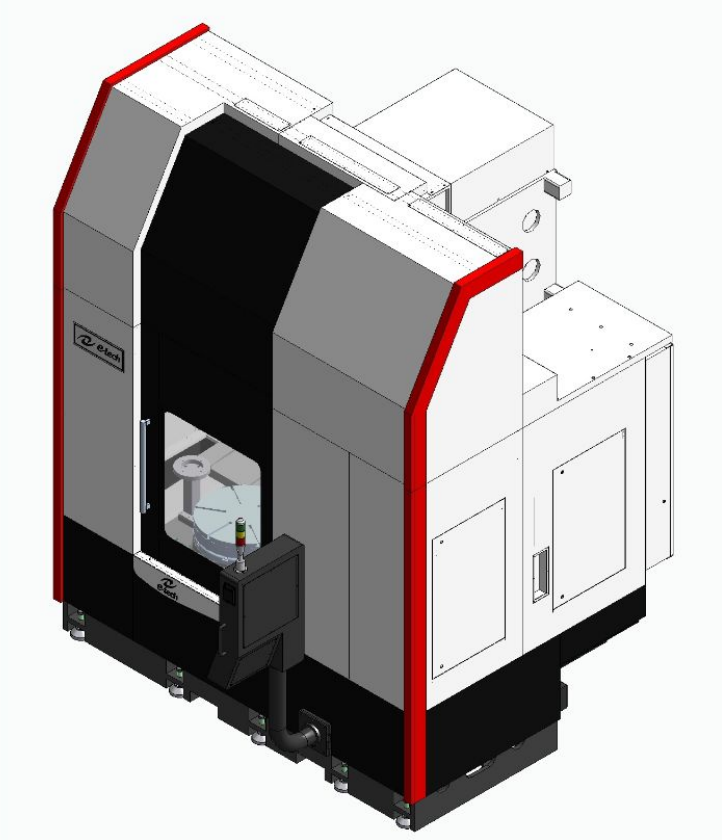
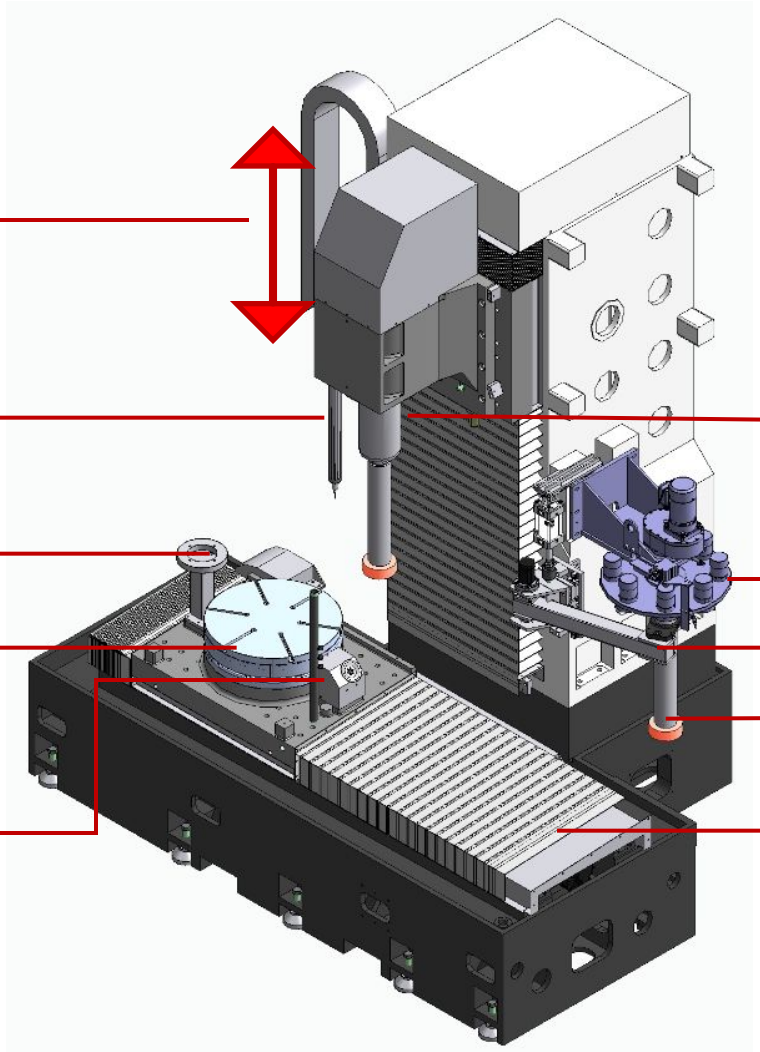
毅德機械. 磨床專家

e-tech Machinery. Grinder Professional

EGV – Series Vertical ID/OD Grinder



EGM – V – Series Vertical ID/OD Grinder



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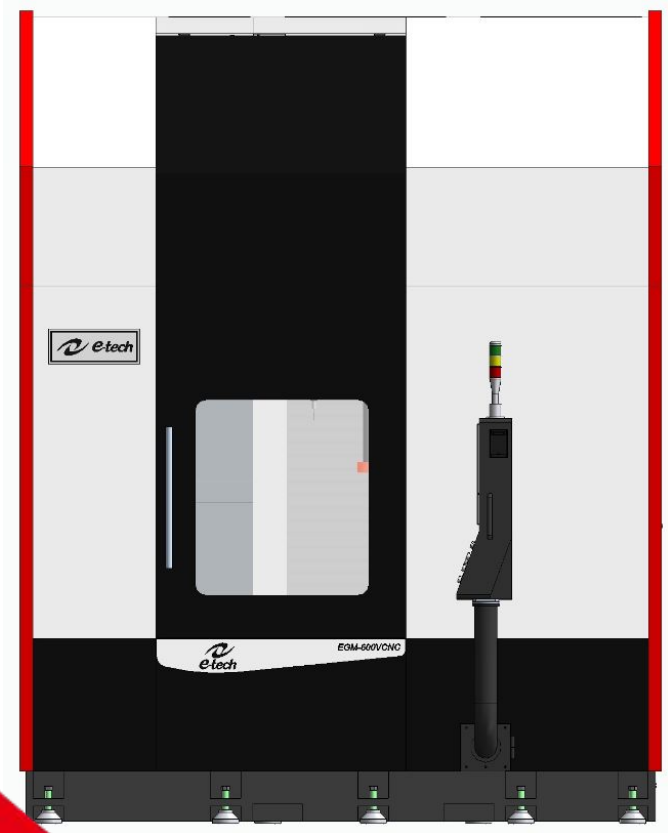
High Accuracy, High Capability, and Cross-boarder EGM-600/800V CNC Vertical Grinder



Years of experience with multiple grinding machines (ID/OD/Face), combining discussions with vertical grinders' operators and users.

Innovative multiple-operations overthrow the standard way of using universal machines.

IGRIND total graphic conversational program

- ✔ Let beginners quickly enter the field of CNC grinding machines
- ✔ Conventional machine users to accept CNC Controls
- ✔ Mutual support between professional and complete grinding paths and high accuracy
- ✔ Solve Inter-transition language issue
- ✔ Achieve in-process measurement and exclude the difficulty of measuring big workpiece.

A variety of complete grinding paths

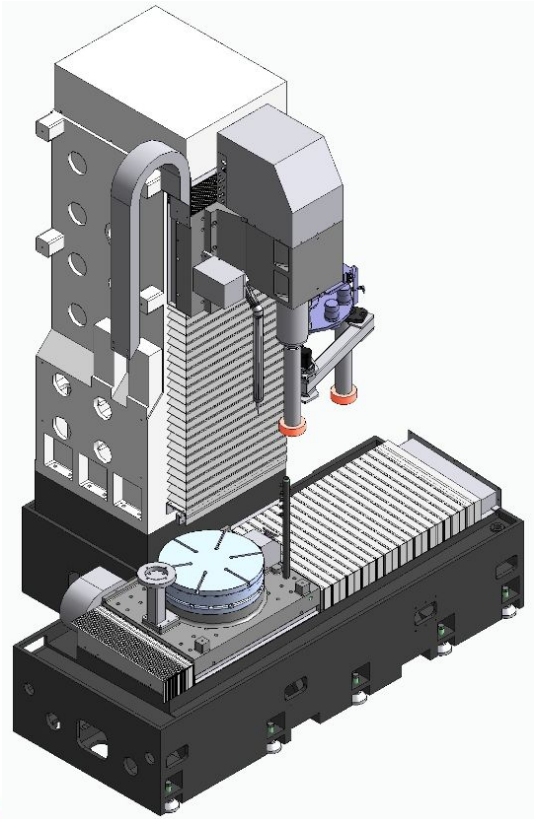
- ✔ Inner diameter, inner face inner taper, inner hook
- ✔ Outer diameter, outer face outer taper, outer hook

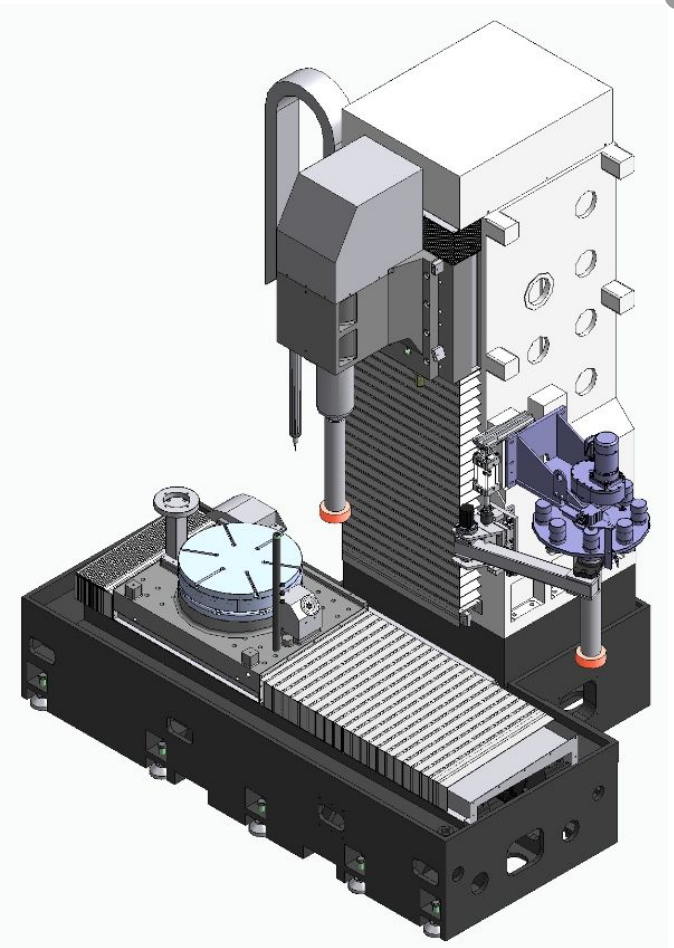
Slots, Radius, ID/OD steps can be ground by using free shaping function to save more time on complicated tasks. For example, shaping the wheels to finish multiple steps in 1 plunge or other profile grindings.

Vertical Grinder Machine Model Selection

EGV-600 CNC

- Max. OD grinding: 600
- Max. grinding depth: 550



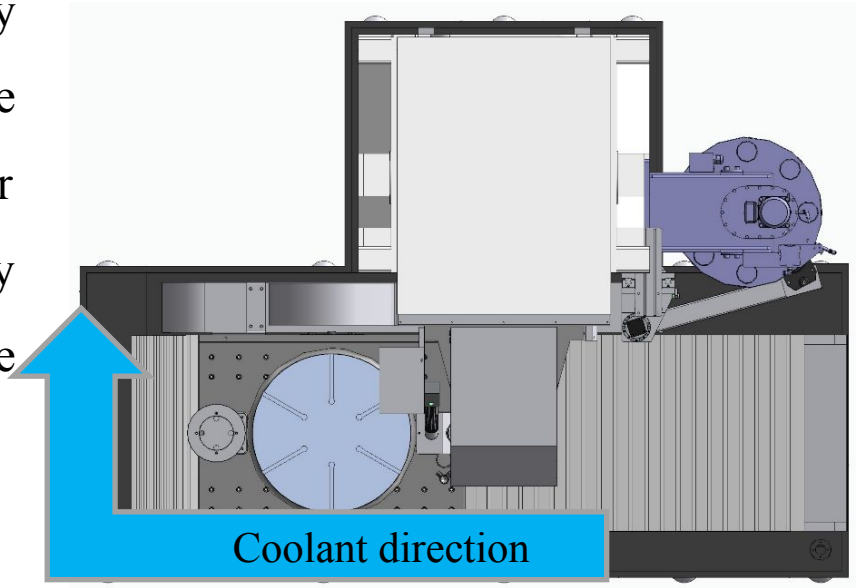


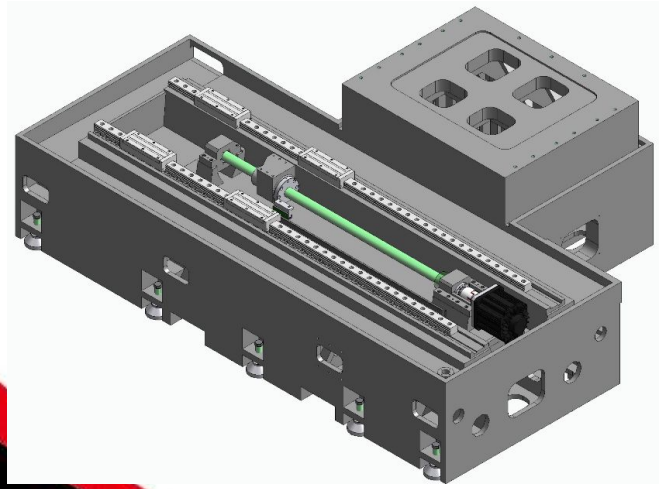
EGV-800 CNC

- Max. OD grinding: 800
- Max. grinding depth: 600

Machine Base & High Procession Linear Guideway

Low gravity machine structure and high rigidity machine base design can successfully control the stability of the heat source. Also the single-side water flow design can reduce the effect caused by temperature, and remove chips or debris to keep the machine clean.



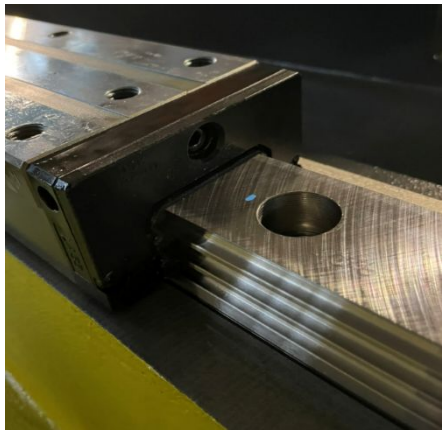


With high procession linear guideway, each axis shows its rigidity, high overweight capability, and increased high accuracy.

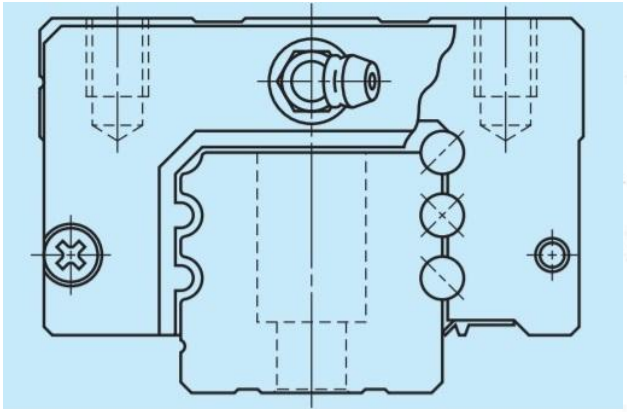
Machine Base & High Procession Linear Guideway

All axes using NSK C1 grade high precision ball screw with the features including high precision, high rigidity, high lead, and also predictable service life.

The leading manufacturer using 6 rows ball bearing linear guides, using longer sliding block to achieve features of average weight and accuracy, and low friction.

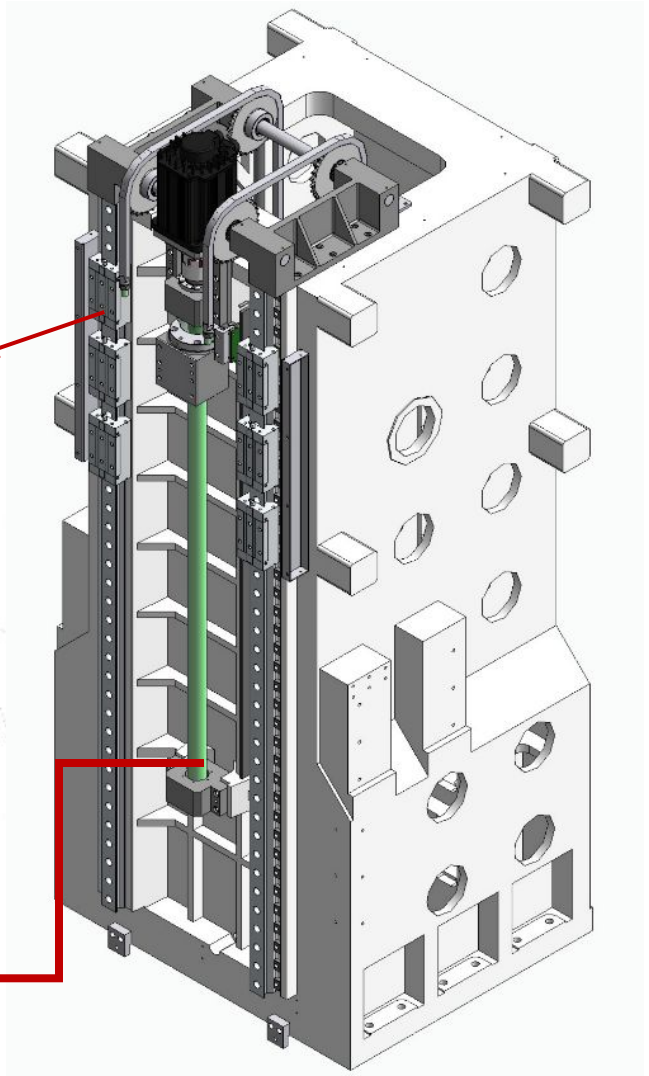


NSK HA high precision linear guides
(with 6 groove poly V and longer sliding block design



Linear guide way

C1 grade NSK ball screw



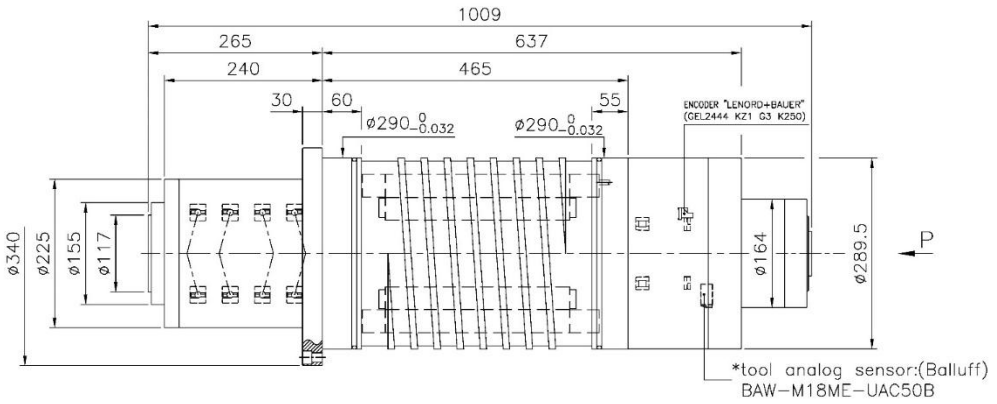
Rotary table type (X axis)

Hydrostatic rotary table

- Highest accuracy
  (rotating accuracy 0.001mm)
- Longest service life-time design
  (Hydrostatic without any steel contact)
- Vibration control during grinding operation
- High rigidity and heavy loading capability
  (The static max. loading is 1200Kg)
- With direct drive motor

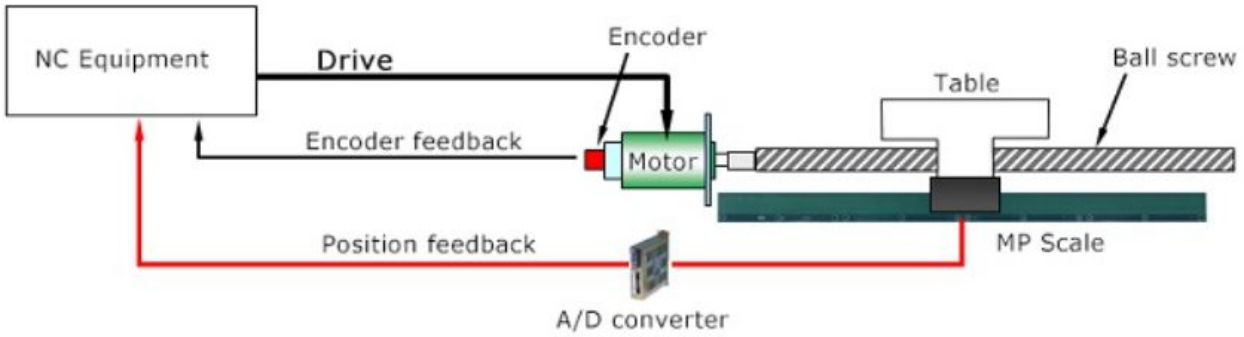
Grinding wheel spindle (Z axis)

Max speed (rpm)	6,000-12,000	Spindle coolant ring	4 nozzles standard
Spindle taper (mm)	ISO #50/HSK A100	Balance grade	GI(ISO1940)
Bearing (mm)	φ100	C.T.S.	Option
Spindle lubrication	Grease	Power (kW)	25kW S1 Cont. (30kW S2 30min)
Spindle Dia. (mm)	φ310	Torque (Nm)	238Nm S1 Cont. (420Nm S2 25%)
Length (mm)	1052	Motor	ATE
Coolant type	Oil	Encoder	Mitsubishi

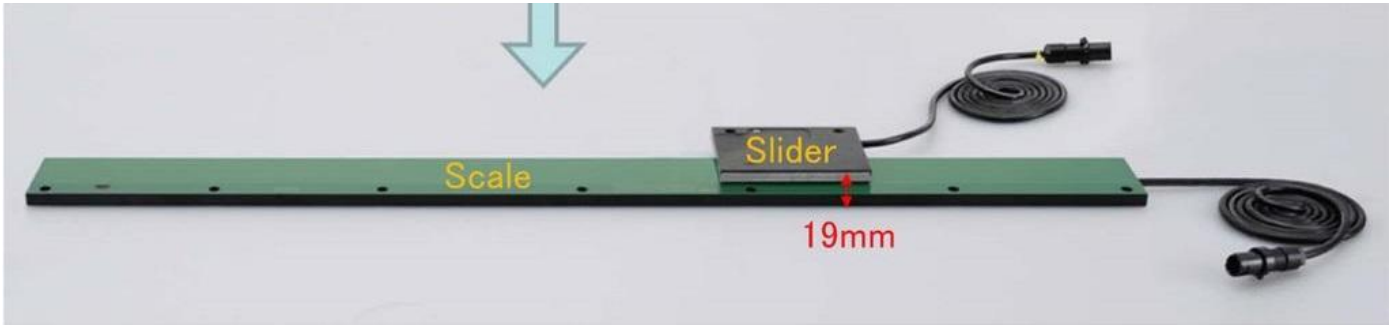


High Precision Linear Scale

MP (Mitsubishi Precision) Scale detects the amount of movement of a machine and outputs an analog signal. This signal is converted into a digital signal by an A/D converter and fed back to the NC system. Thus the machine can be controlled accurately by the fully closed-loop NC system based on the position feedback data from



Direct detection



Linear scale

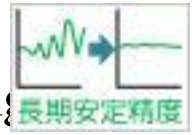
Advantage

Small mounting space（only 20mm）

High accuracy 5u/1m, high resolution0.01um

Unaffected by dust, oil, and condensation.
rge is unnecessary

The thermal expansivity same as the machine can provide h stability

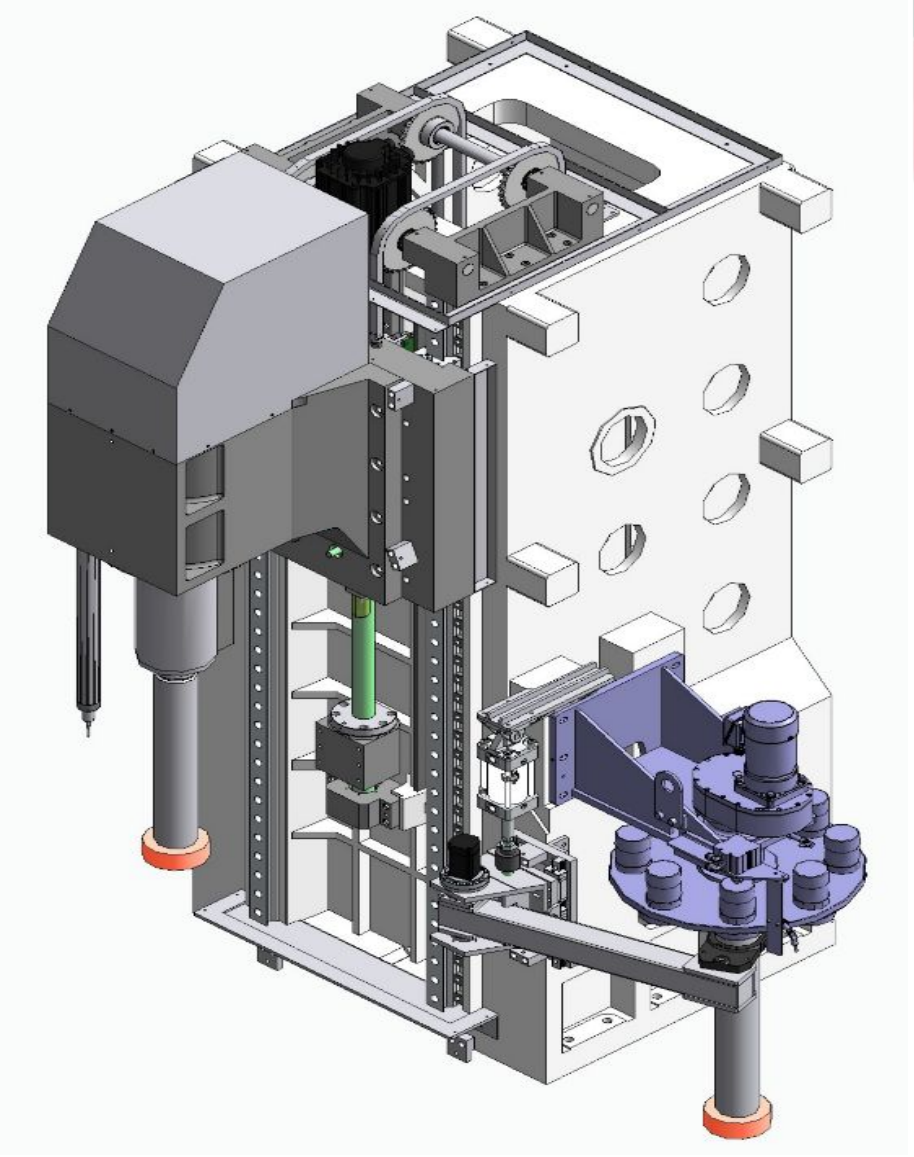


Non-contact design can keep the high accuracy for lon

Absolute feedback system

ATC tool change system

The carousel tool magazine with ATC tool change system, not only provides the high stability, but also increases the efficiency for tool changing. The tool magazine could reserve around 6 to 8 tool holders in stock. In this case, it could still perform the best surface roughness even facing workpiece with complicated operation requirement.

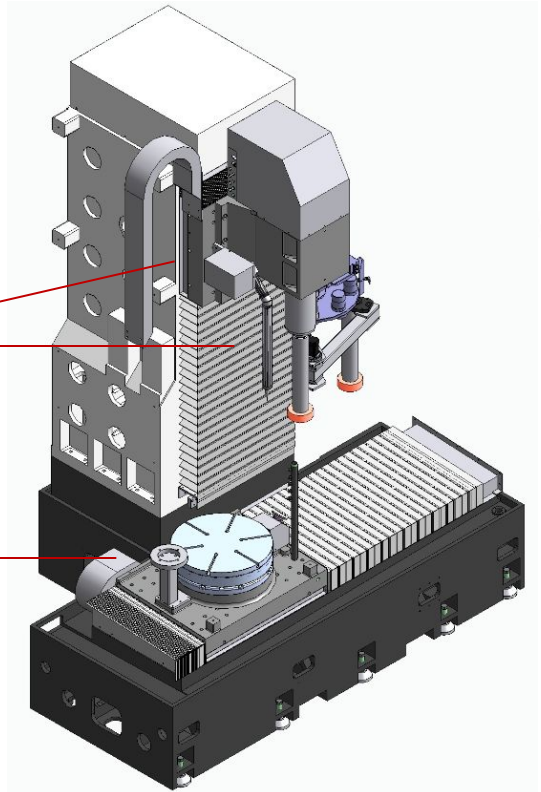


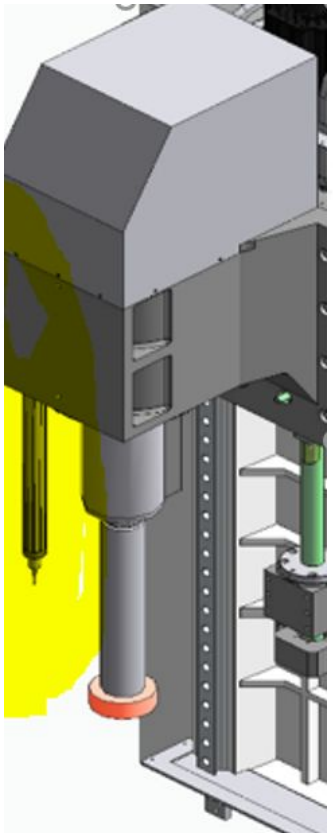
The measurement device (opt)

For large workpiece operation, usually the operators will concern about the position and accuracy inspection. In this case, e-tech had specially planned out using **LP2 probe with B53 mechanism** which is specialized for measurement during grinding operation. Plus the gauge block, it not only highly shortened the time for tool positioning, but also achieves the best accuracy by performing another measurement after the grinding cycle finishes.

LP2 probe with B53 mechanism

Gauge block





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Specification

Grinding capability	Unit	EGV-600	EGV-800
The Max. grinding I.D. dia.	mm	Φ45~Φ600	Φ100~Φ800
The Max. grinding O.D. dia.	mm	Φ600	Φ800
The I.D. Max. grinding depth	mm	550	600
The O.D. Max. grinding depth	mm	550	600
Spindle tape	mm	HSK-A100	HSK-A100
Max. speed for wheel spindle	R.P.M.	10,000 (Build-in spindle)	10,000 (Build-in spindle)
The table Max. Swing	mm	Φ600	Φ800
The table Max. loading	kg	700	850
Max. wheel dia.	mm	250	250
Rotary table speed	R.P.M.	200 (Hydrostatic DD motor)	200 (Hydrostatic DD motor)
Tool magazine	pcs	6/8(select according to wheel outer dia.))	6/8(select according to wheel outer dia.)

The accuracy of EGV

Laser calibration for each axis

(According to GB/T 17421.2-2000 / ISO 230-2

The laser test only conducts in the factory .

The seller provides the test report to the buyer as reference.

Positioning Accuracy

X axis: ≦ 0.003mm
Z axis: ≦ 0.003mm

Repeatability Accuracy

X axis: ≦ 0.002mm
Z axis: ≦ 0.002mm

Repeatability Accuracy (single point)

X axis: ≦ 0.001mm
Z axis: ≦ 0.0015mm

The standard accessories for EGV

- ✔MITSUBISHI CNC control system (15”display)
- ✔Full-enclosed splash guard
- ✔4-Color Indicator Light
- ✔Motorized Wheel Spindle (HSK-A100 with Cooling Device) 25kw
- ✔Diamond Dresser and Stand (3direction)
- ✔Auto. Lubrication System (for Linear Guide & Ballscrew)
- ✔Levelling bolts & blocks
- ✔X-Axis Linear Scale(Mitsubishi 0.05um)
- ✔HSK Wheel Spindle holder 2pcs
- ✔ATC tool change system with the disc type tool magazine
- ✔All necessary accessories for installing
- ✔Tool box
- ✔Operation manual & part lists
- ✔Electricity carbinet w/ heat exchanger
- ✔Rotary table Dia.600/800mm with DD motor (include T slot)
- ✔Oil coolant (rotary table)
- ✔LED working light
- ✔NSK linear scale and ball screw

The option accessories for EGV

- Mitsubishi controller (M80) graphic conversational program
- Permanent electromagnetic chuck 600/800mm(with customized magnet induction block x8)
- Coolant system with magnetic separator 120L/min
- Paper filter 120L/min
- Hydro cyclone coolant separator 120L/min
- Coolant chiller
- HSK holder for wheel
- Oil mist collecting system
- Diamond dresser
- LP2+B53 touch probe
- Z axis linear scale (Mitsubishi Precision scale)

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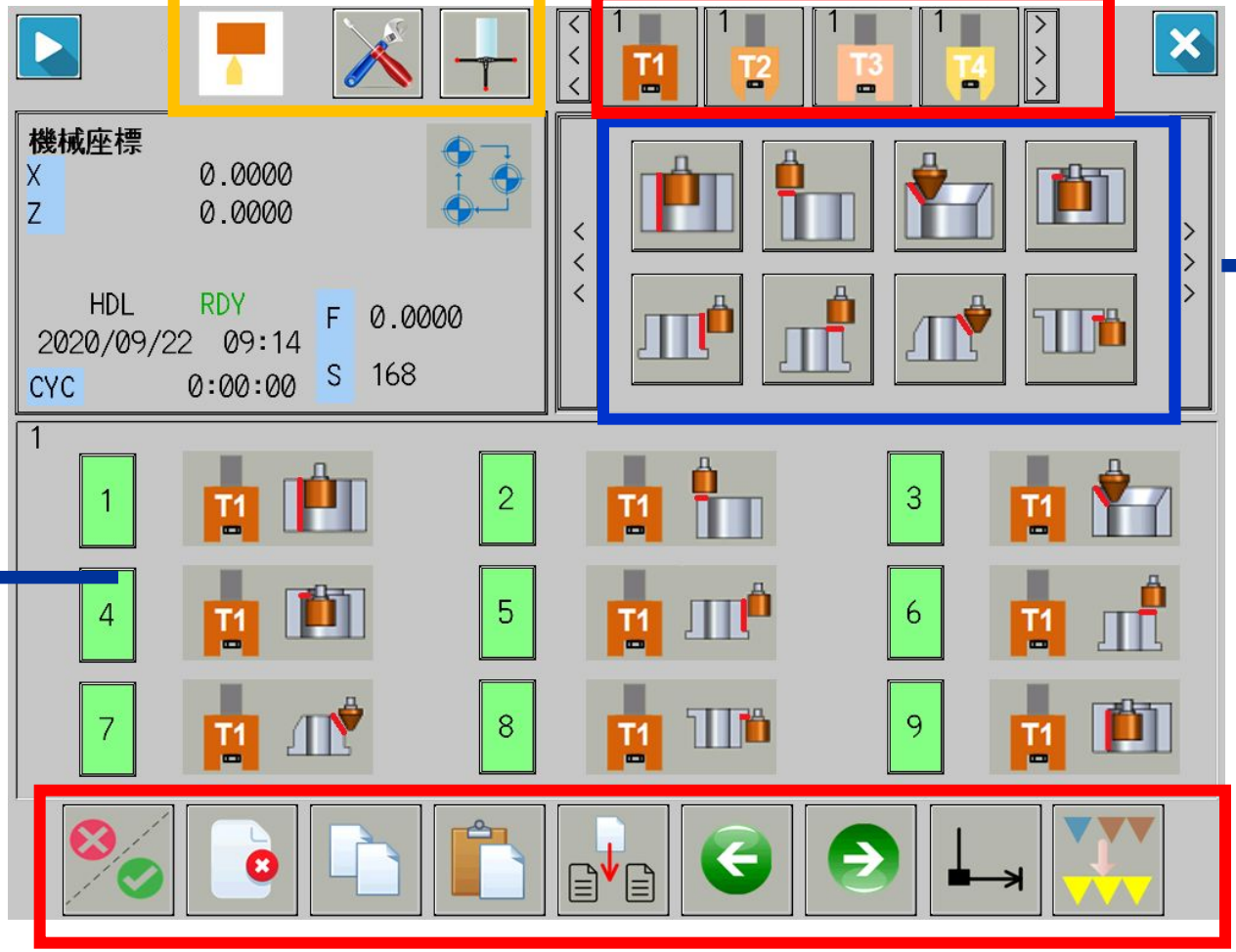
iGrind introduction(Mitsubishi M80)

The wheel data

The wheel profile selection page



The grinding Operation interface

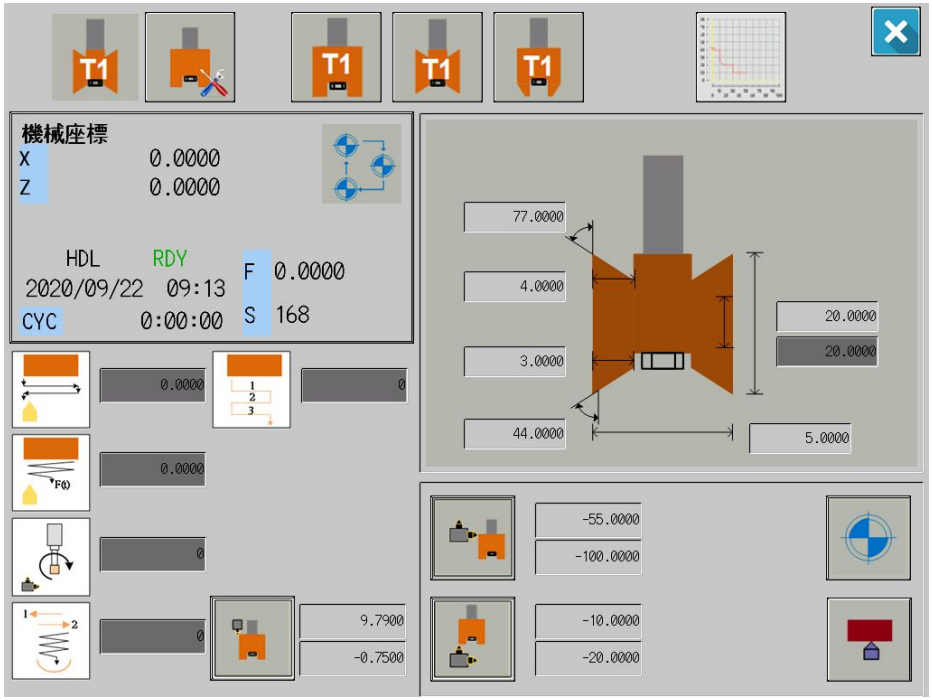
Grinding path selection

ID: thru-hole/ end-face taper / hook
OD: OD / end-face taper / hook

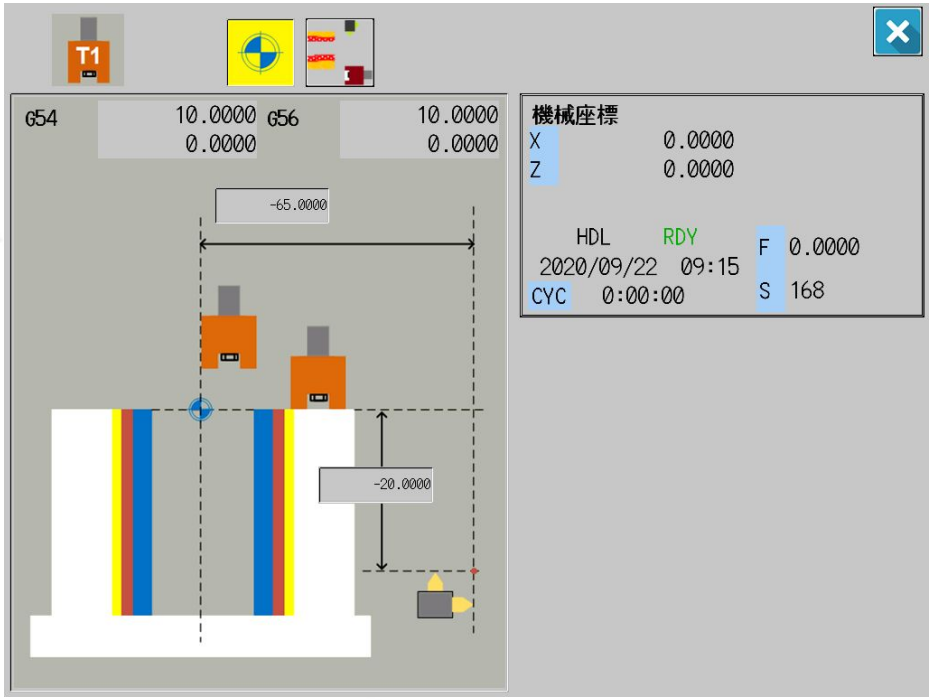
Functionals

iGrind introduction (Mitsubishi M80)

The wheel shape selection

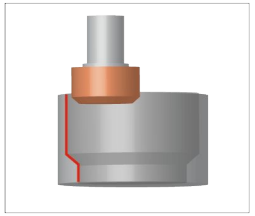


Zero point setting of the workpiece

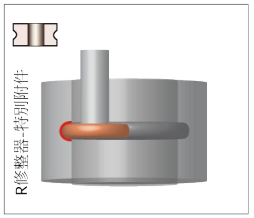


The grinding application

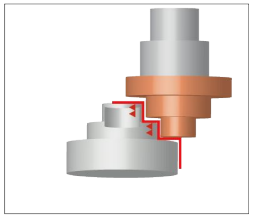
Grinding Path



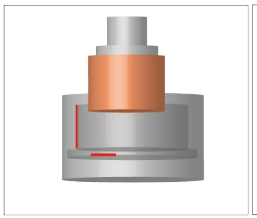
內盲孔+內倒角



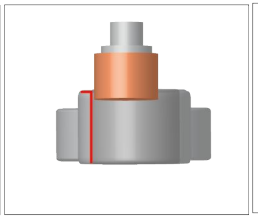
內R溝



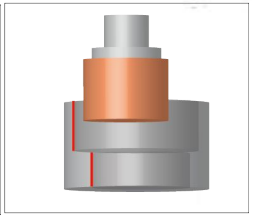
多階段研磨



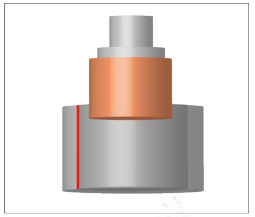
內盲孔+內端面



內通孔+外端面(齒面)

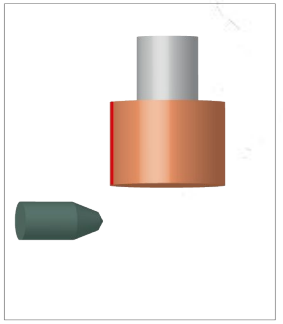


兩階段直孔

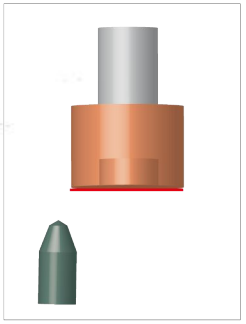


內通孔

Dressing Path



砂輪修整



砂輪端面修整

Quality 1/2

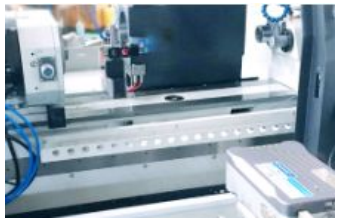
- Provide the test report

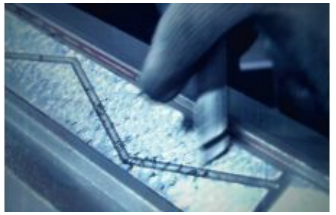
We know well about all details about our machine. We do, we create and we focus the details.

REFER TO CNS4299 · B7094 STANDARD UNIT:mm

	Diagram	Inspection item	Tolerance	Measurement
1		轉盤端面迴轉偏擺	0.005mm	
2		轉盤外徑迴轉偏擺	0.005mm	
3		主軸錐面偏擺	0.005mm	
4		主軸端面偏擺	0.005mm	
5		垂直方向 X軸(左右)移動真直度	0.005/300mm	
6		水平方向 X軸(左右)移動真直度	0.005/300mm	
7		前後方向 Z軸(上下)移動與砂輪軸平行度	0.01/200mm	
8		左右方向 Z軸(上下)移動與砂輪軸平行度	0.005/200mm	

	Diagram	Inspection item	Tolerance	Measurement
9		砂輪軸中心與轉盤中心前後位置差	0.1mm	
10		前後方向 Z軸(上下)移動與轉盤中心平行度及真直度	0.005/700mm	
11		左右方向 Z軸(上下)移動與轉盤中心平行度及真直度	0.003/700mm	
12		前後方向 砂輪軸中心與盤面垂直度	0.02/300mm	
13		左右方向 砂輪軸中心與盤面垂直度	0.02/300mm	
14		X軸重覆定位精度	±0.0015mm/10次	
15		Z軸重覆定位精度	±0.002mm/10次	





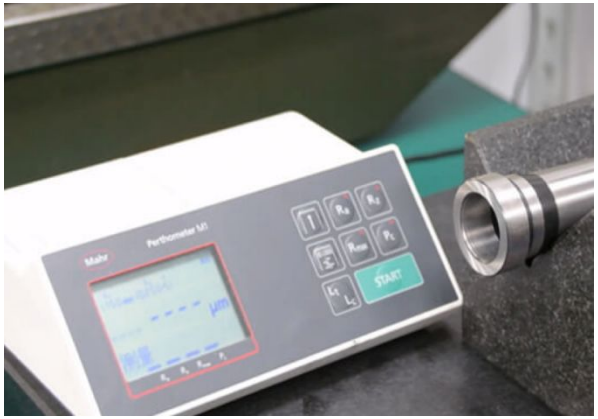

Quality Assurance 2/2

Comprehensive Quality Control

Mahr Cylinder Form Tester

Wenzel CMM

Mitutoyo Hardness Tester



Mahr Surface Roughness Tester

Spindle Examination Instrument

Thank You !

E-tech Machinery
Professional grinder manufacturer