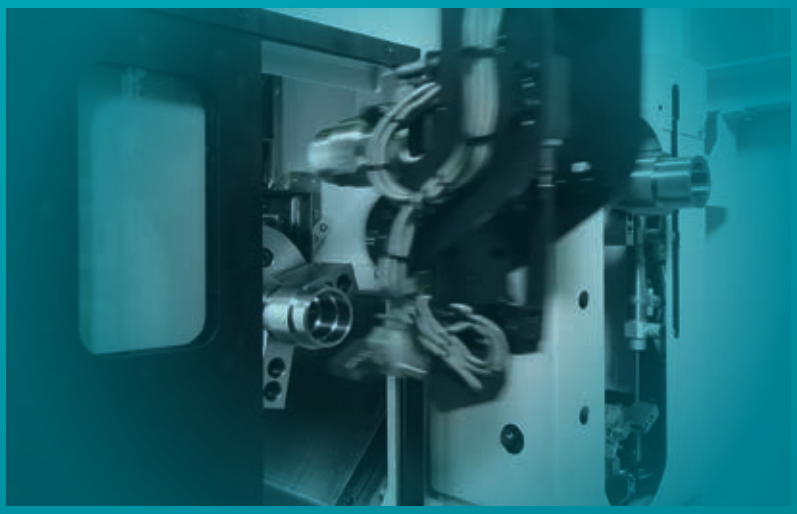
TAKISAWA TWIN CHUCKER

TT-Series

Parallel Twin-Spindle CNC Lathe

6in

TT-1100



TT-1100G

TAKISAWA®

TT-1100G

Ultrafast Loading by New System!

Takisawa twin chucker **TT-1100G** is a parallel 2-spindle CNC lathe with a completely new loading system that realizes loading time of 1.7 seconds.

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.
- The amount of coolant mixed in lubricant is reduced thanks to grease lubrication.
- The powder coating machine for environmental concern.

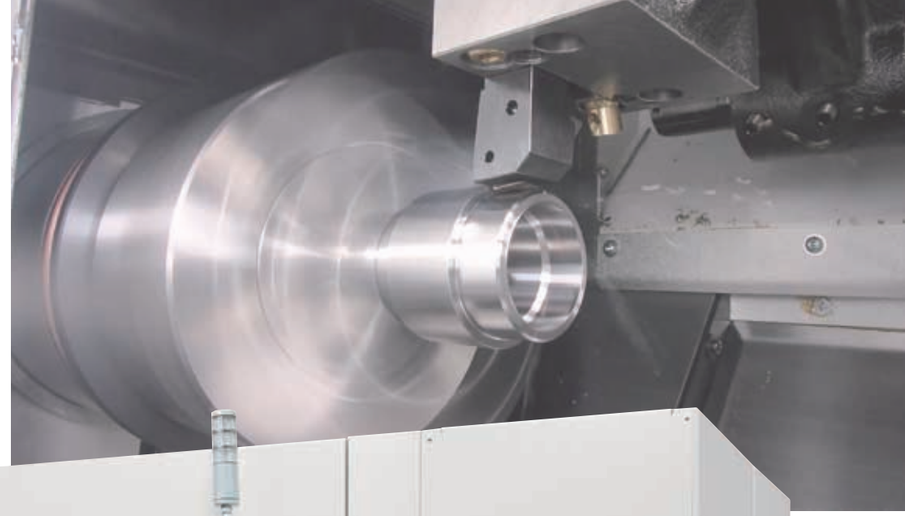


Photo includes options.

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.

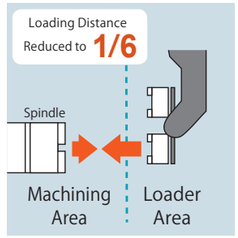
Ultrafast Loading

Minimum Loading Time
1.7sec

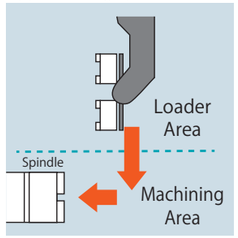
Ultrafast Loading System

The loader area is positioned in front of the machining chamber (Front waiting system) to significantly reduce the loading distance. Furthermore, the machine adopts the ultrahigh-speed loading system in which the spindle moves forward to the loading position. The combination of this structure and high-speed 3-axis loader realizes ultrahigh-speed loading of 1.7 seconds.

Front Waiting System



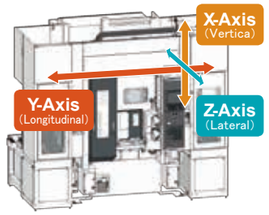
Upper Waiting System (TT-2100G)



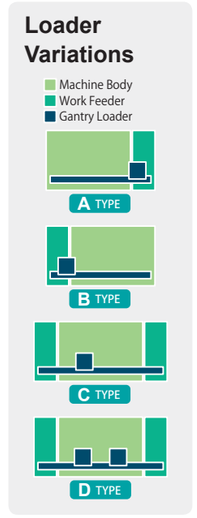
Basic Structure of the Loader

Running Speed

Longitudinal (Y-Axis)	:	200 m/min
Lateral (Z-Axis)	:	60 m/min
Vertical (X-Axis)	:	160 m/min



Loader Variations



Loader Specification

Items		Spec
Target Workpiece	Outside Diameter	ϕ80mm
	Length	80mm
	Weight	0.7kg (×2)
Running Speed	Y-Axis (Longitudinal)	200m/min
	X-Axis (Vertical)	160m/min
	Z-Axis (Lateral)	60m/min

Work Feeder Specifications

Items	Spec
Number of Pallets	14
Loading Capacity (Per Pallet)	25kg
Maximum Height	450mm

Supply/Discharge Unit

Standard : Work Feeder

Three-guide-bar type

Center pole type

Loader Hand

We will provide optimum one according to the application.

Parallel type (Example: for flange)

Swivel type (Example: for palletizer)

Turnover Unit

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.

Promptly Compatible with Turnkey System
Peripheral Device Modular Unit

The loader peripheral device is unitized as a package. It is flexibly applicable for automatic cell with previous and subsequent processes such as positioning by camera and measurement.

1 Unit Minimum Width	Workpiece handled by unit (diameter x length, weight)
420mm	ϕ80×80, 0.7kg

Basic Structure of the Machine

Machine Width Significantly Reduced

X- and Z-axis roller guides are mounted on the same column.
X-axis is arranged vertically to reduce machine width.

Machine Width : **1400mm**

Width Reduced but Workpiece Size Unchanged

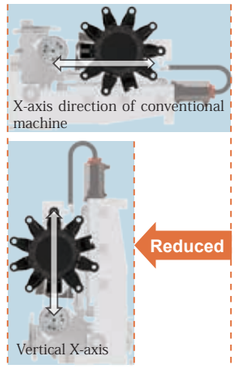
Even with drastically reduced width, this machine can handle workpiece size for conventional machine (TT-2100G).

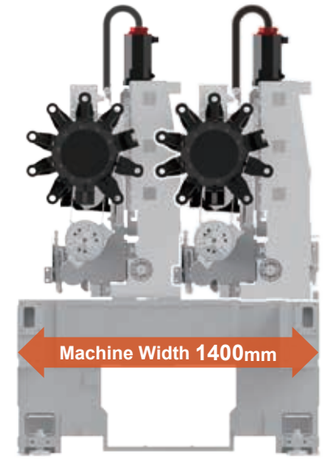
Loader Max. Workpiece Diameter x Max. Workpiece Length, Weight

ϕ80mm×80mm, 0.7kg(×2)

Improvement of Chips Disposal Capacity

Turret is on the top of Spindle
→ Chip falls down when cutting O.D, avoiding troubles by minimizing chip accumulation inside of the machine.

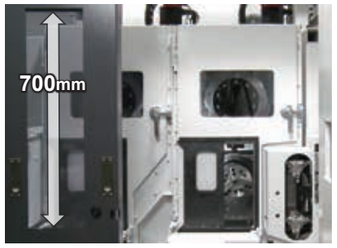




Workability

High Visibility

Added a confirmation window with a height of 700 mm to all 3-piece front doors to ensure visibility of the loader and the inside of the machine.
Safety windows are adopted also for the loader shutter unit to ensure the visibility of the interior.



The front cover can be opened both in right and left directions. The operation panel turns by 90° to facilitate setup and maintenance.

During setup and maintenance, workers can access the chuck and turret by opening the integrated door in the machine.

Turret

The right and left turrets are the same 10-station all-holder type with the powerful bolt clamping system.

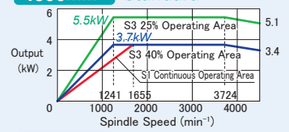
Height of Square Tool Shank	□20
Diameter of Boring Bar Shank	ϕ25

Spindle Stock

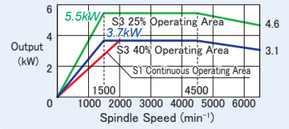
Both of stable cutting and high speed loader transfer are achieved by adopting a structure of low center of gravity in which the center height of the headstock from the floor surface kept low.

5.5/3.7kW FANUC : βi13

4500min⁻¹ Standard

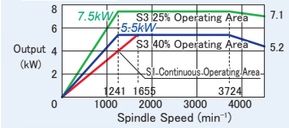


6500min⁻¹

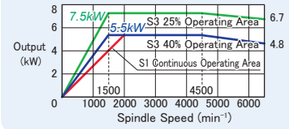


7.5/5.5kW FANUC : βi16

4500min⁻¹



6500min⁻¹



Pursuing Operability

The NC unit and sheet key are flat-designed.
The sheet key has an LED display with excellent visibility, improving switch operability.

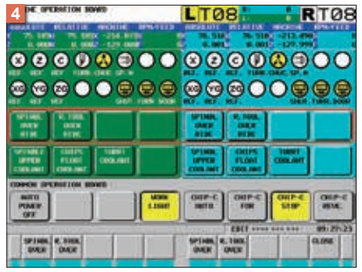
1 Program Reset Function
Left/right/loader programs can be reset and rewound.

2 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.

3 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.

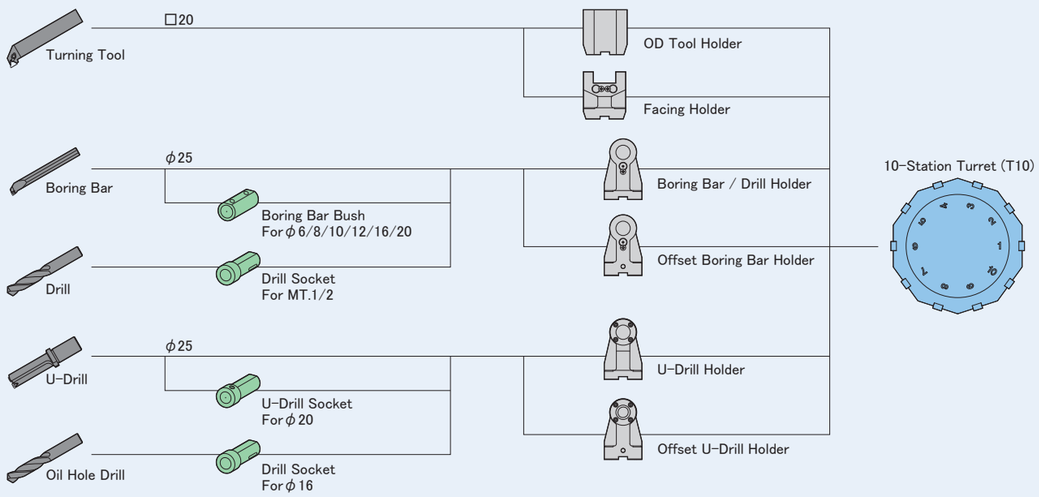
Operation on Right Side ▶
The information on the right side is displayed on the screen and you can operate the right side.



4 Machine Operation Panel Screen
The machine operation panel is displayed on the screen. Buttons can be added and displayed/undisplayed easily.

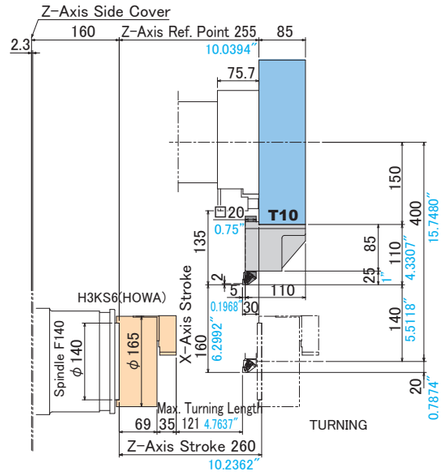
5 Information Display Window
"Right/left selection, indexed turret number of right/left machine, and number of workpieces on right/left" can be checked in the upper right of the screen.

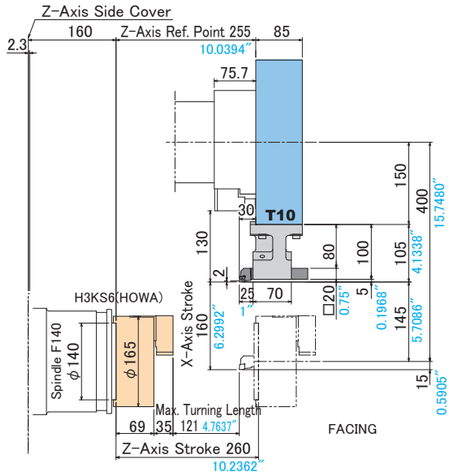
Tooling System

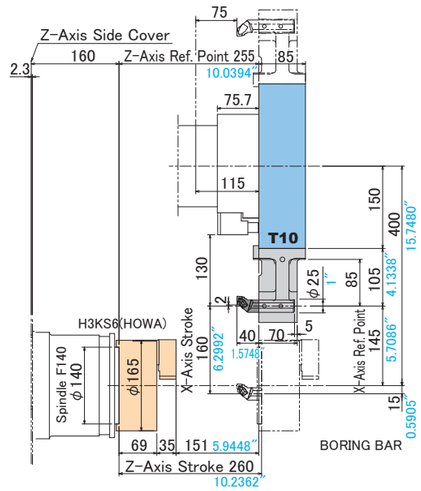


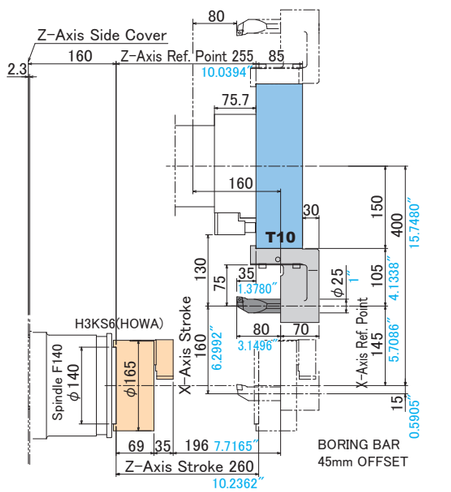
Travel Range and Interference

Unit : mm inch

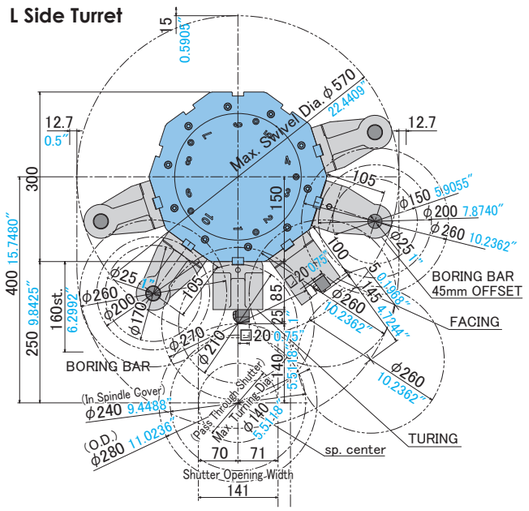




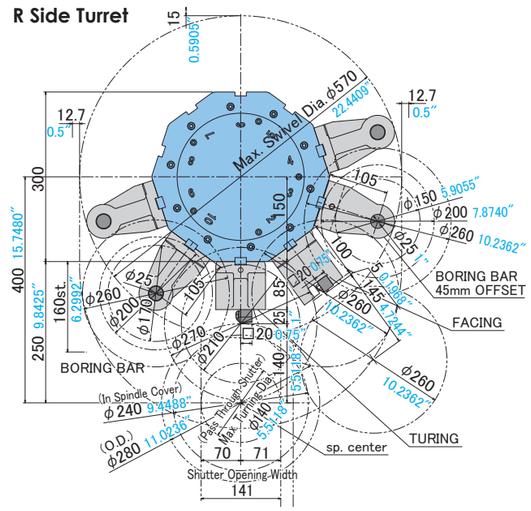




L Side Turret



R Side Turret



■ Machine Specifications

Items			TT-1100G
Capability・Capacity	Distance Between Spindles	mm inch	600 23.62″
	Max. Turning Diameter	mm inch	140 5.5″
	Max. Turning Length	mm inch	121 4.7637″
Travel	X-Axis Travel	mm inch	160 6.2992″
	Z-Axis Travel	mm inch	260 10.2632″
Spindle	Number of Spindles		2
	Spindle Speed	min^{-1}	4500 6500
	Spindle Nose (Nom, Code)		φ140F
	Through-Hole Diameter	mm inch	47 1.85″
	Inner Diameter of Bearing	mm inch	80 3.15″
Turret	Number of Turrets		2
	Type of Turret		10-Station All-Holder Type
	Number of Attachable Tools		10+10
	Height of Square Tool Shank	mm inch	20 0.75″
	Diameter of Boring Bar Shank	mm inch	25 1″
Feedrate	Rapid Traverse Rate	m/min ipm	X:24 / Z:30 X:944.88″ / Z:1181.10″
	Jog Feedrate	mm/min ipm	X,Z:0 ～ 1260 49.61″
Motors	Spindle Motor (15 min/continuous)	kW HP	5.5/3.7 7.5/5.5 7.3/4.9 10/7.3
	Feed Axis Motor	kW HP	X:1.4 / Z:1.2 X:1.9 / Z:1.6
	Hydraulic Pump Motor	kW HP	0.75 × 2 Motors 1.0 × 2 Motors
	Coolant Pump Motor	kW HP	0.25 × 2 Motors 0.3 × 2 Motors
Required Power	Electric Power	kVA	24 27
	Air Pressure Source	Mpa	0.4
Tank Capacity	Hydraulic Unit Tank	L gal	18.5 4.88
	Lubricant Tank — Grease	L gal	0.7 0.18
	Lubricant Tank — Oil	L gal	1.8 0.48
	Coolant Tank	L gal	210 55.44
Machine Size	Machine Height	mm inch	2450 96.46″
	Height form Floor to Spindle Centerline	mm inch	1000 39.37″
	Required Floor Space — A-Type	mm×mm inch×inch	2113 × 3327 83.19″ × 130.98″
	Required Floor Space — B-Type	mm×mm inch×inch	2113 × 3327 83.19″ × 130.98″
	Required Floor Space — C-Type	mm×mm inch×inch	2826 × 3327 111.26″ × 130.98″
	Machine Weight	kg lbs.	5800 12760

【Loader Specification】

			TT-1100G
Target Workpiece	Outside Diameter	mm inch	80 3.15″
	Length	mm inch	80 3.15″
	Weight	kg lbs.	0.7 × 2 1.5 × 2
Travel (Running Speed)	Y-Axis (Longitudinal) — A-Type	mm inch (m/min ipm)	1410 (200) 55.51″ (7874.02″)
	Y-Axis (Longitudinal) — B-Type	mm inch (m/min ipm)	1466 (200) 57.72″ (7874.02″)
	Y-Axis (Longitudinal) — C-Type	mm inch (m/min ipm)	2006 (200) 78.98″ (7874.02″)
	X-Axis (Vertical)	mm inch (m/min ipm)	505 (160) 19.88″ (6299.21″)
	Z-Axis (Lateral)	mm inch (m/min ipm)	316 (60) 12.44″ (2362.20″)
Hand	Type		3-Jaws
	Stroke	mm inch	φ20 0.79″

【Work Piece Feeder Specifications】

Target Workpiece		mm inch	φ20 ～ φ100 0.79″ ～ 3.94″
Number of Pallets			14
Loading Capacity	(Per Pallet)	kg lbs.	25 55
Maximum Height		mm inch	450 17.72″

Red is Optional.

■ Machine Standard Accessories (with A or B Type Loader)

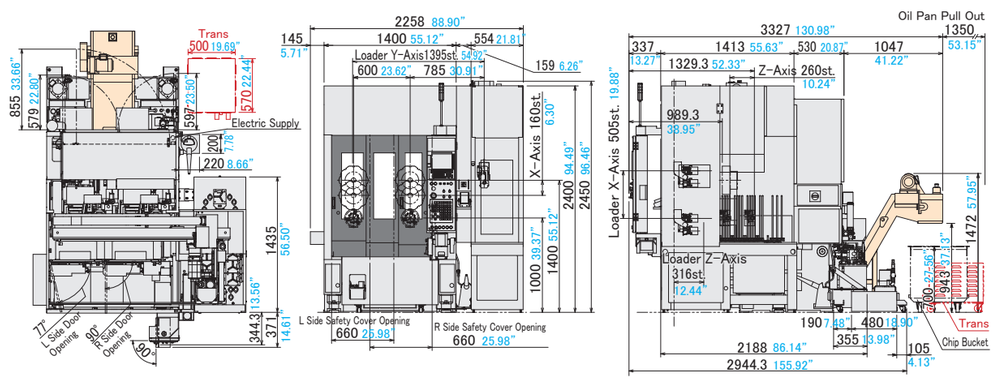
Items	Contents		TT-1100G
6″ Solid Chuck and Cylinder		L&R	●
Chuck Open/Close M-Function	(Proximity)	L&R	●
Chuck Airblow	(M-Function, Outside Spindle)	L&R	●
Signal Tower Light	(3-Color)	1 Pic	●
Chip Conveyor	(Caterpillar Type, Rear)	1 Set	●
Tool Holders	(Selectable for OD Turning & Facing, or Boring Bar/Drill)	L&R (Each 5)	●
Auto Power-Off System		1 Set	●
Total Counter	(Display)		●
Gantry Loader	(A or B Type)	1 Set	●
Turnover Unit		1 Set	●
Quality Chute		1 Set	●
Work Feeder	(14 Pallets/3 Guide Bar)	1 Set	●
Splashguard		1 Set	●
Hydraulic Unit	(750W)	L&R	●
Coolant Unit	(250W)	L&R	●
Lighting Apparatus		1 Set	●
Adjustment Tool		1 Set	●
Instruction Manual		1 Set	●

■ Machine Optional Accessories

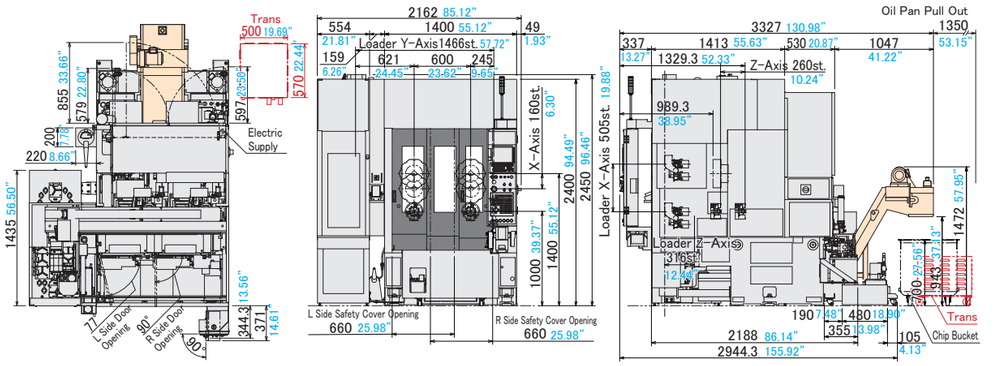
Tool Holder
Boring Bar / Drill Holder
Offset Boring Bar Holder
U-Drill Holder
Offset U-Drill Holder
Boring Bar Bush
Drill and U-Drill Socket
Special Chuck
Foot Switch for Hydraulic Chuck
Spindle Orientation
Coolant Unit (400W)
Spindle Above Coolant
Hybrid Hydraulic Unit
Chip Bucket
Tool Setter
Automatic Tool Setter
Palletizing Hand Loader
Manual Handle Pendant
Spindle Motor
5.5/3.7kW : $6500min^{-1}$
7.5/5.5kW : $4500min^{-1}$
7.5/5.5kW : $6500min^{-1}$

■ Machine Dimensions Unit : mm inch

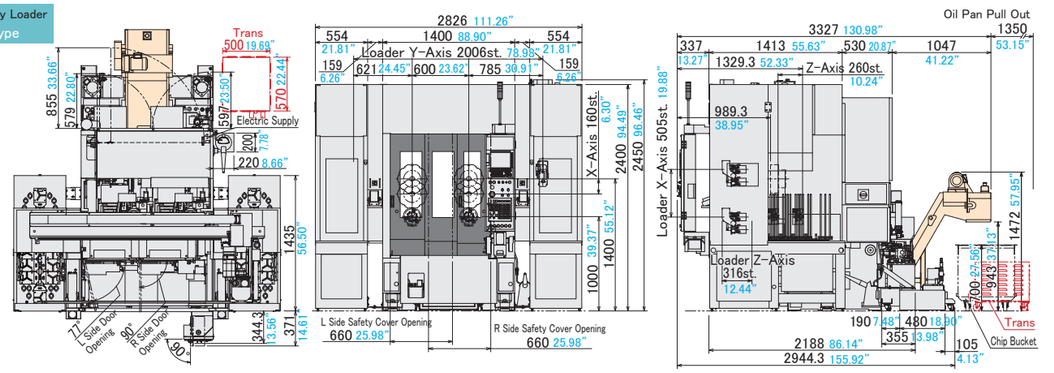
Gantry Loader A Type



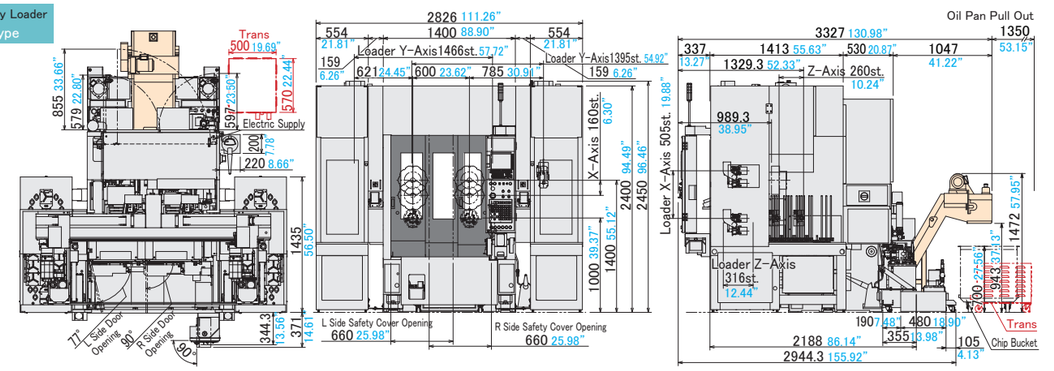
Gantry Loader B Type



Gantry Loader C Type



Gantry Loader D Type



TT-1100G

NC Unit Specifications

FANUC : 0i-TF

※ Please contact our sales persons for further information.

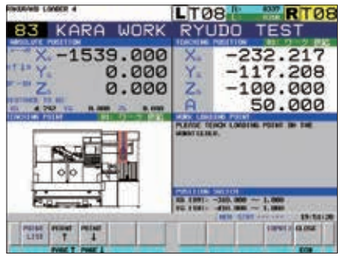
Software

＊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.

Composition

Specifications・Contents	TT-1100G
【NC Unit】	
Screen (10.4″ Color LCD/MDI (Vertical))	●
【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-1100G
【Controlled Axes】	
Least Input Increment ＊2	●
Max. Programmable Dimension (± 999999.999)	●
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)	●
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	◎
【Feed Functions】	
Rapid Traverse Override (F0,25%,50%,100%)	●
Feed Per Minute	●

Specifications・Contents	TT-1100G
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)	●
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)	●
【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	○
Number of Registerable Programs, 800 Programs ＊18	●
Number of Registerable Programs, 1000 Programs ＊18	○
Part Program Editing	●
Extended Part Program Editing	●

Specifications・Contents	TT-1100G
Program Protect	●
Machining Time Stamp	○
Background Editing	●
Multi Part Program Editting	●
【Setting / Display】	
Status Display	●
Clock Function	●
Current Position Display	●
Program Comment Display (31 Characters)	●
Parameter Setting and Display	●
Alarm Display	●
Alarm Log Display	●
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.)

＊1) I/O addition and the PC change are necessary.
＊2) 0.001mm, 0.0001inch
＊3) IS-C 0.0001mm, 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 150 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, Hindi
＊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-1100G

TAKISAWA®

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

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

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■ Overseas Network

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