

CNC ■ Spindle ■ Turret
Precision Lathe

XC·XT·XL series

CNC PRECISION LATHE

XC-100 XC-150 XT-6/XT-6_M XL-150 XL-200

TAKAMAZ

CNC 1 Spindle 1 Turret Precision Lathe

XC series

Compact low-Cost Creativity



XC-100

Chuck size (6) inch

Max. turning diameter	Ø180mm
Max. turning length	190mm
Max. bar diameter	Ø26mm
Tool post type	8-station turret
Rapid traverse rate	X: 12/Z: 18 m/min
Spindle motor	AC 7.5/5.5kW
Dimensions (L×W)	1,150×1,360mm
Controller	TAKAMAZ & FANUC

In 1976, **TAKAMAZ** developed CNC lathe with CRT, "TCC-8" from Japan. Since its development, TAKAMAZ has provided a total of 40,000 CNC lathes and has been providing CNC lathes worldwide. The core of the CNC lathe line up is the "X Series" that has one spindle and one turret structure. This is the most basic structure and yet it is through this structure that TAKAMAZ garnered confidence from valuable customers. In 2010, a more compact, less priced, and aimed at a more creative design, the new series [XC/XT/XL] Series is born.



XC-150

Chuck size **8** inch

Max. turning diameter	φ 290mm
Max. turning length	204mm
Max. bar diameter	(φ51mm)
Tool post type	8-station turret
Rapid traverse rate	X : 18/Z : 24 m/min
Spindle motor	AC 11/7.5kW
Dimensions (L×W)	1,250×1,480mm
Controller	TAKAMAZ & FANUC

() : Option

※The photo shows new TAKAMAZ standard color.Environmentally friendly powder coating is employed.

CNC 1 Spindle 1 Turret Precision Lathe

XT·XL series

Long stroke+Compound Machining



XT-6/6M **NEW**

Chuck size **6** inch

Max. turning diameter	φ180mm (φ200mm)
Max. turning length	240mm (195mm)
Max. bar diameter	φ26mm (φ35mm, φ42mm)
Tool post type	8-station turret (12-station)
Rapid traverse rate	X: 18/Z: 24 m/min
Spindle motor	AC 7.5/5.5kW (11/7.5kW)
Dimensions (L×W)	1,360×1,370mm
Controller	TAKAMAZ & FANUC



XL-150

Chuck size **8** inch

Max. turning diameter	φ320mm (For 8-Station Turret)
Max. turning length	370mm
Max. bar diameter	(φ65mm)
Tool post type	8-station turret (12-station)
Rapid traverse rate	X: 18/Z: 24 m/min
Spindle motor	AC 11/7.5kW (15/11kW)
Dimensions (L×W)	1,600×1,535mm
Controller	TAKAMAZ & FANUC

XC·XT·XL series

“Surprise the World with
Hidden Creativity”



XL-200

Chuck size **8** inch

Max. turning diameter	φ340mm
Max. turning length	720mm
Max. bar diameter	(φ65mm)
Tool post type	12-station turret
Rapid traverse rate	X: 18/Z: 24 m/min
Spindle motor	AC 11/7.5kW (18.5/15kW)
Dimensions (L×W)	2,900×1,845mm
Controller	TAKAMAZ & FANUC

(): Option

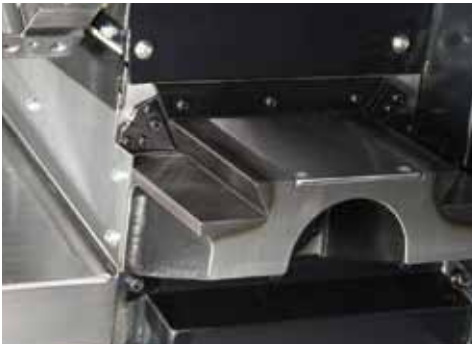
※The photo shows new TAKAMAZ standard color. Environmentally friendly powder coating is employed.

XC-100

Only 1,150 mm machine width

High Precision Structure

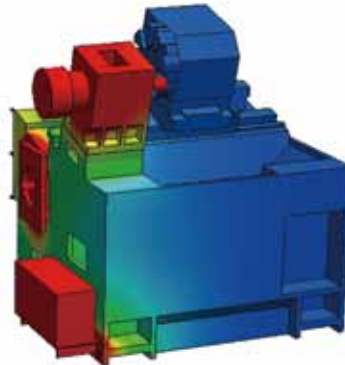
The X-Axis has a pre-tensioned structure. As a result, dimensional variation due to thermal displacement is suppressed and a design with stable machining accuracy is achieved. In addition, the X-axis slide is made larger resulting to a more robust slide. Furthermore, to find a flawless



Improved Rigidity and Straightness of Dovetail Slide through Slide Size Increase

countermeasure for thermal displacement, thermal displacement phenomenon is analyzed by computer achieving excellent thermal stability. Repeatability test for 8 hours shows change of $\phi 5$ microns and only $\phi 3$ microns after 1-hour machine stop.

(Based on TAKAMAZ designated cutting condition)



Achieved Excellent Thermal Displacement Countermeasure through CAD (Computer Aided Design)

Only 1,150 mm machine width Ultra-Compact Design

The machine is a slim design with width of only 1,150mm and still comes with a 120mm stroke X-Axis and 230mm stroke Z-Axis. Even with a slim width, it is still designed with 450mm door opening. The machine accessories are placed in front or in accessible locations on the machine as emphasis to routine maintenance.



Routine Maintenance Details are placed in front

Chuck Pressure Adjustment



Air Pressure Adjustment

1,360mm

Floor Space

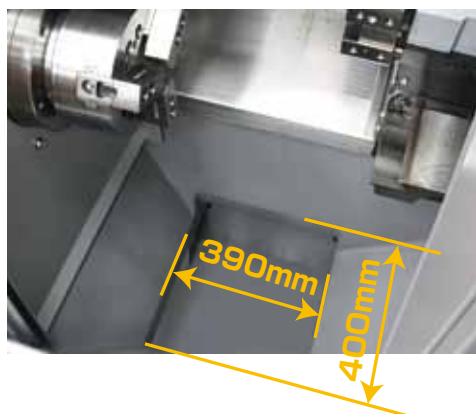
1.56m²

1,150mm

Pursue the World's Smallest Lathe

Improved Chip Discharge

Compared to the previous model, this machine has a bigger interior chip drop chute opening by 2.2 times in addition to the steep angle of bed chute. The chip discharge is excellent. By attaching rear chip conveyor (option), stoppages as a result of chip nesting on the interior bed is prevented.



Increased Operation Efficiency through Fully Loaded Features

Safety program check done in advance with "Manual Handle Retrace Function", retrieving data loss with "Automatic Data Backup Capabilities," and "Counter Function" are some of the added features to improve maintenance, operation and ease of use.

Manual handle trace



Workpiece/Tool counter



Notification for Routine Inspections



Tool torque monitor

Fixed wear

Smart Alarm Diagnostic

Over road check function

Environmentally Friendly Energy Saving Design

As compared to the previous model, the spindle motor is upgraded to AC7.5/5.5kW but has much faster spindle acceleration and deceleration time. This contributes to power saving. The weight reduction for resource conservation and LED light adoption are contributing factors for power-saving and environmentally friendly structure.

Spindle Acceleration Time 2.7sec.

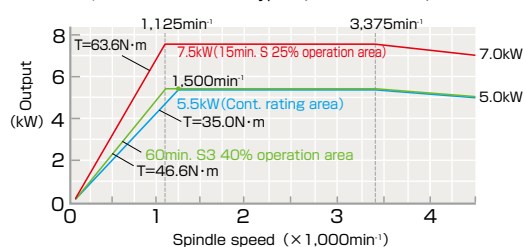
(As compared to the previous model:25% reduction)

Reduced Material Use -200kg

(As compared to the previous model:10% reduction)

XC-100 Spindle power characteristic curve

■ Max.4,500min⁻¹ standard type (AC 7.5/5.5kW)



Sigma loader Adjustment



Lubrication Pump



XC-150

Space Saver in Turning Machine Industry's Smallest Class

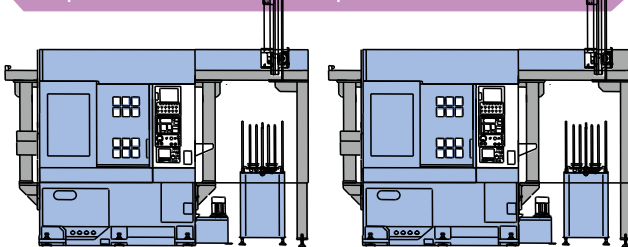
Achieve Space-Saving Comparable to 6-inch Class

The machine width is 1,250mm. The floor space is 1.85m², about 23% less than previous model, making it the smallest machine with an 8-inch chuck among the same class in the industry. In our products, the space needed for [2] x [Set of Previous Model & Stocker] is enough for [3] x [Set of XC-150 & Stocker]. Arrangement of lines requiring only small spaces is possible leading to increased efficiency in operation and improvement in manufacturing.

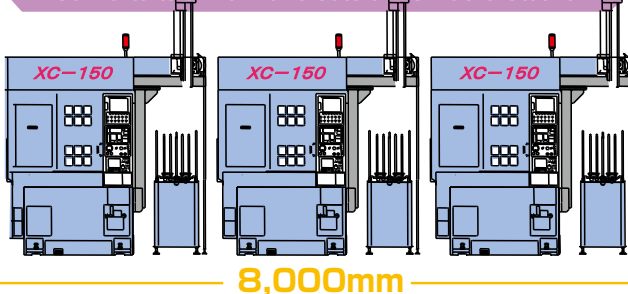
Floor space 23% reduction



Space for a line with 2 sets of previous model & stocker

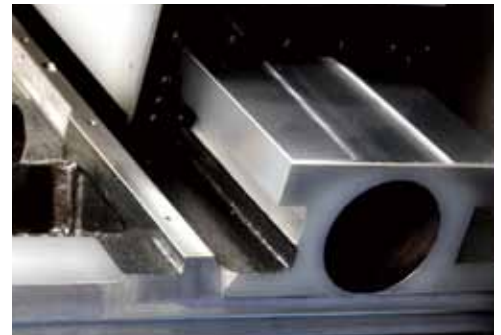


Converts to a line with 3 sets of XC-150 & stocker



Adoption of Rigid Slide

Just like the other models, the Z-Axis slide applies square box-way slide that is known for rigidity. The X-Axis is designed for increased rigidity than previous model that can be used for heavy cutting.



X-Axis Slide that is Focused on Rigidity

Energy Saver as Environment Friendly

Energy Saving Machine

As compared with previous models, there are 20% reduction on the spindle inertia and 36% reduction on the spindle acceleration and deceleration time ($0 \rightarrow 3,500 \text{ min}^{-1}$). In addition, X-Axis and Z-Axis have also reduction on the motor load inertia of approximately 8%. Per FEM Analysis for optimizing the design of

castings by eliminating unnecessary materials, as compared to previous models, there is a 20% reduction of materials used. This is good for the environment. Through these measures, the power consumption without compromising machine functions and processing performance is reduced by 10%.

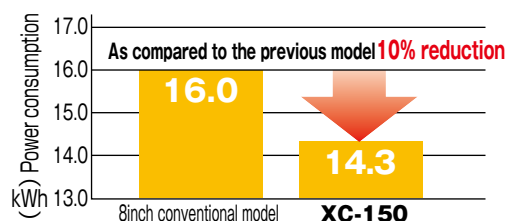
Ensure the Reduction Of Materials Used

Reduction of Spindle Inertia by **20%**
Reduction of Spindle Acceleration and Deceleration Times by **14%**

Slide Motor Load
Reduction of Inertia by **8%**

Reduction of Materials Used by **20%**
Reduction of Total Parts Used by **10%**

Effect of Power Consumption Reduction per Machine



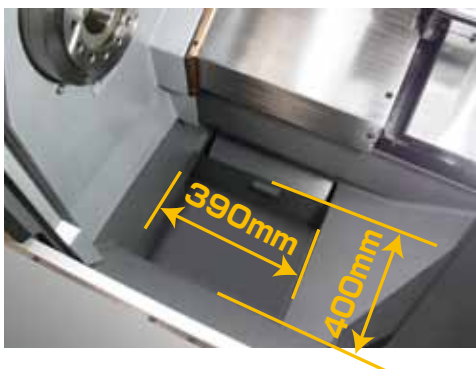
*Operating conditions: 8 hours continuous operation using factory running program for measurements

Improvement of Chip Discharge

Machine has a width of 1,250mm with a compact body but chip discharge and workability are not inferior to other products. With keeping the same size of the interior chip drop chute opening (0.15 m^2) to the previous model with 8-inch chuck (rear chip conveyor specification), it also has a steep angle on bed chute. By attaching rear chip conveyor (option), stoppages as a result of chip nesting on the interior bed are prevented.

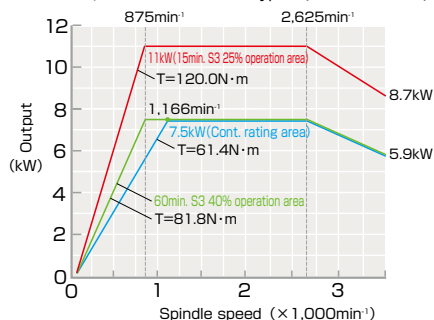
Superior Workability

Designed with a concept of saving space with a door opening of 460mm without compromising the workability inside the machine. In addition, the space until the spindle center is the same as that of [X-100] at 300mm, focusing on ease of operation.



XC-150 Spindle power characteristic curve

■ Max. $3,500 \text{ min}^{-1}$ standard type (AC 11/7.5kW)



XT-6/XT-6M **NEW**

The TAKAMAZ Flagship Further Evolved

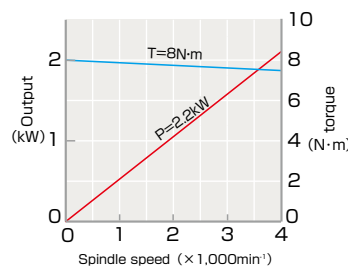
Equipped with power tools (XT-6M)
Supports a variety of options including a tailstock



The machine can be equipped with six power tools, and can perform a variety of compound machining including side hole drilling and keyway grooving. When the tailstock is installed, it is also possible to handle shaft work, and there is a full range of options to match your production.

XT-6M Power tool power characteristic curve

Power tools	Item	Unit	
	Tool storage capacity	pcs.	6
	Rotation speed	min ⁻¹	Max.4,000
Clamping Capability	Drill(short)	mm	φ10
	Endmill	mm	φ10
	Tap	mm	M6

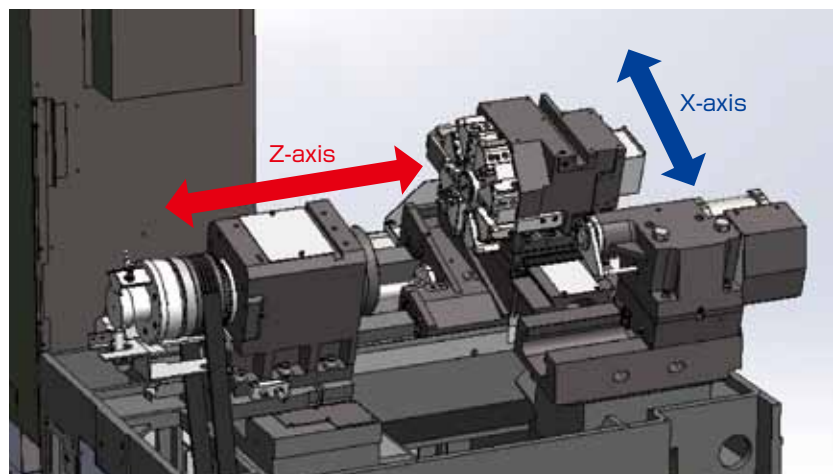


Increase Production Speed

Increasing the rapid traverse rate on the X and Z axes has shortened the cycle time compared to existing machines. Along with increased Z-axis motor output, the drilling capacity is also improved by 20%.

X-axis Rapid traverse rate **18m/min**
Full-stroke round-trip time **26% Decreased**
(Comparison with the past machines)

Z-axis Rapid traverse rate **24m/min**
Full-stroke round-trip time **23% Decreased**
(Comparison with the past machines)



Loader selected according to specifications



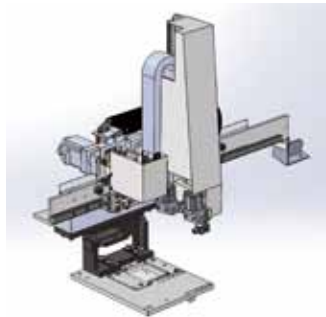
Compact Loader<ΣIC60>

Space-saving, high-speed loader installed on the machine, enabling speedy setup.



Gantry Loader

Flexible lines can be constructed, including systems with peripheral devices.



Compact Loader<FC60>

"FC60 loader" provides further speed gains

Rapid traverse rate

Traverse axis **120m/min**
Vertical axis **120m/min**

Simplified loading motion

2.8sec.
(20% reduction compared to existing loaders)



The control screen of the FC60 loader specification is a 10.4-inch touch panel type with excellent operability, and incorporates various functions, such as an automatic teaching function.

Space savings while increasing capacity

A compact design with a footprint of 1.86m² - almost the same as existing machines - is realized with enhanced cutting performance, speed, and operability.

1,370mm

1.86m²

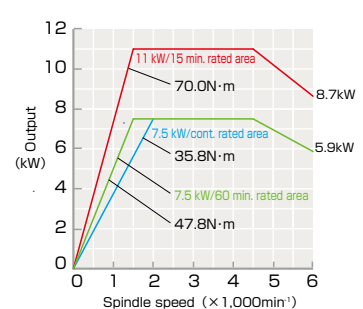
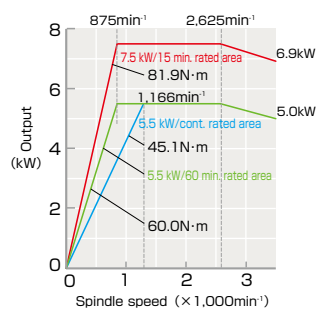
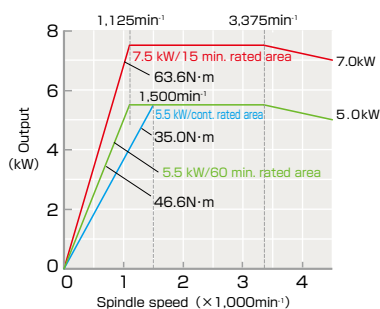
1,360mm

XT-6 Spindle power characteristic curve

■ Max.4,500min⁻¹ standard type (AC 7.5/5.5kW) φ75

■ Max.3,500min⁻¹ standard type (AC 7.5/5.5kW) φ85

■ Max.6,000min⁻¹ standard type (AC 11/7.5kW) φ75



XL-150

Achieved Double Production Efficiency with Significantly Improved Cutting Capability!

Spindle with Upgraded Capability

By using an AC11/7.5kw spindle motor which is a standard feature, a stress free hard turning process is possible. The production efficiency is further enhanced by significantly shortening the spindle start-up acceleration and deceleration times as compared to those of the conventional machine. This leads to shorter idling time. Furthermore, an AC15/11kW spindle motor can be installed as an option..

Improved Outer Diameter Cutting Capability



Cutting Cross Sectional Area (t*f)
1.80mm²

Short Time Rating Result

1.5times
(Comparison with the past machines)

Reduction in Spindle Acceleration and Deceleration Times

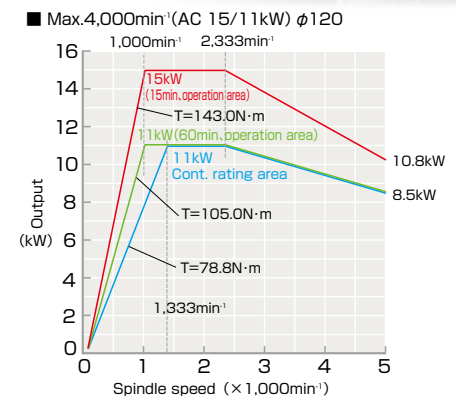
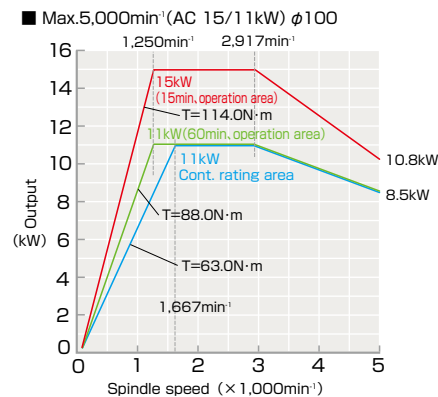
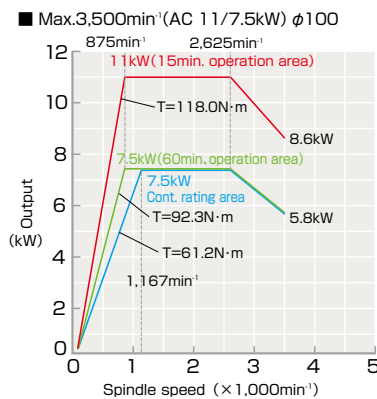
Acceleration Time
4.0sec → **2.4sec.**

40% Reduction
(Comparison with the past machines)

Deceleration Time
3.8sec → **2.4sec.**

40% Reduction
(Comparison with the past machines)

XL-150 Spindle power characteristic curve



Live Tools with Further Enhanced Machining Capability

The torque is improved by using a more powerful motor than the one used in the conventional machines and the machining ability of the live tool drive is increased by using a bearing on the driving unit with better rigidity. Max.φ20mm tool can be mounted providing a wide range of tool selection. Live tools can be mounted on all stations of the turret of up to 12 live tools.

Drive motor AC5.5/3.7/2.2kW Motor Torque 35N·m

Performance Comparison (Drill Cutting)

- Drill : φ12mm
- Cutting Conditions : Rim Speed 30m/min, Hole Depth 30mm

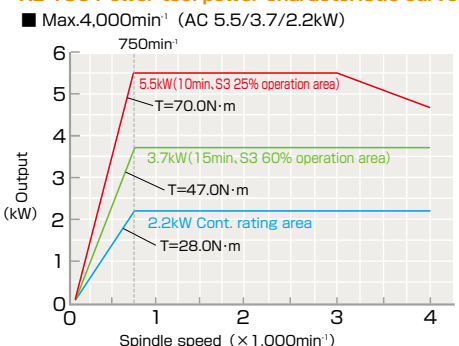


■ XL-150 : f0.4mm/rev → **5.6sec.**
■ Conventional model : f0.2mm/rev → **11.2sec.**

-5.6sec.

※Live Tool is an option.

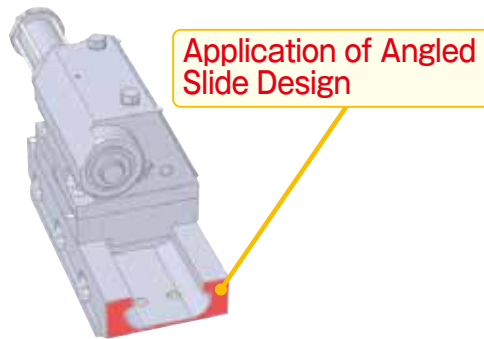
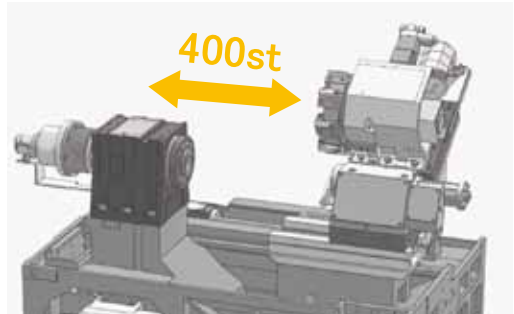
XL-150 Power tool power characteristic curve



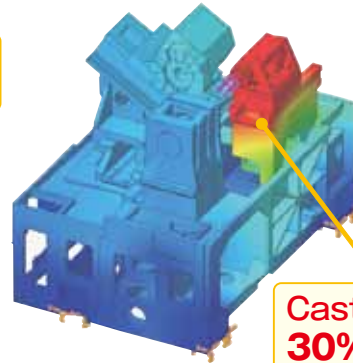
Supports 370mm Long Shaft with Extended Z-Axis Stroke

Even though the machine width is the same as conventional machines, a shaft work of maximum length 370mm can be processed due to the Z-Axis stroke increased to 400mm which is an extra 1.2 times in length.

With the extension of the stroke, the rigidity of the tailstock is increased. By applying the angled slide design and increasing the casting rigidity by 30%, prevention of vibrations and uniform dimensional accuracy are achieved.



Application of Angled Slide Design



Casting Rigidity
30%UP

(Comparison with the past machines)

Reasonable Maintenance for Workload Reduction

The points requiring routine maintenance (lubricating oil supply, chuck pressure adjustment, loader adjustment, etc.) are concentrated on the front of the machine, improving working convenience for the operator. New TAKAMAZ maintenance functions such as the battery replacement warning have been added too. The number of days remaining until a scheduled inspection, which had been hard to determine, can now be monitored at a glance thanks to the adoption of a graph display, assisting with reliable and safe equipment management.

Door Opening Width
520mm

Improved Operability with the One Touch Display.

Buttons for opening the "TAKAMAZ Customs Functions" (such as work/tool counter functions and others) and the Maintenance Function Screen are installed on the operation panel. These buttons are one touch types for improving operability. There are 2 buttons installed as spares for user's custom specifications.

Periodic Inspection Notice Function



Work Counter Display



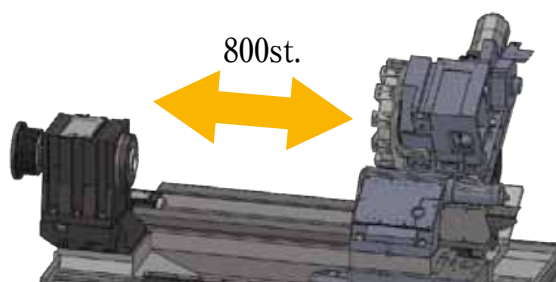
Soft Switch Display

XL-200

Max. Length 720 mm! Accommodates Long Shaftwork

Extending the Z axis stroke gives the longest machining range in our X series

Increasing the length of the Z axis stroke by 40% compared to existing models has made it possible to handle a wide range of machining on large, long workpieces up to 720 mm in length and $\phi 340$ mm in diameter. The floor space, which would naturally tend to increase with the extension of the Z axis stroke, has been kept as compact as with the existing machines by reviewing and optimizing the construction of components.



Equipped for Heavy-duty Cutting + Versatile Complex Machining

Specifications can be chosen according to requirements, enabling versatile complex machining. Furthermore, heavy cutting requirements can be met with the high torque spindle motor and live tool motors.

Standard type

Power tools type

Tailstock type

Subspindle type

Power tools+
Subspindle type

Selectable Spindle Variations

A

$\phi 100$ Spindle
AC 11/7.5kW
3,500min⁻¹

B (Option)

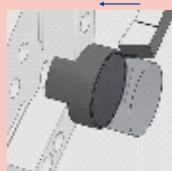
$\phi 100$ Spindle
AC 18.5/15kW
5,000min⁻¹

C (Option)

$\phi 120$ Spindle
AC 18.5/15kW
4,000min⁻¹

Outer Diameter Cutting Capability

0.6mm/rev



Cutting Cross
Sectional Area ($t \cdot f$)

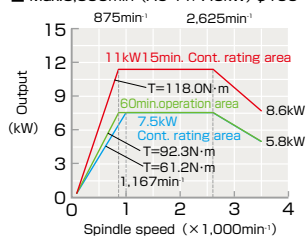
3.0 mm²

※The test results above
are for the C type
specifications.

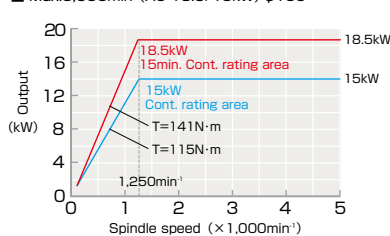


XL-200 Spindle power characteristic curve

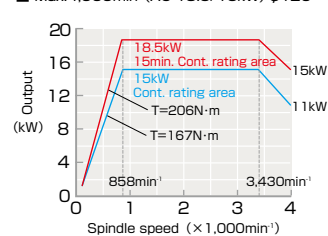
■ Max.3,500min⁻¹(AC 11/7.5kW) $\phi 100$



■ Max.5,000min⁻¹(AC 18.5/15kW) $\phi 100$



■ Max.4,000min⁻¹(AC 18.5/15kW) $\phi 120$





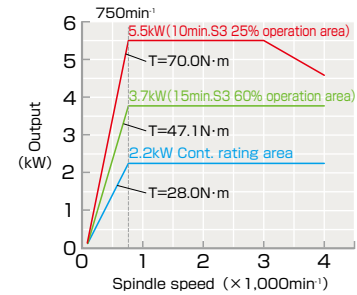
High Productivity Achieved with Powerful Milling (Option)

From milling to hole drilling, high efficiency machining is realized.

Switchover from turret rotation to live tool rotation **shortened by 0.7 seconds**
(comparison with existing models)

XL-200 Power tool power characteristic curve

■ Max.4,000min⁻¹ (AC 5.5/3.7/2.2kW)



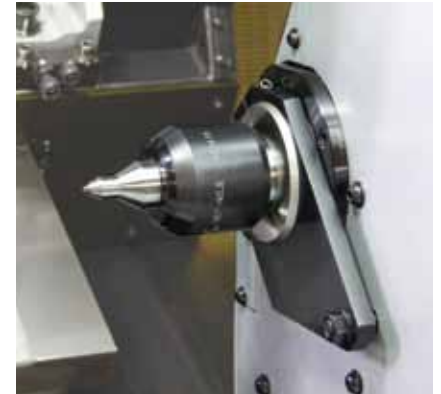
Power tools	Item	Unit	
	Tool storage capacity	pcs.	12
	Max. rotating speed	min ⁻¹	4,000
	Motors	kW	AC5.5/3.7/2.2
	Clamping Capability		
	Drill(short)	mm	φ20
	Endmill	mm	φ20
	Tap	mm	M16

Idle Time Shortened by Adopting a Servo-controlled Tailstock(Optional)

The incorporation of a servo-controlled tailstock improves operating convenience and makes setup changes easier. Since the tailstock can be moved accurately to memorized positions using M code commands, even long workpieces can be machined with high accuracy. What is more, workpieces with multiple types can be handled with program changes alone, allowing substantial idle time reduction.

Item	Unit	
Pointed End		MT-5
Quill O.D.	mm	φ90
Quill stroke (hydraulic)	mm	120
Tailstock stroke (servomotor)	mm	500
Rapid traverse rate	m/min	12
Max. thrust	kN	5(7)*

*Selectable up to a maximum of 7 kN (Option)



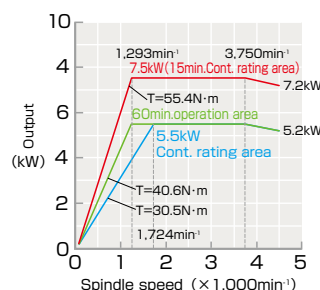
Completed Products Machinable on 1 Machine With the Subspindle(Optional)

The incorporation of a subspindle allows this single machine to generate completed products from flange-like work to shaftwork.

Item	Unit	
Chuck size	inch	6
Max. bar diameter	mm	φ26
Subspindle speed	min ⁻¹	200~4,500
Subspindle motor	kW	AC7.5/5.5
Max. stroke	mm	700
Rapid traverse rate(A-axes)	m/min	30
Rapid traverse rate(B-axes)	deg/min	21,600
Synchronous system		Full
Machine dimension	mm	3,100(L)×1,845(W)×1,810(H)
Machine weight	kg	4,900

XL-200 Sub-spindle power characteristic curve

■ Max.4,500min⁻¹ (AC 7.5/5.5kW) φ75



Equipped with the [Speed] and [Small Footprint] Servo Loader [Σi/F series]

As a result of machine body and loader integrated as one unit, superiority in design balance is accomplished as well as high productivity and space savings, and with after-sale service by **TAKAMAZ**, will benefit the customer on different aspects.

- ◆The rate for each moving point, acceleration and deceleration, and in-position width can be set in detail to achieve a shorter cycle time.
- ◆High Speed Shutter opens and closes in 1.4 seconds, faster than the conventional model. This results in reducing loading time. (XC-100)
- ◆To improve usability, the conventional type of fixed operation panel or the new handheld type can be selected. As a result, the teaching points that have been difficult to see because of the safety covers can now be set with ease.
- ◆At each point, the interlock can be set to prevent accidental collision.
- ◆Abnormal Torque Detection is set standard function to reduce damage to minimum in the event of a collision.
- ◆All database, the servo parameter, the data tables, and timer setting can be downloaded from the memory card.
- ◆A touch-panel type operation panel is employed, enabling easy and intuitive operation. (F series)

Compact servo loader Σi



Parallel (CR) Hand ◆As compared to the previous design, the travel stroke has been expanded, so that transfer to the left and right and line connection can be designed easily. (Option)
◆IN / OUT conveyor, turn device, and handling are common with X-100.

Gantry-type servo loader ΣiGH



Q Hand

Compact servo loader F



◆Adoption of high-speed in-machine motion.
※High-speed in-machine motion is available only with the FC60 loader.



Dedicated L Hand ※The dedicated L hand can be used only with the XT-6/6M.

Loader transfer capacity

Item			Unit			Compact(2 axes)			Gantry(2 axes)			
Model						XC-100/XT-6/6M			XC-100/XT-6/6M			
Loader Model						ΣiC60			ΣiGH80			
Transport Work Dimension	Diameter	mm	60			80			80			
	Weight	kg	1.0			1.5			1.5			
Shoulder (Traverse axis: Z)	Drive System		Servo loader			Servo loader			Servo motor			
	Stroke	mm	Depends on spec.			Depends on spec.			Depends on spec.			
Arm (Vertical axis: Y)	Rapid Traverse Rate	m/min	84			120			155			
	Stroke	mm	300			490			580			
Hand rotation	Rapid Traverse Rate	m/min	71			120			200			
	Drive System		Air cylinder			Air cylinder			Air cylinder			
Angle	Angle	deg.	90			90			180			
	Jaw Stroke (One side)	mm	10			10			10			
Hand Type			Parallel (CR) hand			Q hand			Dedicated L Hand			

※With the FANUC loader specification, the NC unit is installed with a touch-panel screen and Windows PC.

Automation Peripheral Devices

A production line with different varieties of peripheral devices and loading variations can be designed.



Station stocker

Multi-layer stocker for flexible response to changes in workpiece diameter.



Flat stocker



Shaft work stocker



Parts feeder

A cylindrical stocker with minimum footprint for storing small workpieces.



Tray changer

Workpieces can be stored together with the tray.

Wide variation supported by many years of experience

The following is just one example from among a substantial series of peripheral equipment backed up by the "X-100", with its delivery record of more than 6,000 units. Consult Takamatsu for details of turnkey systems with strategic flexibility.

※Some pictures show additional special specification.

Spindle/Tooling unit



Collet chuck



6-inch chuck



8-inch chuck



Unloader unit



Tool breakage detector

A wide range of choice from Takamatsu original collet chucks to 8-inch/3-jaw chucks to match user needs.

Quality/Environment control unit



External measurement instrument

Dimensional errors are fed back to the machine to maintain high dimensional accuracy.



Cleaning unit

To avoid dirtying operator's hands, cleaning is performed automatically.



Oil mist collector

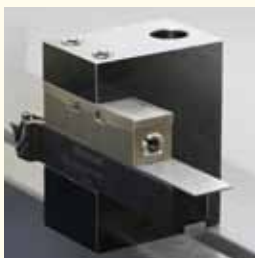
Oil mist collection facilitates a clean production environment.



Automatic fire extinguisher

If fire breaks out in the machine during automatic operation, fire extinguishing agent is automatically discharged.

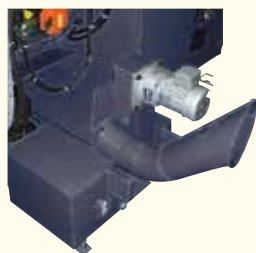
Cutting efficiency/Chip disposal



Alloyed Clamp Holder for vibration suppression

Inhibiting the progression of wear boundary is expected to extend cutting tool life in high speed machining.

■ Mounted on the rear side



Chip conveyor (Spiral type)

Chip disposal is done semi-automatically in the minimum space.

■ Mounted on the rear side



Chip conveyor (Floor type)

Chips are reliably discharged outside the machine.



High-pressure coolant

Constantly cooled coolant is discharged at high pressure so that the tool life is significantly prolonged.



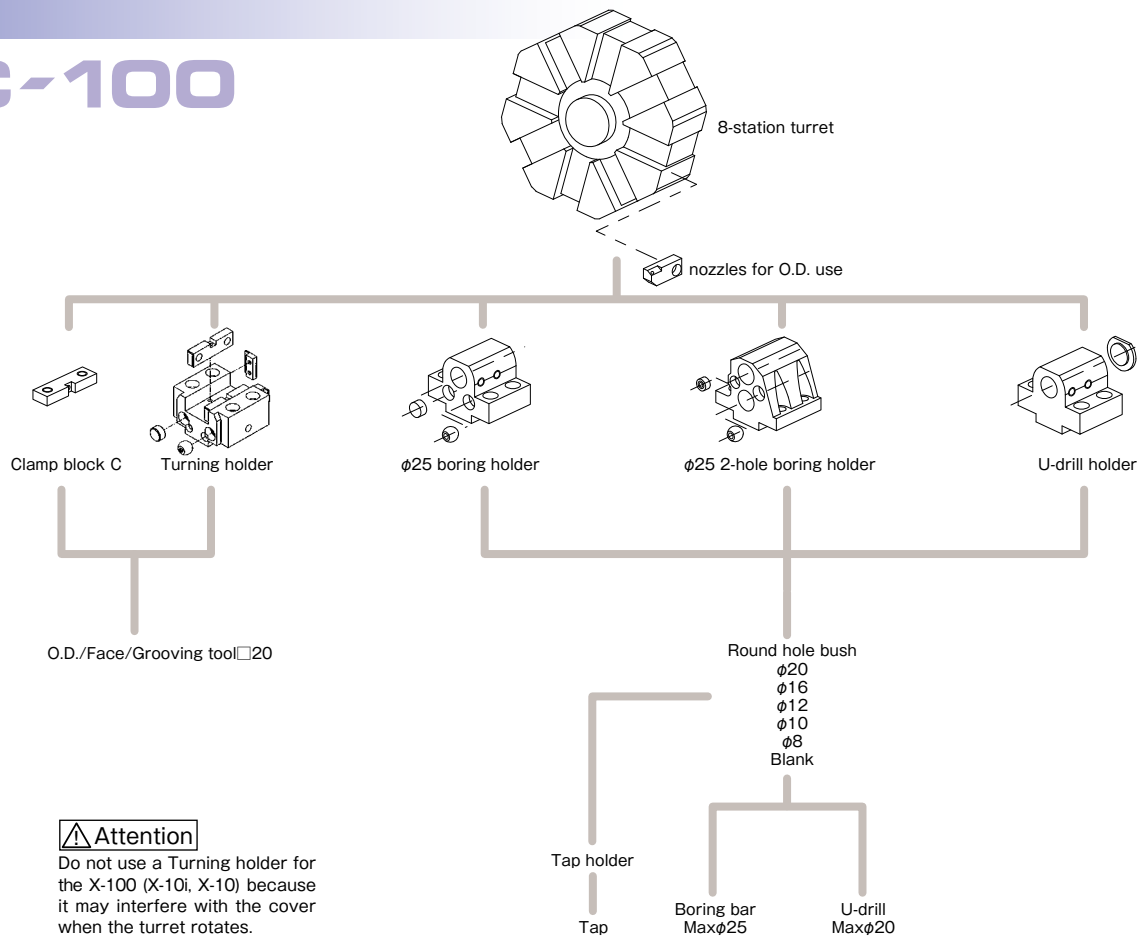
Semi-dry machining

Ultratrace, highly-lubricating vegetable coolant is applied to the correct point on the cutting edge, realizing semi-dry machining.

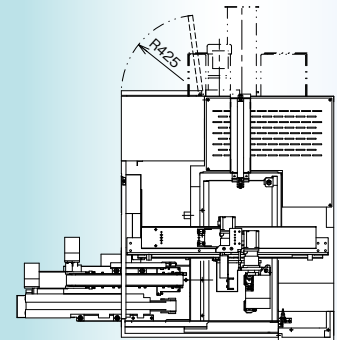
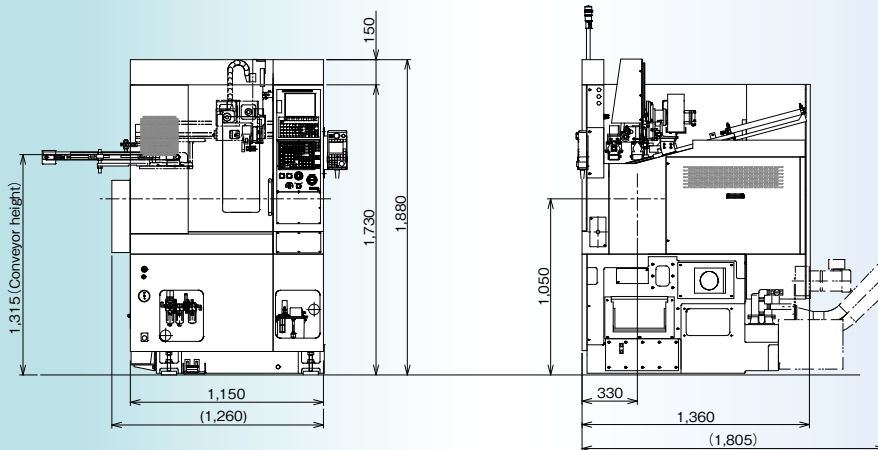
TOOLING SYSTEM & FLOOR SPACE

Tooling system

XC-100



Floor Space Drawing (Equipped with $\Sigma iC60$)

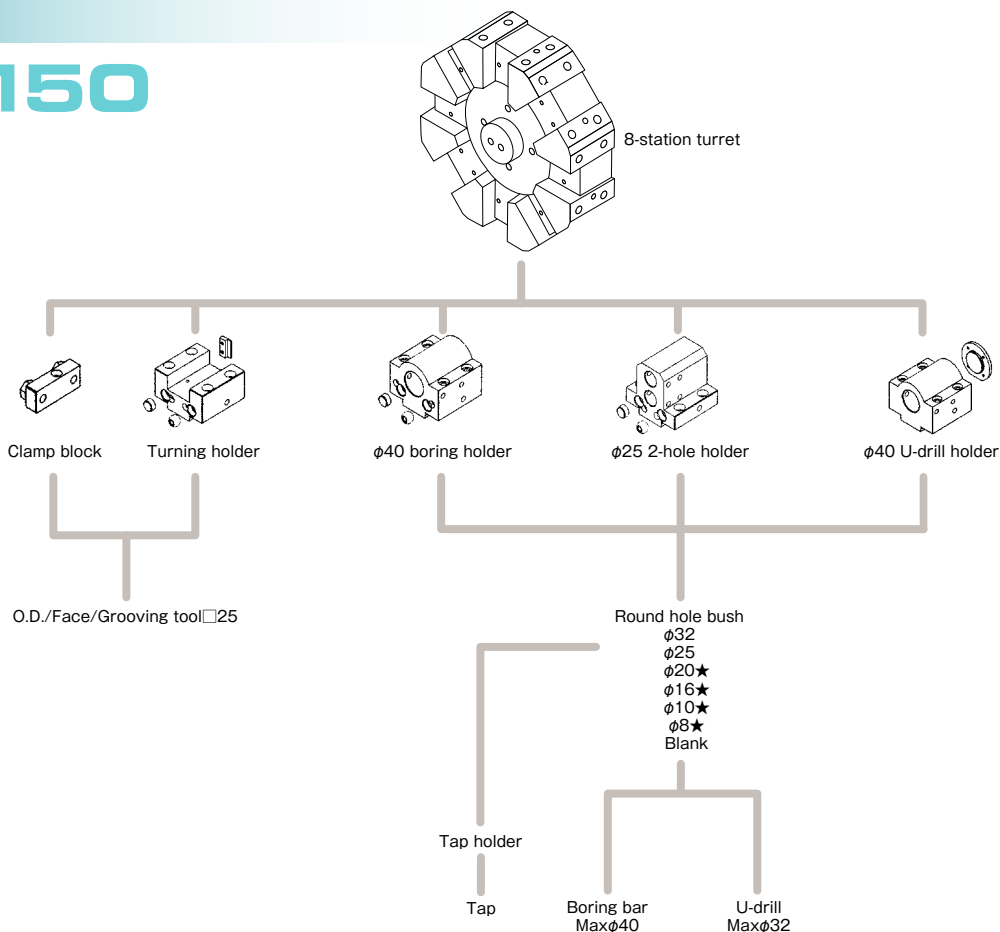


Unit(mm)

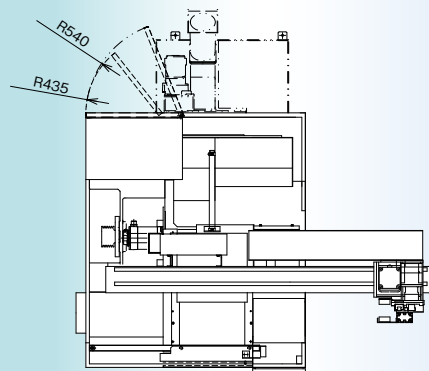
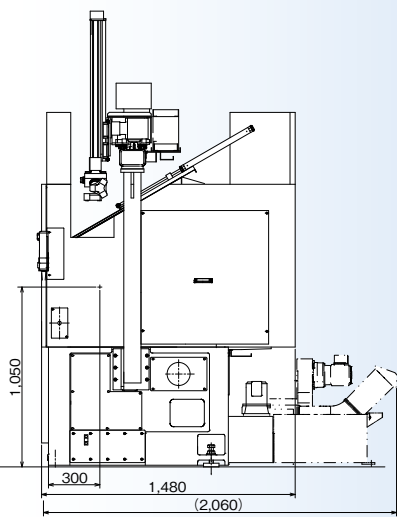
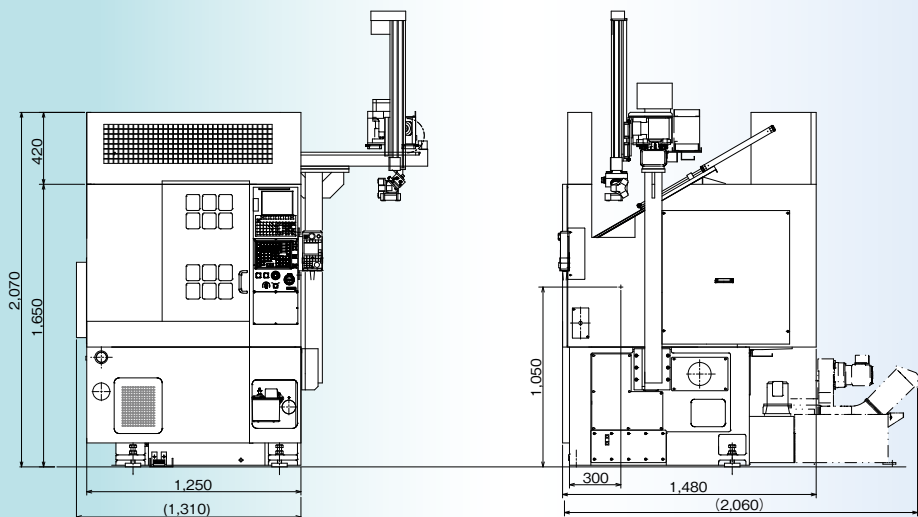
TOOLING SYSTEM & FLOOR SPACE

Tooling system

XC-150



Floor Space Drawing (Equipped with Σ GH150)

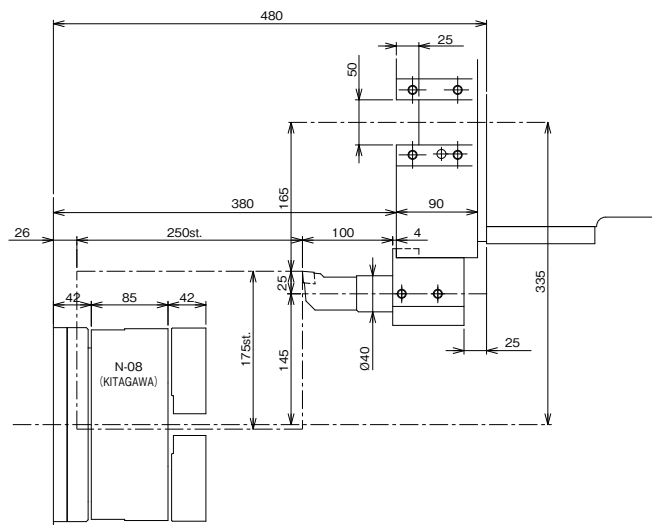


Unit(mm)

Stroke-Related Drawing

Technical drawing of the N-08 (KITAGAWA) unit, showing dimensions and layout. The drawing includes a side view and a top view. Key dimensions are:

- Overall width: 480
- Overall height: 335
- Top view dimensions:
 - Left side: 42, 85, 42
 - Bottom side: 123, 250st, 7
 - Right side: 90
 - Top edge: 25
 - Vertical distance from top edge to bottom edge: 150
 - Vertical distance from bottom edge to top edge: 175st
 - Vertical distance from bottom edge to top edge: 155

[illegible]

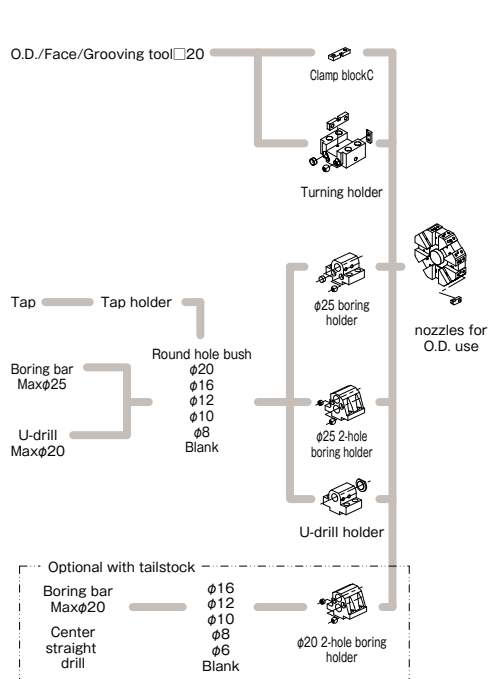
20

TOOLING SYSTEM & FLOOR SPACE

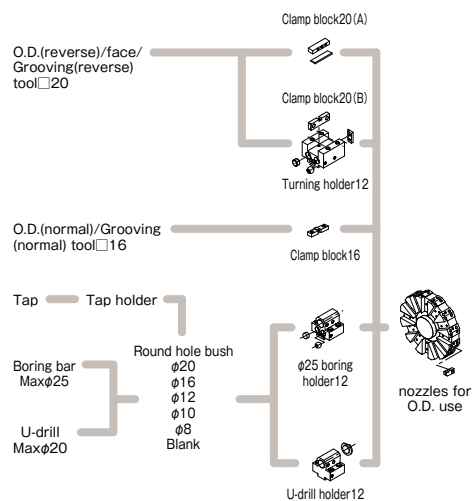
Tooling system

XT-6

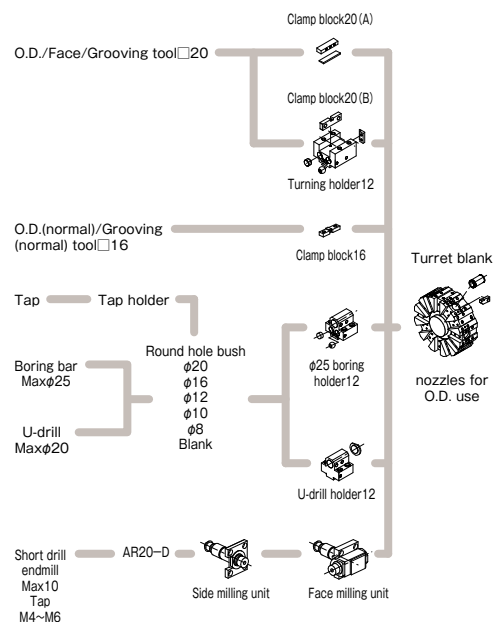
8-station turret



12-station turret



XT-6M



Attention

Do not use a Turning holder for the X-100 (X-10i, X-10) because it may interfere with the cover when the turret rotates.

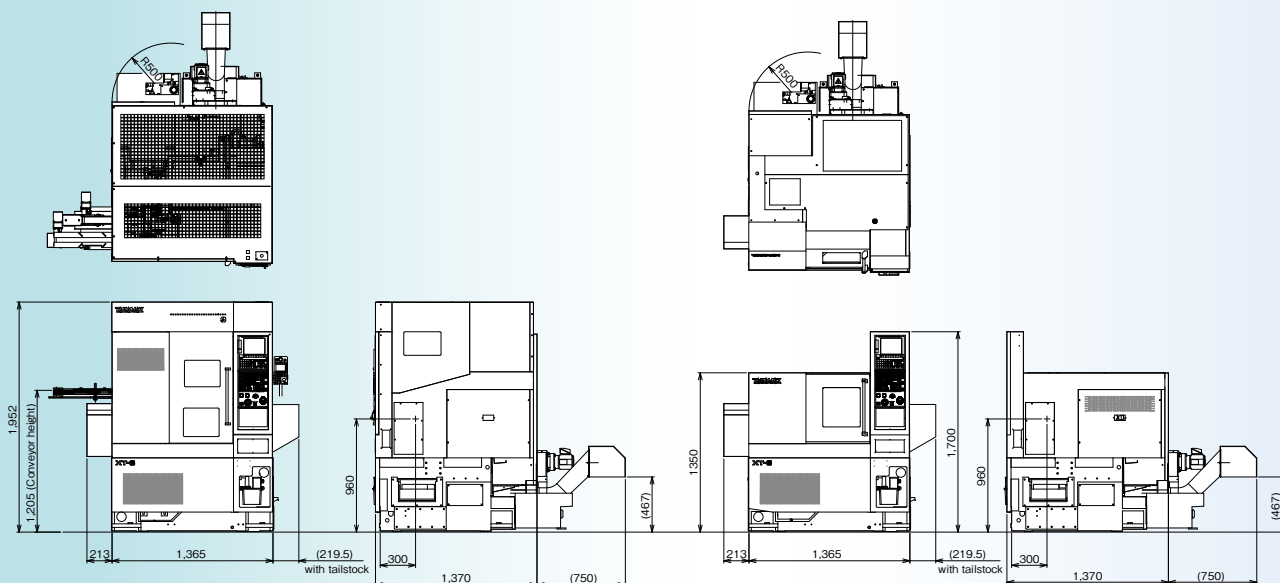
Attention

For OD and grooving tools, reverse mounting size is 20 mm sq.; normal mounting size is 16 mm sq.

Attention

For OD and grooving tools, reverse mounting size is 20 mm sq.; normal mounting size is 16 mm sq.

Floor Space Drawing

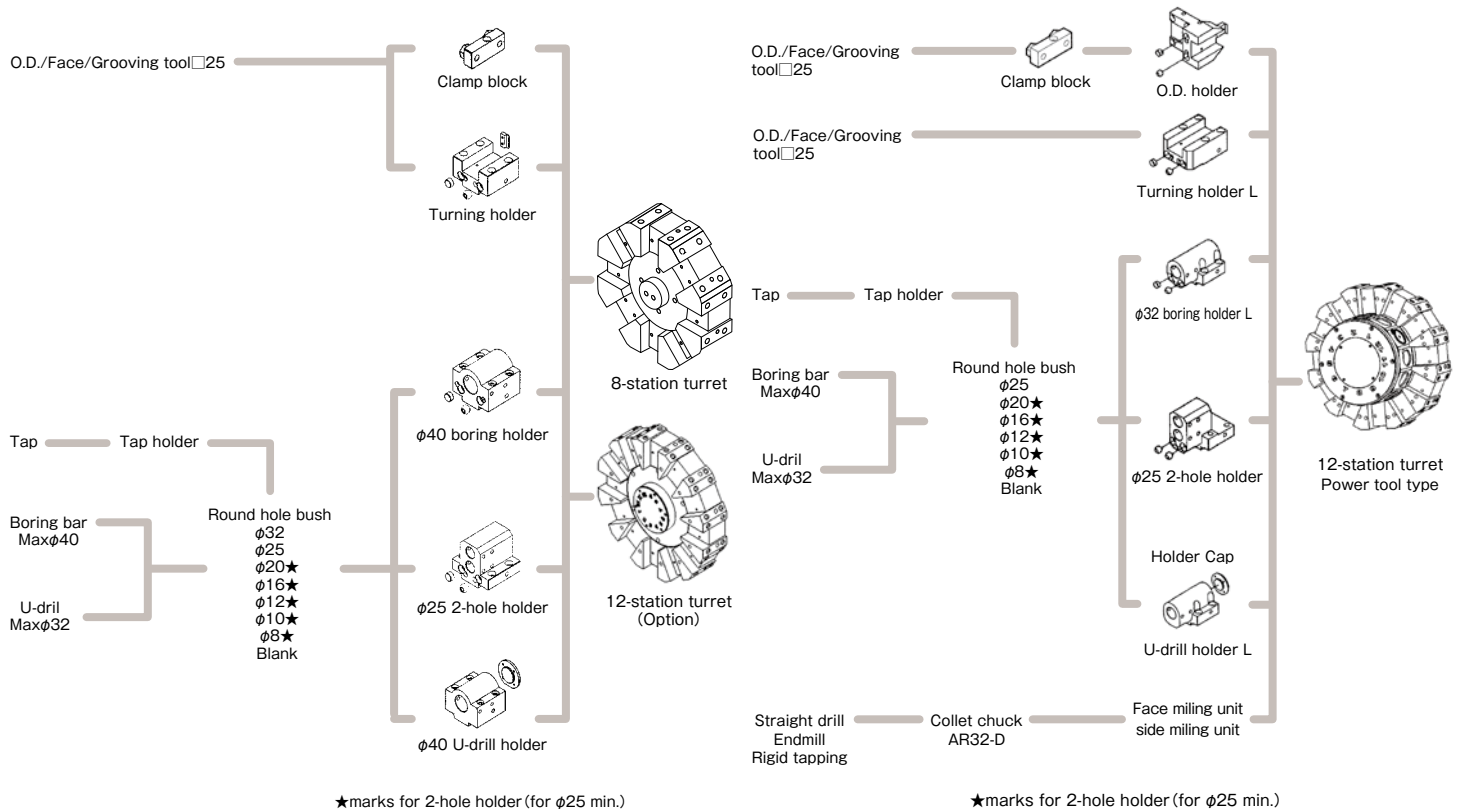


Unit (mm)

TOOLING SYSTEM & FLOOR SPACE

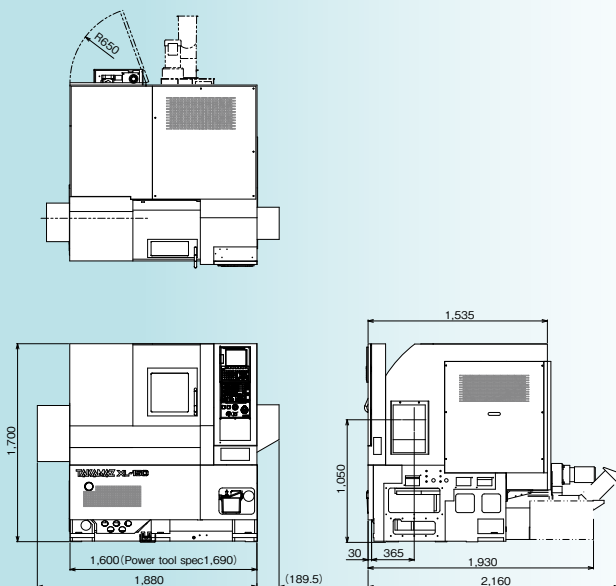
Tooling system

XL-150

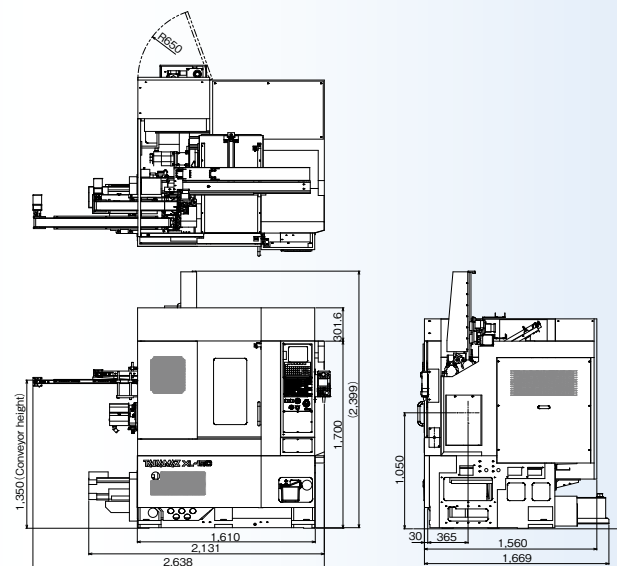


Floor Space Drawing

Standard



Equipped with ΣIC80



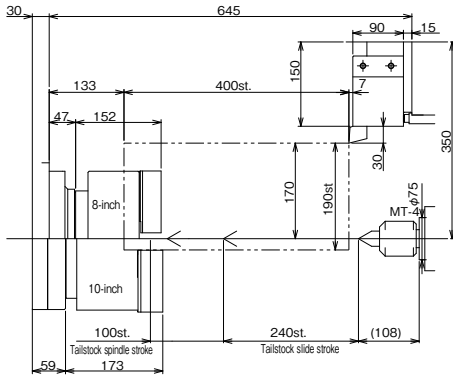
Unit (mm)

STROKE & TURRET

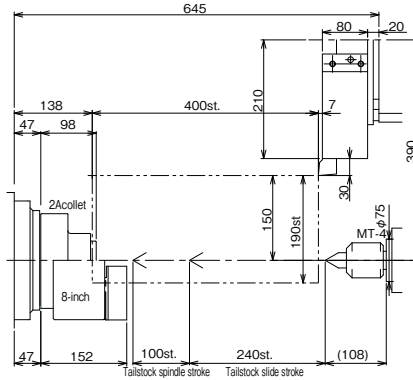
Stroke-Related Drawing

XL-150

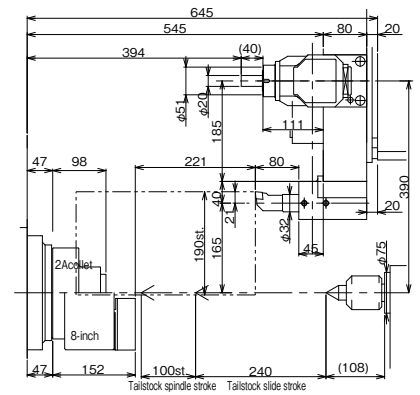
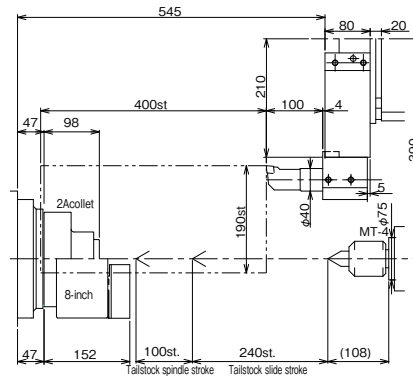
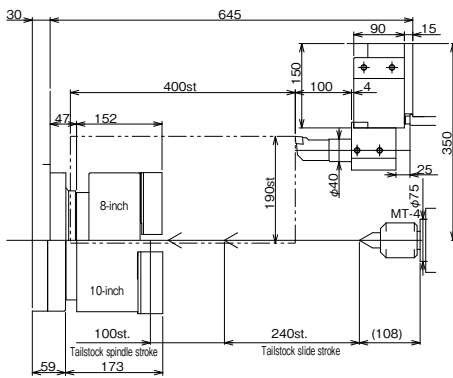
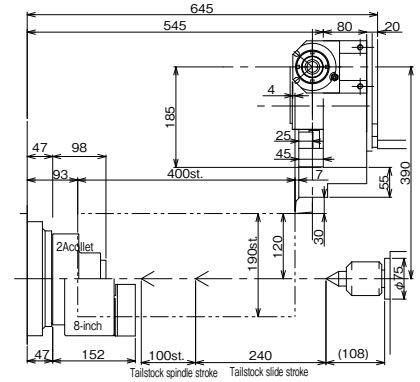
8-station turret



12-station turret

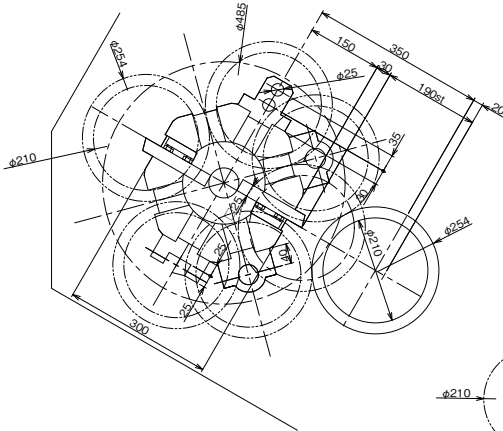


Power Tool type

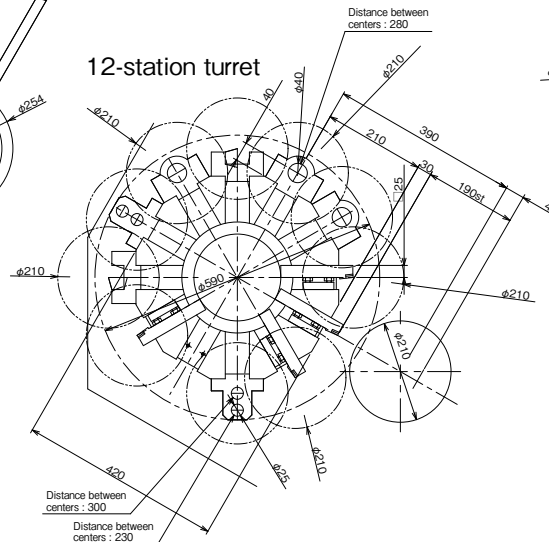


Turret Interference

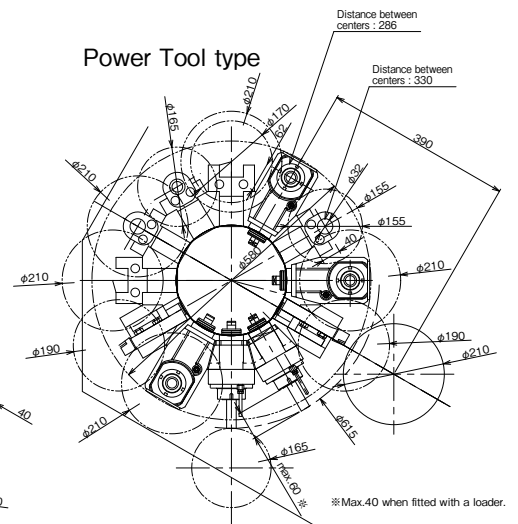
8-station turret



12-station turret



Power Tool type

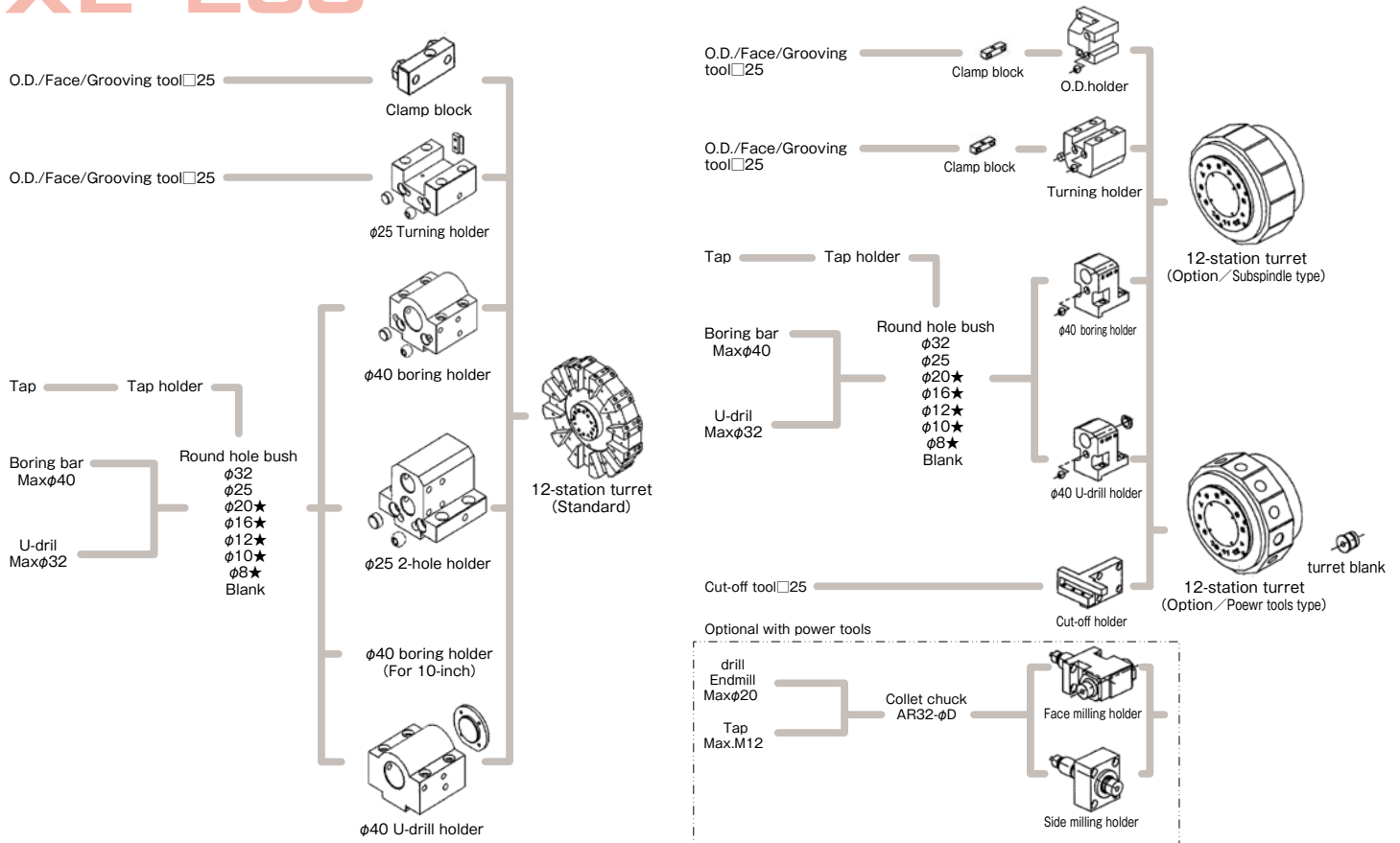


Unit(mm)

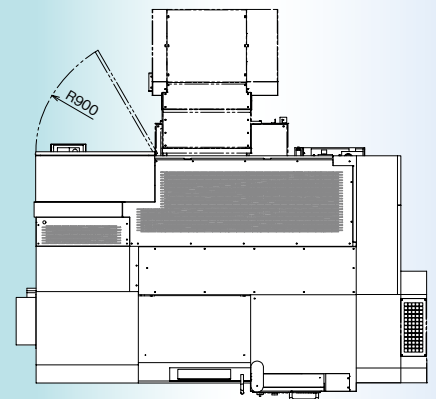
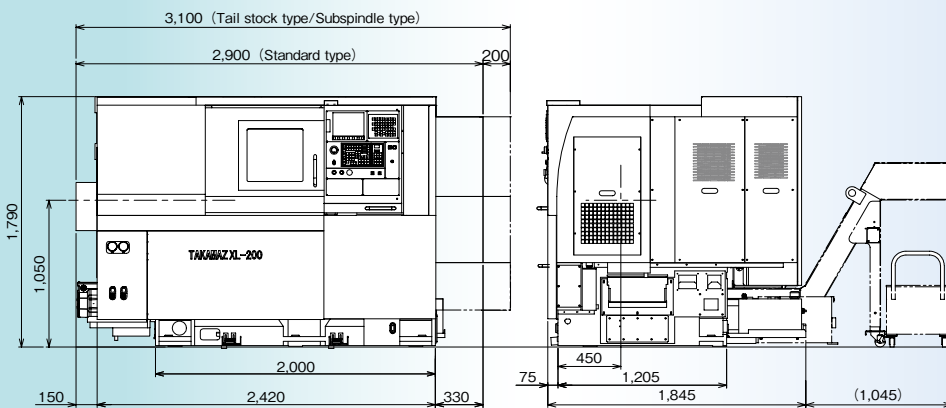
TOOLING SYSTEM & FLOOR SPACE

Tooling system

XL-200

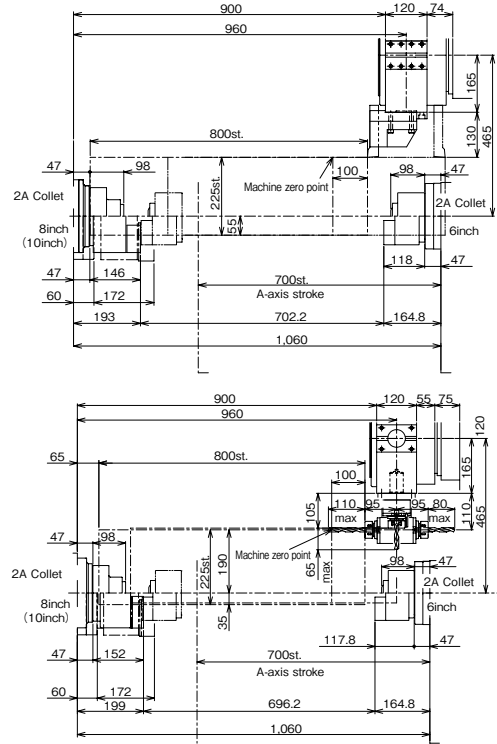


Floor Space Drawing



Unit (mm)

Stroke-Related Drawing



Technical drawing of a circular building plan. The drawing shows a central circular area surrounded by a ring of rooms. Key dimensions and annotations include:

- Distance between centers:** 430
- Room diameters:** $\phi 210$ (multiple rooms), $\phi 250$ (outer rooms), $\phi 150$ (inner rooms).
- Overall dimensions:** 210, 455, 215, 22set, 210, 30, 57, 10.
- Offset holder:** $\phi 590$ (10inch offset holder)

Technical drawing of a turret lathe (type) showing a top view of the turret and subspindle. The drawing includes dimensions for the turret diameter ($\phi 210$), subspindle diameter ($\phi 210$), and various offsets (165, 465, 130, 170, 225, 55). It also shows the distance between centers (410) and the distance between centers (380). The turret is labeled "Turret (type)" and the subspindle is labeled "Subspindle (6")".

[illegible][illegible]

26

SPECIFICATION

Machine Specifications

Item			Unit	XC-100	XC-150
Capacity	Max. turning diameter	mm		φ180	φ290
	Max. turning length	mm		190	204
	Max. bar diameter	mm		φ26	Solid (φ42, φ51)
	Chuck size	inch		6	8
Spindle	Spindle nose	JIS		A2 - 5	φ170 Flat
	Spindle bearing I.D.	mm		φ75	φ100
	Through-hole on spindle	mm		φ46	φ61
	Spindle speed	min ⁻¹		Max.4,500	Max.3,500
Tool post	Type			8-station turret	8-station turret
	Tool shank	mm		□20	□25
	Boring holder I.D.	mm		φ25	φ40
	Max. stroke	mm		X : 120 Z : 230	X : 175 Z : 250
	Rapid traverse rate	m/min		X : 12 Z : 18	X : 18 Z : 24
Motors	Spindle motor	kW		AC7.5/5.5	AC11/7.5
	Feed motor	kW		X : AC 0.75 Z : AC 1.2	X : AC1.2 Z : AC1.8
	Coolant motor	kW		AC 0.25	AC 0.25
	Hydraulic motor	kW		AC 0.75	AC 0.75
Size	Spindle center height	mm		1,050	1,050
	L×W×H	mm		1,150×1,360×1,730	1,250×1,480×1,650
	Machine weight	kg		1,900	2,800
Total electric capacity			KVA	15	20

() : Option

Standard Accessories

Item	XC-100	XC-150
<input type="checkbox"/> Boring holder	2 sets	
<input type="checkbox"/> Clamp block	8 sets	
<input type="checkbox"/> Collet flange	1 set	(Option)
<input type="checkbox"/> Coolant block	8 sets (nozzles for O.D. use)	
<input type="checkbox"/> Hydraulic chucks	(Option)	1 set (8-inch)
<input type="checkbox"/> Hydraulic chucking cylinder	1 set	(Solid)
<input type="checkbox"/> Hydraulic unit	1 set	
<input type="checkbox"/> Thread cutting unit (Including constant surface speed control)	1 set	
<input type="checkbox"/> Coolant unit	1 set (130 lit.)	1 set (140 lit.)
<input type="checkbox"/> Service tool kit	1 set	
<input type="checkbox"/> TAKAMAZ Instruction manual	1 set	

Optional Accessories

Item	XC-100	XC-150
<input type="checkbox"/> Tool holders		○
<input type="checkbox"/> Collet chucks		○
<input type="checkbox"/> Hydraulic chucks		○
<input type="checkbox"/> Thermal displacement system	○	—
<input type="checkbox"/> Clamp holder (Vibration-suppressing alloy)		○
<input type="checkbox"/> Chuck clamp detector		○
<input type="checkbox"/> Hollow chucking cylinder	(Standard)	○
<input type="checkbox"/> TAKAMAZ loader system		○
<input type="checkbox"/> Bar feeder system		○
<input type="checkbox"/> Unloader		○
<input type="checkbox"/> Work set detector		○
<input type="checkbox"/> Spindle indexing device (Electrical)		○
<input type="checkbox"/> Rear chip conveyor (Floor type / Spiral type)		○
<input type="checkbox"/> Front air blower		○
<input type="checkbox"/> Rear air blower		○
<input type="checkbox"/> Rear coolant unit		○
<input type="checkbox"/> Signal light (1-tier / 2-tier / 3-tier)		○
<input type="checkbox"/> Automatic fire extinguisher		○
<input type="checkbox"/> Automatic power shut-off device		○
<input type="checkbox"/> Automatic door system (Auto door / Shutter)		○
<input type="checkbox"/> Special color		○
<input type="checkbox"/> Others		○*

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

Machine Specifications

Item		Unit	XT-6		XT-6M
			6-inch type	(8-inch type)	6-inch type
Capacity	Max. turning diameter	mm	$\phi 180$ (With 12-station $\phi 200$)		$\phi 200$
	Max. turning length	mm	240		195
	Max. bar diameter	mm	$\phi 26$ ($\phi 35$)	($\phi 42$)	
	Chuck size	inch	6	8	6
Spindle	Spindle nose	JIS	A ₂ -5		
	Spindle bearing I.D.	mm	$\phi 75$	$\phi 85$	$\phi 75$
	Through-hole on spindle	mm	$\phi 46$	$\phi 52$	$\phi 46$
	Spindle speed	min ⁻¹	4,500 (6,000)	3,500	4,500 (6,000)
Tool post	Type		8-station (12-station)	8 stations	12-station
	Tool shank	mm	8-station : $\square 20$ (12-station : $\square 20/\square 16$)	$\square 20$	12-station : $\square 20/\square 16$
	Boring holder I.D.	mm	$\phi 25$		
	Max. stroke	mm	X:120 (tailstock : 90<8-station>, 100<12-station>) Z:280		X:120 (tailstock 100) Z:265
Power tools	Rapid traverse rate	m/min	X:18 Z:24		
	Tool storage capacity	pcs.	—		6
	Rotation speed	min ⁻¹	—		4,000
	Capacity	mm	—		$\phi 10$
Cs-axis	Drill	mm	—		$\phi 10$
	Endmill	mm	—		$\phi 10$
M6	Tap	mm	—		M6
	Rapid traverse rate	deg./min	—		18,000
Motors	Spindle motor	kW	AC7.5/5.5 (AC11/7.5)		AC7.5/5.5
	Feed motor	kW	X:AC 0.75 Z:AC1.8		
	Coolant motor	kW	AC 0.25		
	Hydraulic motor	kW	AC 0.75		
	Power tools motor	kW	—		AC 2.2
Size	L×W×H	mm	1,360×1,370×1,700		
	Machine weight	kg	2,300		2,500
Total electric capacity		KVA	12~18 (depends on the specifications)		

() : Option

Item		Unit	XL-150			XL-200	
			8-station turret	12-station turret	Power tool type	Standard	Power tool type
Capacity	Max. turning diameter	mm	$\phi 320$	$\phi 280$	$\phi 240$	$\phi 430$ ($\phi 340^{*1}$)	$\phi 340$
	Max. turning length	mm	370		300	720 (560)	
	Max. bar diameter	mm	Solid ($\phi 42, \phi 51, \phi 65$)		Solid ($\phi 42, \phi 51$)	Solid ($\phi 42, \phi 51, \phi 65$)	
	Chuck size	inch	8 (10)		8	8 (10)	
Spindle	Spindle nose	JIS	A ₂ -6 (A ₂ -8)		A ₂ -6	A ₂ -6 (A ₂ -8)	
	Spindle bearing I.D.	mm	$\phi 100$ ($\phi 120$)		$\phi 100$	$\phi 100$ ($\phi 120$)	
	Through-hole on spindle	mm	$\phi 61$ ($\phi 80$)		$\phi 61$	$\phi 61$ ($\phi 80$)	
	Spindle speed	min ⁻¹	Max.3,500 (5,000) (4,000)		Max.3,500 (5,000)	Max.3,500 (5,000) (4,000)	
Spindle indexing		deg./min	—		(C-axis)	—	(C-axis)
			—		18,000	—	18,000
Tool post	Type		8-station turret	12-station turret		12-station turret	
	Tool shank	mm	$\square 25$			$\square 25$	
	Boring holder I.D.	mm	$\phi 40$		$\phi 32$	$\phi 40$	
	Max. stroke	mm	X : 190 Z : 400			X : 225 Z : 800	
Power tools	Rapid traverse rate	m/min	X : 18 Z : 24			X : 18 Z : 24	
	Tool storage capacity		—		12	—	12
	Rotation speed	min ⁻¹	—		Max.4,000	—	4,000
	Max. capacity	mm	—		$\phi 20$ M4~M16	—	$\phi 20$ M4~M16
Motors	Spindle motor	kW	AC11/7.5 : $\phi 100$ spindle 3,500min ⁻¹ (AC15/11 : $\phi 100$ spindle 5,000min ⁻¹) (AC15/11 : $\phi 120$ spindle 4,000min ⁻¹)		AC11/7.5 : $\phi 100$ spindle 3,500min ⁻¹ (AC15/11 : $\phi 100$ spindle 5,000min ⁻¹)	AC11/7.5 : $\phi 100$ spindle 3,500min ⁻¹ (AC18.5/15 : $\phi 100$ spindle 5,000min ⁻¹) (AC18.5/15 : $\phi 120$ spindle 4,000min ⁻¹)	
	Feed motor	kW	X : AC1.2 Z : AC1.8			X : AC1.8 Z : AC2.7	
	Coolant motor	kW	AC 0.25			AC 0.25	
	Hydraulic motor	kW	AC 0.75 (tailstock : AC 1.5)			AC 1.5	
	Power tools motor	kW	—		AC 5.5/3.7/2.2	—	AC 5.5/3.7/2.2
Size	Spindle center height	mm	1,050			1,050	
	L×W×H	mm	1,600×1,535×1,700		1,690×1,535×1,700	2,900 (3,100 ^{*1}) ×1,845×1,790 (1,810 ^{*1})	
	Machine weight	kg	3,200		3,400	4,400	
Total electric capacity		KVA	20~30 (depends on the specifications)			24~51 (depends on the specifications)	

*The XL-200subspindle specifications are given on page 14.

*1 With sub spindle mounted

() : Option

SPECIFICATION

Optional Machine Specifications

Item		Unit	XT-6	XT-6M	XL-150	XL-200
Tailstock	Front taper		MT-3		MT-4	MT-5
	Quill O.D.	mm	φ56		φ75	φ90
	Quill stroke	mm	85		100	120
	Tailstock stroke	mm	220		240	500
	Max. thrust	kN	3.5		5.3	5 (7)

(): Option

Standard Accessories

Item	XT-6	XT-6M	XL-150	XL-200
<input type="checkbox"/> Boring holder	2 sets			
<input type="checkbox"/> Clamp block	8 sets (12 sets)			12 sets
<input type="checkbox"/> Collet flange	1 set	(Option)		
<input type="checkbox"/> Coolant block	8 pcs. (nozzles for O.D. use)			12 pcs. (nozzles for O.D. use)
<input type="checkbox"/> Stroke adjust cylinder	1 set	—		
<input type="checkbox"/> Hydraulic chucks	(Option)	1 set		
<input type="checkbox"/> Hydraulic chucking cylinder(Solid)	(Option)	1 set		
<input type="checkbox"/> Hydraulic unit	1 set			
<input type="checkbox"/> Chuck clamp detector	1 set	—		
<input type="checkbox"/> Spindle indexing device	—	1 set (Cs-axis)	—	
<input type="checkbox"/> Power tools drive unit	—	1 set	—	
<input type="checkbox"/> Thread cutting unit (including constant surface speed control)	1 set			
<input type="checkbox"/> Coolant unit	1 set (140 lit.)			1 set (240 lit.)
<input type="checkbox"/> Work light	1 set	—		
<input type="checkbox"/> Service tool kit	1 set			
<input type="checkbox"/> TAKAMAZ Instruction manual	1 set			

Optional Accessories

Item	XT-6	XT-6M	XL-150	XL-200
<input type="checkbox"/> Tool holders	○			
<input type="checkbox"/> Collet chucks	○			
<input type="checkbox"/> Hydraulic chucks	○			
<input type="checkbox"/> Vibration-suppressing alloy clamp holder	○			
<input type="checkbox"/> Built-In Spindle motors	○		—	
<input type="checkbox"/> Thermal displacement system	○		—	
<input type="checkbox"/> Chuck clamp detector	(Standard)		○	
<input type="checkbox"/> Hollow chucking cylinder	(Standard)		○	
<input type="checkbox"/> TAKAMAZ loader system	○			
<input type="checkbox"/> Bar feeder system	○			
<input type="checkbox"/> Unloader	○			
<input type="checkbox"/> Work set detector	○			
<input type="checkbox"/> Spindle C-axis indexer	—	(Standard : Cs-axis)	○※1	
<input type="checkbox"/> Sub spindle	—			○
<input type="checkbox"/> Tailstock	○			
<input type="checkbox"/> Power tools drive unit	—	(Standard)	○	
<input type="checkbox"/> Power tools	—	○※1		
<input type="checkbox"/> Rear chip conveyor (Floor type／Spiral type)	○			
<input type="checkbox"/> Front air blower	○			
<input type="checkbox"/> Rear air blower	○			
<input type="checkbox"/> Rear coolant unit	○			
<input type="checkbox"/> Signal light(1-color／2-color／3-color)	○			
<input type="checkbox"/> Automatic fire extinguisher	○			
<input type="checkbox"/> Automatic power shut-off device	○			
<input type="checkbox"/> Automatic door system(Auto door／Shutter)	○			
<input type="checkbox"/> Special color	○			
<input type="checkbox"/> Others	○※2			

*1 These are standard accessories for power tool specification only.

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

Controller Specifications

Item	XC-100	XC-150	XT-6	XT-6M	XL-150		XL-200	
			Standard	Power tool type	Standard	Power tool type	Standard	Power tool type
	TAKAMAZ&FANUC Oi-TD		TAKAMAZ&FANUC Oi-TF plus		TAKAMAZ&FANUC Oi-TD			
Controlled axes	2 axes (X,Z)			3 axes (X,Z,C)	2 axes (X,Z)	3 axes (X,Z,C)	2 axes (X,Z) 4 axes (X,Z,A,E)*1	3 axes (X,Z,C) 5 axes (X,Z,C,A,E)*2
Simultaneously controllable axes	Simultaneous 2 axes			Simultaneous 3 axes	Simultaneous 2 axes	Simultaneous 3 axes	Simultaneous 2 axes Simultaneous 3 axes Simultaneous 4 axes*1.2	
Least input increment	0.001mm (X in diameter)							
Least command increment	X : 0.0005mm Z : 0.001mm							
Auxiliary function	M-code 3 digit							
Spindle function	S-code 4 digit							
Tool function	T-code 4 digit							
Tape code	EIA(RS232C)/ISO(840)automatic recognition							
Cutting feedrate	1~5,000mm/min							
Command system	Incremental / Absolute							
Linear interpolation	G01							
Circular interpolation	G02,G03							
Cutting feedrate override	0~150%							
Rapid traverse override	F0,100%							
Program number	4 digit	Program file name 32 characters			4 digit			
Backlash compensation	0~9,999μm							
Program memory capacity	512Kbyte (1,280m)							
Tool offsets	64 sets							
Registered programs	400 pcs.							
Tool geometry / Wear offset	Standard							
Canned cycle	G90,G92,G94							
Radius designation on arc	Standard							
Tool offset measurement input	Standard							
Background editing	Standard							
Direct drawing dimension programming	Standard							
Custom macro	Standard							
Additional custom macro common variables	#100~#199,#500~#999							
Pattern data input	Standard							
Nose R compensation	G40,G41,G42							
Inch / Metric conversion	G20 / G21							
Programmable data input	G10							
Run hour / Parts count display	Standard							
Extended part program editing	Standard							
Multiple repetitive cycle	G70~G76							
Multiple repetitive cycle II	Pocket-shaped							
Spindle synchronous control	—						Standard*1.2	
Sub-spindle torque skip	—						Standard*1.2	
Canned drilling cycle	Standard							
Constant surface speed control	G96,G97							
Continuous thread cutting	G32							
Variable lead thread cutting	G34							
Thread cutting retract	Standard							
Clock function	Standard							
Help function	Standard							
Alarm history display	50 pcs.							
Self-diagnosis function	Standard							
Sub-program call	Up to 10 loops							
Decimal point input	Standard							
2nd reference point return	G30							
Work coordinate system setting	G50,G54~G59							
Rigid tapping	—			For Power Tools only	—	For Power Tools only	—	For Power Tools only
Polar coordinate interpolation	—			Standard	—	Standard	—	Standard
Cylindrical interpolation	—			Standard	—	Standard	—	Standard
Stored stroke check 1	Standard							
Stored stroke check 2,3	Standard							
Input / Output interface	RS232C,USB Memory,Memory card,Easernet*3		USB Memory,Memory card,Easernet*4					
Alarm message	Standard (Smart Alarm Diagnostic)							
Graphic display	Standard							
Conversational programming with graphic function	Standard							
Abnormal load detection	Standard							
Manual handle trace	Standard							
Automatic data backup	Max. 3							
Automatic screen deletion function	Standard							
TAKAMAZ management support function	Work/Tool counter,Tool load monitor,Others							
TAKAMAZ maintenance functions	Standard							
FANUC set of manuals	CD-ROM		DVD-ROM		CD-ROM			
Spindle orientation	(Option)							
Dynamic graphic display	(Option)							
Tool life management	(Option)							
Multiple M codes in one block	(Max. 3 : Option)							
Manual guide Oi	(Option)							
Helical interpolation	—			(Option)	—	(Option)	—	(Option)
RS232C	Standard		(Option)					

*1 Sub spindle specification

*2 Power tool / sub spindle specification

*3 USB Memory is not standard for CE specifications.

*4 Only for the XT-6/GM with CE specifications, a USB memory device is provided as standard.