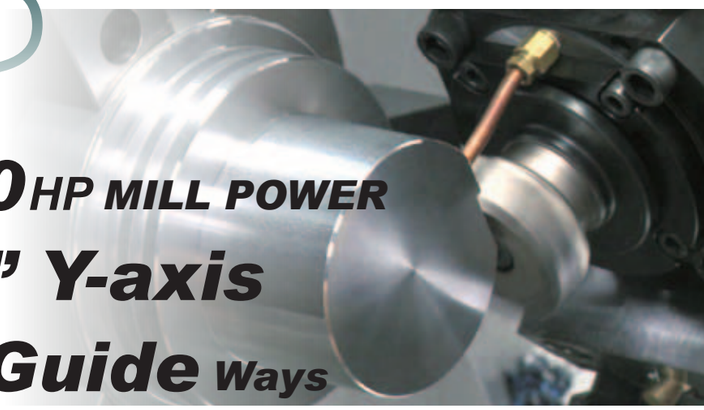
TAKISAWA®

TAKISAWA Superb Turning Center

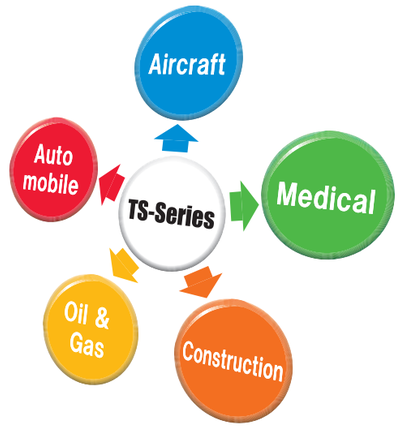
TS-5000
TS-4000
TS-3000

Further Evolution
of TAKISAWA Superb Turning Center

TS



- **STRONGER 10HP MILL POWER**
- **LONGER 4.7” Y-axis**
- **STIFF Box Guide Ways**
- **SUFFICIENT 20 Position**
  Turret (20,15,12 or 10)
- **SUPERABOUNDANT 30HP Main Motor**
  (TS-4000/TS-5000)

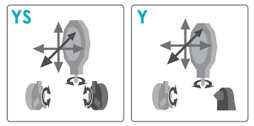


■ Composition

		2 Spindle Type	1 Spindle Type
		YS (Standard Model)	Y
Items	Right Spindle Stock	●	–
	Tailstock *1	–	●
	Y-Axis	●	●
	C-Axis (Left)	●	●
	C-Axis (Right)	●	–
	Milling	●	●

● : Standard
– : None

*1) NC Servo Tailstock



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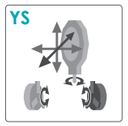
The Definitive Structure

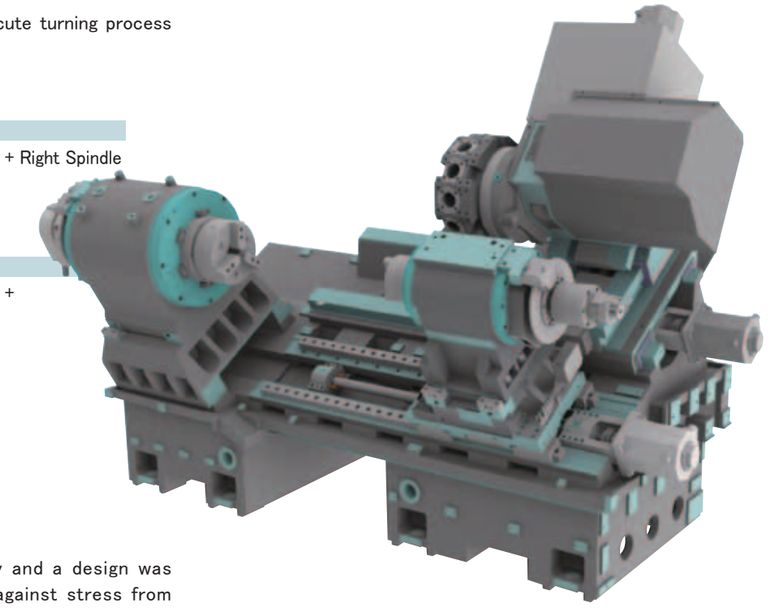
Bigger Axis Configuration

Configuration 6 control axes and can execute turning process and milling process continuously.



YS (Standard) : 6-Axes
X/Z/Y/C1/C2/A
Left Spindle + Milling Turret + Right Spindle

Y (Standard) : 5-Axes
X/Z/Y/C/A
Left Spindle + Milling Turret +
NC Servo Tailstock

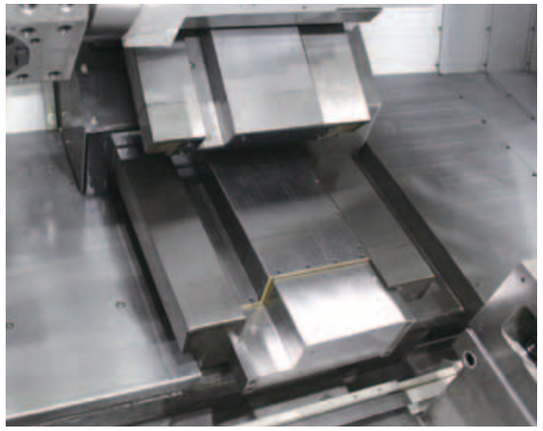


Advanced 3D Analysis

The structure way analyzed thoroughly and a design was adopted which can maintain accuracy against stress from various directions during combined machining.

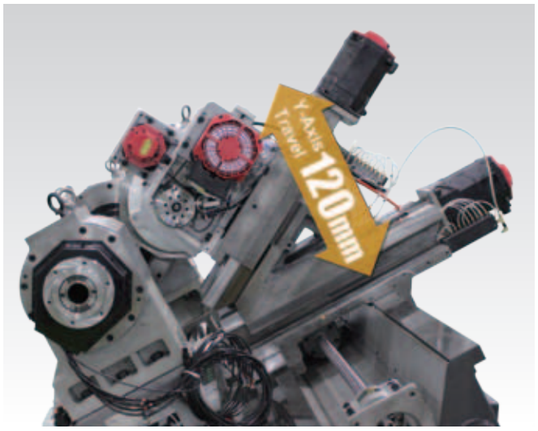
Sturdy Structure

The highly rigid 30° slant bed and rectangular slideways on the sliding axes (X, Y, Z) ensure stable machining.



120mm Y-Axis Travel

The plus side is increased by 40% (−50 to +70 mm) compared to our former machine.
The 3.0kW high power servomotors are used.



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Advantage

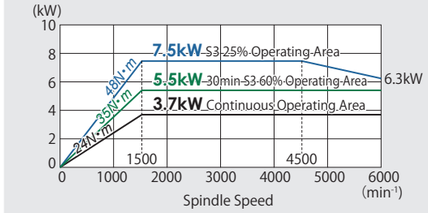
Stronger Milling Power 7.5kW, 12-Station Milling Turret

All holder type employing bolt tightening system. Powerful holders taking advantage of 7.5 kW motor achieve great milling capability.
The number of tools of a turret can be selected from 12 (T12) as standard and 10 (T10)/15 (T15)/20 (T20) as optional for optimum machining.
VDI type 15-station turret is also available.

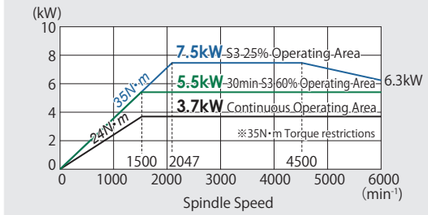
Type of Turret	T12 (STD.)	T10	T15/ T15VDI	T20
Number of Attachable Tools	12	10	15	20
Height of Square Tool Shank	25			20
Diameter of Boring Bar Shank	50		40	32
Diameter of Rotary Tool Shank	26		20	

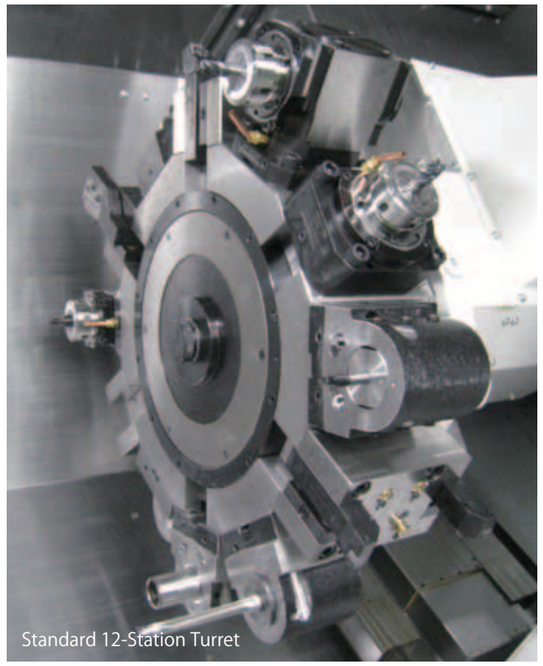
Power Tool

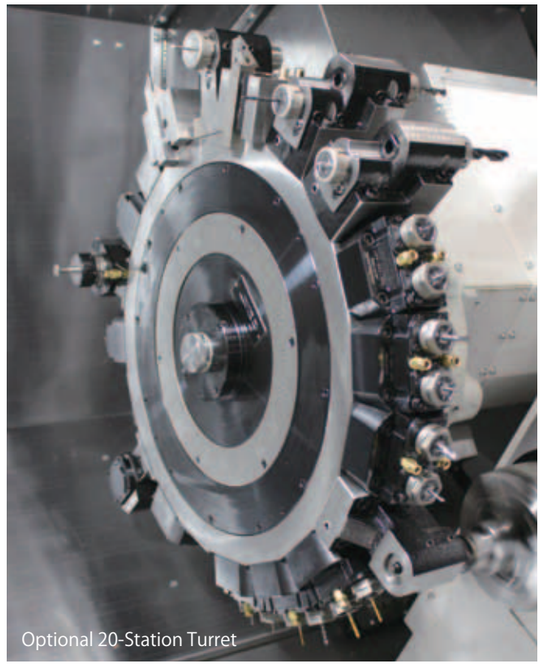
T10/T12/T15 **6000min^{-1}** FANUC : αil3



T15(VDI)/T20 **6000min^{-1}** FANUC : αil3




Standard 12-Station Turret


Optional 20-Station Turret

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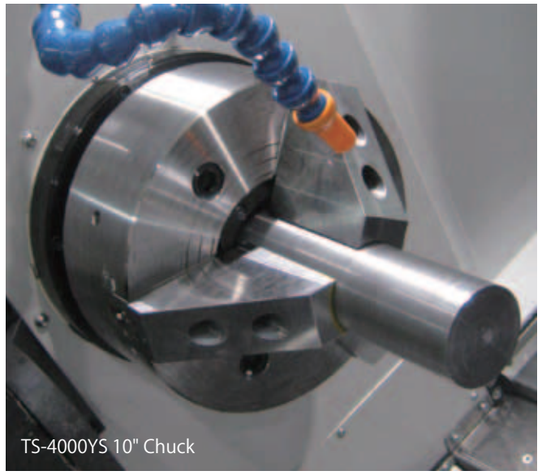
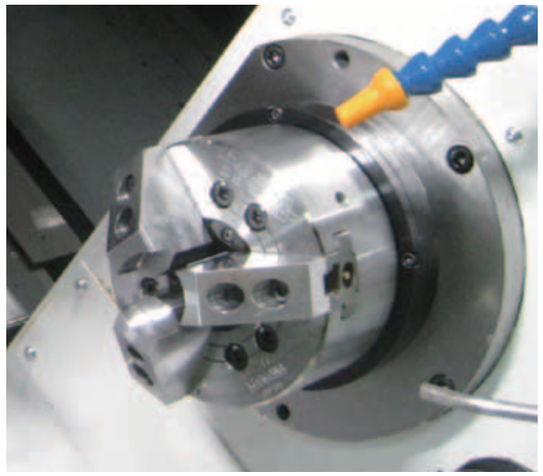
Capability • Performance

High Power Built-in Motor

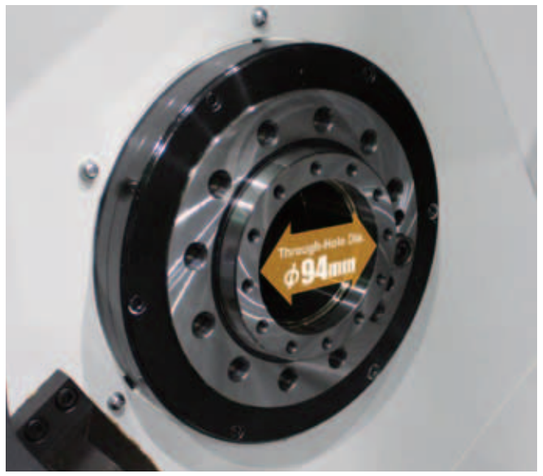


High power built-in motor spindles are used for the left spindle and the right spindle.



		TS-3000	TS-4000	TS-5000
Left Spindle	Motor	15/11kW	22/15kW	22/15kW
	Spindle Speed	5000min^{-1}	4200min^{-1}	2500min^{-1} OP.4200min^{-1}
Right Spindle	Motor	11/7.5kW	11/7.5kW	11/7.5kW
	Spindle Speed	6000min^{-1}	6000min^{-1}	5000min^{-1} OP.6000min^{-1}

ϕ94mm Hole Through Spindle



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

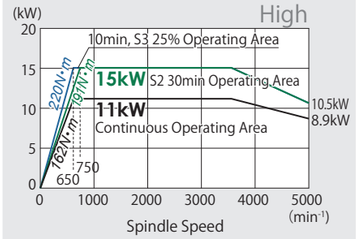
		TS-3000	TS-4000	TS-5000
Left Spindle	Through-Hole Dia.	77mm	94mm	111mm OP.94mm
	Bar Capacity *	67mm	82mm	102mm OP.82mm
Right Spindle	Through-Hole Dia.	53mm	53mm	63mm OP.53mm

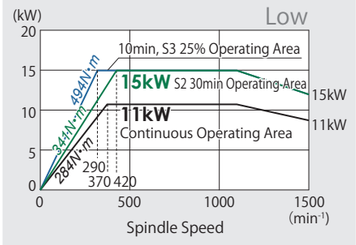
*) Please note the bar capacity follows types of chucks and cylinders.

Main Spindle (Left Side)

TS-3000

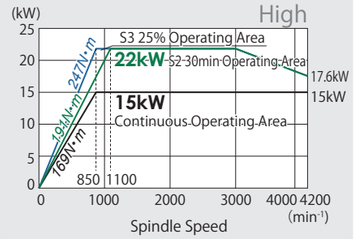
5000min^{-1} FANUC : Bil200S

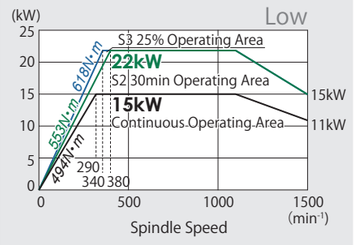




TS-4000/TS-5000 (Op.)

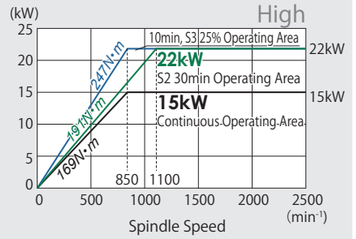
4200min^{-1} FANUC : Bil250S

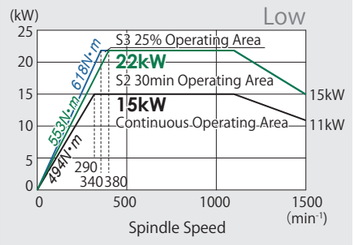




TS-5000

2500min^{-1} FANUC : Bil250S

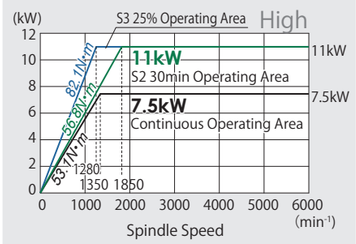


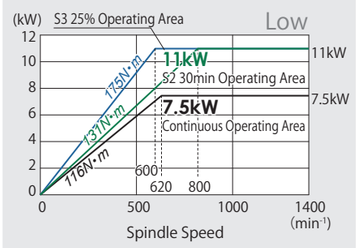


Sub Spindle (Right Side, For YS Type)

TS-3000/TS-4000

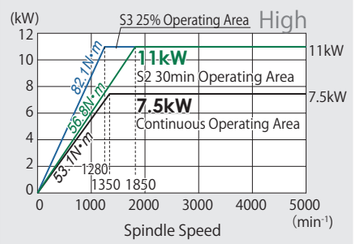
6000min^{-1} FANUC : Bil170S

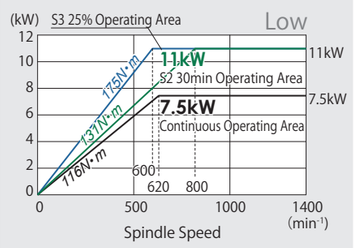




TS-5000

5000min^{-1} FANUC : Bil170S





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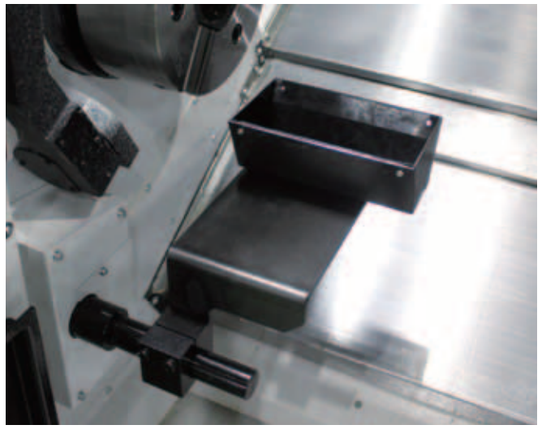
Parts Catcher *1

Ability of parts catcher OD ϕ80mm, Length 200mm, Weight 3kg.

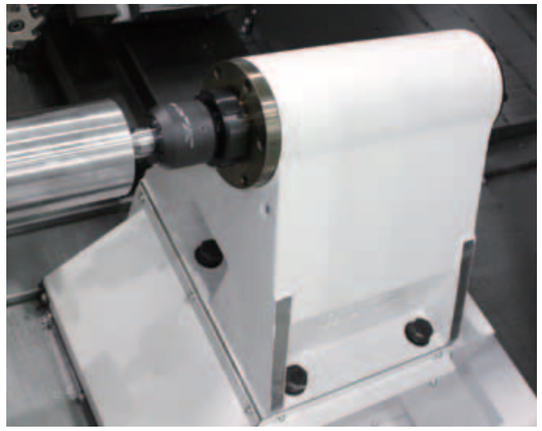


Workpieces cut off during bar machining are safely caught and unloaded to the collection box.

*1) It does not support TS-5000.

NC Servo Tailstock

NC servo tailstock is a standard accessory of Y specification. Even shaft workpieces can be machined powerfully without paying attention to runout.



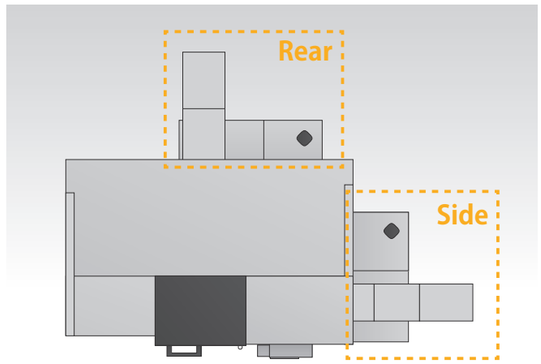
	TS-3000	TS-4000	TS-5000
A-Axis Travel	665mm	780mm	1480mm
Quill Taper	MT No.4	MT No.5	MT No.6 OP.MT No.5

*With Ejecting Nut

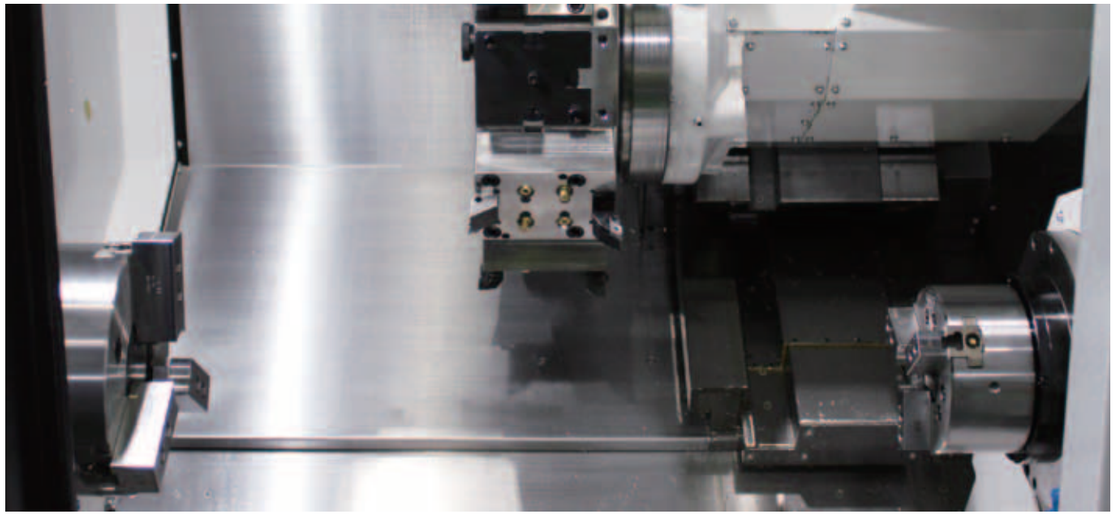
Selectable Discharge Direction

Chip flow allows maximum space efficiency.
Rear discharge*3 or side discharge is selectable according to the machine layout.

*3) It does not support TS-5000.

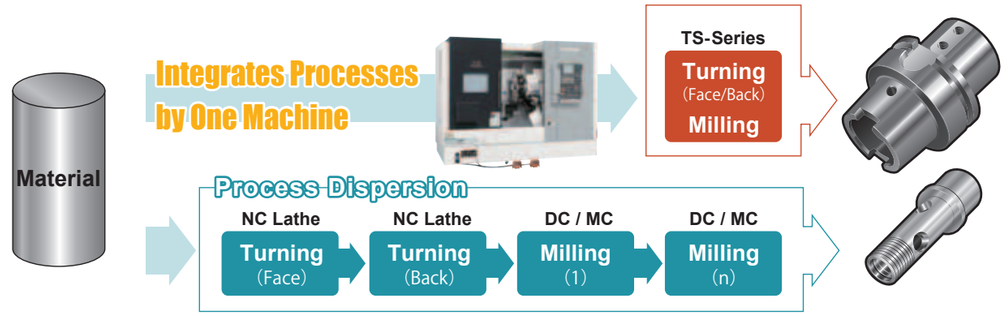


Standard/Maximum Turning Diameter Φ280/Φ370 (T12, OD Tool Overhang 40mm)



Process Integration Flow Chart

Demonstrates the efficiency / advantages of one multi purpose machine against a cell of lathes and machining centres and hi lights the advantages.



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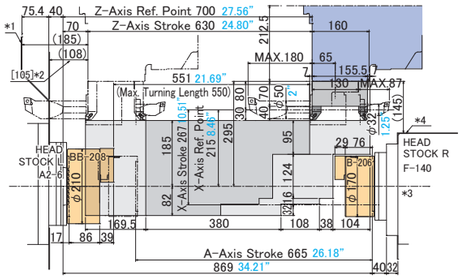
Travel Range TS-3000YS

Unit : mm inch

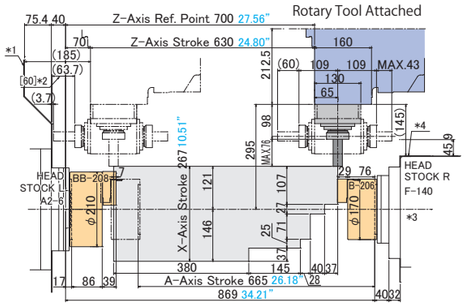
The figure shows operation ranges for both right and left spindle.
Left : BB-208, Right : B-206 / Ranges depends on chuck type.

T10/T12

Turning Tool Attached

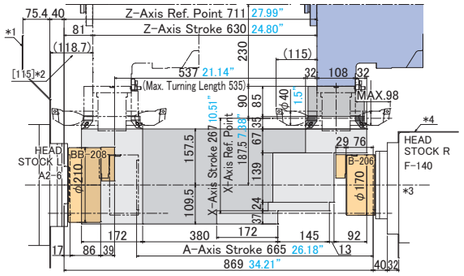


Rotary Tool Attached

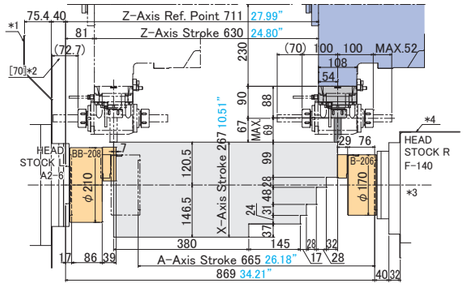


T15

Turning Tool Attached

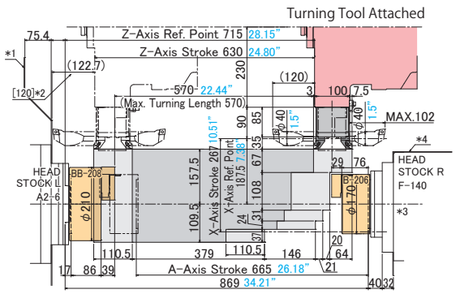


Rotary Tool Attached

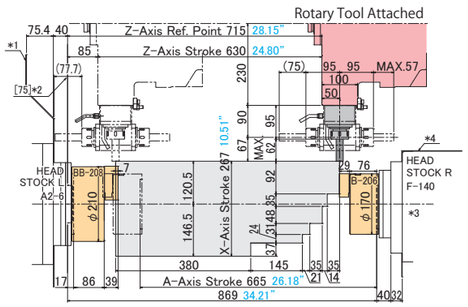


T15 (VDI)

Turning Tool Attached

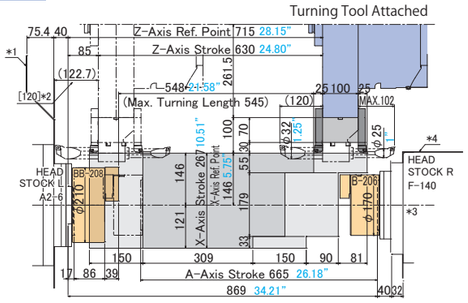


Rotary Tool Attached

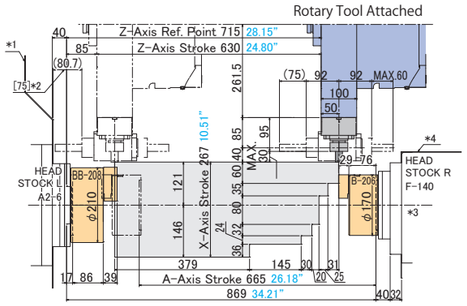


T20

Turning Tool Attached



Rotary Tool Attached



*1) Space for escaping turret near the splash guard.
*2) Tools protruding beyond the dimension in [ ] are indexed to retract position.
*3) The right spindle cannot pass the turret.
*4) Sub spindle cover

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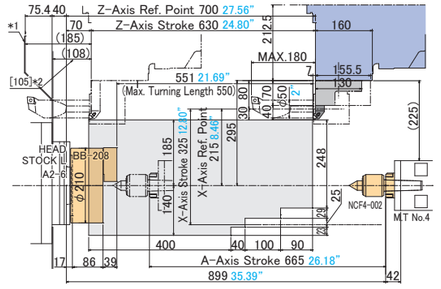
Travel Range TS-3000Y

Unit : mm inch

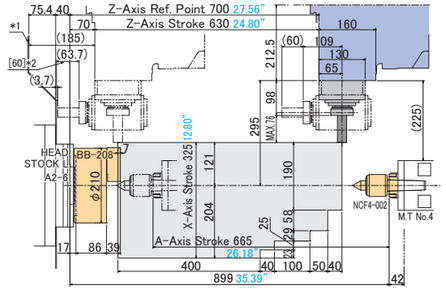
The figure shows operation ranges for left spindle and rolling center.
Left : BB-208, Rolling Center : NCF4-002 / Ranges depends on chuck type.

T10/T12

Turning Tool Attached

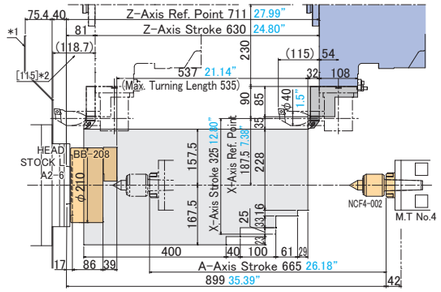


Rotary Tool Attached

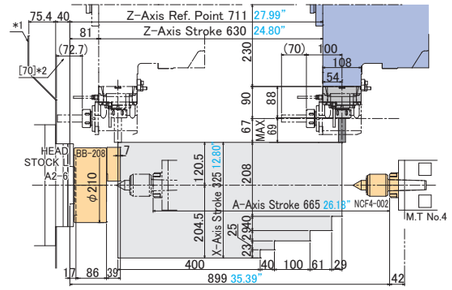


T15

Turning Tool Attached

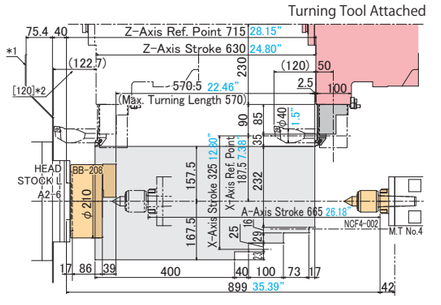


Rotary Tool Attached

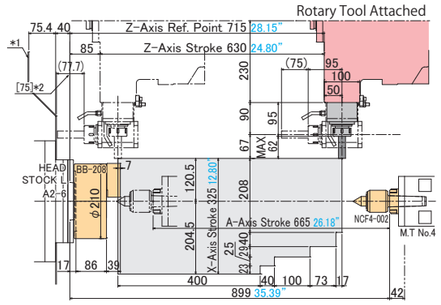


T15 (VDI)

Turning Tool Attached

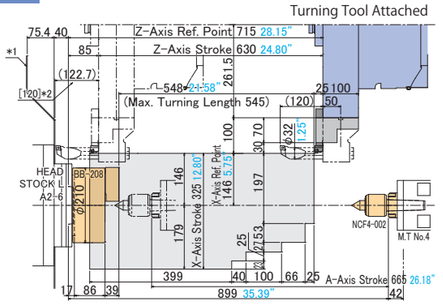


Rotary Tool Attached

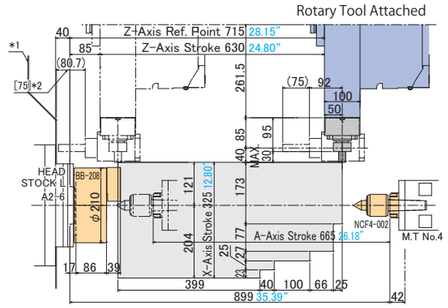


T20

Turning Tool Attached



Rotary Tool Attached



*1) Space for escaping turret near the splash guard.
*2) Tools protruding beyond the dimension in [ ] are indexed to retract position.

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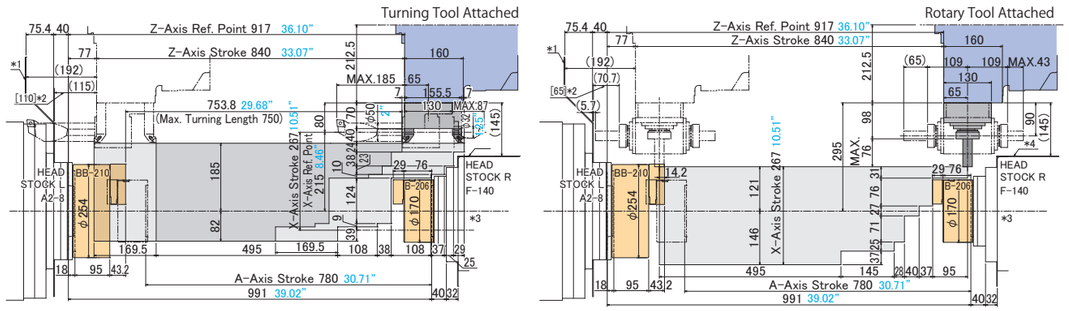
Travel Range TS-4000YS

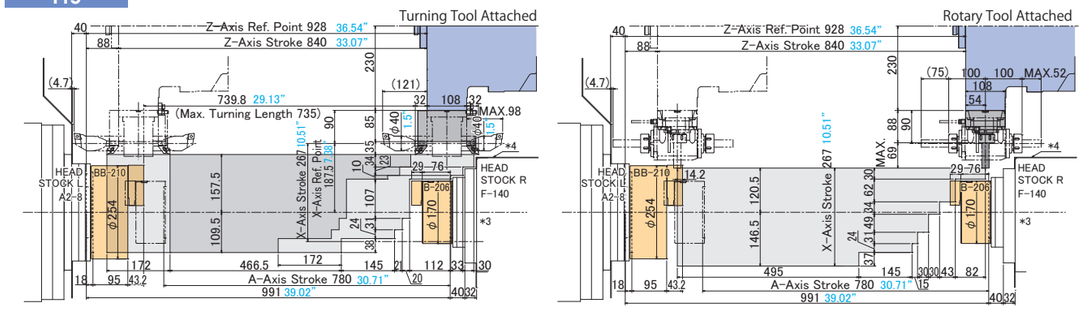
Unit : mm inch

The figure shows operation ranges for both right and left spindle.
Left : BB-210, Right : B-206 / Ranges depends on chuck type.

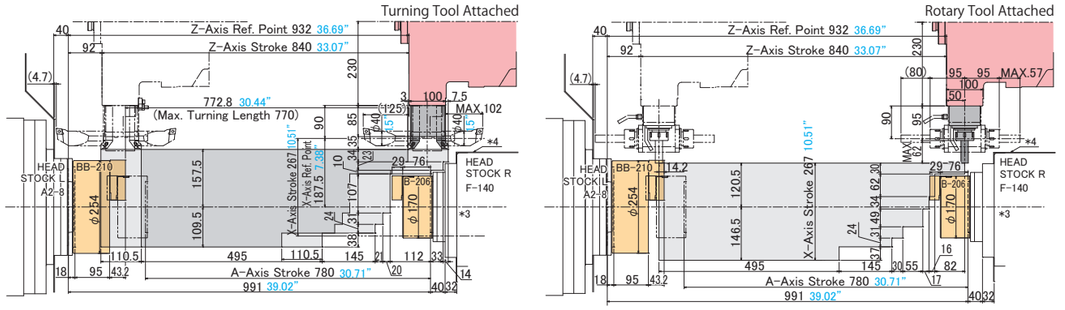
T10/T12



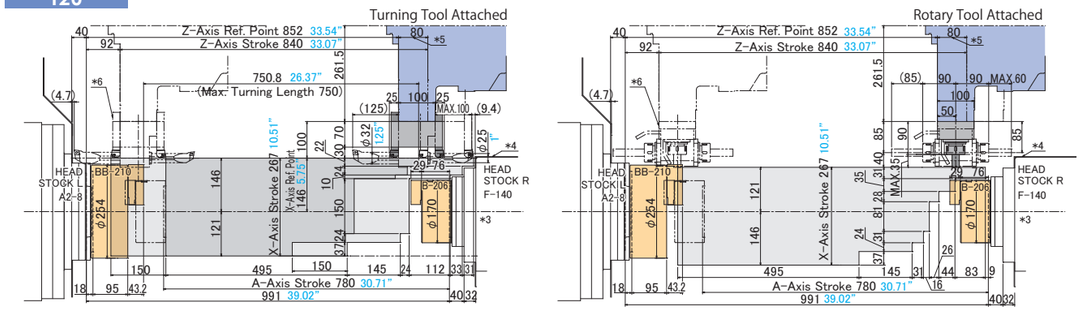
T15



T15 (VDI)



T20



*1) Space for escaping turret near the splash guard.
*2) Tools protruding beyond the dimension in [ ] are indexed to retract position.
*3) The right spindle cannot pass the turret.
*4) Sub spindle cover
*5) In this zone, turret can't be rotated.
*6) Index the holder without interference with left/right spindle or chuck.

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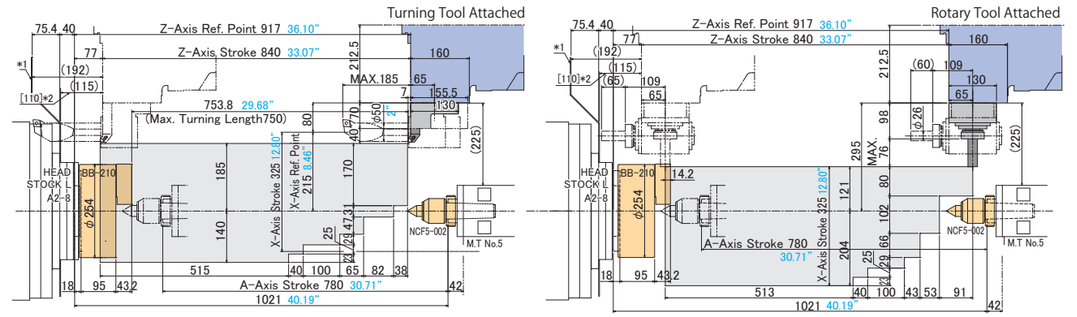
Travel Range TS-4000Y

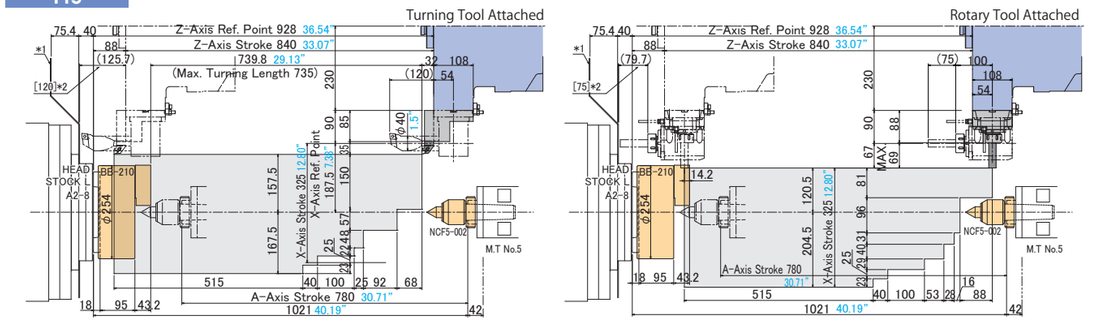
Unit : mm inch

The figure shows operation ranges for left spindle and rolling center.
Left : BB-210, Rolling Center : NCF5-002 / Ranges depends on chuck type.

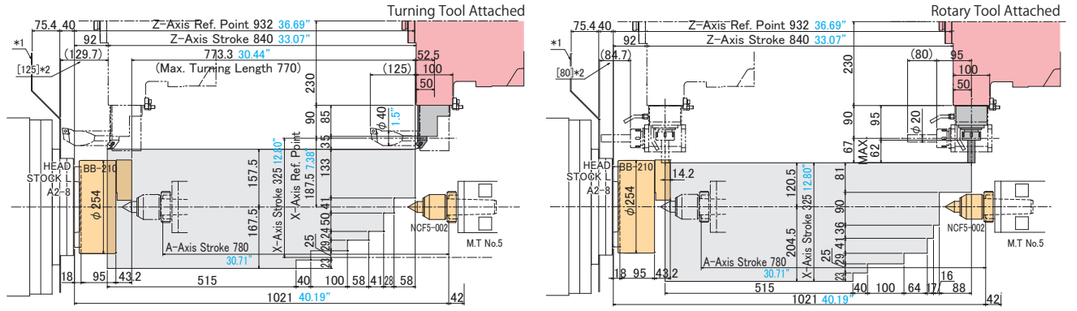
T10/T12



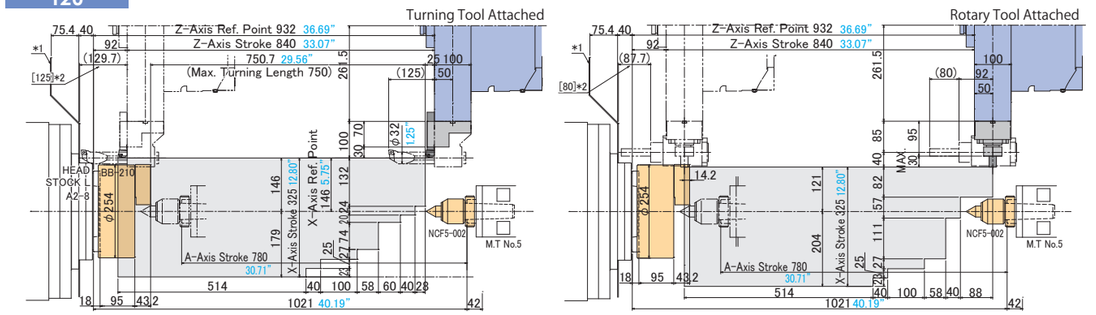
T15



T15 (VDI)



T20



*1) Space for escaping turret near the splash guard.
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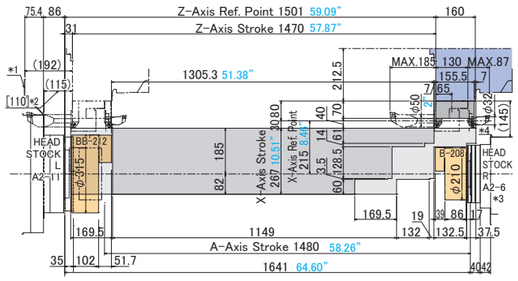
Travel Range TS-5000YS

Unit : mm inch

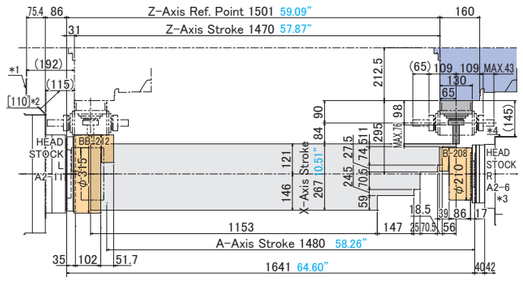
Drawings shows the Spindle Nose : A2-11. The figure shows operation ranges for right and left spindle. Left : BB-212, Right : B-208 / Ranges depends on chuck type.

T10/T12

Turning Tool Attached

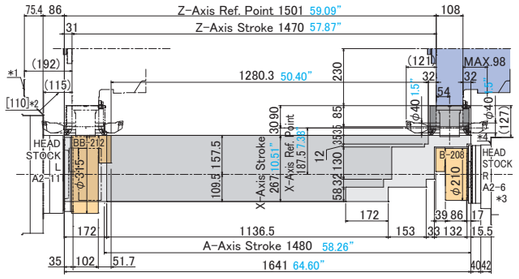


Rotary Tool Attached

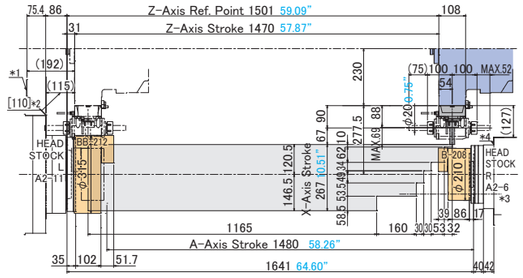


T15

Turning Tool Attached

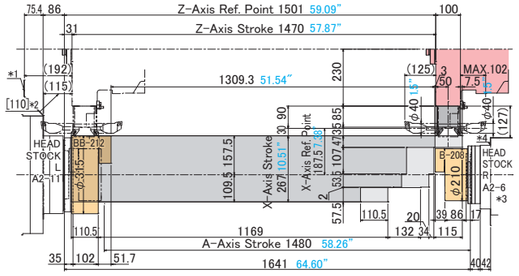


Rotary Tool Attached

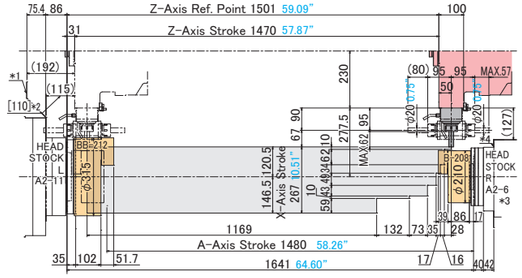


T15 (VDI)

Turning Tool Attached

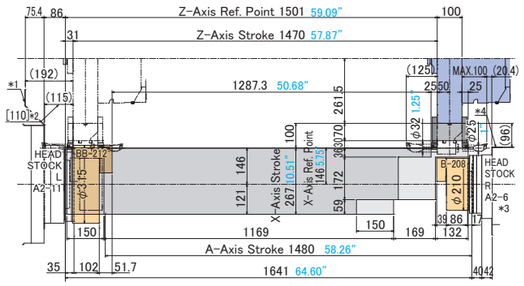


Rotary Tool Attached

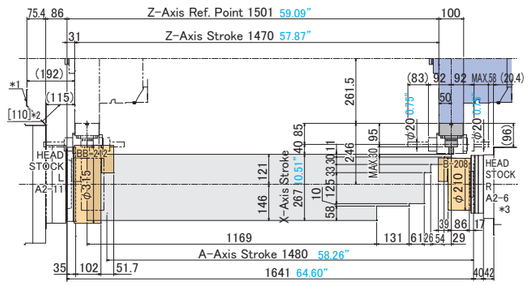


T20

Turning Tool Attached



Rotary Tool Attached



*1) Space for escaping turret near the splash guard.
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*4) Sub spindle cover
*5) In this zone, turret can't be rotated.
*6) Index the holder without interference with left/right spindle or chuck.

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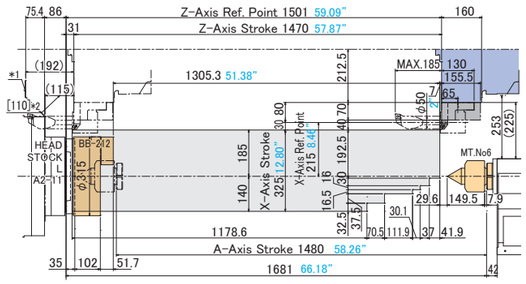
Travel Range TS-5000Y

Unit : mm inch

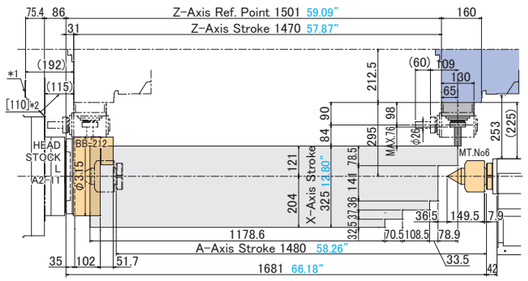
Drawings shows the Spindle Nose : A2-11. The figure shows operation ranges for left spindle and rolling center. Left : BB-212, Rolling Center : LC-6WAUR-00 / Ranges depends on chuck type.

T10/T12

Turning Tool Attached

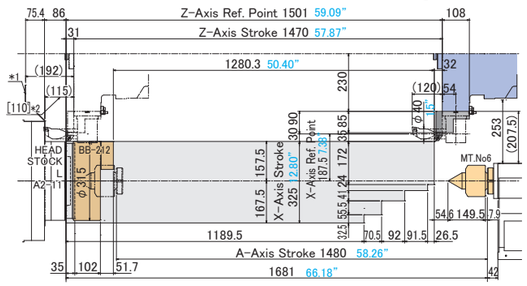


Rotary Tool Attached

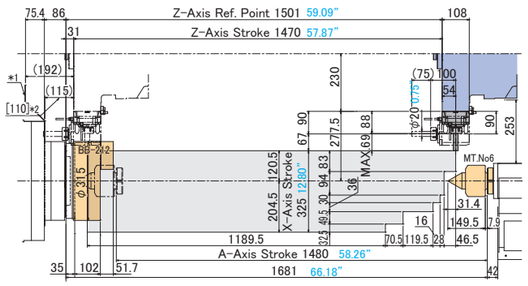


T15

Turning Tool Attached

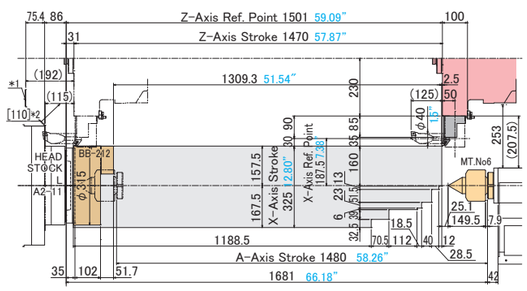


Rotary Tool Attached

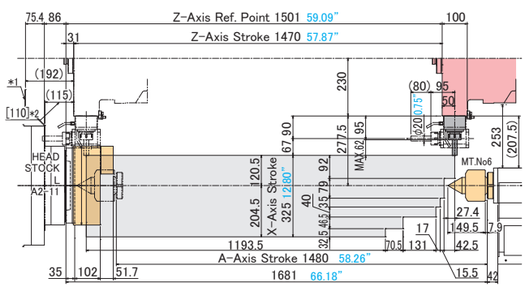


T15 (VDI)

Turning Tool Attached

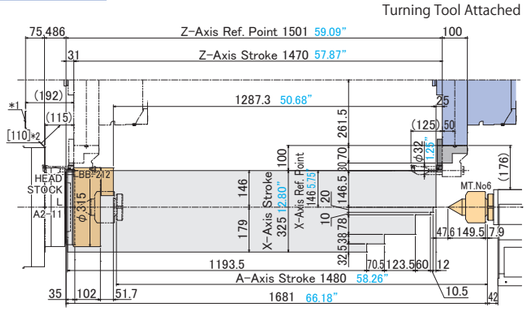


Rotary Tool Attached

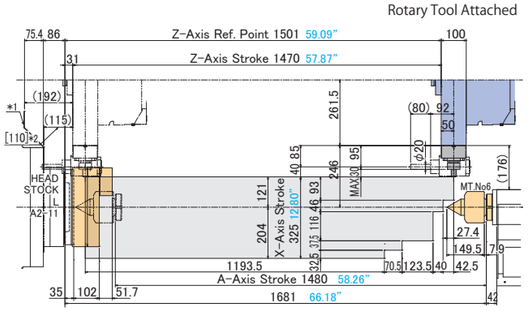


T20

Turning Tool Attached



Rotary Tool Attached



*1) Space for escaping turret near the splash guard.
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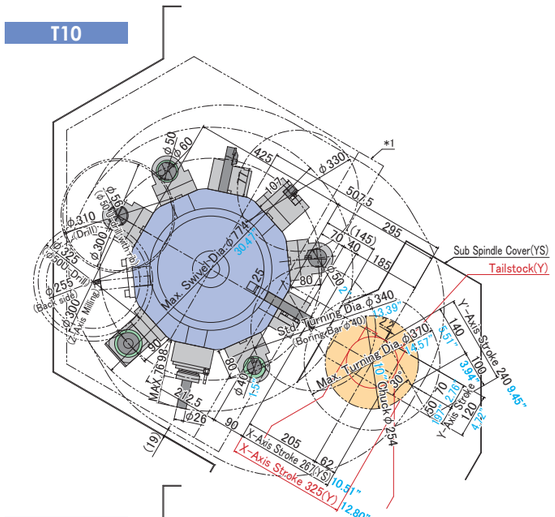
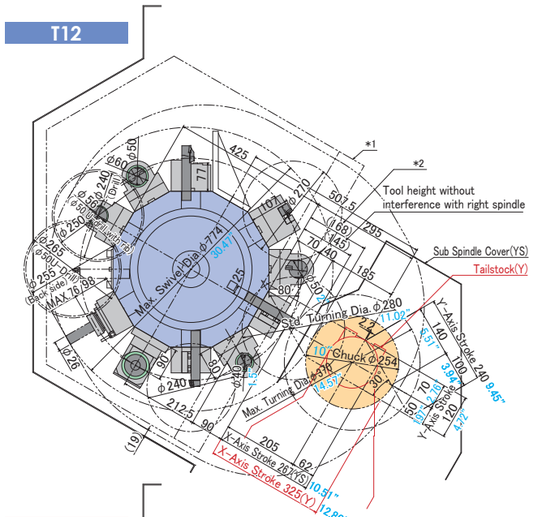
Interference

Unit : mm inch

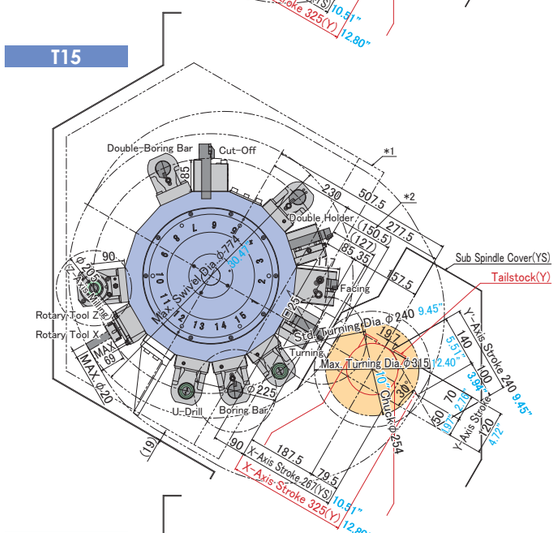
T10



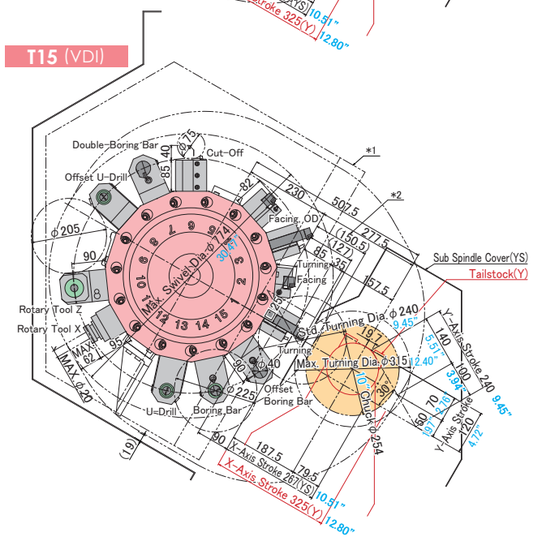
T12



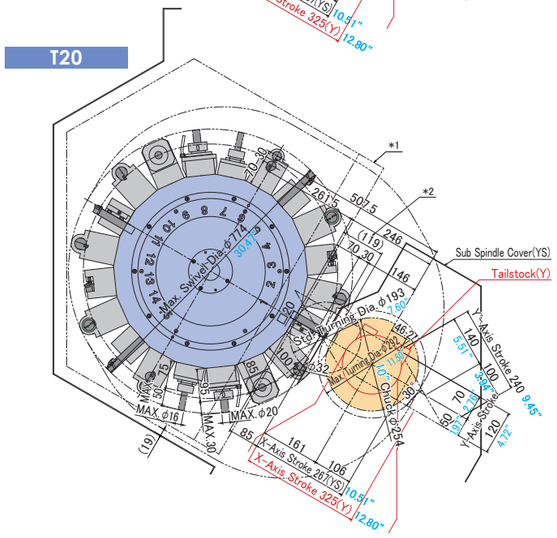
T15



T15 (VDI)



T20



*1) Space for escaping turret near the splash guard
*2) Tool height without interference with Chuck

Turret	T12	T15	T15VDI	T20
10″Chuck	168	150.5	150.5	119
12″Chuck	138	127.4	120	88.5

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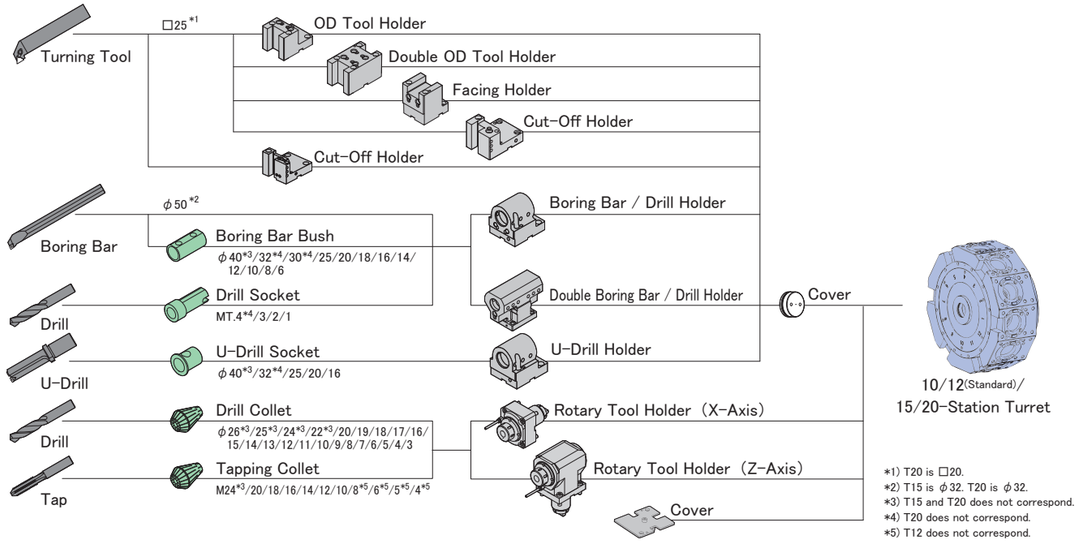
Tooling System

T10/T12/T15/T20

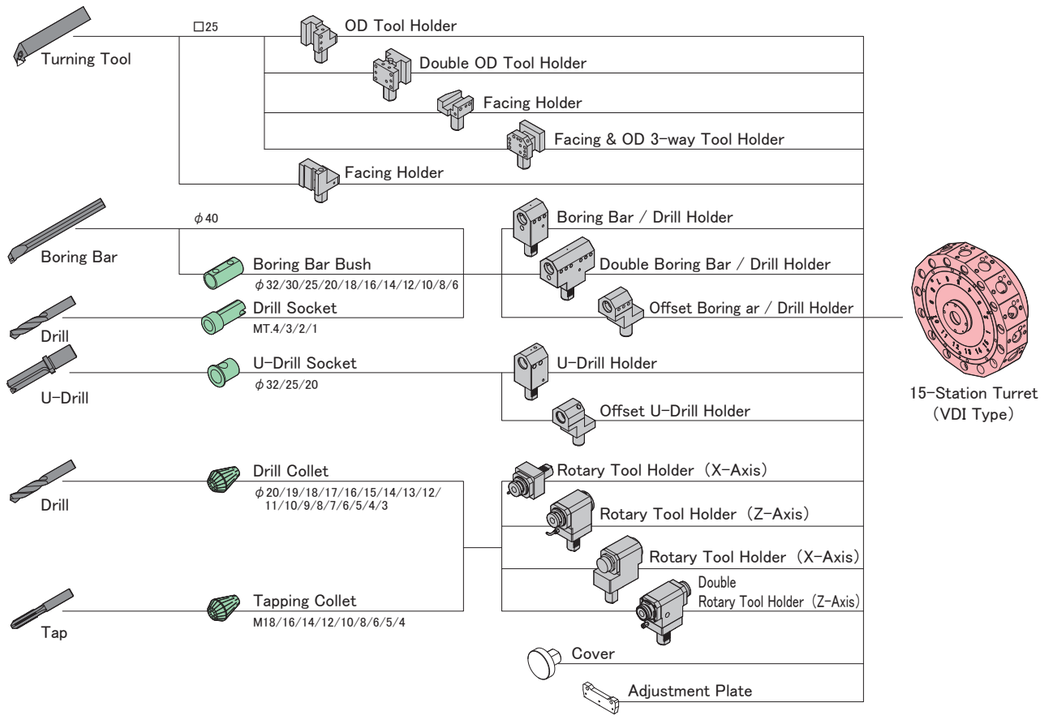
Side Holder Type (Bolted)



*1) T20 is □20.
*2) T15 is ϕ32. T20 is ϕ32.
*3) T15 and T20 does not correspond.
*4) T20 does not correspond.
*5) T12 does not correspond.

T15 (VDI)

VDI Type



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Perfect Dialogue Program Processor

Takisawa Original Software

TiwaP-I

Knowledge of the G-codes is not necessary to create programs. Anyone can easily create programs.

TiwaP-I is Takisawa Original Software Which is Easy for

"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

The arrangement of machining spindles and processes is automatically recognized to execute the spindle control and C-axis zero point return operation efficiently.

Stored Number of Program — 99

Available for max 999 Process on each program (incl. last process) and available max 99 Cutting Configurations.

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

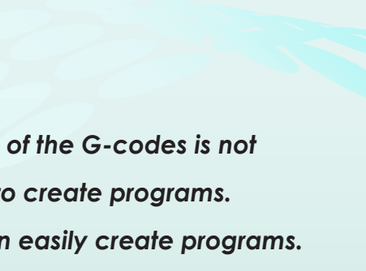
COOPERATION

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

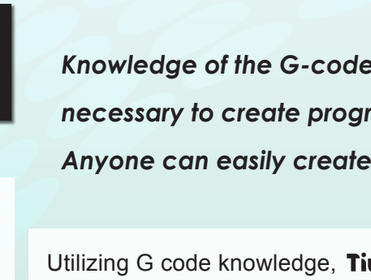
① NC program*1 can be called (set) in the interactive (TiwaP-1) program.
② NC program*2 converted into NC statements by interactive operation (TiwaP-1) can be called (set) in the NC program edited manually.

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

▼ NC Program Edit Screen

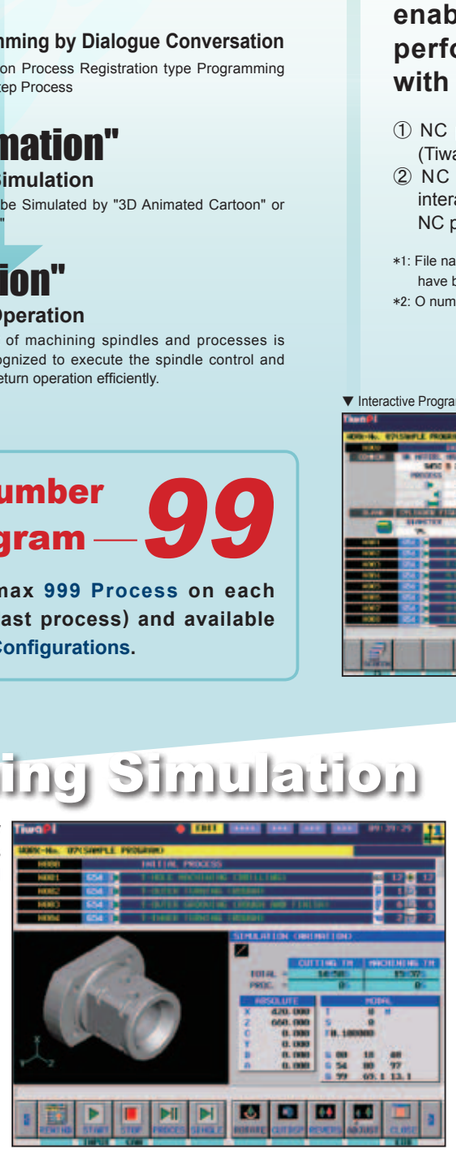


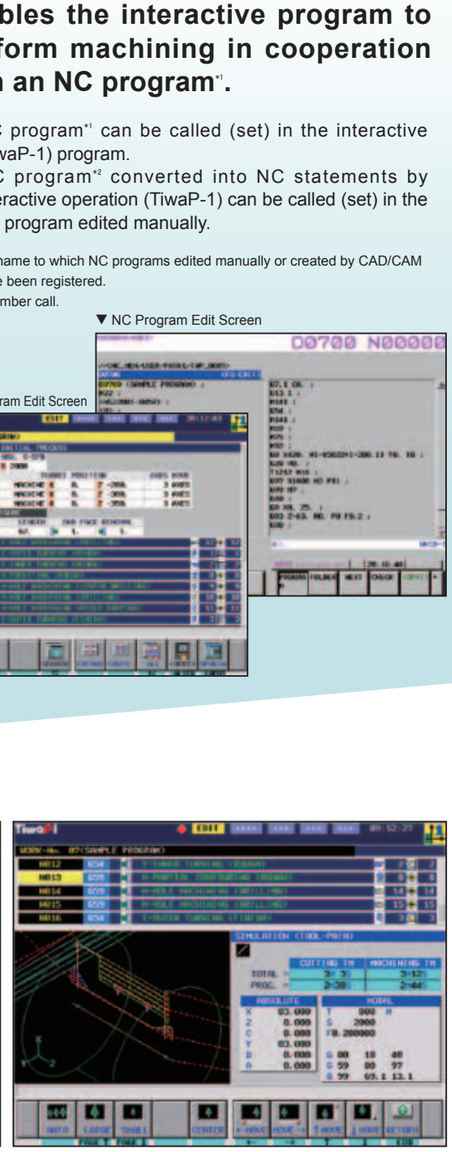
▼ Interactive Program Edit Screen



Machining Simulation

Tool passes can be certainly checked before test cuttings by "3D Animation" or "Tool Tracking".





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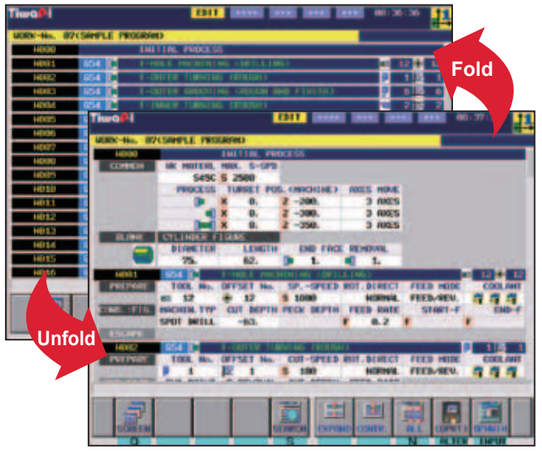
Feature of TiwaP-I

Easy to See

Takisawa's original "Process fold /unfold function" and lucid icons improve visibility.
Operator-friendly and easy to see screen is realized.

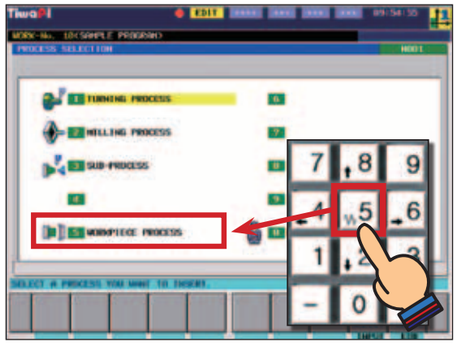
▼【Folder Display for all Process】
All the flows of Process can be checked on the screen.



▲【Elaborate Process display function】
All processing data can be checked and seen on the screen.

Speed Up

When inserting a new processing data through interactivity, there are less items to enter due to Takisawa Standard Initial Value & Tooling/Material Data.



Example) When selecting "workpiece process" just press numeric key "5".

In case of new workpiece programing, the number of input items is decreased due to automatic cutting data setting.

Easy to Use

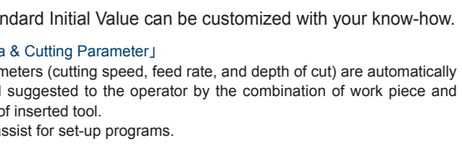
During preparing Program, "Reliable Guide Function" provides support

▶ "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.

▼ By "Reliable Guide Function" Process Tag will be made automatically

▲ By just inserting Cutting data on each process Tag, the Process can be completed.



Suitable Cutting Data can be selected from reference Data Bank

A certain shaped window with a built-in intersection point that contains an automatic calculation.

Takisawa Standard Initial Value can be customized with your know-how.

▶「Tooling Data & Cutting Parameter」
Cutting parameters (cutting speed, feed rate, and depth of cut) are automatically selected and suggested to the operator by the combination of work piece and the material of inserted tool.
It is a great assist for set-up programs.

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Machine Specifications

Items			TS-3000YS				TS-3000Y				TS-4000YS				TS-4000Y				TS-5000YS				TS-5000Y			
	Turret Type		T12 (STD.)	T10	T15	T20	T12 (STD.)	T10	T15	T20	T12 (STD.)	T10	T15	T20	T12 (STD.)	T10	T15	T20	T12 (STD.)	T10	T15	T20	T12 (STD.)	T10	T15	T20
Capability・Capacity	Max. Swing	mm inch	600 23.62″				600 23.62″				600 23.62″				600 23.62″				600 23.62″				600 23.62″			
	Standard Turning Diameter	mm inch	280 11.02″	340 13.39″	240 9.45″	193 7.60″	280 11.02″	340 13.39″	240 9.45″	193 7.60″	280 11.02″	340 13.39″	240 9.45″	193 7.60″	280 11.02″	340 13.39″	240 9.45″	193 7.60″	280 11.02″	340 13.39″	240 9.45″	193 7.60″	280 11.02″	340 13.39″	240 9.45″	193 7.60″
	Max. Turning Diameter	mm inch	370 14.57″		315 12.40″	292 11.54″	370 14.57″		315 12.40″	292 11.54″	370 14.57″		315 12.40″	292 11.54″	370 14.57″		315 12.40″	292 11.54″	370 14.57″		315 12.40″	292 11.54″	370 14.57″		315 12.40″	292 11.54″
	Max. Turning Length	mm inch	550 21.65″		535 21.06″	545 21.46″	550 21.65″		535 21.06″	545 21.46″	750 29.53″		735 28.94″	750 29.53″	750 29.53″		735 28.94″	750 29.53″	1300 51.18″		1285 50.59″	1300 51.18″	1300 51.18″		1285 50.59″	1300 51.18″
	Bar Capacity	mm inch	67 *2 2.64″				67 *2 2.64″				82 *2 3.23″				82 *2 3.23″				102 82 *2 4.02″ 3.23″				102 82 *2 4.02″ 3.23″			
Travel	X-Axis Travel	mm inch	267 10.51″				325 12.80″				267 10.51″				325 12.80″				267 10.51″				325 12.80″			
	Z-Axis Travel	mm inch	630 24.80″				630 24.80″				840 33.07″				840 33.07″				1470 57.87″				1470 57.87″			
	Y-Axis Travel	mm inch	−50 ～ +70 −1.97″ ～ +2.76″				−50 ～ +70 −1.97″ ～ +2.76″				−50 ～ +70 −1.97″ ～ +2.76″				−50 ～ +70 −1.97″ ～ +2.76″				−50 ～ +70 −1.97″ ～ +2.76″				−50 ～ +70 −1.97″ ～ +2.76″			
	A-Axis Travel	mm inch	665 26.18″				665 26.18″				780 30.71″				780 30.71″				1480 58.26″				1480 58.26″			
Left Spindle	Spindle Speed	min^{-1}	5000				5000				4200				4200				2500 4200				2500 4200			
	Spindle Nose		A2-6				A2-6				A2-8				A2-8				A2-11 A2-8				A2-11 A2-8			
	Through-Hole Diameter	mm inch	77 3.03″				77 3.03″				94 3.70″				94 3.70″				111 94 4.37″ 3.70″				111 94 4.37″ 3.70″			
	Bearing Inside Diameter	mm inch	120 4.72″				120 4.72″				140 5.51″				140 5.51″				160 140 6.30″ 5.51″				160 140 6.30″ 5.51″			
Right Spindle	Spindle Speed	mm inch	6000				−				6000				−				5000 6000				−			
	Spindle Nose		F140				−				F140				−				A2-6 F140				−			
	Through-Hole Diameter	mm inch	53 2.09″				−				53 2.09″				−				63 53 2.48″ 2.09″				−			
	Bearing Inside Diameter	mm inch	90 3.54″				−				90 3.54″				−				100 90 3.94″ 3.54″				−			
Turret	Type of Turret	mm inch	Side Holder Type (Bolted)		Side Holder Type (Bolted) / VDI	Side Holder Type (Bolted)	Side Holder Type (Bolted)		Side Holder Type (Bolted) / VDI	Side Holder Type (Bolted)	Side Holder Type (Bolted)		Side Holder Type (Bolted) / VDI	Side Holder Type (Bolted)	Side Holder Type (Bolted)		Side Holder Type (Bolted) / VDI	Side Holder Type (Bolted)	Side Holder Type (Bolted)		Side Holder Type (Bolted) / VDI	Side Holder Type (Bolted)	Side Holder Type (Bolted)		Side Holder Type (Bolted) / VDI	Side Holder Type (Bolted)
	Number of Attachable Tools		12	10	15	20	12	10	15	20	12	10	15	20	12	10	15	20	12	10	15	20	12	10	15	20
	Turret Opposite Side	mm inch	425 16.73″		460 18.11″	523 20.59″	425 16.73″		460 18.11″	523 20.59″	425 16.73″		460 18.11″	523 20.59″	425 16.73″		460 18.11″	523 20.59″	425 16.73″		460 18.11″	523 20.59″	425 16.73″		460 18.11″	523 20.59″
	Height of Square Tool Shank	mm inch	25 1″		25 1″	20 0.75″	25 1″		25 1″	20 0.75″	25 1″		25 1″	20 0.75″	25 1″		25 1″	20 0.75″	25 1″		25 1″	20 0.75″	25 1″		25 1″	20 0.75″
	Diameter of Boring Bar Shank	mm inch	L:50, R:32 L:2″, R:1.25″		40 1.5″	L:32, R:25 L:1.25″, R:1″	50 2″		40 1.5″	32 1.25″	L:50, R:32 L:2″, R:1.25″		40 1.5″	L:32, R:25 L:1.25″, R:1″	50 2″		40 1.5″	32 1.25″	L:50, R:32 L:2″, R:1.25″		40 1.5″	L:32, R:25 L:1.25″, R:1″	50 2″		40 1.5″	32 1.25″
Rotary Tool	Number of Rotary Tools		12	10	15	20	12	10	15	20	12	10	15	20	12	10	15	20	12	10	15	20	12	10	15	20
	Spindle Speed	min^{-1}	6000				6000				6000				6000				6000				6000			
	Max. Tool Shank Diameter	mm inch	26 1″		20 0.75″		26 1″		20 0.75″		26 1″		20 0.75″		26 1″		20 0.75″		26 1″		20 0.75″		26 1″		20 0.75″	
	Tool Spindle Taper Hole		AR40		AR32		AR40		AR32		AR40		AR32		AR40		AR32		AR40		AR32		AR40		AR32	
	Tool Spindle Bearing Inside Diameter	mm inch	45 1.77″		35 1.38″		45 1.77″		35 1.38″		45 1.77″		35 1.38″		45 1.77″		35 1.38″		45 1.77″		35 1.38″		45 1.77″		35 1.38″	
Feedrate	Rapid Traverse Rate (X/Z/Y/A)	m/min ipm	30/30/10/30 1181.10″/1181.10″/393.70″/1181.10″				30/30/10/13 1181.10″/1181.10″/393.70″/511.81″				30/30/10/30 1181.10″/1181.10″/393.70″/1181.10″				30/30/10/13 1181.10″/1181.10″/393.70″/511.81″				30/30/10/30 1181.10″/1181.10″/393.70″/1181.10″				30/30/10/13 1181.10″/1181.10″/393.70″/511.81″			
Tailstock	Quill Taper		−				Rolling Center (MT. No.4)				−				Rolling Center (MT. No.5)				−				Rolling Center (MT. No.6) Rolling Center (MT. No.5)			
Motors	Spindle Motor (30 min/continuous)	kW HP	15/11 20/14.7				15/11 20/14.7				22/15 29.3/20				22/15 29.3/20				22/15 29.3/20				22/15 29.3/20			
	Right Spindle Motor (30 min/continuous)	kW HP	11/7.5 14.7/10				−				11/7.5 14.7/10				−				11/7.5 14.7/10				−			
	Rotary Tool Motor (S3 25%/continuous)	kW HP	7.5/3.7 10/4.9				7.5/3.7 10/4.9				7.5/3.7 10/4.9				7.5/3.7 10/4.9				7.5/3.7 10/4.9				7.5/3.7 10/4.9			
	Feed Axis Motor (X/Z/Y/A)	kW HP	3.0/3.0/3.0/2.5 4/4/4/3.3				3.0/3.0/3.0/2.5 4/4/4/3.3				3.0/3.0/3.0/2.5 4/4/4/3.3				3.0/3.0/3.0/2.5 4/4/4/3.3				3.0/3.0/3.0/2.5 4/4/4/3.3				3.0/3.0/3.0/2.5 4/4/4/3.3			
	Hydraulic Pump Motor	kW HP	1.5 2				1.5 2				1.5 2				1.5 2				1.5 2				1.5 2			
	Coolant Pump Motor	kW HP	0.52 0.7				0.52 0.7				0.52 0.7				0.52 0.7				0.52 0.7				0.52 0.7			
Required Power	Electric Power	kVA	29.0				29.0				33				33				33.0				33.0			
Tank Capacity	Coolant Tank	L gal	320 84.48				320 84.48				370 97.68				370 97.68				470 124.08				470 124.08			
Machine Size	Machine Height	mm inch	2300 90.55″				2300 90.55″				2300 90.55″				2300 90.55″				2300 90.55″				2300 90.55″			
	Height form Floor to Spindle Centerline	mm inch	1140 44.88″				1140 44.88″				1140 44.88″				1140 44.88″				1140 44.88″				1140 44.88″			
	Required Floor Space	mm×mm inch×inch	2800 × 2140 *1 110.24″ × 84.58″				2800 × 2070 *1 110.24″ × 81.50″				3000 × 2140 *1 118.11″ × 84.58″				3000 × 2070 *1 118.11″ × 81.50″				4105 × 2165 *1 161.61″ × 85.24″				4105 × 2165 *1 161.61″ × 85.24″			
	Machine Weight	kg lbs	6200 13640				6000 13200				6200 13640				6000 13200				8700 19140				8500 18700			

Red is optional.

*1) Without Oil Pan and Chip Conveyor

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

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Other Main Specifications・Accessories

Items		YS	Y
Spindle Cooler		●	●
Tool Setter	Main Spindle	● (Turn Type)	● (Turn Type)
	Sub Spindle	● (Removable Type)	–
Chuck Airblow	Sub Spindle	●	–
Parts Catcher *7	Main Spindle	●	● *9
Sub Spindle Work Extruder (Spring Type) *1 *7		●	–
NC Servo Tailstock *5		–	●
Rolling Center		–	○
OD Tool Holder (for Main Spindle)		● (2 Piece)	● (4 Piece)
Double OD Tool Holder (for Main/Sub Spindle)		● (2 Piece)	–
Boring Bar / Drill Holder	Includes 1 piece of self-boring	● (4 Piece)	● (4 Piece)
Boring Bar Bush		● (4 Piece)	● (4 Piece)
Cut-Off Holder		● (1 Piece)	–
Front Door Interlock		●	●
Facing Holder		○	● (1 Piece)
Chuck Auto Open/Close M-Function		● (L/R Each 1)	● (L 1)
Chuck Open/Close Footswitch		●	●
Coolant Pump	520W : 1 Unit	●	●
Lubricant Collection Box *4		●	●
Lighting Apparatus	LED	●	●
Hydraulic Pressure Switch		●	●
Auto Power-Off System		●	●
Air Purge (L/R Spindle, Turret)		●	●
Tiwap-1 *6		●	●
Instruction Manual		●	●

Items		YS	Y
Bar Feeder Interface		○	○
Filler Tube		○	○
Work Pusher	Sub Spindle	○	–
Rotary Tool Holder for X-Axis Milling (φ26, 6000min^{-1})		○	○
Rotary Tool Holder for X-Axis Face Mill (FMC22, 3500min^{-1})		○	○
Rotary Tool Holder for Z-Axis Milling (φ26, 6000min^{-1})		○	○
Collet		○	○
Hollow Hydraulic Chuck *3	Main Spindle	○	○
	Sub Spindle	○	–
Hydraulic Chuck Cylinder *3	Main Spindle	○	○
	Sub Spindle	○	–
Spindle Through Coolant	Main Spindle	○	○
Chip Conveyor *2	Rear *7/Side Discharge	○	○
Chip Bucket		○	○
Signal Tower Light	3-Color, Lighting	○	○
Auto Door	Left Open, Double Doors *8	○	○
Counter		○	○
19″ Touch Panel Monitor		○	○

●:Standard ○:Optional —:None

＊For other optional accessories, please contact us.

*1) Installation is allowed only when hollow type hydraulic chuck/cylinder are provided.

*2) Rear or side discharge chip conveyor must be selected and installed.

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

	TS-3000		TS-4000		TS-5000	
	Main Spindle	Sub Spindle	Main Spindle	Sub Spindle	Main Spindle	Sub Spindle
Hollow Hydraulic Chuck	BB-208	B-206	BB-210	B-206	BB-212	B-208
Hydraulic Chuck Cylinder	SS1666K	SIN-S100 (Solid cyl.)	SS1881K	SIN-S100 (Solid cyl.)	SS2110K	SIN-S125 (Solid cyl.)
ID of Draw Tube	66	–	81	–	103	–
Bar Capacity	65	–	80	–	102	–

*4) 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.

*5) With ejecting nut.

*6) Option in U.S.A.

*7) For TS-4000, TS-3000.

*8) TS-3000/4000 : Left Open, TS-5000 : Double Doors

*9) Standard only for Europe, North America and Russia.

Special Specification Example

Work Discharging Unloader

Discharging Partscatcher

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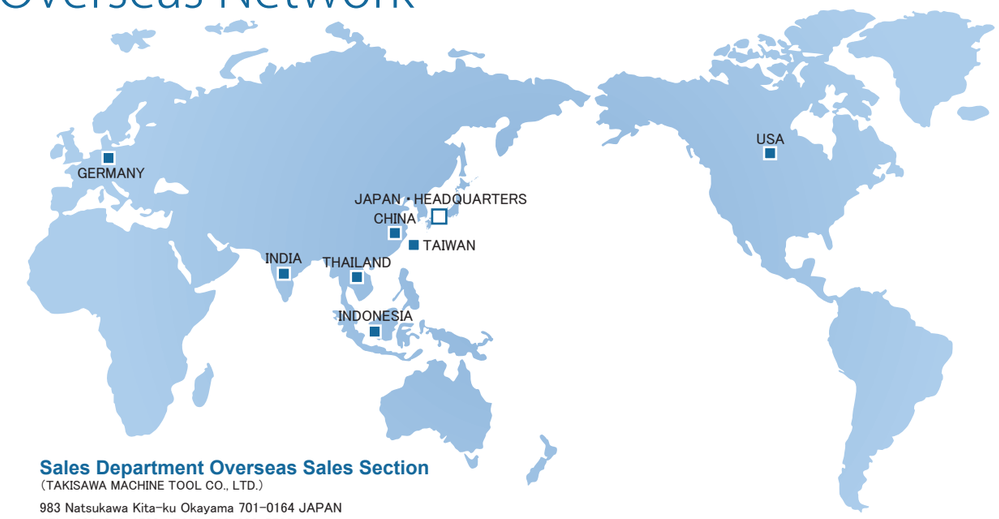
Network

The TAKISAWA Technology and Network Services the World.

Please feel free to contact us to your nearest sales representatives.

Overseas Network



Sales Department Overseas Sales Section
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THAILAND	Takisawa (Thailand) Co., Ltd. Telephone : (66)2-012-1530-2 Fax : (66)2-012-1533
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INDIA	SAP Takisawa Machine Tools Private Ltd. Telephone : (91)80-26662386 Fax : (91)80-26662392
CHINA	Takisawa (Shanghai) Co., Ltd. Takisawa Machine Tool Shanghai Representative Office 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)2056-2598-15 Fax : (49)2056-5994-79

Domestic Network

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Kitakantou Office	TEL : (81)27-251-7417 FAX : (81)27-251-7437
Kantou Office	TEL : (81)48-421-8085 FAX : (81)48-421-0868
Nishikantou Office	TEL : (81)46-222-7763 FAX : (81)46-222-7764
Nagoya Office	TEL : (81)52-351-3291 FAX : (81)52-369-1002
Hamamatsu Office	TEL : (81)53-439-0131 FAX : (81)53-439-0141
Osaka Office	TEL : (81)72-965-4671 FAX : (81)72-965-4676
Okayama Office	TEL : (81)86-293-1520 FAX : (81)86-293-1509
Hiroshima Office	TEL : (81)82-282-7815 FAX : (81)82-282-7816
Fukuoka Office	TEL : (81)92-573-7201 FAX : (81)92-573-7237
Niigata Office	TEL : (81)258-25-4450 FAX : (81)258-22-7680
Nagano Office	TEL : (81)263-53-5866 FAX : (81)263-53-5870

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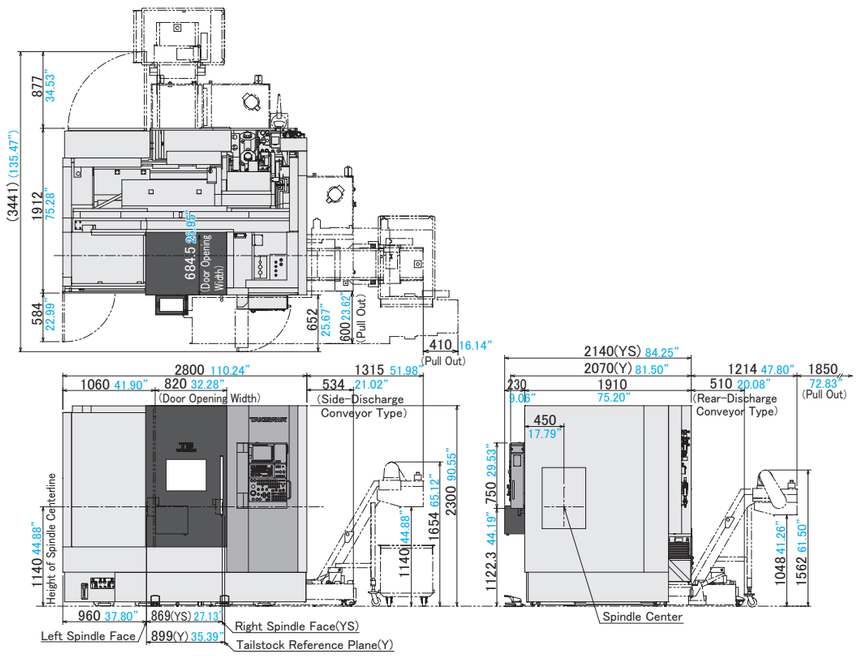
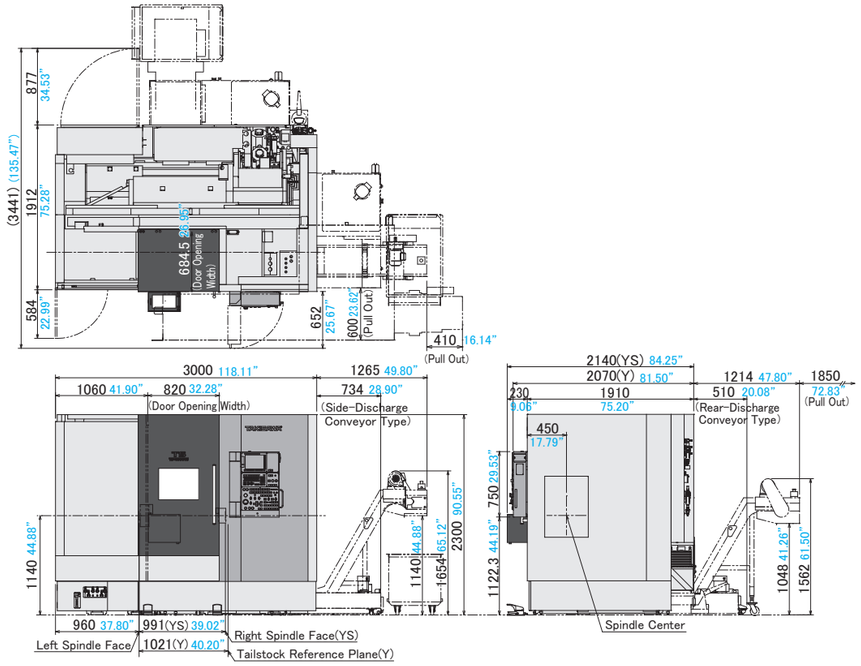
Machine Dimensions

Unit : mm inch

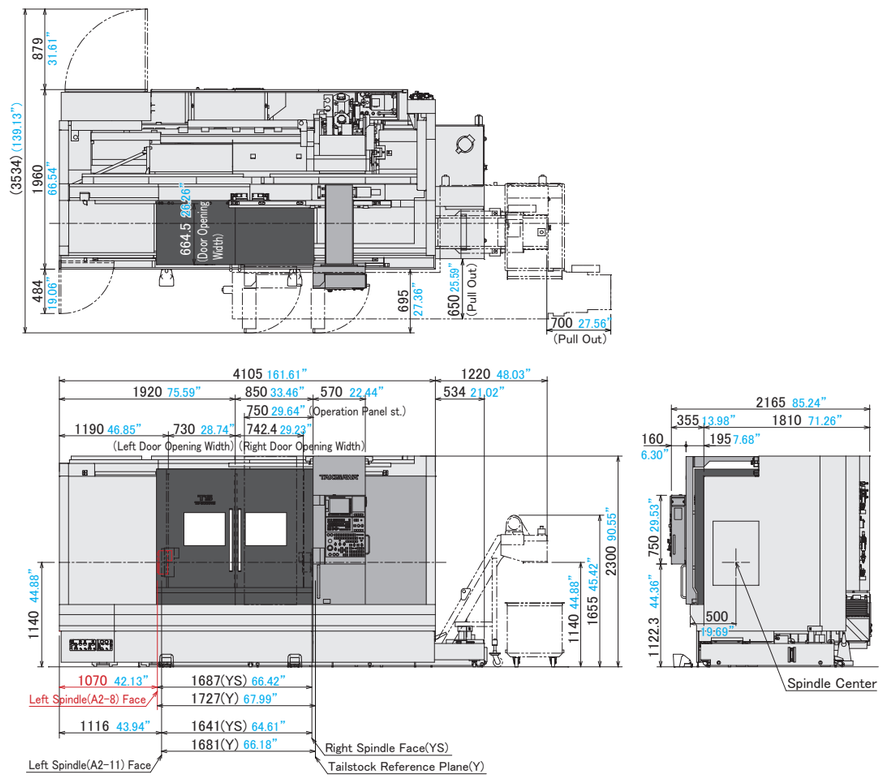
TS-3000



TS-4000



TS-5000



TS-5000Y

*Photo includes options.
(19″ Touch Panel Monitor, Chip Conveyor, Signal Tower Light)

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TS-Series
NC Unit Specifications

FANUC : 32i-B

※ Please contact our sales persons for further information.

Composition

Specifications・Contents	YS	Y
【NC Unit】		
Number of Control Axes	6	5
Simultaneous Number of Control Axes	4	
【Operation Panel】		
Screen (10.4″ color LCD/MDI)	●	
【Software】		
Tiwap-1	● *17	
RAKU-RAKU Monitor 3	○	
Measurement Monitor 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	YS	Y
【Controlled Axes】		
Least Input Increment *2	●	●
Max. Programmable Dimension (±999999.999)	●	●
Cs Contouring Control	● L + R	●
Increment System C *3	○	○
Inch/Metric Conversion	●	●
Interlock	●	●
Machine Lock	○	○
Emergency Stop	●	●
Stored Stroke Check 1	●	●
Stored Stroke Check 2, 3 *4	○	○
Stored Limit Check Before Move	○	○
Chuck and Tail Stock Barrier *5	○	○
Mirror Image (Each Axis)	▲	▲
Follow-Up	●	●
Chamfering ON/OFF	●	●
Unexpected Disturbance Torque Detection Function *6	○	○
Position Switch	◎	◎
【Operation】		
Automatic Operation (Memory)	●	●
MDI Operation	●	●
DNC Operation with Memory Card *7 *8	◎	◎
Program Number Search	●	●
Sequence Number Search	●	●
Sequence Number Comparison and Stop	○	○
Program Restart	◎	◎
Tool Retract and Recover	○	○
Wrong Operation Prevention	▲	▲
Buffer Register	●	●
Dry Run	●	●
Single Block	●	●
Manual Continuous Feed (JOG)	●	●
Manual Reference Position Return	●	●
Reference Position Setting without DOG	●	●
Manual Handle Feed, 1 Unit	●	●
Handle interruption	◎	◎
Jog and Handle Simultaneous Mode	▲	▲
【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	●	●
Continuous Threading	●	●
Variable Lead Thread Cutting	○	○
Circular Thread Cutting	○	○
Polygon Machining with Two Spindles	○	○
Skip (G31)	◎	◎
Torque Limit Skip	●	●
Reference Position Return (G28)	●	●
Reference Position return Check (G27)	●	●
2nd Reference Position Return (G30)	●	●
3rd, 4th Reference Position Return	○	○
【Feed Functions】		
Rapid Traverse Override (0%,F0,10%,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	○	○
Feedrate Override (21 Steps)	●	●
Jog Override (21 Steps)	●	●
Override Cancel	●	●
Manual per Revolution Feed	▲	▲
Linear Acceleration/Deceleration After Cutting Feed Interpolation	●	●
【Program Input】		
Program Code	●	●
Label Skip	●	●
Parity Check	●	●
Control In/Out	●	●
Optional Block Skip, 1 Piece	●	●
Optional Block Skip (2 to 9 Pieces)	◎	◎
Program Number O4 Digits	●	●
Program File Name 32 Characters	●	●
Sequence Number N8 Digits	●	●
Absolute/Incremental Programming	●	●
Decimal Point Programming/ Pocket Calculator Type Decimal Point Programming	●	●
Diameter/Radius Programming	●	●
Rotary Axis Designation	●	●
Rotary Axis Rollover	●	●
Coordinate System Setting (G50)	●	●
Automatic Coordinate System Setting	○	●
Workpiece Coordinate System	Tiwap *17	○
Workpiece Coordinate System Preset	Tiwap *17	○
Direct Drawing Dmension Programming *9	○	○
G-Code System A	●	●
G-Code System B/C *10	○	○
Chamfering/Corner R *11	●	●
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	○	○
Coordinate System Shift	●	●
Direct Input of Coordinate System Shift	●	●
Program Coordinate System Changing Function	●	–
【Auxiliary/Spindle Speed Function】		
M Function (M8 Digits)	●	●
2nd Auxiliary Functionn (B8 Digits)	◎	◎
High-Speed MSTB Interface	●	●
Multiple Command of Auxiliary Function (3 Pieces)	●	●
Spindle Speed Function (S5 Digits)	●	●
Constant Surface Speed Control	●	●
Spindle Override	●	●
Number of Spindle Controls	3	2
Spindle Orientation Expansion (Max. 3)	●	●
Spindle Synchronous Control	●	–
Simple Spindle Synchronous Control *12	●	–
Multi Spindle Control	●	●
Rigid Tap (Spindle Center)	●	●
Rigid Tap (Rotary Tool)	●	●
【Tool Functions / Tool Compensation】		
Tool Function (T2+2 Digits)	●	●
Tool Function (T2+3 Digits)	○	○
Tool Offset Pairs 64-pairs	●	●
Tool Offset Pairs 99-pairs	○	○
Tool Offset Pairs 200-pairs	○	○
Tool Offset Pairs 400-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 *13	●	●
Tool Life Management *14	○	○
Tool Offset Memory Switching Function	●	–
【Accuracy Offset Functions】		
Backlash Compensation	▲	▲
Backlash Compensation for Each Rapid Traverse and Cutting Feed	▲	▲
Smooth Backlash Compensation	▲	▲
【Editing】		
Part Program Storage Size 128Kbyte	●	●
Part Program Storage Size 256Kbyte	○	○
Part Program Storage Size 512Kbyte	○	○
Part Program Storage Size 1Mbyte	Tiwap *17	Tiwap *17
Part Program Storage Size 2Mbyte	○	○
Number of Registerable Programs, 1000 Programs	●	●
Part Program Editing	●	●
Program Protect	●	●
Extended Part Program Editing	●	●
Machining Time Stamp	○	○
Multi Part Program Editting	●	●
【Setting / Display】		
Status Display	●	●
Clock Function	●	●
Current Position Display	●	●
Program Display (32 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	●	●
Maintenance Information Screen	●	●
Software Operator's Panel	◎	◎
Data Protection Key, 1 Kind	●	●
Erase CRT Screen Display	●	●
System Configuration Screen	●	●
Help Function	●	●
Self-diagnosis Function	●	●
Periodic Maintenance Screen	●	●
【Multi-language Display】		
English *15	●	●
Japanese (Kanji) *15	▲	▲
Other Language *15 *16	○	○
Dynamic Display Language Switching	▲	▲
【Data I/O】		
RS-232C Interface for 1ch	○	○
External Tool Offset	◎	◎
External Message	●	●
Memory Card I/O	●	●
USB Memory I/O	●	●
Screen Hard Copy	●	●
Automatic Data Backup (1 Piece)	●	●
【Other】		
Status Output Signal	●	●

●: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.
Tiwap : Tiwap-1 standard specification.

*1) I/O addition and the PC change are necessary.
*2) 0.001mm、0.0001inch、0.001deg
*3) IS-C 0.0001mm 0.001deg 0.00001inch
*4) Not coexistent with chuck and tail stock barrier.
*5) Not coexistent with Stored Stroke Check 2, 3.
*6) Required when RAKU-RAKU Monitor 3 is used.
*7) DNC run mode transfer switch is required.
*8) CF card and adaptor is required.
*9) Not coexistent with chamfering/corner R.
*10) Cannot be used on Tiwap-1.
*11) Not coexistent with direct drawing dmension programming.
*12) Included in spindle synchronous control.
*13) Tool setter is required.
*14) Cannot be used when RAKU-RAKU Monitor 3 is installed.
*15) Cannot be simultaneous display the other languages.
*16) German, French, Spanish, Italian, Chinese (traditional), Chinese (simplified), Korean, Portuguese, Dutch, Danish, Swedish, Hungarian, Czech, Polish, Russian, Turkish, Romanian, Bulgarian
*17) U.S.A. spec does not have Tiwap-1 as standard. Carried with Tiwap-1.

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TS-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.

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*Please make an inquiry to our sales representatives for details of the product.

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■ Overseas Network

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