High speed Micro machining center

Varnica Precision Pvt. Ltd., Dhanbad (JH)

A company under Faculty Entrepreneurship Policy of Indian Institute of Technology (ISM) Dhanbad
**High Speed Micro Machining Center**

**Key Features of Model V60**
- Vibration proof granite structure
- XYZ motorized liner stages
  1. Precision lead screw drive
  2. Accuracy: $\pm 2.5 \, \mu m$
  3. Resolution: 100 nm
  4. Travel: XYZ - 150 mm each
  5. Axial load capacity 150 N each axes
- High speed spindle
  1. Max spindle speed: 60,000 rpm
  2. High torque (0.24Nm)
  3. Pneumatic tool change
  4. Liquid cooled

**Applications**
- Micro/macro milling
- Micro drilling
- Microscope 220X magnification
- Micro turning

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Equivalent stress (Pa)

- 2.75e7
- 2.45e7
- 2.14e7
- 1.84e7
- 1.53e7
- 1.22e7
- 9.18e6
- 6.12e6
- 3.06e6
- 0.0010

Stress free design

Maximum distortion found in few nano-meter range

**Varnica Precision Pvt. Ltd., Dhanbad (JH)**
Advanced features
- Vibration resistant rigid table support
- Graphical user interface for HSM
- Ability to machine difficult-to-machine materials (High strength steels, Titanium and Nickel based super alloys)
- Quality surface finish (Ra ~ 10 nm)

Industrial applications
- Preparation of micro features and micro grooves
- Microfluidic application
- MEMS based devices
- Producing miniaturized components
- Suitable for biomedical, aerospace and electronics industries

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Micro pillars fabrication

Micro pillars

3D image of conical hole size 100 micron and depth 25 micron

Micro dimples over Titanium alloy

Micro dimples with pillar in center

Micro hole with 200 µm drill bit

3D Surface roughness, measured in Zygo Newview 9000

Contact

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