

**ST** SUPERTEC<sup>®</sup> *Since 1954*

**The Finest  
Solution**  
CENTERLESS GRINDER



Established in 1954, **SUPERTEC** manufactures a wide variety of centerless grinding machines with precision and quality to meet the needs of a diverse range of applications. These machines offer solutions to satisfy small lots with a variety of parts or a production environment. An optional automatic loading and unloading system for infeed or thrufeed can be custom built, allowing the machine to run unattended, at a high rate of production while maintaining tight tolerances.

All models feature a Meehanite base casting with Turcite coated double V slideways. Also featured is the hydrostatic Babbitt type spindle bearing, a hydraulic dresser on both wheels, and a pressurized, filtered, recirculating oil system with a heat exchanger for long lasting operation and greater precision.

A Mitsubishi PLC control with a menu-driven LCD touch screen that is easy to learn and easy to program is standard on all automatic infeed (CII) models. Operators need only fill in the blanks and press cycle start to complete an automatic infeed grinding cycle. An optional hydraulic overhead dressing unit with an automatic compensation system helps increase grinding efficiency, thus reducing cycle times.



STC-12



STC-18



STC-20CII



STC-20CNC

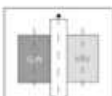
\* Machine outlook is subject to change without further notice.

MODEL	STC-1208	STC-1808	STC-1810	STC-1812	STC-2008	STC-2010	STC-2012	STC-2408	STC-2410
CAPACITY	φ1-50 0.04"-2"		φ1-100 0.04"-4"			φ1-120 0.04"-4.72"		φ1-150 0.04"-6"	
WHEEL SIZE (D x W x B)	305x150x120 12"x6"x5"	455x205x228.6 18"x8"x9"	455x255x228.6 18"x10"x9"	455x305x228.6 18"x12"x9"	508x205x205 20"x8"x10"	508x255x205 20"x10"x10"	508x305x205 20"x12"x10"	610x205x305 24"x8"x12"	610x255x305 24"x10"x12"
REGULATING WHEEL SIZE (D x W x B)	205x150x80 8"x6"x3.5"	255x205x111.2 10"x8"x4 3/8"	255x255x111.2 10"x10"x4 3/8"	255x305x111.2 10"x12"x4 3/8"	305x205x127 12"x8"x5"	305x255x127 12"x10"x5"	305x305x127 12"x12"x5"	305x205x127 12"x8"x5"	305x255x127 12"x10"x5"

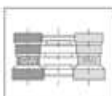
## GRINDING APPLICATIONS



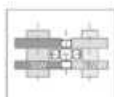
Tufsteel Grinding



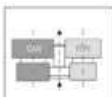
Tufsteel Grinding



Infeed Grinding



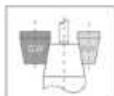
Infeed Grinding



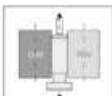
Infeed Grinding



Infeed Grinding

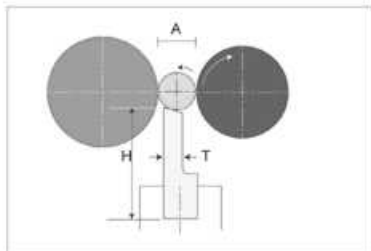


Infeed Grinding



Infeed Grinding

## 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

### STC -12 w / STANDARD WORKREST

dia. of workpiece(A)	Thickness(T)	Height(H)
ø1 - ø2	0.8	55
ø2 - ø3	1.5	52
ø4 - ø6	3.5	51
ø6 - ø9	5.5	50
ø10 - ø20	8.0	49
ø21 - ø35	8.0	45

### STC -12 w / SPECIAL WORKREST

ø36 - ø50	8.0	42
ø51 - ø80	8.0	39

### STC -18/20 w / STANDARD WORKREST

ø1 - ø2	0.8	66
ø2 - ø3	1.5	67
ø4 - ø6	3.5	65
ø6 - ø9	5.5	63
ø10 - ø20	8.0	61
ø21 - ø35	12.96	78
ø36 - ø50	12.96	75
ø51 - ø80	12.96	70

### STC -18/20 w / SPECIAL WORKREST

ø81 - ø120	12.96	65
ø120 - ø150	12.96	60

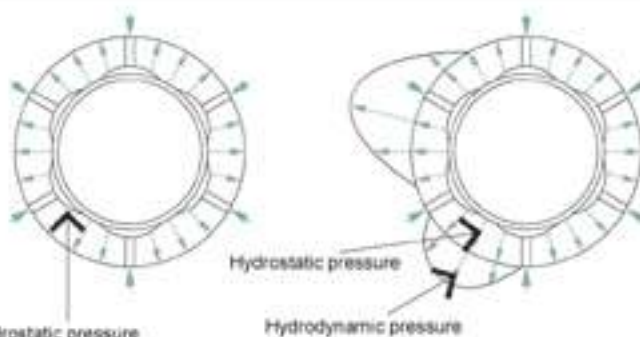
### HYDRAULIC DRESSING UNIT



A hydraulic dresser is equipped on both grinding & regulating wheels. Various types of form dressing can be achieved with optional template.

### WHEEL SPINDLE

The hydrostatic Babbitt type spindle bearing with a 3 point support design and pressurized, filtered, recirculating oil system, eliminates metal-to-metal contact, thus providing a heavy duty grinding capability as well as high vibration dampening performance. A pressure switch interlock prevents spindle start-up until oil pressure is established. This pressure switch interlock also stops the spindle if the oil pressure fails, thus providing a longer spindle life.



**SPINDLE AT REST**  
static pressure holds the wheel spindle firmly at the metal bearing center position

**ROTATING SPINDLE**  
Static and dynamic pressure combine to provide high rigidity and high double way performance.

### MACHINE STRUCTURE



The machine base is made of Meehanite casting, which is normalized and stress relieved, providing maximum rigidity to assure machine stability and vibration free operation.

### HYDRAULIC SYSTEM

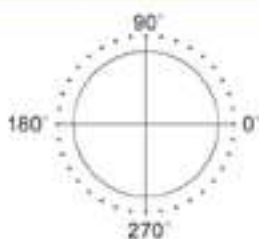


The hydraulic & lubrication system is air cooled to maintain constant oil temperature, and is also separated from the machine to eliminate vibration and dissipate heat.

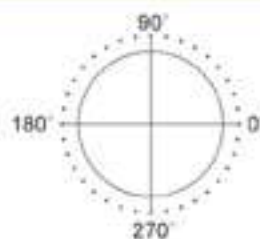


### LS ROUNDNESS TEST DIAGRAM

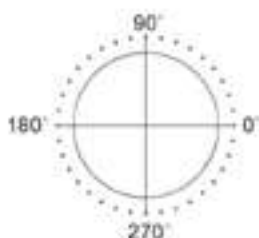
LS ROUNDNESS RESULTS		Z HEIGHT	92.2 mm
FEATURE NAME	TEST	DATU	SPINDLE
FEATURE NO.	00	FILTER TYPE	2 CR
R	19.446 mm	FILTER	1-50 upr
O	0.60 um	PROFILE	100.0%
E	0.05 um	MEAS MODE	EXTERNAL
L	294.9 deg	MEAS. DATE	18-08-1999
∠	0.70 um	MEAS. TIME	11.33.55
SCALE	1.00 um		



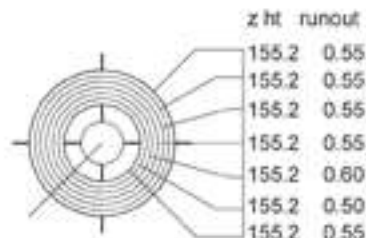
LS ROUNDNESS RESULTS		Z HEIGHT	102.7 mm
FEATURE NAME	TEST	DATU	SPINDLE
FEATURE NO.	01	FILTER TYPE	2 CR
R	19.446 mm	FILTER	1-50 upr
O	0.50 um	PROFILE	100.0%
E	0.05 um	MEAS MODE	EXTERNAL
L	290.0 deg	MEAS. DATE	18-08-1999
∠	0.65 um	MEAS. TIME	11.34.14
SCALE	1.00 um		



LS ROUNDNESS RESULTS		Z HEIGHT	113.2 mm
FEATURE NAME	TEST	DATU	SPINDLE
FEATURE NO.	02	FILTER TYPE	2 CR
R	19.446 mm	FILTER	1-50 upr
O	0.55 um	PROFILE	100.0%
E	0.05 um	MEAS MODE	EXTERNAL
L	264.5 deg	MEAS. DATE	18-08-1999
∠	0.60 um	MEAS. TIME	11.33.55
SCALE	1.00 um		



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



### STANDARD ACCESSORIES

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

DESCRIPTION
Infeed Blade (various sizes)
Thrufeed Blade (various sizes)
Auto Loading / Unloading Attachment for Infeed
Coolant System w/Magnetic Separator and Paper Filter
Coolant System w/Magnetic Separator
Coolant System w/Magnetic Paper Filter



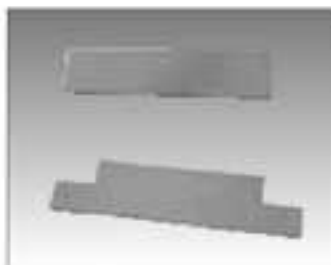
Auto. Loading & Unloading Attachment for Infeed



Infeed Workrest



Special Thrufeed Workrest



Thrufeed/Infeed Blade (Various Sizes)



Balancing Stand



Input / Output Rail



Electric Ejector



Coolant Sys. w/Magnetic Separator & Paper Filter



Auto. Loading for Thrufeed



Auto. Vibration Feeder

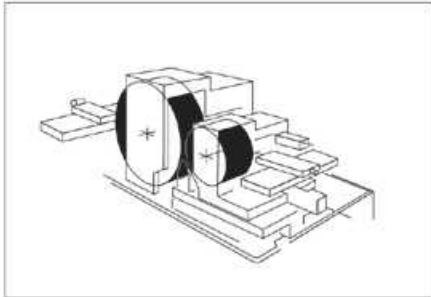


Outgoing Conveyor & Receiver



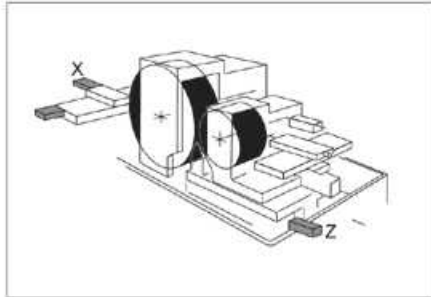
Long Thrufeed Guides

**CNC CONTROL AXIS DIAGRAM**



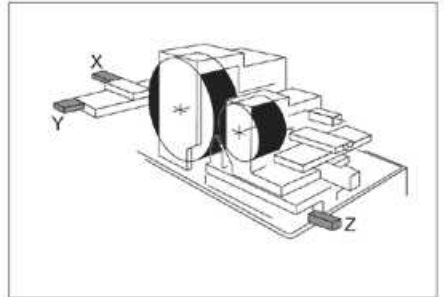
**SINGLE AXIS**

- For controlling the upper or lower slide movement (z)



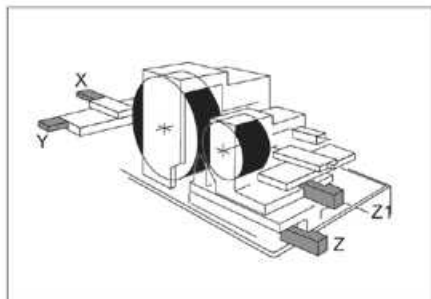
**TWO AXES**

- 1 axes for grinding wheel (x)
- 1 axis for either the upper or lower slide (z)



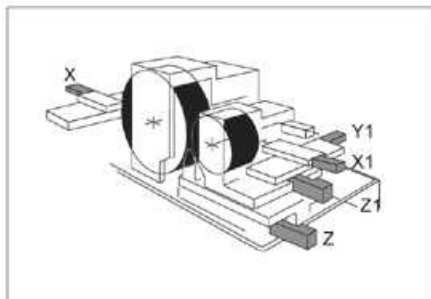
**THREE AXES**

- 2 axis for grinding wheel (x,y)
- 1 axis for lower slide (z)



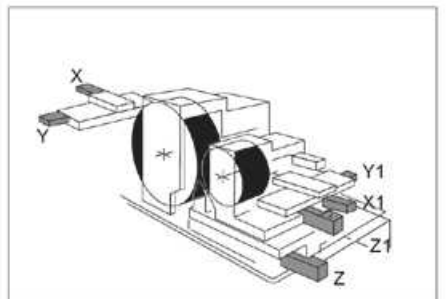
**FOUR AXES**

- 2 axes for grinding wheel dressing with interpolation (x,y.)
- 1 axis for upper slide (z1)
- 1 axis for lower slide (z)



**FIVE AXES**

- 2 axes for regulating wheel dressing with interpolation (x1,y1)
- 1 axis for grinding wheel diamond dressing horizontally (x)
- 1 axis for upper slide (z1)
- 1 axis for lower slide (z)



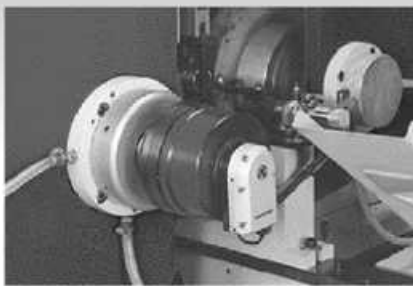
**SIX AXES**

- 2 axes for grinding wheel dressing with interpolation (x,y)
- 2 axes for regulation wheel dressing with interpolation (x1.y1)
- 1 axis for upper slide (z1)
- 1 axis for lower slide (z)

**CNC OPTIONS**



1. 2 Axis Simultaneous CNC Grinding Wheel Dresser



2. Grinding Wheel Auto Balancer



3. Auto Loading & Unloading Attachment for Infeed

DESCRIPTION		MODEL	STC-12	STC-18/18CNC	STC-20/20CNC	STC-24/24CNC	
GRINDING CAPACITY	Work diameter (with standard workrest)		∅ 1-30mm(0.04"-1.18")	∅ 1-80mm(0.04"-3.15")	∅ 1-80mm(0.04"-3.15")	∅ 1-80mm(0.04"-3.15")	
	Work diameter (with special workrest)		∅ 30-50mm(1.18"-2")	∅ 60-100mm(2.35"-4")	∅ 80-120mm(3.15"-4.72")	∅ 80-150mm(2.36"-6")	
	Auto infeed increment (CII model)		0.001-99.999	0.001-99.999	0.001-99.999	0.001-99.999	
GRINDING WHEEL	Wheel size(d x w x b)		305 x 150 x 120mm (12" x 6" x 5")	456 x 205/255/305 x 228.6mm (18" x 8/10/12" x 9")	508 x 205/255/305 x 255mm (20" x 8/10/12" x 10")	610 x 205-300 x 305mm (24" x 8-20" x 12")	
	Spindle speeds		1900 rpm	1520 rpm	1350 rpm	1050 rpm	
	Dressing increment	per graduation		0.02mm(0.0005")	0.01mm(0.0005")	0.01mm(0.0005")	0.01mm(0.0005")
per revolution			2mm(0.05")	2mm(0.0625")	2mm(0.0625")	2mm(0.0625")	
REGULATING WHEEL	Wheel size(d x w x b)		205 x 150 x 90mm (8" x 6" x 3.5")	255 x 205/255/305 x 111.2mm (10" x 8/10/12" x 4-3/8")	305 x 205/255/305 x 127mm (12" x 8/10/12" x 5")	305 x 205-300 x 127mm (12" x 8-20" x 5")	
	Spindle speeds(10 step)		15-310rpm	13-306 rpm	13-306 rpm	10-250 rpm	
	Handwheel	per graduation		0.04mm(0.002")	0.05mm(0.002")	0.05mm(0.002")	0.05mm(0.002")
		per revolution		4mm(0.2")	3.5mm(0.2")	3.5mm(0.2")	3.5mm(0.2")
	Swivelling angle		± 5°	± 5°	± 5°	± 5°	
	Inclining angle		-5° ~ -3°	-5° ~ -3°	-5° ~ -3°	-5° ~ -3°	
	Dressing increment	per graduation		0.02mm(0.0005")	0.01mm(0.0005")	0.01mm(0.0005")	0.01mm(0.0005")
		per revolution		2mm(0.05")	2mm(0.0625")	2mm(0.0625")	2mm(0.0625")
	Rapid feeding of saddle handwheel	per graduation		0.02mm(0.00125")	0.05mm(0.002")	0.05mm(0.002")	0.05mm(0.002")
		per revolution		7mm(0.25")	9mm(0.25")	9mm(0.25")	9mm(0.25")
Micro feeding of saddle handwheel	per graduation		0.001mm(0.00005")	0.001mm(0.00005")	0.001mm(0.00005")	0.001mm(0.00005")	
	per revolution		0.2mm(0.005")	0.2mm(0.00625")	0.2mm(0.00625")	0.2mm(0.00625")	
MOTORS	Grinding wheel		7.5HP/10HP	15HP/20HP	20HP/25HP	20/30HP	
	Hydraulic motor		2HP	2HP	2HP	2HP	
	Infeed servo motor (CII model)		1KW	1.5KW	1.5KW	3KW	
WEIGHT	Net (Approx.)		1200kg(2640 lb)	2850kg(6300 lb)	3000kg(6600 lb)	6600kg(14250 lb)	
	Gross (Approx.)		1500kg(3300 lb)	3150kg(7260 lb)	3400kg(7500 lb)	7100kg(15620 lb)	
PACKING	Length x Width x Height		1700 x 1460 x 1550mm (67" x 58" x 61")	2900 x 1400 x 1850mm (114" x 55" x 73")	2240 x 2060 x 1860mm (88" x 82" x 75")	3400 x 1700 x 2250mm (145" x 67" x 74")	

\* Figures of weight & packing are for conventional machine only.

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TAIWAN : **SUPERTEC MACHINERY, INC.**  
 No. 96, Sec.1 Chung-Teh 2nd Rd.,  
 Taichung 406, Taiwan, R.O.C.  
 Tel : (04)2245-3068 Fax : (04)2243-9058  
<http://www.supertec.com.tw>  
 E-mail : [sales@supertec.com.tw](mailto:sales@supertec.com.tw)

U.S.A. : **SUPERTEC MACHINERY, INC.**  
 6435 Alondra Blvd.,  
 Paramount, CA, 90723  
 Tel : (562)220-1675 Fax : (562)220-1677  
<http://www.supertecusa.com>  
 E-mail : [info@supertecusa.com](mailto:info@supertecusa.com)