

VP  
series

# VP SERIES

Ultra Performance Bridge Type Machining Centers



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ISO 9001



ISO 14001



AWEA VP series bridge type machining centers realizes the combination of high rigidity in structure, ample power output and reliable performance which provides you with The Ultimate Machining Power at the most compact floor space. In addition, the demand for X travel from 1,600 mm up to 5,000 mm can be fulfilled for a variety of machining applications from precision die & mold, automotive, aerospace, energy industries, and etc.

### Modular spindle design

- Optional for 382 Nm high torque 6,000 rpm gear spindle or high speed 10,000 / 15,000 rpm direct drive spindle for meeting different cutting demands from industries.

### Linear guide ways on the X / Y axes

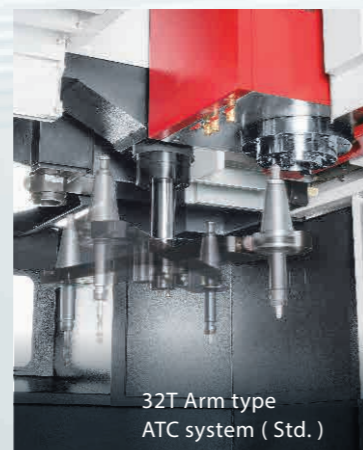
- High rigidity roller type linear guide ways on the X / Y axes provide heavy-duty cutting, fast movement and low friction capabilities.

### Super rigidity box way on the Z-axis

- The Z-axis is equipped with hardened and precision ground super rigidity box guide ways, which are optimal for heavy-duty cutting conditions. ( Opt.: The Z-axis can be adopted with roller type linear guide ways if equipped with high speed direct drive spindle )



VP-2012 model shown with extension door ( Opt. )



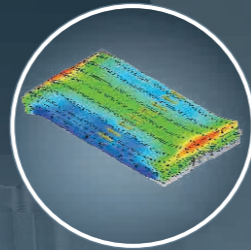
32T Arm type ATC system ( Std. )



Fully enclosed splash guard with roof ( Opt. )

## Super rigidity structure

- The bridge and base are both cast in one-piece to provide superior capability in vibration dampening and lower deformation, which ensures excellent durability and reliability for long term operation.\*1
- Rib reinforced working table restrains vibration while increasing machining stability.



## Servo motor directly drives the Y-axis

- The Y-axis is directly driven by servo motor with absolute encoder to provide ample thrust, agile acceleration and generate less heat.



## Axial torque clutch

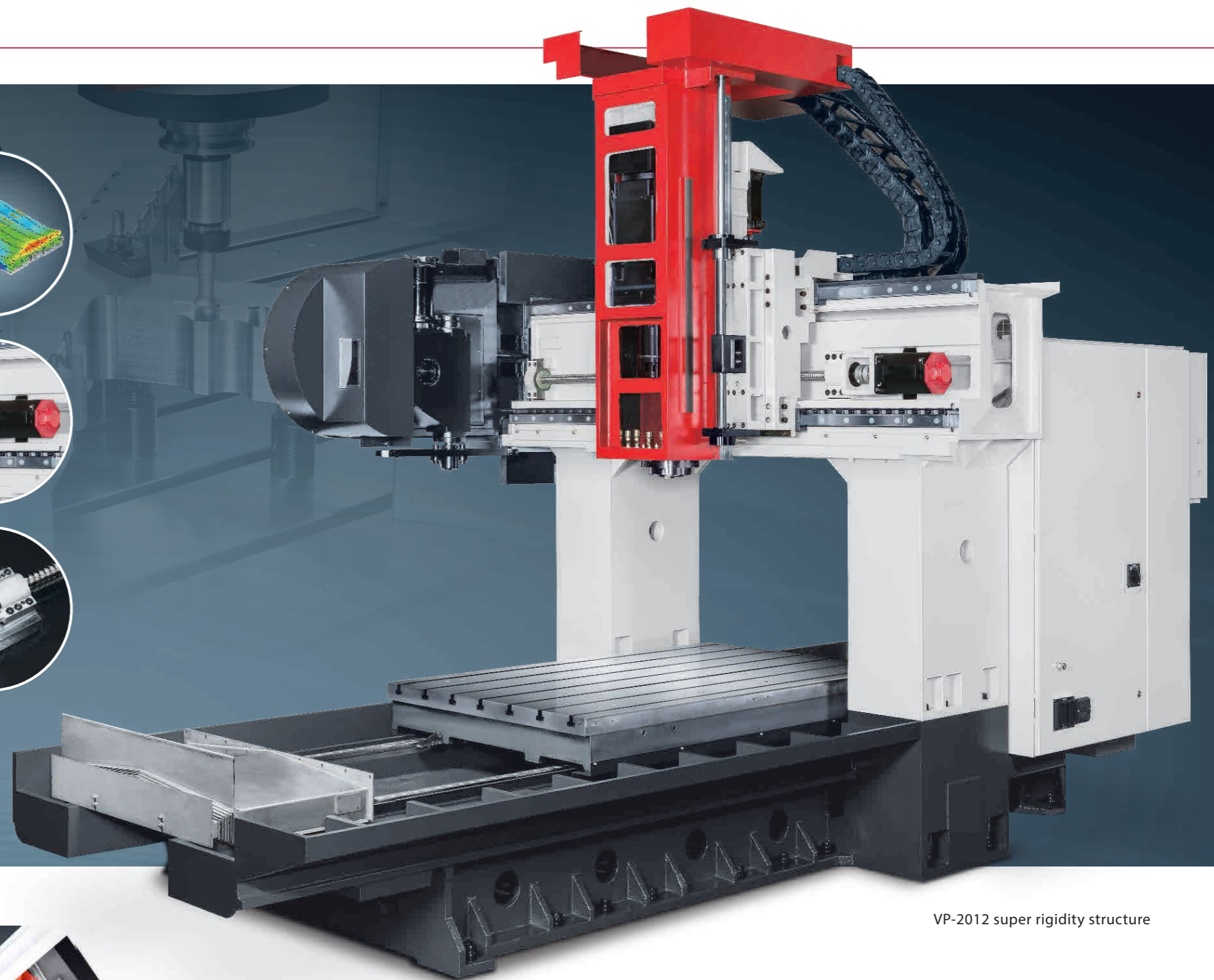
- The ball screw of X-axis is equipped with mechanical torque clutch to minimize damages in case of over load issues or a crash. ( X travel above 3,000 mm )



## Precision feedback system Opt.

- The semi-closed loop circuit system which the ball screw end is directly connected to the encoder ensures high positioning accuracy.

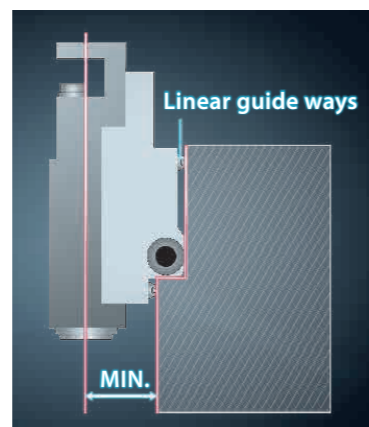
\*1: For specific model or transportation requirements, VP series is available with bridge in three-pieces casting. Please contact with AWEA sales representative for detailed information.



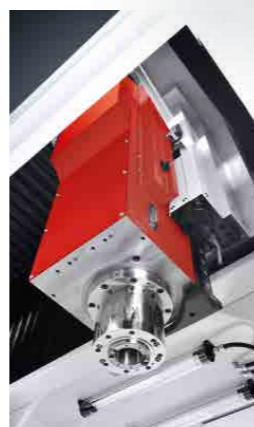
VP-2012 super rigidity structure

## Powerful cutting capability

- Inner-rail embraced structure provides super rigidity and gains good stress flow which minimizes overhang and vibration issues. The Y-axis linear guide ways offset from each other increases structural rigidity reduces distance between spindle to cross beam enhances overall cutting performance.



Y-axis sectional Linear guide ways design



Long nose spindle

## Long nose spindle

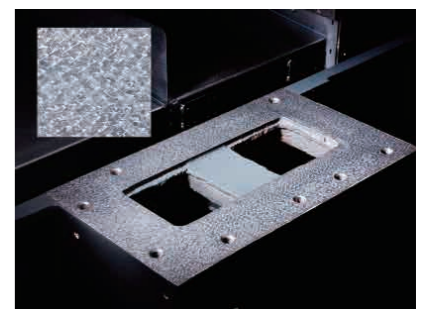
- Optional long nose spindle provide stronger cutting rigidity with reduced tool extension.

## Precision hand scraping

- Optimized bridge and base casting structure with hand scraped contact surfaces ensure optimum assembly precision, structural rigidity and load balancing.



Hand scrape on spindle and spindle motor contact surfaces of headstock.



Hand scrape on contact surfaces between columns and bed.

# VP-6012

## High speed, Large travel

10,000 rpm spindle directly driven by 26 kW high power motor is well capable for cutting large or unusual material, fully meeting the cutting demand for Aerospace or Photoelectric parts.

### X-axis

**6,000 mm**  
Max. travel

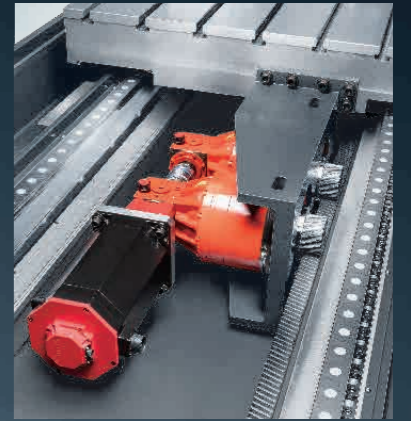
**40 m/min.**  
Rapid feed rate

### Zero backlash rack & pinion mechanism

- X-axis is driven by high rigidity rack and pinion with backlash elimination design to meet high accuracy requirement.
- The gear reducer is equipped with temperature monitoring sensor for overheat protection which stops the machine automatically.

### Servo motor directly drives the Y / Z axes

- Y / Z axes are both directly driven by servo motors without hydraulic counterbalance system, the design significantly improves the dynamic response and suitable for high precision mold making.



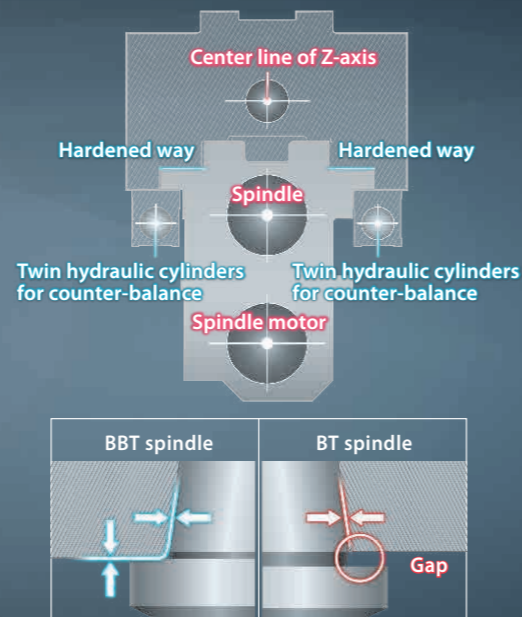
VP-6012 fully enclosed splash guard with roof



Online Video  
VP-6012  
High speed cutting

## Centro-symmetric main spindle system

- Unique head design which the main spindle, spindle motor, ball screw and hydraulic counter balance cylinders are symmetrically placed. Hereby preventing thermal distortion and minimizing deflection. Assuring accuracy and heavy cutting capability.



## BBT dual contact spindle

- Optional BBT dual contact spindle to make the spindle taper and surface contact closely with tool holder which ensure highly cutting rigidity while high speed processing.

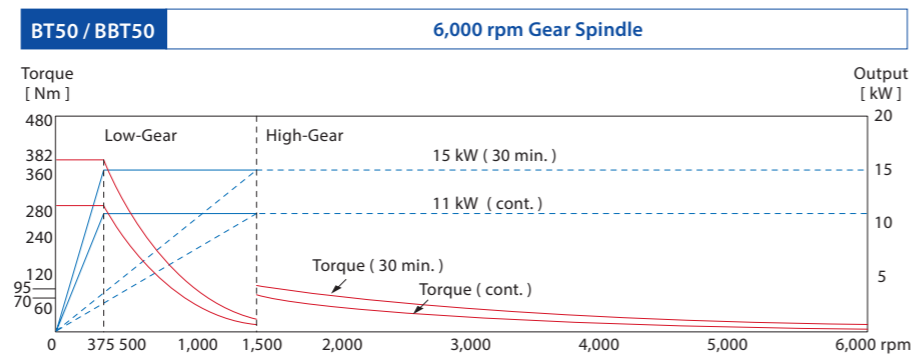
# i Console Optional

AWEA's self-developed *i Console* intelligent software enhancement system provides you with a user-friendly interface, real-time machine status information and diagnosis functions. It not only effectively reduces complex working processes but also enables intelligent machining abilities.



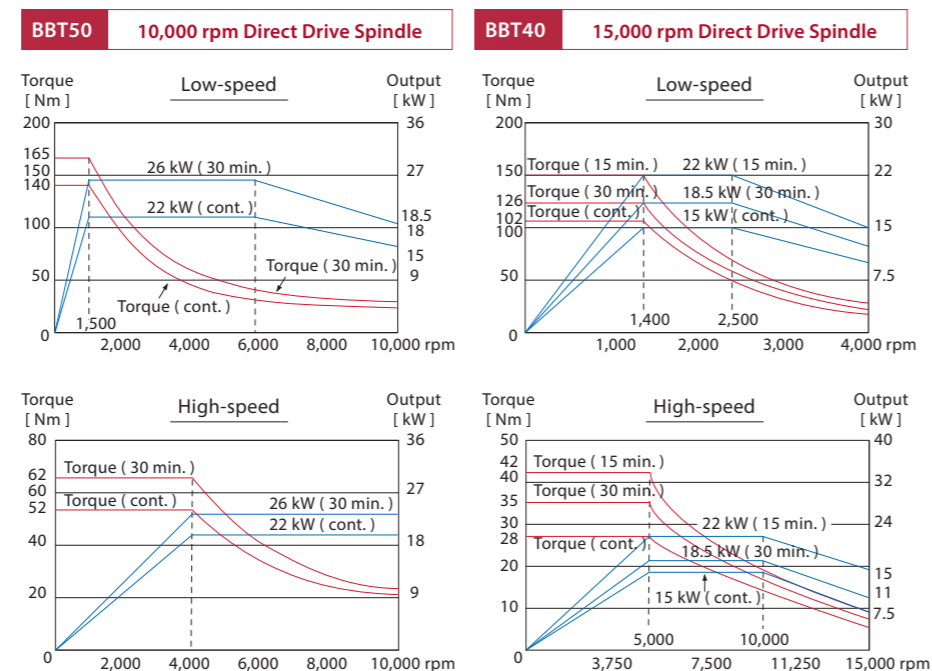
### High Torque Gear Spindle

- 2-step gear box design. ( High gear & Low gear )
- Equipped with high torque output, 15 kW spindle motor, delivering max. torque of 382 Nm at 375 rpm which can meet various heavy-duty cutting demands.

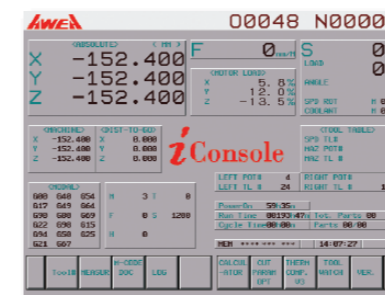


### High Speed, High Power Direct Drive Spindle

- The design of direct-driven transmission isolates the heat produced by spindle motor and reduces thermal deformation, thus elevating long-term processing accuracy to meet the cutting demand of die and mold industry.

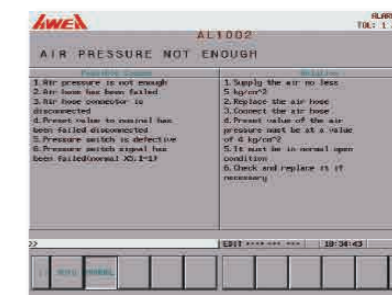


### Main screen



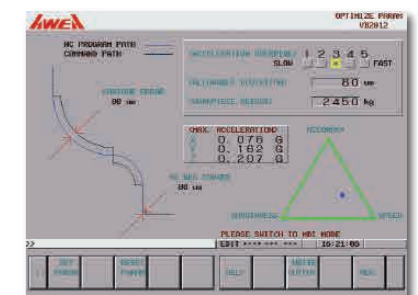
- Instant messaging system **OPT.**
- Tool list
- Work-piece measurement
- M code
- Calculator
- CNC parameter optimization
- Spindle thermal compensation
- Adaptive feed control (AFC)

### Trouble shooting



When an alarm appears, the program will display the cause for the alarm and a suitable troubleshooting procedure. Users can easily troubleshoot minor problems to avoid down time.

### CNC optimized parameter



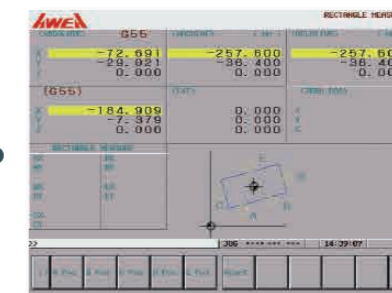
From rough cutting to fine machining, users can select different work modes, define the allowable tolerances and enter the weight of the work piece. Based on this input the *i Console* program will modify machining parameters to reduce machining time.

### Circular work-piece measurement



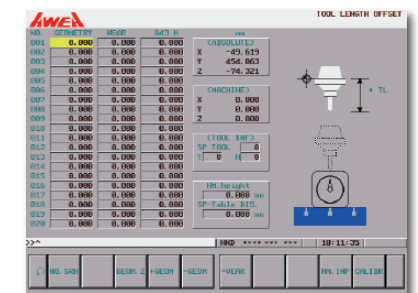
By measuring the A, B, C three points coordinates the circular work-piece's center point can be correctly calculated.

### Rectangular work-piece measurement



By measuring the A, B, C, D, and E five points coordinates, the rectangular work-piece's center point and slant angle can be calculated. Then the center point coordinate can be entered in the work-piece coordinate system. (G54 - G59)

### Tool length offset

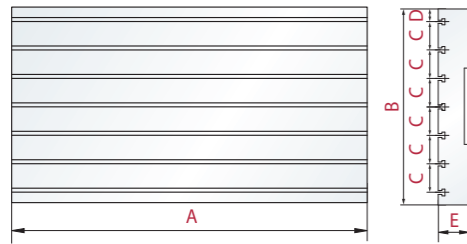


After manually measuring the tool length, the controller will automatically calculate the tool tip position and enter the data into the tool length offset table.

# VP series | Dimensions

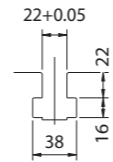
(Unit : mm)

## Table Dimensions



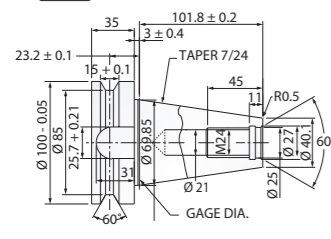
Models	A	B	C	D	E
VP-1612	1,600				
VP-2012	2,000				
VP-3012	3,000				
VP-4012	4,000	1,100	160	70	170
VP-5012	5,000				
VP-6012	6,000				160

## T-slot Dimensions

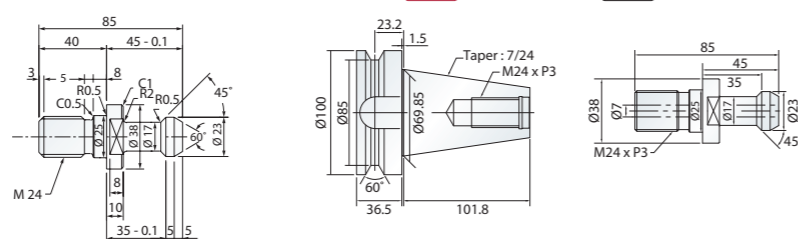


## Tool Shank Dimensions

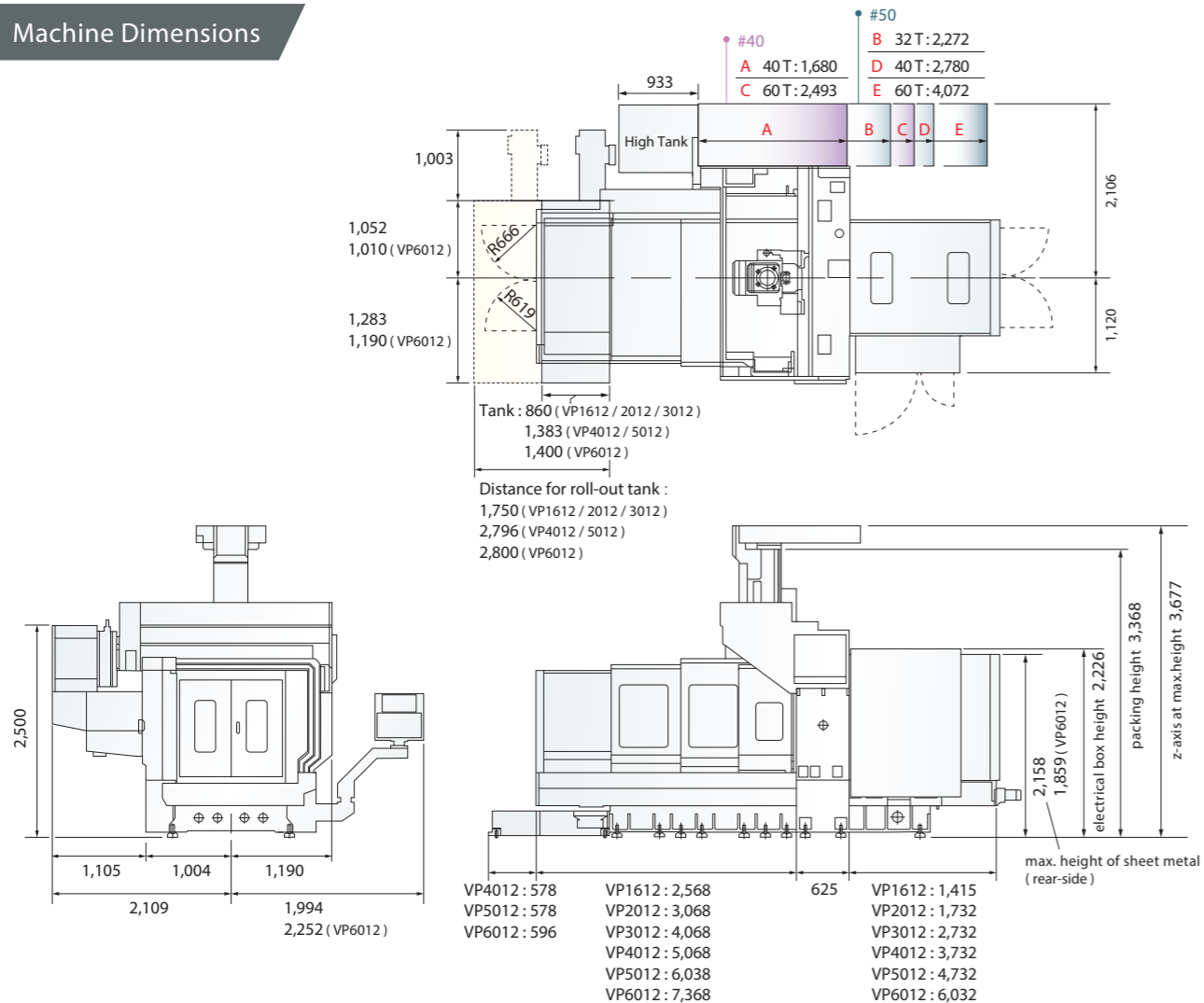
### BT50 Std.



### BBT50 Opt. (VP-6012 Std.)



## Machine Dimensions



Above information for reference only, the real dimension may vary slightly depending on different specification.

# VP series | Specifications

	VP-1612	VP-2012	VP-3012	VP-4012	VP-5012	VP-6012	
<b>SPECIFICATIONS</b>							
X-axis travel	mm	1,600	2,000	3,000	4,000	5,000	
Y-axis travel	mm	1,200					
Z-axis travel	mm	760					
Dist. between columns	mm	1,300					
Dist. from spindle nose to table top	mm	200 ~ 960*1 (#50 gear spindle)					
		200 ~ 960 (#50 direct drive spindle)					
<b>TABLE</b>							
Table size (X x Y)	mm	1,600 x 1,100	2,000 x 1,100	3,000 x 1,100	4,000 x 1,100	5,000 x 1,100	
Table load capacity	kg	3,000	3,500	4,500	6,000	8,000	
<b>SPINDLE</b>							
Spindle taper		BT50 / BBT50 ( Opt. )				BBT50	
Spindle motor ( Cont. / 30 min. )	kW	11 / 15				22 / 26	
Spindle speed	rpm	Gear spindle 6,000				Direct drive spindle 10,000	
<b>FEED RATE</b>							
X-axis rapid feed rate	m/min.	24	24	20	10	8	
Y-axis rapid feed rate	m/min.	24					
Z-axis rapid feed rate	m/min.	20					
Cutting feed rate	m/min.	12	12	12	10	8	
<b>TOOL MAGAZINE</b>							
Tool magazine capacity	T	32 ( 24 / 40 Opt. )					
Max. tool length	mm	350					
Max. tool weight	kg	15					
Max. tool dia. / adj. pocket empty	mm	Ø 125 / Ø 229					
<b>ACCURACY</b>							
Positioning accuracy ( VDI 3441 )	mm	P ≤ 0.02 / Full travel			P ≤ 0.03 / Full travel	P ≤ 0.04 / Full travel	P ≤ 0.05 / Full travel
Repeatability ( VDI 3441 )	mm	Ps ≤ 0.015			Ps ≤ 0.02	Ps ≤ 0.03	Ps ≤ 0.035
<b>GENERAL</b>							
Coolant tank capacity ( pump )	liter	460 ( 1.5 HP )					
Lubrication oil tank capacity	liter	4.5					
Hydraulic tank capacity ( pump )	liter	8 ( 2 HP )					
Pneumatic pressure requirement	kg/cm <sup>2</sup>	5 ~ 7					
Power requirement		AC 220 ± 10 % 3 phase, 60 / 50 Hz / 40 kVA					
Machine weight	kg	14,000	16,000	20,000	24,000	28,000	

\*1: Individual spindles may vary, please check with AWEA sales representative.

Specifications are subject to change without notice.

### Standard Accessories

- Spindle cooling system
- Centralized automatic lubricating system
- Fully enclosed splash guard w/o roof
- Coolant system with pump and tank
- Screw type chip auger x 2
- Caterpillar type chip conveyor and bucket
- Auto. power off system
- Air gun

### Optional Accessories

- Direct drive spindle : ( #40 ) 15,000 / ( #50 ) 10,000 rpm
- Direct drive spindle ( Long Nose ) : ( #50 ) 10,000 / 12,000 rpm
- Spindle taper : DIN50 / CAT50 / ISO50
- Column raiser 200 mm
- Tool magazine 24T / 40T
- X / Y / Z axes optical linear scale ( HEIDENHAIN )
- Spindle thermal compensation ( must order linear scale )
- Coolant through the tool adapter
- Coolant through the spindle ( Form A )
- Auto. tool length measurement
- Auto. work piece measurement
- CNC rotary table
- Oil skimmer
- Oil mist cooling system