TAKISAWA

Multi-Tasking Machine

TMX-2000
TMX-4000

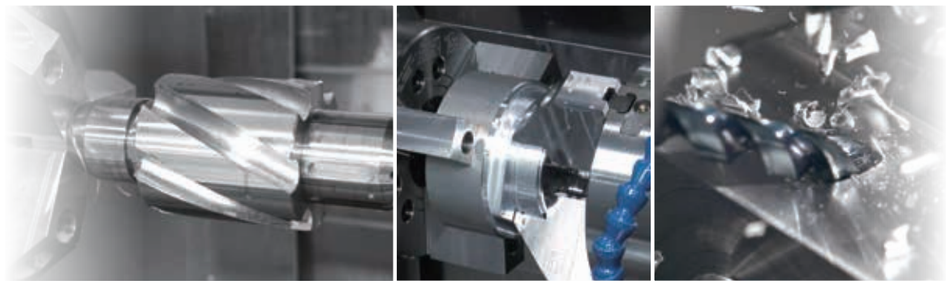
TMX-Series

Productive
Multi-tasking Cells

Combined machines with high accuracy and high efficiency
in which turning and machining processes are
completely integrated.

10"
TMX-4000ⅡST : Opposed Twin-Spindle + Lower Turret
TMX-4000ⅡS : Opposed Twin-Spindle
TMX-4000Ⅱ : Tailstock

8"
TMX-2000S : Opposed Twin-Spindle
TMX-2000 : Tailstock



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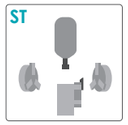
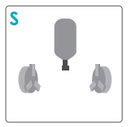
Capability • Performance

Axis Configuration

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



TMX-4000ⅡST : 9-Axes
X1/Z1/Y/B/C1/C2/A/X2/Z2
Left Spindle + Tool Spindle +
Right Spindle + Lower Turret



TMX-40000ⅡS/2000S : 7-Axes
X/Z/Y/B/C1/C2/A
Left Spindle + Tool Spindle +
Right Spindle

TMX-40000Ⅱ/2000 : 6-Axes
X/Z/Y/B/C1/A
Left Spindle + Tool Spindle +
Tailstock

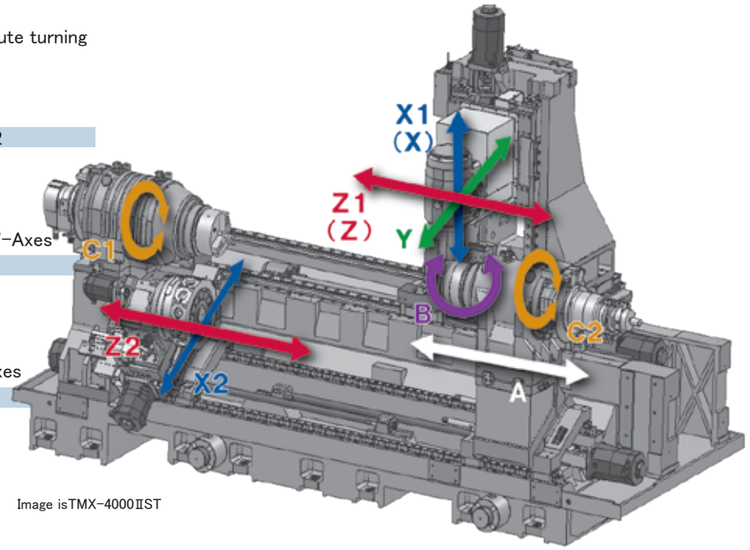
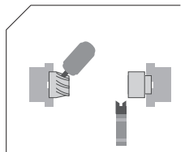
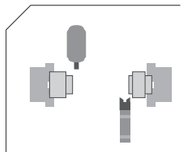


Image isTMX-4000ⅡST

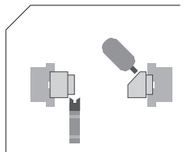
With a multi-tasking machine, all workpieces can be covered with a wide variety of machining variations.



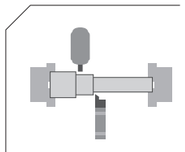
Complex and high-precision machining with simultaneous 5 axes.



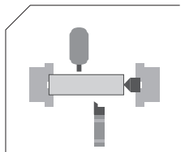
Complete machining of front and back with one chucking.



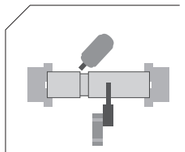
Processing including machining center process.



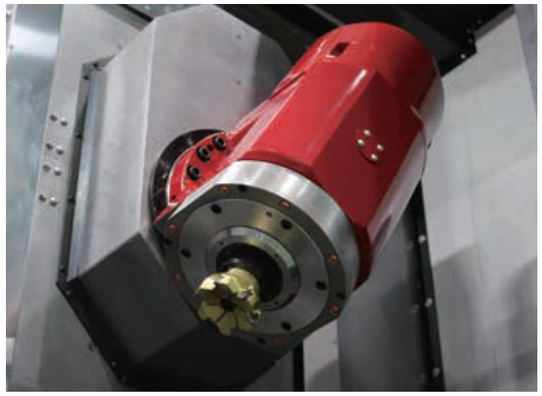
Highly efficient machining with simultaneous approach.

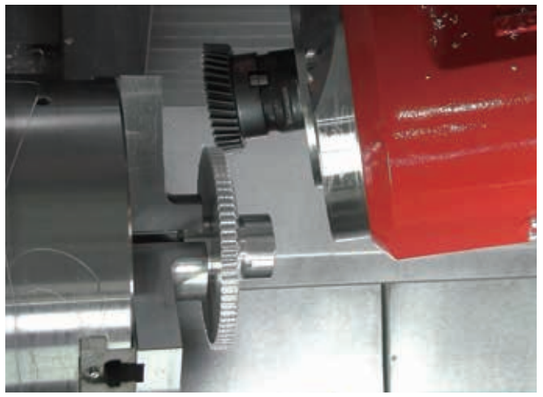


Long workpiece processing using the right spindle as a tailstock.



Heavy and long workpiece processing with steady rest.





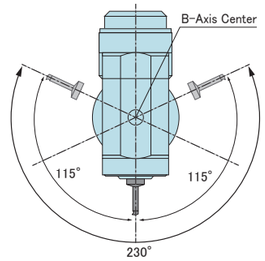
Tool Spindle

Built-in Motor Tool Sindle : Max. Spindle Speed 12000 min^{-1}
TMX-4000 : 97 N･m torque and 22kW output (S3/S6 25%),
TMX-2000 : 60 N･m torque and 15kW output (S2 30min) is actuated by switching the winding thus it deals with facemills and small diameter endmills.

B-Axis

TMX-4000 uses a direct drive motor for rotation and a diaphragm brake for clamping, achieving high speed and high accuracy (minimum indexing accuracy 0.0001°).
TMX-2000, Large diameter of 291mm coupling. The minimum index angle is 1° .

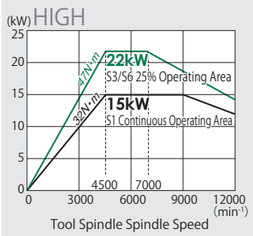
	Travel (Swivel Range)
B-Axis	230°（±115°）

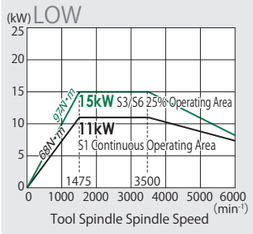


Tool Spindle

TMX-4000

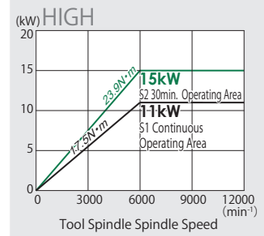
12000min^{-1} FANUC : BiI132S

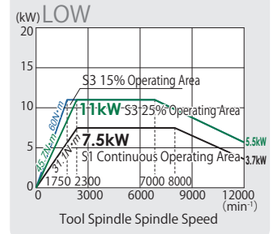




TMX-2000

12000min^{-1} FANUC : BiI112S





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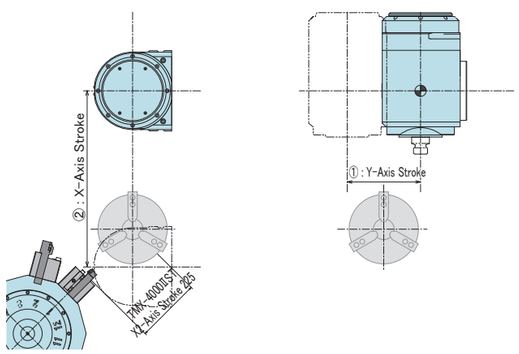
Capability • Performance

X1-Axis, X2-Axis, Y-Axis

X1-axis, X2-axis and Y-axis of the TMX-4000 are standard equipment on a linear scale.
Uses a high load capacity and high rigidity roller guide.

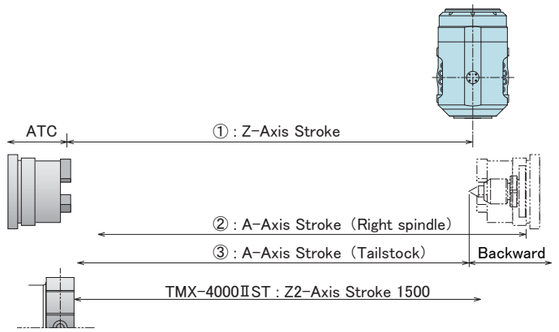
		Travel	Rapid Traverse Rate
TMX-4000	X1-Axis ②	605mm	40m/min
	X2-Axis	225mm	20m/min
	Y-Axis ①	260mm	40m/min
TMX-2000	X-Axis ②	630mm	40m/min
	Y-Axis ①	230mm	40m/min



A-Axis, Z-Axis

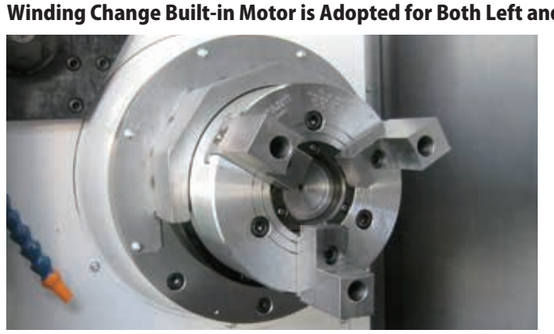
Z1-axis of the TMX-4000 is standard equipment on a linear scale.
Uses a high load capacity and high rigidity roller guide.

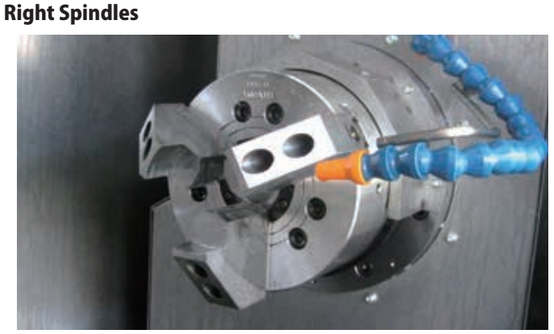
		Travel	Rapid Traverse Rate
TMX-4000	Z1-Axis ①	1500mm (ATC:+223mm)	40m/min
	Z2-Axis	1500mm	20m/min
	A-Axis (R Spindle ②) (Tailstock ③)	① 1600mm ② 1300mm	30m/min
TMX-2000	Z-Axis ①	690mm (ATC:+348mm)	40m/min
	A-Axis (R Spindle ②) (Tailstock ③)	②1020mm ③ 620mm (Backward+400mm)	20m/min



Headstock

Winding Change Built-in Motor is Adopted for Both Left and Right Spindles





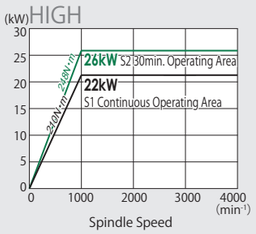
Items	TMX-4000	TMX-2000
Spindle Nose	A2-8	A2-6
Inner Diameter of Bearing	ϕ140mm	ϕ120mm
Bar Capacity	ϕ80mm	ϕ65mm
Spindle Speed	4000min^{-1}	5000min^{-1}
Spindle Motor	26/22kW	15/11kW
The Minimum Index Angle of Spindle (C-axis)	0.0001°	0.001°

Items	TMX-4000	TMX-2000
Spindle Nose	A2-8	A2-6
Inner Diameter of Bearing	ϕ140mm	ϕ100mm
Bar Capacity	ϕ80mm	ϕ51mm
Spindle Speed	4000min^{-1}	5000min^{-1}
Spindle Motor	22/15kW	11/7.5kW
The Minimum Index Angle of Spindle (C-axis)	0.0001°	0.001°

Left Spindle

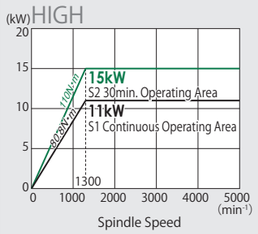
TMX-4000

4000min^{-1} FANUC : Bil250S



TMX-2000

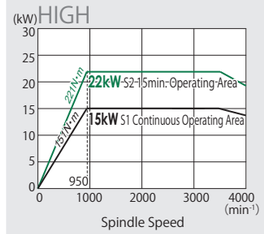
5000min^{-1} FANUC : Bil200S



Right Spindle

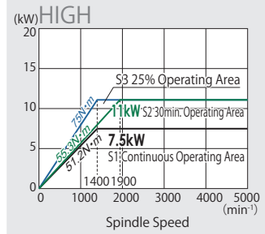
TMX-4000

4000min^{-1} FANUC : Bil200S



TMX-2000S

5000min^{-1} FANUC : Bil170S



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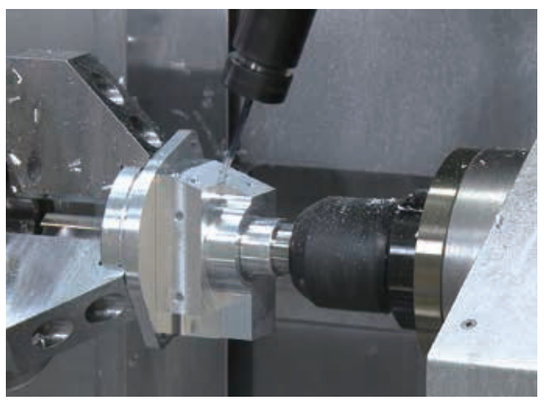
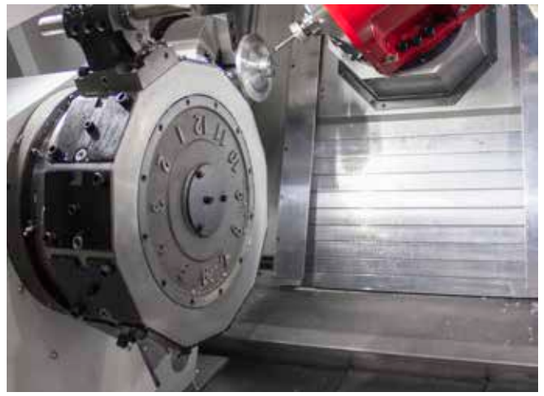
Capability • Performance



NC Servo Tailstock

Items	TMX-4000	TMX-2000
Tailstock Travel	1300mm	620mm(+400)
Quill Taper	MT No.5	MT No.5

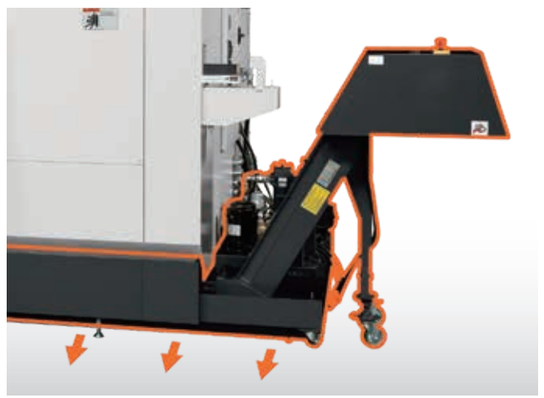


Lower Turret (For TMX-4000ⅡST)

The turret is the 12-Station all-holder type.

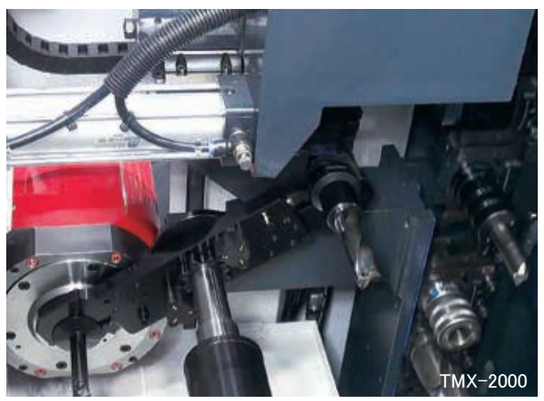
	Travel	Rapid Traverse Rate
X2-Axis	225mm	20m/min
Z2-Axis	1500mm	20m/min

It also supports steady rest as an option, and can process long workpieces in a stable manner.



Chip Conveyor

TMX-4000 standard with right-discharge specifications, and the TMX-2000 is rear-discharge or right-discharge are selectable specifications.
TMX-4000 is a front drawer type of the coolant tank. There is no need to take up extra space for maintenance.



ATC

Items		TMX-4000	TMX-2000
Tool Max. Diameter		125mm (without Adjacent Tool)	
Tool Max. Weight		10kg	6kg
Tool Max. Length		400mm	300mm
Tool Storage Capacity	Standard	40pics (Chain Type)	
	Optional	80, 120	80
ATC Time		2 sec	

Tool attachment / detachment
TMX-4000 is back side, TMX-2000 is fornt side
(The photo shows 80 tools magazine)

TMX-4000ⅡST 120 tools ATC

Long Tools (Option for TMX-4000)

Up to 3 long tools that cannot be installed in the ATC magazine can be stored in the upper part of the right spindle, and the tools can be changed automatically. Work including deep hole machining can also be automated.

Items		TMX-4000
Tool Storage	Max. Tool Length	500mm
	Max. Tool Diameter	ϕ45mm
	Max. Tool Weight	10kg
	Storage Capacity	3 tools

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Operability

Multi-monitor Operation Panel (TMX-4000)

The TMX-4000 operation panel has two screens, 19″ and 10.4″ screen, with a keyboard and operation buttons on a touch panel. The 10.4″ monitor supports swipe operation for intuitive screen switching. An automatic operation screen switching function that switches between systems and modes prevents inadvertent touch operation and false operation by displaying the operation screen that meets the need.

The 10.4″ screen not only displays operation buttons, but also displays information you want to know during operation and other convenient functions to strongly support your work.

M Code List

Operation Explanation Video

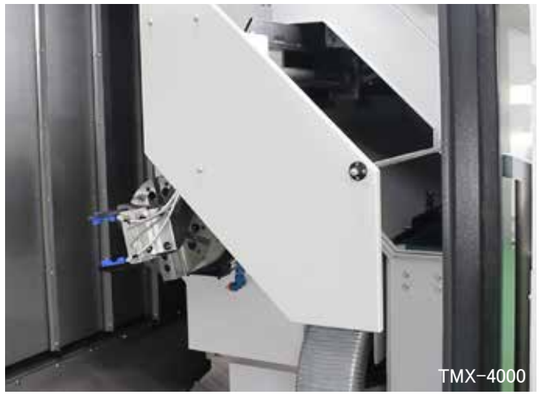
Manuals

Memo

Environmental Performance

- The power source regeneration system to return regeneration energy generated during deceleration of the power consumption reduction motor to the power source.
- The Control panel cooling is designed to reduce electric power using the natural heat release system.
- Lubricant Collection Box
  The floating oil recovery unit, recovering oil from machine coolant without using power and producing new waste, is equipped as standard.
- Hybrid Hydraulic Unit
  The hybrid hydraulic unit excellent in energy saving is equipped as the standard.

Automation Options



In-machine Unloader and Discharge Conveyor
(For TMX-4000)

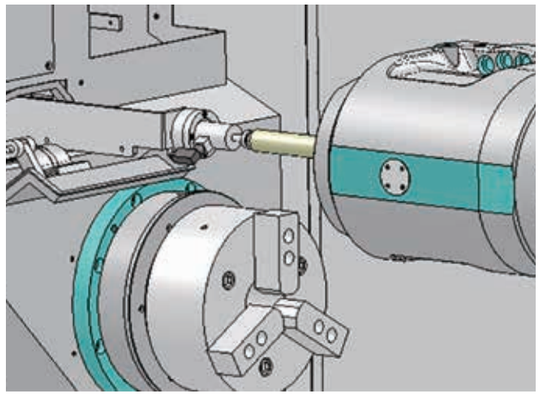
By equipping optional in-machine unloader and discharge conveyor, you can quickly and reliably discharge the completed work from the bar material.

Bucket Type

Hand Type

Bar Feeder

It is possible to support continuous automatic processing from bar materials by a bar feeder.
In the case of TMX-4000, it can be installed in a space-saving manner on the front of the ATC magazine.



Automatic Tool Setter

Even when replacing spare tools, you can get a good product.

Tooling System

Tooling System　SANDVIK CAPTO C6
(More Dtail : Please Consult to SANDVIK)

Turning Tool

CoroTurn RC

CoroTurn 107

HP CoroTurn HP Max.80 bar

CoroTurn TR

Cutting unit for external, panting and grooving

CoroCut 1・2

T-Max Q-Cut

CoroTurn SL

CoroThread 266

CoroThread 266

CoroTurn RC, 107, TR

CoroPlex MT

CoroPlex

CoroTurn for I.D.
T-Max P

CoroTurn SL Boring Bars

CoroTurn SL Dampened Boring Bars

CoroTurn SL Exchangeable Cutting Head

Boring Adaptor

Cylindrical Sleeve

Boring Bar

Adaptors for shank tool

Square shank tool

Rotary Tool

Side Milling cutter, Shoulder Milling cutter, Face Milling cutter

Adaptor for Face Mill

Coro Chuck 930

HD

CoroMill Plura

Collet

CoroDrill 860, Delta-C

Pencil Type

ER Collet Chuck Adaptor

391.14

Collet

Milling Chuck Adaptor

Collet

Tap

Tap Adaptor

Tap with coolant hole

Tap collet

CoroDrill 870

Adaptor for Drills (ISO Shank)

CoroDrill 880

CoroDrill 880(with Coromant Capto)

CoroMill 490
Shoulder cutter

CoroMill 390
Endmill & cutter

CoroMill 316
Endmill

CoroMill 690
Long edge cutter

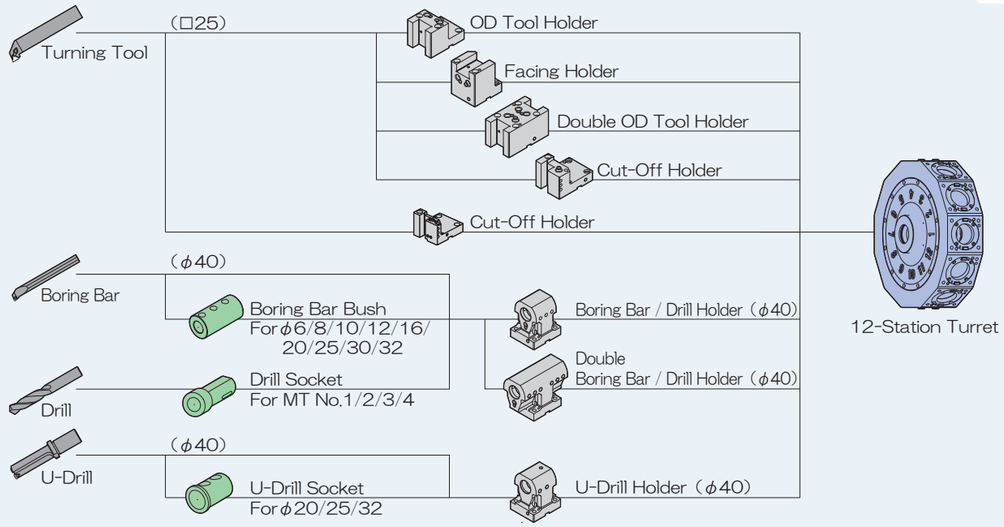
CoroMill 590 cutter

Tooling System・Machine Dimensions

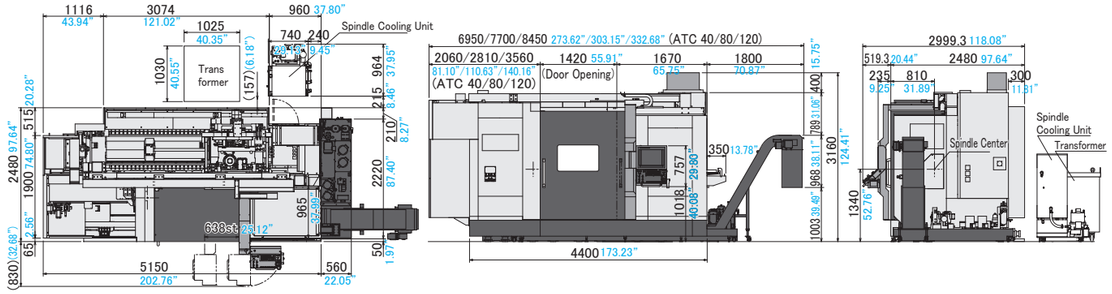
Unit : mm inch

Lower Turret (For TMX-4000ⅡST)

T12

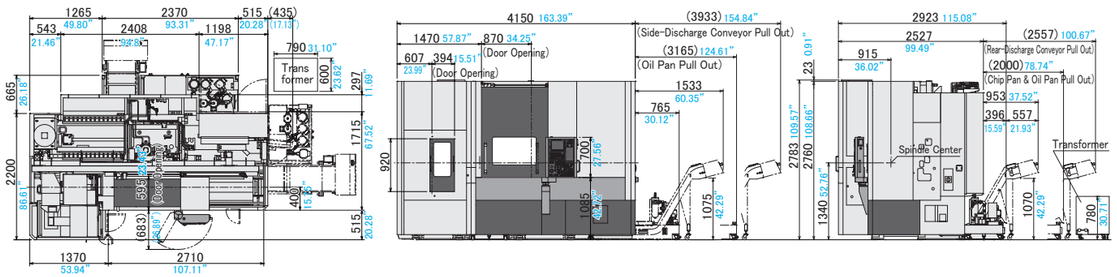


TMX-4000



TMX-2000

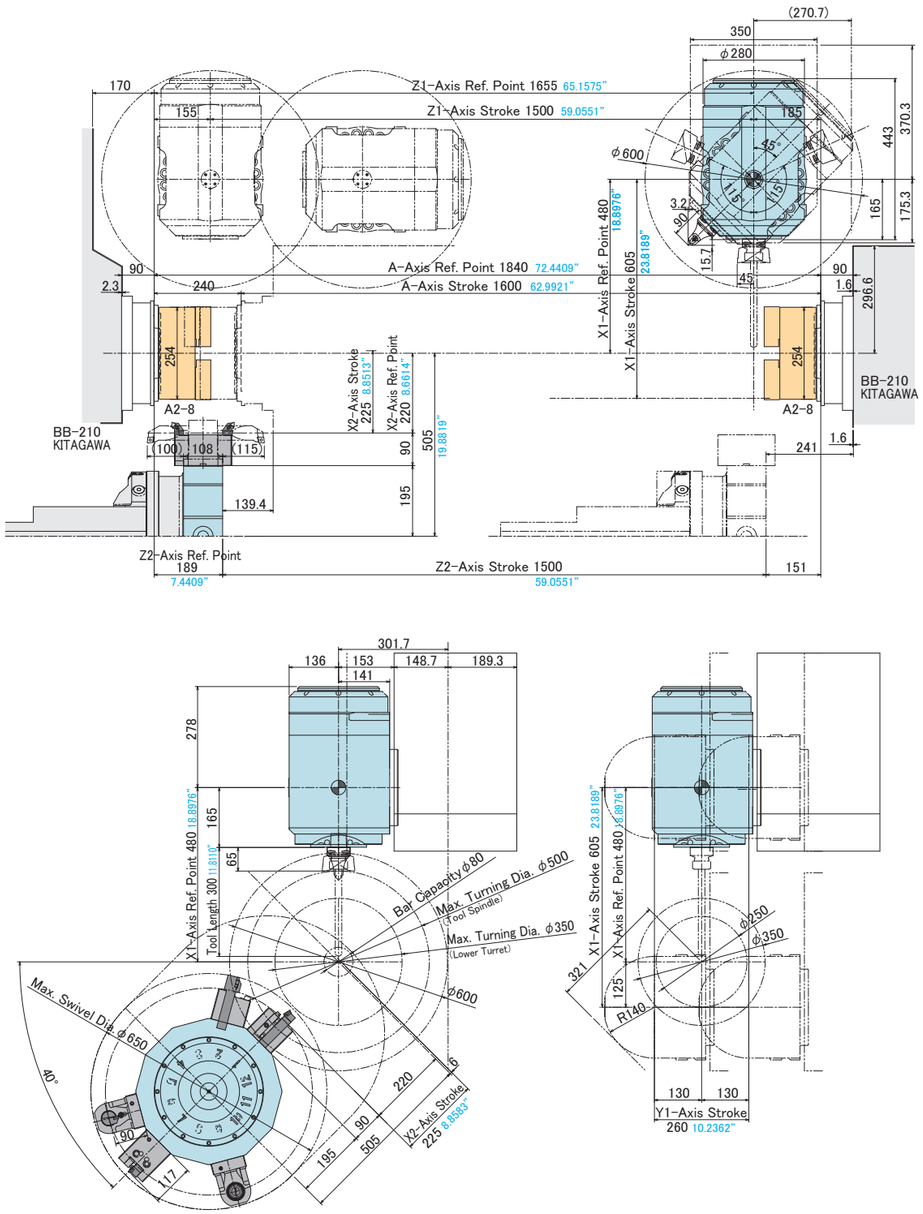
Spindle cooling unit is built-in type.



Interference • Travel Range

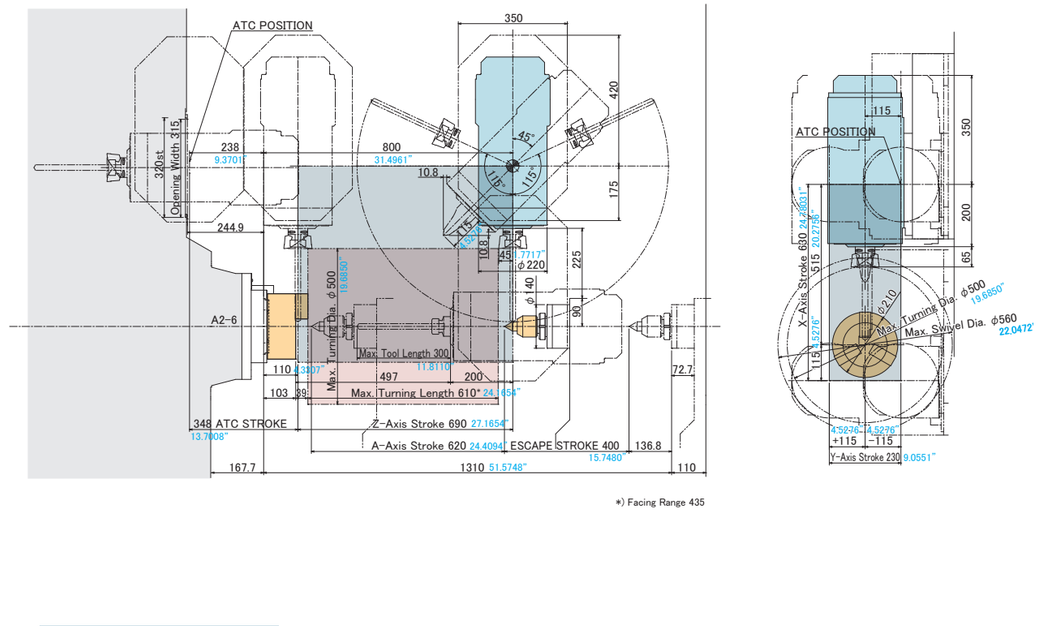
Unit : mm inch

TMX-4000ⅡST



with Tailstock

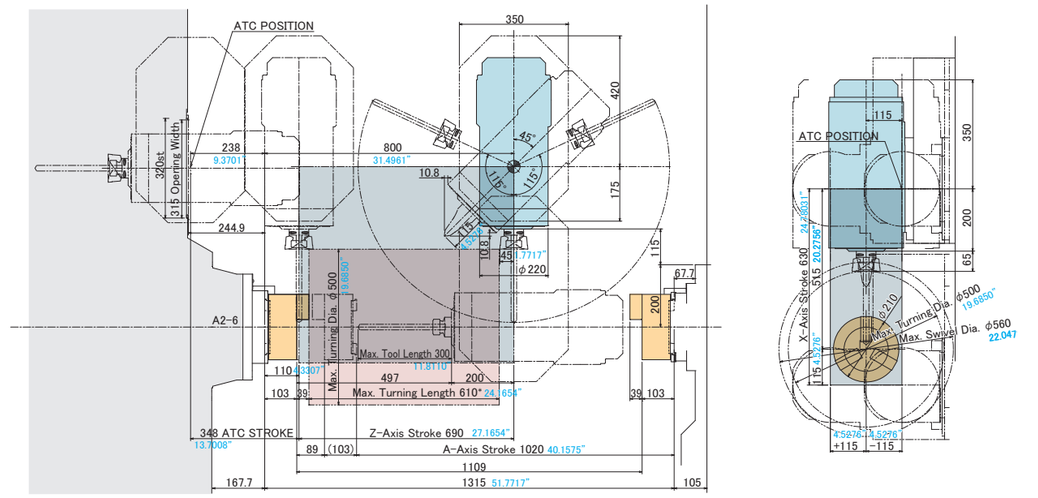
TMX-2000



*) Facing Range 435

with Right Spindle

TMX-2000S



*) Facing Range 435

Consistent Support at Shop Floor

i HMI FANUC Human-Machine Interface

[Standard on TMX-4000]

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.

NC Operation

All tasks required for machining such as operating, editing, setup can be performed.

Individual Tool Settings

The tool information provided by Machining Cloud and the tool compensation measured by the tool pre-setter can be imported.

Data Logger/Maintenance Information Management

Maintenance Manager monitors the state of a maintenance target, and notifies alarms and maintenance timings for efficient preventive maintenance of machinery.

Calendar

Calender allows you to register, check, and edit schedule.
You can receive a notification about your schedule from the information center at the specified time.

SERVO Viewer

SERVO Viewer observes information, such as the position, speed, or torque of the feed axis or spindle, and displays it in waveform.

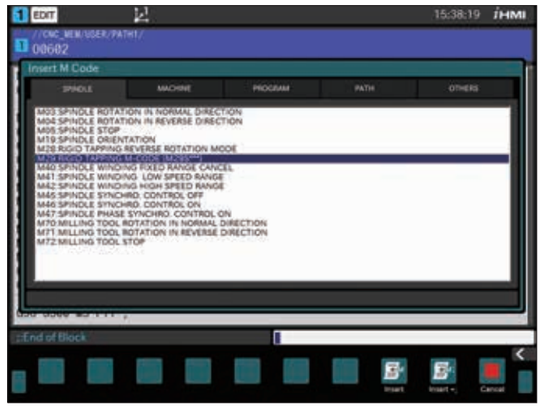
Manual Viewer

You can read various manuals.

Memo Function

Memo Function allows you to draw lines, paste memos, and insert images to "whiteboard".

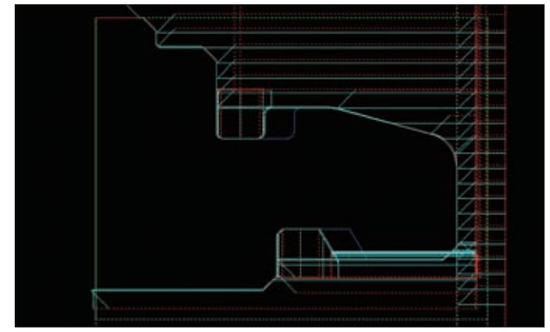
i HMI Machining Program Creation Support



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

- Displaying Images on Program List
- Inserting Fixed Sentences
- Tool Information on Sliding Display
- Inserting M Codes
- Sentence Structure Check
- 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.

Input Blank Figure
↓
Input Parts Figure
↓
Decide Machine Process (Automatic Process Definition)
↓
Create NC Program

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-I**

[Standard on TMX-2000]

Reducing a lead time:

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

Takisawa original software **Tiwap-I** 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

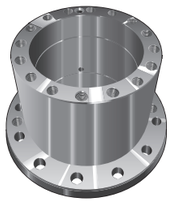
Machining Simulation

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-I** creates a program of complicated processes.

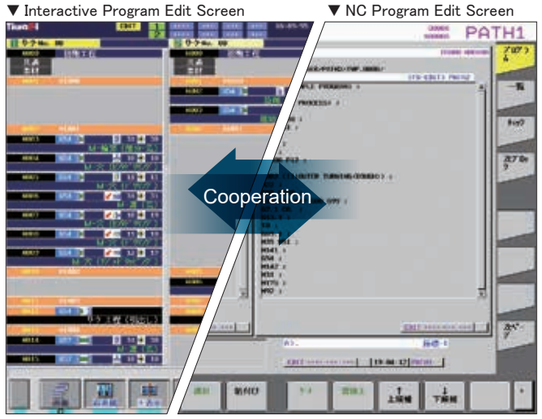
Further, Tiwap-1 enables the interactive program to perform machining in cooperation with an NC program*1.

① NC program*1 can be called (set) in the interactive (Tiwap-1) program.

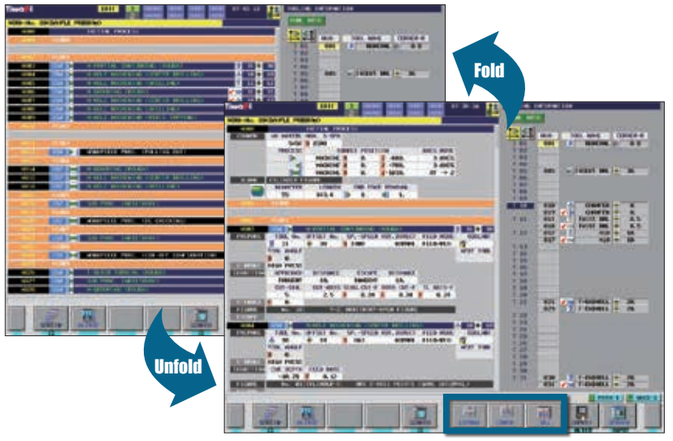
② NC program*2 converted into NC statements by interactive operation (Tiwap-1) can be called (set) in the NC program edited manually.

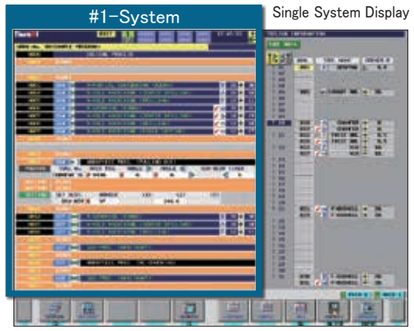
*1: File name to which NC programs edited manually or created by CAD/CAM have been registered.

▼ Interactive Program Edit Screen ▼ NC Program Edit Screen

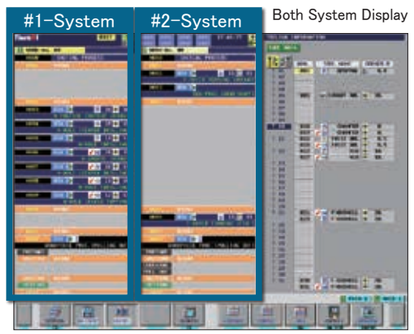


Easy to See





Single System Display



Both System Display

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				TMX-4000IIST	TMX-4000IIS	TMX-4000II	TMX-2000S	TMX-2000
	Standard Chuck Size		inch	10+10	10+10	10	8+8	8
Machine Composition	Right Spindle			●	●	–	●	–
	Tailstock	NC Servo		–	–	●	–	●
	Lower Turret	T12		●	–	–	–	–
Capability・Capacity	Max. Turning Diameter		mm inch	500 19.6850″			500 19.6850″	
	Max. Turning Length *1		mm inch	1500 59.0551″			610 24.0157″	
	Bar Capacity *2		mm inch	80 3.15″			L:65 2.56″, R:51 2.01″	
Travel	X1(X)-Axis Travel	(Tool Spindle)	mm inch	605 23.8189″			630 24.75″	
	Y-Axis Travel	(Tool Spindle)	mm inch	260 10.2362″ (±130)			230 9.0551″ (±115 4.5276″)	
	Z1(Z)-Axis Travel	(Tool Spindle)	mm inch	1500 59.0551″ (ATC+223 8.7795″)			690 27.1654″ (ATC+348 13.7008″)	
	A-Axis Travel	(Right Spindle, Tailstock)	mm inch	1600 62.9921″		1300 51.1811″	1020 40.1575″	620 24.4094″ (+400 15.7480″)
	B-Axis Swivel Range	(Tool Spindle)	deg	230 (±115)			230 (±115)	
	B-Axis Min. Index Angle	(Tool Spindle)	deg	0.0001			1	
	C-Axis Swivel Range			360			360	
	X2-Axis Travel	(Lower Turret)	mm inch	225 8.8513″	–		–	
	Z2-Axis Travel	(Lower Turret)	mm inch	1500 59.0551″	–		–	
Left Spindle	Chuck Size		inch	10 8 12			8	
	Spindle Speed *3		min^{-1}	4000 5000 2500			5000	
	Min. Index Angle		deg	0.0001			0.001	
	Spindle Nose (Nom, Code)			A2-8 A2-6 A2-11			A2-6	
	Through-Hole Diameter		mm inch	91 77 111 3.58″ 3.03″ 4.37″			77 3.03″	
	Bearing Inside Diameter		mm inch	140 120 160 5.51″ 4.72″ 6.30″			120 4.72″	
Right Spindle	Chuck Size		inch	10 8		–	8	–
	Spindle Speed		min^{-1}	4000 5000		–	5000	–
	Min. Index Angle		deg	0.0001		–	0.001	–
	Spindle Nose (Nom, Code)			A2-8 A2-6		–	A2-6	–
	Through-Hole Diameter		mm inch	91 77 3.58″ 3.03″		–	63 2.48″	–
	Bearing Inside Diameter		mm inch	140 120 5.51″ 4.72″		–	100 3.94″	–
Tool Spindle	Type of Turret			Tool Spindle with ATC			Tool Spindle with ATC	
	Number of Attachable Tool			1			1	
	Spindle Speed		min^{-1}	12000			12000	
	Type of Tool Shank			CAPTO C6 HSK-T63			CAPTO C6	
	Bearing Inside Diameter		mm inch	75 2.95″			75 2.95″	
Lower Turret	Type of Turret			12-Station Turret	–		–	
	Number of Attachable Tool			12	–		–	
Tailstock (NC Servo Type)	Quill Taper		mm inch	–		MT No.5	–	
Rest				Turret Installed	–	Installing Base	–	
ATC MG.	Tool Storage Capacity			40 80 120			40 80	
	Max. Tool Diameter (without Adjacent Tool)		mm inch	90 3.54″ (125 4.92″)			90 3.54″ (125 4.92″)	
	Max. Tool Length from Gage Line		mm inch	400 15.75″			300 11.81″	
	Max. Tool Weight		kg lbs.	10 22			6 13.2	
	ATC Time (TtoT)		sec	2			2	
	Magazine Selection Method			Bidirectional			Bidirectional	
Rapid Traverse Rate	X1/Y/Z1(X/Y/Z)-Axis	(Tool Spindle)	m/min ipm	40/40/40 1574.8″/1574.8″/1574.8″			40/40/40 1574.8″/1574.8″/1574.8″	
	X1/Z1-Axis	(Lower Turret)	m/min ipm	20/20 787.4″/787.4″	–		–	
	A-Axis	(Right Spindle, Tailstock)	m/min ipm	30 1181.10″			20 787.4″	
Motors	Left Spindle Motor		kW HP	26/22 (S2 30 min/cont.) 22/15 (S2 15 min/cont.)			15/11 20/14.7 (S2 30 min/cont.)	
	Right Spindle Motor		kW HP	22/15 29.3/20 (S2 15 min/cont.)			11/7.5 14.7/10 (S2 30 min/cont.)	–
	Tool Spindle Moter	Low	kW HP	15/11 20/14.7 (S3/S6 25%/continuous)			11/7.5 14.7/10 (S3 25%/cont.)	
		High	kW HP	22/15 29.3/20 (S3/S6 25%/continuous)			15/11 20/14.7 (S2 30 min/cont.)	
	For Feed Axes	(X1/Y1/Z1) (X/Y/Z)	kW HP	5.5/3/3 7.3/4/4			3/3/3 4/4/4	
		(X2/Z2)	kW HP	2.5/2.5 3.3/3.3	–		–	
		(A)	kW HP	2.5 3.3			2.5 3.3	
	Hydraulic Pump Motor		kW HP	2.2 2.9			2.2 2.9	
	Coolant Pump Motor		kW HP	0.4×3+0.55×2+0.75 0.5×2+0.7×2+1	0.55 + 0.4×2 0.7+0.5×2		0.52, 0.4×2 0.7, 0.5×2	0.52, 0.4 0.7, 0.5
Required Power	Electric Power		kVA	93.2 119.7	65.3 91.8	61.3 83.6	45	
	Air Pressure Source		MPa	0.5			0.4	
Tank Capacity	Hydraulic Unit Tank		L gal	20 5.28			20 5.28	
	Spindle Cooling Unit		L gal	70 18.48			24 6.34	
	Lubricant Tank (Grease)		L gal	0.7 0.18			0.7 0.18	
	Coolant Tank		L gal	540 142.56			420 110.88	
Machine Size	Machine Height		mm inch	3160 124.41″			2783 109.57″	
	Floor to Spindle Center Height		mm inch	1340 52.76″			1340 52.76″	
	Required Floor Space (Width × Depth) *4		mm×mm inch×inch	6950×4478 7700×4478 8450×4478 273.62″×176.30″ 303.15″×176.30″ 332.68″×176.30″			4150×2923 163.39″×115.08″	
	Machine Weight		kg lbs.	17000 37400	16300 35860	16400 36080	14000 30800	13700 30140

Red is Optional.

Machine Optional Accessories

Items		TMX-4000II ST	TMX-4000II S		TMX-2000 S	
Tool Setter (Removable Type)		○	○	○	○	○
Automatic Tool Setter (for Tool Spindle)		○	○	○	–	–
In-machine parts catcher + In-machine conveyor	R	○	○	–	–	–
In-machine Unloader + In-machine Conveyor	R	○	○	–	–	–
Left Spindle *6	8″	○	○	○	●	●
	10″	●	●	●	–	–
	12″	○	○	○	–	–
Right Spindle *6	8″	○	○	–	●	–
	10″	●	●	–	–	–
Chuck Open/Close Footswitch with Locking Mechanism	L	●	●	●	●	●
	R	●	●	–	●	–
Hydraulic Chuck, Chuck Plate,Draw Bar *2	L	●	●	●	○	○
	R	●	●	–	○	–
Hydraulic Cylinder *2	L	●	●	●	●	●
	R	●	●	–	●	–
Chuck Auto Open/Close M-Function (Pressure Switch)	L	●	●	●	●	○
	R	●	●	–	●	–
Chuck Stroke OT Check	L	●	●	●	○	○
	R	●	●	–	○	○
Spindle Air Purge	L	●	●	●	●	●
	R	●	●	–	●	–
Chuck Airblow	L	○	○	○	○	○
	R	●	●	–	●	–
Spindle Above Coolant	L	●	●	●	○	○
	R	●	●	●	○	–
Tool Magazine (Tool Spindle)	40	●	●	●	●	●
	80	○	○	○	○	○
	120	○	○	○	–	–
Long Tool		○	○	○	–	–
Linear Scale	X1, Y, Z1	●	●	●	○	○
	X2	○	–	–	–	–
	Z2	○	–	–	–	–
12-Station Turret (Lower)	Bolted	●	–	–	–	–
Rests	Turret Installed	○	–	–	–	–
	Mounting Base	–	–	●	–	–
Double OD Tool Holder	1 Piece	●	–	–	–	–
Facing Holder	1 Piece	●	–	–	–	–
Boring Bar / Drill Holder	1 Piece	●	–	–	–	–
Boring Bar Bush		○	–	–	–	–
Cut-Off Holder		○	–	–	–	–
Outside Turning Holder		○	–	–	–	–
Work Pusher	Turret Installed	○	–	–	–	–

Items		TMX-4000II ST	TMX-4000II S		TMX-2000 S	
NC Servo Tailstock	MT No.5	–	–	●	–	●
	Built-In MT No.4	–	–	–	–	○
Tailstock Center		–	–	○	–	○
Chip Pan	Rear	–	–	–	●	●
Chip Conveyor	CE, Side-Discharge	●	●	●	○	○
	CE, Rear-Discharge	–	–	–	○	○
Chip Bucket		○	○	○	○	○
Auto Door		○	○	○	○	○
Powered Door		○	○	○	○	○
Air Main Pressure Check		●	●	●	○	○
Air Pressure Release 3 Port Valve		●	●	●	○	○
Hydraulic Unit		●	●	●	●	●
Hydraulic Main Pressure Check		●	●	●	○	○
Spindle Cooling Unit		●	●	●	●	●
Automatic Grease Lubricating Unit		●	●	●	●	●
Automatic Lubricant Unit		●	●	●	–	–
Oil-Water Separator		●	●	●	–	–
Lubricant Collection Box		●	●	●	–	–
Coolant Pump (Tool Spindle Through)		●	●	●	○	○
		1.5MPa			1.0MPa	
High Pressure Coolant Pump (Tool Spindle Through)	7.0MPa *5	◎	◎	◎	◎	◎
Coolant Pump (Tool Spindle Outside)	520W	●	●	●	●	●
Coolant Pump (Lower Turret)	520W	●	–	–	–	–
Coolant Pump (Rests)	520W	–	–	○	–	–
Chip Flow Unit	400W	● (3 pic)	● (3 pic)	● (3 pic)	● (2 pic)	● (1 pic)
Coolant Cooling Unit		○	○	○	◎	◎
Signal Tower Light	3-Color, LED	○	○	○	○	○
	1-Color, Rotary	○	○	○	○	○
	1-Color, LED	○	○	○	○	○
Counter (TMX-4000 is NC Display)		●	●	●	○	○
Lighting Apparatus	LED	●	●	●	●	●
Leveling Plate Set	Turret Installed	●	–	–	–	–
Auto Power-Off System		●	●	●	○	○
Bar Feeder Interface		○	○	○	○	○
Trans (Standard for CE)		○	○	○	○	○
Robot Interface		○	○	○	○	○
Instruction Manual		●	●	●	●	●

●:Standard ○:Optional ◎:Special —:None

*1) Max. turning length is different according to chuck type.
TMX-2000 is when turning length is more than 435mm, end facing range has limit.

*2) Showing max ability when hollow chuck is used.
By default, the following hydraulic chuck/cylinder are provided.

	TMX-4000IIST (10″ Chuck Type)		TMX-2000	TMX-2000S	
	Left Spindle	Right Spindle	Left Spindle	Left Spindle	Right Spindle
Hydraulic Chuck	H3KT-10	HO1MA10S-A8-J	BB-208	BB-208	B-208
Hydraulic Chuck Cylinder	CITA165X25-CD	HH4CB-125	SS1666K	SS1666K	SS1452K

*3) Spindle speed varies according to chuck type.

*4) It includes Side-Discharge Chip Conveyor, Operation Panel, and ATC Magazine.

*5) Permissible pressure for the coolant unit of the standard machine is 1.0MPa. If the coolant exceeding this value is required, it is estimated additionally.
In general, if high pressure coolant pump is used, appropriate coolant controller must be used together. Using high pressure coolant pump without installing the coolant controller allows the coolant temperature to rise extremely, thus reducing the machine precision.

*6) Spindle specifications depens on chuck size.

	TMX-4000								TMX-2000	
Chuck Size	8+8		10+10		10+10 (STD.)		12+10		8+8	
Spindle	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
Spindle Nose (Nom, Code)	A2-6	A2-6	A2-8	A2-6	A2-8	A2-8	A2-11	A2-8	A2-6	A2-6
Spindle Motor kW	22/15	22/15	26/22	22/15	26/22	26/22	26/22	26/22	22/15	22/15
Spindle Speed min^{-1}	5000	5000	4000	5000	4000	4000	2500	4000	5000	5000

TMX Series

NC Unit Specifications

FANUC： 31i-B5 Plus, 32i-B

※ Please contact our sales persons for further information.

Composition

Specifications・Contents	TMX-4000	TMX-2000S	TMX-2000
	31i-B5 Plus	32i-B	
【NC Unit】			
32i-B 10.4″Color LCD	–	●	
31i-B5 Plus LCD 19″+10.4″ iPC	●	◎ *1	
Number of Control Axes (#1 System + #2 System)	10+5 (40 ATC)	7	6
Simultaneous Number of Control Axes (#1 System + #2 System)	5+5	4	4
【Software】			
iHMI	●	◎ *1	
iHMI Process Cycle	●	◎ *1	
TiwaP-1	○	●	
RAKU-RAKU Monitor 3	○	○	
Measurement Monitor 3 *2	◎	◎	
FANUC iCAPT *3	○	◎ *1	
Machine Collision Avoidance *3	○	◎ *1	
【Safety Devices】			
Front Door Interlock	●	●	
Front Door Locking Mechanism	●	○	
Dual Check Safety	●	CE	
Control Panel Breaker with Tripper	●	●	

Main Function List

Specifications・Contents	TMX-4000	TMX-2000S	TMX-2000
【Controlled Axes】			
Least Input Increment *4	●	●	●
Max. Programmable Dimension (TMX-4000 : ±99999.9999、TMX-2000 : ±999999.999)	●	●	●
Cs Contouring Control	●	●	●
Increment System C *5	●	○	○
Synchronous/Composite Control (C, A-Axis)	●	–	–
Inch/Metric Conversion	○	○	○
Interlock	●	●	●
Machine Lock *6	○	○	○
Emergency Stop	●	●	●
Stored Stroke Check 1	●	●	●
Stored Stroke Check 2, 3 *7	○	○	○
Stored Limit Check Before Move	○	○	○
Chuck and Tail Stock Barrier *8	○	○	○
Mirror Image (Each Axis)	▲	▲	▲
Chamfering ON/OFF	●	●	●
Unexpected Disturbance Torque Detection Function *9	●	○	○
Position Switch	●	◎	◎
【Operation】			
Automatic Operation (Memory)	●	●	●
MDI Operation	●	●	●
DNC Operation *10	○	○	○
DNC Operation with Memory Card *10 *11	○	○	○
Program Number Search	●	●	●
Sequence Number Search	●	●	●
Sequence Number Comparison and Stop	○	○	○
Program Restart	◎	◎	◎
Tool Retract and Recover	○	○	○
Wrong Operation Prevention	●	●	●
Retraction for Rigid Tapping	●	○	○
Buffer Register	●	●	●
Dry Run	●	●	●
Single Block	●	●	●
Manual Continuous Feed (JOG)	●	●	●
Manual Reference Position Return	●	●	●
Reference Position Setting without DOG	●	●	●
Manual Handle Feed, 1 Unit	●	●	●
3-dimensional Manual Feed	●	◎	◎
Manual Handle Retrace	◎	◎	◎
【Interpolation Functions】			
Nano Interpolation	●	●	●
Positioning (G00)	●	●	●
Linear Interpolation (G01)	●	●	●
Circular Interpolation (G02/03)	●	●	●
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) *12	○	◎	◎
High-speed Skip	●	◎	◎
Torque Limit Skip	●	●	◎
Reference Position Return (G28)	●	●	●
2nd Reference Position Return (G30)	●	●	●
3rd, 4th Reference Position Return	●	●	●
Balanced Cutting	○	–	–
【Feed Functions】			
Rapid Traverse Override (0%,F0,25%,50%,100%)	●	●	●
Feed Per Minute	●	●	●
Feed Per Revolution	●	●	●
Constant Tangential Speed Control	●	●	●
Cutting Feedrate Clamp	●	●	●
Automatic Acceleration/Deceleration	●	●	●
Rapid Traverse Bell-Shaped Acceleration/ Deceleration	●	●	●
Bell-shaped Acceleration/Seceleration After Cutting Feed Interpolation	●	○	○
Smart Overlap	●	–	–
Linear Acceleration/Deceleration Before Cutting Feed Interpolation	●	◎	◎
Feedrate Override (15 Steps)	●	●	●
Jog Override (15 Steps)	●	●	●
Override Cancel	●	●	●
Manual per Revolution Feed	▲	▲	▲
AI Contour Control I	○	○	○
AI Contour Control II	●	○	○
Bell-type Acceleration/Seceleration Before Look Ahead Interpolation	○	○	○
Jerk Control *14	○	○	○
【Program Input】			
Program Code	●	●	●
Label Skip	●	●	●
Parity Check	●	●	●
Control In/Out	●	●	●
Optional Block Skip, 1 Piece	●	●	●
Optional Block Skip (2 to 9 Pieces)	◎	◎	◎
Program File Name 32 Characters	●	●	●
Sequence Number N8 Digits	●	●	●
Absolute/Incremental Programming	●	●	●
Decimal Point Programming/Pocket Calculator Type Decimal Point Programming	●	●	●
Diameter/Radius Programming (X-Axis)	●	●	●
Plane Selection G17,G18,G19	●	●	●
Rotary Axis Designation	●	●	●
Rotary Axis Rollover	●	●	●
Coordinate System Setting (G50) *15	●	●	●
Workpiece Coordinate System	●	●	●
Workpiece Coordinate System Preset	●	●	●
Addition of Workpiece Coordinate System 48-pairs	○	○	○
Direct Drawing Dmension Programming *16	○	○	○
G-Code System A	●	●	●
G-Code System B/C *15	○	○	○
Chamfering/Corner R *17	●	●	●
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	●	●	●
Coordinate System Shift	●	●	●
Direct Input of Coordinate System Shift	●	●	●
Embedded Macro	◎	○	○
Real Time Custom Macro	◎	○	○
Program Coordinate System Changing Function	R	●	–
【Auxiliary/Spindle Speed Function】			
M Function (M3 Digits)	●	●	●
Waiting Function	●	–	–
Multiple Command of Auxiliary Function (3 Pieces)	●	●	●
Spindle Speed Function (S-Function)	●	●	●
Constant Surface Speed Control	●	●	●
Spindle Override	●	●	●
Spindle Orientation	●	●	●
Spindle Synchronous Control *18	R	●	–
Simple Spindle Synchronous Control *19	–	●	–
Rigid Tap (Spindle Center)	●	●	●
Rigid Tap (Rotary Tool)	●	●	●
Smart Rigid Tap	●	–	–
【Tool Functions / Tool Compensation】			
Tool Function	●	●	●
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 *20	○	○	○
Tool Life Management *21	○	○	○
Tool Offset Memory Switching Function *22	R	●	–
【Accuracy Offset Functions】			
Backlash Compensation	▲	▲	▲
Backlash Compensation for Each Rapid Traverse and Cutting Feed	▲	▲	▲
Smooth Backlash Compensation	▲	▲	▲
Smart Backlash	●	–	–
Stored Pitch Error Compensation	●	●	●
Interpolation Type Pitch Error Compensation	●	○	○
【Editing】			
Part Program Storage Size 1Mbyte	–	●	●
Part Program Storage Size 2Mbyte	–	○	○
Part Program Storage Size 4Mbyte	●	–	–
Part Program Storage Size 8Mbyte	○	–	–
Number of Registerable Programs Expansion 1	–	●	●
Number of Registerable Programs Expansion 2	●	–	–
Part Program Editing	●	●	●
Extended Part Program Editing	●	●	●
Program Protect	●	●	●
Playback	◎	◎	◎
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	●	●	●
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	●	●	●
Software Operator's Panel	◎	◎	◎
Machine Operation Menu	◎	○	○
Data Protection Key, 1 Kind	●	●	●
Erase CRT Screen Display	●	●	●
Parameter Set Supporting Screen	●	●	●
Machining Condition Selecting Function *23	◎	○	○
Help Function	●	●	●
Self-diagnosis Function	●	●	●
Periodic Maintenance Screen	●	●	●
Graphic Function	●	●	●
【Multi-language Display】			
English *24	●	●	●
Japanese (Kanji) *24	●	●	●
Other Language *24 *25	●	○	○
Dynamic Display Language Switching	●	●	●
【Data I/O】			
RS-232C Interface for 1ch	○	●	●
Fast Data Server *26	○	◎	◎
Memory Card I/O	●	●	●
USB Memory I/O	●	●	●
Screen Hard Copy	●	●	●
One Touch Macro Call	◎	◎	◎
Automatic Data Backup	●	●	●
【Communication Function】			
Embedded Ethernet	●	●	●
Fast Ethernet *27	◎	◎	◎
【Other】			
Touch Panel	●	◎	◎

●:Standard ○:Optional ◎:Special –:None
▲: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.
R : TMX-4000ⅡST/TMX-4000ⅡS are Standard, TMX-4000Ⅱis None

*1) In TMX-2000, 31i-B5 Plus and iHMI are special specification.
*2) I/O addition and the PC change are necessary.
*3) PANEL iH Pro is necessary.
*4) TMX-4000 : 0.0001mm、0.00001inch、0.0001deg
TMX-2000 : 0.001mm、0.0001inch、0.001deg
*5) IS-C 0.0001mm 0.001deg 0.00001inch
*6) TMX-2000 is Addition of switch is required.
*7) Not coexistent with chuck tailstock barrier.
*8) Not coexistent with Stored Stroke Check 2, 3.
*9) Required when RAKU-RAKU Monitor 3 is used.
*10) DNC run mode transfer switch is required.
*11) CF card and adaptor is required.
*12) Used for touch sensor, etc.
*13) 21 steps.
*14) AI contour control Ⅱ is required.
*15) Cannot be used when TiwaP-1.
*16) Not coexistent with chamfering/corner R.
*17) Not coexistent with drawing dimension direct input.
*18) It is synchronous control at the turning.
*19) It is synchronous control at the C-Axis of TMX-2000. Included in Synchronous Spindle Control.
*20) Tool setter is required.
*21) Cannot be used when RAKU-RAKU Monitor 3 is installed.
*22) Required when Program Coordinate System Switching.
*23) AI contour control I or Ⅱ is required.
*24) Cannot be simultaneous display the other languages.
*25) German, French, Spanish, Italian, Chinese (traditional), Chinese (simplified), Korean, Portuguese, Dutch, Danish, Swedish, Hungarian, Czech, Polish, Russian, Turkish, Romanian, Bulgarian, Slovak, Finnish, Vietnamese, Indonesian
*26) Option board is required.
*27) Hardware Option is required.

The contents of the catalog are subject to change for improvement without notice. Please make confirmation from our sales representatives when entering into the contract.

TMX-Series

TAKISAWA

TAKISAWA MACHINE TOOL CO., LTD.

983 Natsukawa, Kita-ku, Okayama 701-0164, JAPAN

Telephone : (81)86-293-1500

Fax : (81)86-293-5799

Website : https://www.takisawa.co.jp

E-mail : tkj-1@takisawa.co.jp (America)
tkj-2@takisawa.co.jp (Europe)
tkj-3@takisawa.co.jp (Asia)

NC80E2306EN1000A

■ Overseas Network

THAILAND Takisawa (Thailand) Co.,Ltd.
Telephone : (66)2-012-1701-3 Fax : (66)2-012-1705

VIETNAM Takisawa Machine Tool Vietnam Representative Office
Telephone : (84)247-1088-669 Fax : (84)247-1088-669

INDONESIA PT. Takisawa Indonesia
Telephone : (62)21-221-57456 Fax : (62)21-891-18818

INDIA SAP Takisawa Machine Tools Private Ltd.
Telephone : (91)80-26662386 Fax : (91)80-26662392

CHINA Takisawa (Shanghai) Co., Ltd.
Telephone : (86)21-6235-0938 Fax : (86)21-6235-0905

USA Takisawa, Inc.
Telephone : (1)847-419-0046 Fax : (1)847-419-0043

GERMANY Takisawa Machine Tool Germany Representative Office
Telephone : (49)2102-9288477 Fax : (49)2102-9288478