

**BHEL::HYDERABAD
M&S – P&C DEPARTMENT
TENDER REF.M&S/P&C/2018/110 DT.30/03/2019**

Name of the Work: Laser Calibration of Six CNC Machines in 70 shop

SCOPE OF WORK

Note: Offers of those Bidders who are quoting for all the items/machines only will be considered for evaluation. Partial offers will be liable for rejection.

1. Carrying out Laser calibration of Linear axes using Laser Interferometer & Rotary Axes using suitable standard equipment **at BHEL, Ramachandrapuram, Hyderabad works** for a total of 6 CNC machines of 70 shop.

The calibration shall include:

- a) Positioning Accuracy tests for Linear Axes and Rotary Axis
- b) Repeatability tests for Linear & Rotary Axis
- c) Reversal Error (Backlash) tests for Linear & Rotary Axis

The reference standard to be followed shall be VDI 3441 – Linear method.

2. Incorporating the compensation values for Pitch error & Backlash in the CNC systems.
3. **The Vendor should quote for the complete work (i.e., for all the axes of all the machines as mentioned below) as a LUMPSUM amount. Taxes as extra will be applicable. As the quoted prices will be on Lumpsum basis, no additional amount is payable by BHEL to the Vendor for any extended hours/days or for any other reasons. Lodging & Boarding, equipment handling and any other charges shall borne by vendor.**
4. Vendor should bring equipment/instruments on his own for carrying out the above work. The calibration equipment shall have traceability to National International standards and valid evidence shall be furnished by the vendor.

5. Details of axes of machines to be calibrated are as under:

SI No.	Machine Description	Asset No.	CNC System	Axis Name	Axis Length
1.	SBCNC LATHE	70-1216	Siemens 840D PL	X	500 mm
				Z	3000 mm
2.	CNC GANTRY & DRILLING MILLING MACHINE	70-1223	Siemens 840D PL	X	5000 mm
				Y	3300 mm
				Z	1500 mm
3.	PROTECK CNC LATHE	70-1215	Siemens 840D PL	X	400 mm
				Z	1200 mm
4.	TURN MILL LATHE	70-1290	Siemens 840D SL	X	700 mm
				Z	5600 mm
5.	MARIO CARNAGHI VTL	70-1199	Siemens 840D PL	X	2200 mm
				Z	1300 mm
6.	JUARISTI HORIZONTAL BORING MACHINE	70-1200	Siemens 840D PL	X	6100 mm
				Y	2700 mm
				Z	900 mm
				w	1000 mm
				B	Rotary Table axis

6. For each machine, two hard copies of color printout (Neatly binded) of the complete calibration report with Statistical tables etc. for each axis to be submitted after calibration and the soft copy (color) of the total report is to be given in a CD.