Becoming the Best

Micromatic Grinding TECHNOLOGIES LTD.™

Reliable customer friendly grinding solutions since 1973

CNC Internal Cylindrical Grinder
IG 50 CNC

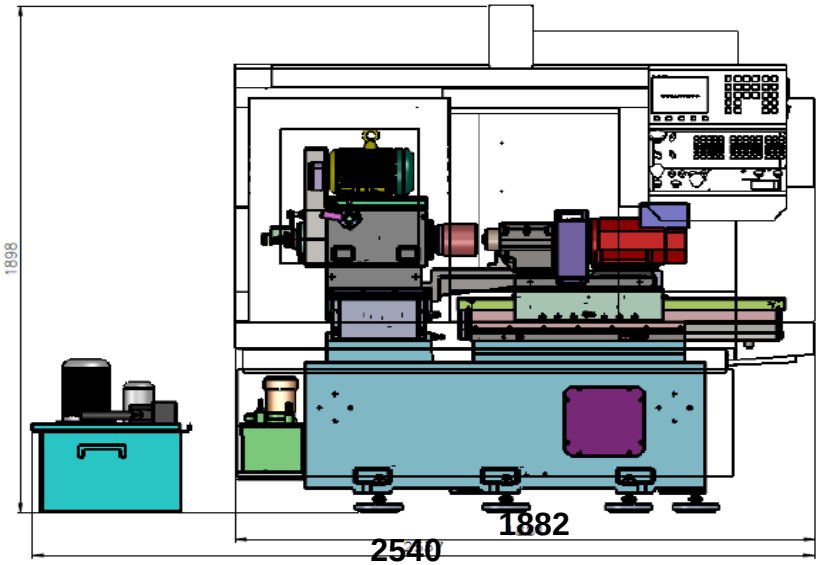
Outline

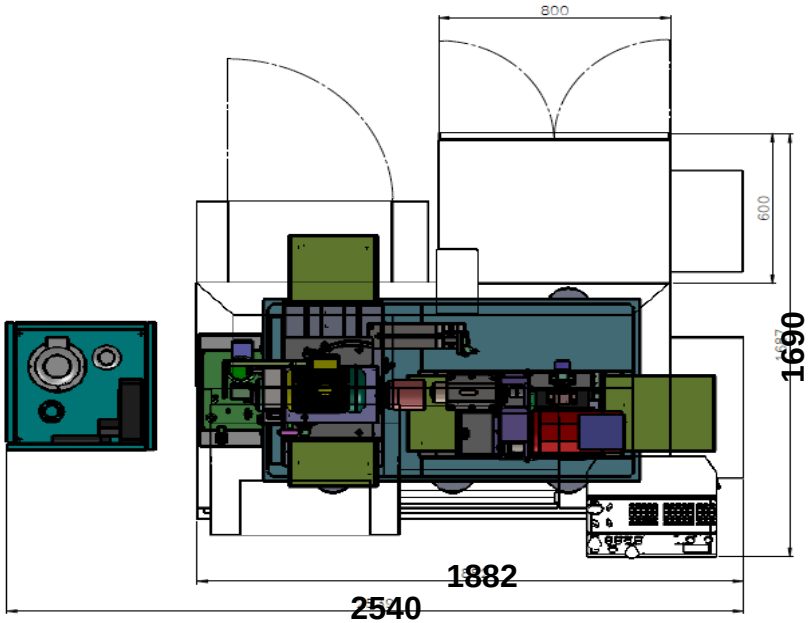
CNC Internal Cylindrical Grinder IG 50 CNC

- Machine Layout
- Technical Specifications
- Machine Accuracies
- Sub Assemblies/Optional Accessories of Machine

2. Application Details
   - Application Example

Machine Layout





Internal Production Cylindrical Grinder IG 50 CNC is compact machine delivering high productivity at very competitive price. This machine is ideally suitable for precision grinding application of components with small bores, taper bore, face and stepped bore. Machine can be offered with High frequency spindles or Belt Driven grinding spindles as per application requirement

Technical Specification

DESCRIPTION	UNIT	VALUE
CAPACITY		
Maximum Rotating diameter of component	mm	120 [150]
Maximum grinding diameter	mm	50 [80]
Minimum grinding diameter	mm	5
Grinding Depth Max.	mm	70
Maximum component weight (Including Chuck)	kg	50
Working height from floor	mm	1000
Max Chuck dia.	mm	160 / 220
CROSS TABLE INFEED (X AXIS)		
Table Stroke	mm	150 [250]
Rapid feed rate	m/min	10
Minium Increment / Pulse on diameter	mm	0.001
Feed servomotor torque	Nm	6 / 8
LONGITUDINAL TABLE (Z - AXIS)		
Table Stroke	mm	250
Rapid feed rate	m/min	10
Minimum Increment / Pulse	mm	0.001
Feed servomotor torque	Nm	6 / 8.

DESCRIPTION	UNIT	VALUE
WORKHEAD		
Spindle Range with Ind.motor	RPM	280/450/710/1120
Induction Motor	Kw	0.75 [1.1]
Speed Range with AC Servo Motor (Optional)		1200 (Infinitely variable)
Spindle nose external	No	A2-4 [A2-5]
Swivelling range (Chuck Dia Max. 220)	Degree	-3/ +10
(Chuck Dia Max. 160)	Degree	-3/ +30
INTERNAL GRINDING HEAD		
Belt Driven Spindle max. rpm. Greased packed	RPM	[6,000-35,000]
Motor speed (Induction motor)	RPM / KW	3000 / 2.2
Optional- High Speed spindle servo motor	rpm / KW	10000 / 3.7
Optional-HF Spindle rpm range with Air-Oil Lubricator.	rpm	30,000-1,05,000
GENERAL		
Control System		Fanuc / Seimens
Operation voltage	Volts	415 + 10 % AC 3 Phase
Total connected load	KVA	30
Machine weight	KG	3000 (Approx)

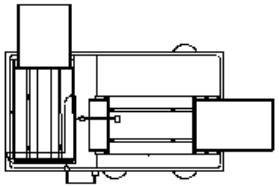
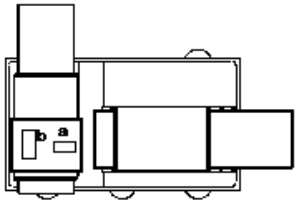
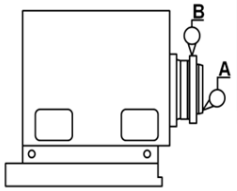
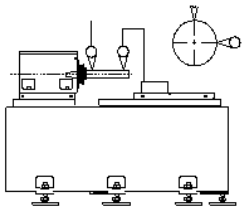
[ ] Optional

Note: All Specification and design, subject to alteration without notice

Micromatic Grinding TECHNOLOGIES LTD.

Ace Micromatic Group Company

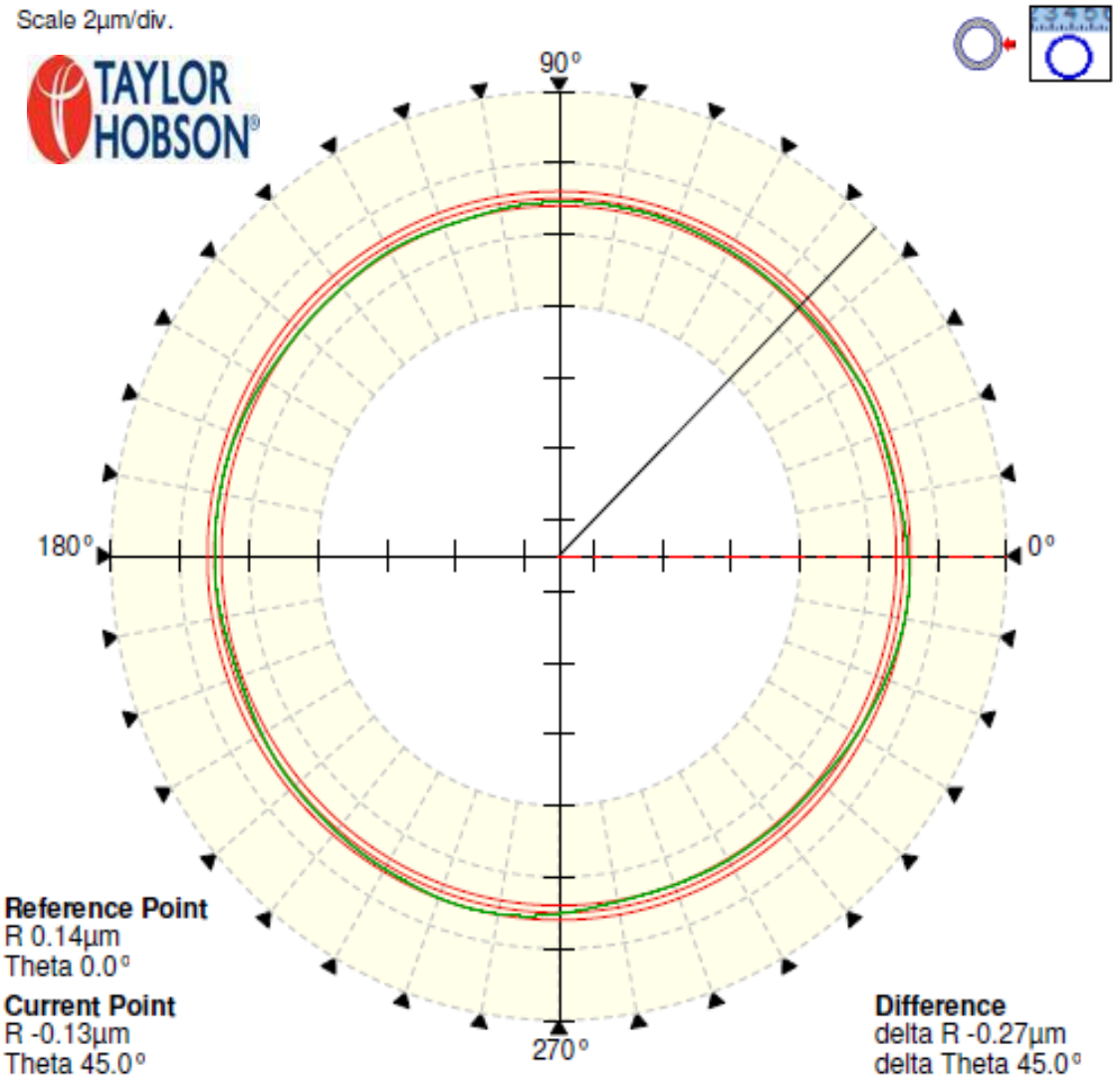
Machine Accuracy
(on standard Basic machine)

TEST ITEM	FIGURE	PERMISSIBLE DEVIATION	
		AS PER IS: 2407	AS PER MICROMATIC
(Squareness of the cross slide movement to the wheel head to the longitudinal movement of the table. (Where ever applicable)		0.020/300	0.005/100
Checking flatness of plate supporting the work head a).in longitudinal direction b).in vertical direction		a) 0.02/1000 b) 0.02/1000	a) 0.02/1000 b) 0.02/1000
(a) Run out of the locating diameter of work head spindle (b) Camming of the locating surface of the work head spindle.		a) 0.005 b) 0.010	a) 0.003 b) 0.005
Wheel head to the table movement. a) In horizontal plane b) In vertical plane		a) 0.01/300 b) 0.02/300 Test mandrill end directed upwards only	a) 0.01/300 b) 0.02/300

Accuracies on Standard Test Piece

Test Piece

Test Piece Material	EN-31
Surface Roughness	0.4 Ra
Roundness	0.6 µ
Test Piece ID	30mm
Test Piece ID Length	25mm



Test Piece Outer Dia.

Sub Assemblies

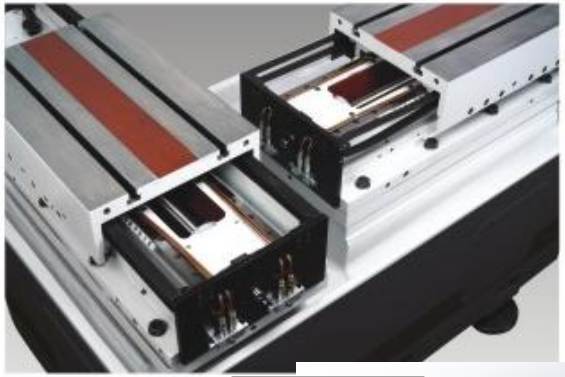
MACHINE BED

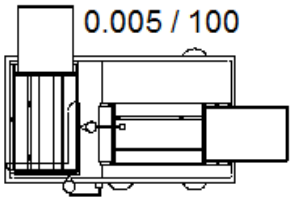
•Cast iron box structured bed

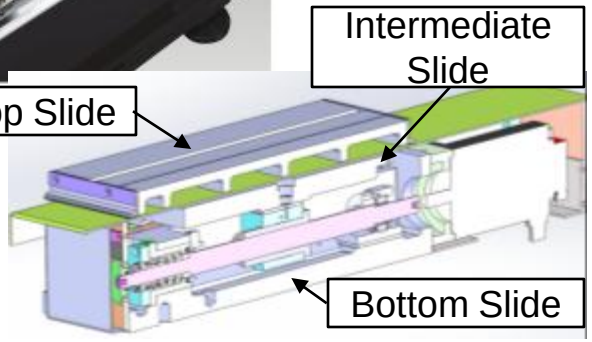
•Tested through FEA analysis for rigidity, vibration & thermal stresses, ensures consistent machine performance with accuracy

•Adequate slope for movement of coolant

INFEED & TRAVERSE SLIDES (X & Z)







• Three piece slide design for compact layout and better coolant protection.

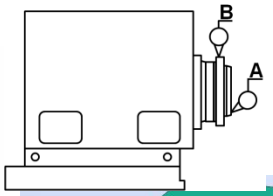
•Slide moves on high precision anti-friction preloaded linear guide ways, to deliver Micronic response and high rigidity.

•Centralized lubrication ensures better lubrication and longer life

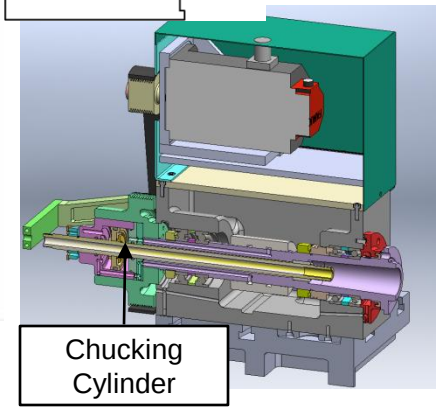
•Special belt is used to avoid fumes entering into the slides.

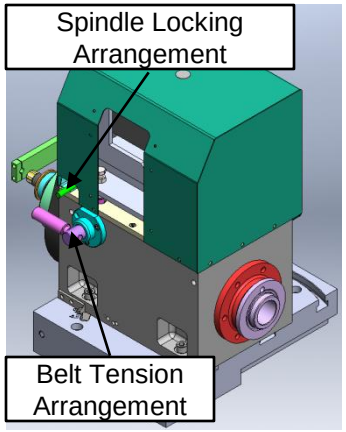
Sub Assemblies

WORK HEAD



A) 0.003
B) 0.005





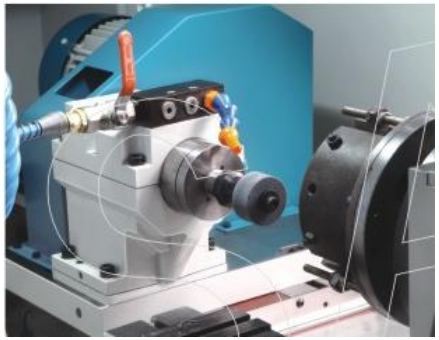
•Rigid Live centre workhead with MT 5 internal and A2-4 external taper
•Spindle runs on precise angular contact bearing grease packed for life
•Spindle is driven thru A.C. Induction motor , optional can be drive thru servomotor

•Work head can be swivel manually
•In-built hydraulic cylinder for clamping/de-clamping for vibration free rotation at higher speed.
•Spindle Locking arrangement for easy changeover of Work Holding.

WHEEL HEAD

Various type of Internal Grinding spindles are offered optionally as per application requirement

1. Belt driven internal spindle- up to 35000 rpm (drive thru Fanuc A. C. spindle motor for variable RPM or Induction motors)

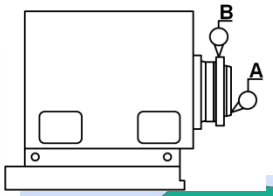


2. High Frequency Spindle are used as per application requirement
   - Spindles speed range from 30,000 to 1,20,000 rpm can be achieved.
   - Increased power and torque.

- High stiffness and load carrying capacity.
- Spindle motor is cooled with liquid cooling arrangements and hence the temperature can be monitored with the help of chiller.

Sub Assemblies

WORK HEAD



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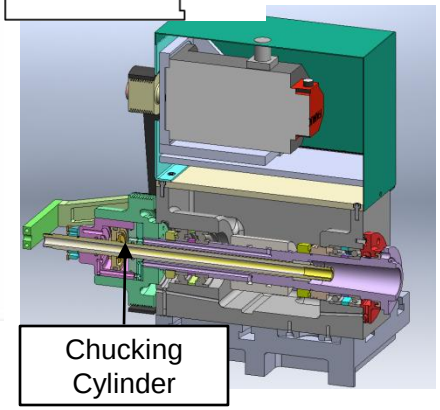

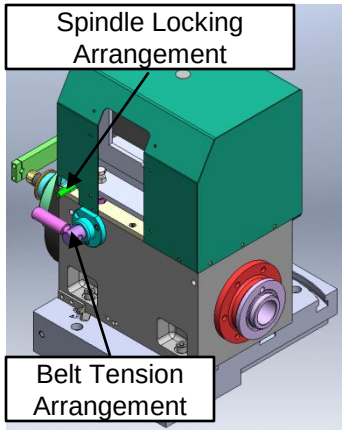

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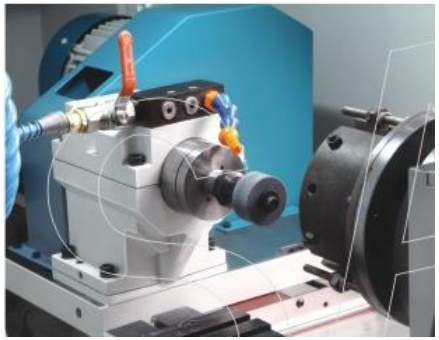

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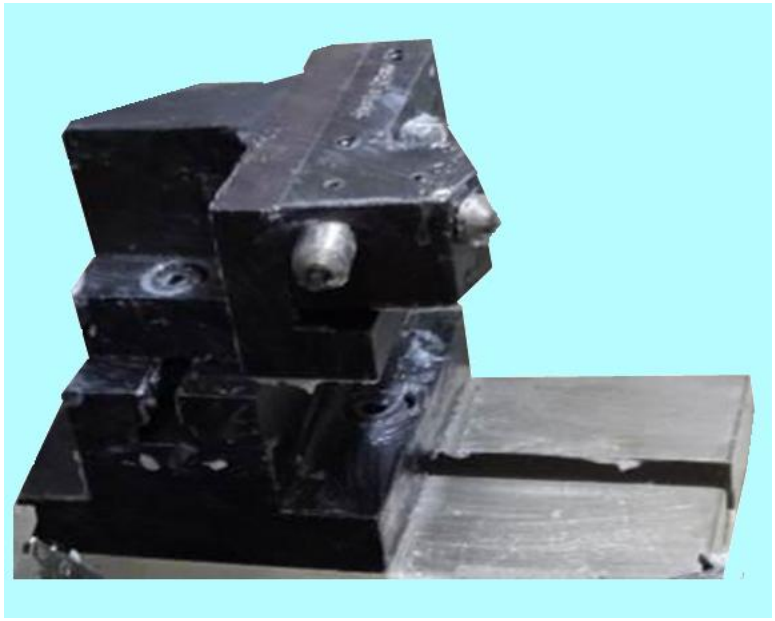
Sub Assemblies

DRESSER UNIT

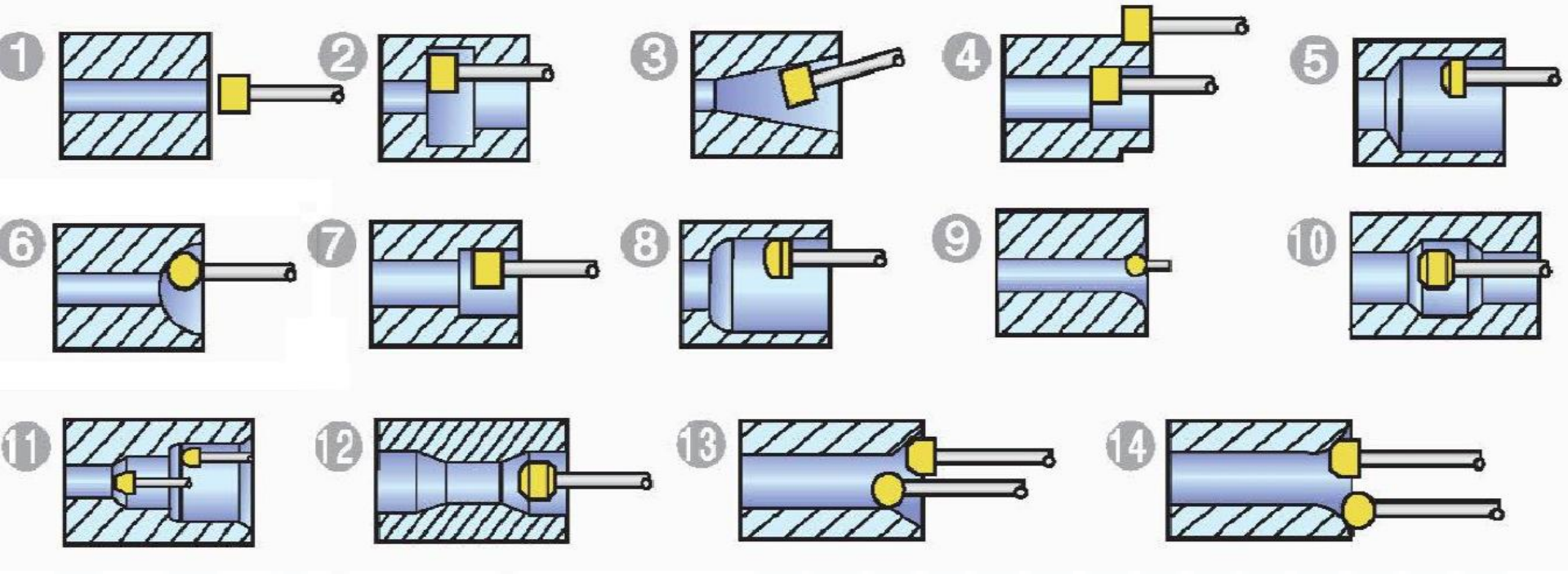


- Dresser is Fixed type mounted on workhead slide ensuring minimum movement of slide for dressing of wheel
- Suitable for dressing of OD, Font Face and Back Face
- Hydraulic swing type of disc type or motorized disc dresser unit can be provided optionally as per requirement of application

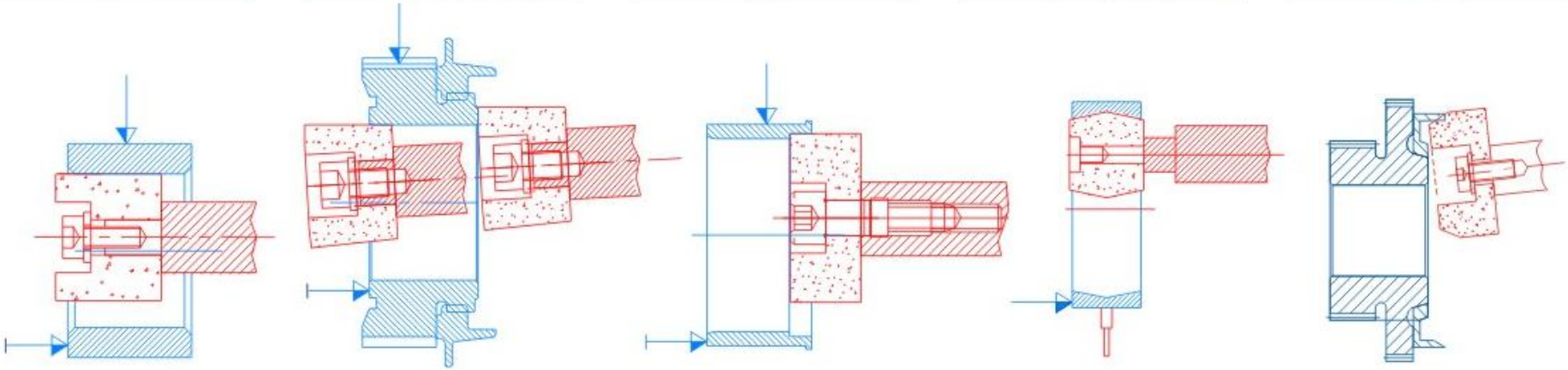
MACHINE CONTROL

- Machine can be offered with FANUC or SIEMENS CNC system
- AC servo motor having inbuilt absolute Rotary encoder for both Axis
- Best in class switch gears are integrated on the machine to provide highly reliable operations
- Operator panel and cabinet are conveniently mounted on the machine for 'Plug & Start Operation' thereby reducing the installation time.
- Operator console had been ergonomically designed for ease of operation.

Various Applications that can be done on machine



Plain Bore | Plain Bore & Face | Stepped Bore | Bearing Trac | Chamfer



Typical Components that can be Ground

Automobile component
Bore and Face Grinding

Bearing Race
Bore Grinding

Becoming the Best

THANK YOU