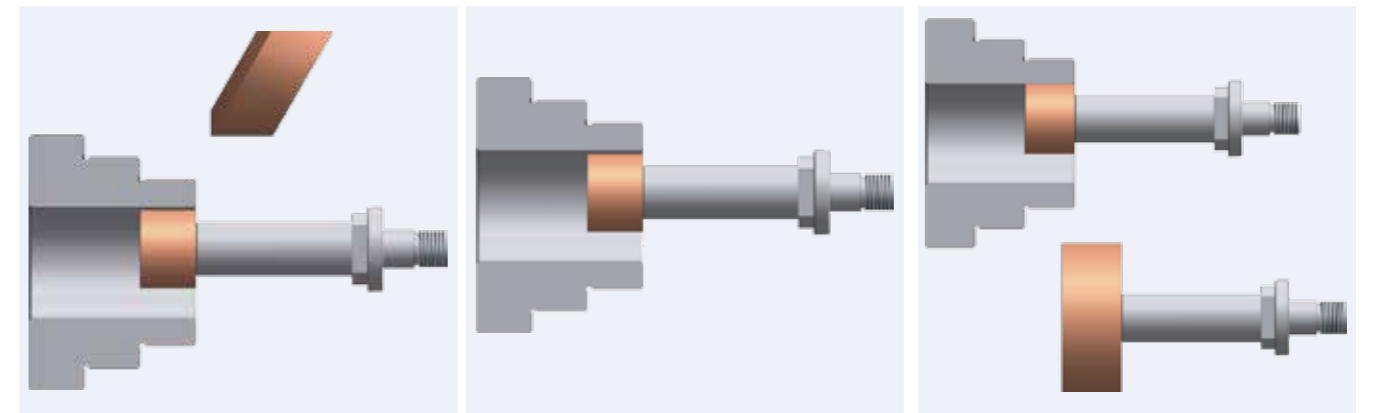


CNC Multi-Spindle ID & OD Grinder



Grinder Professionals

1 EGM / EGI series CNC Precision Multi-Spindle ID & OD Grinder

EGM-350/450 CNC multi-spindle grinder incorporates three independent slides (X,Z,Y) with dual grinding spindles. The grinders design characteristics are ideal for keeping up with the growing demand for extremely high precision parts.

EGI series CNC Precision Single Spindle ID Grinder EGI-150CNC single spindle ID grinder is the answer to our customers request for a dedicated ID grinder. The small foot print easily lends itself to be fully automated in various ways.

Features

- EGM-350/450 series CNC control systems are available in MITSUBISHI* and FANUC**. Optional graphic conversational software can be added to either controls. This software eliminates the need for G-code programming, and is easy to learn and easy to program-perfect for programming beginners as well as seasoned operators. (*MITSUBISHI M80 with touch screen / **Fanuc Oi-TF)
- The low-gravity base structure and operation panel are designed to meet ergonomic requirements.
- Multiple grinding operations such as, internal, external, end-face, groove, radius, internal & external step, and taper grinding can be executed in a single chucking. Thus, reducing the overall cycle time and greatly increasing the grinding efficiency.



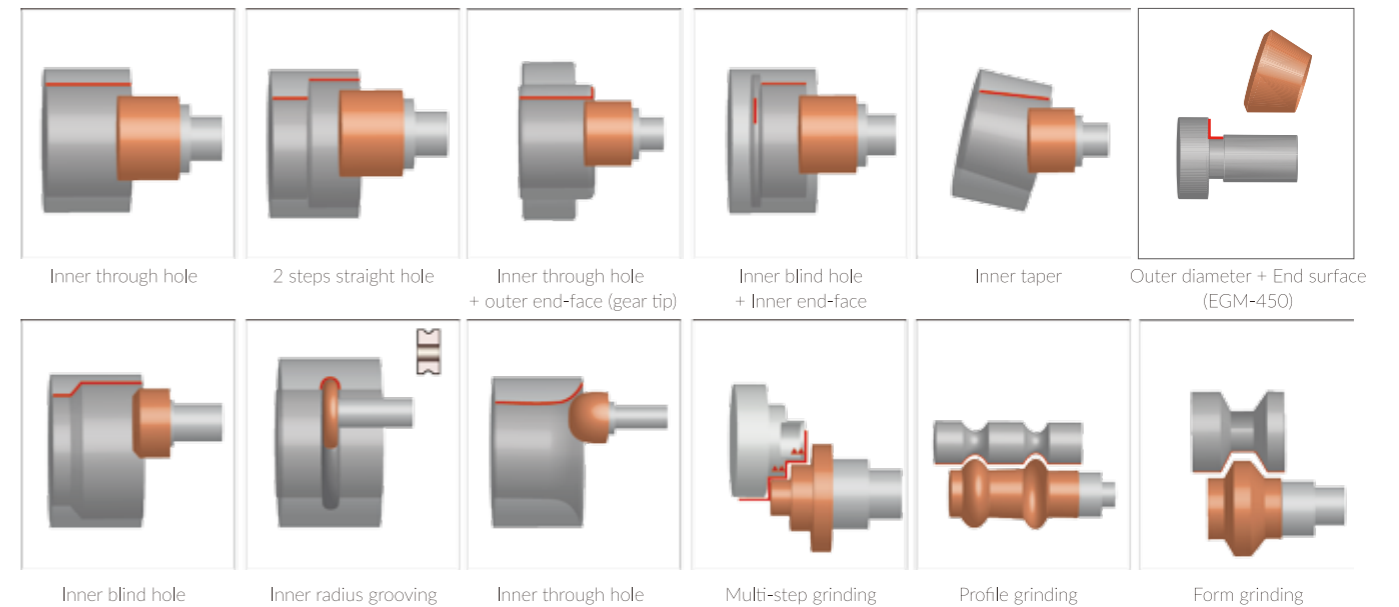
EGM-350CNC

CNC Controller

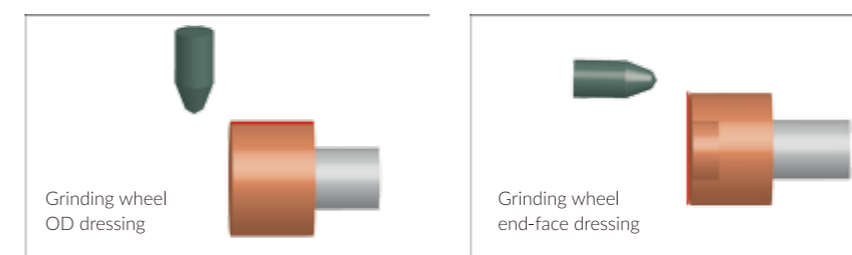
- High speed Box type dressing function drastically reduces dressing time (Mitsubishi M80)
- Optional graphic conversational programming for grinding and wheel dressing (Mitsubishi/Fanuc)
- Dressing interrupt function during the grinding cycle improves overall cycle time.
- 10.4" color touch screen for Mitsubishi M80.
- Internal / External cylindrical compensation function.
- 0.000010" least increment input for X/Z/Y axes.
- Programs can be stored for future use.
- Current anti-collision function.
- MPG simulation function to test-run the program helps to avoid accidental wheel crashes.



Standard grinding cycles and multi-steps graphic conversational functions.

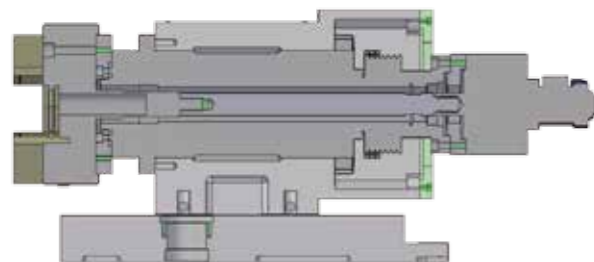


Grinding wheel dressing graphic illustration

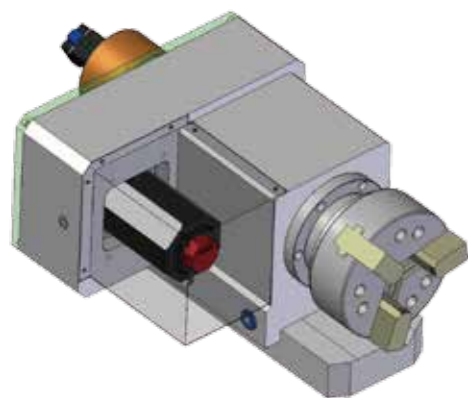




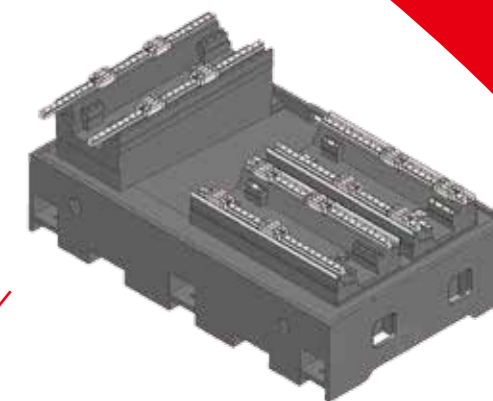
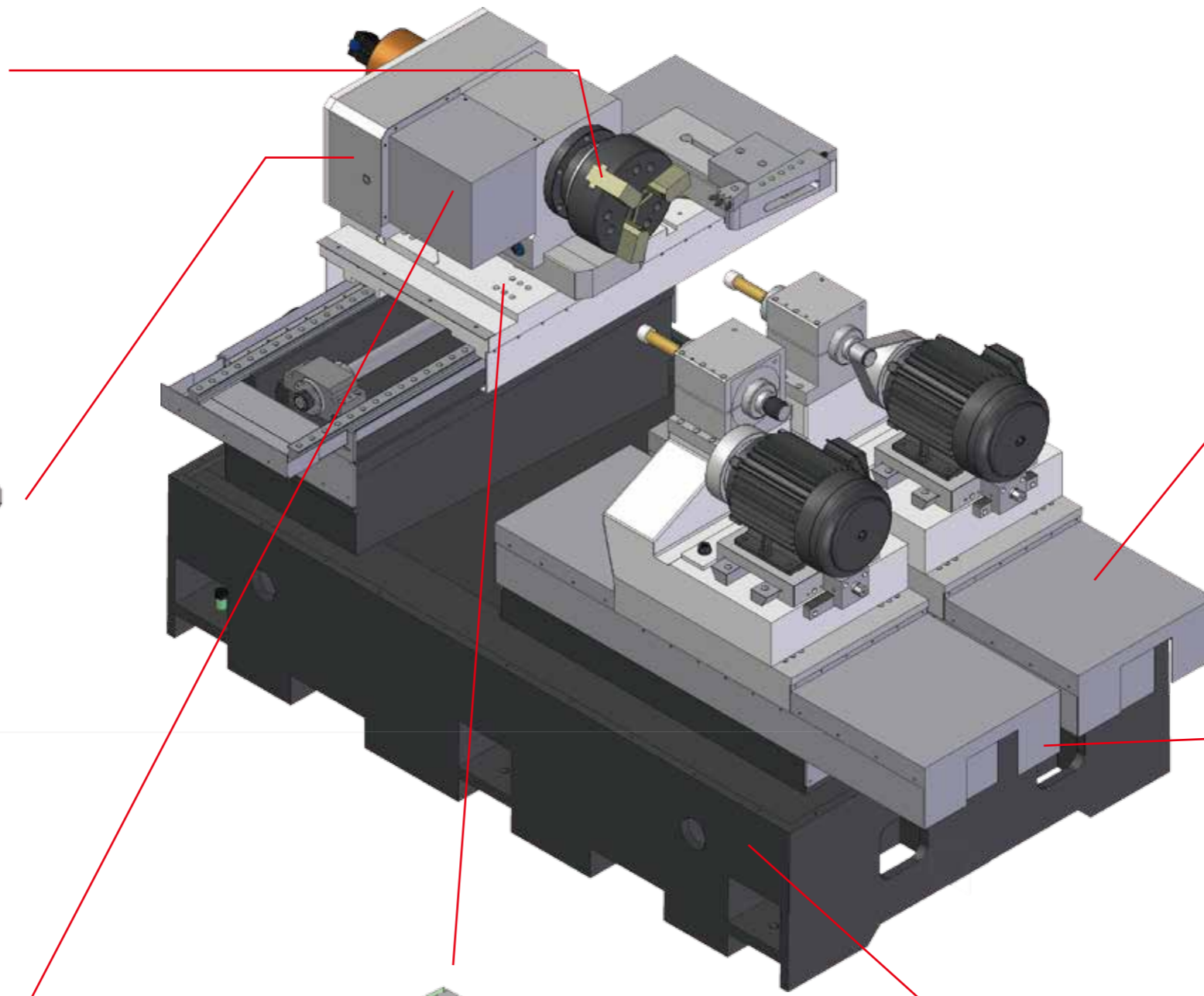
Complete one piece cartridge spindle can avoid the eccentricity of spindle housing and reduces the thermal growth, thus increase spindle life.



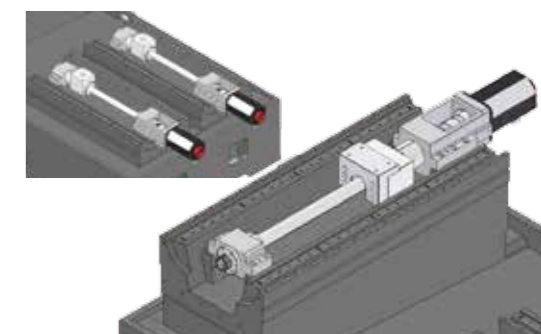
The spindle head design places the center of gravity at the rear portion to help balancing the whole spindle mechanism to increase spindle accuracy and loading capacity.



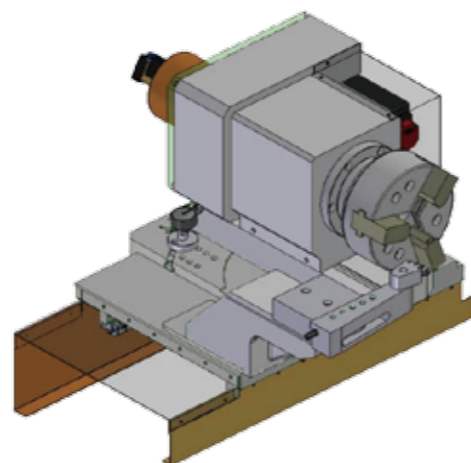
Spindle driven by servo motor offers optimum speed and torque performance.



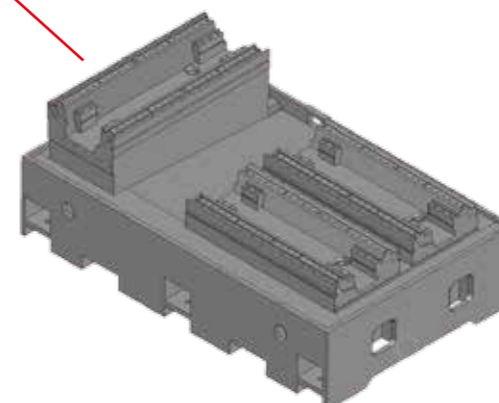
Machine incorporates roller type linear guide ways for X/Z/Y axes for high dynamic rigidity and better loading capacity. This drastically increases the grinding accuracy



C1 grade precision ball screw with large leading pitch is used to achieve high accuracy.



X axis lower slide design offers easy adjustment of the workhead for grinding parts with different lengths.



Low-gravity base structure, with slant bed design for better coolant draining and grinding swarf removal.

5 Supertec iGrind Graphic Conversational Screen

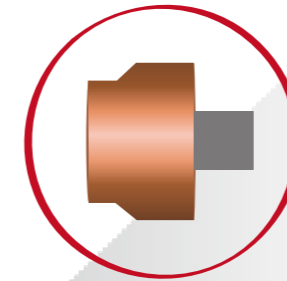
- Operation set-up through simple graphic display icons for easy learning progress.

Labels in the screenshot:

- Edit/Execute
- File Management
- Z axis GW Option
- Y axis GW Option
- Machine Positioning & Situation Display
- Sequence Setting: Select GW options & grinding modes
- Former Page
- Grinding Mode Selection
- Intelligence Sequence Selection
- Axial Compensation Selection

- Grinding mode selection

ID - Straight feed	ID- End-face	ID- Taper	ID- Reverse Grooving	ID- Retract After Grinding
OD- Straight feed	OD- End-face	OD- Taper	OD- Reverse Grooving	OD- Retract After Grinding



Type	K	Z	R/C
1	FINC	20.0000	0.0000
2	FINC	20.0000	10.0000
3	FINC	10.0000	10.0000
4	FINC	10.0000	10.0000
5	A(CD)INC	-4.0000	4.0000
6	FINC	0.0000	12.0000
7			
8			
9			
10			

Grinding Wheel Dressing

With the iGrind high speed box type dressing function, the operator just have to input the necessary parameters for the dresser and the geometric data of the profile to create the optimal dressing path. Thus, it drastically reduces the wheel dressing time.



Sequence setting: Select grinding wheel options and grinding modes

Convenient and quick wheel dressing point setting

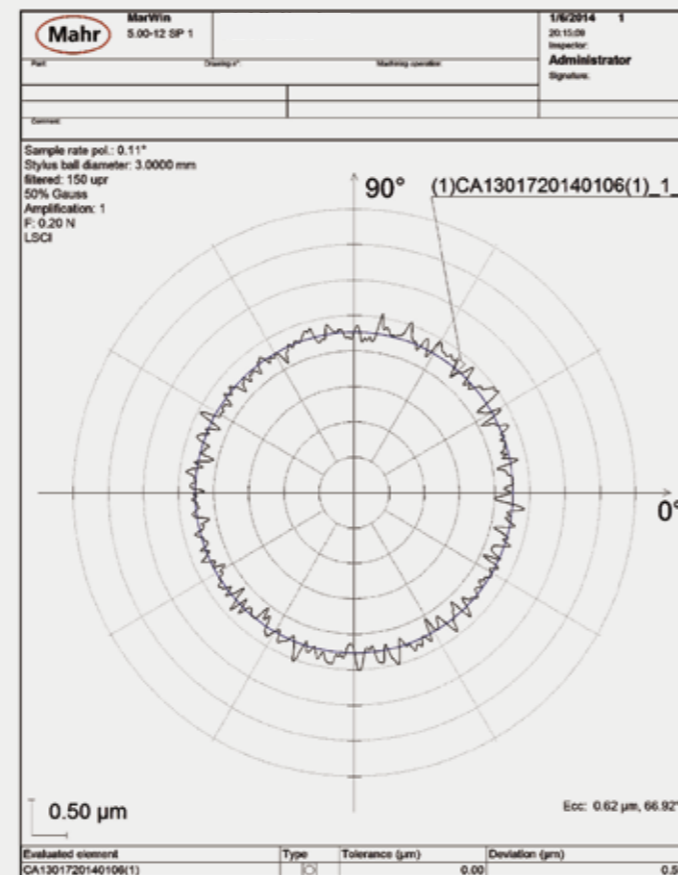
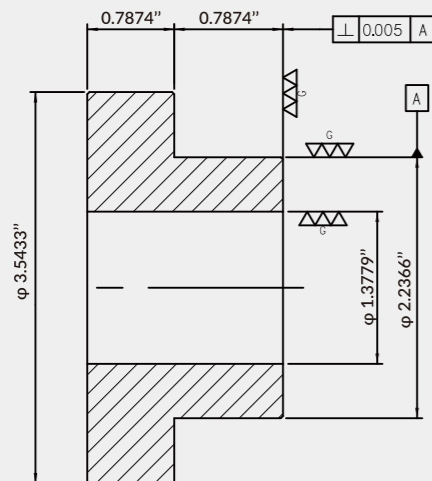
7 Grinding Example



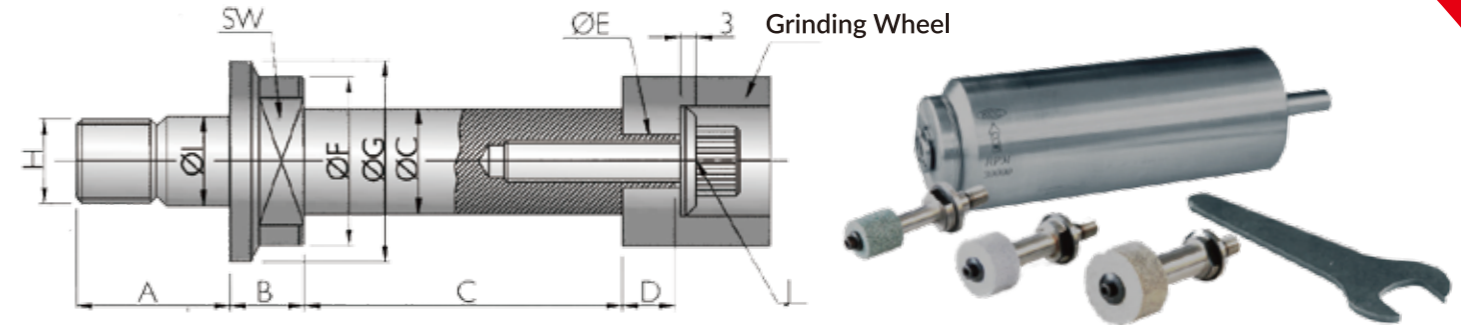
ID auto. gauging device

Parts Name:

- Material : SCM415(JIS)
- Workpiece dimension : $\phi 90 \times 45 \times \phi 35 \text{mm}$
- Grinding application : 0.01"/60 sec.
- Hardness : HRC55 $\pm 2^\circ$
- Dimension tolerance : 0.0002"
- Grinding wheel speed : 20,000 rpm
- Roundness : 2um
- Cylindricity : 3um



Grinding wheel spindle specification



Suitable Inner Diameter	Grease Type	A	B	C	D	E	F	G	H	I	J	SW	Oil Mist Type	Suitable Inner Diameter
$\phi 2.5'' \sim \phi 5.9''$	8,000rpm	1.65"	0.62"	$\phi 1.57'' \times 3.94''$ $\phi 1.57'' \times 3.35''$ $\phi 1.57'' \times 2.17''$	0.47"	$\phi 0.47''$	$\phi 1.96''$	$\phi 2.28''$	M26x2P	$\phi 1.1023''$	M8x1.25P	1.6"	-	-
$\phi 1.3'' \sim \phi 2.7''$	15,000rpm	1.14"	0.55"	$\phi 1.18'' \times 3.54''$ $\phi 0.98'' \times 2.76''$ $\phi 0.79'' \times 1.97''$	0.39"	$\phi 0.39''$	$\phi 1.25''$	$\phi 1.49''$	M16x1.5P	$\phi 0.6692''$	M8x1.25P	0.94"	-	-
$\phi 0.9'' \sim \phi 1.5''$	20,000rpm	1.1"	0.43"	$\phi 0.94'' \times 3.15''$ $\phi 0.79'' \times 2.36''$ $\phi 0.63'' \times 1.57''$	0.31"	$\phi 0.31''$	$\phi 1.02''$	$\phi 1.25''$	M14x1.5P	$\phi 0.5905''$	M6x1.0P	0.74"	3000rpm	$\phi 0.59'' \sim \phi 0.984''$
$\phi 0.5'' \sim \phi 0.98''$	30,000rpm	0.82"	0.35"	$\phi 0.63'' \times 1.18''$ $\phi 0.51'' \times 1.18''$ $\phi 0.39'' \times 0.98''$	0.23"	$\phi 0.23''$	$\phi 0.82''$	$\phi 1.02''$	M10x1.5P	$\phi 0.4133''$	M4x0.7P	0.67"	4000rpm	$\phi 0.472'' \sim \phi 0.629''$
$\phi 0.47'' \sim \phi 0.6''$	40,000rpm	0.78"	0.31"	$\phi 0.47'' \times 1.38''$ $\phi 0.39'' \times 1.18''$ $\phi 0.39'' \times 0.98''$	X	X	$\phi 0.7''$	$\phi 0.9''$	M8x1.25P	$\phi 0.3346''$	M4x0.7P	0.55"	5000rpm	$\phi 0.354'' \sim \phi 0.511''$
$\phi 0.35'' \sim \phi 0.5''$	50,000rpm	0.7"	0.27"	$\phi 0.31'' \times 1.18''$ $\phi 0.28'' \times 0.98''$ $\phi 0.24'' \times 0.79''$	X	X	$\phi 0.59''$	$\phi 0.78''$	M7x1P	$\phi 0.2952''$	M4x0.7P	0.43"	6000rpm	$\phi 0.236'' \sim \phi 0.393''$

Standard Accessories:

- Control system: Mitsubishi M80 or FANUC Oi-TF with 10.4" screen
- Three-direction dresser stand x 1 set, diamond dresser x 3 pcs
- Wheel spindle surface detecting & crash control system (current indicator)
- Grease type grinding wheel spindle: (Select 2 pc from 8,000~50,000RPM)
- Hydraulic 8" 3-jaw chuck (w/ solid roary cylinder)
- MPG handwheel: EGI 2 Axes, EGM 3 Axes control
- X Axis Heidenhain linear scale (resolution 0.05 um)
- Electricity cabinet w/ heat exchanger
- Workhead spindle A2-6 (2.55" thru-hole)
- Automatic lubrication system
- 4-color indication signal light
- Levelling bolts and blocks
- Tools & tool box
- Electrical wiring diagram
- Operation manual & part lists
- Full-enclosed splash guard
- Standard coolant tank 140L
- Electrical lubricator
- LED working light

Optional accessories:

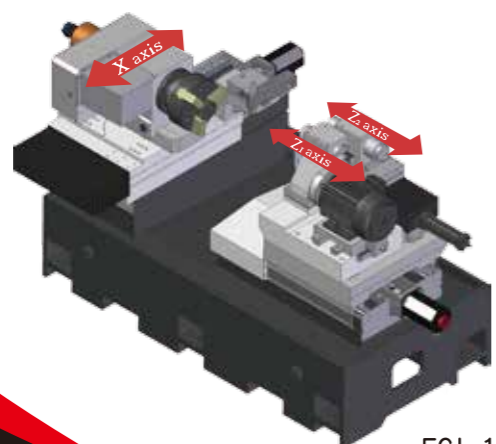
- Mitsubishi controller (M80) dressing program: Radius / Taper / Multiple step / form shape
- Mitsubishi controller (M80) iGrind program
- Coolant system with magnetic separator & paper filter
- Coolant system with magnetic separator
- Coolant system with paper filter
- CE standard electrical cabinet
- Electrical cabinet air conditioner
- Grease type grinding wheel spindle
- Oil mist type grinding wheel spindle
- Safety door lock
- Manual strong type 7" 3-jaw chuck
- Oil & mist collecting system
- Spindle oil mist lubrication system
- ID auto. gauging device
- Diamond roller dressing device
- Dressing sensor system
- Soft-Jaw turning assembly
- B axis linear scale w/ digital readout

Diamond roller dressing device

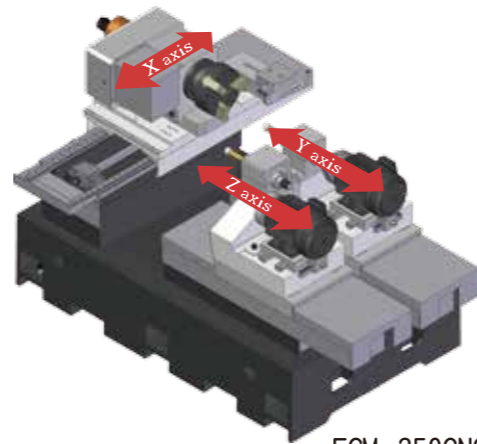


Model		EGI-150 CNC	EGM-350 CNC	
General	Max. grinding ID	φ7.87"	φ15.7"	
	Capacity	Max. grinding OD	φ11.8"	φ15.7"
		Swing over workhead	φ19.6"	φ19.6"
		Max. grinding depth	10.2"	10.2"
	Max. weight of workpiece	Lbs. 110	110	
	Max. length of workpiece	11.8"	11.8"	
	Type of workhead	Single feeding wheelhead	Dual independent wheelhead	
Workhead	3-Jaw chuck	Hydraulic - 8"/10"(opt.)	Hydraulic - 8"/10"(opt.)	
	(X Axis)	Swiveling angle range deg	+15°~ -5°	+15°~ -5°
		Manual travel distance (toward Z axis)	9.8"	9.8"
	Spindle speed rpm	0~1000 (Variable speed)	0~1000 (Variable speed)	
	Servo motor rated power kw	1.8(F)/2.2(M)	1.8(F)/2.2(M)	
Grinding wheelhead	OD grinding wheel size	N/A	N/A	
	(Y Axis) ID grinding wheel size	N/A	φ3.9"	
	Max. spindle speed rpm	N/A	10,000 (std.)	
	Spindle motor/ max. torque Kw/Nm	N/A	3.75Kw / 13Nm	
Grinding wheelhead	OD grinding wheel size	N/A	φ3.9"	
	(Z Axis) ID grinding wheel size	φ3.9"	N/A	
	End-Surface grinding spindle (Opt.Z2)	φ3.1" (CBN)	N/A	
	Max. spindle speed rpm	20,000 (std.)	20,000 (std.)	
X Axis	Spindle motor/ max. torque Kw/Nm	3.75Kw / 13Nm	3.75Kw / 13Nm	
	Travel	12.2"	16.5"	
	Rapid feedrate In/min	314"	314"	
	Heidenhain linear scale resolution	0.000002"	0.000002"	
	Min. increment	0.000010"	0.000010"	
Y Axis	Servo motor rated power Kw	1.8(F)/2.2(M)	1.8(F)/2.2(M)	
	Travel	N/A	13.7"	
	Rapid feedrate In/min	N/A	314"	
	Min. increment	N/A	0.000010"	
Z Axis	Servo motor rated power Kw	N/A	1.8(F)/2.2(M)	
	Travel	13.7"	13.7"	
	Rapid feedrate In/min	314"	314"	
	Min. increment	0.000010"	0.000010"	
Motor	Servo motor rated power kw	1.8(F)/2.2(M)	1.8(F)/2.2(M)	
	Hydraulic motor Kw	0.75	0.75	
Machine	Coolant pump Kw	0.37+0.18	0.37+0.18	
	Net weight Lbs.	11,203	12,786	
	Gross weight Lbs.	12,125	13,890	
Packing size (L x W x H)		132"x88"x77"	132"x88"x77"	

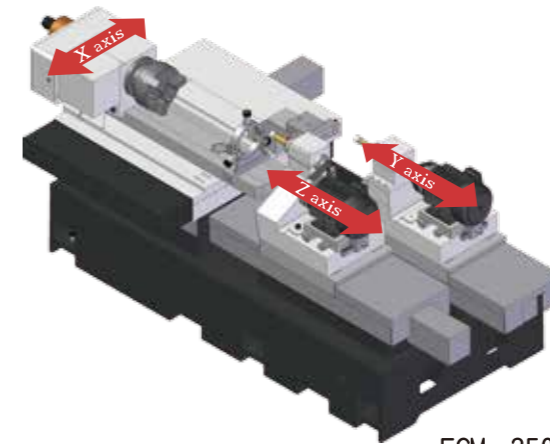
Model		EGM-350L CNC	EGM-450 CNC	
General	Max. grinding ID	φ11.8"	φ15.7"	
	Capacity	Max. grinding OD	φ12.9"	φ15.7"
		Swing over workhead	φ13.3"	φ16.1"
		Max. grinding depth	10.2"	10.2"
	Max. weight of workpiece	Lbs. 661(w/ steady rest)	110	
	Max. length of workpiece	29.5"	11.8"	
	Type of workhead	Dual independent wheelhead	Dual independent wheelhead	
Workhead	3-Jaw chuck	Manual- 8"/10"(opt.)	Hydraulic - 8"/10"(opt.)	
	(X Axis)	Swiveling angle range deg	+15°~ -5°	+15°~ -5°
		Manual travel distance (toward Z axis)	21.6"	9.8"
	Spindle speed rpm	0~1000 (Variable speed)	0~1000 (Variable speed)	
	Servo motor rated power kw	1.8(F)/2.2(M)	1.8(F)/2.2(M)	
Grinding wheelhead	OD grinding wheel size	N/A	φ16"x2"xφ5"	
	(Y Axis) ID grinding wheel size	φ3.9"	N/A	
	Max. spindle speed rpm	10,000 (std.)	1300 (std.)	
	Spindle motor/ max. torque Kw/Nm	3.75Kw / 13Nm	3.75Kw / 26Nm	
Grinding wheelhead	OD grinding wheel size	φ3.9"	N/A	
	(Z Axis) ID grinding wheel size	N/A	φ3.9"	
	End-Surface grinding spindle (Opt.Z2)	N/A	N/A	
	Max. spindle speed rpm	20,000 (std.)	20,000 (std.)	
X Axis	Spindle motor/ max. torque Kw/Nm	3.75Kw / 13Nm	3.75Kw / 13Nm	
	Travel	16.5"	17.7"	
	Rapid feedrate In/min	314"	314"	
	Heidenhain linear scale resolution	0.000002"	0.000002"	
	Min. increment	0.000010"	0.000010"	
Y Axis	Servo motor rated power Kw	2.5(F)/3.0 (M)	1.8(F)/2.2(M)	
	Travel	13.7"	13.7"	
	Rapid feedrate In/min	314"	314"	
	Min. increment	0.000010"	0.000010"	
Z Axis	Servo motor rated power Kw	1.8(F)/2.2(M)	1.8(F)/2.2(M)	
	Travel	13.7"	13.7"	
	Rapid feedrate In/min	314"	314"	
	Min. increment	0.000010"	0.000010"	
Motor	Servo motor rated power kw	1.8(F)/2.2(M)	1.8(F)/2.2(M)	
	Hydraulic motor Kw	0.75	0.75	
Machine	Coolant pump Kw	0.37+0.18	0.37+0.18	
	Net weight Lbs.	14,990	13,890	
	Gross weight Lbs.	16,100	14,990	
Packing size (L x W x H)		157"x88"x77"	132"x88"x77"	



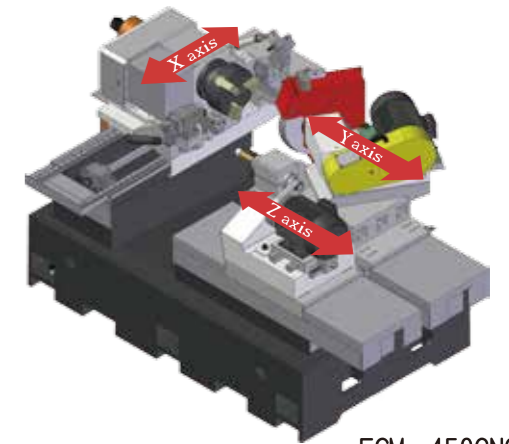
EGI-150CNC



EGM-350CNC



EGM-350L CNC



EGM-450CNC