TAKISAWA TWIN CHUCKER

TT-Series

Parallel Twin-Spindle CNC Lathe

12in/10in

TT-350G

TT-350G TT-350CMG

TAKISAWA®

TT-350G

Heavy-Duty Cutting Improves the Productivity

Takisawa twin-chucker **TT-350G** is a parallel 2-spindle CNC lathe for high-accuracy mass production machine for various 12″/10″chuck workpieces, which has the best machine rigidity in this class.

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.

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Spindle Stock

In order to cope with heavy cutting and thermal displacement, low center of gravity structure is applied. Spindle core is placed at a low position from the floor and mounting base.

12"/10" Chuck Type

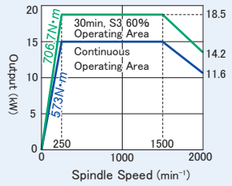
- Bearing Inside Diameter : ϕ120
- Spindle Nose (Nominal Code) : JIS A2-8

Spindle Motor

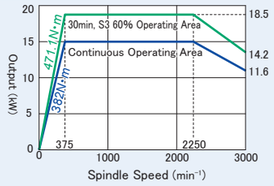
High-performance spindle motor is employed for powerful cutting for 12"/10"chuck workpieces.

18.5/15kW FANUC : αiP30

2000min^{-1}



3000min^{-1} Standard



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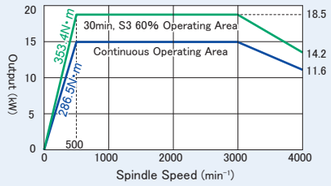
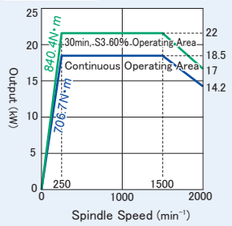


22/18.5kW FANUC : αiP40

2000min^{-1}



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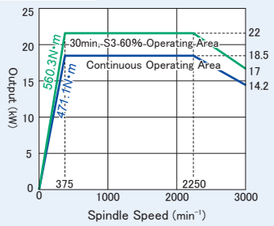
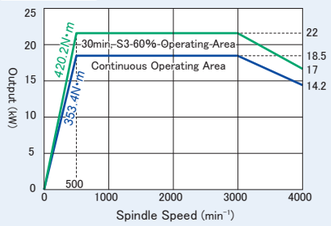


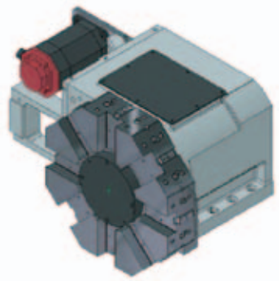
4000min^{-1}



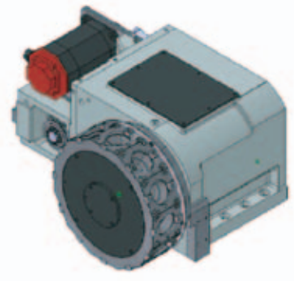
Turret

The stable structure of the turret whose center of gravity is fixed in the X-axis slideway ensures high-accuracy heavy cutting.
The decagonal turning (T8/T10/T12 : Direct-Mount Type) and milling (T12M : All-Holder Type) turrets ensure optimal machining.
Bolt-clamping type tool holder ensures powerful tool holding.

Items		Height of Square Tool Shank	Diameter of Boring Bar Shank
8-Station Turning Turret	T8	□32	ϕ50
10-Station Turning Turret	T10	□25	ϕ50
12-Station Turning Turret	T12	□25	ϕ40
12-Station Milling Turret	T12M	□25	ϕ40



8-Station Turning Turret : T8

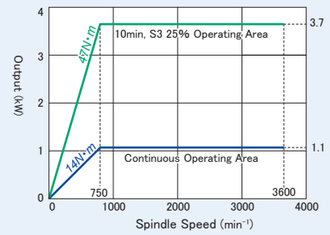


12-Station Milling Turret : T12M

Milling Type

3.7/1.1kW FANUC : αi1.5

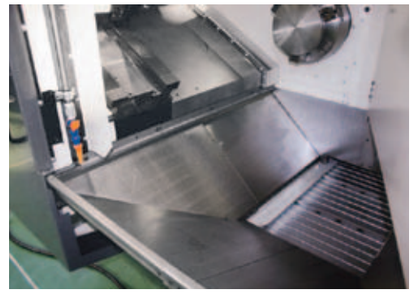
3600min^{-1}



Accessibility

Incomparably Close Accessibility

Movable chip chute slides up to 530mm from the chuck face.
Ideal for providing a setup space of the operator.



Central Partition Cover

The removable chip cover can turn left/right when working around the chuck or turret.

Swing Type Operation Panel

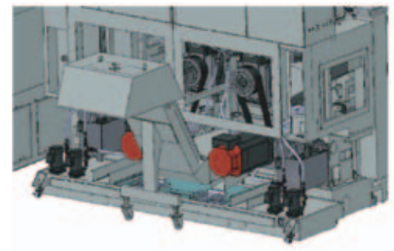
Easy for set-up work and the maintenance.

Large Chip Conveyor

It discharges large volume of chips generated from the both spindles towerd the rear.

Coolant System

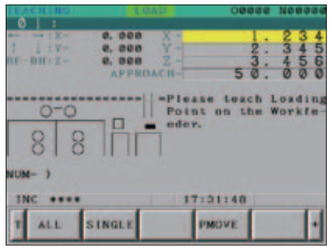
- Pomp Output : 400W
- Tank Capacity : 380L



Operating Software

Shortened non-production time, setup time, etc.

The operability-convenient software slashes non-production time in setup.



・RAKU-RAKU Loader 3 (Standard)
Convenient function capable of easy teaching. Capable of quick operation only by a change of inputting point positions.

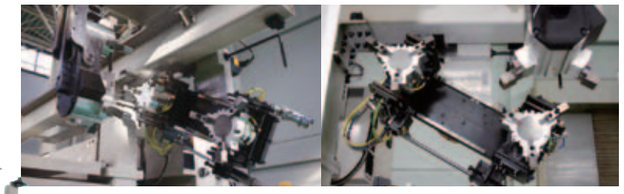
・RAKU-RAKU Monitor 3 (Standard)
Capable of tool management, load control, offset control, and collection of operation information.

・Measurement Monitor 3 (Optional)
This is a function that takes measurement data from a measuring device and calculates a wear offset amount for automatically setting a wear offset value. The measurement data of 120 logs stored as log data are displayed as a log or graph based on the data so that the process performance exponent is calculated.

・Exclusive Switch (Standard)
A dedicated switch that can call up a useful function on the operation panel by one push, which can perform a smooth operation.

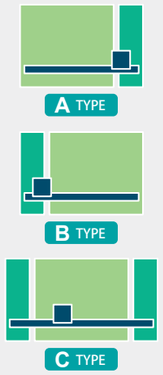
Gantry Loader

The CNC 3-axis high-speed gantry loader is Ideal for continuous multi-processing.
It is more effective coupled with the work-reversing device and work-feeder etc.



Loader Variations

Machine Body
Work Feeder
Gantry Loader

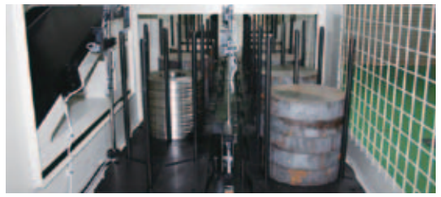


Loader Specifications (A Type)

Target Workpiece	Outside Diameter	ϕ280mm
	Length	160mm
	Weight	15kg (×2)
Travel (Running Speed)	X-Axis (longitudinal)	110m/min
	Y-Axis (vertical)	80m/min
	Z-Axis (cross)	40m/min

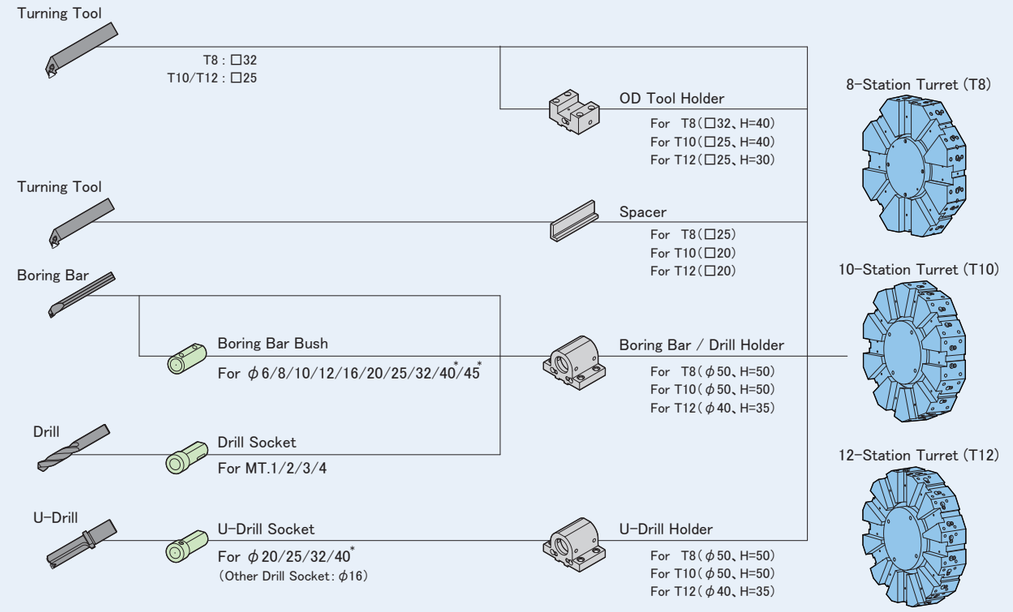
Work Feeder Specifications

Number of Pallets	14
Loading Capacity (Per Pallet)	70kg
Maximum Height	400mm



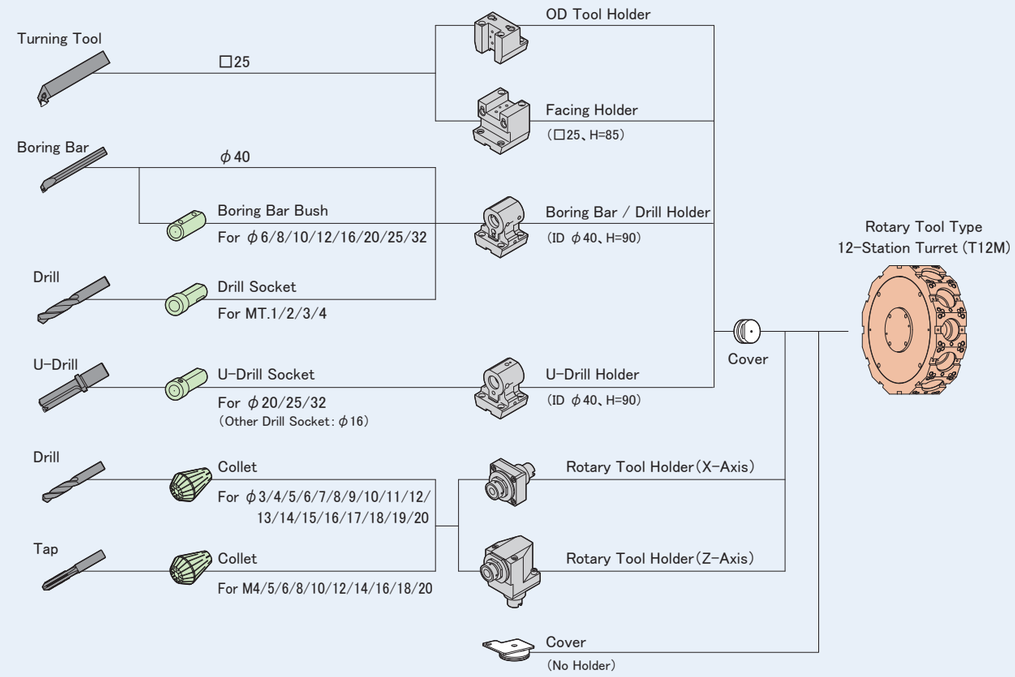
■ Tooling System

Turning Type TT-350G



*) For T8 only.

Turning / Milling Type TT-350CMG



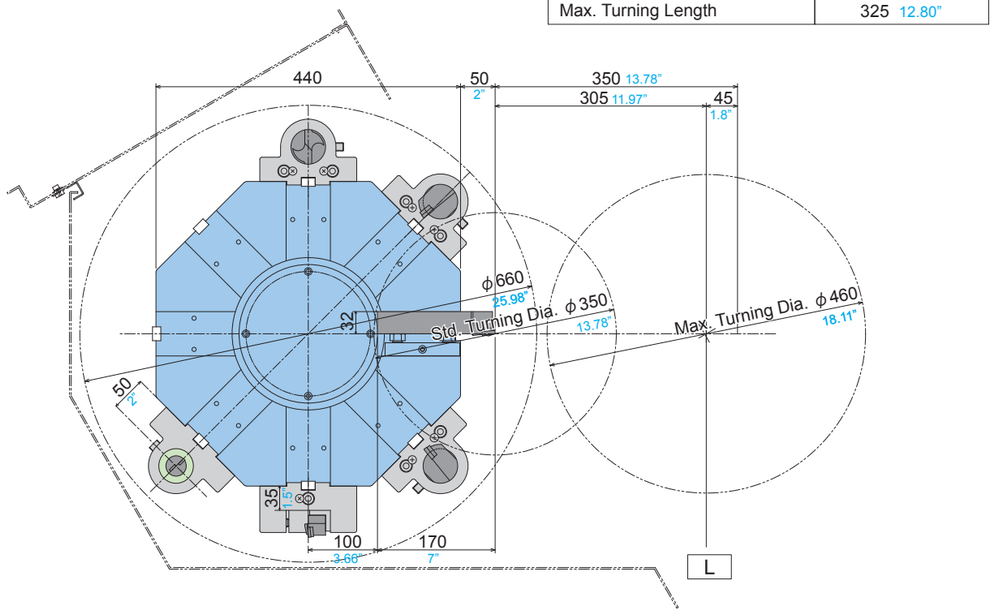
■ Travel Range and Interference

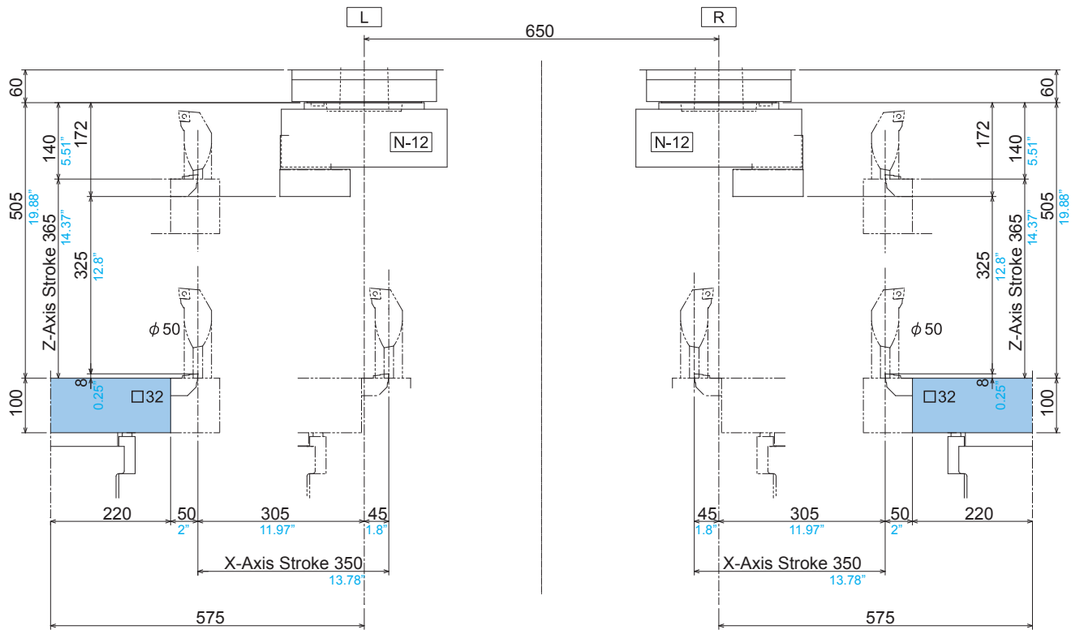
Unit : mm inch

Turning Type TT-350G

T8

Chuck Size	12”+12”
Type of Turret	Direct-Mount Type
	T8+T8
Height of Square Tool Shank	□32
Diameter of Boring Bar Shank	ϕ50
Max. Turning Diameter	460 18.11”
Max. Turning Length	325 12.80”

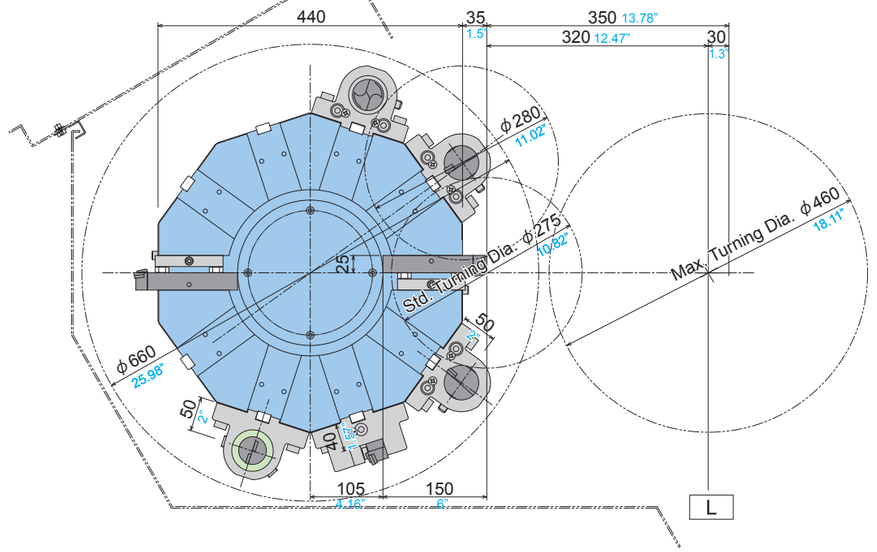


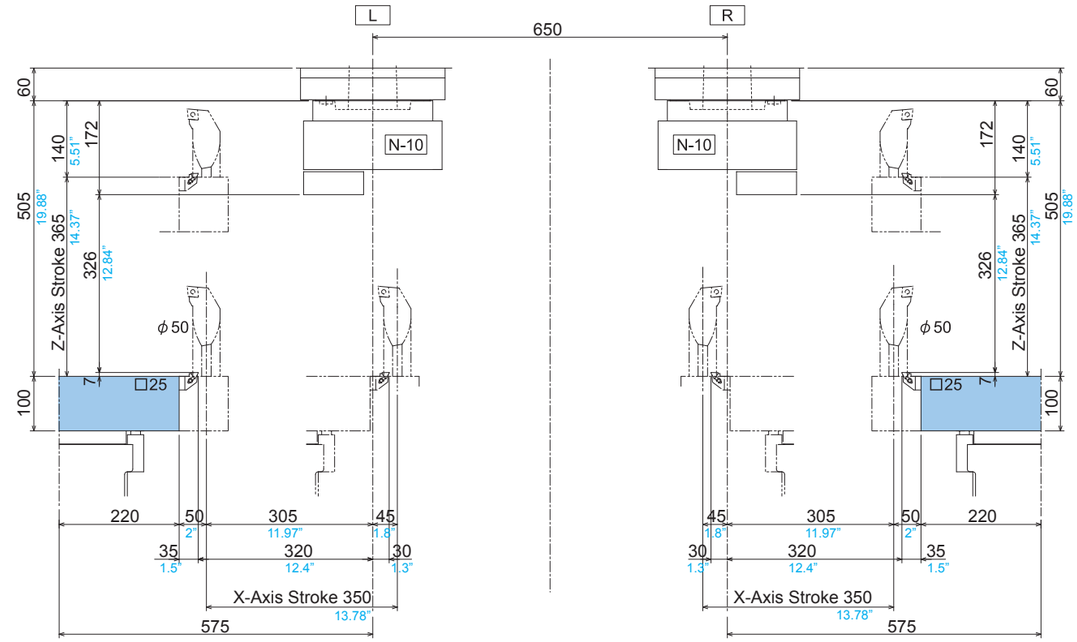


Turning Type TT-350G

T10

Chuck Size	10”+10”
Type of Turret	Direct-Mount Type
	T10+T10
Height of Square Tool Shank	□25
Diameter of Boring Bar Shank	ϕ50
Max. Turning Diameter	460 18.11”
Max. Turning Length	326 12.84”





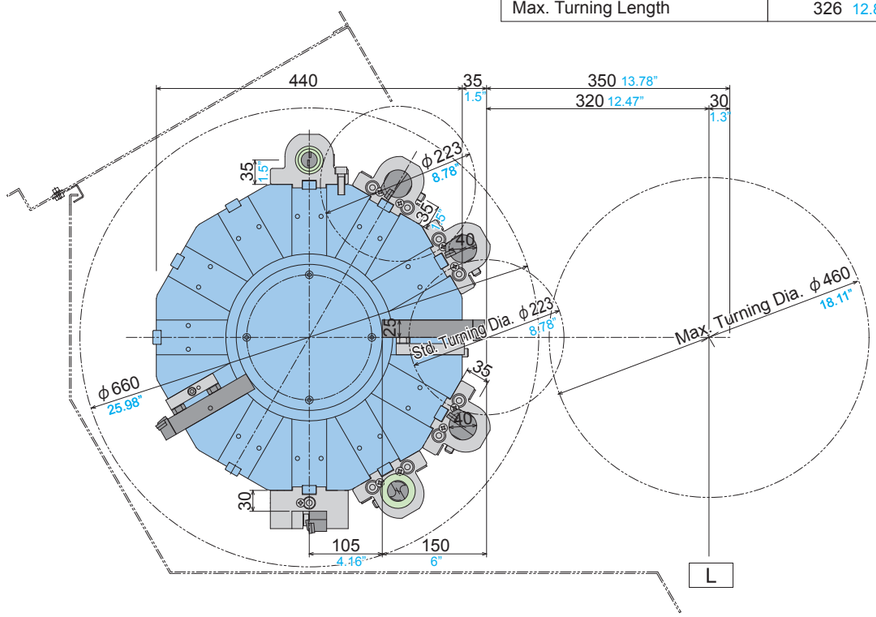
■ Travel Range and Interference

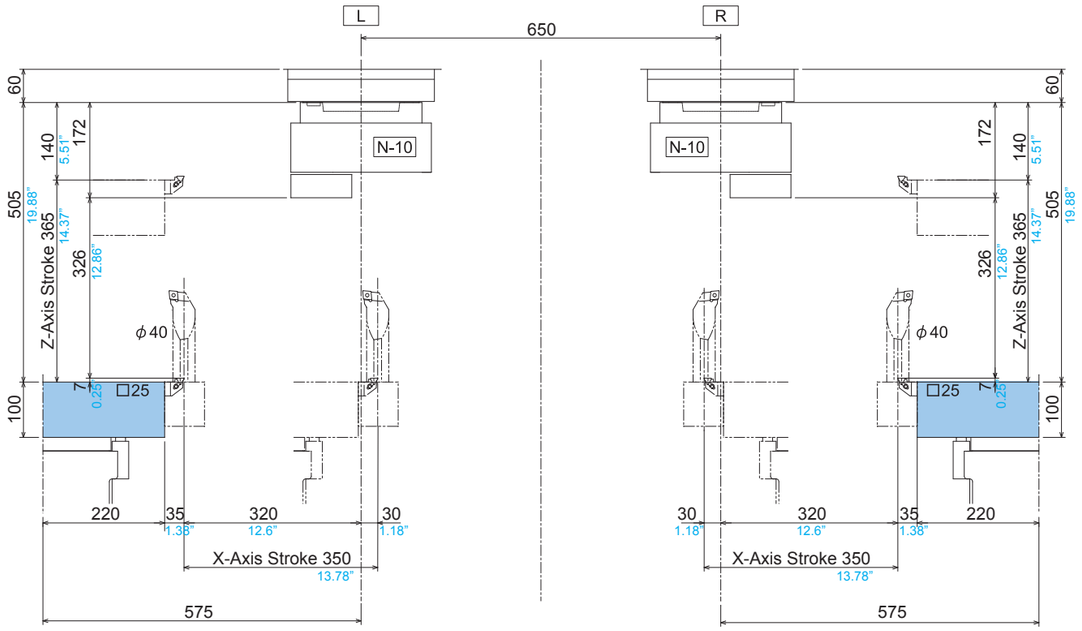
Unit : mm inch

Turning Type TT-350G

T12

Chuck Size	10”+10”
Type of Turret	Direct-Mount Type
	T12+T12
Height of Square Tool Shank	□25
Diameter of Boring Bar Shank	ϕ40
Max. Turning Diameter	460 18.11”
Max. Turning Length	326 12.80”

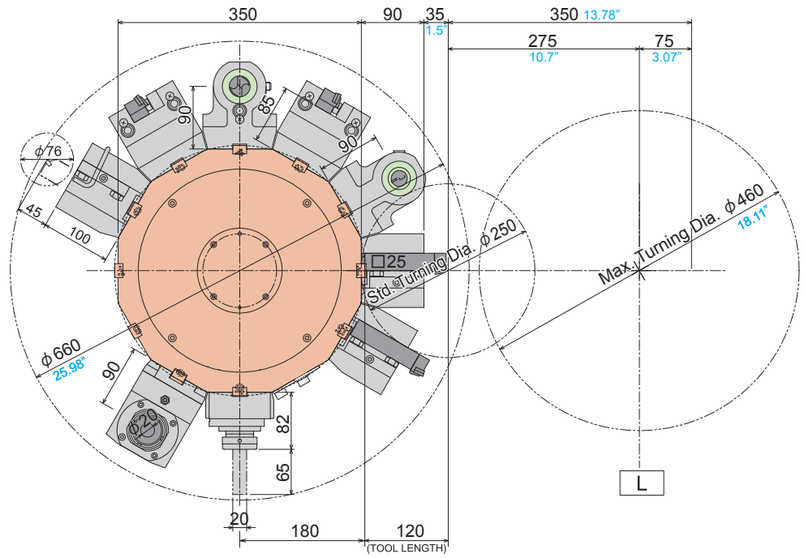


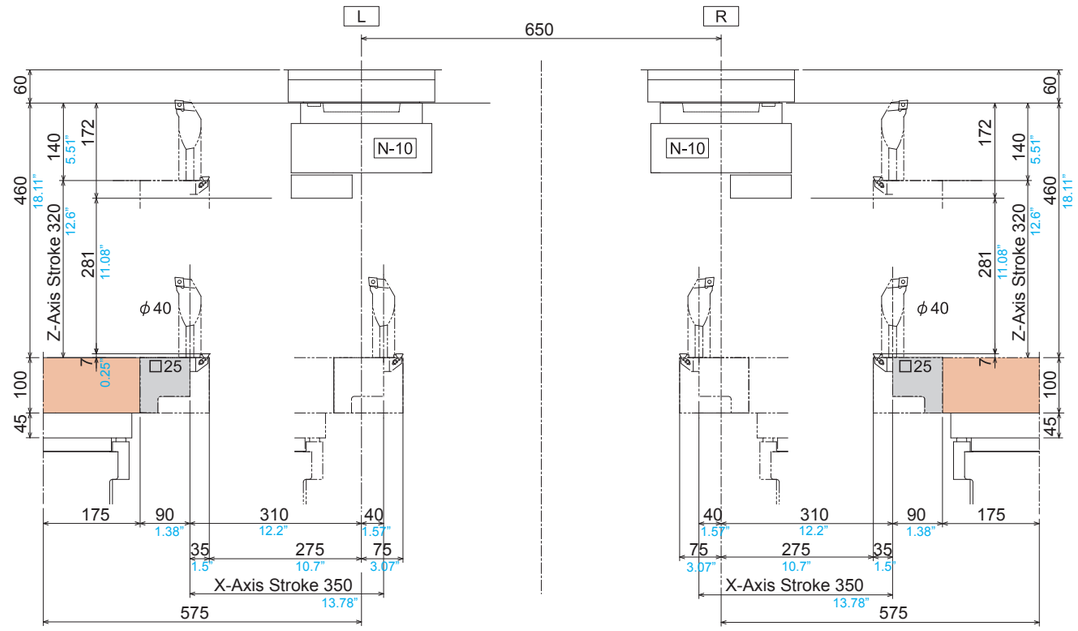


Turning / Milling Type TT-350CMG

T12 CM

Chuck Size	10”+10”
Type of Turret	Direct-Mount Type
	T12CM+T12CM
Height of Square Tool Shank	□25
Diameter of Boring Bar Shank	ϕ40
Max. Turning Diameter	460 18.11”
Max. Turning Length	281 11.06”





■ Machine Specifications

Items			TT-350G			TT-350CMG
			12″ Type	10″ Type		
			T8	T10	T12	T12M
Capability・Capacity	Distance Between Spindles	mm inch	650 25.59″			
	Max. Turning Diameter	mm inch	460 18.11″			
	Max. Turning Length	mm inch	325 12.80″	326 12.84″		281 11.08″
Travel	X-Axis Travel	mm inch	350 13.78″			
	Z-Axis Travel	mm inch	365 14.37″			320 12.60″
Spindle	Number of Spindles		2			
	Spindle Speed	min^{-1}	40 ～ 3000 27 ～ 2000 53 ～ 4000			
	Spindle Nose (Nom, Code)		JISA2-8			
	Through-Hole Diameter	mm inch	86 3.39″			
	Bearing Inside Diameter	mm inch	120 4.72″			
Turret	Number of Turrets		2			
	Number of Attachable Tools		8+8	10+10	12+12	12+12
	Height of Square Tool Shank	mm inch	32 1.25″	25 1″		
	Diameter of Boring Bar Shank	mm inch	50 2″		40 1.5″	
Rotary Tool	Number of Rotary Tools		–			12+12
	Spindle Speed	min^{-1}	–			36 ～ 3600
	Maximum Tool Shank Diameter	mm inch	–			20 0.79″
	Tool Spindle Taper Hole (Type, Nom, Code)		–			AR32
	Tool Spindle Bearing Inside Diameter	mm inch	–			35 1.38″
Feed	Rapid Traverse Rate	m/min ipm	X:24, Z:24 X:944.88″, Z:944.88″			
Motors	Spindle Motor (30 min/continuous)	kW HP	18.5/15 22/18.5 22/18.5 29.3/24.7			
	Rotary Tool Spindle Motor (15 min/continuous)	kW HP	–			3.7/1.1 4.9/1.5
	Feed Axis Motor	kW HP	X:1.8, Z:2.5 X:2.4, Z:3.3			
	Hydraulic Pump Motor	kW HP	1.5 2			
	Coolant Pump Motor	kW HP	0.4 × 2 0.5 × 2			
	Chip Flow Unit Motor	kW HP	0.4 × 2 0.5 × 2			
Required Power	Electric Power	kVA	63.8 73.2(22kW)			
	Air Pressure Source	Mpa	0.4			
Tank Capacity	Hydraulic Unit Tank	L gal	30 7.92			
	Lubricant Tank	L gal	6.5 1.72			
	Coolant Tank	L gal	380 100.32			
Machine Size	Machine Height (Loader Top)	mm inch	4493 176.89″			
	Floor to Spindle Center Height	mm inch	1200 47.24″			
	Required Floor Space	mm inch	4395 × 3753 173.03″ × 147.76″			
	Machine Weight	kg lbs	13500 29700	13500 29700	13500 29700	13700 30140

※ Red is Optional.

【Loader Specifications (A or B Type)】			TT-350G	TT-350CMG
Target Workpiece	Outside Diameter	mm inch	280 11.02″	
	Length	mm inch	160 6.30″	
	Weight	kg lbs.	15 (×2) 33 (×2)	
Travel (Running Speed)	X-Axis (longitudinal)	mm inch (m/min ipm)	2790 109.84″ (110 4330.71″)	
	Y-Axis (vertical)	mm inch (m/min ipm)	1290 50.79″ (80 3149.61″)	
	Z-Axis (cross)	mm inch (m/min ipm)	350 13.78″ (40 1574.80″)	
Hand	Type		3-Jaws	
	Stroke	mm inch	ϕ 64 2.52″	

【Work Feeder Specifications】		
Number of Pallets (3 Guide Bars/Pallet)		14
Loading Capacity (Per Pallet)	kg lbs.	70 154
Maximum Height	mm inch	400 15.75″

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

Items	Contents		12″ Type	10″ Type
Solid Chuck and Cylinder	N-12 & SIN-S150	L&R	●	–
	N-10 & 1225R	L&R	–	●
Chuck Auto Open/Close M-Function		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		L&R	●	●
Gantry Loader	A or B Type	1 Set	●	●
Work Feeder	16 Pallets/3 Guide Bar	1 Set	●	●
Work Turnover Unit		1 Set	●	●
NG Chute		1 Set	●	●
Splashguard		1 Set	●	●
Hydraulic Unit	1.5kW	L&R	●	●
Footswitch for Hydraulic Unit		L&R	●	●
Coolant Pump	400W	L&R	●	●
Chip Flow Unit	400W	L&R	●	●
Lighting Apparatus		1 Set	●	●
Adjustment Tool Set		1 Set	●	●
Instruction Manual		1 Set	●	●

■ Machine Optional Accessories

Rotary Tool Holder (for X-Axis) *1
Rotary Tool Holder (for Z-Axis) *1
Collet (for Rotary Tool) *1
OD Turning and Facing Tool Holder
Boring Bar / Drill Holder
U-Drill Holder
Boring Bar Bush
Drill / U-Drill Socket
Special Chuck
Spindle Motor
- 18.5/15kW : 2000min^{-1}
- 18.5/15kW : 4000min^{-1}
- 22/18.5kW : 2000min^{-1}
- 22/18.5kW : 3000min^{-1}
- 22/18.5kW : 4000min^{-1}

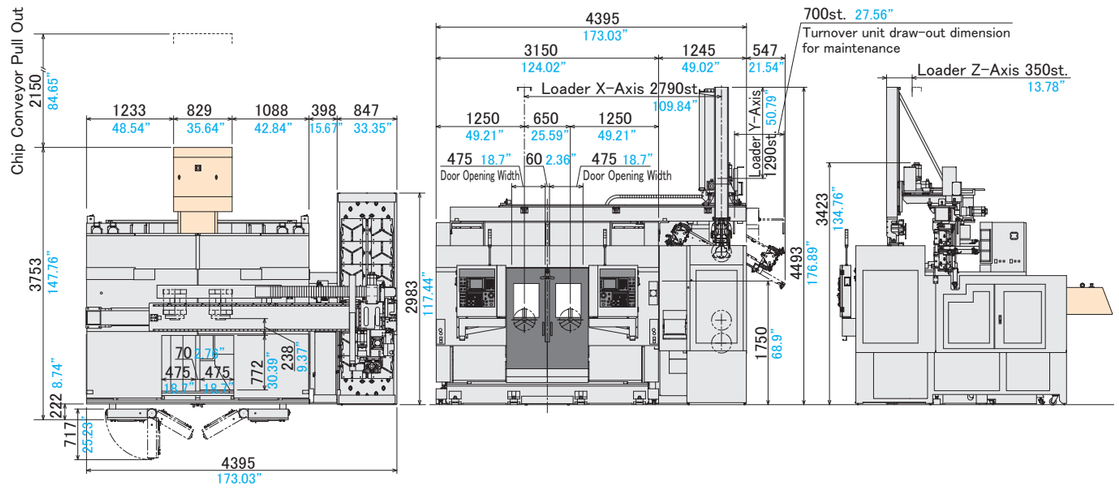
Spindle Orientation *2
Chip Bucket
Tool Setter

*1) Applied to TT-350CMG
*2) Disk brake type (Max. 360 Point) with M-Function

※ For other optional accessories, please contact us.

■ Machine Dimensions

Unit : mm inch



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TT-350G

NC Unit Specifications

FANUC : 0i-TD, 0i-TD(2)

※ Please contact our sales persons for further information.

Software

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

RAKU-RAKU Monitor 3

【Standard Accessory】

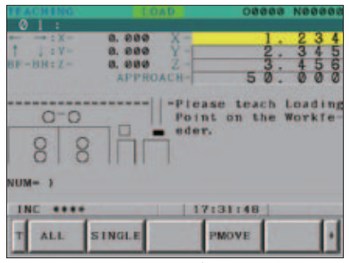
Easy and convenient multi-functional software that can perform the tool life management, cutting load monitoring, group control, and also run information collection, Cp (process capability) calculation, and periodic offset addition.

▲ RAKU-RAKU Monitor 3

RAKU-RAKU Loader 3

【Standard Accessory】

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



▲ RAKU-RAKU Loader 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-350G	TT-350CMG
【NC Unit】		
Loader A, B, C Type	0i-TD(2)+0i-TD	
Screen (8.4″ Color LCD/MDI)	●	●
【Software】		
RAKU-RAKU Monitor 3	●	●
RAKU-RAKU Loader 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	0i-TD
【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	◎
DNC Operation with Memory Card *8 *9	◎
Program Number Search	●
Sequence Number Search	●
Sequence Number Comparison and Stop	●
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 Interpolation (G02/03)	●
Dwell (G04)	●
Polar Coordinate Interpolation	CM
Cylindrical Interpolation	CM
Thread Cutting	●
Multi Threading	●
Thread Cutting Retract	●
Continuous Threading	●
Variable Lead Thread Cutting	●
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	●
Feed per Revolution	●

Specifications・Contents	0i-TD
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】	
Tape 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	●
Sequence Number N5 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	●
Direct Drawing Dmension Programming *10	▲
G-Code System A	●
G-Code System B/C	▲
Chamfering/Corner R *11	●
Programmable Data Input	●
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	●
Macro Executor *12	●
Coordinate System Shift	●
Direct Input of Coordinate System Shift	●
【Auxiliary / Spindle Speed Function】	
M Function (M3 Digits)	●
2nd Auxiliary Functionn (B Function)	●
Spindle Speed Function (S4 Digits)	●
Constant Surface Speed Control	●
Spindle Orientation (No Lock, 1 Point)	●
Rigid Tap (Spindle Center)	●
Rigid Tap (Rotary Tool)	CM
【Tool Functions / Tool Compensation】	
Tool Function (T2+2 Digits)	●
Tool Offset Pairs 64-pairs *13	●
Tool Offset Pairs 99-pairs	○
Tool Offset Pairs 128-pairs *14	●
Tool Offset Pairs 200-pairs *14	○
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 512Kbyte (1280m) *13	●
Part Program Storage Size 1Mbyte *14	●
Number of Registerable Programs, 400 Programs *13	●
Number of Registerable Programs, 800 Programs *14	●
Part Program Editing	●
Program Protect	●
Extended Part Program Editing	●
Background Editing	●

Specifications・Contents	0i-TD
【Setting / Display】	
Status Display	●
Clock Function	●
Current Position Display	●
Program Comment Display (31 Characters)	●
Parameter Setting and Display	●
Alarm Display	●
Alarm Log Display	●
Operator Message History Display	●
Operation History Display	▲
Run Hours and Parts Count Display	●
Actual Cutting Feedrate Display	●
Display of Spindle Speed and T Code at All Screens	●
Directory Display of Floppy Cassette	●
Grouped Directory Display and Punching	●
Servo Setting Screen	●
Maintenance Information Screen	●
Data Protection Key, 1 Kind	●
Help Function	●
Self-diagnosis Function	●
Periodic Maintenance Screen	●
Display of Hardware and Software Configuration	●
Graphic Function	●
Dynamic Graphic Display	○
【Multi-language Display】	
English	●
Other Language *17	▲
Dynamic Display Language Switching	▲
【Data I/O】	
RS-232C Interface for 1ch	●
Fast Data Server	◎
External Message	●
External Workpiece Number Search	◎
Memory Card I/O	●

● : 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(for CM type)
＊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) DNC run mode transfer switch is required.
＊9) CF card and adaptor is required.
＊10) Not coexistent with chamfering/corner R.
＊11) Not coexistent with direct drawing dmension programming.
＊12) Required when RAKU-RAKU Monitor 3/RAKU-RAKU Loader 3 is used.
＊13) Sub NC.
＊14) Main NC, Two system total number.
＊15) Tool setter is required.
＊16) Cannot be used when RAKU-RAKU Monitor 3 is installed.
＊17) Japanese (Kanji), German, French, Spanish, Italian, Chinese (traditional), Chinese (simplified), Korean, Portuguese, Dutch, Danish, Swedish, Hungarian, Czech, Polish, Russian, Turkish

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TT-350G

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