



# *Grinder Professionals*

*Centerless Grinders*

*ECG series*



***e-tech Machinery, Inc.***

No.36, Ln. 686, Sec. 4, Changping Rd., Daya Dist,  
Taichung City 428, Taiwan (R.O.C.)  
Tel:+886-4-2568-6418 Fax:+886-4-2568-6481  
<http://www.etechnachinery.com.tw>  
E-mail:[info@etechnachinery.com.tw](mailto:info@etechnachinery.com.tw)

***e-tech Machinery, Inc.***

6435 Alondra Blvd.  
Paramount, CA 90723  
Tel:562 220-1675 Fax:562 220-1677  
<http://www.etechnachinery.com.tw>  
E-mail:[info@etechnachinery.com.tw](mailto:info@etechnachinery.com.tw)

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, we can insure 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 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-1206S



ECG-1808S

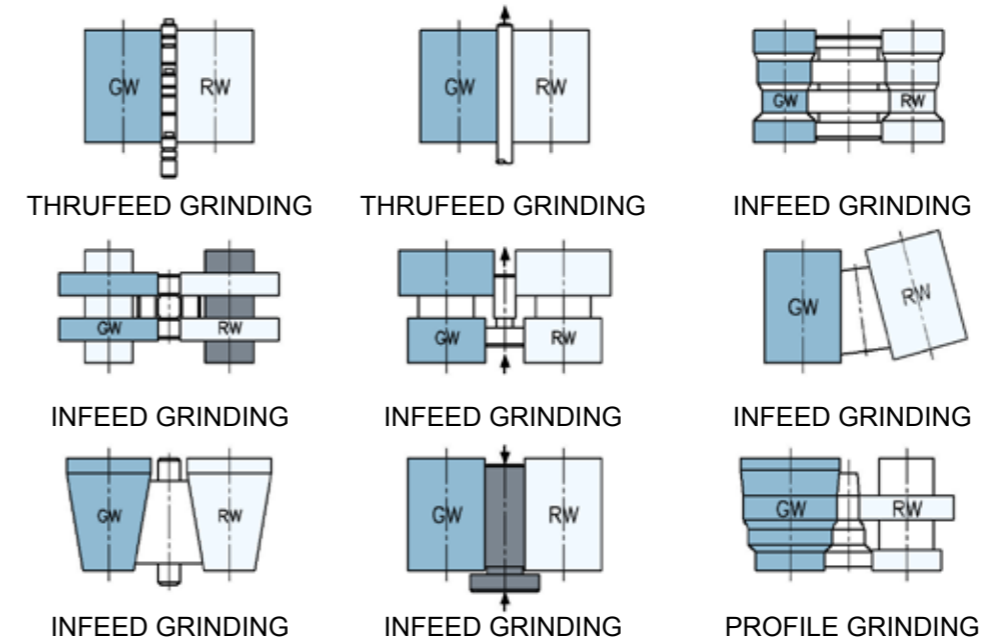
**MACHINE SPECIFICATION**

MODEL	ECG-1206	ECG-1808	ECG-1810	ECG-1812	ECG-2008	ECG-2010	ECG-2408	ECG-2410	ECG-2412	ECG-2420
CAPACITY	Ø1~50	Ø1~100		Ø1~120			Ø1~150			
WHEEL SIZE (DxWxB)	305x150x120	455x205x228.6	455x255x228.6	455x305x228.6	508x205x205	508x255x205	508x305x205	610x205x305	610x255x305	610x305x305
REGULATING WHEEL SIZE (DxWxB)	205x150x90	255x205x111.2	455x255x228.6	455x305x228.6	508x205x205	508x255x205	508x305x205	610x205x305	610x255x305	610x305x305

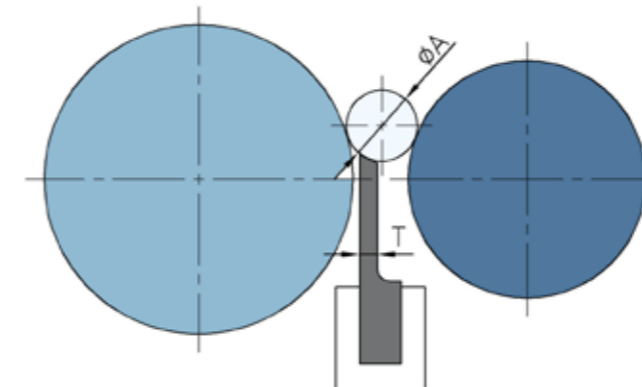
\*Other sizes are available upon request

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
Ø25UP	20

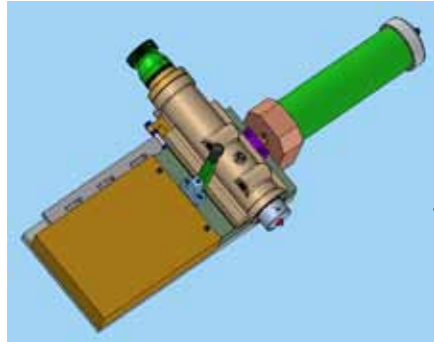
Unit:mm



ECG-1206NC

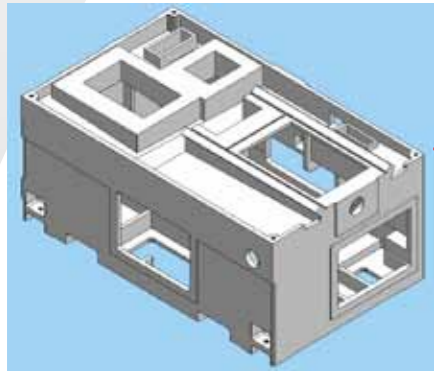


ECG-1808NC

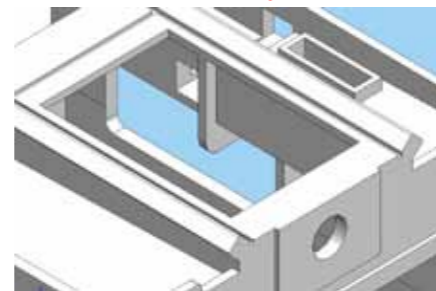


A hydraulic dressing unit on both the grinding and regulating wheel provide better dressing results. Various types of form dressing can be achieved with optional templates. CNC models with two axes servo control and the automatic compensation system can precisely dress complicated forms.

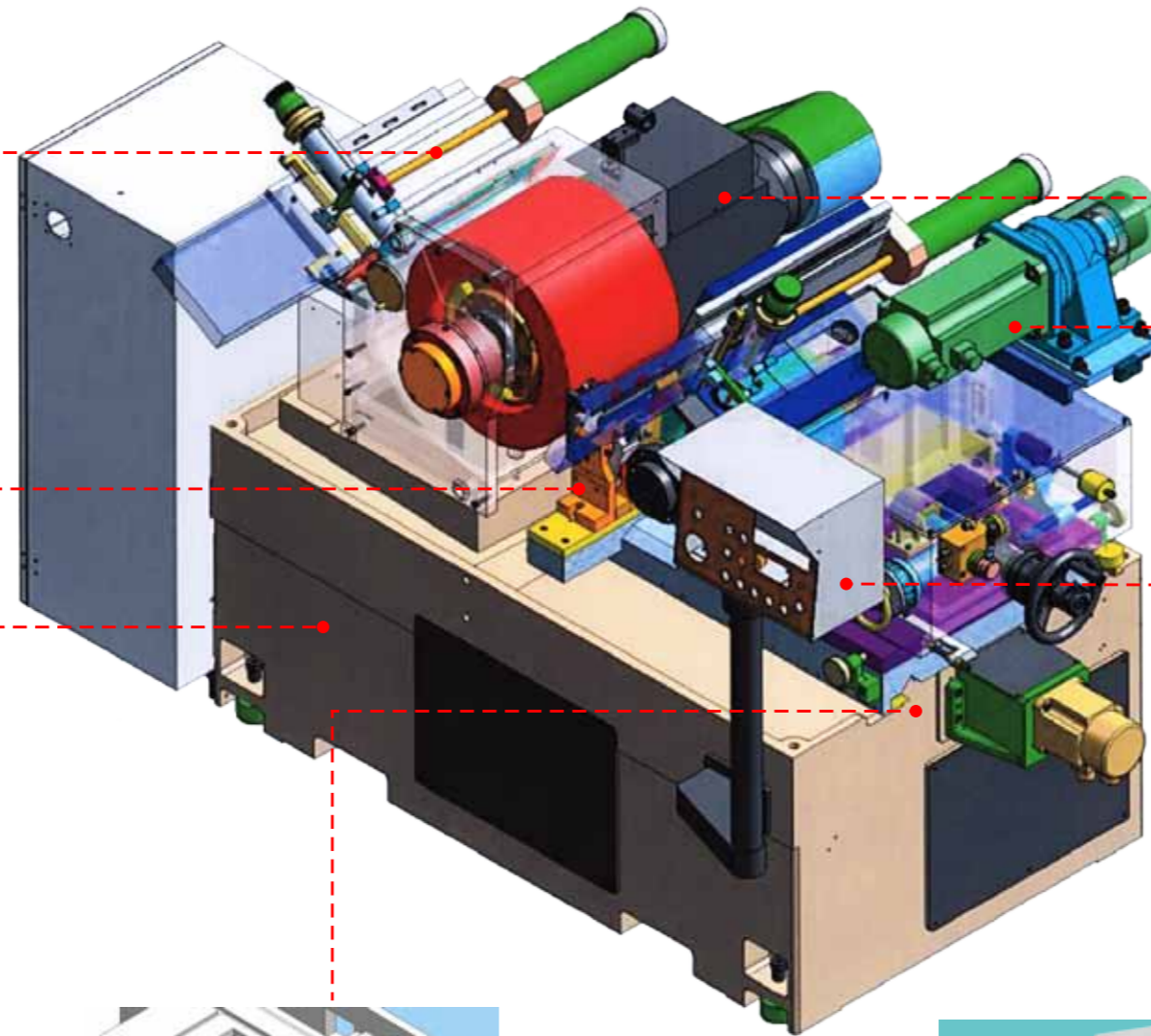
Optional automatic loading and unloading for infeed and thrufeed can be custom built to meet your requirements, so the machine can run unattended at a high production rate, while maintaining a tight tolerance.



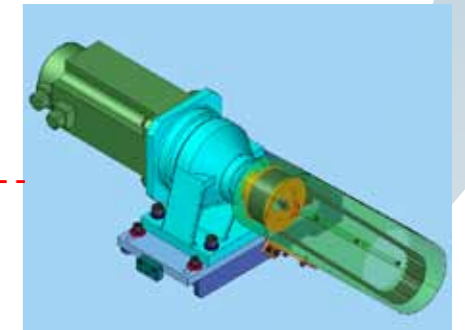
The machine base is made of a Meehanite casting that is designed to reduce vibration. The machine base provides stable support to the grinding wheel and regulating wheel assemblies, ensuring a rigid machine foundation for better accuracy.



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



Both grinding and 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 in contrast to conventional chain-driven system.

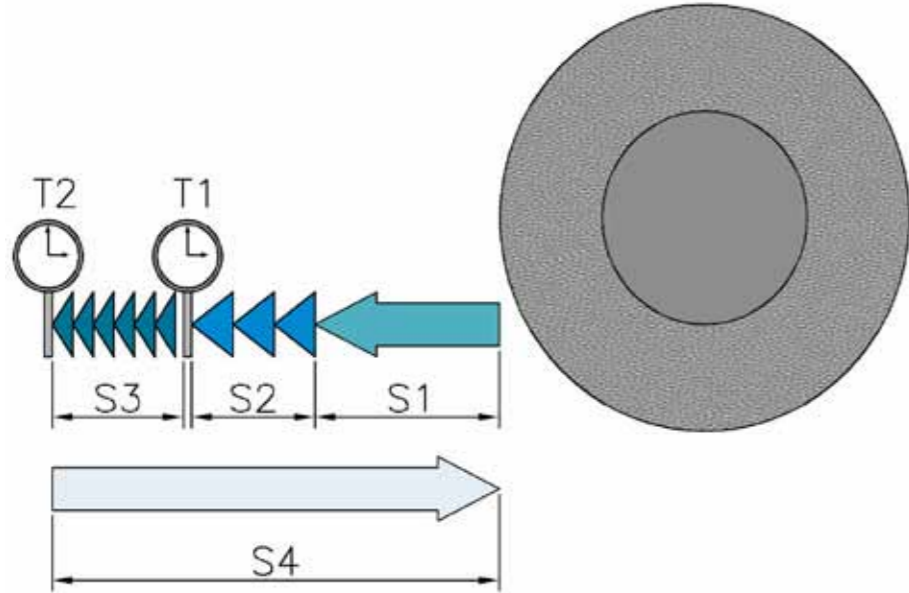


The hydraulic & lubrication system is air cooled to maintain constant oil temperature, and is also separated from the machine to eliminate vibration and dissipate heat.



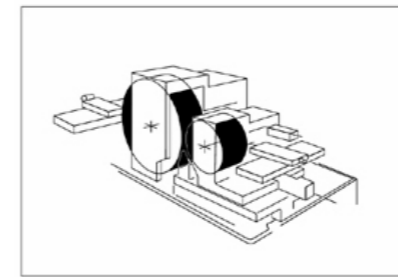
Automatic infeed models (NC) use a PLC touch screen control with easy to learn, easy to run conversational software. Operators need only choose grinding cycle mode (single or auto), input grinding data, and press cycle start to complete the infeed grinding cycle.

**AUTO INFEEED GRINDING CYCLE**

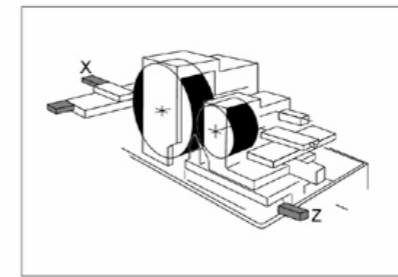


**Cycle sequence:**  
 S1-Rapid approach  
 S2-Coarse grinding  
 T1-Dwell time  
 S3-Fine grinding  
 T2-Sparkout dwell time  
 S4-Rapid retract

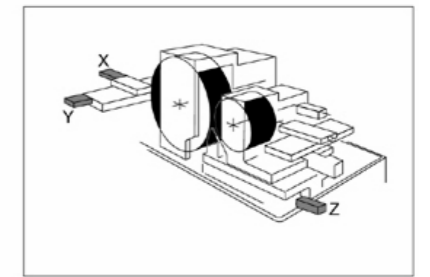
**CNC CONTROL AXIS DIAGRAM**



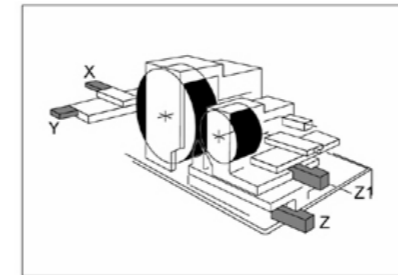
1 AXIS  
Z axis regulating wheel upper or lower slide movement.



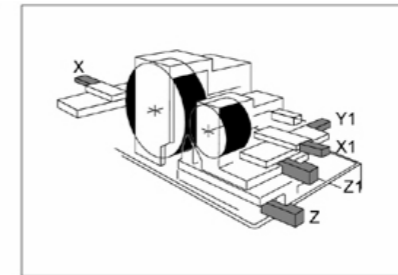
2 AXIS  
X axis grinding wheel dressing.  
Z axis regulating wheel upper or lower slide movement.



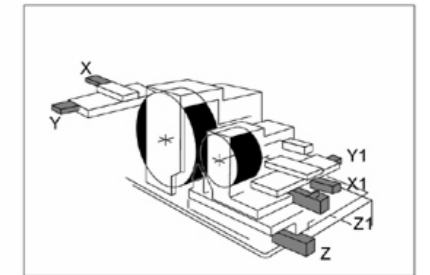
3 AXIS  
X, Y axis grinding wheel dressing w/ interpolation.  
Z axis regulating wheel upper or lower slide movement.



4 AXIS  
X, Y axis grinding wheel dressing (profile dressing).  
Z axis regulating wheel lower slide movement.  
Z1 axis regulating wheel upper slide movement.



5 AXIS  
X1, Y1 axis regulating wheel dressing w/ interpolation.  
X axis grinding wheel dressing.  
Z axis regulating wheel lower slide movement.  
Z1 axis regulating wheel upper slide movement.



6 AXIS  
X, Y axis grinding wheel dressing w/ interpolation.  
X1, Y1 axis regulating wheel dressing w/ interpolation.  
Z axis regulating wheel lower slide movement.  
Z1 axis regulating wheel upper slide movement.

**SETTING SCREEN**

Fill in the blanks with numbers to set grinding cycle.

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**

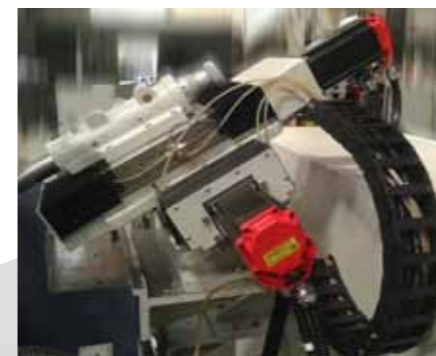
Fault diagnosis screen to assist quick trouble shooting.

	MOTOR OVERLOAD ALARM
	SERVO ALARM
	OIL PRESSURE SWITCH ALARM
	OVER TRAVEL <b>MS2 ERROR RESET</b>
	LUBRICATION PUMP ALARM

**MS3 BACK**



**CNC OPTIONAL ACCESSORIES**



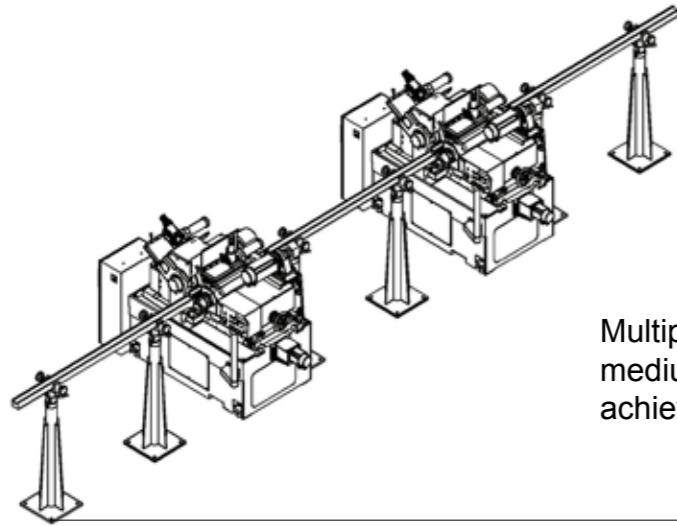
2 axis simultaneous CNC grinding wheel dresser



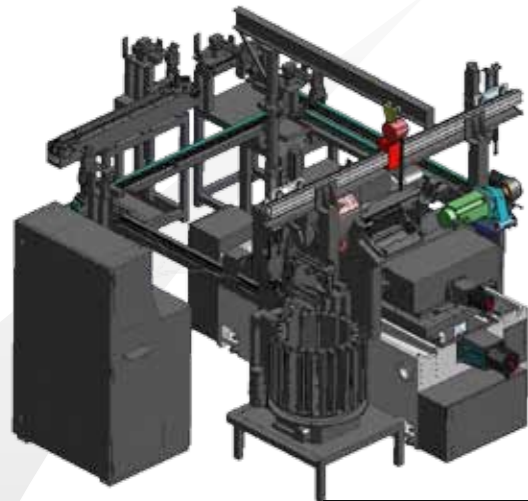
Grinding wheel auto balancer



Auto loading and unloading attachment for infeed



Multiple machines can be linked to do rough, medium and fine grinding in one operation to achieve high efficiency and production.

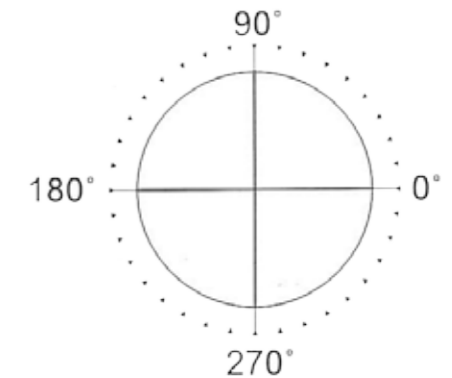
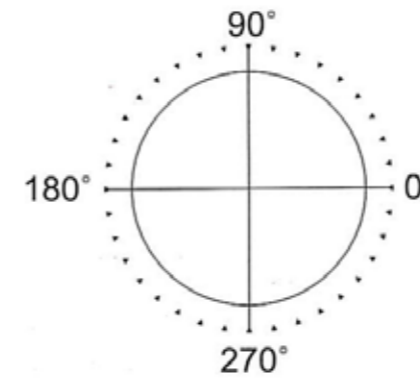


Infeed grinding: Applicable for parts with head, shoulders and multiple diameters.



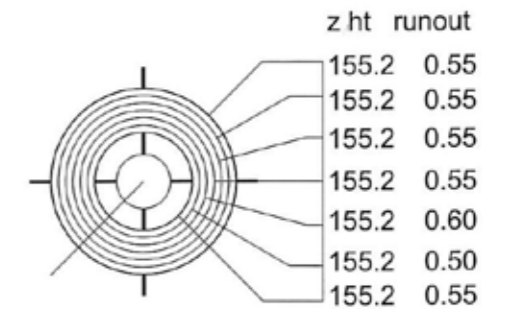
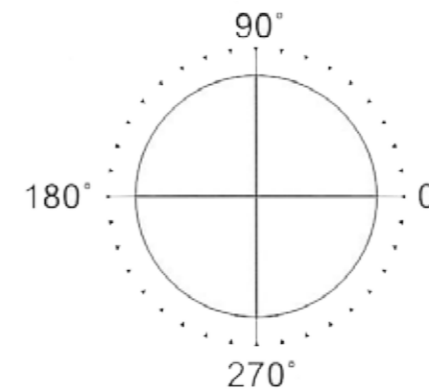
Thrufeed grinding: Applicable for parts with single diameter, e.g. round tubes, shafts and bars.

## LS ROUNDNESS TEST DIAGRAM



LS ROUNDNESS RESULTS		Z HEIGHT	3.63"
FEATURE NAME	TEST	DATU	SPINDLE
FEATURE NO.	00	FILTER TYPE	2CR
R	0.77"	FILTER	1-50upr
O	0.60um	PROFILE	100.0%
E	0.05um	MEAS.MODE	EXTERNAL
L	294.9deg	MEAS.DATE	18-08-1999
↗	0.70um	MEAS.TIME	11:33:55
SCALE	1.00um		

LS ROUNDNESS RESULTS		Z HEIGHT	4.04"
FEATURE NAME	TEST	DATU	SPINDLE
FEATURE NO.	01	FILTER TYPE	2CR
R	0.77"	FILTER	1-50upr
O	0.50um	PROFILE	100.0%
E	0.05um	MEAS.MODE	EXTERNAL
L	290.0deg	MEAS.DATE	18-08-1999
↗	0.65um	MEAS.TIME	11:34:14
SCALE	1.00um		



LS ROUNDNESS RESULTS		Z HEIGHT	4.46"
FEATURE NAME	TEST	DATU	SPINDLE
FEATURE NO.	02	FILTER TYPE	2CR
R	0.77"	FILTER	1-50upr
O	0.55um	PROFILE	100.0%
E	0.05um	MEAS.MODE	EXTERNAL
L	264.5deg	MEAS.DATE	18-08-1999
↗	0.60um	MEAS.TIME	11:33:55
SCALE	1.00um		

LS ROUNDNESS RESULTS		DATUM	SPINDLE
FEATURE NAME	TEST	FILT.TYPE	2CR
↗	0.85um	FILTER	1-50 upr
↘	1.05um	NO.PLANES	7
		PROFILE	100.0%
MAX PAR VAL	0.85um	MEAS.MODE	EXTERNAL
MAX PAR ANG	156.0deg	PHASE	282.9deg
		ANGLE	90.000 deg
SCALE	0.20um	MEAS.DATE	18-08-1999

DESCRIPTION
Grinding wheel with flange
Regulating wheel with flange
Wheel extractor
Maintenance tools and 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

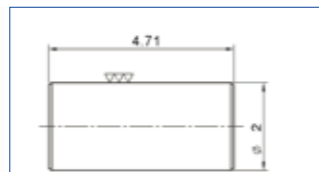
### OPTIONAL ACCESSORIES

DESCRIPTION
Infeed workrest
Balancing stand
Spare wheel flange
Auto vibration feeder
Input/output rail
Hyd. forming attachment

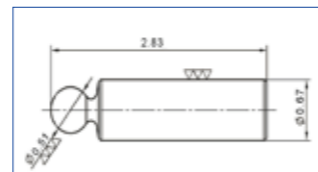
DESCRIPTION
Auto loading for thrufeed
Auto loading/unloading for infeed
Electrical ejector/ Air ejector
Hyd. Auto infeed attachment
Outgoing conveyor and receiver
Forming plate/arbor/bar

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/ paper filter

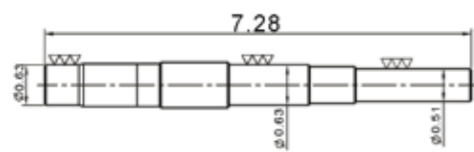
### GRINDING SAMPLE



Part name: Step shaft  
Infeed grinding with auto loading/unloading  
Material: SCM415  
Removed stock: Max.  $\phi 0.2\text{mm}$   
Cycle time: 25 sec (loading/unloading included)  
Roundness:  $1.5\mu\text{m}$



Part name: Piston pin  
Thrufeed grinding  
Material: SCr21H  
Removed stock: Max.  $\phi 0.13\text{mm}$   
Feedrate: 3m/min  
Roundness:  $1.2\mu\text{m}$



Part name: Step shaft  
Infeed grinding with auto loading/unloading  
Material: SCM415  
Removed stock: Max.  $\phi 0.3\text{mm}$   
Cycle time: 26 sec (loading/unloading included)

### MACHINE SPECIFICATION

DESCRIPTION		MODEL	ECG-12	ECG-18/18CNC	ECG-20/20CNC	ECG-24/24CNC	
GRINDING CAPACITY	WORK DIAMETER (W/ STANDARD WORKREST)		$\phi 1-30$	$\phi 1-80$	$\phi 1-80$	$\phi 1-80$	
	WORK DIAMETER (W/ SPECIAL WORKREST)		$\phi 30-50$	$\phi 80-100$	$\phi 80-120$	$\phi 80-150$	
	AUTO INFEEED INCREMENT (NC MODEL)		0.001-99.999				
GRINDING WHEEL	WHEEL SIZE (ODxWIDTHxID)		305x150x120	455x205/255/305x228.6	508x205/255/305x304.8	610x205-500x304.8	
	SPINDLE SPEED		1900RPM	1520RPM	1350RPM	1050RPM	
	DRESSING INCREMENT	PER GRADUATION		0.02	0.02	0.02	0.02
PER REVOLUTION			2	2	2	2	
REGULATING WHEEL	WHEEL SIZE (ODxWIDTHxID)		205x150x90	255x205/255/305x111.2	305x205/255/305x127	305x205-500x127	
	SPINDLE SPEED		15-310RPM	13-308 RPM	13-308 RPM	10-250 RPM	
	HANDWHEEL	PER GRADUATION		0.04	0.05	0.05	0.05
		PER REVOLUTION		4	3.5	3.5	3.5
	MICRO FEEDING OF HANDWHEEL	PER GRADUATION		-	0.001	0.001	0.001
		PER REVOLUTION		-	3.5	3.5	3.5
	SWIVELING ANGLE		$\pm 5^\circ$	$\pm 5^\circ$	$\pm 5^\circ$	$\pm 5^\circ$	
	INCLINING ANGLE		$+5^\circ \sim -3^\circ$	$+5^\circ \sim -3^\circ$	$+5^\circ \sim -3^\circ$	$+5^\circ \sim -3^\circ$	
	DRESSING INCREMENT	PER GRADUATION		0.02	0.01	0.01	0.01
		PER REVOLUTION		2	2	2	2
RAPID FEEDING OF SADDLE HANDWHEEL	PER GRADUATION		0.02	0.05	0.05	0.05	
	PER REVOLUTION		7	9	9	9	
MICRO FEEDING OF SCALE HANDWHEEL	PER GRADUATION		0.001	0.001	0.001	0.001	
	PER REVOLUTION		0.2	0.2	0.2	0.2	
MOTORS	GRINDING WHEEL MOTOR		7.5HP/10HP	15HP/20HP	20HP/25HP	20HP/30HP	
	HYDRAULIC MOTOR		1HP	1HP	1HP	1HP	
	INFEEED SERVO MOTOR (CII MODEL)		1KW	1KW	1KW	1.5KW	
WEIGHT	NET (APPROX.)		1800KG	3300KG	3400KG	6100KG	
	GROSS (APPROX.)		2200KG	3600KG	3700KG	6600KG	
PACKING	LENGTHxWIDTHxHEIGHT		2260x1950x1820	2700x2240x1850	2700x2240x1850	3060x2240x2070	

\*Specifications are subject to change without prior notice.