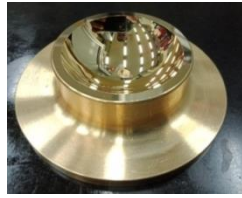
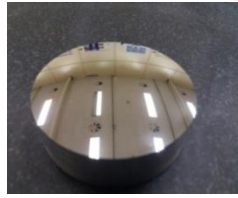


# Nanoshape T250

Ultra Precision Turning Machine



BRASS



AL ALLOY



HARDENED  
STEEL



IR LENS



Nanoshape T250 is a highly stiff & Precise Turning machine, developed by CMTI, equipped with state of the art technologies for producing non-ferrous, ferrous and IR material components with optical quality surface finish. The machine accuracies are in the order of nanometers.

## Salient Features

- High Stiff Hydrostatic Oil Bearing Slides
- Ultra Precise Aerostatic Spindle
- Natural Granite Bed with Vibration Isolation System and active leveling
- Independent Slide configuration
- Open Architecture Motion Controller with Adaptive Control Technology
- Integrated chiller for Thermally stable slides and spindle

A product of



Central Manufacturing  
Technology Institute

## Major Technical Specifications

| General                | Description   |
|------------------------|---|
| Type                   | Ultra-Precision three axes (X,Z,C) CNC Turning machine  |
| Machine configuration  | "T" axes configuration  |
| Machine Base           | Natural Black Granite base provided with the mounting arrangements for slides   |
| Vibration Isolation    | Isolated-dual frames for the Granite base and optimally located pneumatic isolation system with active levelling          |
| Control system         | Open Architecture Motion Controller with Adaptive Control Technology  |
| Computer specification | Intel core i3 3.5 GHz with 8 GB DDR3 RAM and 500 GB hard disk runs on windows - 7 Professional 64-BIT operating software. |
| Programming resolution | 0.1 nm  |
| Functional performance | Surface Roughness (Ra) < 2 nm, Form Accuracy (P-V) < 0.3 micron for 75mm diameter of convex sphere (ROC-250mm)            |

| Linear Hydrostatic slide | Description   |
|--------------------------|---|
| Type                     | Fully constrained oil hydrostatic, box way slide  |
| Travel                   | X and Z axis: 200mm   |
| Drive                    | Ironless Linear motor   |
| Maximum feed rate        | 1000mm/min  |
| Feedback type            | Linear glass scale  |
| Feedback resolution      | 32pico meters (0.032 nanometres)  |
| Straightness             | X axis: 0.3µm over full travel (200mm)<br>Z axis: 0.3µm over full travel (200mm)  |
| Stiffness                | 1000 N/µm   |
| Hydraulic oil Power pack | A separate hydraulic power pack with low flow rate, low pressure pulsation.   |
| Thermal Control Option   | Oil cooling provision with heat exchanger connected to water chiller which maintains temperature control to ± 0.1 °C accuracy |

| Work holding spindle   | Description  |
|------------------------|--|
| Type                   | Air bearing  |
| Drive                  | Integral Frameless, Brushless DC motor   |
| Maximum speed          | 50-10000 rpm Bidirectional   |
| Swing capacity         | 200mm  |
| Motion Accuracy        | Axial: ≤25 nanometres<br>Radial: ≤ 25 nanometres   |
| Working Load Capacity  | Axial: 110 Kg @ 7bar @ spindle nose<br>Radial: 95 Kg @ 7bar @ spindle nose   |
| Stiffness              | Axial: ≥ 225 N/µm @ 7bar<br>Radial: ≥ 100 N/µm @ 7bar  |
| Thermal Control Option | A chiller which maintains temperature control to ± 0.1 °C accuracy. The water is supplied to cooling channels located around the motor and bearing journals. |

| Facility Requirements  | Air  | Electrical                           | Machine Footprint        |
|--|--|--------------------------------------|--------------------------|
| For optimal cutting results, facility thermal stability should be held within ±0.5°C | 8 to 10 bar 25 scfm<br>Dry to 10°C pressure dew point and pre-filtered to 10µm | 3 Phase, 415 V AC;<br>50hz; (65 amp) | 2.3m L X 1.7m H x 1.1m W |

### For Details Contact

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