



SHIVAM MACHINE TOOLS

Manufacturers of :
SPM's Cylindrical Grinding Machines



About Us

SHIVAM MACHINE TOOLS was created in 2004 by Mr. Dinesh Sharma and Mr. Pradeep Sharma. His son now runs most of the operations. We have been able to expand our business globally over the years and continue to grow each year. We specialize in the auto bearing industry, manufacturing SPM's cylindrical grinding machines. Shivam is a global engineering and manufacturing company that bring the latest generation of technology for their customers.



www.smtindia.net



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Precision Cylindrical Grinding Machine

SMT

Precision Cylindrical Grinding Machines are designed and manufactured to achieve high accuracies of roundness and cylindricity of the jobs. It has separate internal and external grinding heads, suitable for both production as well as tool-room applications.

MACHINE BED

Graded casting (25) having box structured, adequately ribbed design, provides very high rigidity and thermal stability in the long run.

WORKHEAD

The machine has a Rigid Universal Work Head. It has an alloy steel spindle running on unique Hydrodynamic Bearings with self-alignment of clearance for different speeds. During dead center grinding, a simple adjustment completely eliminates the clearance in the bearing, thus providing rigid support to the jobs. The bearing arrangement gives wear free operation.

WHEEL-HEAD

The wheel-head has a very rigid spindle running on Hydrodynamic Multi-point Bearings. The spindle is made of alloy steel, specially heat treated (sub-zero) to achieve high accuracy and stability for long life, Spindle cartridge unit is easily interchangeable.

INTERNAL GRINDING HEAD

Internal Grinding Head is mounted separately on the in-feed slide thus providing a rigid support to the spindle, giving better surface finish in grinding. Internal grinding operations can be done after removing external wheel.

TAIL STOCK

The quill is carried in precision pre-loaded anti-friction sleeve and is kept under adjustable spring load. A dresser block is also mounted on the tail-stock body.

IN-FEED SYSTEM

The in-feed system moves on pre-loaded Linear Guide-ways. This guarantees high repetitive accuracy and stick-slip free fine movement of the slide. In-feed is given through an hardened and precision ground cam. Grinding allowance and the required steplessly variable coarse and fine in-feed rates which can be pre-selected on automatic versions. The automatic grinding cycle operates as follows:

RAPID APPROACH - COARSE FEED - FINE FEED - SPARK OFF - RAPID RETRACTION OF THE WHEEL HEAD AND THE IN-FEED HAND WHEEL TO THE PRE-SELECTED POSITION. This cycle also starts/stops the work head motor and the coolant motor automatically. The machine is also capable of interfacing with in-process gauging units as options.

LUBRICATION

The in-feed slide is grease-packed for life. The table slide with turcite is provided with automatic lubrication from the Hydraulic system.

COOLANT SYSTEMS

Variety of coolant filtration systems are available. From baffle tray(standard) to magnetic, paper cum magnetic type filtration system as optional.

"S" Models with hydraulic rapid and table movement & manual in-feed are also available.

TECHNICAL SPECIFICATIONS

SPECIFICATIONS U/M CGM-150 A/S

CAPACITIES

Centre Height	mm	150
Centre Distance	mm	700
Grinding Length	mm	650
Max Weight between center	kg	60

LONGITUDINAL SLIDE

Table Speed	Mtr./Min	0.1-5
Max Travel	mm	650
Min Automatic Travel (apprx.)	mm	2.5
Max Swivel of Table	deg.	12

IN-FEED SYSTEM

Rapid Approach	mm	50
In-feed with hand wheel	mm	20
Max plunge depth on dia. #	mm	1.7
In-feed on dia. (coarse) #	mm/min.	0.015-6
In-feed on dia. (fine) #	mm/min.	0.015-3
Spark - off time #	sec	0-60
Min Incremental In-feed on dia	mm	0.001

WHEEL HEAD

Grinding wheel (OD x width x bore)	mm	400X40X127
Min. wheel with zero job	mm	280
Power	kW	3.7
Grinding speed	mtr./sec	33

WORK HEAD

Spindle Speeds (8 steps)	rpm	56-630
Spindle Nose Taper	MT	5
Power	kW	0.37/0.55
Swivel Range	Deg.	0-90

TAIL STOCK

Quill Travel	mm	20
Taper	MT	4

INTERNAL GRINDING HEAD

Spindle Housing Bore dia.	mm	80
Spindle Size	mm	80 x 250
Spindle Speed	RPM	12000
Power	kW	1.5

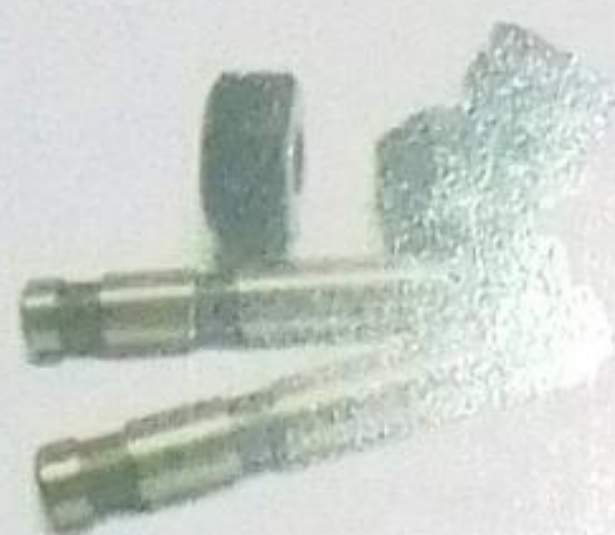
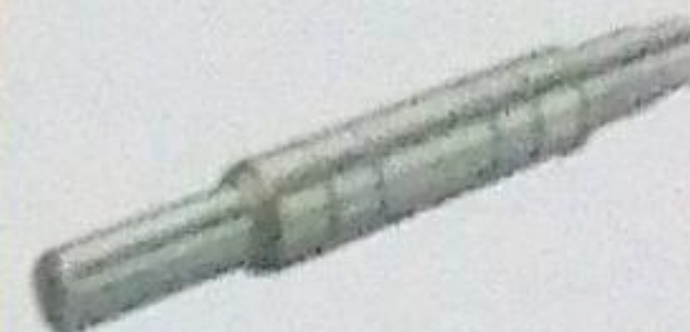
GUARANTEED ACCURACY

Roundness of Live Spindle (on standard piece dia. 80mm)		
Standard	mm	0.002
Special Equipment	mm	0.001
Cylindricity over 400mm	mm	0.002

GENERAL

Total power requirement	kW	6.5
Total Weight apprx.	Kg.	3200

Available only with Automatic Versions / * Optional / A Automatic / S Semi-Automatic



SPECIFICATIONS

SPECIFICATIONS

U/M

CGM-125 A/S

CAPACITIES

Centre Height	mm	125
Centre Distance	mm	600
Grinding Length	mm	450
Max Weight between center	kg	40

LONGITUDINAL SLIDE

Table Speed	Mtr./Min	0.1-5
Max Travel	mm	450
Min Automatic Travel (apprx.)	mm	2.5
Max Swivel of Table	deg.	30

IN-FEED SYSTEM

Rapid Approach	mm	40
In-feed with hand wheel	mm	20
Max plunge depth on dia.#	mm	1.7
In-feed on dia. (coarse)#	mm/min.	0.015-6
In-feed on dia (fine)#	mm/min.	0.015-3
Spark - off time#	sec	0-60
Min Incremental in-feed on dia	mm	0.001

WHEEL HEAD

Grinding wheel (Od x width x bore)	mm	300X40X127
Min. Wheel with zero job	mm	240
Power	kW	2.2
Grinding Speed	m/s	33

WORK HEAD

Spindle Speeds (8 steps)	rpm	90-1000
Spindle Nose Taper	MT	4
Power	kW	0.16/0.32
Swivel Range	Deg.	0-90

TAIL STOCK

Quill Travel	mm	20
Taper	MT	3

INTERNAL GRINDING HEAD

Spindle Housing Bore Dia.	mm	80
Spindle Size	mm	60 x 250
Spindle Speed	RPM	18000
Power	kW	1.5

GUARANTEED ACCURACY

Roundness of Live Spindle (on standard piece dia. 80mm)		
Standard	mm	0.002
Special Equipment	mm	0.001
Cylindricity over 400mm	mm	0.002

GENERAL

Total power requirement	kW	4.5
Total Weight apprx.	Kg	1800

Available only with Automatic Versions / * Optional / A Automatic / S Semi-Automatic





Precision Cylindrical Grinding Machine

SMT

Precision Cylindrical Grinding Machines are designed and manufactured to achieve high accuracies of roundness and cylindricity of the jobs. It has separate internal and external grinding heads, suitable for both production as well as tool room applications.

MACHINE BED

Close grained graded casting (FC 25) with box structured adequately ribbed design, provides very high rigidity and thermal stability in long run.

WORK-HEAD

The machine has a Rigid Universal Work Head. It has an alloy steel spindle running on unique hydrodynamic bearings having self-alignment of clearance for different speeds. During dead center grinding a simple adjustment completely eliminates the clearance in the bearing thus providing rigid support to the jobs. The bearing arrangement gives wear free operation.

WHEEL-HEAD

The wheel head has a very rigid spindle running in Hydrodynamic Multi-point Bearings. The Spindle is made of alloy steel, specially heat treated (sub-zero) to achieve high accuracy and stability for long life, Spindle cartridge unit is easily interchangeable.

INTERNAL GRINDING HEAD

Internal Grinding Head is mounted separately on the in-feed slide thus providing a rigid support to the spindle giving better surface finish in grinding. Internal grinding operations can be done after removing the external wheel.

TAIL STOCK

The quill is carried in precision pre-loaded antifriction sleeve and is kept under adjustable spring load. A dresser block is also mounted on the tail stock body.

IN-FEED SYSTEM

The in-feed system moves on pre-loaded Linear Guideways. This guarantees high repetitive accuracy and stick-slip free fine movement of the slide. In-feed is given through a hardened and precision ground cam. Grinding allowance and the required stepless variable coarse and fine in-feed rates can be pre-selected on automatic versions. The automatic grinding cycle operates as follows:

RAPID APPROACH - COARSE FEED - FINE FEED - SPARK OFF - RAPID RETRACTION OF THE WHEEL HEAD AND THE IN-FEED HAND WHEEL TO THE PRE-SELECTED POSITION. This cycle also starts/stops the work head motor and the coolant motor automatically. The machine is also capable of interfacing with in-process gauging units as options.

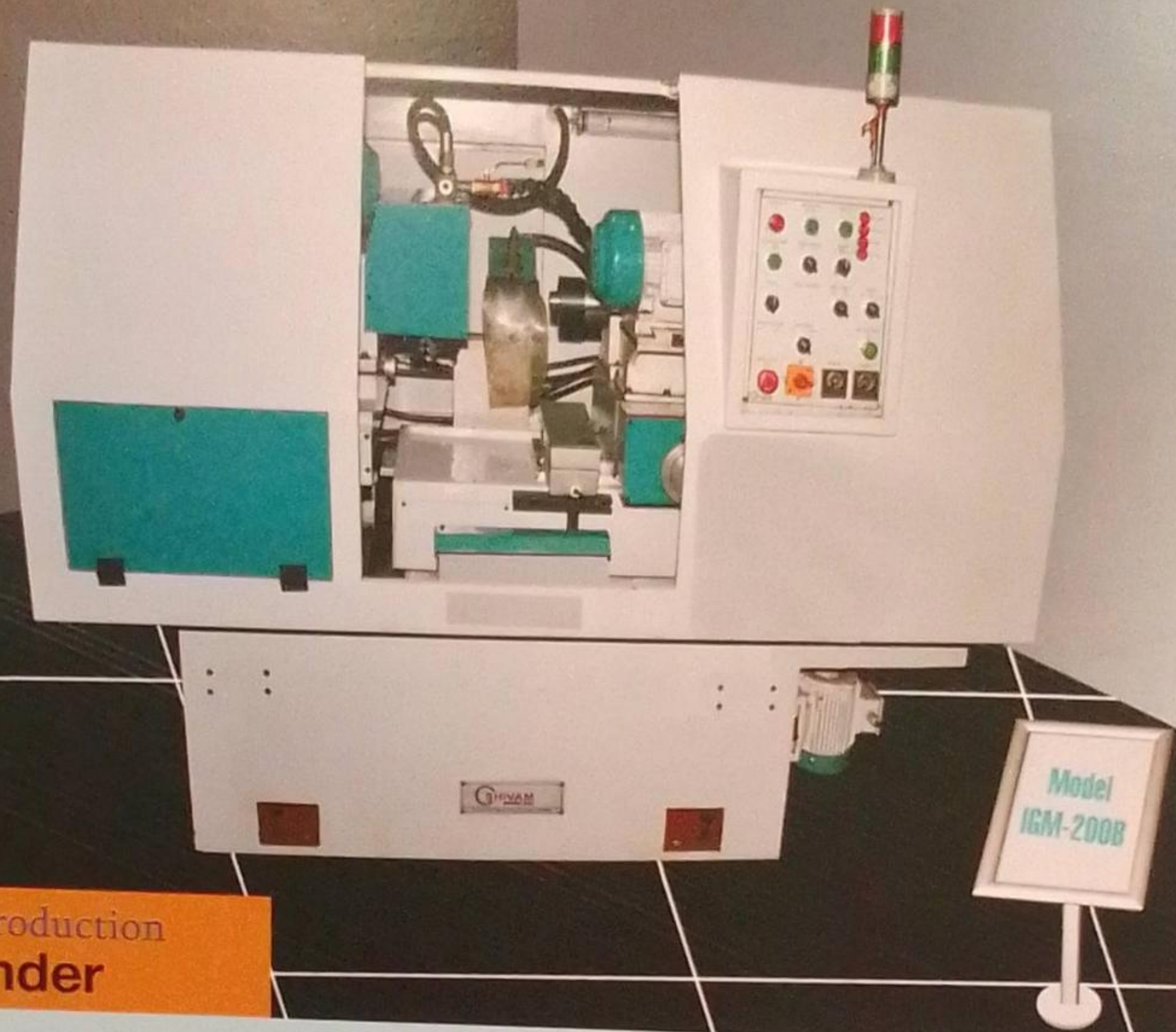
LUBRICATION

The in-feed slide is grease-packed for life. The table slide with turcite is provided with automatic lubrication from the Hydraulic system.

COOLANT SYSTEMS

Variety of coolant filtration systems are available. From baffle tray(standard) to magnetic, paper cum magnetic type filtration system as optional.

"S" models with hydraulic rapid and table movement and manual in-feed are also available.



Automatic Production Bore Grinder

GENERAL DESCRIPTION

The Bore Grinding machine model 200B offers the best solutions for grinding bearing races and other automobile components. It meets the requirement of high dimensional accuracy regarding circularity and squareness with a very fine surface finish in large production runs. The automatic grinding cycle with diamond size control provides effortless repetitive grinding under high cutting speed conditions. In addition, the automatic wheel dressing cycle including wheel wear compensation, reduces the need for operator skill and attention. The machines are supplemented with strong application engineering to further enhance their capacities.

BED

It is made of high grade cast iron duly seasoned, adequately ribbed with box structure design which provides high rigidity, strong enough to prevent distortion and wear.

WORK HEAD

The machine has a rigid work head. It has alloy steel spindle running on high precision anti-friction bearings. The spindle is driven by a dynamically balanced motor/pulley for low vibrations.

INTERNAL GRINDING HEAD

It is mounted separately on the bed. It moves on pre-loaded, anti-fiction linear guideways for accurate dressing and dressing compensation. Apart from the belt driven spindle, high frequency spindle can also be offered.

SLIDEWAYS

At any instance, there is full contact of the moving slideways to achieve maximum rigidity. Slideways are coated with anti-friction material (TURCITE-B) with high vibration absorption and very low friction factor, avoiding stick-slip. This improves the life of slideways.

INFEEED SYSTEM

The slide has rigid and precision hardened and ground pre-loaded roller guideways. It guarantees high repetitive accuracy and absolutely stick-slip free movements. The in-feed is operated by precision cam.

STRAIGHT DRESSER

The dresser is mounted on the bed and hydraulically actuated up and down by hydraulic cylinder.

ELECTRICAL PANEL/ POWER PACK COOLANT UNIT

These are housed outside the machines as separate units to facilitate easy maintenance. HYD & electrical equipment is of excellent quality and ensures trouble free, life long service.

SPECIFICATIONS

U/M

IGM-200 B

CAPACITIES

Dia of work piece	mm	20-200
Width of work piece	mm	05-30

LONGITUDINAL SLICE

Speed	mtr./min	5
Swivel	mm	250

FEED SYSTEM

Feed Approach (adjustable)	mm	0-5
Feed with hand wheel	mm	30
Max. plunge depth on dia.	mm	1.0
In-feed rate on dia.	mm/min.	0-6

WORK HEAD

Max Slide Setting	mm	90°
Max Swivel	Deg.	±2°
Spindle RPM		0-650
Spindle Nose Taper	MT	5
Motor Power	Kw	1.5

INTERNAL HEAD

Spindle Size	mm	100 x 315
Speed	rpm	10000
Power	Kw	3.5
Axial adjustment of slide	mm	25
Max Wheel Dia	mm	100

DRESSING COMPENSATION

Manual / Adjustment	mm	40
Dressing Depth	mm	0.010, *0.020

GUARANTEED ACCURACY

**Roundness	micron	2
Roughness (Ra value)	micron	0.3
Total Power Requirement	Kw	7.5
Total Weight approx.	Ton	3
Floor Area	Mtr.	3 x 2

* Optional / ** Depends on Work Piece Input Accuracy

