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ISO 9001



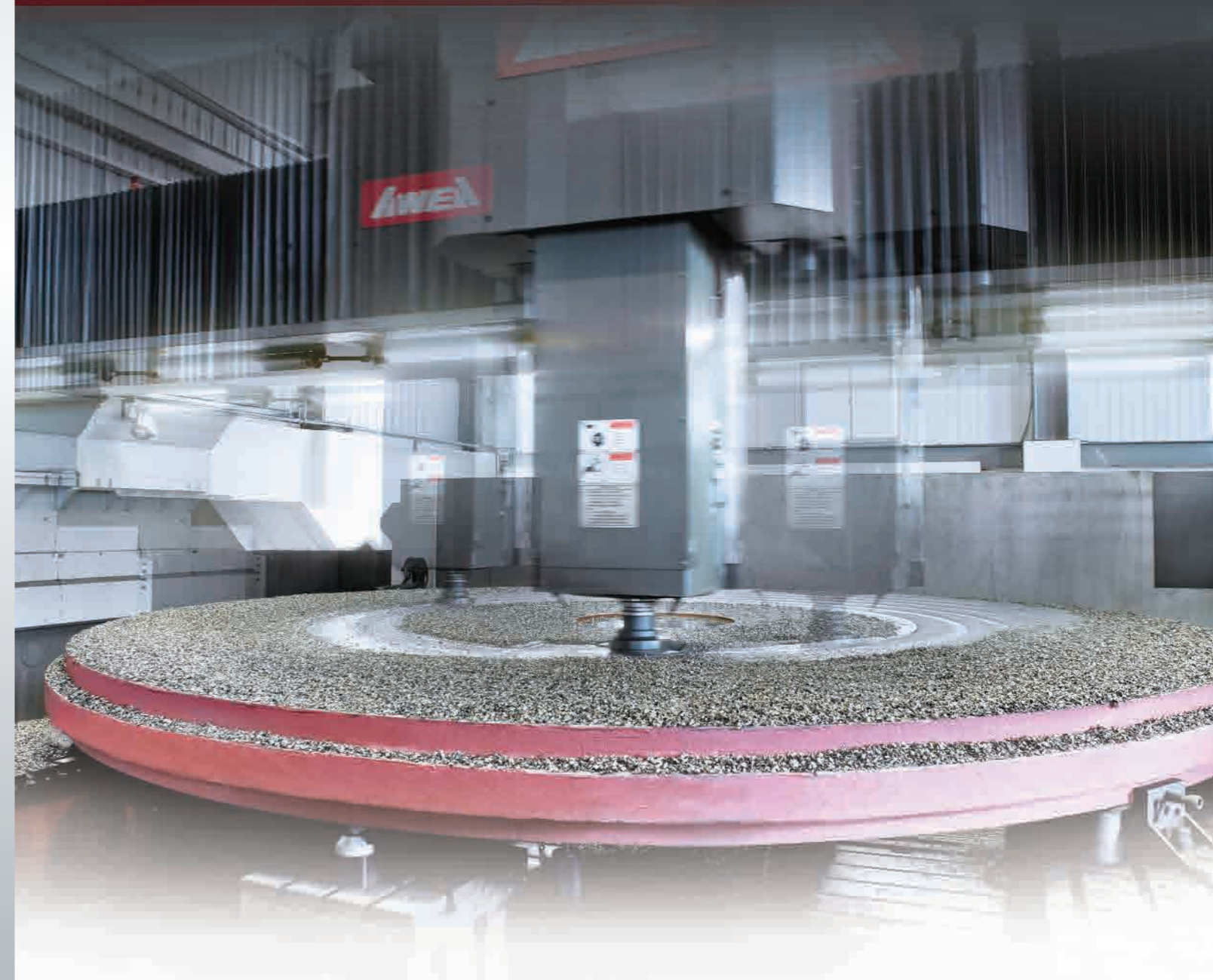
ISO 14001



**AGENT**

# LG SERIES

## Gantry Type Machining Center



# Gantry Type Machining Center

Introducing AWEA with mature manufacturing abilities and advanced technology skills, the LG series gantry type machining center combines gantry type structure with adjustable crossbeam mechanism, strong horse power and super rigidity features, to provide you with a complete machining solution for extra large work-pieces. It has been widely used in aerospace, shipbuilding, energy and machine tools industries.

The LG series could be equipped with automatic head changer and vertical / horizontal ATC system to provide maximum efficiency as of a 5-face machining center.



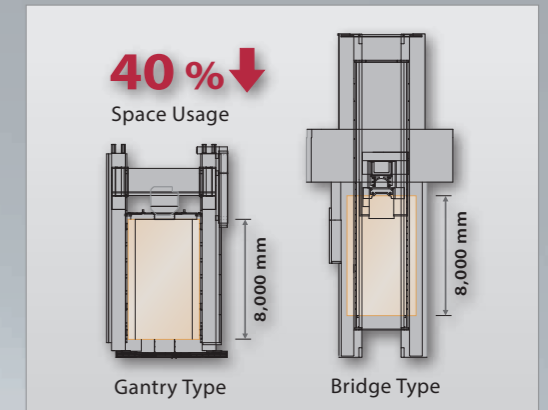
**LG Series** 4030 / 5030 / 6030 / 8030 / 10030 / 5040 / 6040 / 8040  
10040 / 6050 / 8050 / 10050 / 14050 / 10070 / 20070

## Gantry Type Machining Center

Complete product line with full range specifications, the LG series could be equipped with self-developed milling heads, automatic head storage magazine and vertical / horizontal ATC system to provide high added cutting capabilities for large work-pieces.

- Modular gear or built-in type spindle design provides different cutting features, to meet with various types of cutting needs.
- 2,500 kg/m<sup>2</sup> heavy-duty fixed working table could meet with all sorts of working conditions for large work-pieces.
- Floor type tool magazine with speedy tool change is placed on the back of the machine to provide easy operation and maintenance.
- Super large separate type coolant tank and two rotating chip augers on both sides of the working table, allows easy maintenance and efficient chip removal while maintaining coolant performance.

- Gantry type structure design provides optimal stable dynamic accuracy and the space usage is 40% less than bridge type models.



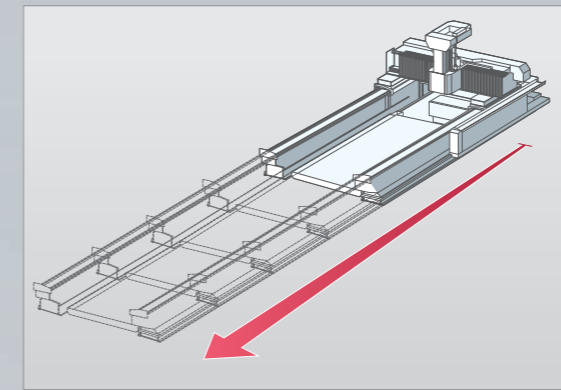
Model appearance varies based on different specifications.

**LG Series** 4030 / 5030 / 6030 / 8030 / 10030 / 5040 / 6040 / 8040  
10040 / 6050 / 8050 / 10050 / 14050 / 10070 / 20070

## Gantry Type Machining Center

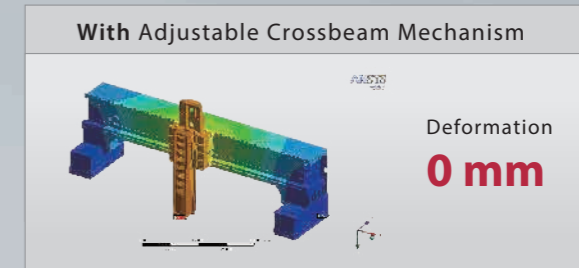
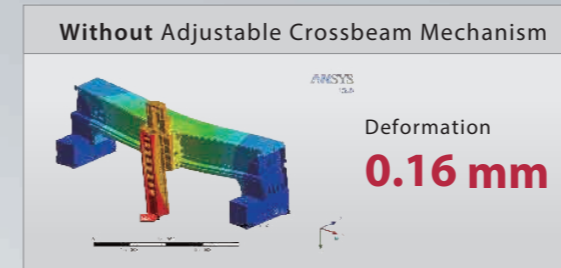
Combining our modular design concept and exclusive patented technologies, the LG series provides you with superior machining performance for super large work-pieces. The LG-20070 is also the first super large machining center ever introduced with a 7,000 mm cross span among Taiwan manufacturers.

- The heavy-duty working table is adopted with super rigidity double layer structure design. It can easily endure super heavy work-pieces without deformation. Its floor type design allows the working table to firmly attach to the base which effectively damps machining vibration while ensuring accuracy.



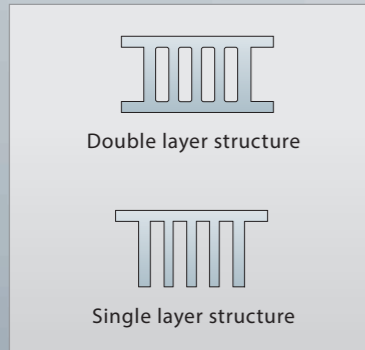
### X-axis Modular Design

- The working table and side columns are all of modular design. The X-axis travel could be extended based on different machining requirements.
- The X-axis is adopted with AWEA's synchronous servo control to ensure optimal dynamic accuracy.



### Adjustable Crossbeam Mechanism Patented

- AWEA's patented design has successfully overcome the physical limits, minimizing the deformation caused by the weight of the 7,000 mm super wide crossbeam, while ensuring optimal machining accuracy.



## Gantry Type Machining Center

- The Finite Element Analysis (FEA) provides optimal machine design and light-weighted structure advantages while maintaining best machine rigidity.
- The crossbeam and side columns are adopted with super rigidity structure design. Plus the contact surface of the crossbeam and slide saddle are all precisely hand scraped to ensure maximum precision, rigidity, and balanced load.
- Super rigidity roller type linear guide ways on the Z-axis offers the advantage of both boxway's heavy-duty cutting and linear guideway's fast movement and low abrasion capabilities.

- X-axis travel 4 m / 5 m models  
The 2 sets of large size ball screws, servo motors and optical linear scales are driven by the simultaneous servo control, which lowers the deviation to a minimum while maintaining optimal dynamic accuracy.
- X-axis travel 6 m and above models  
The patented zero backlash rack & pinion combined with 1µm high resolution linear scale provides optimal dynamic accuracy.

	Double Ball Screw	Rack & Pinion	Linear Scale
X-axis 4 m / 5 m	S	—	S
X-axis 6 m and above	—	S	S
Y-axis 7 m	—	S	S

S : Standard — : Not Provide

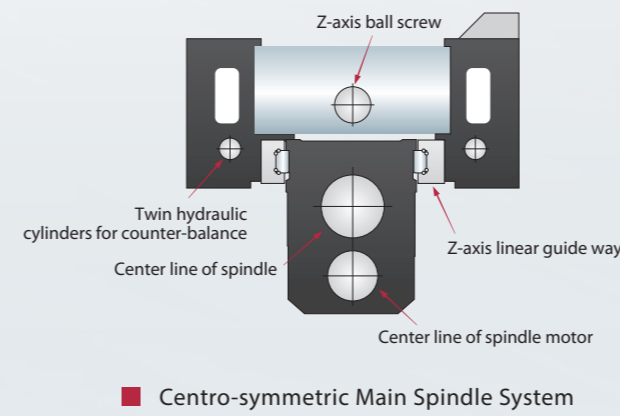


# Optimum Spindle System



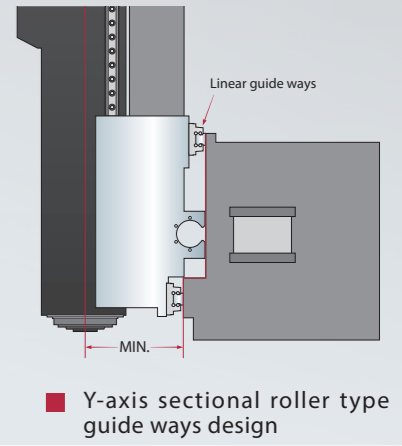
## Centro-symmetric Spindle System

- Unique head design allows the spindle, spindle motor, ball screw and dual hydraulic counter weight cylinders to be symmetrically placed. Hereby preventing thermal distortion and minimizing deflection. Assuring accuracy and heavy-duty cutting capability.



## Powerful Cutting Capability

- Inner-rail embraced structure provides high rigidity and good stress flow which minimizes over hang and vibration issues.
- The Y-axis roller type linear guide ways offset from each other, increases structural rigidity and reduces distance between the spindle to cross beam which enhances overall cutting performance.

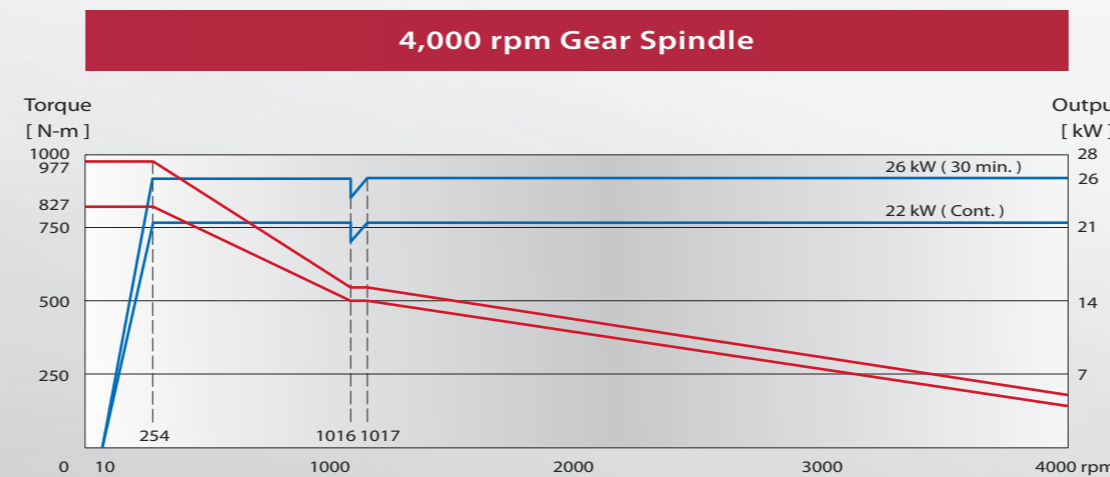


## High Torque Gear Spindle

# 977 N-m

Maximum Torque

- 2-speed super heavy-duty gear box
- Floating type hydraulic tool release device eliminates pressure on the spindle bearing when releasing a tool.
- 4,000 rpm high torque spindle is equipped with powerful 26 kW motor, delivering maximum torque output of 977 N-m at 254 rpm which can meet with various heavy-duty cutting conditions.
- 5,000 / 6,000 rpm gear spindle ( Opt. )

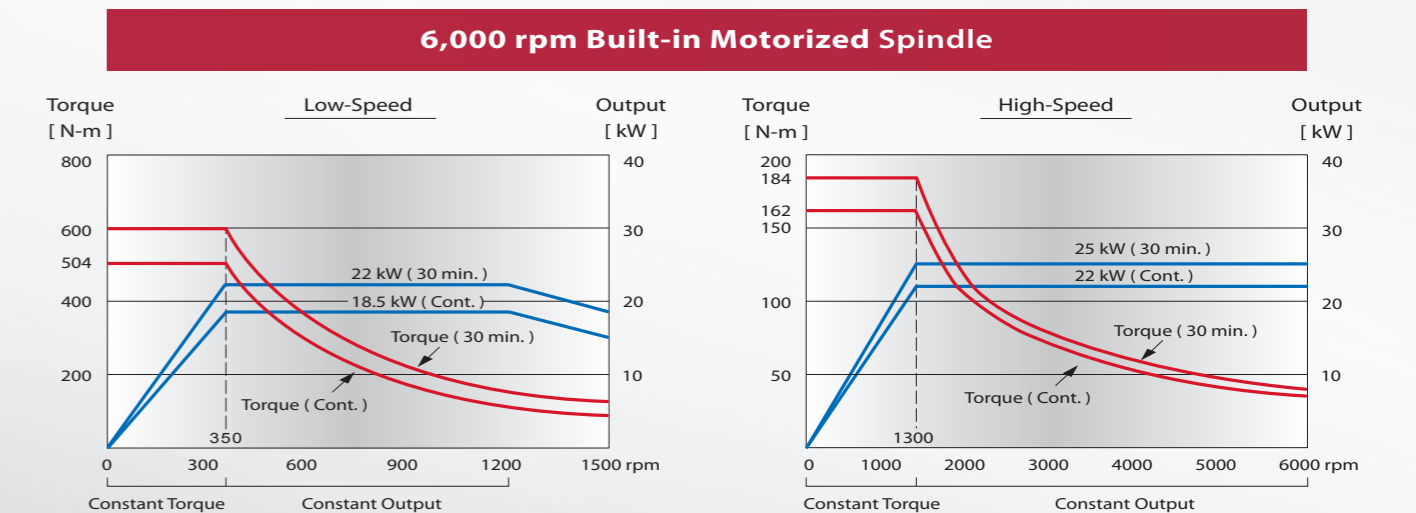


## High Speed, High Torque Built-in Motorized Spindle

# 600 N-m

Maximum Torque

- The FANUC built-in motor reduces centrifugal force effect and restrains spindle vibration, which increases the spindle life span and improves long-term machining accuracy.
- Floating type hydraulic tool release device eliminates pressure on the spindle bearing when releasing a tool.
- 6,000 rpm and 8,000 rpm are available, which provides maximum 600 N-m torque output at 350 rpm, to meet with various processing conditions.



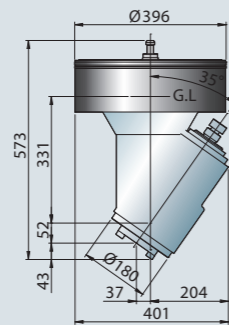
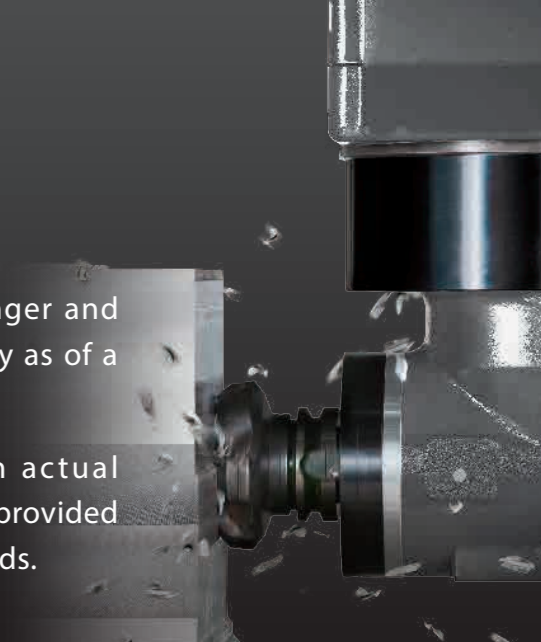
# Multi-Purpose Milling Head Combination

- All milling heads include 35°, 90° head, extension head and universal head are self developed and assembled.
- The contact surface of all milling heads and covers are precisely hand scraped while using the Japanese 2-piece curvic coupling for precision positioning.
- The automatic milling head can be controlled by programming.



# High Flexibility 5-Face Machining Capability

- The LG series could be equipped with automatic head changer and vertical / horizontal ATC system to provide maximum efficiency as of a 5-face machining center.
- There are 2 or 3-head storage units available based on actual requirements. Furthermore, up to 6-head storage unit could be provided according to the Y-axis size, to meet with various processing needs.

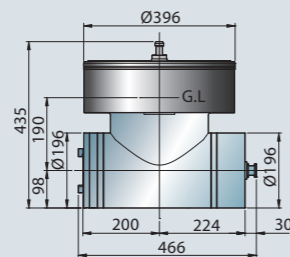


( Unit : mm )

## 35° Head

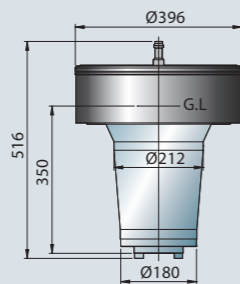
Automatic head lock / manual tool lock  
Cs-axis automatic 5° index  
Max. speed : 2,000 rpm  
Max. output : 22 kW ( 30 HP )

- Head storage is enclosed design, which eliminates the contaminations, to ensure all milling heads last longer.
- The automatic head changer is adopted with air pressure design, when the cover is opened, the spindle can directly clutch the head inside the storage, decreasing head changing time.



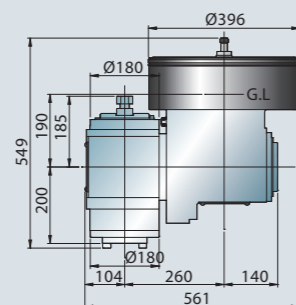
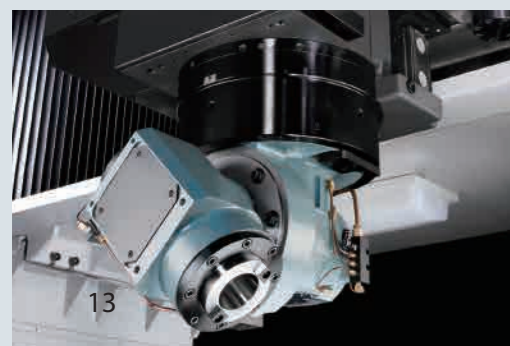
## 90° Head

Automatic head lock / automatic tool lock  
Cs-axis automatic 5° index  
Max. speed : 2,000 rpm  
Max. output : 22 kW ( 30 HP )



## Extension Head

Automatic head lock / hydraulic tool release  
No index function  
Max. speed : 3,000 rpm  
Max. output : 22 kW ( 30 HP )



## Universal Head

Automatic head lock / manual tool lock  
Cs-axis automatic 5° index ( A-axis manual )  
Max. speed : 2,000 rpm  
Max. output : 22 kW ( 30 HP )





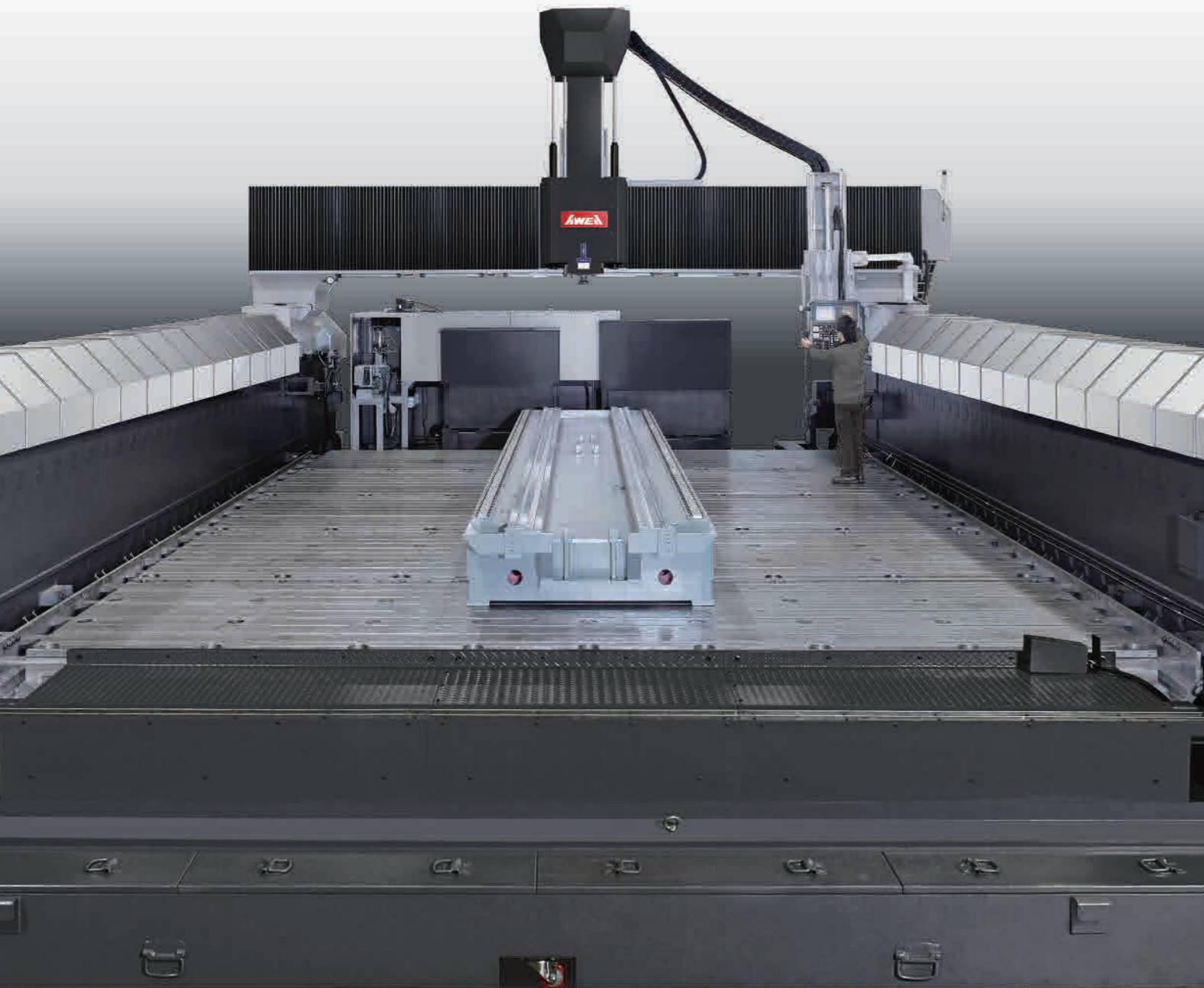
## High Performance Vertical / Horizontal ATC System

- The vertical / horizontal ATC system provides quick tool change with sensors and sequence scanning to ensure safety and reliability.
- Standardized short-cut tool path function can shorten tool change time and increase working efficiency.
- 32-tool ATC system ( Std. ), 60-tool ( Opt. ) is also available.

32-tool vertical / horizontal ATC system



# Optional Accessories



Rear type vertical / horizontal ATCs and module head storage



X-axis stainless steel telescopic steel covers (Opt.)



Automatic tool length device (Opt.)

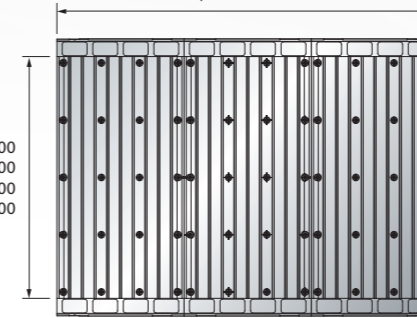


Y / Z axes HEIDENHAIN optical linear scale (Opt.)

# Dimensions

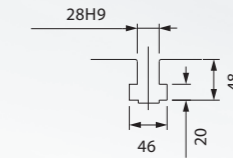
## Table Dimensions

LG40xx = 4,000    LG100xx = 10,000  
 LG50xx = 5,000    LG140xx = 14,000  
 LG60xx = 6,000    LG200xx = 20,000  
 LG80xx = 8,000



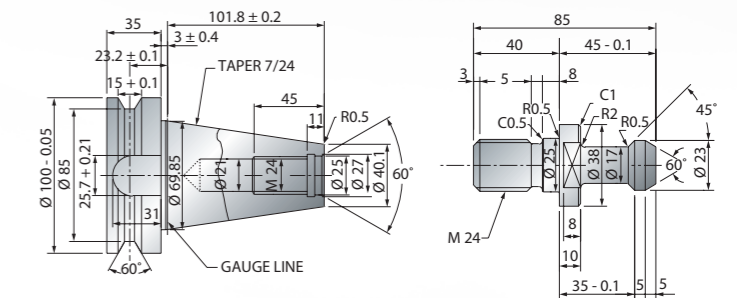
LGxx30 = 2,800  
 LGxx40 = 3,800  
 LGxx50 = 4,800  
 LGxx70 = 6,800

## T-slot Dimensions

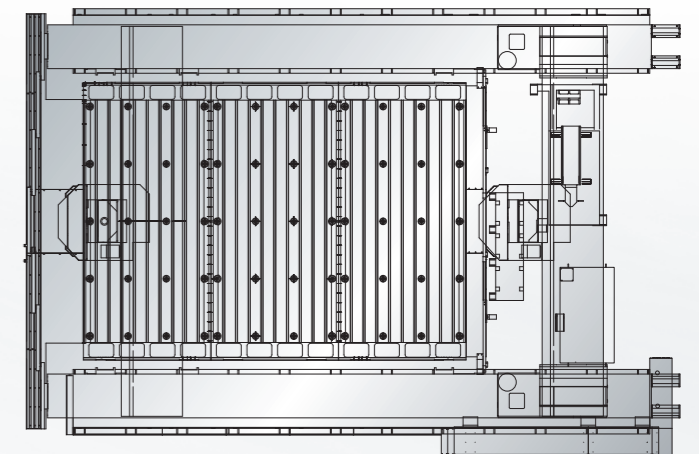


## Tool Shank and Pull Stud Dimensions

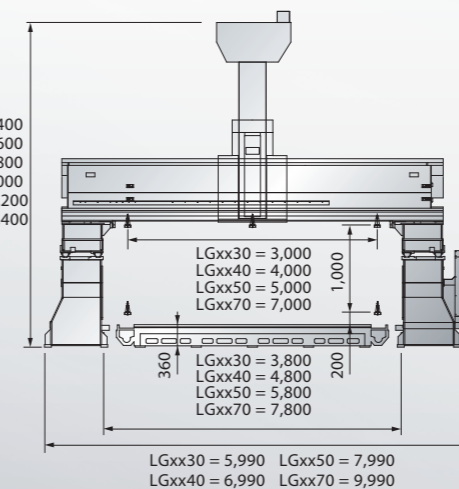
BT50



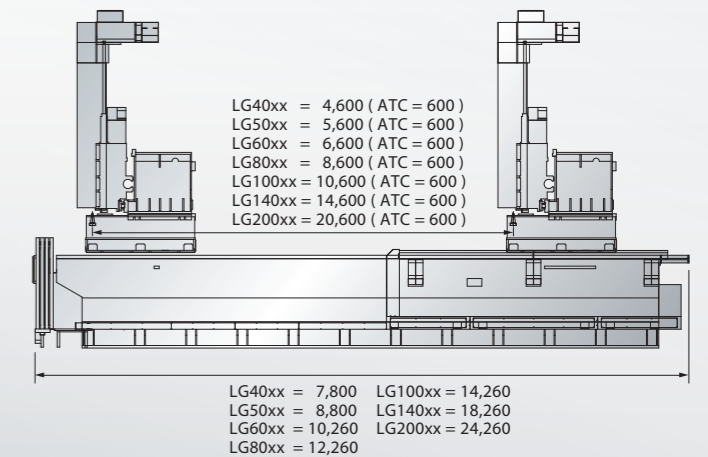
## Machine Dimensions



Z ( 200 - 1,200 ) = 4,400  
 Z ( 400 - 1,400 ) = 4,600  
 Z ( 600 - 1,600 ) = 4,800  
 Z ( 800 - 1,800 ) = 5,000  
 Z ( 1,000 - 2,000 ) = 5,200  
 Z ( 1,200 - 2,200 ) = 5,400



LG40xx = 4,600 ( ATC = 600 )  
 LG50xx = 5,600 ( ATC = 600 )  
 LG60xx = 6,600 ( ATC = 600 )  
 LG80xx = 8,600 ( ATC = 600 )  
 LG100xx = 10,600 ( ATC = 600 )  
 LG140xx = 14,600 ( ATC = 600 )  
 LG200xx = 20,600 ( ATC = 600 )



( Unit : mm )

		LG-4030	LG-5030	LG-6030	LG-8030	LG-10030	LG-5040	LG-6040	LG-8040	LG-10040	LG-6050	LG-8050	LG-10050	LG-14050	LG-10070	LG-20070		
<b>Specifications</b>																		
X-axis travel	mm	4,000	5,000	6,000	8,000	10,000	5,000	6,000	8,000	10,000	6,000	8,000	10,000	14,000	10,000	20,000		
Y-axis travel	mm	3,000					4,000					5,000			7,000			
Z-axis travel	mm	1,000					1,000					1,000			1,000			
Distance from spindle nose to table top	mm	200 ~ 1,200					200 ~ 1,200					200 ~ 1,200			200 ~ 1,200			
Distance between columns ( with water eliminator )	mm	3,800 ( 3,500 )					4,800 ( 4,500 )					5,800 ( 5,500 )			7,800 ( 7,500 )			
<b>Working Table</b>																		
Table size ( X direction )	mm	4,000	5,000	6,000	8,000	10,000	5,000	6,000	8,000	10,000	6,000	8,000	10,000	14,000	10,000	20,000		
Table size ( Y direction )	mm	2,800					3,800					4,800			6,800			
Table load capacity	kg/m <sup>2</sup>	2,500																
<b>Spindle</b>																		
Spindle motor ( cont. / 30 min. )	kW ( HP )	22 / 26 ( 30 / 35 )																
Spindle speed	rpm	4,000 Gear Spindle ( Std. ) :					5,000 / 6,000 Gear Spindle ( Opt. ) : 6,000 / 8,000 Built-in Spindle ( Opt. )											
Spindle taper		BT50 ( 7/24 )																
<b>Feed Rate</b>																		
X-axis rapid feed rate	mm/min.	12,000	10,000	20,000	20,000	20,000	10,000	20,000	20,000	20,000	20,000			15,000				
Y-axis rapid feed rate	mm/min.	15,000					15,000					12,000			12,000			
Z-axis rapid feed rate	mm/min.	10,000																
Cutting feed rate	mm/min.	1 ~ 10,000																
<b>Tool Magazine</b>																		
Tool magazine capacity	T	32					32 ( 60 Opt. )					32 ( 60 Opt. )			32 ( 60 Opt. )			
Max. tool diameter / adj. pocket empty	mm	Ø127 / Ø215																
Max. tool length ( from gauge line )	mm	350																
Max. tool weight	kg	20																
<b>Accuracy</b>																		
Positioning accuracy ( JIS B 6338 )	mm	± 0.025 / Full Travel																
Positioning accuracy ( VDI 3441 ) X-axis / Full Travel	mm	P = 0.025	P = 0.030	P = 0.035	P = 0.040	P = 0.050	P = 0.030	P = 0.035	P = 0.040	P = 0.050	P = 0.035	P = 0.040	P = 0.050	P = 0.060	P = 0.050	P = 0.10		
Positioning accuracy ( VDI 3441 ) Y / Z axes	mm	P= 0.025 / Full Travel					P= 0.030 / Full Travel					P= 0.040 / Full Travel			P= 0.040 / Full Travel ( Optical linear scale )			
Repeatability ( JIS B 6338 )	mm	± 0.005																
Repeatability ( VDI 3441 ) X-axis	mm	Ps = 0.018	Ps = 0.022	Ps = 0.026	Ps = 0.030	Ps = 0.038	Ps = 0.022	Ps = 0.026	Ps = 0.030	Ps = 0.038	Ps = 0.026	Ps = 0.030	Ps = 0.038	Ps = 0.045	Ps = 0.038	Ps = 0.080		
Repeatability ( VDI 3441 ) Y / Z axes	mm	Ps= 0.020					Ps= 0.025					Ps= 0.030			Ps= 0.030 ( Optical linear scale )			
<b>General</b>																		
Power requirement		80 kVA 220 ±10 % Vac 3 phase 50/60 Hz																
Pneumatic pressure requirement	kg/cm <sup>2</sup>	5 ~ 8 ( 5 )																
Hydraulic unit tank capacity	liter	120																
Lubrication oil tank capacity	liter	6																
Coolant tank capacity	liter	1,300					1,600					1,900			2,100			

Machine weights are changing depending on different specifications. Please contact AWEA sales for accurate weights. Specifications are subject to change without notice.

### Standard Accessories

- Spindle 2-step gear box
- Continuously Variable Transmission
- Spindle cooling system
- Centralized automatic lubricating system
- Fully enclosed splash guard
- Twin hydraulic counter weight cylinders
- 32 Tool magazine
- Adjustable torque-limit clutch ( 3 Axes )
- X-axis optical linear scale
- Y / Z axes external encoder
- semi-closed type feedback system
- Coolant system with pump and tank
- Twin screw type chip conveyor
- Recycling lubricating oil collector
- Caterpillar type chip conveyor and bucket
- Foundation bolt kit
- Footswitch for tool clamping
- Movable manual pulse wave generator

### Optional Accessories

- RS232 interface
- Rigid tapping
- Tool box
- Alarm light
- Air gun
- Automatic power off system
- Coolant through the spindle ( Form A )
- Column raiser
- Automatic tool length measurement
- 60 Tool magazine ( LG-XX40 and above models )
- Y / Z axes optical linear scale ( HEIDENHAIN )
- Extension Head
- 90° Head automatic 5° index
- 35° Head automatic 5° index
- Universal Head :
- C-axis automatic 5° index
- A-axis manual 5° index