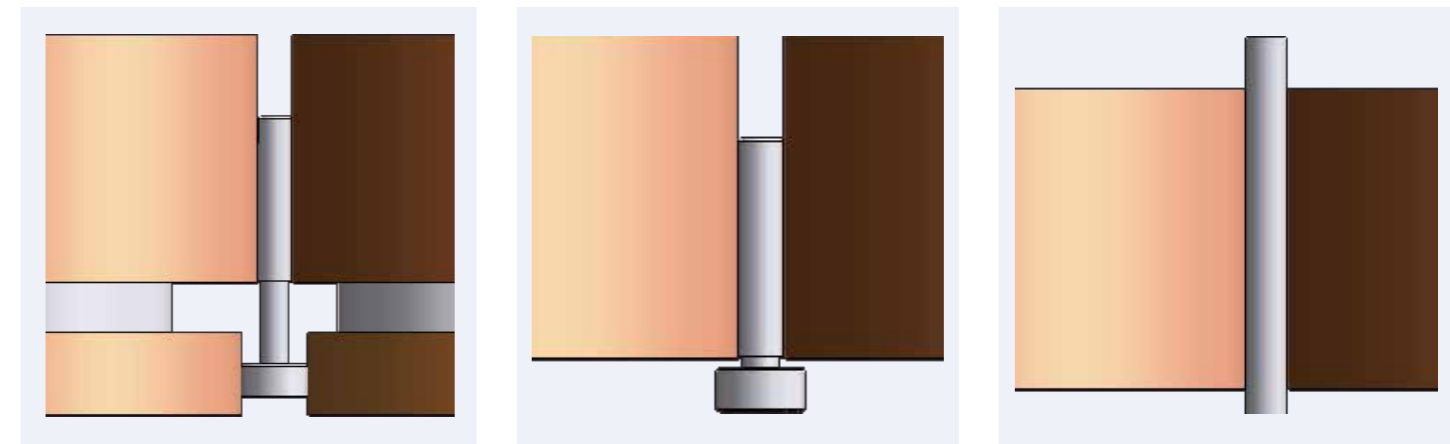


Centerless Grinder

STC Series



Grinder Professionals

1 STC Centerless Grinding Machine

Features

STC 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 rotational accuracy, which is 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.

Supertec 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 advantages of the S series, the NC series further offers lower slide (Z axis) with an A.C. servo motor and precision ballscrew and PLC control which enables the infeed position to be accurately located.

Through the PLC control the infeed position can be controlled by programming the numerical value.

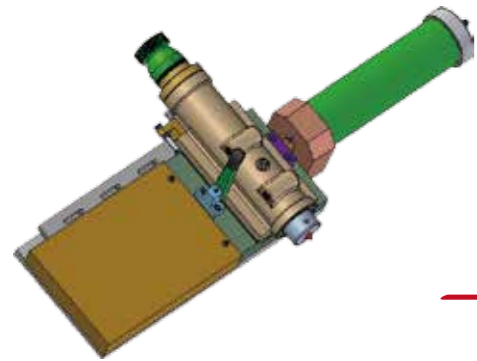
An optional automatic wheel dressing with compensation system can be installed to allow for easy operator-free wheel dressings which reduces the overall cycle time of the part being ground.



S Series

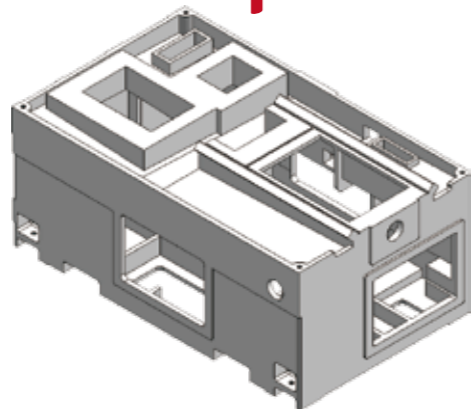
The S series is suitable for various kinds of shafts with thrufeed grinding operation. The servo motor on regulating wheel provides infinitely variable speeds for grinding and dressing speed adjustment, with timing belt transmission system which provides steady speed and torque performance.



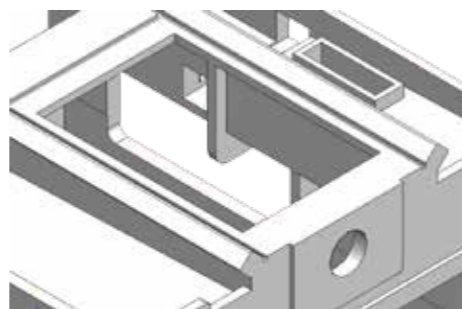
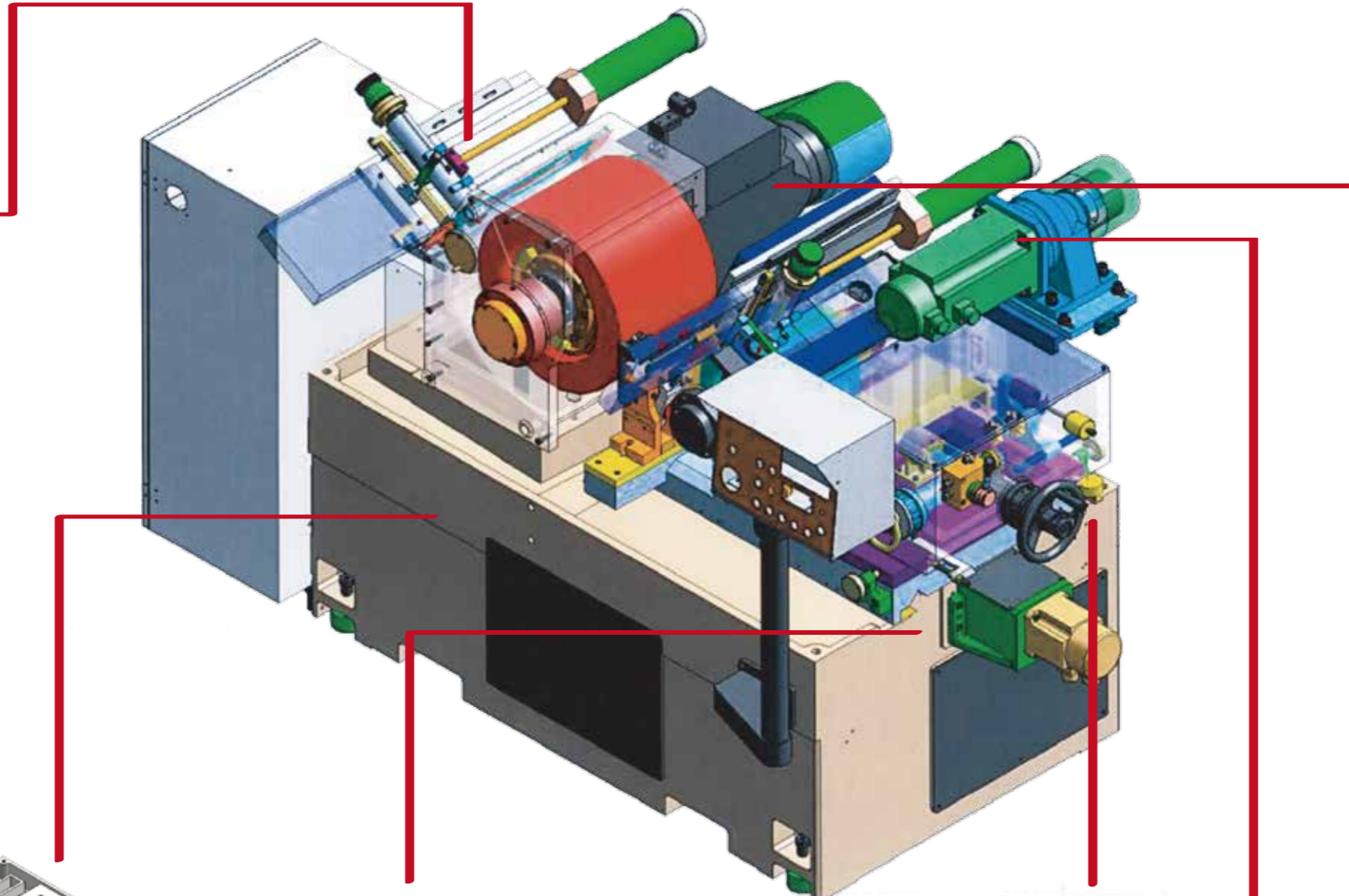


A hydraulic dressing unit on both the grinding and regulating wheels with precisely hand-scraped guide ways provides stable hydraulic movement and the best dressing effects. Various types of form dressing can be achieved with optional templates.

- NC model: optional auto. Grinding wheel dressing device enables the operator to program the dressing cycle at a set number of parts, after a set amount of dressing infeed, or dress and automatically compensate the control.
- CNC model: with two axes servo control and the automatic compensation system can precisely dress forms with complicated shapes.
- Various workrest design: Supertec developed various kinds of workrest based on different diameter of workpieces, which are easy for operating adjustment.



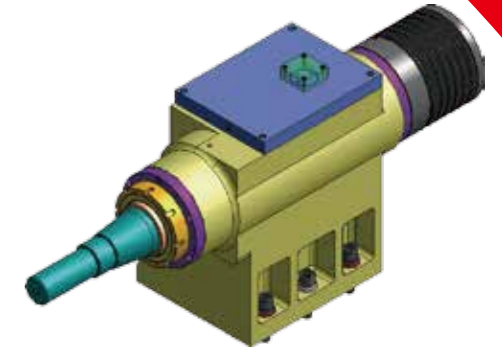
The machine base is made of Meehanite castings designed to reduce vibration. The machine base provides stable support to the grinding wheel and regulating wheel assemblies to ensure a rigid machine foundation and better accuracy.



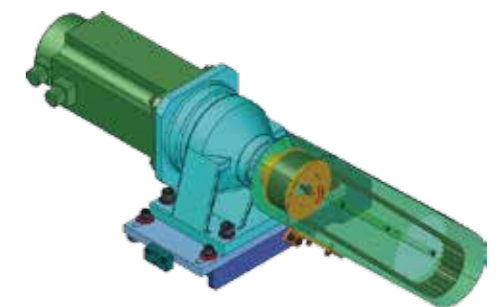
A double inverted "V" slideway with optimum spacing for the regulating wheel assembly provides smooth movement and stable grinding operation.



Automatic infeed models (NC) are equipped with a PLC touch screen control with easy to learn 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.

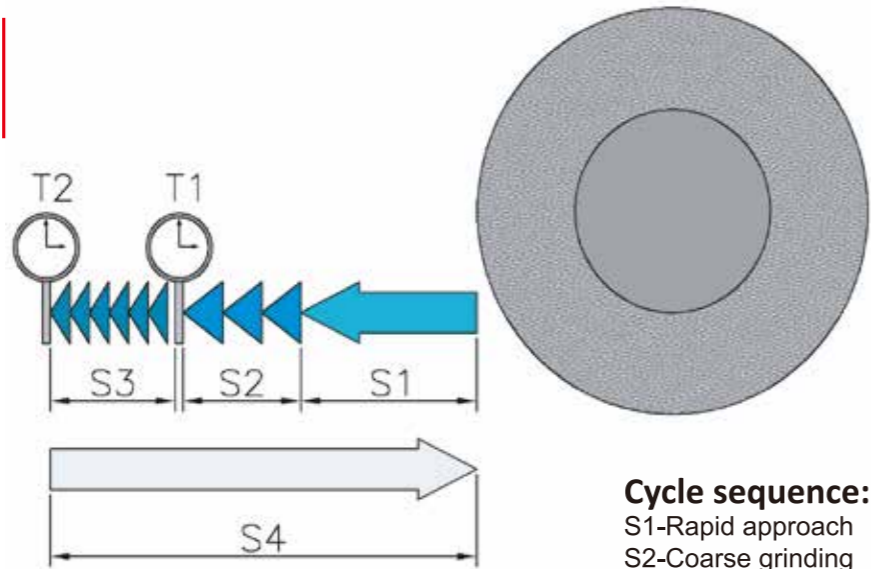


Both grinding & regulating wheel spindles are made of Ni-Cr-Mo alloy steel, which is normalized, carbonized, hardened and ground.



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 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

Auto-infeed Grinding Cycle

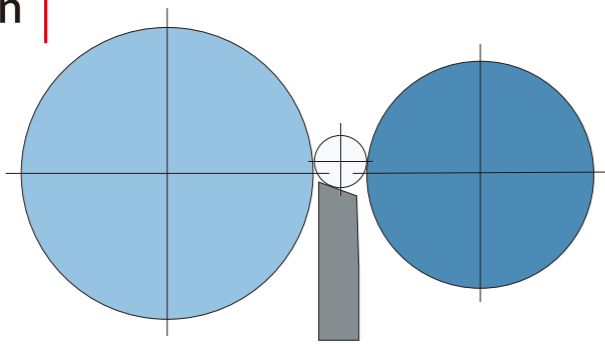


Cycle sequence:
 S1-Rapid approach
 S2-Coarse grinding
 T1-Dwell time
 S3-Fine grinding
 T2-Sparkout dwell time
 S4-Rapid retract

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

Alarm display screen :
 Fault diagnosis function assists

Blade Selection

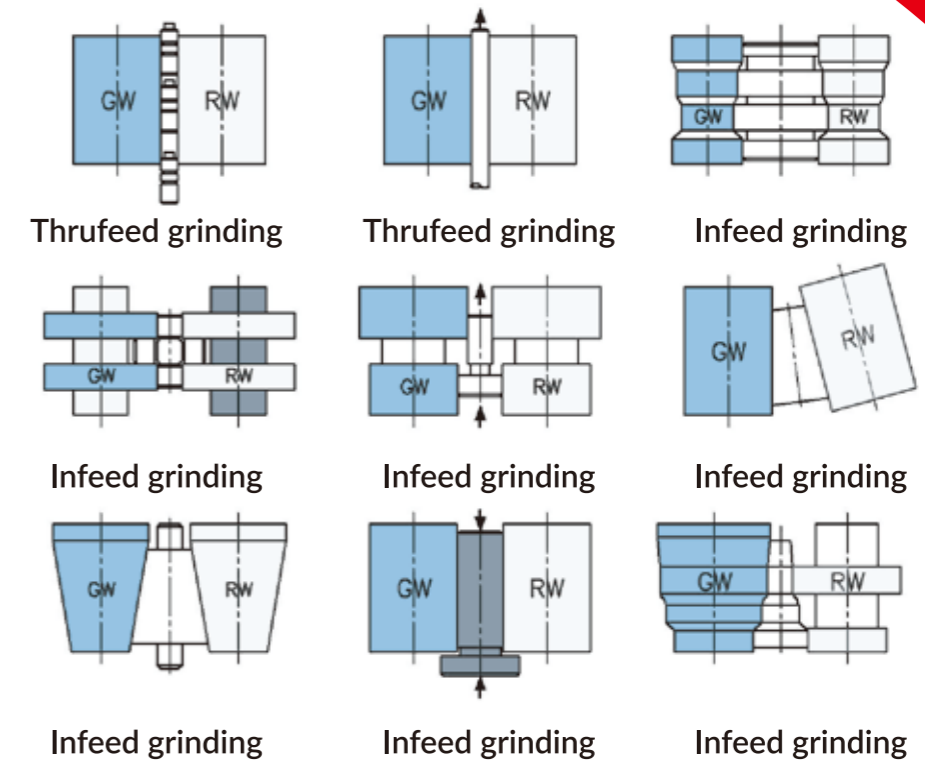


Due to different working diameters, the guide plate and regulating wheel must be parallel as this influences the grinding accuracy significantly.

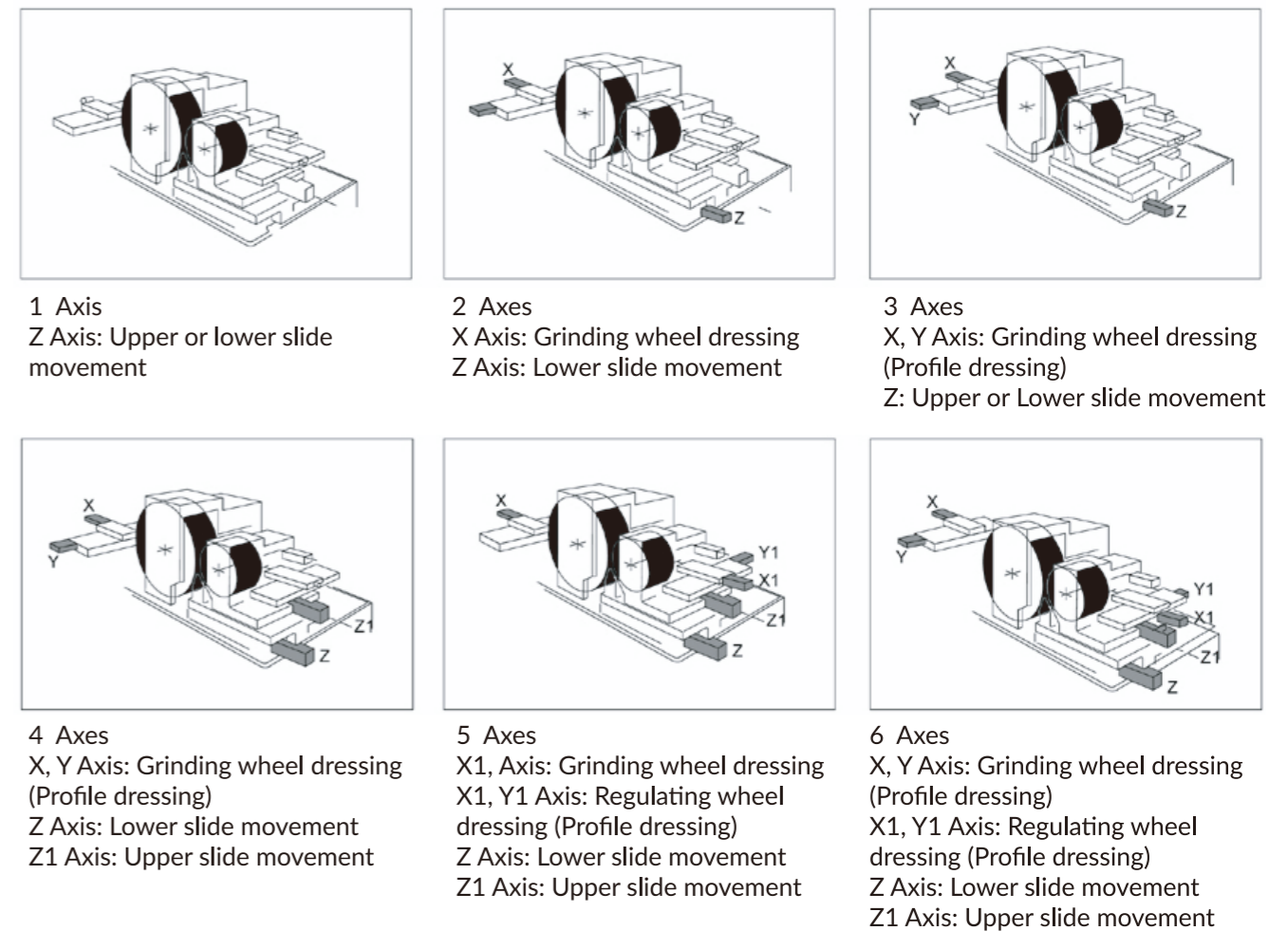
Blade Selection Table

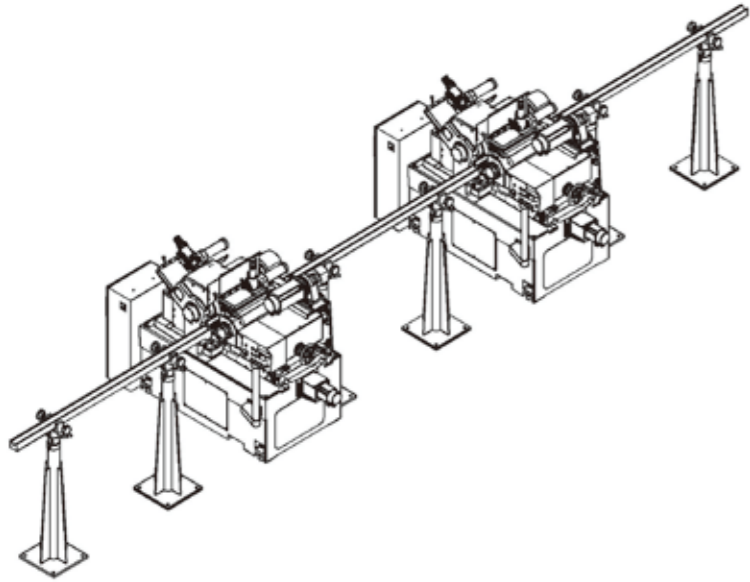
Dia. Of Workpiece(A)	Thickness(T)
Ø0.059"~Ø0.098"	0.0393"
Ø0.102"~Ø0.157"	0.0787"
Ø0.157"~Ø0.194"	0.0118"
Ø0.194"~Ø0.276"	0.1574"
Ø0.276"~Ø0.315"	0.1969"
Ø0.315"~Ø0.394"	0.2362"
Ø0.394"~Ø0.630"	0.3150"
Ø0.472"~Ø0.787"	0.3937"
Ø0.591"~Ø1.181"	0.4724"
Ø0.984" UP	0.7874"

Grinding Applications



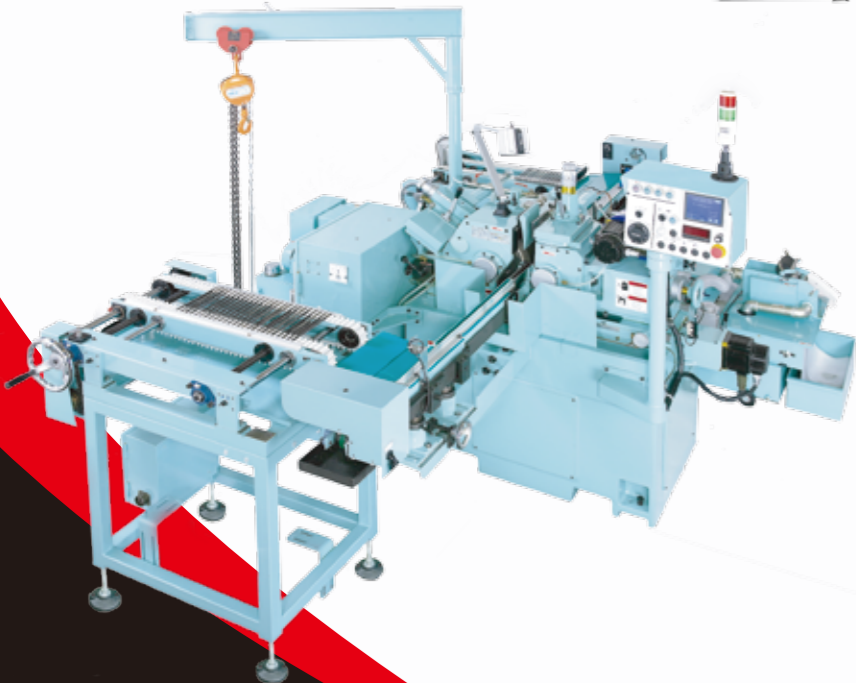
Control Axis Diagram





- 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.

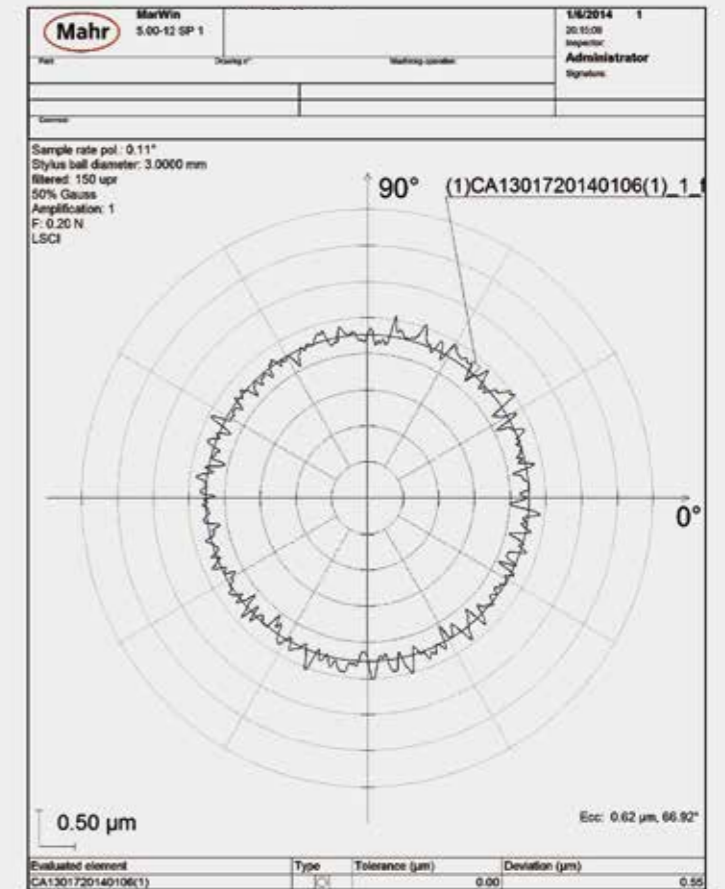
- Infeed Grinding: Applicable for parts with shoulder or multi-diameters.



- 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 0.008"
Cycle time: 25 sec
(loading/unloading included)
Roundness: 0.000060"
- Part name: Piston pin
Thrufeed grinding
Material: SCr21H
Removed stock: Max. \varnothing 0.005"
Feedrate: 118 "/min
Roundness: 0.000040"
- Part name: Ball piston
Infeed grinding + auto-loading/unloading
Material: SCM415
Removed stock: Max. \varnothing .012"
Cycle time: 26 sec
(loading/unloading included)



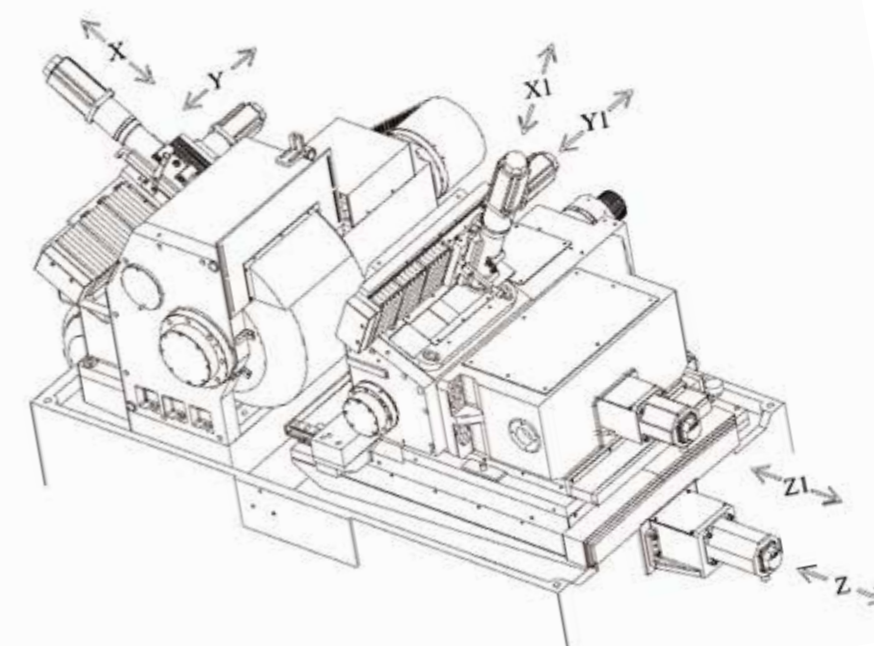
Model		STC-CNC 1808/1810/1812	STC-CNC 2008/2010/2012	Model	STC-CNC 2408/2410/2412	
Grinding	Work diameter (w/standard workrest)	Ø0.04"~2.36"	Ø0.04"~2.36"	Grinding	Work diameter (w/standard workrest)	
Capacity	Work diameter (w/special workrest)	Ø2.36"~4"	Ø2.36"~4.7"	Capacity	Work diameter (w/special workrest)	
	Auto infeed min. increment	0.000010"	0.000010"		Auto infeed min. increment	0.0000010"
Grinding	Wheel size (OD x Width x ID) 08type	φ18"x8"xφ9"	φ20"x8"xφ12"	Grinding	Wheel size (OD x Width x ID) 08type	
Wheel	Wheel size (OD x Width x ID) 10type	φ18"x10"xφ9"	φ20"x10"xφ12"	Wheel	Wheel size (OD x Width x ID) 10type	
	Wheel size (OD x Width x ID) 12type	φ18"x12"xφ9"	φ20"x12"xφ12"		Wheel size (OD x Width x ID) 12type	φ24"x12"xφ12"
	Motor rated power / max. torque	HP/Nm 15/71(Opt. 20/97)	20/97(Opt. 25/120)		Motor rated power / max. torque	
	Spindle speed	rpm 1400	1250		Spindle speed	
	Dressing infeed servo motor (X, opt)	HP/Nm 0.54 / 2.5	0.54 / 2.5		Dressing infeed servo motor (X, opt)	
	Dressing traverse servo motor (Y, opt)	HP/Nm 1 / 4.9	1 / 4.9		Dressing traverse servo motor (Y, opt)	
Regulating	Wheel size (OD x Width x ID) 08 type	φ10"x8"xφ4.3"	φ12"x8"xφ5"	Regulating	Wheel size (OD x Width x ID) 08 type	
Wheel	Wheel size (OD x Width x ID) 10 type	φ10"x10"xφ4.3"	φ12"x10"xφ5"	Wheel	Wheel size (OD x Width x ID) 10 type	
	Wheel size (OD x Width x ID) 12 type	φ10"x12"xφ4.3"	φ12"x12"xφ5"		Wheel size (OD x Width x ID) 12 type	φ14"x12"xφ6"
	Regulating wheel motor	HP 4	4		Regulating wheel motor	
	Spindle speed (infinite variable)	rpm 15-310	15-310		Spindle speed (infinite variable)	
	Dressing infeed servo motor (X1, opt)	HP 0.54	0.54		Dressing infeed servo motor (X1, opt)	
	Dressing traverse servo motor (Y1, opt)	HP 1	1		Dressing traverse servo motor (Y1, opt)	
	Lower slide infeed servo motor (Z, opt)	HP 2.4	2.4		Lower slide infeed servo motor (Z, opt)	
	Regulating wheel infeed servo motor (Z1, opt)	HP 1.6	1.6		Regulating wheel infeed servo motor (Z1, opt)	
	Swivelling angle (L/R)	deg ±5°	±5°		Swivelling angle (L/R)	
	Min. infeed unit	0.000010"	0.000010"		Min. infeed unit	
	Inclining angle (F/R)	deg +5° ~ -3°	+5° ~ -3°		Inclining angle (F/R)	
Motors	Hydraulic motor	HP 1	1	Motors	Hydraulic motor	
Machine	Net Weight	Lbs. 7,275	7,495	Machine	Net Weight	
	Gross Weight	Lbs. 7,936	8,157		Gross Weight	Lbs. 14,550
	Packing size (Length x Width x Height)	106"x88"x73"	106"x88"x73"		Packing size (Length x Width x Height)	141"x88"x81"



(Six Axes Diagram)

6 Axes Diagram

- X Axis : Grinding wheel dressing
- Y Axis : Grinding wheel Traverse Infeed
- X1 Axis : Regulating wheel dressing
- Y1 Axis : Regulating wheel Traverse Infeed
- Z Axis : Regulating Wheel Lower Slide Infeed
- Z1 Axis : Regulating Wheel Infeed
- (OPT. Add Axes)



Model		STC-NC 1206	STC-NC 1808/1810/1812	Model		STC-NC 2008/2010/2012	STC-NC 2408/2410/2412
Grinding	Work diameter (w/standard workrest)	Ø0.04"~1.18"	Ø0.04"~2.36"	Grinding	Work diameter (w/standard workrest)	Ø0.04"~2.36"	Ø0.04"~3.14"
Capacity	Work diameter (w/special workrest)	Ø1.18"~2"	Ø2.36"~4"	Capacity	Work diameter (w/special workrest)	Ø2.36"~4.7"	Ø3.14"~5.9"
	Auto infeed min. increment	0.000010"	0.000010"		Auto infeed min. increment	0.000010"	0.000010"
Grinding	Wheel size (OD x Width x ID) 08type	φ12"x6"xφ4.7"	φ18"x8"xφ9"	Grinding	Wheel size (OD x Width x ID) 08type	φ20"x8"xφ12"	φ24"x8"xφ12"
Wheel	Wheel size (OD x Width x ID) 10type		φ18"x10"xφ9"	Wheel	Wheel size (OD x Width x ID) 10type	φ20"x10"xφ12"	φ24"x10"xφ12"
	Wheel size (OD x Width x ID) 12type		φ18"x12"xφ9"		Wheel size (OD x Width x ID) 12type	φ20"x12"xφ12"	φ24"x12"xφ12"
	Motor rated power / max. torque	HP/Nm 7.5/36 (Opt.10/49)	15/71 (Opt.20/97)		Motor rated power / max. torque	HP/Nm 20/97 (Opt.25/120)	20/97 (Opt.30/143)
	Spindle speed	rpm 2080	1400		Spindle speed	rpm 1250	1050
	Dressing increment per gra./rev.	0.0005" / 0.05"	0.0005" / 0.0625"		Dressing increment per gra./rev.	0.0005" / 0.0625"	0.0005" / 0.0625"
Regulating	Wheel size (OD x Width x ID) 08 type	φ8" x 6" x φ3.54"	φ10"x8"xφ4.3"	Regulating	Wheel size (OD x Width x ID) 08 type	φ12"x8"xφ5"	φ14"x8"xφ6"
Wheel	Wheel size (OD x Width x ID) 10 type		φ10"x10"xφ4.3"	Wheel	Wheel size (OD x Width x ID) 10 type	φ12"x10"xφ5"	φ14"x10"xφ6"
	Wheel size (OD x Width x ID) 12 type		φ10"x12"xφ4.3"		Wheel size (OD x Width x ID) 12 type	φ12"x12"xφ5"	φ14"x12"xφ6"
	Spindle speed (infinite variable)	rpm 15-310	15-310		Spindle speed (infinite variable)	rpm 15-310	15-310
	Upper slide infeed handwheel per gra./rev.	0.00125" / 0.125"	0.002" / 0.2"		Upper slide infeed handwheel per gra./rev.	0.002" / 0.2"	0.002" / 0.2"
	Upper slide micro infeed handwheel per gra./rev.	N/A	0.00004 / 0.004		Upper slide micro infeed handwheel per gra./rev.	0.00004" / 0.004"	0.00004" / 0.004"
	Swivelling angle (L/R)	deg ±5°	±5°		Swivelling angle (L/R)	deg ±5°	±5°
	Inclining angle (F/R)	deg +5° ~ -3°	+5° ~ -3°		Inclining angle (F/R)	deg +5° ~ -3°	+5° ~ -3°
	Dressing increment(X1,Y1) per gra./rev.	0.0005" / 0.05"	0.0005" / 0.0625"		Dressing increment(X1,Y1) per gra./rev.	0.0005" / 0.0625"	0.0005" / 0.0625"
	Regulating wheel motor	HP 2.68	4		Regulating wheel motor	HP 4	6.7
	Infeed servo motor (NC)	HP 1.34	1.34		Infeed servo motor (NC)	HP 1.34	3.35
Motors	Hydraulic motor	HP 1	1	Motors	Hydraulic motor	HP 1	1
Machine	Net Weight	Lbs. 3,968	7,275	Machine	Net Weight	Lbs. 7,495	13,448
	Gross Weight	Lbs. 4,850	7,936		Gross Weight	Lbs. 8,157	14,550
	Packing size (Length x Width x Height)	89"x76"x71"	106"x88"x73"		Packing size (Length x Width x Height)	106"x88"x73"	141"x88"x81"

* Supertec reserves the right to change or improve specifications without prior notice



Model		STC-S 1206	STC-S 1808/1810/1812	Model		STC-S 2008/2010/2012	STC-S 2408/2410/2412
Grinding	Work diameter (w/standard workrest)	Ø0.04"~1.18"	Ø0.04"~2.36"	Grinding	Work diameter (w/standard workrest)	Ø0.04"~2.36"	Ø0.04"~3.14"
Capacity	Work diameter (w/special workrest)	Ø1.18"~2"	Ø2.36"~4"	Capacity	Work diameter (w/special workrest)	Ø2.36"~4.7"	Ø3.14"~5.9"
Grinding	Wheel size (OD x Width x ID) 08type	φ12"x6"xφ4.7"	φ18"x8"xφ9"	Grinding	Wheel size (OD x Width x ID) 08type	φ20"x8"xφ12"	φ24"x8"xφ12"
Wheel	Wheel size (OD x Width x ID) 10type	X	φ18"x10"xφ9"	Wheel	Wheel size (OD x Width x ID) 10type	φ20"x10"xφ12"	φ24"x10"xφ12"
	Wheel size (OD x Width x ID) 12type	X	φ18"x12"xφ9"		Wheel size (OD x Width x ID) 12type	φ20"x12"xφ12"	φ24"x12"xφ12"
	Motor rated power / max. torque	HP/Nm 7.5/36 (Opt.10/49)	15/71 (Opt. 20/97)		Motor rated power / max. torque	HP/Nm 20/97 (Opt. 25/120)	20/97 (Opt.30/143)
	Spindle speed	rpm 2080	1400		Spindle speed	rpm 1250	1050
	Dressing increment (per gra./rev.)	0.0005" / 0.05"	0.0005" / 0.0625"		Dressing increment (per gra./rev.)	0.0005" / 0.0625"	0.0005" / 0.0625"
Regulating	Wheel size (OD x Width x ID) 08 type	φ8" x 6" x φ3.54"	φ10"x8"xφ4.3"	Regulating	Wheel size (OD x Width x ID) 08 type	φ12"x8"xφ5"	φ14"x8"xφ6"
Wheel	Wheel size (OD x Width x ID) 10 type	X	φ10"x10"xφ4.3"	Wheel	Wheel size (OD x Width x ID) 10 type	φ12"x10"xφ5"	φ14"x10"xφ6"
	Wheel size (OD x Width x ID) 12 type	X	φ10"x12"xφ4.3"		Wheel size (OD x Width x ID) 12 type	φ12"x12"xφ5"	φ14"x12"xφ6"
	Spindle speed (infinite variable)	rpm 15-310	15-310		Spindle speed (infinite variable)	rpm 15-310	15-310
	Upper slide infeed handwheel (per gra./rev.)	0.00125" / 0.125"	0.002" / 0.2"		Upper slide infeed handwheel (per gra./rev.)	0.002" / 0.2"	0.002" / 0.2"
	Upper slide micro infeed handwheel (per gra./rev.)	N/A / N/A	0.00004"/0.004"		Upper slide micro infeed handwheel (per gra./rev.)	0.00004"/0.004"	0.00004"/0.004"
	Swivelling angle (L/R)	deg ±5°	±5°		Swivelling angle (L/R)	deg ±5°	±5°
	Inclining angle (F/R)	deg +5° ~ -3°	+5° ~ -3°		Inclining angle (F/R)	deg +5° ~ -3°	+5° ~ -3°
	Dressing increment (per gra./rev.)	0.0005" / 0.05"	0.0005" /0.0625"		Dressing increment (per gra./rev.)	0.0005" /0.0625"	0.0005" /0.0625"
	Lower slide infeed handwheel (per gra./rev.)	0.0025"/0.25"	0.002"/0.25"		Lower slide infeed handwheel (per gra./rev.)	0.002"/0.25"	0.002"/0.25"
	Lower slide micro infeed handwheel (per gra./rev.)	0.00005"/0.005"	0.00005"/0.00625"		Lower slide micro infeed handwheel (per gra./rev.)	0.00005"/0.00625"	0.00005"/0.00625"
	Regulating wheel motor	HP 2.68	4		Regulating wheel motor	HP 4	6.7
Motors	Hydraulic motor	HP 1	1	Motors	Hydraulic motor	HP 1	1
Machine	Net Weight	Lbs. 3968	7275	Machine	Net Weight	Lbs. 7495	13448
	Gross Weight	Lbs. 4850	7936		Gross Weight	Lbs. 8157	14550
	Packing size (Length x Width x Height)	89"x76"x71"	106"x88"x73"		Packing size (Length x Width x Height)	106"x88"x73"	141"x88"x81"

Standard Accessories

Tools and tool box	Spindle lubrication system w/ cooling fan
Standard coolant tank	Regulating wheel with flange
Wheel extractor	Manual lubricator for guide ways (S model)
Diamond dresser	Operation manual and part lists
Levelling bolts and blocks	Thrufeed workrest
Grinding wheel with flange	Infeed workrest
Regulating wheel with flange	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	Minor diameter workrest (dia. 0.027"~0.314")
Forming attachment (forming plates)	Special workrest (for large dia. Workpiece)
Coolant system with magnetic separator	Input rail & output rail
Thrufeed blade (various sizes)	Balancing stand/ arbor
Infeed blade (various sizes)	Spare regulating wheel flange
Hydraulic forming attachment	Spare grinding wheel flange
Coolant system with paper filter	CE standard electrical cabinet
Auto. unloading system for thrufeed grinding	
Coolant system with magnetic separator & paper filter	
Infeed grinding workpiece eject attachment (hydraulic / pneumatic)	
Auto. loading system for thrufeed grinding (Φ0.197"~0.984", L 1.968"~23.6")	
Hopper type auto. loading system for thrufeed grinding (Φ0.078"~0.314", L 1.968"~7")	