



# CROSSRAIL FIXED TYPE DOUBLE COLUMN SURFACE GRINDING MACHINE

**Precise, Stable, Heavy Duty**

This and More can be Found on the TOP-ONE Grinding Machine

## KEEPING OUR CUSTOMERS IN THE LEAD

Top-One Machinery Co., Ltd. is an internationally recognized manufacturer of vertical machining centers, double column machining centers and double column grinding machines. Based on our outstanding R&D capabilities, we are capable of designing and manufacturing high quality products with greater machining capacity, high accuracy and stability. Our objective is to offer the best machines to help customers stay competitive.

## GP SERIES

[www.topone-m.com](http://www.topone-m.com)



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TOP-ONE MACHINERY CO., LTD





PC BASE CONTROL SYSTEM (standard)  
MITSUBISHI / FANUC CNC CONTROL SYSTEM (optional)

Top-One GP series double column grinding machine is equipped with an advanced PC BASE control system.



#### HANGED CONTROL BOX

- The hanged control box can be moved to any position. This excellent accessibility makes it easy for the operator to check during grinding test and idling.
- The hanged control box is equipped with a counter-balance weight to facilitate control box movement.

#### TABLE IS SELF-FINISHED BY THE MACHINE

When assembling the table on the machine, our technicians use the machine to finish the table surface. The self-finishing of the table ensures better geometric accuracy.

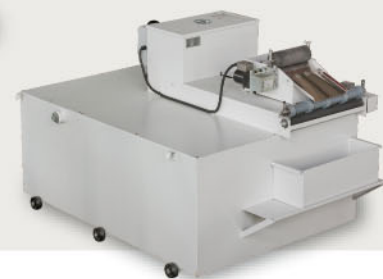


#### OIL COOLER

The hydraulic oil in the oil tank is cooled through a high efficiency oil cooler to keep a constant temperature. The oil cooler allows the hydraulic system to actuate normally and extends the service life of the oil.



#### PAPER FILTER



#### HYDRAULIC UNIT

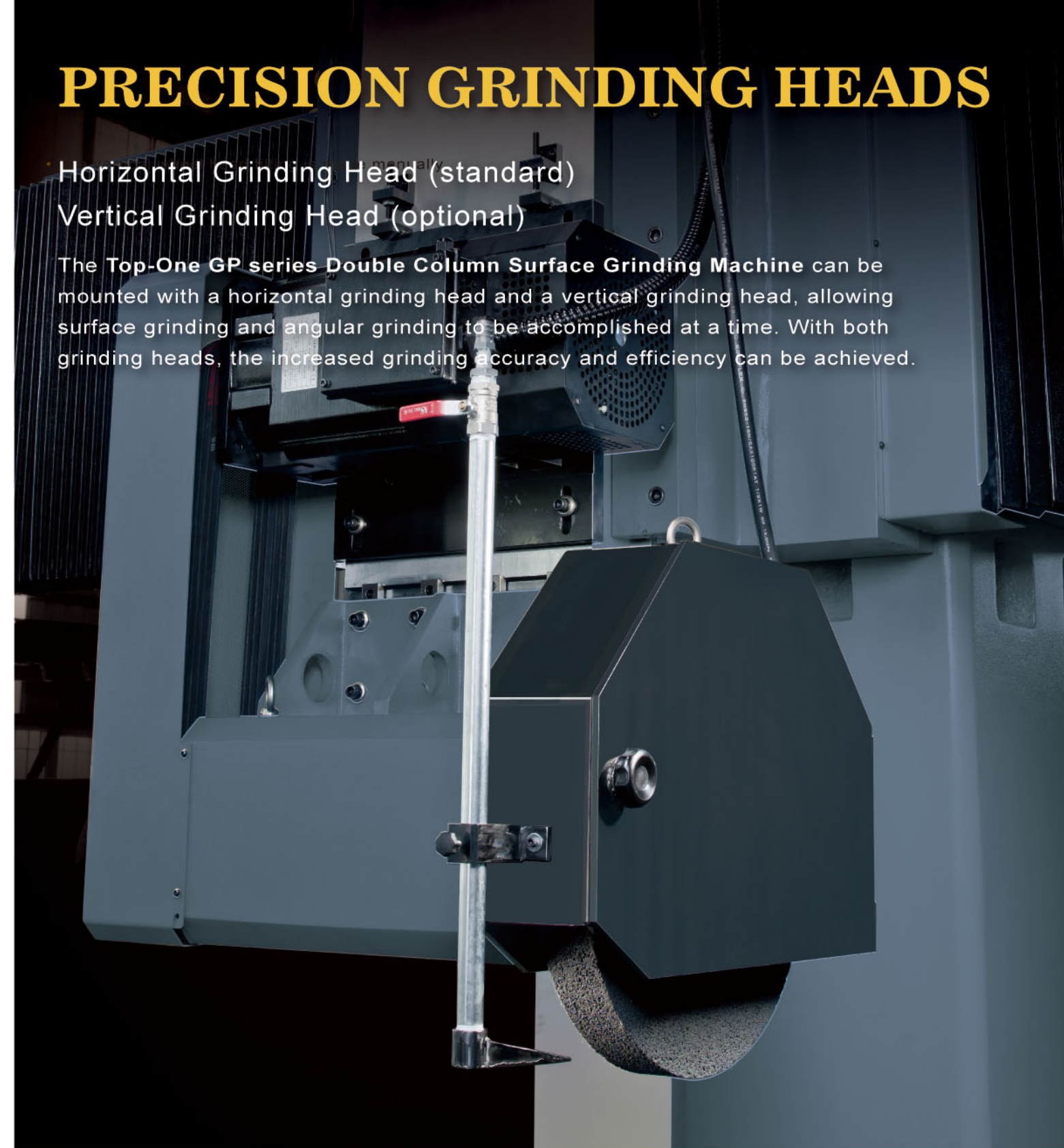
- The hydraulic circuit is specially designed, providing smooth movement on the X-axis and eliminating jerks at both ends of the X-axis travel in order to ensure superior grinding quality.
- Powerful feed motion is maintained even when X-axis feeds at a low speed.
- The hydraulic system is consisted of high quality hydraulic parts, which results in longer service life, low noise and stable motion.



# PRECISION GRINDING HEADS

Horizontal Grinding Head (standard)  
Vertical Grinding Head (optional)

The Top-One GP series Double Column Surface Grinding Machine can be mounted with a horizontal grinding head and a vertical grinding head, allowing surface grinding and angular grinding to be accomplished at a time. With both grinding heads, the increased grinding accuracy and efficiency can be achieved.



## HORIZONTAL GRINDING HEAD (STANDARD)

- The horizontal grinding head is driven by a powerful 20HP (30HP for GP-2500 or larger models) servo motor, enable the heavy duty grinding with increased efficiency.
- The grinding head accommodates the maximum of  $\varnothing 510$  mm grinding wheel (610mm for GP-2500 or larger models) for performing precision surface grinding.
- Precision spindle construction allows the machine to operate for a long time with minimum thermal growth.
- Available to equip with automatic wheel dressing device (optional)



## MANUAL / SEMI AUTOMATIC / AUTOMATIC VERTICAL SWIVELING GRINDING HEAD (OPTIONAL)

- The vertical grinding head can swiveled up to 45° for both left and right side, which allows grinding the angular surfaces.
- The oblique angle of vertical grinding head can be adjusted manually.
- The semi-automatic swiveling of the grinding head is transmitted through dual head worm with depth of teeth and big module.
- The worm is supported by RN type axial bearing and wear-resistant sleeve, which combined with high concentricity of worm to achieve high positioning accuracy.
- The automatic swiveling head is driven by a servo motor with hydraulic brake, assuring high accuracy angular adjustment and positioning (optional)

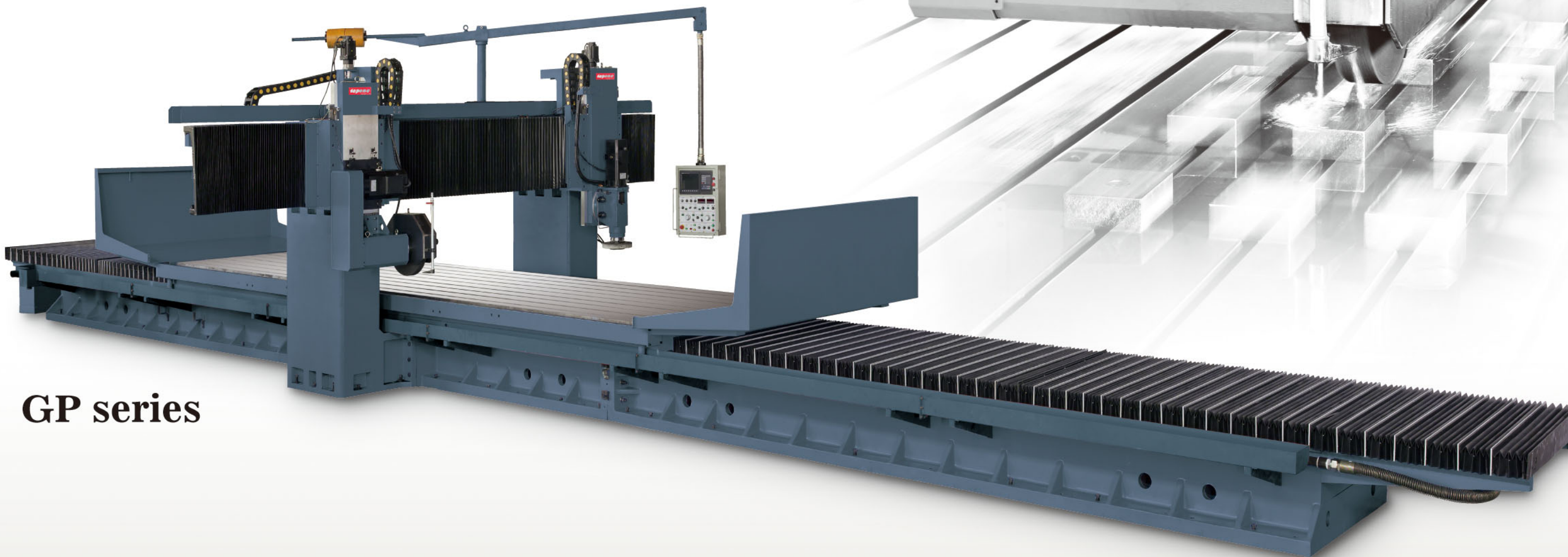
(Automatically)

(Manually)



## CROSSRAIL FIXED TYPE DOUBLE COLUMN SURFACE GRINDING MACHINE

With a massive and rigid construction, the GP series double column surface grinding machine from Top-One is designed and built for precision grinding for extra-large work pieces. This series of machine is equipped with a horizontal grinding head as standard equipment, and a vertical wheel head is available upon request. High precision Z-axis downfeed can reach 2  $\mu\text{m}$ , which will fully meet high accuracy grinding requirements.



GP series

Every Top-One machine is manufactured with the tradition of Top-One's quality excellence.



### CROSSRAIL MOVABLE TYPE

- The ruggedly constructed beam provides a solid grinding support for the horizontal and vertical grinding heads, resulting in outstanding stability during grinding operations.
- The grinding head movement (Y-axis) is individually driven by a servo motor and transmitted through a precision ball screw for high positioning accuracy.
- The slideways on the crossrail is a combination of linear way and box way. The main roller type linear ways and the auxiliary box way may upgrade wear-resistance and durability. In case the linear way is worn out, it can be replaced conveniently.

### MASSIVE BASE

- The base is a one-piece fabrication from high quality Meehanite cast iron, tempered to relieve internal stress for eliminating thermo deformation.
- Two extra-long, wide and deep vee slideways on the base provide outstanding load-resisting capabilities.
- The double V slideway surfaces are precision scrapped in combination with forced lubrication, ensuring smooth table feed.



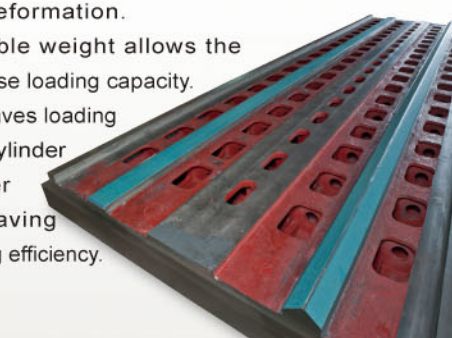
V & FLAT SLIDWAYS  
(standard)



DOUBLE V SLIDWAYS  
(optional)

### RIGID TABLE

- The box-type table is a one-piece fabrication made from Meehanite cast iron, and tempered to relieve stress.
- The table slideways are coated with Turcite-B for outstanding wear-resistance.
- Extra-large span between slideways provides an increase in rigidity. In addition, the table is capable of resisting heavy loads without deformation.
- The reduced table weight allows the machine to increase loading capacity.
- Besides, it also saves loading of the hydraulic cylinder for saving power consumption, saving cost and increasing efficiency.



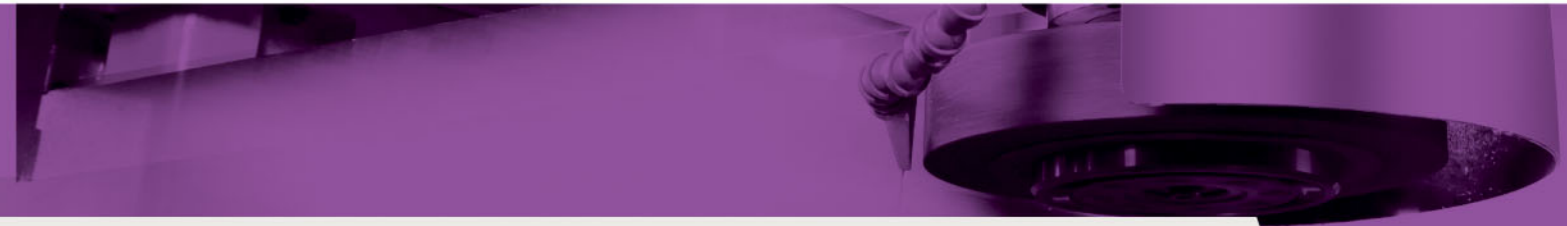
### X-AXIS DRIVEN BY HYDRAULIC CYLINDER

- The table feed (X-axis) is driven by a double-acting hydraulic cylinder.
- The cylinder stroke speed can be adjusted on the control panel.
- The hydraulic system has a buffering function, which may suppress serious impact at both ends of the cylinder stroke. This function provides a protection for the cylinder while extending its service life.





# SPECIFICATIONS



MODEL	UNIT		GP-2000	GP-2500	GP-3000	GP-3500	GP-4000		
Max. grinding surface (LxW)	M	2/3/4 M x 1.2 M	2/3/4 M x 1.5 M	3/4/5/6 M x 1.6 M	3/4/5/6 M x 2.0 M	4/5/6 M x 2.5 M	4/5/6 M x 3.0 M	4/5/6 M x 3.5 M	
Machining height	mm	750 / 1,000 / 1,250							
X axis travel	mm	2,000~4,000		3,000~6,000		4,000~6,000			
Y axis travel	mm	1,500	1,800	2,000	2,500	3,000	3,500	4,000	
Distance between columns	mm	1,700	2,000	2,200	2,700	3,200	3,700	4,200	
Table size (length)	mm	2,000~4,000		3,000~6,000		4,000~6,000			
Table size (width)	mm	1,200	1,500	1,600	2,000	2,500	3,000	3,500	
T-slot	mm	□22			□24		□28		
Max. table load	Ton	2m:2 3m:4 / 4m:6	2m:2 3m:4 / 4m:6	3m:6 / 4m:8 5m:10-12 / 6m:12-15	3m:8 / 4m:10 5m:12-15 / 6m:15-20	4m:15-20 5m:20-25 / 6m:25-30	4m:20-25 5m:25-30 / 6m:30-35	4m:25-30 5m:30-35 / 6m:35-40	
Double V slide distance	mm	700		900	1,100	1,400			
X axis grinding speed	mm/min	5,000~30,000							
Y axis rapid feed	mm/min	3,000							
Z axis rapid feed	mm/min	2,000							
Z axis feeding travel	mm	750(1000~1250 optional)							
Min. Z axis feeding	mm	0.002							
M.P.G. feeding increment	mm	0.002/X1X10X100							
Y-axis motor		Depending on machine dimensions							
Z-axis motor		Depending on machine dimensions							
Vertical spindle motor	HP	12(6p)							
Horizontal spindle motor	HP	20 HP(4P)(30HP optional)							
Grinding wheel	inch x mm	Vertical 14" x 50 mm x 175 bore Horizontal 20" x 50 mm x 203 bore			Vertical 16" x 75 mm x 203 bore Horizontal 24" x 80 mm x 203 bore				
Horizontal spindle speed	rpm	300~2,000			300~2,000				

Note: The machine specifications, dimensions and design characteristics are subject to change without prior notice.

## STANDARD ACCESSORIES

- Grindstone calibrate base
- Diamond cutting knife
- Magnetic base
- Grinding wheel balancing correction table
- Horizontal grinding wheel (510 (OD) x 203.2 (ID) x 65 (T) mm)
- 8" Flange (Including stone reject)
- Electrical control box with heat exchange coolant
- Hydraulic circulating cooler
- Paper tape filter (Including filter paper and water tank)
- AVR
- Tool box

## OPTIONAL ACCESSORIES

- Vertical grinding head
- Grinding wheel
- Increase spindle speed
- Increase the power of spindle motor
- Auto. rotating for vertical grinding head (incl. servo driver & hydraulic brake)
- Spare vertical grinding stone flange
- Spare horizontal grinding stone flange

## CONTROL SYSTEM

- PC BASE control
- Portable manual pulse generator
- Monochromatic LCD display
- X axis hydraulic control system
- Hanged type control box
- Y,Z axes servo motor