Ultimate Machining Power
High Performance Turning Center
Machining for Large Work-pieces  
HA Series
High rigidity structure with powerful cutting performance
*Can easily overcome any machining tasks*

Work-piece Balancing Analyzer (WBA)
Applicable to all series
Increasing efficiency and streamlining working process
*Brining the multi-tasking turning centers to the next level*

G.LINC 350
Applicable to all series
Combination of advanced hardware and intelligent software
*Making your machine smarter*

Machining for Small Work-pieces  
TLV Series
Fast feed rate and tool change capability
*Best solution for increasing productivity*

R&D Devotion Quality Persistency
Machine tools performance and technology innovation
*G.LINC 350 New Generation Intelligent Control System*
Bringing revolution to the machine tools industry
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HONORARY PRESIDENT OF PRECISION MACHINERY DEVELOPMENT ASSOCIATION OF TAIWAN
HONORARY PRESIDENT OF TAIWAN MACHINE TOOL AND ACCESSORY BUILDER’S ASSOCIATION
HONORARY PRESIDENT OF MANUFACTURERS ASSOCIATION OF TAICHUNG INDUSTRIAL PARK

Goodway Machine Corp.
EDWARD TE-HWA YANG, PRESIDENT
Goodway Machine Corp. has been specializing in the production and development of multi-tasking turning centers for 40 years. Throughout these years, we strive to innovate and improve our technology and products. We greatly appreciate all the support and effort from our dealers located around the world. Most importantly, we would like to thank our customers for the constant feedback; for without your suggestions, we would not be where we are today. We are constantly seeking to improve our technology every year, each and every day to better serve our customers.

Currently, we are improving and developing new technologies for each series. We have several series available for the Turning Center. First is the Multi-Axis Turning Centers which includes: 5-axis, Swiss-Type, Twin-Spindle & Twin Turrets Turning Centers. We are also famous for developing large turning centers and are currently working on: Vertical Turning Center with turning table that are 2 m ~ 5 m, Horizontal Turning Center with 320 mm in Y-Axis, and Flat-Bed Turning Center with 2 m turning diameter and 10m turning length.

We are proud to announce the continuous improvement of the NC intelligence systems which include the self-developed G.NET system, 3D Simulation and Collision Avoidance System, Load Monitor System, and Monitoring and Maintenance Program. We strive to improve our development in specialized machines that include: Automatic Balance Function, Grinding function, Custom Screen on Control, and crankshaft turning function. We also want to advance our technology in Automation by innovating our: Built-in Robot Arm, Loading/Unloading system, Gantry Loading system, and Bar Feeder.

Our ultimate goal is to provide high quality and high capability machine tools to the industry. This allows our customers to produce high end products in order to compete in this aggressive market. We have the ambition and courage to move forward and are confident to see our growth in the future.
With over 38 years of machine tools manufacturing experience, Goodway has gradually expanded its network throughout the world with companies in, Central Taiwan, United States, and mainland China. Furthermore, the new factory in southern Taiwan will be in operation this year, which will add new energy to our group.

Taichung Headquarters
- Processing and assembly of key components / 18,600 m²

Research and Development Center
- Over 20% of the entire staff is composed of our R&D team
- 70% of the R&D members either have a domestic or a foreign Mechanical Engineering master’s degree
World Wide Sales & Service Network

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>America</td>
<td>15%</td>
</tr>
<tr>
<td>Europe</td>
<td>30%</td>
</tr>
<tr>
<td>Asia</td>
<td>40%</td>
</tr>
<tr>
<td>Taiwan</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
</tr>
</tbody>
</table>

**Market Distribution**

**YAMA SEIKI USA, INC.**
- Sales of turning centers / 20,000 m²

**Suzhou Branch**
- Manufacturing and sales of turning center / 13,600 m²

**Wujiang Branch**
- Manufacturing and sales of turning centers and machining centers / 66,800 m²

**Dongguan Branch**
- Sales of turning centers / 500 m²
Professional Manufacturing

All production procedures are strictly controlled in-house to ensure consistent quality.

- Casting aging
  Top grade casting components are aged for 3~6 months to ensure maximum structural stability.

- Casting machining
  We use MITSUI SEIKI & TOSHIBA horizontal machining center to our parts.

- Critical Parts Inspection
  TAYLOR HOBSON roundness instruments

- Critical Parts Inspection
  ZEISS 3D measuring

- Key components such as spindle bearing, gears, and curvic couplings are imported from major companies throughout the world.

- Using NSK GN gauges for the double-row, cylindrical roller, and spindle bearings helps promote the accuracy in the assembly.

- G1 class spindle dynamic balancing test (ISO 1940)

- Spindle test runs are fully monitored
Core Technology | NC Intelligence

G.LINC 350 New Generation Intelligent Control System

Features

- **Advanced hardware**
  The G.LINC 350 uses reliable and high performance industrial computers to provide stable operation under harsh conditions.

- **Outstanding Operability**
  The large high resolution monitor, keyboard and touch pad provides easy operating access.

- **Streamlined Programming**
  The streamlined programming function greatly saves programming time.

- **High Security and Shortened Machining Setting**
  The 3D simulation and collision avoidance system reduces machine damage opportunity while increasing machining setting efficiency.

- **Reliable Continuous Operation**
  The load monitor system increases the machine reliability for continuous operation.

- **Shortened Troubleshooting Time**
  The maintenance and motoring program provides up-to-date machine data for easy maintenance and troubleshooting enabling the machine to always perform at its best condition.

- **Improved Utilization Rate**
  The utilization rate analysis provides useful reference for machine usage improvement.

**LED light** is installed in the control panel for easy operation in dim environments.

- 1. 36 soft-key for convenient operation
- 2. 19 inch full color TFT LCD
- 3. NC Function Key
- 4. Fast-key area
- 5. AUX-key area
- 6. CF card / USB port
- 7. QWERTY Keyboard
- 8. Mouse pad
- 9. LED light display
Brand New Inspection Strategy for Safer and More Efficient Working Experience

**Create Simulation**

- I.D. Tool
- Chuck
- Material

**Simulation Inspection**

- Tool database creates tool selection
- The 2D parameter defines the coordination and creates chuck selection
- The 2D parameter defines the spindle and creates 3D material selection
- After finishing the setting, then start the coordination positioning and turning simulation

**Interference Inspection**

- The feeding will stop when interference happens between the turret and tailstock
- Inspecting interference between the tool and chuck
- Inspecting interference during turret indexing
- Inspecting interference between the tool and material during spindle stop

General Production Process

Using 3D Simulation Inspection

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

30%
Core Technology | NC Intelligence

**MT-Line Messages**
Monitoring machine condition in real time

**Free Android APP**

**High Intelligent Machine Control**
- 3D Check
- Tool Management
- Sensor Status
- Load Monitor
- Tool Build
- Alarm Detail
- Productive Management
- Position Screen

Free Android APP

[Images of machine and smartphone with app interface]

- WiFi
- ALM Message / Command / Request / Information
SVI Suite

- Machine 3D display and operating simulation are synchronized with the actual machine
- Providing functions including fast program inspection, machining simulation and machine interference inspection
- Shortens test-run time and increases production efficiency
- User friendly interface
- Reduces operator’s burden

G.Net II

- Real-time Monitoring Center
  The system integrates information from all machines including operating status, machine ID, work-piece count, operator ID, and accumulated cycle time. The machines are marked with different colors for easy identification.

- Data Statistics and Analysis
  The data and mileage captured by the system are automatically saved into the database. It can provide easy access for the operator to browse any machine information.

- Program Transmission
  The machining program can be transmitted between the control and machine. It can also be transmitted between the servo and machine by using the control interface.
High efficiency, High precision, Suitable for short / thin workpieces

**On-line Vibration Inspection**
- The sensor installed inside the machine can pick up the vibration during machining operation

**Real time Work-piece Balancing Analyzer**
- Provides information for designing the mold counterweight
- The unbalanced volume can be eliminated automatically

We use a vertical turning center with WBA installed as an example. After the disk brake is finished, it will be inspected online. Then the C-axis will eliminate the unbalanced volume. The machine do not need to be stopped from start to finish, which saves loading and unloading time and also prevents accuracy error from the process.

![Diagram showing the process](image-url)
Goodway has proudly brought turning centers into a new generation. We have successfully developed a series of live tooling turret, Y-axis, sub-spindle and B-axis to combine with our vertical, horizontal and Swiss type machines, turning them into multi-tasking turning centers. From a work-piece to a finished product, it can be done in one single setting.

**Multi-tasking Turning Capabilities**

*Combine Multiple Machines Into One*

- **Live Tooling Turret with C-axis**
  By combining disk brake system with live tooling turret and C-axis, drilling, milling and tapping applications including cylinder and contour turning can be done easily.

- **Y-axis**
  With the Y-axis, complex turning applications including high precision grooving and radial offset drilling can be done easily with high accuracy and efficiency.

- **Sup-spindle**
  The sub-spindle can simultaneously accept a work-piece from the main spindle to work on the back of the work piece (2nd operation). It not only saves transporting and setting time but also reduces accuracy error.

- **Simultaneous 5-axis Turning Capability**
  Turning and milling, drilling, tapping, hobbing, grinding, slant and complex surface machining can be easily done in one single machine.

- Reduces procurement cost
- Time
- Manpower
Core Technology

Customization and Application Capabilities

We provide strong R&D capability to fulfill customers’ actual needs.

With our well-experienced customization capability, our engineer team can provide support for developing molds and accessories based on different machining requirements for each industry, which allows the machines to be fully applicable.

<table>
<thead>
<tr>
<th>Project Examples</th>
<th>Loading and unloading Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Machines</td>
<td>10 sec.</td>
</tr>
<tr>
<td>Specialized Machine</td>
<td>4 ~ 5 sec.</td>
</tr>
</tbody>
</table>

50% Manpower cost

- Infrared automatic door increases safety during operations
- The control panel can be customized providing consistency in the production line
- The parts catcher can be customized for easy loading and unloading
- Automatic live center with position sensor provides fast and accurate positioning
- Unloading system with large parts catcher
- Modular gauge design makes fast and precision mass production possible
Automation

High In Production Efficiency Low in Man Power

- Articulated robot
- Loading / Unloading System
- Gantry Loading System (Stand-alone)
- Gantry Loading System (FMS)
Service
Professional, swift, responsible

Customer Relationship Management System

CRM system is implemented to improve our customers’ satisfaction. With CRM complete solution and Cloud database, we can provide integrated sales activity from inquiry to after-sales service.

<table>
<thead>
<tr>
<th>CRM Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Based on the type of maintenance problems, automatically notify the commissioner to provide more professional service.</td>
</tr>
<tr>
<td>• Complete machine maintenance history, accurate understanding of the machine status.</td>
</tr>
<tr>
<td>• Comprehensive technical service database to provide faster and reliable solutions.</td>
</tr>
<tr>
<td>• Instantly upload a survey about client’s satisfaction to enhance service quality.</td>
</tr>
</tbody>
</table>

APP
Maintenance staff should check-in when arrive customer’s factory immediately, then upload some photos about maintenance process onto our database to guarantee the quality and efficiency.
To increase more talented human resource in machine to industry, Goodway & National Chung-Hsing University started a CNC machine tool technology competition project. This project was participated by all universities in Taiwan with very fruitful results.

After the competition President Yang instructed to continue same program in the future for bigger scale. With goals aiming for more professional machine tool industry talents would be generated.

<table>
<thead>
<tr>
<th>Graduate School</th>
<th>Under Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1st Place</strong></td>
<td><strong>1st Place</strong></td>
</tr>
<tr>
<td><strong>2nd Place</strong></td>
<td></td>
</tr>
<tr>
<td>Intellectual micro machine tool and optical glass micron structure machining National Taiwan Normal University / Electric Engineering Dept.</td>
<td></td>
</tr>
<tr>
<td><strong>3rd Place</strong></td>
<td></td>
</tr>
<tr>
<td>Development for Non-contact energy transportation super sonic vibration aid taper National Chung-Hsing University / Mechanical Engineering Dept.</td>
<td></td>
</tr>
<tr>
<td><strong>3rd Place</strong></td>
<td></td>
</tr>
<tr>
<td>Precision aerostatic rotary table National Changhua University of Education / Electric Engineering Dept.</td>
<td></td>
</tr>
<tr>
<td><strong>3rd Place</strong></td>
<td></td>
</tr>
<tr>
<td>Development for Advanced 5 axes machining center controller National Chung-Cheng University / Mechanical Engineering Dept.</td>
<td></td>
</tr>
</tbody>
</table>
GV-1
Vertical Turning Centers

Heavy Duty Vertical Turning Center

- High torque gear type tooling spindle / workpiece spindle.
- Meehanite large scale column and bed structure.
- Thermally balanced and precision grinded high-rigidity box way design.
- Bridge type structure with W-axis travel of 800 mm.
- Reliable 16-tool carousel type tool magazine.
- Heavy duty working table of maximum load up to 8,000 kg.
- Optional precision grinded accessories which can provide extra turning, milling and grinding capabilities.
Vertical Turning Centers

Spindle System for Heavy Weight Work Pieces

Tooling Spindle

Big diameter NN TYPE high-precision roller bearings provide high-rigidity and low-wear advantages.

BT50 2-speed gear type spindle provides 361 N·m of torque to fulfill heavy cutting needs.

The 16T / 24T carousel tool magazine provides reliable tool change and less damage to the spindle.

The optional milling spindle allows the GV-1 series to become a multi-tasking vertical turning center, which can provide high efficiency machining capabilities.

Work-Piece Spindle

The high rigidity, high rotation accuracy cross roller bearing can sustain radial, axial and torque compound loads to ensure machining accuracy under long-term heavy work loads and extend the service life of the spindle.

With the FANUC servo motor and high deceleration ratio 2-speed gear box generating up to 23,900 N·m of torque (GV-1600), all heavy cutting requirements can be easily fulfilled.

Extremely rigid crossrail is designed with box-shaped structure to prevent thermal displacement and assure machining stability.

The column is designed with a high-low box way to firmly support the crossrail while minimizing structural distortion and increasing rigidity.

The closed type square ram on the tooling spindle is fixed with 4 sets of powerful wedges which gives the GV-1 series with greater structural rigidity and machining accuracy compared to peer models with a semi-closed type square ram structure.

Specifications are subject to change without notice.

<table>
<thead>
<tr>
<th>Models</th>
<th>GV-1200</th>
<th>GV-1600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table diameter</td>
<td>Ø 1,250 mm</td>
<td>Ø 1,600 mm</td>
</tr>
<tr>
<td>Max. swing diameter</td>
<td>Ø 1,600 mm</td>
<td>Ø 2,000 mm</td>
</tr>
<tr>
<td>Max. turning diameter</td>
<td>Ø 1,350 mm</td>
<td>Ø 1,800 mm</td>
</tr>
<tr>
<td>Max. turning length</td>
<td>1,300 mm</td>
<td></td>
</tr>
<tr>
<td>Max. table load</td>
<td>5,000 Kg</td>
<td>8,000 Kg</td>
</tr>
<tr>
<td>Work-piece spindle output</td>
<td>37 / 45 kW (Cont. / 30 min.)</td>
<td></td>
</tr>
<tr>
<td>Work-piece spindle speed range</td>
<td>25 ~ 350 rpm</td>
<td>18 ~ 250 rpm</td>
</tr>
<tr>
<td>Live tooling spindle output</td>
<td>7.5 / 11 kW (Cont. / 30 min.)</td>
<td></td>
</tr>
<tr>
<td>X / Z axes travel</td>
<td>935 / 900 mm</td>
<td>1,165 / 900 mm</td>
</tr>
<tr>
<td>W-axis travel</td>
<td>800 mm</td>
<td></td>
</tr>
</tbody>
</table>
GV-1000
Vertical Turning Centers

High Rigidity Vertical Turning Center

- High torque gear type spindle.
- Standard 12-tool turret or live tooling turret.
- Meehanite large scale column and bed structure.
- X / Z axes are adopted with compound linear guide ways.
- Compact structure design.
Vertical Turning Centers

High Rigidity, High Performance Key Components

Live Tooling Turret

- Ø 320 mm diameter Japan made super high precision curvic couplings accurately position the Ø 600 mm turret disk ensures abundant turret rigidity for all cutting conditions.
- Working with the optional live tooling turret and C-axis enables the machine to perform multiple tasks. The live tooling turret is equipped with 12 ER50 live toolings, which only the tooling at work spins while the others are paused.

Gear Type Spindle

- With the 30 kW high horse power spindle motor and high deceleration ratio 2-speed gear box generating up to 3,135 N-m of torque, all heavy cutting requirements can be easily fulfilled.

Large scale bed with one-piece column provides abundant structural rigidity

The box way mixed with roller type linear guide ways provide both high speed and high rigidity advantages.

All series are equipped with FANUC αi servo motors and αPi spindle motors providing ultimate performance and precision.

The Z-axis braking system is equipped with Japan made electromagnetic braking device and is separated with the servo motor to ensure braking performance and operator’s safety.

Models

<table>
<thead>
<tr>
<th>Specifications</th>
<th>GV-1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. swing diameter</td>
<td>Ø 1,020 mm</td>
</tr>
<tr>
<td>Max. turning diameter</td>
<td>Ø 1,000 mm</td>
</tr>
<tr>
<td>Max. turning length</td>
<td>760 mm</td>
</tr>
<tr>
<td>Chuck size</td>
<td>Ø 15° ~ 24° (Opt.: Bearing diameter Ø 160 mm) Ø 21° ~ 32° (Opt.: Bearing diameter Ø 200 mm)</td>
</tr>
<tr>
<td>Spindle bearing diameter</td>
<td>Ø 160 mm (Opt. Ø 200 mm)</td>
</tr>
<tr>
<td>Spindle nose</td>
<td>A2-11 (Opt. A2-15)</td>
</tr>
<tr>
<td>Spindle motor output</td>
<td>22 / 30 kW (Cont. / 30 min.)</td>
</tr>
<tr>
<td>X / Z axes travel</td>
<td>525 / 765 mm</td>
</tr>
<tr>
<td>X / Z axes rapid</td>
<td>24 / 20 m/min.</td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice.

Compact size machine structure takes 60% less floor space than peer machines.
High Speed Vertical Turning Center

- Modular spindle design.
- 8-tool servo indexing turret or 12-tool live tooling turret.
- High speed linear guide way design.
- Compact structure with less floor space usage.
- Diverse packages to choose from.
Multifunction, High Efficiency Machining Method

Work-piece Balancing Analyzer

The WBA can accurately detect the vibration caused by the centrifugal force under high speed rotation from the work-piece. It can be applied to "Non-concentric asymmetry work pieces" and work pieces that needed to be evaluated after machining. The unbalanced volume can be eliminated by the live tooling turret during the finishing process.

Dual-Face Turning Holder

The Goodway dual-face turning holder allows both sides of a work piece to be machined at the same time while ensuring parallel precision of the surface, which makes the cutting time 50% shorter compared to regular tools. It is applicable for disk brakes or automotive related components.

Live Tooling Turret

The GV-500 is equipped with standard 8-tool servo indexing turret. It can also be equipped with optional 12-tool live tooling turret, which can achieve 0.2 second indexing for adjacent stations and 0.5 second for stations at the opposite end of the disk.

Twin Spindles & Twin Turrets Series

The GV-500 series can be equipped with optional twin spindles & twin turrets system to provide maximum output efficiency.

The twin spindles & twin turrets series can also be equipped with optional load & unloading systems and work-piece flipping device. From bar feeding, machining, flipping, machining and discharging, can be completed in one process. It not only saves manual flipping time but also reduces positioning error and increases production efficiency.

The twin spindles & twin turrets series uses a single NC control to monitor the twin systems, which reduces operating time (when working on two machines) and also increases production efficiency.

Models | GV-780 | GV-500
---|---|---
Max. swing diameter | Ø 850 mm | Ø 650 mm
Max. turning diameter | Ø 820 mm | Ø 620 mm
Max. turning length | 660 mm | 520 mm
Chuck size | Ø 15”/ 18” (Opt.) | Ø 12”/ 15” (Opt.)
Spindle bearing diameter | Ø 160 mm | Ø 130 mm
Spindle nose | A2-11 | A2-8
Spindle motor output (Cont./30 min.) | H: 18.5 / 22 kW ; L: 13 / 22 kW | H: 15 / 18.5 kW ; L: 11 / 18.5 kW
X / Z axes travel | 500 / 670 mm | 350 / 550 mm
X / Z axes rapids | 20 m/min. | 20 m/min.

Specifications are subject to change without notice.
Multi-tasking SWISS Turning Center

- 4 axes simultaneous machining, up to 9 axes control.
- Main & sub-spindle simultaneous machining on both ends and can equip with bar feeder.
- The SW-32 / SW-42 spindle uses rotary hydraulic cylinder which can firmly clamp the work-piece. The rotary hydraulic cylinder provides fast response and flexible clamping force advantages.
- Compact structure with less floor space usage.
- Diverse packages to choose from.
Machining Variations

**Tool System**

- High speed hard whirling milling
- Main & sub-spindle simultaneous drilling and tapping
- Side milling & tapping
- Front offset drilling and tapping
- Rear offset drilling and tapping
- Main & sub-spindle simultaneous milling

**Spindle Construction**

- The bushless design is suitable for machining cold forge bar and the remaining bar length can be less than 50 mm which saves material costs.

- The SW-32 spindle can be equipped with bush or bushless type structure depending on different machining conditions.

**Take SW-32 as an example**

- Bush type spindle configuration
- Bushless type spindle configuration

**U-drill Device**

- The sub-spindle can be equipped with 2 U-drill devices, which increases the tool capacity and makes machining application more flexible. (Only applied to SW-32)

**Specifications**

<table>
<thead>
<tr>
<th>Models</th>
<th>SW-20</th>
<th>SW-32</th>
<th>SW-42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. machining diameter</td>
<td>Ø 20 mm</td>
<td>Ø 32 mm</td>
<td>Ø 42 mm</td>
</tr>
<tr>
<td>Max. chuck movement</td>
<td>Bush 207 mm</td>
<td>315 mm</td>
<td>110 mm (Bushless)</td>
</tr>
<tr>
<td>Bushless 120 mm</td>
<td>315 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backwork processing length</td>
<td>80 mm</td>
<td>130 mm</td>
<td>110 mm</td>
</tr>
<tr>
<td>Max. speed</td>
<td>Spindle 10,000 rpm</td>
<td>7,000 rpm</td>
<td>6,000 rpm</td>
</tr>
<tr>
<td>Sub-spindle</td>
<td>8,000 rpm</td>
<td>7,000 rpm</td>
<td>6,000 rpm</td>
</tr>
<tr>
<td>O.D. tools</td>
<td>Number of tools</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Number of tools</td>
<td>4</td>
<td>4</td>
<td>5 / 6 (Opt.)</td>
</tr>
<tr>
<td>Dimension</td>
<td>12 mm</td>
<td>16 mm</td>
<td>20 mm</td>
</tr>
<tr>
<td>Number of I.D. tools</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Side live tool</td>
<td>Number of tools</td>
<td>5 ~ 10</td>
<td>5 ~ 10</td>
</tr>
<tr>
<td>Number of tools</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Cross tool speed</td>
<td>8,000 rpm</td>
<td>6,000 rpm</td>
<td>6,000 rpm</td>
</tr>
<tr>
<td>Back working tooling</td>
<td>Number of tools</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Back tool speed</td>
<td>8,000 rpm</td>
<td>5,000 rpm</td>
<td>5,000 rpm</td>
</tr>
<tr>
<td>Axes rapids</td>
<td>30 m/ min.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice.
Compact SWISS Turning Center

- 4 axes simultaneous machining, up to 8 axes control.
- 10,000 rpm high speed spindle.
- Compact machine size takes less floor space.
High Speed, High Reliable Tool System

The SD series provides with high efficiency, easy operation and less floor space usage advantages and features such as abundant tool capacity, live tooling and C-axis functions to provide the best machining combination.

X and ZB axes, the guide ways is dovetail box way that made under heat treatment and super high precision grinding. And the slide ways are bonded with Turrcte B to eliminate stick-slip, minimize wear and maintain long term accuracy.

Machining Modes

| The SD series provides with high efficiency, easy operation and less floor space usage advantages and features such as abundant tool capacity, live tooling and C-axis functions to provide the best machining combination.

| Specifications are subject to change without notice. |
Multi-taking Turning Center

- Brand new multiple axes multi-tasking structure enables the work-piece to be done in one setting.

- **Upper and lower turret can be adjusted** based on different machining requirements.

- All series are of high rigidity roller linear guide ways.

- With the optional bar feeder and automatic unloading device, manpower can be greatly reduced.
Highly efficient and flexible machining combinations

**Upper / Lower Turret Structure**

- Upper turret working on right spindle
- Lower turret working on left spindle
- Upper turret working on left spindle
- Lower turret working on right spindle
- Both turrets can work on the workpiece simultaneously

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**Standard Model**

**GTX-2000**

- High Quality
- High Productivity

**Mass Production**

- Multi-tasking Machining

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The production capacity of the GTX series is 1.5 times larger than average models.

With the optional 16-station turrets, maximum tool station capacity is up to 32 tools, which can easily fulfill various machining requirements.

### Specifications

<table>
<thead>
<tr>
<th>Models</th>
<th>GTX-2000</th>
<th>GTX-2600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. swing diameter</td>
<td>Ø 270 mm</td>
<td></td>
</tr>
<tr>
<td>Max. turning diameter</td>
<td>Ø 240 mm</td>
<td></td>
</tr>
<tr>
<td>Max. turning length</td>
<td>436 mm</td>
<td>436 / 419 mm</td>
</tr>
<tr>
<td>Chuck size</td>
<td>Ø 8”</td>
<td>Ø 8” (Big-bore) / 10”</td>
</tr>
<tr>
<td>Spindle motor output (Cont. / 30 min.)</td>
<td>11 / 15 kW</td>
<td></td>
</tr>
<tr>
<td>Turret / Live tooling turret station</td>
<td>12 + 12 (Opt. 16 + 16)</td>
<td></td>
</tr>
<tr>
<td>X1 / X2 / Z1 / Z2 / Y axes travel</td>
<td>185 / 210 / 470 / 470 / ± 50 mm</td>
<td></td>
</tr>
<tr>
<td>X / Z axes rapids</td>
<td>24 m/min.</td>
<td></td>
</tr>
<tr>
<td>Y-axis rapids</td>
<td>10 m/min.</td>
<td></td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice.
The multi-axis & multi-tasking structure enables the whole machining process to be completed in one setup.

Simultaneous turning on both spindles. The second spindle can be used to support extra long work-pieces, thus increasing machining accuracy.

The high rigidity slant bed design ensures structural rigidity.

The optional Y-axis can perform multi-taking machining for complex work-pieces.

GTS-150 is designed with high speed linear guide way.
GTS-200 is designed with high rigidity box way.
# High Efficiency Machining Strategy for Complex Work-Pieces

## High Performance Machining Capability

<table>
<thead>
<tr>
<th>Models</th>
<th>GTS-150</th>
<th>GTS-150XY</th>
<th>GTS-200</th>
<th>GTS-200XY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. turning diameter</td>
<td>Ø 180 mm</td>
<td>Ø 280 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. turning length</td>
<td>180 ~ ∞ mm</td>
<td>200 ~ ∞ mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chuck size</td>
<td>Ø 6”</td>
<td>Ø 8” / 10”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar capacity</td>
<td>Ø 42 mm</td>
<td>Ø 51 / Ø 65 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle nose</td>
<td>A2-5</td>
<td>A2-6 / A2-8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindle motor output ( Cont. / 30 min. )</td>
<td>5.5 / 7.5 kW</td>
<td></td>
<td>11 / 15 kW</td>
<td></td>
</tr>
<tr>
<td>X1 / X2 axes travel</td>
<td>155 mm</td>
<td>160 mm</td>
<td>190 mm</td>
<td>220 mm</td>
</tr>
<tr>
<td>Z1 / Z2 axes travel</td>
<td>180 / 500 mm</td>
<td>210 / 600 mm</td>
<td>270 / 740 mm</td>
<td></td>
</tr>
<tr>
<td>Y-axis travel</td>
<td>—</td>
<td>± 30 mm</td>
<td>—</td>
<td>± 60 mm</td>
</tr>
<tr>
<td>X1X2 / Y1Y2 / Z1Z2 axes rapids</td>
<td>15 / ~ / 36 m/min.</td>
<td>15 / 10 / 36 m/min.</td>
<td>20 / ~ / 24 m/min.</td>
<td>20 / 20 / 24 m/min.</td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice.

## Twin Y-axis Structure

- Both spindles can perform simultaneous turning to work on extra long work pieces, which can prevent machining error caused by the rotating deflection.

- Both spindles can operate separately, which can replace two turning centers while increasing automation capabilities, thus saving more floor space.

- The Y-axis structure is of orthogonal design to ensure maximum accuracy when working on complex work-pieces.

- Both spindles are of the same bar capacity and are driven by wide-range FANUC αPmotor. It provides full power with stable output within the speed range of the spindle. The fast acceleration/ deceleration cutting capability can greatly reduce the cycle time.

- The high rigidity 45˚ slant bed design provides smooth chip disposal and easier operator access.

- The combination of twin spindles, twin turrets and twin Y-axis can reach up to 8-axis control.
Tool Spindle Type Multi-taking Turning Center

- 9-axis control with 5-axis simultaneous turning.
- Diverse machining programs enables maximum accuracy and efficiency.
- Designed with high speed high precision built-in spindle (1st & 2nd spindle obtains the same specification).
- Compound guide way bed structure ensures both high rigidity and fast movement advantages.
High Speed High Performance 5-axis Simultaneous Machining

**Tool Spindle**
Tool spindle uses triple plate curvic coupling with worm gear drive structure. Swiveling range: \( \pm 120^\circ \), Indexing resolution: 0.001°

**Live Tooling Turret**
15-station live tooling turret equipped with Ø 250 mm diameter high precision curvic couplings

**9-axis Control**
The super high performance 9-axis controlling mechanism is equipped with FANUC 31i A5 control which creates 5-axis simultaneous multi-tasking turning capability.

Double low center of gravity slant bed design provides 30% rigidity than average slant beds.

---

### Specifications

<table>
<thead>
<tr>
<th>Models</th>
<th>GMS-2000ST</th>
<th>GMS-2600ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. swing diameter</td>
<td>Ø 900 mm</td>
<td></td>
</tr>
<tr>
<td>Max. turning diameter</td>
<td>Tool spindle: Ø 550 (KM63) ; Turret: Ø 340 mm</td>
<td></td>
</tr>
<tr>
<td>Max. turning length</td>
<td>Tool spindle: 1,100 mm (8&quot;) , 1,094 mm (10&quot;) ; Turret: 1,053 mm (8&quot;) , 1,043 mm (10&quot;)</td>
<td></td>
</tr>
<tr>
<td>Chuck size</td>
<td>Ø 8&quot;</td>
<td>Ø 10&quot;</td>
</tr>
<tr>
<td>Bar capacity</td>
<td>Ø 51 mm</td>
<td>Ø 65 mm</td>
</tr>
<tr>
<td>Hole through spindle</td>
<td>Ø 61 mm</td>
<td>Ø 76 mm</td>
</tr>
<tr>
<td>Spindle motor output (cont./30 min.)</td>
<td>H: 22 / 25 ; L: 11 / 15 kW</td>
<td></td>
</tr>
<tr>
<td>B-axis rapid</td>
<td>30 rpm</td>
<td></td>
</tr>
<tr>
<td>Machining capacity</td>
<td>Face mill: Ø 80 mm , End mill: Ø 20 mm , Drill: Ø 37 mm , Tap: M27</td>
<td></td>
</tr>
<tr>
<td>Tool spindle taper / Shank of Tool</td>
<td>Tool spindle: KM63 ; Turret: 25 / Ø 40 mm</td>
<td></td>
</tr>
<tr>
<td>Magazine capacity / Turret station</td>
<td>24 (40 Opt.) / 15</td>
<td></td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice.
Flat-bed Turning Center

- Super large working range is applicable for large tube type or spindle type workpieces. Diverse machining programs enables maximum accuracy and efficiency.

- The optional live tooling turret, four-way toolpost, boring tooling and steady rest fulfills various machining requirements.

- Twin chip conveyor system with separated large coolant tank provides smooth chip disposal and excellent coolant effect.
Excellent machining strategy for super large workpieces

Strong structural design for heavy duty cutting

Flat-bed with 4 box way design

3-step gear spindle provides 8,320 N-m torque under 52 rpm speed.

The HA series is standard with 12-station servo indexing turret. The optional four-way toolpost can be used for heavy cutting and the boring tooling can be used for specific machining conditions.

One-piece flat-bed with 4 box way casting is designed with a large span structure to provide maximum strength and accuracy.

The saddle and tailstock travel are separated, which allows the tailstock to support the workpiece without crossing the saddle to ensure structural rigidity.

Heavy-duty steady rest

The structure of the steady rest is designed based on the actual working requirement. When the workpiece diameter is not more than Ø 600 mm, the saddle and steady rest will not interfere each other, thus the machine does not need to be stopped for removing the steady rest.

Live Tooling Turret & C-axis

Working with the optional live tooling turret, the Cf-axis and disk brake system enables the machine to perform multiple tasks, such as drilling, milling, and tapping operations which greatly increases machining efficiency.

Models | HA-1400 | HA-1600 | HA-2000
--- | --- | --- | ---
Max. swing diameter | Ø 1,400 mm | Ø 1,600 mm | Ø 2,000 mm
Max. turning diameter | Ø 1,100 mm | Ø 1,300 mm | Ø 1,700 mm
Max. turning length | 2,000 / 3,000 / 4,000 / 5,000** mm | | |
Max. table load | 10,000 ~ 12,000 kg (Need to be supported by steady rest) | | |
Flat bed width | | | |
Spindle motor output (cont./30 min.) | 37 / 45 kW | | |
Turret/Live tooling turret station | 8 / 12 (Opt.) | | |
X-axis travel | 595 mm | 695 mm | 895 mm
Z-axis travel | 2,150 / 3,150 / 4,150 / 5,150 mm | | |
Tailstock base travel | 2,150 / 3,150 / 4,150 / 5,150 mm | | |

Specifications are subject to change without notice.

*1 Please contact Goodway Sales Dept. for larger size requirements.
GS-8000
Horizontal Turning Centers

Heavy duty Turning Centers

- Ø 320 mm hole through spindle and turret is suitable for all sorts of large size work-pieces.
- 320 mm super long Y-axis travel to fulfill machining conditions for complex work-pieces.
- The steady rest and high rigidity tailstock can ensure machining accuracy for long work-pieces.
- High torque 3-step gear type spindle provides powerful cutting capability.
Super Long Y-axis Travel

- By using the Y-axis with live tooling turret and C-axis, it can greatly increase machining capability for complex work pieces while increasing multi-process machining accuracy.

- Super long Y-axis travel can easily fulfill machining conditions for large size work pieces such as aerospace, shipbuilding and energy industries.

- By using Finite Element Methods (FEM), optimal reinforce ribbings are directly cast into the one-piece bed structure which greatly increases structural rigidity.

- The modern slant wedge box way bed design provides great support for the large size X-axis saddle with smooth chip disposal.

- The 3-step gear type spindle provides up to 7,330 N-m of torque.

<table>
<thead>
<tr>
<th>Models</th>
<th>GS-8000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. swing diameter</td>
<td>Ø 1,030 mm</td>
</tr>
<tr>
<td>Max. turning diameter</td>
<td>Ø 810 mm</td>
</tr>
<tr>
<td>Max. turning length</td>
<td>1,150 / 2,150 / 3,150 mm</td>
</tr>
<tr>
<td>Chuck size</td>
<td>Ø 21&quot; ~ 32&quot;</td>
</tr>
<tr>
<td>Hole through spindle</td>
<td>Ø 205 / 260 / 320 mm</td>
</tr>
<tr>
<td>Spindle nose</td>
<td>A2-15 / A2-15 / A2-20</td>
</tr>
<tr>
<td>Spindle motor output</td>
<td>30 / 45 kW (cont. / 30 min.)</td>
</tr>
<tr>
<td>X / Y axes travel</td>
<td>525 / 320 mm</td>
</tr>
<tr>
<td>Z-axis travel</td>
<td>1,200 / 2,200 mm</td>
</tr>
<tr>
<td>X / Z / Y axes rapids</td>
<td>16 / 12 / 16 m/min.</td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice.
Maximum Performance CNC Turning Centers

- The GS-2000/3000 series provide full sizes and specification with multi-tasking capability to fulfill various machining requirements.
- The low center of gravity heavy-duty bed and 30° slant bed design provides optimal heavy cutting capability.
- Modular spindle design provides flexibility for various machining conditions.
- The optional servo tailstock increases machining efficiency.
Comprehensive Machining Capability

Outstanding Multi-tasking Machining Capability

With the optional live tooling turret, C-axis, Y-axis and sub-spindle, The GS-2000/3000 series can provide multi-tasking machining capability such as turning, milling, drilling, tapping, rear machining, high precision grooving and X-axis offset drilling. It can prevent machining error caused by moving between machines and also save time and man power.

Extra wide hardened and precision grinded box ways are widely spaced, and directly cast on to the machine bed and saddle for maximum strength and precision.

Generating twice the torque output of standard motor, the wide-range FANUC α P series provides the ability to take heavier cuts in the lower RPM ranges.

The optional high speed high precision built-in type spindle and high torque German ZF gear type spindle are also available.

Standard 12-tool servo turret. The optional 12-tool live tooling turret is also available.

<table>
<thead>
<tr>
<th>Models</th>
<th>GS-2000</th>
<th>GS-2600</th>
<th>GS-2800</th>
<th>GS-3300</th>
<th>GS-3600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. swing diameter</td>
<td>Ø 630 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. turning diameter</td>
<td>Ø 570 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. turning length</td>
<td>780 / 1,530 mm</td>
<td>780 / 1,530 mm</td>
<td>780 / 1,530 mm</td>
<td>780 / 1,530 mm</td>
<td>746 / 1,496 mm</td>
</tr>
<tr>
<td>Chuck size</td>
<td>Ø 8&quot;</td>
<td>Ø 10&quot;</td>
<td>Ø 10&quot;</td>
<td>Ø 12&quot;</td>
<td>Ø 15&quot;</td>
</tr>
<tr>
<td>Bar capacity</td>
<td>Ø 51 mm</td>
<td>Ø 65 mm</td>
<td>Ø 75 mm</td>
<td>Ø 90 mm</td>
<td>Ø 105 mm</td>
</tr>
<tr>
<td>Spindle nose</td>
<td>A2-6</td>
<td>A2-8</td>
<td>A2-8</td>
<td>A2-11</td>
<td></td>
</tr>
<tr>
<td>Spindle motor output ( cont. / 30 min. )</td>
<td>15 / 18.5 kW</td>
<td>15 / 18.5 kW</td>
<td>15 / 18.5 kW</td>
<td>18.5 / 22 kW</td>
<td>18.5 / 22 kW</td>
</tr>
<tr>
<td>X / Y axes travel</td>
<td>300 / ±50 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z-axis travel</td>
<td>780 / 1,530 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X / Z / Y axes rapids</td>
<td>30 / 30 / 10 m/min.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice.
GLS-1500
Horizontal Turning Centers

High Speed CNC Turning Centers

- Compact machine size. Provides full multi-tasking turning capabilities.
- 30° slant-bed Meehanite casting structure.
- 3 axes linear guide way design. Maximum feed rate up to 30 m/min.
Compact Machine Size with Powerful Cutting Capability

Diverse Modular Turret Selection

- Standard 12-station servo indexing turret achieves 0.2 sec indexing time for adjacent stations and 0.4 sec for stations at the opposite end on the disk. The optional 24-station servo indexing turret, gang type turret and live tooling turret modules are also available.

High Performance Spindle System

- The high performance V-Belt driven spindle system can reduce the heat generated by the motor which will affect the accuracy of the spindle. With the precision deceleration ratio of the belt wheel, the motor and spindle can simultaneously reach to maximum speed and reduce the horse power during low speed and increase torque.

Full Multi-tasking Machining Capability

- With the optional live tooling turret, Y-axis and sub-spindle, The GLS-1500 series can provide multi-tasking machining capability such as turning, milling, drilling, tapping, slant surface machining and rear-end machining. It can prevent machining error caused by moving between machines and also save time and man power.

- The modern 30° slant-bed Meehanite casting structure provides smooth chip disposal and easier operator access.

- 3 axes are designed with high performance linear guide way which provides high precision, fast movement and low wear advantages. X / Z axes rapids can reach up to 30 m/min.

<table>
<thead>
<tr>
<th>Models</th>
<th>GLS-1500</th>
<th>GLS-2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. swing diameter</td>
<td>Ø 560 mm</td>
<td></td>
</tr>
<tr>
<td>Max. turning diameter</td>
<td>Ø 430 mm</td>
<td></td>
</tr>
<tr>
<td>Max. turning length</td>
<td>330 / 630 mm</td>
<td></td>
</tr>
<tr>
<td>Chuck size</td>
<td>Ø 6&quot;</td>
<td>Ø 8&quot;</td>
</tr>
<tr>
<td>Bar capacity</td>
<td>Ø 45 mm</td>
<td>Ø 51 mm</td>
</tr>
<tr>
<td>Spindle nose</td>
<td>A2-5</td>
<td>A2-6</td>
</tr>
<tr>
<td>Spindle motor output</td>
<td>7.5 / 11 kW ( cont. / 30 min.)</td>
<td></td>
</tr>
<tr>
<td>X / Y axes travel</td>
<td>230 / ± 35 mm</td>
<td></td>
</tr>
<tr>
<td>Z-axis travel</td>
<td>330 / 630 mm</td>
<td></td>
</tr>
<tr>
<td>X / Z / Y axes rapids</td>
<td>30 / 30 / 10 m/min.</td>
<td></td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice.

Compact machine size takes less floor space which greatly increases factory space usage.
High Speed Tapping Center

- Provides 10,000 / 12,000 rpm high speed direct-drive spindle to choose from.
- Can be equipped with SIEMENS, MITSUBISHI or FANUC control based on different requirements.
- Compact machine size provides high floor space usage.
- Chip cart and coolant tank are detachable for easy maintenance.
- Circular coolant nozzle provides optimal chip removal.
High Speed Machining Strategy

**Axial Feeding System**

- 3 axes feeding system uses absolute servo direct-drive motor to provide powerful thrust and fast acceleration/deceleration movements, which greatly decreases motor load and heat while ensuring optimal performance and accuracy.

- The 14-station front-end tool magazine provides stable and fast machining conditions.

- The optional servo indexing turret type magazine is also available. Tool change movements are single step, without pauses, no matter how many stations are skipped.

**Front-end Tool Magazine**

- The 14-station front-end tool magazine provides stable and fast machining conditions.

- The optional servo indexing turret type magazine is also available. Tool change movements are single step, without pauses, no matter how many stations are skipped.

### Specifications

<table>
<thead>
<tr>
<th>Models</th>
<th>TLV-500</th>
<th>TLV-700</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-axis travel</td>
<td>500 mm</td>
<td>700 mm</td>
</tr>
<tr>
<td>Y-axis travel</td>
<td>400 mm</td>
<td></td>
</tr>
<tr>
<td>Z-axis travel</td>
<td>300 mm</td>
<td></td>
</tr>
<tr>
<td>Dist. from spindle nose to table top</td>
<td>180 ~ 480 mm</td>
<td></td>
</tr>
<tr>
<td>Table size (X x Y)</td>
<td>600 x 400 mm</td>
<td></td>
</tr>
<tr>
<td>Table load capacity</td>
<td>250 Kg</td>
<td></td>
</tr>
<tr>
<td>Spindle taper</td>
<td>BT30</td>
<td></td>
</tr>
<tr>
<td>Spindle motor (SIEMENS)</td>
<td>4 / 14 kW (cont. / peak)</td>
<td></td>
</tr>
<tr>
<td>Spindle speed</td>
<td>10,000 / 12,000 rpm</td>
<td></td>
</tr>
<tr>
<td>Machine weight</td>
<td>2,500 Kg</td>
<td></td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice.
Ultra Performance Machines
The Product Line-up

Multi-axis Turning Centers

GMS Series
Tool Spindle Type 5-axis Turning Center
Chuck size | 8” / 10”

GMT Series
Turret Type 5-axis Turning Center
Chuck size | 8” / 10”

GTS Series
Twin spindles & Twin Turrets Turning Center
Chuck size | 6” / 8” / 10”

GTX Series
Multi-tasking Turning Center
Chuck size | 8” / 8” (Ø 65)

Vertical Turning Centers

GV-500 Series
High Speed Vertical Turning Center
Chuck size | 12” – 15”

GV-780 Series
High Speed Vertical Turning Center
Chuck size | 15” / 18”

GV-1000 Series
High Rigidity Vertical Turning Center
Chuck size | 15” – 24”
18” – 32”
Table Diameter | Ø 1,250 / 1,600 mm

GV-1 Series
Heavy Duty Vertical Turning Center

Swiss Turning Centers

SD-16 Series
Compact SWISS Turning Center
Max. machining diameter | Ø 16 mm

SD-20 Series
Compact SWISS Turning Center
Max. machining diameter | Ø 20 mm

SW-20 Series
Multi-tasking SWISS Turning Center
Max. machining diameter | Ø 20 mm

SW-32 Series
Multi-tasking SWISS Turning Center
Max. machining diameter | Ø 32 mm