TAKISAWA TWIN CHUCKER

TT-Series

Parallel Twin-Spindle CNC Lathe

6in/8in

TT-2100

TT-2100G TT-2100CMG

TAKISAWA®

TT-2100G

Mass production of various workpieces with high accuracy!

Takisawa twin chucker **TT-2100G** is a parallel twin-spindle lathe which is equipped with high speed gantry loader and supports mass production with high accuracy in 6″/8″ chuck work.

Flexibly Supporting Any Type of Production

Takisawa twin chucker TT-series supports any type of production such as simultaneous front & back machining, symmetrical machining, and full automatic machining by connecting machines/creating production line, and provides excellent efficiency and high productivity.

ENERGY SAVING SYSTEM

Environment Friendly

- Reduction of power consumption.
  - Regenerative energy system – the energy generated when the motor decelerates returns to the power supply – is applied.
  - Internal lighting shutoff function reduces standby power.
  - Control panel cooling design takes natural radiation amount into account to reduce electric power.
  - Coolant pump runs only when coolant is being used, reducing electric power.
- Use of oil-water separator extends the coolant life.
- 40% reduction of lubricant consumption amount compared with those of conventional machines.
- The powder coating machine for environmental concern.

*The photo includes options (Foot Switch for Hydraulic Chuck, Turning Tools).

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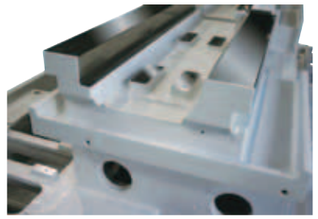
Bed

The bed has a tank bed structure which can keep thermal displacement to the minimum all day.
Tank capacity = 350L

Sliding Surface

Wide rectangular slideways are used in the X-/Z-axes sliding surfaces to realize stable machining with high accuracy over a long period of time.



Headstock

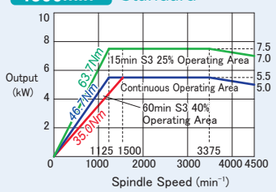
Both of stable cutting and high speed loader transfer are achieved by adopting a structure of low center of gravity in which the center height of the headstock from the floor surface kept low.
There are two types of specifications for high accuracy spindle on the headstock: "6" chuck specification" and "8" chuck specification", which are combined with FANUC's high performance spindle motors to provide excellent performance.

Movable partition covers are provided at the center between the two spindles to secure safety and workability.

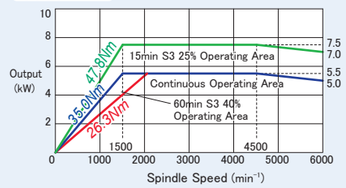
6" Chuck Type

7.5/5.5kW FANUC : βi6

4500min⁻¹ Standard

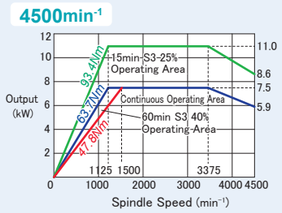


6000min⁻¹

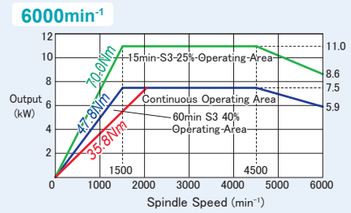


11/7.5kW FANUC : βi8

4500min⁻¹



6000min⁻¹



6" Chuck Type

Spindle Stock and Spindle Motor

Bearing Inside Diameter	ϕ80
Spindle Nose	ϕ140F
Spindle Motor	7.5/5.5kW
Spindle Speed	4500min⁻¹
	6000min⁻¹
Spindle Motor	11/7.5kW
Spindle Speed	4500min⁻¹
	6000min⁻¹

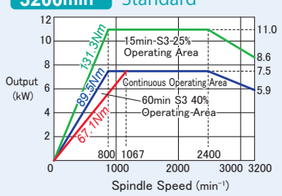
Standard Chuck and Cylinder

Chuck Type	H01MA6
Travel of Jaw (Diameter)	7mm
Max. Speed	4500min⁻¹
Cylinder Type	HH9C100
Max. Speed	6500min⁻¹

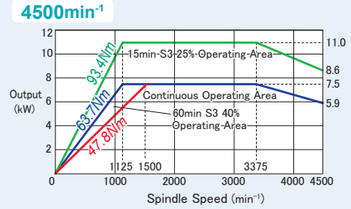
8" Chuck Type

11/7.5kW FANUC : βi8

3200min⁻¹ Standard



4500min⁻¹



8" Chuck Type

Spindle Stock and Spindle Motor

Bearing Inside Diameter	ϕ90
Spindle Nose	ϕ140F
Spindle Motor	11/7.5kW
Spindle Speed	3200min⁻¹
	4500min⁻¹

Standard Chuck and Cylinder

Chuck Type	H01MA8
Travel of Jaw (Diameter)	7mm
Max. Speed	4000min⁻¹
Cylinder Type	HH9C125
Max. Speed	6000min⁻¹

Red is Optional.

Turret

The turret is the all-holder powerful type with bolt clamping system.
10-station turret (T10) is equipped as standard, and 12-station turret (T12) for multiple processes and 10-station milling turret (T10M) for milling processes are optionally available.
In a 10-station milling turret (T10M), milling holders can be equipped to five stations (every second station).

Items	Items	Items	6″ Chuck Type	8″ Chuck Type
10-Station Turret	T10 (Standard)	Height of Square Tool Shank	□20	□25
		Diameter of Boring Bar Shank	ϕ25	ϕ32
12-Station Turret	T12 (Optional)	Height of Square Tool Shank	□20	□25
		Diameter of Boring Bar Shank	ϕ25	ϕ32
10-Station Turret	T10M (Optional)	Height of Square Tool Shank	□20	□25
		Diameter of Boring Bar Shank	ϕ25	ϕ32
		Max. Rotary Tool Shank Diameter	ϕ16	ϕ16

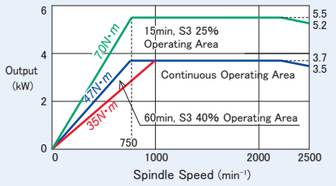

10-Station Turret (T10)


10-Station Milling Turret (T10M)

Milling Type

5.5/3.7kW FANUC : βi3

2500min⁻¹

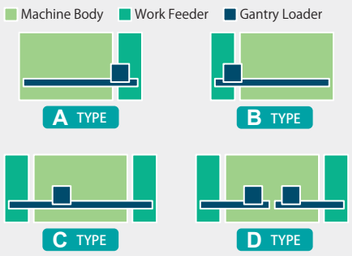


Gantry Loader

The machine's center of gravity is thoroughly lowered and the loader axis is improved to move faster and quieter to realize optimum cycle time.

Loader Cycle Time **19.6** sec
(6″Chuck Type、A Type Gantry)

Gantry Loader Variations



Quality Chute (NG Chute)
The portion to pick workpieces out to check the quality during automatic operation.

Work Feeder

Loader Specification (A or B Type)

Items		6″ Chuck Type	8″ Chuck Type
Target Workpiece	Outside Diameter	ϕ80mm	ϕ160mm
	Length	80mm	80mm
	Weight	0.7kg (×2)	3kg (×2)
Running Speed	X-Axis (Longitudinal)	200m/min	180m/min
	Y-Axis (Vertical)	150m/min	150m/min

Work Feeder Specifications

Items	6″ Chuck Type	8″ Chuck Type
Number of Pallets	16	16
Loading Capacity (1 Pallet)	40kg	40kg
Maximum Height	450mm	450mm

Reversing Device

The device allows simultaneous front and back machining.

* Unlike connecting two one-spindle lathes with a reversing device provided between them, even the space efficiency is obvious.

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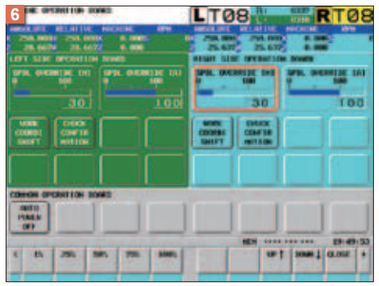
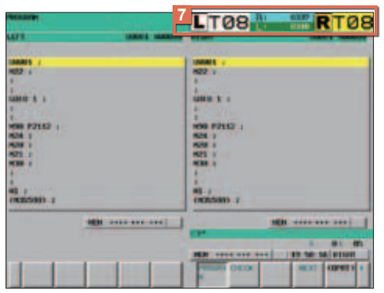
Pursuing Operability





▲ Program Display

▲ Tool Offset Display

・Dedicated Switch

A dedicated switch to call a desired function to the operation panel with one push is provided for smooth work.

2 Program Reset Function

Left/right/loader programs can be reset and rewound.

3 Zero Point Return Function

It allows left/right X- and Z-axes zero point return and loader X-, Y-, and Z-axes zero point return.*

*) Subject to some conditions. For details, contact us.

Function to minimize inputting error on right and left.

4 Right/Left Selection Button

Operate the machine after selecting right or left with the button. Operation is possible only on the side with the indication lamp turned on. When both of the lamps are turned off, the machine cannot be operated.

Operation on Right Side ▶

The information on the right side is displayed on the screen and you can operate the right side.

Link of Panel Light ▶

The light on the operation side is turned on.

5 Chuck Open/Close Switch

6 Machine Operation Panel Screen

The machine operation panel is displayed on the screen. Buttons can be added and displayed/undisplayed easily.

7 Information Display Window

"Right/left selection, indexed turret number of right/left machine, and number of workpieces on right/left" can be checked in the upper right of the screen.

・Information on Right and Left is Displayed Simultaneously (Specific Screen)

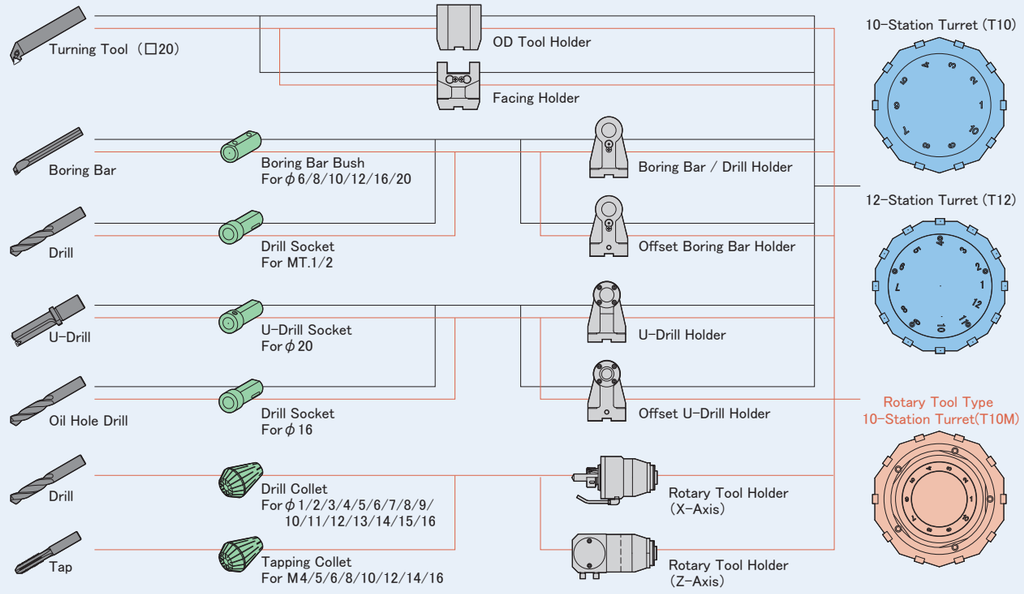
On the tool offset screen and the workpiece shift screens, inputting errors are avoided by color coding of right/left, the zoom function and simultaneous display.

In addition, software pursuing operability is provided as standard to reduce non-productive time during setup work.

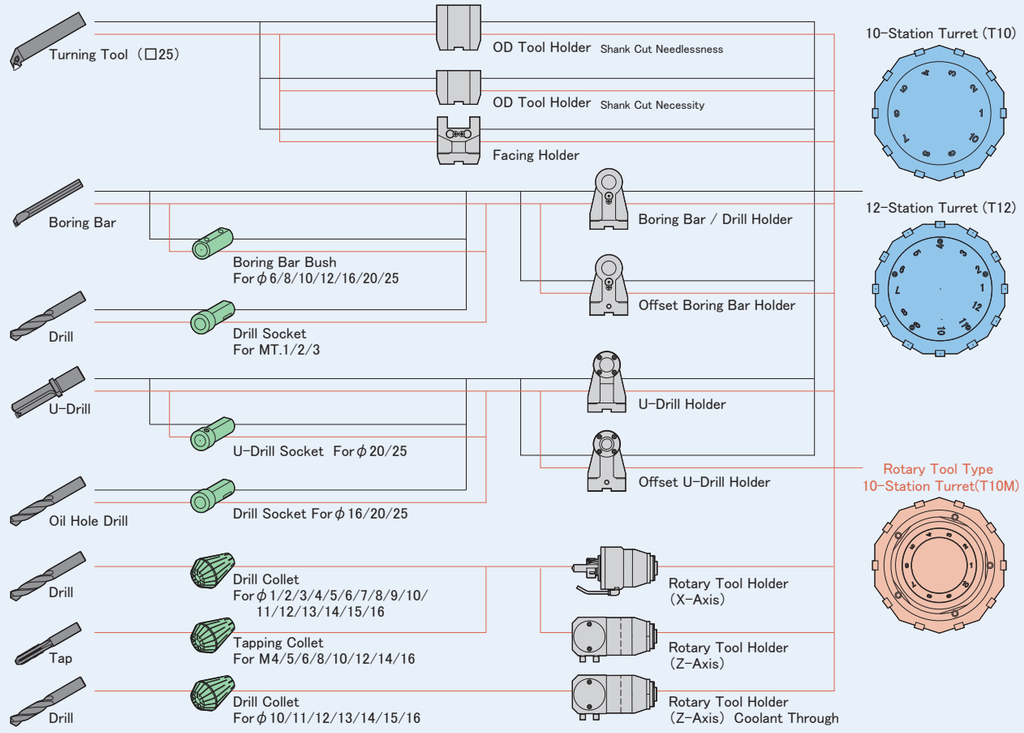
In addition, software pursuing operability is provided as standard to reduce non-productive time during setup work. Refer to page 13.

■ Tooling System

6" Chuck Type

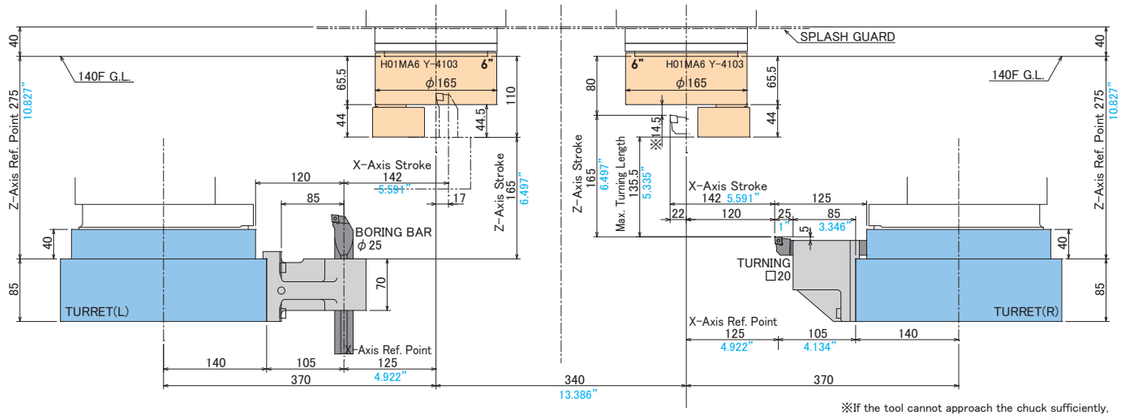


8" Chuck Type

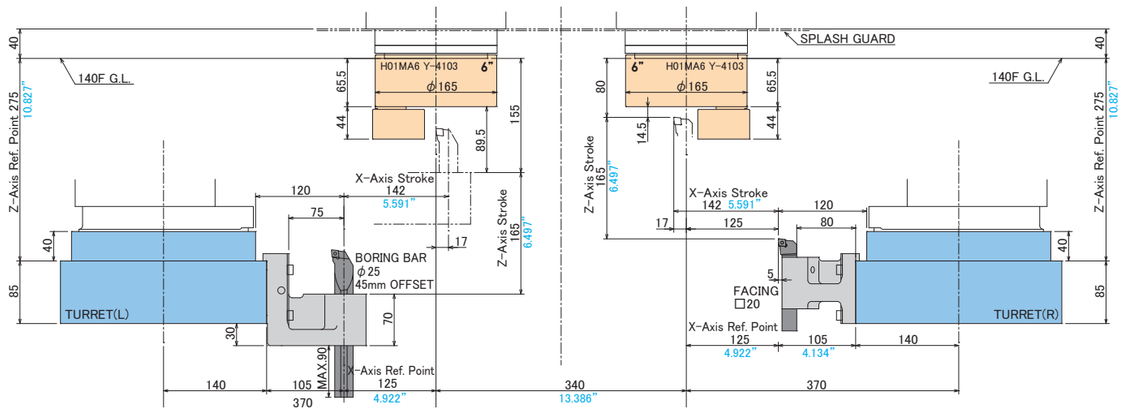


■ Travel Range and Interference Unit : mm inch

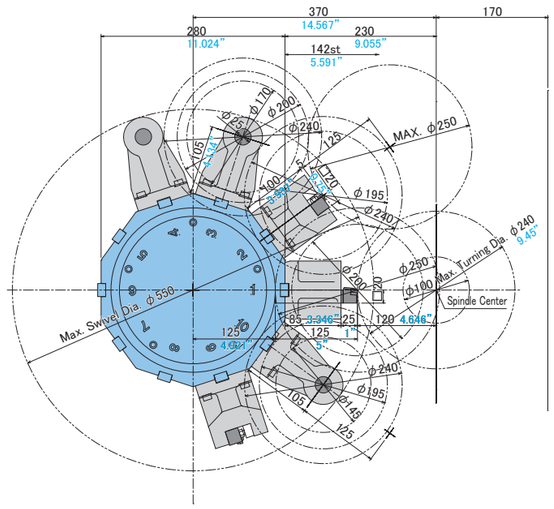
T10/T12 6" Chuck Type Turning Type TT-2100G Ranges depends on chuck type.



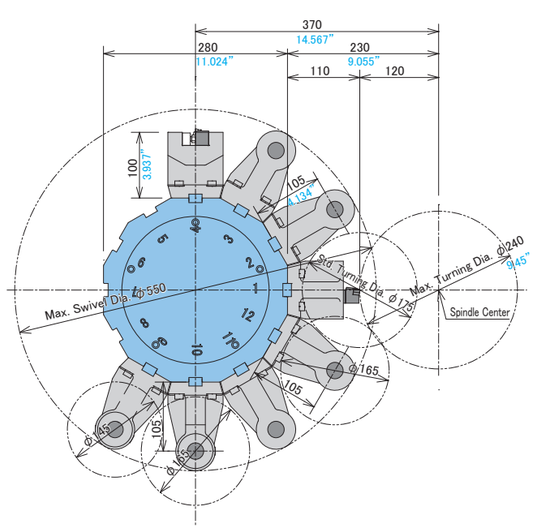
※If the tool cannot approach the chuck sufficiently, adjust the tool overhang with the end face holder.



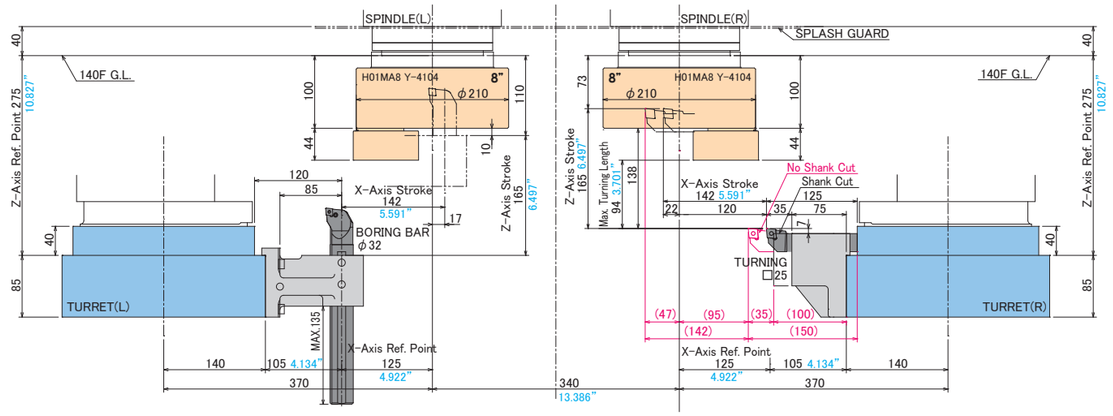
T10 TURRET (R) is mirror-image component. Figure shows TURRET (L).

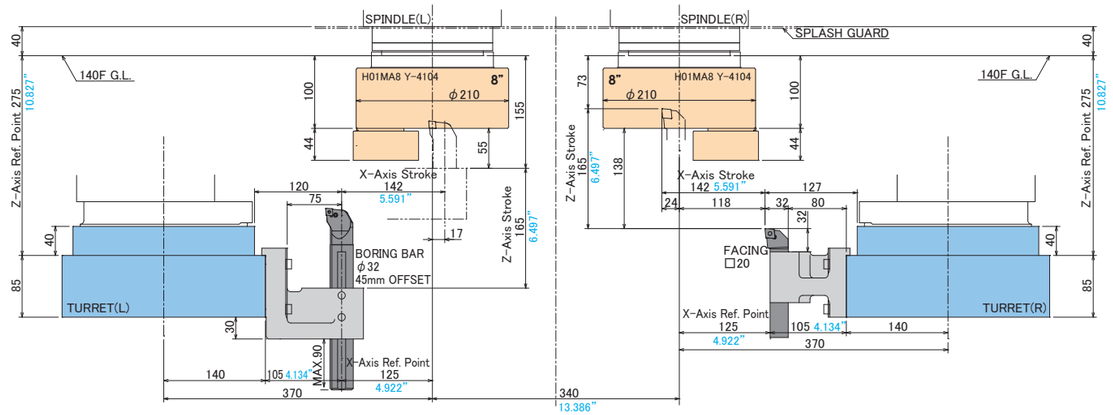


T12 TURRET (R) is mirror-image component. Figure shows TURRET (L).

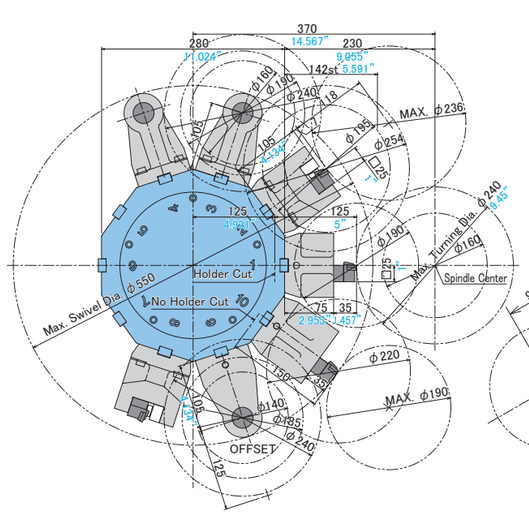


T10/T12 8" Chuck Type Turning Type TT-2100G Ranges depends on chuck type.

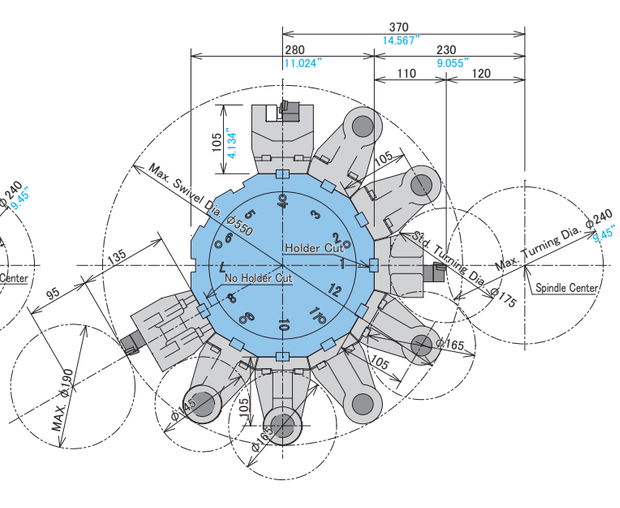




T10 TURRET (R) is mirror-image component. Figure shows TURRET (L).



T12 TURRET (R) is mirror-image component. Figure shows TURRET (L).

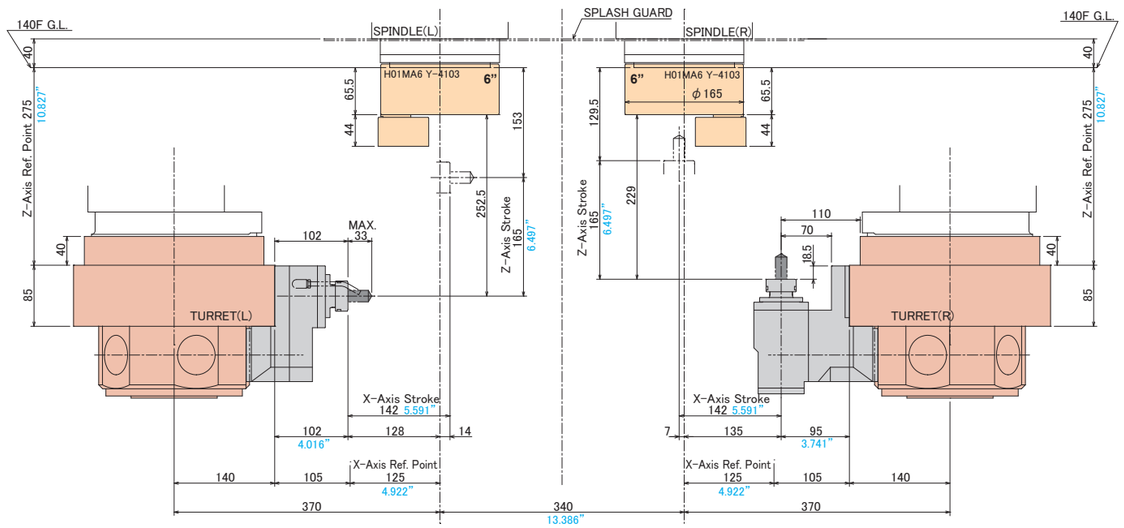


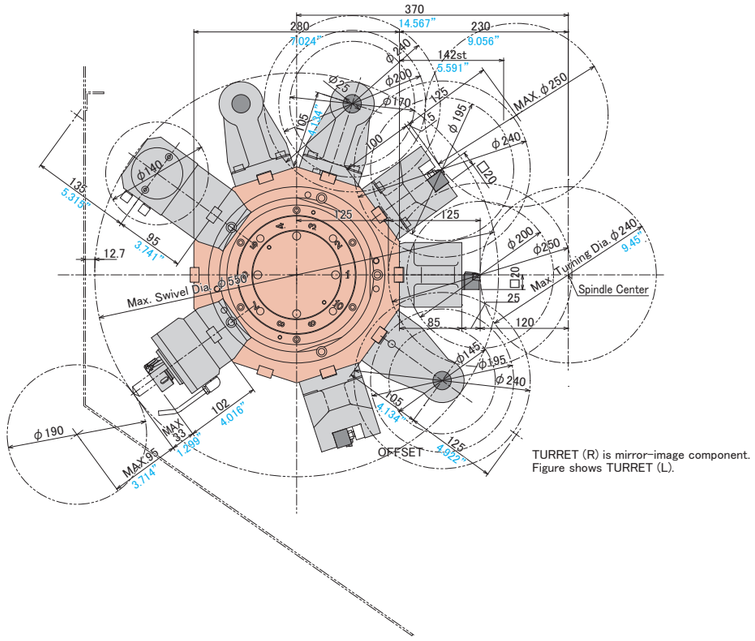
■ Travel Range and Interference

Unit : mm inch

T10M 6" Chuck Type Milling Type TT-2100CMG

Ranges depends on chuck type.

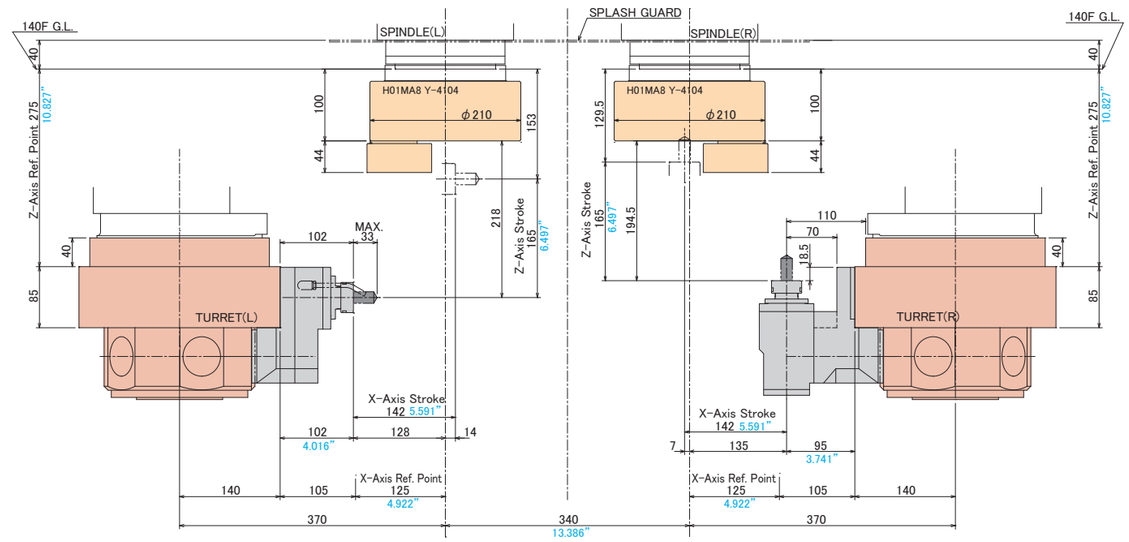


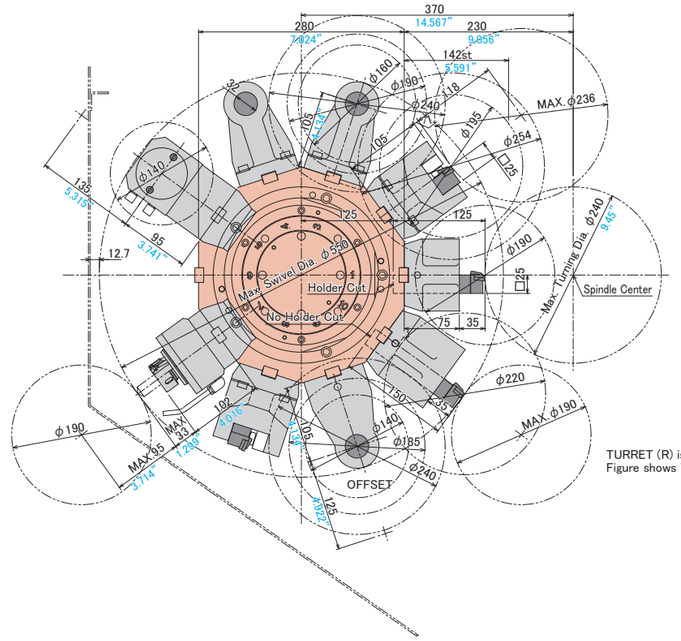


TURRET (R) is mirror-image component.
Figure shows TURRET (L).

T10M 8" Chuck Type Milling Type TT-2100CMG

Ranges depends on chuck type.





TURRET (R) is mirror-image component.
Figure shows TURRET (L).

Machine Specifications (with A or B Type Loader)

Items			6″ Chuck Type			8″ Chuck Type		
			TT-2100G		TT-2100CMG	TT-2100G		TT-2100CMG
			T10	T12	T10	T10	T12	T10
Capability・Capacity	Distance Between Spindles	mm inch	340 13.38″			340 13.38″		
	Max. Turning Diameter	mm inch	240 9.45″			240 9.45″		
	Max. Turning Length	mm inch	135.5 5.33″			94 3.7″		
Travel	X-Axis Travel	mm inch	142 5.59″			142 5.59″		
	Z-Axis Travel	mm inch	165 6.5″			165 6.5″		
Spindle	Number of Spindles		2			2		
	Spindle Speed	min^{-1}	4500 6000			3200 4500		
	Min. Index Angle (Cs-Axis)	deg	–		0.001	–		0.001
	Spindle Nose (Nominal Code)		φ140F			φ140F		
	Through-Hole Diameter	mm inch	53 2.09″			53 2.09″		
	Bearing Inside Diameter	mm inch	80 3.15″			90 3.54″		
Turret	Number of Turrets		2			2		
	Type of Turret (All-Holder Type)		10-Station	12-Station	10-Station	10-Station	12-Station	10-Station
	Number of Attachable Tools		10+10	12+12	10+10	10+10	12+12	10+10
	Height of Square Tool Shank	mm inch	20 0.75″			25 1″		
	Diameter of Boring Bar Shank	mm inch	25 1″			32 1.25″		
Rotary Tool	Number of Rotary Tools		–		Alternate 5 pcs	–		Alternate 5 pcs
	Spindle Speed	min^{-1}	–		2500	–		2500
	Maximum Tool Shank Diameter	mm inch	–		16 0.63″	–		16 0.63″
	Tool Spindle Taper Hole (Type, Nom, Code)		–		AR25	–		AR25
	Tool Spindle Bearing Inside Diameter	mm inch	–		35 1.38″	–		35 1.38″
Feedrate	Rapid Traverse Rate	m/min ipm	X:24 / Z:24 X:944.88″ / Z:944.88″			X:24 / Z:24 X:944.88″ / Z:944.88″		
	Jog Feedrate	mm/min ipm	X, Z:0 ~ 1260 49.61″			X, Z:0 ~ 1260 49.61″		
Motor	Main Spindle Motor (15 min/coninuous) *6	kW HP	7.5/5.5 11/7.5	10/7.3 14.7/10		11/7.5 14.7/10		
	Rotary Tool Spindle Motor (15 min/continuous)	kW HP	–		5.5/3.7 7.3/4.9	–		5.5/3.7 7.3/4.9
	Feed Axis Motor	kW HP	X:1.4 / Z:1.4 X:1.9 / Z:1.9			X:1.4 / Z:1.4 X:1.9 / Z:1.9		
	Hydraulic Pump Motor	kW HP	1.5×2 Motors 2×2 Motors			1.5×2 Motors 2×2 Motors		
	Coolant Pump Motor	kW HP	0.25×2 Motors 0.3×2 Motors			0.25×2 Motors 0.3×2 Motors		
Required Power	Electric Power	kVA	32 37			37		
	Air Pressure Source	MPa	0.4			0.4		
Tank Capacity	Hydraulic Unit Tank	L gal	20 (×2) 5.28 (×2)			20 (×2) 5.28 (×2)		
	Lubricant Tank	L gal	6.5 1.72			6.5 1.72		
	Coolant Tank	L gal	350 92.40			350 92.40		
Machine Size	Machine Height	mm inch	2700 106.30″			2700 106.30″		
	Floor to Spindle Center Height	mm inch	975 38.39″			975 38.39″		
	Required Floor Space	mm×mm inch×inch	2825×2627 111.22″×103.43″			2825×2627 111.22″×103.43″		
	Machine Weight	kg lbs.	5200 11440		5400 11880	5200 11440		5400 11880

【Loader Specifications (A or B Type)】

			6″ Chuck Type		8″ Chuck Type	
			TT-2100G	TT-2100CMG	TT-2100G	TT-2100CMG
Target Workpiece	Outside Diameter	mm inch	80 3.15″ [160 6.3″ *1]		160 6.3″ [80 3.15″ *2]	
	Length	mm inch	80 3.15″		80 3.15″	
	Weight	kg lbs.	0.7×2 1.5×2 [3×2 6.6×2 *1]		3×2 6.6×2 [0.7×2 1.5×2 *2]	
Travel (Running Speed)	X-Axis (longitudinal)	mm inch (m/min ipm)	1540 60.63″ (200 7874.02″ [180 7086.61″ *1])		1540 60.63″ (180 7086.61″ [200 7874.02″ *2])	
	Y-Axis (vertical)	mm inch (m/min ipm)	662 26.06″ (150 5905.51″)		662 26.06″ (150 5905.51″)	
	Z-Axis (cross)	mm inch (m/min ipm)	216 8.5″ (50 1968.5″)		216 8.5″ (50 1968.5″)	
Hand	Type		3-Jaws		3-Jaws	
	Stroke	mm inch	φ28 1.1″ [φ32 1.25″ *1]		φ32 1.25″ [φ28 1.1″ *2]	

【Work Feeder Specifications】

		16	16
Number of Pallets			
Loading Capacity (1 Pallet)	kg lbs.	40 88	40 88
Max. Height	mm inch	450 17.72″	450 17.72″

Red is Optional. [*1] or [*2] are options by a set.

Machine Standard Accessories (with A or B Type Loader)

Items	Contents		6″ Type	8″ Type
Solid Chuck and Cylinder	H01MA8 & HH9C125	L&R	×	●
	H01MA6 & HH9C100	L&R	●	×
Chuck Open/Close M-Function	(Proximity)	L&R	●	●
Chuck Airblow	(Outside Spindle)	L&R	●	●
Signal Tower Light	(3-Color)	1 Pic	●	●
Chip Conveyor	(Caterpillar Type, Rear)	1 Set	●	●
Tool Holders	(Selectable for OD Turning & Facing, or Boring Bar/Drill)	L&R (Each 5)	●	●
Auto Power-Off System		1 Set	●	●
Total Counter	(Display)		●	●
Gantry Loader *3	(A or B Type)	1 Set	●	●
Turnover Unit		1 Set	●	●
NG Chute	(Quality)	1 Set	●	●
Work Feeder	(16 Pallets/3 Guide Bar)	1 Set	●	●
Splashguard		1 Set	●	●
Hydraulic Unit	(1.5kW)	L&R	●	●
Coolant Unit	(250W)	L&R	●	●
Lighting Apparatus		1 Set	●	●
Adjustment Tool		1 Set	●	●
Instruction Manual		1 Set	●	●

Machine Optional Accessories

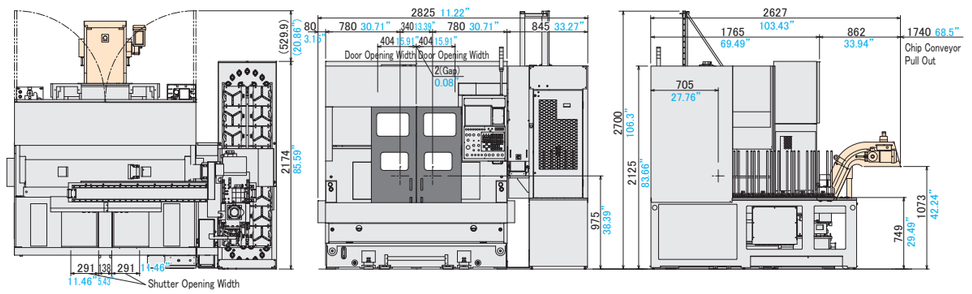
- Rotary Tool Holder (for X-Axis) *4
- Rotary Tool Holder (for Z-Axis) *4
- Collet (for Rotay Tool) *4
- Tool Holder
- Boring Bar / Drill Holder
- Offset Boring Bar Holder
- U-Drill Holder
- Offset U-Drill Holder
- Boring Bar Bush
- Drill and U-Drill Socket
- Special Chuck
- Foot Switch for Hydraulic Chuck
- Spindle Orientation *5
- Coolant Unit (400W)
- Spindle Above Coolant
- Hybrid Hydraulic Unit
- Chip Bucket
- Tool Setter
- Spindle Motor
  - [6″ Chuck Type]
  - 7.5/5.5kW : 6000min^{-1}
  - 11/7.5kW : 4500min^{-1}
  - 11/7.5kW : 6000min^{-1}
  - [8″ Chuck Type]
  - 11/7.5kW : 4500min^{-1}

*3) Includes Safety Cover/Upper Auto Door/Door Interlock.
*4) Applied to TT-2100CMG
*5) Disk Brake Type (Max. 360 Point) with M-Function
*6) Please refer to "Electric-power-equipment Capacity" of 13 page.

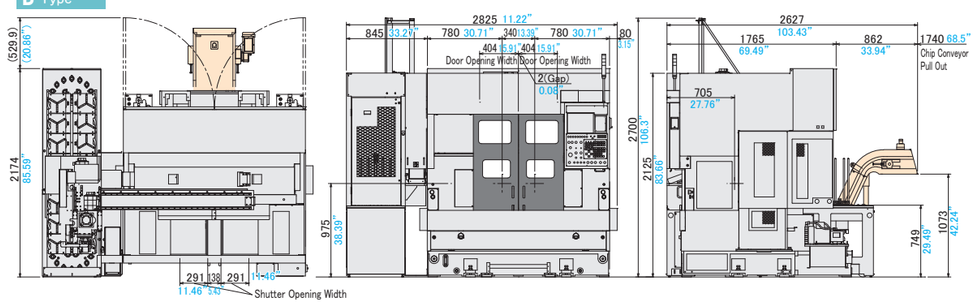
※ For other optional accessories, please contact us.

Machine Dimensions Unit : mm inch

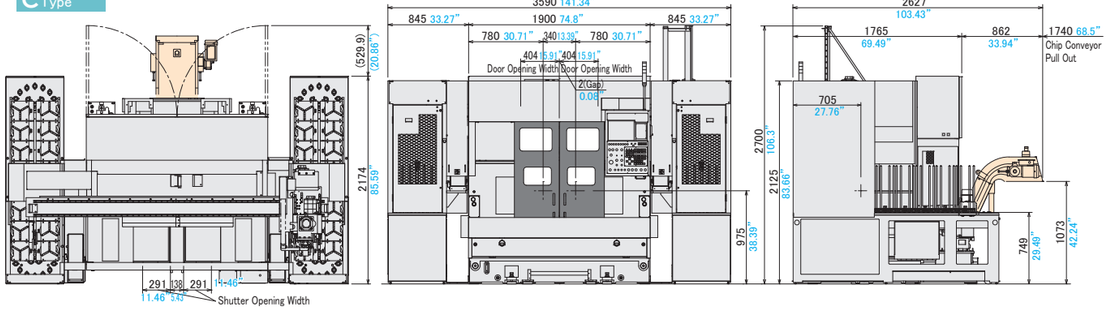
Gantry Loader A Type



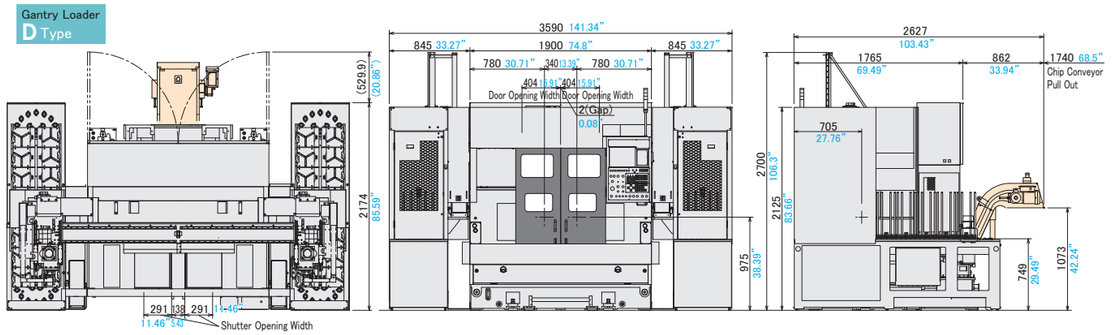
Gantry Loader B Type



Gantry Loader C Type



Gantry Loader D Type



TT-2100G

NC Unit Specifications

FANUC : Oi-TF

※ Please contact our sales persons for further information.

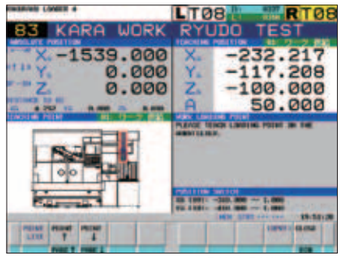
Software

＊The software specifications are subject to change for improvement without notice.

RAKU-RAKU Loader 4

【Standard Accessory】

The loader operation settings can be changed simply by the operation from the dedicated screen without modifying the program.

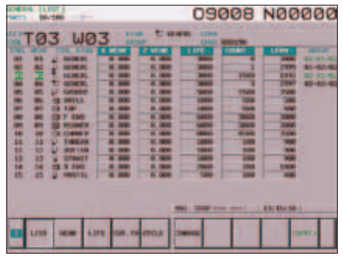


▲ RAKU-RAKU Loader 4

RAKU-RAKU Monitor 3

【Standard Accessory】

Easy and convenient multi-functional softwares which can perform tool life management, cutting load monitoring, group control, and also run information collection, Cp (process capability) calculation, and periodic offset addition.



▲ RAKU-RAKU Monitor 3

Measurement Monitor 3

【Optional Accessory】

This function loads the measured data from a measuring unit and sets automatically the offset value. Also, various convenient functions such as graphical display, Cp (process capability) calculation, and data input/output are included.

■ Electric-power-equipment Capacity

Spindle Motor	Gantry (Type)	6″Chuck Type TT-2100G, TT-2100CMG	8″ Chuck Type TT-2100G, TT-2100CMG
5.5/7.5kW	A, B, C	32.0kVA	32.0kVA
	D	33.0kVA	33.0kVA
7.5/11kW	A, B, C	37.0kVA	37.0kVA
	D	38.0kVA	38.0kVA

■ Composition

Specifications・Contents	TT-2100G	TT-2100CMG
【NC Unit】		
Screen (10.4″Color LCD/MDI (Horizontal, Small Type)	●	●
【Software】		
RAKU-RAKU Loader 4	●	●
RAKU-RAKU Monitor 3	●	●
Measurement Monitor 3 *1	◎	◎
【Safety Devices】		
Front Door Interlock	●	●
Front Door Locking Mechanism	○	○
Safety Relay	●	●
Control Panel Breaker with Tripper	●	●

■ Main Function List

Specifications・Contents	TT-2100G
【Controlled Axes】	
Least Input Increment *2	●
Max. Programmable Dimension (±999999.999)	●
Cs Contouring Control	CM
Increment System C *3	▲
Inch/Metric Conversion	●
Interlock	●
Machine Lock *4	○
Emergency Stop	●
Stored Stroke Check 1	●
Stored Stroke Check 2, 3 *5	▲
Stored Limit Check Before Move	▲
Chuck and Tail Stock Barrier *6	▲
Mirror Image (Each Axis)	▲
Chamfering ON/OFF	●
Unexpected Disturbance Torque Detection Function *7	●
Position Switch	●
【Operation】	
Automatic Operation (Memory)	●
MDI Operation	●
DNC Operation *8 *9	○
DNC Operation with Memory Card *9 *10	○
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	●
【Interpolation Functions】	
Positioning (G00)	●
Exact Stop Mode (G61)	●
Tapping Mode (G63)	●
Cutting Mode (G64)	●
Exact Stop (G09)	●
Linear Interpolation (G01)	●
Circular I nterpolation (G02/03)	●
Dwell (G04)	●
Polar Coordinate Interpolation	CM
Cylindrical Interpolation	CM
Thread Cutting, Synchronous Cutting	●
Multi Threading	●
Thread Cutting Retract	●
Continuous Threading	●
Variable Lead Thread Cutting	●
Skip (G31)	◎
Reference Position Return (G28)	●
Reference Position return Check (G27)	●
2nd Reference Position Return (G30)	●
3rd, 4th Reference Position Return	◎

Specifications・Contents	TT-2100G
【Feed Functions】	
Rapid Traverse Override (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	●
Linear Acceleration/Deceleration After Cutting Feed Interpolation	●
Feedrate Override (15 Steps)	●
Jog Override (15 Steps)	●
Override Cancel	●
Manual per Revolution Feed	▲
【Program Input】	
Program Code (EIA/ISO Auto Recognition)	●
Label Skip	●
Parity Check	●
Control In/Out	●
Optional Block Skip, 1 Piece	●
Optional Block Skip (2 to 9 Pieces)	◎
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 (X-Axis)	●
Plane Selection G17,G18,G19	CM
Coordinate System Setting (G50)	●
Automatic Coordinate System Setting *11	●
Workpiece Coordinate System(G54-G59) *12	▲
Direct Drawing Dmension Programming *13	▲
G-Code System A	●
G-Code System B/C	▲
Chamfering/Corner R *14	●
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	●
Coordinate System Shift	●
Direct Input of Coordinate System Shift	●
【Auxiliary / Spindle Speed Function】	
M Function (M3 Digits)	●
2nd Auxiliary Functionn (B Function)	●
Multiple Command of Auxiliary Function (3 Pieces)	●
Spindle Speed Function (S-Function)	●
Constant Surface Speed Control	●
Spindle Override	●
Spindle Orientation	●
Rigid Tap (Spindle Center)	●
Rigid Tap (Rotary Tool)	CM
【Tool Functions / Tool Compensation】	
Tool Function (T2+2 Digits)	●
Tool Offset Pairs 128-pairs (L/R Each 64-pairs)	●
Tool Offset Pairs 200-pairs (L/R Each 99-pairs)	○
Tool Offset	●
Tool Radius・Tool Nose Radius Compensation	●
Tool Geometry/Wear Compensation	●
Tool Offset Value Counter Input	●
Direct Input of Tool Offset Value Measured	●
Direct Input of Tool Offset Value Measured B *15	○
Tool Life Management *16	●
【Accuracy Offset Functions】	
Backlash Compensation	▲
Backlash Compensation for Each Rapid Traverse and Cutting Feed	▲
【Editing】	
Part Program Storage Size 1Mbyte *17	●
Part Program Storage Size 2Mbyte *17	○

Specifications・Contents	TT-2100G
Number of Registerable Programs, 800 Programs *18	●
Number of Registerable Programs, 1000 Programs *18	○
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	●
Maintenance Information Screen	●
Data Protection Key, 1 Kind	●
Erase CRT Screen Display	●
Parameter Set Supporting Screen	●
Help Function	●
Self-diagnosis Function	●
Periodic Maintenance Screen	●
【Multi-language Display】	
English *19	●
Other Language *19 *20	▲
Dynamic Display Language Switching	▲
【Data I/O】	
RS-232C Interface for 1ch	○
Data Server Function *21	◎
External Workpiece Number Search	◎
Memory Card I/O	●
USB Memory I/O	●
One Touch Macro Call	◎
Automatic Data Backup	●
【Communication Function】	
Embedded Ethernet	●
Fast Ethernet	◎
【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.)

CM : C-Axis/Milling Standard Specification.

*1) I/O addition and the PC change are necessary.
*2) 0.001mm, 0.0001inch, 0.001deg
*3) IS-C 0.0001mm, 0.0001deg, 0.00001inch.
*4) Addition of switch is required.
*5) Not coexistent with chuck tailstock barrier.
*6) Not coexistent with Stored Stroke Check 2, 3.
*7) Required when RAKU-RAKU Monitor 3 is used.
*8) RS-232C Interface is required.
*9) DNC run mode transfer switch is required.
*10) CF card and adaptor is required.
*11) Not coexistent with Workpiece Coordinate System(G54-G59).
*12) Not coexistent with Automatic Coordinate System Setting.
*13) Not coexistent with chamfering/corner R.
*14) Not coexistent with direct drawing dmension programming.
*15) Tool setter is required.
*16) Cannot be used when RAKU-RAKU Monitor 3 is installed.
*17) In the case of loader specification, about [262K-byte 655m] is used for program store capacity by RAKU-RAKU loader 4 software.
*18) In the case of loader specification, the 180 program number is used by RAKU-RAKU loader 4 software.
*19) Cannot be simultaneously displayed with other languages.
*20) Japanese, German, French, Spanish, Italian, Chinese (traditional), Chinese (simplified), Korean, Portuguese, Dutch, Danish, Swedish, Hungarian, Czech, Polish, Russian, Turkish, Romanian, Bulgarian, Slovak, Finnish
*21) Optional board 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.

TT-2100G

TAKISAWA®

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tkj-3@takisawa.co.jp (Asia)

Japanese laws prohibit this machine from being used to develop or manufacture "weapons of mass destruction" or "conventional arms", as well as from being used to process parts for them.
Export of the product may require the permission of governmental authorities of the country from where the product is exported.
Should you wish to resell, transfer or export the product, please notify Takisawa Machine Tool Co., Ltd. or our distributor in advance.

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

NC61E1706EN1000A

ISO 9001 Certified
JQA-2010
(Head Office)

JAB
CM007
ISO 14001
12ER-865
(Head Office)

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