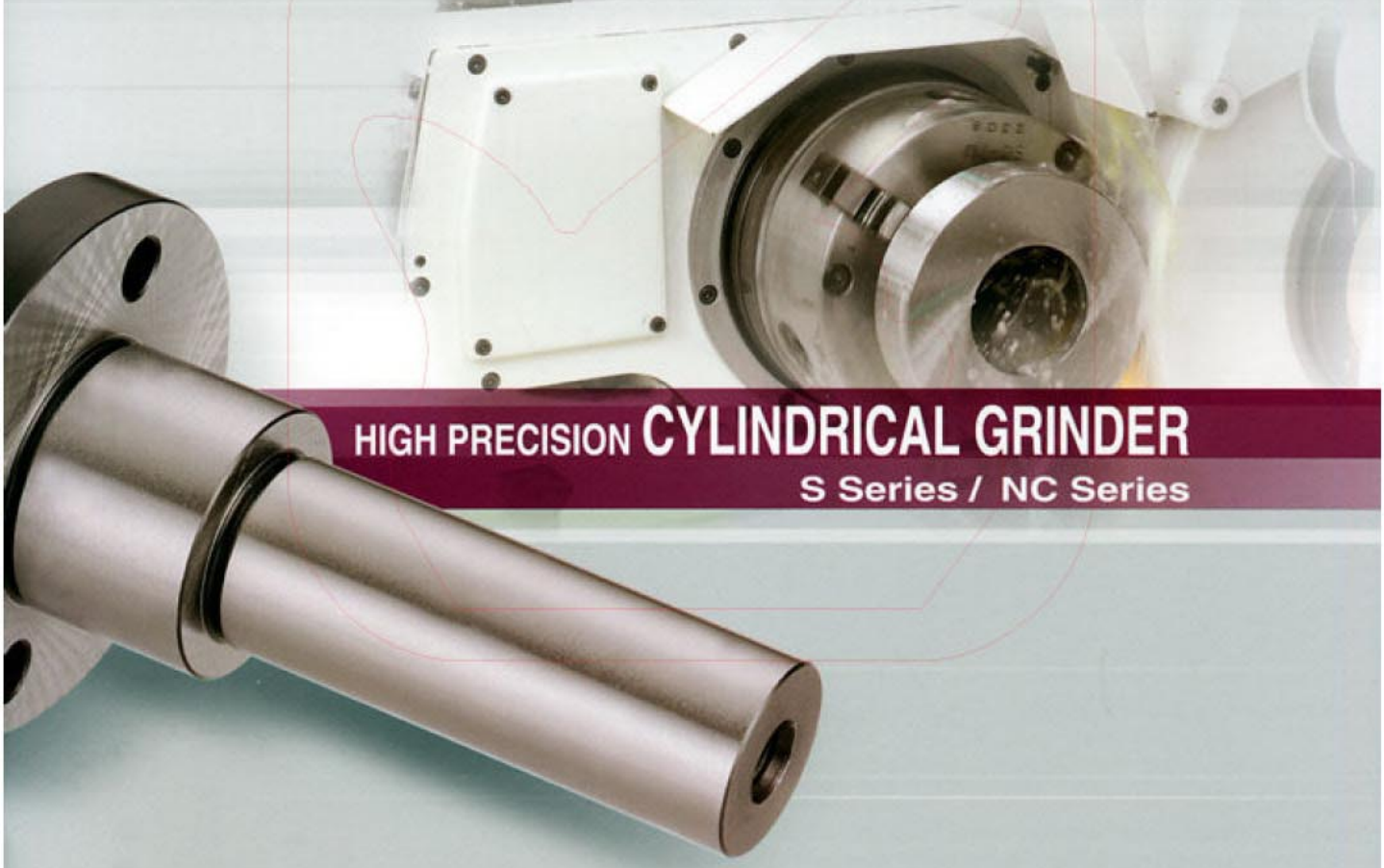
S & P

A Total Dedication to New Technological Level



HIGH PRECISION CYLINDRICAL GRINDER

S Series / NC Series

S & P

Precise, Perfect and Excellent

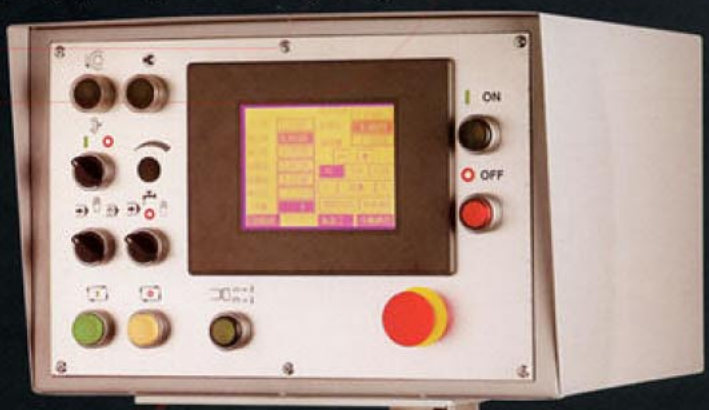
S & P Committed to Excellence

Maximum Flexibility S & P Cylindrical Grinder

State-of-the-art Technology Your Right Choice!

" Advanced NC Control for User-friendly Operation "

- The wheel head feed on the NC series machine is driven by servomotor combined with NC control assuring maximum operational convenience.
- Humanified operation, conversational control and program-editing-free feature superb operational convenience.
- Easy to set sizes for new parts - saves 1/3 of time compared with conventional setting. Feed amount and feed rate are easy to set as desired.
- Suitable for small batch production with increased efficiency of over 30%.
- Allows direct change to automatic feed once manual feed is accomplished - without changing program.
- Available to set for straight plunge grinding and traverse grinding.

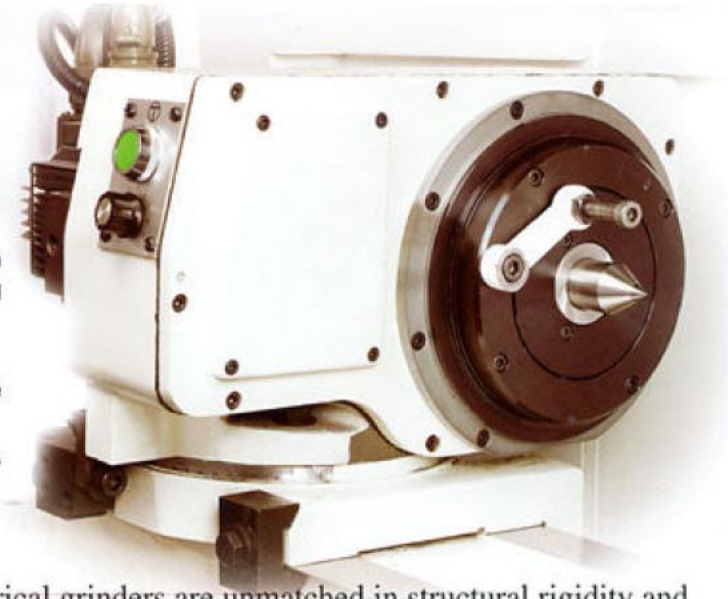


S & P

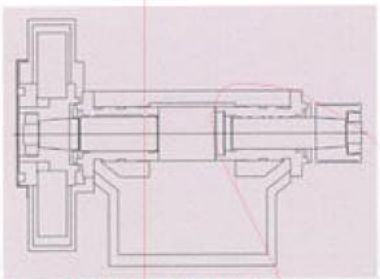
Committed to Excellence

Stable and Rigid Spindle Head

- The spindle runs on precision bearings, assuring maximum spindle stability. It guarantees outstanding accuracy for external and internal diameter grinding and face grinding.
- The spindle head swivels +90° ~ -30°.
- The spindle head on the 20 series machines provides variable speed changed by frequency inverter.
- The spindle head on the 32 and 42 series is driven by servomotor, providing variable speed.

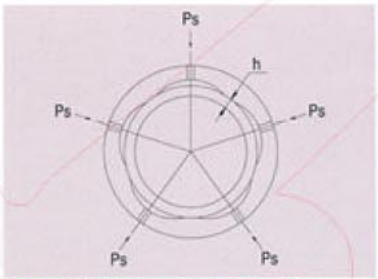


"S & P high precision cylindrical grinders are unmatched in structural rigidity and stability, grinding accuracy and operational convenience. Each machine provides maximum operational flexibility thereby allowing for various grinding operations. You will get extra value when putting a S & P cylindrical grinder on your production line."



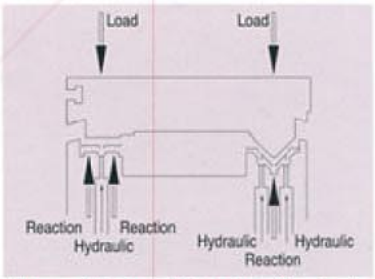
Precision Wheel Head

- The grinding wheel spindle is precision machined from high quality alloy steel SNCM-220, normalized, tempered, carburized and sub-zero treated, precision ground and mirror-effect treated. Hardness reaches to over HRC 62°. No deformation, maximum wear resistance and lifetime accuracy are assured.



Special Hydrostatic Bearing

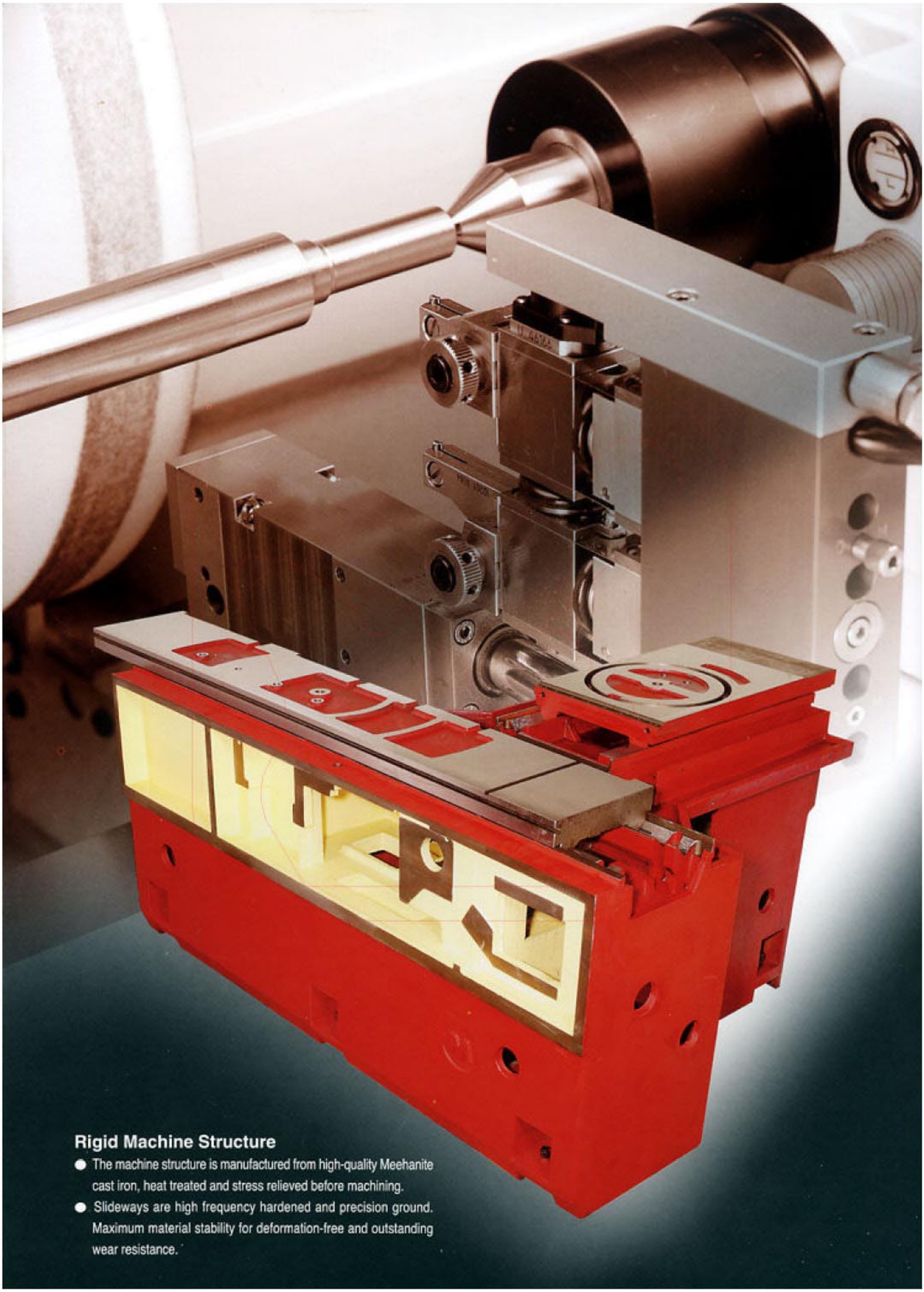
- The wheel spindle runs by using a special hydrostatic bearing and is especially ideal for precision grinding work. It features high speed, no friction between metals, no heat generation, deformation-free, extra high accuracy and continual use.



Advanced Hydrostatic Lubrication System

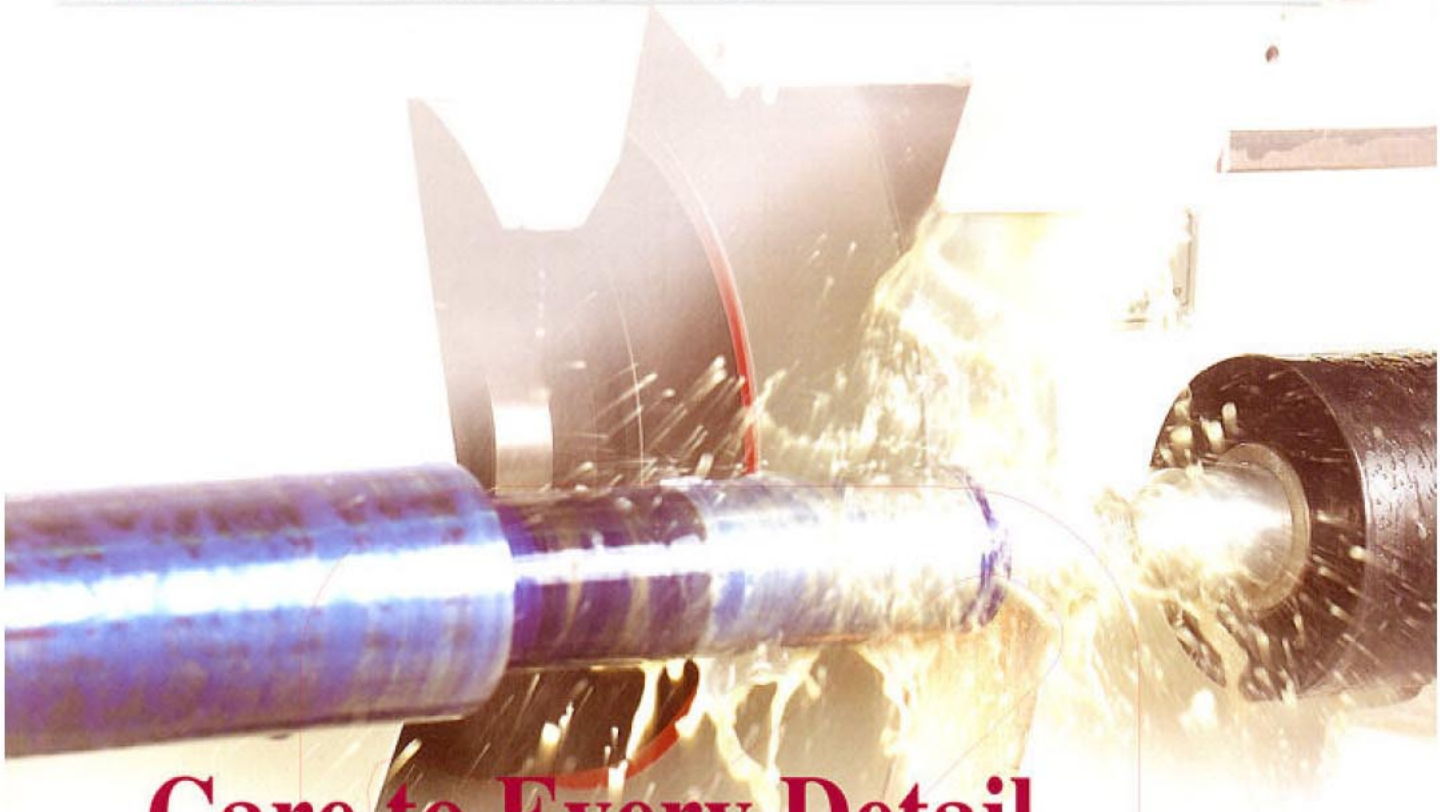
- The slideways of the table and the wheel head are lubricated by an advanced automatic hydrostatical lubrication system. This provides various features, such as extremely smooth movement, added feed accuracy and superior grinding accuracy.

Example of Grinding Workpieces



Rigid Machine Structure

- The machine structure is manufactured from high-quality Meehanite cast iron, heat treated and stress relieved before machining.
- Slideways are high frequency hardened and precision ground. Maximum material stability for deformation-free and outstanding wear resistance.



Care to Every Detail Insist on Quality!

S & P Cylindrical Grinders

"Based on S & P tradition of "Pursuing Quality Perfection", combined with human engineering design and peak performance concepts, each machine fully reflects S & P unmatched design and technique. In addition, S & P rigorous quality control gives added assurance of superior quality."

Grinding Examples

- A grinder allows for various grinding applications with changeover ease.

Straight Plunge Grinding

- For small lot production, use automatic feed combined with sparkout timer to achieve superior grinding quality. For mass production, use 2-step automatic feed and 2-step automatic measurement device (optional) for upgrading productivity and grinding quality.

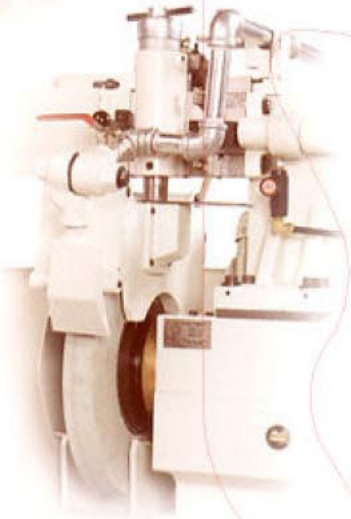
Shoulder Grinding

- Provides workpiece outside diameter and shoulder grinding accomplished at a time.
- Easy to set up. Simply clamp the workpiece between two centers, mount the grinding wheel on the right side of wheel head and swivel the head to a degree for performing grinding.

Traverse Grinding

- Use automatically intermittent feed combined with hydraulic drive of table for the most effective traverse grinding operations.

Outstanding Features and Construction



Wheel Forming Device (Automatic Compensation) (Optional)

The device functions as the manual wheel forming device. It further employs an automatic hydraulic unit, and compensation parameters are able to be set during operation (driven by motor) for fast grinding compensation. The device can be equipped with NC models.

Wheel Forming Device (Manual. No Auto. Compensation) (Optional)

The device is located above the wheel and driven by a hydraulic unit to slide in longitudinal direction. It is equipped with a diamond tool for dressing and a forming board for profiling. These operations are accomplished without moving the working table. The device is compatible with all series of cylindrical grinders.

End Surface Grinding

- Dismantle the spindle head cover. Mount a 3-jaw or 4-jaw chuck. Change position of the pin for chuck rotation. Position the pin at a 90 degree angle for end surface grinding.

Taper Grinding

- Hold the workpiece by a chuck or two centers. The table and the wheel head can be easily adjusted and swiveled.

Internal Grinding

- To proceed with internal grinding with a hinge-type internal grinding attachment (optional accessory), simply pull down the internal grinding spindle and fix it in place.

High Precision
Cylindrical Grinder
NC Controlled Series

GU20x40NC

- Distance between centers 400 mm.
- Swing over table 200 mm.
- Max. grinding diameter Ø160 mm.
- NC computer controlled combined with conversational operation control for maximum operation convenience.
- Variable spindle speed 16-450 rpm.
- Automatic feed is driven by servomotor.
- Hydraulically operated traverse feed.

SPECIFICATIONS	GU20x40NC	SPECIFICATIONS	GU20x40NC
Capacity		**Tailstock**	
Distance Between Centers	400 mm	Center Taper	MT:3
Swivel Over Table	200 mm	Stroke	20 mm
Max. Load of Centers	60 kg	**Table**	
Max. External Grinding Diameter	160 mm	Swivel Angle	12.5°
Wheel Head		Traverse Speed	50～4000 mm/min
Swivel Angle	±30°	Auto. Reciprocate Min. Stroke	3 mm
Manual Distance	135 mm	Feed of One Turn of Handwheel (2-step)	20 mm (2 mm)
Auto Rapid Advance	25 mm	**Motor**	
Sliding Seat Supplementary Displacement	95 (total 255 mm)	Wheel Spindle	2.1 kw (4 P)
Min. Setting Unit	0.001 mm	Workhead Spindle	0.75 kw (4 P) (Inverter)
One Turn of Handwheel (graduation)	2 (0.005) mm	Hydraulic Pump	0.75 kw (6 P)
NC Feed Range	0～99 mm	Wheel Spindle Lubrication Pump	0.18 kw (2 P)
Grinding Wheel		Coolant Pump	0.18 kw (2 P)
O.D. x Width x I.D.	305 x 38 x 127 mm	Internal Grinding Spindle	0.18 kw (2 P)
Speeds (belt-type) r.p.m.	2085 / 2495	**Tank Capacity**	
Work Spindle Head		Wheel Spindle Lubricant Tank	12ℓ
Swivel Angle	120° (+90°, -30°)	Hydraulic Fluid Tank	65ℓ
Center Taper	MT:3	Coolant Tank	100ℓ
Spindle Speeds (variable) r.p.m.	16～450	**Machine Weight**	
Max. Load of Spindle (tool holder included)	15 kg (Max length: 100 mm)	kgs	2000 kgs

High Precision
Cylindrical Grinder
NC Controlled Series

GU32x60NC

- Swing over table 320 mm.
- Max. grinding diameter Ø280 mm.

GU42x60NC

- Swing over table 420 mm.
- Max. grinding diameter Ø380 mm.

Common Features:

- Distance between centers: 600 mm.
- NC computer controlled combined with conversational operation control for maximum operational convenience.
- Various spindle speed 16-450 rpm, driven by servomotor.
- Automatic feed is driven by servomotor.
- Hydraulically operated traverse feed.

SPECIFICATIONS	GU32/42x60NC	SPECIFICATIONS	GU32/42x60NC
Capacity		**Tailstock**	
Distance Between Centers	600 mm	Center Taper	MT:4
Swivel Over Table	320 mm / 420 mm	Stroke	25 mm
Max. Load of Centers	150 kg	**Table**	
Max. External Grinding Diameter	280 mm / 380 mm	Swivel Angle	12°
Wheel Head		Traverse Speed	50 – 4000 mm/min
Swivel Angle	±30°	Auto. Reciprocate Min. Stroke	3 mm
Manual Distance	160 mm	Feed of One Turn of Handwheel (2-step)	20 mm (2 mm)
Auto Rapid Advance	40 mm	**Motor**	
Sliding Seat Supplementary Displacement	95 (total 255 mm)	Wheel Spindle	3.75 kw (4 P)
Min. Setting Unit	0.001 mm	Workhead Spindle	0.8 kw (Servomotor)
One Turn of Handwheel (graduation)	2 (0.005) mm	Hydraulic Pump	0.75 kw (6 P)
NC Feed Range	0～99 mm / 0～2 mm	Wheel Spindle Lubrication Pump	0.18 kw (2 P)
Grinding Wheel		Coolant Pump	0.18 kw (2 P)
O.D. x Width x I.D.	355 x 50 x 127 mm	Internal Grinding Spindle	0.75 kw (2 P)
Speeds (belt-type) r.p.m.	1783 / 1940	**Tank Capacity**	
Work Spindle Head		Wheel Spindle Lubricant Tank	12ℓ
Swivel Angle	120° (+90°, -30°)	Hydraulic Fluid Tank	65ℓ
Center Taper	MT:4	Coolant Tank	100ℓ
Spindle Speeds (variable) r.p.m.	16～450	**Machine Weight**	
Max. Load of Spindle (tool holder included)	35 kg (Max length: 150 mm)	kgs	3000 kgs / 3200 kgs

High Precision
Cylindrical Grinder
NC Controlled Series

GU32x100NC
GU32x150NC

- Swing over table 320 mm.
- Max. grinding diameter Ø280 mm.

GU42x100NC
GU42x150NC

- Swing over table 420 mm.
- Max. grinding diameter Ø380 mm.

Common Features:
- Distance between centers: 1,000 / 1,500 mm.
- NC computer controlled combined with conversational operation control for maximum operational convenience.
- Various spindle speed 16 ~ 450 RPM, driven by servomotor.
- Automatic feed is driven by servomotor.
- Hydraulically operated traverse feed.

SPECIFICATIONS	GU32/42x100NC / GU32/42x150NC	SPECIFICATIONS	GU32/42x100NC / GU32/42x150NC
Capacity		**Tailstock**	
Distance Between Centers	1000 mm / 1500 mm	Center Taper	MT:4
Swivel Over Table	320 mm / 420 mm	Stroke	25 mm
Max. Load of Centers	150 kg	**Table**	
Max. External Grinding Diameter	280 mm / 380 mm	Swivel Angle	10° / 8°
Wheel Head		Traverse Speed	50 ~ 4000 mm/min
Swivel Angle	±30°	Auto. Reciprocate Min. Stroke	3 mm
Manual Distance	160 mm	Feed of One Turn of Handwheel (2-step)	20 mm (2 mm)
Auto Rapid Advance	40 mm	**Motor**	
Sliding Seat Supplementary Displacement	95 (total 255 mm)	Wheel Spindle	3.75 kw (4 P)
Min. Setting Unit	0.001 mm	Workhead Spindle	1.3 kw (Servomotor)
One Turn of Handwheel (graduation)	2 (0.005) mm	Hydraulic Pump	0.75 kw (6 P)
NC Feed Range	0 ~ 99 mm	Wheel Spindle Lubrication Pump	0.18 kw (2 P)
Grinding Wheel		Coolant Pump	0.18 kw (2 P)
O.D. x Width x I.D.	355 x 50 x 127 mm	Internal Grinding Spindle	0.75 kw (2 P)
Speeds (belt-type) r.p.m.	1783 / 1940	**Tank Capacity**	
Work Spindle Head		Wheel Spindle Lubricant Tank	12ℓ
Swivel Angle	120° (+90°, -30°)	Hydraulic Fluid Tank	65ℓ
Center Taper	MT:4	Coolant Tank	100ℓ
Spindle Speeds (variable) r.p.m.	16~450	**Machine Weight**	
Max. Load of Spindle (tool holder included)	35 kg (Max length: 150 mm)	kgs	3800 kgs / 4000 kgs / 4200 kgs / 4400 kgs

High Precision
Cylindrical Grinder
Economic Series

GU20x40S

- Distance between centers 400 mm.
- Swing over table 200 mm.
- Max. grinding diameter Ø160 mm.
- Variable spindle speed 16-450 rpm. Frequency inverter control type.
- Semi-auto feed. Hydraulically operated traverse moving.
- Wheel head provides rapid feed and manual feed for grinding.

SPECIFICATIONS	GU20x40S	SPECIFICATIONS	GU20x40S
Capacity		**Tailstock**	
Distance between Centers	400 mm	Taper Center	MT:3
Swivel Over Table	200 mm	Stroke	20 mm
Max. Load of Centers	60 kg	**Table**	
Max. External Grinding Diameter	160 mm	Swivel Angle	12.5°
Wheel Head		Traverse Speed	50 ~ 4000 mm/min
Swivel Angle	±30°	Auto. Reciprocate Min. Stroke	3 mm
Manual Distance	135 mm	Feed of One Turn of Handwheel (2-step)	20 mm (2 mm)
Auto Rapid Advance	25 mm	**Motor**	
Sliding Seat Supplementary Displacement	95 (total 255 mm)	Wheel Spindle	2.1 kw (4 P)
Min. Setting Unit	0.0025 mm	Workhead Spindle	0.75 kw (4 P) (Inverter)
One Turn of Handwheel (graduation)	2 (0.005) mm	Hydraulic Pump	0.75 kw (6 P)
Handwheel Straight Infeed	0 ~ 0.35 mm	Wheel Spindle Lubrication Pump	0.18 kw (2 P)
Grinding Wheel		Coolant Pump	0.18 kw (2 P)
O.D. x Width x I.D.	305 x 38 x 127 mm	Internal Grinding Spindle	0.18 kw (2 P)
Speeds (belt type) r.p.m.	2085 / 2495	**Tank Capacity**	
Work Spindle Head		Wheel Spindle Lubricant Tank	12ℓ
Swivel Angle	120° (+90°, -30°)	Hydraulic Fluid Tank	65ℓ
Center Taper	MT:3	Coolant Tank	100ℓ
Spindle Speeds (variable) r.p.m.	16 ~ 450	**Machine Weight**	
Max. Load of Spindle (tool holder included)	15 kg (Max length: 100 mm)	Kgs	2000 kgs

High Precision
Cylindrical Grinder
Economic Series

GU32x60S

- Swing over table 320 mm.
- Max. grinding diameter Ø280 mm.

GU42x60S

- Swing over table 420 mm.
- Max. grinding diameter Ø380 mm.

Common Features:
- Distance between centers: 600 mm.
- Variable spindle speed 16 ~ 450 rpm, driven by servomotor.
- Semi-auto feed. Hydraulically operated traverse moving.
- Wheel head provides rapid feed and manual feed for grinding.

SPECIFICATIONS	GU32/42x60S	SPECIFICATIONS	GU32/42x60S
Capacity		**Tailstock**	
Distance between Centers	600 mm	Taper Center	MT:4
Swivel Over Table	320 mm / 420 mm	Stroke	25 mm
Max. Load of Centers	150 kg	**Table**	
Max. External Grinding Diameter	280 mm / 380 mm	Swivel Angle	12°
Wheel Head		Traverse Speed	50 ~ 4000 mm/min
Swivel Angle	±30°	Auto. Reciprocate Min. Stroke	3 mm
Manual Distance	160 mm	Feed of One Turn of Handwheel (2-step)	20 mm (2 mm)
Auto Rapid Advance	40 mm	**Motor**	
Sliding Seat Supplementary Displacement	95 (total 255 mm)	Wheel Spindle	3.75 kw (4 P)
Min. Setting Unit	0.0025 mm	Workhead Spindle	0.8 kw (Servomotor)
One Turn of Handwheel (graduation)	2 (0.005) mm	Hydraulic Pump	0.75 kw (6 P)
Handwheel Straight Infeed	0~0.35 mm	Wheel Spindle Lubrication Pump	0.18 kw (2 P)
Grinding Wheel		Coolant Pump	0.18 kw (2 P)
O.D. x Width x I.D.	355 x 50 x 127 mm	Internal Grinding Spindle	0.75 kw (2 P)
Speeds (belt type) r.p.m.	1783 / 1940	**Tank Capacity**	
Work Spindle Head		Wheel Spindle Lubricant Tank	12ℓ
Swivel Angle	120° (+90°, -30°)	Hydraulic Fluid Tank	65ℓ
Center Taper	MT:4	Coolant Tank	100ℓ
Spindle Speeds (variable) r.p.m.	16~450	**Machine Weight**	
Max. Load of Spindle (tool holder included)	35 kg (Max length: 150 mm)	Kgs	3000 kgs / 3200 kgs

High Precision
Cylindrical Grinder
Economic Series

GU32x100S

- Swing over table 320 mm.
- Max. grinding diameter Ø280 mm.

GU42x100S

- Swing over table 420 mm.
- Max. grinding diameter Ø380 mm.

Common Features:

- Distance between centers: 1,000 mm.
- Variable spindle speed 16 ~ 450 rpm, driven by servomotor.
- Semi-auto feed. Hydraulically operated traverse moving.
- Wheel head provides rapid feed and manual feed for grinding.

SPECIFICATIONS	GU32/42x100S	SPECIFICATIONS	GU32/42x100S
Capacity		**Tailstock**	
Distance between Centers	1000 mm	Taper Center	MT:4
Swivel Over Table	320 mm / 420 mm	Stroke	25 mm
Max. Load of Centers	100 kg	**Table**	
Max. External Grinding Diameter	280 mm / 380 mm	Swivel Angle	10° / 8°
Wheel Head		Traverse Speed	50 ~ 4000 mm/min
Swivel Angle	±30°	Auto. Reciprocate Min. Stroke	3 mm
Manual Distance	160 mm	Feed of One Turn of Handwheel (2-step)	20 mm (2 mm)
Auto Rapid Advance	40 mm	**Motor**	
Sliding Seat Supplementary Displacement	95 (total 255 mm)	Wheel Spindle	3.75 kw (4 P)
Min. Setting Unit	0.0025 mm	Workhead Spindle	1.3 kw (Servomotor)
One Turn of Handwheel (graduation)	2 (0.005) mm	Hydraulic Pump	0.75 kw (6 P)
Handwheel Straight Infeed	0~0.35 mm	Wheel Spindle Lubrication Pump	0.18 kw (2 P)
Grinding Wheel		Coolant Pump	0.18 kw (2 P)
O.D. x Width x I.D.	355 x 50 x 127 mm	Internal Grinding Spindle	0.75 kw (2 P)
Speeds (belt type) r.p.m.	1783 / 1940	**Tank Capacity**	
Work Spindle Head		Wheel Spindle Lubricant Tank	12ℓ
Swivel Angle	120° (+90°, -30°)	Hydraulic Fluid Tank	65ℓ
Center Taper	MT:4	Coolant Tank	100ℓ
Spindle Speeds (variable) r.p.m.	16~450	**Machine Weight**	
Max. Load of Spindle (tool holder included)	35 kg (Max length: 150 mm)	Kgs	3800 kgs / 4000 kgs

High Precision
Cylindrical Grinder
Economic Series

GU32x150S

- Swing over table 320 mm.
- Max. grinding diameter Ø280 mm.

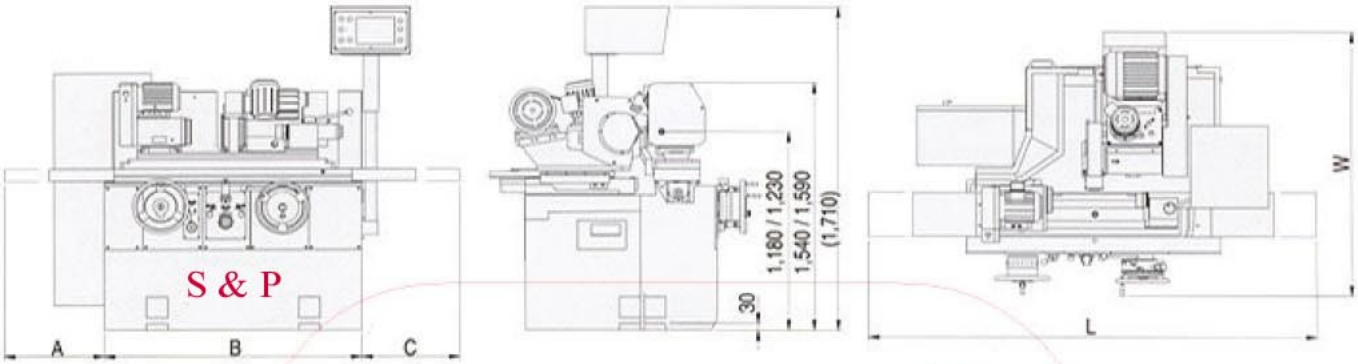
GU42x150S

- Swing over table 420 mm.
- Max. grinding diameter Ø380 mm

Common Features:
- Distance between centers: 1,500 mm.
- Variable spindle speed 16 ~ 450 rpm, driven by servomotor.
- Semi-auto feed. Hydraulically operated traverse moving.
- Wheel head provides rapid feed and manual feed for grinding.

SPECIFICATIONS	GU32/42x150S	SPECIFICATIONS	GU32/42x150S
Capacity		**Tailstock**	
Distance between Centers	1500 mm	Taper Center	MT:4
Swivel Over Table	320 mm / 420 mm	Stroke	25 mm
Max. Load of Centers	100 kg	**Table**	
Max. External Grinding Diameter	280 mm / 380 mm	Swivel Angle	10° / 8°
Wheel Head		Traverse Speed	50 ~ 4000 mm/min
Swivel Angle	±30°	Auto. Reciprocate Min. Stroke	3 mm
Manual Distance	160 mm	Feed of One Turn of Handwheel (2-step)	20 mm (2 mm)
Auto Rapid Advance	40 mm	**Motor**	
Sliding Seat Supplementary Displacement	95 (total 255 mm)	Wheel Spindle	3.75 kw (4 P)
Min. Setting Unit	0.0025 mm	Workhead Spindle	1.3 kw (Servomotor)
One Turn of Handwheel (graduation)	2 (0.005) mm	Hydraulic Pump	0.75 kw (6 P)
Handwheel Straight Infeed	0 ~ 0.35 mm	Wheel Spindle Lubrication Pump	0.18 kw (2 P)
Grinding Wheel		Coolant Pump	0.18 kw (2 P)
O.D. x Width x I.D.	355 x 50 x 127 mm	Internal Grinding Spindle	0.75 kw (2 P)
Speeds (belt type) r.p.m.	1783 / 1940	**Tank Capacity**	
Work Spindle Head		Wheel Spindle Lubricant Tank	12ℓ
Swivel Angle	120° (+90°, -30°)	Hydraulic Fluid Tank	65ℓ
Center Taper	MT:4	Coolant Tank	100ℓ
Spindle Speeds (variable) r.p.m.	16 ~ 450	**Machine Weight**	
Max. Load of Spindle (tool holder included)	35 kg (Max length: 150 mm)	Kgs	4200 kgs / 4400 kgs

Floor Space Occupied and Machine Dimensions



Spindle Specifications	A	B	C	L	W
20 x 40	500	1320	500	2250	1780
32 x 60 / 42 x 60	761	2020	761	3570	1780
32 x 100 / 42 x 100	1011	2475	1011	4500	1780
32 x 150 / 42 x 150	1011	3475	1011	5500	1780

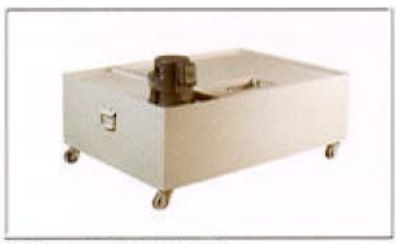
Standard Accessories

1. Grinding Wheel and Flange x 1 set

2. Diamond Tool Holder (Table mounted type) x 1 pc

3. Tools and Kits x 1 set

4. Carbide Tipped Work Centers x 2 pcs

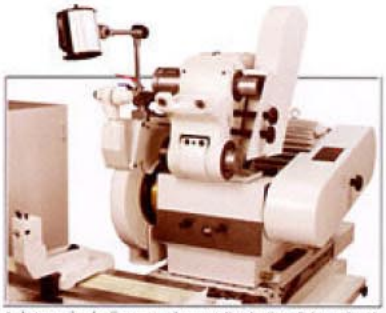


5. Coolant Equipment x 1 set

6. Hydraulic Pump with Tank x 1 set

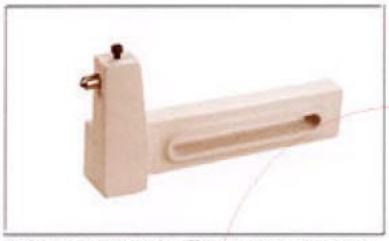
7. Work Lamp x 1 pc

Optional Accessories



1. Internal grinding attachment (Including 3-jaw chuck and one spindle)

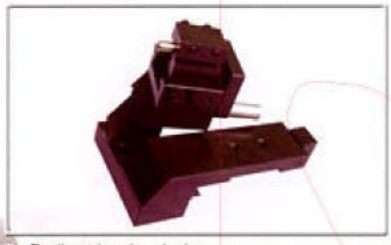
2. Diamond tool holder for internal and external grinding wheel dressing (upward open type)



3. Diamond tool holder (Tailstock mounted type)

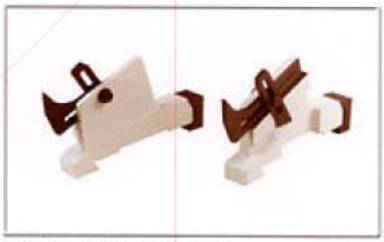
4. Diamond tool holder for internal and external grinding wheel dressing (sideward open type)

5. Angle trimming device

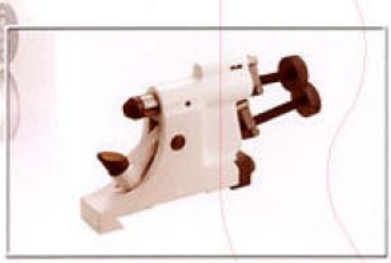


6. Radius trimming device

7. Cam locked driving dogs (6 pcs/set)



8. Work steady rest (2 pcs/set)

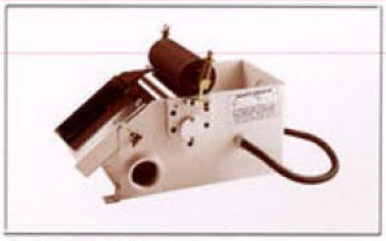


9. 2-point steady rest

10. 3-point steady rest

11. Adjustable 3-jaw scroll chuck

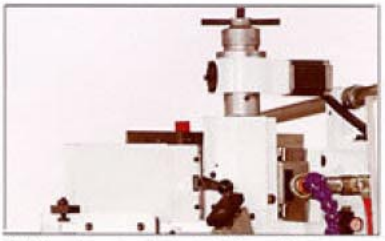
12.. Adjustable 4-jaw scroll chuck



13. Magnetic coolant separator

14. Magnetic with and paper filter

15. Wheel forming device for NC model
(Manual. No auto. compensation)



16. Wheel forming device for NC model
(Auto. compensation)

17. Wheel balancing stand and arbor

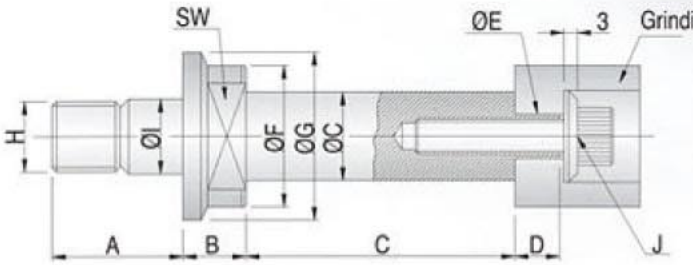
Rigorous Quality Inspection

S & P Q.C. department is fully equipped with comprehensive high precision inspection instruments, providing in-process and final product inspections. These precision instruments enable us to achieve the highest levels of quality. S & P cylindrical grinders are fully satisfied to every customer around the world. This achievement results from our tradition of "Insisting on Quality."


SCHAFFNER
EMC & SAFETY SERVICE

TEST REPORT No. E021101B

Internal Grinding Spindle



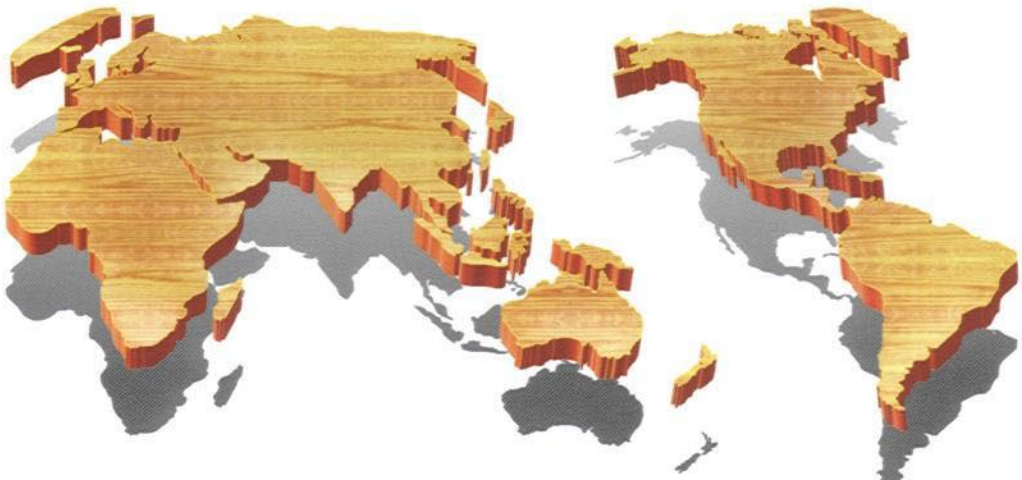
- The ratio of grinding hole diameter to length is 1 : 3.
- Maximum length is 150 mm.

Grinding	Grease type	A	B	C	D	E	F	G	H	I	J	SW	Oil mist type	Grinding hold
Ø65 ~ Ø150	8,000rpm	42	16	Ø40 x 100 Ø40 x 85 Ø40 x 55	12	Ø12	Ø50	Ø58	M26 x 2P	Ø28	M8 x 1.25P	41		
Ø40 ~ Ø80	10,000rpm	29	14	Ø30 x 90 Ø25 x 70 Ø20 x 60	10	Ø10	Ø32	Ø38	M16 x 1.5P	Ø17	M8 x 1.25P	24		
Ø35 ~ Ø70	15,000rpm	29	14	Ø30 x 90 Ø25 x 70 Ø20 x 60	10	Ø10	Ø32	Ø38	M16 x 1.5P	Ø17	M8 x 1.25P	24	20,000rpm	Ø24 ~ Ø40
Ø24 ~ Ø40	20,000rpm	28	11	Ø24 x 80 Ø20 x 60 Ø16 x 40	8	Ø8	Ø26	Ø32	M14 x 1.5P	Ø15	M6 x 1.0P	19	30,000rpm	Ø15 ~ Ø25
Ø15 ~ Ø25	30,000rpm	21	9	Ø16 x 40 Ø13 x 30 Ø10 x 25	6	Ø6	Ø21	Ø26	M10 x 1.5P	Ø10.5	M4 x 0.7P	17	40,000rpm	Ø12 ~ Ø16
Ø12 ~ Ø16	40,000rpm	20	8	Ø12 x 35 Ø10 x 30 Ø8 x 25	x	x	Ø18	Ø23	M8 x 1.25P	Ø8.5	M4 x 0.7P	14	50,000rpm	Ø9 ~ Ø13
Ø9 ~ Ø13	50,000rpm	18	7	Ø8 x 30 Ø7 x 25 Ø6 x 20	x	x	Ø15	Ø20	M7 x 1P	Ø7.5	M4 x 0.7P	11	60,000rpm	Ø7 ~ Ø10
		13	6	Ø6.7x 25 Ø6 x 20 Ø5.7x 15	x	x	Ø11	Ø14	M5 x 0.8P	Ø5.5	M4 x 0.7P M3 x 0.5P	8	80,000rpm	Ø6 ~ Ø8

Rotary-type Internal Grinding Attachment (Optional Accessory)

- Easy to change over from O.D. grinding to I.D. grinding. The attachment is fixed by the rotary support for convenient workpiece loading.
- To position the internal grinding attachment, simply turn it downward and fix it in the grinding position.
- Allows for external and internal grinding operations in one process.
- Tapered workpieces can be ground by swiveling on the workhead and table.
- The internal grinding spindle head on the GU20 series is driven by a 1/4 HP motor.
- The internal grinding spindle head on the GU32/42 series is driven by a 1HP motor.

Sales Network All Over the World



Germany
Italy
Switzerland
India
Russia
Poland
France
Bulgaria
Hungary
Portugal
South Africa
Australia
Isreal
Jordan

Thailand
Malaysia
Singapore
Philippines
Vietnam
Indonesia
Sri Lanka
Turkey
Pakistan
Belgium
Slovenia

China
Hong Kong

South Korea
Japan
Taiwan
Egypt

USA
Mexico
Costa Rica
Brazil
Argentina

Product Range

- Centerless Grinder
- NC Centerless Grinder
- CNC Centerless Grinder
- High Speed Centerless Grinder
- Precision Universal Cylindrical Grinder
- NC Universal Cylindrical Grinder
- CNC Universal Cylindrical Grinder
- NC Internal Grinder
- CNC Internal Grinder
- Surface Grinder

S & P

Santos y Patxi Servicio Técnico S.L.
Parque Empresarial ESSER Nave SE-5
20850 Mendaro (Guipúzcoa) España
Telefono: 0034 943741658
Fax: 0034 934742346
Email: santosjose@santosypatxi.com
Wed: www.santosypatxi.com