

Ref No : PUR/GT/IMP/VELC-ADITYA/22/2016-17.

September 26, 2016.

M/s.

Dear Sir/s,

The Director, Indian Institute of Astrophysics, Bangalore, invites Sealed Tenders (both price bid & technical bid) for the Import of “Supply and Installation of Vibration Insensitive Interferometer with Accessories for alignment and testing of Visible Emission Line Coronagraph (VELC) payload” as per the specifications attached. The terms and conditions may be noted from IIA Website and if you are in a position to quote for the supply in accordance with the requirements, please submit your quotation. The Tender documents and other details are available on IIA web site www.iiap.res.in/tenders.htm

The Tender bids must be in foreign currency only. Your completed Tender bids (both Price bid & technical bid) must reach our office on or before 26/10/2016 by 15 00 hrs. The bids must be in a separate Sealed envelopes duly superscribed with the name of the supply, the Due Date and all the envelopes kept in a bid envelopes mentioning Quotation for the “Supply and Installation of Vibration Insensitive Interferometer with Accessories for alignment and testing of Visible Emission Line Coronagraph (VELC) payload” must reach this Office within the Due Date and time. The Technical bids will be opened in the presence of the bidders or their authorized representative of the Company by 15.30 hrs on 27/10/2016. The Price bids will be opened only those vendors qualify in Technical Evaluation. The Price bid opening date will be intimated later. Incomplete Bids are liable for rejection.

For any Technical clarification you may contact during Office hours Rajkumar N (Phone No.22541393) and for commercial clarifications can be had from Shri K.P.Vishnu Vardhan, Stores & Purchase Officer (Phone No.22541244).

Thanking you,

Yours faithfully,

K.P.Vishnu Vardhan
Stores & Purchase Officer

**GLOBAL TENDER DOCUMENT No : PUR/GT/IMP/VELC-ADITYA/22/2016-17.
DT : 26/09/2016.**

TENDER FORM

FROM:

TO

THE DIRECTOR
Indian Institute of Astrophysics,
Bangalore - 560 034.

Sir,

I/We hereby offer to supply the Items/Equipment indicated below at the price hereunder quoted and agree to hold this office open till . I/We shall be bound to supply the items/Equipment hereby offered upon the issue of the Purchase Order communicating to the acceptance thereof on or before the expiry of the last mentioned date. You are at liberty to accept any one or more of the items such Items/Equipment. I/We not withstanding that the offer in this tender has not been accepted in whole, shall be bound to supply such items and such portion or portions of one or more of the items as may be specified in the said Purchase order communicating the acceptance.

S No.	Description of the item(s)	Qty.	Unit	Rate	Dely.	Period
1.	Supply and Installation of Vibration Insensitive Interferometer with Accessories for alignment and testing of Visible Emission Line Coronagraph (VELC) payload” as per the specifications attached.	1	No.			

(Tender bids should be in Foreign currency only) (Two Bids system)

Place at which the Delivery is required : Indian Institute of Astrophysics, Bengaluru - 560 034.

Date by which the supplies are required : 10-12 weeks from the issue of Purchase order.

2 I/We have understood the items of the tender annexed to the invitation to the Tender and have thoroughly examined the specifications/drawing and / or pattern quoted or referred to herein and / are fully aware of the nature of the items/ Equipment required and my / our offer is to supply the items/ Equipment strictly in accordance with the requirements subject to the terms and conditions contained in the Purchase order communicating the acceptance of this tender either in whole or in part.

Date :

Signature and Seal of Supplier

Annexure - A

INSTRUCTIONS TO SUPPLIERS

1. Tenders should be sent in a sealed and superscribed envelopes with mention of Tender No. date and date of opening. Only one Tender should be sent in each envelope.
2. Late and Delayed tender will not considered at all.
3. Duties, Taxes where legally leviable and intended to be claimed should distinctly shown separately in the Tender.
4. a) Your quotation should be valid for 90-120 days from the date of opening of Tender.
b) Prices are required to be quoted according to the units indicated in the annexed tender form. When quotations are given in terms of units other than those specified in the Tender form, relationship between the two sets of units must be furnished.
5. a) All available Technical Literature(s), Catalogue(s) and other data in support of the specifications and details of the item(s) should be furnished along with the offer.
b) Approximate net and gross weight of the items offered shall be indicated in your offer. If dimensional details are available the same should indicated in your offer.
c) Air freight/sea freight charges up to Bangalore Airport may be sent along with the offer.

d) Specifications:

Items / Equipment offered should strictly conform to our specifications. Deviation, if any should be clearly indicated by the Supplier in their quotation. The supplier should also indicate the Make / type No. of the stores offered and provide catalogue(s), Technical literature(s) and sample(s), wherever necessary along with the quotations. Test certificates wherever necessary should be forwarded along with the supplies. Whenever options are called for in our specifications, the Supplier should address all such options. Wherever specifically mentioned by us, the Supplier could suggest changes to specifications with appropriate response for the same.

1. Corrections, if any, must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amounts quoted in words and figures, amount quoted in words shall prevail.
2. The supplier should supply along with the tender, the Banking information for payment or any other purpose.
3. A complete set of instruction and operation manual should be supplied.
4. Final performance should be guaranteed.

TERMS AND CONDITONS OF CONTRACT

1. DEFINITIONS:

- a) The terms 'Purchaser' shall mean the Director, Indian Institute of Astrophysics, Bangalore - 560 034.
- b) The term 'Supplier' shall mean, the person, firm or company with whom or with which the order for the supply of Items / Equipment is placed.
- c) The terms 'Purchase Order' shall mean the communication signed on behalf of the Purchaser by an officer duly authorized intimating the acceptance on behalf the Purchaser on the terms and conditions mentioned or referred to in the said communications accepting the tender or offer of the supplier for supply of Items/Equipment.

2. PRICES:

The price may please be indicated on unit basis only.

Duty Exemption:

Please note that we may issue "Customs duty Exemption Certificate", if acceptable under the Govt. of India notification No.51/96 valid till 2016.

3. GUARANTEE AND REPLACEMENT:

The Supplier shall guarantee that the Items/Equipment supplied shall comply fully with the specifications laid down, for material workmanship and performance. The Guarantee should be for a period of TWO years minimum from the date of supply.

4. PACKING, FORWARDING AND INSURANCE:

The Contractor will be held responsible for the stores being sufficiently and properly packed for transport by air / Sea to withstand transit hazards ensure safe arrival at the destination. The packing and marking of packing shall be done by and at the expenses of the contractor. The Purchaser will not pay separately for transit insurance, all risks in transit being exclusively of the supplier and the Purchase shall pay only for such Items/Equipment as are actually received in good condition, in accordance with contract.

5. **TEST CERTIFICATE:**

Wherever required Test Certificate should be sent before dispatch of the items.

6. **ACCEPTANCE OF ITEMS / EQUIPMENT:**

a)It is expressly agreed that the acceptance of Items/Equipment, is subject to final approval by the Purchase, whose decision shall be final.

7. **DELIVERY PERIOD:**

Delivery is the essence of the contract. The supplier should adhere to delivery schedule as indicated in the Purchase order.

8. **EXTENSION OF DELIVERY TIME:**

As soon as it is apparent that Supplier dates cannot be adhered to, an application shall be sent by the Supplier to the Purchaser. If failure, on the part of the Supplier to deliver the Items/Equipment in proper time shall have arisen from any cause which the Purchaser may admit as reasonable ground for an extension of the time (and his decision shall be final he may allow such additional time as he considers it to be justified by the circumstances of the case). In case of Letter of Credit the banking charge for the LOC amendment will be on suppliers account.

9. **PAYMENT:**

Preference will be given to the supplier whose payment terms is on Site Draft.

10. **SECURITY FOR PAYMENT:**

Successful Supplier will have to furnish in the form of a Bank Guarantee or any other form as called for by the Purchase towards any payments before supply of items/equipment. In case of payment through Letter of Credit the Banking charges outside India and inside India will be on suppliers account.

11. IIA reserves the right to reject any or all the Tenders without assigning any reason.

Stores Purchase Officer

REQUEST FOR PROPOSALS FOR SUPPLY AND INSTALLATION OF VIBRATION INSENSITIVE INTERFEROMETER:

Name of the proposal:

Vibration insensitive interferometer for Visible Emission Line Coronagraph (VELC).

I. List of required items and quantities

Table 1: List of required items and quantities

S.No	Item	Quantity
1	4" vibration insensitive Interferometer	1
2	Data acquisition, analysis software & Hardware	1
3	4" to 6" Converting adapter (horizontal)	1
4	4" Transmission sphere (f/3.3)	1
5	4" Transmission sphere (f/7.1)	1
6	4" Transmission flat	1
7	4" Attenuator	1
8	6" Transmission flat	1
9	6" Attenuator	1
10	Reference sphere	1

II. Technical specifications of Interferometer & Accessories

This section gives the technical specifications Interferometer & Accessories

Table 2: Technical specifications of the interferometer

Specifications of Vibration Insensitive Interferometer		
S.No	Parameter	Nominal Value
1	Test beam size (collimated)	100mm
2	Interferometer configuration	Fizeau type
3	Source	Stabilized (intensity & frequency) laser source, Class III a (3mW to 5 mW)
4	Laser frequency stabilization	<0.0001 nm
5	Wavelength (λ)	632.8nm
6	Alignment type & FOV	Twin spot & $\geq \pm 1.5^\circ$ (reference & test spots)
7	Camera resolution	$\geq 1k \times 1k$
8	Camera Frame rate	$\geq 50Hz$
9	Digitization	≥ 10 bits
10	Minimum exposure time	$\leq 12\mu s$
11	Vibration insensitive mode	Essential

12	Vibration insensitive measurement technique	Carrier fringe
13	Polarization	Circular
14	Polarization adjustability	Optional
15	Artifact suppression feature	Essential
16	Motorized Tip and tilt of transmission flat or sphere	Optional
17	Optical zoom or magnification	1x to $\geq 3x$
18	Pupil focus range	± 2 metre
19	Mounting configuration	Horizontal or vertical
20	RMS wavefront measurement repeatability	<1nm (RMS)
21	Measurable reflectivity range	0.1% to 100%
Operational environment		
22	Operating temperature	15°C to 30°C
23	Relative humidity	5% to 95% (Non condensing)
24	Power	220V-240V, 50Hz

III. Specifications of Accessories:

Table 3: Technical specifications of accessories

Specifications of the accessories		
S.No	Accessory	Specifications
1	Data acquisition analysis software & Hardware	Described in Section IV
2	4" to 6" converting adapter	Horizontal mounting
3	4" Transmission sphere (F/3.3)	PTV of $\leq \lambda/20$
4	4" Transmission sphere (F/7.1)	PTV of $\leq \lambda/20$
5	4" Transmission flat	PTV of $\leq \lambda/20$
6	4" Attenuator	For reflectivity of 4% to 99%
7	6" Transmission flat	PTV of $\leq \lambda/20$
8	6" Attenuator	For reflectivity of 4% to 99%
9	Reference sphere	Diameter: 50mm, Clear aperture ≥ 45 mm, PTV of $\leq \lambda/20$, Reflectivity $\geq 90\%$, Radius of curvature: 50mm to 75mm (concave)

Important points:

1. Installation and demonstration of the interferometer and software shall be done at CREST campus of IIA in Hosakote, Bangalore.
2. A minimum warranty of 2 years should be provided on the instrument, accessories and software from the date of installation.

3. Updates, support and maintenance should be provided for the supplied software for 10 years.
4. Quotation should be provided for optional all inclusive extended warranty for 3 years after the initial warranty period.
5. Quotation should be provided for optional motorized Tip and tilt of TS or TF at 4” and 6” apertures on the interferometer and controllable from the remote and software.
6. Wired or wireless remote control shall be provided for remote operation of zoom, focus and taking measurements etc.
7. Interferometer should be compatible for usage in ISO-4/5 class clean room environment.
8. Interferometer should be capable of measuring surface figures of optics like spherical mirrors, flat mirrors, concave or convex lenses etc and wavefront errors of optical systems consisting of off-axis parabolas, folding mirrors, lenses.
9. Interferometer and software should be capable of in-situ measurements for optical alignment.
10. On-site or live video demonstration of interferometer's performance for testing optics in long cavity (≥ 2 metre) is essential for technical qualification.

IV. Features of the Data acquisition and analysis software and control hardware

Features of the software described in this section are minimum requirements. It does not restrict or limit the features of the supplied software to the same.

1. Acquisition and analysis of interferograms using PSI and carrier fringe algorithms.
2. Software should be able to perform, PTV, RMS, Zernike coefficients, Siedel aberrations etc calculations on measured wavefront.
3. Should support the masking of the data, removal of Zernike terms during analysis.
4. Should support the addition, subtraction, averaging of wavefronts from multiple measurements.
5. Software should be able to estimate the PSF, MTF, PSD etc
6. Software should be able to produce 2D & 3D plots of wavefronts, PSF, MTF etc.

7. Should be able to produce synthetic wavefronts and interferograms for user input data.
8. Wavefront data should be importable in various formats like *.CSV or *.ASCII etc for \ further user interested analysis in MATLAB, LabVIEW or Zemax etc.
9. Should support Zernike analysis of circular, annular, hexagonal, off-axis optics and systems.
10. Control hardware supplied should be compatible to the supplied instrument & software with dual monitor and should have USB, DVD ports for data transfer.

V. Deliverables:

1. Items listed in Table1 and meeting the specifications given in Sections II, III& IV.
2. Calibration certificates of the interferometer and accessories.
3. Software CDs and manuals should be provided.
4. Installation, demonstration and training at CREST campus of IIA.

Eligibility criteria of vendor:

Vendor must have the heritage in producing and supplying high precision vibration insensitive interferometers for various precision optical components and system level metrology applications in the industry and R&D organizations.

Contact information:

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Administrative: purchase@iiap.res.in

