

VALVE SEAT

Machine Specification

Highlights

GRINDING MACHINE

Model- GVS CNC 60MPS

The GVS CNC 60MPS machine is especially developed to meet high productivity requirement of engine valve seat grinding.

The machine is featured with 60 MPS wheel surface speed and high speed loading unloading system.

Machine is equipped with provision to locate the valve from either the tip end or the face end for seat height control.

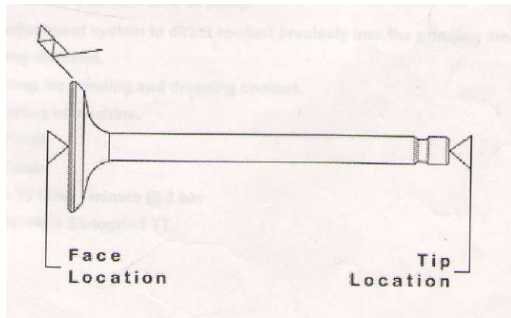
Machine is validated for static and dynamic rigidity by model analysis.

Salient Features

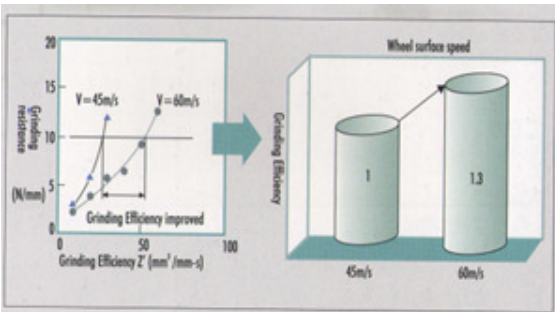
- Box type single piece bed of FG260 grade cast iron for high rigidity and damping characteristics.
- Coolant outlet near major coolant drop and adequate slopes in the bed to flush the grinding muck efficiently.
- Cartridge type modular work head and wheel head spindles.
- Wheel head spindle with provision of dynamic balancer inside the spindle to reduce vibration.
- Machine interface various safety features and interlocks for safe operation.
- Prototype testing- Stringent evaluation test related to quality and reliability done as per global standard.
- A pneumatic lifting provision to facilitate easy & fast setup change of work head table for angle setting.
- High precision spindles with angular contact bearings.

DESCRIPTION	UNIT	GVS CNC 60 MPS
RANGE		
Valve Head Diameter	mm	20-50 mm
Valve Stem Diameter	mm	4-10 mm
Valve Overall Length	mm	70-170 mm
Valve Seat Angle	Degree	45 to 60
GRINDING WHEEL HAED		
Grinding wheel size (ODXIDXWIDTH)	mm	610X304.8X20
Wheel Peripheral Speed	M/sec	60
Spindle Speed		Step less variable
Type of Spindle Bearing		Antifriction Bearing
Spindle Motor Power	kW	5.5
Grinding Wheel Position	Degree	15
WORK HEAD		
Spindle Speed Range	RPM	50-650
Type of Spindle Bearing		Antifriction Bearing
Drive Motor (Servo)	Nm	12
WHEE DRESSING		
Dresser Type		Needle type
WHEEL HEAD X -AXIS		
Slide Stroke	mm	180
Rapid Feed Rate (on diameter)	mm/min	10000
Minimum Incremental /Pulse	mm	0.0001
Feed Servo Motor Torque	Nm	8
Type of Guide ways		LM - N/O Type
WHEEL HEAD Z -AXIS		
Slide Stroke	mm	280
Rapid Feed Rate (on diameter)	mm/min	10000
Minimum Incremental /Pulse	mm	0.0001
Feed Servo Motor Torque	Nm	8
Type of Guide ways		LM - N/O Type
VALVE LOADING Y-AXIS		
Slide Stroke	mm	170
Feed Servo Motor Torque	Nm	4
Type of Guide ways		LM - HSR Type
COOLANT		
		Neat Oil
HYDRAULIC UNIT		
Tank Capacity	liters	20
Motor Power	kW	0.55
GENERAL		
Operation Voltage	Volts	415±10 % AC 3 Ph
Floor Space (w/o coolant tank)	mm	2700X3200
Machine Weight	Kg	4800

Machine is equipped with provision to locate the valve from either the tip end or the face.



Machine is featured with 60MPS wheel surface speed to enable higher productivity without compromising on accuracy and quality of



Small foot print 2.7x3.2 meter suitable for cell concept.



Standard Features:

Loading unloading system:

- Automatic loading from rails and unloading to flat conveyor.
- Complete loading unloading system integrated on work head for easy and fast setting.
- Non-metallic strips on unloading system to avoid damage to valve.

Work Head:

- High precision spindle with angular contact ball bearings.
- Single ended precision collet.
- Variable speed through servo motor.
- Collet spindle stops during load unload.
- Provision for seat height control from tip & face reference.
- Rotary encoder for seat angle setting & display.

Wheel Head:

- High precision spindle with angular contact ball bearings.
- Constant surface speed of wheel through variable frequency drive.
- Provision for dynamic wheel balancer inside the spindle.
- Automatic dressing compensation.

X & Z axes:

- High precision oil lubricated needle roller linear bearing.
- Drive through rigid ball screw directly coupled with servo motor.

Guarding and safety System:

- Fully enclosed guarding with telescopic doors at front with tie interlock for operator safety.
- Provision for interfacing mist collector.

Control System:

- Fanuc 4 axes CNC system for high speed data processing and high performance servo drive & High speed oscillation function.
- Digital servo drive and absolute encoders.

Coolant System:

- Rigid coolant nozzle with fine adjustment system to direct coolant nozzle into the grinding area.
- Separate coolant line for dressing diamond.

- Independent on/off valve for grinding and dressing coolant.
- Arrangement of bed flushing.

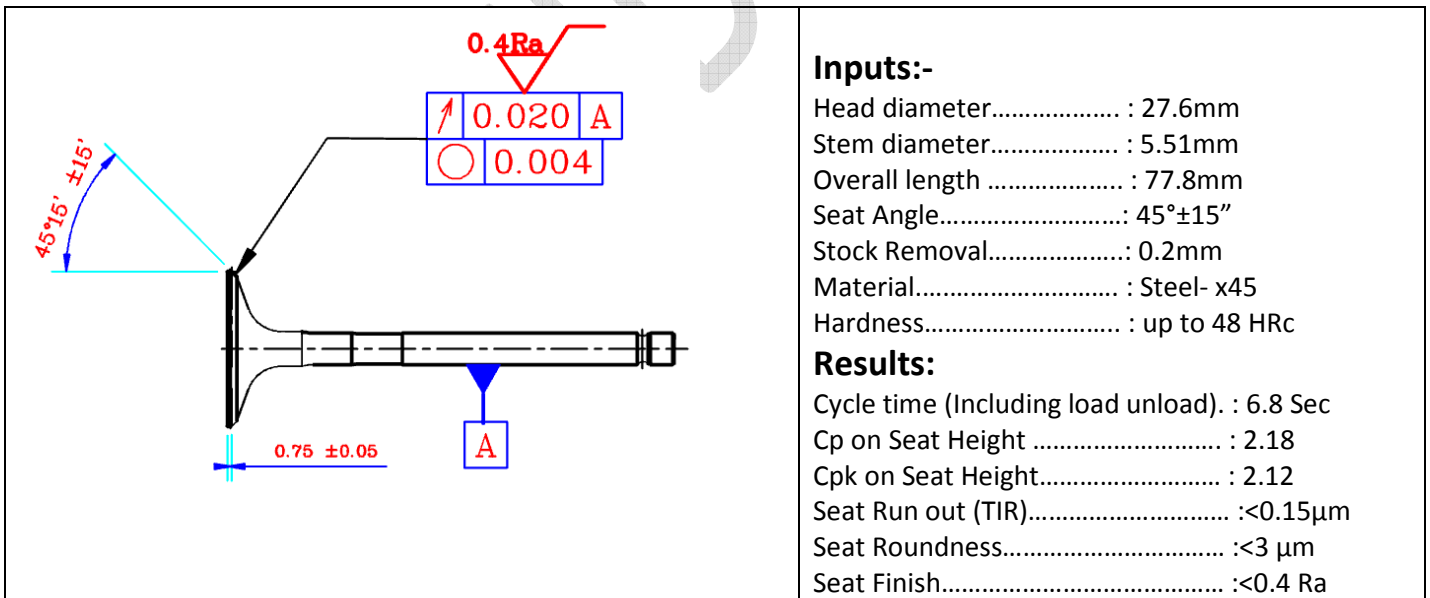
Essential Accessories:

- Compact Band cum magnetic filtration system with 65 LPM/250 liter tank Capacity @ 2.5 bar pressure, with bed flushing arrangement.
- Mist Collector 1200cfm capacity.
- Coolant Chiller Unit Capacity 4500 Kcal/Hr.
- Diamond Dresser, Winter make, Type FDS-115.
- Grinding Wheel Ø600x20x304.8.
- Seat height variation measuring unit (Option).
- Wheel loading unloading device, jib crane type with manual chain pulley block.
- One set of collet & collet adaptor.

Optional Accessories:-

- Special color in lieu of MGTL std color. Standard Color - Machine Bottom Shade PU Paint - Titan Grey & Machine Top (enclosure) shade PU Paint - Traffic White – RAL No. – 9016.
- Additional Grinding Wheel Flange.
- Additional set of collet & collet adaptor.

Case Study (Performance example):-



Micromatic Grinding Technologies Ltd reserves the right to amend this specification at any time without notice.