

TAKISAWA

Multi-Tasking Machine

TM-Series

TM-2000Y2

TM-3000Y2

TM-4000Y2

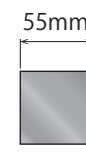
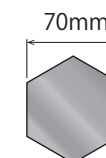
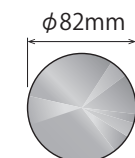
CNC Multitasking Lathe with
upper/lower Y-axes specialized
for bar machining.

TM-Series



Compatible with various bars.*

TM-4000Y2



Highly productive compact machine.

Bar capacity: φ 82 mm. Multi-Tasking CNC lathe with
upper/lower Y-axes optimum for bar workpieces.

In-machine workpiece discharge is automated, and automatic
discharge is enabled without considering floor space.

8"+8" TM-4000Y2 : Opposed Twin-Spindle
A2-8+A2-6 + Twin-Turret with Y-Axis
(Upper/Lower)

8"+6" TM-3000Y2 : Opposed Twin-Spindle
A2-6+A2-5 + Twin-Turret with Y-Axis
(Upper/Lower)

6"+6" TM-2000Y2 : Opposed Twin-Spindle
A2-5+A2-5 + Twin-Turret with Y-Axis
(Upper/Lower)



*) Please note the bar capacity follows types of chucks and cylinders.

The Definitive Structure

Axis Configuration

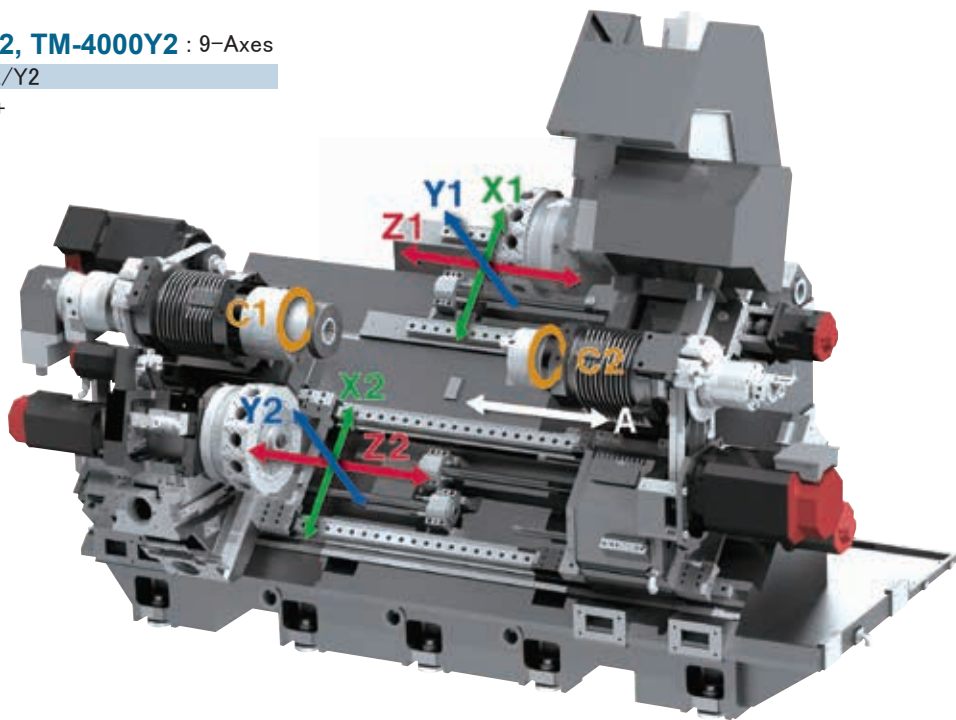
Configuration of up to 9 control axes can execute turning process and milling process continuously.

Y2

TM-2000Y2, TM-3000Y2, TM-4000Y2 : 9-Axes

X1/Z1/Y1/C1/C2/A/X2/Z2/Y2

Left Spindle + Upper Turret +
Right Spindle + Lower Turret



With a multi-tasking machine, all workpieces can be covered with a wide variety of machining variations.

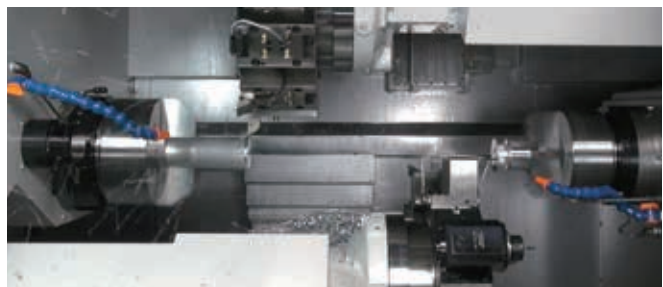
Complete machining of front and back with one chucking.

Highly efficient machining with simultaneous approach.

Highly efficient machining of bar with simultaneous approach.

Simultaneous upper and lower milling and drilling.

Long workpiece processing using the right spindle as a tailstock.



Capability • Performance

Highly Rigid Slant Bed Structure

The highly rigid 45° slant bed structure, box slide way and high performance roller guides are combined in this structure.

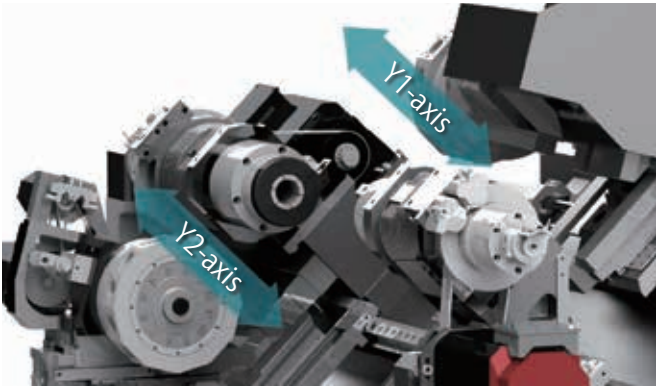
Items		TM-2000Y2 TM-3000Y2	TM-4000Y2
Guide Type	X1/2-axis	Box slide	Box slide
	Y1/2-axis	Roller	Box slide
	Z1/2-axis	Roller	Roller
	A-axis	Roller	Roller



Upper/Lower Y-Axis

The TM-2000Y2 has a 90mm (±45 mm) Y-axis stroke due to a synthetic Y-axis structure of 45 degrees up and down. In addition, TM-4000Y2 has a long stroke of 120 mm (+70 to -50 mm) for the Y1 axis and 80 mm (+30 to -50 mm) for the Y2 axis, both of which can handle all types of workpieces in a wide machining area.

Items			TM-2000Y2 TM-3000Y2	TM-4000Y2
Travel	Y1-axis	mm	90 (±45)	120 (+70 ~ -50)
	Y2-axis	mm	90 (±45)	80 (+30 ~ -50)



The machine is compact, but enables a wide range of machining.

Compact machine size with a large bar capacity. The maximum turning length is 640 mm for TM-2000Y2 and 800 mm for TM-4000Y2. The compact size and process integration of the upper/lower Y-axis increase the productivity per unit area. The large-opening front door remarkably improves setup workability. It also facilitates workpiece changing with a crane.

Items		TM-2000Y2	TM-3000Y2	TM-4000Y2
Max. Turning Length	mm	640	620	800
Door Opening Width	mm	800	800	950

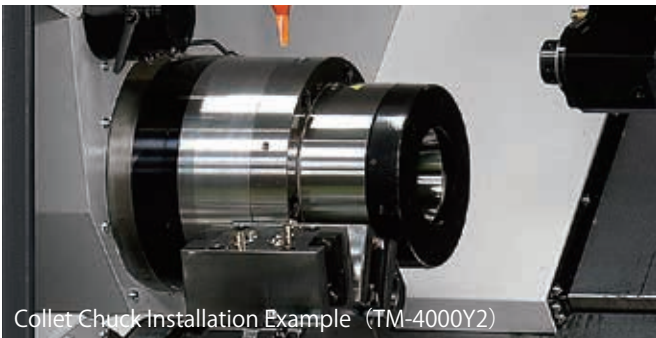


Left Spindle of Large Diameter Through Hole

Large spindle-through hole supports large diameter bar machining. Automatic machining can be realized by installing optional bar feeder.

Items			TM-2000Y2	TM-3000Y2	TM-4000Y2
Left	Through-Hole Diameter	mm	63	77	94
	Bar Capacity	mm	51	65	82
Right	Through-Hole Diameter	mm	53	53	77

*) Please note the bar capacity follows types of chucks and cylinders.



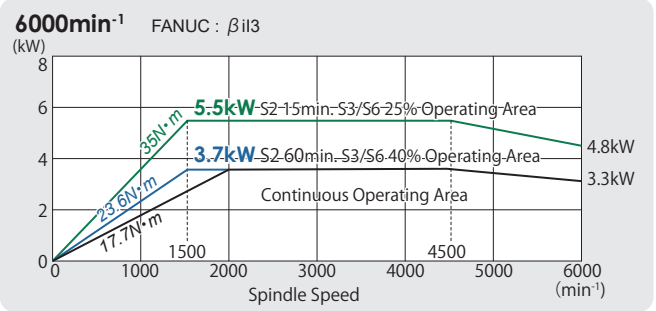
Capability • Performance

Stronger Milling Motor, 12-Station Milling Turret

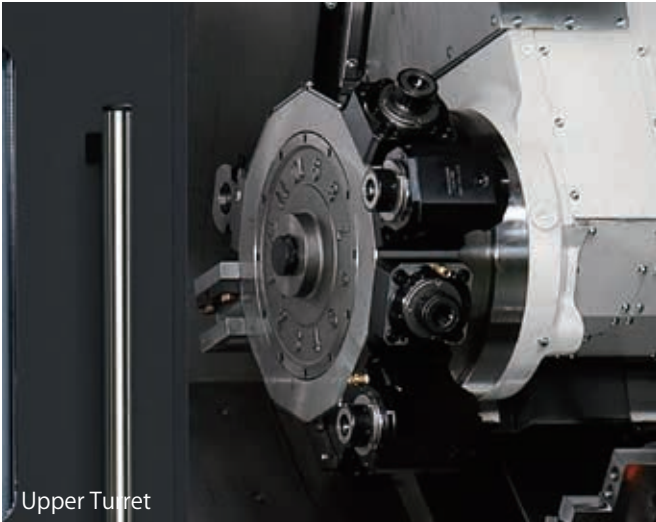
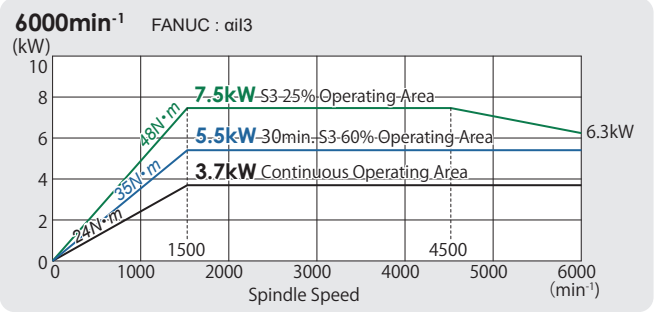
Powerful turret with stronger milling motor.
All holder type employing bolt tightening system. The tool mounting capacity is 12 tools, and up to 24 tools is possible on the upper and lower turrets. Up to 48 tools can be attached by using the double tool holder, so there is no problem with the number of tools.
TM-2000Y2/TM-3000Y2 uses a non-lift turret to further shorten the cycle time.

Items	TM-2000Y2 TM-3000Y2	TM-4000Y2
Number of Attachable Tools	12	12
Height of Square Tool Shank	mm 25	25
Diameter of Boring Bar Shank	mm 32	40
Diameter of Rotary Tool Shank	mm 16	20

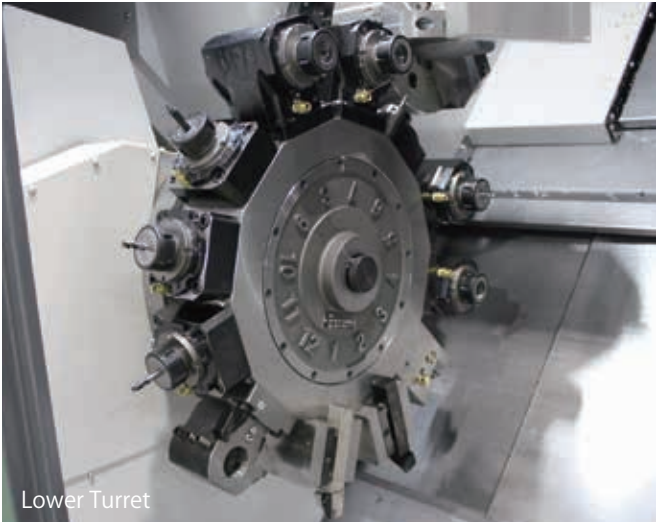
Rotary Tool
TM-2000Y2/TM-3000Y2



TM-4000Y2

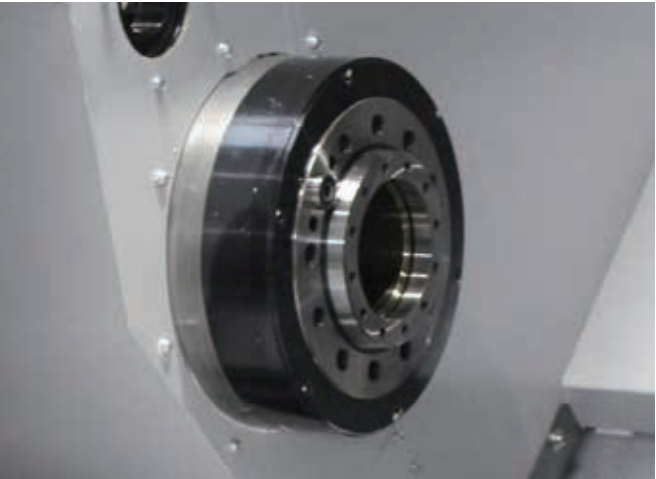


Upper Turret

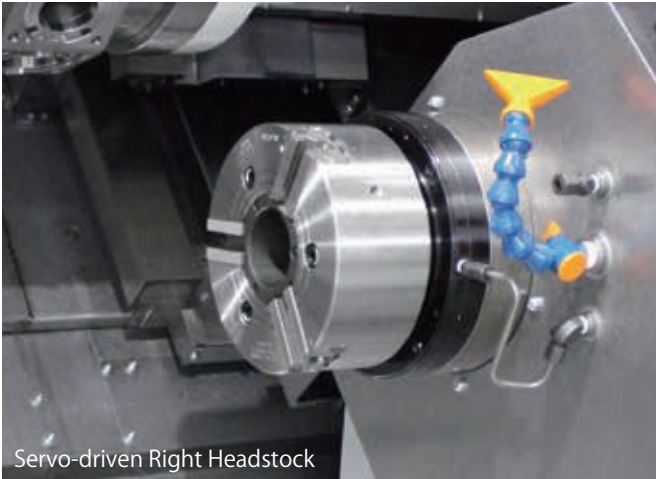


Lower Turret

High-power Spindle Motors!



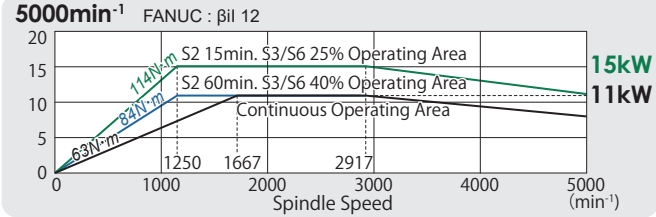
The left spindle and right spindle use belt drive type high-power spindle motors. The right headstock is servo-driven and can also be used as a tailstock by torque control. Teaching in arbitrary positions is possible. The servo motor is equipped with a brake as standard, so it is safe even in emergency.



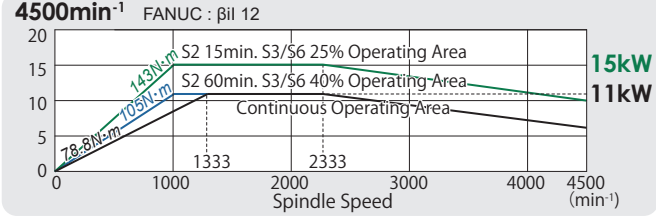
Servo-driven Right Headstock

Items		TM-2000Y2	TM-3000Y2	TM-4000Y2
Left	Motor	kW 15/11	15/11	18.5/15
	Spindle Speed	min ⁻¹ 5000	4500	4200
Right	Motor	kW 11/7.5	11/7.5	15/11
	Spindle Speed	min ⁻¹ 6000	6000	5000
	A-Axis Travel	mm 660	660	900

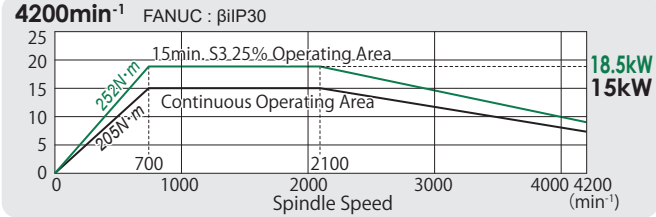
Left Spindle
TM-2000Y2



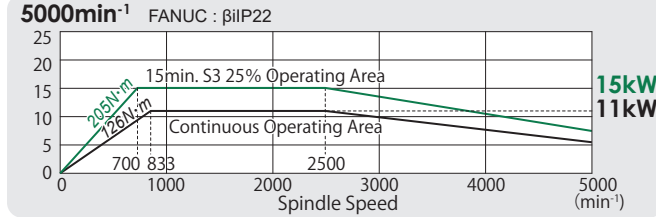
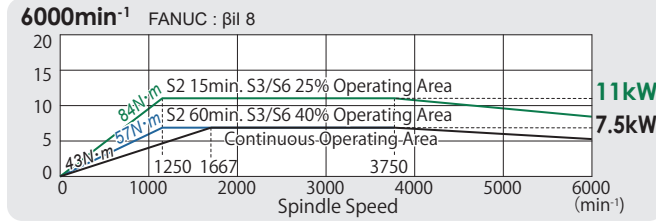
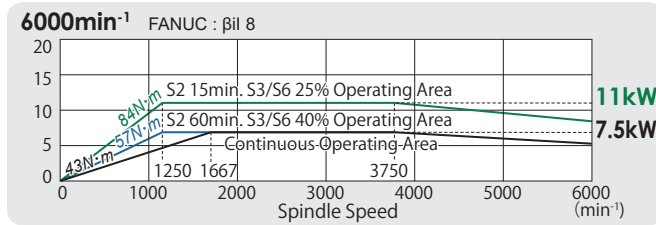
TM-3000Y2



TM-4000Y2

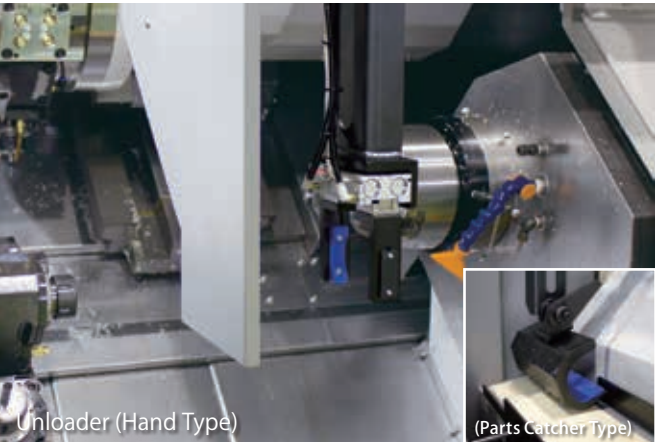


Right Spindle



Optional

Supporting Turnkey (Finished workpieces can be discharged quickly and exactly)



Supporting automation with in-machine unloader and discharge conveyor. Automatic workpiece transfer can be achieved without concerning installation area. The high speed & universal positioning servo system can be serving for the various work pieces. To accommodate all kinds of work, we prepared two kinds of hand specifications and parts catcher specifications.



Target Workpiece
TM-2000Y2/TM-3000Y2
Max. Diameter : $\phi 65\text{mm}$, Max. Length : 150mm,
Max. Weight : 3kg
TM-4000Y2 Max. Diameter : $\phi 80\text{mm}$, Max. Length : 200mm,
Max. Weight : 3kg

Bar Feeder Specification Example

TM provides excellent machining capability in bar machining. Complete parts are cut out of a long solid bar material.

Items	TM-2000Y2	TM-3000Y2	TM-4000Y2
Bar Capacity (Left Spindle) mm	$\phi 51$	$\phi 65$	$\phi 82$



BK105L + TM-4000Y2 ($\phi 8-105\text{mm}$, L1600mm)

Robot Specification Example

The robot system supports mass production of irregularly shaped workpieces that cannot be handled by the gantry loader system.

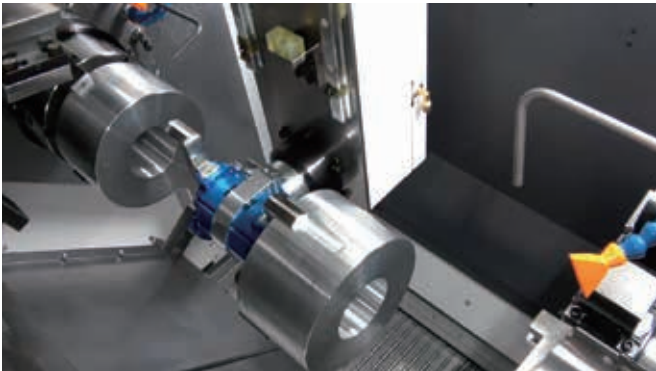


Gantry Loader Specification

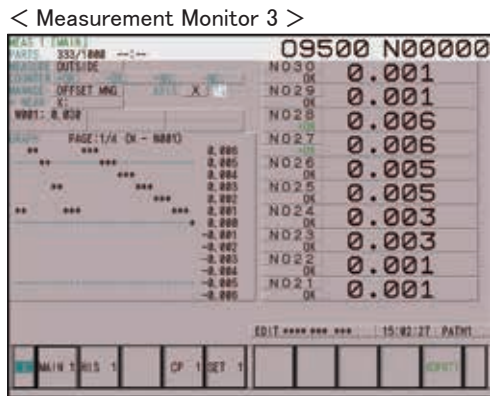
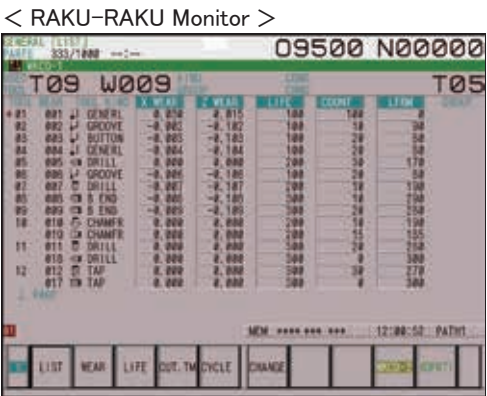
Combines custom technologies of process integration and automation system production to meet expectations for rationalization investment according to customers' requests.

Items			TM-4000Y2G
Target Workpiece	Outside Dia.	mm	35 ~ 200
	Length	mm	120
	Weight	kg	8 (×2)
Travel (Running Speed)	X-Axis<Longitudinal>	mm (m/min)	1000 (100)
	Y-Axis<Vertical>	mm (m/min)	210 (35)
	Z-Axis<Lateral>	mm (m/min)	3950 (110)
Hand	Swivel Range	deg (deg/s)	270 (184)
	Type		3-Jaws (NTS-311)
	Stroke	mm	20

Work Piece Feeder Specifications	
Number of Pallets	10
Loading Capacity (Per Pallet)	kg 70
Work Stacking Height	mm 400



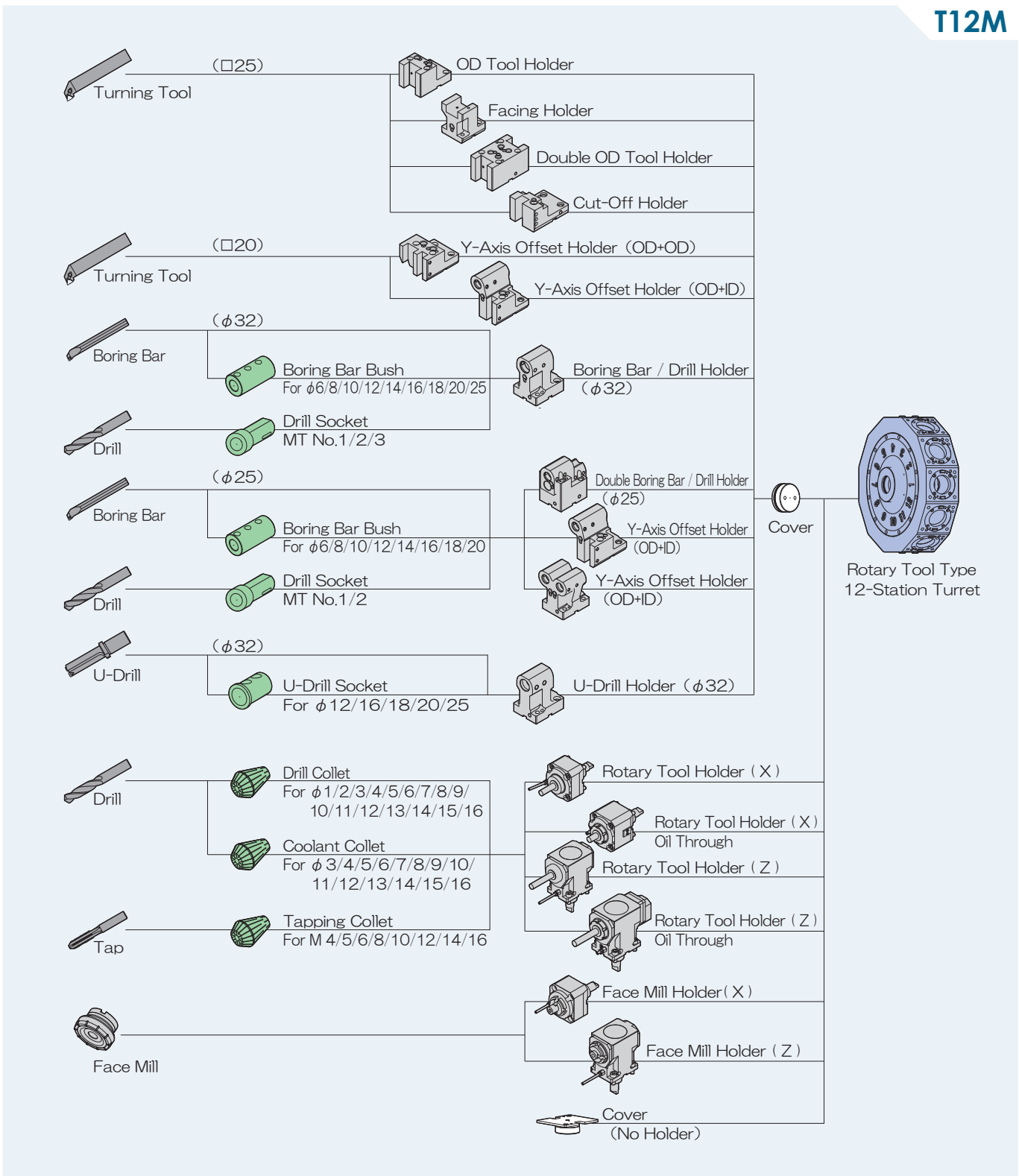
The loader-specific software (RAKU-RAKU loader) has been developed to control complicated loader operation with the minimum steps. Furthermore, the software for tool management, load management, compensation management, operation information collection, and measurement management (the RAKU-RAKU monitor, the measurement monitor) helps full automatic operation.



Optional function of the RAKU-RAKU Monitor 3

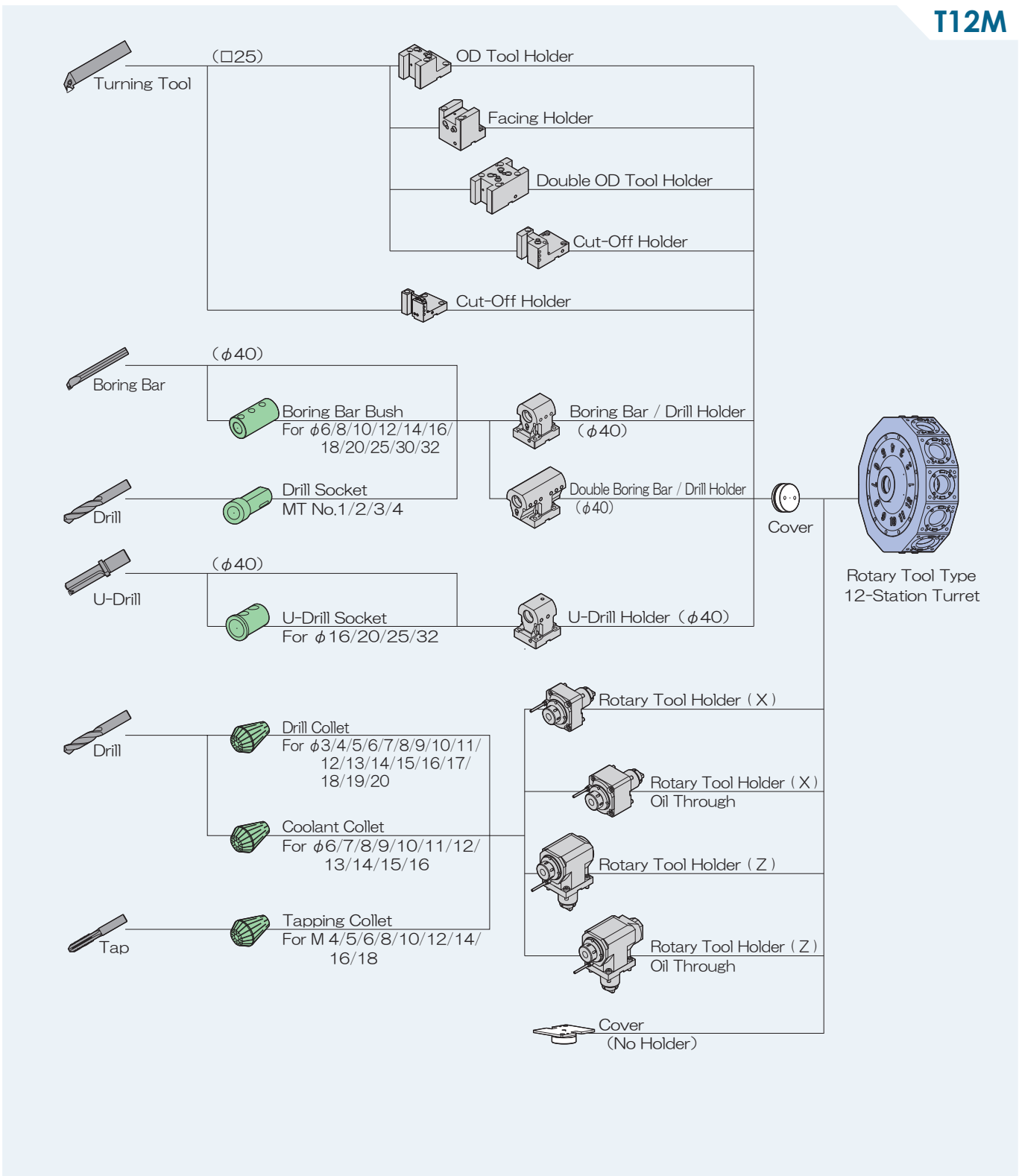
Tooling System

TM-2000Y2/TM-3000Y2



Tooling System

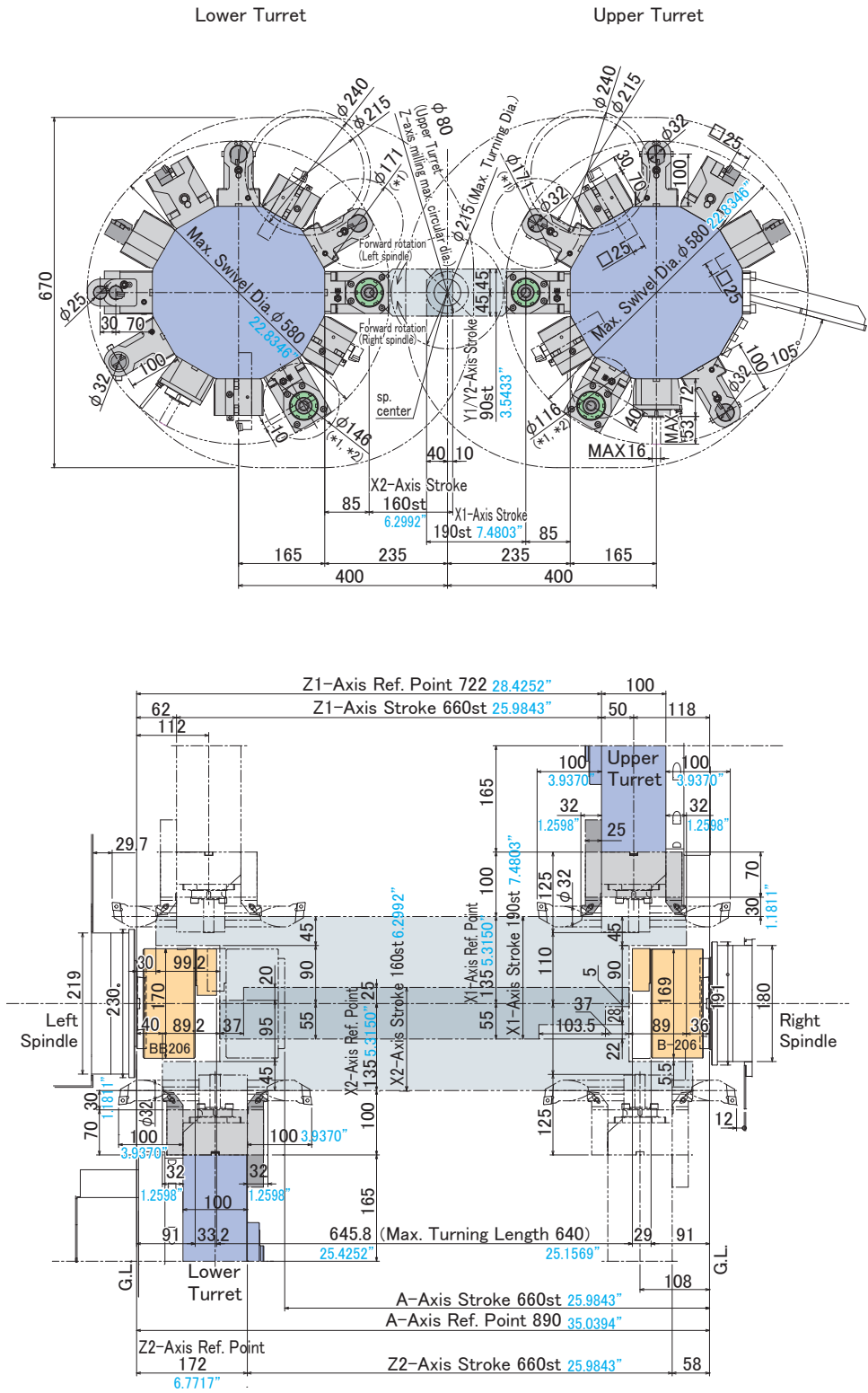
TM-4000Y2



Interference • Travel Range

Unit : mm *inch*
Ranges depends on chuck type.
*1) When the OD tool holder is adjacent, there is a limit to the turning diameter from the end face of the turret to 26 mm (25 mm + clearance 1 mm).
*2) This figure shows the interference diameter when there is no Y-axis movement. When moving the Y-axis, it is necessary to check the interference diameter.

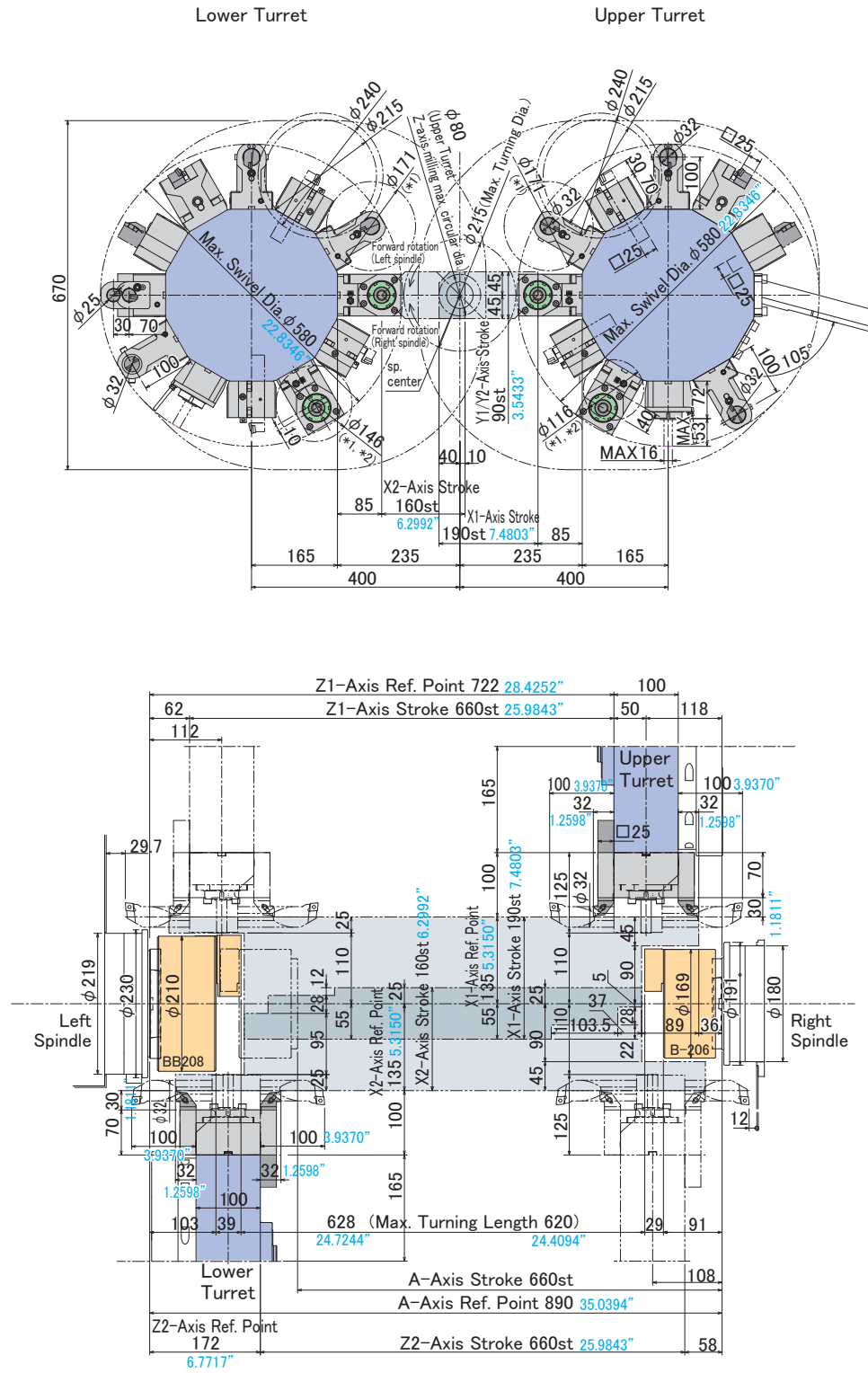
TM-2000Y2



Interference • Travel Range

Unit : mm *inch*
Ranges depends on chuck type.
*1) When the OD tool holder is adjacent, there is a limit to the turning diameter from the end face of the turret to 26 mm (25 mm + clearance 1 mm).
*2) This figure shows the interference diameter when there is no Y-axis movement. When moving the Y-axis, it is necessary to check the interference diameter.

TM-3000Y2



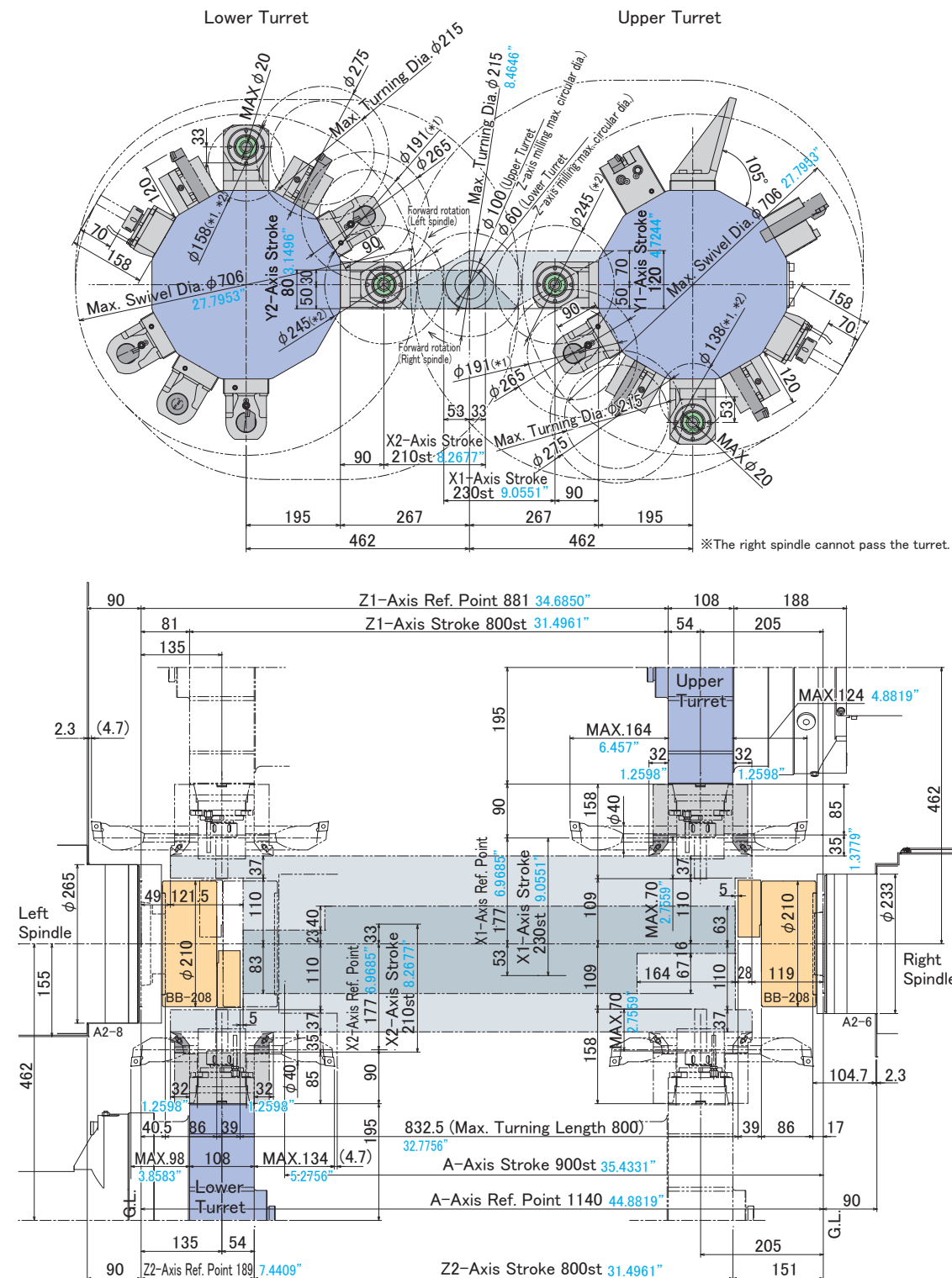
Interference • Travel Range

Unit : mm **inch**

Ranges depends on chuck type.

- *1) When the OD tool holder is adjacent, there is a limit to the turning diameter from the end face of the turret to 26 mm (25 mm + clearance 1 mm).
- *2) This figure shows the interference diameter when there is no Y-axis movement. When moving the Y-axis, it is necessary to check the interference diameter.

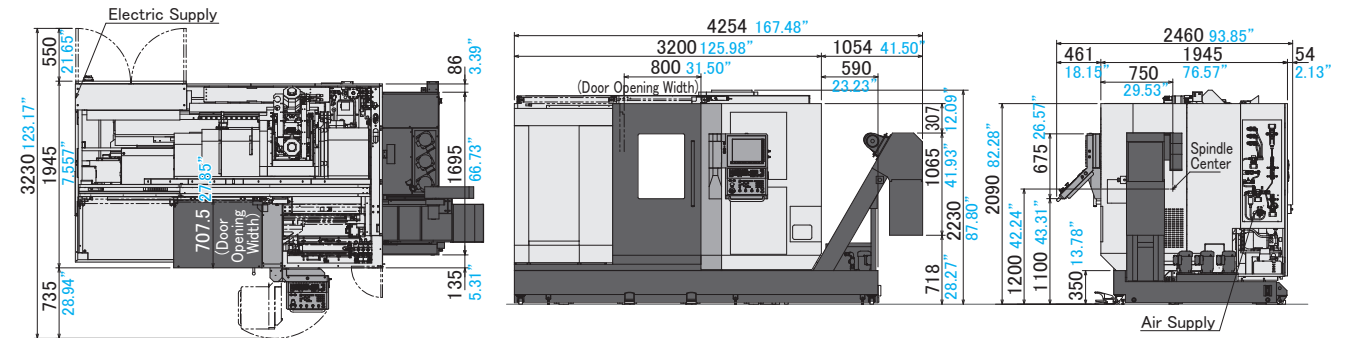
TM-4000Y2



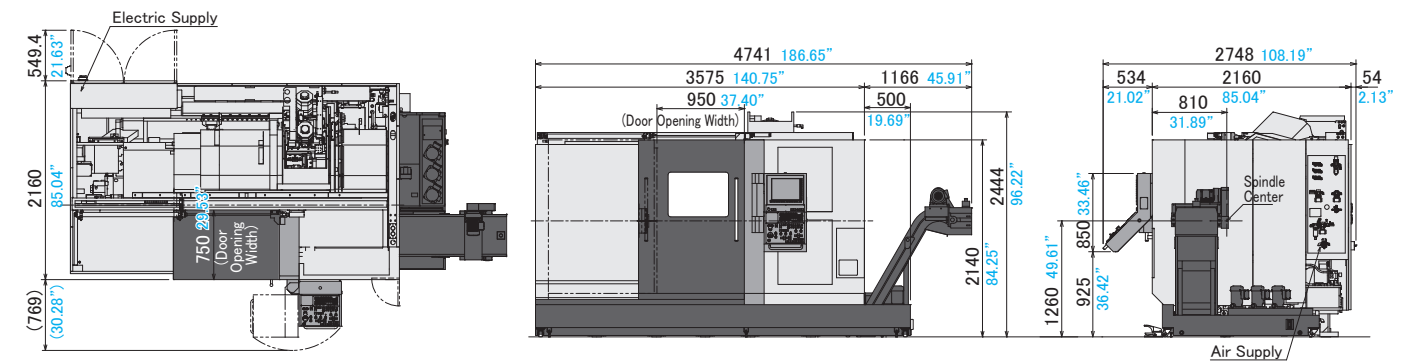
Machine Dimensions

Unit : mm **inch**

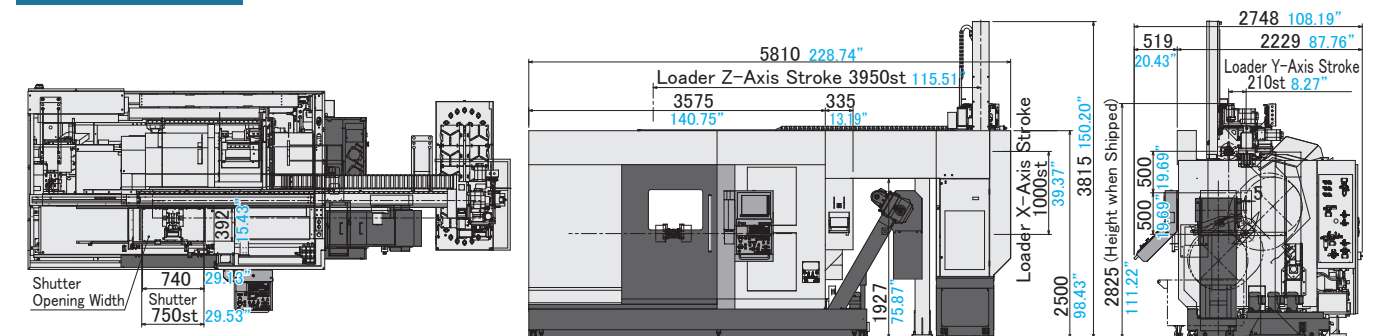
TM-2000Y2/TM-3000Y2



TM-4000Y2



TM-4000Y2G

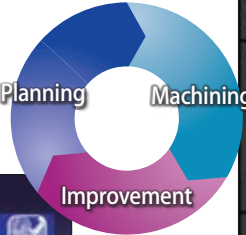


Consistent Support at Shop Floor



Comfortable and easy operation along work flow!!

Consistently supports operation by functions necessary for "Planning", "Machining", and "Improvement" processes on site!



Home Screen



Touch Type Operation Panel 15 inch (Standard) 19 inch (Option)

Supports operation by careless mistake prevention function.



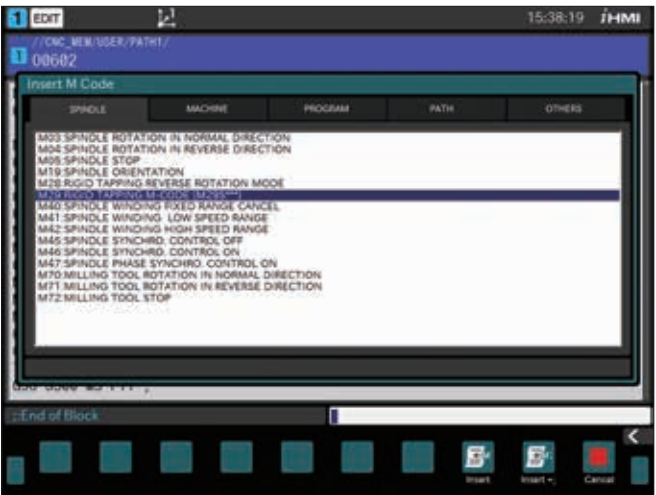
Handle Feed Direction Display

Supports operation by careless mistake prevention function.

Prevention of careless mistakes!
Coordinate system/path selection indicator equipped.



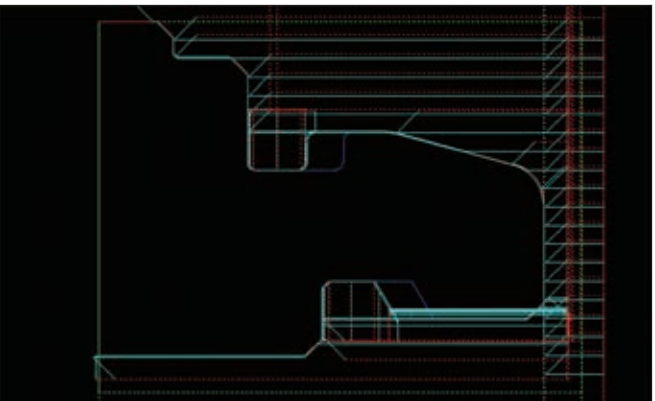
iHMI Machining Program Creation Support



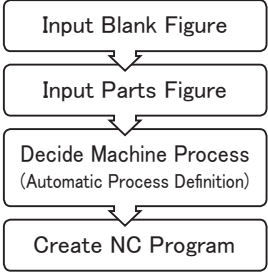
Programming support function is provided as standard.
Programming can be performed comfortably.

- Displaying Images on Program List
- Inserting M Codes
- Inserting Fixed Sentences
- Sentence Structure Check
- Tool Information on Sliding Display
- Setup for Machining (Stylizing MDI Command)

FANUC iCAP T (Panel iH Pro)



CAD data, in addition to familiar symbolic key input (2D/3D DXF and IGES formats are supported) is available. Supports milling including slant surface in addition to turning. Reduces programming time with automatic process definition. Adapted for one system or 2 system lathe.



FANUC Machine Collision Avoidance (PANEL iH Pro)



The machine collision avoidance function detects a collision beforehand to safely stop the machine by performing a simulation based on the 3D machine model and the preview position of the machine. You can define the blanks and jigs. You can use standardized shapes and also model files (such as STL and DXF) created in CAD as blanks and jigs.

TAKISAWA Display

It can switch to each page instantly from the vertical soft key.

TAKISAWA Maintenance Software



It can switch to various screens instantly from the vertical soft key.

Supporting Programming

TAKISAWA
Original
Software

TiwaP-1

【Optional】

Reducing a lead time:

Inclined drilling and milling combined machining can be programmed easily using the interactive function.



Takisawa original software **TiwaP-1** completely supports the **Input** **Confirmation** **Operation**

Input

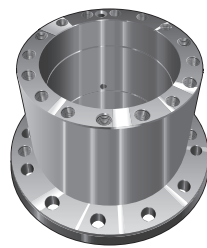
Easy Programming by Dialogue Conversation
Tiwap-1 is based on Process Registration type Programming involving step by step Process

Confirmation

Machining Simulation
Cutting Detail will be Simulated by "3D Animated Cartoon" or "Tool Trace display"

Operation

Automatic Operation
Interactive programs can run directly on the Tiwap-1 screen without converting into NC programs.



Utilizing G code knowledge, **TiwaP-1** creates a program of complicated processes.

Further, Tiwap-1 enables the interactive program to perform machining in cooperation with an NC program*1.

- ① NC program*1 can be called (set) in the interactive (Tiwap-1) program.
- ② NC program*2 converted into NC statements by interactive operation (Tiwap-1) can be called (set) in the NC program edited manually.

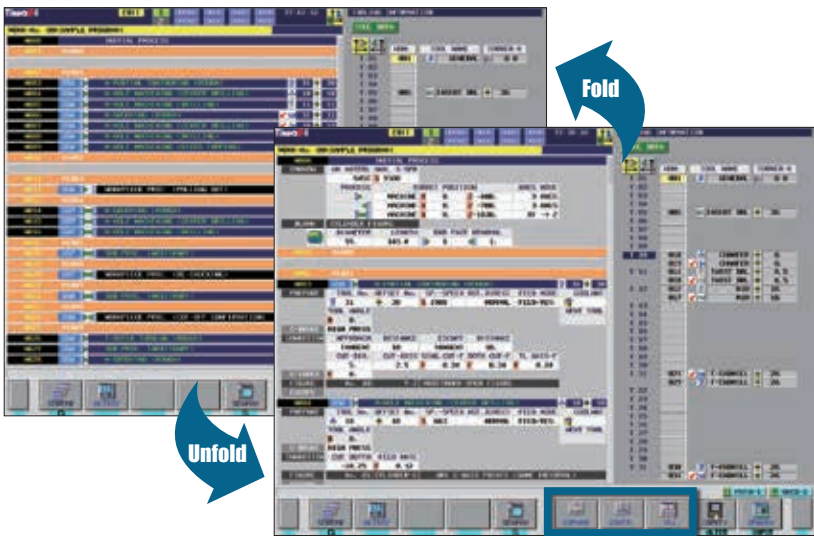
*1: File name to which NC programs edited manually or created by CAD/CAM have been registered.

▼ Interactive Program Edit Screen

▼ NC Program Edit Screen

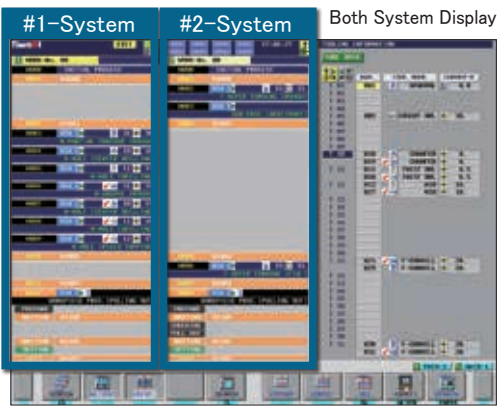
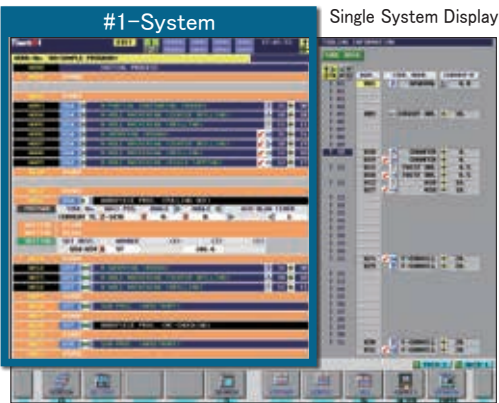


Easy to See



Takisawa's original "Process fold /unfold function" and lucid icons improve visibility. Operator-friendly and easy to see screen is realized.
The main screen is operator-friendly, because machining programs are displayed not only in "single system display" but also in "both system display".

- ◇ Single System Display = The program of the selected system is displayed.
 - ◇ Both System Display = The programs of the both systems are displayed.
- When the same synchronization numbers appear in both systems, they are displayed on the same line (indicating synchronization). Therefore, you can understand the flow of a whole program between the systems at one view.



Easy to Use



By "Reliable Guide Function" Process Tag will be made automatically
Process can be completed by just setting processing data to the "Tag" which automatically made through.

During preparing Program, "Reliable Guide Function" provides good support.

- "Reliable Guide Function"
The tag will be arranged in the optimum order automatically by interacting with the machine and selecting the required program.



It is easy for beginners to use interactive data inputting with guiding Figures & Icons.
Symbolic soft key on the exclusive window helps inputting complicated arbitrary shapes.

Machine Specifications

Items			TM-2000Y2		TM-3000Y2		TM-4000Y2	
Machine Composition	Upper Turret Y-Axis (Y1-Axis)		●		●		●	
	Lower Turret Y-Axis (Y2-Axis)		●		●		●	
	Right Spindle		●		●		●	
Capability・Capacity	Standard Turning Diameter mm <i>inch</i>		215	8.4646″	215	8.4646″	215	8.4646″
	Max. Turning Diameter mm <i>inch</i>		215	8.4646″	215	8.4646″	215	8.4646″
	Max. Turning Length mm <i>inch</i>		640	25.1569″	620	24.4094″	800	31.4961″
	Bar Capacity *1	Left Spindle mm <i>inch</i>	51	2.01″	65	1.65″	82	3.23″
		Right Spindle mm <i>inch</i>	42	1.65″	42	1.65″	65	1.65″
Travel	Upper Turret (X1/Y1/Z1) mm <i>inch</i>		190/90 (± 45) /660 7.4803″/3.5433″/25.9843″		190/90 (± 45) /660 7.4803″/3.5433″/25.9843″		230/120 (-50 ~ +70)/800 9.0551″/4.7244″/31.4961″	
	Lower Turret (X2/Y2/Z2) mm <i>inch</i>		160/90 (± 45) /660 6.2992″/3.5433″/25.9843″		160/90 (± 45) /660 6.2992″/3.5433″/25.9843″		210/80 (-50~+30)/800 8.2677″/3.1496″/31.4961″	
	Right Spindle (A) mm <i>inch</i>		660	25.9843″	660	25.9843″	900	35.4331″
Spindle (Left Spindle/ Right Spindle)	Spindle Speed min ⁻¹		5000/6000		4500/6000		4200/5000	
	Type of Spindle Nose		A2-5/A2-5		A2-6/A2-5		A2-8/A2-6	
	Through-Hole Diameter mm <i>inch</i>		63/53	2.48″/20.9″	77/53	3.03″/20.9″	94/77	3.7″/3.03″
	Inner Diameter of Bearing mm <i>inch</i>		100/90	3.94″/3.54″	110/90	4.33″/3.54″	140/120	5.51″/4.72″
Turret (Upper, Lower)	Type of Turret		Bolt Tightening Type		Bolt Tightening Type		Bolt Tightening Type	
	Number of Attachable Tools		12		12		12	
	Height of Square Tool Shank mm <i>inch</i>		25	1″	25	1″	25	1″
	Diameter of Boring Bar Shank mm <i>inch</i>		32	1.25″	32	1.25″	40	1.5″
Rotary Tool (Upper, Lower)	Number of Rotary Tools		12		12		12	
	Spindle Speed min ⁻¹		6000		6000		6000	
	Maximum Tool Shank Diameter mm <i>inch</i>		16	0.63″	16	0.63″	20	0.75″
	Tool Spindle Taper Hole		AR25		AR25		AR32	
Feedrate	Upper Turret (X1/Y1/Z1) m/min ipm		20/12/40 787.40″/472.44″/1574.80″		20/12/40 787.40″/472.44″/1574.80″		22/12/30 866.14″/472.44″/1181.10″	
	Lower Turret (X2/Y2/Z2) m/min ipm		20/12/40 787.40″/472.44″/1574.80″		20/12/40 787.40″/472.44″/1574.80″		20/12/30 787.40″/472.44″/1181.10″	
	Right Spindle (A) m/min ipm		40	1574.80″	40	1574.80″	30	1181.10″
Motors	Left Spindle (S3 25%/continuous) kW HP		15/11	20/14.7	15/11	20/14.7	18.5/15	24.7/20
	Right Spindle (S3 25%/continuous) kW HP		11/7.5	14.7/10	11/7.5	14.7/10	15/11	20/14.7
	Rotary Tool Motor (S3 25%/continuous) kW HP		5.5/3.7	7.3/4.9	5.5/3.7	7.3/4.9	7.5/3.7	10/4.9
	Feed Axis (X1/Y1/Z1) kW HP		2.5/2.5/3.0	3.3/3.3/4.0	2.5/2.5/3.0	3.3/3.3/4.0	2.5/2.5/2.5	3.3/3.3/3.3
	Feed Axis (X2/Y2/Z2) kW HP		2.5/1.2/3.0	3.3/1.6/4.0	2.5/1.2/3.0	3.3/1.6/4.0	2.5/1.2/2.5	3.3/1.6/3.3
	Feed Axis (A) kW HP		2.5	3.3	2.5	3.3	2.5	3.3
	Hydraulic Pump Motor kW HP		1.5	2.0	1.5	2.0	1.5	2.0
	Coolant Pump Motor kW HP		0.4 × 3	0.3 × 3	0.4 × 3	0.3 × 3	0.4 × 3	0.5 × 3
Required Power	Electric Power kVA		35		35		50	
Tank Capacity	Coolant Tank L gal		450	118.80	450	118.80	420	110.88
Machine Size	Machine Height mm <i>inch</i>		2230	87.80″	2230	87.80″	2444	96.22″
	Height form Floor to Spindle Centerline mm <i>inch</i>		1200	47.24″	1200	47.24″	1260	49.61″
	Depth form Front to Spindle Centerline mm <i>inch</i>		750	29.53″	750	29.53″	810	31.89″
	Required Floor Space *2 mm × mm <i>inch × inch</i>		4254 × 2460 167.48″ × 96.85″		4254 × 2460 167.48″ × 96.85″		4741 × 2748 186.65″ × 108.19″	
	Machine Weight kg lbs.		8300	18260	8300	18260	9370	20614

●:Standard —:None

Accessories

Items		TM-2000Y2 TM-3000Y2	TM-4000Y2
Y-Axis	Upper Turret	●	●
	Lower Turret	●	●
C-Axis Milling	Upper/Lower Turret	●	●
Chuck Open/Close Footswitch		●	●
Hollow Hydraulic Chuck *1		○	○
Chuck Plate		●	●
Hydraulic Chuck Cylinder *1	Left Spindle	●	●
	Right Spindle	●	●
Chuck Auto Open/Close M-Function		●	●
Spindle Air Purge		●	●
Chuck Airblow	Left Spindle	○	○
	Right Spindle	●	●
Spindle Above Coolant		●	●
Rotary Tool Type	Bolted	●	●
12-Station Turret	VDI	-	○
Turret Air Purge		-	●
Rotary Tool Holder	X-Axis Milling	○ AR25	○ AR32
	Z-Axis Milling	○ AR25	○ AR32
Collet		○	○
OD Tool Holder		○	○
Double OD Tool Holder	Upper/Lower Turret Each 2 Pieces	●	●
Boring Bar / Drill Holder	Upper/Lower Turret Each 4 Pieces	●	●
Boring Bar Bush		○	○
Cut-Off Holder		○	○
Facing Holder		○	○
Y-Axis Offset Holder	OD + OD □20	○	-
	ID + ID φ25	○	-
	OD + ID □20+φ25	○	-
Turret Cover	Upper/Lower Turret Each 6 Pieces	●	●
Work Pusher	Turret Installed	○	○
Tool Setter	Shared by Right and Left Spindles	○	○
In-machine Parts Catcher *4 + In-machine Conveyor	Right Spindle	○	○
In-machine Unloader *4 + In-machine Conveyor	Right Spindle	○	○
Remaining Parts Discharge Unit	Bucket Mounting on the Lower Turret	○	-
Chip Conveyor	CE, Side-Discharge	●	●
Chip Bucket		○	○
Auto Door		○	○
Powered Door		○	○
Pneumatic Device		●	●
Pneumatic Pressure Switch		●	●
Hydraulic Unit		●	●
Hydraulic Pressure Switch		●	●

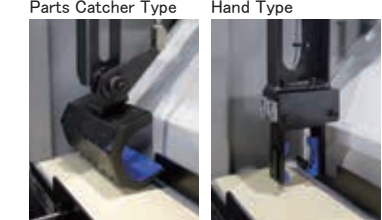
Items		TM-2000Y2 TM-3000Y2	TM-4000Y2
Automatic Lubrication Unit		●	●
Oil-Water Separator		●	●
Lubricant Collection Box *3		●	●
Energy-Saving Circuit for Hydraulic Unit		○	○
Coolant Pump	400W, 3 Units	●	●
High Pressure Coolant Pump Unit	1MPa 7MPa	○	○
Coolant Cooling Unit		○	○
Air Conditioner in Control Panel		○	○
Oil Skimmer		○	○
Mist Collector		○	○
Signal Tower Light	3-Color, LED	○	○
	1-Color, Rotary	○	○
Counter	1-Color, LED	○	○
	Display	○	○
Lighting Apparatus	LED	●	●
Leveling Plate Set	Turret Installed	●	●
Auto Power-Off System		●	●
Bar Feeder Interface		○	○
Robot Interface		○	○
Trans	Other than CE	○	○
	CE	●	●
RS-232C Interface		-	○
Instruction Manual		●	●
●:Standard ○:Optional —:None			

* For other optional accessories, please contact us.
A variety of optional accessories are available for respective models. The specifications of optional accessories vary depending on the model, thus requiring a separate discussion.

*1) Please note the bar capacity follows types of chucks and cylinders.
By default, the following hydraulic cylinder are provided.

	TM-2000Y2		TM-3000Y2		TM-4000Y2	
	Left Spindle	Right Spindle	Left Spindle	Right Spindle	Left Spindle	Right Spindle
Hydraulic Chuck Cylinder	KITAGAWA SS1452K	SMW SIN-S100 (Solid)	KITAGAWA SS1666K	SMW SIN-S100 (Solid)	KITAGAWA SS1881K	SMW SIN-S125 (Solid)
Inner Diameter of Draw Tube	52	-	66	-	81	-
Bar Capacity	51	-	65	-	80	-

*2) With Work Oil Pan, Chip Conveyor and Operation Panel.
*3) Lubricant mixing in water soluble coolant is separated, and only the coolant is returned to the coolant tank. The lubricant collected in the lubricant collection box must be drained periodically.
*4) In-machine unloader has parts catcher type and hand type.



TM-Series

NC Unit Specifications

FANUC : 0i-TF Plus, 31i-B

※ Please contact our sales persons for further information.

Composition

Specifications・Contents	TM-2000Y2 TM-3000Y2	TM-4000Y2
【NC Unit】		
NC Unit	0i-TF Plus	31i-B
LCD (Integrate Type) 15" PANEL iH	●	●
LCD (Separate Type) 15" PANEL iH Pro	—	○
LCD (Separate Type) 19" PANEL iH Pro	○	○
【Software】		
iHMI	●	●
iHMI machining cycle	●	●
iHMI interactive programming function for lathe *20	○	○
iHMI machine collision prevention function *20	○	○
Tiwap-1	○	○
RAKU-RAKU Monitor 3	○	○
Measurement Monitor 3 *1	◎	◎
【Safety Devices】		
Front Door Interlock	●	●
Front Door Locking Mechanism	○, CE	○, CE
Dual Check Safety	○, CE	○, CE
Control Panel Breaker with Tripper	●	●

Main Function List

Specifications・Contents	TM-2000Y2 TM-3000Y2	TM-4000Y2
NC Unit0i-TF Plus31i-B		
【Controlled Axes】		
Least Input Increment *2	●	●
Cs Contouring Control	●	●
Synchronous/Composite Control *3	●	●
Increment System C *4	○	○
Inch/Metric Conversion	○	○
Interlock	●	●
Machine Lock	○	○
Emergency Stop	●	●
Stored Stroke Check 1	●	●
Stored Stroke Check 2, 3 *5	○	○
Stored Limit Check Before Move	●	○
Chuck and Tail Stock Barrier *6	○	○
Mirror Image (Each Axis)	▲	▲
Chamfering ON/OFF	●	●
Unexpected Disturbance Torque Detection Function *7	●	○
Position Switch	◎	◎
【Operation】		
Automatic Operation (Memory)	●	●
MDI Operation	●	●
DNC Operation *8	○	○
DNC Operation with Memory Card *9	○	○
Program Number Search	●	●
Sequence Number Search	●	●
Sequence Number Comparison and Stop	○	○
Program Restart	◎	◎
Tool Retract and Recover	○	○
Wrong Operation Prevention	●	●
Retraction for Rigid Tapping	○	○

Specifications・Contents	TM-2000Y2 TM-3000Y2	TM-4000Y2
NC Unit0i-TF Plus31i-B		
Buffer Register	●	●
Dry Run	●	●
Single Block	●	●
Manual Continuous Feed (JOG)	●	●
Manual Reference Position Return	●	●
2nd, 3rd, 4th Manual Reference Position Return	◎	◎
Reference Position Setting without DOG	●	●
Manual Handle Feed, 1 Unit	●	●
Manual Handle Retrace	◎	◎
【Interpolation Functions】		
Nano Interpolation	●	●
Positioning (G00)	●	●
Exact Stop Mode (G61)	●	●
Tapping Mode (G63)	●	●
Cutting Mode (G64)	●	●
Exact Stop (G09)	●	●
Linear Interpolation (G01)	●	●
Circular Interpolation (G02/G03)	●	●
Dwell (G04)	●	●
Polar Coordinate Interpolation	●	●
Cylindrical Interpolation	●	●
Helical Interpolation	○	○
Thread Cutting, Synchronous Cutting	●	●
Multi Threading	●	●
Thread Cutting Retract	●	●
Continuous Threading	●	●
Variable Lead Thread Cutting	●	○
Circular Thread Cutting	○	○
Polygon Machining with Two Spindles	○	○
Skip (G31) *10	◎	◎
Torque Limit Skip	●	●
Reference Position Return (G28)	●	●
Reference Position return Check (G27)	●	●
2nd Reference Position Return (G30)	●	●
3rd, 4th Reference Position Return	◎	◎
Balanced Cutting	○	○
General Purpose Retract	●	◎
【Feed Functions】		
Rapid Traverse Override *21	●	●
Feed Per Minute	●	●
Feed Per Revolution	●	●
Constant Tangential Speed Control	●	●
Cutting Feedrate Clamp	●	●
Automatic Acceleration/Deceleration	●	●
Rapid Traverse Bell-Shaped Acceleration/Deceleration	●	●
Linear Acceleration/Deceleration After Cutting Feed Interpolation	●	●
Bell-shaped Acceleration/Seceleration After Cutting Feed Interpolation	○	○
Smart Overlap	●	○
Feedrate Override (21 Steps)	●	●
Jog Override (21 Steps)	●	●
Override Cancel	●	●
Manual per Revolution Feed	▲	▲
AI Contour Control I	○	○
AI Contour Control II	○	○
【Program Input】		
Program Code (EIA/ISO Auto Recognition)	●	●
Label Skip	●	●
Parity Check	●	●
Control In/Out	●	●
Optional Block Skip, 1 Piece	●	●
Optional Block Skip (2 to 9 Pieces)	◎	◎
Max. Programmable Dimension (±999999.999)	●	●
Program File Name 32 Characters	●	●
Program Number O4 Digits	●	●
Sequence Number N8 Digits	●	●
Absolute/Incremental Programming	●	●
Decimal Point Programming/ Pocket Calculator Type Decimal Point Programming	●	●
Diameter/Radius Programming (X-Axis)	●	●
Dynamic Switching of Diameter/Radius Specification	○	○
Plane Selection G17,G18,G19	●	●
Rotary Axis Designation	●	●

Specifications・Contents	TM-2000Y2 TM-3000Y2	TM-4000Y2
NC Unit0i-TF Plus31i-B		
Rotary Axis Rollover	●	●
Coordinate System Setting (G50) *11	●	●
Automatic Coordinate System Setting	●	●
Workpiece Coordinate System	●	●
Workpiece Coordinate System Preset	●	●
Addition of Workpiece Coordinate System 48-pairs	—	○
Direct Drawing Dmension Programming *12	○	○
G-Code System A	●	●
G-Code System B/C *11	○	○
Chamfering/Corner R *13	●	●
Programmable Data Input (G10)	●	●
Sub Program Call (10 Levels)	●	●
Custom Macro	●	●
Additional Custom Macro Common Variables	○	○
Canned Cycle	●	●
Multiple Repetitive Cycles	●	●
Multiple Repetitive Cycles II	●	●
Canned Cycle for Drilling	●	●
Circular Dnterpolation by R Programming	●	●
Automatic Corner Override	—	○
3D Coordinate System Conversion *14	○	○
Coordinate System Shift	●	●
Direct Input of Coordinate System Shift	●	●
Embedded Macro	◎	◎
Real Time Custom Macro	◎	◎
Program Coordinate System Changing Function	●	●
【Auxiliary/Spindle Speed Function】		
M Function (M3 Digits)	●	●
2nd Auxiliary Function (B Function)	◎	◎
Waiting Function	●	●
Waiting M Codes of High-speed Type	●	●
Multiple Command of Auxiliary Function (3 Pieces)	●	●
Spindle Speed Function (S Functions)	●	●
Constant Surface Speed Control	●	●
Spindle Override	●	●
Spindle Orientation	●	●
Spindle Synchronous Control	●	●
Rigid Tap (Spindle Center)	●	●
Rigid Tap (Rotary Tool)	●	●
Smart Rigid Tap	●	—
【Tool Functions / Tool Compensation】		
Tool Function	●	●
Tool Offset Pairs 64-pairs	●	●
Tool Offset Pairs 99-pairs	○	○
Tool Offset Pairs 200-pairs	—	○
Tool Offset Pairs 400-pairs	—	◎
Tool Offset Pairs 499-pairs	—	◎
Tool Offset Pairs 999-pairs	—	◎
Tool Offset Pairs 2000-pairs	—	◎
Tool Offset	●	●
Y-Axis Offset	●	●
Tool Radius・Tool Nose Radius Compensation	●	●
Tool Geometry/Wear Compensation	●	●
Tool Offset Value Counter Input	●	●
Direct Input of Tool Offset Value Measured	●	●
Direct Input of Tool Offset Value Measured B *15	○	○
Tool Life Management *16	○	○
Tool Offset Memory Switching Function	●	●
【Accuracy Offset Functions】		
Backlash Compensation	▲	▲
Backlash Compensation for Each Rapid Traverse and Cutting Feed	▲	▲
Smooth Backlash Compensation	▲	▲
Smart Backlash Compensation	●	—
【Editing】		
Part Program Storage Size 512Kbyte	—	●
Part Program Storage Size 1Mbyte	—	○
Part Program Storage Size 2Mbyte	●	Tiwap
Part Program Storage Size 4Mbyte	—	○
Part Program Storage Size 8Mbyte	—	○
Number of Registerable Programs, 1000 Programs	●	●
Number of Registerable Programs, 2000/4000 Programs	—	Tiwap
Part Program Editing	●	●
Extended Part Program Editing	●	●

Specifications・Contents	TM-2000Y2 TM-3000Y2	TM-4000Y2
NC Unit0i-TF Plus31i-B		
Program Protect	●	●
Machining Time Stamp	○	○
Background Editing	●	●
Multi Part Program Editting	●	●
【Setting / Display】		
Status Display	●	●
Clock Function	●	●
Current Position Display	●	●
Program Comment Display (31 Characters)	●	●
Parameter Setting and Display	●	●
Alarm Display	●	●
Alarm Log Display	●	●
Operator Message History Display	●	●
Operation History Display	▲	▲
Run Hours and Parts Count Display	●	●
Actual Cutting Feedrate Display	●	●
Display of Spindle Speed and T Code at All Screens	●	●
Servo Setting Screen	●	●
Spindle Adjustment Screen	●	●
Maintenance Information Screen	●	●
Data Protection Key, 1 Kind	●	●
Erase CRT Screen Display	●	●
Parameter Set Supporting Screen	●	●
Help Function	●	●
Self-diagnosis Function	●	●
Periodic Maintenance Screen	●	●
Display of Hardware and Software Configuration	●	●
Graphic Function	●	●
【Multi-language Display】		
English *17	●	●
Other Language *17 *18	▲	●
【Data I/O】		
RS-232C Interface for 1ch	—	○
Fast Data Server	◎	○
External Workpiece Number Search	◎	◎
Memory Card I/O	●	●
USB Memory I/O	●	●
Screen Hard Copy	—	●
One Touch Macro Call	◎	◎
Automatic Data Backup	●	●
【Communication Function】		
Embedded Ethernet	●	●
Fast Ethernet *19	◎	◎
【Other】		
Touch Panel	●	●
●:Standard ○:Optional ◎:Special ▲:Parameter setting is required. (Note: Normally, the parameters need not to be changed. If the parameters are to be set or changed, understand completely the functions of such parameters. Wrong setting could cause the machine to be moved unexpectedly, resulting in machine or workpiece damage or personal injury.) CE : CE type standard specification. Tiwap : Tiwap-1 standard specification.		

*1) I/O addition and the PC change are necessary.
*2) 0.001mm, 0.0001inch, 0.001deg
*3) Synchronous control: X-axis/Z-axis/C-axis, Composite control: C-axis/A-axis (Tiwap specification supports C-axis only.)
*4) IS-C 0.0001mm 0.001deg 0.00001inch
*5) Not coexistent with chuck tailstock barrier.
*6) Not coexistent with Stored Stroke Check 2, 3.
*7) Required when RAKU-RAKU Monitor 3 is used.
*8) DNC run mode transfer switch and RS-232C interface for 1ch are required.
*9) DNC run mode transfer switch, CF card and adaptor are required.
*10) Used for touch sensor, etc.
*11) Cannot be used when Tiwap-1.
*12) Not coexistent with chamfering/corner R.
*13) Not coexistent with drawing dimension direct input.
*14) Angle Holder is required.
*15) Tool setter is required.
*16) Cannot be used when RAKU-RAKU Monitor 3 is installed.
*17) Cannot be simultaneous display the other languages.
*18) Japanese (Kanji) , German, French, Spanish, Italian, Chinese (traditional), Chinese (simplified), Korean, Portuguese, Dutch, Danish, Swedish, Hungarian, Czech, Polish, Russian, Turkish, Romanian, Bulgarian, Slovak, Finnish, Vietnamese, Indonesian
NC Unit "0i-TF Plus" only : Hindi, Slovenian
*19) Hardware option is required.
*20) PANEL iH Pro is required.
*21) TM-2000Y2/3000Y2 : 0 ~ 100% (10% increments), TM-4000Y2 : 0%,0,10%,25%,50%,100%

TM-Series



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Japanese laws prohibit this machine from being used to develop or manufacture "weapons of mass destruction" or "conventional arms", as well as from being used to process parts for them.

Export of the product may require the permission of governmental authorities of the country from where the product is exported.

Should you wish to resell, transfer or export the product, please notify Takisawa Machine Tool Co., Ltd. or our distributor in advance.

*The appearance, specifications, and relevant software of the product are subject to change for improvement without notice.
*Please make an inquiry to our sales representatives for details of the product.

NC77E2211MN1000A

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