

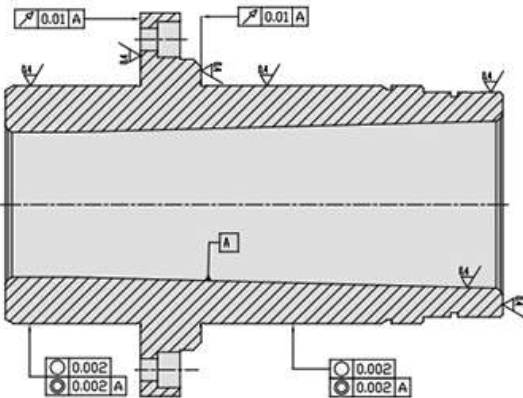


## UNIVERSAL GRINDING MACHINE

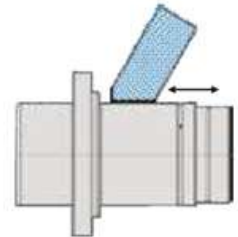




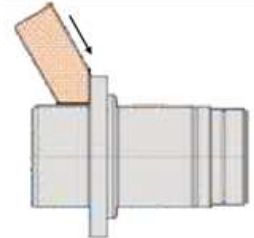
## Precision with Flexibility



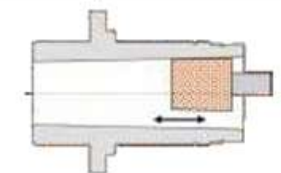
OD Grinding with Traverse



Shoulder Grinding



ID Grinding



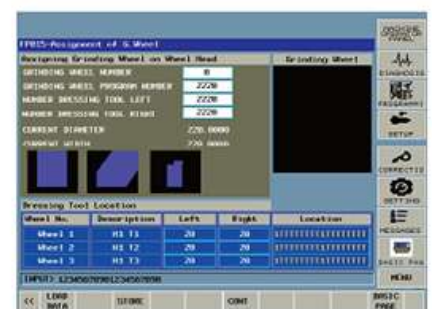
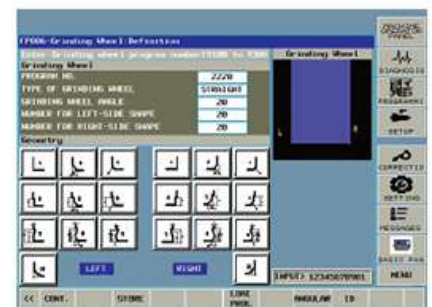
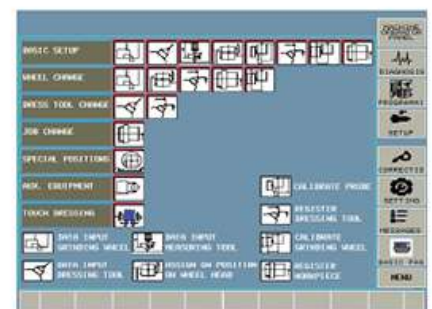
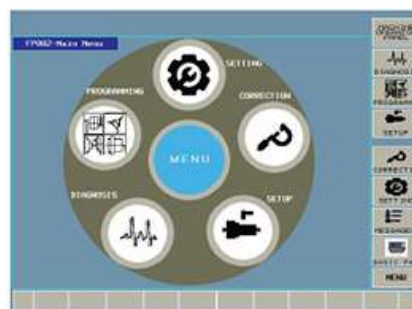
The Flexi series of Grinders are CNC Universal Grinding Machines suitable for grinding of Outside Diameters (OD), Internal Diameters (ID) and Shoulders in a single chucking. As the name suggests, these machines are suitable for individual to large batch production, providing the highest level of Flexibility & Precision of size and geometry.

These machines are capable of high speed grinding up to 60 m/sec wheel surface speed with conventional grinding wheels.

The special menu driven Micromatic Grinding Software makes it easier, even for users who are not familiar with the software, to quickly adapt and use this machine to achieve optimum results.

## FLEXI "Ease Grind Software"

In the Flexi Universal Grinding machine MGT has introduced *Ease Grind* software. This software is developed with the experience of nearly 5 decades in Grinding. It is key to the machine's flexibility in operation and use.



### How *Ease Grind* Really helps for easy grinding:

- **No need to make any Part program**, only input of grinding data does your job.
- **Changeover is very easy**, with the quick-setting provision, hence all the touch calculations happens with inbuilt algorithm.
- **Chances of incorrect grinding data input by mistake is almost zero**, since screens are developed with required interlocks.
- With the *Ease Grind* software, the user can make more than 10 different grinding cycles that can run simultaneously.
- *Ease Grind* customized screens are operator friendly & reliable. Also available in multiple languages on special request, so no special skill will be required to perform the job.

## Turret Wheel Head (B-Axis)

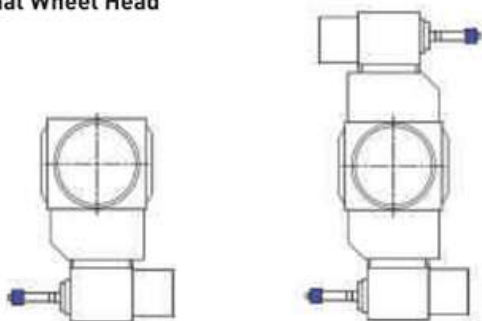
- Swivelling range -15 to +225 degree.
- B-axis resolution 0.0001 degree.
- B-axis positioning repeatability  $\pm 2$  arc seconds.
- Fast Swivelling speed  $\leq 8$  seconds.

The Turret Wheel Head is driven by a High Torque Motor with infinitely variable speed control. Rigid clamping in position is achieved through pneumatic clamping to minimize the chances of errors. In line direct coupled high resolution encoder ensures accurate angular positioning of wheel head. 10 different variants (see below) are available to suit the exact requirements of the application.

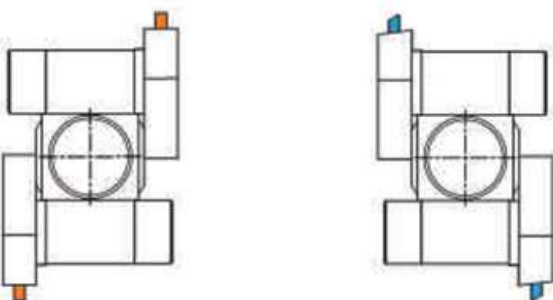


## Turret Wheel Head Options

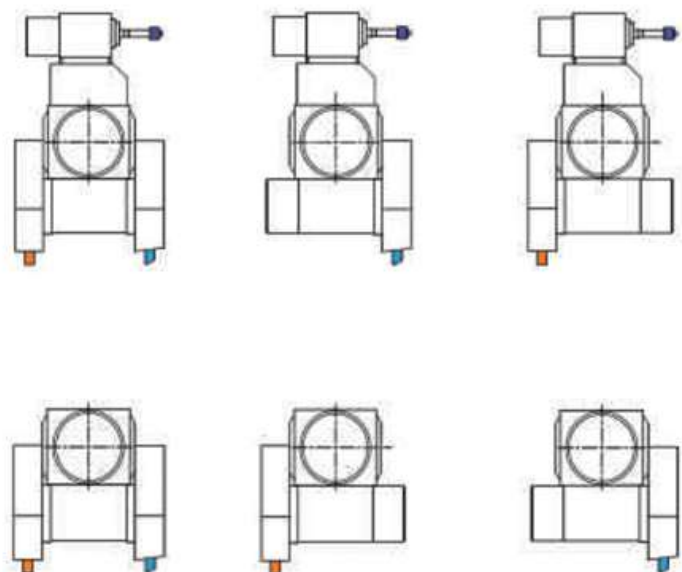
Internal Wheel Head



Diagonal Wheel Head



Universal Wheel Head





## Work Head

- Cartridge type spindle
- Roundness accuracy 0.5  $\mu\text{m}$  on standard test piece
- Swivelling Range 0 to +30°

The Universal Work Head is designed for high precision and rigidity in live or dead centre grinding. The workheads are equipped with super precision taper roller bearings, which are low in maintenance and achieve excellent roundness accuracy of 0.5  $\mu\text{m}$  on test piece. The workheads are equipped with a pneumatic lifting device to facilitate movement during setup and resetting. The workhead can be equipped with optional AE sensors for air gap sensing to reduce the air cutting and increase productivity.



## Tailstock

- Fine adjustment for taper  $\pm 40 \mu\text{m}$ .
- Manual or Hydraulic actuation offered as option.

The 63 mm diameter barrel is designed for the use of Morse 4 taper centers and glides in the tailstock housing. The tailstock is having the option for hydraulic actuation of barrel retraction, for convenient workpiece changeover. Provision of lifting the tailstock by supply of pneumatic pressurised air for easy setup and resetting comes as standard. The tailstock is equipped with a sensor to ensure the correct loading of workpiece. Fine adjustment enables taper correction in the range below 1  $\mu\text{m}$  when grinding between centers.



## Dressing Unit Option

Flexi is equipped with dressing unit options like

- Table mounted swing Arm dresser
- Work head mounted
- Tailstock mounted

Swivelling arm dresser is more effective for all wheel dressing and is easy to change the position on table.

# Machine Specification

DESCRIPTION	UNIT	Flexi 400	Flexi 630	Flexi 1000
<b>CAPACITY</b>				
Centre height	mm	175	175	175
Admit between centre	mm	400	630	1000
Grinding length	Straight wheel	400	630	1000
	Angular wheel	240	450	825
Maximum weight between centre	kg	60	80	120
Maximum chuck diameter holding	mm	100	90	90
<b>LONGITUDENAL SLIDE - Z-AXIS</b>				
Table stroke	mm	640	885	1240
Minimum increment / pulse	mm	0.0001	0.0001	0.0001
Feed servomotor torque	Nm	8	12	12
Machine table swivelling range	degree	8.5	8.5	8.5
<b>WHEEL SLIDE X-AXIS</b>				
Slide stroke	mm	320	320	320
Minimum increment / pulse	mm	0.0001	0.0001	0.0001
Feed servomotor torque	Nm	8	8	8
<b>SWIVEL DEVICES (B-AXIS)</b>				
Swiveling range	degree	-15 to +225	-15 to +225	-15 to +225
B- Axis resolution	degree	0.0001	0.0001	0.0001
Swiveling time for 180°	sec	8	8	8
B- Axis positioning repeatability	Arc Seconds	±2	±2	±2
<b>WHEEL HEAD</b>				
<b>For OD &amp; Face Grinding</b>				
Grinding wheel size (OD x thick X bore)	Left side	500 x 40(50ROS) x 203.2	500 x 63(80ROS) x 203.2	500 x 63(80ROS) x 203.2
	Right side	500 x 40(50ROS) x 203.2	500 x 63(80ROS) x 203.2	500 x 63(80ROS) x 203.2
Spindle motor power (built in type)	kw	7.5	7.5 (11)	7.5 (11)
Peripheral (surface) speed	m/sec.	60	60	60
<b>INTERNAL HEAD</b>				
HF Spindle hosing bore dia.	mm	120	120	120
Rotational speed of spindle, motor infinitely variable min-1	rpm	20000-100000	20000-125000	20000-125000
Wheel diameter	mm	50	50	50
<b>WORK HEAD</b>				
Centre taper	No.	MT4	A2-4/MT4 (MT5)	A2-4/MT4 (MT5)
Spindle speed (infinitely variable)	rpm	30-800	30-800	30-800
Work swiveling range	Degree	0 to +30	0 to +30	0 to +30
Motor torque	Nm	12	22	22
<b>TAILSTOCK</b>				
Centre taper	No.	MT-4	MT-4	MT-4
Quill diameter	mm	60	60	60
Quill travel	mm	40	40	40
Micro taper correction	mm	± 0.040	± 0.040	± 0.040
<b>DRESSING UNITS</b>				
For OD grinding wheel		On Workhead blade type	On Workhead blade type	On Workhead blade type
For groove grinding wheel		Thru disc dresser behind tailstock	Thru disc dresser behind tailstock	Thru disc dresser behind tailstock
For internal wheel		Swing type mounted on table	Swing type mounted on table	Swing type mounted on table
<b>HYDRAULIC UNIT</b>				
Tank capacity	ltr	30	30	30
Motor power	kw	0.75	0.75	0.75
<b>GENERAL</b>				
Operation voltage	Volts	415 ± 10%AC 3 Phase	415 ± 10%AC 3 Phase	415 ± 10%AC 3 Phase
Floor space front x depth (basic machine)	mm	3100 x 2800	3500 x 2800	4200 x 2800
Machine weight (Approximate)	kg	4500	5500	6500

Machine is available with CE marking

[ ] Optional

Note : Since continuous development is taking place, design and specifications are subjected to change without prior notice and information.



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