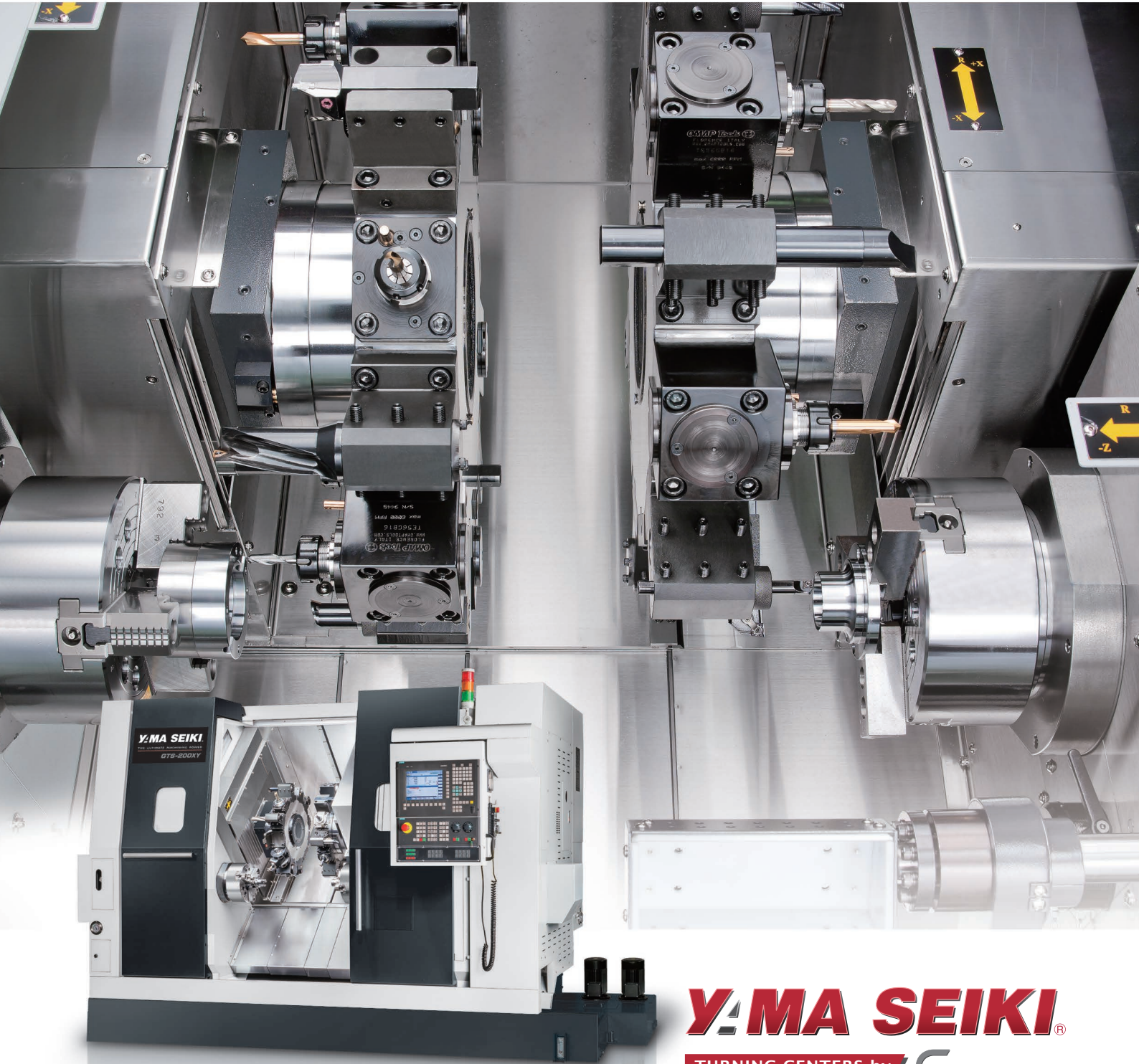


GTS SERIES

Twin Spindles & Turrets CNC Turning Centers

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YAMA SEIKI[®]
TURNING CENTERS by **GOODWAY**[®]

TWIN SPINDLES & TURRETS CNC TURNING CENTER

Designed for simultaneous turning of work pieces within one machines setup. The GTS series incorporates twin-opposing spindles and turrets with C-axis and live tooling capabilities. This configuration allows both turrets to work simultaneously with one turret at each spindle achieving ultimate efficiency.

AVAILABLE

- ▶ Twin spindles, twin standard turrets.
- ▶ Twin spindles, one live tooling turret & one standard turret.
- ▶ Twin spindles, twin live tooling turrets.
- ▶ Twin Y-axis.
- ▶ C-axis or 1 deg. indexing spindles.



(GTS-150XY series model shown)

SPECIFICATION

The twin 12 stations turrets provides high speed indexing of 0.2 second from station to station. 1 step indexing further provides faster cycling times. Live tooling turret options enable the use of 6 or 12 live tool positions on each turret.

MACHINING CAPABILITIES

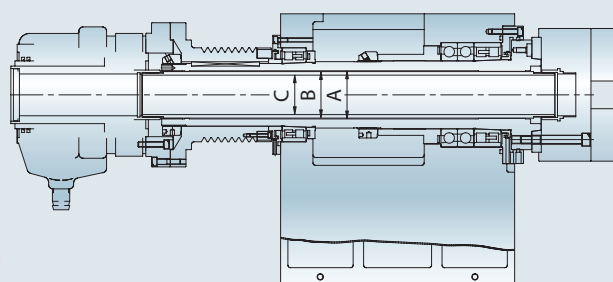
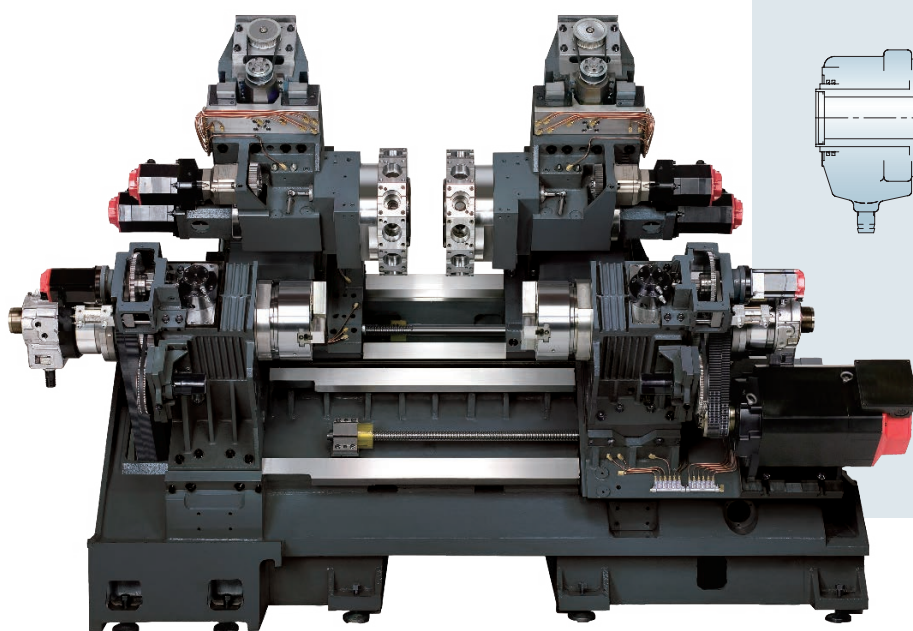
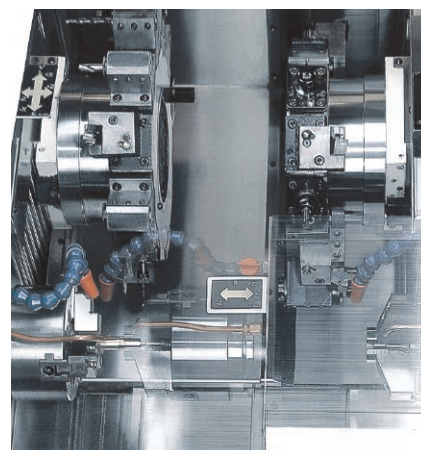
Simultaneous turning on both spindles. The second spindle may be used to support longer work pieces during turning with the spindle synchronize RPM feature. The feature is also used when parting bar work. When the machine is incorporated with full C-axis and live tooling, the GTS machines are able to perform the following : OD & face milling, OD & off-center face drilling.

SPINDLES

FANUC αPi series wide range spindle motors power both spindles and can be programmed for synchronized turning. The wide range constant output spindle motors provide full power cutting throughout most of the spindle speed range. Pi type motors also have faster acceleration and deceleration to cut down cycle times and torque rating are twice the output of standard αi series motors.

Y-AXIS

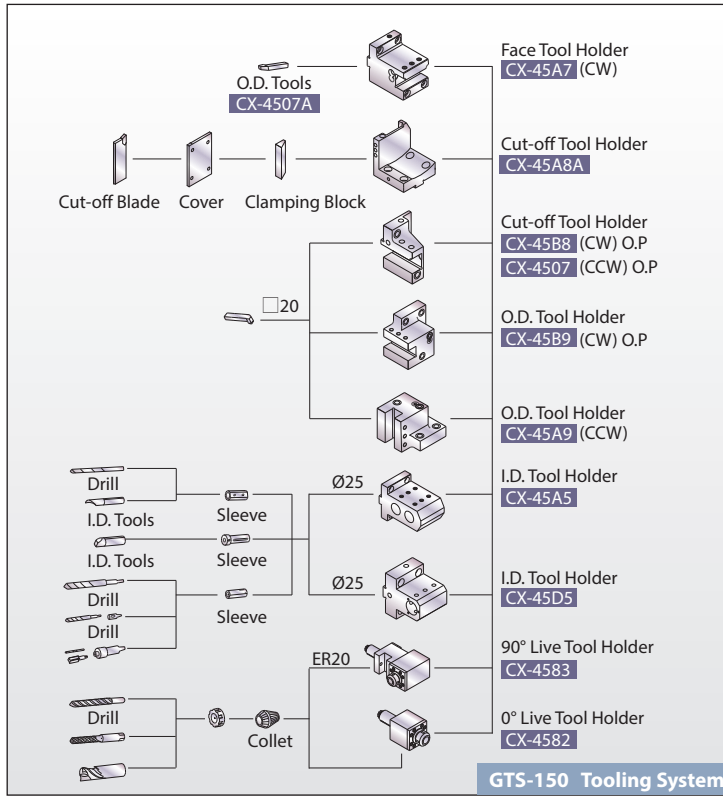
The optional Y-axis models perform virtually the same way as machining centers equipped with 4th-axis rotary tables. (X,Y, Z axes are the same as X, Y, Z axes of machining centers, and the C-axis acts as the 4th-axis.) This configuration integrates the benefits of turning center and machining center, so it helps reduce manpower, machining cycle time, floor space and the costs as well as eliminating the loss by accuracy by switching work-piece to other machine.



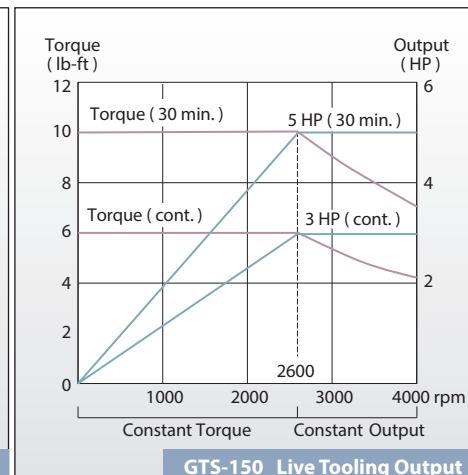
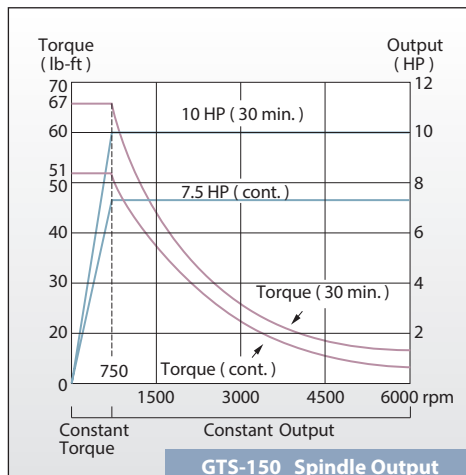
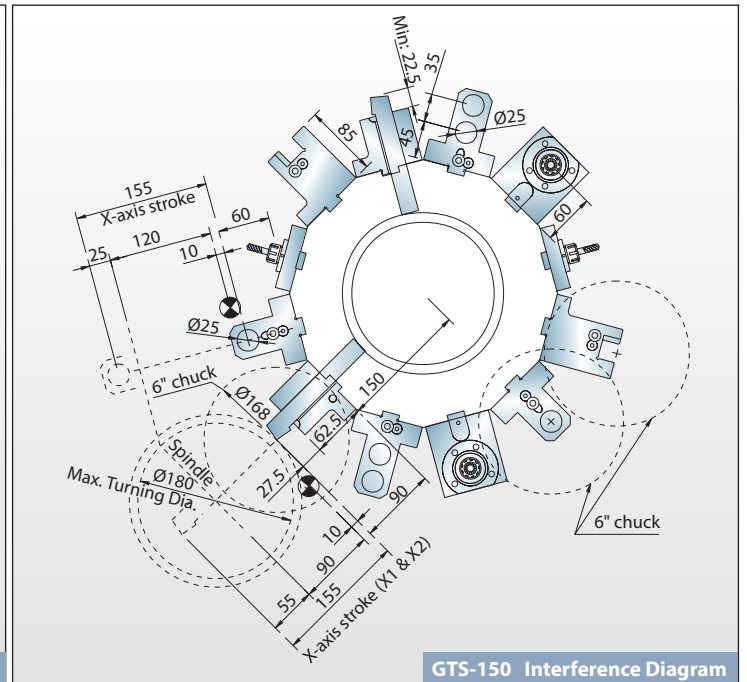
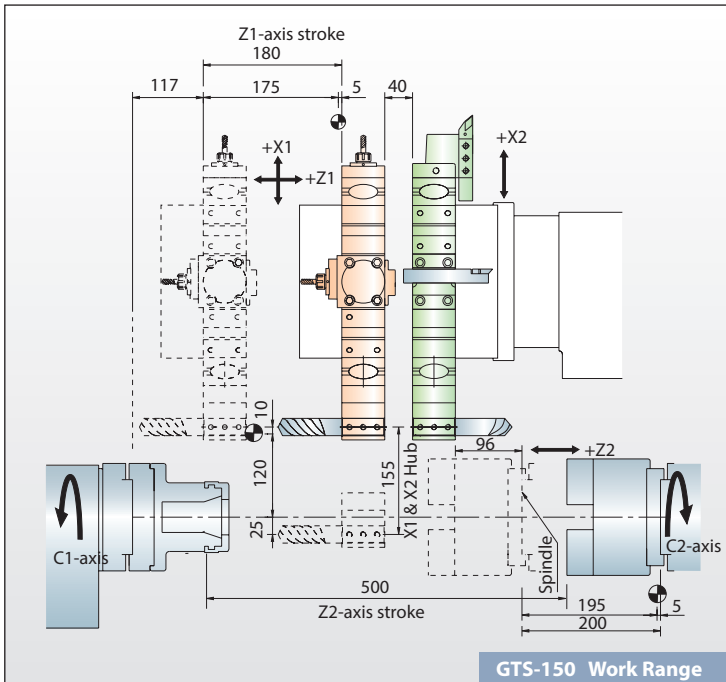
		A	B	C
GTS-150	Spindle 1/2	51	50	43
GTS-200	Spindle 1/2	66	65	52
GTS-260	Spindle 1/2	76	75	66

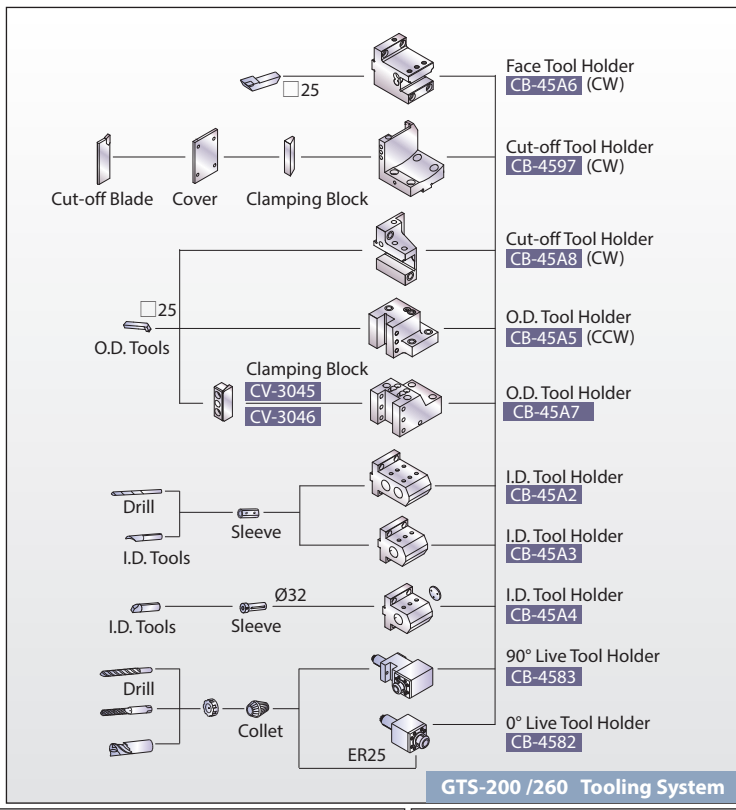
A : Spindle
B : Draw tube OD
C : Draw tube ID

(Casting structure of GTS-260XY series model shown)



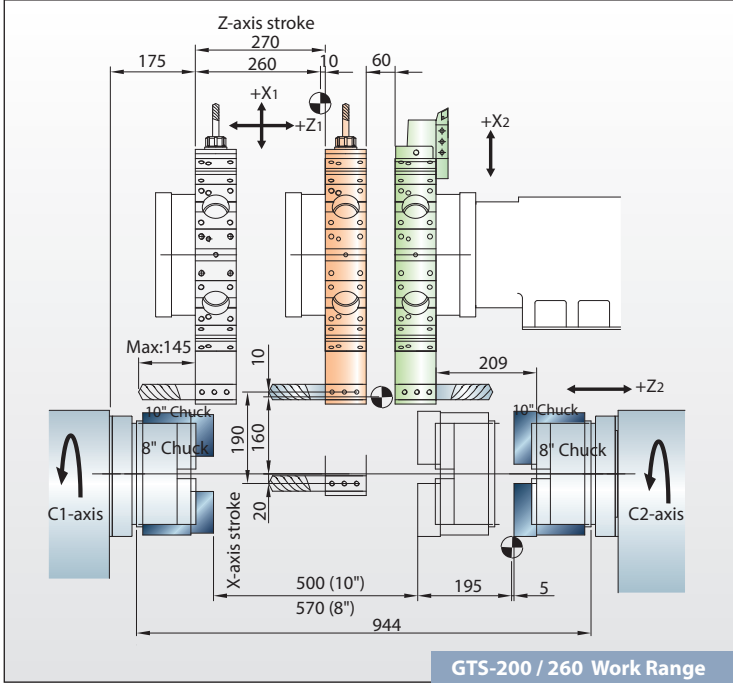
Unit : mm



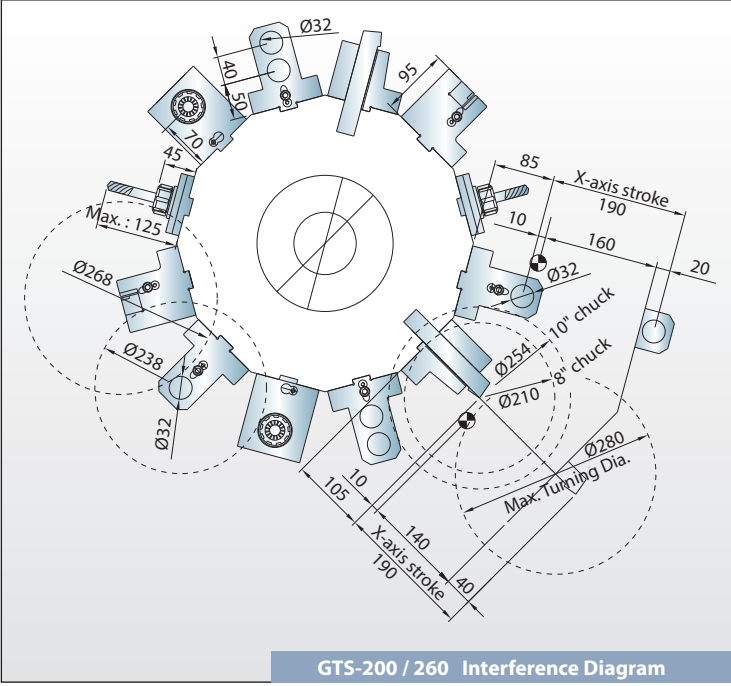


GTS-200 / 260 Tooling System

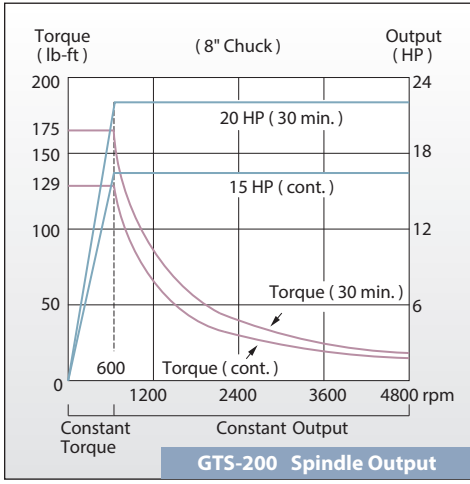
Unit : mm



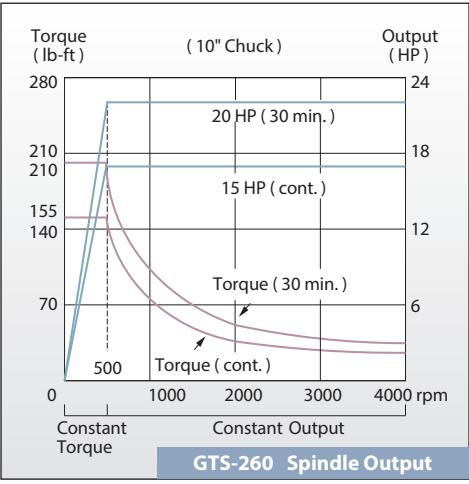
GTS-200 / 260 Work Range



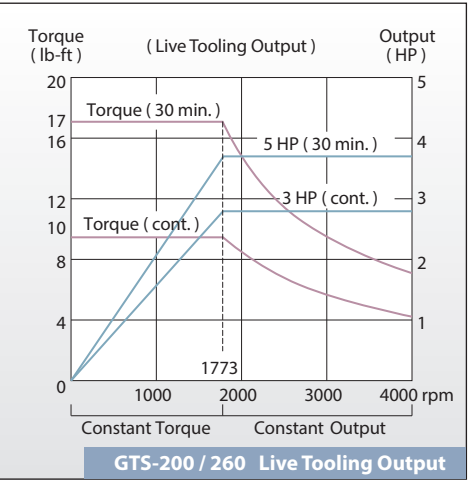
GTS-200 / 260 Interference Diagram



GTS-200 Spindle Output

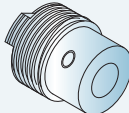
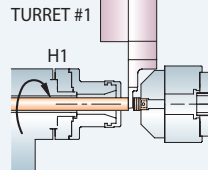
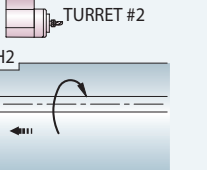
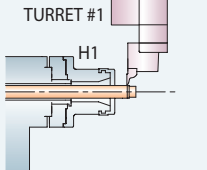
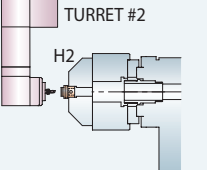
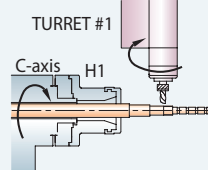
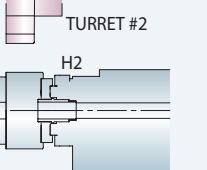
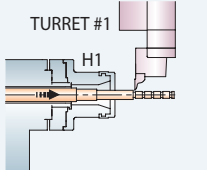
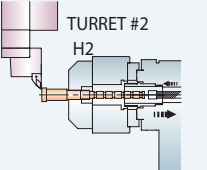
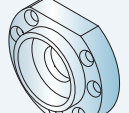
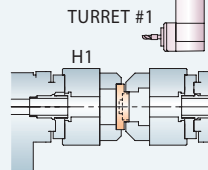
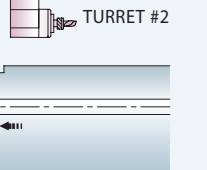
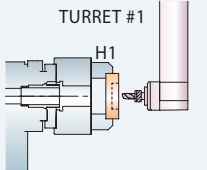
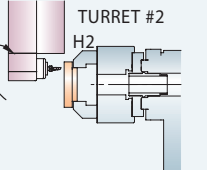


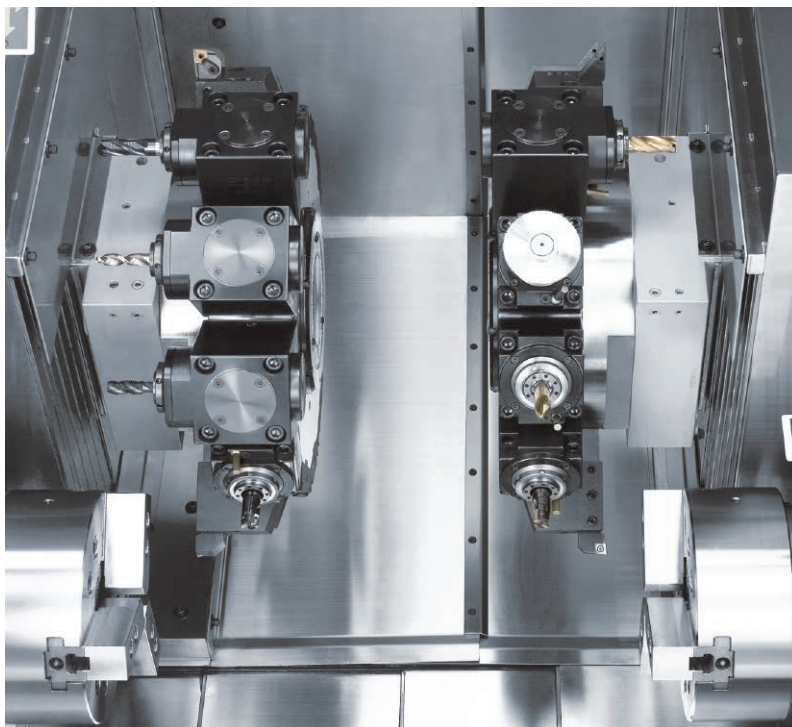
GTS-260 Spindle Output



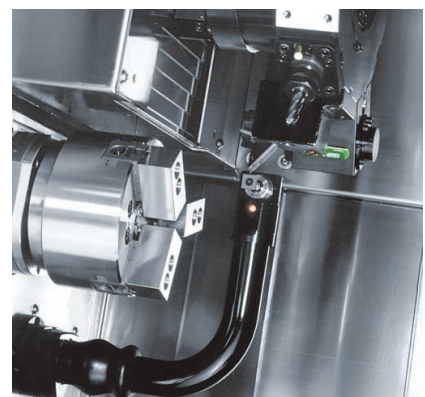
GTS-200 / 260 Live Tooling Output

Accessories & Applications

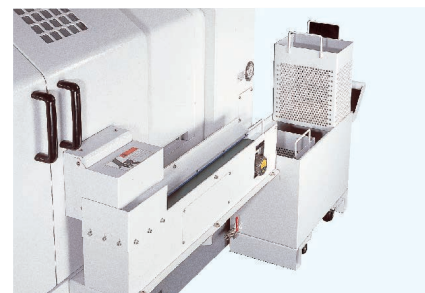
<p>1. Small Parts</p> 	 <p>TURRET #1 H1</p>	 <p>TURRET #2 H2</p>	 <p>TURRET #1 H1</p>	 <p>TURRET #2 H2</p>
	<p>H1 Cut Off</p> <ul style="list-style-type: none"> • Synchronization cut off. 	<p>H2 Workpiece Support</p> <ul style="list-style-type: none"> • Spindle stop. • H2 advance with chuck open. • Chuck close. • Synchronization cut off. • H2 retract after cut off. 	<p>H1 Load Bar</p> <ul style="list-style-type: none"> • Spindle stop. • Collect chuck open. • Load Bar. • Collect chuck close. • Spindle run. • O. D. and Thread machining. 	<p>H2 Turn / Mill Operation</p> <ul style="list-style-type: none"> • Turning / drilling. • Milling. • Eject to parts catcher.
	 <p>TURRET #1 C-axis H1</p>	 <p>TURRET #2 H2</p>	 <p>TURRET #1 H1</p>	 <p>TURRET #2 H2</p>
	<p>H1 Drilling</p> <ul style="list-style-type: none"> • C-axis brake. • Drilling. • Cut off workpiece. 	<p>H2 Workpiece Support</p> <ul style="list-style-type: none"> • Chuck hold workpiece. 	<p>H1 Load Bar</p> <ul style="list-style-type: none"> • Collect chuck open. • Load Bar. • Collect chuck close. • O. D. and Thread machining. 	<p>H2 Turn / Mill Operation</p> <ul style="list-style-type: none"> • End face and O. D. machining. • Finished.
<p>3. Casting / Forge Parts</p> 	 <p>TURRET #1 H1</p>	 <p>TURRET #2 H2</p>	 <p>TURRET #1 H1</p>	 <p>TURRET #2 H2</p>
	<p>H1 Workpiece Support</p> <ul style="list-style-type: none"> • Workpiece finished in H1. • Spindle stop / chuck open. • Load new workpiece / chuck close. 	<p>H2 Workpiece Support</p> <ul style="list-style-type: none"> • Spindle stop. • H2 advance with chuck open. • H2 retract after cut off. 	<p>H1 Turn operation</p> <ul style="list-style-type: none"> • Synchronization. • O. D. machining. • Bore machining. 	<p>H2 Turn / Drill Operation</p> <ul style="list-style-type: none"> • END face and O. D. machining. • Drilling • Finished.



► GTS-200 series Live Tooling Turrets



► RENISHAW HPR toolsetter



► Parts conveyor

Specifications

CAPACITY	GTS-150	GTS-200 / 260
Max. swing diameter	Ø 180 mm (Ø 7.08")	Ø 280 mm (Ø 11.02")
Swing over saddle	Ø 180 mm (Ø 7.08")	Ø 280 mm (Ø 11.02")
Max. turning diameter	Ø 180 mm (Ø 7.08")	Ø 280 mm (Ø 11.02")
Max. turning length	180 mm (7.08")	200 mm (7.87")
1ST & 2ND SPINDLE		
Chuck size	6"	8" / 10"
Bar capacity	Ø 42 mm (Ø 1.65")	Ø 51 / 65 mm (Ø 2.00" / 2.55")
Hole through spindle	Ø 51 mm (Ø 2.00")	Ø 66 / 76 mm (Ø 2.59" / 2.99")
Spindle nose	A2-5	A2-6 / A2-8
Spindle speed range	6,000 rpm	4,000 / 4,800 rpm
Motor output (cont. / 30 min.)	5.5 / 7.5 kW (7.5 / 10 HP)	11 / 15 kW (15 / 20 HP)
X & Z AXES		
X ₁ / X ₂ axes travel	155 mm (6.10")	190 mm (7.48")
Z ₁ / Z ₂ axes travel	180 / 500 mm (7.08" / 19.68")	270 / 740 mm (10.62" / 29.13")
X ₁ / X ₂ axes rapids	15 m/min. (590 IPM)	20 m/min. (788 IPM)
Z ₁ / Z ₂ axes rapids	36 m/min. (1,418 IPM)	24 m/min. (945 IPM)
Slide way type (All axes)	Linear guide way	Box way
X ₁ / X ₂ / Z ₁ / Z ₂ servo motors	1.6 kW (2 HP)	3 kW (4 HP)
X ₁ / X ₂ axes ball screw Ø / Pitch	Ø 32 mm (Ø 1.25") / Pitch 6	Ø 32 mm (Ø 1.25") / Pitch 10
Z ₁ / Z ₂ axes ball screw Ø / Pitch	Ø 32 mm (Ø 1.25") / Pitch 6	Ø 36 mm (Ø 1.41") / Pitch 10
1ST & 2ND TURRET		
Stations	12	12
OD / ID tool shank size	<input type="checkbox"/> 20 mm / Ø 25 mm (<input type="checkbox"/> 3/4" / Ø 1")	<input type="checkbox"/> 25 mm / Ø 32 mm (<input type="checkbox"/> 1" / Ø 1-1/4")
LIVE TOOLING TURRET (OPTIONAL)		
Max. turning diameter	Ø 180 mm (Ø 7.08")	Ø 280 mm (Ø 11.02")
Max. turning length	180 mm (7.08")	200 mm (7.87")
Live tooling stations	12	12
Live tooling shank size	ER25 [Ø 16 mm (Ø 3/5")]	ER32 [Ø 20 mm (Ø 3/4")]
Live tooling RPM range	4,000 rpm	4,000 rpm
TWIN Y-AXIS (OPTIONAL)		
Swing over saddle	Ø 180 mm (Ø 7.08")	Ø 280 mm (Ø 11.02")
Max. turning length	180 mm (7.08")	200 mm (7.87")
X ₁ / X ₂ axes travel	160 mm (6.29")	220 mm (8.66")
Z ₁ / Z ₂ axes travel	210 / 600 mm (8.26" / 23.62")	270 / 740 mm (10.62" / 29.13")
Y ₁ / Y ₂ axes travel	± 30 mm (± 1.18")	± 60 mm (± 2.36")
Y ₁ / Y ₂ axes rapids	10 m/min. (394 IPM)	6 m/min. (236 IPM)
Slide way type	Box way (X / Y axes)	Box way
Y ₁ / Y ₂ axes servo motor	1.6 kW (2 HP) AC Absolute	1.6 kW (2 HP) AC Absolute
Y ₁ / Y ₂ axes ball screw Ø / Pitch	Ø 32 mm (Ø 1.25") / Pitch 6	Ø 32 mm (Ø 1.25") / Pitch 6
GENERAL		
Standard CNC control	FANUC Oi -TF *1	FANUC Oi -TF *1
Hydraulic tank capacity	50 L (13 gal)	30 L (8 gal)
Coolant tank capacity	140 L (37 gal)	150 L (40 gal)
Machine weight	5,000 Kg (11,050 lb)	7,800 Kg (17,200 lb)
Dimensions L x W x H	2,450 x 1,700 x 1,850 mm (97" x 67" x 73")	3,035 x 1,940 x 1,985 mm (120" x 77" x 79")

Specifications are subject to change without notice.

*1 Y-axis model need to use FANUC 31i controller.



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