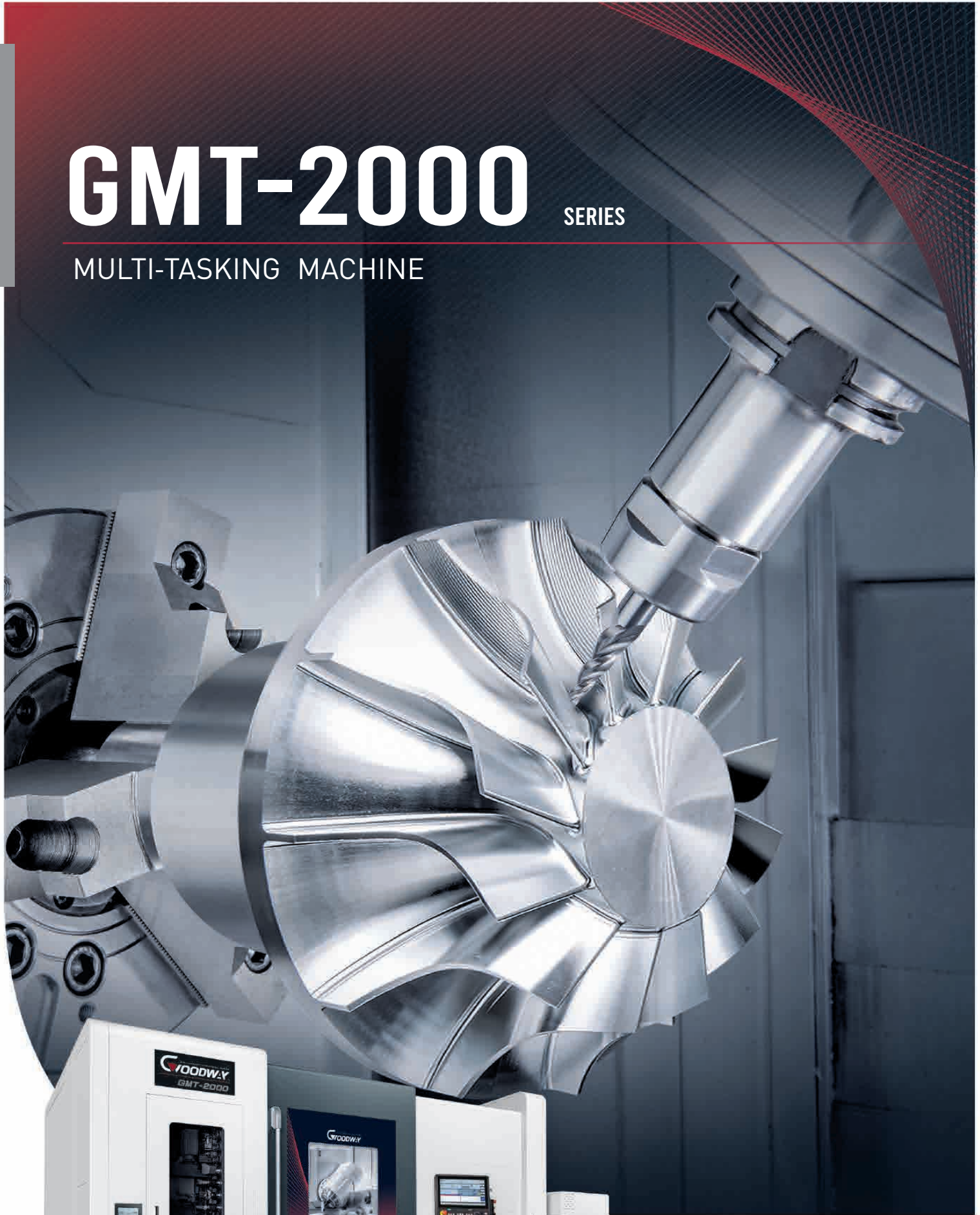


# GMT-2000

SERIES

MULTI-TASKING MACHINE



THE ULTIMATE MACHINING POWER  
**WOODWAY**

# ANY IMAGINATION OF PROCESSING CAN BE ACHIEVED BY GMT-2000 SERIES

Looking for advanced processing equipment, with both high productivity and processing capacity for complex workpieces, as well as excellent cost performance. The seemingly impossible task will be fully achieved by GOODWAY GMT-2000 series.

The GMT-2000 series integrates the functional characteristics of turning centers and machining centers into one. It has the highest 9-axis control and 5-axis simultaneous machining capabilities. It can not only efficiently complete various complex shapes of workpieces, but also easily overcome the need for heavy cutting. This is a versatile model that can be used in all industries.

In addition, the optional G.LINC smart operating system and various automation equipment can further improve production efficiency, reduce manufacturing costs, and fully meet all your processing needs today and tomorrow.

## GMT series Advantages of Multi-tasking Machine Center

66%  
save

### Manpower requirement

Only one operator needed to complete all processes.

66%  
save

### Number of machines

Integrate highly complex machining capabilities such as turning, milling and gear hobbing.

75%  
save

### Workpiece time setting

The workpiece can be set from raw material to finished parts once.

80%  
save

### Number of fixtures

Significantly reduce the number of fixtures required and the adjustment time.





Aerospace



Medical



Automotive



Energy

# GMT-2000

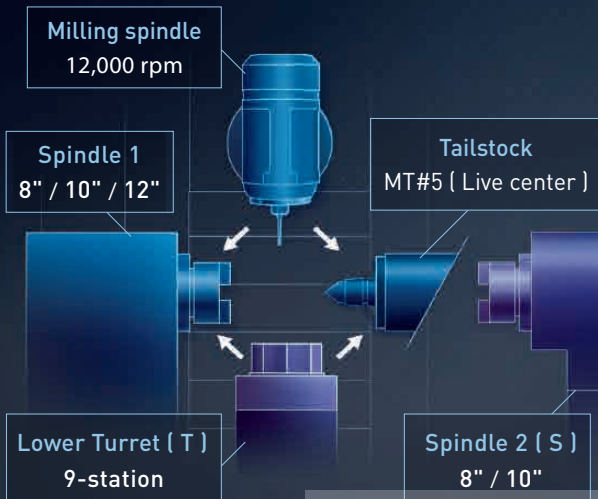
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MULTI-TASKING MACHINE



# THE ULTIMATE MACHINING POWER

Both the milling spindle and the lower turret can flexibly support the spindle 1 or the spindle 2, making the process arrangement more flexible than more general models. In addition, the long and slender bar is clamped and fixed at both ends of the twin spindles. The milling spindle and the lower turret are synchronized to balance cutting, which can greatly shorten the cycle time and ensure the ultimate machining accuracy.



## GMT-2000 series

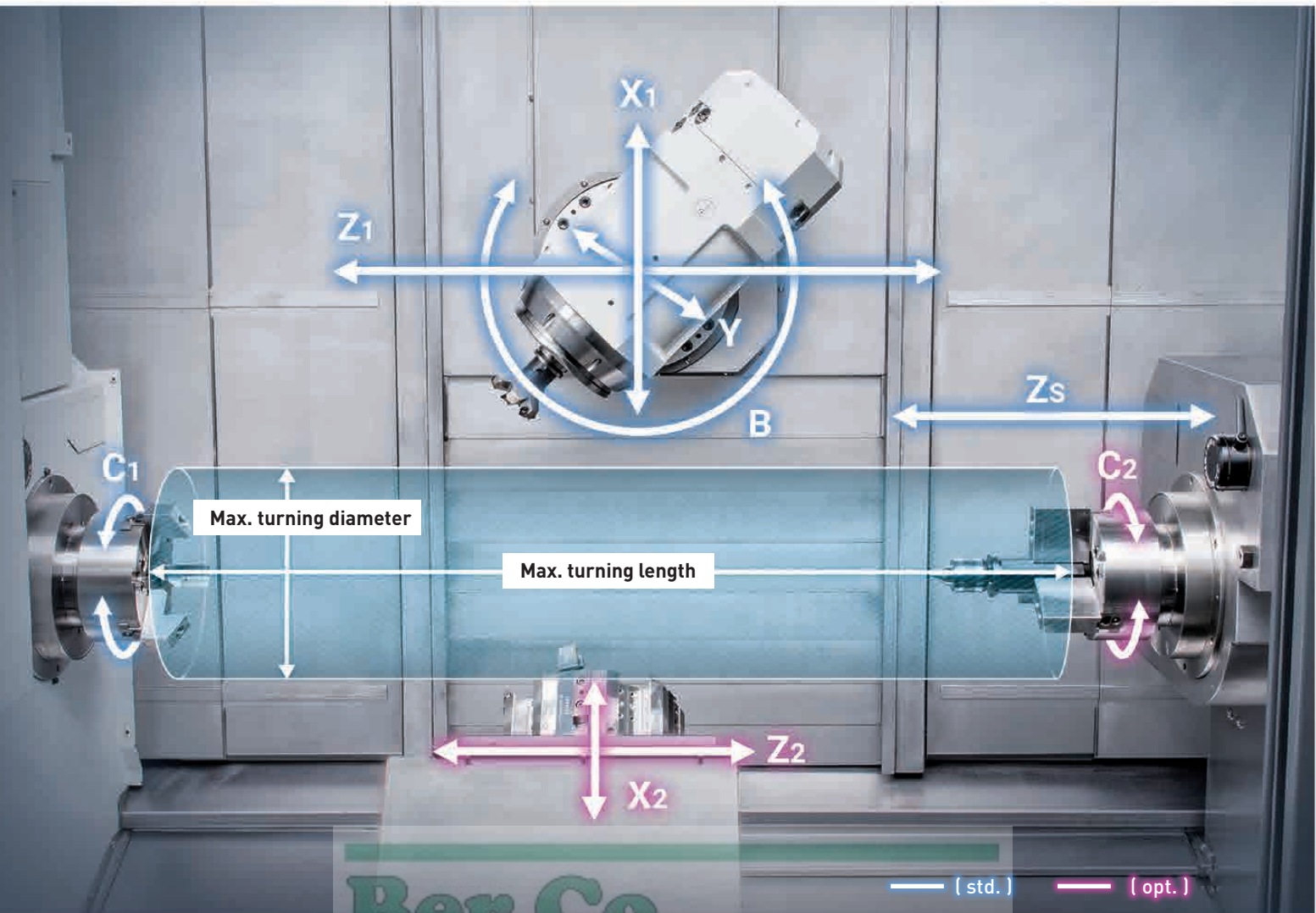
Model		GMT-2000	GMT-2000S	GMT-2000ST
Max. turning length		1,020* / 1,520 ( L1 ) / 2,520 ( L2 ) mm		
Max. turning diameter	Milling spindle	Ø660 mm		
	Lower turret	—	—	Ø420 mm
Milling spindle		●	●	●
Spindle 1		●	●	●
Servo tailstock		●	—	—
Spindle 2		—	●	●
Lower turret		—	—	●

\* GMT-2000ST does not provide this specification. ● : Standard — : Not Available

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\* The processing modes listed above may be an option functions, please contact GOODWAY for more information.



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### Significant Production Efficiency

- Since the maximum stroke of the X-axis can exceed the centerline of the spindle by 125 mm, and the maximum stroke of the Y-axis is  $\pm 150$  mm from spindle center, the GMT series can perform high-precision contour milling and drilling even if it is not controlled by the C-axis, and the processing is more efficient.
- The three-axis feed system, including the X, Y, and Z axes, are directly driven by a high-load servo motor with a rapid feed rate of up to 50 / 40 / 50 m/min.

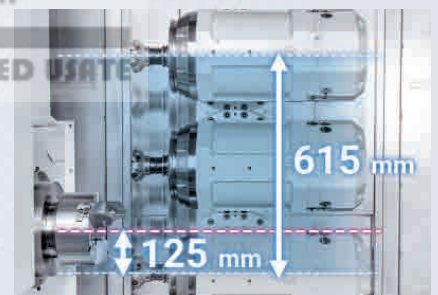
### Sufficient Processing Range

- The X, Y, and Z axes maximum stroke leads all other models of the same class, making processing more flexible.
- 3 different lengths of machine beds with 3 different spindle specification providing 9 basic specification combinations.
- A chain type tool magazine with up to 120 tools can be installed to easily overcome any complex cutting tasks.

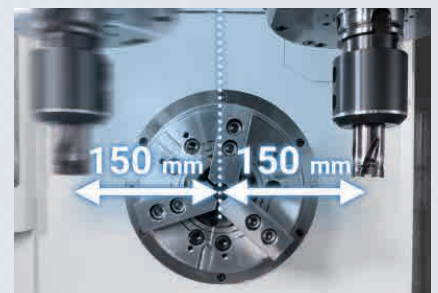
### High-precision Countermeasures

- The spindle, milling spindle and feed system are equipped with cooling circuit design, which can effectively inhibit thermal displacement and ensure the ultimate machining accuracy.\*1
- B-axis standard high-resolution rotating linear scale.
- Optional spindle thermal compensation system.

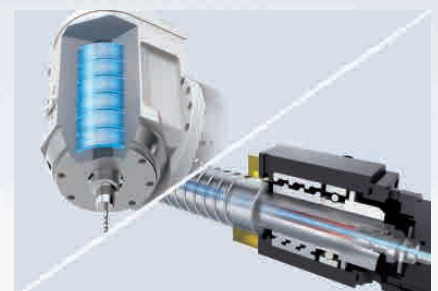
\*1 : The X<sub>1</sub>-axis is equipped with a hollow ball screw as standard, other axial options are available.



X-axis travel



Y-axis travel



Cooling Technology

# SUPER RIGIDITY STRUCTURE ACHIEVE PERFECT ACCURACY AND PERFORMANCE

The main castings of the GMT series are all finished with the final processing procedures in the GOODWAY factory; the core components such as the turret and spindle are assembled and verified in GOODWAY's precision assembly plant. The self-manufacturing ability of key components allows us to strictly control the quality of our products, thereby ensuring that the performance of the machine can be maximized. This is the biggest difference between the GMT series and other models of the same grade.

## Finite Element Methods ( FEM )

All structural parts have passed FEM ( Finite Element Methods ), which has the advantages of optimized design and lightweight structure to ensure the best structural rigidity of the whole machine.

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## High Rigidity Machine Base

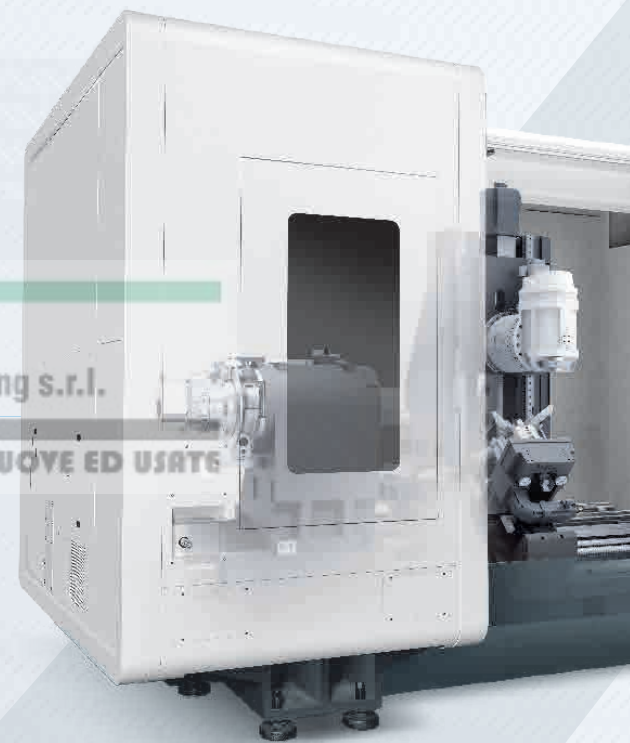
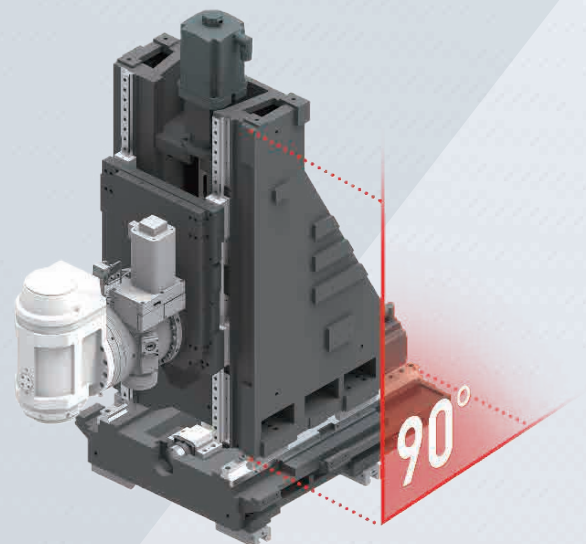
The base with high-performance ribs is not only integrally cast but also made with high-tensile Meehanite cast iron, with heat flow balance design to meet the needs of long-term processing. Because Meehanite cast iron can provide greater damping and reduce deformation, the machine is not only durable but also ensure outstanding performance.

## Low Gravity, Lightweight Column

The column structure with low center of gravity can provide the stable support rigidity of the X-axis saddle, avoiding the milling spindle overhang; and the lightweight design allows the Y and Z axes to have higher dynamic performance.

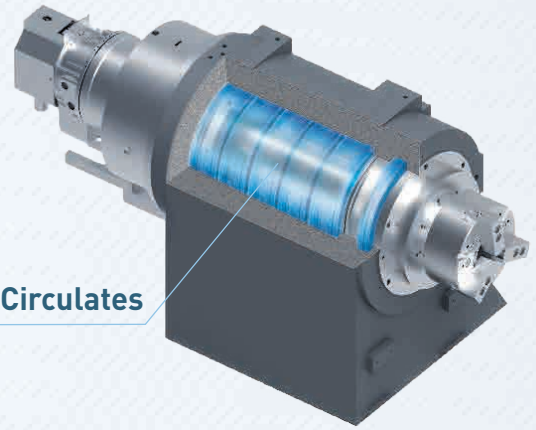
## Orthogonal Y-axis Structure

The Y-axis saddle and the X-axis are designed in an orthogonal structure which can achieve a longer Y-axis stroke, thereby providing a more abundant processing range.



## Spindle Cooling

The cooling circuit circulates around the spindle shaft and front bearing, and the temperature is precisely controlled by an independent cooler which can effectively reduce the thermal displacement of the spindle and ensure excellent machining accuracy.



Cooling Oil Circulates

## High Accuracy Ball Screw

The heat-treated and precision-ground C3 grade ball screw can ensure the highest precision and durability. In addition, each axis has a pre-tensioning design, which can minimize the displacement and greatly improve processing accuracy.

The X<sub>1</sub>-axis is designed with a hollow ball screw. The cooling circuit can pass through the ball screw axis to suppress the axial thermal displacement and meet the needs of high-speed and high-precision machining. ( other axis option are available )

## Roller Type Linear Guideway

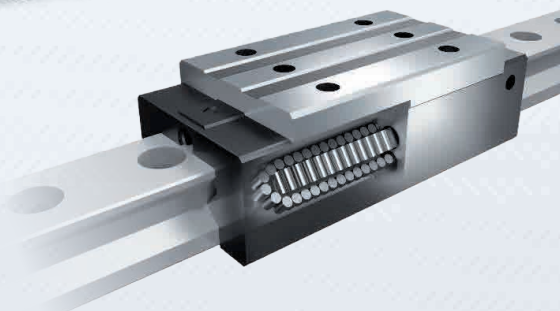
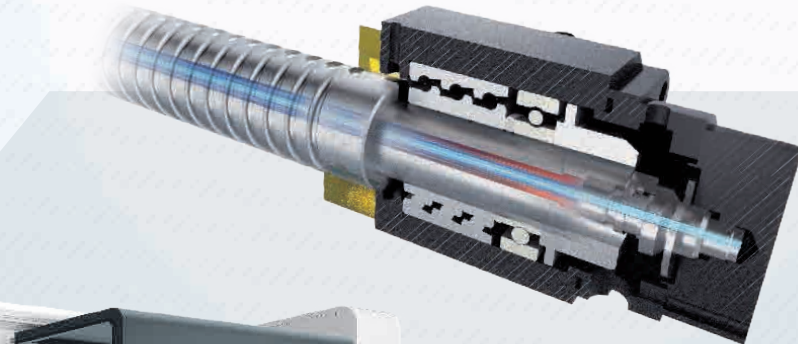
All linear axes adopt ultra-high rigidity roller-type linear guide, which have both heavy cutting rigidity of box way and the rapid movement and low wear characteristics of linear slides. The rigidity and controllability are greatly improved.

## Accuracy Feedback System ( Opt. )

The optional high-resolution HEIDENHAIN full-closed loop optical scale or SCHNEEBERGER built-in absolute magnetic decoder linear guideway to achieve higher positioning accuracy.

## Automatic Lubrication System

The use of high-grade automatic lubrication and copper tubing can provide lubricating grease for precise adjustment of slide rails, ball screw and other important components. The system will automatically shut down during standby to avoid waste.



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# HIGH PERFORMANCE MILLING SPINDLE

The milling spindle comes with many features such as high speed, high horsepower, low interference, etc.; it can continuously index every  $0.0001^\circ$  within the  $240^\circ$  B-axis travel range. Not only to perform heavy cutting on fixed angle, but also perform 5-axis simultaneous motion contour milling, with extremely flexible processing capabilities.



## Modular Design

The milling spindle is composed of three core components, spindle, B-axis and interface connector. The signal line between the components and the air hydraulic pipeline are connected by modular connectors, so there is no need to disassemble the line for maintenance. Significantly reduces downtime for maintenance.

- 12,000 rpm high accuracy built-in spindle.
- B-axis is driven by high rigidity roller cam.
- B-axis is controlled by fully-closed loop.
- High rigidity dual contact spindle.

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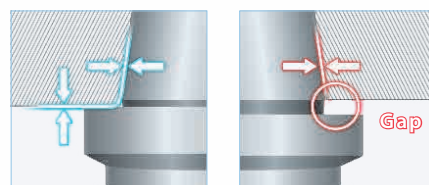
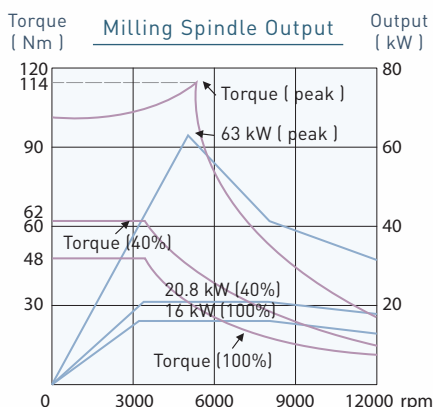
## High Precision Built-in Spindle

- The built-in motor design can reduce the rotation vibration of the spindle, extend the life of the spindle, and ensure processing accuracy under long-term operation.
- The special labyrinth structure design allows the spindle to have an excellent protective effect. Even if the high-pressure cooling system is used for cutting, the coolant will not pollute the spindle.

( CTS function is option )

## Cooling Oil Circulates

The cooling circuit circulates around the spindle shaft and front bearing, and the temperature is precisely controlled by an independent cooler which can effectively reduce the thermal displacement of the spindle and ensure excellent machining accuracy.



Dual contact spindle

Single contact spindle

The taper surface and both ends of the two-sided fixed beam spindle can be closely attached to the tool holder at the same time, ensuring the required tool blades under heavy cutting conditions and extending the tool.

( HSK-T63 and Capto C6 are available. )





## B-axis Turning

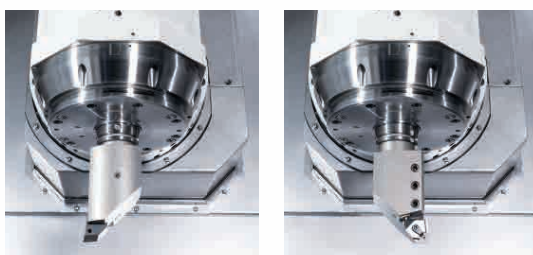
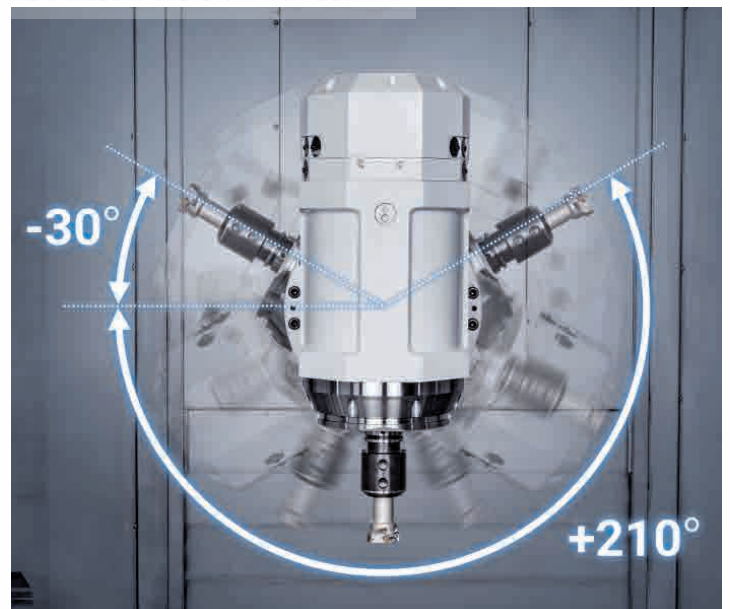
The B-axis turning with the tool tip smooth function can improve machining efficiency while ensuring excellent workpiece surface accuracy.

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## High Rigidity B-axis

- High rigidity roller cam transmission design, not only the anti-torque capacity is up to 970 Nm, but also the rotation accuracy is high, the backlash is almost zero, and the minimum indexing of the B axis is  $0.0001^\circ$  ( Standard function fully closed loop rotating optical scale )
- The braking system adopts a hydraulic brake combined with a 3-piece curvic couplings design, with a clamping force of up to 3,000 Nm, which can meet the machining rigidity required for heavy cutting at a fixed angle.



Through the rotation and positioning of the milling spindle, the same turning tool can support the first and second spindles, which can reduce the number of tools required, eliminate the time for tool exchange, and improve production efficiency.

# HIGH EFFICIENCY AUTOMATIC TOOL CHANGE SYSTEM

The chain type magazine is combined with the design of the arm type automatic tool change system, which has ample tool positions, fast and reliable tool change, can significantly save non-cutting time, and can meet the processing needs of complex workpieces

- High-speed servo motor drives the tool change design, and the tool magazine can select two-way shortcuts. The tool change is extremely efficient. T-T only takes 1.2 seconds.
- The whole process of tool change is controlled by a precision cam, which can realize the tool exchange stably and reliably. Therefore, the taper of the spindle can avoid accidental knocking and injury.
- The automatic tool magazine door can only be opened during tool change, which can effectively avoid contamination of the tool magazine with chips and ensure the reliability of tool change.
- 40T ( Std. ) / 80T / 120T chain tool magazine can be selected according to requirements.



**Arm type automatic tool change system**



- The tool magazine and the control panel are both installed on the front of the machine, making it easier and safer to disassemble and assemble tools.
- The protective door of the tool magazine is equipped with a large window, providing a high degree of visibility.

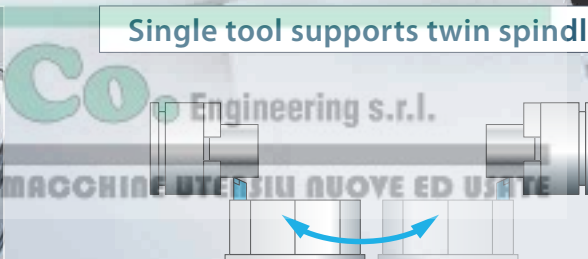
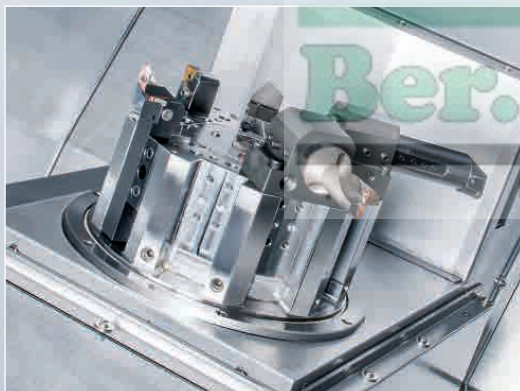
TOOL MAGAZINE	GMT-2000 series
Capacity	40T / 80T / 120T
Max. tool length	450 mm
Max. tool weight	12 kg
Max. tool dia. / adj. pocket empty	Ø 90 / Ø 130 mm

# HIGH RIGIDITY LOWER TURRET

The lower turret can not only make the process arrangement of the GMT-2000 series more flexible, but also can install alternative equipment such as live center, steady rest, workpiece support, etc., which greatly improves the processing efficiency.

- When the long and slender workpiece is synchronized balance turning through the milling spindle and the lower turret, which can significantly reduce the processing time and obtain higher surface accuracy of the workpiece.
- The servo indexing turret achieving 0.2 second indexing times for adjacent stations and 0.5 second for stations at the opposite end of the disk. Index movements are single step, without pauses, no matter how many stations are skipped.
- The super high precision curvic couplings accurately position the turret disk and the powerful clamping force ensures abundant turret rigidity for all cutting conditions.

## Single tool supports twin spindles



The lower turret can use the same tool to support the spindle 1 and spindle 2 respectively, which can reduce the number of machining tools required and make the tool position of the turret more flexible.

## 9-station lower turret

( □ 25 / Ø 40 mm )



## Live Center ( Opt. )

In addition to using the tailstock, you can also use the lower turret to install a live center for workpiece support, which has the advantages of smaller interference and higher work efficiency.



## Automatic Steady Rest ( Opt. )

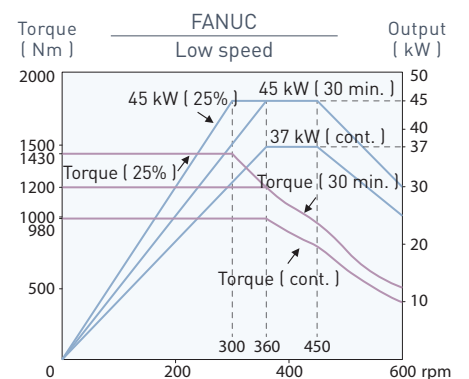
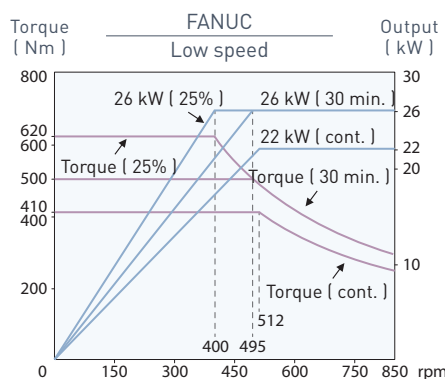
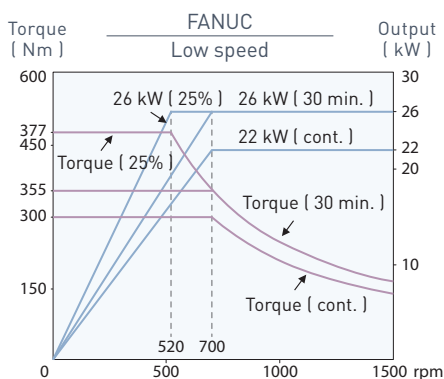
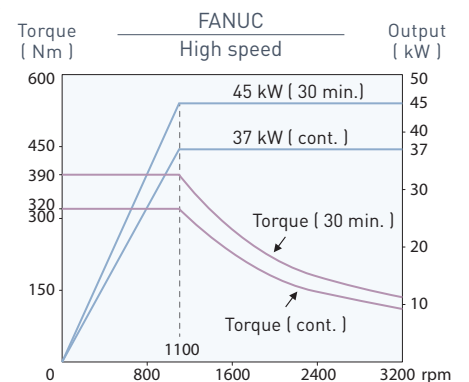
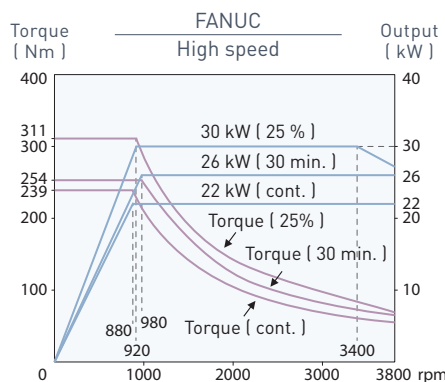
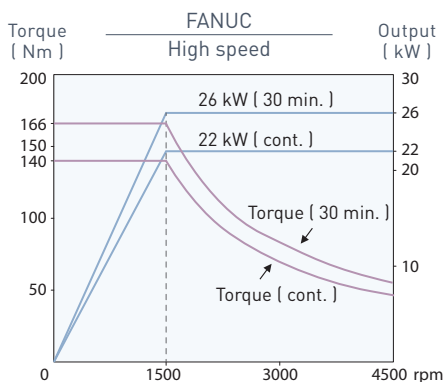
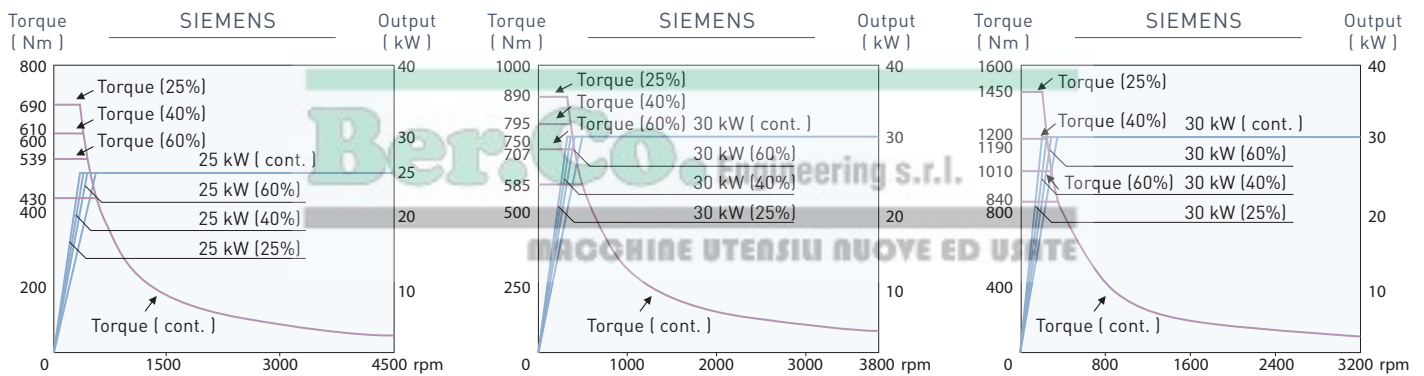
The steady rest installed in the lower turret can provide stable support rigidity for long workpieces and reduce the rotation deflection error. The steady rest can be automatically centered, and the workpiece can be directly processed after clamping.

# ULTIMATE MACHINING POWER

## Built-in Motorized Spindle

- Provide 3,200 / 3,800 / 4,500 rpm three options, maximum torque output up to 1,450 Nm, whether it is low-speed heavy cutting or high-speed cutting of other non-ferrous metals such as aluminum alloy, it is easy to overcome.
- The built-in motorized spindle design can minimize the rotation vibration of the spindle, ensure excellent surface accuracy of the workpiece, and extend the service life of the spindle ( the SIEMENS or FANUC built-in motor can be selected as required )
- The optimized spindle labyrinth structure can effectively prevent the coolant from polluting the spindle and effectively ensure the durability of the spindle.

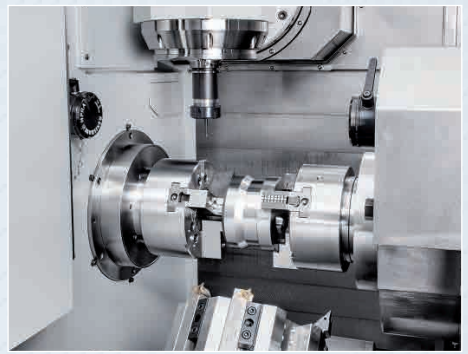
## Spindle 1 / Spindle 2 Output



# BACK PROCESSING CAPACITY

The spindle 2 adopts the same specification design as the spindle 1, which can provide the same powerful cutting ability on the front and back of the workpiece.

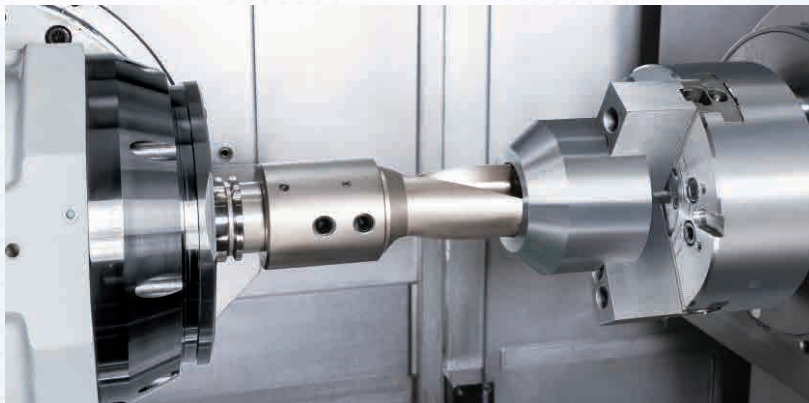
The optional part catcher or part conveyor system can eliminate the burden of manual unloading to meet the needs of mass production.



## Parts Transfer by Spindle Synchronize RPM Feature

The Zs-axis of the spindle 2 adopts roller-type linear slide rail design, which has the characteristics of high rigidity and fast movement.

Under the condition of two spindle synchronize rotation, the spindle 2 can pick up the workpiece from spindle 1 and then perform back side matching.



# PRECISION C-AXIS CONTROL

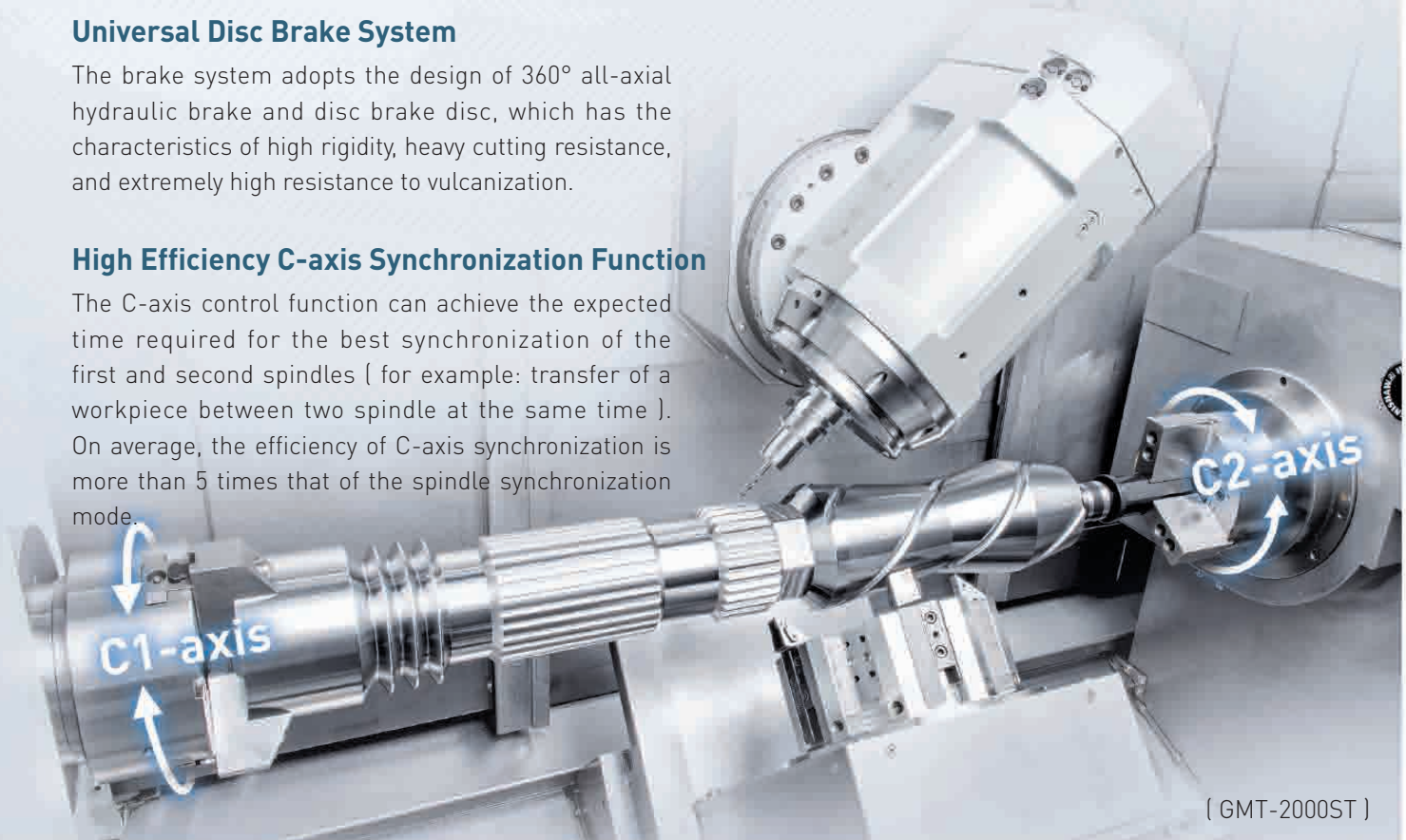
The C-axis is directly driven by the spindle motor (Cs-axis), with high-resolution position decoder and disc brake system, positioning is accurate and fast, with a minimum positioning index of  $0.0001^\circ$  and extremely high dynamic performance.

## Universal Disc Brake System

The brake system adopts the design of  $360^\circ$  all-axial hydraulic brake and disc brake disc, which has the characteristics of high rigidity, heavy cutting resistance, and extremely high resistance to vulcanization.

## High Efficiency C-axis Synchronization Function

The C-axis control function can achieve the expected time required for the best synchronization of the first and second spindles (for example: transfer of a workpiece between two spindle at the same time). On average, the efficiency of C-axis synchronization is more than 5 times that of the spindle synchronization mode.



[ GMT-2000ST ]

# HIGH RIGIDITY SERVO TAILSTOCK

The servo can provide sufficient support rigidity for long shaft workpieces, avoid workpiece rotation yaw errors, and meet high-precision machining requirements.

- Through M code control, the tailstock servo motor and ball screw drive to the desired position, without manual adjustment, it can easily and quickly withstand the center of the workpiece.
- Through the powerful thrust of the servo motor, the tailstock can hold the workpiece firmly and continuously to ensure the supporting rigidity required during heavy cutting.
- The models equipped with the spindle 2 ( GMT-2000S / GMT-2000ST ) can also use the clamping jaws to install the live center, which has the function of a servo tailstock.

Model	GMT-2000 series
Tailstock type	Programmable servo tailstock
Quill center taper	MT#5 Live center
Quill diameter	Ø110 mm
Tailstock base travel	1,560 mm



Servo tailstock



Spindle 2 with live center

# OUTSTANDING OPERABILITY



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## Pneumatic Unit

The pneumatic unit is equipped on the side of machine for checking and maintaining in time.

## Tool Magazine

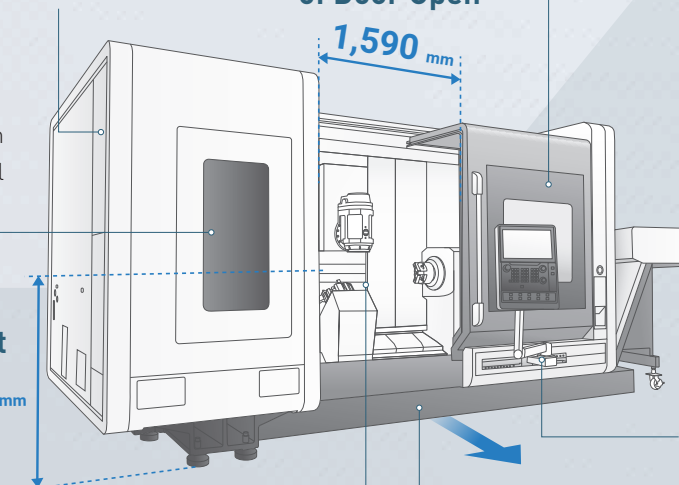
The tool magazine is located in front of machine for quick tool mounting / dismounting.

## Spindle Center Height

1,235 mm

## The Width of Door Open

1,590 mm



## Optimized Working Area

The compact designs not only accomplish the optimized working area but provide more convenient and safer loading work.

## Roll-out Coolant Tank

Roll-out coolant tank with front pulled-designed is easier for operator to clean and maintain.



## High Visibility And Impact-resistance Window



## Adjustable Control Panel

The control panel can be rotated 310° and left-right move 900 mm according to operator's requirement.



# STRATEGY FOR CHIPS REMOVING

GMT-2000 series comes with a complete strategy for removing chips. It can provide optimized coolant ability for tools and ensure maximum efficiency in removing chips from the machining area. While ensuring the machining accuracy, it also provides the effect of extending tool lifetime.



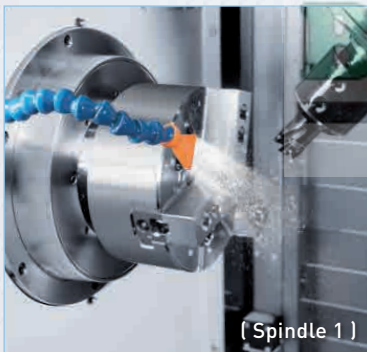
[ Milling spindle ]

**Coolant Nozzle Around Spindle**



[ Milling spindle ]

**Coolant Through Spindle**



[ Spindle 1 ]

**Coolant From Side of Chuck**



[ Lower turret ]

**Coolant Through and Air Blow for Tool Holder**



**Chip Wash Down Coolant System**

\* Above functions can be chose as optional accessories



## Chip Conveyor

Goodway provides the best solution for the chip conveyor according to different type of chips. Chain-belt type chip conveyor is suitable for curled chips. Scrape type chip conveyor is suitable for the powder chips of casting, aluminum and copper.

Chip type	Curled chips			Powder chips			
	Steel	aluminum	color metal	casting	aluminum	copper	non-metal
Chain belt type	●	●	●	—	—	—	●
Scrape type	—	—	—	●	●	●	—

● Applicable — Not applicable

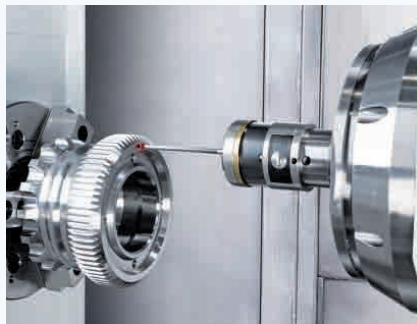
# OPTIONAL ACCESSORIES



## The Measurement for The Center Point of Rotating Axis

To adjust the deviation of center point for rotating axis.

( The signal is blue tooth transmission with non-directional )



## Workpiece Inspection Probe

It is available to identify and set the workpiece, monitor the surface of workpiece and verify the dimension of finished part.



## Tool Presetter

Whole travel measurement is programmable control. It can be auto-hidden on the collecting box when the tool setter is not used.

( The probe arm for lower turret is detachable )



## Linear Scale

The full enclosed linear scale is with 0.1 $\mu$ m resolution and the position accuracy will be  $\pm 0.010$  mm / full travel ( JIS )



## Auto Door UTENSILI NUOVE ED Coolant Cooler

It's available to decrease the work loading of the operator by equipping a robot arm, and giving the option to integrate it into an automated production line.



It is able to control the coolant temperature efficiently and decrease the possibility of deformation from the machining.

## R series High Pressure Coolant System Opt.

Max. Pressure : 70 ~ 100 bar ( 1,000 ~ 1,500 PSI )

Max. Flow Rate : 30 ~ 53 LPM ( 8 ~ 14 GPM )

Coolant Type : Water or Oil

- Pressure output monitoring system
- Filter replacement checking
- Super large capacity coolant tank
- Patented diaphragm pump ( made in USA. )
- Touch screen of HMI



## Intelligent Automatic Pressure Control ( R series *i* model )

- Pressure controlled by programmable valve control, no need to be adjusted manually, more accurate pressure output.
- It is controlled by closed loop of inverted motor, it can be adjusted to proper flow automatically by pressure to save power and decrease heat raising of coolant.<sup>\*1</sup>
- Use Ethernet to connect<sup>\*2</sup> with machine, easy wiring and setting, save cost of purchasing hardware.

<sup>\*1</sup> Traditional manual adjusting way is constant frequency full flow output.

<sup>\*2</sup> Only FANUC / SIEMENS controller



# GLINC INTELLIGENT OPERATING SYSTEM (Opt.)

## Make Your Machine Smarter

- Multi-touch screen
- Excellent operability
- Multiple adjuvant tool
- Utilization rate checking and analysis
- Workpiece counter checking and analysis
- Integrative machining operating interface
- Visible date interface
- Maintenance notification



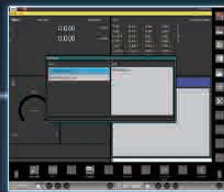
### Machining preparation → Program editing → Machining → Adjuvant function

- Ultra fast tool selection
- To memorize MDI program
- Adjuvant of G/M code
- Graphical procedure management
- Manual Guide *i*
- Load monitor
- Tool life time
- Machined parts counter
- Visible servo observation
- Data record
- Memo
- Maintenance Warn
- E book
- Prt Scrm record



#### Ultra fast tool selection

To change the current tool number by virtual keyboard and to set the protective button for mistouch.



#### MDI program memory

Operator can save the current machining program code in bookmark and call it again from there.



#### G/M code assistance

When editing process program, search G/M coder function to assist in editing program.



#### Visible servo observation

Observe information of each spindle and servo axis, such as coordinates, rotating speed, torque, etc.



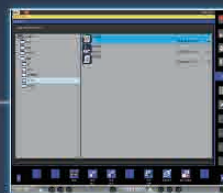
#### Tool load monitor

In processing, it is able to monitor each axis loading value. If loading value is out of the reasonable range, alarm will sound.



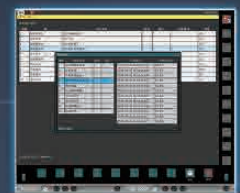
#### Tool life monitor

Set each tool process time and amount. If it reaches to set value, alarm sound.



#### Graphical process manager

Graphical present process program list and add note to each process program.



#### Data recorder

View after setting every information of machine monitor. Export file and analyze the data.

# ADVANCED CONTROL FUNCTION

## DIGITAL TWIN ( opt. )

Finish following work without using machine in factory under simulated environment by using Digital twins' software Run My Virtual Machine.

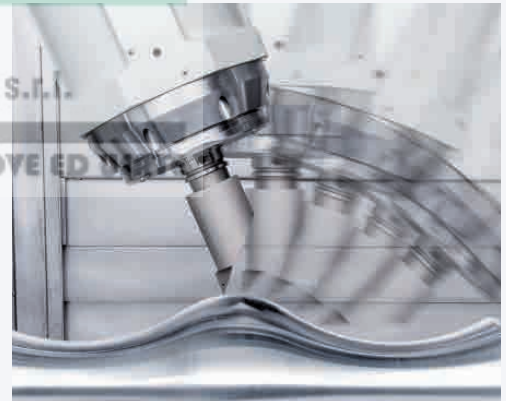
- Evaluate process machine movement and actual machine status.
- Test work-piece acceptance by the software.
- Verify status of machine series number and fixture.
- Use real CNC movement to prevent process from collision.
- Use SIEMENS operating panel process 3D model, and finish machine training.



## ORISON

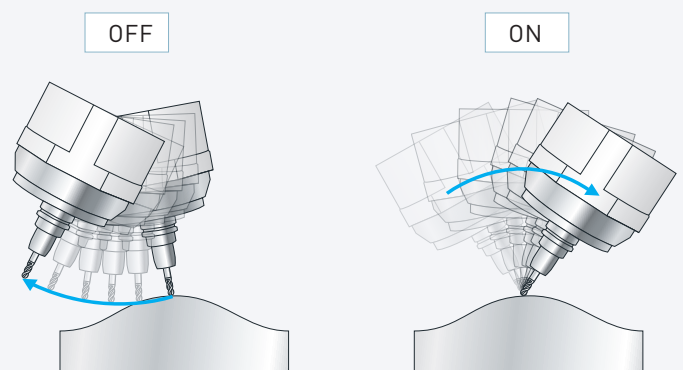
Direction smooth function can ease the position swing in 5 axes program by using multi-block. The purpose is to reach the property of smoothing both position and contour.

ORISON allows tool position smooth ( vector ) without involving contour, which is able to use high rotating axis tolerance, and increase process speed rate and shorten process time.



## TRAORI

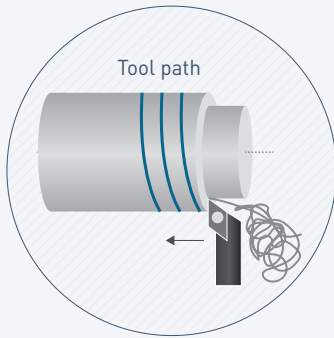
X, Y, Z correction movement will be recalculated and includes changing tool position, which tool tip stays in the same position. When calculating amount of movement, current tool length and work-piece frame will be considered.



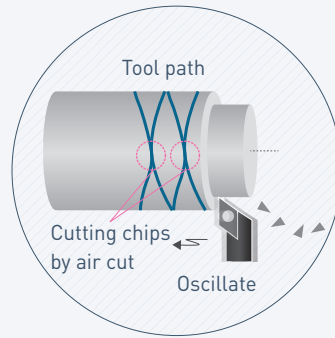
## OCR ( opt. )

OCR oscillating cutting function is to air cut fine chips while oscillates the slide axis fully synchronized relative to spindle rotation. No mechanical failure occurred due to entangled chips which enhances machine effectiveness.

### General Turning



### Oscillating Turning

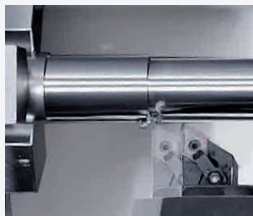


## AIR BAG ( opt. )

Check servo motor loading torque. When loading torque is out of range ( accidentally crash ), system will enter emergency status and return servo axis at the same time to lower the damage and avoid too much service cost and loss from the machine long stop.

Retract tools within **0.009 sec.**

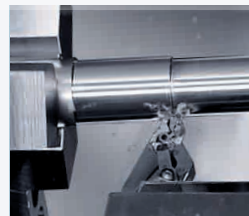
\* This function is limited to FANUC controller.



### Equipped with air bag

- Machine crash ▶ EMG
- ▶ Servo motor reverse rotary
- ▶ Machine stop

- Short maintenance time
- Less mechanical damage
- Predictable overload



### Not equipped with air bag

After machine crashed, axes continue feeding, machine structure might get damaged seriously.

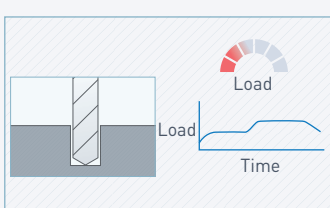
- Long maintenance time
- Badly mechanical damage
- Unpredictable overload

## LOAD MONITOR ( opt. )

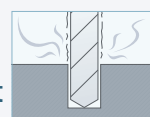
Load monitoring function can check the abnormal tool load via detecting the electric current variation of main spindle and servo motor when turning. When abnormal loading occurs, if achieve tool life, machine will stop when program end ( M30 ); If achieve wear value, machine will immediately pause the feedrate but will not stop the spindle.

### Tool Monitoring

NO.	TOOL	NAME	UNIT	REMARK	STATUS	WORN	WORN VAL	WORN UNIT	WORN TYPE
01	T1	SP1	2000	2000	100	100	100	100	X
02	T2	SP2	1000	1000	100	100	100	100	X
03	T3	SP3	500	500	100	100	100	100	X
04	T4	SP4	250	250	100	100	100	100	X
05	T5	SP5	125	125	100	100	100	100	X



Tool life achievement



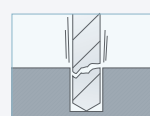
Load



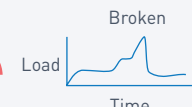
Wear warning

Machine stop

Tool wear



Load

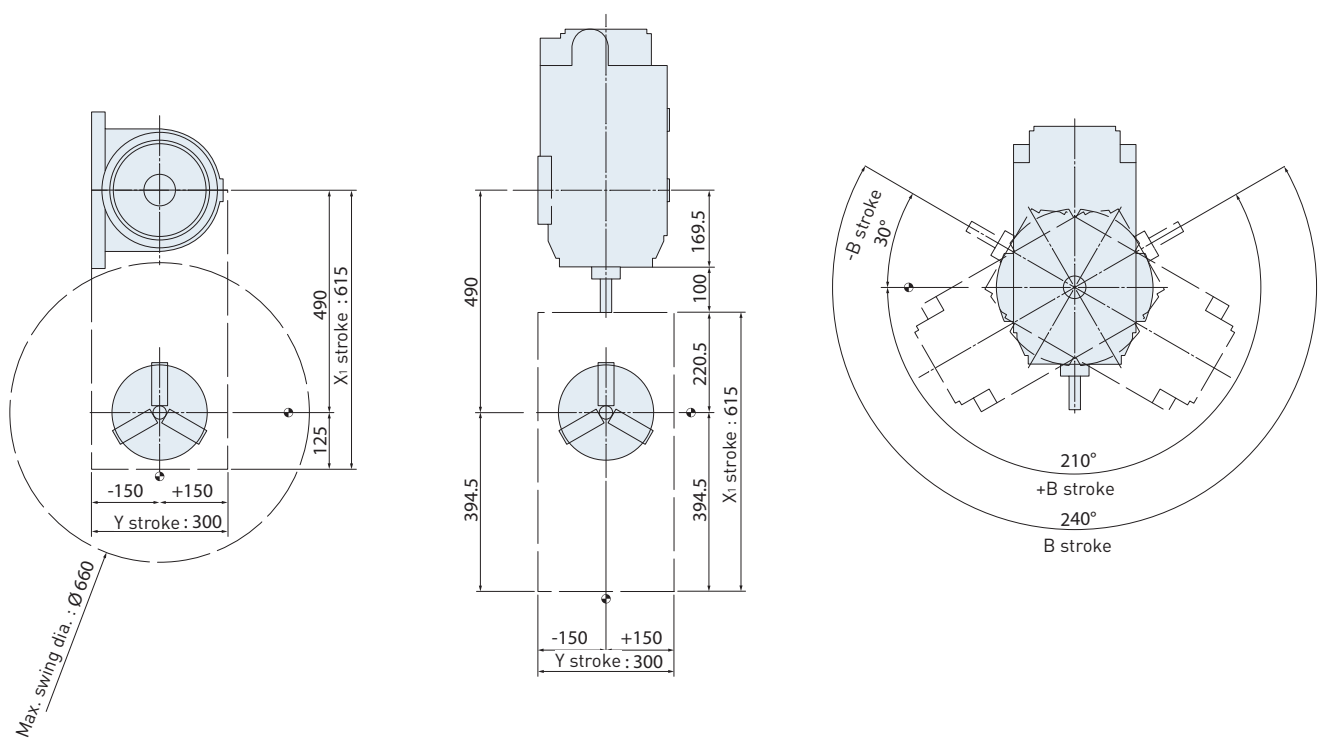
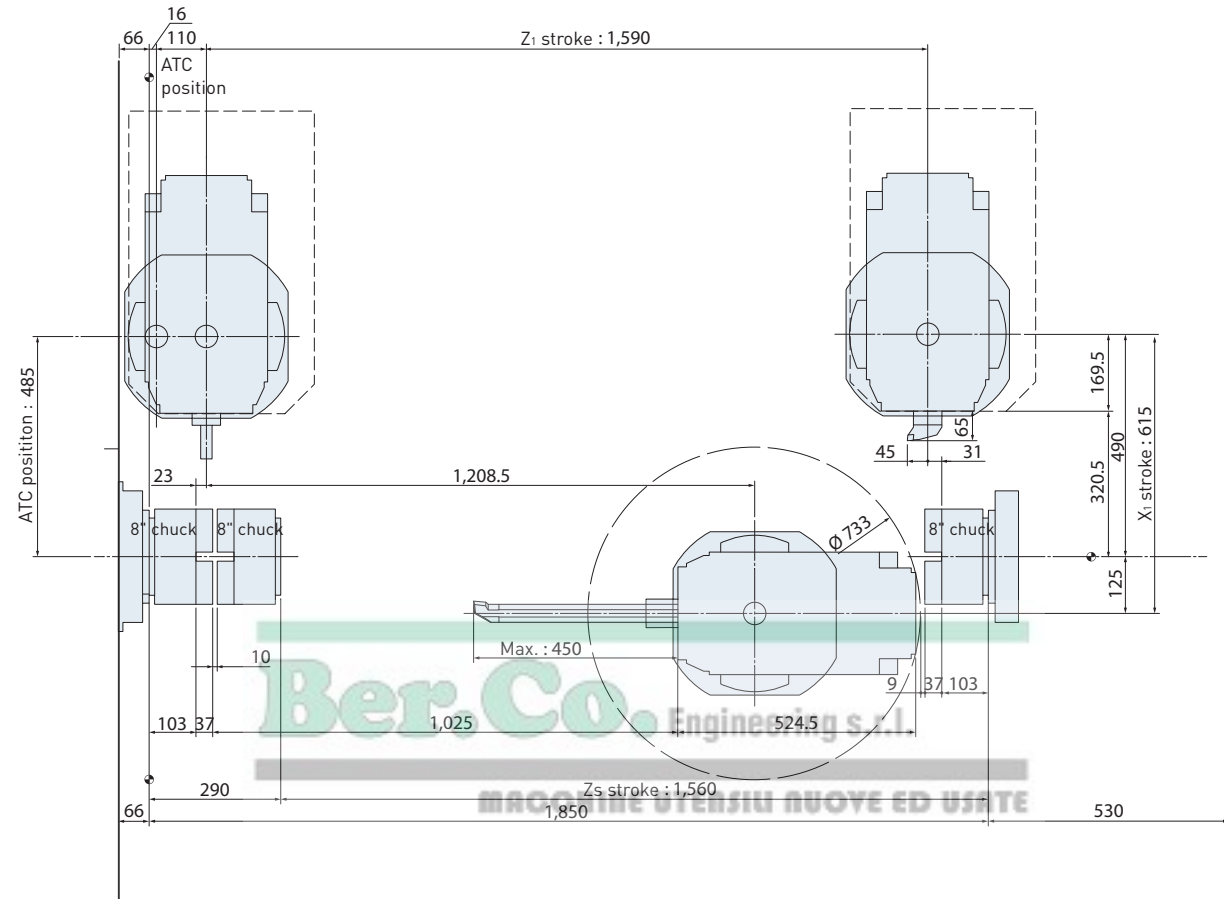


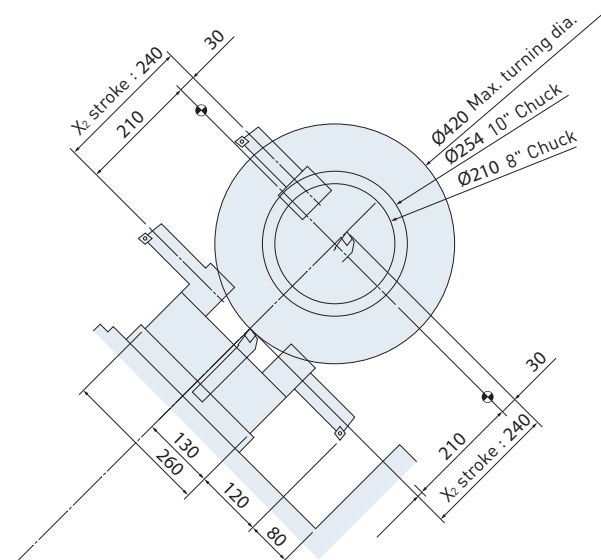
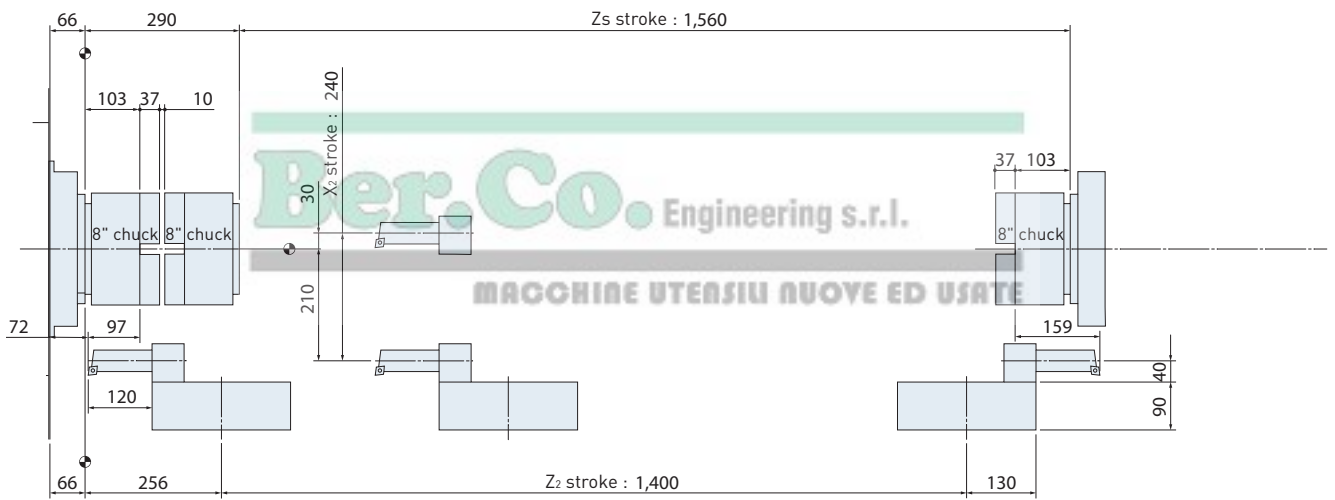
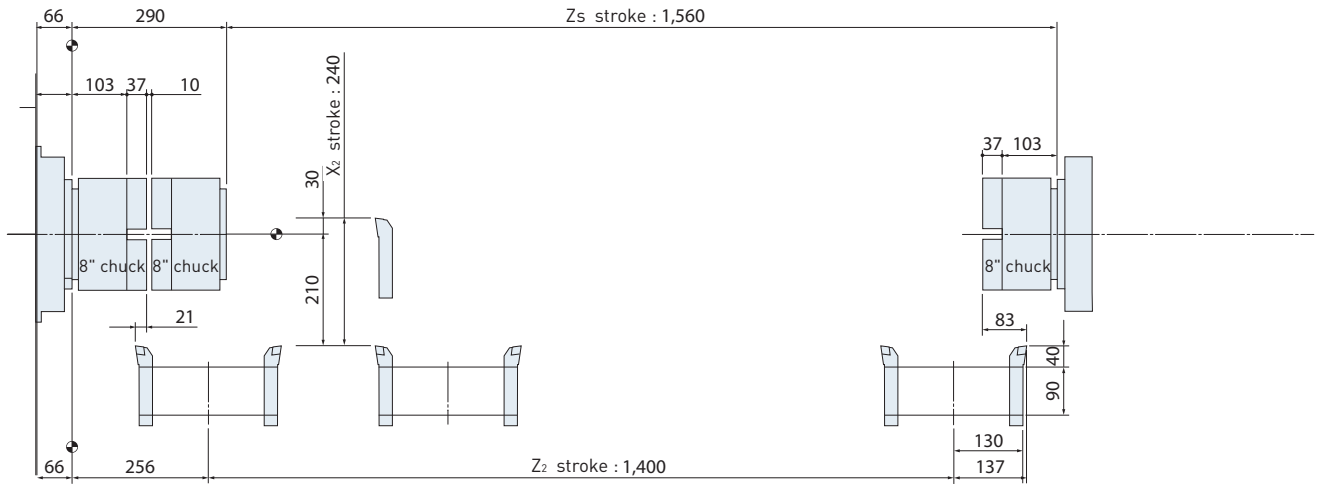
Broken

Feedrate stop

# GENERAL DIMENSION

Work Range **SIEMENS**

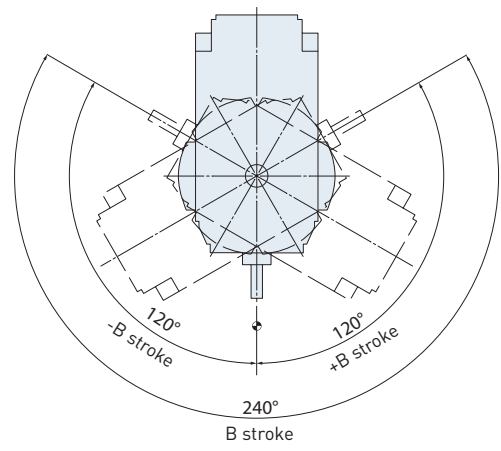
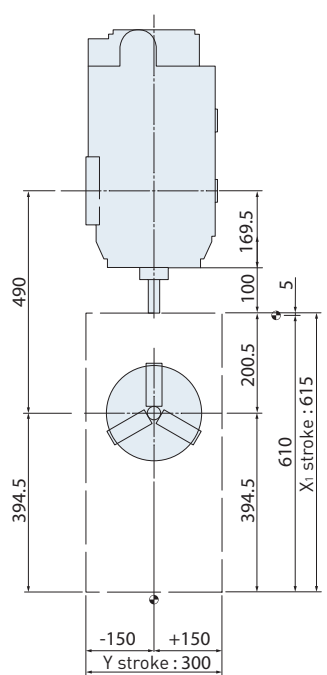
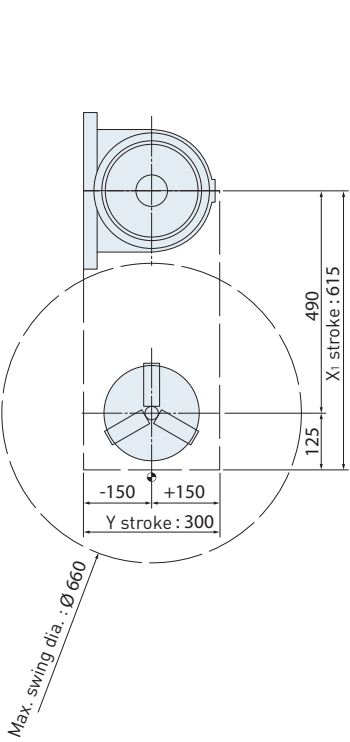
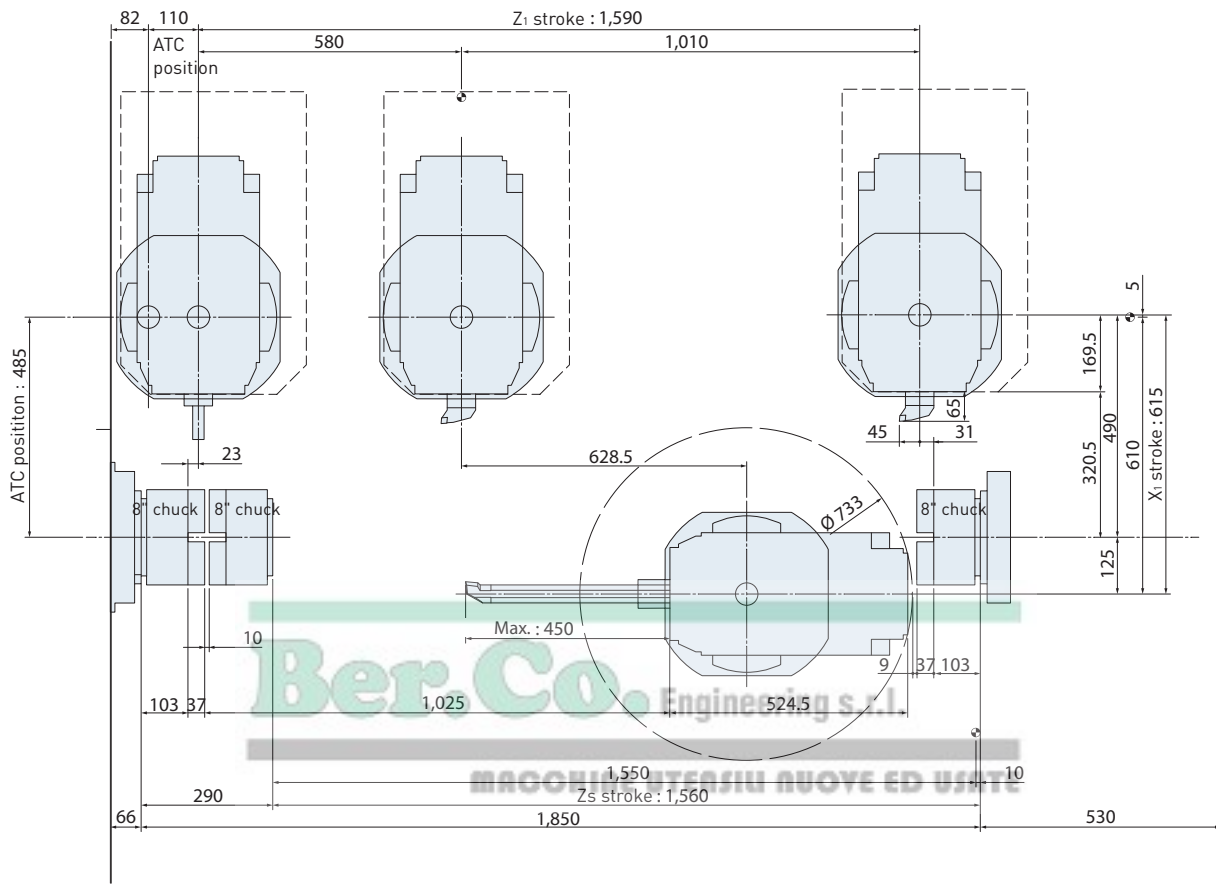




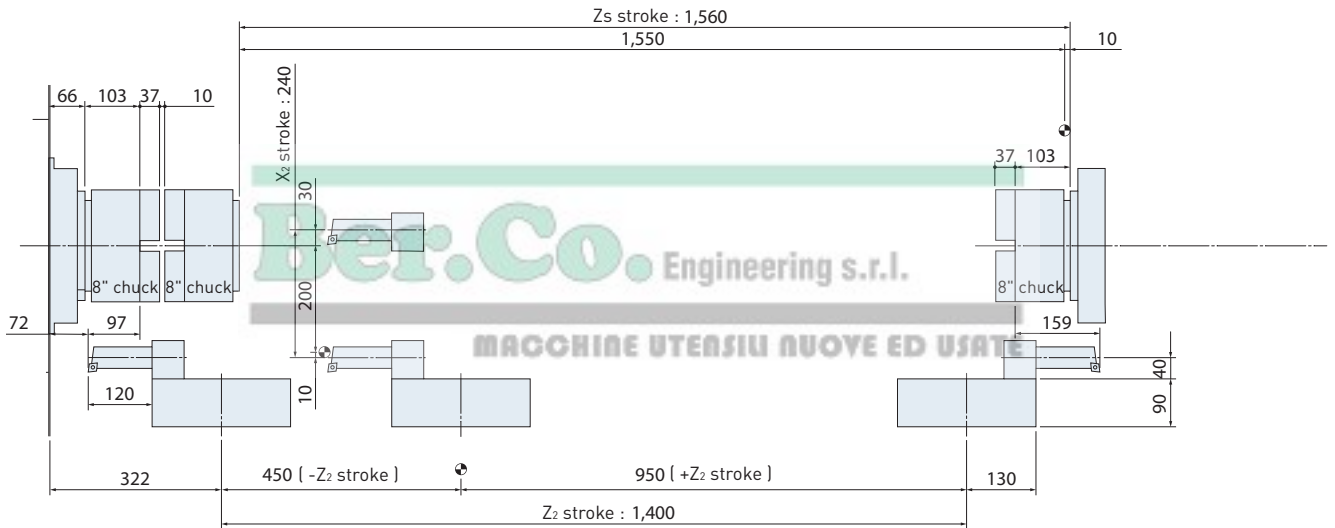
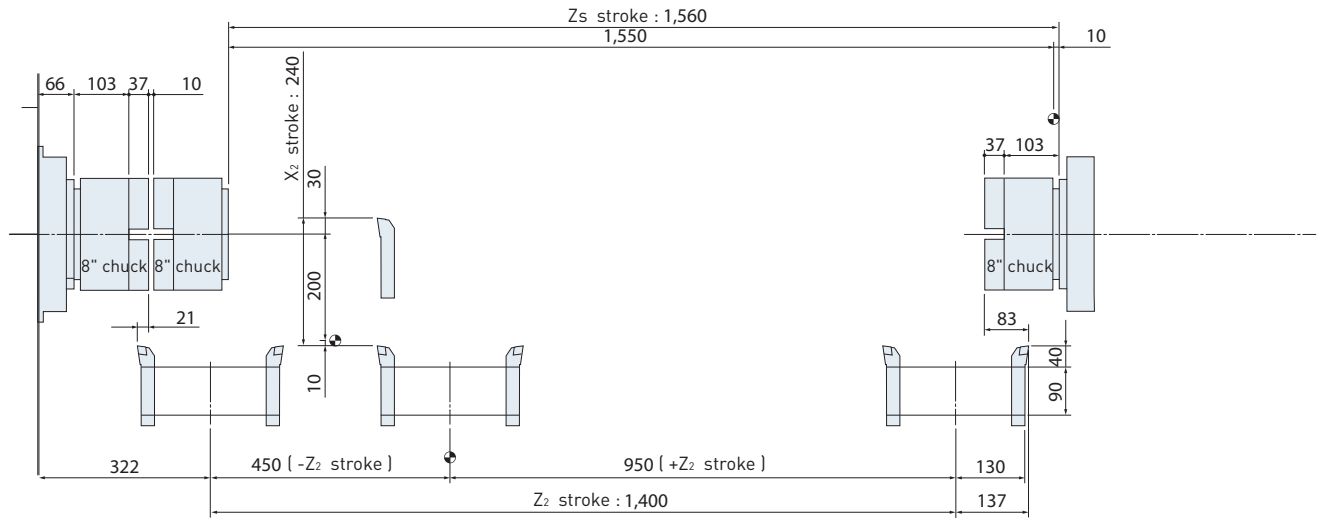
Unit : mm

# GENERAL DIMENSION

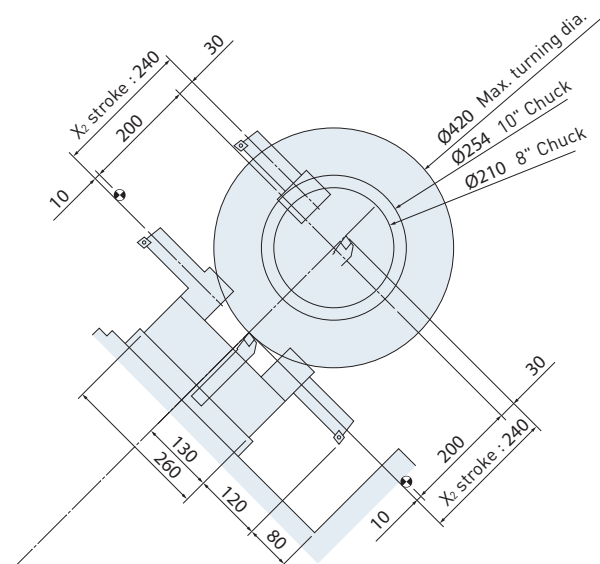
**Work Range** FANUC



Work Range **FANUC**



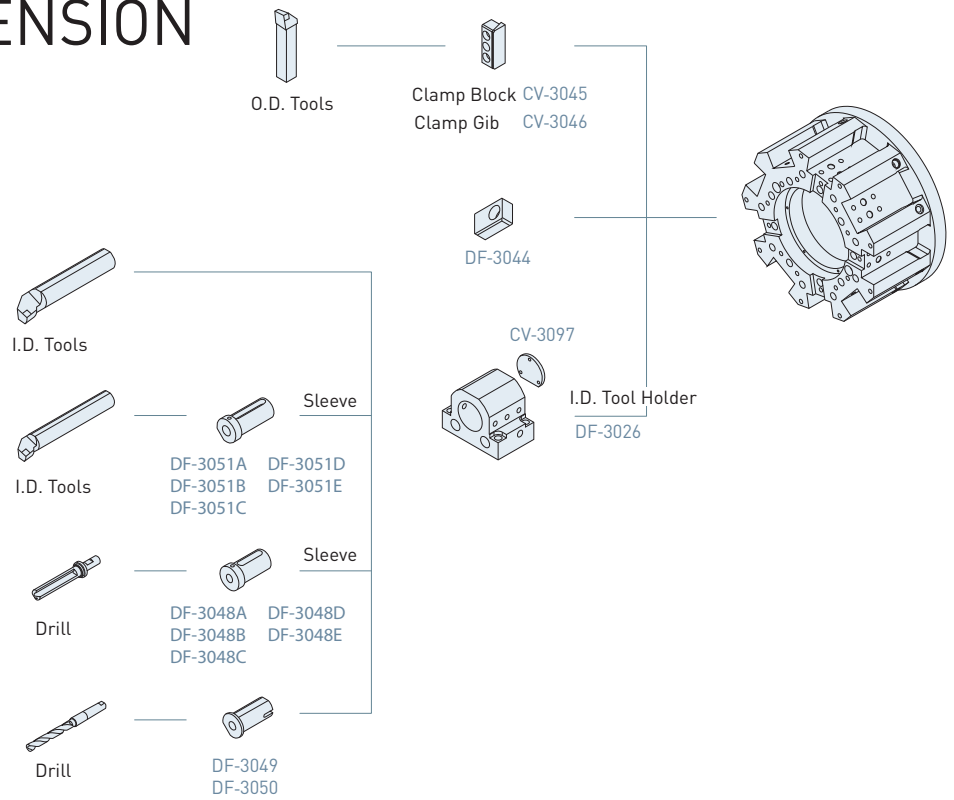
Interference Diagram **FANUC**



Unit : mm

# GENERAL DIMENSION

## Tooling System



# STANDARD & OPTIONAL FEATURES

S : Standard    O : Option  
 — : Not Available    C : Contact GOODWAY



SIEMENS CONTROL FUNCTIONS		ShopTurn	programGUIDE
System configuration	Control 2-4 axis at the same time	S	S
	Control 5 axes at the same time	—	S
	Minimum command unit 1nm, 0.0001 mm, .00001", 0.0001°	S	S
	Maximum programmable value : ±99999.9999 mm, ±9999.99999", ±99999.9999°	S	S
	Max.number of programs : 1000	S	S
	Program storage : 6GB	S	S
	Program storage expansion : USB/ FTP	S	S
	Display : 19" touch panel	S	S
Axis functions	Resolution : 720P	S	S
	Linear, circle, helix	S	S
	Splines, polynomials, involutes	S	S
	Advanced Surface	S	S
	Look Ahead	S	S
	Compressor	S	S
	Equal pitch threading	S	S
	Variable pitch threading	S	S
	Re-threading	S	S
	Override threading	S	S
Override variable threading	S	S	
CNC programming	SINUMERIK CNC programming language with high-level language elements	—	S
	Online ISO dialect interpreter	—	S
	ProgramGUIDE	—	S
	DXF reader	0	0
	Technology cycles for drilling, milling and turning	S	S
	Balance Cutting	S	S
	ShopMill / ShopTurn machining step programming	S	—
	Cycles for process measurements	S	S
	ProgramSYNC ( multi-channel operation and programming )	S	S
	3D CNC simulation for turning / milling	S	S
	Simulation in parallel to the main machining time	S	S

SIEMENS CONTROL FUNCTIONS		ShopTurn	programGUIDE
Axis functions	Acceleration with jerk limiting	S	S
	Dynamic precontrol	S	S
	Dynamic servo control in the drive	S	S
Tool function	Tool Management	S	S
	Number of tools/cutting edges, up to 600 / 1500	S	S
	Unit quantity / tool life monitoring with management of replacement tools	S	S
	3D tool radius compensation	—	S
Communication	OPC UA	S	S
		S	S
Coordinate system	Machine coordinate system	S	S
	Work coordinate system	S	S
	Local coordinate system	S	S
	External workpiece coordinate shift	S	S
	Machine coordinate system shift	S	S
	Additional work coordinates	S	S
Transformations	Face / peripheral surface transformation	S	S
	Multi-side machining ( 3+2-axis machining )	S	S
	Dynamic 5-axis machining ( TRAORI )	—	S
Machine special function	Travel to fixed stop with force control	S	S
	Synchronized actions	S	S
	Asynchronous subprograms	S	S
	Hobbing	—	0
Compensation	Collision Avoidance	S	S
	Volumetric compensation	0	0
Monitoring	Vibration control and monitoring	0	0

Specifications are subject to change without notice.



# STANDARD & OPTIONAL FEATURES

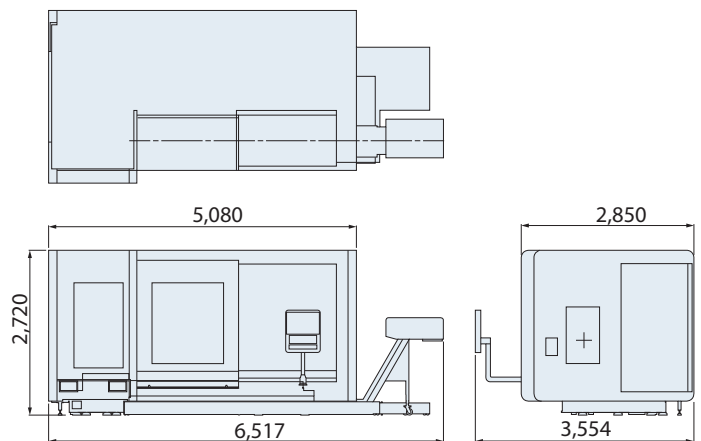
S : Standard      O : Option  
 - : Not Available    C : Contact GOODWAY

		GMT-2000	GMT-2005	GMT-2005T
<b>SPINDLE 1</b>				
4,500 rpm ( Hole through spindle Ø76mm )		S	S	S
3,800 rpm ( Hole through spindle Ø91mm )		O	O	O
3,200 rpm ( Hole through spindle Ø113mm )		O	O	O
Hollow hydraulic chuck	8" ( Hole through spindle Ø76mm )	O	S	S
	10" ( Hole through spindle Ø91mm )	O	O	O
	12" ( Hole through spindle Ø113mm )	O	O	O
	15" ( Hole through spindle Ø113mm )	O	O	O
Solid hydraulic chuck	8" ( Hole through spindle Ø76mm )	S	-	-
	10" ( Hole through spindle Ø91mm )	O	-	-
	12" ( Hole through spindle Ø113mm )	O	-	-
Work-piece block in spindle		O	O	O
<b>SPINDLE 2</b>				
4,500 rpm ( Hole through spindle Ø76mm )		-	S	S
3,800 rpm ( Hole through spindle Ø91mm )		-	O	O
8" Hollow hydraulic chuck + solid hydraulic chuck		-	S	S
10" Hollow hydraulic chuck + solid hydraulic chuck		-	O	O
<b>C-AXIS</b>				
Main spindle 0.0001° indexing ( C-axis control )		S	S	S
Second spindle 0.0001° indexing ( C-axis control / synchronization function )		-	S	S
<b>LOWER TURRETS</b>				
9-station turret		-	-	S
<b>MILLING SPINDLE</b>				
Y-axis control		S	S	S
B-axis 0.0001° indexing / contouring ( EIA )		S	S	S
12,000 rpm ( oil-air lubrication ) HSK		S	S	S
12,000 rpm ( oil-air lubrication ) CAPTO		O	O	O
<b>ATC MAGAZINE</b>				
40T		S	S	S
80T		O	O	O
120T		O	O	O
<b>TAILSTOCK</b>				
Programmable base tailstock		S	-	-
MT#5 Live center		S	-	-
Hydraulic steady rest ( L <sup>1</sup> & L <sup>2</sup> opt. )		O	O	O
Programmable dual pressure	Spindle 1	O	O	O
	Spindle 2	-	O	O
<b>HIGH PRECISION PREPAREDNESS</b>				
Ball screw hollow coolant	X-axis	S	S	S
	Y, Z axes	O	O	O
	Zs-axis	-	O	O
	X <sub>2</sub> , Z <sub>2</sub> axes	-	-	O
High Resolution Linear Scale	B-axis	S	S	S
	X, Y, Z axes	O	O	O
	X <sub>2</sub> , Z <sub>2</sub> axes	-	-	O
X, Y, Z axes screw pitch correction		S	S	S
RMP60 wireless bluetooth transmission measuring head		O	O	O
<b>AUTOMATIC OPERATION SUPPORT</b>				
Tool Presetter	Tooling spindle / Automatic	O	O	O
	Lower turret / Automatic	-	-	O
Automatic chuck jaw open / close		S	S	S
Chuck jaw open / close confirmation		S	S	S
Automatic opening / closing front door		O	O	O
Automatic power ON / OFF + warm-up system		O	O	O
Machining finish buzzer		O	O	O
RFID tooling management system		O	O	O
Bar feeder		O	O	O
Gantry-type loader / unloader		O	O	O
Part catcher Ø90 mm × L150 mm × 6 kg ( Hole through spindle Ø76 mm )		O	O	O
Part catcher Ø90 mm × L150 mm × 6 kg ( Hole through spindle Ø91 mm )		O	O	O
Part catcher Ø102 mm × L150 mm × 6 kg ( Hole through spindle Ø113 mm )		O	O	O
Robot interface		O	O	O
Bar feeder interface		O	O	O

		GMT-2000	GMT-2005	GMT-2005T
<b>COOLANT / CHIP DISPOSAL</b>				
Base flushing		S	S	S
Coolant nozzle around spindle		S	S	S
Coolant through spindle	0.5 Mpa	S	S	S
	1.5 Mpa	O	O	O
	3.5 Mpa	O	O	O
	7 Mpa	O	O	O
Lower turret coolant oil large flow		-	-	S
Spindle 1 side coolant		O	O	O
Coolant temperature control		O	O	O
Oil skimmer		O	O	O
Oil mist collector		O	O	O
Spindle 1 side coolant + air blow		O	O	O
Air blast through spindle		O	O	O
Spindle 1 jaws air blow		O	O	O
Spindle 2 jaws air blow		O	S	S
Tailstock quill air blow		O	-	-
Chip conveyor ( Hinge )		O	O	O
Chip conveyor ( Magnet scraper )		O	O	O
Chip conveyor ( Scraper )		O	O	O
Chip cart		O	O	O
<b>SAFETY</b>				
Hydraulic pressure lock ( pressure promise )		S	S	S
Auto door lock		S	S	S
Electrical leakage short circuit ( 200 mA )		S	S	S
Load monitor		O	O	O
<b>OTHER</b>				
Tri-color operation status light tower		S	S	S
Flourescent work light		S	S	S
Double type foot pedal		O	O	O
Operation & maintenance manuals ( CD )		S	S	S

Specifications are subject to change without notice.

## Machine Dimensions



Unit : mm

# MACHINE SPECIFICATIONS

■ : Metric ■ : Inch

	GMT-2000	GMT-2000S	GMT-2000ST
<b>CAPACITY</b>			
Max. swing diameter	Ø 660 mm 25.98"		
Max. turning diameter ( Milling spindle )	Ø 660 mm 25.98"		
Max. turning diameter ( Lower turret )	—		Ø 420 mm 16.53"
Max. turning length	1,020 / 1,520 ( L <sup>1</sup> ) / 2,520 ( L <sup>2</sup> ) mm 40.15" / 59.84" / 99.21"		1,520 ( L <sup>1</sup> ) / 2,520 ( L <sup>2</sup> ) mm 59.84" / 99.21"
Bar capacity	A : Ø 65 / B : Ø 80 / C : Ø 102 mm 2.55" / 3.15" / 4.01"		
Distance between spindle nose	—	1,350 / 1,850 ( L <sup>1</sup> ) / 2,850 ( L <sup>2</sup> ) mm 53.15" / 72.83" / 112.2"	1,850 ( L <sup>1</sup> ) / 2,850 ( L <sup>2</sup> ) mm 72.83" / 112.2"
Spindle center height	1,235 mm 48.62"		
<b>TRAVEL</b>			
Max. X <sub>1</sub> -axis travel ( Milling spindle )	615 mm 24.21"		
Max. Z <sub>1</sub> -axis travel ( Milling spindle )	1,090 / 1,590 ( L <sup>1</sup> ) / 2,590 ( L <sup>2</sup> ) mm 42.91" / 62.59" / 101.96"		1,590 ( L <sup>1</sup> ) / 2,590 ( L <sup>2</sup> ) mm 62.59" / 101.96"
Max. Y <sub>1</sub> -axis travel ( Milling spindle )	±150 mm ±5.9"		
Max. X <sub>2</sub> -axis travel ( Lower turret )	—		240 mm 9.44"
Max. Z <sub>2</sub> -axis travel ( Lower turret )	—		1,400 ( L <sup>1</sup> ) / 2,400 ( L <sup>2</sup> ) mm 55.11" / 94.48"
Max. B-axis travel ( Milling spindle )	240° ( + 210° ~ - 30° )		
Max. Z <sub>s</sub> travel ( Spindle 2 )	—	1,060 / 1,560 ( L <sup>1</sup> ) / 2,560 ( L <sup>2</sup> ) mm 41.73" / 61.41" / 100.78"	—
Max. Z <sub>s</sub> travel ( Tailstock )	1,060 / 1,560 ( L <sup>1</sup> ) / 2,560 ( L <sup>2</sup> ) mm 41.73" / 61.41" / 100.78"	—	
<b>SPINDLE 1</b>			
Chuck size	A : 8" / B : 10" / C : 12"		
Max. spindle speed	A : 4,500 / B : 3,800 / C : 3,200 rpm		
Spindle nose	A : A2-6 / B : A2-8 / C : A2-8		
Hole through spindle	A : Ø 76 / B : Ø 91 / C : Ø 113 mm 2.99" / 3.58" / 4.44"		
Spindle bearing diameter	A : Ø 120 / B : Ø 140 / C : Ø 160 mm 4.72" / 5.51" / 6.29"		
Spindle torque S6-40%	A : 610 / B : 795 / C : 1,190 Nm 449 / 586 / 877 lb-ft		
Min. indexing increment	0.0001°		
<b>SPINDLE 2</b>			
Chuck size	—	A : 8" / B : 10" / C : 10"	
Max. spindle speed	—	A : 4,500 / B : 3,800 / C : 3,800 rpm	
Spindle nose	—	A : A2-6 / B : A2-8 / C : A2-8	
Hole through spindle	—	A : Ø 76 / B : Ø 91 / C : Ø 91 mm 2.99" / 3.58" / 3.58"	
Spindle bearing diameter	—	A : Ø 120 / B : Ø 140 / C : Ø 140 mm 4.72" / 5.51" / 5.51"	
Spindle torque S6-40%	—	A : 610 / B : 795 / C : 795 Nm 449 / 586 / 586 lb-ft	
Min. indexing increment	—	0.001°	
<b>MILLING SPINDLE</b>			
Max. spindle speed	12,000 rpm		
O.D. tool shank size	□ 25 mm 1"		
I.D. tool shank size	Ø 40 mm 1-1/2"		
Spindle taper	HSK-T63 / Capto C6		
Milling spindle torque S6-40%	62 Nm 45 lb-ft		
Min. indexing increment ( B-axis )	0.0001°		

■ : Metric ■ : Inch

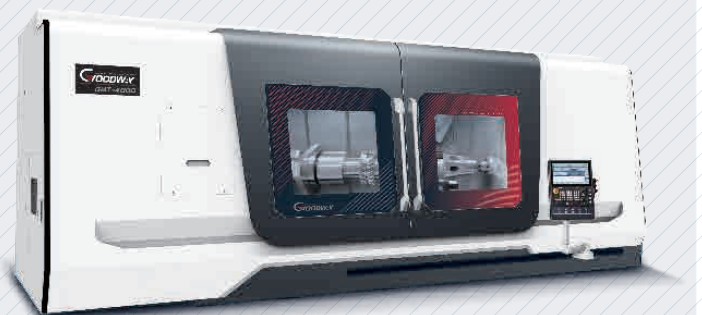
	GMT-2000	GMT-2000S	GMT-2000ST
<b>LOWER TURRET</b>			
Stations	—	—	9
Live tooling drive motor	—	—	AC Servo motor
O.D. tool shank size	—	—	□ 25 mm 1"
I.D. tool shank size	—	—	∅ 40 mm 1-1/2"
Index speed ( Adjacent )	—	—	0.2 sec.
<b>TAILSTOCK</b>			
Quill center taper	MT#5 Live center	—	—
<b>ATC MAGAZINE</b>			
Magazine capacity	40 / 80 / 120 T		
Max. tool diameter	∅ 90 mm [ adj. pocket empty : ∅ 130 mm ] 3.54" [ 5.11" ]		
Max. tool length	450 mm 17.71"		
Max. tool weight	12 kg 26 lb		
<b>FEED RATE</b>			
X <sub>1</sub> -axis	50 m/min. 1,968 IPM		
Z <sub>1</sub> -axis	50 m/min. 1,968 IPM		
Y <sub>1</sub> -axis	40 m/min. 1,574 IPM		
X <sub>2</sub> -axis	—	—	30 m/min. 1,181 IPM
Z <sub>2</sub> -axis	—	—	40 m/min. 1,574 IPM
B-axis	60 rpm		
C-axis	100 rpm		
Z <sub>s</sub> -axis	8 m/min. 314 IPM	—	40 m/min. 1,574 IPM
<b>SPINDLE MOTOR</b>			
Spindle 1 ( SIEMENS )	A : 25 / B : 30 / C : 30 kW 33 / 40 / 40 HP		
Spindle 2 ( SIEMENS )	—	A : 25 / B : 30 / C : 30 kW 33 / 40 / 40 HP	
Milling spindle S6-40%	20.8 kW 27 HP		
<b>GENERAL</b>			
NC controller	SIEMENS 840D sl / FANUC 31i - B5 ( 5-axis ) / 31i - B ( 4+1 axis )		
Voltage / Power requirement	AC 380 / 400 ±10% 3 phase / 133 KVA / 106 kW		
Hydraulic tank capacity	40 L 10.5 gal		
Lubricating oil tank capacity	0.7 L 0.18 gal		
Coolant tank capacity	385 L 100 gal	520 L 140 gal	790 L 210 gal
Machine height	2,720 mm 108"		
Dimensions ( L × W )	4,580 × 2,850 / 5,080 × 2,850 ( L <sup>1</sup> ) / 6,080 × 2,850 ( L <sup>2</sup> ) mm 180" × 112" / 200" × 112" / 239" × 112"		
Machine weight	14,500 kg 32,000 lb	16,600 kg 36,600 lb	20,800 kg 45,900 lb

Specifications are subject to change without notice.

## GMT-4000 SERIES ■ : Metric ■ : Inch

### MULTI-TASKING MACHINE

- Max. swing diameter : ∅ 820 mm 32.28"
- Max. turning diameter : ∅ 820 mm 32.28"
- Max. turning length : 3,100 mm 122.04"
- Chuck size : 15" ( 24" opt. )





GOODWAYCNC.com

## GOODWAY MACHINE CORP.

### HEADQUARTERS

No.13, 5<sup>th</sup> Road,  
Taichung Industrial Park,  
Taichung City, 407, Taiwan  
E-mail : [goodway@goodwaycnc.com](mailto:goodway@goodwaycnc.com)

### CENTRAL TAIWAN SCIENCE PARK BRANCH

No. 38, Keyuan Road,  
Central Taiwan Science Park.Taichung,  
Taichung City, 407, Taiwan  
TEL : + 886-4-2463-6000  
FAX : + 886-4-2463-9600

### GOODWAY MACHINE ( WUJIANG ) CO.,LTD

No. 4888, East Lake Taihu Avenue, Wujiang  
Economic and Technological Development Zone,  
Jiangsu, China  
Sales Hotline : + 86-512-8286-8680  
Service Hotline : + 86-512-8286-8066  
FAX : + 86-512-8286-8620  
E-mail : [goodway@goodwaycnc.cn](mailto:goodway@goodwaycnc.cn)