

CNC Multi-Turning Center

X Series



TAKAMAZ

CNC Multi-Turning Center

XY series

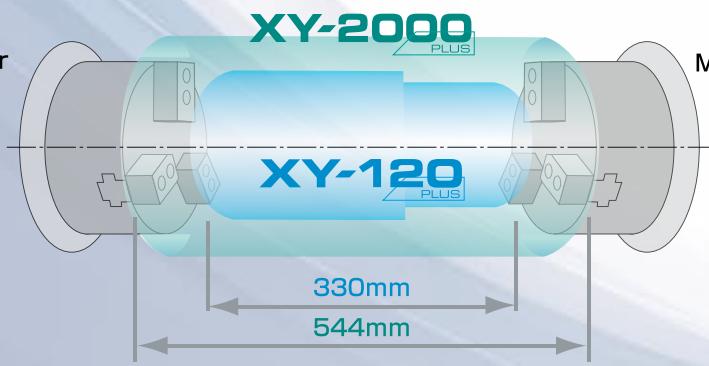
From Blank to Finish with a Single Switch!

The answer is here.
it's XY series !

From the age of mass production to optimal quantity production
Supporting optimal creation of new things through
intelligent fusion of man and machine,
the XY series is the ideal machine for a new era.

Turning
range

Max. turning diameter
Turret #1
 $\phi 210\text{mm}$
 $\phi 170\text{mm}$



Max. turning diameter
Turret #2
 $\phi 210\text{mm}$
 $\phi 135\text{mm}$

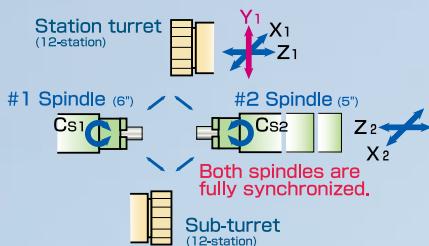
Max. bar
diameter
 $\phi 65$
 $\phi 51$

※The available turning range varies depending on the chuck size or part shape.

XY-120 PLUS

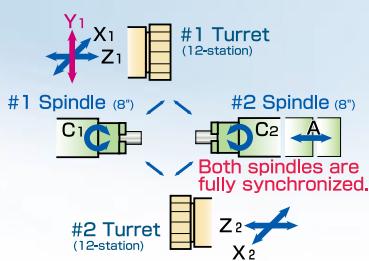
This middle size multi-turning center is equipped with the sub-spindle X2 axis to enable superimposed cutting and can be installed with an optional sub-turret, which further helps shorten turning time. Compared to conventional machines, higher-grade motors are used to achieve an OD turning area of 0.87 mm² (10% increase) on the main spindle side and 0.5 mm² (13% increase) on the sub-spindle side.

※Cutting amount×Feedrate.



XY-2000 PLUS

Suitable for bar materials of $\phi 65$ mm maximum. 24 power tools can be installed on turrets #1 and #2, enabling highly efficient multi-turning operation from blank to finish. VDI tooling systems are also available for European countries, which can shorten setup time.



Machines shown in the photos are in standard color.
Environmentally friendly powder coating is applied.

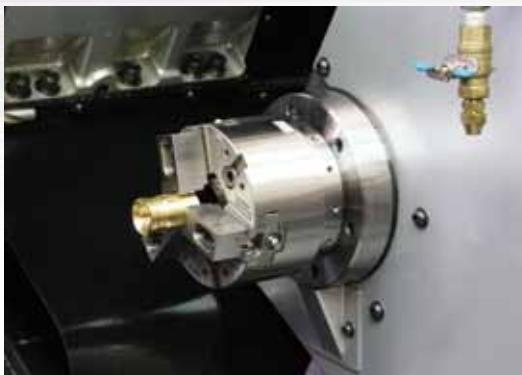
XYseries



Turning and milling available with the Y axis for power tools

Equipped with a Y axis and milling function, multi-turning operation equivalent to machining centers is possible. By using the Y axis, multi-turning operations such as polar coordinate interpolation and cylindrical interpolation which were conventionally difficult with turning machines are made simpler with high precision.

	Y-axis cutting range	Power tool storage capacity	Power tool capacity
XY-120 <small>PLUS</small>	± 35mm	12 tools / turret	φ13mm,M8mm
XY-2000 <small>PLUS</small>	± 40mm	12 tools / turret #1 12 tools / turret #2	φ16mm,M16mm φ16mm,M16mm



Sub-spindle provided for shaft work and blank-to-finish cutting on both front and back faces

A sub-spindle having the same capability as the main spindle enables back face cutting of the second process in a single machine structure. Fully synchronized rotation of both spindles offers high precision and uniform finish shaft work.

	Sub-spindle Chuck size	Spindle speed	Stroke
XY-120 <small>PLUS</small>	5 inches	Max.5,000min ⁻¹	440mm
XY-2000 <small>PLUS</small>	8 inches	Max.4,000min ⁻¹	570mm



Speedy setup change with VDI turrets

Quick change type tool posts (VDI) are featured on both the No.1 and No.2 turret and greatly reduce the tool mounting time.

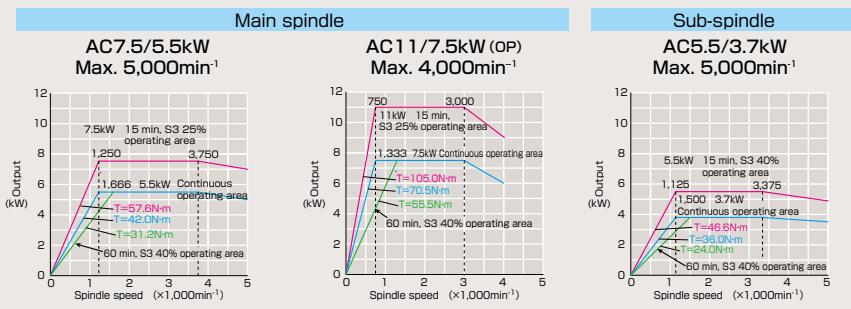
	Turret #1	Turret #2	Tool storage capacity
XY-2000 <small>PLUS</small>	No.40	No.40	12 tools / turret

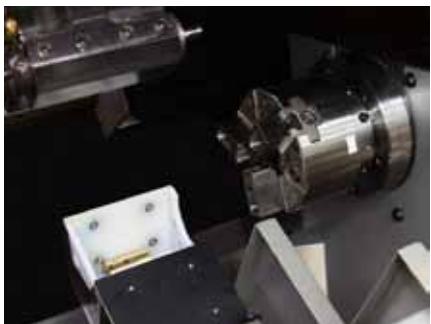
Indexing time (common): 0.2 sec (1 station), 0.6 sec (6 stations)

Motor Output Characteristics Diagram

A wide range of high performance motors are available according to your needs from high horsepower to high speed rotation.

XY-120
PLUS





Bar work automated with parts catcher

The parts catcher can be configured to the most appropriate part-receiving timing by programming and, if combined with an automatic bar feeder, enables extended unmanned operation of bar work.



Swivable operation panel for good operability

To reduce the operator's burden, a swivable operation panel is employed in consideration of minimizing the operator's motion area. Operations in good posture support a strain-free, efficient and safe working environment.

Consideration to maintenance and environment

For ease of maintenance and good operability, the chuck pressure regulating valve and lubrication pump are arranged on the front face of the machine. A periodical inspection notice function notifies the time of battery replacement and hydraulic pump inspection to support control of maintenance and help keep the machine in top condition all the time. In addition, the remodeled XY-120plus is equipped with high-performance motors.



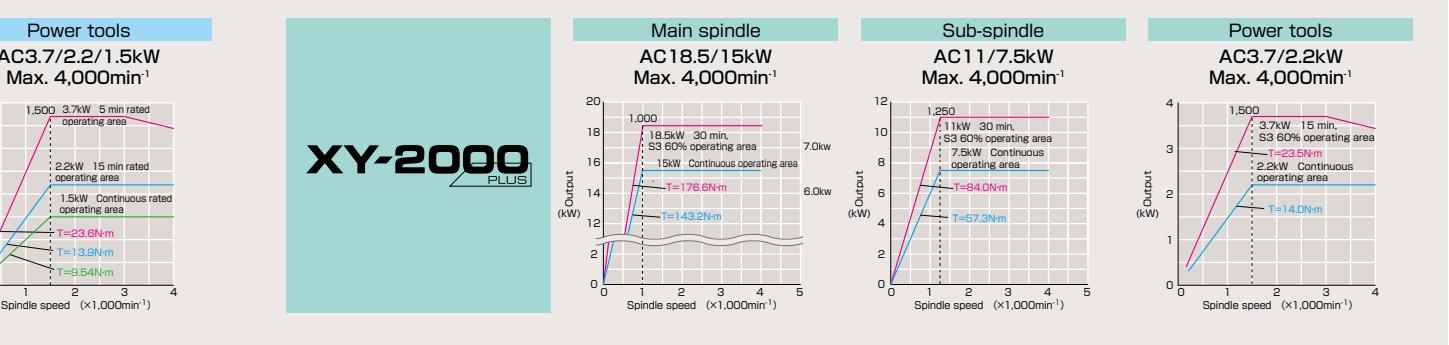
FANUC Manual Guide i installed for good and easy-to-use programming

Cutting cycles for milling, turning, inclined cutting and more can be programmed with ease and simulated in realistic graphical representation, which will dramatically shorten programming time.



Chip conveyor for chip accumulation prevention

The slant bed structure of the XY series assures a smooth flow of chips. Even if chips have complex shapes depending on cutting conditions, using a chip conveyor in combination can remove such chips smoothly from the machine.



XYseries

XY-120 PLUS

Superimposed Cutting



Simultaneous front and back face cutting is available by using the sub-spindle axis.



Cycle time shortened with superimposed cutting

X2 axis configuration is added to the sub-spindle slide to enable X- and Z-axis superimposed cutting. An optional sub-turret further enables superimposed cutting simultaneously on the main spindle and the sub-spindle, which contributes to drastic cycle time reduction. (See the chart below.)



Max. 50% time reduction

※Excluding part supply, passing and discharge time



Sufficient tool storage capacity

The 12-station main turret with the intermediate indexing function has 24 tool storage positions or if a sub-turret is installed 36 tool storage positions, reducing the number of tool setup times that might be required frequently during various kinds of various volumes production.

A maximum of 12 power tools for drilling of up to $\phi 13$ mm can be installed.

XY-2000 PLUS

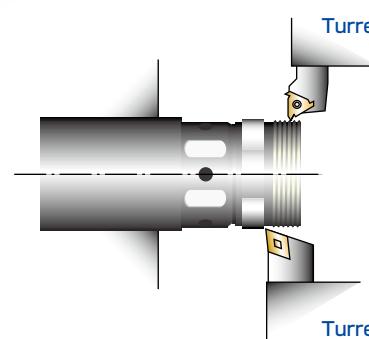
BALANCE CUT



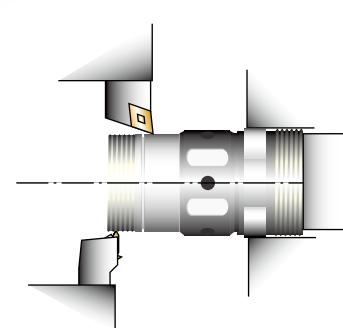
Turrets #1 and #2 are synchronized during OD turning for high precision balance cutting.

By applying two synchronized turning tools (for example, a rough turning tool and a finish turning tool) simultaneously from both sides, part deflection can be damped, achieving high cutting precision and shorter cycle times.

Main spindle side



On the sub-spindle side



Reliable workmanship

The XY series machines employ precision scraped square slideways. With excellent rigidity, these slideways ensure stable cutting accuracy at all times. Based on our proven technology from 60 years of experience in machine tool building, our machines have high durability that withstands long-term use, enhancing customer satisfaction.

XY-2000 PLUS

(Reference values)

OD turning capacity

Cutting cross-sectional area **2.35mm²** Main spindle side Sub-spindle side **0.95mm²**

Material	S45C
Spindle speed	500~2,000 min ⁻¹
Cutting speed	150 m/min
Feed rate	0.2~0.4 mm/rev.
Depth of cut	3.0~5.0 mm

Grooving capacity Main spindle side **6mm (L:114mm)** Sub-spindle side **5mm (L:87mm)**

Material	S45C
Spindle speed	430 min ⁻¹
Cutting speed	100 m/min
Feed rate	0.1 mm/rev.
Depth of cut	3.0 mm

Power tool capacity

Drill

Main spindle/sub-spindle

Ø25mm

Material	S45C
Spindle speed	255 min ⁻¹
Cutting speed	20 m/min
Feed rate	0.1~0.25 mm/rev.
Depth of cut	25.0 mm

Surface roughness

Main spindle side **0.49µm** Sub-spindle side **0.29µm**

Out of roundness

Main spindle side **0.62µm** Sub-spindle side **0.45µm**

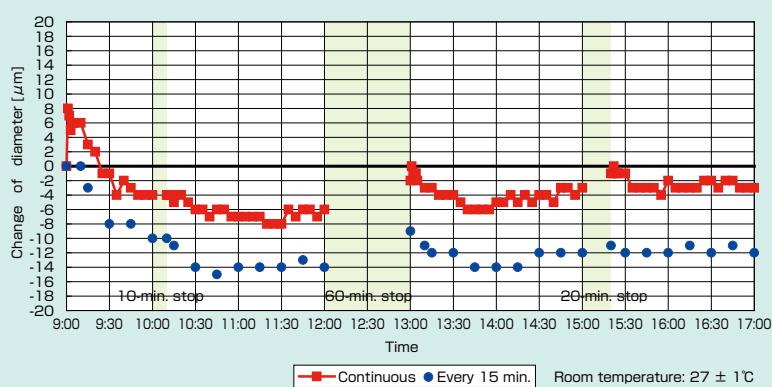
Material	C3604BD
Spindle speed	2,000 min ⁻¹
Cutting speed	180 m/min
Feed rate	0.2~0.002 mm/rev.
Depth of cut	0.1 mm

Variation with time (sub-spindle side)

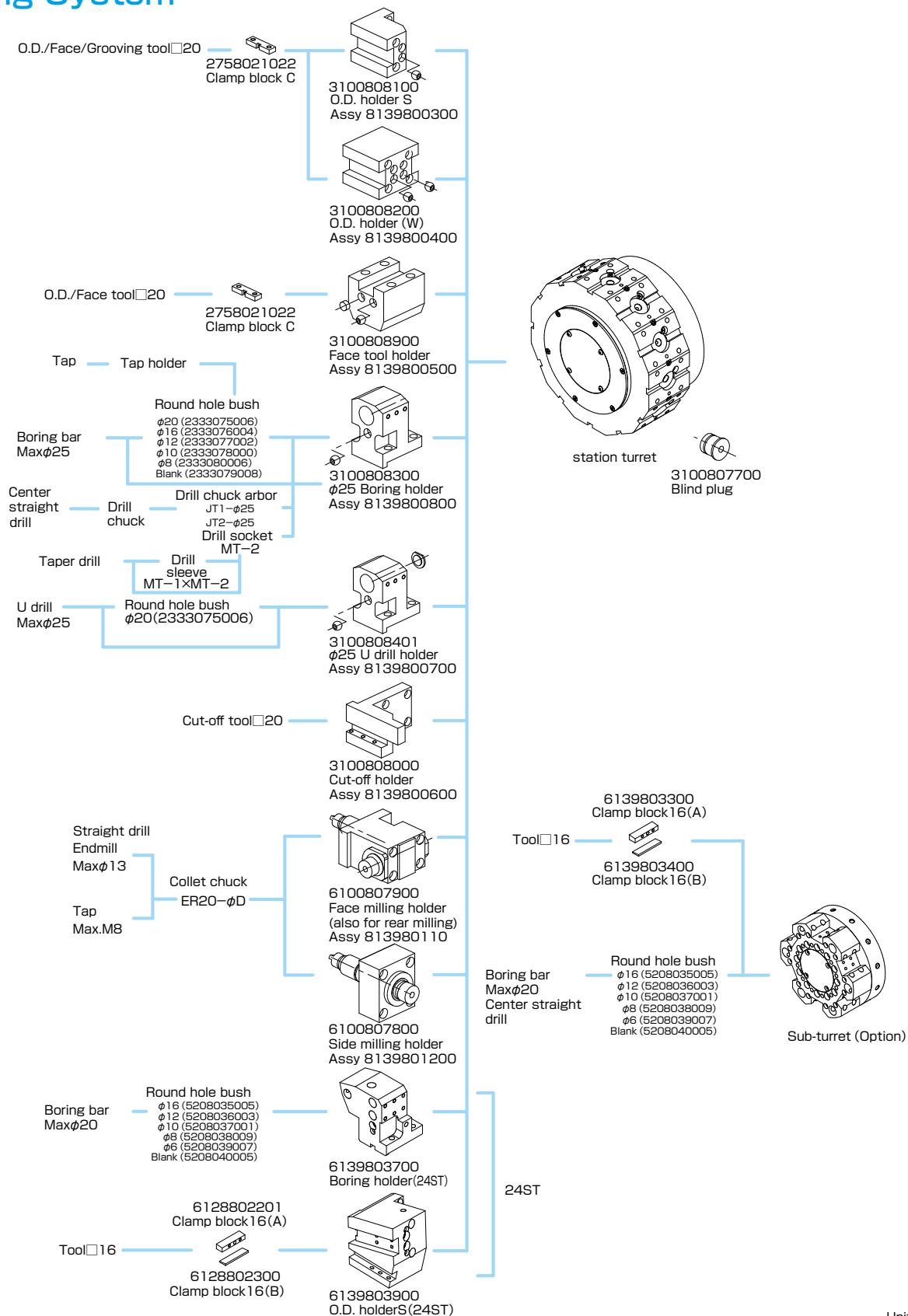
(change in 8 hours)

15µm

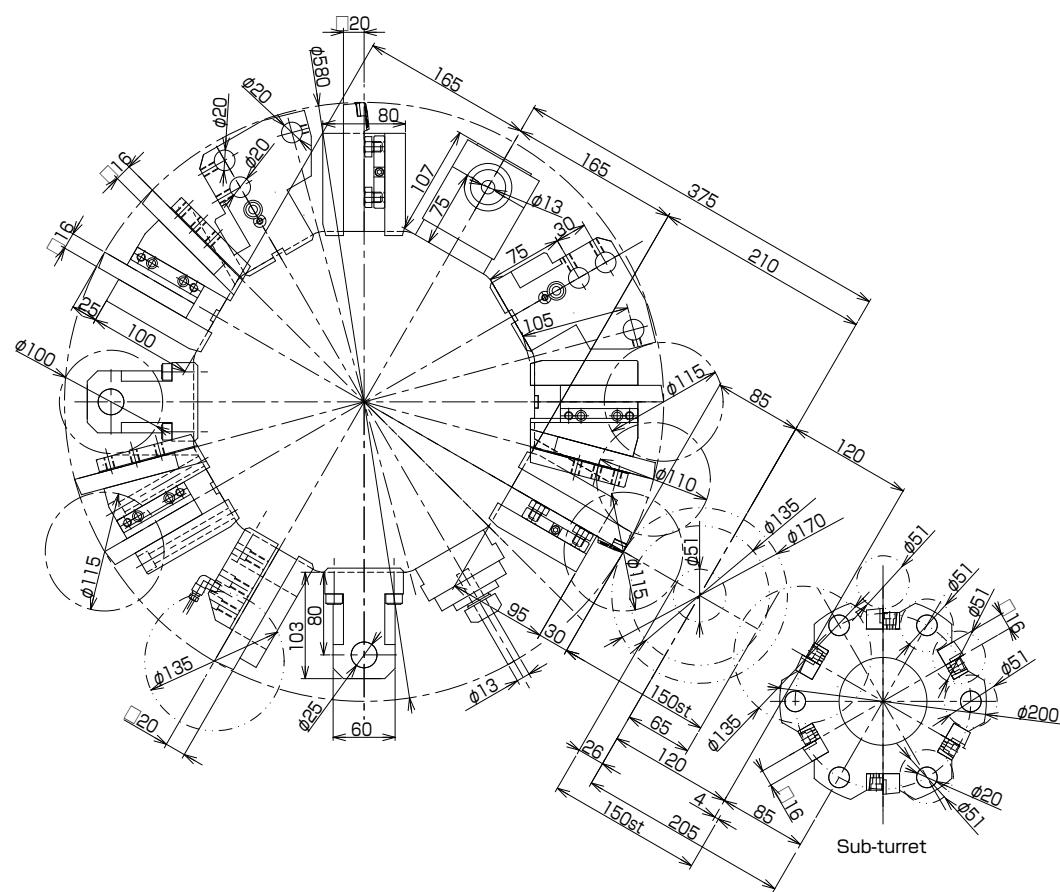
Material	S45C
Spindle speed	Rough 1,600 Finish 2,000 min ⁻¹
Cutting speed	Rough 180 Finish 200 m/min
Feed rate	Rough 0.2 Finish 0.08 mm/rev.
Depth of cut	Rough 2.0 Finish 0.1 mm



Tooling System



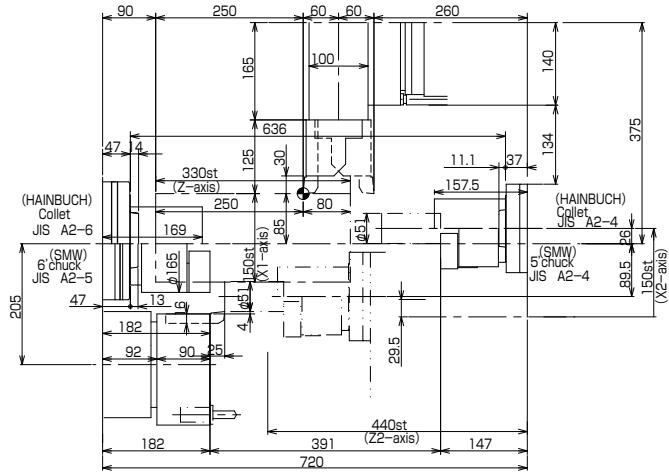
Turret interference



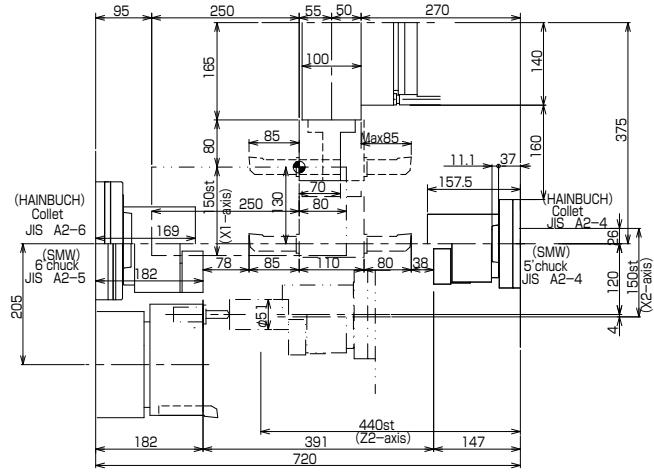
Unit(mm)

Stroke-Related Drawing

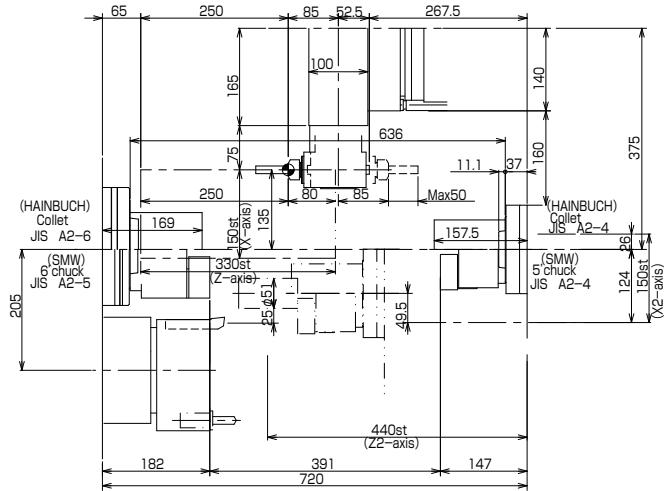
O.D.machining range



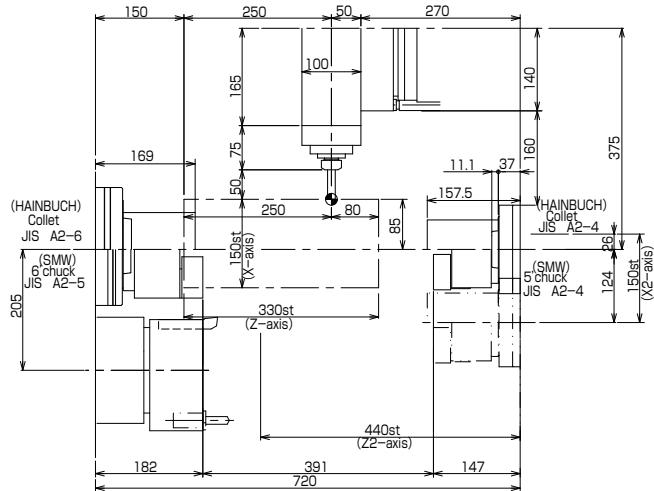
Boring range



Face milling range

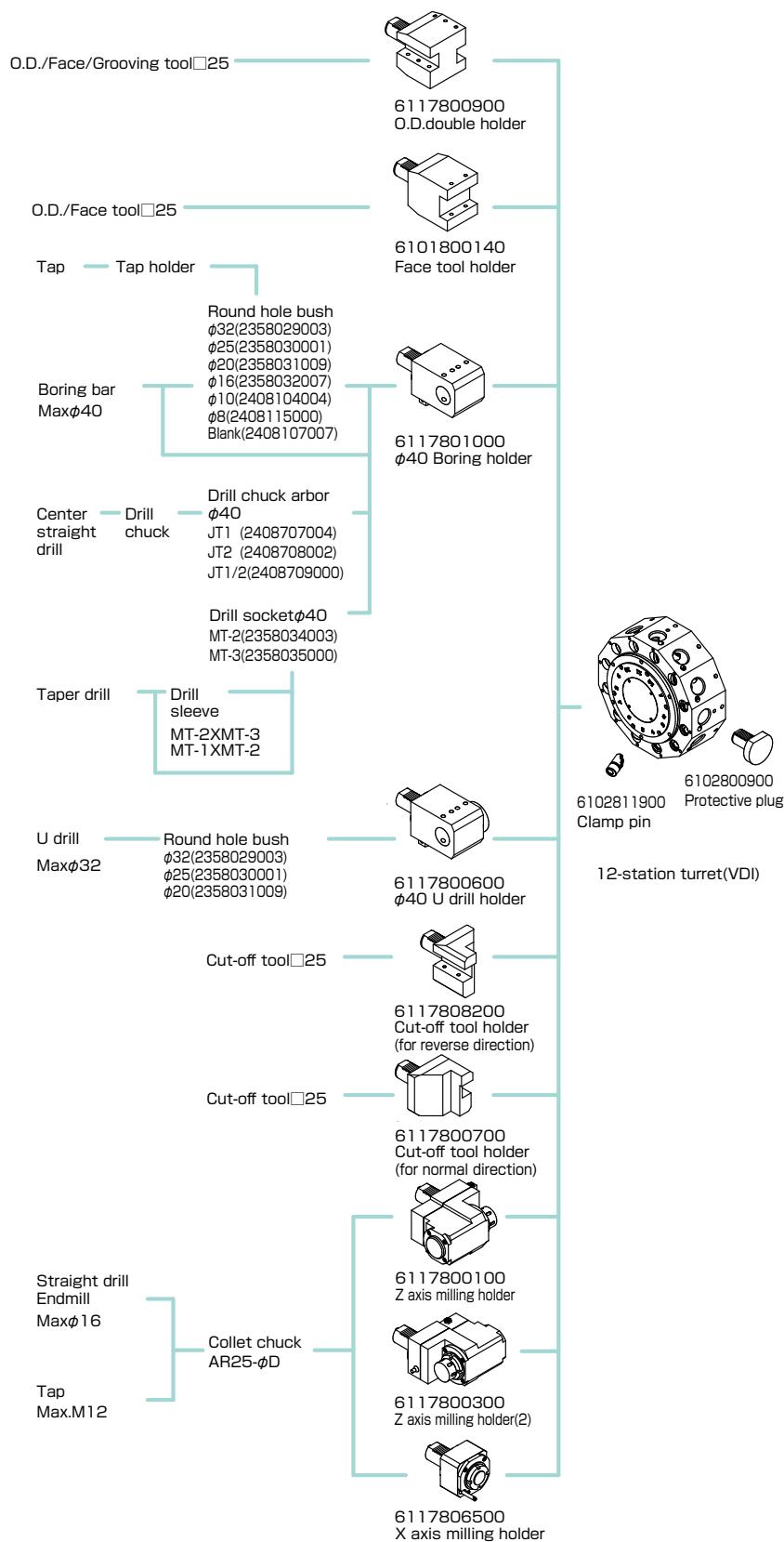


Side milling range



Unit(mm)

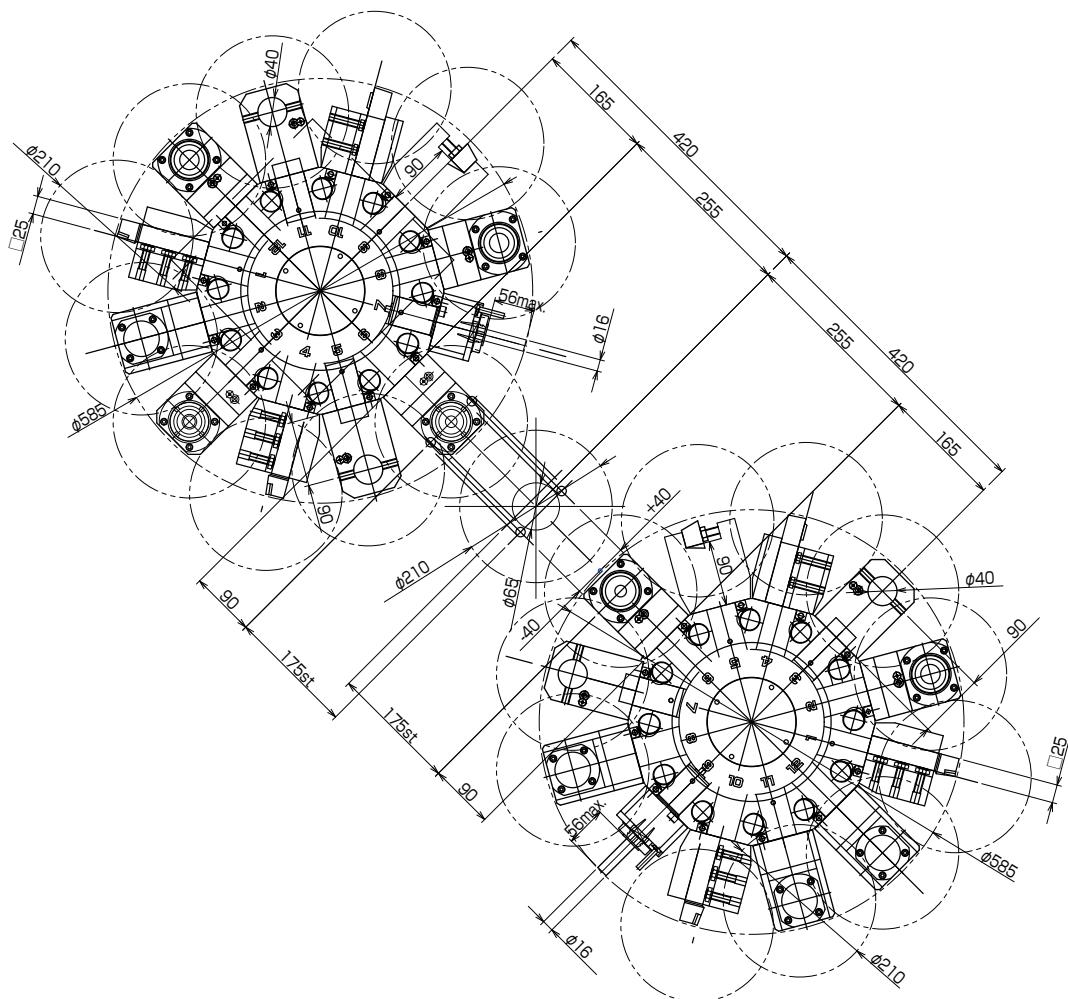
Tooling System [VDI]



Unit(mm)

Turret interference

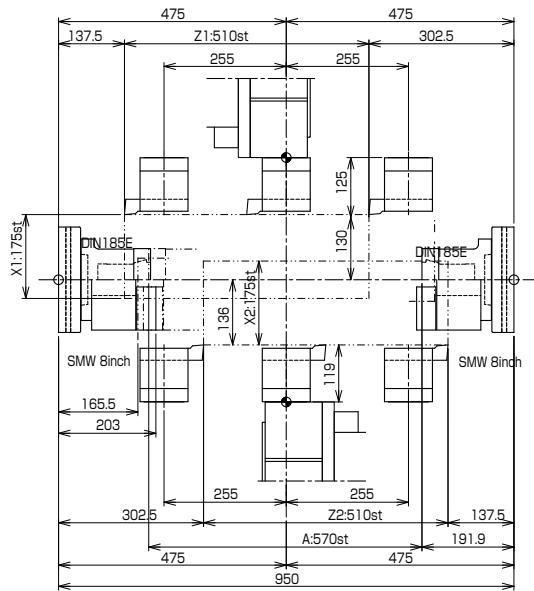
VDI40 turret



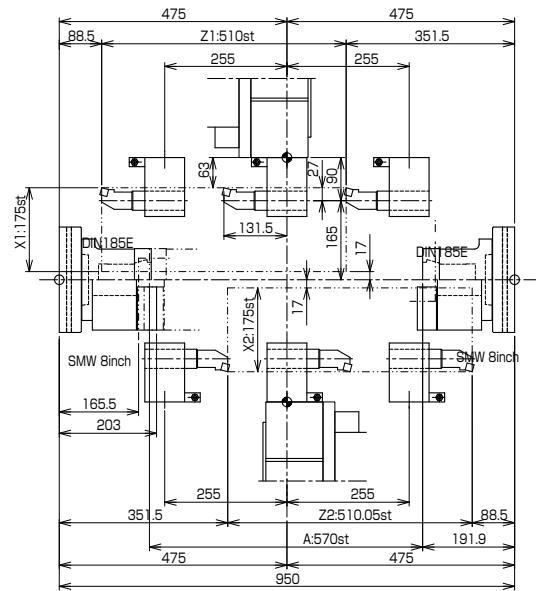
Unit(mm)

Stroke-Related Drawing

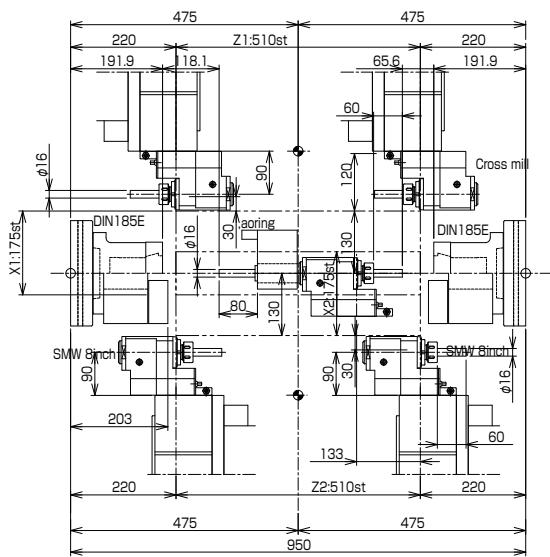
Turning holder



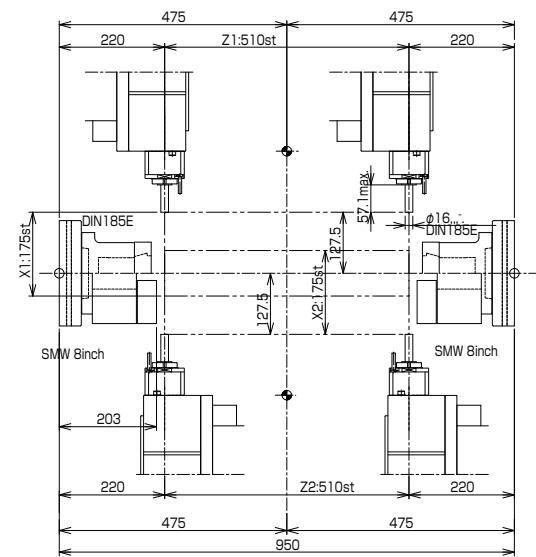
Boring holder



Face milling holder



Side milling holder



Unit(mm)

XYseries

Machine Specifications

			XY-120 _{PLUS}	XY-2000 _{PLUS}
Capacity	Item	Unit	Main-spindle	Sub-spindle
	Max. turning diameter	mm	φ170	φ135
	Max. turning length	mm		330
	Max. bar diameter	mm	φ42 (φ51)	φ20
Spindle	Chuck size	Inch	Collet / 6	Collet / 5
	Spindle nose	JIS	A2-5 (A2-6)	A2-4
	Spindle bearing I.D.	mm	φ85 (φ100)	φ65
	Through-hole on spindle	mm	φ52 (φ61)	φ36
Tool post	Spindle speed	min ⁻¹	Max.5,000 (Max.4,000)	Max.5,000
	Type		12-station turret	24st.
	Tool shank	mm	□20	□25 (VDI:40)
	Boring holder I.D.	mm	φ25	φ40 (VDI:40)
Motors	Max. stroke	mm	X1: 150 Y: ±35 Z1: 330 X2: 150 Z2: 440	X1: 175 Y: ±40 Z1: 510 A: 570 X2: 175 Z2: 510
	Rapid traverse rate	mm/min	X1: 18 Y: 12 Z1: 24 X2: 18 Z2: 18	X1: 18 Y: 12 Z1: 24 A: 30 X2: 18 Z2: 24
	Spindle motor	kW	AC7.5/5.5 (AC11/7.5)	AC5.5/3.7
	Feed motor	kW	X1: AC1.2 Y: AC0.75 Z1: AC1.8 X2: AC0.75 Z2: AC1.2	X1: AC2.5 Y: AC2.5 Z1: AC2.7 A: AC2.7 X2: AC2.7 Z2: AC2.7
Power tools	Coolant motor	kW	AC0.25 / 0.25	AC0.339
	Hydraulic motor	kW	AC1.5	AC0.75/0.75
	Tool storage capacity	pcs.	12	12
	Spindle speed	min ⁻¹	Max.4,000	Max.4,000
Size	Power tools motor	kW	AC3.7/2.2/1.5	AC3.7/2.2
	Capacity	Drill	φ13	φ16
	Endmill	mm	φ13	φ16
	Tap	mm	M8	M16
Cs-axis	Rapid traverse rate	deg/min ⁻¹	21,600	24,000
	C axis motor	kW	Cs-axis	AC0.75
	Spindle center height	mm	1,050	1,220
	LxWxH	mm	2,630 × 1,950 × 1,730	3,050×2,125×2,365
	Machine weight	kg	4,500	8,100
	Total electric capacity	KVA	27(31)	73

() : Option

Standard Accessories

	XY-120 _{PLUS}	XY-2000 _{PLUS}
□Boring holder	2 sets	4 sets
□O.D. holder	2 sets	4 sets
□Cut-off holder	1 set	1 set
□Hydraulic chuck	Option	1 set ea. (Main, Sub)
□Collet flange	1 set ea. (Main, Sub)	—
□Sub-spindle	1 set	1 set
□Y-axis function	1 set (Main)	1 set (Primary turret)
□Indexing function	Cs-axis 1 set ea. (Main, Sub)	C-axis 1 set ea. (Main, Sub)
□Power tools drive unit	1 set (Main)	1 set (For both turrets)
□Coolant unit	1 set (200lit.)	1 set (405lit.)
□Service tool kit	1 set	1 set
□TAKAMAZ Instruction manual	1 set	1 set

Optional Accessories

	XY-120 _{PLUS}	XY-2000 _{PLUS}
□Tool holders	○	○
□Stroke adjusting cylinder	○	○
□Collet chucks	○	—
□Hydraulic chucks	○ (Main: 6 Inch Sub: 5Inch)	○
□Chuck clamp detector	○	○
□Sub-spindle parts ejector	○	○
□VDI 12-station turret	—	○
□Sub turret (□16, φ20)	○(12)	—
□TAKAMAZ loader system	○	—
□Bar feeder system	○	○
□Unloader unit (Out-conveyor)	○	○
□Work set detector	○	○
□Cut-off check device	○	○
□Power tools (Face / Side milling)	○	○
□Chip conveyor (Right) (Floor type/Spiral type)	○	○
□Air blow unit (Front / Rear)	○	○
□Rear coolant unit	○	○
□Signal light (1-color / 2-color / 3-color)	○	○
□Automatic fire extinguisher	○	○
□Automatic power shut-off device	○	○
□Automatic door system	○	○
□Special color	○	○
□Others*	○	○

*For more information on attachments, consult our sales representative.

Controller Specifications

Item	XY-120 _{PLUS}	XY-2000 _{PLUS}
Controlled axes	TAKAMAZ&FANUC Oi-TD	TAKAMAZ & FANUC 3i-A
Simultaneously controllable axes	7 axes (X1, Z1, C1, Y, X2, Z2, C2)	8 axes (X1, Z1, C1, Y, X2, Z2, C2, A)
Least input increment	0.001mm (X in diameter)	0.001mm (X in diameter)
Least command increment	X: 0.0005mm Z, Y: 0.001mm	X: 0.0005mm Y, Z, A: 0.001mm
Auxiliary function	M3 digits	M3 digits
Spindle function	S4 digits	S4 digits
Tool function	T4 digits	T4 digits
Tape code	EIA(RS232C) / ISO(840)automatic recognition	EIA(RS232C) / ISO(840)automatic recognition
Cutting feedrate	1 ~ 5,000mm/min	1 ~ 5,000mm/min
Command system	Incremental / Absolute	Incremental / Absolute
Linear interpolation	G01	G01
Circular interpolation	G02, G03	G02, G03
Cutting feedrate override	0 ~ 150%	0 ~ 150%
Rapid traverse override	F0, 100%	F0, 50, 100%
Program number	4 digits	32 characters
Backlash compensation	0 ~ 9999μm	0 ~ 9999μm
Program memory capacity	1Mbyte (2,560m) (Dual systems total)	64KB(160m) (Dual systems total)
Tool offsets	128 sets(Dual systems total)	32 sets (Dual systems total)
Registered programs	800 pcs.(Dual systems total)	63 pcs. (Dual systems total)
Tool geometry / Wear offset	Standard	Standard
Canned cycle	G90, G92, G94	G90, G92, G94
Radius designation on arc	Standard	Standard
Tool offset measurement input	Standard	Standard
Background editing	Standard	Standard
Direct drawing dimension programming	Standard	Option
Custom macro	Standard	Standard
Additional custom macro common variables	#100 ~ #199, #500 ~ #999	Option
Pattern data input	Standard	—
Nose R compensation	G40, G41, G42	G40, G41, G42
Inch / Metric conversion	G20 / G21	Option
Programmable data input	G10	G10
Run hour / Parts count display	Standard	Option
Extended part program editing	Standard	Standard
Multiple repetitive cycle	G70 ~ G76	G70 ~ G76
Multiple repetitive cycleII	Pocket-shaped	Option
Spindle synchronous control	Standard	Standard
Sub-spindle torque skip	Standard	Standard
Y-axis offset	Standard	Standard
Canned drilling cycle	Standard	Standard
Constant surface speed control	G96, G97	G96, G97
Continuous thread cutting	G32	G32
Variable lead thread cutting	G34	Option
Thread cutting retract	Standard	—
Clock function	Standard	Standard
Help function	Standard	Standard
Alarm history display	50 pcs.	60 pcs.
Self-diagnosis function	Standard	Standard
Self-diagnosis function	Up to 10 loops	Up to 10 loops
Decimal point input	Standard	Standard
2nd reference point return	G30	G30
Rigid tapping	For Power Tool only	For Power Tool only
Polar coordinate interpolation	Standard	Standard
Cylindrical interpolation	Standard	Standard
Work coordinate system setting	G50, G54 ~ G59	G50, G54 ~ G59
Stored stroke check 1	Standard	Standard
Stored stroke check 2,3	Standard	Standard
Input / Output interface	USB Flash Memory, Memory card, Ethernet	RS232C, Memory card, Ethernet
Alarm message	Standard	Standard
Graphic display	Standard	Standard
Conversational programming with graphic function	Standard	Standard
Abnormal load detection	Standard	Standard
Overlap Cutting Process	Standard	Standard
Manual handle trace	Standard	Standard
Automatic data backup	Max.3	Standard
Automatic screen deletion function	Standard	—
Spindle orientation	Standard	Standard
TAKAMAZ option functions	Work / Tool counter, Tool load monitor, Others	Work / Tool counter, Tool load monitor, Others
TAKAMAZ maintenance function	Standard	Standard
FANUC set of manuals	CD-ROM	Bound

Optional Attachments

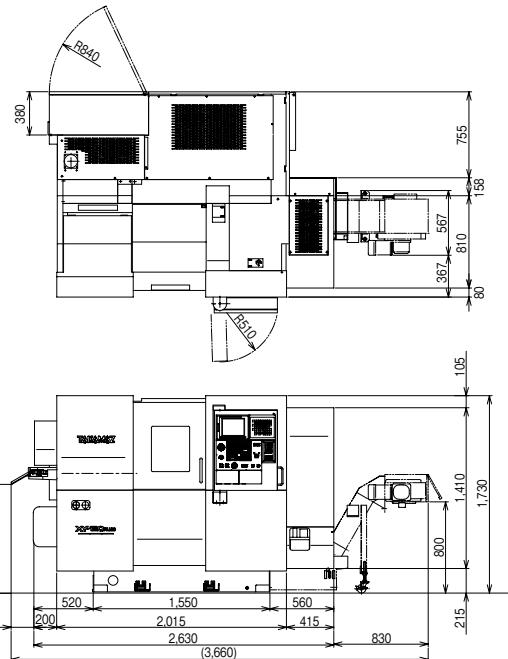
Item	XY-120 _{PLUS}	XY-2000 _{PLUS}
Tool life management	TAKAMAZ&FANUC Oi-TD	TAKAMAZ & FANUC 3i-A
Multiple M codes in one block	Max. 3	Max. 3
Dynamic graphic display*		—
Manual guide i*		
Helical interpolation		
FANUC instruction manuals	Bound	(Standard)

*These cannot be used together.

FLOOR SPACE

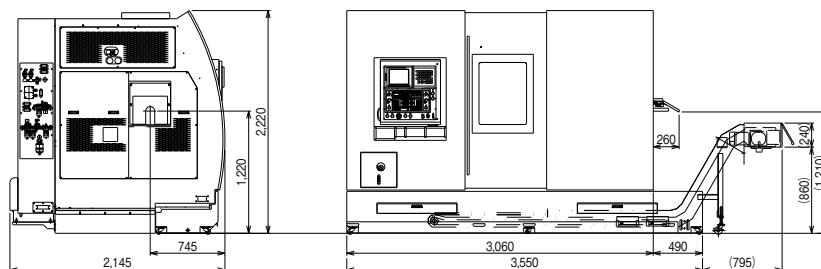
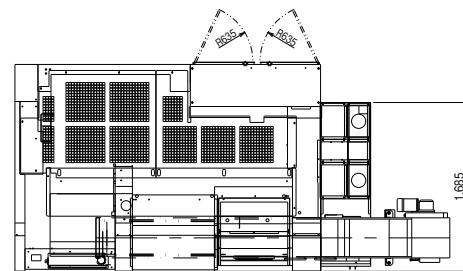
XY series

XY-120 PLUS



Unit(mm)

XY-2000 PLUS



Unit(mm)

TAKAMAZ

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As such, the exportation must be authorized by the Japanese government as stipulated in the laws.

This product is manufactured in accordance with the regulations and standards that prevail in the country or region of destination.

The user must not export, sell, or relocate the product, to anycountry with different regulations or standards.



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