



# COLLEGE OF ENGINEERING

(An Autonomous Institute of Government of Maharashtra)

SHIVAJI NAGAR, PUNE - 411 005

[www.coep.org.in](http://www.coep.org.in)

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## INVITATION FOR QUOTATIONS

Director, COE, Pune invites quotations from the MANUFACTURERS/SUPPLIERS for Spectrometer, UDT Calibration and Digital Gaging System (Laser Halogage).

1. Detailed Specifications for the quotation are available on the website of the institute i.e. [www.coep.org.in](http://www.coep.org.in) under “Tenders” head. The specifications can also be referred in person from the Store-keeper of Department of Production Engineering & Industrial Management.
2. Quotations along with specifications, other terms and conditions of supply, should be submitted by courier/post or in person to the Store-keeper of the Department of Production Engineering & Industrial Management, on or before 1.00 p.m. on 20<sup>th</sup> July 2018. Quotations shall be opened on the same day at 3.30 p.m.
3. Each quotation must accompanied by a D.D. for Rs. 1000/- (Rs. Five Hundred only) non-refundable favouring: “**College of Engineering, Pune – A/C IRG**”, failing which quotation will be considered invalid.
4. Copy of Shop Act License, Sales Tax Registration, Income Tax Registration with PAN Card to be enclosed with tender. Without these documents tender will be considered invalid.
5. Director, COEP reserves the right to reject any / all quotation(s) without assigning any reason, thereof.

Director, COE, Pune.

## 1) Digital Gaging System (LASER HOLOGAGE)

The Laser Hologage is a high-end digital gaging system that employs diffracted laser beam interference to make highly accurate and repeatable measurements. It features ultra-fine diffraction gratings which are holographically recorded on the scale. The Laser Hologage is suitable for measuring ultra-high precision parts, especially those in semiconductor and related industries.

□ Highly accurate measurement due to an ultra-high resolution of 0.00001mm (0.01 $\mu$ m), which is close to the performance of laser interferometers.

- Excellent measuring stability — the design is also highly resistant to unfavorable environmental conditions such as air movement and atmospheric pressure changes.
- High-precision linear ball bearings are used in the guide for extremely smooth movement and exceptional durability.
- A display unit is provided.

### Technical Data

|                                      |   |
|--------------------------------------|---|
| Accuracy                             | 0.1 $\mu$ m   |
| Resolution                           | 0.01 $\mu$ m  |
| <b>Length standard</b>               | <b>Laser-hologram measurement sensor</b>  |
| Max. Response speed                  | 250mm/s   |
| Contact point                        | R5mm carbide  |
| Stem                                 | Ø15mm   |
| Bearing type                         | High precision linear ball bearing  |
| Measuring force                      | Refer to the list of specifications   |
| Output signal                        | 90° phase difference, two-phase sine wave   |
| Signal pitch                         | 0.25 $\mu$ m  |
| Cable Length                         | 80"/2m  |
| Configuration                        | Set of 1-axis gage head and display unit  |
| Range                                | 4in 10mm  |
| Force                                | 0.55N/0.45N/0.35N   |
| Stem Dia                             | 15mm  |
| Storage temperature (humidity) range | -10 to 50°C (RH 30 to 70%, no condensation)<br>The temperature and humidity range for storage after unpacking is the same as that for operation |
| Standard Accessories                 | Wrench for contact point, AC adapter, AC cable  |

**Optional Accessories**

Stem fixture for fixing to top surface

Stem fixture for fixing to bottom surface

Spindle lifting cable

Laser Hologage stand

## 2) UDT CALIBRATION

This equipment able to calibrate measuring accuracy of dial indicators, dial test indicators, and other electronic comparison gage heads with a stroke of up to 100mm (4").  
 $\pm(0.2+L/100)\mu\text{m}$  indication accuracy.

- Directly inspects an indicator with a stroke of up to 100mm (4"). The dial test indicator, bore gage and lever-type inductive head can be inspected with optional accessories.
- It should be semi automatic measurement and automatic measurement functions so very easy to accomplished adjustment of the measurement position.
- It should creates and prints out the simple inspection certificate.
- It should have provision to saves inspection result as CSV file for reusable inspection result by any kind of software.

### Technical Data

Measuring Range: 100mm/4"

Resolution: 0.02 $\mu\text{m}$

Accuracy:  $\pm(0.2+L/100)\mu\text{m}$  in vertical position  
(at 20°C)  $\pm(0.3+2L/100)\mu\text{m}$  in lateral position

L = measuring length (mm)

Drive method: Electric motor

Measuring Unit: Reflective-type glass linear encoder Thermal expansion coefficient:  $(8\pm 1)\times 10^{-6}/\text{K}$

Measurement method: Semi-automatic / Fully automatic\*

Dimensions: 184 x 225 x 532mm (W x D x H)

Operating temperature range: 20°C $\pm$ 3°C

Power supply: 100VAC to 240VAC  $\pm$ 10%, 50/60Hz

Mass: 20kg

\* Automatic measurement requires the indicator's connection cable. Additionally, some form of indicator, along with a connecting machine (the optional accessory for indicator as a Digimatic power-supply unit on EF counter), will be needed.

### Optional Accessories

Test indicator attachment set ( $\varnothing$ 6mm stem)

Test indicator attachment set (ø8mm stem)  
Test indicator holder (ø6mm stem)  
Test indicator holder (ø8mm stem)  
Accessory set for short-leg and digimatic bore gages  
Accessory for bore gages  
ø6mm dovetail grooved stem  
ø8mm dovetail grooved stem  
Stem bush ø6mm  
Stem bush ø8mm  
Stem bush ø8mm, short  
Stem bush ø10, short  
Bush ø9.5 Stem bush ø12mm  
Stem bush ø15mm  
Stem bush ø20mm  
Stem bush ø28mm  
Stem bush 3/8"  
Stem bush case  
Reflector  
Foot switch

### 3) Spectrometer

| Sr No | Specifications  | Details   |
|-------|---|---|
| 1.    | Spectrometer<br><br>Resolution<br>spectral range<br>Slit<br>A/D resolution<br>Signal-to-noise ratio:<br>Dark noise:<br>Dynamic range<br><br>Integration time:<br>Corrected linearity:<br><br>Detector range:<br>Pixels: | OFLV, 3648 element CCD array detectors,<br>500 grooves/mm grating, spectral range<br>350-1100nm, Slit 25um, includes collection<br>lens, ADC, USB cable.<br>2.94nm<br>500 grooves/mm<br>25um<br>16 bit<br>300:1 (at full signal)<br>50 RMS counts<br>1300:1 for a single acquisition, $8.5 \times 10^7$<br>(system)<br>3.8 ms – 10 seconds<br>>99%<br><br>350-1100 nm<br>3648 |
| 2.    | Source lifetime:<br>Operating temperature:<br>Stability of optical output:<br>Power Output  | 10,000 hours (typical)<br>5 °C – 35 °C<br>0.15% peak-to-peak<br>4.7 mW  |
| 3.    | Optical Fiber<br><br>Numerical aperture:<br><br>Length:   | Premium 400 um Reflection Probe,<br>UV/VIS, 2 m<br><br>0.22 ± 0.02 (equivalent to an acceptance<br>angle of 24.8° in air)<br><br>2 m  |
| 4.    | Probe holder  | Reflection Probe Holder for 6.35-mm diameter probes   |
| 5.    | Reflection Standard<br>Spectral range:<br>Diffusing material:<br>Reflectivity:  | 250-2000 nm<br>PTFE<br>>98% (250-1500 nm)>95% (250-2200 nm)   |
| 6.    |   | PN A338-MS-1 Specular Reflectance Standard, high reflectivity490  |

|    |          |   |
|----|----------|---|
| 7. | Lasers   | Set of diode laser on 3 to 5 mW 405, 532,635,650,780, & 840nm one each with SMA connectors & power supply for laser excited luminescence  |
| 8. | Software | Software for data acquisition and control for compatible with 32 bit Windows 8 operating system-Software should have option for schematics, use the settings, save and load it again. |
| 9. | Computer | Computer with I 5, windows 7/10, ram 4 GB, 500GB hard disk.   |