

# SUPER GV SERIES

HEAVY DUTY SUPERSIZE CNC TURNING CENTERS



THE ULTIMATE MACHINING POWER  
**GOODWAY**

# GV

GOODWAY VERTICAL TURNING CENTERS

**TRUSTWORTHY MACHINES GO BEYOND EXPECTATIONS**

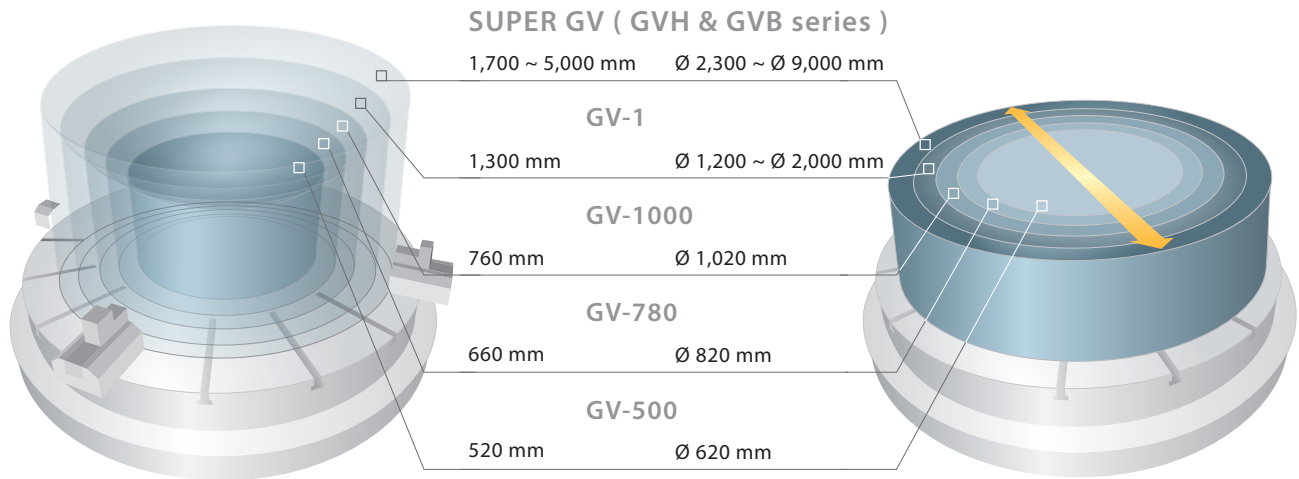
With 40 years of trust and faith from each of our customers, you can now hold on to the present and future by experiencing Goodway's latest state-of-the-art vertical turning center.

The all new SUPER GV series, gives you more than you can imagine.



## Max. Turning Height

## Max. Turning Diameter



# SUPER SIZED CNC VERTICAL TURNING CENTER

With leading technologies and high quality components, the SUPER GV CNC vertical turning center combines heavy-duty, high rigidity and super large machining range advantages to provide you with large sized, asymmetric work piece turning capabilities. The optimal reinforced structure of these series can maintain long term precision even if the table diameter is reached up to 8,000mm. Plus, with the optional dual ram or live tooling spindle and C-axis, all kinds of complex turning applications can be done easily, which can meet your needs for today and tomorrow.

## Super Large Turning Range

Maximum turning diameter can reach up to  $\varnothing$  9,000 mm; maximum work-piece weight can reach up to 300,000 kg ( GVB-8000 series ).

## High Rigidity Structure

The bed, column and bridge casting components are of MEEHANITE casting with a symmetric structure design, which ensures optimal thermal balance and structure rigidity.

## Powerful High Torque Motors

The work-piece and live tooling spindles uses a high power 2-speed heavy-duty gear box motor to provide ample torque output for heavy-duty cutting applications.

## High Efficiency Chip Removal System

The standard chip wash down coolant system can flush away great amount of chips into the coolant tank, and are sent outside from the machine through the chip conveyor; this tremendously improves the machine's overall accuracy by lowering thermal expansion effects to a minimum.

## Multi-Tasking Capability

The optional live tooling spindle provides turning, milling, grinding, drilling, and tapping capabilities, which greatly increases production efficiency while saving equipment investment costs.

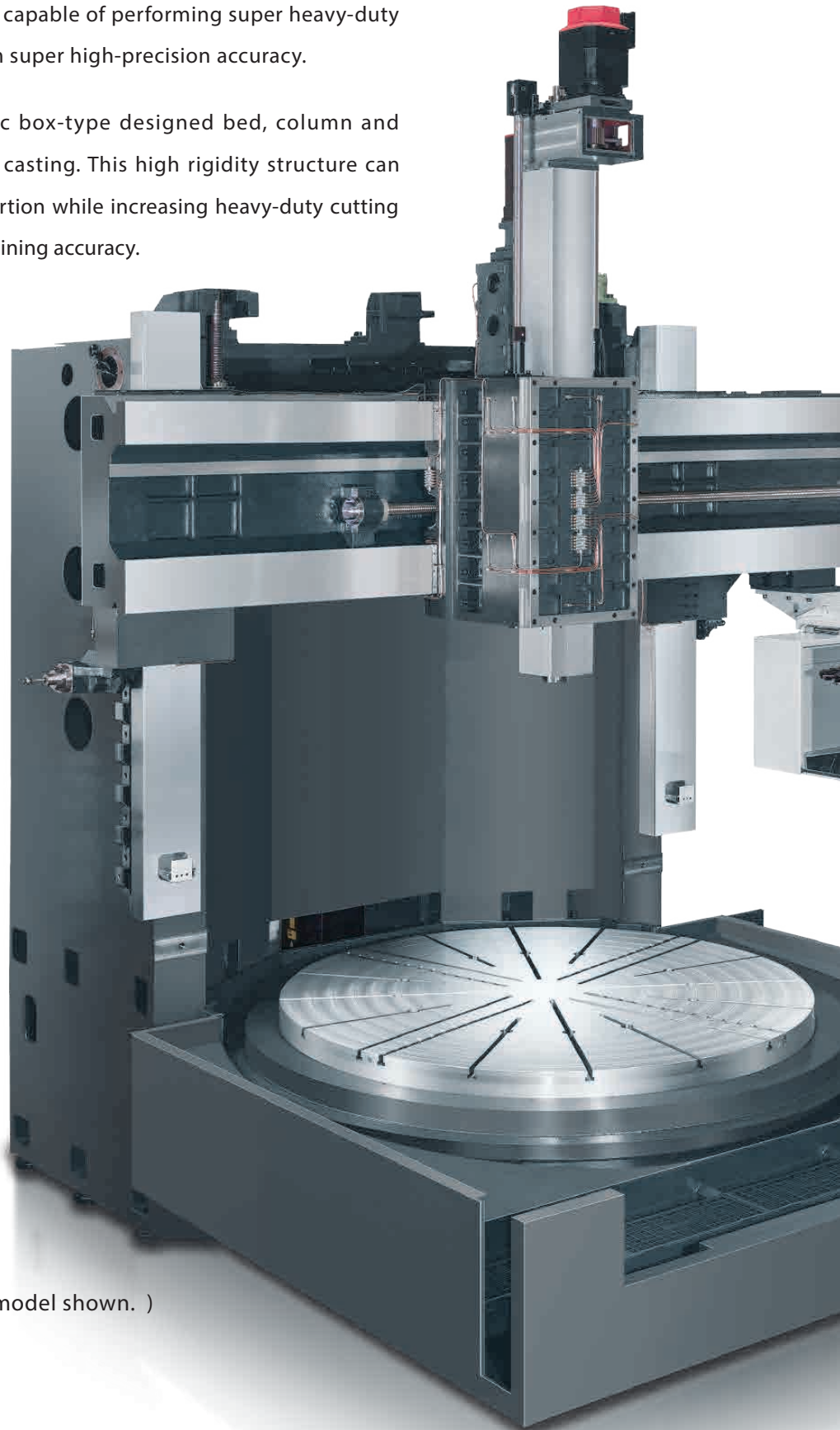


( GVH-2500M model shown. )

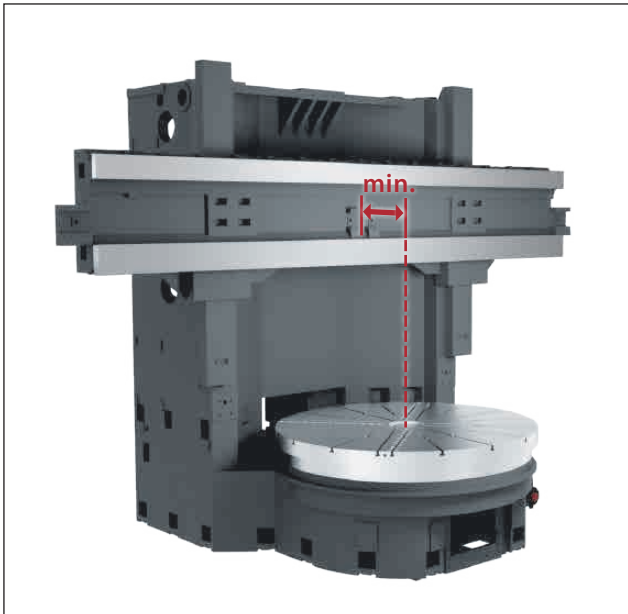


# SUPER RIGID CONSTRUCTION

- By using Finite Element Methods ( FEM ), optimal reinforce ribbings are directly cast into the bed and column structure. Mechanical rigidity has been increased by more than 30% when compared to conventional designs. The SUPER GV series is capable of performing super heavy-duty turning and maintain long-term super high-precision accuracy.
- The heavily ribbed, symmetric box-type designed bed, column and cross beam are of MEEHANITE casting. This high rigidity structure can effectively reduce thermal distortion while increasing heavy-duty cutting capability and maintaining machining accuracy.

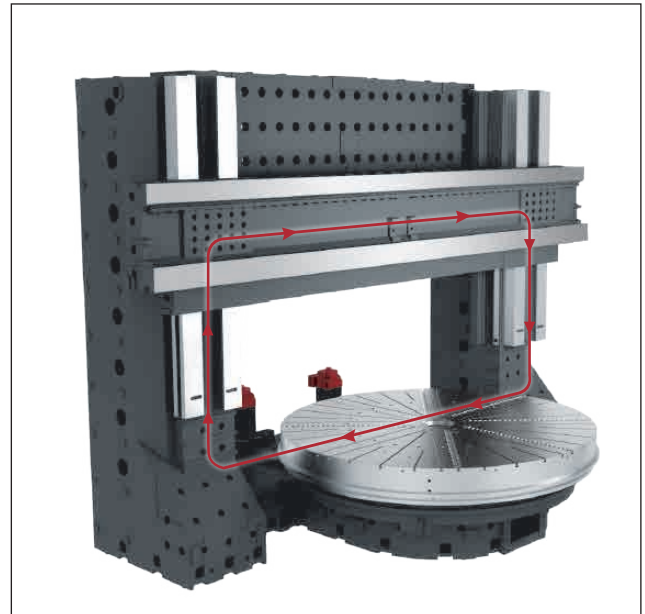


( Casting structure of GVH-2500M model shown. )



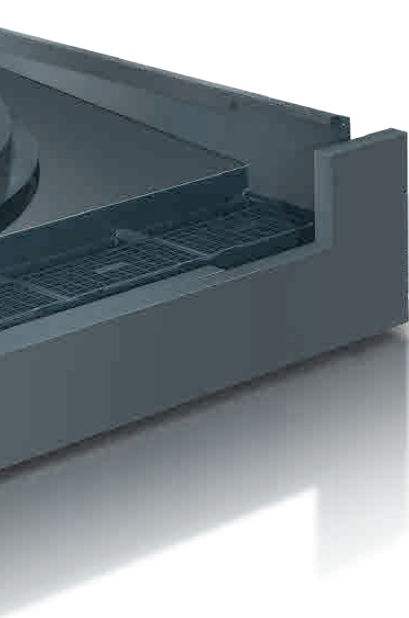
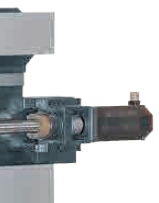
### ■ One-piece Column & Structure ( GVH series )

The one-piece column is firmly mounted on top of the bed, which ensures machine overall rigidity and minimizes spindle over hang to provide optimal machining accuracy.



### ■ Bridge Type Structure ( GVB series )

The super rigid construction of the base and bed, double column, and cross beam, can easily fulfill heavy load and cutting requirements.



Super large box way and components are of one-piece casting; they are applied with heat treatment and precision grinded to provide maximum strength and accuracy.



Contact surfaces of all slides, spindles, ball screw bearing housings, bed and column are precision hand scraped to provide maximum assembly precision, structural rigidity, and load distribution.

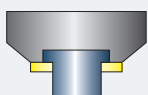


The optional high resolution close-loop linear scale ensure optimal positioning and repeatability accuracy.

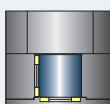


# TOOLING SPINDLE

- The square ram on the tooling spindle is adopted with a closed-type design and fixed with powerful wedges. This gives the SUPER GV series with greater structural rigidity and machining accuracy compared to peer models with a semi-closed type square ram structure.



Semi-closed Type Square Ram



Closed-type Square Ram

## Ram Dimension

Unit : mm

| Model | GVH-2000         | GVH-2500 | GVB-3000           | GVB-3500 | GVB-4000 |
|-------|------------------|----------|--------------------|----------|----------|
| A     | 220 / 250 (OPT.) | 250      | 300 / 350 ( OPT. ) |          |          |

| Model | GVB-4500         | GVB-5000           | GVB-6000 | GVB-7000 | GVB-8000 |
|-------|------------------|--------------------|----------|----------|----------|
| A     | 300 / 350 (OPT.) | 350 / 400 ( OPT. ) |          |          |          |

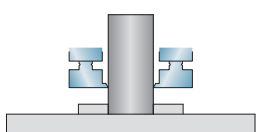


## Dual Ram Structure

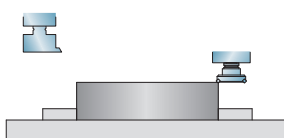
- With the optional dual ram structure, multiple machining applications ( such as rough turning / fine turning or drilling / tapping / milling ) can be operated at the same time; one machine can replace two vertical turning centers which saves tool change time and increases floor space usage.



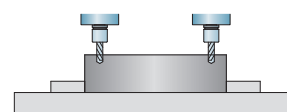
## Diversed Machining Mode



**Dual Simultaneous Turning**  
Increases machining efficiency



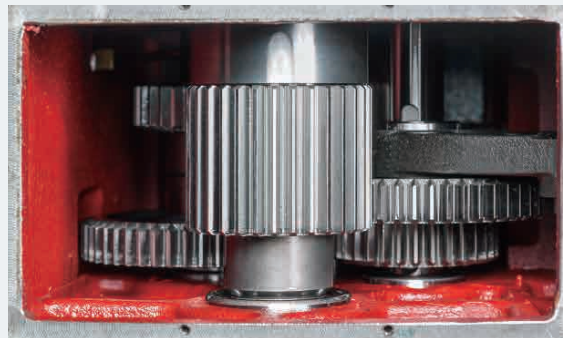
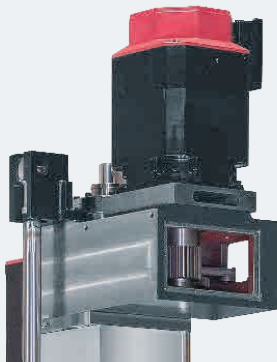
**Optional Single Live Tooling Spindle**  
Reduces Tool Change Time



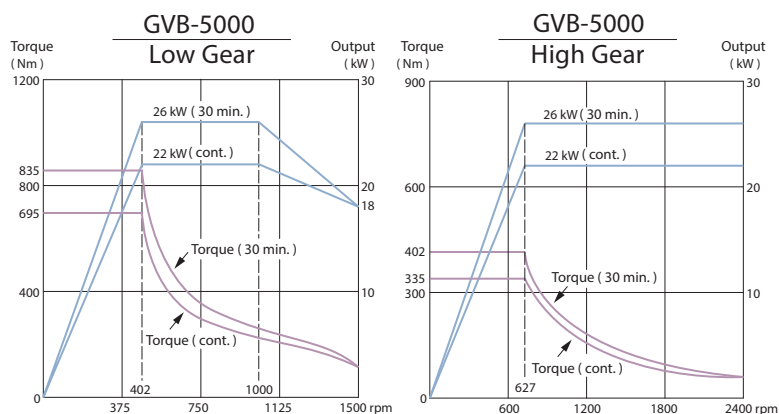
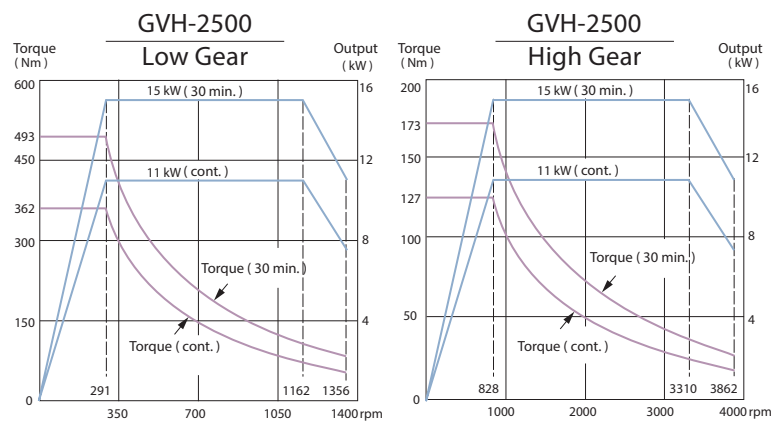
**Optional Dual Live Tooling Spindle**  
Reduces Tool Change Time

## Live Tooling Spindle

- The live tooling spindle uses JAPAN NN Type roller bearings to provide high rigidity, high precision, and long life span advantages.
- The high reduction ratio 2-speed gear box uses high hardness Nickel-Chromium-Molybdenum alloy with forced oil-feed for lubrication and coolant; the gear box can maintain normal operation and low wear even under long hours of low-speed, high-torque working conditions.

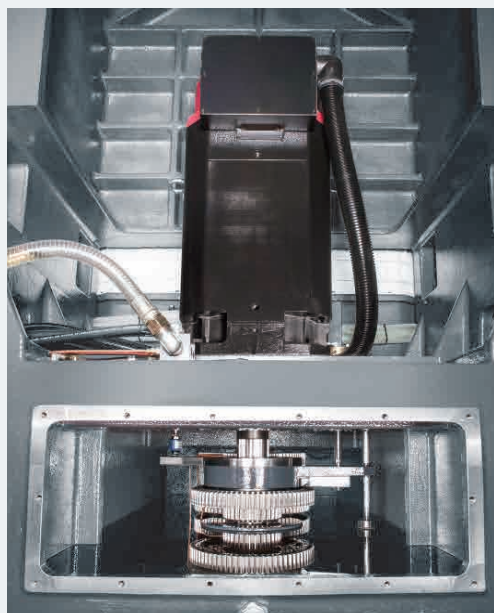


## Live Tooling Spindle Output



# WORK-PIECE SPINDLE

- The work-piece spindle uses high power 2-speed gear box motor which provides 314,000 Nm torque output under low speed ( GVB-5000 ); various large sized work-pieces can be overcome easily.
- The high reduction ratio 2-speed gear box uses high hardness Nickel-Chromium-Molybdenum alloy with forced oil-feed for lubrication and coolant; the gear box can maintain optimal performance with long life span.



## Bearing Configuration

| Model                 | GVH-2000 | GVH-2500 | GVB-3000 | GVB-3500 | GVB-4000 | GVB-4500 | GVB-5000 | GVB-6000 | GVB-7000 | GVB-8000 |
|-----------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Cross Roller Bearings | S        | S        | S        | S        | S        | S        | —        | —        | —        | —        |
| Hydrostatic Bearings  | —        | —        | O        | O        | O        | O        | S        | S        | S        | S        |

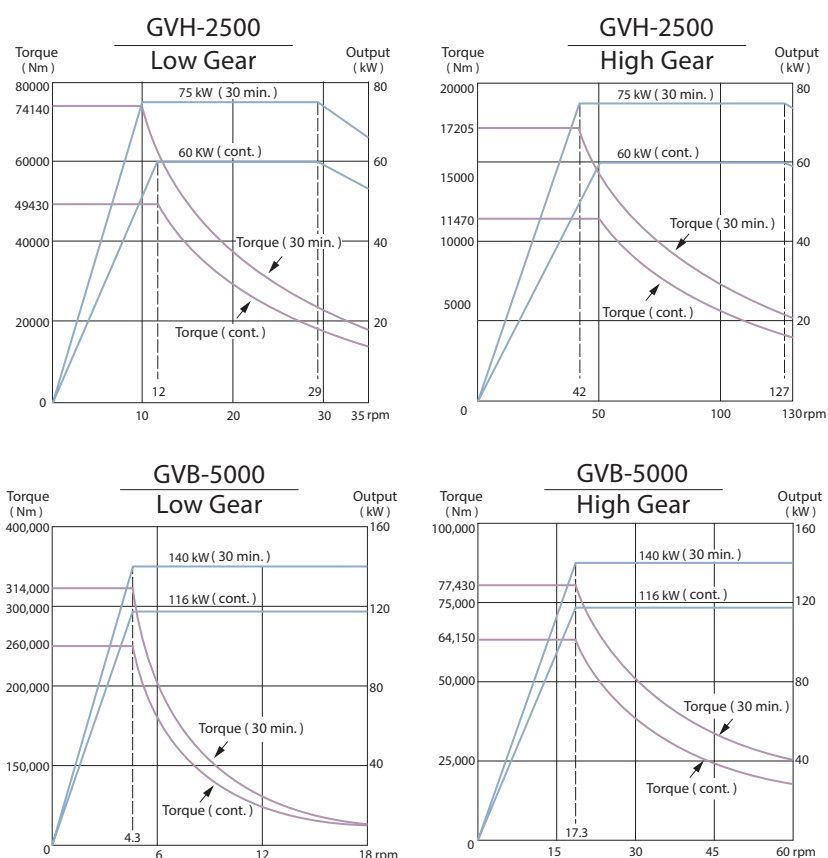
S : Standard    O : Option    — : Not available

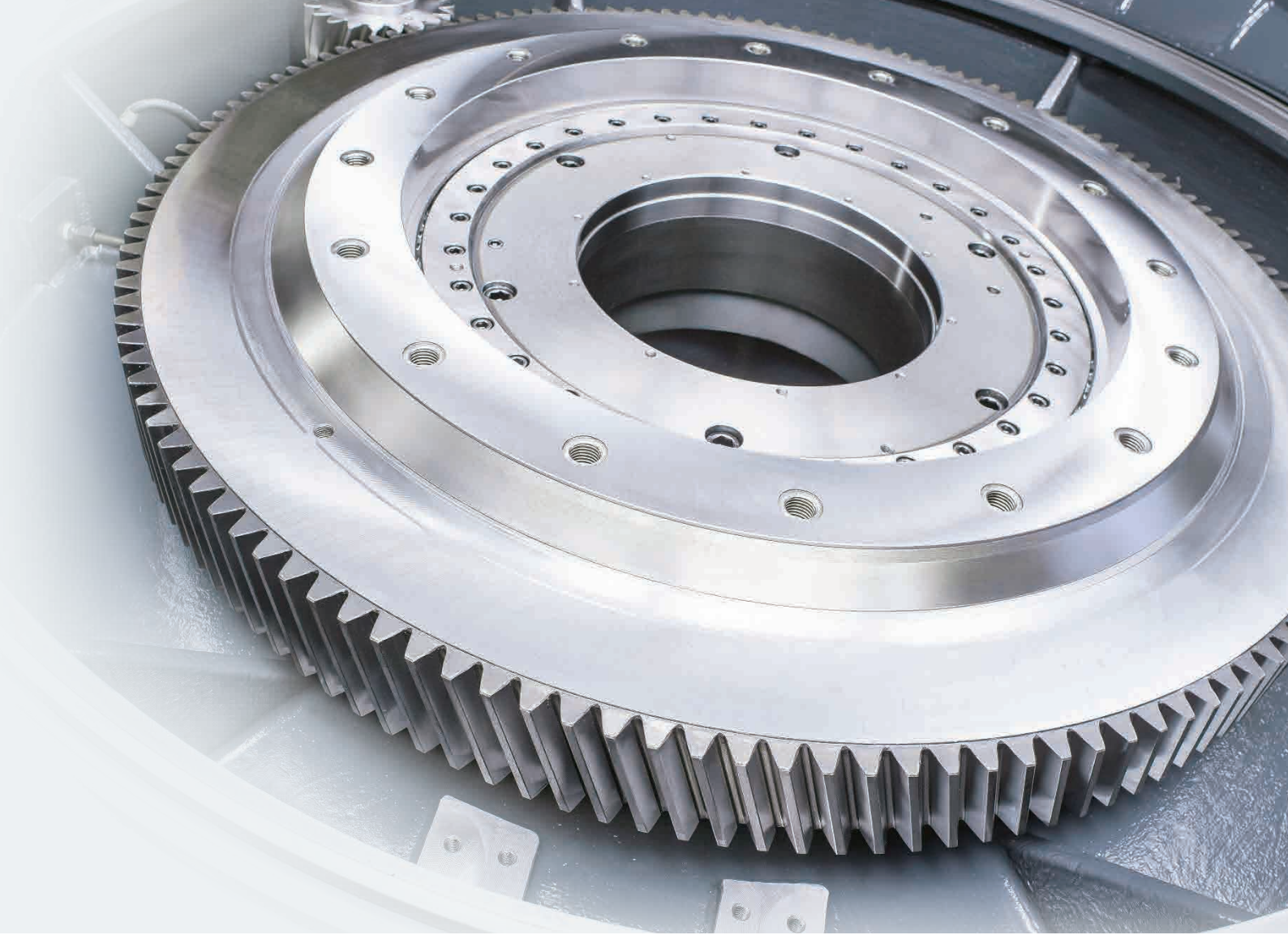
## Cross Roller Bearings

- The high rigidity high precision cross roller bearings can sustain high radial, axial and torque load, which greatly reduces deformation and thermal errors while increasing the rotary table's rotational accuracy and load capacity when working on heavy work-pieces.



## Work-Piece Spindle Output

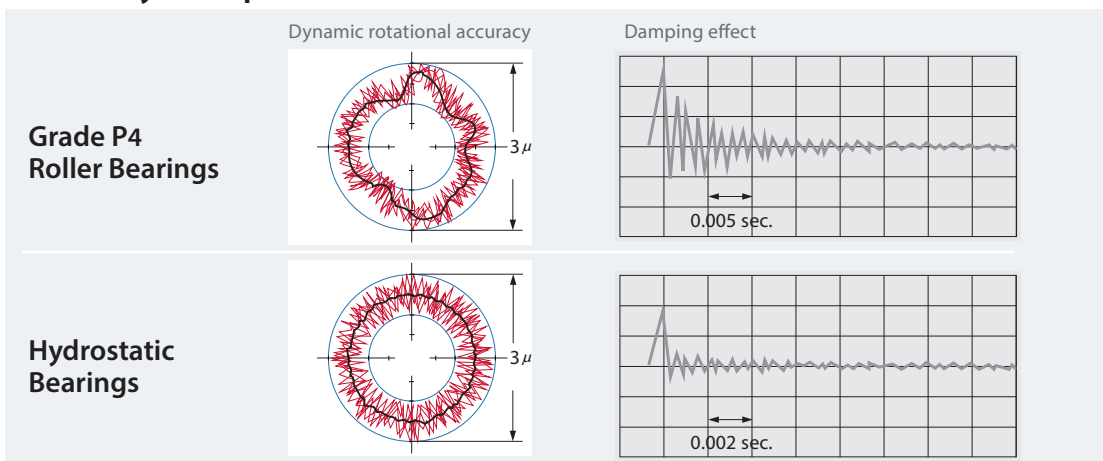


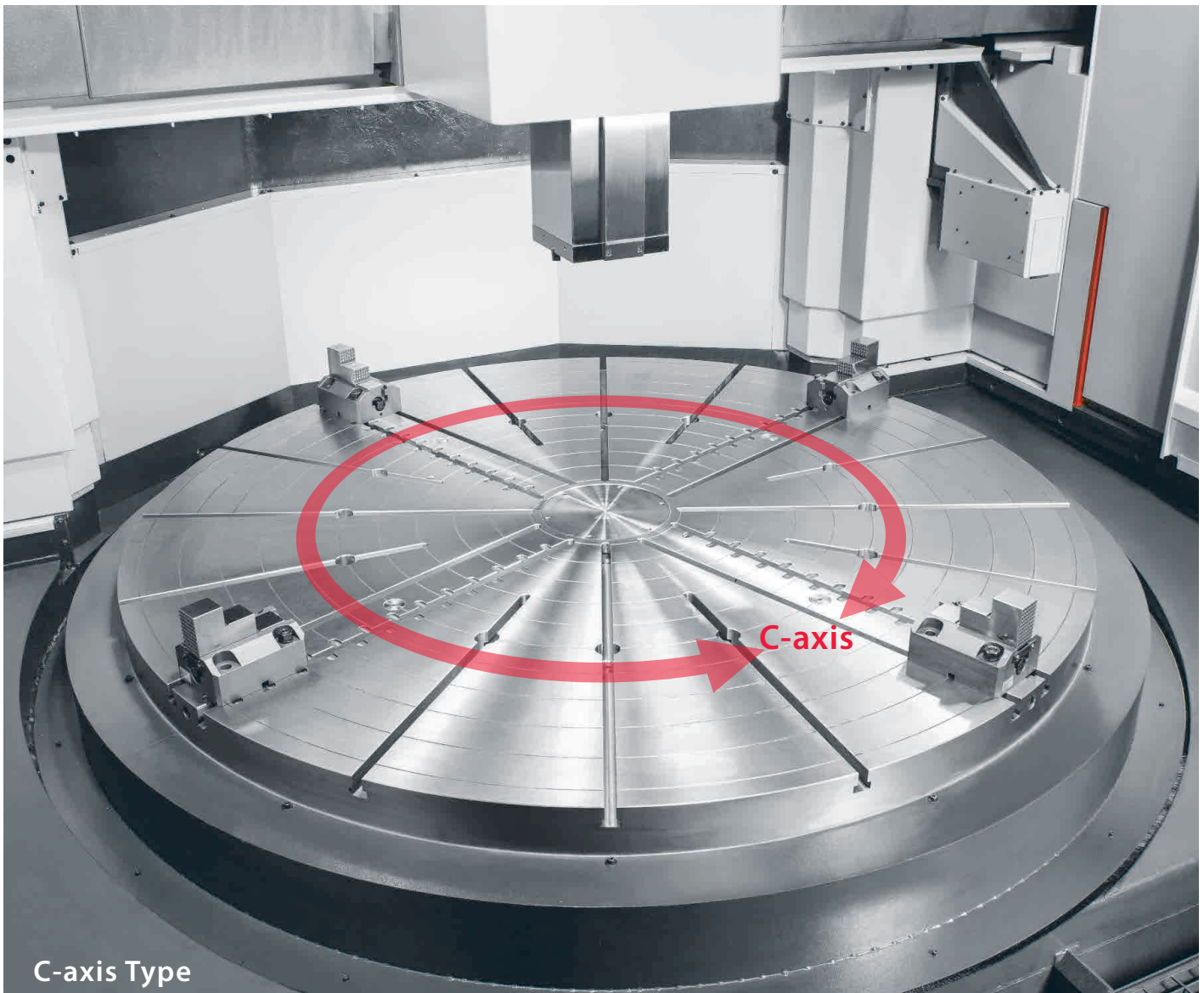


## Hydrostatic Bearings

- The high rigidity hydrostatic bearings provide absolute zero static friction coefficient and low kinetic friction coefficient which can easily drive the rotary table without needing high torque output. Plus the stick-slip effect is eliminated under low speed which provides stable and smooth rotating movement while maintaining maximum dynamic accuracy.
- The hydrostatic bearings provides great damping in vertical movement and low damping in horizontal movement. The oil film damper provides outstanding dynamic rigidity.

### Accuracy Comparison

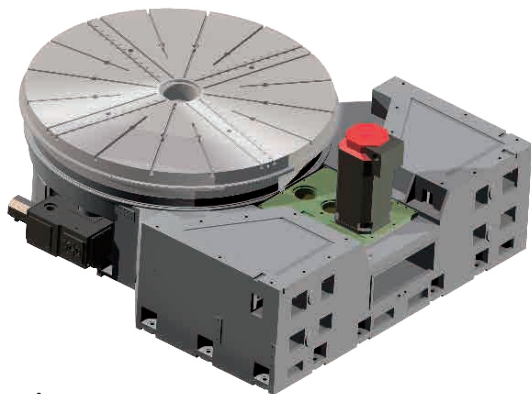




**C-axis Type**

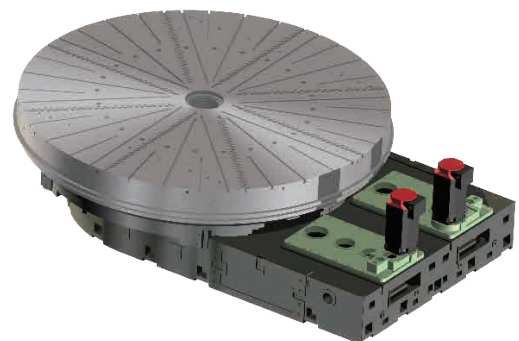
| Model | GVH-2000 | GVH-2500 | GVB-3000 | GVB-3500 | GVB-4000 | GVB-4500 | GVB-5000 | GVB-6000 | GVB-7000 | GVB-8000 |
|-------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Type  | Cf       | Cf       | Cs       | Cs       | Cs       | Cs       | Cs       | Cs       | Cs       | Cs       |

## HIGH RIGIDITY C-AXIS



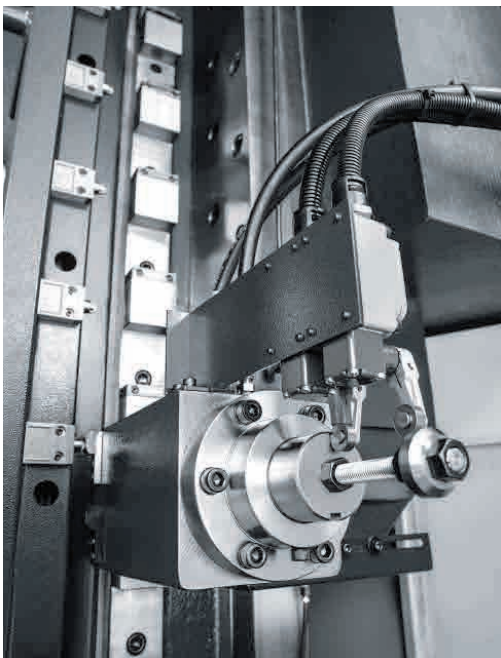
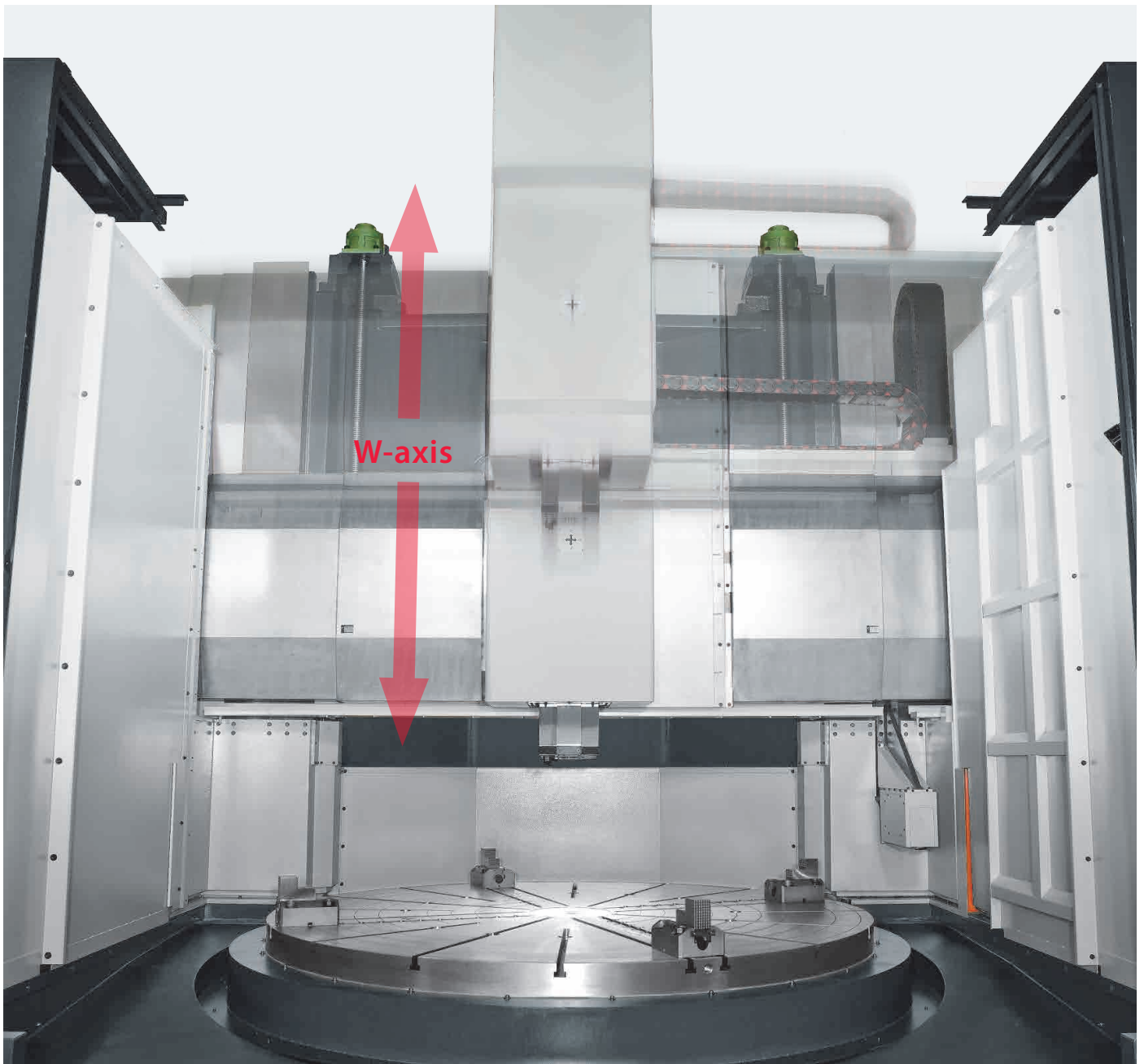
### Cf-axis

The Cf-axis and disk brake system provides the most rigid and powerful type of C-axis in the market today. The surface accuracy and dynamic accuracy can be maintained under heavy duty cutting conditions.



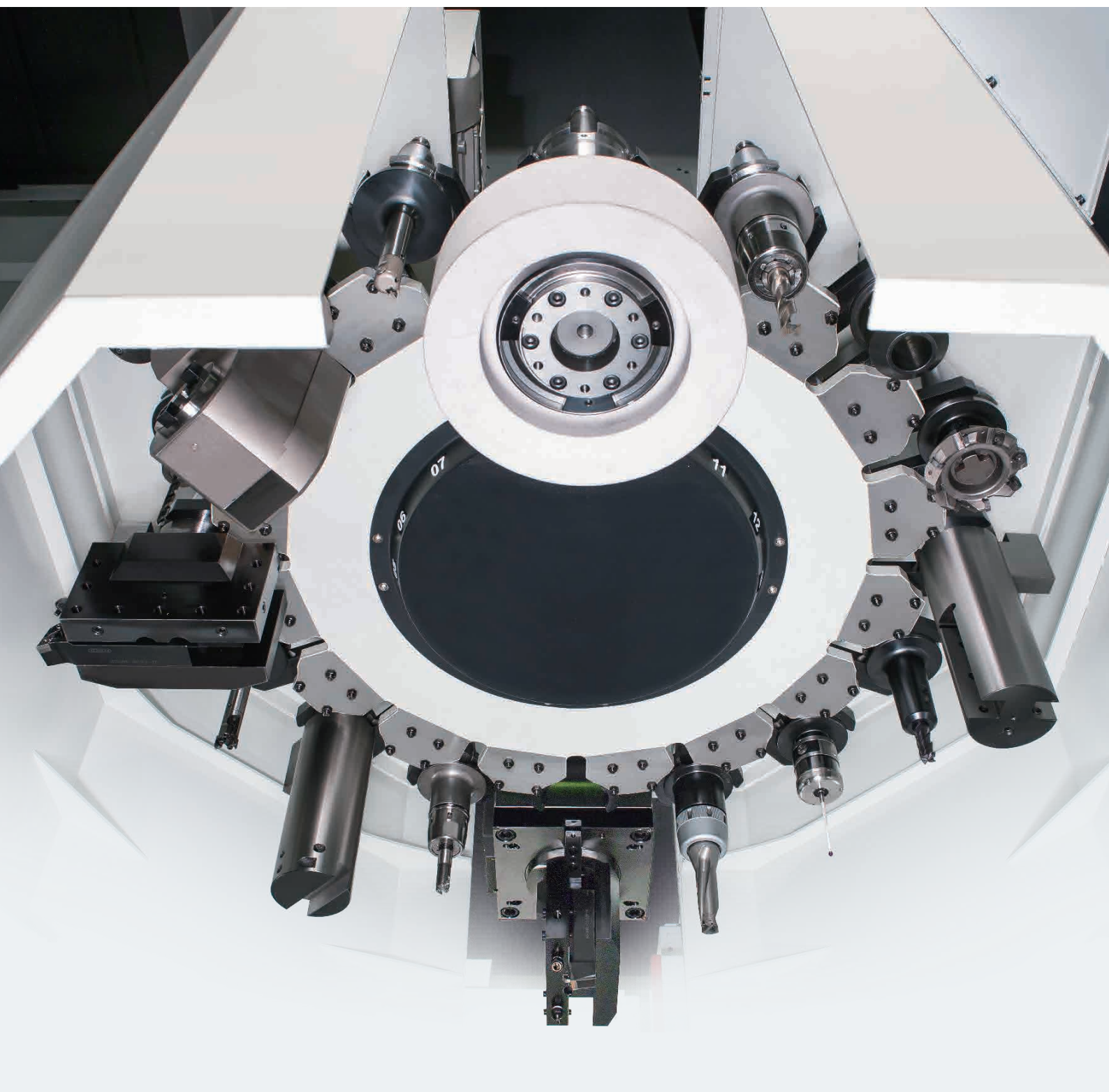
### Cs-axis

The Cs-axis is driven by double spindle motors which eliminates gear backlash while providing double torque output. The repeatability can reach up to  $\pm 5''$  and positioning accuracy can reach up to  $\pm 7.5''$  under normal working conditions.



## MOVING CROSS RAIL STRUCTURE

- The structure uses two sets of live locking bolts to support the cross-rail. After precision positioning, the bolts will be locked by a hydraulic clamping force to ensure the overall rigidity.
- The space between each step of the positioning mechanism is 200 mm which can easily fulfill various types of machining requirements.



## ATC SYSTEM

- Standard 16-tool umbrella type magazine is designed with cam movement mechanism which provides bi-directional tool selection, low noise and accurate positioning advantages.
- The optional 24-tool umbrella type magazine provides ample amount of tools which can easily fulfill complex work-pieces machining applications.

# STANDARD & OPTIONAL FEATURES

S : Standard      O : Option  
 – : Not available    C : Contact Goodway

|                                                  |                       | G/H | G/B |
|--------------------------------------------------|-----------------------|-----|-----|
| <b>WORK-PIECE SPINDLE</b>                        |                       |     |     |
| Main spindle motor                               |                       | S   | S   |
| Rigid tapping                                    |                       | S   | S   |
| C-axis                                           |                       | O   | O   |
| Disk brake for C-axis                            |                       | O   | O   |
| Lubrication system                               |                       | S   | S   |
| <b>WORK-PIECE HOLDING</b>                        |                       |     |     |
| 4-jaw manual table                               |                       | S   | S   |
| <b>TOOLING SPINDLE</b>                           |                       |     |     |
| BT50                                             |                       | S   | S   |
| BT60                                             |                       | –   | O   |
| Coolant nozzle around spindle                    |                       | S   | S   |
| Coolant through spindle ( CTS )                  |                       | S   | S   |
| Milling functions                                |                       | O   | O   |
| Gear box lubrication system                      |                       | S   | S   |
| Umbrella type ATC system                         | 16 T                  | S   | S   |
|                                                  | 24 T                  | O   | O   |
| Chain type ATC magazine<br>( milling functions ) | 24 T                  | C   | C   |
|                                                  | 32 T                  | C   | C   |
| <b>MEASUREMENT</b>                               |                       |     |     |
| Tool presetter                                   |                       | O   | O   |
| In-process part probing                          |                       | O   | O   |
| X & Z axes linear scales                         |                       | O   | O   |
| <b>COOLANT</b>                                   |                       |     |     |
| Coolant pump                                     | 5 kg/cm <sup>2</sup>  | S   | S   |
| High-pressure coolant system                     | 20 kg/cm <sup>2</sup> | O   | O   |
| Oil skimmer                                      |                       | O   | O   |
| Coolant flow switch                              |                       | O   | O   |
| Coolant level switch                             |                       | O   | O   |
| Coolant cooling system                           |                       | O   | O   |
| Paper Tape Filter                                |                       | O   | O   |
| <b>CHIP DISPOSAL</b>                             |                       |     |     |
| Chip conveyor with auto timer                    |                       | O   | O   |
| Chip cart                                        |                       | O   | O   |
| Coolant gun                                      |                       | O   | O   |
| Air gun                                          |                       | O   | O   |
| <b>SAFETY</b>                                    |                       |     |     |
| Fully enclosed splash guard without roof         |                       | S   | S   |
| Fully enclosed splash guard with roof            |                       | O   | O   |
| Door interlock ( incl. Mechanical lock )         |                       | S   | S   |
| Impact resistant viewing window                  |                       | S   | S   |
| Low hydraulic pressure detection switch          |                       | S   | S   |
| Over travel ( soft limit )                       |                       | S   | S   |
| Load monitoring function                         |                       | S   | S   |
| <b>OTHERS</b>                                    |                       |     |     |
| Tri-color operation status signal light tower    |                       | S   | S   |
| Florescent work light                            |                       | S   | S   |
| Electrical cabinet                               | Heat exchanger        | S   | S   |
|                                                  | A/C cooling system    | O   | O   |
| Complete hydraulic system                        |                       | S   | S   |
| Advanced auto lubrication system                 |                       | S   | S   |
| Emergency maintenance electrical part package    |                       | S   | S   |
| Operation & maintenance manuals                  |                       | S   | S   |

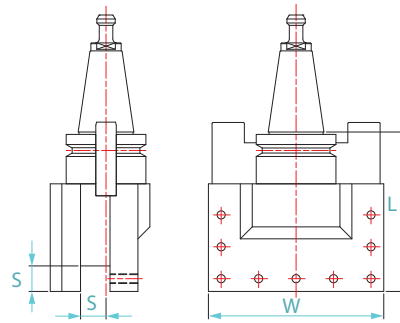
| SIEMENS CONTROL FUNCTIONS         |                                              |                                     | 840D sl |   |
|-----------------------------------|----------------------------------------------|-------------------------------------|---------|---|
| SYSTEM CONFIGURATION              | CNC User Memory                              | 3M                                  | S       |   |
|                                   |                                              | 9M                                  | O       |   |
|                                   |                                              | 15M                                 | O       |   |
| AXIS FUNCTION                     | 10.4" LCD display                            |                                     | S       |   |
| SPINDLE FUNCTION                  | Separate feed for corners & chamfers         |                                     | S       |   |
|                                   | Oriented spindle stop                        |                                     | S       |   |
|                                   | Constant cutting speed                       |                                     | S       |   |
|                                   | Constant thread pitch cutting                |                                     | S       |   |
|                                   | Variable thread pitch cutting                |                                     | S       |   |
|                                   | Multiple thread cutting                      |                                     | S       |   |
|                                   | Rigid tapping                                |                                     | S       |   |
| INTERPOLATION / COUPLING          | 3D Circular interpolation                    |                                     | S       |   |
|                                   | Helical interpolation ( 2D+2 )               |                                     | S       |   |
|                                   | NURBS interpolation                          |                                     | S       |   |
|                                   | Polynomial interpolation                     |                                     | O       |   |
|                                   | Involute interpolation                       |                                     | O       |   |
|                                   | Machining on end face                        |                                     | O       |   |
|                                   | Multi-edge / Polygon turning                 |                                     | O       |   |
| HSC                               | Look ahead block                             | 150                                 | S       |   |
|                                   |                                              | 250                                 | O       |   |
|                                   |                                              | 500                                 | O       |   |
| OPERATION MODE                    | Metric / Inch switchover ( JOG Mode )        |                                     | S       |   |
| CNC PROGRAMMING LANGUAGE          | Global program variables                     |                                     | S       |   |
|                                   | Global / local user variables                |                                     | S       |   |
|                                   | Macro technique                              |                                     | S       |   |
|                                   | Part programs in NCU, max                    | 1,000                               | S       |   |
|                                   | Work-pieces on NCU, max                      | 250                                 | S       |   |
|                                   | Part programs on CF card ( PCU50 )           |                                     | S       |   |
|                                   | Part programs on USB device                  |                                     | S       |   |
|                                   | Part programs on network dirve               |                                     | S       |   |
|                                   | Read / Write system variables                |                                     | S       |   |
| PROGRAMMING SUPPORT               | Animate cycle support ( program GUIDE )      |                                     | S       |   |
|                                   | Animate machining step support ( Shop Turn ) |                                     | S       |   |
|                                   | Customer cycles dialog support               |                                     | S       |   |
|                                   | Geometry processor for contour               |                                     | S       |   |
|                                   | Basic Drill / Mill technology cycles         |                                     | S       |   |
|                                   | Basic Truning technology cycles              |                                     | S       |   |
|                                   | Free contour pocketing ( with island )       |                                     | S       |   |
|                                   | DXF contour conveter ( CAD Reader )          |                                     | O       |   |
|                                   | 2D simulation ( finished part )              |                                     | S       |   |
|                                   | 3D simulation 1 ( finished part )            |                                     | O       |   |
|                                   | WORK OFFSET                                  | Number of basic frames , max        | 16      | S |
|                                   |                                              | Number of setttable frames ( G54~ ) | 100     | S |
| Zero / work offsets, programmable |                                              | S                                   |         |   |
| TOOL                              | Operaton with tool management                |                                     | S       |   |
|                                   | Monitor of tool life and part count          |                                     | S       |   |
|                                   | 3D tool radius compensation                  |                                     | S       |   |
| COMMUNICATIONS                    | Fast Ethernet Ports                          |                                     | S       |   |
|                                   | Network drives, FTP , max                    | 8                                   | S       |   |
|                                   | External PROFINET network                    |                                     | S       |   |
|                                   | Remote control system ( local network )      |                                     | S       |   |
|                                   | Remote control system ( internet )           |                                     | O       |   |
| SPECIAL FUNCTIONS                 | Auto servo turning                           |                                     | S       |   |
|                                   | Remote Diagnose via Ethernet                 |                                     | S       |   |



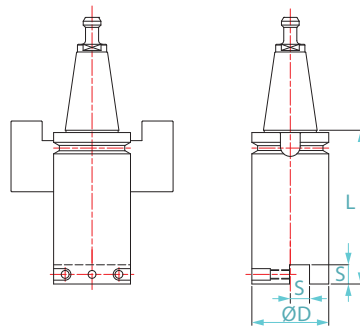
# GENERAL DIMENSION

Unit : mm

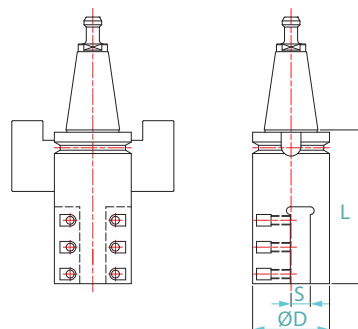
## Turning Tool Holder



| Taper | W   | L   | S  |
|-------|-----|-----|----|
| BT50  | 220 | 200 | 32 |
| BT50  | 220 | 210 | 40 |
| BT50  | 250 | 200 | 32 |
| BT50  | 250 | 210 | 40 |
| BT50  | 270 | 200 | 32 |
| BT50  | 270 | 210 | 40 |
| BT60  | 340 | 250 | 32 |
| BT60  | 340 | 260 | 40 |



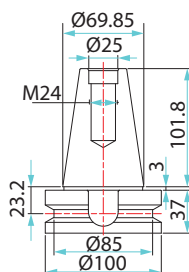
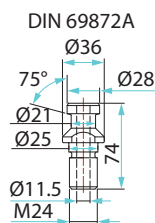
| Taper | L   | S  | D   |
|-------|-----|----|-----|
| BT50  | 200 | 25 | 100 |
| BT50  | 300 | 25 | 100 |
| BT60  | 200 | 25 | 140 |
| BT60  | 300 | 25 | 140 |



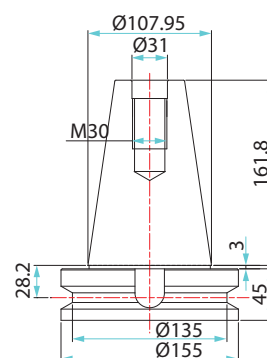
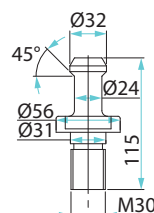
| Taper | L   | S  | D   |
|-------|-----|----|-----|
| BT50  | 200 | 25 | 100 |
| BT50  | 300 | 25 | 100 |
| BT60  | 200 | 25 | 140 |
| BT60  | 300 | 25 | 140 |

## Milling Tool Holder

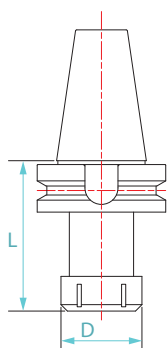
## BT50



## BT60

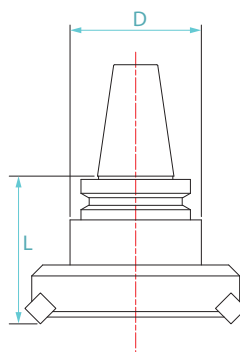


Tool Shank ( Optional )



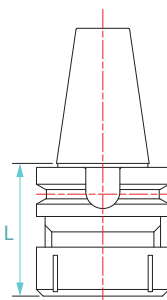
## Tapping Tool Holders

| Taper      | L   | D  | Tapping Range |
|------------|-----|----|---------------|
| BT50-TER16 | 80  | 28 | M3-M12        |
| BT50-TER40 | 117 | 63 | M12-M35       |
| BT60-TER16 | 83  | 28 | M3-M12        |
| BT60-TER40 | 126 | 63 | M12-M35       |



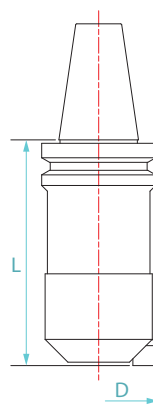
## Face Milling Tool Holders

| Taper             | L   | D  | Cutter Dia. |
|-------------------|-----|----|-------------|
| BT50-FMA25.4-105  | 125 | 85 | 80          |
| BT50-FMA31.75-105 | 127 | 85 | 100         |
| BT50-FMA38.1-75   | 98  | 95 | 125         |
| BT50-FMA50.8-75   | 99  | 95 | 150         |
| BT60-FMA25.4-105  | 125 | 85 | 80          |
| BT60-FMA31.75-105 | 127 | 85 | 100         |
| BT60-FMA38.1-75   | 98  | 95 | 125         |
| BT60-FMA50.8-75   | 99  | 95 | 150         |



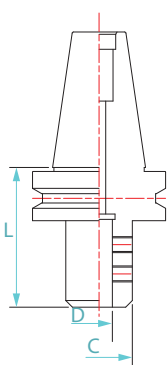
## Drilling ( Collect Type ) Tool Holders

| Taper         | L   | Capacity | Collet Type |
|---------------|-----|----------|-------------|
| BT50-ER20-100 | 100 | 1-13     | ER20        |
| BT50-ER32-100 | 100 | 2-20     | ER32        |
| BT50-ER40-100 | 100 | 3-26     | ER40        |
| BT60-ER20-100 | 100 | 1-13     | ER20        |
| BT60-ER32-100 | 100 | 2-20     | ER32        |
| BT60-ER40-100 | 100 | 3-26     | ER40        |



## Boring Tool Holders

| Taper           | L   | D         |
|-----------------|-----|-----------|
| BT50-BSA62-300  | 300 | 62 ~ 90   |
| BT50-BSA72-320  | 320 | 72 ~ 110  |
| BT50-BSA105-195 | 195 | 105 ~ 160 |
| BT60-BSA62-300  | 300 | 62 ~ 90   |
| BT60-BSA72-320  | 320 | 72 ~ 110  |
| BT60-BSA105-195 | 195 | 105 ~ 160 |



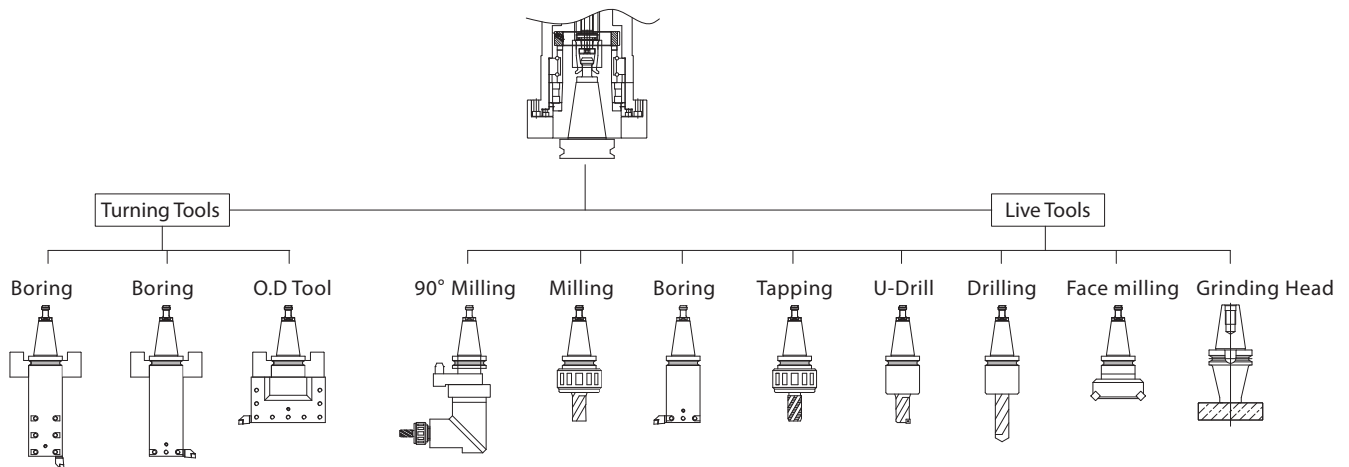
## Drilling ( Side Lock ) Tool Holders

| Taper            | L   | C  | D    |
|------------------|-----|----|------|
| BT50-SLA20-105   | 105 | 50 | 20   |
| BT50-SLA25-105   | 105 | 55 | 25   |
| BT50-SLA32-105   | 105 | 60 | 32   |
| BT50-SLA40-105   | 105 | 80 | 40   |
| BT50-SLA50.8-105 | 105 | 95 | 50.8 |
| BT60-SLA20-105   | 105 | 50 | 20   |
| BT60-SLA25-105   | 105 | 55 | 25   |
| BT60-SLA32-105   | 105 | 60 | 32   |
| BT60-SLA40-105   | 105 | 80 | 40   |
| BT60-SLA50.8-105 | 105 | 95 | 50.8 |

# GENERAL DIMENSION

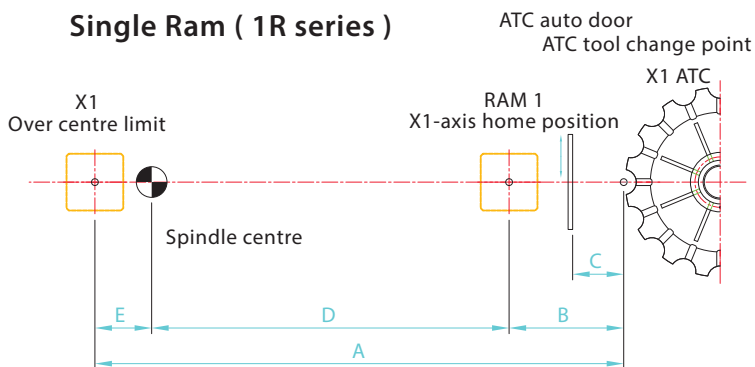
Unit : mm

## Tooling System



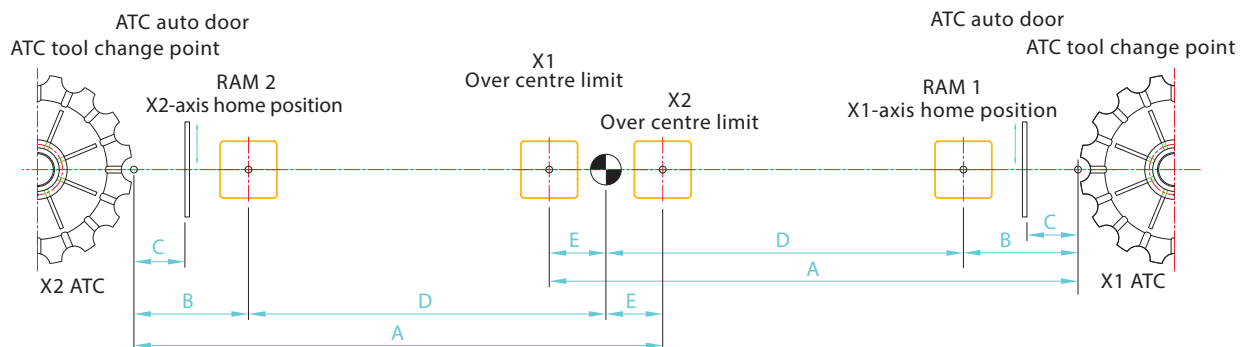
## X-axis Travel

### Single Ram ( 1R series )



| Model    | A     | B   | C   | D     | E     |
|----------|-------|-----|-----|-------|-------|
| GVH-2000 | 2,830 | 680 | 225 | 1,125 | 1,000 |
| GVH-2500 | 3,080 | 680 | 225 | 1,375 | 1,000 |
| GVB-3000 | 3,950 | 500 | 230 | 1,950 | 1,500 |
| GVB-3500 | 4,450 | 500 | 230 | 2,200 | 1,750 |
| GVB-4000 | 4,950 | 500 | 230 | 2,450 | 2,000 |
| GVB-4500 | 5,450 | 500 | 230 | 2,700 | 2,250 |
| GVB-5000 | 6,435 | 740 | 290 | 3,195 | 2,500 |
| GVB-6000 | 7,435 | 740 | 290 | 3,695 | 3,000 |
| GVB-7000 | 8,635 | 740 | 290 | 4,195 | 3,700 |
| GVB-8000 | 9,735 | 740 | 290 | 4,695 | 4,300 |

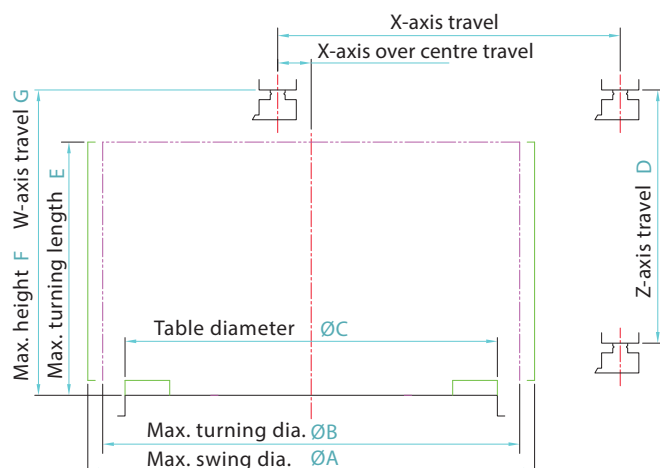
### Dual ram ( 2R series )



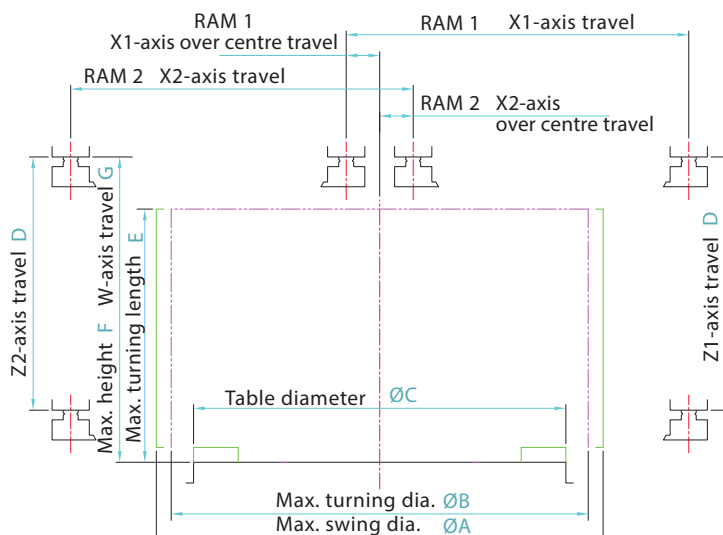
| Model       | A     | B   | C   | D     | E   |
|-------------|-------|-----|-----|-------|-----|
| GVH-2000-2R | 2,080 | 680 | 225 | 1,150 | 250 |
| GVH-2500-2R | 2,330 | 680 | 225 | 1,400 | 250 |
| GVB-3000-2R | 2,700 | 500 | 230 | 1,950 | 250 |
| GVB-3500-2R | 2,950 | 500 | 230 | 2,200 | 250 |
| GVB-4000-2R | 3,200 | 500 | 230 | 2,450 | 250 |
| GVB-4500-2R | 3,450 | 500 | 230 | 2,700 | 250 |
| GVB-5000-2R | 4,185 | 740 | 290 | 3,195 | 250 |
| GVB-6000-2R | 4,685 | 740 | 290 | 3,695 | 250 |
| GVB-7000-2R | 5,185 | 740 | 290 | 4,195 | 250 |
| GVB-8000-2R | 5,685 | 740 | 290 | 4,695 | 250 |

## Working Range

### Single Ram ( 1R series )

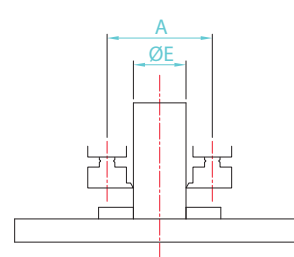
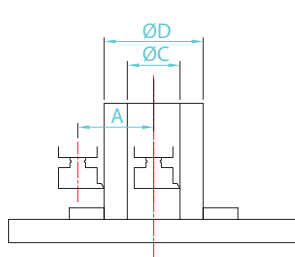
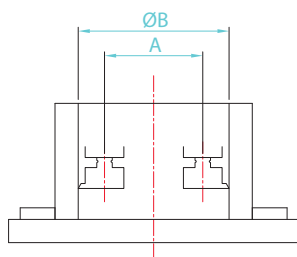


### Dual ram ( 2R series )



| Model    | A     | B     | C     | D     | E*1   | F*1   | G*1   |
|----------|-------|-------|-------|-------|-------|-------|-------|
| GVH-2000 | 2,500 | 2,300 | 2,000 | 1,200 | 1,700 | 2,050 | 1,200 |
| GVH-2500 | 3,000 | 2,800 | 2,500 | 1,200 | 1,700 | 2,050 | 1,200 |
| GVB-3000 | 3,700 | 3,500 | 3,000 | 1,500 | 1,600 | 2,080 | 1,200 |
| GVB-3500 | 4,200 | 4,000 | 3,500 | 1,500 | 1,600 | 2,030 | 1,200 |
| GVB-4000 | 4,700 | 4,500 | 4,000 | 1,500 | 1,600 | 1,960 | 1,200 |
| GVB-4500 | 5,200 | 5,000 | 4,500 | 1,500 | 1,600 | 1,910 | 1,200 |
| GVB-5000 | 6,400 | 6,000 | 5,000 | 1,600 | 2,400 | 2,800 | 1,600 |
| GVB-6000 | 7,500 | 7,000 | 6,000 | 1,600 | 2,400 | 2,800 | 1,600 |
| GVB-7000 | 9,000 | 8,500 | 7,000 | 1,600 | 2,600 | 3,000 | 1,600 |
| GVB-8000 | 9,500 | 9,000 | 8,000 | 1,600 | 2,600 | 3,000 | 1,600 |

\*1 Change upon customer's requested



| Model       | A     | B     | C   | D     | E     |
|-------------|-------|-------|-----|-------|-------|
| GVH-2000-2R | 1,300 | 1,600 | 360 | 2,300 | 1,000 |
| GVH-2500-2R | 1,300 | 1,600 | 360 | 2,300 | 1,000 |
| GVB-3000-2R | 1,400 | 1,700 | 400 | 2,500 | 1,100 |
| GVB-3500-2R | 1,400 | 1,700 | 400 | 2,500 | 1,100 |
| GVB-4000-2R | 1,400 | 1,700 | 400 | 2,500 | 1,100 |
| GVB-4500-2R | 1,400 | 1,700 | 400 | 2,500 | 1,100 |
| GVB-5000-2R | 1,900 | 2,430 | 530 | 3,300 | 1,400 |
| GVB-6000-2R | 1,900 | 2,430 | 530 | 3,300 | 1,400 |
| GVB-7000-2R | 2,000 | 2,530 | 530 | 3,470 | 1,470 |
| GVB-8000-2R | 2,000 | 2,530 | 530 | 3,470 | 1,470 |

Specifications are subject to change without notice.

# OPTIONAL ADVANCED CONTROL FUNCTIONS

## AIR BAG

The load of servo motor can be detected in real time. When the load is at an abnormally large value ( such as in case of machine collision ), the system immediately shifts to emergency stop mode and retract servo axes in the meantime. Such immediate risk control mechanism can save the cost of machine repair and diminish production loss due to machine down.

Retract tools within **0.009 sec.**



### Equipped with Air Bag

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

- Short maintenance time · Less mechanical damage
- Overload predictable



### Not equipped with Air Bag

If axes continue feeding after machine collision, the overall mechanical structure and work pieces will be severely damaged.

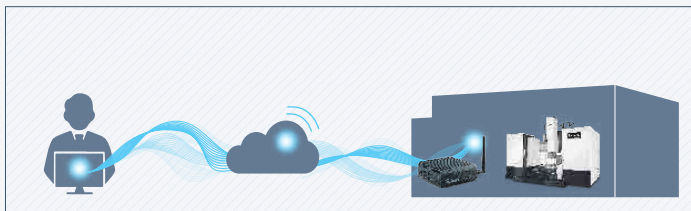
- Long maintenance time · Severe mechanical damage
- Overload unpredictable

## SERVICE CUBE

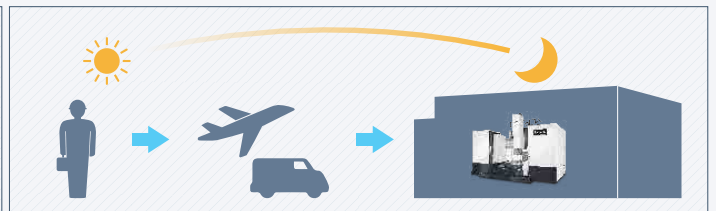
Via service cube, no matter where you are in the world ( as long as internet available ), you can do machine setting, monitoring, maintenance, upload / download program, etc.. Machine maintenance efficiency can be increased, manpower and traffic cost can be decreased.



### Machine with Service Cube



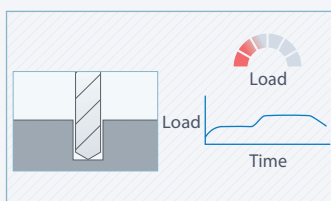
### Machine without Service Cube



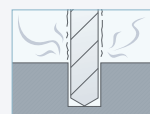
## LOAD MONITOR

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

### Tool Monitoring

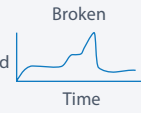
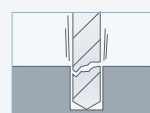


Tool life achievement



Machine stop

Tool wear



Feedrate stop

# GLINC INTELLIGENT OPERATING SYSTEM (Opt.)

## Make Your Machine Smarter

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



### Machining preparation

- Ultra fast tool selection
- To memorize MDI program

### Program editing

- Adjuvant of G/M code
- Graphical procedure management
- Manual Guide *i*

### Machining

- Load monitor
- Tool life time
- Machined parts counter
- Visible servo observation

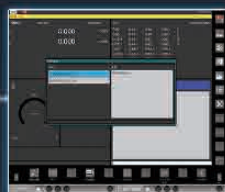
### Adjuvant function

- Data record
- Maintenance Warn
- Memo
- E book
- Prt Scrm record



#### Ultra fast tool selection

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



#### MDI program memory

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



#### G/M code assistance

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



#### Visible servo observation

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



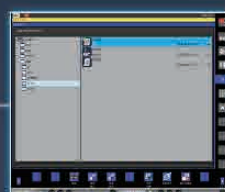
#### Tool load monitor

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



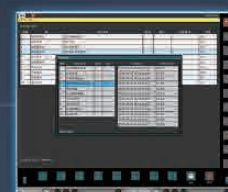
#### Tool life monitor

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



#### Graphical process manager

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



#### Data recorder

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

# MACHINE SPECIFICATIONS

■ : Metric ■ : Inch

| CAPACITY                         | GVH-2000                                                  | GVH-2500                                                    | GVB-3000                                                                                         | GVB-3500                                                   |
|----------------------------------|-----------------------------------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------|
| Table diameter                   | Ø 2,000 mm 78.7"                                          | Ø 2,500 mm 98.4"                                            | Ø 3,000 mm 118"                                                                                  | Ø 3,500 mm 137.7"                                          |
| Max. swing diameter              | Ø 2,500 mm 98.4"                                          | Ø 3,000 mm 118"                                             | Ø 3,700 mm 145.6"                                                                                | Ø 4,200 mm 165.3"                                          |
| Max. turning diameter            | Ø 2,300 mm 90.5"                                          | Ø 2,800 mm 110.2"                                           | Ø 3,500 mm 137.7"                                                                                | Ø 4,000 mm 157.4"                                          |
| Max. turning height              | 1,700 / 2,100 mm 66.9" / 82.6"                            |                                                             | 1,600 / 2,400 / 3,200 mm 62.9" / 94.4" / 125.9"                                                  |                                                            |
| Max. table load                  | 10,000 kg 22,046 lb                                       | 15,000 kg 33,069 lb                                         | 20,000 44,092 lb / 45,000 99,207 lb ( opt. ) kg                                                  |                                                            |
| WORK-PIECE SPINDLE               |                                                           |                                                             |                                                                                                  |                                                            |
| Spindle bearing diameter         | Ø 912 mm 35.9"                                            | Ø 1,180 mm 46.4"                                            | Bearing / Hydrostatic ( Opt. )                                                                   |                                                            |
| Motor output ( cont. / 30 min. ) | 60 / 75 kW 80 / 100 HP                                    |                                                             | ( 39 / 45 kW ) × 2 [ Opt. ( 58 / 70 kW ) × 2 ]<br>( 52 / 60 HP ) × 2 [ Opt. ( 77 / 93 HP ) × 2 ] |                                                            |
| Spindle drive system             | 2-step gear box                                           |                                                             |                                                                                                  |                                                            |
| Spindle speed range              | 1 ~ 200 rpm                                               | 1 ~ 130 rpm                                                 | 1 ~ 120 / 1 ~ 80 rpm ( Hydrostatic )                                                             |                                                            |
| Max. spindle torque              | 59,700 Nm 44,030 lb-ft                                    | 74,140 Nm 54,685 lb-ft                                      | 169,700 Nm 125,170 lb-ft                                                                         |                                                            |
| TOOLING SPINDLE ( Opt. )         |                                                           |                                                             |                                                                                                  |                                                            |
| Motor output ( cont. / 30 min. ) | 11 / 15 kW 15 / 20 HP                                     |                                                             | 15 / 18 kW 20 / 24 HP                                                                            |                                                            |
| Spindle speed range              | 1 ~ 2,400 rpm                                             |                                                             |                                                                                                  |                                                            |
| Cf-AXIS ( Opt. )                 |                                                           |                                                             |                                                                                                  |                                                            |
| Cf-axis servo motor output       | 5.5 kW 7 HP                                               |                                                             | —*1                                                                                              |                                                            |
| Cf-axis speed range              | 6 rpm                                                     |                                                             | —*1                                                                                              |                                                            |
| Cf-axis torque output            | 12,600 Nm 9,290 lb-ft                                     | 16,200 Nm 11,950 lb-ft                                      | —*1                                                                                              |                                                            |
| X & Z AXES                       |                                                           |                                                             |                                                                                                  |                                                            |
| Max. X-axis travel               | 2,830 ( +1,000 ~ -1,830 )<br>mm<br>111" ( +39.3" ~ -72" ) | 3,080 ( +1,000 ~ -2,080 )<br>mm<br>121" ( +39.3" ~ -81.8" ) | 3,950 ( +1,500 ~ -2,450 )<br>mm<br>115" ( +59" ~ -96.4" )                                        | 4,450 ( +1,750 ~ -2,700 )<br>mm<br>175" ( +68.8" ~ -106" ) |
| Max. Z-axis travel               | 1,200 / 1,500 mm 47.2" / 59"                              |                                                             | 1,500 / 1,800 mm 59" / 70.8"                                                                     |                                                            |
| X / Z axes rapids                | 10 / 10 m/min. 393 / 393 IPM                              |                                                             | 6 / 10 m/min. 236 / 393 IPM                                                                      |                                                            |
| X / Z axes motor output          | 6 / 9 kW 8 / 12 HP                                        |                                                             | 8.2 kW 11 HP                                                                                     |                                                            |
| W-AXIS                           |                                                           |                                                             |                                                                                                  |                                                            |
| Max. W-axis travel               | 1,200 / 1,600 mm 47.2" / 62.9"                            |                                                             | 1,200 / 2,000 / 2,800 mm 47.2" / 78.7" / 110.2"                                                  |                                                            |
| W-axis rapids                    | 200 mm/min. 7.87 IPM                                      |                                                             | 150 mm/min. 5.9 IPM                                                                              |                                                            |
| ATC                              |                                                           |                                                             |                                                                                                  |                                                            |
| Magazine capacity                | 16 T                                                      |                                                             |                                                                                                  |                                                            |
| Spindle taper                    | BT50                                                      |                                                             | BT50 ( BT60 Opt. )                                                                               |                                                            |
| Max. tool size ( W × T × L )     | 280 × 150 × 400 mm 11" × 5.9" × 15.7"                     |                                                             | 280 × 150 × 400 mm 11" × 5.9" × 15.7"                                                            |                                                            |
| Max. tool weight                 | 50 kg 110 lb                                              |                                                             | 50 kg 110 lb                                                                                     |                                                            |
| Max. magazine load               | 360 kg 793 lb                                             |                                                             | 800 kg 1,763 lb                                                                                  |                                                            |
| GENERAL                          |                                                           |                                                             |                                                                                                  |                                                            |
| Positioning accuracy             | ±0.007 / 500 mm ±0.0002" / 19.6"                          |                                                             |                                                                                                  |                                                            |
| Repeatability                    | ±0.005 mm ±0.0001"                                        |                                                             |                                                                                                  |                                                            |
| Standard CNC control             | FANUC Oi-TF Plus                                          |                                                             | SIEMENS SINUMERIK 840D sl                                                                        |                                                            |
| Voltage requirement              | AC400/440+10%to-15%3 phase                                |                                                             |                                                                                                  |                                                            |
| Hydraulic capacity               | 130 L 34.3 gal                                            |                                                             | 200 L 52.8 gal                                                                                   |                                                            |
| Coolant tank capacity            | 1,000 L 264 gal                                           | 1,600 L 422 gal                                             | 2,000 L 528 gal                                                                                  |                                                            |
| Machine weight                   | 50,000 kg 110,300 lb                                      | 55,000 kg 121,300 lb                                        | 70,000 kg 154,400 lb                                                                             | 90,000 kg 198,500 lb                                       |
| Machine Dimensions ( H )         | 6,895 mm 272"                                             | 6,895 mm 272"                                               | 7,600 mm 300"                                                                                    | 7,600 mm 300"                                              |
| Machine Dimensions ( L × W )     | 7,040 × 4,610 mm<br>278" × 182"                           | 7,540 × 4,610 mm<br>297" × 182"                             | 12,500 × 9,000 mm<br>493" × 355"                                                                 | 13,000 × 9,000 mm<br>512" × 355"                           |

\*1 The series are designed with Cs-axis.

Specifications are subject to change without notice.

■ : Metric ■ : Inch

| GVB-4000                                                                                                                                        |  | GVB-4500                                                   |  | GVB-5000                                                                                         |  | GVB-6000                                                  |  | GVB-7000                                                     |  | GVB-8000                                                  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------|--|--------------------------------------------------------------|--|-----------------------------------------------------------|--|
| Ø 4,000 mm 157"                                                                                                                                 |  | Ø 4,500 mm 177"                                            |  | Ø 5,000 mm 196"                                                                                  |  | Ø 6,000 mm 236"                                           |  | Ø 7,000 mm 275"                                              |  | Ø 8,000 mm 314"                                           |  |
| Ø 4,700 mm 185"                                                                                                                                 |  | Ø 5,200 mm 204"                                            |  | Ø 6,400 mm 251"                                                                                  |  | Ø 7,400 mm 291"                                           |  | Ø 9,000 mm 354"                                              |  | Ø 9,500 mm 374"                                           |  |
| Ø 4,500 mm 177"                                                                                                                                 |  | Ø 5,000 mm 196"                                            |  | Ø 6,000 mm 236"                                                                                  |  | Ø 7,000 mm 275"                                           |  | Ø 8,000 mm 314"                                              |  | Ø 9,000 mm 354"                                           |  |
| 1,600 / 2,400 / 3,200 mm 62.9" / 94.4" / 125.9"                                                                                                 |  |                                                            |  | 2,400 / 3,200 / 4,000 mm 94.4" / 125.9" / 157"                                                   |  |                                                           |  | 2,600 / 3,400 / 4,200 / 5,000 mm 102" / 133" / 165" / 196"   |  |                                                           |  |
| 30,000 66,138 lb / 60,000 132,277 lb ( opt. ) kg                                                                                                |  |                                                            |  | 100,000 kg                                                                                       |  | 150,000 kg                                                |  | 250,000 kg                                                   |  | 300,000 kg                                                |  |
| Bearing / Hydrostatic ( Opt. )                                                                                                                  |  |                                                            |  | Hydrostatic                                                                                      |  |                                                           |  |                                                              |  |                                                           |  |
| ( 39 / 45 kW ) × 2 [ Opt. ( 58 / 70 kW ) × 2 or ( 95 / 140 kW ) × 2 ]<br>( 52 / 60 HP ) × 2 [ Opt. ( 77 / 93 HP ) × 2 or ( 127 / 187 HP ) × 2 ] |  |                                                            |  | ( 58 / 70 kW ) × 2 [ Opt. ( 95 / 140 kW ) × 2 ] ( 77 / 94 HP ) × 2 [ Opt. ( 127 / 187 HP ) × 2 ] |  |                                                           |  |                                                              |  |                                                           |  |
| 2-step gear box                                                                                                                                 |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| 1 ~ 60 rpm                                                                                                                                      |  |                                                            |  | 1 ~ 40 rpm                                                                                       |  | 1 ~ 25 rpm                                                |  | 1 ~ 20 rpm                                                   |  | 1 ~ 20 rpm                                                |  |
| 272,700 Nm 201,145 lb-ft                                                                                                                        |  |                                                            |  | 314,000 Nm 231,595 lb-ft                                                                         |  | 439,600 Nm 324,250 lb-ft                                  |  | 450,980 Nm 332,645 lb-ft                                     |  | 450,980 Nm 332,645 lb-ft                                  |  |
| 22 / 26 kW 30 / 35 HP                                                                                                                           |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| 1 ~ 2,400 rpm                                                                                                                                   |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| —*1                                                                                                                                             |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| —*1                                                                                                                                             |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| —*1                                                                                                                                             |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| 4,950 ( +2,000 ~ -2,950 )<br>mm<br>194" ( +78.7" ~ -116" )                                                                                      |  | 5,450 ( +2,250 ~ -3,200 )<br>mm<br>214" ( +88.5" ~ -125" ) |  | 6,435 ( +2,500 ~ -3,935 )<br>mm<br>253" ( +98.4" ~ -154" )                                       |  | 7,435 ( +3,000 ~ -4,435 )<br>mm<br>292" ( +118" ~ -174" ) |  | 8,635 ( +3,700 ~ -4,935 )<br>mm<br>339" ( +145" ~ -194" )    |  | 9,735 ( +4,300 ~ -5,435 )<br>mm<br>383" ( +169" ~ -213" ) |  |
| 1,500 / 1,800 mm 59" / 70.8"                                                                                                                    |  |                                                            |  | 1,600 / 2,000 mm 62.9" / 78.7"                                                                   |  |                                                           |  | 1,600 / 2,000 / 2,500 mm 62.9" / 78.7" / 98.4"               |  |                                                           |  |
| 6 / 10 m/min. 236 / 393 IPM                                                                                                                     |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| 8.2 kW 11 HP                                                                                                                                    |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| 1,200 / 2,000 / 2,800 mm 47.2" / 78.7" / 110.2"                                                                                                 |  |                                                            |  | 1,600 / 2,400 / 3,200 mm 62.9" / 94.4" / 125"                                                    |  |                                                           |  | 1,600 / 2,400 / 3,200 / 4,000 mm 62.9" / 94.4" / 125" / 157" |  |                                                           |  |
| 150 mm/min. 5.9 IPM                                                                                                                             |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| 16 T                                                                                                                                            |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| BT50 ( BT60 Opt. )                                                                                                                              |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| 280 × 150 × 400 mm 11" × 5.9" × 15.7"                                                                                                           |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| 50 kg 110 lb                                                                                                                                    |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| 800 kg 1,763 lb                                                                                                                                 |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| ±0.007 / 500 mm ±0.0002" / 19.6"                                                                                                                |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| ±0.005 mm ±0.0001"                                                                                                                              |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| SIEMENS SINUMERIK 840D sl                                                                                                                       |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| AC400/440+10%to-15%3 phase                                                                                                                      |  |                                                            |  |                                                                                                  |  |                                                           |  |                                                              |  |                                                           |  |
| 200 L 52.8 gal                                                                                                                                  |  |                                                            |  | 350 L 92.4 gal                                                                                   |  |                                                           |  |                                                              |  |                                                           |  |
| 2,500 L 660 gal                                                                                                                                 |  | 2,800 L 739 gal                                            |  | 3,500 L 924 gal                                                                                  |  |                                                           |  | 6,800 L 1,796 gal                                            |  |                                                           |  |
| 100,000 kg 220,465 lb                                                                                                                           |  | 130,000 kg 286,610 lb                                      |  | 200,000 kg 440,930 lb                                                                            |  | 280,000 kg 617,300 lb                                     |  | 400,000 kg 881,850 lb                                        |  | 420,000 kg 925,950 lb                                     |  |
| 7,600 mm 300"                                                                                                                                   |  |                                                            |  | 8,550 mm 337"                                                                                    |  |                                                           |  | 12,000 mm 473"                                               |  |                                                           |  |
| 14,500 × 10,000 mm<br>571" × 394"                                                                                                               |  | 15,000 × 10,000 mm<br>591" × 394"                          |  | 16,500 × 11,000 mm<br>650" × 434"                                                                |  | 18,000 × 12,000 mm<br>709" × 473"                         |  | 21,000 × 15,500 mm<br>827" × 611"                            |  | 23,000 × 15,500 mm<br>906" × 611"                         |  |



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