



Indian Institute of Technology Madras

I.I.T.P.O., MADRAS-600 036

DEPARTMENT OF CIVIL ENGINEERING

Form for Inviting Quotations

Ref.No.CIE/TRN/2017/Torque Sensor

Date: 27/09/2017

To

SPEED POST

Dear Sirs,

DUE DATE: 10/10/2017

1. Quotations are invited for the item/ s shown as per enclosed Specifications.
2. The Quotations duly sealed and superscribed on the envelope with the reference No. and due date, should be addressed to the undersigned so as to reach on or before the due date stipulated above.
3. The Quotations should be valid for (60) ^{sixty} ~~Ninety~~ days from the due date and the period of delivery required should also be clearly indicated.
4. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
5. Relevant literature pertaining to the items quoted with full specifications (and drawing, if any) should be sent along with the Quotations, wherever applicable. Samples if called for, should be submitted free of charges, and collected back at the supplier's expenses.
6. Local Firms : Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Firms Outside Madras : Quotations should be for F.O.R. Madras. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.
8. The rate of sales / General Taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for Sales / General Taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have concessional Sales Tax applicable to non Government Educational Institutions run with no profit motive for which a concession. Sales Tax Certificate will be issued at the time of final settlement of the bill.
9. Goods should be supplied carriage paid and insured.
10. Goods shall not be supplied without an official supply order.
11. Payment : Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later

Details as per enclosed list.

Yours faithfully


HEAD OF THE DEPARTMENT

Department of Civil Engineering
Indian Institute of Technology Madras
Chennai - 600 036.

Note: (i) Quotation should be sent by SPEED POST only or to be delivered directly concerned
(ii) Firms are requested to submit the specifications of their product along with supporting technical Documentation/brochure instead of reproducing the specifications sent by us.

Technical Specifications for Torque Sensor

General

It is required to procure a torque sensor to measure the torque developed dynamically in a drive line. This driveline consists of hydraulic motor and mixing paddle. The sensor should also have the capability to measure the speed of the mixing paddle. The detailed specifications are as given below.

Specifications

1. The sensor must be an inline rotary, capable of transferring data in non-contact fashion and floating type.
2. The average operational torque range of the sensor must be from 0-1000 Nm.
3. The overload rating of the sensor must be above 200% on full scale value of sensor.
4. The accuracy of the sensor must be in the range of $\pm 0.25\%$ of full scale value of sensor.
5. The output of the sensor must be read as torque values directly into a computer without any calibration on site, i.e., precalibrated in factory and ready to give results directly.
6. The sampling rate of the sensor must be less than 100 milliseconds.
7. Nonlinearity, hysteresis, and repeatability of the sensor must be in the range of $\pm 0.1\%$ of the full scale value of the sensor.
8. The sensor must have the capacity to work in the temperature range of 0-60°C along with temperature compensation up to 40°C.
9. The sensor must be supplied with two couplings; both should be double flex type to meet the angular and radial misalignments due to mixing process.
10. The sensor must be supplied with suitable amplifier/signal conditioning set and with proper cabling.
11. The output values from sensor must be amenable for data transfer through USB/wireless method. The sensor's output data must be viewed and recorded dynamically in the computer.
12. The display values of torque, speed, and power must be in the types of dial, and digital. The sensor should be provided with appropriate software for the same. The output from the software must be compatible with Matlab, Microsoft excel and Labview. Also provision should exist for the user to create their interface.

Commissioning

The entire torque sensor assembly must be commissioned at IITM on the proposed application by the qualified service engineer from the supplier end.

Guarantee

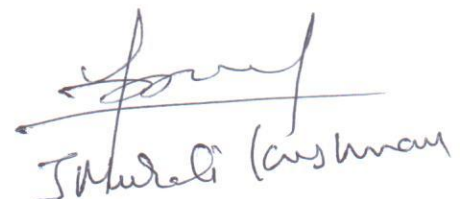
Minimum one year of guarantee should be provided for this item.

Operation & Maintenance Manuals

The vendor should supply one hard copy and one soft copy of O&M manuals along with the equipment. The manuals should have complete wiring circuit diagrams in addition to operational maintenance instructions and item details.

Other Requirements

The supplier must be an Original Equipment Manufacturer (OEM). In case of vendors, the dealership certificate of the OEM must be attached with the quotation. The vendor should submit the details of the government and private organization to whom they have supplied and installed similar items in the last three years along with the quote. The expected delivery period of the equipment along with all the information about taxes, packaging, delivery charges must be clearly indicated in the quotation.


J. Murali Krishnan