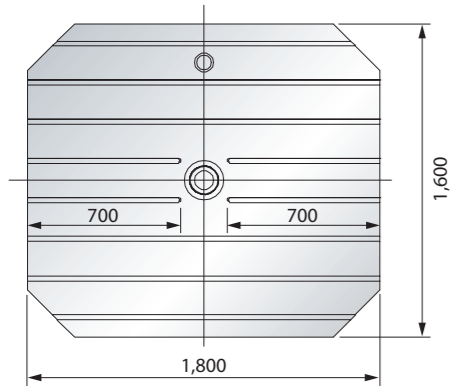


# Dimensions

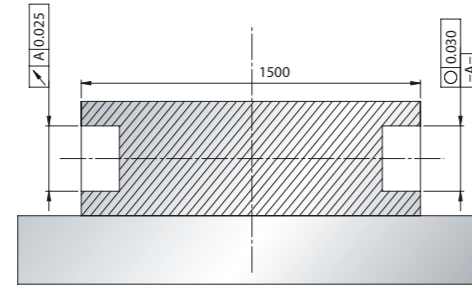
## Table Dimensions



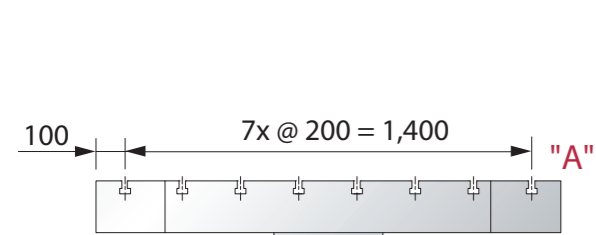
## Boring Concentricity

(Unit: mm)

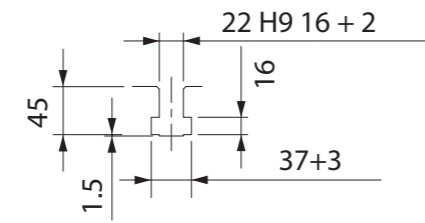
0.025 mm / 1,500 mm



## T-slot Dimensions

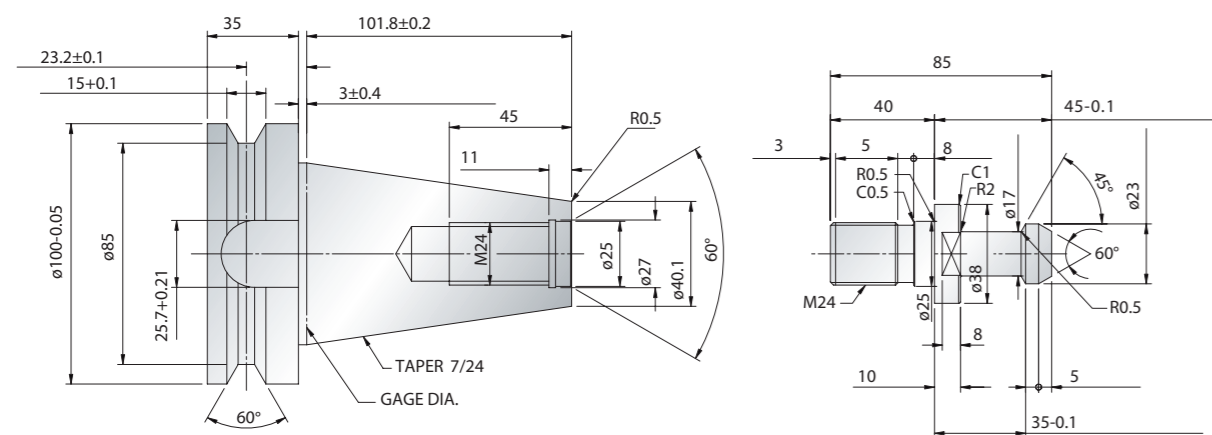


A



## Tool Shank and Pull Stud Dimensions

BT50



## AWEA MECHANTRONIC CO.,LTD.

### HEADQUARTERS

629, Suezhetou Section, Kwanpu Rd., Wenshan Li,  
Hsinpu, Hsinchu 305, Taiwan  
TEL : +886-3-588-5191  
FAX : +886-3-588-5194  
Website : www.awea.com

### CENTRAL TAIWAN SCIENCE PARK BRANCH

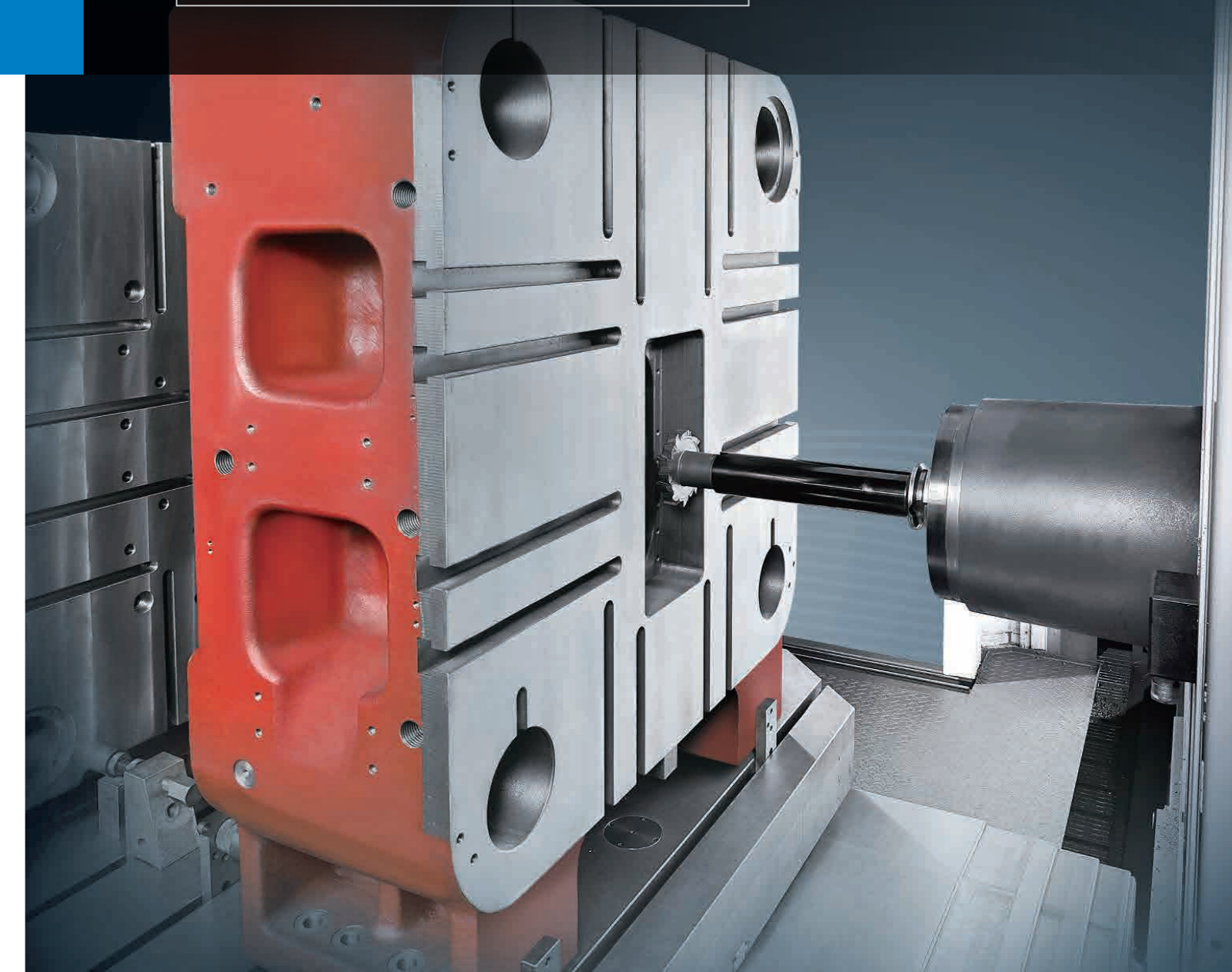
15, Keyuan 2<sup>nd</sup> Rd., Central Taiwan Science Park,  
Taichung 407, Taiwan  
TEL : +886-4-2462-9698  
FAX : +886-4-2462-8002  
E-mail : sales@awea.com



BL  
series

# BL SERIES

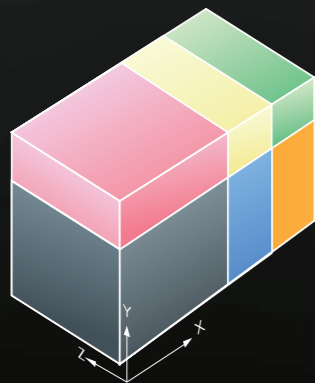
Super Rigid Horizontal Boring Mills



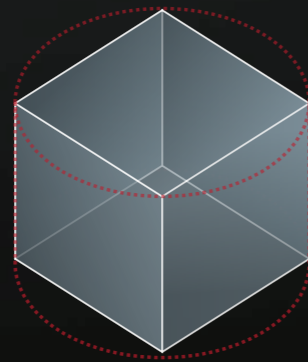


# Super Rigid Horizontal Boring Mills

Introducing AWEA with mature manufacturing abilities and advanced technology skills. The BL series combine super rigid structure, heavy duty load capacity rotary table and a high torque spindle ( BL-S ) or high speed spindle ( BL-FM ) along with our professional assembly and hand scraping skills. BL series can easily overcome most stringent requirements of not only deep hole boring but high precision mold milling which meet your various needs for today and the future.



Travel (XxYxZ) mm

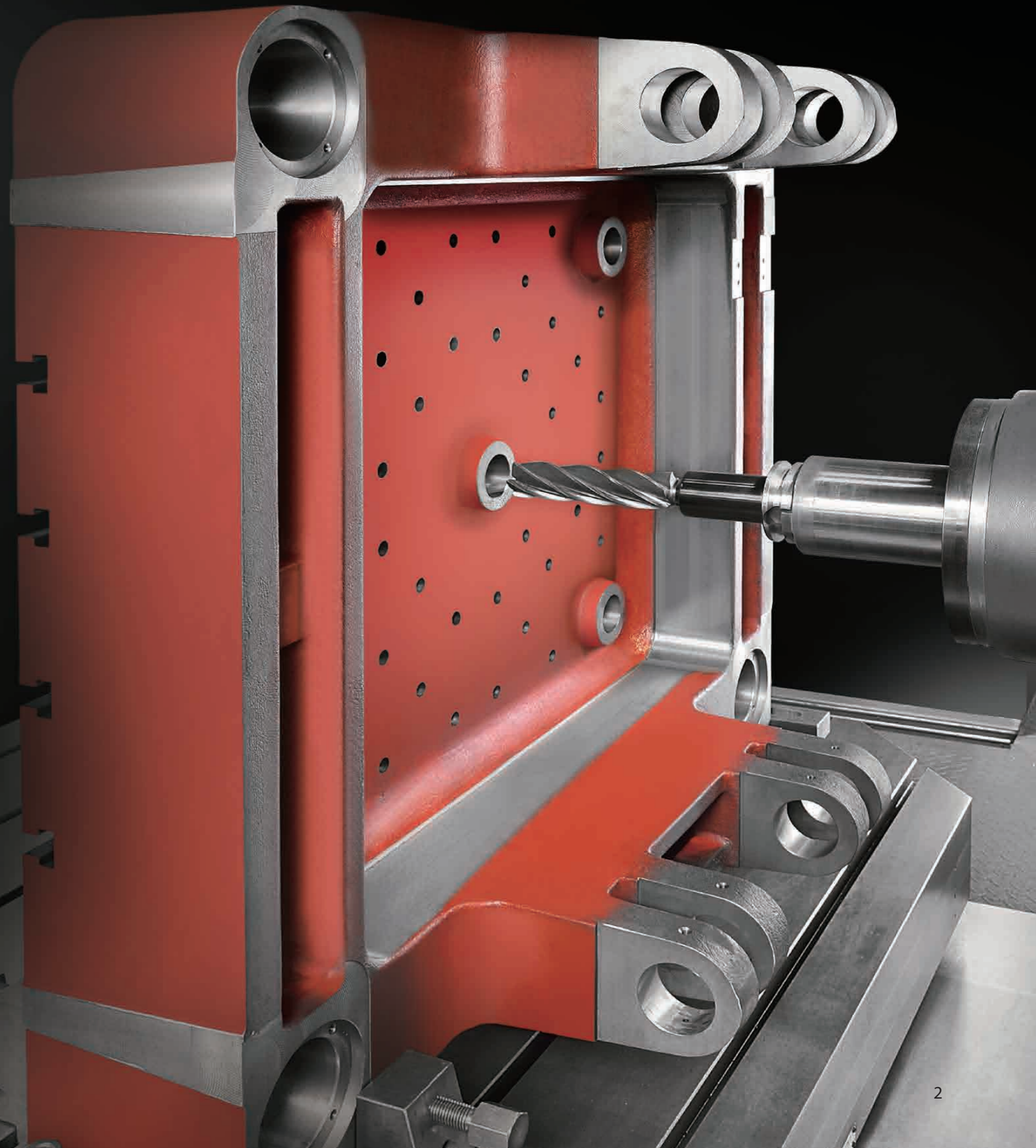


Max. parts size ( diameter x height ) mm

- BL-2018  2,000 x 1,800 x 1,300
- BL-3018  3,000 x 1,800 x 1,300
- BL-4018  4,000 x 1,800 x 1,300
- BL-2024  2,000 x 2,400 x 1,300
- BL-3024  3,000 x 2,400 x 1,300
- BL-4024  4,000 x 2,400 x 1,300

1,600 x 1,800\*<sup>1</sup>

\*1 Individual models may vary, please contact AWEA.



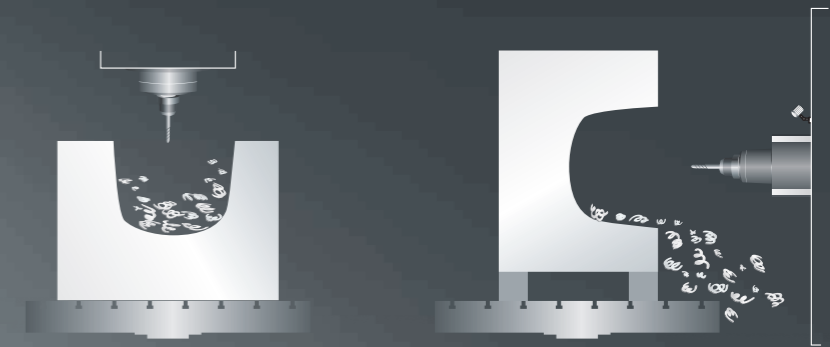


## Super Rigid Horizontal Boring Mills

With years of innovation and manufacturing experience on horizontal boring mills, combined with the latest machining center technology, to maximize the mechanical performance and the brand image as a professional boring mills manufacturer.



- Modular spindle design, BL-S quill type 2-steps gear box spindle continuous torque can be 1,308 Nm ; BL-FM ram type built-in spindle speed up to 8,000 rpm.
- Super rigid slew ring bearing providing working table with high rotary accuracy and abundant support for maximum table load capacity up to 15,000 kg.
- Balanced arrangement of tool magazine and headstock on the column to ensure excellent dynamic accuracy.



Vertical machining center

Horizontal boring mills

- Horizontal boring mills provide better chips removal ability.



**BL** Series 2018 / 3018 / 4018 / 2024 / 3024 / 4024

## Super Rigid Horizontal Boring Mills

BL series' precision quality and superior performance are designed to meet aerospace industry, transportation equipment, energy industry large parts machining and mold machining needs.

- Enclosure splash guard as option can avoid chips and coolant splash out of machine to provide safe and clean working environment.
- Standard fully enclosed operator room moves along with column to protect operator against hazard and the ease of use.
- To ensure the machine ultimate performance and high quality, every machines should pass heavy cutting test before shipping.





## Super Rigid Horizontal Boring Mills

### Super rigid structure

- Through Finite Element Analysis ( FEA ) , light-weighted structure yet optimized design are achieved to ensure best machine rigidity.
- The heavily ribbed bed, column, table, headstock and saddle are all made by "MEEHANITE" casting, a fully annealing process and aging have been implemented to ensure best stability for long term usage.
- High precision and heavy-duty feed system.
  - ▶ 3 axes are equipped with high precision ball screw which is driven by high torque FANUC  $\alpha$  i series motor, rapids feed rate can reach up to 12 m/min.
  - ▶ 3 axes feed system is adopted with full travel support super rigidity linear guide ways to fulfill heavy cutting requirement.
  - ▶ The linear scale with resolution up to  $1\mu\text{m}$  as standard on 3 axes, assuring positioning accuracy at  $\pm 0.010\text{ mm}$  / full travel ( JIS ).

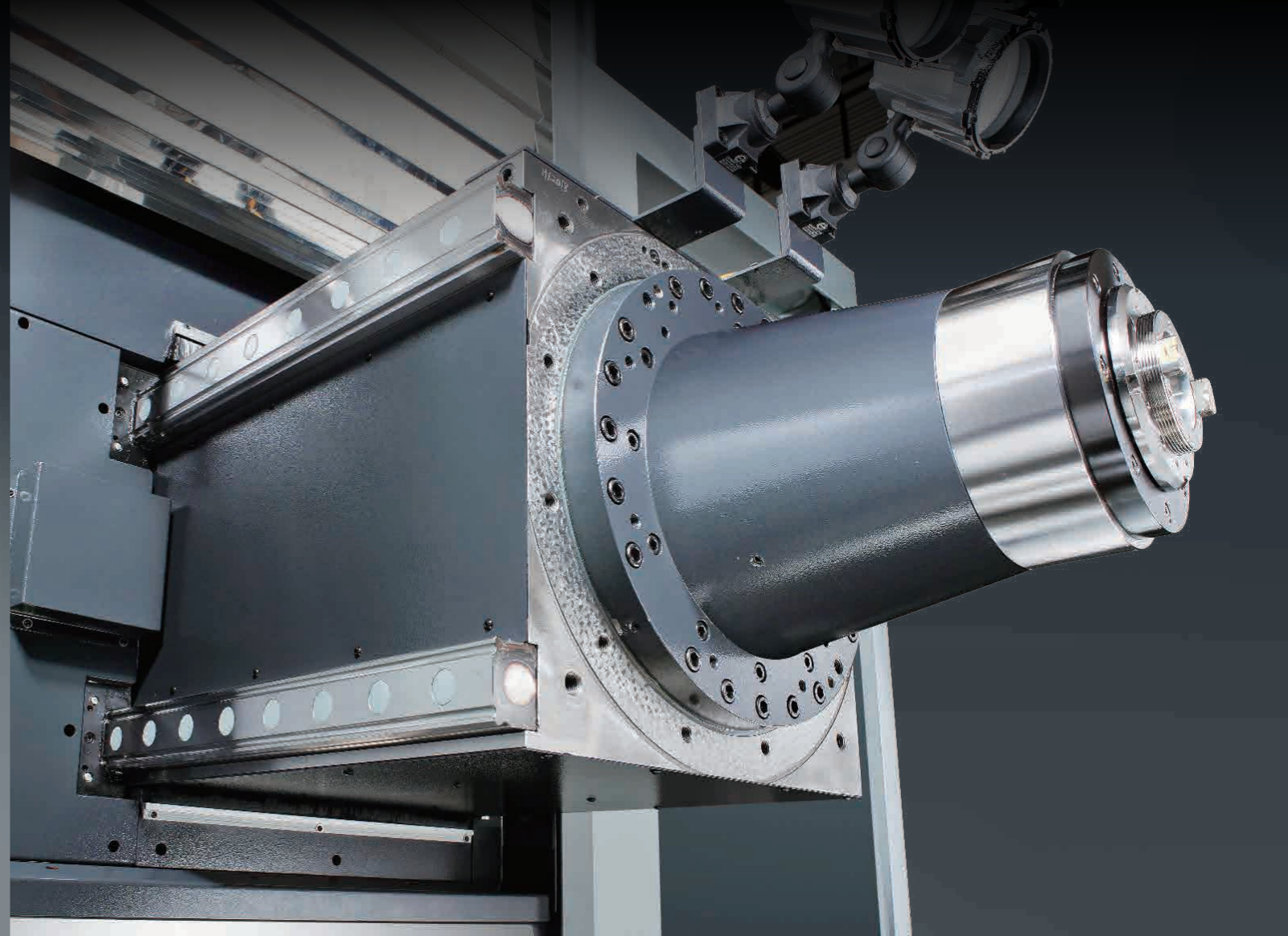


- Two augers and caterpillar type chip conveyor as standard to ensure chips removal efficiency and cooling effect.



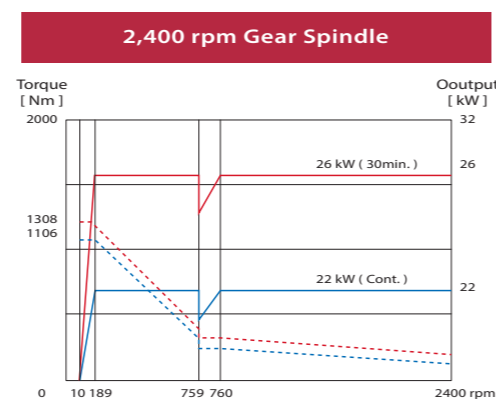


# Modular Spindle System



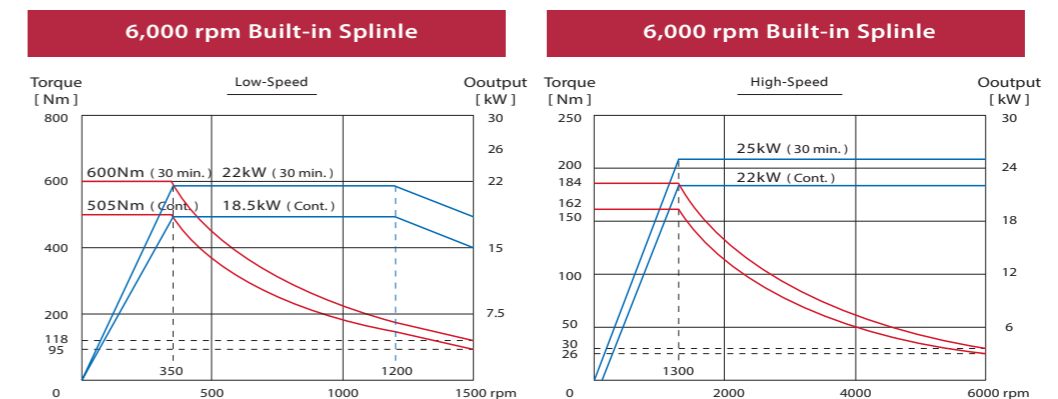
## BL-S series QUILL TYPE SPINDLE **Parts processing**

- Quill diameter  $\varnothing 120$  mm, W-axis travel can extend to 600 mm.
- Max. spindle speed at 2,400 rpm with 2-step gear box which can provide maximum torque output at 1,308 Nm under 189 rpm.
- W-axis feed system combined ball screw with linear guide ways, W-axis extension can be determined according to different kinds of processing requirement.
- All series is equipped with a spindle oil cooler and cooling jacket, the temperature-regulated volume of cooling oil automatically maintain the temperature of bearings, motor, and gears within precisely defined range which effectively reduce the spindle thermal deformation thus achieving higher machining accuracy.



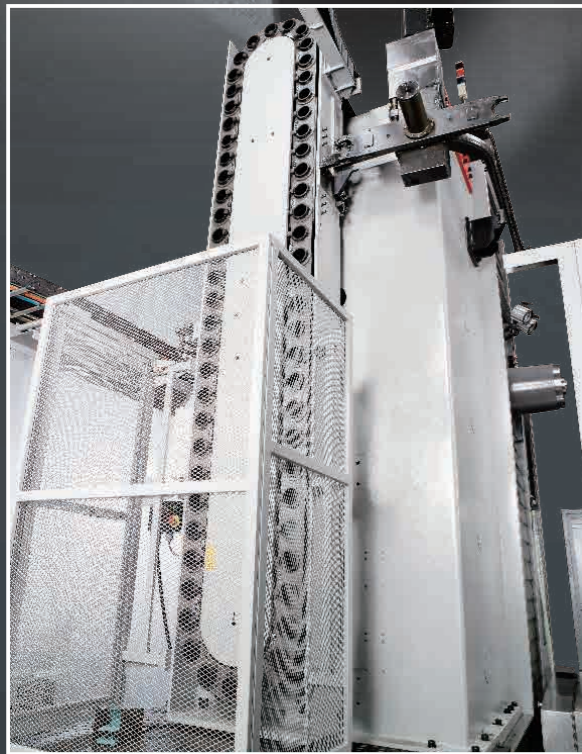
## BL-FM series RAM TYPE SPINDLE **Mold processing**

- Strong ram with cross section at 480 x 470 mm, W-axis travel can extend to 600 mm
- Max. spindle speed at 6,000 rpm ( 8,000 rpm as option ) with built-in spindle which can provide maximum torque output at 600 Nm under 350 rpm.
- W-axis feed system combined ball screw with linear guide ways, W-axis extension can be determined according to different kinds of processing requirement.





## High Reliability Tool Exchange System



- Standard 40T ATC system, 60 tools magazine as option.
- Max. tool load at 25 kg, maximum tool magazine load at 600 kg which can meet different kinds of boring and milling condition.

## High Performance Working Table

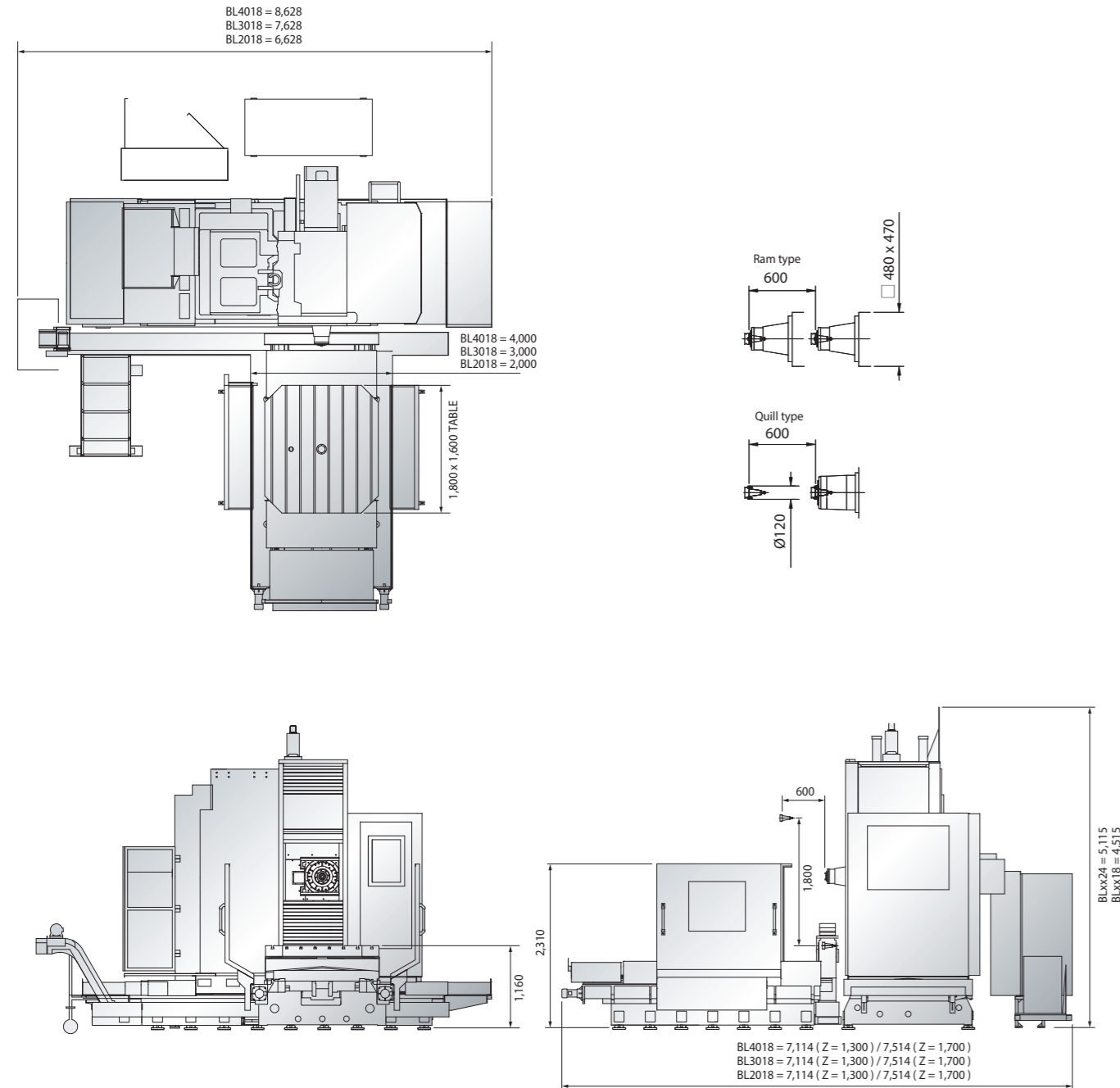


- Working table equipped with super rigid slew ring bearing and fully supported by base along the travel range, providing maximum table load capacity up to 15,000 kg.
- B-axis utilizes a closed loop feedback rotary encoder system achieves indexing resolution at 0.001°. Simultaneously, the disc type holing mechanism provides excellent and stable positioning accuracy.



# Dimensions

## Machine Dimension



(Unit : mm)

		BL-2018S	BL-3018S	BL-4018S	BL-2018FM	BL-3018FM	BL-4018FM
<b>SPECIFICATIONS</b>							
X-axis travel	mm	2,000	3,000	4,000	2,000	3,000	4,000
Y-axis travel	mm	1,800		1,800			
Z-axis travel	mm	1,300		1,300			
W-axis travel	mm	600		600			
Distance from spindle nose to table center	mm	885		885			
<b>WORKING TABLE</b>							
Table size ( X x Y )	mm	1,600 x 1,800		1,600 x 1,800			
Table load capacity	kg	15,000		15,000			
<b>SPINDLE</b>							
Boring spindle size	mm	Quill with Ø120		Ram 480 x 470 section			
Spindle motor ( cont. / 30 min. )	kW ( HP )	22 / 26 ( 30 / 35 )		22 / 26 ( 30 / 35 )			
Spindle speed	rpm	2,400		6,000			
Spindle torque	Nm	1,308		600			
Spindle taper		BT50		BT50			
<b>FEED RATE</b>							
X / Y / Z axes rapid feed rate	mm/min	12,000		12,000			
W-axis rapid feed rate	mm/min	5,000		5,000			
Cutting feed rate	mm/min	1 ~ 5,000		1 ~ 5,000			
<b>TOOL MAGAZINE</b>							
Tool magazine capacity		40T		40T			
Max. tool diameter / adj. pocket empty	mm	Ø125 / Ø250		Ø125 / Ø250			
Max. tool length ( from gauge line )	mm	400		400			
Max. tool weight	kg	25		25			
<b>ACCURACY</b>							
Positioning accuracy ( JIS B 6338 )	mm	± 0.01 / Full Travel			± 0.01 / Full Travel		
Positioning accuracy ( VDI 3441 ) / Full Travel	mm	P= 0.016	P= 0.020	P= 0.025	P= 0.016	P= 0.020	P= 0.025
Repeatability ( JIS B 6338 )	mm	± 0.003			± 0.003		
Repeatability ( VDI 3441 )	mm	Ps= 0.012	Ps= 0.015	Ps= 0.018	Ps= 0.012	Ps= 0.015	Ps= 0.018
<b>GENERAL</b>							
Power requirement		70 kVA, 220±10%, 3 phase, 50/60 Hz			70 kVA, 220/380~415 ±10%, 3 phase, 50/60 Hz		
Pneumatic pressure requirement ( min. )	kg/cm <sup>2</sup>	5 ~ 8 ( 5 )			5 ~ 8 ( 5 )		
Lubrication oil tank capacity	liter	4.6			4.6		
Coolant tank capacity ( pump )	liter	400	480	560	400	480	560
Machine weight	kg	30,000	34,000	38,000	31,000	35,000	39,000
Machine height	mm	4,515			4,515		

### Standard accessories

- Spindle cooling system
- Twin hydraulic counter weight balance
- 40 tools magazine ( w/o tools )
- X / Y / Z linear scale
- Centralized automatic lubricating system
- Recycling lubricating oil collector
- Hydraulic system ( w/o air resource and external pipe )
- Coolant system with pump and tank
- Air gun
- Moving stand on X-axis
- Caterpillar type chip conveyor and bucket
- Foundation bolt kit
- Tool box
- Stair
- 0.001" indexing rotary table
- Heat exchanger for electrical cabinet
- Movable operation cabinet
- MPG remote handwheel
- Foot switch for tool clamping ( at operation side )
- Alarm light
- 2-piece splash guard
- RS-232 interface
- Operation & maintenance manual

		BL-2024S	BL-3024S	BL-4024S	BL-2024FM	BL-3024FM	BL-4024FM
<b>SPECIFICATIONS</b>							
X-axis travel	mm	2,000	3,000	4,000	2,000	3,000	4,000
Y-axis travel	mm	2,400		2,400			
Z-axis travel	mm	1,300		1,300			
W-axis travel	mm	600		600			
Distance from spindle nose to table center	mm	885		885			
<b>WORKING TABLE</b>							
Table size ( X x Y )	mm	1,600 x 1,800		1,600 x 1,800			
Table load capacity	kg	15,000		15,000			
<b>SPINDLE</b>							
Boring spindle size	mm	Quill with Ø120		Ram 480 x 470 section			
Spindle motor ( cont. / 30 min. )	kW ( HP )	22 / 26 ( 30 / 35 )		22 / 26 ( 30 / 35 )			
Spindle speed	rpm	2,400		6,000			
Spindle torque	Nm	1,308		600			
Spindle taper		BT50		BT50			
<b>FEED RATE</b>							
X / Y / Z axes rapid feed rate	mm/min	12,000		12,000			
W-axis rapid feed rate	mm/min	5,000		5,000			
Cutting feed rate	mm/min	1 ~ 5,000		1 ~ 5,000			
<b>TOOL MAGAZINE</b>							
Tool magazine capacity		40T		40T			
Max. tool diameter / adj. pocket empty	mm	Ø125 / Ø250		Ø125 / Ø250			
Max. tool length ( from gauge line )	mm	400		400			
Max. tool weight	kg	25		25			
<b>ACCURACY</b>							
Positioning accuracy ( JIS B 6338 )	mm	± 0.01 / Full Travel			± 0.01 / Full Travel		
Positioning accuracy ( VDI 3441 ) / Full Travel	mm	P= 0.016	P= 0.020	P= 0.025	P= 0.016	P= 0.020	P= 0.025
Repeatability ( JIS B 6338 )	mm	± 0.003			± 0.003		
Repeatability ( VDI 3441 )	mm	Ps= 0.012	Ps= 0.015	Ps= 0.018	Ps= 0.012	Ps= 0.015	Ps= 0.018
<b>GENERAL</b>							
Power requirement		70 kVA, 220±10%, 3 phase, 50/60 Hz			70 kVA, 220/380~415 ±10%, 3 phase, 50/60 Hz		
Pneumatic pressure requirement ( min. )	kg/cm <sup>2</sup>	5 ~ 8 ( 5 )			5 ~ 8 ( 5 )		
Lubrication oil tank capacity	liter	4.6			4.6		
Coolant tank capacity ( pump )	liter	400	480	560	400	480	560
Machine weight	kg	31,500	35,500	39,500	32,500	36,500	40,500
Machine height	mm	5,115			5,115		

Specifications are subject to change without notice.

### Optional accessories

- Fully splash guard
- 8,000 rpm built-in spindle ( FM )
- Coolant through spindle ( with coolant tank )
- 60 tools magazine
- Z-axis travel extend to 1,700 mm
- Additional table for high table load capacity
- Air conditioner for electrical cabinet