



# Grinder Professionals

**CENTERLESS GRINDER**

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e-tech Machinery is a world class machine tool builder that strives to produce and service various kinds of grinding machines, with years of experience in the manufacture and assembly of centerless grinders. By utilizing the latest technology in our production, inspection, and quality control processes, along with strong R&D and application departments, Our products are well received by our worldwide customer base. Not only do we offer our products to well known machine tool companies under OEM and ODM cooperative agreements, we also offer our products throughout the world under our own e-tech name.

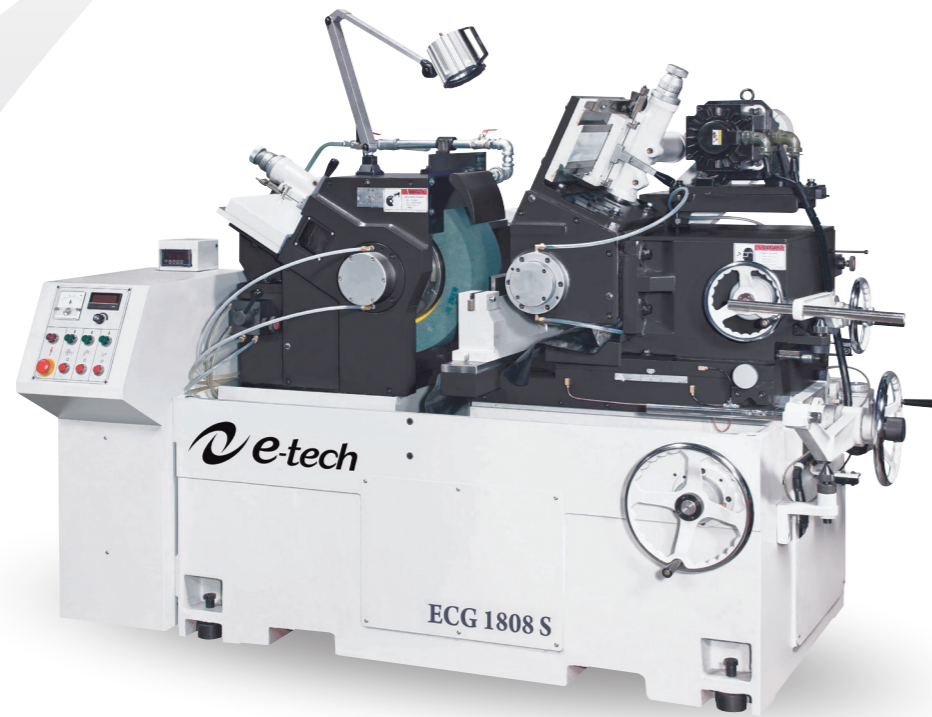
All centerless grinder models feature Meehanite machine base castings for greater rigidity. The double inverted "V" shaped slideways and a servo motor driven transmission on the regulating wheel along with the hydrostatic/hydrodynamic bearing on the grinding wheel spindle combine to provide superior machining accuracy.

e-tech centerless grinders offer a wide range of grinding capabilities, from small lots with a variety of parts to mass production. Optional automatic loading and unloading systems for both infeed and thrufeed, such as vibratory bowl feeders and robotic systems, as well as a hydraulic dresser with automatic compensation can be incorporated into the machine for greater production.

Our application and training team offer total solutions to our customers needs including test work piece evaluation, process analysis, and technical training. We can also offer assistance in the selection of the grinding wheel, proper optional accessories and fixture design.

**e-tech's centerless grinder family offers multiple size models and three operating levels:**

- S: Manual
- NC: Numerical control auto-infeed
- CNC: Computer numerical control



**ECG-1808S**

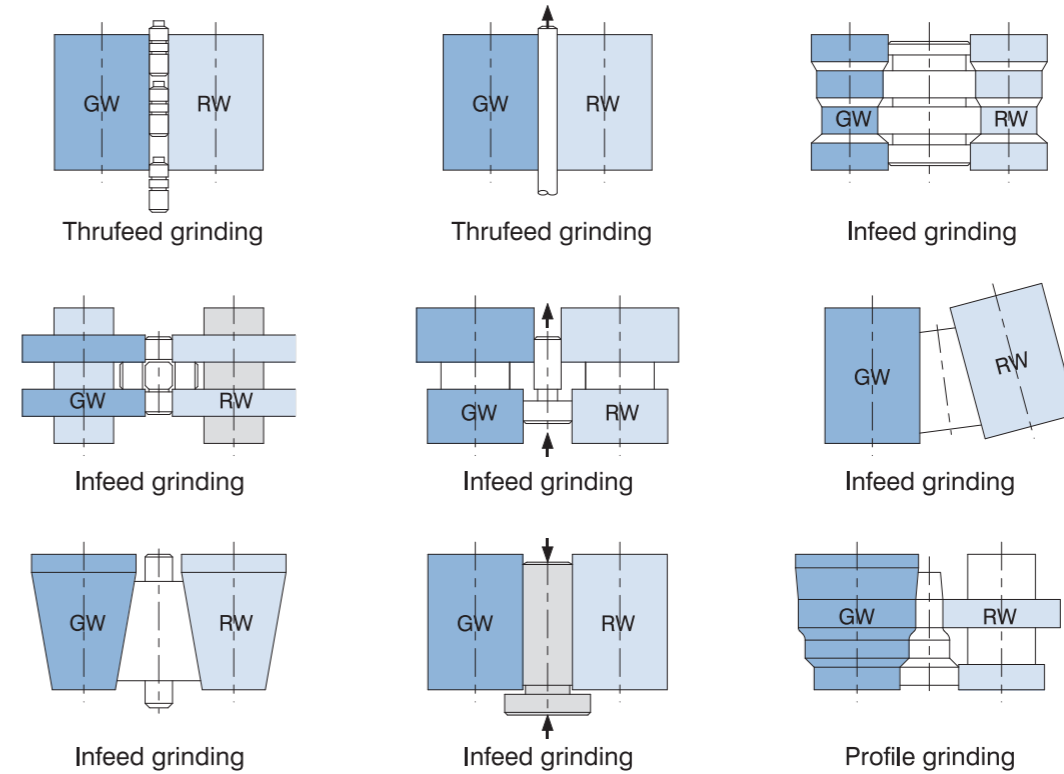
**MACHINE SPECIFICATION**

MODEL	ECG-1206	ECG-1808	ECG-1810	ECG-1812	ECG-2008	ECG-2010	ECG-2012	ECG-2408	ECG-2410	ECG-2412
CAPACITY	Ø1~50	Ø1~100			Ø1~120			Ø1~150		
WHEEL SIZE (D x W x B)	305x150x120	455x205x228.6	455x255x228.6	455x305x228.6	508x205x205	508x255x205	508x305x205	610x205x305	610x255x305	610x305x305
REGULATING WHEEL SIZE (D x W x B)	205x150x90	255x205x111.2	255x255x111.2	255x305x111.2	305x205x127	305x255x127	305x305x127	305x205x127	305x255x127	305x305x127

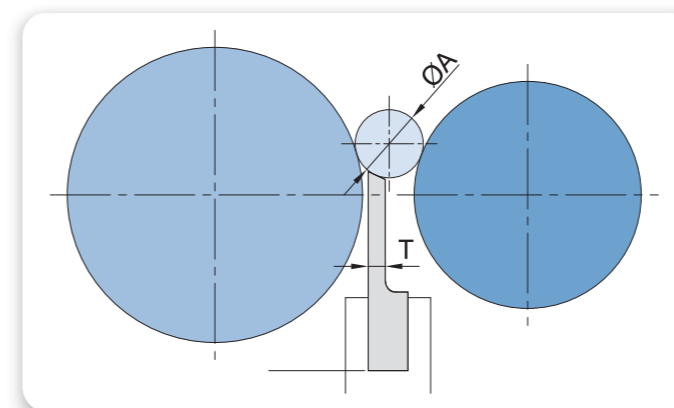
\* Other sizes are available upon request.

Unit : mm

**GRINDING APPLICATIONS**



**BLADE SELECTION**



Due to different working diameters, the guide plate and regulating wheel must be parallel as this influences the grinding accuracy significantly.

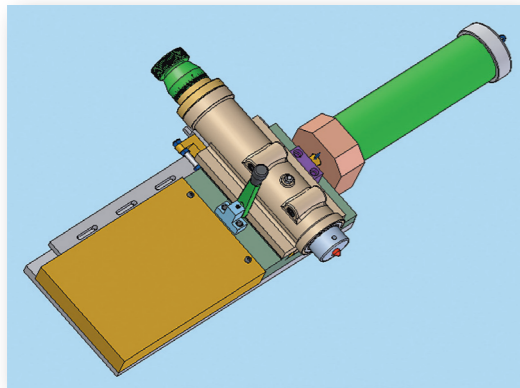
**BLADE SELECTION TABLE**

Dia. Of workpiece (A)	Thickness (T)
Ø1.5~Ø2.5	1
Ø2.6~Ø4	2
Ø4~Ø5	3
Ø5~Ø7	4
Ø7~Ø8	5
Ø8~Ø10	6
Ø10~Ø16	8
Ø12~Ø20	10
Ø15~Ø30	12
Ø25 up	20

Unit : mm

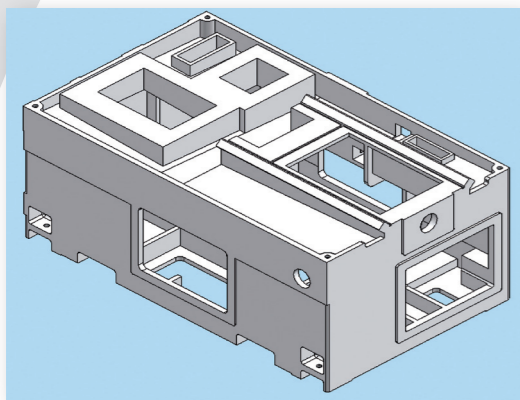


**ECG-1206S**

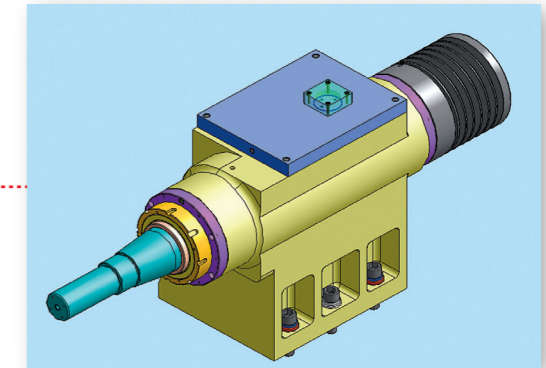
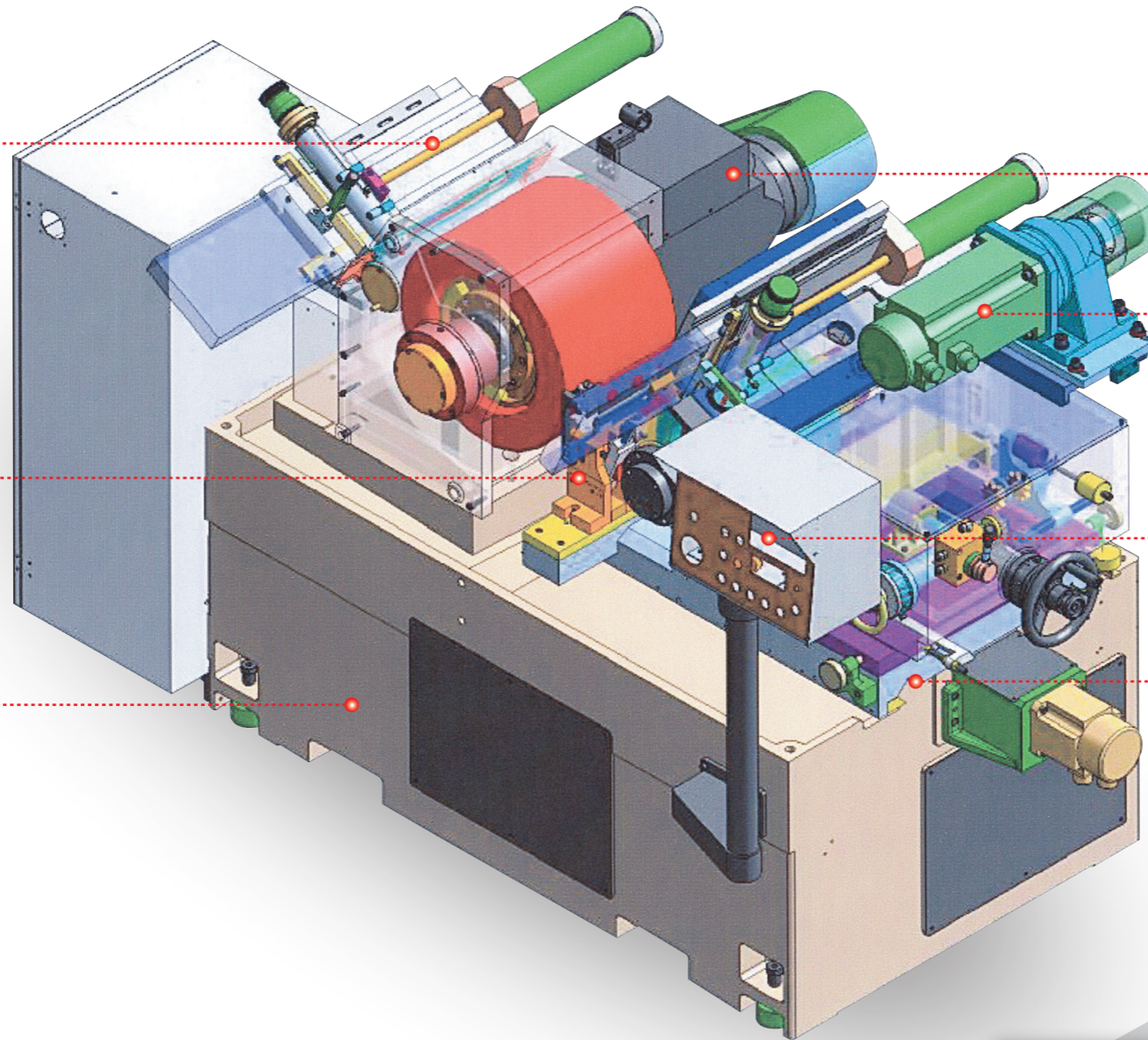


A hydraulic dressing unit on both the grinding and regulating wheels provides better dressing results. Various types of form dressing can be achieved with optional templates. CNC models with two axes servo control and the automatic compensation system can precisely dress forms with complicated shapes.

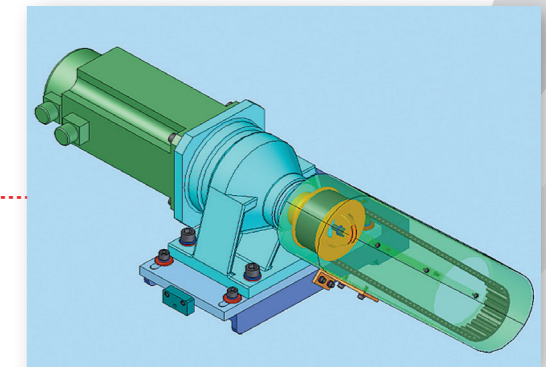
Optional automatic loading & unloading for in-feed and thru-feed can be custom-built to meet your requirements, so the machine can run unattended at a high production rate, while maintaining a tight tolerance.



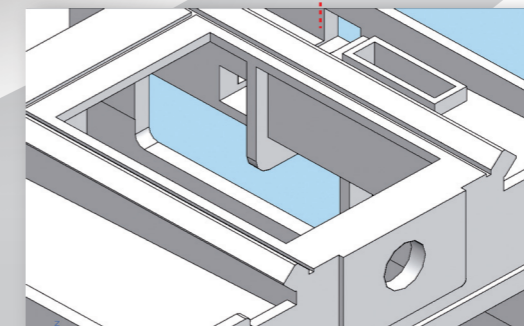
The machine base is made of a Meehanite casting that is designed to reduce vibration. The machine base provides stable support to the grinding wheel and regulating wheel assemblies ensuring a rigid machine foundation for better accuracy.



Both grinding & regulating wheel spindles are made of NI-CR-MO alloy steel, which is normalized, carbonized, hardened, and ground.



The regulating wheel utilizes a servo motor which provides infinitely variable speeds. The speed can be set digitally to reach constant surface speeds even when the diameter of the regulating wheel changes. Consequently, better surface finishes and roundness of the work piece can be achieved. A belt-driven transmission system is also adopted for the regulating wheel for less vibration and noise versus the conventional chain-driven system.

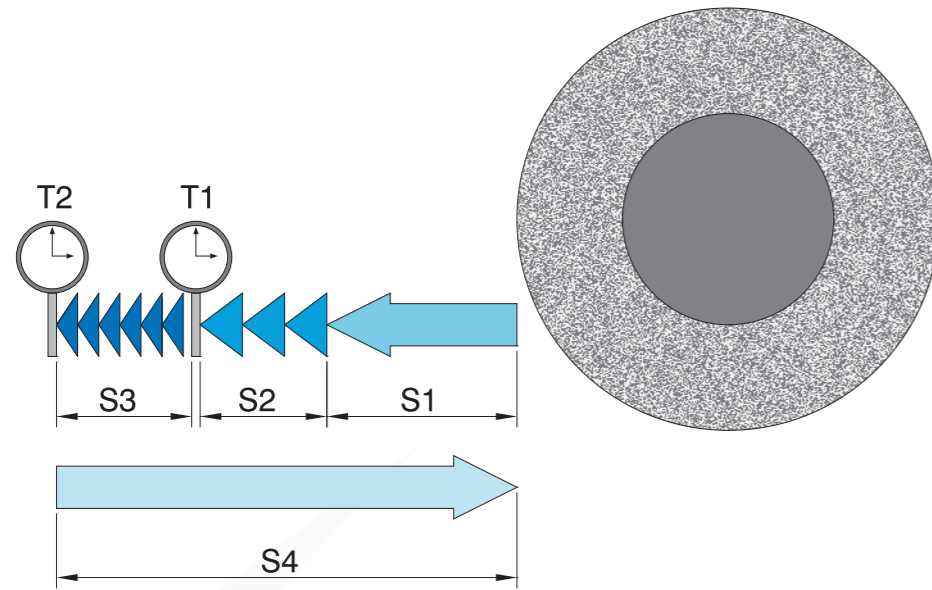


A double inverted "V" slideway with optimum spacing for the regulating wheel assembly provides smooth movement and a stable grinding operation.



Automatic in-feed models (NC) use a PLC touch screen control with easy to learn, easy to run, conversational software. Operators need only choose the grinding cycle mode (single or automatic mode), input grinding data, and press cycle start to complete the in-feed grinding cycle.

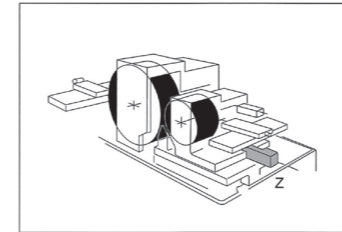
**Auto-infeed grinding cycle**



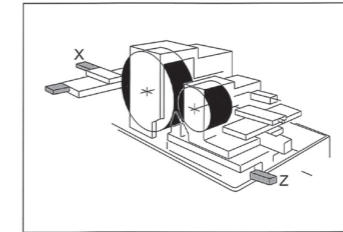
**Cycle sequence :**

- S1:Rapid approach
- S2:Coarse grinding
- T1:Dwell time
- S3:Fine grinding
- T2:Sparkout dwell time
- S4:Rapid retract

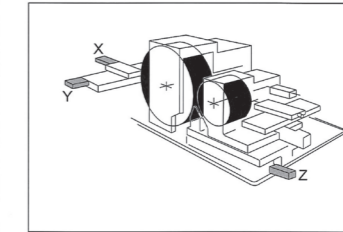
**CNC CONTROL AXIS DIAGRAM**



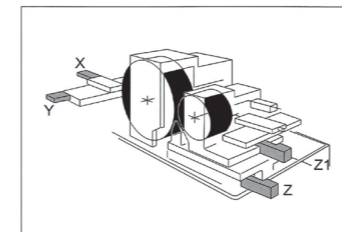
- 1 AXIS**
- Z : Upper or lower slide movement °



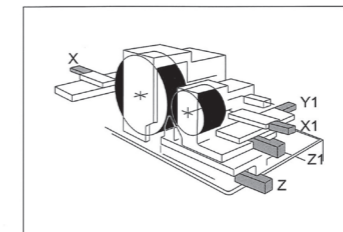
- 2 AXIS**
- X : Grinding wheel dressing °
  - Z : Lower slide movement °



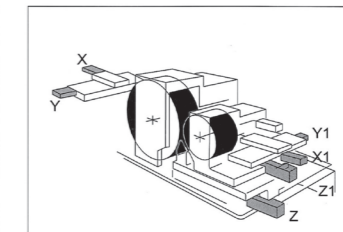
- 3 AXIS**
- X,Y : Grinding wheel dressing with interpolation °
  - Z : Lower slide movement °



- 4 AXIS**
- X,Y : Grinding wheel dressing (Profile Dressing) °
  - Z : Lower slide movement °
  - Z1 : Upper slide movement °



- 5 AXIS**
- X1,Y1 : Grinding wheel dressing with interpolation °
  - X : Grinding wheel dressing °
  - Z : Lower slide movement °
  - Z1 : Upper slide movement °



- 6 AXIS**
- X,Y : Grinding wheel dressing with interpolation °
  - X1,Y1 : Grinding wheel dressing with interpolation °
  - Z : Lower slide movement °
  - Z1 : Upper slide movement °



**Setting screen :**

Fill in the blanks to set total.

POSITION: 0123.567

TOTAL COARSE REMOVAL: \_\_\_\_\_ mm

COARSE FEEDRATE : \_\_\_\_\_ mm/min

DWELLING : \_\_\_\_\_ sec.

TOTAL FINE REMOVAL : \_\_\_\_\_ mm

FINE FEEDRATE : \_\_\_\_\_ mm/min

SPARKOUT : \_\_\_\_\_ sec.

CLEARANCE : \_\_\_\_\_ mm

DWELL TIME : \_\_\_\_\_ sec. **SINGLE CYCLE**

CYCLE TIMER: \_\_\_\_\_ sec.

COUNTER: \_\_\_\_\_ **JOG**



**Alarm display screen :**

Fault diagnosis screen, To assist quick troubleshooting

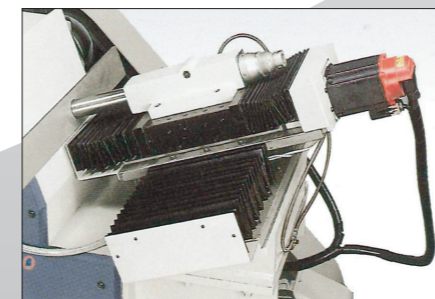
	MOTOR OVERLOAD ALARM
	SERVO ALARM
	OIL PRESSURE SWITCH ALARM
	OVER TRAVEL <b>M02 ERROR RESET</b>
	LUBRICATION PUMP ALARM

**M03 BACK**

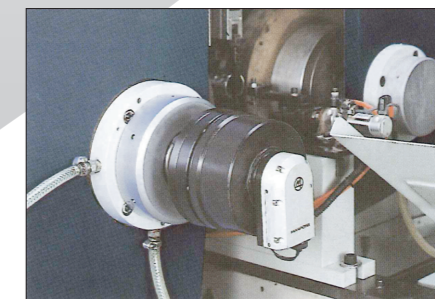


ECG-2410CNC

**CNC OPTIONS**



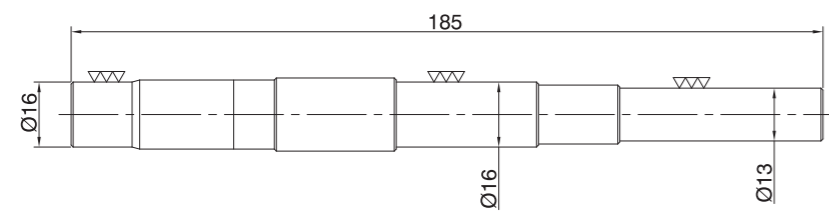
1. 2 Axis Simultaneous CNC Grinding Wheel Dresser



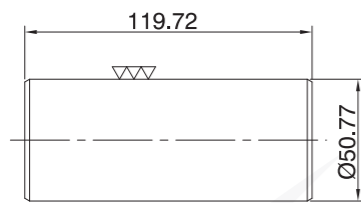
2. Grinding Wheel Auto Balancer



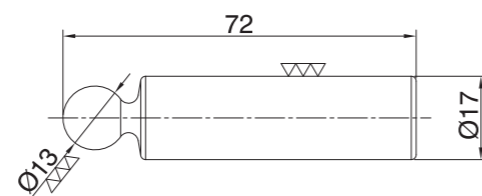
3. Auto Loading & Unloading Attachment for Infeed



Part name: step shaft  
 Infeed grinding with auto-loading/unloading  
 Material : SCM415  
 Removed stock : Max. Ø0.2mm  
 Cycle time : 25 sec ( loading / unloading included)  
 Roundness : 1.5µm



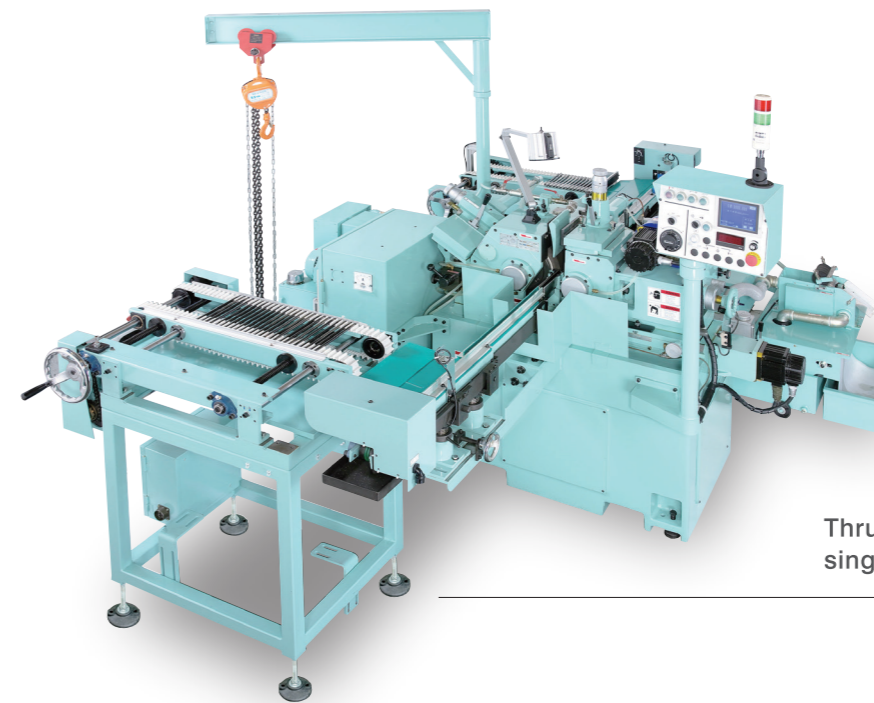
Partname : Piston pin  
 Thrufeed grinding  
 Material : SCr21H  
 Removed stock : Max. Ø0.13  
 Feedrate : 3m/min  
 Roundness : 1.2µm



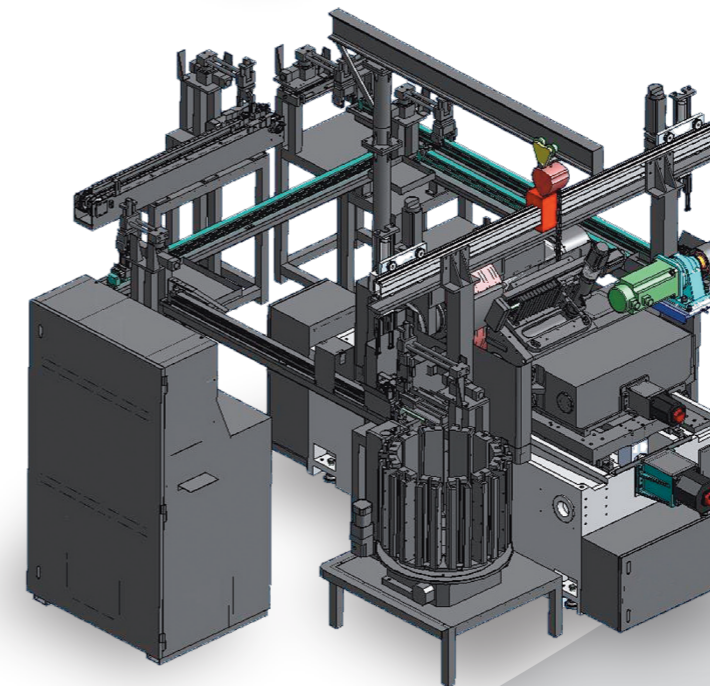
Partname : Ball piston  
 Infeed grinding with auto-loading/unloading  
 Material : SCM415  
 Removed stock : Max. Ø0.3  
 Cycle time : 26 sec ( loading/ unloading included)



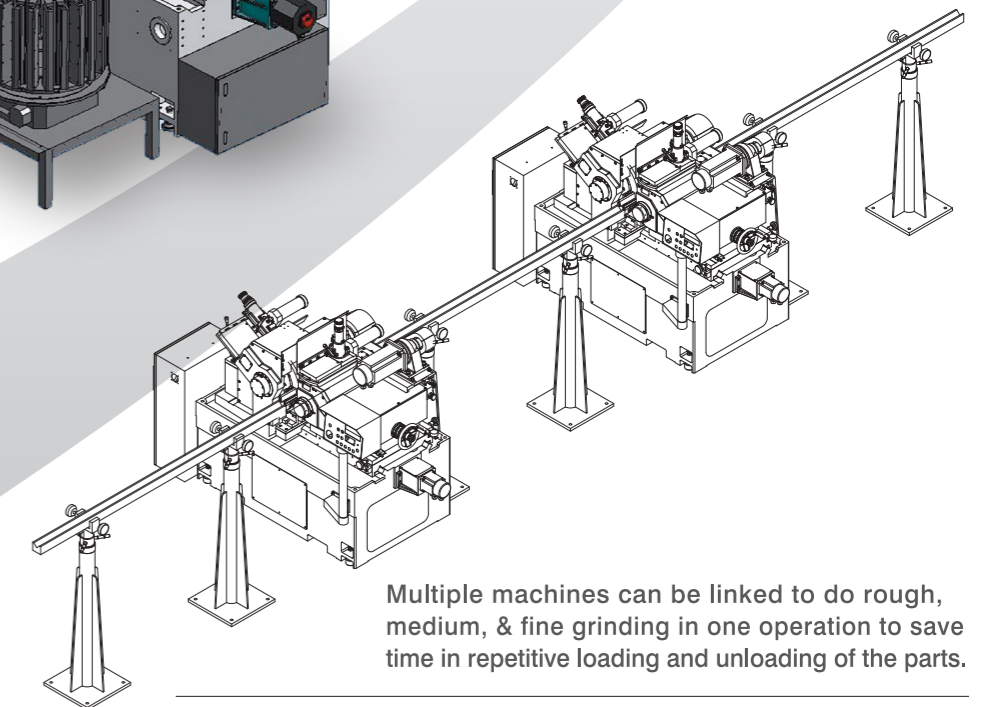
**GRINDING AUTOMATICALLY**



Thru-feed Grinding: Applicable for parts with single diameter, e.g. round tube, shaft, & bars.



In-feed Grinding: Applicable for parts with head, shoulder, & multi-diameters.



Multiple machines can be linked to do rough, medium, & fine grinding in one operation to save time in repetitive loading and unloading of the parts.

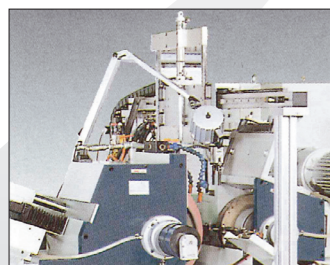
DESCRIPTION
Grinding Wheel with Flange
Regulating Wheel with Flange
Wheel Extractor
Maintenance Tools & Tool Box
Diamond Dresser
Leveling Bolts with Blocks

DESCRIPTION
Thrufeed Blade
Thrufeed Workrest
Operation Manual and Parts List
Automatic Lubrication device ( for Spindle)
Manual Type Oil Pump ( for Slide)
Coolant System

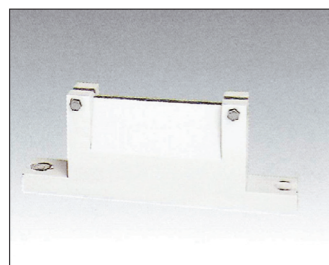
**OPTIONAL ACCESSORIES**

DESCRIPTION	
Infeed Workrest	Auto Loading for Thrufeed
Balancing Stand	Auto Loading / Unloading Attachment for Infeed
Spare Wheel Flange	Electrical Ejector / Air Ejector
Auto Vibration Feeder	Hyd. Auto Infeed Attachment
Input Rail & Output Rail	Outgoing Conveyor & Receiver
Hyd. Forming Attachment	Forming Plate / Arbor / Bar

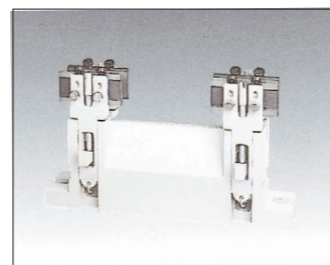
DESCRIPTION
Special Thrufeed Workrest
Infeed Blade (various sizes)
Thrufeed Blade (various sizes)
Coolant System w/Magnetic Separator and Paper Filter
Coolant System w/Magnetic Separator
Coolant System w/Magnetic Paper Filter



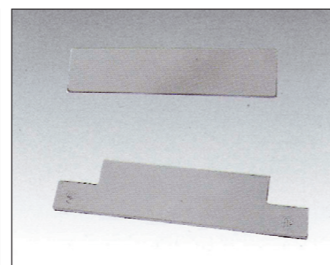
Auto Loading & Unloading Attachment for Infeed



Infeed Workrest



Special Thrufeed Workrest



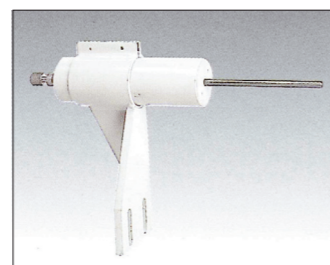
Thrufeed Blade & Infeed Blade (various sizes)



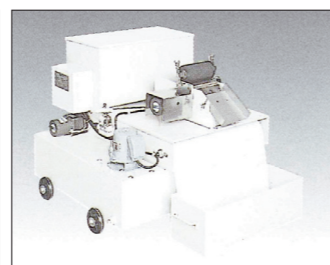
Hydrostatic Bearing Spindle



Input / Output Rail



Electrical Ejector



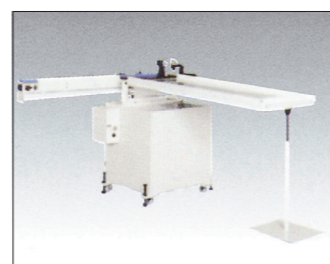
Coolant Sys. w/Magnetic Separator & Paper Filter



Auto Loading for Thrufeed



Auto Vibration Feeder



Outgoing Conveyor & Receiver



Long Thrufeed Guide

**MACHINE SPECIFICATION**

Unit : mm

DESCRIPTION		MODEL	ECG-12	ECG-18/18CNC	ECG-20/20CNC	ECG-24/24CNC	
GRINDING CAPACITY	Work diameter (with standard workrest)		Ø1~30 mm	Ø1~80 mm	Ø1~80 mm	Ø1~80 mm	
	Work diameter (with special workrest)		Ø30~50 mm	Ø80~100 mm	Ø80~120 mm	Ø80~150 mm	
	Auto infeed increment (NC model)		0.001~99.999 mm				
GRINDING WHEEL	Wheel size (OD x Width x ID)		305 x 150 x 120 mm	455 x 205/255/305 x 228.6 mm	508 x 205/255/305 x 304.8 mm	610 x 205~500 x 304.8 mm	
	Spindle speeds		1900 rpm	1520 rpm	1350 rpm	1050 rpm	
	Dressing increment	per graduation		0.02 mm	0.02 mm	0.02 mm	0.02 mm
		per revolution		2 mm	2 mm	2 mm	2 mm
REGULATING WHEEL	Wheel size (OD x Width x ID)		205 x 150 x 90 mm	255 x 205/255/305 x 111.2 mm	305 x 205/255/305 x 127 mm	305 x 205~500 x 127 mm	
	Spindle speeds (10 stepd)		15~310 rpm	13~308 rpm	13~308 rpm	10~250 rpm	
	Handwheel	per graduation		0.04 mm	0.05 mm	0.05 mm	0.05 mm
		per revolution		4 mm	3.5 mm	3.5 mm	3.5 mm
	Micro feeding of handwheel	per graduation		—	0.001 mm	0.001 mm	0.001 mm
		per revolution		—	3.5 mm	3.5 mm	3.5 mm
	Swivelling angle		±5°				
	Inclining angle		+5° ~ -3°				
	Dressing Increment	per graduation		0.02 mm	0.01 mm	0.01 mm	0.01 mm
		per revolution		2 mm	2 mm	2 mm	2 mm
Rapid feeding of saddle handwheel	per graduation		0.02 mm	0.05 mm	0.05 mm	0.05 mm	
	per revolution		7 mm	9 mm	9 mm	9 mm	
Micro feeding of saddle handwheel	per graduation		0.001 mm	0.001 mm	0.001 mm	0.001 mm	
	per revolution		0.2 mm	0.2 mm	0.2 mm	0.2 mm	
MOTORS	Grinding wheel motor		7.5 HP/ 10 HP	15 HP/20 HP	20 HP/25 HP	20 HP/30 HP	
	Hydraulic motor		1HP				
	Infeed servo motor (CII model)		1 kW	1.5 kW	1.5 kW	1.5 kW	
WEIGHT	Net (Approx.)		1800 kg	3300 kg	3400 kg	6100 kg	
	Cross (Approx.)		2200 kg	3600 kg	3700 kg	6600 kg	
PACKING	Length x Width x Height		2260 x 1950 x 1820 mm	2700 x 2240 x 1850 mm	2700 x 2240 x 1850 mm	3060 x 2240 x 2070 mm	

\*Machine outlooks and specifications are subject to change without further notice.