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GTH-2600 SERIES

PARALLEL TWIN-SPINDLE CNC TURNING CENTER

THE ULTIMATE MACHINING POWER

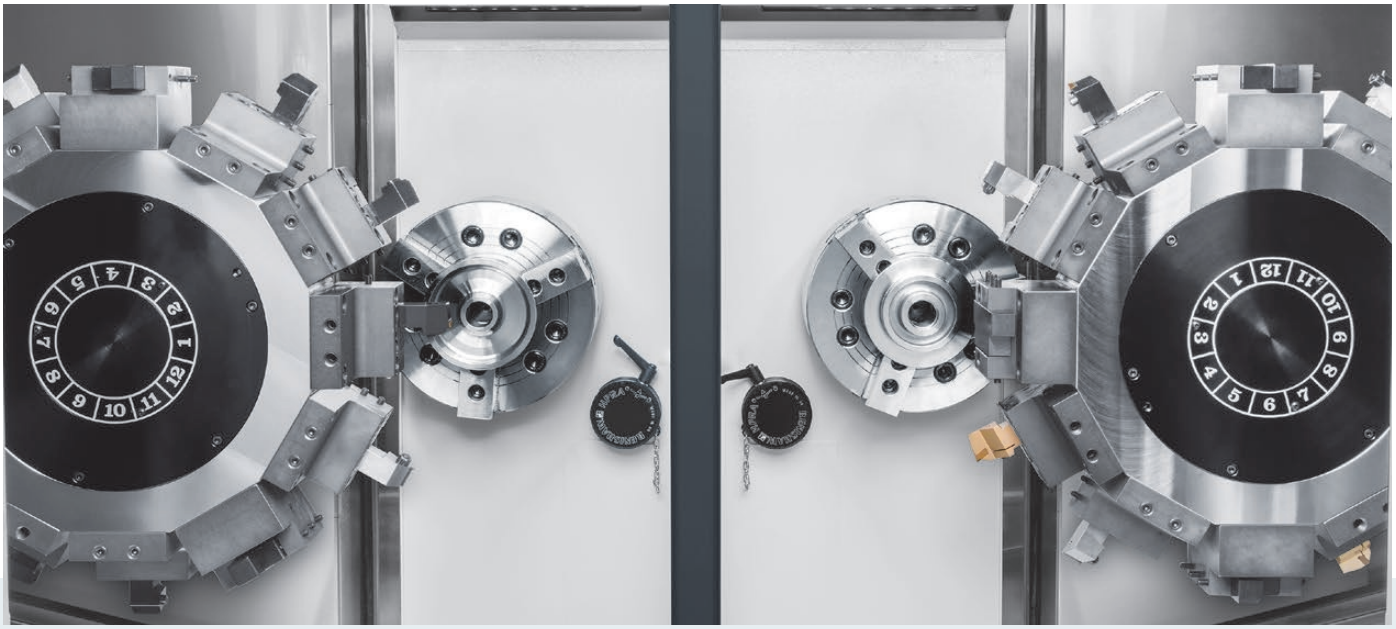
GOODWAY®

PARALLEL TWIN-SPINDLE CNC TURNING CENTER

With leading technology and high quality components, the GTH series is particularly developed for automobile industry. By applying advanced parallel twin spindles, twin turrets structure and high efficiency automation system, the GTH provides automatic loading, front/rear cutting, unloading and work-piece detecting, which make its ultimate machining capabilities a coordinated process. Furthermore, the GTH series fulfills all types of plate-shape and short-shaft work-piece of automatic mass production needs.

- Major structure adopts modular design which based on machining requirements, machine can be promoted to be an optimal production line, which highly reduces cost of manpower and increases production efficiency. (see page 4)
- Parallel twin-spindle structure can reduce turret interference, which can fulfill precise machining accuracy of large plate-shape work pieces.
- Z-axis traverse is designed as a combination of saddle and bed which its rigidity performs much better than quill type.
- Live tooling turret and C-axis is available for option, which can achieve turning, milling and tapping on front and rear parts of work-piece in one machine as well as contour machining rear-end and cylinder surface.

(GTH-2600 model shown with optional accessories)



1 Back-Exit Chip Conveyor

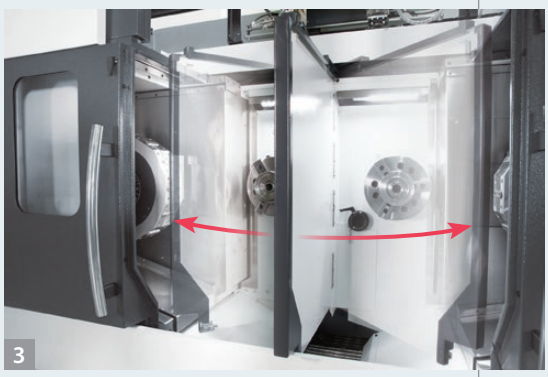
Back-exit chip conveyor is good for production arrangement of centralizing chips.

2 Front-Pull Type Coolant Tank

Large quantity of separated coolant tank adopts front-pull design, and features front installation of collecting chips, which can reduce space of operation and maintain conveniently.

3 Movable Protection Door for Chips Spilling

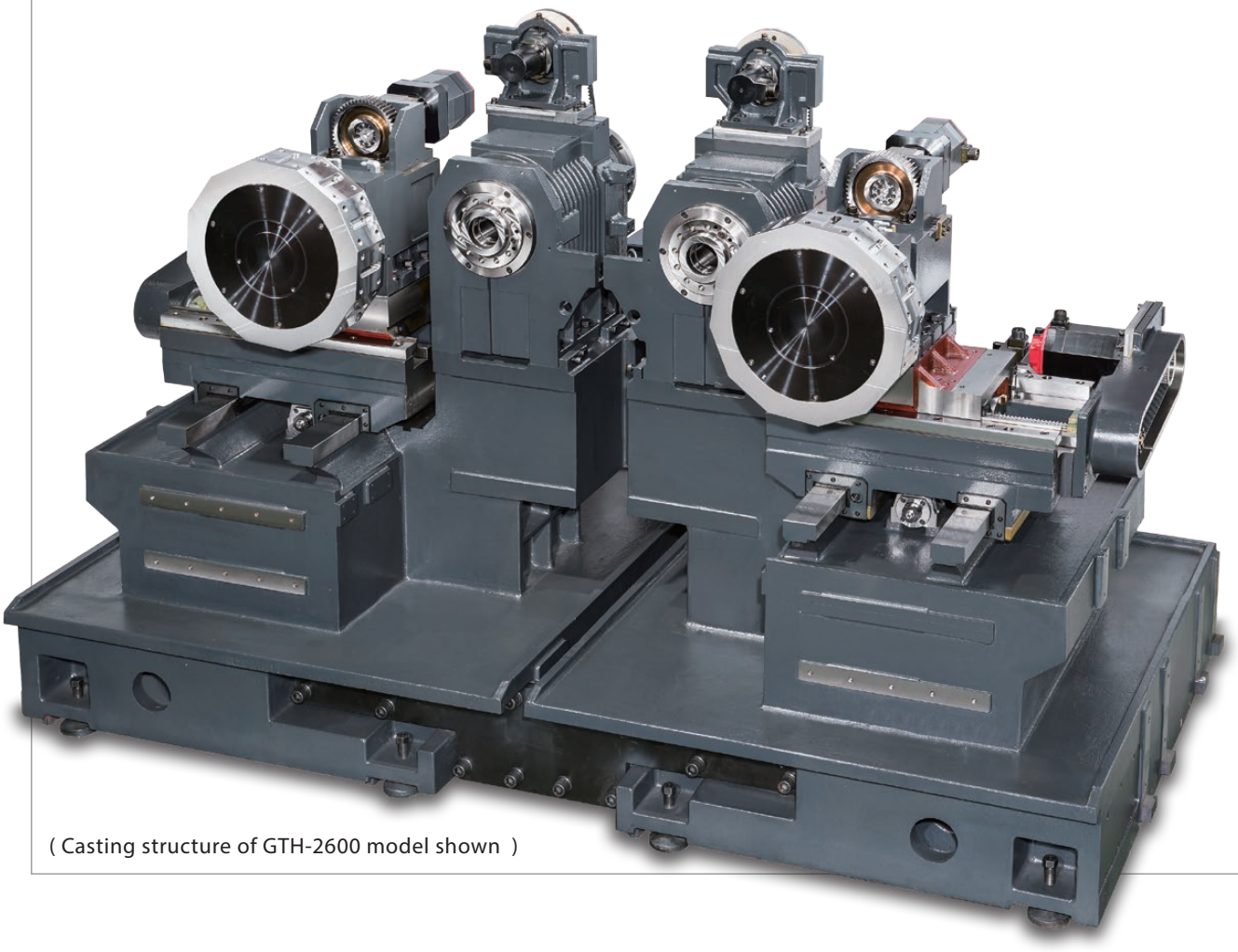
- Prevent any hazard of chips spilling from the machining operation zone to the loading operation zone.
- Movable protection door can increase the space of operation and much more convenience to setup work pieces or tools.



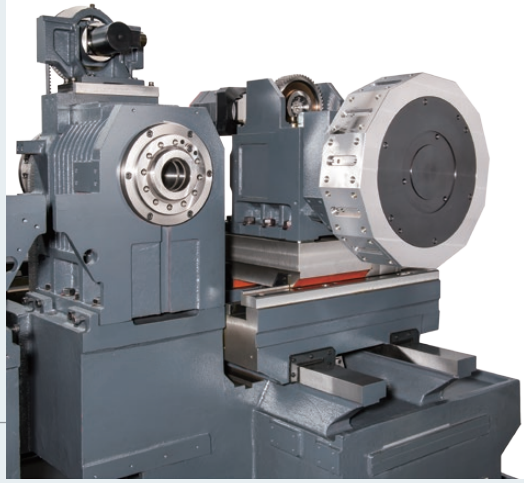
HEAVY-DUTY CONSTRUCTION

By using Finite Element Analysis (FEA) and high tension Meehanite casting structure, high rigidity frame of spindles, turrets and saddle are reaching the optimal reinforcement. Mechanical strength is well enough to load extremely heavy cutting while maintaining long period of super high accuracy. Moreover, high rigidity of machine can extend life time of tools.

- Parallel twin-spindle structure adopts modular isolating bed design which can efficiently decrease cutting resonance of two spindle systems and increase reliability of machining, roundness and roughness of appearance.
- Major structural components of machine are united into one solid platform. The low center of gravity design provides firmly stable headstock and turret.
- X / Z axes adopt high rigidity box ways design which is through heat treatment and precise finishing processes. And long span design of traverse can maximize strength and precision. Box way design also provides the rigidity needed for heavy-duty and interrupted turning applications.
- Contact surfaces of all slides, headstock, turret, and ball screw bearing housings with the machine bed are precision hand scraped to provide maximum assembly precision, structural rigidity, and load distribution.



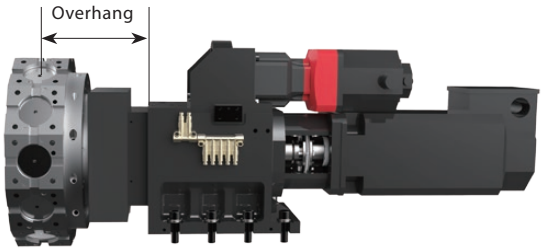
(Casting structure of GTH-2600 model shown)



Z-axis high rigidity structure

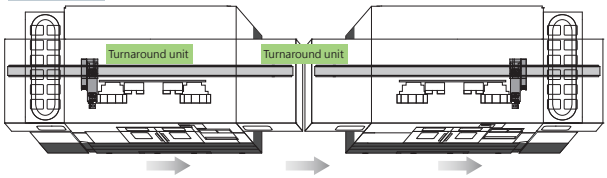
■ **Saddle features bed structure**

Full travel of saddle and turret are firmly supported by bed, and distance of overhang of turret is shorter which increase cutting rigidity.



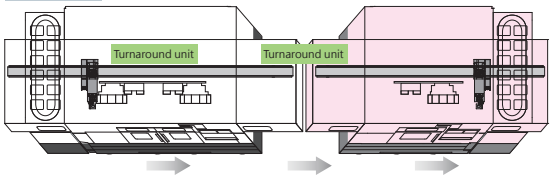
Varies applications

TYPE 1 Line tact time **40** sec. / work-piece



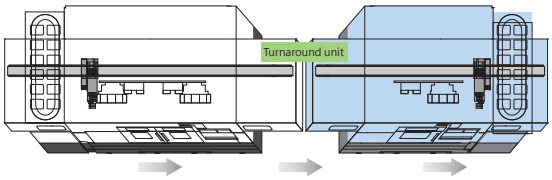
Turnaround turning — Turning(Both spindle same operation)

TYPE 2 Line tact time **40** sec. / work-piece



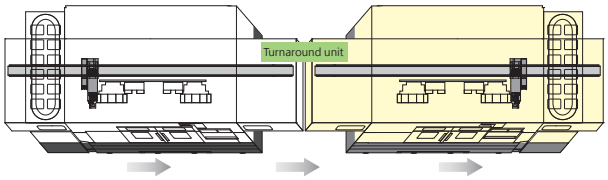
Turnaround turning — Turning

TYPE 3 Line tact time **40** sec. / work-piece



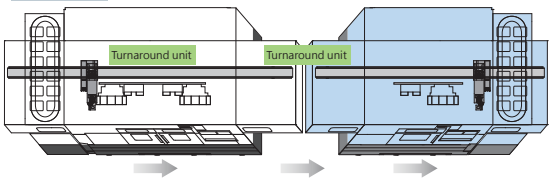
Turning (Both spindle same operation) — Turning & Machining

TYPE 4 Line tact time **40** sec. / work-piece



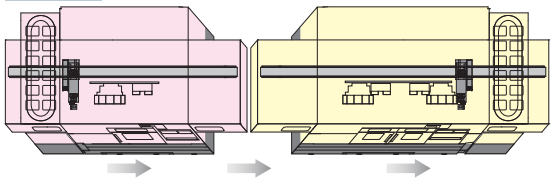
Turning (Both spindle same operation) — Turning & Machining (Both spindle same operation)

TYPE 5 Line tact time **40** sec. / work-piece



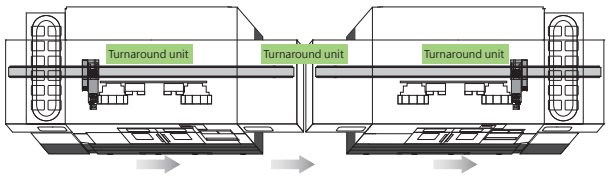
Turnaround turning — Machining

TYPE 6 Line tact time **40** sec. / work-piece



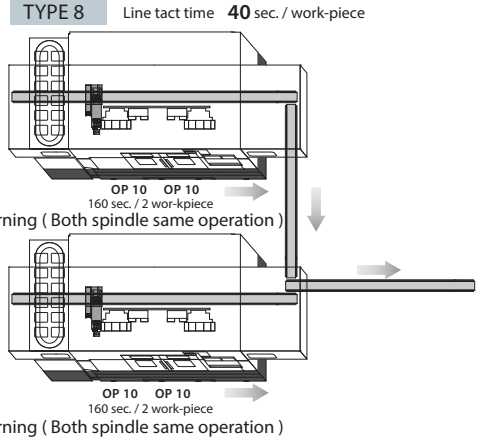
Turning — Turning & Machining (Both spindle same operation)

TYPE 7 Line tact time **40** sec. / work-piece



Turnaround turning — Turnaround turning

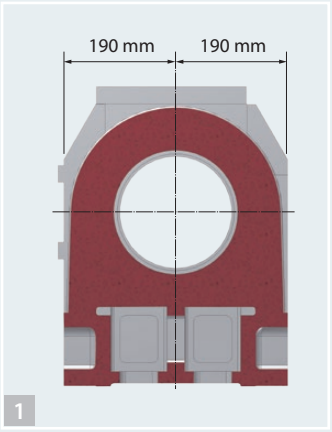
TYPE 8 Line tact time **40** sec. / work-piece

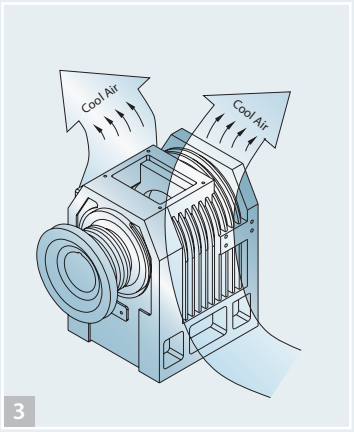


Turning (Both spindle same operation)

Turning (Both spindle same operation)

ULTIMATE MACHINING POWER

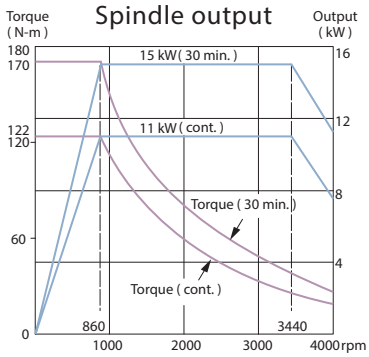




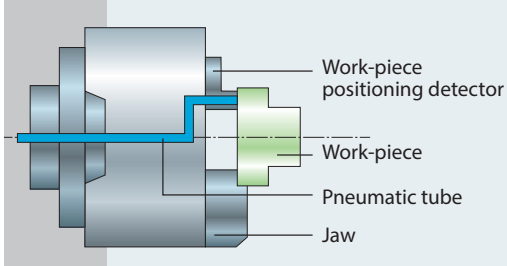
1 Head stocks feature even thickness sides, which evenly distribute cutting forces to the machine bed, resulting in exceptional vibration dampening characteristics and forms a stronger structure to handle interrupted and heavy cutting applications.

2 P4 grade (Class 7) super-high precision bearings are directly assembled for maximum level of support and precision. Bearing configuration is designed for super heavy-duty cutting with ultra-smooth performance and long term durability with a higher level of accuracy.

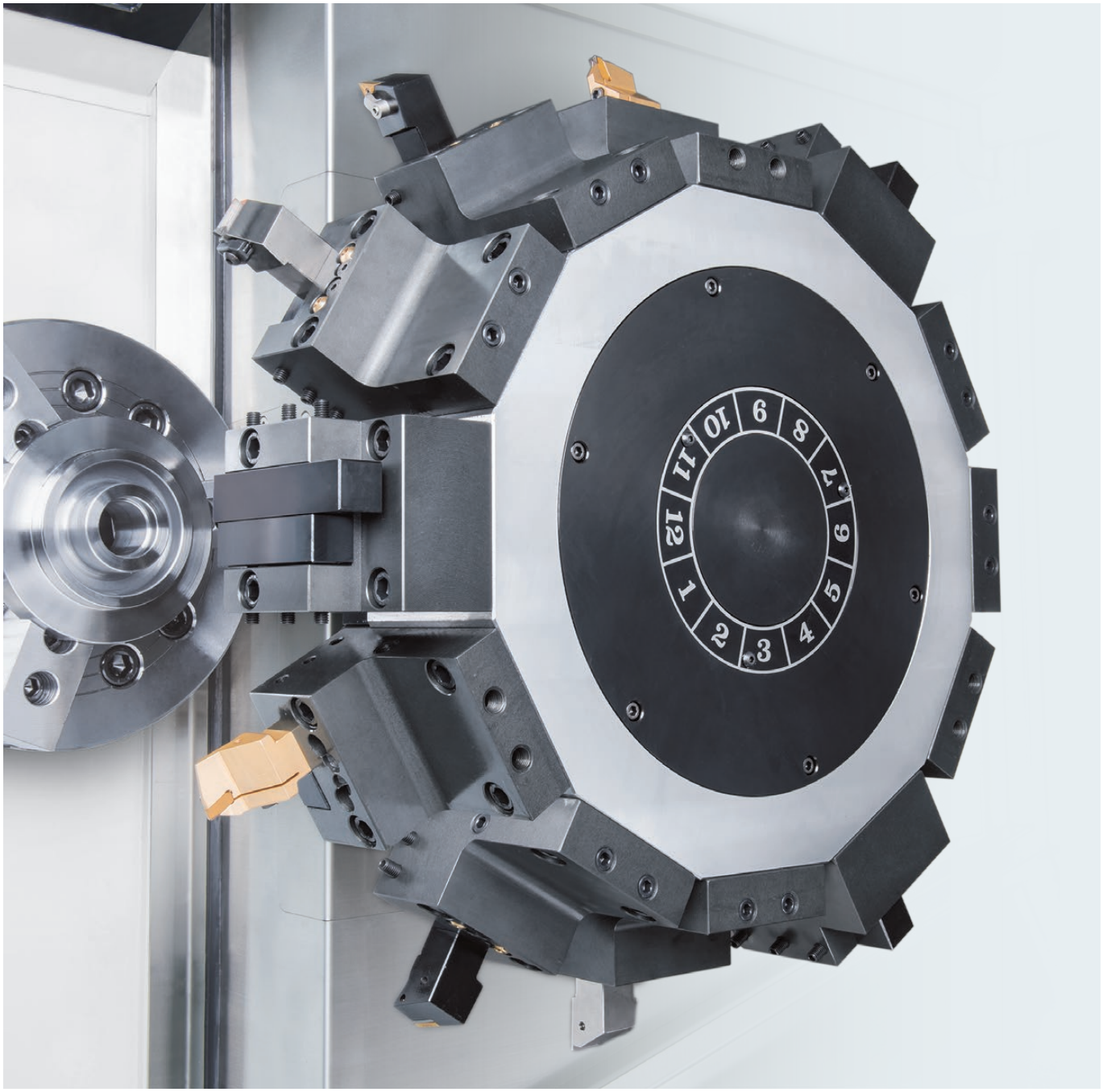
3 Heat dispensing fins around the headstock evenly dispense heat to reduce deformation, therefore, increasing machining accuracy.



Optional Pneumatic Work-Piece Positioning Detector



- Apply pneumatic flow to detect work-piece and fit of clamping jaw surface. When not adjust closely to fit, robot arm will re-load again to ensure operation safety.

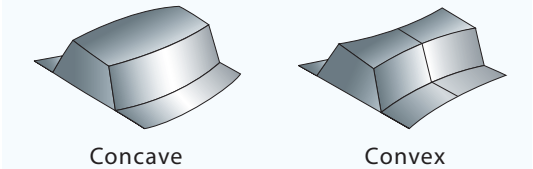


ADVANCED TURRET TECHNOLOGY

- Heavy-duty servo indexing turret achieves 0.2 second indexing times for adjacent stations and 0.5 second times for stations at the opposite end of the disk turret.

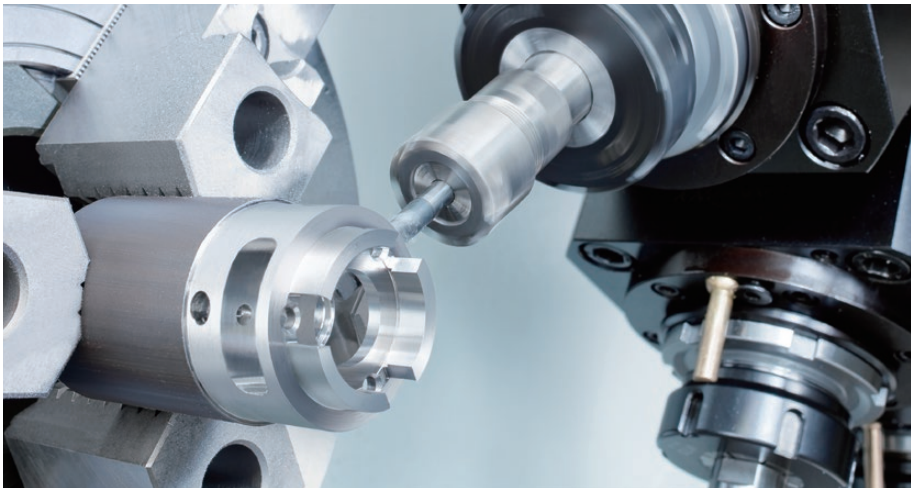
- Ø 210 mm (8.26") diameter super high precision CURVIC couplings accurately position the turret disk (± 2 sec. of arc) and 4,000 Kg of clamping force ensures abundant turret rigidity for all cutting conditions.

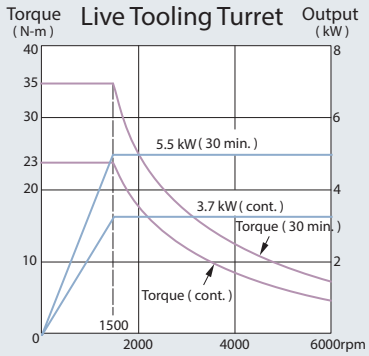
- The curvic coupling is provided with automatic centering, cleaning and super large contact area of tooth flank, which ensures long-term usage of cutting rigidity and positioning accuracy.



Curvic Coupling

LIVE TOOLING TURRET

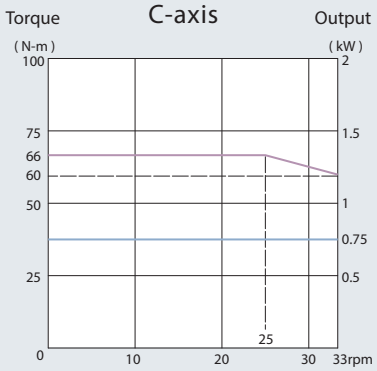




- The 12-station Goodway live tooling turret offers 12 stations available for live tooling (live tooling tools rotate in working position only) and features a non-lifting turret disk.
- Goodway's live tooling turret utilizes advance servo indexing technology to achieve 0.2 second indexing times for adjacent stations and 0.5 second for stations at the opposite end of the disk.
- With the latest technology, live tooling is driven by an AC servo motor to provide ample power, in the form of torque. Now, even the toughest of jobs may be tackled without a sweat.

ULTIMATE C-AXIS SPINDLE

- Working with the live tooling turret, the Cf-axis and disk brake system enables the machine to perform multiple tasks, such as drilling, tapping, and milling operations, including cylindrical and polar coordinate interpolations, resembling a 4th-axis rotary table on a machining center.
- With the FANUC servo motor generating an ultra high resolution of 33,000,000 pulses per spindle rotation and 480 N-m of spindle torque (Cont.), machined surface finishes are much superior than Cs-axis (driven by spindle motor) equipped machines. Plus, dynamic accuracy is within ± 0.02° even under heavy cutting loads.



NC INTELLIGENCE

G.LINC 350

Advanced hardware combined with intelligent software, makes your machine smarter

- Advanced Hardware
- Reliable Continuous Operation
- Outstanding Operability
- Shortened Troubleshooting Time
- Streamlined Programming
- Improved Utilization Rate
- High Security and Shortened Machining Setting

Comprehensive Functions

Programming → Setting → Test-Run → Actual Production → Daily Used

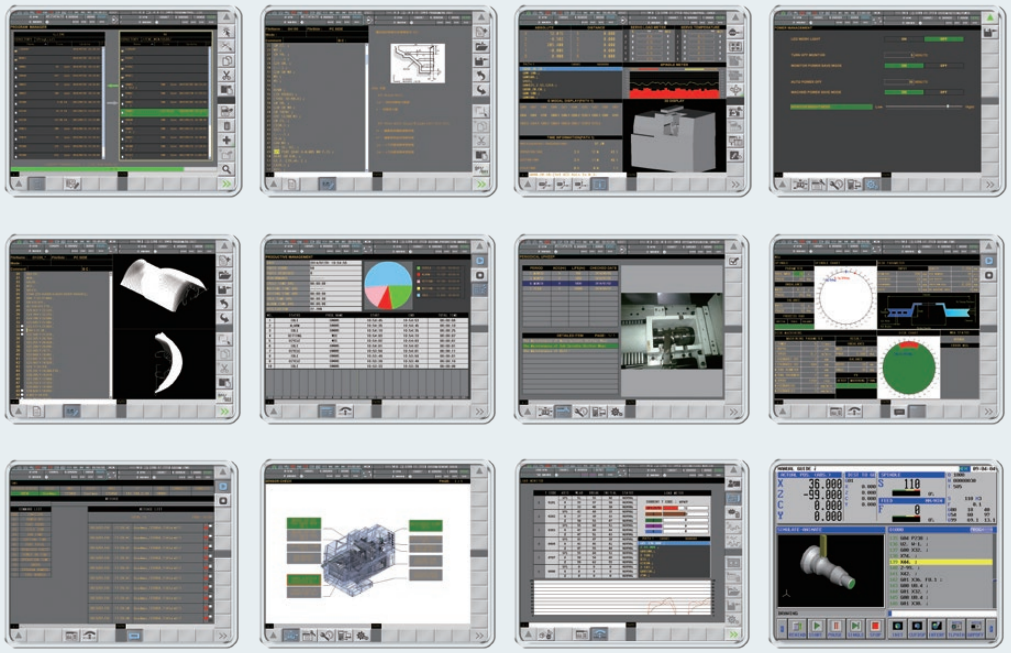
Programming
- Program management
- Friendly programing environment
- Programming auxiliary
- Manual Guide *i*
- Embedded E-manual

Setting
- 3D advance tool path and cutting simulation

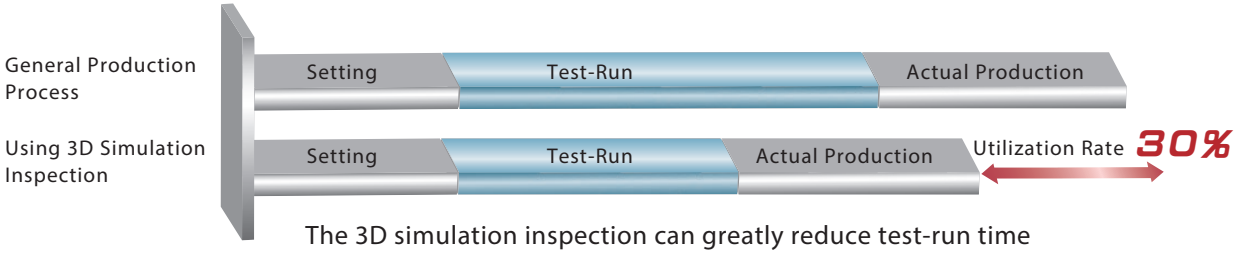
Test-Run
- Tool load monitor
- Program check
- Smart balance detection
- 3D Real-time cutting simulation and interference check

Actual Production
- Tool load monitor
- 3D Real-time cutting simulation and interference check

Daily Used
- Safety signal viewer
- Fast alarm check productivity
- Productivity management
- Twin operation system switch
- Maintenance management



Significant Production Efficiency



The 3D simulation inspection can greatly reduce test-run time and improve overall utilization rate

AUTOMATIC PRODUCTION SYSTEM

Depend on different work-piece specifications and machining characteristics, Goodway provides elastic configurations of automatic production system to ensure operation needs of high efficiency and unmanned machinery space.

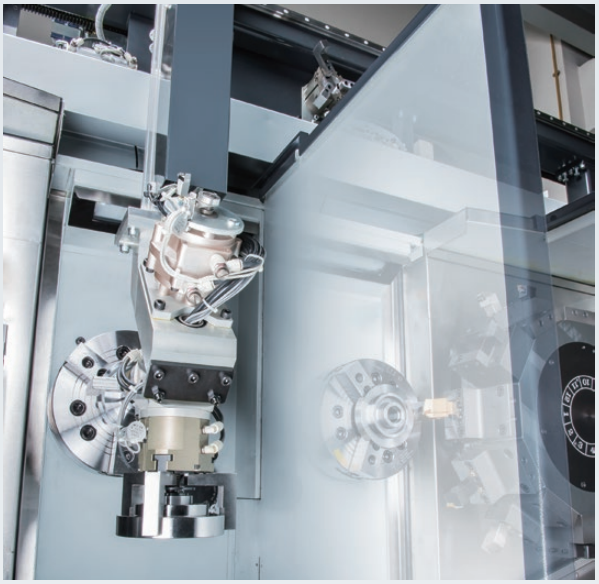
X-axis Rapids 2,500 (mm/sec.)

Gantry type loading / unloading system		
Clamping load capacity of robot arm		3.0 Kg x2
Robot arm size		Ø 150 x 80 mm
X-axis (Left / Right)	Stroke	~~3,450 mm~~ 4200 mm
	Max. speed	2,500 mm/sec.
Y-axis (Up / Down)	Stroke	~~500 mm~~ 800 mm
	Max. speed	2,500 mm/sec.
Z-axis (Front / Rear)	Stroke	210 mm
	Max. speed	750 mm/sec.
α -axis (Left / Right)	Stroke	180˚
	Max. speed	1 sec/180˚

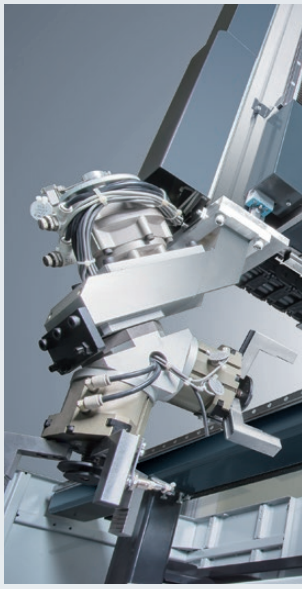
Specifications are subject to change without notice.

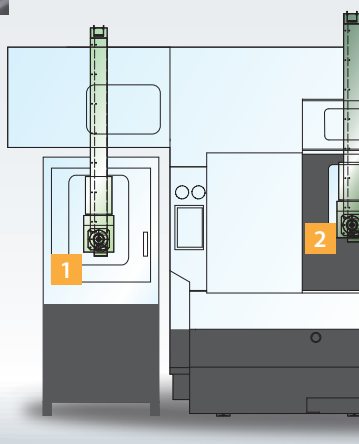
1 Work-piece engage

2 First Spindle unloading / loading



3 Flipping work-piece



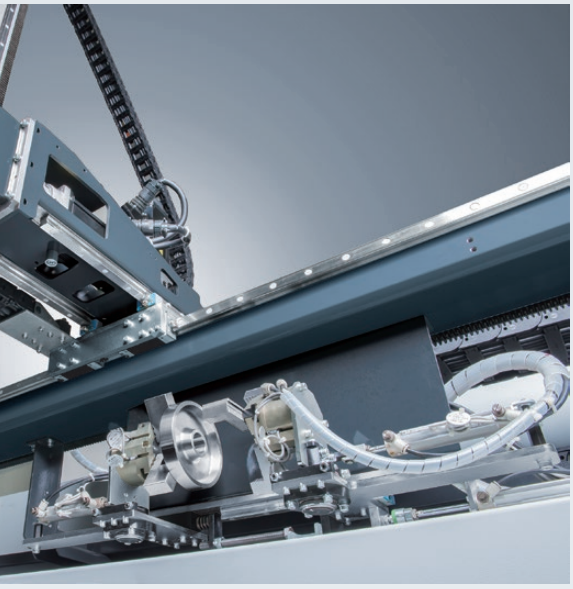


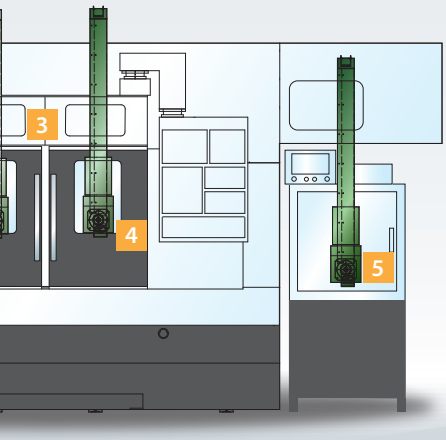
Rotary Twin Jaws Robot Arm

- Feature pneumatic work-piece positioning detector, unloading, positioning detector, loading can be done in one setup which is pretty safe and quick.

Work-Piece Detecting System

- Depend on actual needs to setup accuracy condition, qualified and unqualified products will be automatically distinguished, which efficiently saves manpower.





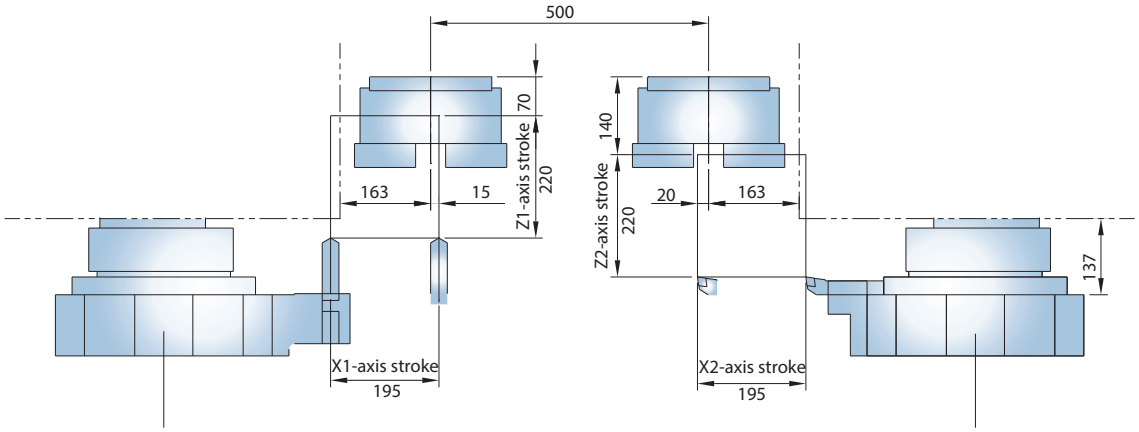
4 Second spindle unloading / loading

5 Work-piece detection / unloading

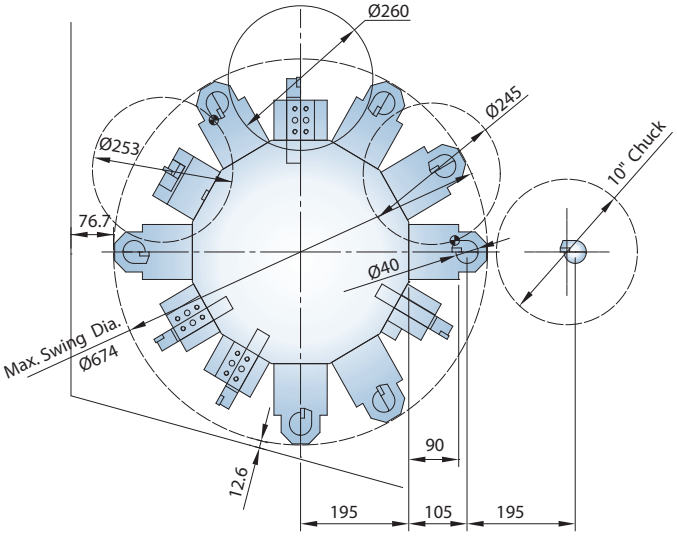
DIMENSIONS

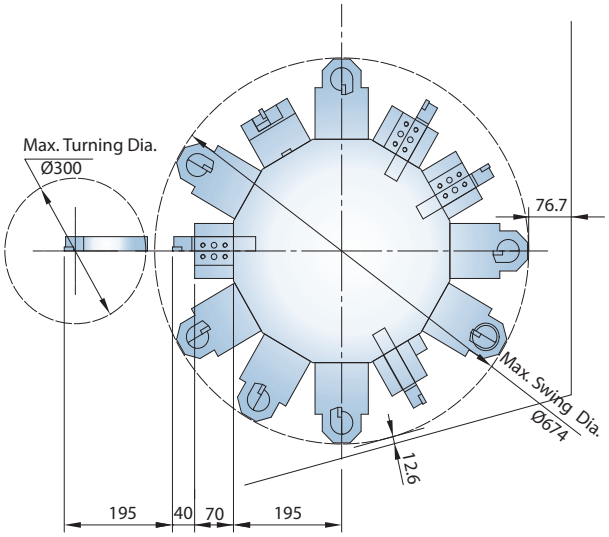
Standard 12-Station Turret

(Work Range)



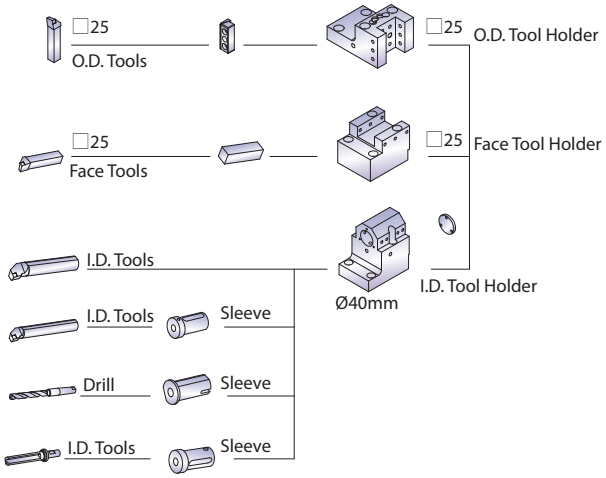
(Interference Diagram)





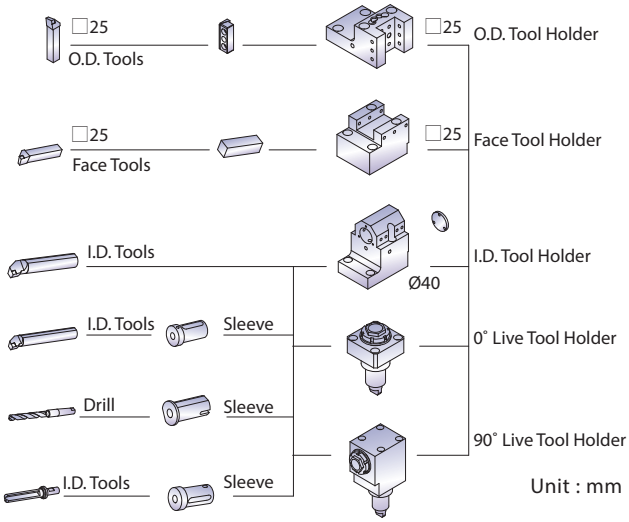
Standard 12-Station Turret

(Tooling System)



12-Station Live Tooling Turret

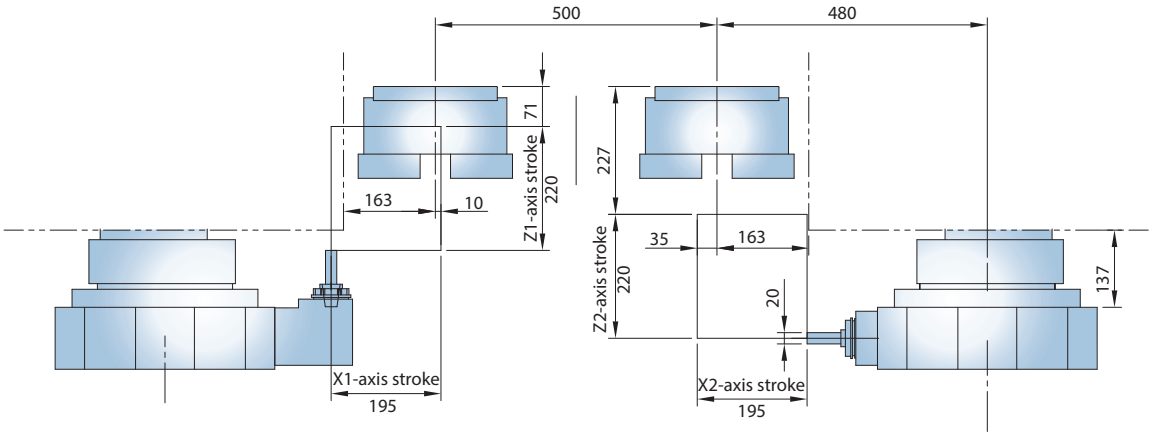
(Tooling System)

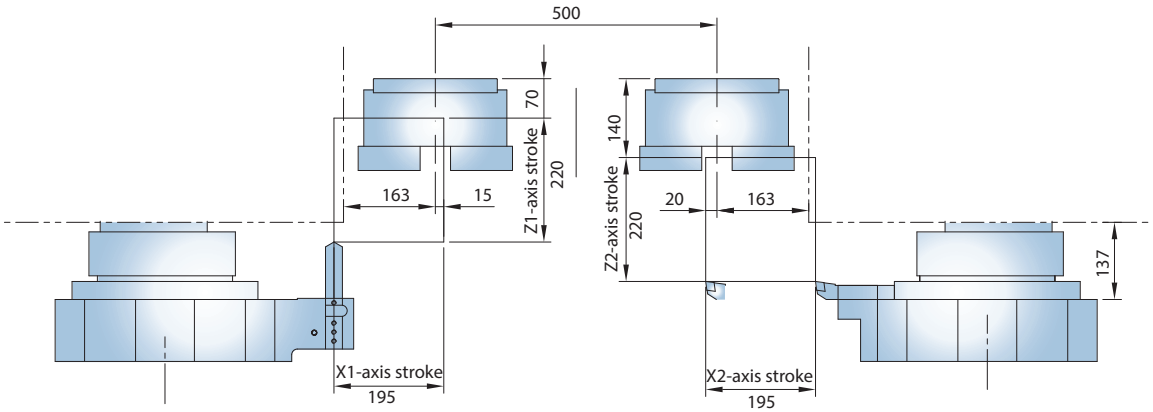


Unit : mm

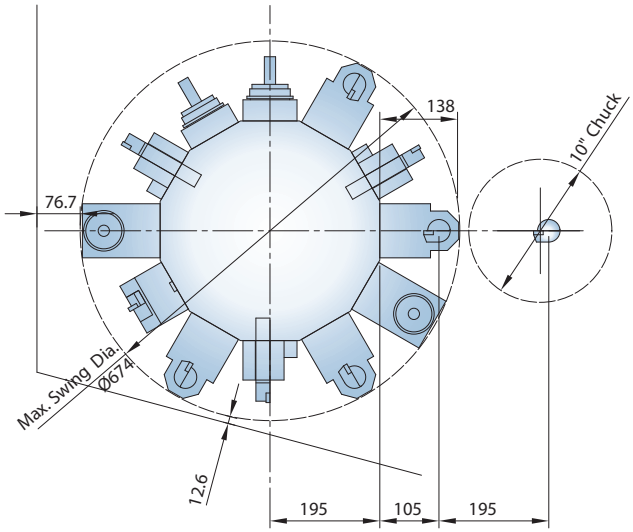
12-Station Live Tooling Turret

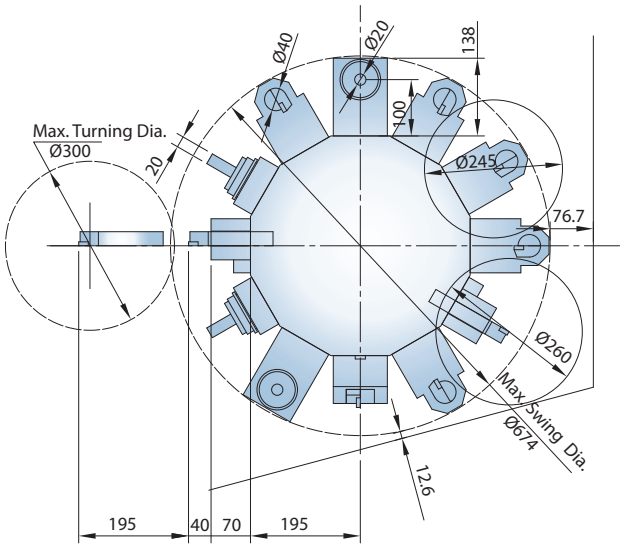
(Work Range)





(Interference Diagram)





Unit : mm

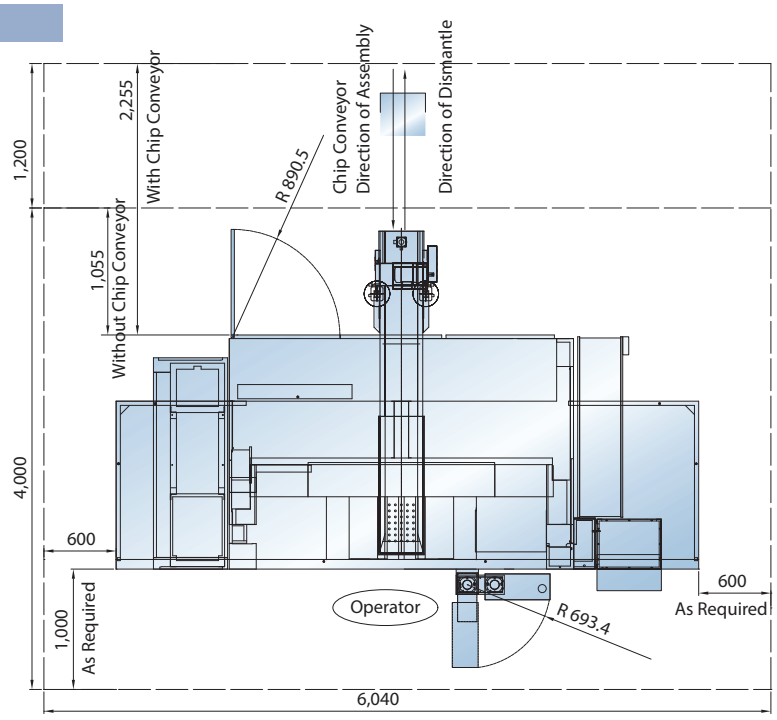
MACHINE SPECIFICATIONS

CAPACITY	GTH-2600
Max. turning diameter	Ø 300 mm
Standard turning diameter	Ø ~~254 mm~~ 260 mm
Max. turning length	205 mm
Chuck size	10"
SPINDLE	
Hole through spindle	Ø 66 mm
Spindle bearing diameter (Front / Rear)	Ø 100 / Ø 90 mm
Spindle nose	A2-6
Motor output (Cont. / 30min.)	11 / 15 kW
Motor full output speed	1,500 rpm
Spindle drive system	Direct Belt Drive
Spindle speed range	24 ~ 4,200 rpm
Spindle full output speed	860 rpm
Spindle torque (Cont. / 30min.)	120 / 162 rpm
Cf-AXIS (OPTIONAL)	
Cf-axis motor	AC 1.2 kW
Cf-axis rapids	33 rpm
Max. Cf-axis torque (cont.)	240 N-m
X & Z AXES	
Max. X / Z axes travel	195 / 220 mm
X / Z axes rapids	24 m/min.
Slide way type	Box way
Feed rates	0~ 500 mm/min.
X / Z axes servo moter	AC 1.6 kW / AC 3 kW
X / Z ball screw dia. [pitch]	Ø 32 x P8 mm
X / Z axes thrust (cont.)	644 / 958 Kgf
TURRET	
Station	12
Indexing drive	FANUC AC Servo motor
Indexing speed	0.2 sec. (Adjacnt) / 0.5 sec. (180° Single step)
OD tool shank size	□ 25 mm
ID tool shank size	Ø 40 mm
LIVE TOOLING TURRET (OPTIONAL)	
Max. turning diameter	Ø 300 mm
Live tooling stations	12
Live tooling motor output (Cont. / 30 min.)	AC 3.7 / 5.5 kW
Indexing drive	FANUC AC Servo motor
Indexing speed	0.2 sec. (Adjacnt) / 0.5 sec. (180° Single step)
OD tool shank size	□ 25 mm (□ 20 mm)
ID tool shank size	Ø 40 mm (Ø 32 mm)
Live tooling shank size	ER 32 (Ø 20 mm) [ER 25 (Ø 16 mm)]
Live tooling RPM range	6,000 rpm

GENERAL	GTH-2600
CNC control	FANUC Oi-TD (Opt. 31i)
Voltage / Power requirement	AC 220 V / 65 KVA
Hydraulic tank capacity	30 L
Coolant tank capacity	160 L
Machine weight	6,800 Kg
Dimensions (L x W x H)	4,840 x 2,155 x 3,450 mm

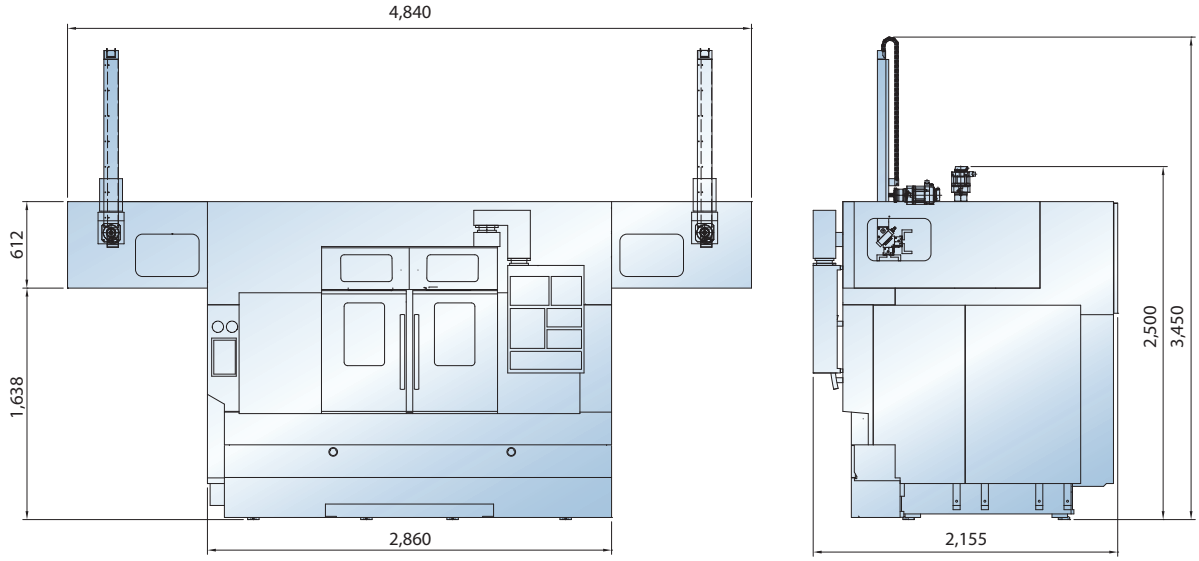
Specifications are subject to change without notice.

Space Requirement



Unit : mm

Machine Layout



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