XM Series

XM2600/S/ST | XM3100/S/ST

WIA Machine Tools Multi-tasking Machine

WIA MACHINE TOOLS



Technical Leader

Multitasking Machine **XM Series**, designed by WIA machine tools with years of expertise and the latest technology, is designed to maximize productivity by utilizing mill head and lower turret.

ITEM	XM2600	XM2600S	XM2600ST	XM3100	XM3100S	XM3100ST
10″ 1st Spindle	●	●	●	-	-	-
12″ 1st Spindle	-	-	-	●	●	●
10″ 2nd Spindle	-	●	●	-	●	●
B-axis Mill Head	●	●	●	●	●	●
NC Servo Tail Stock	●	-	-	●	-	-
Std. Turret	-	-	●	-	-	●
Mill Turret	-	-	○	-	-	○

● : Standard ○ : Option

XM Series

9-axis Multi-tasking Machine

- The adoption of a milling head with a built-in motor B axis (0.0001°) enables the operator to perform turning and milling works in perfect harmony
- Expanded machining area by shortening the length of the mill head
- Y-axis travel distance increased : 250 mm (9.8″) -> 300 mm (11.8″)
- Application of CAPTO C6 tool for high speed complex machining
- The model features built-in 1st & 2nd-spindles with high power and high torque





Applications & Parts

VACUUM PUMP ROTOR





IMPELLER

MOUNTING SHELL

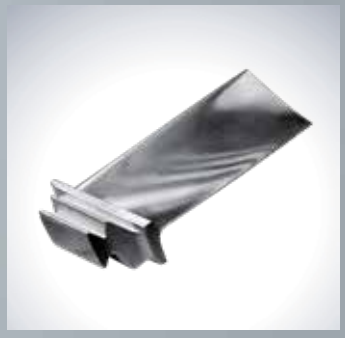




ARTIFICIAL BONE

HOUSING, ELECTRIC MOTOR





BLADE, COMPRESSOR

HOUSING, ENGINE





CRANKSHAFT

01 BASIC **STRUCTURE**

Multitasking machine for high productivity



※ This model is **ST** type

6/7/9-AXIS MULTI-TASKING MACHINE



❶ Built-in Spindle (1st/2nd)

XM Series 1st/2nd built-in spindle minimizes vibration to allow machining of the highest precision.

Chuck Size (1st/2nd) XM2600 : **10″/10″**, XM3100 : **12″/10″**



❷ Compact Mill Head

The B-axis control mill head is mounted with a high resolution encoder having a built-in motor and 0.0001° indexing ability to secure high positioning precision.

Driving Methode : **Built-in** Speed : **12,000** r/min



❸ Lower Turret (ST Type)

The lower turret ensures high-speed machining of complicated shapes in precision only with one-time setting of workpiece machined with the mill head.

Std. : **Turning Turret** Opt : **BMT65 Mill Turret** (5,000rpm)



❹ ATC & Magazine

The installation of magazine on the front provides efficient tool change and tool setting. Magazine with chain driving method provides 40 tools as standard, and 80 tools as option.

Tool Shank Type : **CAPTO C6** Tool Change Step : **4** Step

BED

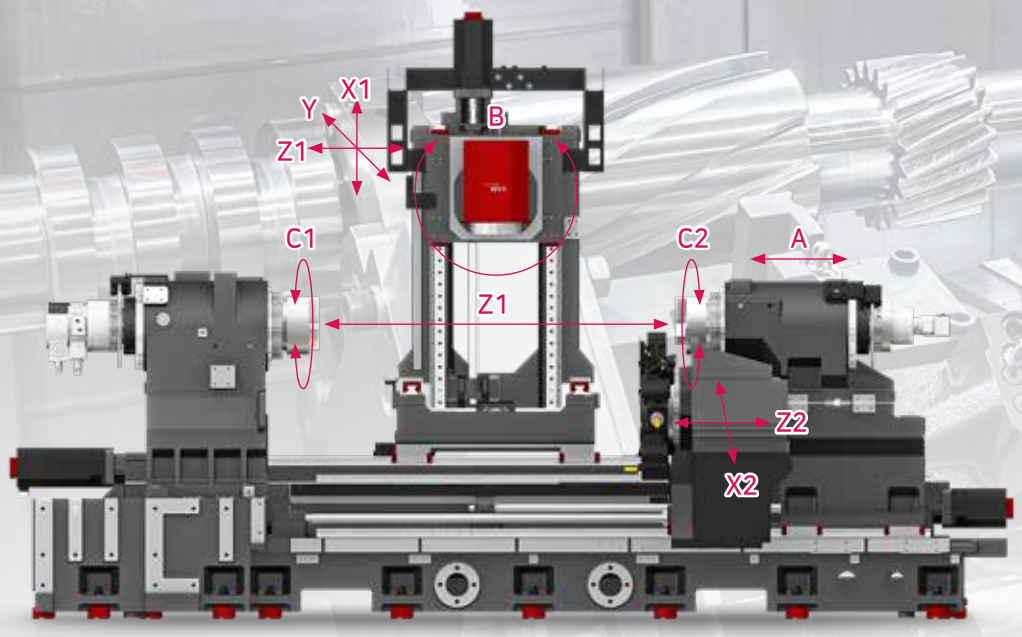


❺ Secure Bed Structure

It enables high-speed/high-precision machining by significantly lowering the center of gravity of the bed, and stably arranging key units including the main spindle and columns on the bed. In particular, the cover is designed so that chips and cutting oil are not directly transferred to the bed, reducing precision errors due to temperature changes.

02 HIGH-SPEED TRAVEL

High-speed, high-productivity multi-tasking machine



※ This model is **ST** type

Travel (X1/Z1/Y/X2/Z2/A) (27.4″/11.8″/62.4″/9.3″/60.6″/62.8″ <ST : 60.6″>)

695/1,585/300/235/1,540/1,595 <ST :1,540> mm

Rapid Traverse Rate (X1/Z1/Y/X2/Z2/A)

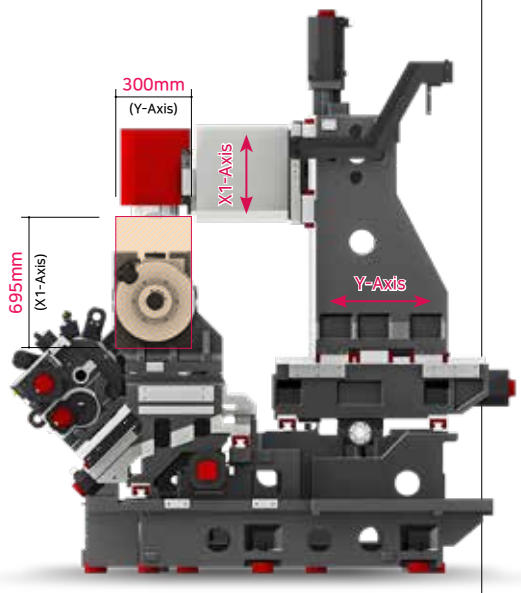
48/36/48/24/36/30 m/min

B-axis

240˚(±120˚)



HIGH SPEED & HIGH PRECISION



Y-AXIS

Cross Type Y-axis

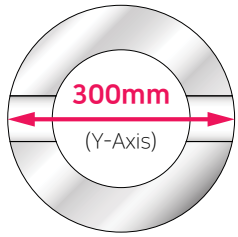
The cross type Y-axis ensures excellent positioning accuracy and provides easier programming and correction of programs which helps in enhancing productivity.

Wide Machining Range of Y-axis

The adoption of Y-axis with wide cutting range of 300mm(11.8″) allows Y-axis cutting in a single step without having to rotate the C-axis, and improves the cutting pitch and precision level.

Previous Model	250 mm (9.8″)
XM Series	**300** mm (11.8″)

50 mm Increase



GUIDE WAY

High-Speed Roller LM Guideway

Linear roller guideways are applied to reduce non-cutting time and bring high rigidity.



Ball Screw Nut Cooling (Z1/Y/X1 axis : Std.)

The Z1, Y, and X1 axis, which have a higher transfer frequency than other axis, use the ball screw nut cooling method as standard to minimize thermal displacement due to the frequent repetitive motion.

Linear Scale OPTION

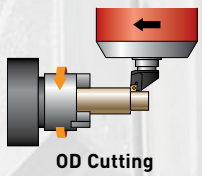
Linear scales on all axis providing high precision positioning accuracy and compensates for ball screw thermal displacement ensuring extremely precise machining.
In addition, the absolute type linear scale is installed in close proximity to the ball screw of each axis.

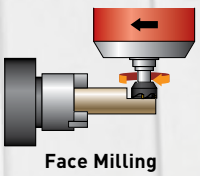


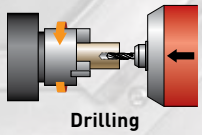
03 COMPACT MILL HEAD

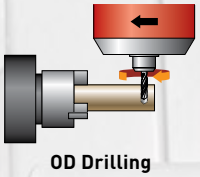
Milling heads for machining complex shapes

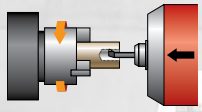
Machining Variation

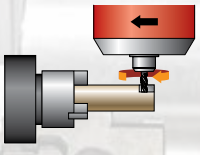

OD Cutting

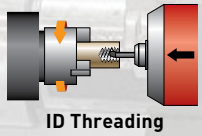

Face Milling

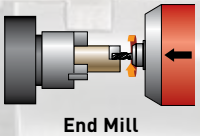

Drilling

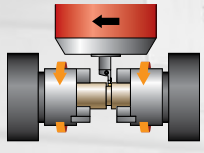

OD Drilling

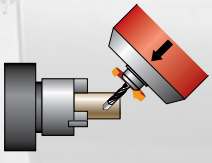

ID Cutting


Ball-End Milling


ID Threading


End Mill


Cut-Off

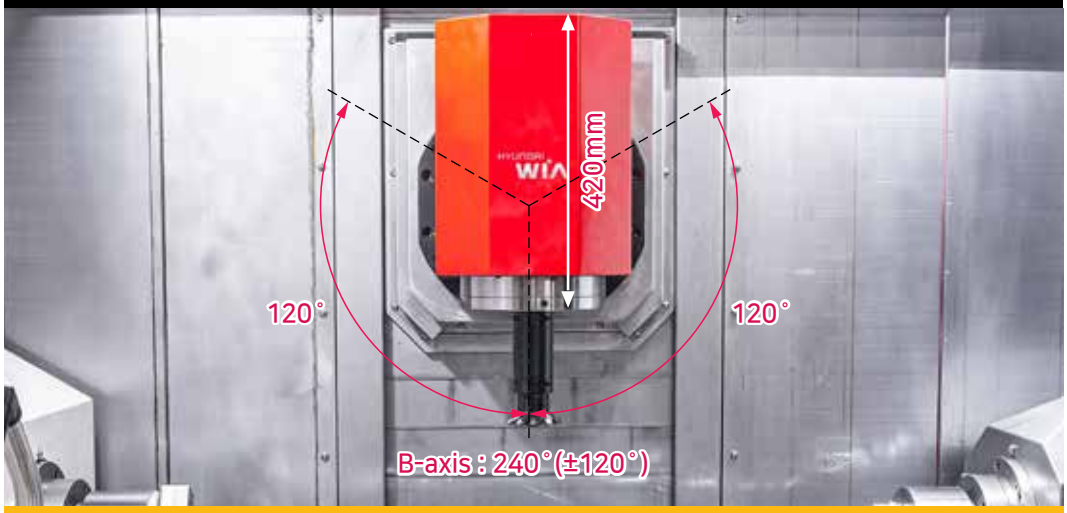

Angular Machining



MACHINING PROCESS WITH ONLY ONE INITIAL SETTING

Millhead for multi-tasking

The XM Series is the culmination of WIA machine tools's technological prowess, capable of machining any product of complex shape required by a customer through its mill head and lower turret.



Expansion of machining range

The length of the mill head has been reduced by 130mm (5.1″) compared to the previous model to expand the machining range.

Compact Mill Head with a B-axis Operated by a High-precision DDM

The mill head is a product of combining WIA machine tools's latest technologies. The B-axis operated by DD motor method (0.0001°) to eliminate rotational backlash and 1st spindle (0.0001°) together can machine impellers, blades and other simultaneous 5-axis machining (standard application).

Also, it can perfectly carry out machining of workpieces with complex shape including sloped surface, etc

Mill Head Specifications

Driving Method	Speed	B-axis Travel	Indexing Angle	Tool Shank
Built-in	**12,000** rpm	**240°** (-120°~+120°)	**0.0001°**	CAPTO-C6

CAPTO-C6

CAPTO-C6, which allows double-sided circulation, is applied as a standard for maximum cutting capability.

- Ideal over load analysis
- Decreased tool change time by short taper / Excellent cutting ability



04 HIGH PRECISION **SPINDLE**

High-precision spindles that maintain precision even during prolonged machining



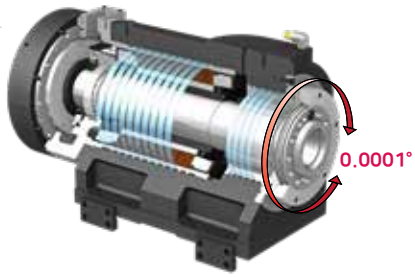
TWIN BUILT-IN SPINDLE FOR HIGH PRODUCTIVITY

SPINDLE

Built-in Spindle (1st/2nd)

The 1st and 2nd spindles with a built-in motor structure can minimize the vibration and heat generated during high-speed rotation, which makes them ideal for high-precision machining.

Also, Machines with a 2nd spindle can perform secondary operations with a single setup, increasing flexibility and productivity.

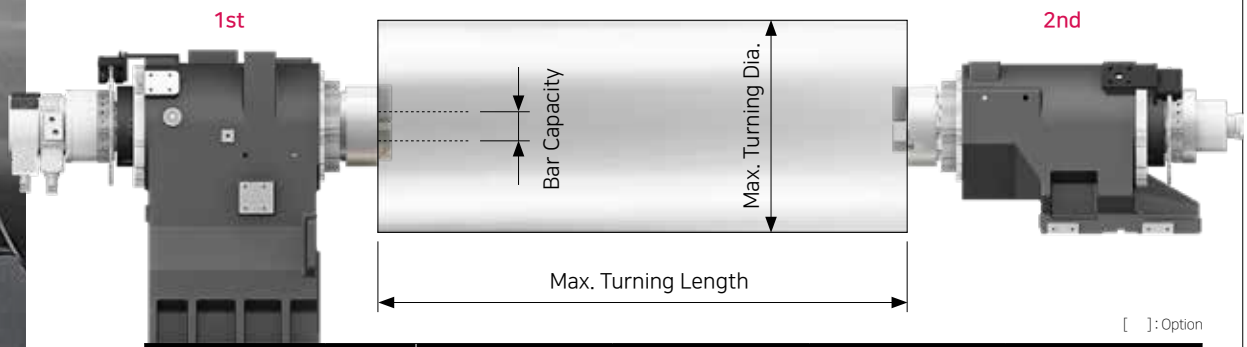


C-Axis Control - C-axis control of 1st and 2nd spindle allows machining of various products

1st Sp. C1-axis : **0.0001°**	2nd Sp. C2-axis : **0.001°**

Spindle Oil Cooling

The 1st/2nd spindles have been fitted with cooling units as a standard feature to minimize thermal displacement generated during cutting works, maintain a constant temperature, and increase cutting stability.



[ ] : Option

XM Sereis		XM2600		XM3100	
		1st	2nd	1st	2nd
Driving Methode	-	Built-In			
Max. Turning Dia.	mm(in)	Ø660 (Ø26″)			
Max. Turing Length	mm(in)	1,540 (60.6″)			
Chuck Size	inch	10″		12″	10″
Power (Max./Cont.)	kW(HP)	30/22 (40/29.5)		37/25 (50/33.5)	30/22 (40/29.5)
Bar Capacity*	mm(in)	Ø81 (Ø3.2″)	[Ø81 (Ø3.2″)]	Ø102 (Ø4″)	[Ø81 (Ø3.2″)]
Spindle Speed	r/min	4,000		3,000	4,000

*The 2nd spindle is equipped with a solid chuck (closed-center chuck) as standard. If you intend to perform bar machining using the 2nd spindle, please select the hollow chuck (open-center chuck) option.

05 LOWER **TURRET** (ST Type)

Lower turrets for improved productivity



Turret-attached Type Rest (ST Series) OPTION

It guarantees machining stability by preventing tilt and shaking during machining of products such as long shafts. SLU3.2 Rest can also be applied for machining large workpieces.

Turret Specifications

No. of Tools	**Tool Size** (O.D/I.D)	**Indexing Time**
12 EA	□25/Ø40 mm (□1″/Ø1 1/2″)	0.2 sec



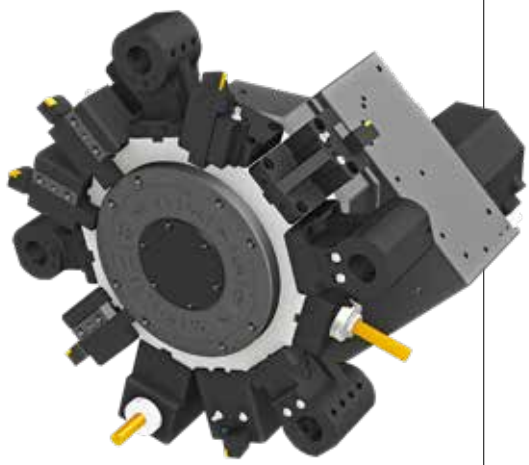
SIMULTANEOUS TURNING WITH THE MILLING HEADS

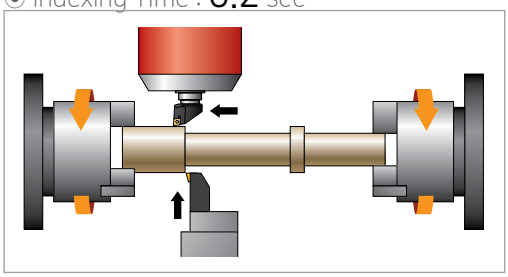
TURRET

Mill Turret OPTION (Std : Turning Turret)

The lower mill turret (Opt.) ensures the high-speed machining of complicated shapes in precision only with the one-time setting of an object to be machined with the mill head and complex machining.

- Speed (rpm) : 5,000 r/min
- Collet Size : Ø20 (0.8″) / ER32
- Indexing Time : 0.2 sec





Enables Simultaneous Turning for Milling heads and Lower Turrets

The ST model, with its upper milling heads and lower turrets, enables simultaneous turning.

Simultaneous turning options for both OD ↔ end face and roughing OD ↔ finishing OD help improve the productivity.

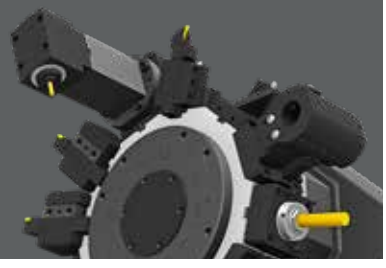
SPECIAL HOLDER

OPTION

The XM2600ST/XM3100ST, compatible with a lower mill turret (optional), allow to process the keyway from the inside of the material using a connector attached to the rotary tool holder.
More importantly, it is a WIA machine tools's patented, customized solution for improving the tooling efficiency of new parts including motor housings for electric vehicles.

Mill Holders Attachments

- Offset length: 50 - 250mm (manufactured according to customer's workpieces)
- Applicable to both angular & straight milling heads
- The special holder (BMT45) is not compatible with BMT65 for lower turrets



※ Consultation needed when ordering these options.

06 USER CONVENIENCE

Various Devices for User Friendly

The XM Series offers Ergonomic Design for Easy Operability and Maintenance.



Improved Access with Larger Front Door

The adoption of a larger front door makes crane access for cutting preparation works, such as setting up workpieces, much easier.

Highly Accessible Spindle

The spindle's ergonomic design improves access for the chuck and makes it easier to set up workpieces. The height from the floor to the center of the spindle has been carefully considered in order to improve the operator's convenience when setting up work pieces.

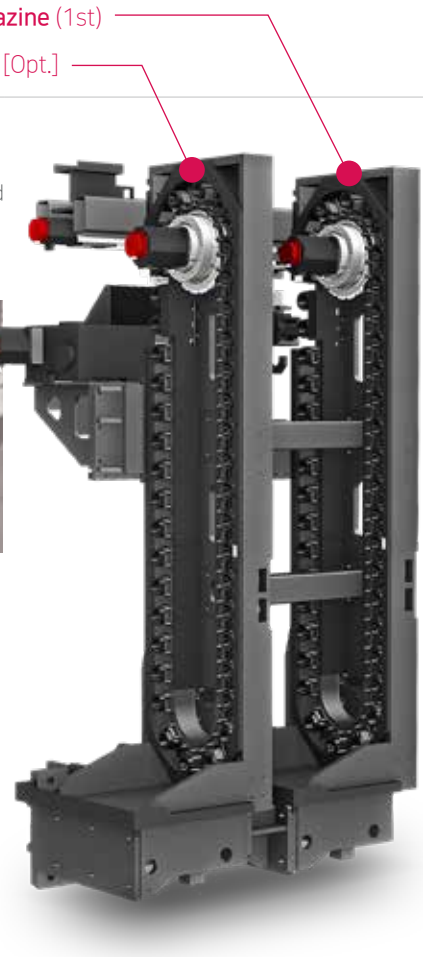
Operation Panel

The arms for the OP box and the OP box can rotate independently, which makes operating convenient depending on the workpiece setting or worker position thus allowing the user to easily move the arms to desired location.



HIGH RIGIDITY, TOOL CHANGE SYSTEM

AUTOMATIC TOOL CHANGE SYSTEM



ATC & Magazine

There is a magazine on the front side of the machine for efficient tool exchange and setting, and tool exchange operation is simplified and highly reliable. The tools are also fed in the quickest routes, which allows prompt replacement of tools.



ATC Side Repair Window (80 ATC)

You can easily access the ATC through the side repair window if inspection or cleaning of the ATC is necessary.



Automated Tool Attachment/ Detachment Device (Std.)

The automated tool attachment/detachment device uses an air cylinder for easy tool attachment/detachment.

ATC & Magazine Specifications

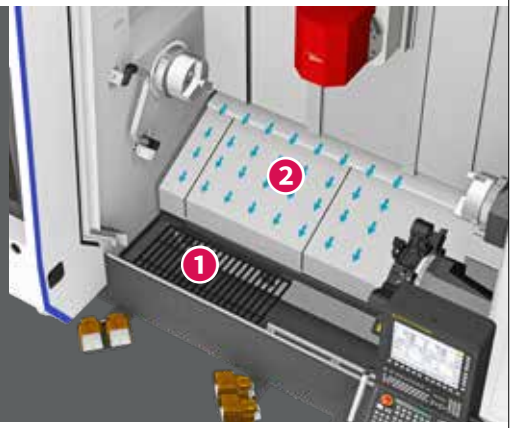
No. of Tools	Max. Tool Length	Max. Tool Dia. (W.T/W.O)	Max. Tool Weight
40 [**80**] EA	**450** mm (17.7″)	**Ø90**/**Ø130** (Ø3.5″/Ø5.1″)	**12** kg (46.3 lb)

❶ Internal Maintenance Foothold (Std.)

There is a foothold within the machine for the worker to be able to maintain a stable posture when accessing the equipment.

❷ Bed Lower Flushing (Std.)

The entire upper surface of the slide cover features a flushing structure, which allows the slide cover to be maintained in a clean state at all times (patented).



XM SERIES

07 FANUC

The Compatible All-round Control

FANUC 31i-B5 Plus

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.

15″ Touch Screen Monitor Applied

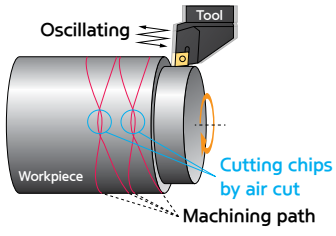
- Control axis : 9 axis (X1, Y1, Z1, B1, X2, Z2, A, C1, C2)
- Simultaneously controlled axis : 5 axis
- Part program storage size : 4 Mbyte (1,024m)
- No. of registerable programs : 1,000 EA
- Tool offset pairs : 400 pairs
- Look-ahead block : 1,000 block
- Conversational auto program : Smart Guide i

The XM Series has a 15″ large monitor for enhanced visibility. In particular, we can create more convenient use conditions by improving the operating environment such as program setup and simulation through a large screen.



Chip Breaking OPTION

- Machining Method : he tool cuts the workpiece moving in a zigzag pattern. (Oscillating) → Air cut section occurs → Long chips break
- Advantage : Increase tool life, Enhance surface finishing, Improve chip disposal
- Machine : All turning centers with FANUC controller (Option)



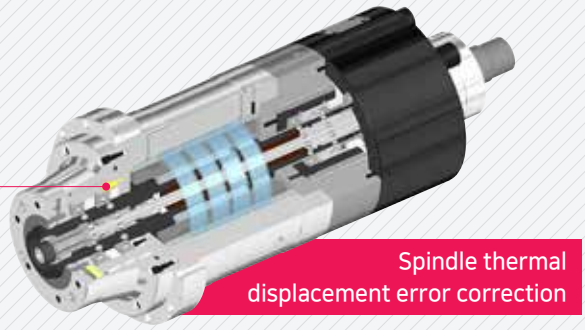


(Developed special screen page for servo learning oscilliation function / Even when this function is applied, the cycle time remains same.)

8Ch. Thermal displacement compensation OPTION



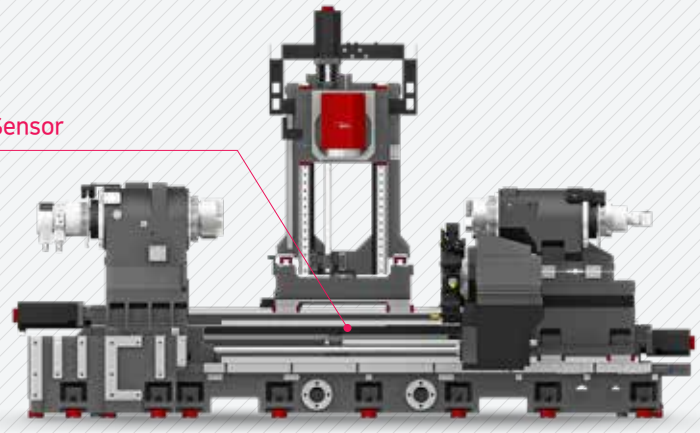
Thermal Sensor



Spindle thermal displacement error correction



Thermal Sensor



Control Software

Structure thermal displacement error correction

Machine tools generate thermal displacement due to heat during machining.
WIA machine tools detect thermal changes through thermal sensors installed on the main thermal sources of the machine.
In addition, a thermal displacement compensation device that predicts the amount of thermal displacement according to the amount of thermal change and provides a command to the motor with a compensated value to maintain consistent precision is provided as an option.

SMART CNC (FANUC Smart Plus)





1. Dialogue Program (Smart Guide-i)
This software offers the maximum user convenience through dialogue manipulation from setup to processing. This includes writing processing programs and simulation checks.

2. LAUNCHER
This software offers shortcuts for quick access to specialized features and frequently used features.

SPECIFICATIONS

Standard & Optional (XM2600 Series)

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

Spindle		2600	2600S	2600ST
1st Sp. Hollow Chuck 3 Jaw	10″	●	●	●
1st Sp. Solid Chuck 3 Jaw	10″	○	○	○
2st Sp. Hollow Chuck 3 Jaw	10″	-	○	○
2st Sp. Solid Chuck 3 Jaw	10″	-	●	●
Standard Soft Jaw (1set)		●	●	●
Chuck Clamp Foot Switch		●	●	●
2 Steps Hyd, Pressure Device		☆	☆	☆
Spindle Inside Stopper		☆	☆	☆
Chuck Open/Close Confirmation Device		●	●	●
Chuck Pressure Check Switch		●	●	●
C-Axis	1st (0.0001°)	●	●	●
	2nd (0.001°)	-	●	●
Feed System				
Ball Screw Nut Cooling	X1, Y, Z1	●	●	●
	A	-	☆	☆
	X2, Z2	-	-	☆
Mill Head				
Tool Shank Type	CAPTO C6	●	●	●
ATC & Magazine				
ATC Extension	40 Tool	●	●	●
	80 Tool	○	○	○
Lower Turret				
Tool Holder	12EA	-	-	●
Mill Turret	BMT	-	-	○
Straight Milling Head	Adapter Type, 1ea	-	-	○
Angular Milling Head	Adapter Type, 1ea	-	-	○
Mill Holder Attachment	BMT45	-	-	☆
Boring Sleeve		-	-	○
Drill Socket		-	-	○
Angle Head		-	-	☆
Tail Stock & Steady Rest				
Programable NC Servo Tail Stock (MT#5)		●	-	-
Standard Live Center		●	-	-
Steady Rest	SLU-3.1	○	○	○
	SLU-3.2	○	○	○
	SLU-4	○	○	-
	SLU-5	○	○	-
	SLU-5.1	○	○	-
Lower Tool Mount Steady Rest (SLU 3.2)		-	-	○
Coolant & Air Blow				
Standard Coolant (Mill Front)		●	●	●
Chuck Coolant (Upper Chuck)		○	○	○
Gun Coolant		○	○	○
Shower Coolant (Bed Flushing)		●	●	●
Through Spindle Coolant (Only for Special Chuck)		☆	☆	☆
Thru Coolant for Live Tool		-	-	☆
Chuck Air Blow (Upper Chuck)		○	○	○
2nd Spindle Air Blow		-	○	○
Turret Air Blow		-	-	☆
Air Gun		○	○	○
Through Spindle Air Blow (Only for Special Chuck)		☆	☆	☆
High-pressure Coolant	20/30/70 bar	○	○	○
Power Coolant System (For Automation)		☆	☆	☆
Coolant Chiller		☆	☆	☆
Chip Disposal				
Coolant Tank	620 ℓ (163.8 gal)	●	●	●
Chip Conveyor (Hinge/Scraper)	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	☆	☆	☆

Electric Device		2600	2600S	2600ST
Call Light & Buzzer	3Color : G Y R B	●	●	●
Electric Cabinet Light		○	○	○
Remote MPG		●	●	●
Electric Circuit Breaker		○	○	○
AVR (Auto Voltage Regulator)		☆	☆	☆
Transformer	80kVA	○	○	○
Auto Power Off		○	○	○
Measurement				
Auto Q-Setter	Lower Turret	-	-	○
Work Close Confirmation	TACO	○	○	○
Device (Only for Special Chuck)	SMC	○	○	○
Tool Length Measuring Device	Touch	○	○	○
(Mill Head)	Contactless-NC4	○	○	○
Automatic Workpiece Measuring Device	RMP600	○	○	○
HWTM (Tool Monitoring System)		○	○	○
Linear Scale	X1/Y1/Z1 Axis	○	○	○
	X2/Z2 Axis	-	-	○
Coolant Level Sensor (Only for Chip Conveyor)		☆	☆	☆
Environment				
Air Conditioner		○	○	○
Oil Mist Collector		☆	☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○	○
MQL (Minimal Quantity Lubrication)		☆	☆	☆
Fixture & Automation				
Auto Door		○	○	○
Auto Shutter (Only for Automatic System)		☆	☆	☆
Sub Operation Pannel		☆	☆	☆
Extra M-Code 4ea		○	○	○
Automation Interface		☆	☆	☆
Hyd. Device				
Standard Hyd. Unit : 4.5Mpa/45 ℓ (11.9 gal)		●	●	●
S/W				
WIA Smart Software		●	●	●
Thermal Compensation		●	●	●
DNC software (HW-eDNC)		○	○	○
Safety Device				
Back Spin Torque Limiter (BST)		●	●	●
Total Splash Guard		●	●	●
Chuck Hydraulic Pressure Maintenance Interlock		☆	☆	☆
ETC				
Tool Box		●	●	●
Customized Color	Need Munsel No.	☆	☆	☆
CAD & CAM Software		☆	☆	☆
Thermal displacement compensation		●	●	●

※ ST Series : Lower Tool Mount Steady Rest

Specifications are subject to change without notice for improvement.

SPECIFICATIONS

Standard & Optional (XM3100 Series)

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

Spindle		3100	3100S	3100ST
1st Sp. Hollow Chuck 3 Jaw	12″	●	●	●
1st Sp. Solid Chuck 3 Jaw	12″	○	○	○
2st Sp. Hollow Chuck 3 Jaw	10″	-	○	○
2st Sp. Solid Chuck 3 Jaw	10″	-	●	●
Standard Soft Jaw (1set)		●	●	●
Chuck Clamp Foot Switch		●	●	●
2 Steps Hyd, Pressure Device		☆	☆	☆
Spindle Inside Stopper		☆	☆	☆
Chuck Open/Close Confirmation Device		●	●	●
Chuck Pressure Check Switch		●	●	●
C-Axis	1st (0.0001°)	●	●	●
	2nd (0.001°)	-	●	●
Feed System				
Ball Screw Nut Cooling	X1, Y, Z1	●	●	●
	A	-	☆	☆
	X2, Z2	-	-	☆
Mill Head				
Tool Shank Type	CAPTO C6	●	●	●
ATC & Magazine				
ATC Extension	40 Tool	●	●	●
	80 Tool	○	○	○
Lower Turret				
Tool Holder	12EA	-	-	●
Mill Turret	BMT	-	-	○
Straight Milling Head	Adapter Type, 1ea	-	-	○
Angular Milling Head	Adapter Type, 1ea	-	-	○
Mill Holder Attachment	BMT45	-	-	☆
Boring Sleeve		-	-	○
Drill Socket		-	-	○
Angle Head		-	-	☆
Tail Stock & Steady Rest				
Programable NC Servo Tail Stock (MT#5)		●	-	-
Standard Live Center		●	-	-
Steady Rest	SLU-3.1	○	○	○
	SLU-3.2	○	○	○
	SLU-4	○	○	-
	SLU-5	○	○	-
	SLU-5.1	○	○	-
Lower Tool Mount Steady Rest (SLU 3.2)		-	-	○
Coolant & Air Blow				
Standard Coolant (Mill Front)		●	●	●
Chuck Coolant (Upper Chuck)		○	○	○
Gun Coolant		○	○	○
Shower Coolant (Bed Flushing)		●	●	●
Through Spindle Coolant (Only for Special Chuck)		☆	☆	☆
Thru Coolant for Live Tool		-	-	☆
Chuck Air Blow (Upper Chuck)		○	○	○
2nd Spindle Air Blow		-	○	○
Turret Air Blow		-	-	☆
Air Gun		○	○	○
Through Spindle Air Blow (Only for Special Chuck)		☆	☆	☆
High-pressure Coolant	20/30/70 bar	○	○	○
Power Coolant System (For Automation)		☆	☆	☆
Coolant Chiller		☆	☆	☆
Chip Disposal				
Coolant Tank	620 ℓ (163.8 gal)	●	●	●
Chip Conveyor (Hinge/Scraper)	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	☆	☆	☆

Electric Device		3100	3100S	3100ST
Call Light & Buzzer	3Color : ■■■B	●	●	●
Electric Cabinet Light		○	○	○
Remote MPG		●	●	●
Electric Circuit Breaker		○	○	○
AVR (Auto Voltage Regulator)		☆	☆	☆
Transformer	80kVA	○	○	○
Auto Power Off		○	○	○
Measurement				
Auto Q-Setter	Lower Turret	-	-	○
Work Close Confirmation	TACO	○	○	○
Device (Only for Special Chuck)	SMC	○	○	○
Tool Length Measuring Device	Touch	○	○	○
(Mill Head)	Contactless-NC4	○	○	○
Automatic Workpiece Measuring Device	RMP600	○	○	○
HWTM (Tool Monitoring System)		○	○	○
Linear Scale	X1/Y1/Z1 Axis	○	○	○
	X2/Z2 Axis	-	-	○
Coolant Level Sensor (Only for Chip Conveyor)		☆	☆	☆
Environment				
Air Conditioner		○	○	○
Oil Mist Collector		☆	☆	☆
Oil Skimmer (Only for Chip Conveyor)		○	○	○
MQL (Minimal Quantity Lubrication)		☆	☆	☆
Fixture & Automation				
Auto Door		○	○	○
Auto Shutter (Only for Automatic System)		☆	☆	☆
Sub Operation Pannel		☆	☆	☆
Extra M-Code 4ea		○	○	○
Automation Interface		☆	☆	☆
Hyd. Device				
Standard Hyd. Unit : 4.5Mpa/45 ℓ (11.9 gal)		●	●	●
S/W				
WIA Smart Software		●	●	●
Thermal Compensation		●	●	●
DNC software (HW-eDNC)		○	○	○
Safety Device				
Back Spin Torque Limiter (BST)		●	●	●
Total Splash Guard		●	●	●
Chuck Hydraulic Pressure Maintenance Interlock		☆	☆	☆
ETC				
Tool Box		●	●	●
Customized Color	Need Munsel No.	☆	☆	☆
CAD & CAM Software		☆	☆	☆
Thermal displacement compensation		●	●	●

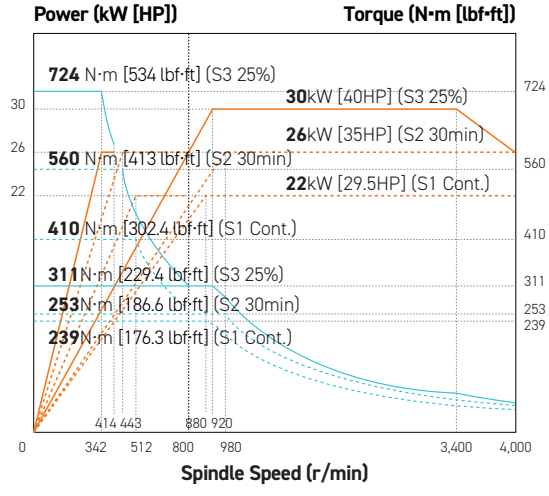
※ ST Series : Lower Tool Mount Steady Rest

Specifications are subject to change without notice for improvement.

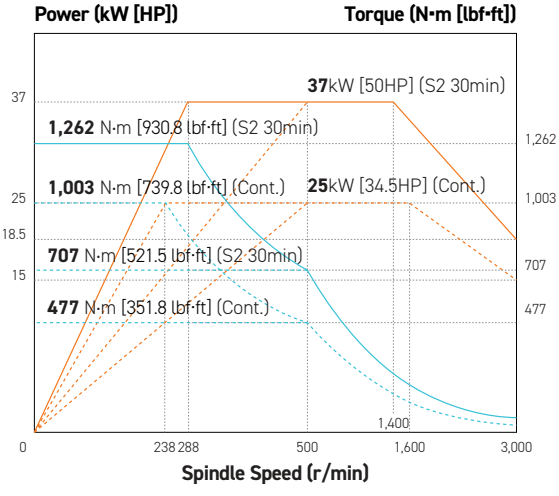
SPECIFICATIONS

Spindle Output/Torque Diagram

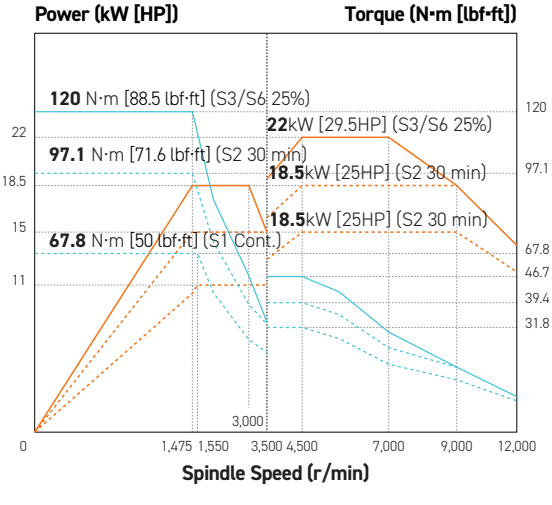
XM2600 (1st/2nd), XM3100 (2nd)
10 inch Spindle 4,000 rpm



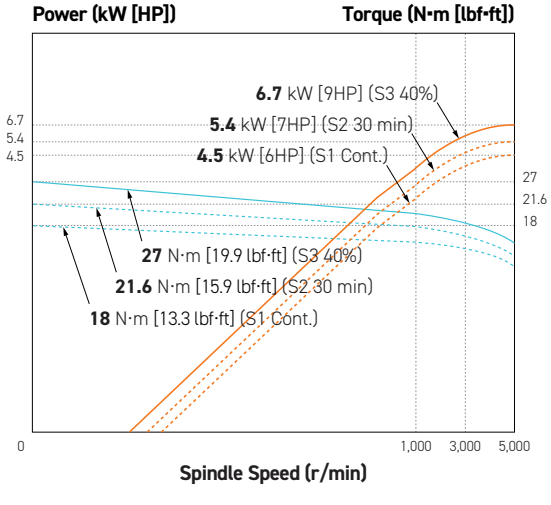
XM3100(1st)
12 inch Spindle 3,000 rpm



Mill Head 12,000 rpm

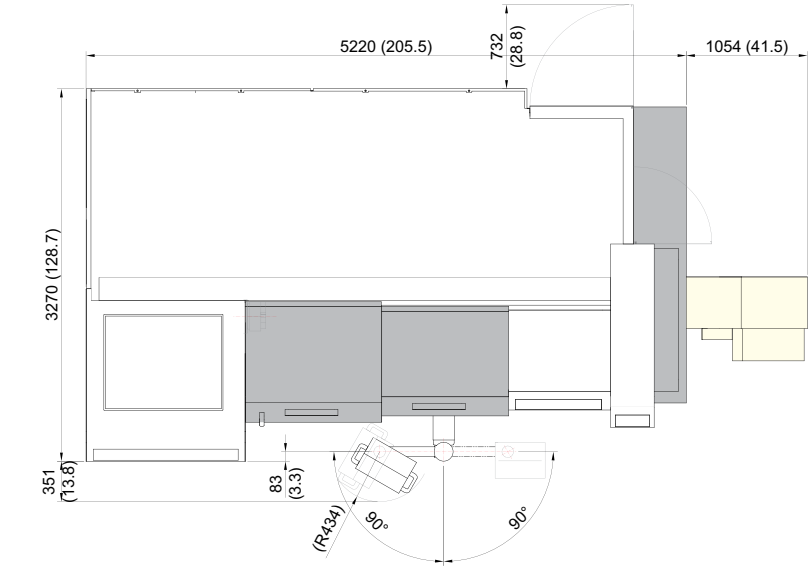


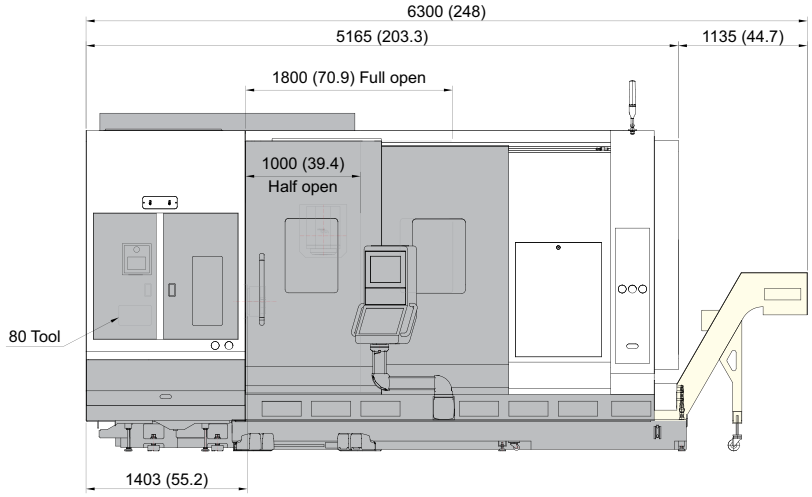
Mill Turret 5,000 rpm

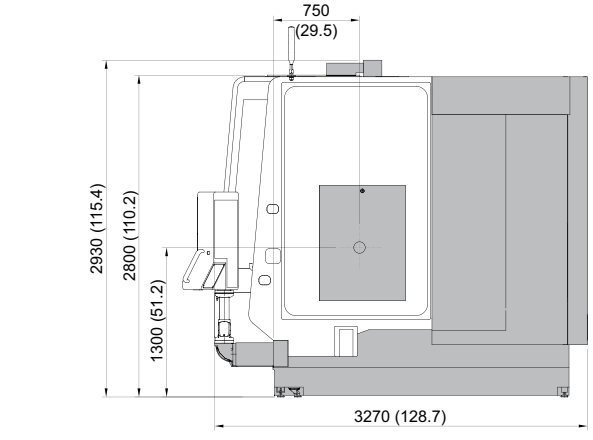


External Dimensions

unit : mm(in)



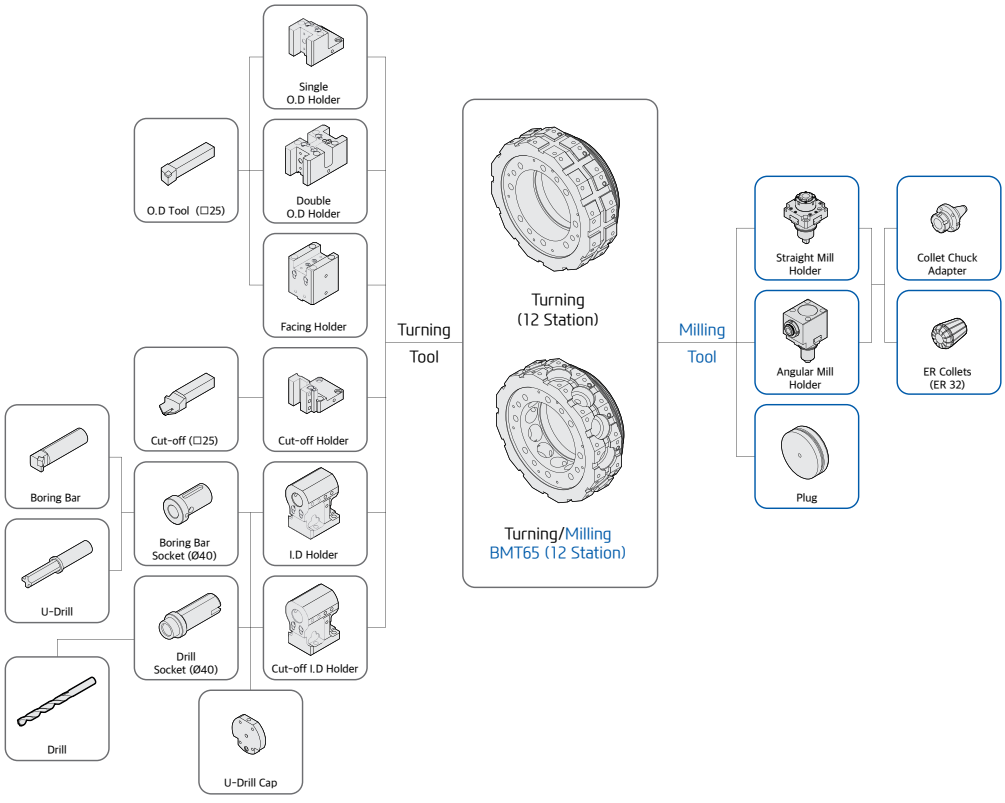




SPECIFICATIONS

Tooling System

unit : mm(in)



Tooling Parts Detail

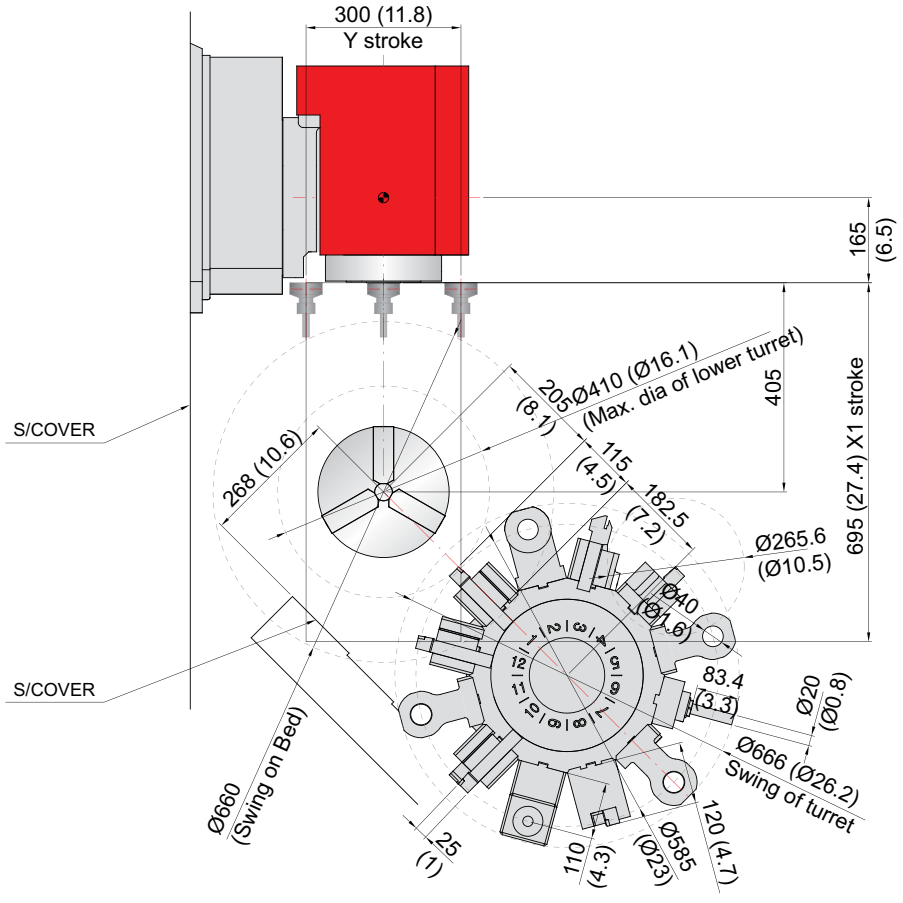
ITEM			XM2600ST / XM3100ST	
			Turning (Std.)	Milling (Opt.)
Turning Holder	O.D Holder	Right/Left	3	2
		Double	2	2
	Facing Holder		1	1
	Cutting Holder		1	1
Boring Holder	I.D Holder	Single	3	2
	Off-set I.D Holder		2	2
	U-Drill Cap		1	1
Driven Holder	Straight Mill Holder		-	1
	Angular Mill Holder		-	1
Socket	Boring	Ø10 (Ø3/8″)	1	1
		Ø12 (Ø1/2″)	1	1
		Ø16 (Ø5/8″)	1	1
		Ø20 (Ø3/4″)	1	1
		Ø25 (Ø1″)	1	1
		Ø32 (1 1/4″)	1	1
	Drill	MT 1×MT 2	1	1
		MT 2	1	1
	ER Collet		-	1 Set
	Adapter Set		-	1 Set

Specifications are subject to change without notice for improvement.

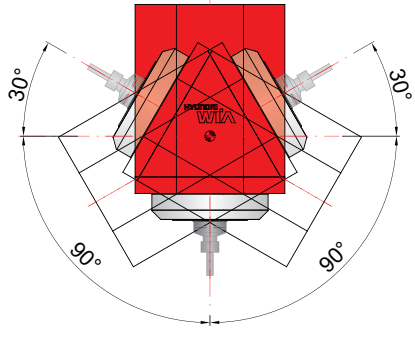
Interference

unit : mm(in)

Y-AXIS & TURRET



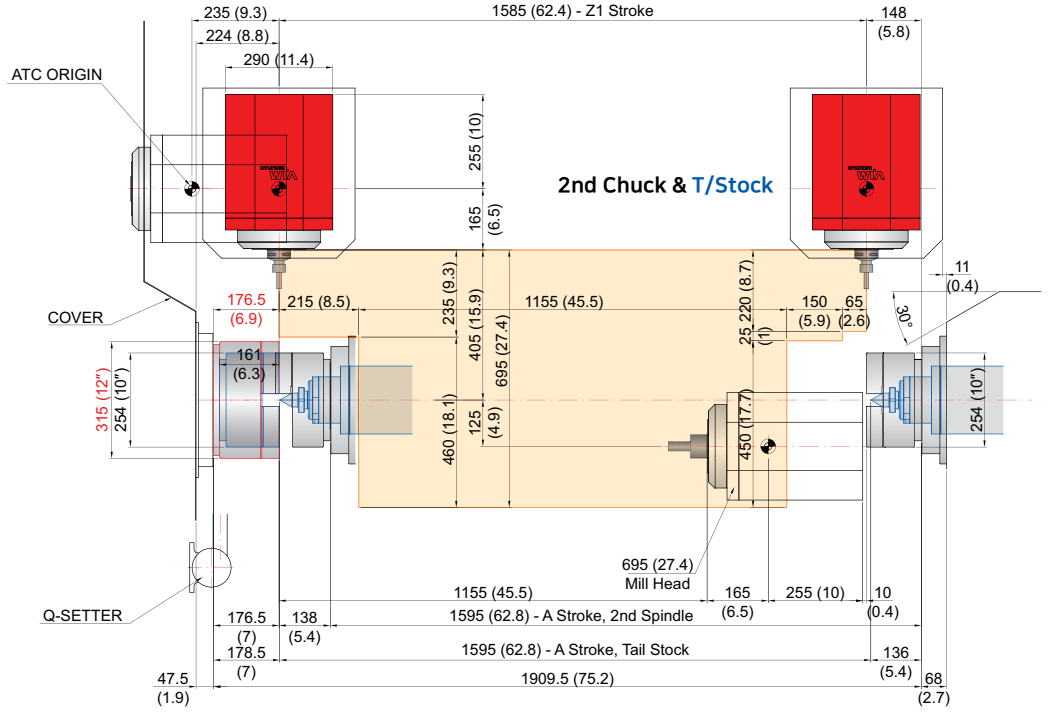
MILL HEAD B-AXIS

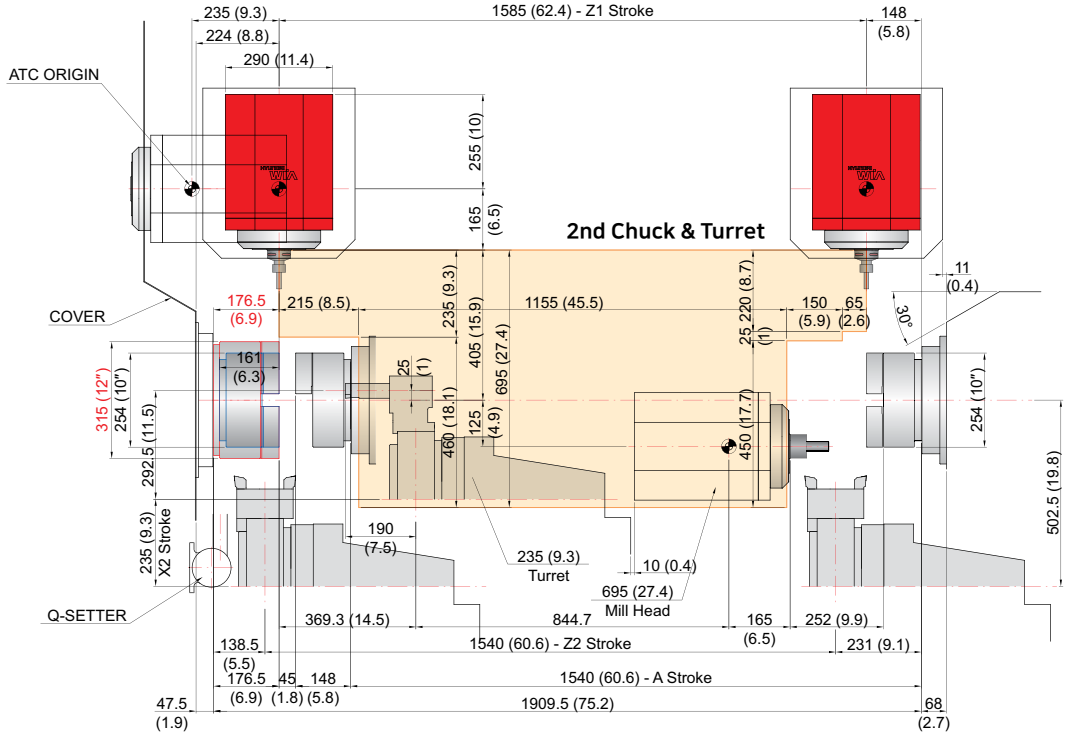


SPECIFICATIONS

Mill Head Tooling Travel Range (XM2600 Series | XM3100 Series)

unit : mm(in)

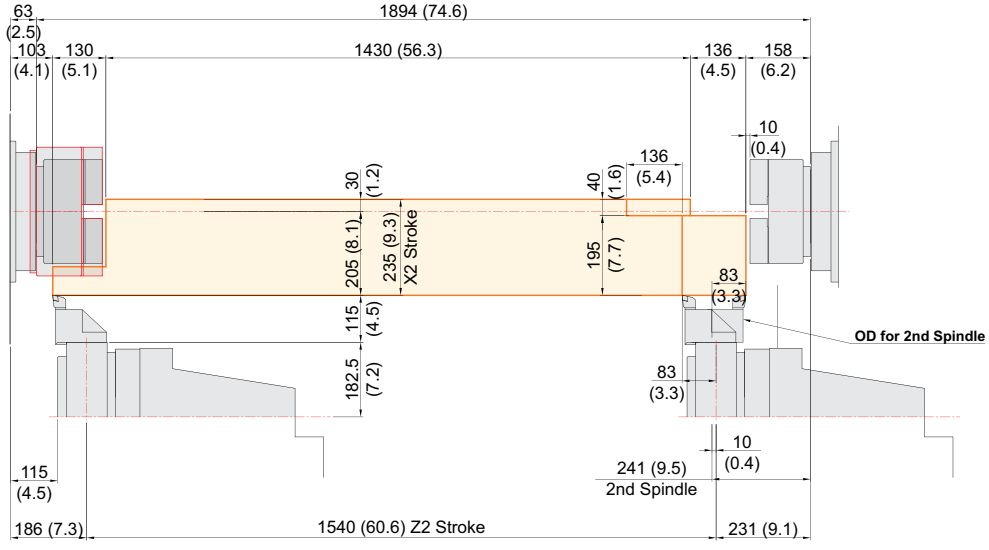




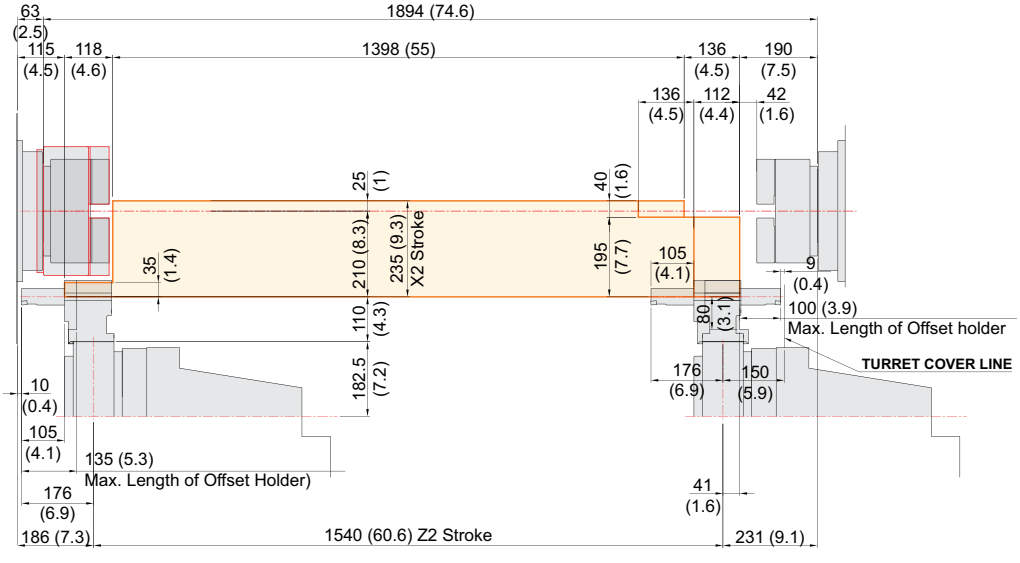
Turret Tooling Travel Range

unit : mm(in)

OD Holder



Boring Holder

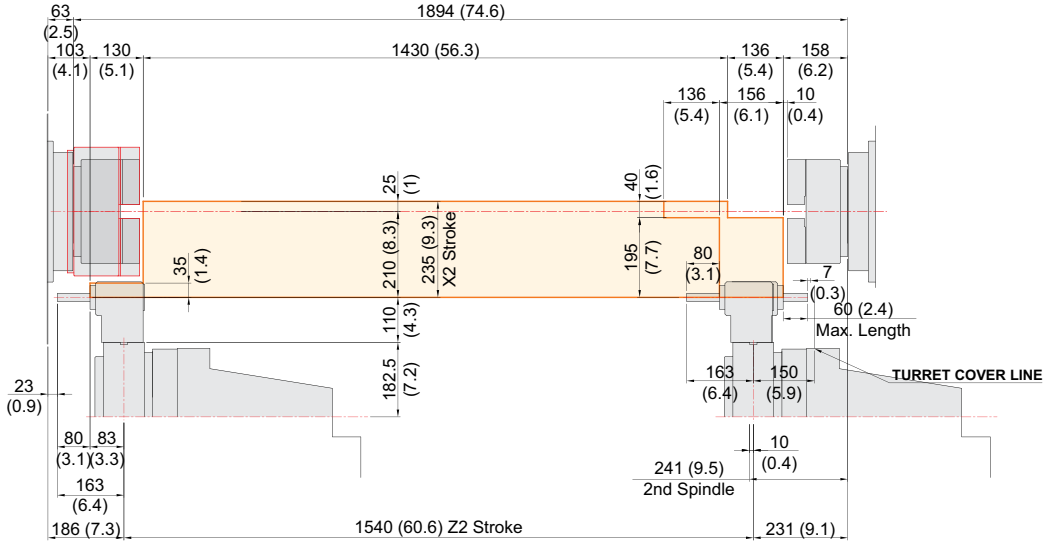


SPECIFICATIONS

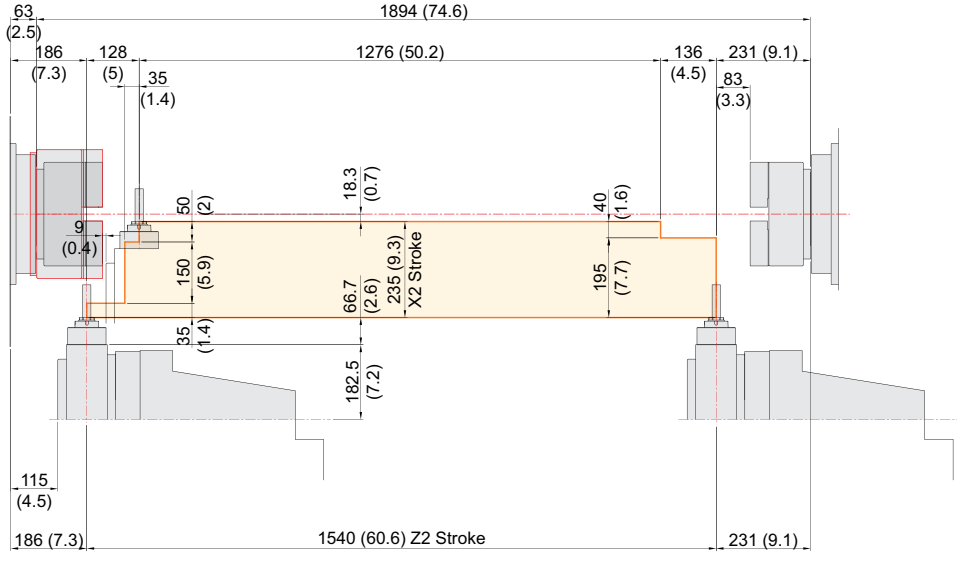
Turret T Tooling Travel Range

unit : mm(in)

Angular Milling Holder



Straight Milling Holder



SPECIFICATIONS

Specifications

[ ] : Option

ITEM				XM2600	XM2600S	XM2600ST
CAPACITY	Max. Turning Dia.	Mill Head	mm(in)	Ø660 (Ø26″)		
		Turret	mm(in)	-		Ø410 (Ø16.1″)
	Max. Turing Length		mm(in)	1,540 (60.6″)		
	Bar Capacity		mm(in)	Ø81 (Ø3.2″)	1st : Ø81 (Ø3.2″) *[2nd : Ø81 (Ø3.2″)]	
SPINDLE	Chuck Size		inch	10″	1st : 10″ 2nd : 10″	
	Spindle Speed		r/min	4,000	1st : 4,000 2nd : 4,000	
	Spindle Power (Max./Cont.)		kW(HP)	30/22 (40/29.5)	1st : 30/22 (40/29.5) 2nd : 30/22 (40/29.5)	
	Spindle Torque (Max./Cont.)		N·m(lbf·ft)	724/410 (534/302.4)	1st : 724/410 (534/302.4) 2nd : 724/410 (534/302.4)	
	Spindle Bore		mm(in)	Ø91 (Ø3.6″)	1st : Ø91 (Ø3.6″) *[2nd : Ø91 (Ø3.6″)]	
	Spindle Driving Methode		-	BUILT-IN MOTOR		
	Spindle Nose		-	A2-8	1st : A2-8 2nd : A2-8	
	C axis Indexing Angle		deg	0.0001°	1st : 0.0001° 2nd : 0.001°	
FEED	Travel	X1/Y/Z1	mm(in)	695/300{±150}/1,585 (27.4″/11.8″{±5.9″}/62.4″)		695/300{±150}/1,540 (27.4″/11.8″{±5.9″}/60.6″)
		A/X2/Z2	mm(in)	1,595/-/- (62.8″/-/-)		1,540/235/1,595 (60.2″/9.3″/62.8″)
	Rapid Traverse Rate	X1/Y/Z1	m/min (ipm)	48/36/48 (1,890/1,417/1,890)		
		A/X2/Z2	m/min (ipm)	30/-/- (1,181/-/-)		30/24/36 (1,181/945/1,417)
	Slide Type		-	LM GUIDE		
	Y Axis Structure		-	Cross Type		
MILL HEAD	Speed		r/min	12,000		
	Power (Max./Cont.)		kW(HP)	22/15 (29.5/20)		
	Torque (Max./Cont.)		N·m(lbf·ft)	120/67.8 (88.5/50)		
	Driven Type		-	BUILT-IN MOTOR		
	B Axis Angle		deg	Rotation : 240° (±120°)/Indexing : 0.0001°		
TURRET	No. of Tools		EA	-		12
	Tool Size (O.D/I.D)		-	-		□25/Ø40 (□1″/Ø1 1/2″)
	Indexing Time		sec/step	-		0.2
MILL TURRET (OPTION)	Milling Tool Speed (rpm)		r/min	-		[5,000]
	Max. Power		kW(HP)	-		[6.7 (9)]
	Max. Torque		N·m(lbf·ft)	-		[27 (19.9)]
	Type		-	-		[BMT65]
TAIL STOCK	Taper		-	MT #5	-	
	Type		-	NC Servo	-	
	Travel		mm(in)	1,595 (62.8″)	-	
ATC	No. of Tools		EA	40 [80]		
	Tool Shank Type		-	CAPTO C6		
	Max. Tool Dia. (W.T/W.O)		mm(in)	Ø90/Ø130 (Ø3.5″/Ø5.1″)		
	Max. Tool Length		mm(in)	450 (17.7″)		
	Max. Tool Weight		kg(lb)	12 (26.5)		
	Tool Selection Method		-	FIXED ADDRESS		
TANK CAPACITY	Coolant Tank		ℓ (gal)	620 (163.8)		
	Lubricating Tank		ℓ (gal)	Axis : 3 (0.8)/Mill Head : 1.8 (0.5)		
POWER SUPPLY	Electric Power Supply		kVA	78		
	Thickness of Power Cable		Sq	Over 70		
	Voltage		V/Hz	220/60 (200/50)		
MACHINE	Floor Space(L×W)		mm(in)	5,165×3,270 (203.3″×128.7″)		
	Height		mm(in)	2,930 (115.4″)		
	Weight		kg(lb)	17,000 (37,479)		18,000 (39,683)
CNC	Controller		-	FANUC 31i-B5 Plus		

Specifications are subject to change without notice for improvement.

*The 2nd spindle is equipped with a solid chuck (closed-center chuck) as standard. If you intend to perform bar machining using the 2nd spindle, please select the hollow chuck (open-center chuck) option.

SPECIFICATIONS

Specifications

[ ] : Option

ITEM				XM3100	XM3100S	XM3100ST
CAPACITY	Max. Turning Dia.	Mill Head	mm(in)	Ø660 (Ø26″)		
		Turret	mm(in)	-		Ø410 (Ø16.1″)
	Max. Turing Length		mm(in)	1,540 (60.6″)		
	Bar Capacity		mm(in)	Ø102 (Ø4″)	1st : Ø102 (Ø4″) *[2nd : Ø81 (Ø3.2″)]	
SPINDLE	Chuck Size		inch	12″	1st : 12″ 2nd : 10″	
	Spindle Speed		r/min	3,000	1st : 3,000 2nd : 4,000	
	Spindle Power (Max./Cont.)		kW(HP)	37/25 (50/33.5)	1st : 37/25 (50/33.5) 2nd : 30/22 (40/29.5)	
	Spindle Torque (Max./Cont.)		N·m(lbf·ft)	1,262/1,003 (930.8/739.8)	1st : 1,262/1,003 (930.8/739.8) 2nd : 724/410 (534/302.4)	
	Spindle Bore		mm(in)	Ø115 (Ø4.5″)	1st : Ø115 (Ø4.5″) *[2nd : Ø91 (Ø3.6″)]	
	Spindle Driving Methode		-	BUILT-IN MOTOR		
	Spindle Nose		-	A2-11	1st : A2-11 2nd : A2-8	
	C axis Indexing Angle		deg	0.0001°	1st : 0.0001° 2nd : 0.001°	
FEED	Travel	X1/Y/Z1	mm(in)	695/300{±150}/1,585 (27.4″/11.8″{±5.9″}/62.4″)		695/300{±150}/1,540 (27.4″/11.8″{±5.9″}/60.6″)
		A/X2/Z2	mm(in)	1,595/-/- (62.8″/-/-)		1,540/235/1,595 (60.2″/9.3″/62.8″)
	Rapid Traverse Rate	X1/Y/Z1	m/min (ipm)	48/36/48 (1,890/1,417/1,890)		
		A/X2/Z2	m/min (ipm)	30/-/- (1,575/-/-)		30/24/36 (1,575/945/1,417)
	Slide Type		-	LM GUIDE		
	Y Axis Structure		-	Cross Type		
MILL HEAD	Speed		r/min	12,000		
	Power (Max./Cont.)		kW(HP)	22/15 (29.5/20)		
	Torque (Max./Cont.)		N·m(lbf·ft)	120/67.8 (88.5/50)		
	Driven Type		-	BUILT-IN MOTOR		
	B Axis Angle		deg	Rotation : 240° (±120°)/Indexing : 0.0001°		
TURRET	No. of Tools		EA	-		12
	Tool Size (O.D/I.D)		-	-		□25/Ø40 (□1″/Ø1 1/2″)
	Indexing Time		sec/step	-		0.2
MILL TURRET (OPTION)	Milling Tool Speed (rpm)		r/min	-		[5,000]
	Max. Power		kW(HP)	-		[6.7 (9)]
	Max. Torque		N·m(lbf·ft)	-		[27 (19.9)]
	Type		-	-		[BMT65]
TAIL STOCK	Taper		-	MT #5	-	
	Type		-	NC Servo	-	
	Travel		mm(in)	1,595 (62.8″)	-	
ATC	No. of Tools		EA	40 [80]		
	Tool Shank Type		-	CAPTO C6		
	Max. Tool Dia. (W.T/W.O)		mm(in)	Ø90/Ø130 (Ø3.5″/Ø5.1″)		
	Max. Tool Length		mm(in)	450 (17.7″)		
	Max. Tool Weight		kg(lb)	12 (26.5)		
	Tool Selection Method		-	FIXED ADDRESS		
TANK CAPACITY	Coolant Tank		ℓ (gal)	620 (163.8)		
	Lubricating Tank		ℓ (gal)	Axis : 3 (0.8)/Mill Head : 1.8 (0.5)		
POWER SUPPLY	Electric Power Supply		kVA	78		
	Thickness of Power Cable		Sq	Over 70		
	Voltage		V/Hz	220/60 (200/50)		
MACHINE	Floor Space(L×W)		mm(in)	5,165×3,270 (203.3″×128.7″)		
	Height		mm(in)	2,930 (115.4″)		
	Weight		kg(lb)	17,000 (37,479)		18,000 (39,683)
CNC	Controller		-	FANUC 31i-B5 Plus		

Specifications are subject to change without notice for improvement.

*The 2nd spindle is equipped with a solid chuck (closed-center chuck) as standard. If you intend to perform bar machining using the 2nd spindle, please select the hollow chuck (open-center chuck) option.

CONTROLLER

FANUC 31i-B5 Plus

Controlled axis / Display	
Control axis	9 axis (X1, Y1, Z1, B1, X2, Z2, A, C1, C2)
Simultaneously controlled axis	Max. 5 axis
Least setting Unit	X, Z, Y, B axis : 0.001 mm (0.0001 inch)
	C, B axis : 1 deg [0.001] deg
Least input increment	X, Z, Y, B axis : 0.001 mm (0.0001 inch)
	C, B axis : 1 deg [0.001] deg
Inch / Metric conversion	G20 / G21
Machine lock	All axis
Stored stroke check 1	
Mirror image	
Follow-up	
Backlash compensation	+/- 0~9999 pulse (Rapid traverse / Cutting feed)
Position switch	
Pitch error compensation	
LCD/MDI	15″ color LCD
Operation	
DNC operation by the memory card	
Program restart	
Program check function	Dry run, Program check
Single block	
Feed function	
Manual jog feed	Rapid, Jog, handle
Manual handle	x1, x10, x100 pulses
Feedrate override	0~200% (10% Unit)
Jog feed	0~5,000 mm/min (197 ipm)
Rapid traverse override	F1, F25%, F50%, F100%
Override cancel	
Rapid traverse bell-shaped acceleration / deceleration	
Auto corner override	
Program input & Interpolation functions	
Interpolation Function	Positioning/Linear/Circular (G00/G01/G02/G03)
Exact stop mode / Exact stop	G61 / G09
Dwell	G04, 0~9999.9999sec
Helical interpolation	
Threading/synchronous feed	
Manual reference point return	
Reference point return	G28
Reference point return check	G27
2nd Reference point return	G30
Program stop/end	M00, M01/M02, M30
Optional block skip	1 ea
Max. programmable dimensions	+/- 9999.9999″ (+/- 8digit)
Program number / Sequence number	O4 / N8 digit
Absolute/incremental command	G90 / G91
Plane selection	G17, G18, G19
Work coordinate preset	G52~G59
Work coordinate system	G54.1 P1~P48 (48 pair)
Manual absolute	"On" fixed
Programmable data input	G10
Sub program call	10 Step
Custom macro	
Addition of custom macro	#100~#199, #500~#999
Work coordinate Command	G15, G16
Work coordinate Interpolation	G12.1, G13.1
Helical interpolation	G07.1
Circular interpolation	G02, G03
Canned cycle	G73, G74, G76, G80 ~ G89
Optional chamfering/corner R	
Skip function	G31
Automatic coordinate system setting	
Coordinate system rotation	G68, G69
Programmable mirror image	G50.1, G51.1
Bidirectional pitch error compensation	
AI contour control(AICC) II	1,000 Block
Conversational Program	Smart Guide-i

Sub / Spindle functions	
Miscellaneous function	M 4 digit
Spindle speed command	S 5 digits, binary output
Spindle speed override	0% ~ 150% (10% Unit)
Spindle orientation	
Rigid tapping	
Tool functions / Tool compensation	
Tool function	Max.T3/T4 digits
Cutter compensation C	G40~G42
Tool length compensation	G43, G44, G49
Tool length measurement	Z axis INPUT C
Tool offset pairs	400 pair
Tool life management	
Data input / Output & Editing functions	
Input/output interface	Memory card
Embeded Ethernet	100 Mbps
Part program storage length	4M (1,024m)
Registered programs	100 ea
Memory lock	
Back ground editing	
Extended part program editing	Copy, move, change of NC program
Setting, display, diagnosis	
Self-diagnosis function	
History display	Alarm & operator message
Run hour / Parts count display	
Actual cutting feedrate display	
Graphic display	
Spindle / Servo setting screen	
Multi-language display	Selection of 5 optional language
Screen Saver	
Auto Data Backup	

Option	
Additional work coordinate system	G54.1 P1~P300 (300조)
Single direction positioning	G60
Scaling	
Manual handle interupt	
Data server	1 GB
High speed ethernet	100 Mbps
Tool load monitoring function	HWTM (Mounted)

Figures in inch are converted from metric values.
The FANUC controller specifications are subject to change based on the policy of company CNC supplying.

WIA MACHINE TOOLS

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