m (264 lbft·ft)	FANUC
	[5,000 rpm]	[21.4/19.6 kW (28.7/26.3 HP)]	[220 N·m (162.3 lbft·ft)]	[iTROL]
LM2500TT Series	4,000 rpm	26/22 kW (35/20 HP)	433 N·m (319.4 lbft·ft)	FANUC

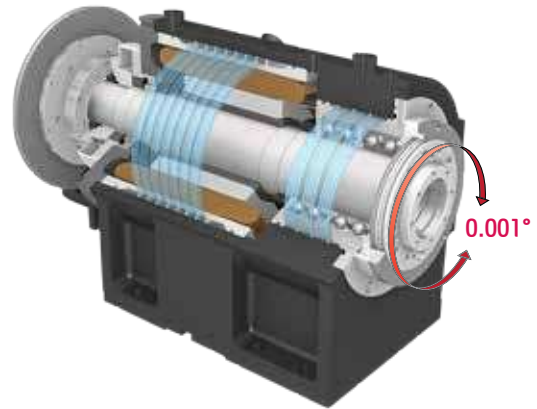


# MAIN/SUB BUILT-IN SPINDLE FOR HIGH PRODUCTIVITY

## SPINDLE

### Built-in Spindle

LM-TT Series main/sub spindle are built-in, thereby minimizing noise and vibration even during high speed operations. The built-in spindle is capable of rapid acc/ deceleration and stable heavy duty cutting.



### Sub Spindle

Machines with a sub spindle can perform secondary operations with a single setup, increasing flexibility and productivity.

### Spindle Oil Cooling

The LM-TT Series features a spindle cooling system on both main/sub spindles as standard. This system minimizes thermal growth during operations and helps to maintain stable machining environment.

### C-Axis Control

LM-TT models featuring milling are equipped with full C-axis(0.001°) capability on both spindles.

## TAIL STOCK (LM2500TT | 2500TTM)

### Built-In Quill Tail Stock (MT#4)

The HD-Y series is fitted with tailstocks as a standard for excellent machining quality. In addition, the travel distance of quill can be as long as 130mm(5.1"), thus expanding the support area.

- ◎ Quill Dia. :  $\varnothing 100$  mm ( $\varnothing 3.9$ " )
- ◎ Quill Travel : 130 mm (5.1" )
- ◎ Travel : 900 mm (35.4" )



LM-TT SERIES

# 06 BMT TURRET

High speed, High Accuracy, Highly Reliable BMT Turret



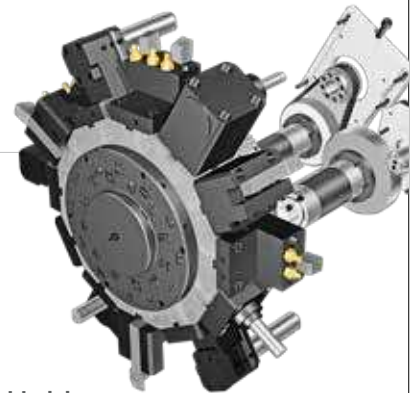
KENNAMETAL  
DVJMR-2525M16-KC04 ML2

# VARIOUS DRIVEN PRECISION BMT TOOL HOLDERS

## TURRET

### Mill Turret

The upper and the lower turrets are equipped with powerful servo motors, which guarantee high productivity and precision. In particular, a total of 24 (Option 48) tools can be installed on both turrets, and high speed precision machining of complex products is possible with a single setup.



STRAIGHT MILLING HEAD



ANGULAR MILLING HEAD



### Mill Tool Holder

Machining capability has increased with the addition of straight milling head tool holder, which can machine workpieces from the side, and angular milling head tool holder, which can perform I.D. operations.

#### LM1600/1800TT Series

- ⊙ Speed (rpm) : 5,000 r/min
- ⊙ Collet size :  $\varnothing 16$  ( $\varnothing 5/8$ " ) {ER25}
- ⊙ Indexing Time : 0.15 sec

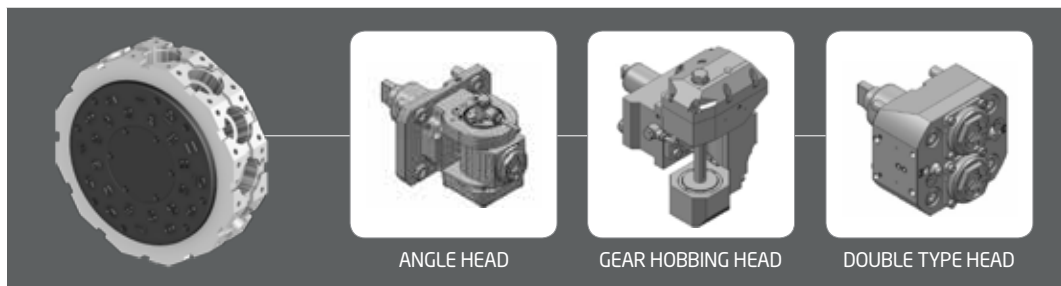
#### LM2500TT Series

- ⊙ Speed (rpm) : 4,000 r/min
- ⊙ Collet size :  $\varnothing 25$  ( $\varnothing 1$ " ) {ER32}
- ⊙ Indexing Time : 0.2 sec

## SPECIAL TOOL

### OPTION

With the Y-axis, the LM-TT series can process high value-added products using a variety of rotating tools. In particular, there is a multi-holder for attaching a variety of tools to one holder, and an eccentric rotary tool for handling eccentric parts without additional axis travel, which can realize integration of process with one machine.



ANGLE HEAD

GEAR HOBBING HEAD

DOUBLE TYPE HEAD

❖ Consultation needed when ordering these options.



# 07 USER CONVENIENCE

Various Devices for User Friendly

## BAR FEEDER SYSTEM

### Bar Feeder

Bar feeder system enables automation which leads to efficiency improvement.

Long Type	: 3 m (118.1")	Short Type	: 1.5 m (59.1")
Bar Capacity	: Ø42 (1.7")	Bar Capacity	: Ø65 (2.6")



#### Parts Catcher

An optional parts catcher collects finished parts without the need to open the door, adding productivity, especially when a bar feeder is attached.



#### Auto Door

Using M-code, the doors can be automatically opened and closed which brings productivity and convenience for automation.



#### Parts Conveyor

The parts conveyor transfers the finished workpiece unloaded by the parts catcher for user convenience.



#### Auto Shutter

Using auto shutter, automation system with gantry loader is possible without opening the machine's door.

## HIGH PRECISION SYSTEM



### Automatic Q-Setter

Cutting tools are calibrated quickly and accurately with the addition of a q-setter. Each tool tip is touched off manually using a sensor that inputs the position automatically.



### Linear Scale **OPTION**

Linear scales increase positioning accuracy and reduce distortion caused by thermal growth, thus ensuring a more accurate finished part. (LM1600/1800 Series)



### Work Probe **OPTION**

Workpiece coordinate values can be set automatically using the optional spindle probe.



Optional

# CHIP DISPOSAL SOLUTION

## Chip Conveyor

Timely and effective disposal of chips will enhance productivity as well as the working environment.



Hinge	Chip Type : Roughing Chip, Long Chip, Chip complex	Material : SS41, 45C, Cast Steel	Front-Right Direction
	Highly efficient when disposing a lot of chips. Capable of handling stringy chips..		
Scraper	Chip Type : Finely broken chip blown out	Material : cast Iron, Nonferrous	
	Convenient for shortly cut chips.		
❖ Screw	Chip Type : The lower portion of micro-chips	Material : Steel, Casting	
	Compresses and ejects chips to reduce chip Trouble.		
❖ Drum Filter	Chip Type : Powder, Micro Chip	Material : AL	
	Advantageous in precision, as the chips do not flow in to the coolant nozzle.		

❖ When ordering a screw or drum filter chip conveyor, prior consult with hyudai wia's sales person.

# COOLANT UNIT & ECO SYSTEM



Standard Coolant (Nozzle)



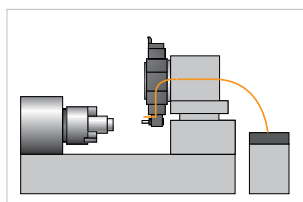
Chuck Coolant (Upper Chuck)



Chuck Air Blow (Upper Chuck)



Air Gun



MQL : Minimal Quantity Lubrication



Oil Skimmer



Mist Collector



Lubricating Oil Tank

# 08 FANUC

The Compatible All-round Control

## FANUC Series 31i –MODEL B

This is the core model of FANUC CNC with the performance of the world highest level. With abundant functions and high-speed, highly-accurate and high-quality machining technology, it is the most suitable for a high-grade and machining center.

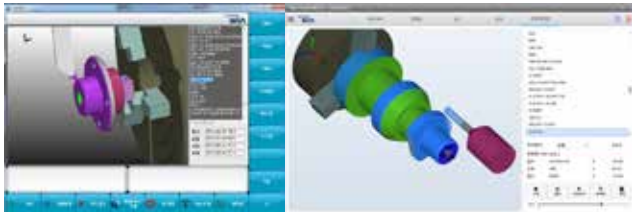
Control axes : 8 axes (X1/Z1, X2/Z2, Y1, B2, C1/C2)

Simultaneously controlled axes : 2 axes [4 axes]

Part program storage size : 1,280m (512KB)

No. of registerable programs : 1000 EA





## SMART PROGRAMMING

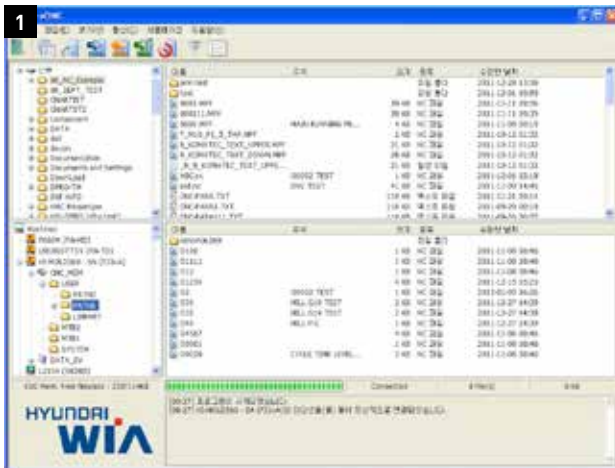
This programming solution is capable of easily writing processing programs for turning center/machining center/multi-tasking turning center (sub spindle / Y-axis)

### > DPRO

- Programs can be easily written in 5 standardized steps
- Program verification can be done through 2D and 3D simulation
- Automation of processes necessary for repetitive operation
- Copy and send files CF card, USB, serial, Ethernet communication

### > ACAM

- Cloud-based automated CAM function provided
- Analyzing user input drawings/models
- Big data/deep learning-based process planning and selection of cutting conditions
- Copy and send files CF card, USB, serial, Ethernet communication



#### ① HW-eDNC

This software allows transmission of PC data between PC and a machine's CNC. The processing programs can be managed on the PC through the ethernet or serial communication.

#### ② HW-MCG

Software that offers operation, maintenance, management monitoring and various user friendly features.

#### ③ HW-TDC

Software that measures the changes in the external environment as well as heat emission during processing to help reduce thermal displacement.

#### ④ HW-TM

A tool monitoring software which analyzes the load of the spindle motor to determine and monitor possible damage of tools.

#### ⑤ HW-ESS

An environmental friendly software that reduces the unnecessarily wasted standby power waiting for an operation.



Convenience is increased when inputting and outputting program. The USB port is available in addition to the former input output methods such as CF memort card and LAN.

# SPECIFICATIONS

## LM1600TT Series Standard & Optional

● : Standard ○ : Option ☆ : Prior Consultation - : Non Applicable

Spindle		TTS	TTMS	TTSY
Main Spindle	6"	●	●	●
Hollow Chuck 3 Jaw	8"	-	-	-
Main Spindle	6"	○	○	○
Solid Chuck 3 Jaw	8"	-	-	-
Sub Spindle	6"	●	●	●
Hollow Chuck 3 Jaw	8"	-	-	-
Sub Spindle	6"	○	○	○
Solid Chuck 3 Jaw	8"	-	-	-
Standard Soft Jaw (1set)		●	●	●
Chuck Clamp Foot Switch		●	●	●
2 Steps Hyd. Pressure Device		○	○	○
Spindle Inside Stopper		○	○	○
5" Index		-	-	-
Cs-Axis (0.001")		○	●	●
<b>Turret</b>				
Tool Holder	2x12ea	●	●	●
	2x24ea	○	○	○
Mill Turret	BMT	-	●	●
Straight Milling Head (Radial)	Adapter Type,2ea	-	●	●
Angular Milling Head (Axial)	Adapter Type,2ea	-	●	●
Boring Sleeve		●	●	●
Drill Socket		●	●	●
U-Drill Holder		●	●	●
Angle Head		-	☆	☆
<b>Tail Stock &amp; Steady Rest</b>				
Built in Programmable Tail Stock		-	-	-
Manual Hyd. Steady Rest		-	-	-
<b>Coolant &amp; Air Blow</b>				
Standard Coolant (Nozzle)		●	●	●
Chuck Coolant (Upper Chuck)		☆	☆	☆
Gun Coolant		-	-	-
Through Spindle Coolant (Only for Special Chuck)		☆	☆	☆
Thru Coolant for Live Tool		-	☆	☆
Chuck Air Blow (Upper Chuck)		●	●	●
Sub Spindle Air Blow		●	●	●
Tail Stock Air Blow (Upper Tail Stock)		-	-	-
Turret Air Blow		☆	☆	☆
Air Gun		○	○	○
Through Spindle Air Blow (Only for Special Chuck)		☆	☆	☆
High Pressure Coolant	0.5Bar (7.2psi)	●	●	●
	6Bar (87psi)	○	○	○
	20Bar (290psi)	○	○	○
	70Bar (1,015psi)	○	○	○
Power Coolant System (For Automation)		☆	☆	☆
Coolant Chiller		☆	☆	☆
<b>Chip Disposal</b>				
Coolant Tank	300 ℓ (79.3 gal)-Side	●	●	●
	230 ℓ (60.8 gal)-Rear	○	○	○
Chip Conveyor (Hinge/Scraper)	Front (Rear)	○	○	○
	Front (Right)	○	○	○
Special Chip Conveyor (Drum Filter)		☆	☆	☆
Chip Wagon	Standard (180 ℓ [47.5 gal])	○	○	○
	Swing (200 ℓ [52.8 gal])	○	○	○
	Large Swing (290 ℓ [76.6 gal])	○	○	○
	Large Size (330 ℓ [87.2 gal])	○	○	○
	Customized	☆	☆	☆
<b>Safety Device</b>				
Total Splash Guard		●	●	●
Chuck hydraulic pressure maintenance interlock		○(CE:●)	○(CE:●)	○(CE:●)
<b>Electric Device</b>				
		TTS	TTMS	TTSY

Call Light	1Color : ●	○	○	○
Call Light	2Color : ●●	○	○	○
Call Light	3Color : ●●●	●	●	●
Call Light & Buzzer	3Color : ●●●B	○	○	○
Electric Cabinet Light		○	○	○
Remote MPG		●	●	●
Work Counter	Digital	○	○	○
Total Counter	Digital	○	○	○
Tool Counter	Digital	○	○	○
Multi Tool Counter	Digital	○	○	○
Electric Circuit Breaker		○	○	○
AVR (Auto Voltage Regulator)		☆	☆	☆
Transformer	50kVA	○	-	-
	60kVA	-	○	○
Auto Power Off)		○	○	○
<b>Measurement</b>				
Q-Setter		☆	☆	☆
Automatic Q-Setter		●	●	●
Work Close Confirmation Device (Only for Special Chuck)	TACO	○	○	○
	SMC	○	○	○
Work Setter		☆	☆	☆
HWTM (Tool Monitoring System)		○	○	○
Linear Scale	X Axis	○	○	○
	Z Axis	○	○	○
	Y Axis	○	○	○
Coolant Level Sensor(Only for Chip Conveyor)		☆	☆	☆
<b>Environment</b>				
Air Conditioner		○	○	○
Oil Mist Collector		☆	☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○	○
MQL (Minimal Quantity Lubrication)		☆	☆	☆
<b>Fixture &amp; Automation</b>				
Auto Door	Standard	○	○	○
	High Speed	○	○	○
Auto Shutter (Only for Automatic System)		☆	☆	☆
Sub Operation Pannel		☆	☆	☆
Bar Feeder Interface		○	○	○
Bar Feeder (FEDEK)		☆	☆	☆
Sub Sp. Work Eject (Pneumatic Type)		○	○	○
Sub Sp. Work Pusher (Pneumatic Type)		○	○	○
Extra M-Code 4ea		○	○	○
Automation Interface		☆	☆	☆
I/O Extension (IN & OUT)	16 Contact	○	○	○
	32 Contact	○	○	○
Parts Catcher	Main SP.	○	○	○
	Sub SP.	-	-	-
Parts Unloader (SUB Sp.) + Parts Conveyor		○	○	○
Sub Sp. Work Pusher (Spring Type)		○	○	○
Turret Work Pusher (For Automation)		☆	☆	☆
Parts Conveyor		○	○	○
<b>Hyd. Device</b>				
Standard Hyd. Cylinder	Hollow	●	●	●
Standard Hyd. Unit	35bar (507.6psi) / 20 ℓ (5.3 gal)	●	●	●
<b>S/W</b>				
Machine Guidance (HW-MCG)		●	●	●
Energy Saving System (HW-ESS)		●	●	●
Tool Monitoring (HW-TM)		○	○	○
Thermal Displacement Compensation(HW-TDC)		○	○	○
DNC software (HW-eDNC)		○	○	○
Machine Monitoring System (HW-MMS)		○	○	○
Conversational program	SmartGuide-i	●	●	●
	HW-DPRO	-	-	-
<b>ETC</b>				
Tool Box		●	●	●
Customized Color	Need Munsel No.	☆	☆	☆
CAD & CAM		☆	☆	☆



# SPECIFICATIONS

## LM1800TT Series Standard & Optional

Spindle		TTS	TTMS	TTSY
Main Spindle	8"	●	●	●
Hollow Chuck 3 Jaw	10"	-	-	-
Main Spindle	8"	○	○	○
Solid Chuck 3 Jaw	10"	-	-	-
Sub Spindle	8"	●	●	●
Hollow Chuck 3 Jaw	10"	-	-	-
Sub Spindle	8"	○	○	○
Solid Chuck 3 Jaw	10"	-	-	-
Standard Soft Jaw (1set)		●	●	●
Chuck Clamp Foot Switch		●	●	●
2 Steps Hyd. Pressure Device		○	○	○
Spindle Inside Stopper		○	○	○
5° Index		-	-	-
Cs-Axis (0.001°)		○	●	●
<b>Turret</b>				
Tool Holder	2x12ea	●	●	●
	2x24ea	○	○	○
Mill Turret	BMT	-	●	●
Straight Milling Head (Radial)	Adapter Type,2ea	-	●	●
Angular Milling Head (Axial)	Adapter Type,2ea	-	●	●
Boring Sleeve		●	●	●
Drill Socket		●	●	●
U-Drill Holder		●	●	●
Angle Head		-	☆	☆
<b>Tail Stock &amp; Steady Rest</b>				
Built in Programmable Tail Stock		-	-	-
Manual Hyd. Steady Rest		-	-	-
<b>Coolant &amp; Air Blow</b>				
Standard Coolant (Nozzle)		●	●	●
Chuck Coolant (Upper Chuck)		☆	☆	☆
Gun Coolant		-	-	-
Through Spindle Coolant (Only for Special Chuck)		☆	☆	☆
Thru Coolant for Live Tool		-	☆	☆
Chuck Air Blow (Upper Chuck)		●	●	●
Sub Spindle Air Blow		●	●	●
Tail Stock Air Blow (Upper Tail Stock)		-	-	-
Turret Air Blow		☆	☆	☆
Air Gun		○	○	○
Through Spindle Air Blow (Only for Special Chuck)		☆	☆	☆
High Pressure Coolant	0.5Bar (7.2psi)	●	●	●
	6Bar (87psi)	○	○	○
	20Bar (290psi)	○	○	○
	70Bar (1,015psi)	○	○	○
Power Coolant System (For Automation)		☆	☆	☆
Coolant Chiller		☆	☆	☆
<b>Chip Disposal</b>				
Coolant Tank	300 ℓ (79.3 gal)-Side	●	●	●
	230 ℓ (60.8 gal)-Rear	○	○	○
Chip Conveyor (Hinge/Scraper)	Front (Rear)	○	○	○
	Front (Right)	○	○	○
Special Chip Conveyor (Drum Filter)		☆	☆	☆
Chip Wagon	Standard (180 ℓ [47.5 gal])	○	○	○
	Swing (200 ℓ [52.8 gal])	○	○	○
	Large Swing (290 ℓ [76.6 gal])	○	○	○
	Large Size (330 ℓ [87.2 gal])	○	○	○
	Customized	☆	☆	☆
<b>Safety Device</b>				
Total Splash Guard		●	●	●
Chuck Open/Close Confirmation Device		○(CE:●)	○(CE:●)	○(CE:●)
<b>Electric Device</b>		TTS	TTMS	TTSY

● : Standard ○ : Option ☆ : Prior Consultation - : Non Applicable

Call Light	1Color : ●	○	○	○
Call Light	2Color : ●●	○	○	○
Call Light	3Color : ●●●	●	●	●
Call Light & Buzzer	3Color : ●●● B	○	○	○
Electric Cabinet Light		○	○	○
Remote MPG		●	●	●
Work Counter	Digital	○	○	○
Total Counter	Digital	○	○	○
Tool Counter	Digital	○	○	○
Multi Tool Counter	Digital	○	○	○
Electric Circuit Breaker		○	○	○
AVR (Auto Voltage Regulator)		☆	☆	☆
Transformer	50KVA	○	-	-
	60KVA	-	○	○
Auto Power Off)		○	○	○
<b>Measurement</b>				
Q-Setter		☆	☆	☆
Automatic Q-Setter		●	●	●
Work Close Confirmation Device (Only for Special Chuck)	TACO	○	○	○
	SMC	○	○	○
Work Setter		☆	☆	☆
HWTM (Tool Monitoring System)		○	○	○
Linear Scale	X Axis	○	○	○
	Z Axis	○	○	○
	Y Axis	○	○	○
Coolant Level Sensor(Only for Chip Conveyor)		☆	☆	☆
<b>Environment</b>				
Air Conditioner		○	○	○
Oil Mist Collector		☆	☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○	○
MQL (Minimal Quantity Lubrication)		☆	☆	☆
<b>Fixture &amp; Automation</b>				
Auto Door	Standard	○	○	○
	High Speed	○	○	○
Auto Shutter (Only for Automatic System)		☆	☆	☆
Sub Operation Pannel		☆	☆	☆
Bar Feeder Interface		○	○	○
Bar Feeder (FEDEK)		☆	☆	☆
Sub Sp. Work Eject (Pneumatic Type)		○	○	○
Sub Sp. Work Pusher (Pneumatic Type)		○	○	○
Extra M-Code 4ea		○	○	○
Automation Interface		☆	☆	☆
I/O Extension (IN & OUT)	16 Contact	○	○	○
	32 Contact	○	○	○
Parts Catcher	Main SP.	○	○	○
	Sub SP.	-	-	-
Parts Unloader (SUB Sp.) + Parts Conveyor		○	○	○
Sub Sp. Work Pusher (Spring Type)		○	○	○
Turret Work Pusher (For Automation)		☆	☆	☆
Parts Conveyor		○	○	○
<b>Hyd. Device</b>				
Standard Hyd. Cylinder	Hollow	●	●	●
Standard Hyd. Unit	35bar (507.6psi) / 20 ℓ (5.3 gal)	●	●	●
<b>S/W</b>				
Machine Guidance (HW-MCG)		●	●	●
Energy Saving System (HW-ESS)		●	●	●
Tool Monitoring (HW-TM)		○	○	○
Thermal Displacement Compensation(HW-TDC)		○	○	○
DTC software (HW-eDTC)		○	○	○
Machine Monitoring System (HW-MMS)		○	○	○
Conversational program	SmartGuide-i	●	●	●
	HW-DPRO	-	-	-
<b>ETC</b>				
Tool Box		●	●	●
Customized Color	Need Munsel No.	☆	☆	☆
CAD & CAM		☆	☆	☆

Specifications are subject to change without notice for improvement.

# SPECIFICATIONS

## LM2500TT Series Standard & Optional

● : Standard ○ : Option ☆ : Prior Consultation - : Non Applicable

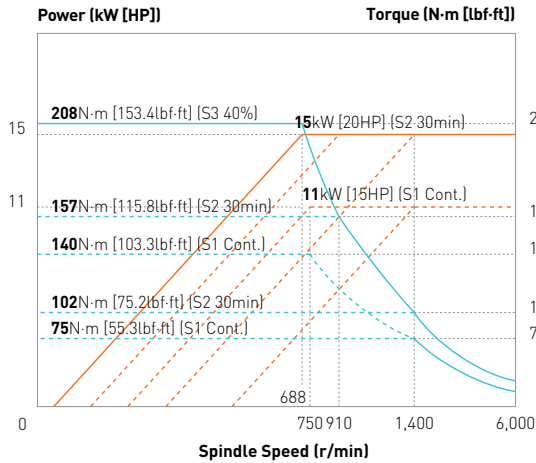
Spindle		TT	TTS	TTM	TTMS	TTSY
Main Spindle	10"	●	●	●	●	●
Hollow Chuck 3 Jaw	12"	-	-	-	-	-
Main Spindle	10"	○	○	○	○	○
Solid Chuck 3 Jaw	12"	-	-	-	-	-
Sub Spindle	10"	-	●	-	●	●
Hollow Chuck 3 Jaw	12"	-	-	-	-	-
Sub Spindle	10"	-	○	-	○	○
Solid Chuck 3 Jaw	12"	-	-	-	-	-
Standard Soft Jaw (1set)		●	●	●	●	●
Chuck Clamp Foot Switch		●	●	●	●	●
2 Steps Hyd. Pressure Device		○	○	○	○	○
Spindle Inside Stopper		☆	☆	☆	☆	☆
5" Index		○	○	-	-	-
Cs-Axis (0.001")		○	○	●	●	●
Chuck Open/Close Confirmation Device		○(CE●)	○(CE●)	○(CE●)	○(CE●)	○(CE●)
2 Steps Chuck Foot Switch		☆	☆	☆	☆	☆
Foot Switch For Sub Spindle		-	☆	-	☆	☆
<b>Turret</b>						
Tool Holder		●	●	●	●	●
Mill Turret	BMT	-	-	●	●	●
Straight Milling Head (Radial)	Adapter Type,2ea	-	-	● 1EA	●	●
Angular Milling Head (Axial)	Adapter Type,2ea	-	-	● 1EA	●	●
Boring Sleeve		●	●	●	●	●
Drill Socket		●	●	●	●	●
U-Drill Holder		○	○	○	○	○
U-Drill Holder Sleeve		○	○	○	○	○
Angle Head		-	-	☆	☆	☆
<b>Tail Stock &amp; Steady Rest</b>						
Quill Type Tail Stock(Built in)		●	-	●	-	-
Built in Programmable Tail Stock		○	-	○	-	-
Manual Hyd. Steady Rest		-	-	-	-	-
Dead Center		●	-	●	-	-
Tool Tail Stock		☆	☆	☆	☆	☆
2 Steps Tail Stock Pressure System		☆	-	☆	-	-
<b>Coolant &amp; Air Blow</b>						
Standard Coolant (Nozzle)		●	●	●	●	●
Chuck Coolant (Upper Chuck)		☆	☆	☆	☆	☆
Gun Coolant		-	-	-	-	-
Through Spindle Coolant (Only for Special Chuck)		○	○	○	○	○
Thru Coolant for Live Tool		-	-	☆	☆	☆
Chuck Air Blow (Upper Chuck)		●	●	●	●	●
Sub Spindle Air Blow		-	●	-	●	●
Tail Stock Air Blow (Upper Tail Stock)		○	-	○	-	-
Turret Air Blow		☆	☆	☆	☆	☆
Air Gun		○	○	○	○	○
Through Spindle Air Blow (Only for Special Chuck)		☆	☆	☆	☆	☆
High Pressure Coolant	0.5Bar (7.2psi)	●	●	●	●	●
	6Bar (87psi)	○	○	○	○	○
	20Bar (290psi)	○	○	○	○	○
Power Coolant System (For Automation)		☆	☆	☆	☆	☆
Coolant Chiller		☆	☆	☆	☆	☆
<b>Chip Disposal</b>						
Coolant Tank	230 ℓ (60.8 gal)	●	●	●	●	●
Chip Conveyor (Hinge/Scraper)	Front (Right)	○	○	○	○	○
	Front (Rear)	-	-	-	-	-
Special Chip Conveyor (Drum Filter)		☆	☆	☆	☆	☆
Chip Wagon	Standard (180 ℓ [47.5 gal])	○	○	○	○	○
	Swing (200 ℓ [52.8 gal])	○	○	○	○	○
	Large Swing (290 ℓ [76.6 gal])	○	○	○	○	○
	Large Size (330 ℓ [87.2 gal])	○	○	○	○	○
	Customized	☆	☆	☆	☆	☆
<b>Safety Device</b>						
Total Splash Guard		●	●	●	●	●
Chuck hydraulic pressure maintenance interlock		○(CE●)	○(CE●)	○(CE●)	○(CE●)	○(CE●)

Electric Device		TT	TTS	TTM	TTMS	TTSY
Call Light	1Color : ●	○	○	○	○	○
Call Light	2Color : ●●	○	○	○	○	○
Call Light	3Color : ●●●	●	●	●	●	●
Call Light & Buzzer	3Color : ●●●B	○	○	○	○	○
Electric Cabinet Light		○	○	○	○	○
Remote MPG		●	●	●	●	●
Work Counter	Digital	○	○	○	○	○
Total Counter	Digital	○	○	○	○	○
Tool Counter	Digital	○	○	○	○	○
Multi Tool Counter	Digital	○	○	○	○	○
Electric Circuit Breaker		○	○	○	○	○
AVR (Auto Voltage Regulator)		○	○	○	○	○
Transformer	50kVA	○	-	○	-	-
	80kVA	-	○	-	○	○
Auto Power Off		○	○	○	○	○
<b>Measurement</b>						
Q-Setter		○	○	○	○	○
Automatic Q-Setter		●	●	●	●	●
Work Close Confirmation Device (Only for Special Chuck)	TACO	○	○	○	○	○
	SMC	○	○	○	○	○
Work Setter		☆	☆	☆	☆	☆
Linear Scale	X1 Axis	-	-	-	-	-
	X2 Axis	☆	☆	☆	☆	☆
	Z Axis	-	-	-	-	-
	Y Axis	-	-	-	-	-
Coolant Level Sensor(Only for Chip Conveyor)		☆	☆	☆	☆	☆
<b>Environment</b>						
Air Conditioner		○	○	○	○	○
Oil Mist Collector		☆	☆	☆	☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○	○	○	○
MQL (Minimal Quantity Lubrication)		☆	☆	☆	☆	☆
<b>Fixture &amp; Automation</b>						
Auto Door	Standard	○	○	○	○	○
	High Speed	○	○	○	○	○
Auto Shutter (Only for Automatic System)		☆	☆	☆	☆	☆
Sub Operation Pannel		☆	☆	☆	☆	☆
Bar Feeder Interface		○	○	○	○	○
Bar Feeder (FEDEK)		☆	☆	☆	☆	☆
Sub Sp. Work Eject (Pneumatic Type)		○	○	○	○	○
Extra M-Code 4ea		○	○	○	○	○
Automation Interface		☆	☆	☆	☆	☆
I/O Extension (IN & OUT)	16 Contact	○	○	○	○	○
	32 Contact	○	○	○	○	○
Parts Catcher	Main SP.	-	-	-	-	-
	Sub SP.	-	-	-	-	-
Turret Parts Catcher		○	○	○	○	○
Parts Unloader(Sub Sp.)		☆	☆	☆	☆	☆
Sub Sp. Work Pusher (Spring Type)		-	○	-	○	○
Turret Work Pusher (For Automation)		☆	☆	☆	☆	☆
Parts Conveyor		○	○	○	○	○
<b>유압공급장치</b>						
Standard Hyd. Cylinder	Hollow	●	●	●	●	●
Standard Hyd. Unit	35bar (507.6psi) / 20 ℓ (5.3 gal)	●	●	●	●	●
<b>S/W</b>						
Machine Guidance (HW-MCG)		●	●	●	●	●
Energy Saving System (HW-ESS)		●	●	●	●	●
Tool Monitoring (HW-TM)		○	○	○	○	○
Thermal Displacement Compensation(HW-TDC)		○	○	○	○	○
DNC software (HW-eDNC)		○	○	○	○	○
Machine Monitoring System (HW-MMS)		○	○	○	○	○
Conversational program	SmartGuide-i	●	●	●	●	●
	HW-DPRO	-	-	-	-	-
<b>ETC</b>						
Tool Box		●	●	●	●	●
Customized Color	Need Munsel No.	☆	☆	☆	☆	☆
CAD & CAM		☆	☆	☆	☆	☆

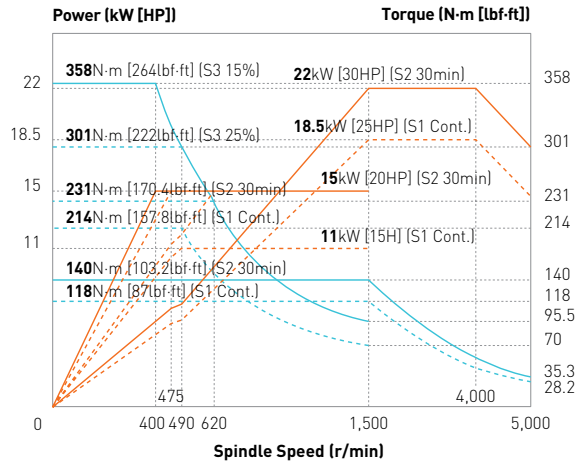
# SPECIFICATIONS

## Spindle Output/Torque Diagram

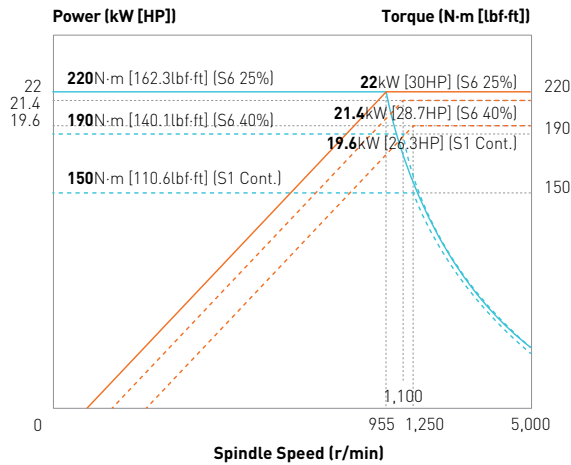
### LM1600TT Series 6,000 rpm



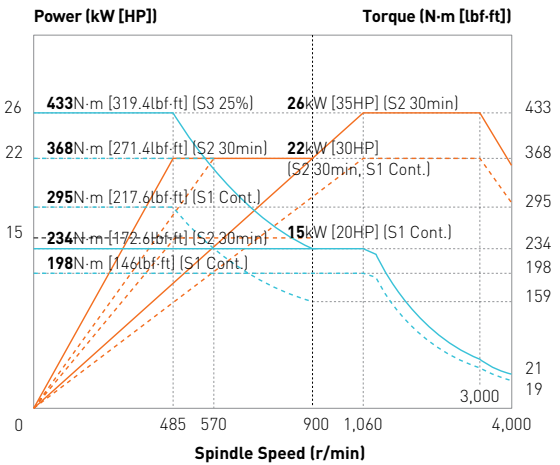
### LM1800TT Series 5,000 rpm



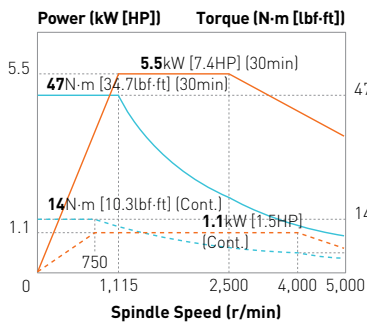
### LM1800TT Series SIEMENS 5,000 rpm



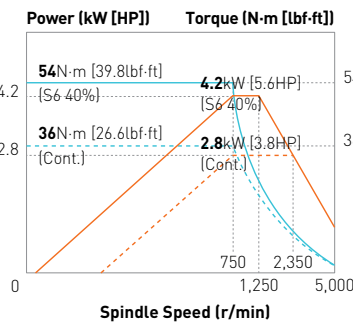
### LM2500TT Series 4,000 rpm



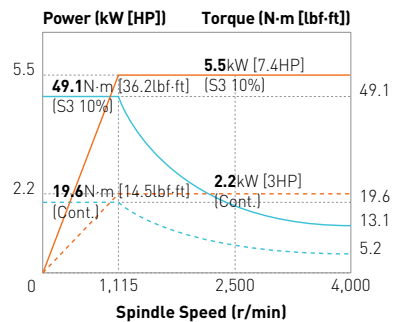
### LM1600/1800TT Series Mill Sp. 4,000 rpm



### LM1800TT Series Mill Sp. SIEMENS 5,000 rpm



### LM2500TT Series Mill Sp. 4,000 rpm

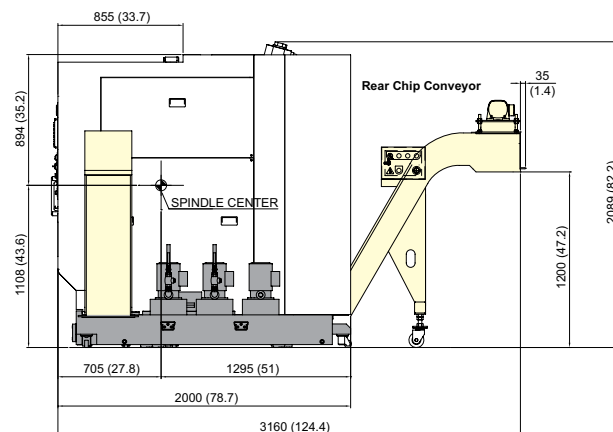
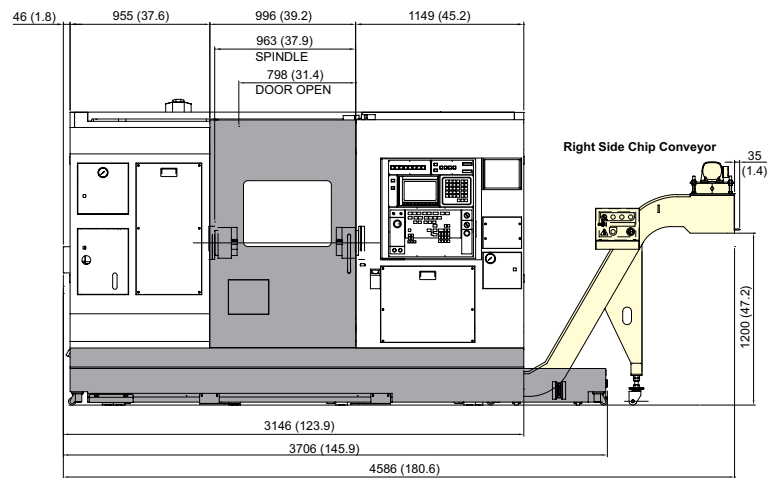
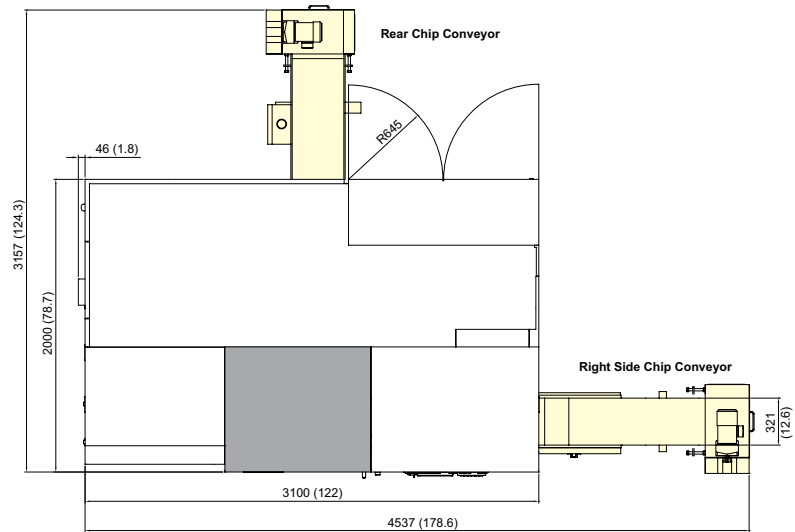


# SPECIFICATIONS

## External Dimensions

unit : mm(in)

### LM1600TT/1800TT Series



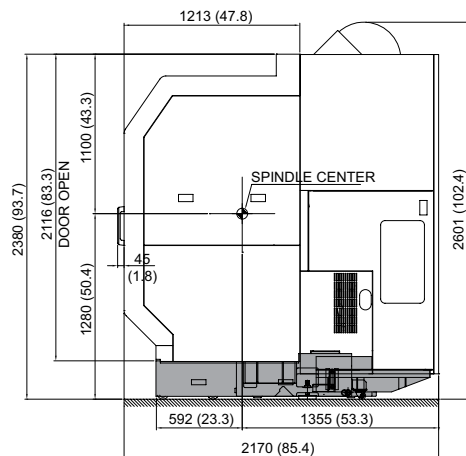
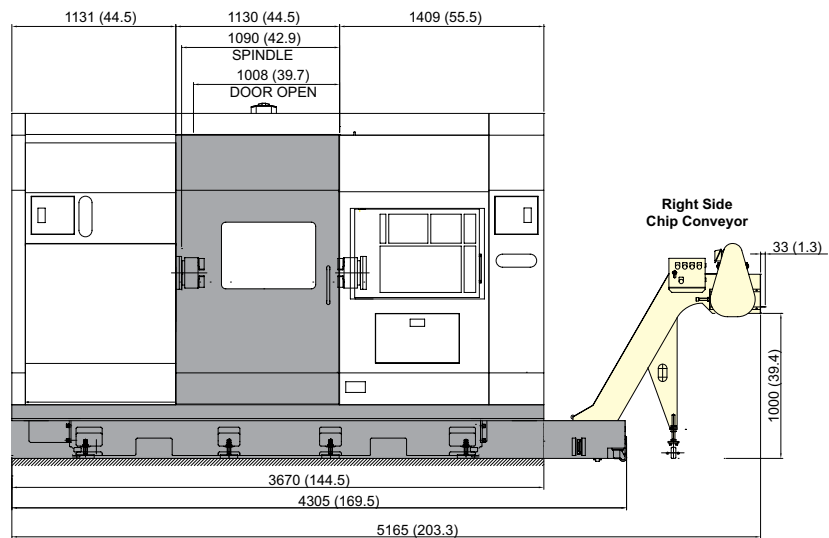
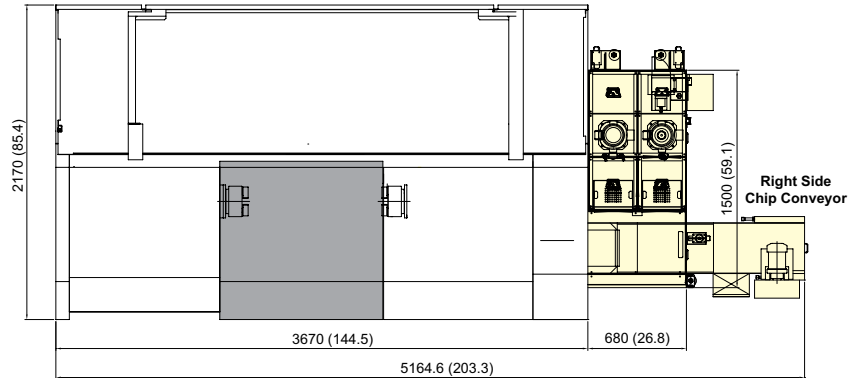


# SPECIFICATIONS

## External Dimensions

unit : mm(in)

### LM2500TT Series

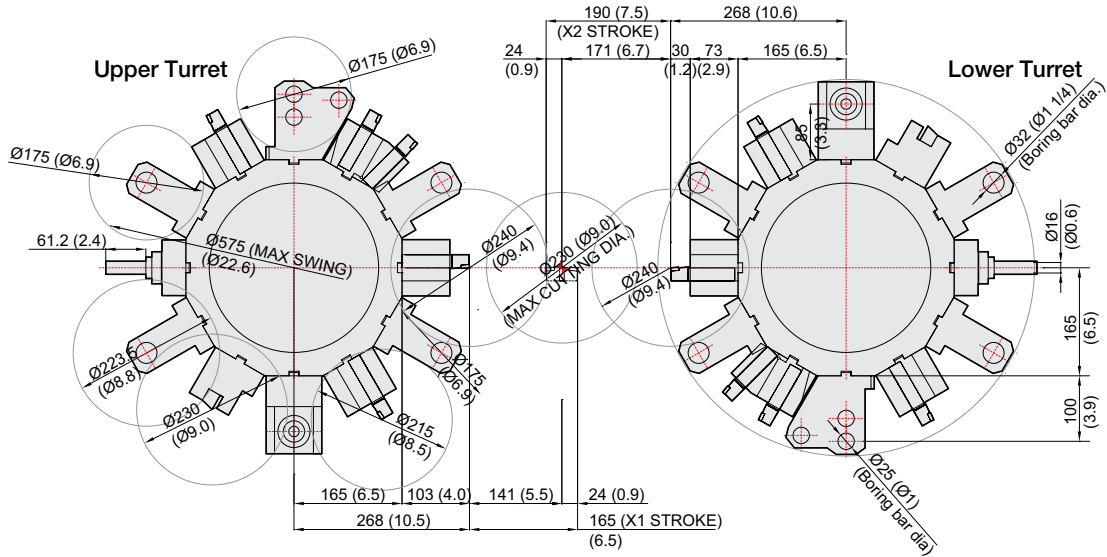


# SPECIFICATIONS

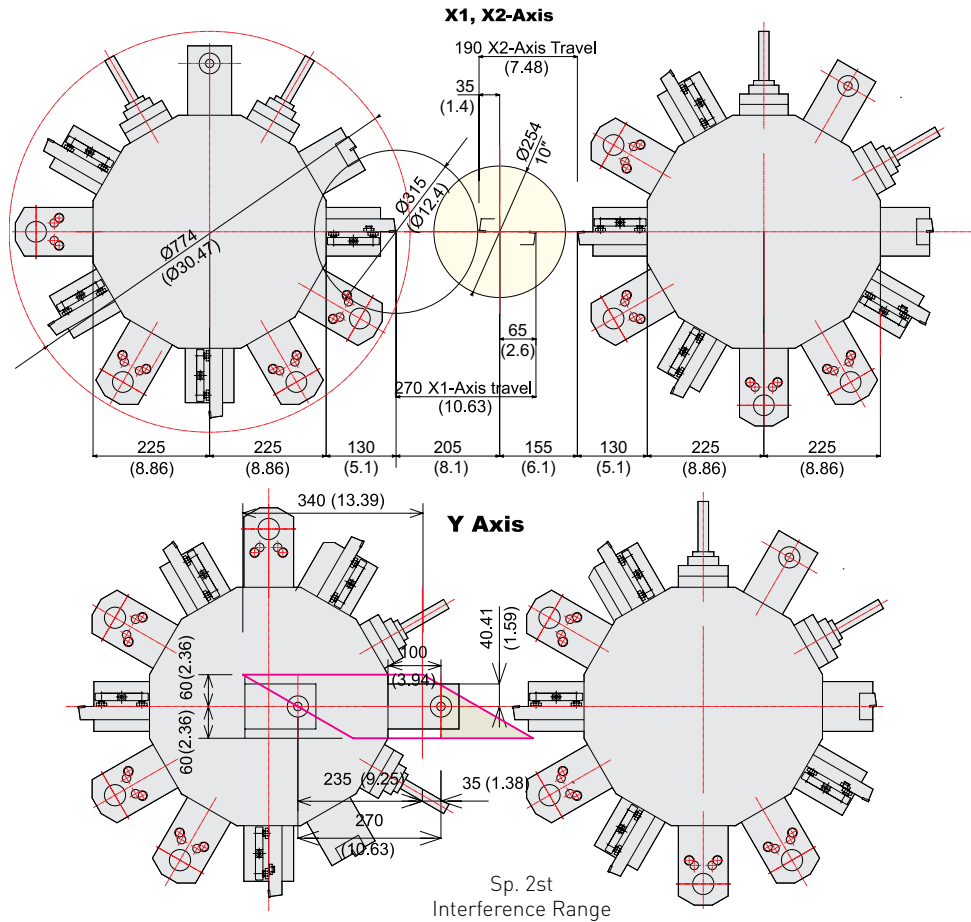
## Interference

unit : mm(in)

### LM1600TT/1800TT Series



### LM2500TT Series

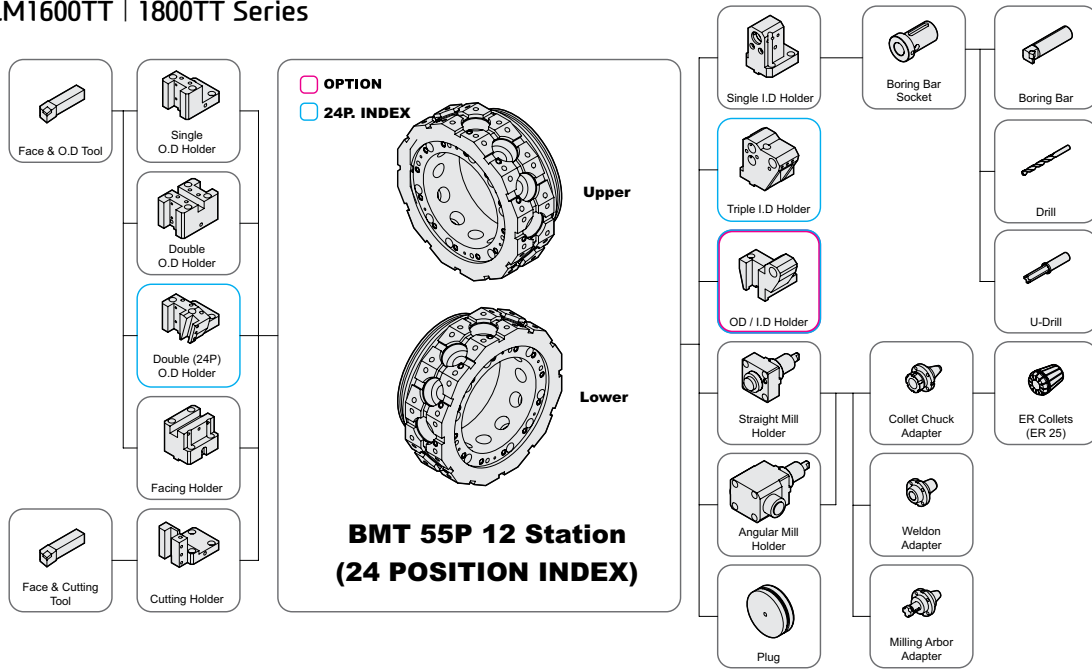


# SPECIFICATIONS

## Tooling System

unit : mm(in)

### LM1600TT | 1800TT Series



### Tooling Parts Detail

ITEM			TTS		TTSY		TTMS	
			mm Unit	inch Unit	mm Unit	inch Unit	mm Unit	inch Unit
Turning Holder	O.D Holder	Right/Left	6	6	4	4	4	4
		Double	2	2	2	2	2	2
		Double (Side)	2	2	2	2	2	2
	Facing Holder	2	2	2	2	2	2	
	O.D & I.D Holder	-	-	Opt.	Opt.	Opt.	Opt.	
Cutting Holder	1	1	1	1	1	1		
Boring Holder	I.D Holder	Single	9	9	7	7	7	7
		Triple	2	2	2	2	2	2
	U-Drill Holder	Cap	9	9	7	7	7	7
Driven Holder	Straight Mill Holder	Standard	-	-	2	2	2	2
		TTC (Tool through Coolant)	-	-	Opt.	Opt.	Opt.	Opt.
	Angular Mill Holder	Standard	-	-	2	2	2	2
		TTC (Tool through Coolant)	-	-	Opt.	Opt.	Opt.	Opt.
Socket	Boring	Ø8 (Ø5/16")	2	2	2	2	2	2
		Ø10 (Ø3/8")	2	2	2	2	2	2
		Ø12 (Ø1/2")	2	2	2	2	2	2
		Ø16 (Ø5/8")	2	2	2	2	2	2
		Ø20 (Ø3/4")	2	2	2	2	2	2
		Ø25 (Ø1")	2	2	2	2	2	2
	Drill	MT 1 × MT 2	2	2	2	2	2	2
		MT 2	2	2	2	2	2	2
		MT 3	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
	ER Collet	-	-	1 Set	1 Set	1 Set	1 Set	
Adapter Set	-	-	1 Set	1 Set	1 Set	1 Set		

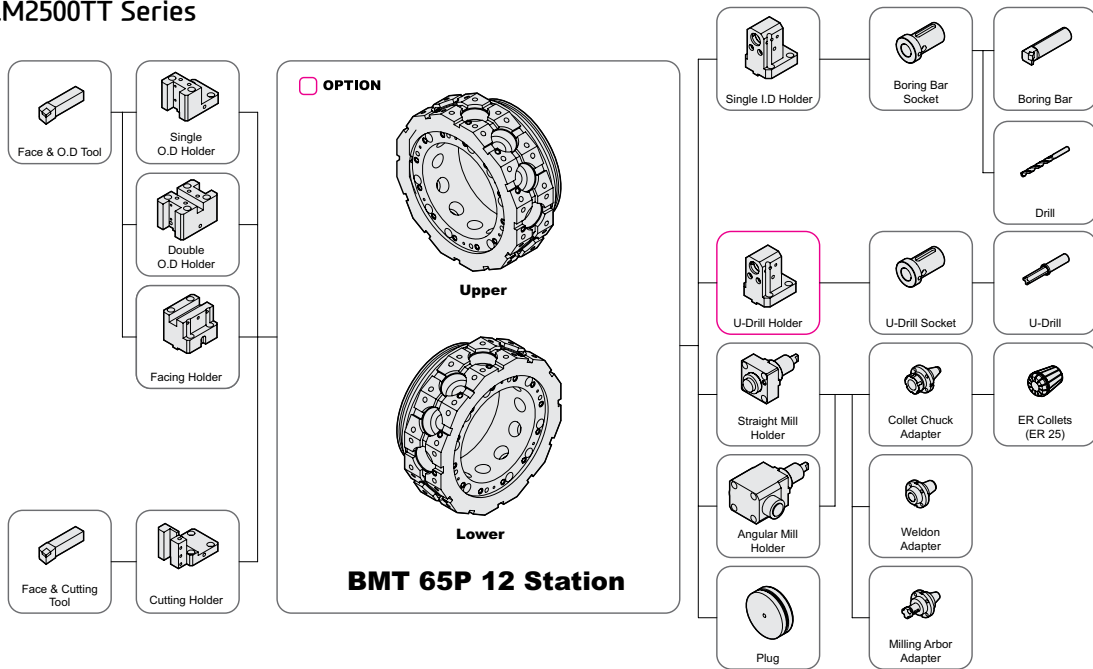
Specifications are subject to change without notice for improvement.

# SPECIFICATIONS

## Tooling System

unit : mm(in)

### LM2500TT Series



### Tooling Parts Detail

ITEM			TT		TTS		TTM		TTSY/TTMS	
			mm Unit	inch Unit	mm Unit	inch Unit	mm Unit	inch Unit	mm Unit	inch Unit
Turning Holder	O.D Holder	Right/Left	10	10	8	8	8	8	6	6
		Double	-	-	2	2	1	1	2	2
	Facing Holder		2	2	2	2	2	2	2	2
	Cutting Holder		1	1	1	1	1	1	1	1
Boring Holder	I.D Holder	Single (Upper)	5	5	5	5	5	5	4	4
		Single (Low)	6	6	6	6	5	5	5	5
	U-Drill Holder	Cap	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.	Opt.
Driven Holder	Straight Mill Holder	Standard	-	-	-	-	1	1	2	2
	Angular Mill Holder	Standard	-	-	-	-	1	1	2	2
Socket	Boring	Ø10 (Ø3/8")	2	2	2	2	2	2	2	2
		Ø12 (Ø1/2")	2	2	2	2	2	2	2	2
		Ø16 (Ø5/8")	2	2	2	2	2	2	2	2
		Ø20 (Ø3/4")	2	2	2	2	2	2	2	2
		Ø25 (Ø1")	2	2	2	2	2	2	2	2
		Ø32 (Ø1 1/4")	2	2	2	2	2	2	2	2
		Ø40 (Ø1 1/2")	2	2	2	2	2	2	2	2
	Drill	MT 1 × MT 2	2	2	2	2	2	2	2	2
		MT 2	2	2	2	2	2	2	2	2
		MT 3	2	2	2	2	2	2	2	2
	ER Collet		-	-	-	-	1 Set	1 Set	1 Set	1 Set
	Adapter Set		-	-	-	-	1 Set	1 Set	1 Set	1 Set

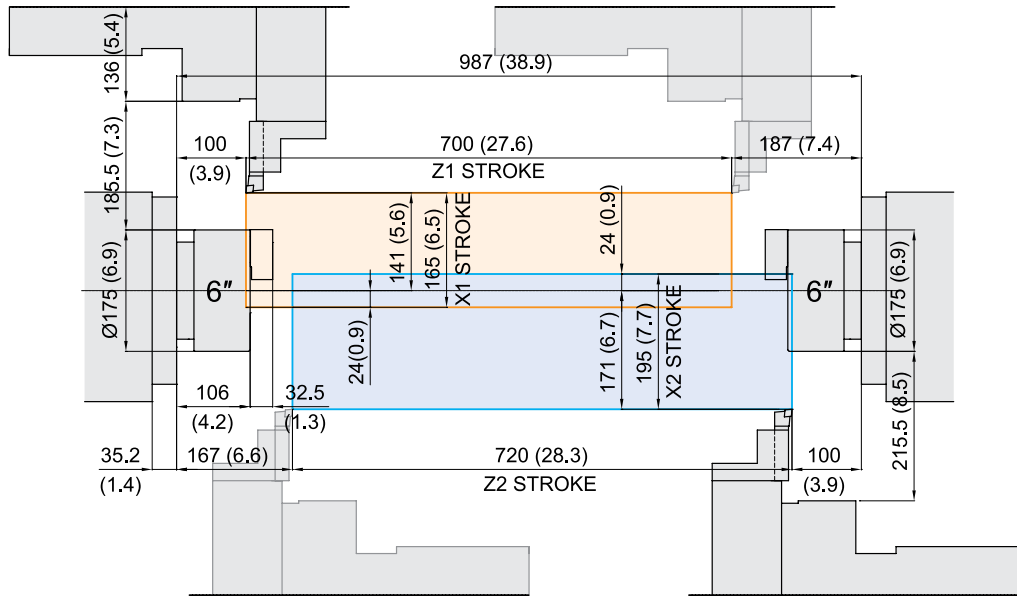
# SPECIFICATIONS

Tooling Travel Range

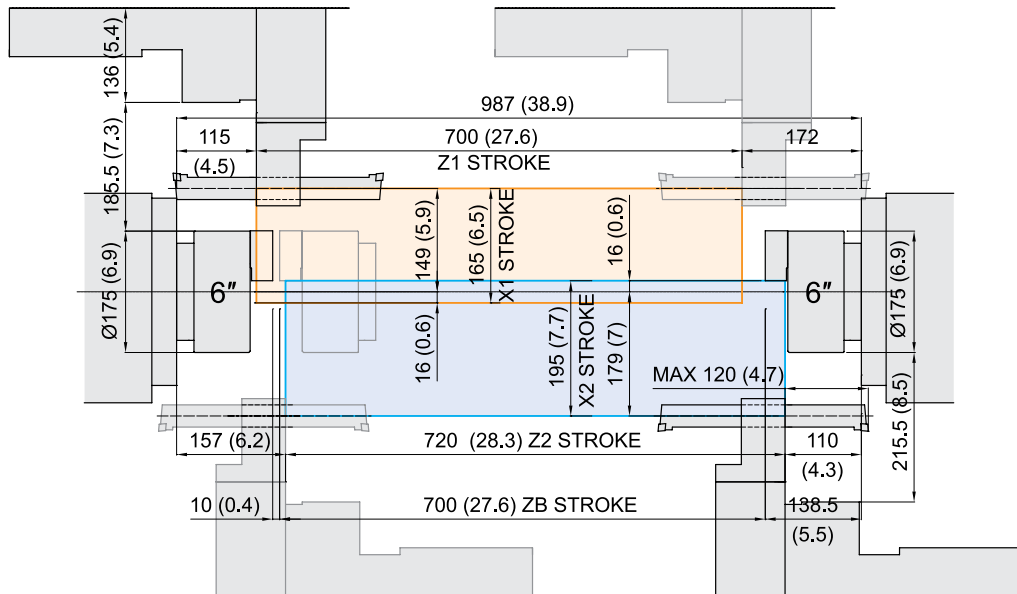
unit : mm(in)

## LM1600TT Series

### O.D Holder



### I.D Holder





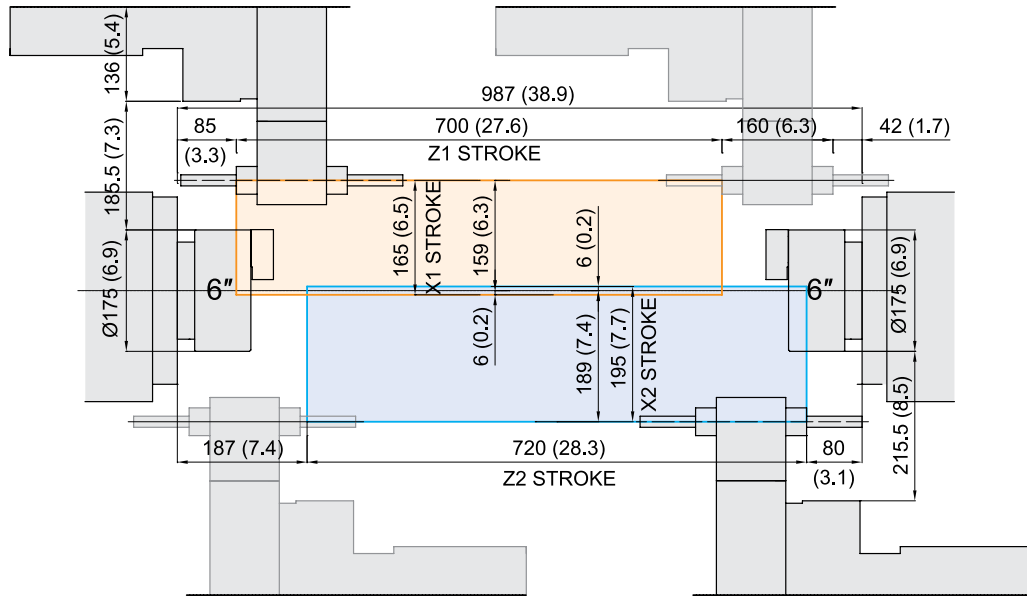
# SPECIFICATIONS

Tooling Travel Range

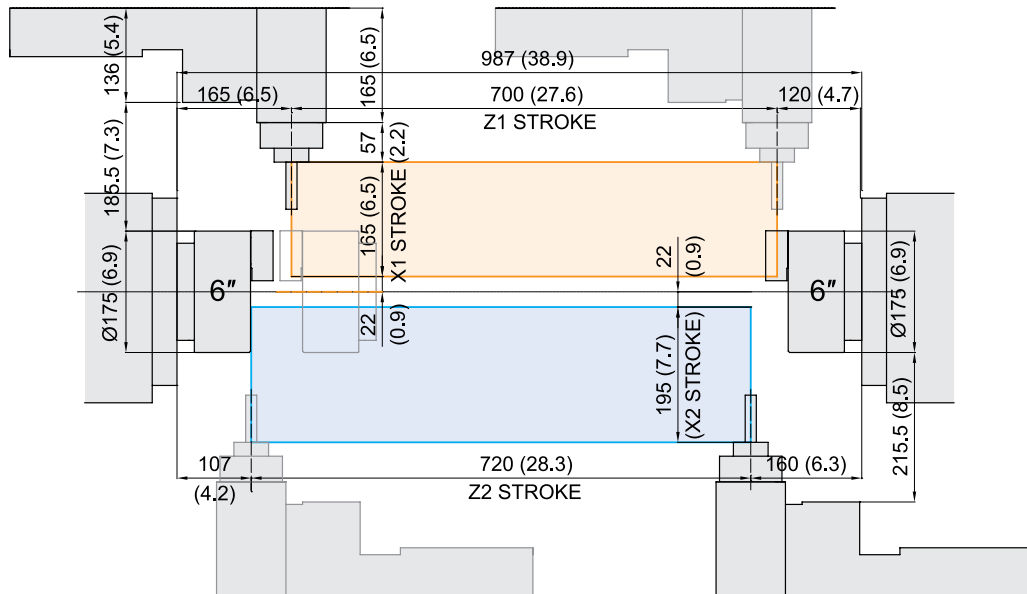
unit : mm(in)

## LM1600TT Series

### Angular Mill Holder



### Straight Mill Holder



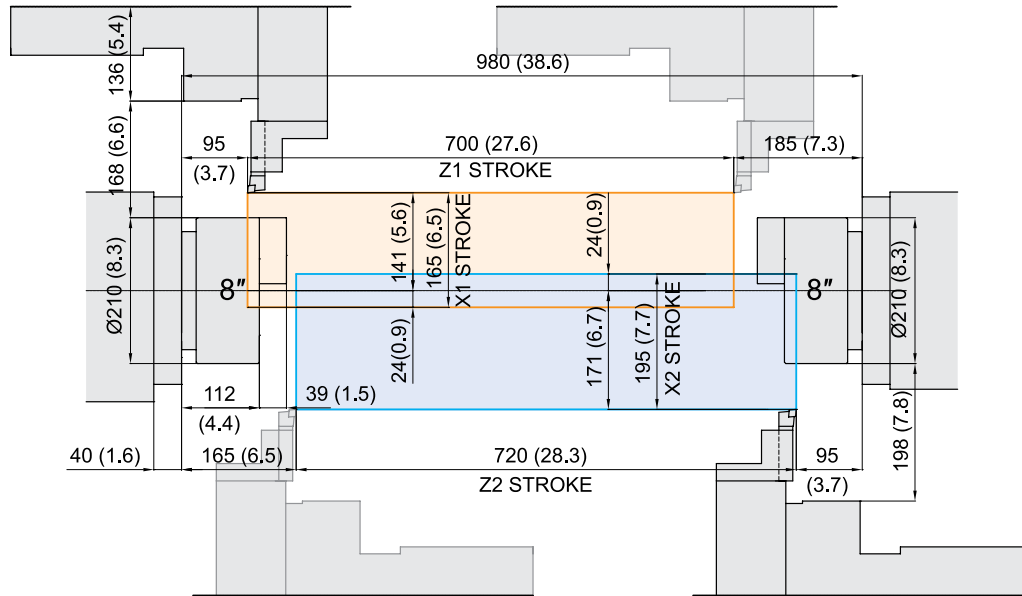
# SPECIFICATIONS

Tooling Travel Range

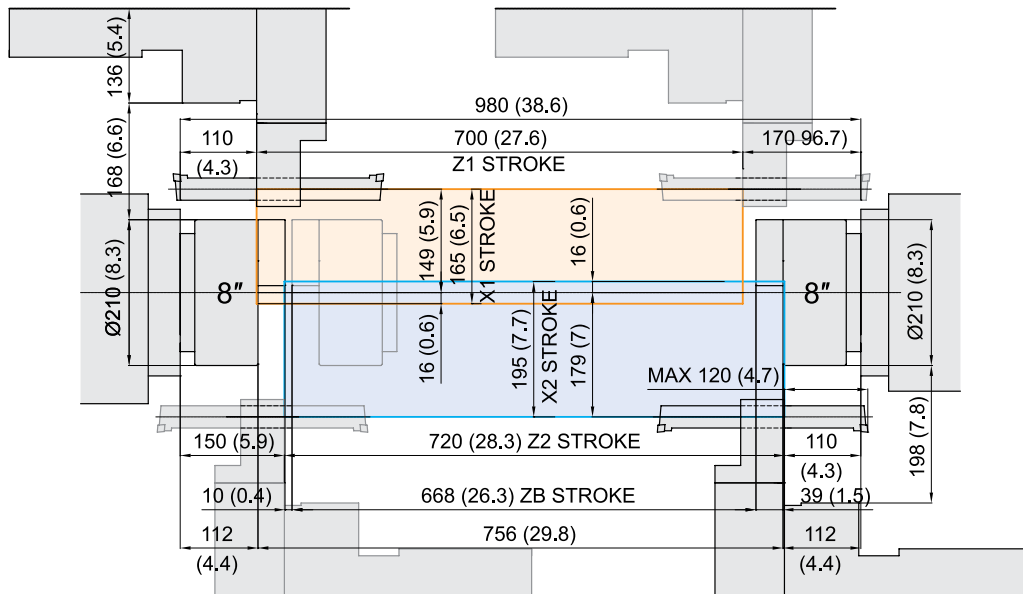
unit : mm(in)

## LM1800TT Series

### O.D Holder



### I.D Holder



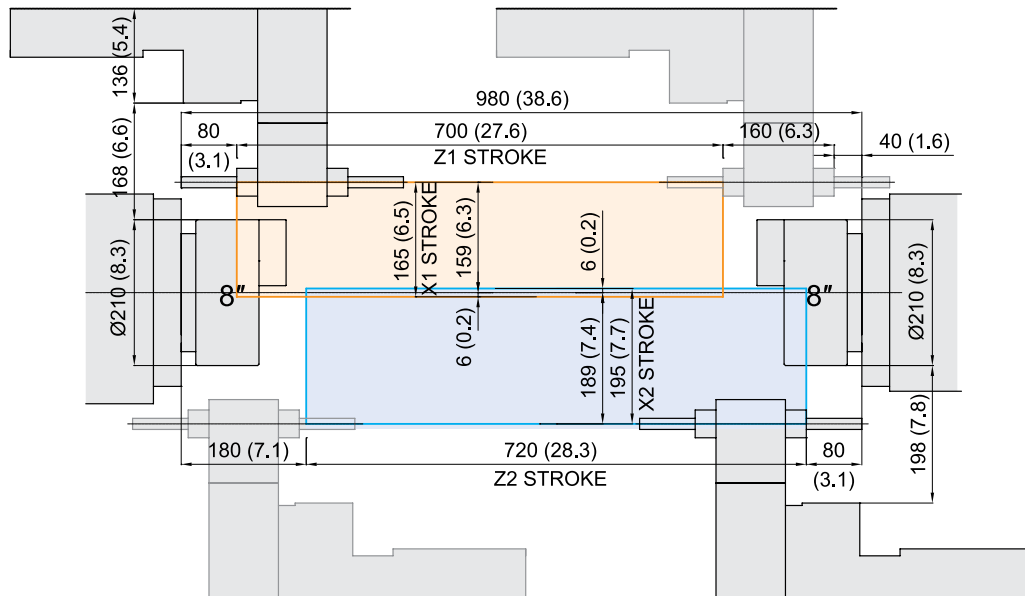
# SPECIFICATIONS

Tooling Travel Range

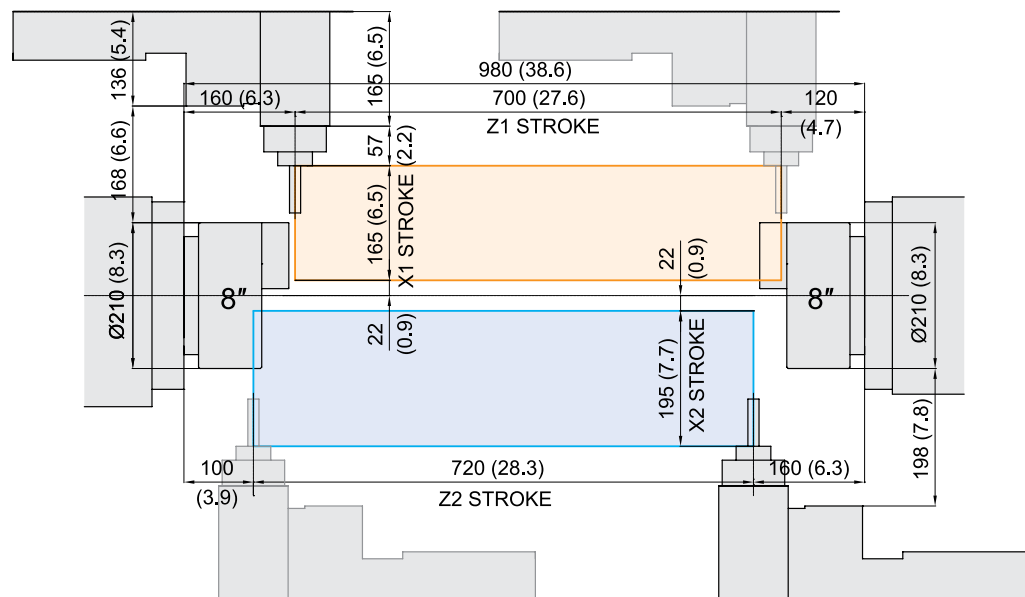
unit : mm(in)

## LM1800TT Series

### Angular Mill Holder



### Straight Mill Holder

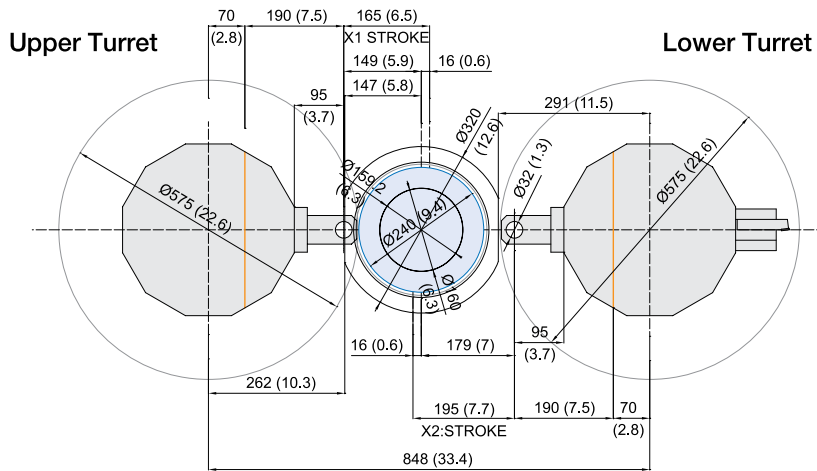


# SPECIFICATIONS

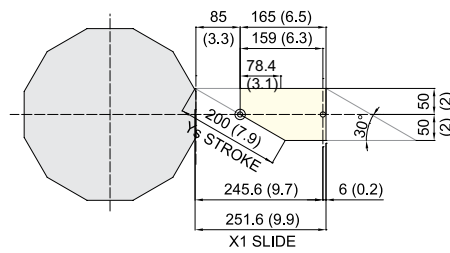
## Y-Axis Travel Range

unit : mm(in)

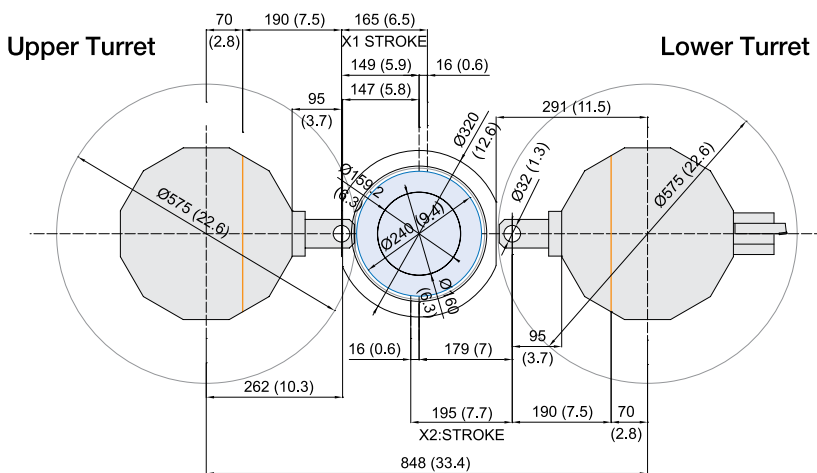
LM1600TT Series



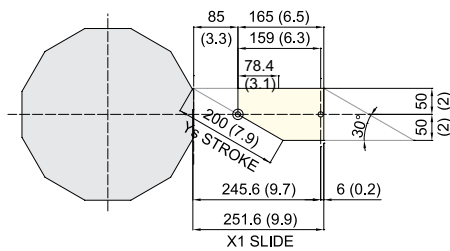
**Y-Axis**



LM1800TT Series



**Y-Axis**





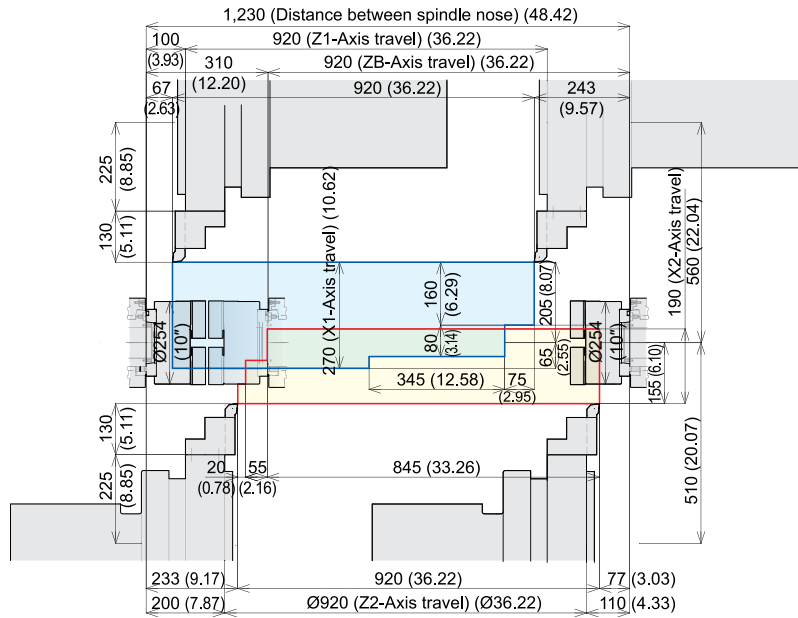
# SPECIFICATIONS

## Tooling Travel Range

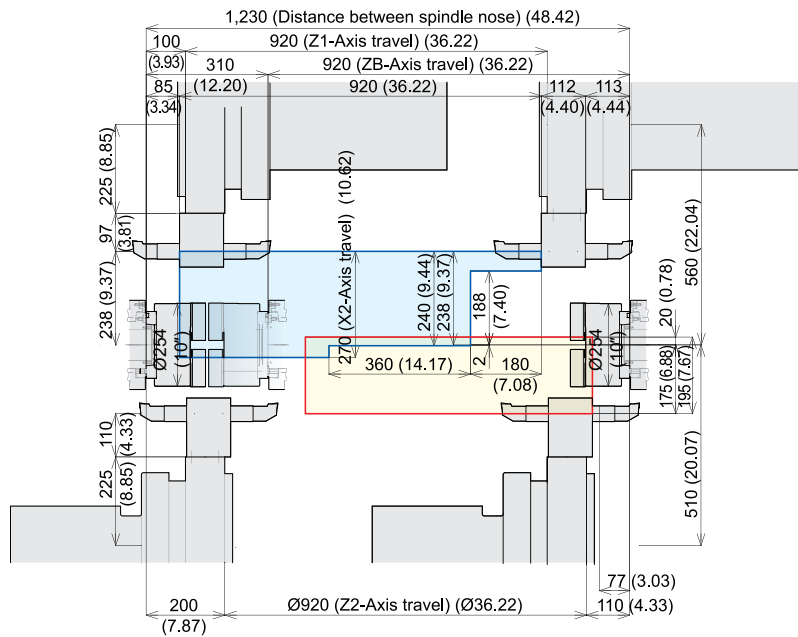
unit : mm(in)

### LM2500TT Series

#### O.D Holder



#### I.D Holder



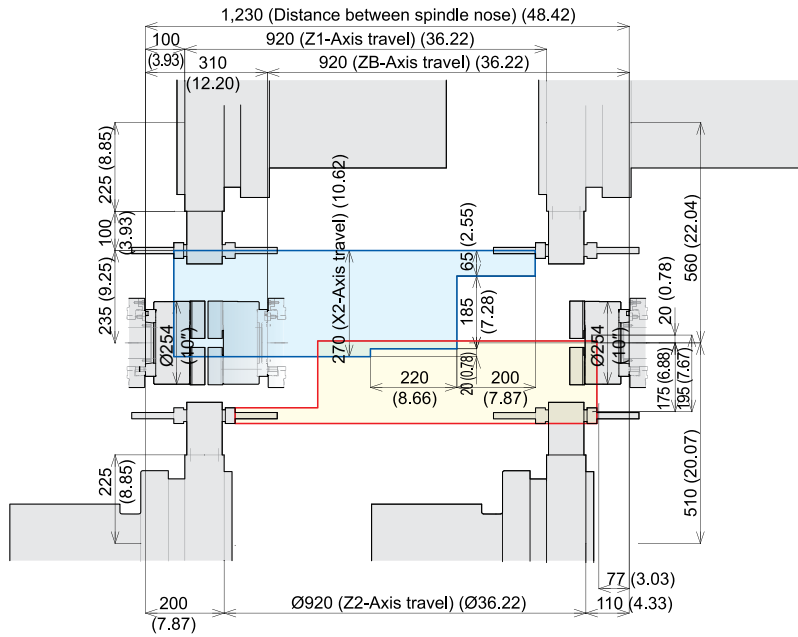
# SPECIFICATIONS

## Tooling Travel Range

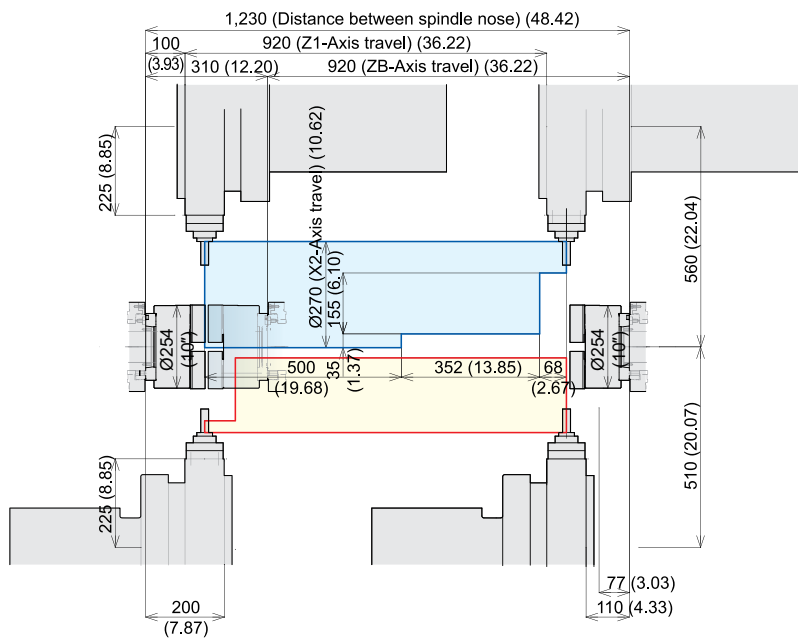
unit : mm(in)

### LM2500TT Series

#### Angular Mill Holder



#### Straight Mill Holder



# SPECIFICATIONS

## Specifications

[ ] : Option

ITEM			LM1600TTS	LM1600TTMS	LM1600TTSY
CAPACITY	Swing Over the Carriage	mm(in)		Ø290 (11.4")	
	Max. Turning Dia.	mm(in)		Ø230 (9.1")	
	Max. Turning Length	mm(in)		705 (27.8")	
	Bar Capacity	Main	mm(in)		Ø51 (2")
Sub		mm(in)		Ø51 (2")	
SPINDLE	Chuck Size	Main	mm(in)	Ø175 (6.9")	
		Sub	mm(in)	Ø175 (6.9")	
	Spindle Bore	Main	mm(in)	Ø62 (2.4")	
		Sub	mm(in)	Ø62 (2.4")	
	Spindle Speed (rpm)	Main	r/min	6,000	
		Sub	r/min	6,000	
	Motor (Max/Cont.)	Main	kW(HP)	15/11 (20/15)	
		Sub	kW(HP)	15/11 (20/15)	
	Torque (Max/Cont.)	Main	N·m(lbf·ft)	208/140 (153.4/103.3)	
		Sub	N·m(lbf·ft)	208/140 (153.4/103.3)	
	Spindle Type	Main	-	Built-in Motor	
		Sub	-	Built-in Motor	
	Spindle Nose	Main	-	A2-5	
Sub		-	A2-5		
C-axis Indexing	deg	-		0.001°	
FEED	Travel	X1/X2	mm(in)	165/195 (6.5"/7.7")	
		Z1/Z2	mm(in)	700/720 (27.6"/28.3")	
		Y	mm(in)	-	100 (±50) (3.9")
		ZB	mm(in)	700 (27.6")	
	Rapid Traverse Rate	X1/X2	m/min(ipm)	20/20 (787/787)	
		Z1/Z2	m/min(ipm)	40/40 (1,575/1,575)	
		Y	m/min(ipm)	-	7.5 (295.3)
		ZB	m/min(ipm)	40 (1,575)	
	Slide Type	X/Y	-	BOX GUIDE	
		Z	-	LM GUIDE	
TURRET	No. of Tools	EA	2x12 [2x24]		
	Tool Size	OD	mm(in)	□ 20 (0.8")	
		ID	mm(in)	Ø32 (1.3")	
	Indexing Time	sec/step	0.15		
Y-Axis Type	-	-	Wedge Type		
LIVE TOOL	Motor (Max/Cont.)	kW(HP)	-	5.5/1.1 (7.4/1.5)	
	Milling Tool Speed (rpm)	r/min	-	5,000	
	Torque (Max/Cont.)	N·m(lbf·ft)	-	47/14 (34.7/10.3)	
	Collet Size	mm(in)	-	Ø16 (0.6") ER25	
	Type	-	-	BMT55	
TANK CAPACITY	Coolant Tank	ℓ (gal)	300 (79.3)		
	Lubricating Tank	ℓ (gal)	4 (1.06)		
POWER SUPPLY	Electric Power Supply	kVA	43	49	
	Thickness of Power Cable	Sq	OVER 50		
	Voltage	V/Hz	220/60 (200/50*)		
MACHINE	Floor Space (L×W)	mm(in)	3,660×2,000 (144.1"×78.7")		
	Height	mm(in)	2,089 (82.2")		
	Weight	kg(lb)	7,900 (17,417)	8,200 (18,078)	8,400 (18,519)
PC	Controller	-	FANUC 31i-B		

\*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)  
Specifications are subject to change without notice for improvement.

# SPECIFICATIONS

## Specifications

[ ] : Option ■ : SIEMENS

ITEM			LM1800TTS	LM1800TTMS	LM1800TTSY
CAPACITY	Swing Over the Carriage	mm(in)		Ø290 (11.4")	
	Max. Turning Dia.	mm(in)		Ø230 (9.1")	
	Max. Turning Length	mm(in)		673 (26.5")	
	Bar Capacity	Main	mm(in)		Ø65 (2.6")
Sub		mm(in)		Ø65 (2.6")	
SPINDLE	Chuck Size	Main	mm(in)	Ø210 (8.3")	
		Sub	mm(in)	Ø210 (8.3")	
	Spindle Bore	Main	mm(in)	Ø76 (3")	
		Sub	mm(in)	Ø76 (3")	
	Spindle Speed (rpm)	Main	r/min	5,000 [5,000]	
		Sub	r/min	5,000 [5,000]	
	Motor (Max/Cont.)	Main	kW(HP)	22/11 (30/15) [22/19.6 (30/26.3)]	
		Sub	kW(HP)	22/11 (30/15) [22/19.6 (30/26.3)]	
	Torque (Max/Cont.)	Main	N·m(lbf·ft)	358/118 (264/87) [220/150 (162.3/64.2)]	
		Sub	N·m(lbf·ft)	358/118 (264/87) [220/150 (162.3/64.2)]	
	Spindle Type	Main	-	Built-in Motor	
		Sub	-	Built-in Motor	
	Spindle Nose	Main	-	A2-6	
		Sub	-	A2-6	
C-axis Indexing	deg	-		0.001°	
FEED	Travel	X1/X2	mm(in)	165/195 (6.5"/7.7")	
		Z1/Z2	mm(in)	700/720 (27.6"/28.3")	
		Y	mm(in)	-	100 {±50} (3.9")
		ZB	mm(in)	668 (26.3")	
	Rapid Traverse Rate	X1/X2	m/min(ipm)	20/20 (787/787)	
		Z1/Z2	m/min(ipm)	40/40 (1,575/1,575)	
		Y	m/min(ipm)	-	7.5 (295.3)
		ZB	m/min(ipm)	40 (1,575)	
Slide Type	X/Y	-	BOX GUIDE		
	Z	-	LM GUIDE		
TURRET	No. of Tools	EA	2x12 [2x24]		
	Tool Size	OD	mm(in)	□ 20 (0.8")	
		ID	mm(in)	Ø32 (1.3")	
	Indexing Time	sec/step		0.15	
Y-Axis Type	-	-		Wedge Type	
LIVE TOOL	Motor (Max/Cont.)	kW(HP)	-	5.5/1.1 (7.4/1.5) [4.2/2.8 (5.6/3.8)]	
	Milling Tool Speed (rpm)	r/min	-	5,000 [5,000]	
	Torque (Max/Cont.)	N·m(lbf·ft)	-	47/14 (34.7/10.3) [54/36 (39.8/7.6)]	
	Collet Size	mm(in)	-	Ø16 (0.6") ER25	
	Type	-	-	BMT55	
TANK CAPACITY	Coolant Tank	ℓ (gal)		300 (79.3)	
	Lubricating Tank	ℓ (gal)		4 (1.06)	
POWER SUPPLY	Electric Power Supply	kVA	53	60	
	Thickness of Power Cable	Sq		OVER 50	
	Voltage	V/Hz		220/60 (200/50*)	
MACHINE	Floor Space (L×W)	mm(in)		3,660×2,000 (144.1"×78.7")	
	Height	mm(in)		2,089 (82.2")	
	Weight	kg(lb)	8,000 (17,637)	8,300 (18,298)	8,500 (18,739)
PC	Controller	-		FANUC 31i-B [SIEMENS 840D]	

\*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)  
Specifications are subject to change without notice for improvement.



# SPECIFICATIONS

## Specifications

[ ] : Option

ITEM			LM2500TT	LM2500TTM	
CAPACITY	Swing Over the Bed	mm(in)	Ø780 (30.7")		
	Swing Over the Carriage	mm(in)	Ø700 (27.6")		
	Max. Turning Dia.	mm(in)	Ø390/Ø300 (15.4"/11.8")		
	Max. Turning Length	mm(in)	900 (35.4")		
	Bar Capacity	mm(in)	Ø76 (3")		
SPINDLE	Chuck Size	mm(in)	Ø254 (10")		
	Spindle Bore	mm(in)	Ø86 (3.4")		
	Spindle Speed (rpm)	r/min	4,000		
	Motor (Max/Cont.)	kW(HP)	26/15 (35/20)		
	Torque (Max/Cont.)	N·m(lbf·ft)	433/295 (319.4/217.6)		
	Spindle Type	-	Built-in Motor		
	Spindle Nose	-	A2-8		
C-axis Indexing	deg	-	0.001°		
FEED	Travel	X1/X2	mm(in)	270/190 (10.6"/7.5")	
		Z1/Z2	mm(in)	920/920 (36.2"/36.2")	
	Rapid Traverse Rate	X1/X2	m/min(ipm)	24/24 (945/945)	
		Z1/Z2	m/min(ipm)	24/24 (945/945)	
	Slide Type	-	BOX GUIDE		
TURRET	No. of Tools	EA	2x12		
	Tool Size	OD	mm(in)	□ 25 (1")	
		ID	mm(in)	Ø50 (2")	
	Indexing Time	sec/step	0.2		
LIVE TOOL	Motor (Max/Cont.)	kW(HP)	-	5.5/2.2 (7.4/3)	
	Milling Tool Speed (rpm)	r/min	-	4,000	
	Torque (Max/Cont.)	N·m(lbf·ft)	-	49.1/19.6 (36.2/14.5)	
	Collet Size	mm(in)	-	Ø20 (0.8") ER32	
	Type	-	-	BMT65	
TAIL STOCK	Taper	-	MT4		
	Quill Dia.	mm(in)	Ø100 (3.9")		
	Quill Travel	mm(in)	130 (5.1")		
	Travel	mm(in)	900 (35.4")		
TANK CAPACITY	Coolant Tank	ℓ (gal)	230 (60.8)		
	Lubricating Tank	ℓ (gal)	6 (1.6)		
POWER SUPPLY	Electric Power Supply	kVA	43		
	Thickness of Power Cable	Sq	OVER 50		
	Voltage	V/Hz	220/60 (200/50*)		
MACHINE	Floor Space (L×W)	mm(in)	3,670×2,170 (144.5"×85.4")		
	Height	mm(in)	2,601 (102.4")		
	Weight	kg(lb)	10,000 (22,046)	10,100 (22,267)	
PC	Controller	-	FANUC 31i-B		

\*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)  
 Specifications are subject to change without notice for improvement.

# SPECIFICATIONS

## Specifications

[ ] : Option

ITEM			LM2500TTS	LM2500TTMS	LM2500TTSY	
CAPACITY	Swing Over the Bed	mm(in)		Ø780 (30.7")		
	Swing Over the Carriage	mm(in)		Ø700 (27.6")		
	Max. Turning Dia.	mm(in)		Ø390/Ø300 (15.4"/11.8")		
	Max. Turning Length	mm(in)		900 (35.4")		
	Bar Capacity	Main	mm(in)		Ø76 (3")	
Sub		mm(in)		Ø76 (3")		
SPINDLE	Chuck Size	Main	mm(in)	Ø254 (10")		
		Sub	mm(in)	Ø254 (10")		
	Spindle Bore	Main	mm(in)	Ø86 (3.4")		
		Sub	mm(in)	Ø86 (3.4")		
	Spindle Speed (rpm)	Main	r/min		4,000	
		Sub	r/min		4,000	
	Motor (Max/Cont.)	Main	kW(HP)		26/15 (35/20)	
		Sub	kW(HP)		26/15 (35/20)	
	Torque (Max/Cont.)	Main	N·m(lbf·ft)		433/295 (319.4/217.6)	
		Sub	N·m(lbf·ft)		433/295 (319.4/217.6)	
	Spindle Type	Main	-		Built-in Motor	
		Sub	-		Built-in Motor	
	Spindle Nose	Main	-		A2-8	
Sub		-		A2-8		
C-axis Indexing	deg		-	0.001°		
FEED	Travel	X1/X2	mm(in)	270/190 (10.6"/7.5")		
		Z1/Z2	mm(in)	920/920 (36.2"/36.2")		
		Y	mm(in)	-	120 {±60} (4.7")	
		ZB	mm(in)	920 (36.2")		
	Rapid Traverse Rate	X1/X2	m/min(ipm)		24/24 (945/945)	
		Z1/Z2	m/min(ipm)		24/24 (945/945)	
		Y	m/min(ipm)		-	12 (472)
		ZB	m/min(ipm)		24 (945)	
	Slide Type	-			BOX GUIDE	
	TURRET	No. of Tools	EA		2x12	
Tool Size		OD	mm(in)	□ 25 (1")		
		ID	mm(in)		Ø50 (2")	
Indexing Time		sec/step			0.2	
Y-Axis Type		-		-	Wedge Type	
LIVE TOOL	Motor (Max/Cont.)	kW(HP)	-	5.5/2.2 (7.3/3)		
	Milling Tool Speed (rpm)	r/min	-	4,000		
	Torque (Max/Cont.)	N·m(lbf·ft)	-	49.1/19.6 (36.2/14.5)		
	Collet Size	mm(in)	-	Ø20 (0.8") ER32		
	Type	-	-		BMT65	
TANK CAPACITY	Coolant Tank	ℓ (gal)		230 (60.8)		
	Lubricating Tank	ℓ (gal)		6 (1.6)		
POWER SUPPLY	Electric Power Supply	kVA		66	69	
	Thickness of Power Cable	Sq		OVER 50		
	Voltage	V/Hz		220/60 (200/50*)		
MACHINE	Floor Space (L×W)	mm(in)		3,670×2,170 (144.5"×85.4")		
	Height	mm(in)		2,601 (102.4")		
	Weight	kg(lb)	10,500 (23,149)	10,600 (23,369)	11,000 (24,251)	
PC	Controller	-		FANUC 31i-B		

\*) Using 50Hz voltage instead of 60Hz may lower the output of motors. (excluding servo motors and inverter motors)

Specifications are subject to change without notice for improvement.

# CONTROLLER

## FANUC 31i-B

[ ] : Option

Controlled axis / Display / Accuracy Compensation	
Control axes	4 axes (X, Z, Y, C) / 6 axes (X, Z, Y, B, C, A) 7 axes (X1/Z1, X2/Z2, B2, C1/C2) 8 axes (X1/Z1, X2/Z2, Y1, B2, C1/C2)
Simultaneously controlled axes	2 axes [Max. 4 axes]
Designation of spindle axes	4 axes (1 path), 6 axes (2 path Total)
Least setting Unit	X, Z, Y, B axes : 0.001 mm (0.0001 inch) C, A axes : 0.001 deg
Least input increment	X, Z, Y, B axes : 0.001 mm (0.0001 inch) C, A axes : 0.001 deg
Inch / Metric conversion	G20 / G21
High response vector control	
Interlock	All axes / Each axis
Machine lock	All axes
Backlash compensation	± 0 ~ 9999 pulses (Rapid traverse / Cutting feed)
Position switch	
LCD / MDI	10.4 inch color LCD
Feedback	Absolute motor feedback
Stored stroke check 1	Over travel
Stored stroke check 2, 3	
PMC axis control	
<b>Operation</b>	
Automatic operation (Memory)	
MDI operation	
DNC operation	Needed DNC software / CF card
Program restart	
Wrong operation prevention	
Program check function	Dry run, Program check
Single block	
Search function	Program Number / Sequence Number
<b>Interpolation functions</b>	
Nano interpolation	
Positioning	G00
Linear interpolation	G01
Circular interpolation	G02, G03
Exact stop mode	Single : G09, Continuous : G61
Dwell	G04, 0 ~ 9999.9999 sec
Skip	G31
Reference position return	1st reference : G28 / 2nd reference : G30 Ref. position check : G27
Thread synchronous cutting	
Thread cutting retract	
Variable lead thread cutting	
Multi / Continuous threading	
<b>Feed function / Acc. &amp; Dec. control</b>	
Manual feed	Rapid traverse Jog : 0~2,000 mm/min (79 ipm) Manual handle : x1, x10, x100 pulses Reference position return
Cutting Feed command	Direct input F code
Feedrate override	0 ~ 200% (10% Unit)
Rapid traverse override	F1%, F25%, 50%, F100%
Override cancel	
Feed per minute	G98
Feed per revolution	G99
Look-ahead block	1 block
<b>Program input</b>	
Tape Code	EIA / ISO
Optional block skip	1 ea
Absolute / Incremental program	G90 / G91
Program stop / end	M00, M01 / M02, M30
Maximum command unit	± 999,999.999 mm (± 99,999.9999 inch)
Plane selection	X-Y : G17 / Z-X : G18 / Y-Z : G19
Workpiece coordinate system	G52, G53, 6 pairs (G54 ~ G59)
Manual absolute	Fixed ON
Programmable data input	G10
Sub program call	10 folds nested
Custom macro	#100 ~ #149, #500 ~ #549
G code system	A
Programmable mirror image	G51.1, G50.1
G code preventing buffering	G41
Multiple repetitive cycles	I, II

Program input	
Canned cycle for turning	
Manual Guide i	Conversational auto program
<b>Auxiliary function / Spindle speed function</b>	
Auxiliary function	M 4 digit
Level-up M Code	High speed / Multi / Bypass M code
Spindle speed function	S 4 digit, Binary output
Spindle override	0% ~ 150% (10% Unit)
Multi position spindle orientation	M19
Rigid tapping	
Constant surface speed control	G96, G97
<b>Tool function / Tool compensation</b>	
Tool function	T 2 digit + Offset 2 digit
Tool life management	
Tool offset pairs	64 pairs
Tool nose radius compensation	G40, G41, G42
Geometry / Wear compensation	
Direct input of offset measured B	
<b>Editing function</b>	
Part program storage size	1280m (512KB)
No. of registerable programs	1000 ea
Program protect	
Background editing	
Extended part program editing	Copy, move and change of NC program
Memory card program edit	
<b>Data input / output &amp; Interface</b>	
I/O interface	RS 232C serial port, CF card, USB memory Embedded Ethernet interface
Screen hard copy	
External message	
External key input	
External workpiece number search	
Automatic data backup	
<b>Setting, display and diagnosis</b>	
Self-diagnosis function	
History display & Operation	Alarm & Operator message & Operation
Run hour / Parts count display	
Maintenance information	
Actual cutting feedrate display	
Display of spindle speed / T code	
Graphic display	
Operating monitor screen	Spindle / Servo load etc.
Power consumption monitoring	Spindle & Servo
Spindle / Servo setting screen	
Multi language display	Support 20 languages
Display language switching	Selection of 5 optional Languages
LCD Screen Saver	Screen saver
Unexpected disturbance torque	BST (Back spin torque limit)
<b>Function for machine type</b>	
Cs contour control (C & A axes)	Mill, MS, Y, SY, LF-Mill, TTMS, TTSY
Polar coordinate interpolation	Mill, MS, Y, SY, LF-Mill, TTMS, TTSY
Cylindrical interpolation	Mill, MS, Y, SY, LF-Mill, TTMS, TTSY
Canned cycle for drilling	Mill, MS, Y, SY, LF-Mill, TTMS, TTSY
Spindle orientation expansion	MS, SY TTS, TTMS, TTSY
Spindle synchronous control	MS, SY TTS, TTMS, TTSY
Torque control	MS, SY TTS, TTMS, TTSY
Y axis offset	Y, SY, TTSY
Arbitrary angular control	Y, SY, TTSY
Composite / Superimposed control	MS, SY TTS, TTMS, TTSY
Balance cutting	MS, SY TTS, TTMS, TTSY
<b>Option</b>	
Additional optional block skip	9 ea
Fast ethernet	Needed option board
Data server	Needed option board
Protection of data at 8 levels	
Tool offset pairs	99 pairs / 200 pairs
Part program storage size	2560m (1MB) / 5120m (2MB)
Polygon turning (2 Spindles)	Mill, MS, Y, SY, LF-Mill, TTMS, TTS
Helical interpolation	
Dynamic graphic display	
Direct drawing dimension program	Including Chamfering / Corner R

Figures in inch are converted from metric values.

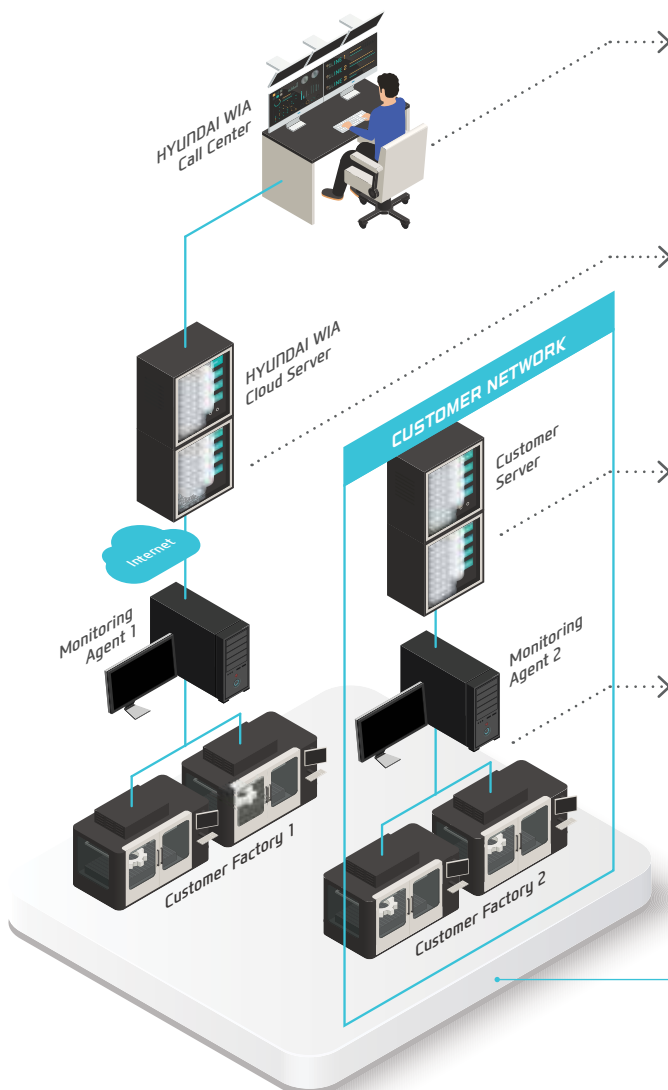
The FANUC controller specifications are subject to change based on the policy of company CNC supplying.

# HW-MMS

HYUNDAI WIA Machine Monitoring System



A brand new manufacturing machine by Hyundai Wia, HW-MMS is a unique software capable of monitoring the operation status of manufacturing machines in factories, a smart solution to improve manufacturing conditions of customers.



### HW-MMS Remote

Hyundai Wia Call Center's remote diagnosis service provides a HMI/video diagnostic function.



### HW-MMS Cloud

A cloud server-based equipment monitoring system for collecting and analyzing facility operation data.



### HW-MMS Edge

A client server-based tool monitoring system for collection/analysis of facility operation data. (Compatible with client MES / ERP interface)



### HW-MMS PT

This is a facility big data-based smart factory solution that collects and analyzes changes in spindle/feed data and NC processing files

HYUNDAI WIA  
Smart Factory Solution





LM1800TTSY  
Movie



LM1800TTSY  
3D Movie



**You Tube** HYUNDAI WIA MT

[www.youtube.com/HYUNDAIWIAMT](http://www.youtube.com/HYUNDAIWIAMT)

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