

CNC Spindle Turret
Precision Lathe

XC.XL series

CNC PRECISION LATHE
XC-100 XC-150 XL-100 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	φ180mm
Max. turning length	190mm
Max. bar diameter	(φ26mm)
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 30,000 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/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 Spindle Turret Precision Lathe

XL series

Long stroke+Compound Machining



XL-100

Chuck size **6** inch

Max. turning diameter	φ180mm
Max. turning length	240mm (Power tools type:180mm)
Max. bar diameter	(φ42mm)
Tool post type	8-station turret (12-station)
Rapid traverse rate	X: 12/Z: 18 m/min
Spindle motor	AC 7.5/5.5kW (11/7.5kW)
Dimensions (L×W)	1,360×1,360mm
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 series / 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

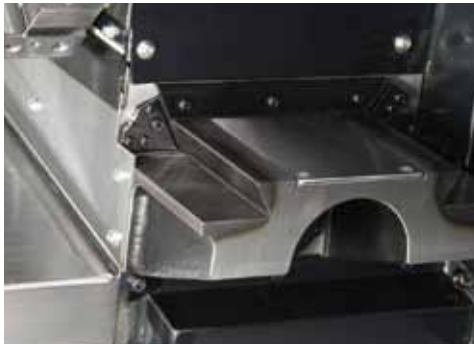
※The photo shows new TAKAMAZ standard color.Environmentally friendly powder coating is employed.

XC-100

Only 1,150 mm machine width

High Precision Structure

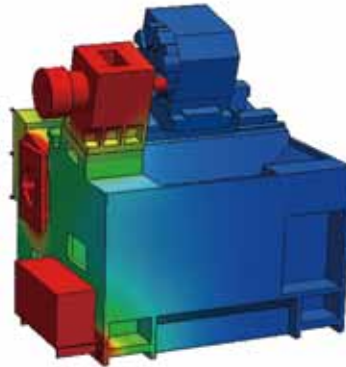
The X-Axis has a pre-tensioned structure. As a result, dimensional variation due to thermal displacement is suppressed and a design with stable machining accuracy is achieved. In addition, the X-axis slide is made larger resulting to a more robust slide. Furthermore, to find a flawless



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

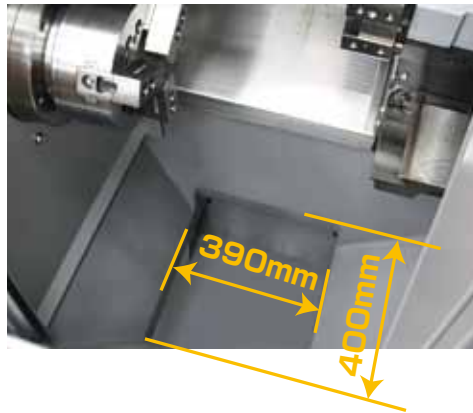
1.56m²

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.

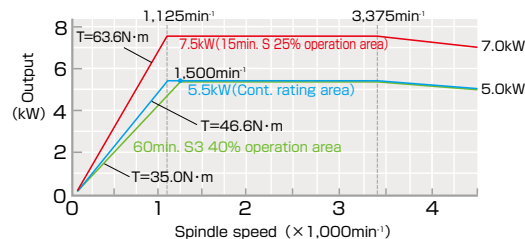
(As compared to the previous model:25% reduction)

Reduced Material Use -200kg

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

XC-100 Spindle motor torque diagram

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



Sigma loader Adjustment



Lubrication Pump



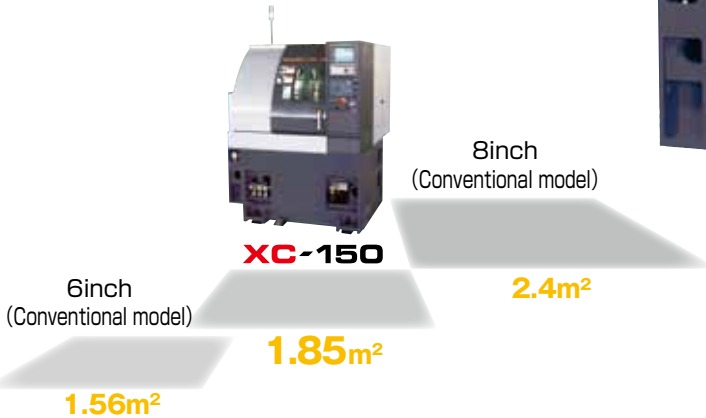
XC-150

Space Saver in Turning Machine Industry's Smallest Class

Achieve Space-Saving Comparable to 6-inch Class

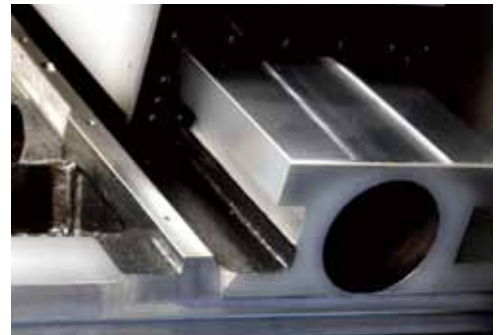
The machine width is 1,250mm. The floor space is 1.85m², about 23% less than previous model, making it the smallest machine with an 8-inch chuck among the same class in the industry. In our products, the space needed for [2] x [Set of Previous Model & Stocker] is enough for [3] x [Set of XC-150 & Stocker].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

Floor space 23% reduction

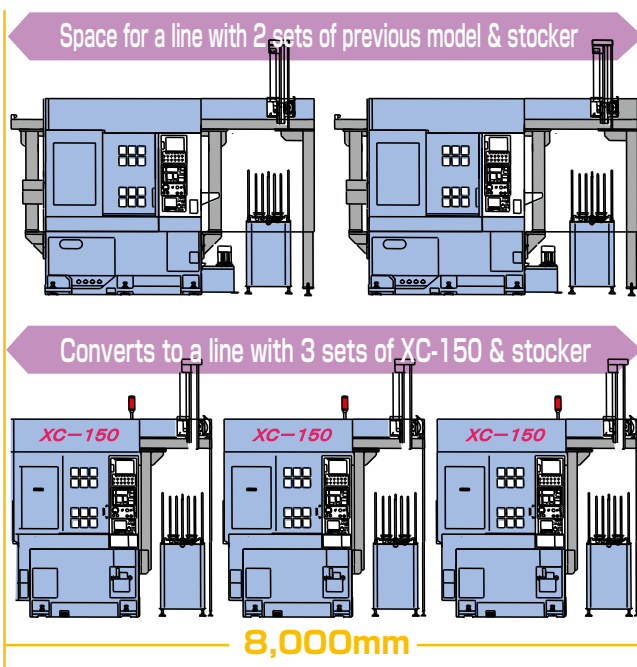


Adoption of Rigid Slide

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→3,500min⁻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

Ensure the Reduction Of Materials Used

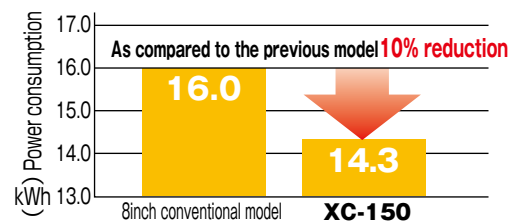
Reduction of Spindle Inertia by **20%**
Reduction of Spindle Acceleration and Deceleration Times by **14%**

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

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

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%.

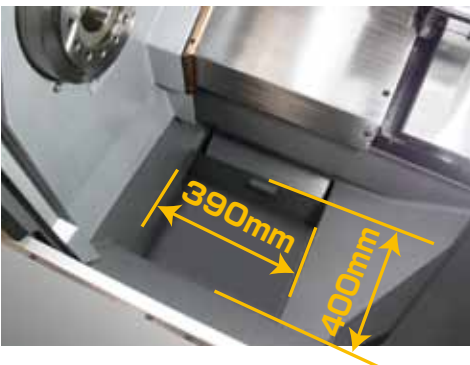
Effect of Power Consumption Reduction per Machine



*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 (0.15m²) 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.

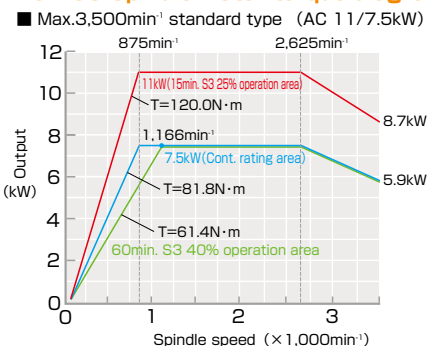


Superior Workability

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 motor torque diagram



XL-100

Supports Milling and Shaft Machining!

Capable of Mounting Six Power Tools as Maximum

This machine is equipped with high horsepower Power Tools that can perform a maximum of 10mm dia. milling. The ability to drill, tap and finish using one chuck and combined with possibility of performing variables and integrated process leads to flexible production.



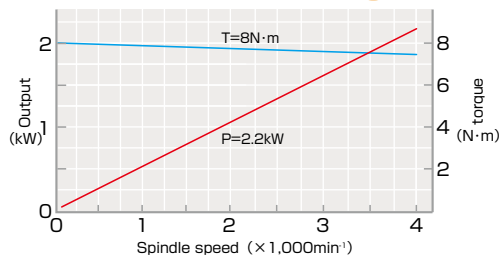
Face milling



Side milling

	Item	Unit		
Power tools	Tool storage capacity	pcs.	Max.6	
	Max. rotating speed	min ⁻¹	4,000	
	Clamping Capability	Drill(short)	mm	φ10
		Endmill	mm	φ10
		Tap	mm	M4~M6
Spindle orientation	Positioning accuracy	degree	±0.1	

Power Tools Motor Diagram



Extra Tools for 12 Station Turret Head

The 12 station turret head is available with either standard turret specifications or the power tools specifications. The power tooling is designed with high speed through servo control and clamp controlled robust coupling leading to a stable high accuracy machining.

The structure of the turret is also designed with cutting oil spray outlets for each tool for efficient cutting with coolant.



8 station turret head



12 station turret head

※ 12-station : for reverse (□20) for normal (□16)

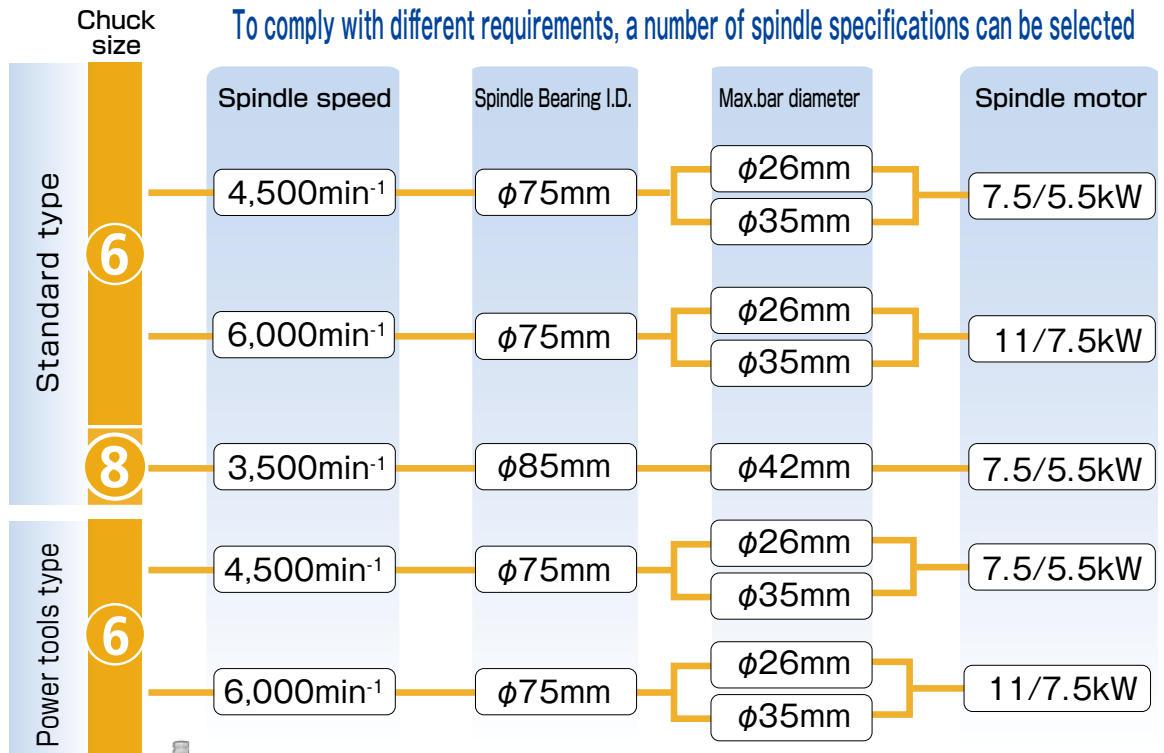
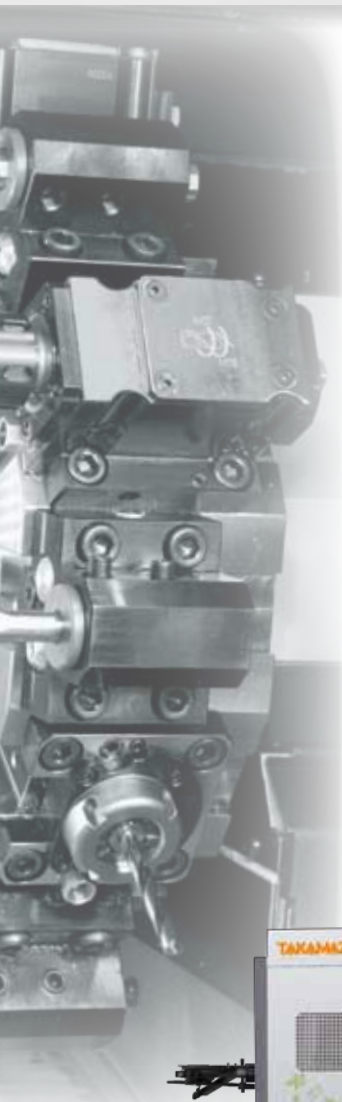


Equipped with Tailstock for 280mm long stroke Z axis.

Maximum of 240mm shaft machining is possible with a Z axis stroke 280mm when equipped with a tailstock as an option. This is 50 mm longer than the XC-100.

※ Z axis is 250mm for power tool specification only.

	Item	Unit	
Tailstock (Option)	Pointed End	MT	MT-3
	Quill stroke	mm	85
	Tailstock stroke	mm	220



Compact design continued on the XC-100

Like the XC-100, the XL-100 is designed as multi-function compact machine. It has the same 1.85m² floor space as XC-100 and with additional milling capability. This machine is also an energy-saving design, and with excellent features to enhance the working environment.

Spindle Acceleration Tune Parameter

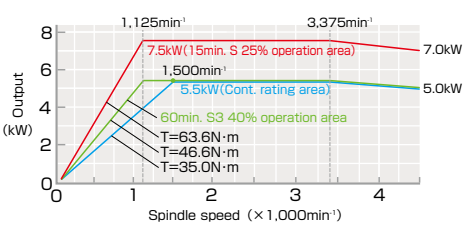
By setting the parameter spindle speed, spindle speed reduces the time, helping to reduce cycle time (Comparison with the past machines)

Acceleration Time(0→4,500min⁻¹) : **60% Decreased**

Deceleration Time(4,500→0min⁻¹) : **47% Decreased**

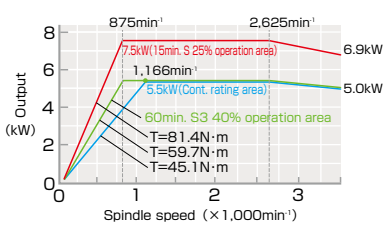
XL-100 Spindle motor torque diagram

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



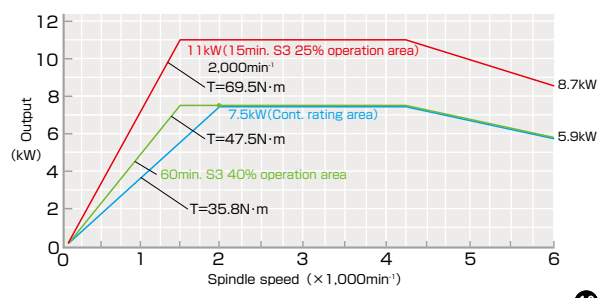
XL-100 Spindle motor torque diagram

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



XL-100 Spindle motor torque diagram

■ 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



0.35mm/rev
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

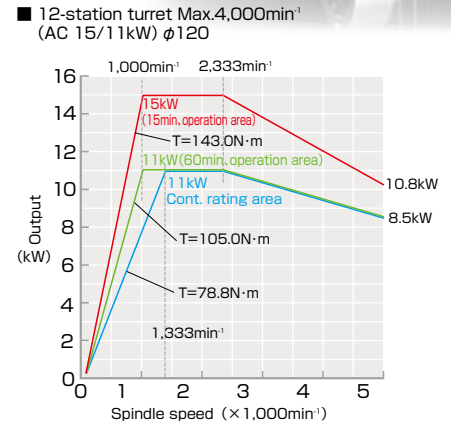
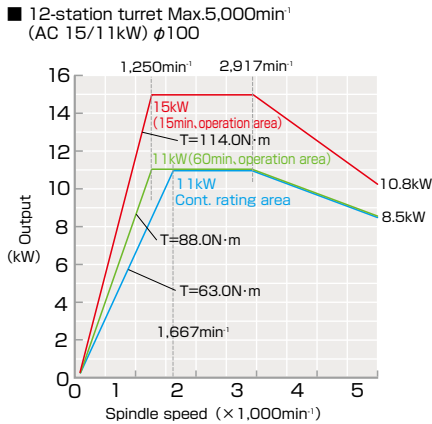
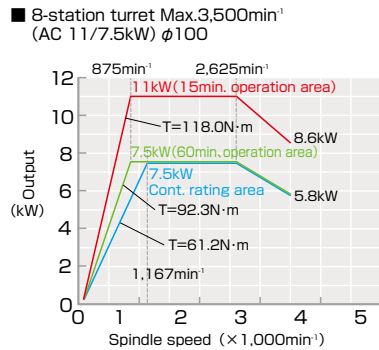
Acceleration Time
4.0sec → **2.4sec**

40% Reduction
(Comparison with the past machines)

Deceleration Time
3.8sec → **2.4sec**

40% Reduction
(Comparison with the past machines)

XL-150 Spindle motor torque diagram



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)

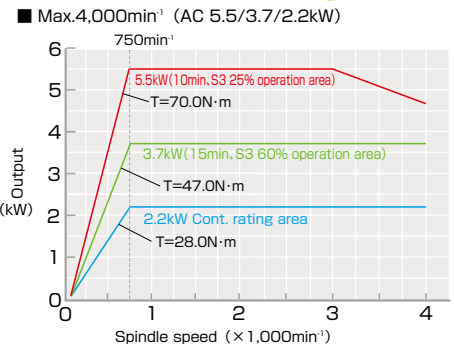
- Drill : φ 12mm
- Cutting Conditions : Rim Speed 30m/min, Hole Depth 30mm



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

※Live Tool is an option.

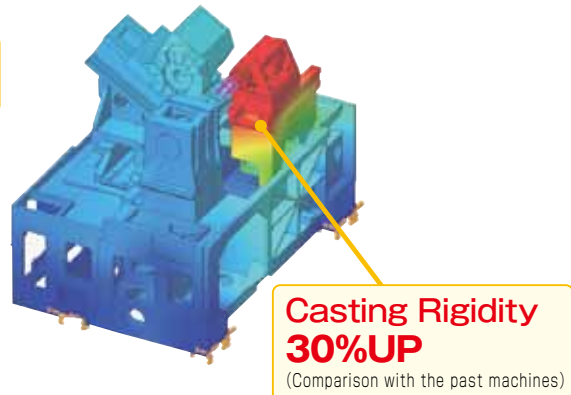
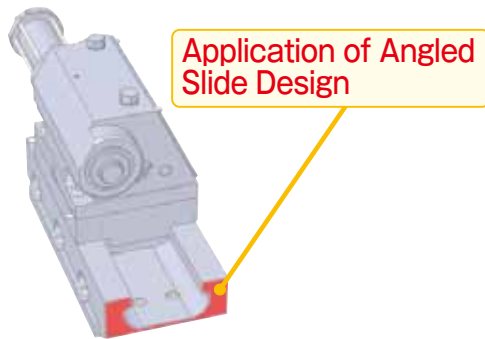
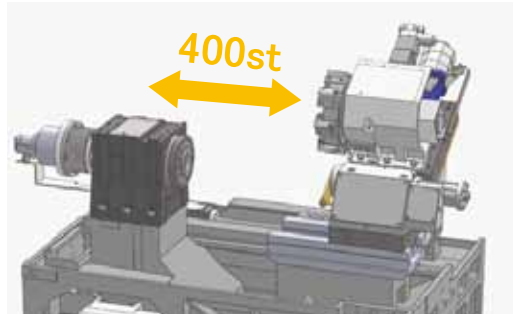
Power Tools Motor Diagram



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.



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.

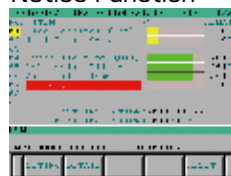
Door Opening Width 520mm



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



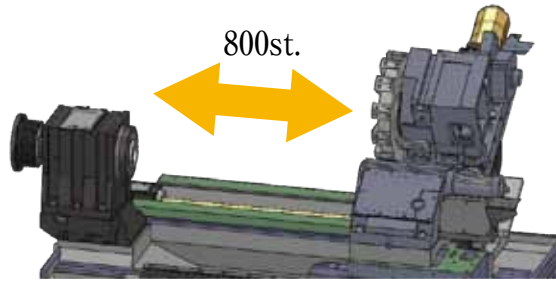
Soft Switch Display

XL-200

Max. Length 720 mm! Accommodates Long Shaftwork

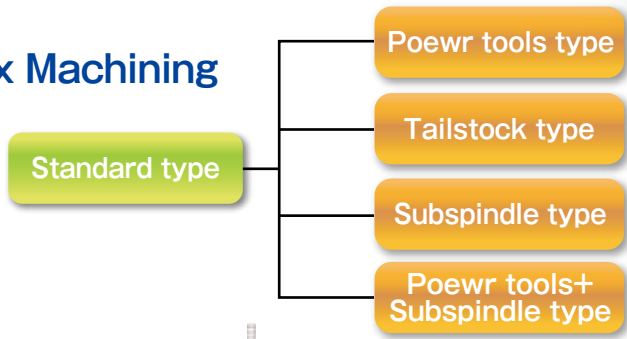
Extending the Z axis stroke gives the longest machining range in our X series

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.



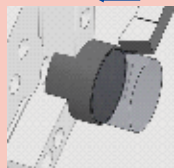
Selectable Spindle Variations

- | | | |
|---|---|---|
| <p>A
$\phi 100$ Spindle
AC 11/7.5kW
3,500min⁻¹</p> | <p>B (Option)
$\phi 100$ Spindle
AC 18.5/15kW
5,000min⁻¹</p> | <p>C (Option)
$\phi 120$ Spindle
AC 18.5/15kW
4,000min⁻¹</p> |
|---|---|---|



Outer Diameter Cutting Capability

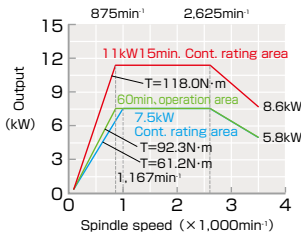
0.6mm/rev



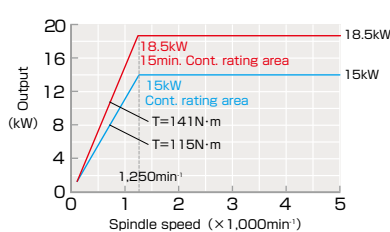
Cutting Cross Sectional Area (t*f)
3.0 mm²

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

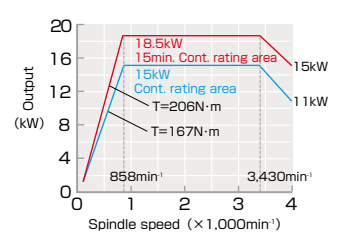
■ Max.3,500min⁻¹(AC 11/7.5kW) $\phi 100$



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



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



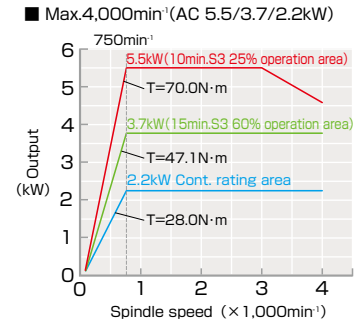


High Productivity Achieved with Powerful Milling (Option)

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)

Item		Unit	
Power tools	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
Endmill		mm	φ20
Tap		mm	M16



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

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)*

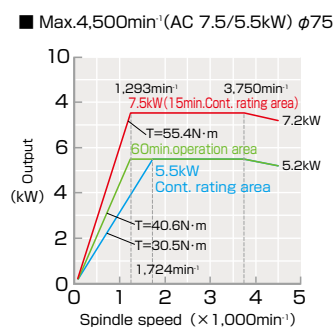
*Selectable up to a maximum of 7 kN (Option)



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

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

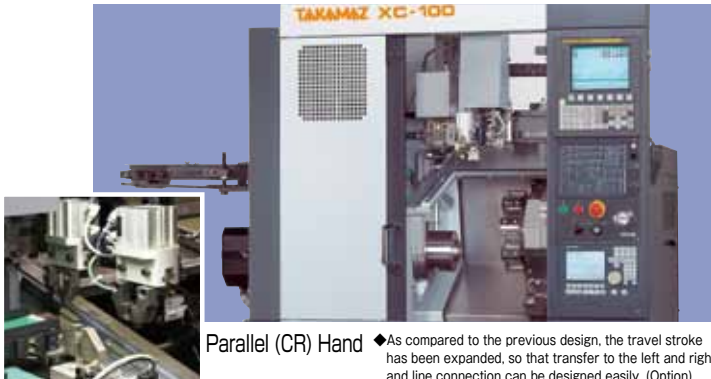


Equipped with the [Speed] and [Small Footprint] Servo Loader [Σi series]

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.

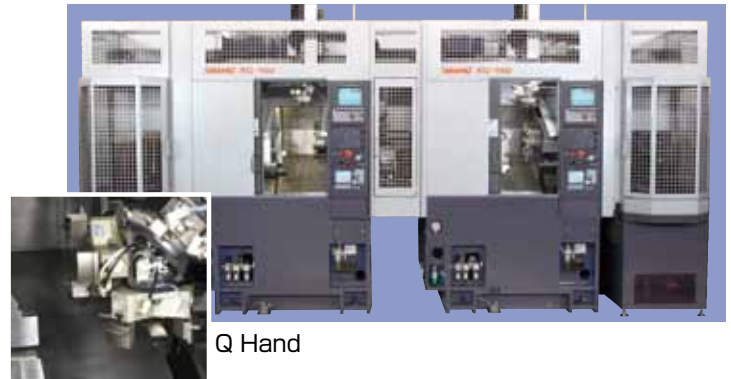
Compact servo loader Σi



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

Loader transfer capacity

Item	Unit	Compact (2 axes)		Gantry (2 axes)			
		XC/XL-100	XL-150	XC/XL-100	XC/XL-150	XL-200	
Model		XC/XL-100	XL-150	XC/XL-100	XC/XL-150	XL-200	
Loader		ΣiC60	ΣiC80	ΣiGH80	ΣiGH150		
Workpiece dimension	Diameter	mm	60	80	80	150	
	Weight (One side)	kg	1.0	1.5	1.5	5.0	
Shoulder (Traverse axis: Z)	Drive system	Servomotor		Servomotor			
	Stroke	mm	Depends on spec.		Depends on spec.		
	Rapid traverse rate	m/min	84		155		
Arm (Vertical axis: Y)	Drive system	Servomotor		Servomotor			
	Stroke	mm	300	500	460	580	800
	Rapid traverse rate	m/min	71	84	125	85	
Hand rotation	Drive system	Air cylinder		Air cylinder			
	Angle	deg	90		180		
	Jaw stroke	mm	10		10		
	Hand type		Parallel (CR) hand		Q hand		

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.



Shaft work stocker



Flat 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.

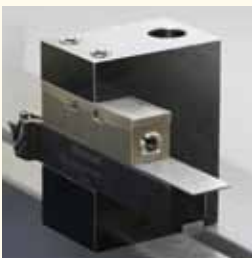


Oil mist collector
Oil mist collection facilitates a clean production environment.



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.



Chip conveyor (Spiral type)
Chip disposal is done semi-automatically in the minimum space.



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.

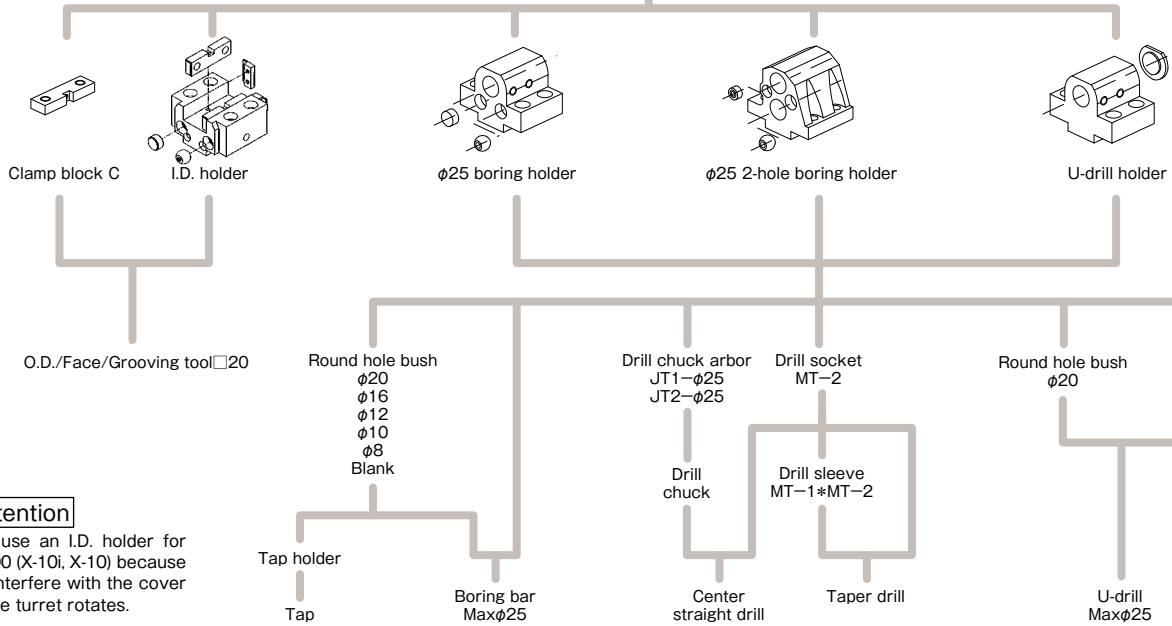
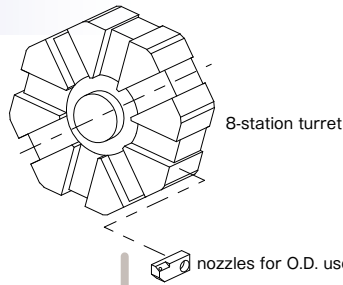


Semi-dry machining
Ultratrace, highly-lubricating vegetable coolant is applied to the correct point on the cutting edge, realizing semi-dry machining.

TOOLING SYSTEM & FLOOR SPACE

Tooling system

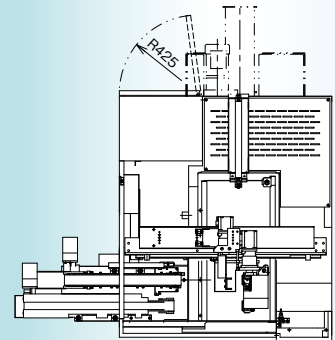
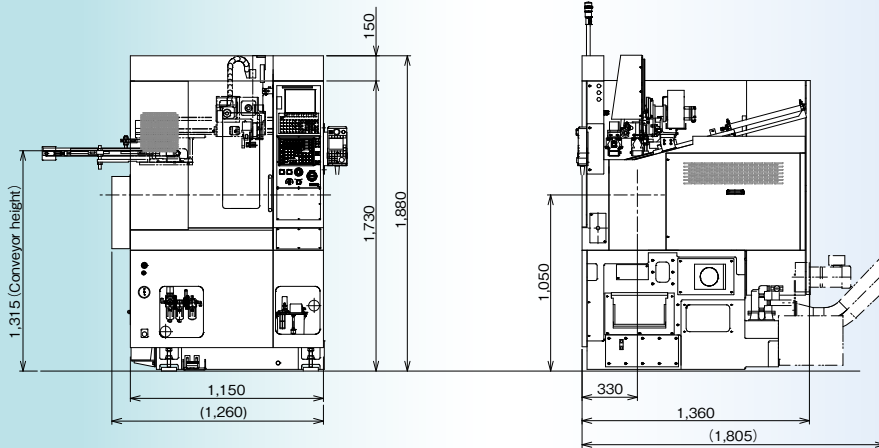
XC-100



Attention

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

Floor Space Drawing (Equipped with ΣiC60)

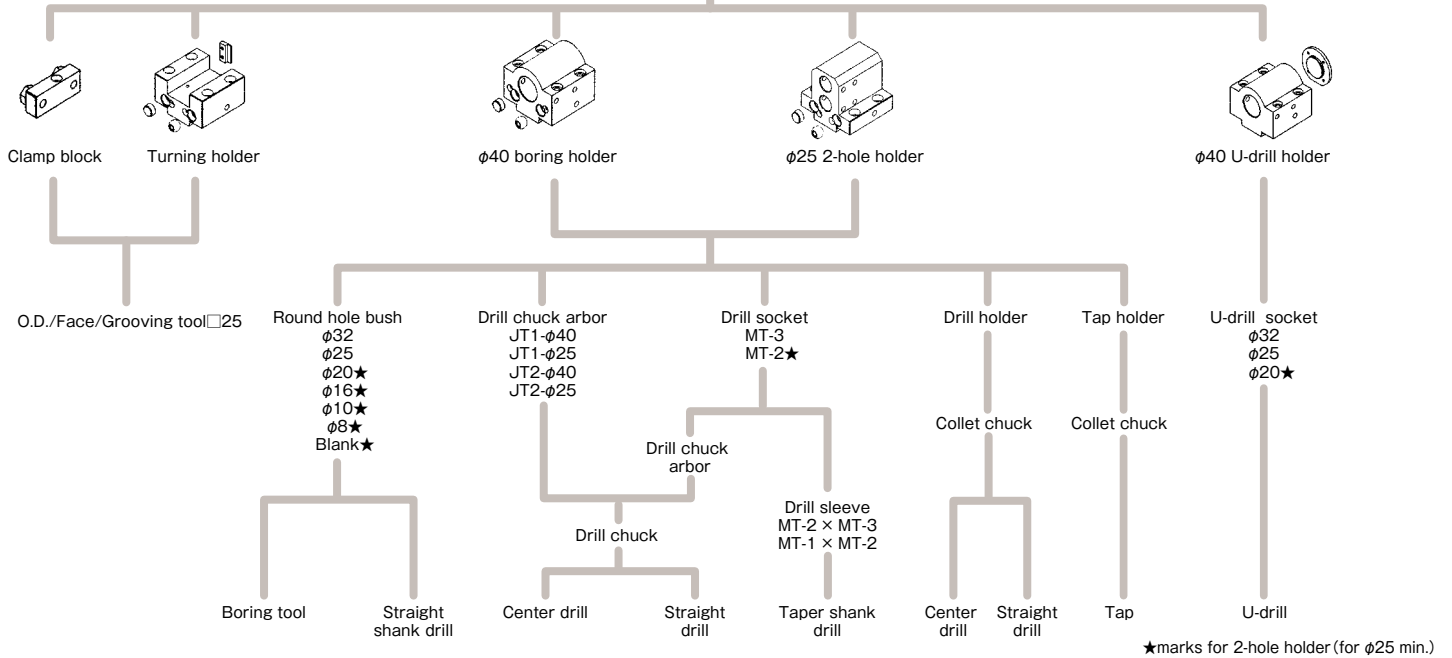
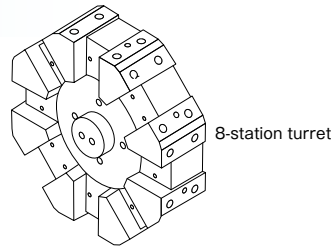


Unit(mm)

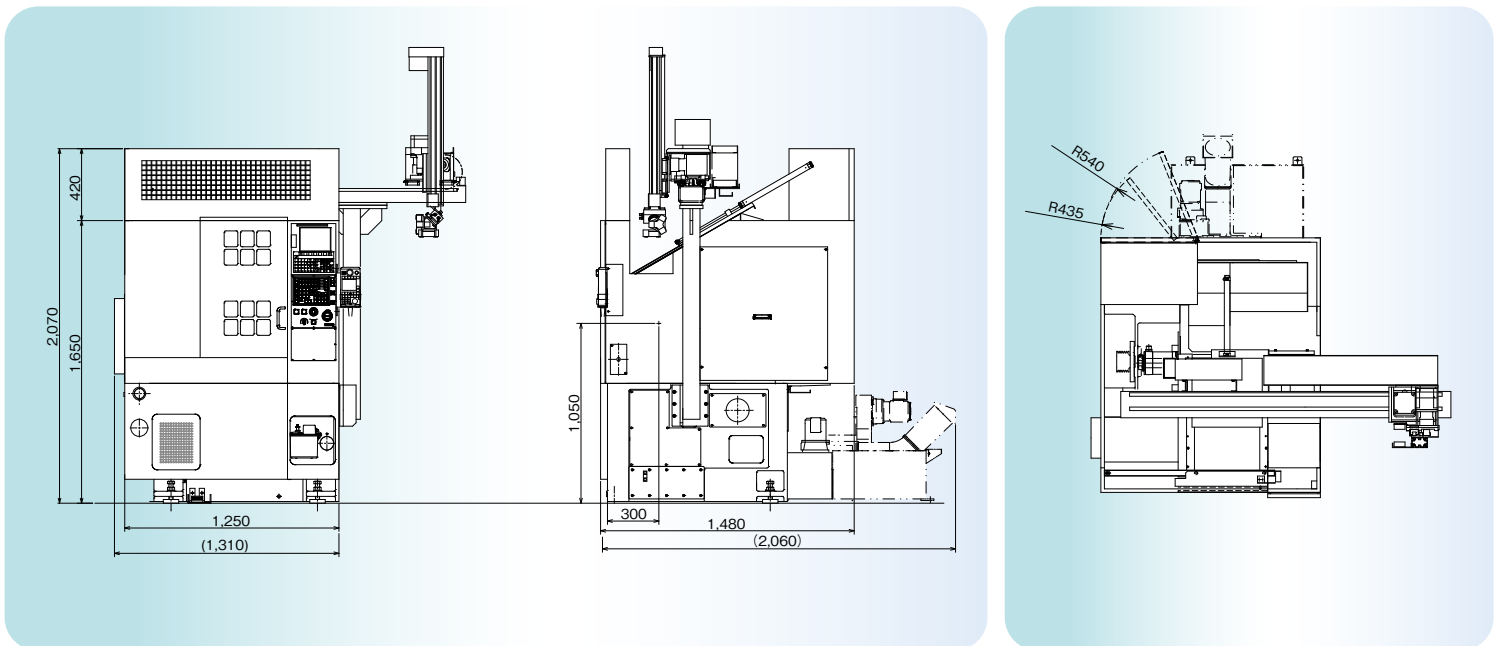
TOOLING SYSTEM & FLOOR SPACE

Tooling system

XC-150



Floor Space Drawing (Equipped with Σ GH150)

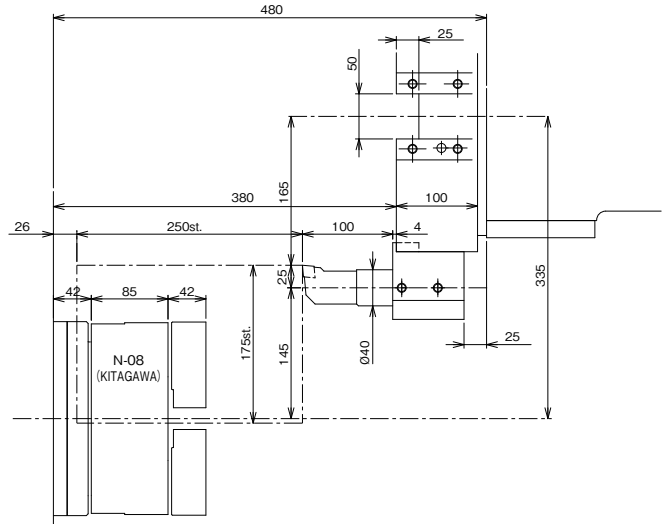
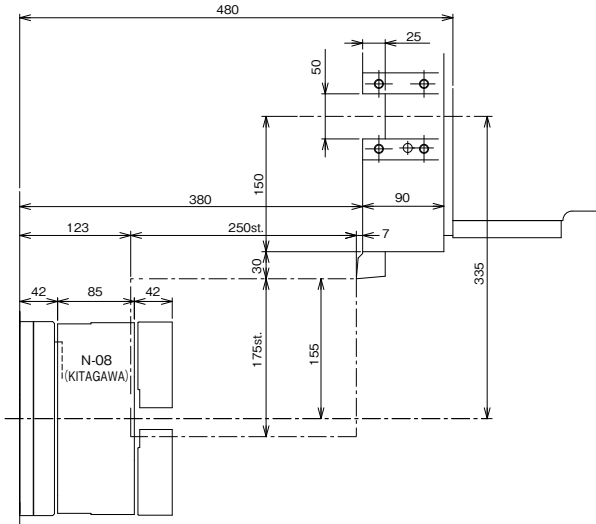


Unit(mm)

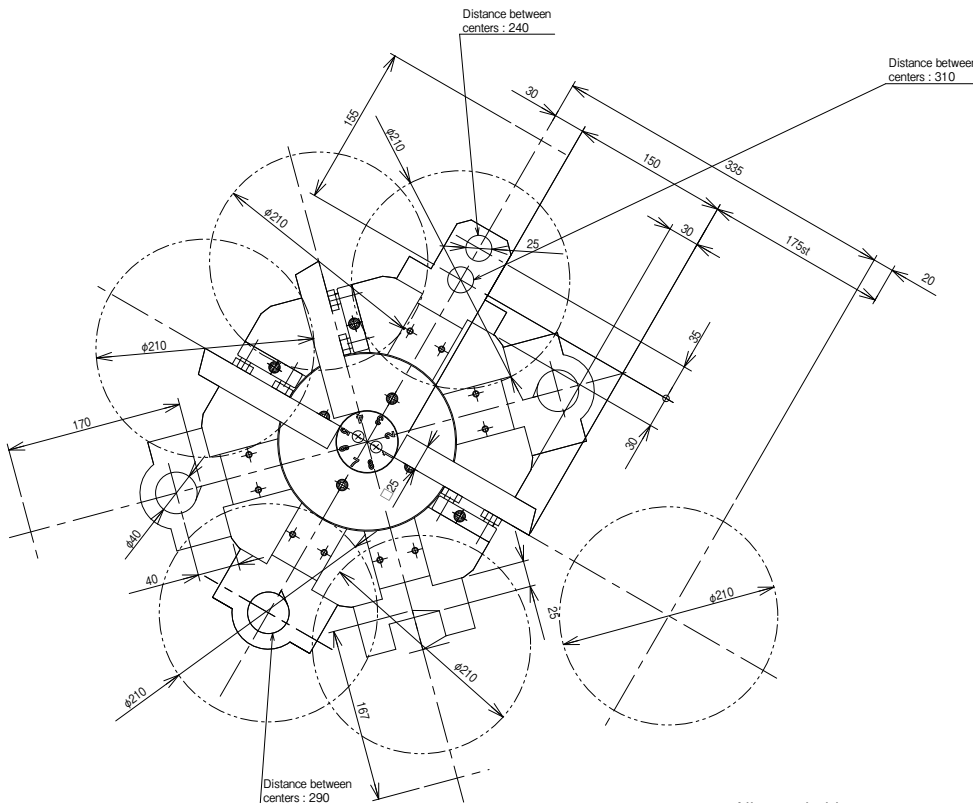
STROKE & TURRET

Stroke-Related Drawing

XC-150



Turret Interference



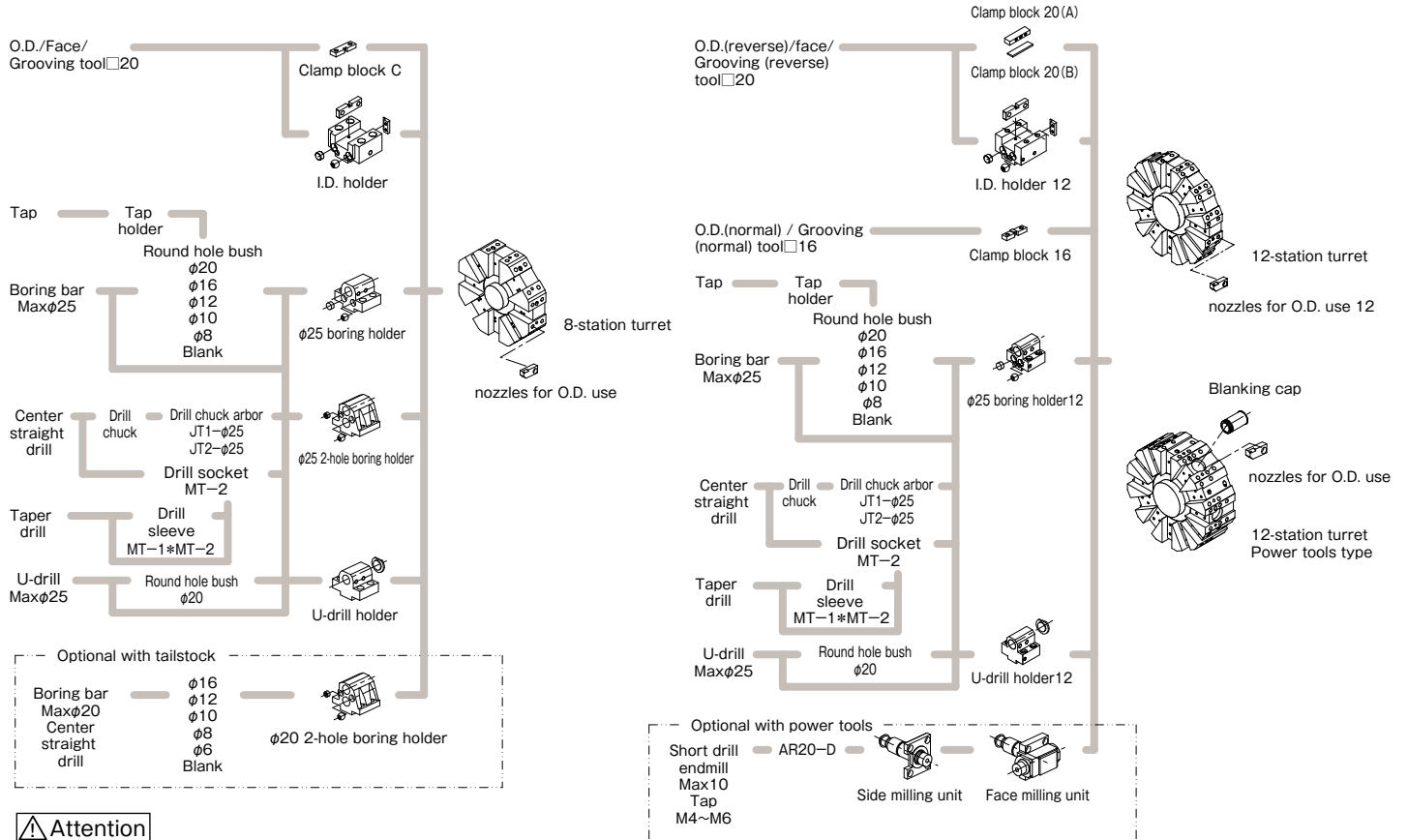
All turret holders are common to those used for [X-150PLUS].

Unit (mm)

TOOLING SYSTEM & FLOOR SPACE

Tooling system

XL-100

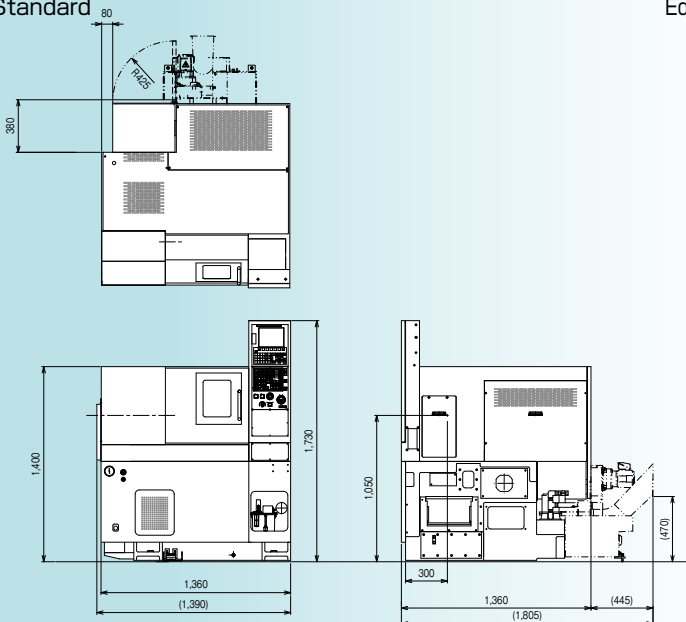


⚠ Attention

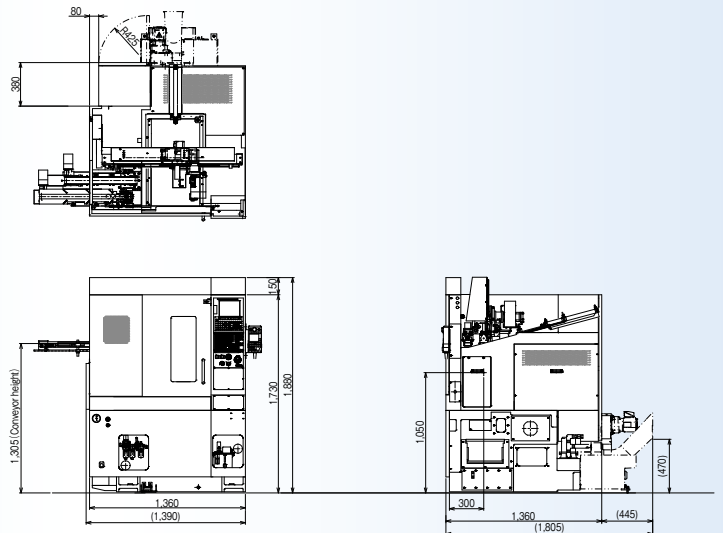
Do not use an I.D. holder for the X-100 (X-10i, X-10) because it may interfere with the cover when the turret rotates.

Floor Space Drawing

Standard



Equipped with ΣIC60

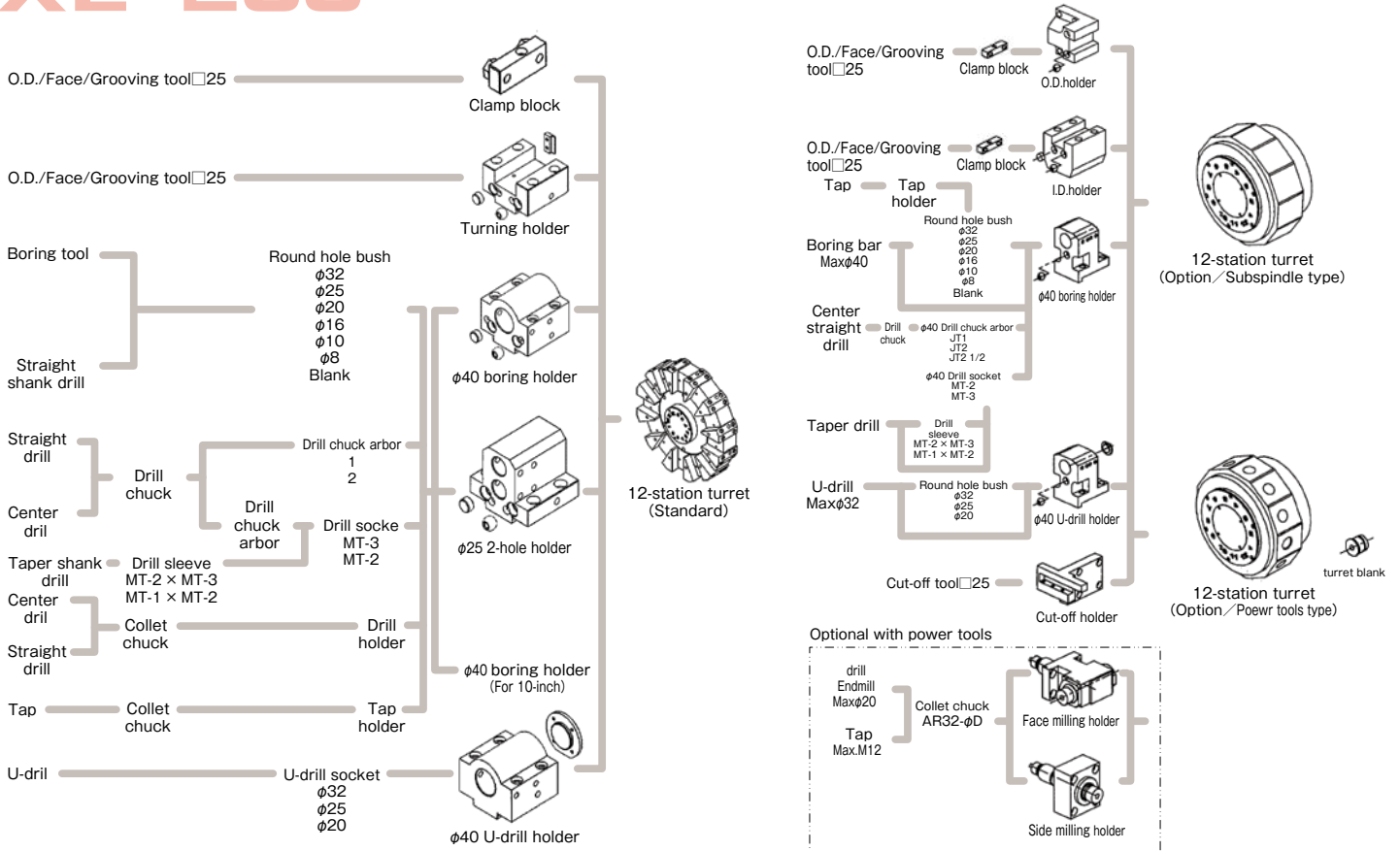


Unit (mm)

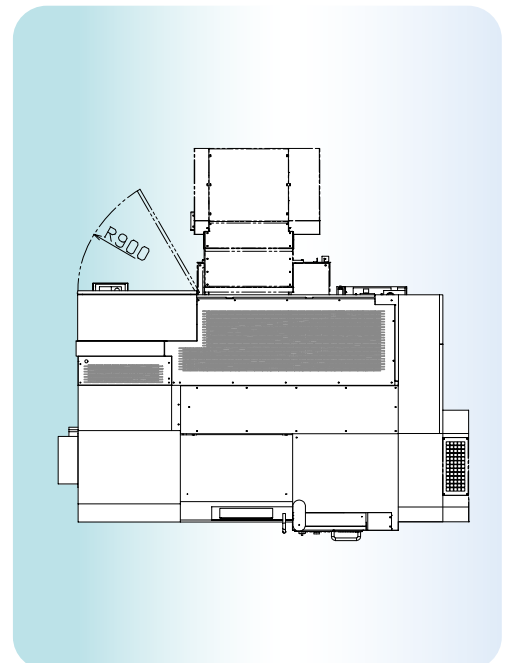
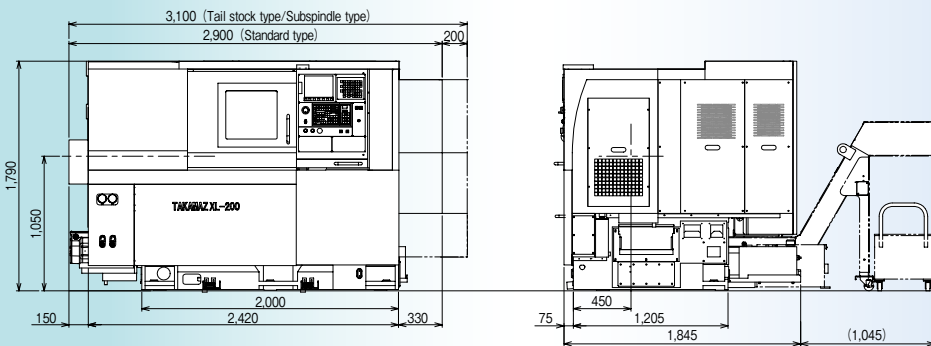
TOOLING SYSTEM & FLOOR SPACE

Tooling system

XL-200



Floor Space Drawing



Unit (mm)

SPECIFICATION

Machine Specifications

Item			XC-100	XC-150
Capacity	Max. turning diameter	mm	φ180	φ290
	Max. turning length	mm	190	204
	Max. bar diameter	mm	Solid (φ26)	Solid (φ42,φ51)
	Chuck size	inch	6	8
Spindle	Spindle nose	JIS	A ₂ -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 : AC0.75 Z : AC1.2	X : AC1.2 Z : AC1.8
	Coolant motor	kW	AC0.25	AC0.25
	Hydraulic motor	kW	AC0.75	AC0.75
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)	8 sets (For reverse cutting tools)
<input type="checkbox"/> Hydraulic power chuck	(Option)	1 set (8")
<input type="checkbox"/> Hydraulic chucking cylinder(Solid)		1 set
<input type="checkbox"/> Hydraulic unit		1 set
<input type="checkbox"/> Thread cutting unit (Including constant surface speed control)	(Option)	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 by chuck manufacturers		○
<input type="checkbox"/> Clamp holder (Vibration-suppressing alloy)		○
<input type="checkbox"/> Chuck clamp detector		○
<input type="checkbox"/> Hollow chucking cylinder		○
<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"/> Thread cutting unit (Including constant surface speed control)	○	Standard
<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		○*

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

Machine Specifications

Item			XL-100			XL-150		
			6-inch type	8-inch type	Power tool type	8-station turret	12-station turret	Power tool type
Capacity	Max. turning diameter	mm	φ180			φ320	φ280	φ240
	Max. turning length	mm	240		180	370		300
	Max. bar diameter	mm	Solid (φ26,φ35)	Solid (φ42)	Solid (φ26,φ35)	Solid (φ42,φ51,φ65)		Solid (φ42,φ51)
	Chuck size	inch	6	8	6	8 (10)	8	
Spindle	Spindle nose	JIS	A2 - 5			A2 - 6 (A2 - 8)		A2 - 6
	Spindle Bearing I.D.	mm	φ75	φ85	φ75	φ100 (φ120)		φ100
	Through-hole on spindle	mm	φ46	φ52	φ46	φ61 (φ80)		φ61
	Spindle speed	min ⁻¹	Max.4,500 (6,000)	Max.3,500	Max.4,500 (6,000)	Max.3,500 (5,000) (4,000)		Max.3,500 (5,000)
	Spindle indexing	deg/min	—		(Cs-axis) 18,000	—		(C-axis) 18,000
Tool post	Type		8-station turret (12-station)	8-station turret	12-station turret	8-station turret	12-station turret	
	Tool shank	mm	8-station turret : □20, 12-station turret : □20 (□16) *			□25		
	Boring holder I.D.	mm	φ25			φ40	φ32	
	Max. stroke	mm	X:120 (tailstock:90) Z:280		X:120 (tailstock:100) Z:250	X : 190 Z : 400		
	Rapid traverse rate	m/min	X:12 Z:18			X : 18 Z : 24		
Power tools	Tool storage capacity		—		6	—		12
	Max. rotating speed	min ⁻¹	—		Max.4,000	—		Max.4,000
	Max. capacity	mm	—		φ10 M4~M6	—		φ20 M4~M16
Motors	Spindle motor	kW	AC7.5/5.5 : φ75 spindle 4,500min ⁻¹ (AC11/7.5 : φ75 spindle 6,000min ⁻¹) (AC7.5/5.5 : φ85 spindle 3,500min ⁻¹)			AC11/7.5 : φ100 spindle 3,500min ⁻¹ (AC15/11 : φ100 spindle 5,000min ⁻¹) (AC15/11 : φ120 spindle 4,000min ⁻¹)		AC11/7.5 : φ100 spindle 3,500min ⁻¹ (AC15/11 : φ100 spindle 5,000min ⁻¹)
	Feed motor	kW	X : AC0.75 Z : AC1.2			X : AC1.2 Z : AC1.8		
	Coolant motor	kW	AC0.25			AC0.25		
	Hydraulic motor	kW	AC0.75			AC0.75 (tailstock : AC1.5)		
	Power tools motor	kW	—		AC2.2 (4,000min ⁻¹)	—		AC5.5/3.7/2.2
Size	Spindle center height	mm	1,050			1,050		
	L×W×H	mm	1,360×1,360×1,730		1,480×1,360×1,730	1,600×1,535×1,700		1,690×1,535×1,700
	Machine weight	kg	2,100		2,300	3,200		3,400
Total electric capacity		KVA	15~22 (depends on the specifications)			20~30 (depends on the specifications)		

*For the 12 station turret, the □20 square shank toolholder is mounted on the opposite direction while the □16 (option) square shank toolholder is mounted positive.

() : Option

Item			XL-200	
			Standard	Power tool type
Capacity	Max. turning diameter	mm	φ340 (φ300)	
	Max. turning length	mm	720 (560)	
	Max. bar diameter	mm	Solid (φ42,φ51,φ65)	
	Chuck size	inch	8 (10)	
Spindle	Spindle nose	JIS	A2 - 6 (A2 - 8)	
	Spindle Bearing I.D.	mm	φ100 (φ120)	
	Through-hole on spindle	mm	φ61 (φ80)	
	Spindle speed	min ⁻¹	Max.3,500 (5,000) (4,000)	
	Spindle indexing	deg/min	—	(C-axis) 18,000
Tool post	Type		12-station turret	
	Tool shank	mm	□25	
	Boring holder I.D.	mm	φ40	
	Max. stroke	mm	X : 225 Z : 800	
	Rapid traverse rate	m/min	X : 18 Z : 24	
Power tools	Tool storage capacity		—	12
	Max. rotating speed	min ⁻¹	—	4,000
	Max. capacity	mm	—	φ20 M4~M16
Motors	Spindle motor	kW	AC11/7.5 : φ100 spindle 3,500min ⁻¹ (AC18.5/15 : φ100 spindle 5,000min ⁻¹) (AC18.5/15 : φ120 spindle 4,000min ⁻¹)	
	Feed motor	kW	X : AC1.8 Z : AC2.7	
	Coolant motor	kW	AC0.25	
	Hydraulic motor	kW	AC1.5	
	Power tools motor	kW	—	AC5.5/3.7/2.2
Size	Spindle center height	mm	1,050	
	L×W×H	mm	2,900 (3,100)*1 × 1,845 × 1,790	
	Machine weight	kg	4,400	4,900
Total electric capacity		KVA	24~51 (depends on the specifications)	

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

() : Option

*1 With Sub Spindle Mounted

SPECIFICATION

Optional Machine Specifications

Item		Unit	XL-100	XL-150	XL-200
Tailstock	Taper size		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	XL-100	XL-150	XL-200
<input type="checkbox"/> Boring holder	2 sets		
<input type="checkbox"/> Clamp block	8 sets		12 sets
<input type="checkbox"/> Collet flange	1 set	(Option)	
<input type="checkbox"/> Coolant block	8 sets (nozzles for O.D. use)		12 sets
<input type="checkbox"/> Hydraulic power chuck	(Option)	1 set	
<input type="checkbox"/> Hydraulic chucking cylinder(Solid)	1 set		
<input type="checkbox"/> Hydraulic unit	1 set		
<input type="checkbox"/> Thread cutting unit (Including constant surface speed control)	(Option)	1 set	
<input type="checkbox"/> Coolant unit	1 set (125 lit.)	1 set (140 lit.)	1 set (240 lit.)
<input type="checkbox"/> Service tool kit	1 set		
<input type="checkbox"/> TAKAMAZ Instruction manual	1 set		

Optional Accessories

Item	XL-100	XL-150	XL-200
<input type="checkbox"/> Tool holders		○	
<input type="checkbox"/> Collet chucks		○	
<input type="checkbox"/> Hydraulic chucks by chuck manufacturers		○	
<input type="checkbox"/> Clamp holder (Vibration-suppressing alloy)		○	
<input type="checkbox"/> Chuck clamp detector		○	
<input type="checkbox"/> Hollow chucking cylinder		○	
<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	Cs-axis		○
<input type="checkbox"/> Thread cutting unit (Including constant surface speed control)	○		Standard
<input type="checkbox"/> Sub spindle		—	○
<input type="checkbox"/> Tailstock		○	
<input type="checkbox"/> Power tools drive unit		○	
<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 Different Power Tools are special accessories only for Power Tools specification.

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

Controller Specifications

Item	XC-100		XC-150		XL-100		XL-150		XL-200		
	Standard		Power tool type		Standard		Power tool type		Standard		
TAKAMAZ&FANUC Oi-TD											
Controlled axes	2 axes (X,Z)				3 axes (X,Z,C)		2 axes (X,Z)		3 axes (X,Z,C)		
Simultaneously controllable axes	Simultaneous 2 axes				Simultaneous 3 axes		Simultaneous 2 axes		Simultaneous 3 axes		
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										
Backlash compensation	0~9999μm										
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	(Option)	G96,G97		(Option)			G96,G97				
Continuous thread cutting	(Option)	G32		(Option)			G32				
Variable lead thread cutting	(Option)	G34		(Option)			G34				
Thread cutting retract	(Option)	Standard		(Option)			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										
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					
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										
Rigid tapping	-				For Power Tools only		-		For Power Tools only		
Polar coordinate interpolation	-				Standard		-		Standard		
Cylindrical interpolation	-				Standard		-		Standard		
FANUC set of manuals	CD-ROM (Bound:Option)										
TAKAMAZ option functions	Work/Tool counter,Tool load monitor,Others										
TAKAMAZ maintenance functions	Standard										
Tool life management	(Option)										
Multiple M codes in one block	(Max. 3:Option)										
Spindle orientation	(Option)										
Dynamic graphic display	(Option)										
Manual guide Oi	(Option)										
Helical interpolation	-						(Option)		-		
RS232C	Standard						(Option)				

*1 Sub spindle specification

*2 Power tool / Sub spindle specification

*3 USB Memory is not standard for CE Specifications.



XC·XL series

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