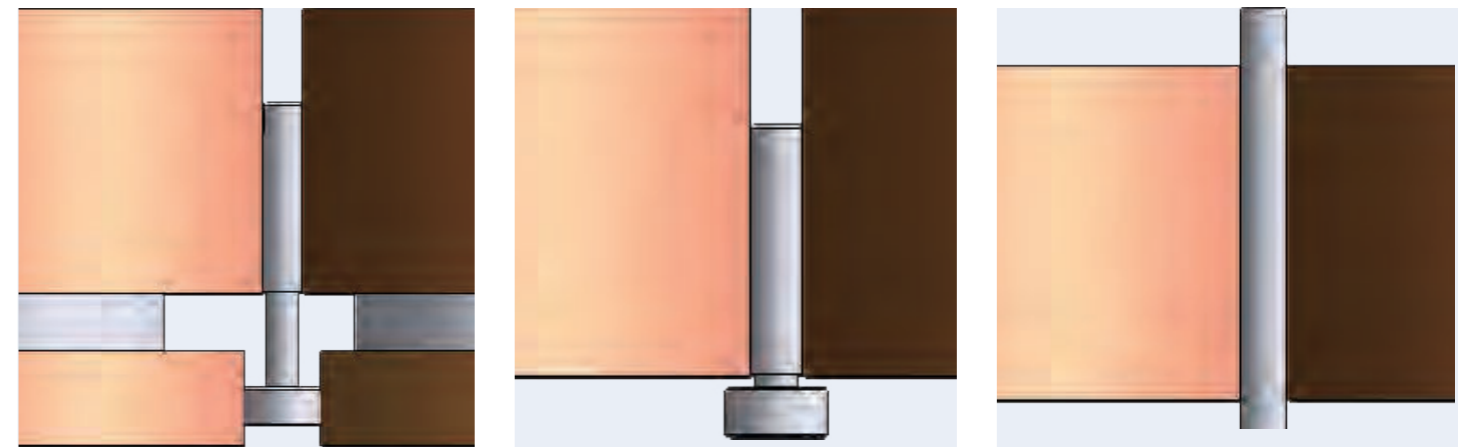


Centerless Grinder

ECG Series



Grinder Professionals

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1 ECG Centerless Grinding Machine

Features

ECG series high precision centerless grinder is different from other competitors, we use spectrum analyzer to precisely analyze the machine base inner ribs and casting thickness for greater rigidity.

We offer hydrodynamic alloy bearing spindle with best rotation accuracy, suitable for heavy duty jobs, and drastically increase the spindle longevity.

CNC Series

For CNC series, it not only covers all the advantages for S & NC series but also enables customers to choose axial numerical control combination.

E-tech CNC series can perform complicated grinding wheel or regulating wheel dressing operation, and automation solutions can be offered as optional accessories which greatly meet customer's demands.



NC Series

With all the advantage of S series, NC series further offers lower slide (Z axis) with servo motor driven design which enables the infeed position located precisely, and the infeed distance can be controlled by numerical value.

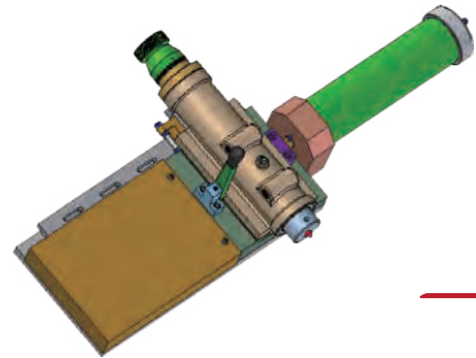
Auto. grinding wheel dressing and compensation system can be equipped as optional accessories and led to easy computer numerical control grinders for operators.



S Series

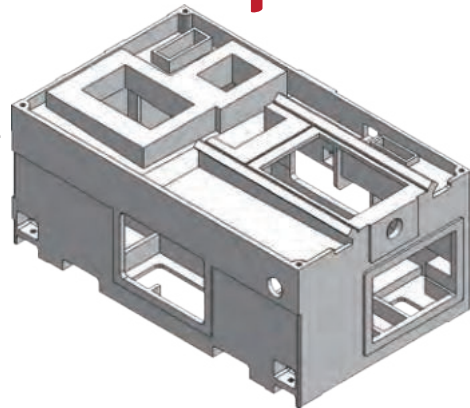
The S series is suitable for various kinds of shafts with thrufeed grinding operation. The servo motor on regulating wheel provides infinitely variable speeds for grinding and dressing speed adjustment, with timing belt transmission system which provides steady speed and torque performance.



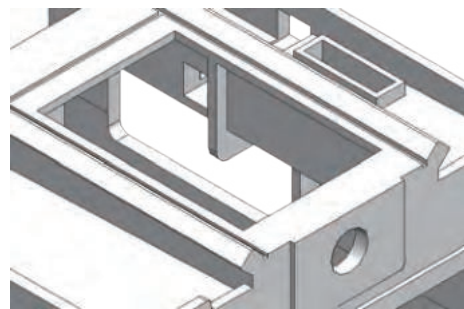


A hydraulic dressing unit on both the grinding and regulating wheels with precisely hand-scraped guide ways provides stable hydraulic movement and the best dressing effects. Various types of form dressing can be achieved with optional templates.

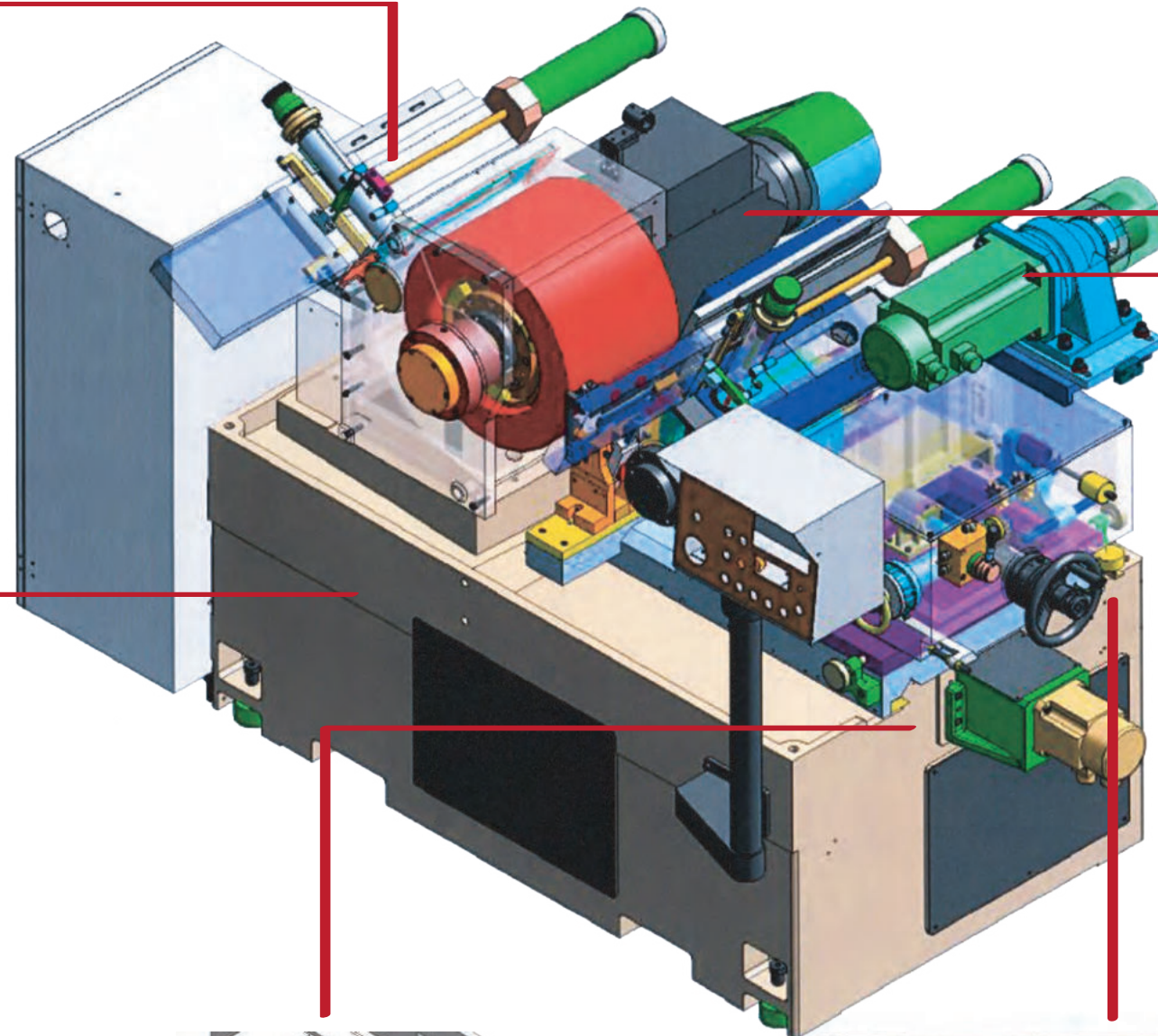
- NC model: optional auto. grinding wheel dressing device enables count dressing, time dressing, or auto dressing and compensation.
- CNC model: with two axes servo control and the automatic compensation system can precisely dress forms with complicated shapes.
- Various workrest design: E-tech developed various kinds of workrest based on different diameter of workpieces, which are easy for operating adjustment.



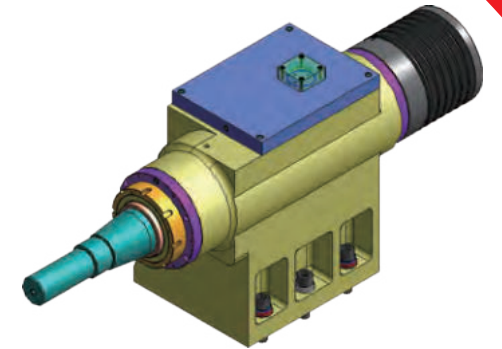
The machine base is made of Meehanite castings designed to reduce vibration. The machine base provides stable support to the grinding wheel and regulating wheel assemblies to ensure a rigid machine foundation and better accuracy.



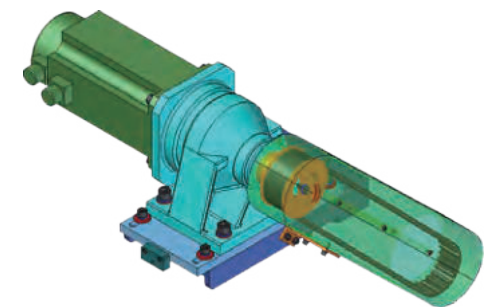
A double inverted "V" slideway with optimum spacing for the regulating wheel assembly provides smooth movement and stable grinding operation.



Automatic infeed models (NC) are equipped with a PLC touch screen control with easy learning conversational software. An infeed grinding cycle can be completed by simply choosing the grinding cycle mode (single or automatic), inputting grinding data and then pressing cycle start.



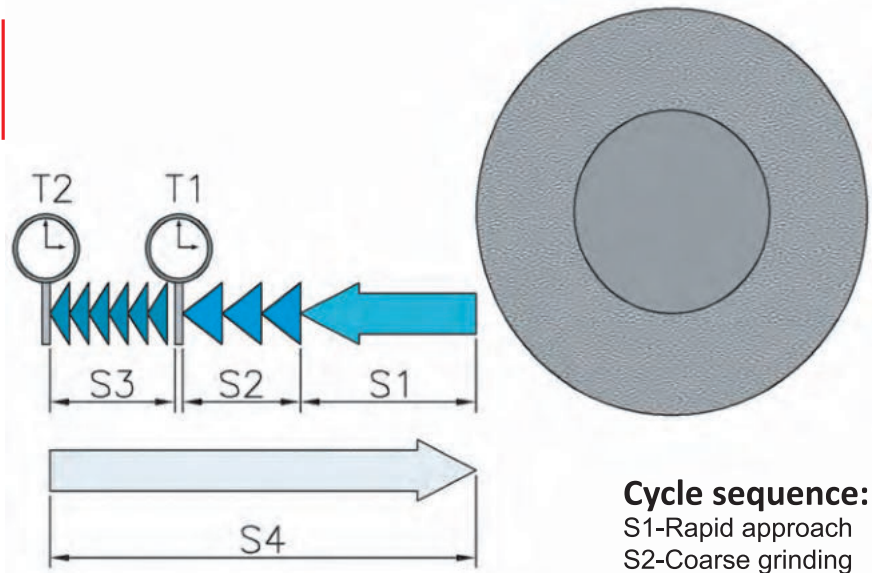
Both grinding & regulating wheel spindles are made of Ni-Cr-Mo alloy steel, which is normalized, carbonized, hardened and grounded.



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 workpiece can be achieved. A belt-driven transmission system is also adopted for the regulating wheel for less vibration and noise compare to traditional chain-driven system.

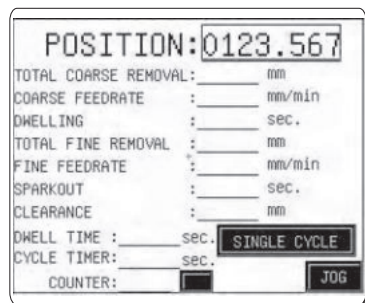
5 LCD Touch Screen Control Technology

Auto-infeed Grinding Cycle

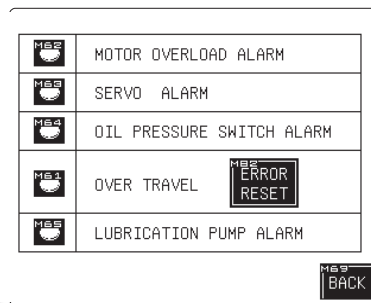


Cycle sequence:
 S1-Rapid approach
 S2-Coarse grinding
 T1-Dwell time
 S3-Fine grinding
 T2-Sparkout dwell time
 S4-Rapid retract

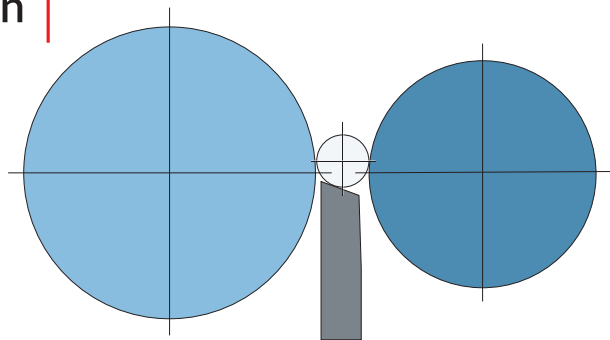
Setting screen :
 Fill in the blanks to set up required data.



Alarm display screen :
 Fault diagnosis function assists



Blade Selection

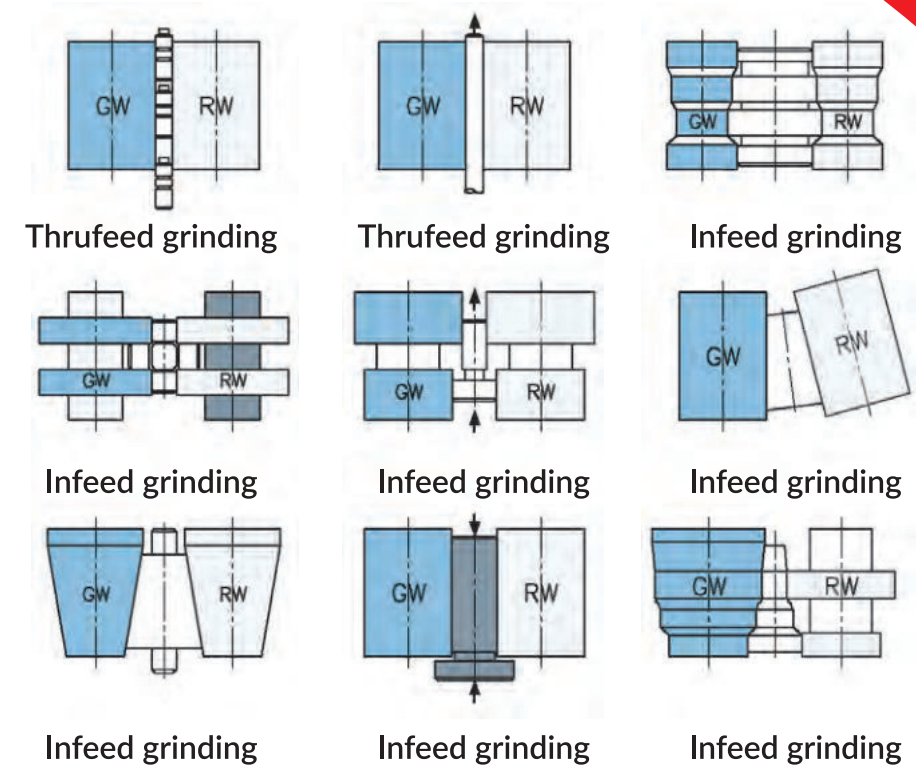


Due to different working diameters, the guide plate and regulating wheel must be parallel as this influences the grinding accuracy significantly.

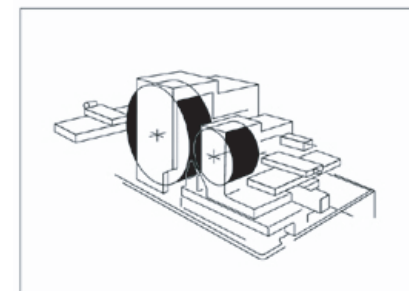
Blade Selection Table

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

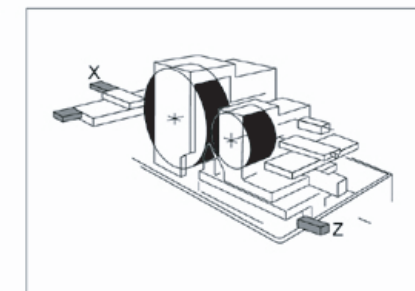
Grinding Applications



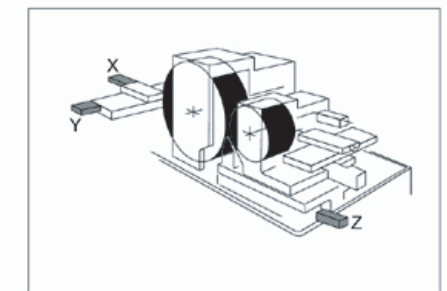
Control Axis Diagram



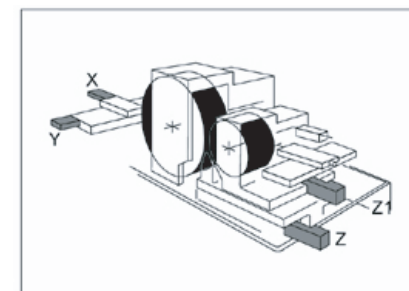
1 Axis
 Z Axis: Upper or lower slide movement



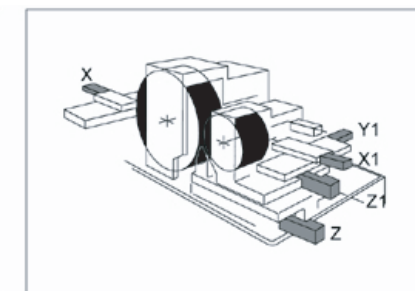
2 Axes
 X Axis: Grinding wheel dressing
 Z Axis: Lower slide movement



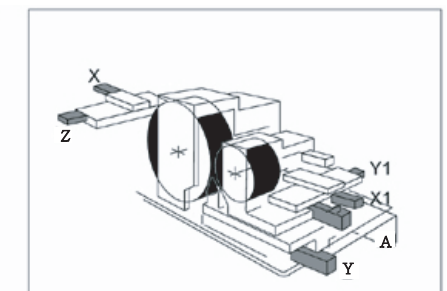
3 Axes
 X, Y Axis: Grinding wheel dressing (Profile dressing)
 Z: Upper or Lower slide movement



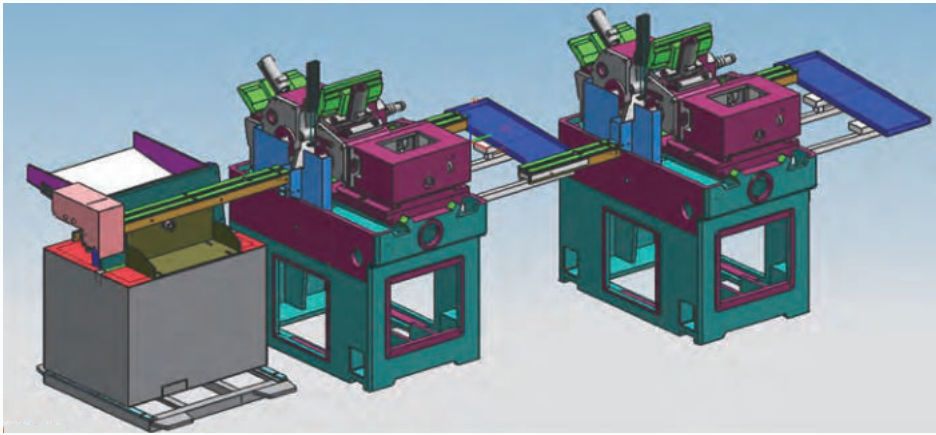
4 Axes
 X, Y Axis: Grinding wheel dressing (Profile dressing)
 Z Axis: Lower slide movement
 Z1 Axis: Upper slide movement



5 Axes
 X1, Y1 Axis: Grinding wheel dressing (Profile dressing)
 X1, Y1 Axis: Regulating wheel dressing (Profile dressing)
 Z Axis: Lower slide movement
 Z1 Axis: Upper slide movement



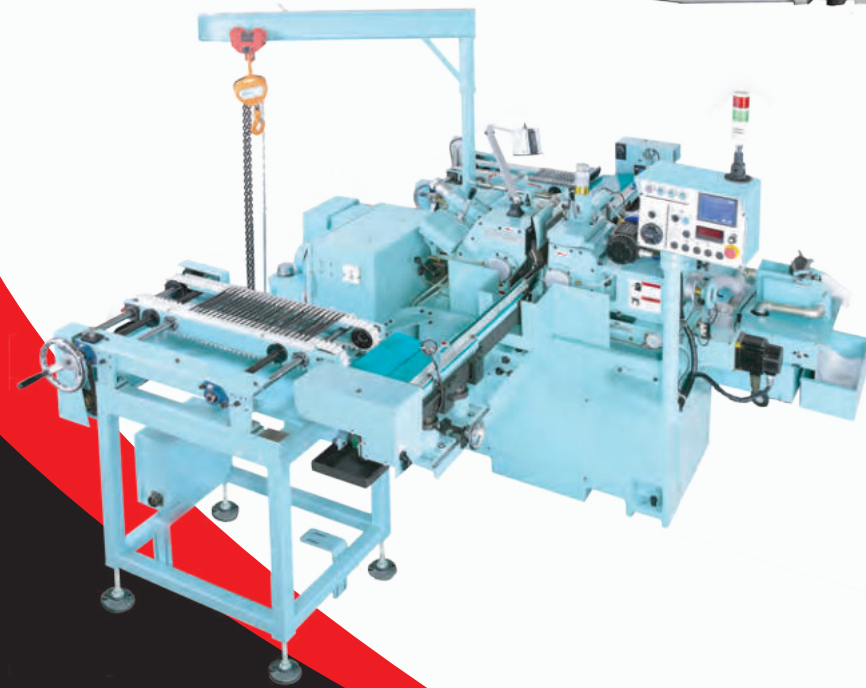
6 Axes
 X, Y Axis: Grinding wheel dressing (Profile dressing)
 X1, Y1 Axis: Regulating wheel dressing (Profile dressing)
 Z Axis: Lower slide movement
 Z1 Axis: Upper slide movement



- Multiple machines can be linked to do rough, medium and fine grinding in one production line to save time for repetitive loading and unloading procedure.



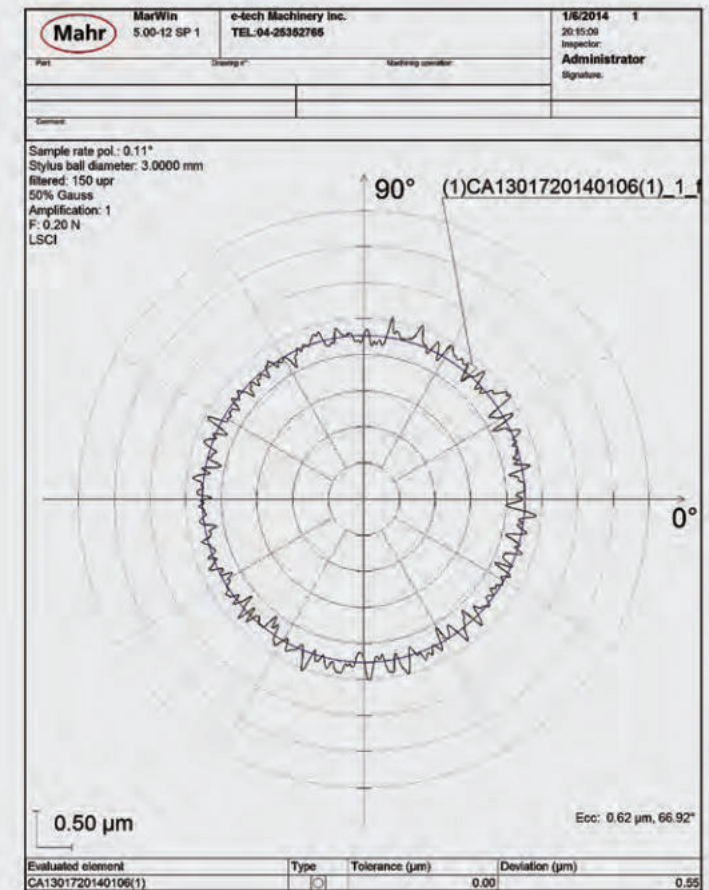
- Infeed Grinding: Applicable for parts with head, shoulder or multi-diameters.



- Thrufeed Grinding: Applicable for parts with single diameter, e.g. round tube, shaft and bars.



- Part name: Step shaft
Infeed grinding + auto-loading/unloading
Material: SCM415
Removed stock: Max. $\varnothing 0.2$ 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. $\varnothing 0.13$ mm
Feedrate: 3m/min
Roundness: $1.2 \mu\text{m}$
- Part name: Ball piston
Infeed grinding + auto-loading/unloading
Material: SCM415
Removed stock: Max. $\varnothing 0.3$ mm
Cycle time: 26 sec
(loading/unloading included)



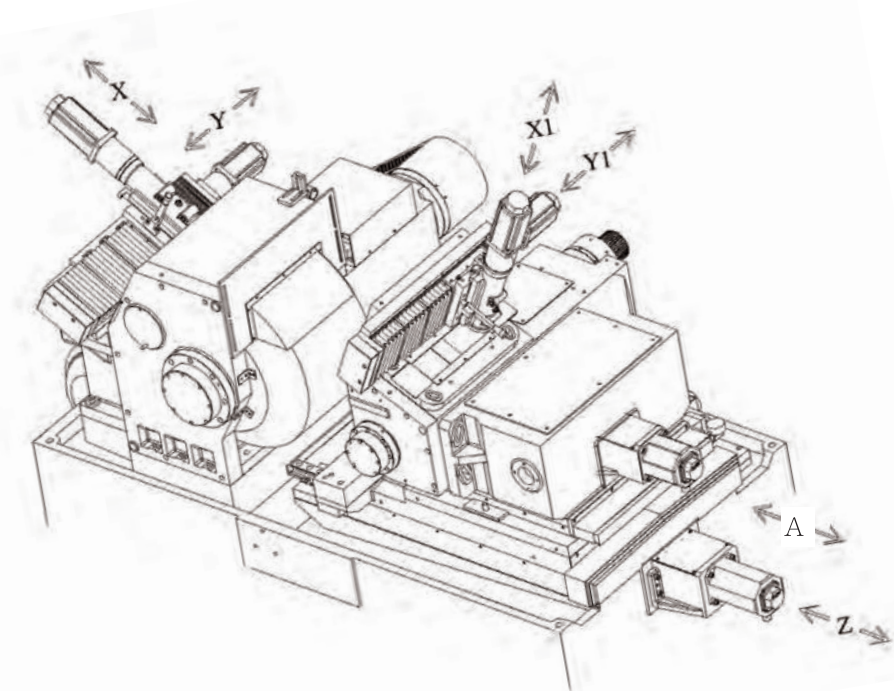
Model			ECG-CNC 1206	ECG-CNC 1808/1810/1812	Model	ECG-CNC 2008/2010/2012		
Grinding	Work diameter (w/standard workrest)	mm	Ø1-30	Ø1-60	Grinding	Work diameter (w/standard workrest)	mm	Ø1-60
Capacity	Work diameter (w/special workrest)	mm	Ø30-50	Ø60-100	Capacity	Work diameter (w/special workrest)	mm	Ø60-120
	Auto infeed min. increment	mm	0.001	0.001		Auto infeed min. increment	mm	0.001
Grinding	Wheel size (OD x Width x ID) 08type	mm	Ø610x205xØ304.8	Ø455x205xØ228.6	Grinding	Wheel size (OD x Width x ID) 08type	mm	Ø510x205xØ304.8
Wheel	Wheel size (OD x Width x ID) 10type	mm	Ø610x255xØ304.8	Ø510x255xØ304.8	Wheel	Wheel size (OD x Width x ID) 10type	mm	Ø510x255xØ304.8
	Wheel size (OD x Width x ID) 12type	mm	Ø610x305xØ304.8	Ø510x305xØ304.8		Wheel size (OD x Width x ID) 12type	mm	Ø510x305xØ304.8
	Motor rated power	kw	15 (Opt. 22.5)	11 (Opt. 15)		Motor rated power	kw	15 (Opt. 18.75)
	Spindle circumferential speed	m/min	2000	2000		Spindle circumferential speed	m/min	2000
	Dressing infeed servo motor (X, opt)	kw	0.4	0.75		Dressing infeed servo motor (X, opt)	kw	0.75
	Dressing traverse servo motor (Y, opt)	kw	0.75	0.75		Dressing traverse servo motor (Y, opt)	kw	0.75
Regulating	Wheel size (OD x Width x ID) 08 type	mm	Ø355x205xØ152.4	Ø255x205xØ111.2	Regulating	Wheel size (OD x Width x ID) 08 type	mm	Ø305x205xØ127
Wheel	Wheel size (OD x Width x ID) 10 type	mm	Ø355x255xØ152.4	Ø255x255xØ111.2	Wheel	Wheel size (OD x Width x ID) 10 type	mm	Ø305x255xØ127
	Wheel size (OD x Width x ID) 12 type	mm	Ø355x305xØ152.4	Ø255x305xØ111.2		Wheel size (OD x Width x ID) 12 type	mm	Ø305x305xØ127
	Regulating wheel motor	kw	2	3		Regulating wheel motor	kw	4
	Spindle speed (infinite variable)	rpm	10-300	10-300		Spindle speed (infinite variable)	rpm	10-300
	Dressing infeed servo motor (X1, opt)	kw	0.4	0.75		Dressing infeed servo motor (X1, opt)	kw	0.75
	Dressing traverse servo motor (Y1, opt)	kw	0.4	0.75		Dressing traverse servo motor (Y1, opt)	kw	0.75
	Lower slide infeed servo motor (Z)	kw	2	3		Lower slide infeed servo motor (Z)	kw	3
	Regulating wheel infeed servo motor (Z1, opt) kW		1	2		Regulating wheel infeed servo motor (Z1, opt) kW		2
	Swivelling angle (L/R)	deg	±5°	±5°		Swivelling angle (L/R)	deg	±5°
	Min. infeed unit	mm	0.001	0.001		Min. infeed unit	mm	0.001
	Inclining angle (F/R)	deg	+5° ~ -3°	+5° ~ -3°		Inclining angle (F/R)	deg	+5° ~ -3°
Motors	Hydraulic motor	kw	0.75	0.75	Motors	Hydraulic motor	kw	0.75
Machine	Net Weight	kg	1660	3200	Machine	Net Weight	kg	3400
	Gross Weight	kg	1750	3350		Gross Weight	kg	3700
	Packing size (Length x Width x Height)	mm	2270x1450x1600	2730x2270x1600		Packing size (Length x Width x Height)	mm	2730x2270x1600



(Six Axes Diagram)

6 Axes Diagram

- X Axis : Grinding wheel dressing
- X1 Axis : Regulating wheel dressing
- Y Axis : Regulating Wheel Lower Slide Infeed
- Y1 Axis : Regulating wheel Traverse Infeed
- Z Axis : Grinding wheel Traverse Infeed
- A Axis : Regulating Wheel Infeed (OPT. Add Axes)



11 Specification : ECG Series NC Type

Model			ECG-NC 1206	ECG-NC 1808/1810/1812	Model	ECG-NC 2008/2010/2012		
Grinding	Work diameter (w/standard workrest)	mm	Ø1-30	Ø1-60	Grinding	Work diameter (w/standard workrest)	mm	Ø1-60
Capacity	Work diameter (w/special workrest)	mm	Ø30-50	Ø60-100	Capacity	Work diameter (w/special workrest)	mm	Ø60-120
	Auto infeed min. increment	mm	0.001	0.001		Auto infeed min. increment	mm	0.001
Grinding	Wheel size (OD x Width x ID) 08type	mm	φ305x150xφ120	φ455x205xφ228.6	Grinding	Wheel size (OD x Width x ID) 08type	mm	φ510x205xφ304.8
Wheel	Wheel size (OD x Width x ID) 10type	mm	N/A	φ455x255xφ228.6	Wheel	Wheel size (OD x Width x ID) 10type	mm	φ510x205xφ304.8
	Wheel size (OD x Width x ID) 12type	mm	N/A	φ455x305xφ228.6		Wheel size (OD x Width x ID) 12type	mm	φ510x205xφ304.8
	Motor rated power	kw	5.5 (Opt. 7.5)	11 (Opt. 15)		Motor rated power	kw	15 (Opt. 18.75)
	Spindle circumferential speed	m/min	2000	2000		Spindle circumferential speed	m/min	2000
	Dressing increment per gra./rev.	mm	0.01/1.25	0.01/2		Dressing increment per gra./rev.	mm	0.01/2
Regulating	Wheel size (OD x Width x ID) 08 type	mm	φ205x150xφ90	φ305x205xφ127	Regulating	Wheel size (OD x Width x ID) 08 type	mm	φ305x205xφ127
Wheel	Wheel size (OD x Width x ID) 10 type	mm	N/A	φ305x255xφ127	Wheel	Wheel size (OD x Width x ID) 10 type	mm	φ305x255xφ127
	Wheel size (OD x Width x ID) 12 type	mm	N/A	φ305x305xφ127		Wheel size (OD x Width x ID) 12 type	mm	φ305x305xφ127
	Spindle speed (infinite variable)	rpm	10-300	10-300		Spindle speed (infinite variable)	rpm	10-300
	Upper slide infeed handwheel per gra.rev.	mm	0.05 / 3.5	0.05 / 3.5		Upper slide infeed handwheel per gra.rev.	mm	0.05 / 3.5
	Upper slide micro infeed handwheel per gra.rev.	mm	0.001 / 0.1	0.001 / 0.1		Upper slide micro infeed handwheel per gra.rev.	mm	0.001 / 0.1
	Swivelling angle (L/R)	deg	±5°	±5°		Swivelling angle (L/R)	deg	±5°
	Inclining angle (F/R)	deg	+5° ~ -3°	+5° ~ -3°		Inclining angle (F/R)	deg	+5° ~ -3°
	Dressing increment(X1, Y1) per gra./rev.	mm	0.01 / 1.25	0.01 / 2		Dressing increment(X1, Y1) per gra./rev.	mm	0.01 / 2
	Regulating wheel motor	kw	2	3		Regulating wheel motor	kw	4
	Infeed servo motor (NC)	kw	1	2		Infeed servo motor (NC)	kw	2
Motors	Hydraulic motor	kw	0.75	0.75	Motors	Hydraulic motor	kw	0.75
Machine	Net Weight	kg	1800	3150	Machine	Net Weight	kg	3400
	Gross Weight	kg	2050	3450		Gross Weight	kg	3700
	Packing size (Length x Width x Height)	mm	2260x1950x1820	2700x2240x1850		Packing size (Length x Width x Height)	mm	2700x2240x1850

*E-tech reserves the right to change or improve specifications without prior notice.



Model			ECG-S 1206	ECG-S 1808/1810/1812	Model	ECG-S 2008/2010/2012		
Grinding	Work diameter (w/standard workrest)	mm	Ø1-30	Ø1-60	Grinding	Work diameter (w/standard workrest)	mm	Ø1-60
Capacity	Work diameter (w/special workrest)	mm	Ø30-50	Ø60-100	Capacity	Work diameter (w/special workrest)	mm	Ø60-120
Grinding	Wheel size (OD x Width x ID) 08type	mm	φ305x150xφ120	φ455x205xφ228.6	Grinding	Wheel size (OD x Width x ID) 08type	mm	φ510x205xφ304.8
Wheel	Wheel size (OD x Width x ID) 10type	mm		φ455x255xφ228.6	Wheel	Wheel size (OD x Width x ID) 10type	mm	φ510x255xφ304.8
	Wheel size (OD x Width x ID) 12type	mm		φ455x305xφ228.6		Wheel size (OD x Width x ID) 12type	mm	φ510x305xφ304.8
	Motor rated power	Kw	5.5 (Opt. 7.5)	11 (Opt. 15)		Motor rated power	kw/Nm	15 (Opt. 18.75)
	Spindle circular velocity	mm/min	2000	2000		Spindle circular velocity	mm/min	2000
	Dressing increment (per gra./rev.)	mm	0.01 / 1.5	0.01 / 2		Dressing increment (per gra./rev.)	mm	0.01 / 2
Regulating	Wheel size (OD x Width x ID) 08 type	mm	φ205 x 150 x φ90	φ255x205xφ111.2	Regulating	Wheel size (OD x Width x ID) 08 type	mm	φ305x205xφ127
Wheel	Wheel size (OD x Width x ID) 10 type	mm		φ255x255xφ111.2	Wheel	Wheel size (OD x Width x ID) 10 type	mm	φ305x255xφ127
	Wheel size (OD x Width x ID) 12 type	mm		φ255x305xφ111.2		Wheel size (OD x Width x ID) 12 type	mm	φ305x305xφ127
	Spindle speed (infinite variable)	rpm	10-300	10-300		Spindle speed (infinite variable)	rpm	10-300
	Upper slide infeed handwheel (per gra./rev.)	mm	0.05 / 3.5	0.05 / 3.5		Upper slide infeed handwheel (per gra./rev.)	mm	0.05 / 3.5
	Upper slide micro infeed handwheel (per gra./rev.)	mm	0.001/0.1	0.001/0.02		Upper slide micro infeed handwheel (per gra./rev.)	mm	0.001/0.01
	Swivelling angle (L/R)	deg	±5°	±5°		Swivelling angle (L/R)	deg	±5°
	Inclining angle (F/R)	deg	+5° ~ -3°	+5° ~ -3°		Inclining angle (F/R)	deg	+5° ~ -3°
	Dressing increment (per gra./rev.)	mm	0.01 / 1.5	0.01 / 2		Dressing increment (per gra./rev.)	mm	0.01 / 2
	Lower slide infeed handwheel (per gra./rev.)	mm	0.05 / 10	0.05 / 9		Lower slide infeed handwheel (per gra./rev.)	mm	0.05 / 9
	Lower slide micro infeed handwheel (per gra./rev.)	mm	0.001 / 0.2	0.001 / 0.2		Lower slide micro infeed handwheel (per gra./rev.)	mm	0.001 / 0.2
Motors	Regulating wheel motor	Kw	2	3	Motors	Regulating wheel motor	kw	3
Machine	Hydraulic motor	Kw	0.75	0.75	Machine	Hydraulic motor	kw	0.75
	Net Weight	kg	1650	3000		Net Weight	kg	3400
	Gross Weight	kg	1900	3300		Gross Weight	kg	3700
	Packing size (Length x Width x Height)	mm	2260x1950x1820	2700x2240x1850		Packing size (Length x Width x Height)	mm	2700x2240x1850

Standard Accessories

- Tools and tool box
- Standard coolant tank
- Wheel extractor
- Diamond dresser
- Levelling bolts and blocks
- Grinding wheel with flange
- Regulating wheel with flange
- Spindle lubrication system w/ cooling fan
- Regulating wheel with flange
- Manual lubricator for guide ways (S model)
- Operation manual and part lists
- Thrufeed workrest
- Infeed workrest
- Control panel (S model)
- PLC controller + touch screen + control panel (NC model)
- FANUC 0i-TF CNC controller (CNC model)

Optional Accessories

- Vibration feeder auto. loading system
- Auto. unloading system for thrufeed grinding
- Forming attachment (forming plates)
- Coolant system with magnetic separator
- Thrufeed blade (various sizes)
- Infeed blade (various sizes)
- Hydraulic forming attachment
- Coolant system with paper filter
- Coolant system with magnetic separator & paper filter
- Infeed grinding workpiece eject attachment (hydraulic / pneumatic)
- Auto. loading system for thrufeed grinding (Φ5~25mm, L 50~600mm)
- Hopper type auto. loading system for thrufeed grinding (Φ2~8mm, L 50~180mm)
- Input rail & output rail
- Balancing stand/ arbor
- Spare regulating wheel flange
- Spare grinding wheel flange
- CE standard electrical cabinet
- Special workrest (for large dia. Workpiece)
- Minor diameter workrest (dia. 0.7~8mm)