

Tender Notification for the Procurement of a
“Laser Doppler Velocimeter (2-Component) Transceiver system”
(Last Date for Submission: 21st April 2017)

Kindly send your best quotation for a “Laser Doppler Velocimeter (2-Component) Transceiver system” with the technical specifications given below on C.I.P. Bangalore basis. Your quotation should clearly indicate the terms of delivery, delivery schedule, and payment terms. The tenderer should submit Technical and Financial Bid separately in sealed envelopes superscribing the envelope as ‘Technical Bid’ and ‘Financial Bid’. Both these envelopes should again be put in a single envelope superscribed ‘TENDER FOR: “Laser Doppler Velocimeter (2-Component) Transceiver system”’ and should reach the Chairman, Department of Mechanical Engineering, Attn: Prof. Jaywant H Arakeri, Indian Institute of Science, Bengaluru 560 012 before 21st April 2017 by 4.30 pm.

A clear compliance statement giving brochures and other details as necessary to show compliance with technical specifications given below is required along with the technical bid.

Technical Specifications for the
“Laser Doppler Velocimeter (2-Component) Transceiver system”

Required specifications:

Technical specifications for fluid velocity measurement and simultaneous spray particle size and particle velocity measurement system

An instrument capable of time-resolved measurement of two components of fluid velocity point in a gas/liquid flow, and distributions of drop size and two components of velocity of particles, at a point in a particle/droplet laden two phase flow is requested. The following MINIMUM specifications are

to be satisfied. If appropriate accessories are required to achieve this specification, please include them in the tendered quotation.

- 1) Capable of measuring 2 components of velocities in transparent fluids (eg. air, water) and measuring particles size distributions and 2 components of particle velocities in particle/droplet laden two phase flows.
- 2) Should operate on the principle of light scattering interferometry.
- 3) Must be capable of operating in both forward scatter and back scatter modes for velocity measurement. Must be capable of operating in forward scatter for particle size and particle velocity measurement.
- 4) Transmitter laser source type must be solid state laser of minimum power of 500mW.
- 5) Should be able to measure drops in the range 1 μm to 2000 μm .
- 6) Should be able to measure two components of velocity independently.
- 7) Velocity measurement range -400 m/s to 1200 m/s. Must be capable of measuring velocity near zero velocity through frequency shifting.
- 8) Working distance from the transmitter to measurement volume must be in the range of 250 mm to 1000 mm. Accessories for other working distances may be included in the quotation separately.
- 9) Required rails and mounts for the system shall be supplied.
- 10) Equipment should be modular. Equipment should operate as 2-velocity system and 1-velocity system separately if needed. Additional needed accessories may be included in the quotation separately.
- 11) Should work for sprays of different liquids (water, fuels, etc.).
- 12) Suitable computer system for data acquisition and processing.
- 13) Software must be included and must be capable of outputting processed data in terms of size and velocity histograms. Software capable of outputting the raw data: time of arrival the particle, velocity component and the size of the droplet. Reprocessing should be possible.
- 14) Software must provide options for deduced data such as time average velocity, turbulence statistics, Reynolds stress components, diameter-velocity correlation, and size-binned statistics of velocity components, etc.
- 15) Data rate should be 100KHz or higher
- 16) Should be hardware and software upgradable to 3-component measurement of fluid and particle velocities and size distributions.
- 17) One year of comprehensive warranty and support including updates for all software.
- 18) List of previous installations in major Indian Academic/Research Institutions with testimonials to show established expertise in the area with supporting technical publications in the area.
- 19) Proof of adequate Indian technical infrastructure and service support in India for maintenance of above system.

Optionals:

- 1) Three years of additional warranty and support for all components of the system.
- 2) Traverse system

All communications in this regard should be addressed to:

The Chairman
Department of Mechanical Engineering
Attn: Prof. Jaywant H Arakeri
Indian Institute of Science
Bangalore 560 012
India

E-mail communications should be sent to:

office@mecheng.iisc.ernet.in and jaywant@mecheng.iisc.ernet.in with a copy to
jaywant.arakeri@gmail.com
