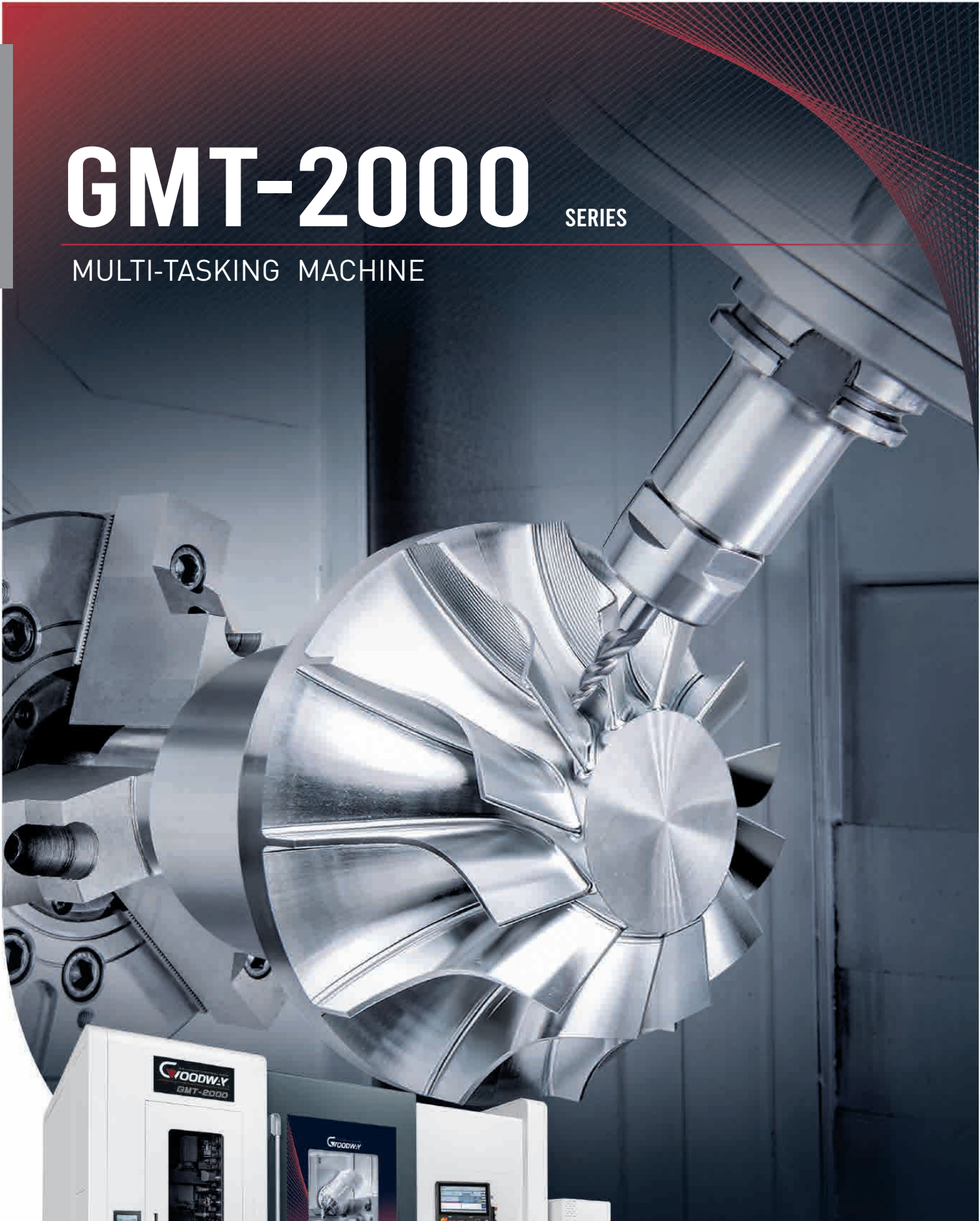# GMT-2000 SERIES

MULTI-TASKING MACHINE

THE ULTIMATE MACHINING POWER

GOODWAY

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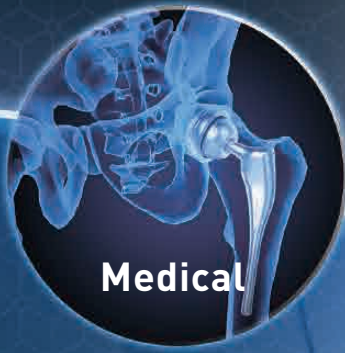The workpiece can be set from raw material to finished parts once.

80 % save
Number of fixtures
Significantly reduce the number of fixtures required and the adjustment time.

Aerospace

Medical

**Automotive**

Energy

GMT-2000

MULTI-TASKING MACHINE

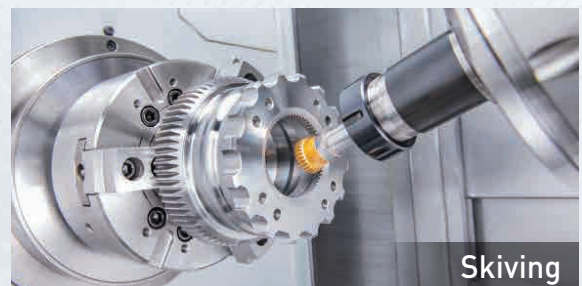GOODWAY

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.

Milling spindle
12,000 rpm

Spindle 1
8" / 10" / 12"

Tailstock
MT#5 (Live center)

Lower Turret (T)
9-station
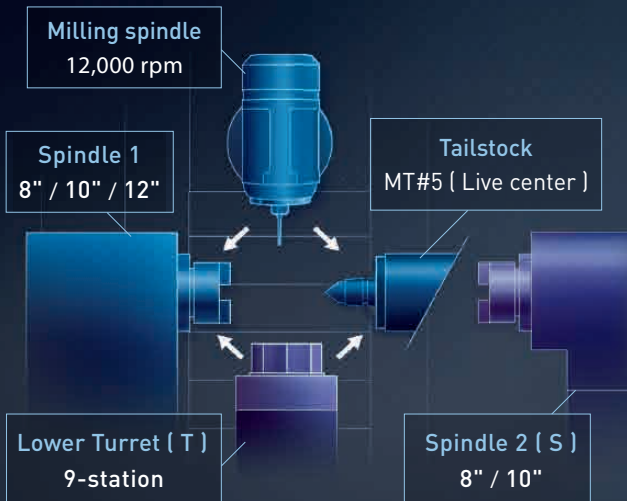
Spindle 2 (S)
8" / 10"

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

5-axis simultaneous milling

Balance cutting

Gear hobbing

Skiving

Simultaneous processing

Flash tool (multi-blade)

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

Max. turning diameter

Max. turning length

(std.)   (opt.)
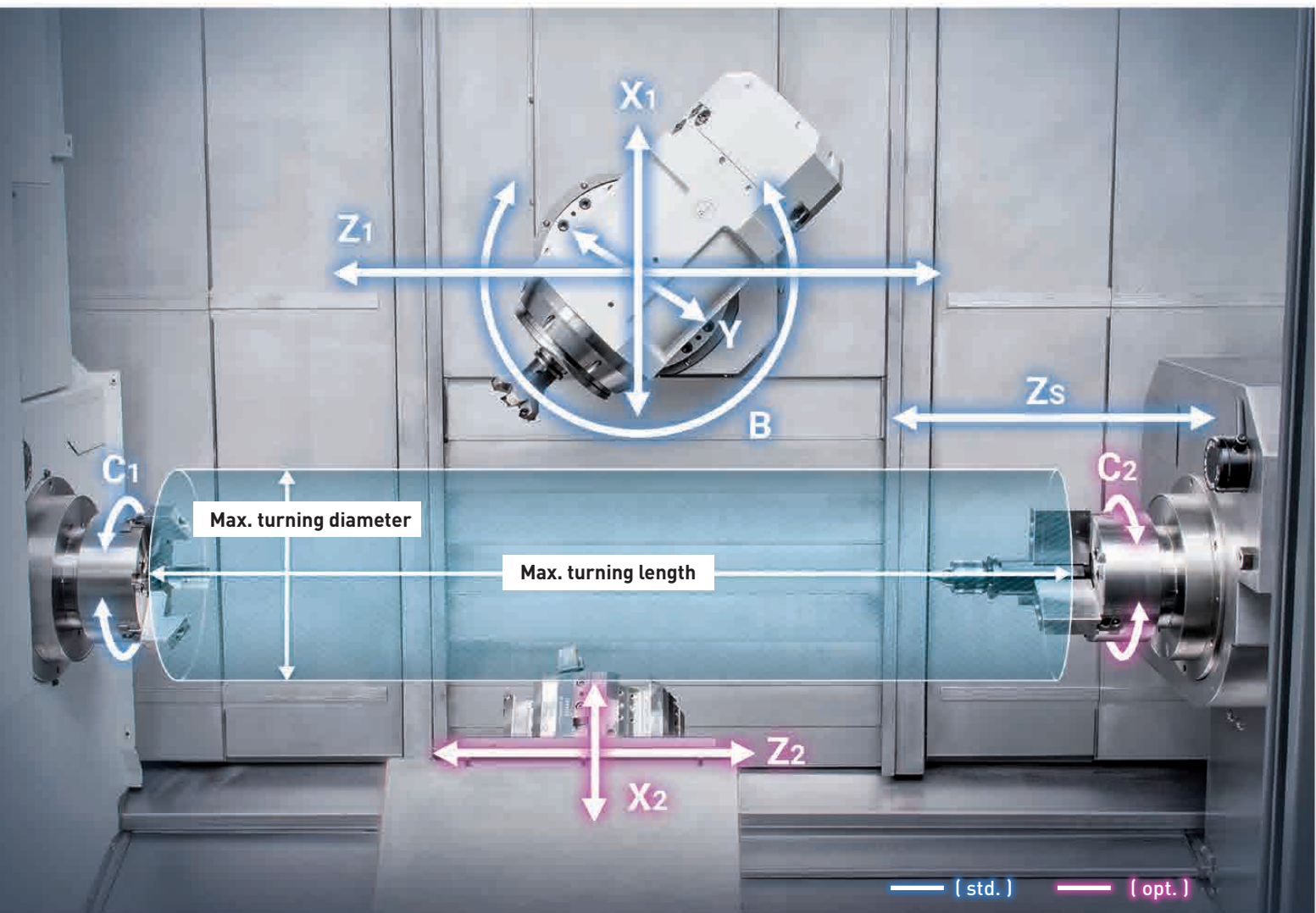
Significant Production Efficiency

- 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 ±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.

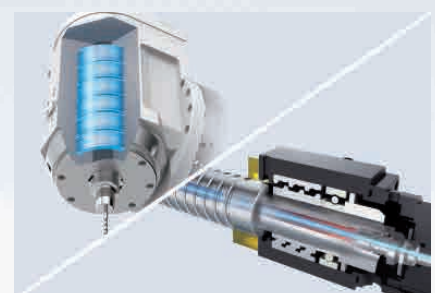- Optional spindle thermal compensation system.

*1 : The X_1-axis is equipped with a hollow ball screw as standard, other axial options are available.

615 mm
125 mm

X-axis travel

150 mm   150 mm
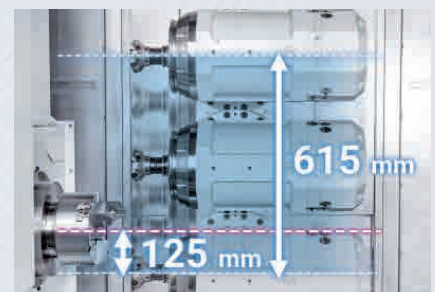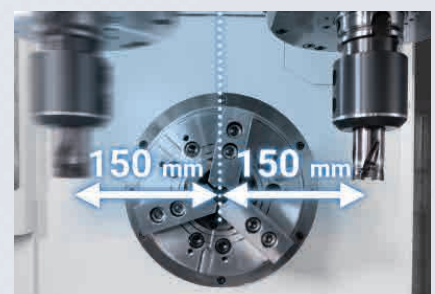
Y-axis travel

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.

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.
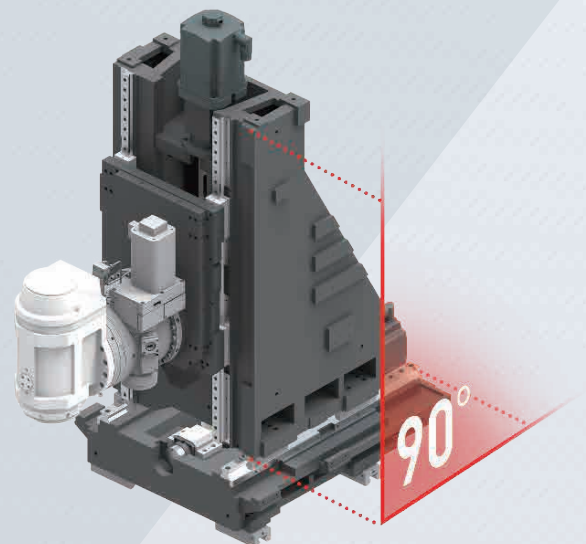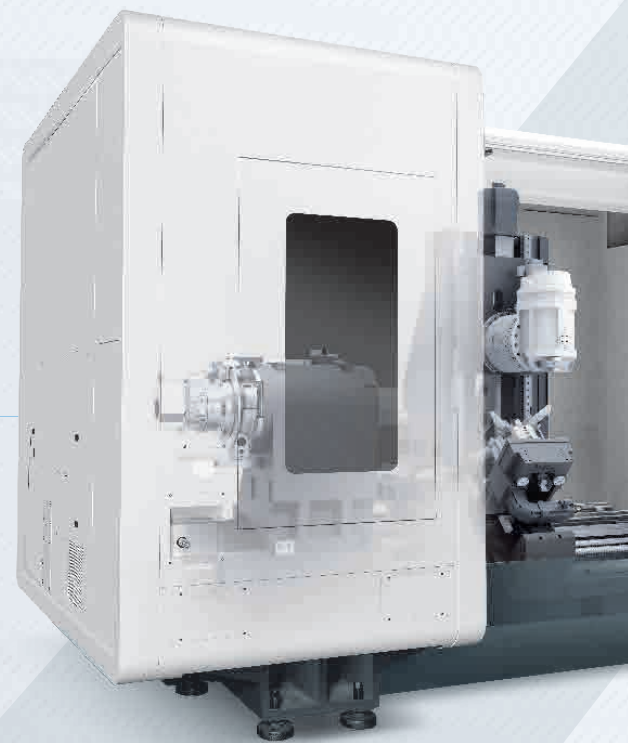
Spindle Cooling

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.
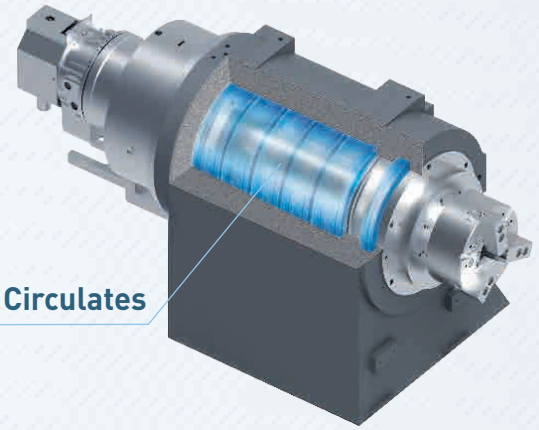
Cooling Oil Circulates

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_1-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.
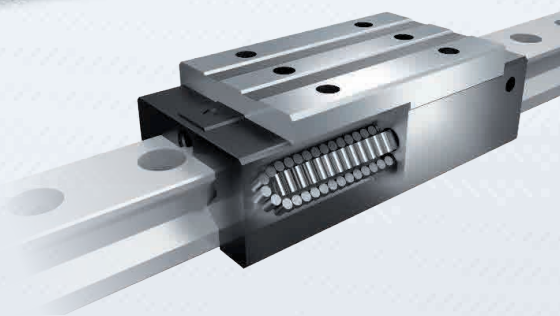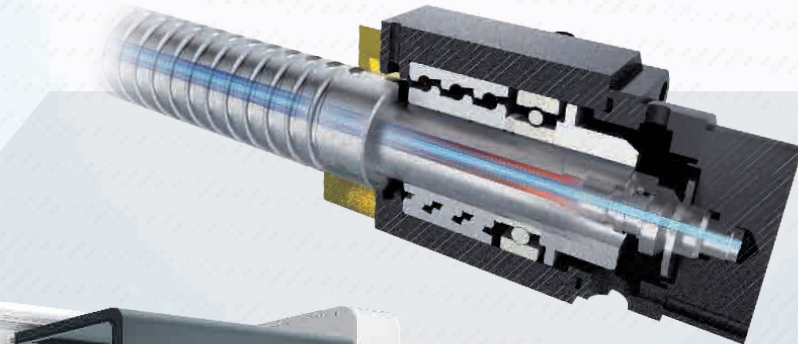
HIGH PERFORMANCE MILLING SPINDLE

The milling spindle comes with many features such as high speed, high horsepower, low interference, etc.; it can continuously index every 0.0001° within the 240° 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.

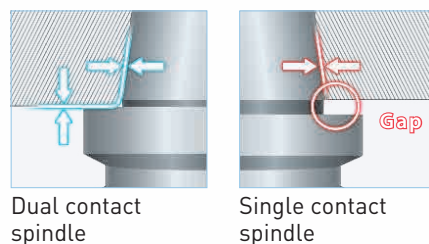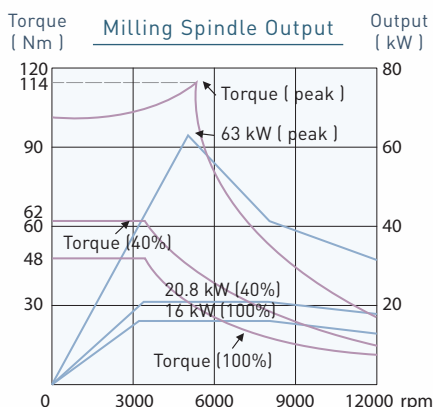· High rigidity dual contact spindle.

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.

Torque (Nm)   **Milling Spindle Output**   Output (kW)

120
114
90
63 kW (peak)
Torque (peak)
62
60
Torque (40%)
48
30
20.8 kW (40%)
16 kW (100%)
Torque (100%)
0   3000   6000   9000   12000 rpm

80
60
40
20

Dual contact spindle

Single contact spindle

Gap

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.

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° (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.
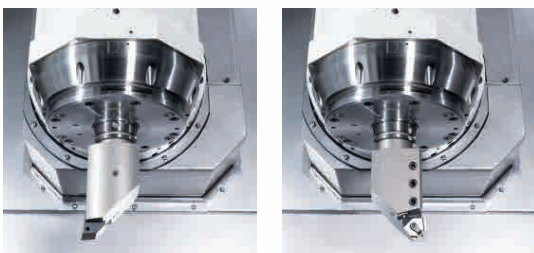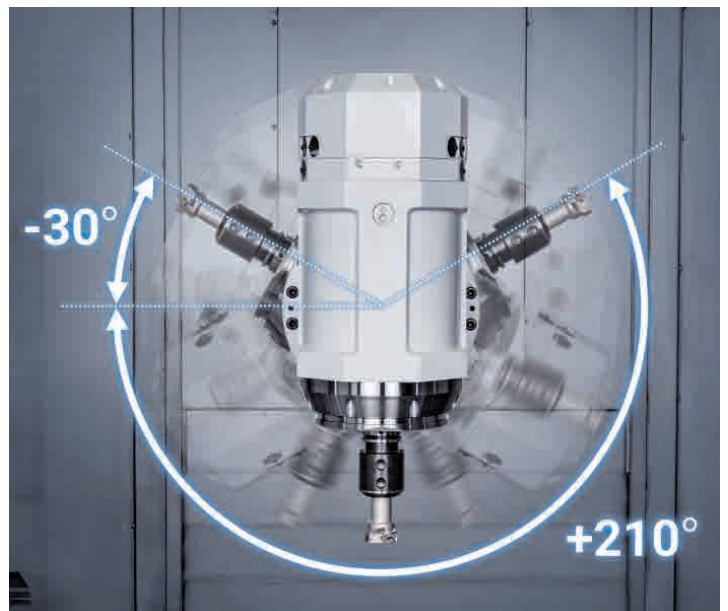

Through the rotation and positioning of the milling spindle, the same turning tool can support the first and second spindles, which can reduce the number of tools required, eliminate the time for tool exchange, and improve production efficiency.

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.
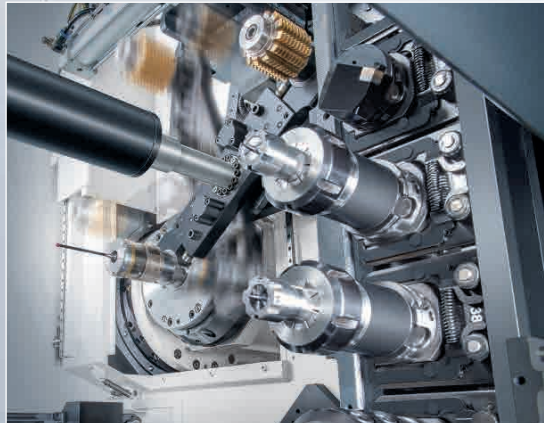
Arm type automatic tool change system

- 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.
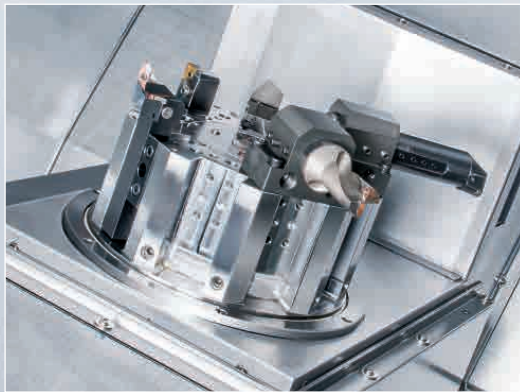
- When the long and slender workpiece is synchronized balance turning through the milling spindle and the lower turret, which can significantly reduce the processing time and obtain higher surface accuracy of the workpiece.

- 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.

9-station lower turret
(□ 25 / Ø 40 mm)
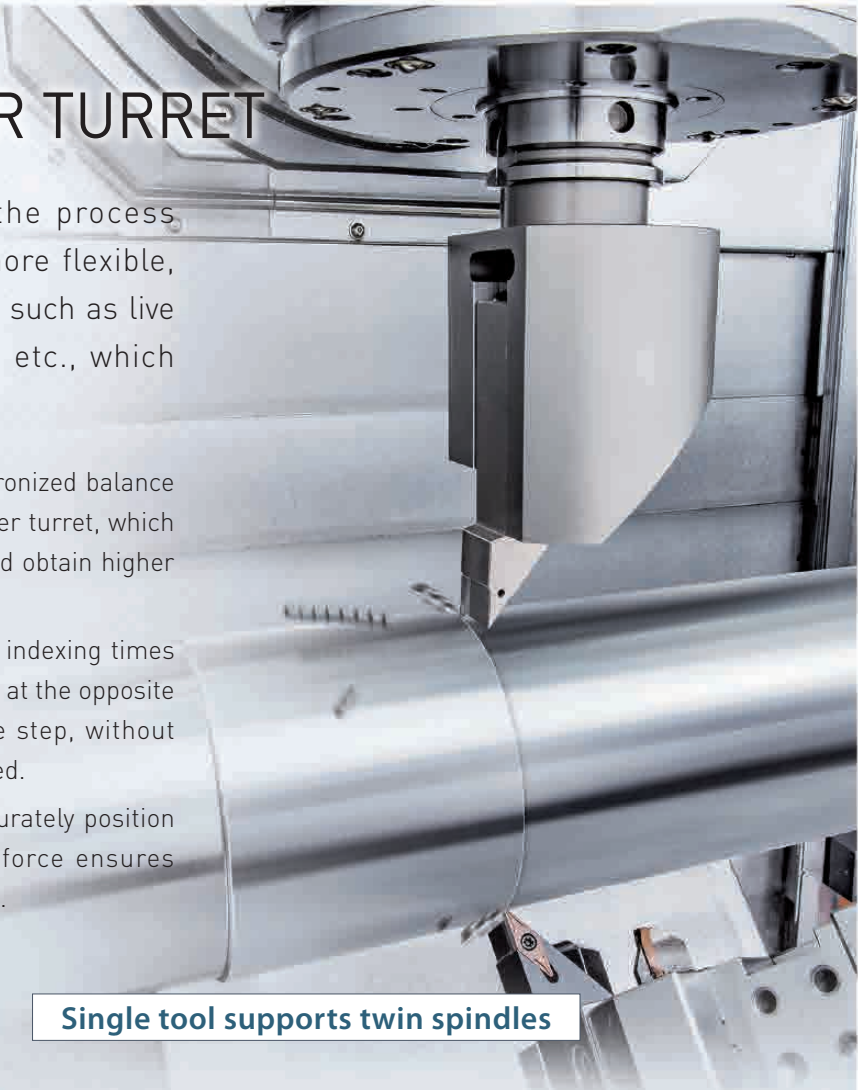
Single tool supports twin spindles
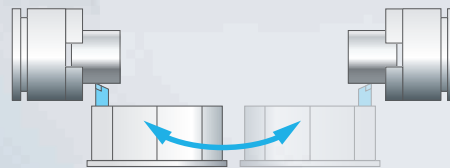
The lower turret can use the same tool to support the spindle 1 and spindle 2 respectively, which can reduce the number of machining tools required and make the tool position of the turret more flexible.

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
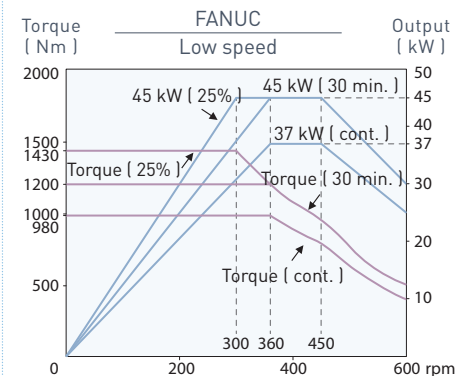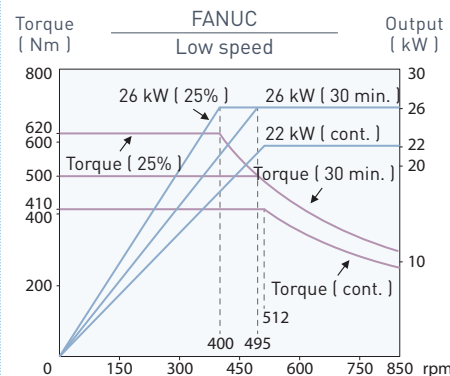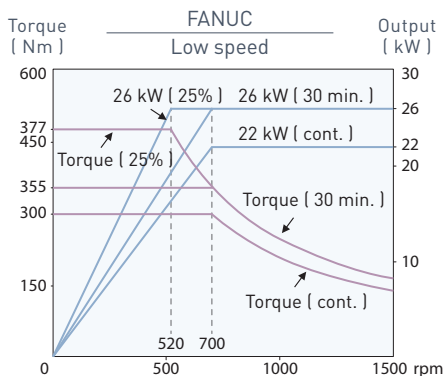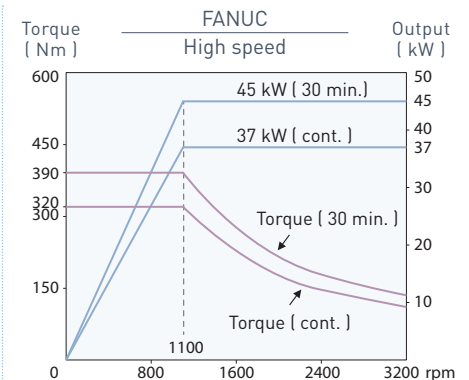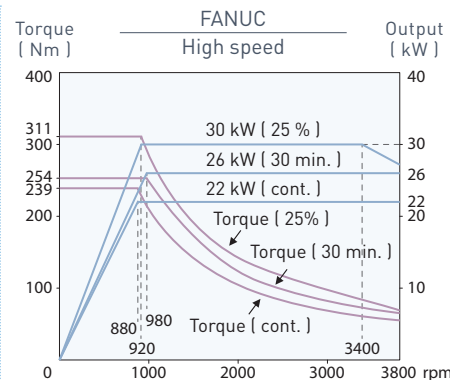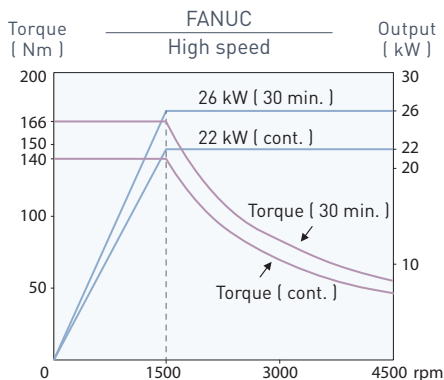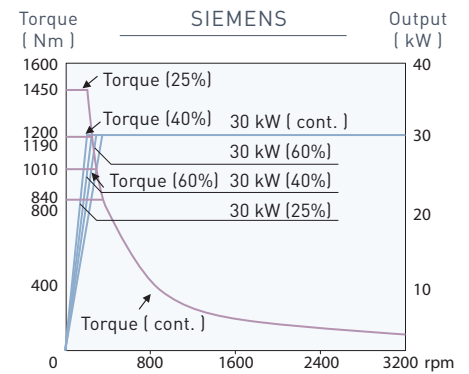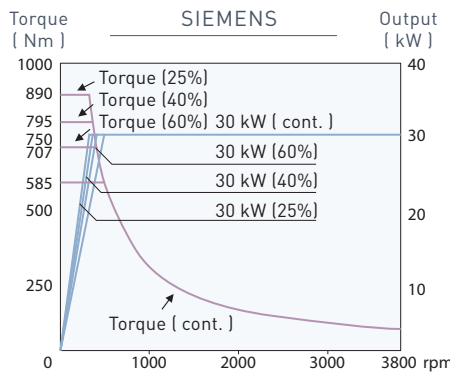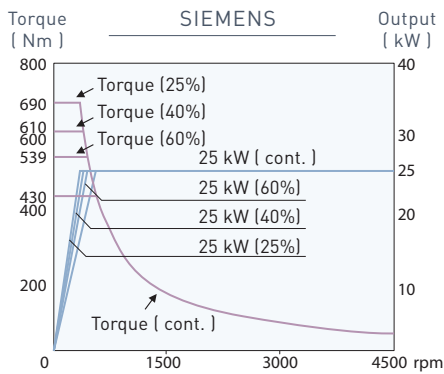
BACK PROCESSING CAPACITY

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.
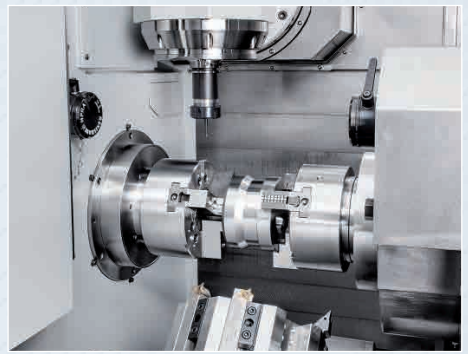
Parts Transfer by Spindle Synchronize RPM Feature

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 picked up the workpiece from spindle 1 and then perform back side matching.
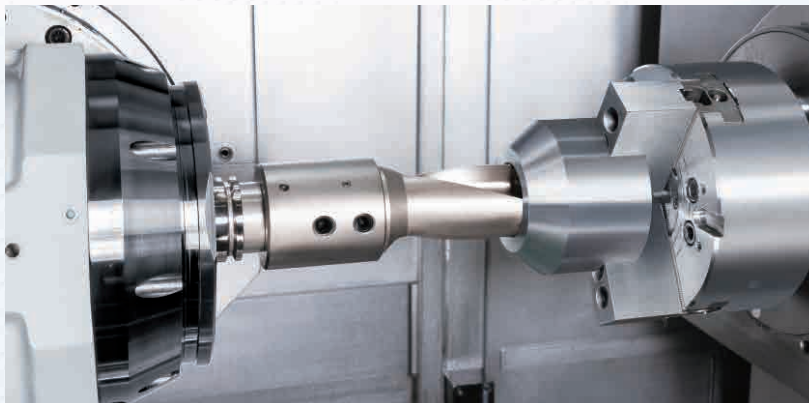
PRECISION C-AXIS CONTROL

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° and extremely high dynamic performance.

Universal Disc Brake System

The brake system adopts the design of 360° 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)
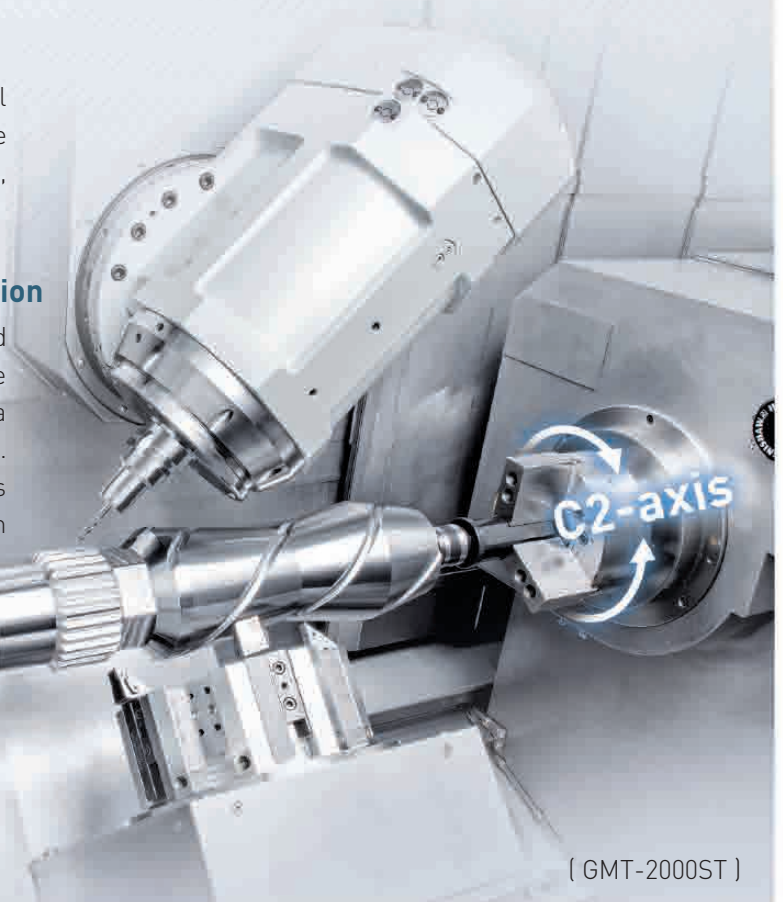
HIGH RIGIDITY SERVO TAILSTOCK

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

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.

The Width of Door Open
1,590 mm

760 mm
800 mm

High Visibility And Impact-resistance Window

Spindle Center Height
1,235 mm

Adjustable Control Panel

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

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.

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
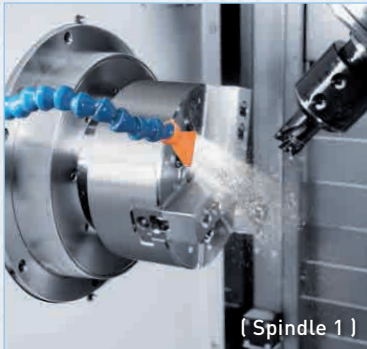
(Spindle 1)

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			
Chip material	Steel	aluminum	color metal	casting	aluminum	copper	non-metal
Chain belt type	●	●	●	—	—	—	●
Scrape type	—	—	—	●	●	●	—

● Applicable   — Not applicable

OPTIONAL ACCESSORIES
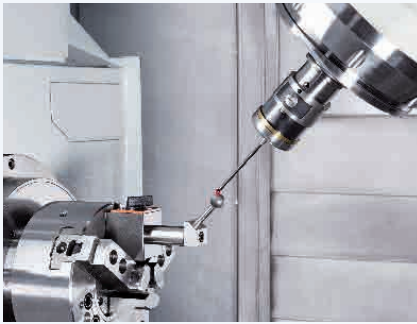
The Measurement for The Center Point of Rotating Axis

To adjust the deviation of center point for rotating axis.
(The signal is blue tooth transmission with non-directional)
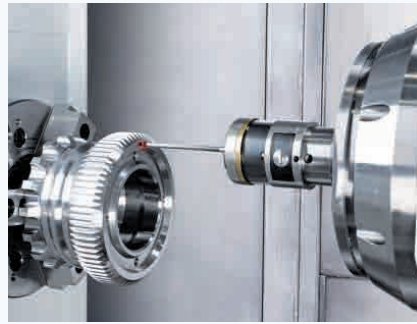
Workpiece Inspection Probe

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

(The probe arm for milling spindle)

Tool Presetter

Whole travel measurement is programmable control. It can be auto-hided 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 0.1μm resolution and the position accuracy will be ± 0.010 mm / full travel (JIS)

Auto Door

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.

Coolant Cooler

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.[1]

· Use Ethernet to connect[2] with machine, easy wiring and setting, save cost of purchasing hardware.

[1] Traditional manual adjusting way is constant frequency full flow output.
[2] Only FANUC / SIEMENS controller

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

Ultra fast tool selection

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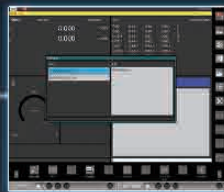
MDI program memory

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.
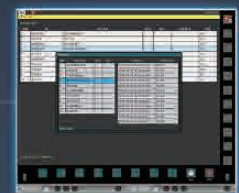
Data recorder

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.
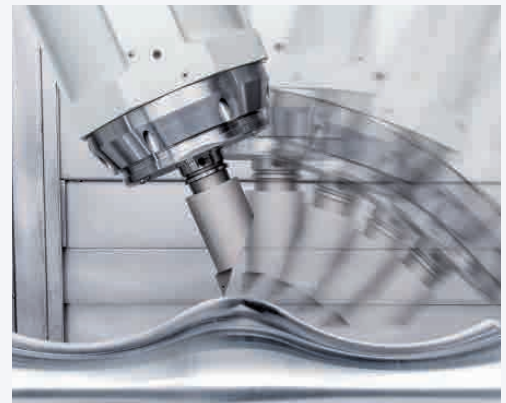
TRAORI

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.

OFF

ON
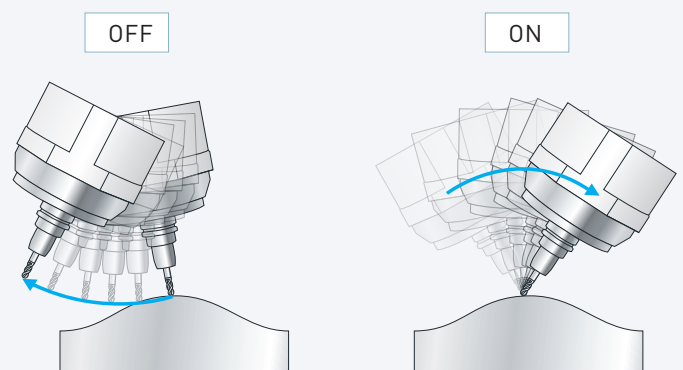
OCR (opt.)

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

Tool path

Cutting performance

Oscillating Turning

Tool path

Cutting chips by air cut

Oscillate

Cutting performance
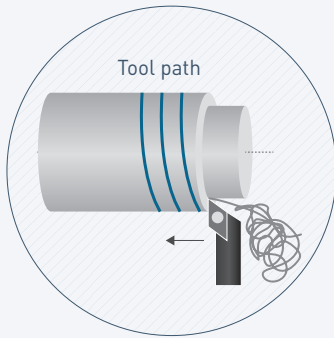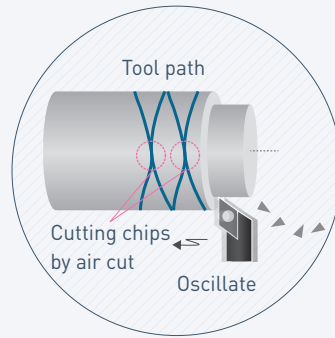
AIR BAG (opt.)

Check servo motor loading torque. When loading torque is out of range (accidently 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.
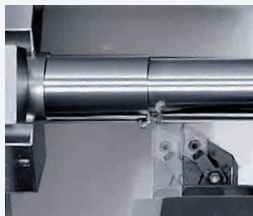
Equipped with air bag

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

· Short maintenance time · Less mechanical damage
· Predictable overload
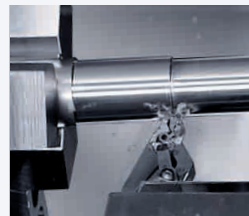
Not equipped with air bag

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

Load

Load

Time
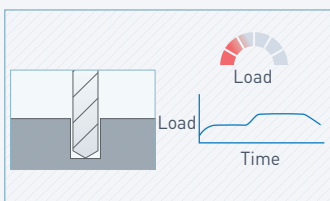
Tool life achievement

Load

Wear warning

Load

Time
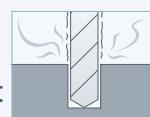
Machine stop

Tool wear

Load

Broken

Load

Time
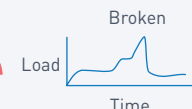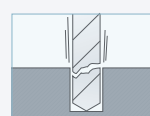
Feedrate stop

GENERAL DIMENSION

Unit：mm

GENERAL DIMENSION

82 | 110

ATC position

Z_1 stroke : 1,590

580 | 1,010

ATC posititon : 485

5

169.5

65

490

610

320.5

X_1 stroke : 615

23

628.5

Ø733

45 | 31

8" chuck | 8" chuck

8" chuck

125

10

Max. : 450

9 | 37 103

103 37

1,025

524.5

1,550

10

290

Zs stroke : 1,560

66

1,850

530

490

X_1 stroke : 615

125

-150 | +150

Y stroke : 300

Max. swing dia. : Ø 660

169.5

100

5

490

200.5

610

394.5

394.5

X_1 stroke : 615

-150 | +150

Y stroke : 300

120° -B stroke

120° +B stroke

240° B stroke

Work Range · FANUC

Zs stroke : 1,560
1,550
10
X₂ stroke : 240
66 103 37 10
30
200
8" chuck 8" chuck
21
10
37 103
8" chuck
83
40
90
322
450 (-Z₂ stroke)
950 (+Z₂ stroke)
130
Z₂ stroke : 1,400
137

Zs stroke : 1,560
1,550
10
X₂ stroke : 240
66 103 37 10
30
200
8" chuck 8" chuck
72 97
120
10
37 103
8" chuck
159
40
90
322
450 (-Z₂ stroke)
950 (+Z₂ stroke)
130
Z₂ stroke : 1,400

Interference Diagram · FANUC

X₂ stroke : 240
30
200
10
Ø420 Max. turning dia.
Ø254 10" Chuck
Ø210 8" Chuck
30
200
X₂ stroke : 240
130
260
120
80
10
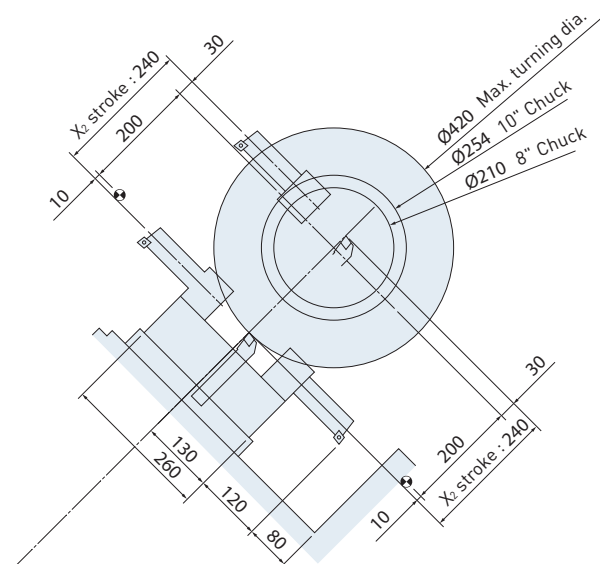
Unit：mm

GENERAL DIMENSION

Tooling System

O.D. Tools

Clamp Block CV-3045
Clamp Gib CV-3046

DF-3044

CV-3097

I.D. Tools

I.D. Tool Holder
DF-3026

I.D. Tools

Sleeve

DF-3051A   DF-3051D
DF-3051B   DF-3051E
DF-3051C

Drill

Sleeve

DF-3048A   DF-3048D
DF-3048B   DF-3048E
DF-3048C

Drill

DF-3049
DF-3050
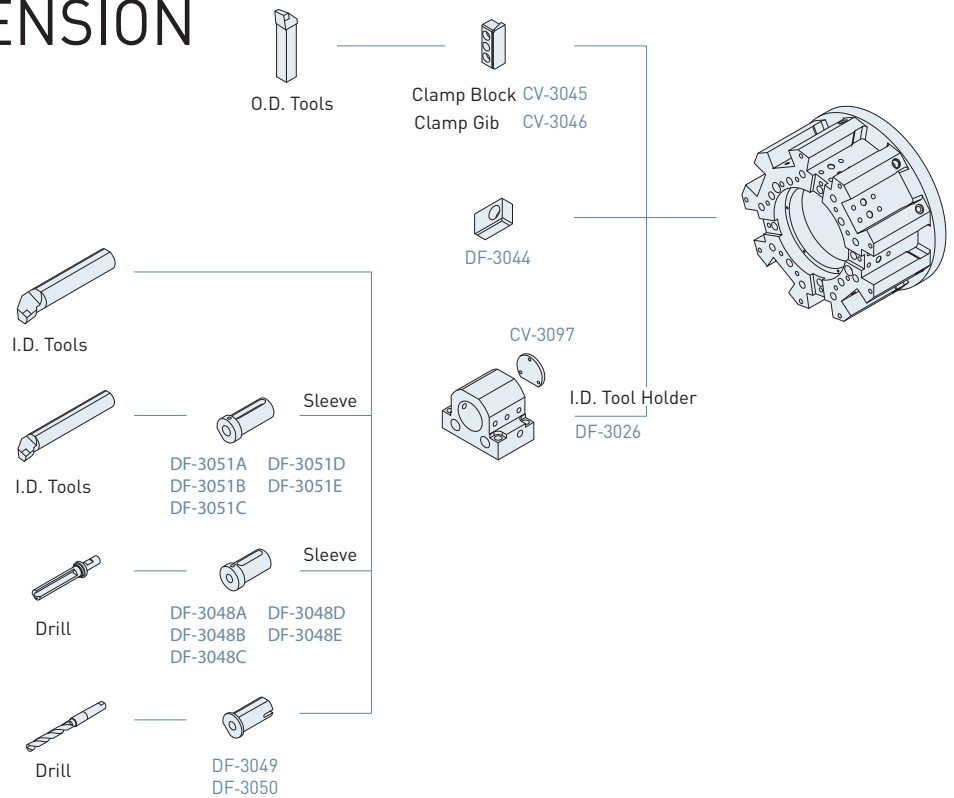
STANDARD & OPTIOANL FEATURES

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
	Resolution : 720P	S	S
Axis functions	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	O	O
	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

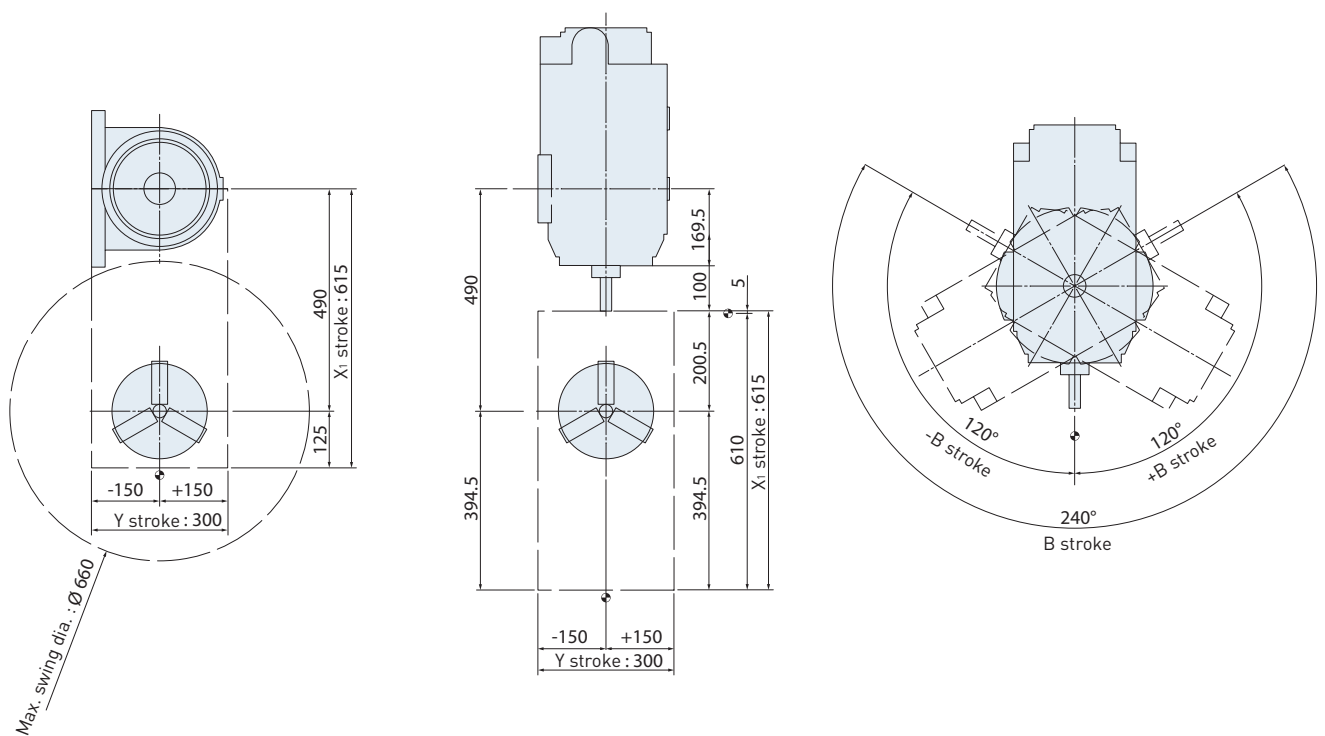| SIEMENS CONTROL FUNCTIONS		ShopTurn	programGUIDE
Axis functions	Acceleration with jerk limiting	S	S
	Dynamic precontrol	S	S
	Dynamic servo control in the drive	S	S
Tool function	Tool Management	S	S
	Number of tools/cutting edges, up to 600 / 1500	S	S
	Unit quantity / tool life monitoring with management of replacement tools	S	S
	3D tool radius compensation	—	S
Communication	OPC UA	S	S
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	—	O
	Collion Avoidance	S	S
Compensation	Volumetric compensation	O	O
Monitoring	Vibration control and monitoring	O	O

Specifications are subject to change without notice.

STANDARD & OPTIOANL FEATURES

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

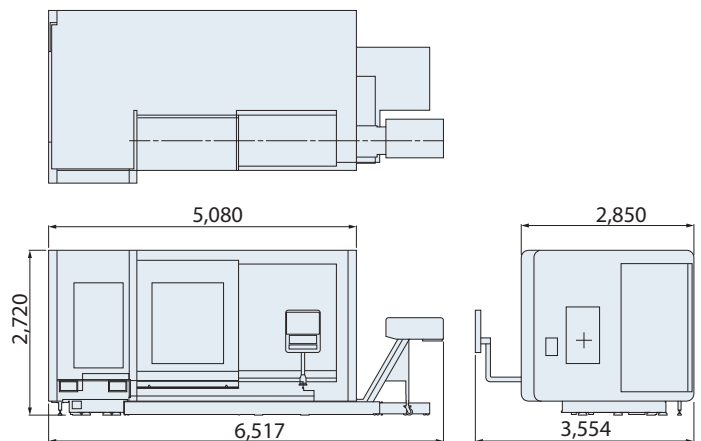| SPINDLE 1		GMT-2000	GMT-2000S	GMT-2000ST
4,500 rpm (Hole through spindle Ø76mm)		S	S	S
3,800 rpm (Hole through spindle Ø91mm)		O	O	O
3,200 rpm (Hole through spindle Ø113mm)		O	O	O
Hollow hydraulic chuck	8" (Hole through spindle Ø76mm)	O	S	S
	10" (Hole through spindle Ø91mm)	O	O	O
	12" (Hole through 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
SPINDLE 2				
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
C-AXIS				
Main spindle 0.0001° indexing (C-axis control)		S	S	S
Second spindle 0.0001° indexing (C-axis control / synchronization function)		—	S	S
LOWER TURRETS				
9-station turret		—	—	S
MILLING SPINDLE				
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
ATC MAGAZINE				
40T		S	S	S
80T		O	O	O
120T		O	O	O
TAILSTOCK				
Programmable base tailstock		S	—	—
MT#5 Live center		S	—	—
Hydraulic steady rest (L^1 & L^2 opt.)		O	O	O
Programmable dual pressure	Spindle 1	O	O	O
	Spindle 2	—	O	O
HIGH PRECISION PREPAREDNESS				
Ball screw hollow coolant	X-axis	S	S	S
	Y , Z axes	O	O	O
	Zs-axis	—	O	O
	X_2 , Z_2 axes	—	—	O
High Resolution Linear Scale	B-axis	S	S	S
	X , Y , Z axes	O	O	O
	X_2 , Z_2 axes	—	—	O
X, Y, Z axes screw pitch correction		S	S	S
RMP60 wireless bluetooth transmission measuring head		O	O	O
AUTOMATIC OPERATION SUPPORT				
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

COOLANT / CHIP DISPOSAL		GMT-2000	GMT-2000S	GMT-2000ST
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
SAFETY				
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
OTHER				
Tri-color operation status light tower		S	S	S
Florescent 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

5,080
2,720
6,517
2,850
3,554

Unit : mm

MACHINE SPECIFICATIONS

■ : Metric ■ : Inch

	GMT-2000	GMT-2000S	GMT-2000ST
CAPACITY			
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^1) / 2,520 (L^2) mm 40.15" / 59.84" / 99.21"		1,520 (L^1) / 2,520 (L^2) 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^1) / 2,850 (L^2) mm 53.15" / 72.83" / 112.2"	1,850 (L^1) / 2,850 (L^2) mm 72.83" / 112.2"
Spindle center height	1,235 mm 48.62"		
TRAVEL			
Max. X_1-axis travel (Milling spindle)	615 mm 24.21"		
Max. Z_1-axis travel (Milling spindle)	1,090 / 1,590 (L^1) / 2,590 (L^2) mm 42.91" / 62.59" / 101.96"		1,590 (L^1) / 2,590 (L^2) mm 62.59" / 101.96"
Max. Y_1-axis travel (Milling spindle)	±150 mm ±5.9"		
Max. X_2-axis travel (Lower turret)	—		240 mm 9.44"
Max. Z_2-axis travel (Lower turret)	—		1,400 (L^1) / 2,400 (L^2) mm 55.11" / 94.48"
Max. B-axis travel (Milling spindle)	240° (+ 210° ~ - 30°)		
Max. Z_s travel (Spindle 2)	—	1,060 / 1,560 (L^1) / 2,560 (L^2) mm 41.73" / 61.41" / 100.78"	
Max. Z_s travel (Tailstock)	1,060 / 1,560 (L^1) / 2,560 (L^2) mm 41.73" / 61.41" / 100.78"	—	
SPINDLE 1			
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°		
SPINDLE 2			
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°	
MILLING SPINDLE			
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°		

	GMT-2000	GMT-2000S	GMT-2000ST
LOWER TURRET			
Stations		—	9
Live tooling drive motor		—	AC Servo motor
O.D. tool shank size		—	□ 25 mm 1"
I.D. tool shank size		—	Ø 40 mm 1-1/2"
Index speed (Adjacent)		—	0.2 sec.
TAILSTOCK			
Quill center taper	MT#5 Live center	—	
ATC MAGAZINE			
Magazine capacity	40 / 80 / 120 T		
Max. tool diameter	Ø 90 mm (adj. pocket empty : Ø 130 mm) 3.54" (5.11")		
Max. tool length	450 mm 17.71"		
Max. tool weight	12 kg 26 lb		
FEED RATE			
X_1-axis	50 m/min. 1,968 IPM		
Z_1-axis	50 m/min. 1,968 IPM		
Y_1-axis	40 m/min. 1,574 IPM		
X_2-axis	—	30 m/min. 1,181 IPM	
Z_2-axis	—	40 m/min. 1,574 IPM	
B-axis	60 rpm		
C-axis	100 rpm		
Z_s-axis	8 m/min. 314 IPM	40 m/min. 1,574 IPM	
SPINDLE MOTOR			
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		
GENERAL			
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^1) / 6,080 × 2,850 (L^2) 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： Ø 820 mm 32.28"

· Max. turning diameter： Ø 820 mm 32.28"

· Max. turning length： 3,100 mm 122.04"

· Chuck size： 15" (24" opt.)

THE ULTIMATE MACHINING POWER
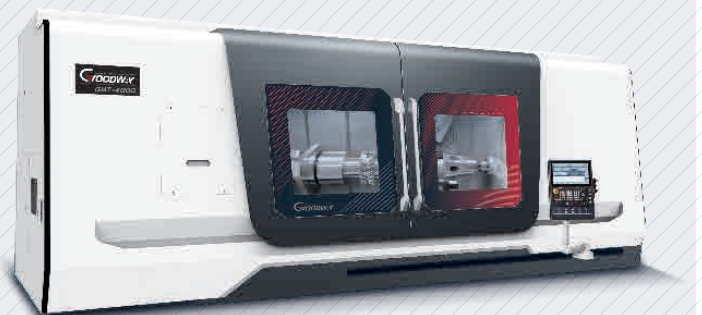
GOODWAY

GOODWAY MACHINE CORP.

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