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भारतीय ताराभौतिकी संस्थान
INDIAN INSTITUTE OF ASTROPHYSICS
कोरमंगला / KORAMANGALA
बेंगलूर / BANGALORE - 560 034.

Deadline extended to June 02, 2008, 15.00hrs.

No: PUR/IMP/SK/UVIT-IIA/15/08-09.

May 27, 2008

M/s .

Dear Sirs,

The Director, Indian Institute of Astrophysics, Bangalore invites Sealed **Tenders (both commercial bid and Technical bid)** for the Import of “ **Nitrogen Gas Generator of capacity 1000 Litres/hour @ 99.9995% purity with compressor etc.,** ” detailed in the Tender Form hereto annexed. The terms and conditions are also enclosed may be noted and if you are in a position to quote for the supply in accordance with the requirement, please submit your quotation in the attached Tender Form. The Tender documents are available on IIA web site www.iiap.res.in/tenders.htm

The Tender bids should be in foreign currency only. Your completed Tender bids (both Commercial Bid and Technical bid) must reach this office in sealed separate envelopes duly superscribed with the name of the supply and due date on or before 15.00 Hrs. latest by **02.06.2008**. The Technical bids will be opened in presence of the bidders or authorized representatives at **15.30 Hrs. on 02.06.2008**. Incomplete Technical Bids are liable for rejection. Commercial/Price bids will be considered only for the qualified Technical Bidders.

Thanking you,

Yours faithfully,

Encl.: as above.

Administrative Officer
For Director



PUBLIC TENDER DOCUMENT NO: PUR/IMP/SK/UVIT-IIA/15/08-09.
DT: 27.04.2008

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 of such Items/Equipment. I/We notwithstanding 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.

Sl.No.	Description of the item(s)	Qty.	Unit	Rate	Dely. Period
1.	Nitrogen gas generator of capacity 1000 Liters/hour @ 99.9995% purity with Compressor, storage tank and gas Analyser as per the details attached Annexure -I	1	No		

(Both Commercial and Technical bids must be submitted separately in a separate sealed envelopes)

(Tender bids should be in Foreign currency only)



Place at which the Delivery is required : Indian Institute of Astrophysics
Bangalore-560034

Date by which the supplies are required : 4 weeks from the date of 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 - I

TECHNICAL SPECIFICATIONS FOR NITROGEN GAS GENERATOR

PLACE: DETAILS OF REQUIREMENT FOR THE TEST AND CALIBRATION FACILITY OF ULTRA VIOLET IMAGING TELESCOPE(UVIT) PAYLOAD ON ASTROSAT AT THE M.G.K.MENON LABORATORY FOR SPACE SCIENCES AND TECHNOLOGY (CREST) CAMPUS OF THE INDIAN INSTITUTE OF ASTROPHYSICS.

USE: THE PRODUCED ULTRA HIGH PURITY(UHP) NITROGEN (99.9995%) WILL BE USED FOR PURGING THE PAYLOAD(UVIT) COMPONENTS, VACUUM TANK, CONTAMINATION STUDIES, PURGING THE STORAGE CONTAINERS, ETC.,

BACKGROUND: THE UVIT BEING PLANNED ON ONBOARD ASTROSAT, WHICH HAS VERY STRINGENT CLEANLINESS REQUIREMENT. IN ADDITION TO THE RIGID REQUIREMENTS OF PARTICLE CONTAMINATION, THE PAYLOAD(UVIT) ALSO DEMANDS STRICT CONTROL OF CARBON CONTAMINATION. IT HAS BEEN REPORTED IN STUDIES CONDUCTED ELSEWHERE THAT EVEN A MONO MOLECULAR LAYER OF CARBON REDUCES THE REFLECTIVITY OF THE OPTICAL SURFACES SUBSTANTIALLY. THUS THE DESIGN AND CONSTRUCTION OF ALL THE SUB SYSTEMS AND TEST FACILITIES FOR UVIT REQUIRES A VERY DETAILED CONTAMINATION CONTROL PLAN.

TECHNICAL REQUIREMENT:

EQUIPMENT : NITROGEN GAS GENERATOR

FLOW RATE	: 1000 LIT/HR OF NORMALISED(NTP) UHP NITROGEN GAS
PURITY	: 99.9995% UHP
OXYGEN CONTENT	: <5 PPM
TOTAL HYDROCARBON	: <0.1PPM
CO CONCENTRATION	: < 1 PPM
CO ₂ CONCENTRATION	: < 1 PPM
H ₂ O CONCENTRATION	: < 2 PPM
PRESSURE DEW POINT	: -70 DEGREE CENTIGRADE
PRODUCTION METHOD	: PRESSURE SWING ABSORPTION WITH CMS BED
HYDROCARBON ELIMINATION	: INBUILT CATALYTIC CONVERTER
DELIVERY PRESSURE AT OUTLET	: ATLEAST 5 BAR
FILTER	: FILTER TO ELIMINATE 0.01 MICRON PARTICLES OR LARGER
COMPRESSOR	: OIL FREE COMPRESSOR
POWER SUPPLY	: 230 VAC SINGLE PHASE,50Hz
OPERATING TEMPERATURE	: 10 TO 40 DEGREE CENTIGRADE

THE NITROGEN GENERATOR SHOULD BE A SELF CONTAINED UNIT FULLY INTGRATED WITH BUILT IN OIL FREE AIR COMPRESSOR , BUFFER RESERVOIR(ATLEAST FOR 15 MINUTES BACK UP), MOISTURE SEPERATOR,FILTERS,PRESSURE SWITCHES,PRESSURE GAUGES,ELECTRONIC TIMER AND SAFETY VALVES.

INSTALLATION & COMMISSIONING REQUIREMENT:

INSTALLATION AND COMMISSIONING SHALL BE CARRIED OUT BY VENDOR. PIPING HAS TO BE DONE BY VENDOR FROM THE OUTLET OF THE NITROGEN GENERATOR UNIT TO M.G.K.MENON LAB GAS LINE INLET POINT (APPROXIMATELY 3 TO 5 METERS)

GAS PIPES & FITTINGS	: STAINLESS STEEL ELECTROPOLISHED TUBES & FITTINGS.
WARRANTY	: VENDOR HAS TO SPECIFY THE WARRANTY DETAILS.

OPTIONAL ACCESSORIES:

1. GAS ANALYSER:

THE SYSTEM SHOULD INCLUDE A GAS ANALYSER TO PROVE THE QUALITY OF THE GAS PRODUCED (UHP-99.9995%) AT THE OUTLET PIPE OF THE GENERATOR.

IN PARTICULAR IT SHOULD MEASURE TOTAL HYDRO CARBON (THC) CONTENT AT LEVELS < 0.1 PPM

GAS ANALYSER INSTRUMENT HAS TO HAVE A VALID CALIBRATION CERTIFICATE FROM A REPUTED LABORATORY/TEST CENTRE.

2. A STORAGE VESSEL WITH THE FOLLOWING SPECIFICATIONS(150 LITRES CAPACITY).

MATERIAL	: MATERIAL HAS TO MEET THE CLEANLINEES REQUIREMENT OF UHP(99.9995%) NITROGEN.
STORAGE CAPACITY	: >= 150 LITRES
MAX WORKING PRESSURE	: 12 BAR
WORKING TEMPERATURE RANGE	: -10 TO 120 DEGREE CENTIGRADE
CERTIFICATE	: NECESSARY CERTIFICATE OF COMPLIANCE

ACCESSORIES : COMPLETE ACCESSORIES & FITTINGS FOR THE TANK SHOULD BE PROVIDED BY VENDOR.

3. A STORAGE VESSEL WITH THE FOLLOWING SPECIFICATIONS.(500 LITRES CAPACITY).

MATERIAL :MATERIAL HAS TO MEET THE CLEANLINEES REQUIREMENT OF UHP(99.9995%) NITROGEN.

STORAGE CAPACITY : >= 500 LITRES

MAX WORKING PRESSURE : 12 BAR

WORKING TEMPERATURE RANGE : -10 TO 120 DEGREE CENTIGRADE

CERTIFICATE : NECESSARY CERTIFICATE OF COMPLIANCE

ACCESSORIES : COMPLETE ACCESSORIES & FITTINGS FOR THE TANK SHOULD BE PROVIDED BY VENDOR.

3. MAINTAINANCE KIT FOR 10000 HRS OF OPERATION. VENDOR HAS TO SPECIFY THE LIST OF ITEMS AVAILABLE IN THE KIT WITH SPECIFICATIONS.

THE BID SHALL BE IN TWO PARTS

A) **TECHNICAL:**

WITH TECHNICAL DETAILS/LITERATURE OF THE OFFERED PRODUCT, TABLE OF COMPLIANCE WITH SPECIFICATIONS GIVEN IN THE RFP, AND DELIVERY/INSTALLATION SCHEDULE

B) **COMMERCIAL:**

WITH PRICE, PAYMENT TERMS ETC.

THE COMMERCIAL BID SHALL GIVE THE PRICE OF EACH OPTIONAL ITEM SEPARATELY.

EACH OF THE ABOVE TWO PARTS SHALL BE PLACED IN A SEALED ENVELOPE, I.E. TECHNICAL IN ONE ENVELOPE AND COMMERCIAL IN ANOTHER ENVELOPE.



Annexure -II

INSTRUCTIONS TO SUPPLIERS

1. Tenders should be sent in 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 be 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 accordingly 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. Preference will be given to those tenders offering supplies from ready stocks and on the basis of delivery at Site.
6. 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 at the time of installation.
4. Final performance should be guaranteed at the site.



TERMS AND CONDITIONS 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 2011.

3. GUARANTEE AND REPLACEMENT:

- a) 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 one year 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 sea or air, to withstand transit hazards and 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 Purchaser 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 along with the relevant dispatch documents

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

a) The Items/Equipment shall be tendered by the supplier for inspection at such places as may be specified by the purchaser at the suppliers own risk, expenses and cost.

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

7. **DELIVERY PERIOD:**

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

8. **EXTENTION 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 charges 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 Purchaser towards any payments before supply of Items/Equipment. In case of payment through Letter of Credit the banking charges out side India and Inside India will be on suppliers account.